AGENDA

A REGULAR MEETING OF THE BOARD OF INVESTMENTS

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

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

9:00 A.M., WEDNESDAY, DECEMBER 12, 2018

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

I. CALL TO ORDER

II. PLEDGE OF ALLEGIANCE

III. APPROVAL OF MINUTES

A. Approval of the Minutes of the Special Meeting of November 8, 2018

IV. REPORT ON CLOSED SESSION ITEMS

V. PUBLIC COMMENT

VI. CHIEF EXECUTIVE OFFICER'S REPORT
(Memo dated December 3, 2018)

VII. CHIEF INVESTMENT OFFICER'S REPORT
(Memo dated December 3, 2018)

VIII. CONSENT ITEMS

A. Recommendation as submitted by Joseph Kelly, Chair, Portfolio Risk Committee: That the Board approve the proposed Minimum Qualifications and Scope of Work thereby authorizing staff to initiate the Request for Information process for a total Fund risk system search. (Memo dated November 30, 2018)

VIII. CONSENT ITEMS (Continued)

B. Recommendation as submitted by Herman Santos, Chair, Equity: Public/Private Committee: That the Board approve the 2019 Private Equity Objectives, Policies, and Procedures.
(Memo dated November 21, 2018)

C. Recommendation as submitted by Herman Santos, Chair, Equity: Public/Private Committee: That the Board approve the 2019-2020 Private Equity Structure Review. (Memo dated November 21, 2018)

D. Recommendation that the Board approve attendance of Board members at the 2019 Milken Institute MENA Summit on February 12 – 13, 2019 in Abu Dhabi and approve reimbursement of all travel costs incurred in accordance with LACERA's Education and Travel Policy.
(Placed on the agenda at the request of Mrs. Sanchez)
(Memo dated December 3, 2018)

IX. NON-CONSENT

A. Recommendation as submitted by Vache Mahseredjian, Principal Investment Officer and Adam Cheng, Senior Investment Analyst: That the Board hire BlackRock to manage a passive Treasury Inflation Protected Securities strategy within a separate account.
(Memo dated November 21, 2018)

B. Recommendation as submitted by Herman Santos, Chair, Equity: Public/Private Committee: That the Board approve the proposed investment guidelines for an in-house co-investment program.
(Public Memo dated November 29, 2018)
(Privileged/Confidential Version of Memo dated November 29, 2018)

C. Recommendation a submitted by Beulah S. Auten, Chief Financial Officer: That the Board:

1. Accept the June 30, 2018, Retirement Benefits Actuarial Valuation prepared by LACERA's consulting actuary, Milliman.

2. Adopt recommended employer contribution rates (all tiers) and employee contribution rates (plan tiers General Plan G and Safety Plan C).

IX. NON-CONSENT (Continued)

3. Direct the Chief Executive Officer to communicate the results of the Retirement Benefits Actuarial Valuation to the Board of Supervisors by May 15, 2019, with a recommendation to implement the employer and employee rates no later than September 30, 2019.

(Memo dated November 29, 2018)

D. Recommendation as submitted by Richard Bendall, Chief Audit Executive and Kathryn Ton, Senior Internal Auditor: That the Board (1) accept and file the report; and (2) direct the Investment Office to more closely oversee State Street Bank's foreign tax reclamation process and reporting going forward.
(Memo dated November 30, 2018)

E. Recommendation as submitted by Shawn Kehoe, Chair, Corporate Governance Committee: That the Board formally nominate Board member Gina Sanchez for the Council of Institutional Investors' 2019 board elections. (Memo dated November 20, 2018)

X. REPORT

A. Assembly Bill 2833 Report – Fiscal Year 2018
Jonathan Grabel, Chief Investment Officer
(Memo dated November 30, 2018)

B. Private Equity Portfolio Update
Christopher Wagner, Principal Investment Officer
Jose Fernandez, StepStone Group LP
(Memo dated December 3, 2018)

C. Hedge Fund Performance Report – Third Quarter
James Rice, Principal Investment Officer
Richard Quigley, Goldman Sachs Hedge Fund Strategies
(Memo dated November 28, 2018)

D. OPEB Master Trust Quarterly Performance Report
Jude Perez, Principal Investment Officer
(For Information Only) (Memo dated November 7, 2018)

X. REPORT (Continued)

E. LACERA Quarterly Performance Report
Meketa Report: Third Quarter Total Fund Performance Report
Jude Perez, Principal Investment Officer
(For Information Only) (Memo dated November 7, 2018)

F. Implementation Update on LACERA Pension Trust Strategic Asset Allocation
Jonathan Grabel, Chief Investment Officer
(For Information Only) (Memo dated November 30, 2018)

G. Code of Ethical Conduct
Steven P. Rice, Chief Counsel
(For Information Only) (Memo dated December 3, 2018)

H. Monthly Status Report on Board of Investments Legal Projects
Steven P. Rice, Chief Counsel
(For Information Only) (Memo dated December 3, 2018)

I. Update on FPPC Advice Letter re Trustee Sanchez
Steven P. Rice, Chief Counsel
(For Information Only) (Memo dated December 4, 2018)

J. Semi-Annual Interest Crediting for Reserves as of June 30, 2018 (Audited)
Beulah S. Auten, Chief Financial Officer
(For Information Only) (Memo dated December 3, 2018)

K. November 2018 Fiduciary Counsel Contact and Billing Report
Steven P. Rice, Chief Counsel
(Memo dated December 3, 2018) (Privileged and Confidential)
(Attorney-Client Communication/Attorney Work Product)

XI. ITEMS FOR STAFF REVIEW

XII. GOOD OF THE ORDER
(For information purposes only)

XIII. EXECUTIVE SESSION

A. Conference with Staff and Legal Counsel to Consider the Purchase or Sale of Particular, Specific Pension Fund Investments
(Pursuant to California Government Code Section 54956.81)

1. Other Manager: 1
2. USV 2019
3. VISTA EQUITY PARTNERS FUND VII, L.P.

XIV. ADJOURNMENT

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

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MINUTES OF THE REGULAR MEETING OF THE BOARD OF INVESTMENTS

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

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

9:00 A.M., THURSDAY, NOVEMBER 8, 2018

PRESENT: David Green, Chair

Shawn Kehoe, Vice Chair

Wayne Moore, Secretary

Keith Knox (Chief Deputy to Joseph Kelly)

David Muir

Ronald Okum

Herman B. Santos

Michael Schneider

ABSENT: Gina V. Sanchez

Joseph Kelly

STAFF ADVISORS AND PARTICIPANTS

Jonathan Grabel, Chief Investment Officer

Steven P. Rice, Chief Counsel

James Brekk, Interim Deputy Chief Executive Officer

Christine Roseland, Senior Staff Counsel

Jude Perez, Principal Investment Officer

Esmeralda V. del Bosque, Senior Investment Officer

STAFF ADVISORS AND PARTICIPANTS (Continued)

Scott Zdrazil, Senior Investment Officer

Mel Tsao, Investment Analyst

Quoc Nguyen, Senior Investment Analyst

Michael Herrera, Senior Staff Counsel

John McClelland, Principal Investment Officer

Trina Sanders, Senior Investment Officer

Meketa Investment Group
Stephen McCourt, Managing Principal
Leandro Festino, Managing Principal

I. CALL TO ORDER

The meeting was called to order by Chair Green at 9:14 a.m., in the Board Room of Gateway Plaza.

II. PLEDGE OF ALLEGIANCE

Mr. Muir led the Board Members and staff in reciting the Pledge of Allegiance.

III. APPROVAL OF MINUTES

A. Approval of the Minutes of the Regular Meeting of October 10, 2018

Mr. Santos made a motion, Mr. Muir seconded, to approve the minutes of the regular meeting of October 10, 2018. The motion passed with Mr. Schneider abstaining.

IV. REPORT ON CLOSED SESSION ITEM

No items were reported out.

V. PUBLIC COMMENT

There were no requests from the public to speak.

VI. INTERIM CHIEF EXECUTIVE OFFICER'S REPORT
(Memo dated October 29, 2018)

Mr. Brekk provided a brief discussion on the Interim Chief Executive Officer's Report.

VII. CHIEF INVESTMENT OFFICER'S REPORT
(Memo dated October 30, 2018)

Mr. Grabel provided a brief discussion on the Chief Investment Officer's Report.

VIII. CONSENT ITEMS

Mr. Santos made a motion, Mr. Kehoe seconded, to move agenda item VIII.A. to the next Board of Investments meeting. The motion passed unanimously.

A. Recommendation as submitted by Shawn R. Kehoe, Chair, Corporate Governance Committee: That the Board approve LACERA formally nominating Board member, Gina Sanchez, for the Council of Institutional Investor's 2019 board elections.
(Memo dated October 16, 2018)

VIII. CONSENT ITEMS (Continued)

Mr. Santos made a motion, Mr. Schneider seconded, to approve agenda items VIII. B and VIII. C. The motion passed unanimously.

B. Recommendation as submitted by Shawn R. Kehoe, Chair, Corporate Governance Committee: That the Board approve LACERA signing the Global Investor Statement to Governments on Climate Change. (Memo dated October 19, 2018)

C. Recommendation as submitted by Scott Zdrazil, Senior Investment Officer: That the Board approve LACERA's ballot for Principles for Responsible Investment 2019 board elections. (Memo dated October 16, 2018)

IX. NON-CONSENT ITEMS

A. Recommendation as submitted by Jude Perez, Principal Investment Officer: That the Board approve adoption of the revised Investment Policy Statement. (Memo dated October 26, 2018)

Messrs. Grabel, Perez and Zdrazil and Ms. del Bosque were present and answered questions from the Board.

Mr. Muir made a motion, Mr. Okum seconded, to adopt the revised Investment Policy Statement to revise Appendix Section B. Chief Investment Officer Delegated Authorities, to read: Authority to sign, or delegate authority to sign, all investment-related contracts and agreements necessary to implement Board-approved action. Thereafter, during the original term, authority to sign all amendments and modifications with respect to such contracts and agreements, and make

IX. NON-CONSENT ITEMS (Continued)

all decisions with respect to their day-to-day operation and implementation where the investment mandate remains substantially unchanged. Upon expiration of a contract or agreement, it may be extended or modified only with Board approval. The motion passed unanimously.

B. Recommendation as submitted by Jonathan Grabel, Chief Investment Officer: That the Board approve changes to the Standing Committees. (Memo dated October 29, 2018)

Mr. Grabel was present and answered questions from the Board.

Mr. Schneider made a motion, Mr. Santos seconded, to approve changes to the Standing Committees, which include:
1. Dissolve the Risk Committee.
2. Grant Board of Investments Standing Committees flexibility to meet whenever deemed necessary by its committee members, but at a minimum of twice per year.
3. The Board of Investments (BOI) will evaluate BOISCs once every two years, beginning at the BOI offsite meeting in 2019.The motion passed unanimously.

X. REPORTS

A. Investment Manager Scorecard
Jonathan Grabel, Chief Investment Officer
(Memo dated October 30, 2018)

Messrs. Perez, Zdrazil, Tsao and Nguyen provided a presentation and answered questions from the Board.

X. REPORTS (Continued)

B. Implementation Update on LACERA Pension Trust Strategic Asset Allocation
Jonathan Grabel, Chief Investment Officer
(For Information Only) (Memo dated October 30, 2018)

This Item was received and filed.

C. Council of Institutional Investors General Members Business Meeting Ballot
Scott Zdrazil, Senior Investment Officer
(For Information Only) (Memo dated October 19, 2018)

This Item was received and filed.

D. Comment Letter to Securities and Exchange Commission Roundtable on the Proxy Process
Scott Zdrazil, Senior Investment Officer
(For Information Only) (Memo dated October 30, 2018)

This Item was received and filed.

E. LACERA and Meketa Performance Book Delivery –
Total Fund and OPEB Reports: Third Quarter Performance Report
Meketa Report: Third Quarter Total Fund Performance Report
(For Information Only) (Memo dated October 30, 2018)

This Item was received and filed.

F. Update on FPPC Advice Letter re Trustee Sanchez
Steven P. Rice, Chief Counsel
(For Information Only) (Memo dated October 30, 2018)

Mr. Rice was present and answered questions from the Board.

G. Monthly Status Report on Board of Investments Legal Projects
Steven P. Rice, Chief Counsel
(For Information Only) (Memo dated November 1, 2018)

This Item was received and filed.

X. REPORTS (Continued)

H. October 2018 Fiduciary Counsel Contact and Billing Report
Steven P. Rice, Chief Counsel
(Memo dated November 1, 2018) (Privileged and Confidential)
(Attorney-Client Communication/Attorney Work Product)

This Item was received and filed.

XI. ITEMS FOR STAFF REVIEW

There was nothing to report.

XII. GOOD OF THE ORDER
(For information purposes only)

Mr. Santos and Mr. Kehoe shared their experience of attending the 2018 Pacific Pension Institute Executive Seminar and Pacific Pension Institute Asia Roundtable in Australia. In addition, Mr. Muir shared his experience attending the CII 2018 Fall Conference in Boston.

Mr. Green congratulated Mr. Grabel for being selected as one of the Power 100 Chief Investment Officers.

XIII. EXECUTIVE SESSION

A. Conference with Staff and Legal Counsel to Consider the Purchase or Sale of Particular, Specific Pension Fund Investments
(Pursuant to California Government Code Section 54956.81)

1. Other Managers/Assets

The Board met in Executive Session with counsel pursuant to California Government Code Section 54956.81, to consider a specific pension fund investment. There is nothing to report at this time.

XIII. EXECUTIVE SESSION (Continued)

B. Conference with Legal Counsel - Pending Litigation
(Pursuant to Paragraph (1) of Subdivision (d) of California Government Code Section 54956.9).

1. LACERA v. BHP Billiton Limited, et al, etc.
Victoria Registry, Federal Court of Australia,
Case No. VID1218/2018
(For Information Only)

The Board met in Executive Session with Counsel pursuant to Paragraph (1) of Subdivision (d) of California Government Code Section 54956.9, to receive an information only report on an existing litigation matter LACERA v. BHP Billiton Limited, et al, etc., pending in Federal Court in Australia. There is nothing to report at this time.

C. Pursuant to Government Code Section 54957 - Public Employee Performance Evaluation:

1. Performance Evaluation
Title: Chief Investment Officer

The Board met in Executive Session Pursuant to Government Code Section 54957, to discuss the performance evaluation of the Chief Investment Officer. There is nothing to report.

XIV. ADJOURNMENT

There being no further business to come before the Board, Mr. Kehoe adjourned the meeting at 12:20 p.m., in honor of Ventura County Sergeant Ron Helus who was shot and killed after responding to an active shooter at a bar in Thousand Oaks on November 7, 2018. Sergeant Helus served with the Ventura County Sheriff's Office for 29 years. He is survived by his wife and son.

Green Folder Information (Information distributed in each Board Members Green Folder at the beginning of the meeting)

1. Chief Investment Officer's Report Presentation Slides
2. SACRS 2019 Legislative Platform (Memo dated October 23, 2018)

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WAYNE MOORE, SECRETARY

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DAVID GREEN, CHAIR

LACERA

December 3, 2018

TO: Each Member
Board of Retirement
Board of Investments

FROM: Lou Lazatin
Chief Executive Officer

SUBJECT: **CHIEF EXECUTIVE OFFICER'S REPORT**

I am pleased to present the Chief Executive Officer's Report that highlights a few of the operational activities that have taken place during the past month, key business metrics to monitor how well we are meeting our performance objectives, and an educational calendar.

Our Journey Begins

I would like to begin my first CEO Report by sharing with the Board and staff members how honored, and pleased I am to have the opportunity to lead this organization. Joining a new organization is like beginning a journey with new companions. A journey down a new path of hope and excitement as we build upon the successes of yesterday to evolve the next generation of LACERA. I am thankful and appreciative of the warm welcome shared by everyone.

We took our first steps on this path by beginning a process of discovery. Over the last few weeks I have been in the process of holding individual meetings with Board members and completed one on one's with the LACERA management team. My goal was to begin learning what each believes makes LACERA successful, what challenges we face, what our hopes and fears are, and what each person's vision of the future looks like. I am appreciative of the honest assessments and helpful suggestions that everyone has shared with me.

I also had the opportunity to introduce myself to the LACERA staff members at the November Brown Bag. For those of you who are not familiar with this tradition; each month the CEO hosts staff members who wish to attend to a lunch and open dialogue session. As you can imagine, many staff members were curious to meet me and learn about my background and my management style. This provided a wonderful opportunity to begin the discussion about my vision for a LACERA based on servant leadership and the member experience.

Our common goal is to build on LACERA's strong values by fostering a culture that encourages open and honest communication, respect for innovative and forward thinking ideas at all levels, and teamwork focused on delivering the best member service experience possible to our members. Servant leadership, the philosophy that we are all here to serve each other and our members will be the bridge that allows us to work towards our common goals

Taking the next step on our path, I have returned all staff members appointed to an interim positon back to their original positons, effective December 1st. This step allows us to restore a sense of normality and security and will allow us to focus all of our efforts on creating a plan for the future of LACERA. I would like to take a moment to thank Robert Hill, James Brekk, Bernie Buenaflor, Vanessa Gonzalez, Roxana Castilllo, Mary Phillips, and others who stepped up to ensure LACERA continued to deliver on our promises to members.

Over the next few weeks we will begin discussions designed to focus on developing people, processes, and technology that will support our common goals. I will be hosting a one-day management offsite on December 17th . This will give the entire management team an opportunity to strategize on our next steps along this path. At the same time, I will be working with the Boards on their continuing efforts to improving the governance of the organization and developing new ways to work together to provide oversight and direction to the organization.

We have a lot of work to do as we begin the healing process and moving this organization forward. I am looking forward to the challenge and after having met Board members, the management team, and some of the staff members at LACERA I truly believe we are ready for this journey.

On a different note, we took an important step towards strengthening our risk management and compliance efforts on November 27th by bringing in Harvey Leidermen, our outside fiduciary counsel, to provide the entire Investment Division, staff members from the Legal Office, and myself with ethics and conflicts training. The session focused on LACERA's Code of Ethical Conduct and relevant legal standards governing perceived and actual ethical and conflict of interest issues that come up. The training will help staff members in their interactions with investment managers and other aspects of their duties, by providing advice on how to avoid issues and the importance of reporting and disclosure of potential, actual, or even the appearance of developing a conflict.

The training was interactive, allowing staff members to break up into groups to consider hypothetical situations and their reactions. Mr. Leiderman wrapped up the session by distilling relevant principles included in LACERA's policy and the law into the "Ten Commandments of Ethical Conduct." I have included the "Ten Commandments of Ethical Conduct" as an attachment to this report.

LL: jp
CEO report December 2018.doc
Attachments

Media Coverage of New CEO

The following are excerpts of the media coverage announcing the selection and appointment of our new CEO Lou Lazatin.

Financial Times

"The $57.1bn Los Angeles County Employees Retirement Association has appointed Lou Lazatin as chief executive. Ms Lazatin previously served as CEO of the Shriners Hospitals for Children of Southern California. She replaces acting CEO Robert Hill who will return to his previous role as assistant executive officer."

Movers and Shakers. (2018, December 4). *Financial Times*. Retrieved from https://www.ft.com/content/52108e93-42ba-31c4-9899-badcea3a1b49

Pensions&Investments

"Separately, **Lou Lazatin** was appointed LACERA's new CEO, replacing interim CEO **Robert R. Hill**. Mr. Hill came in following the retirement of **Gregg Rademacher** in October 2017. Ms. Lazatin had been CEO at Shriners Hospitals for Children of Southern California."

Jacobius, A. (2018, November 26). Los Angeles County Employees issues call for cash overlay managers. *Pensions&Investments*. Retrieved from https://www.pionline.com/article/20181126/ONLINE/181129912/los-angeles-county-employees-issues-call-for-cash-overlay-managers

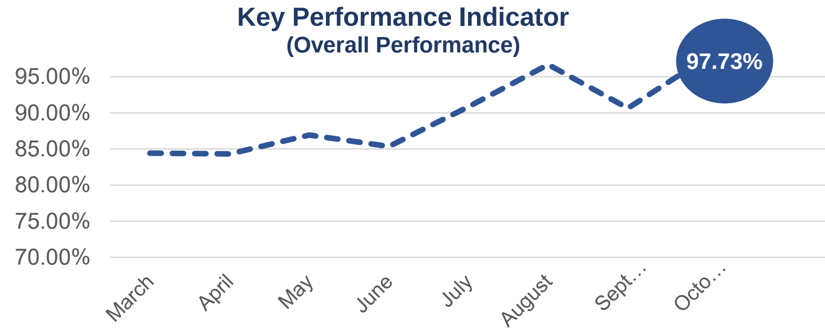
THE TEN COMMANDMENTS OF ETHICAL CONDCUT

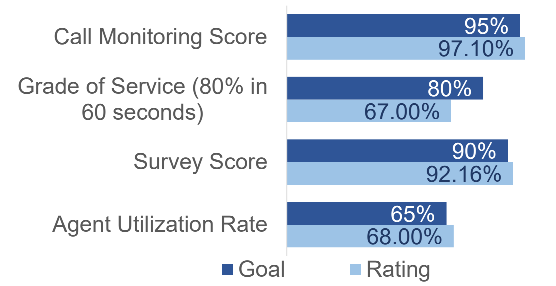
1. **Act lawfully.**
2. **Act with integrity: You owe a high fiduciary responsibility to LACERA's members.**
3. **You may not have a personal financial interest in anything you do at LACERA.**
4. **You may not gain personally from anything you do or learn at LACERA.**
5. **Keep your personal life separate from your professional life: It will preserve your objectivity and independence.**
6. **Avoid favoritism: Assure LACERA vendors a fair and level playing field.**
7. **Exercise objective judgement when carrying out your duties.**
8. **Maintain the confidentially of LACERA's confidential information.**
9. **Treat your colleagues with respect.**
10. **Disclose anything that even *appears* to be contrary to any of these commandments.**

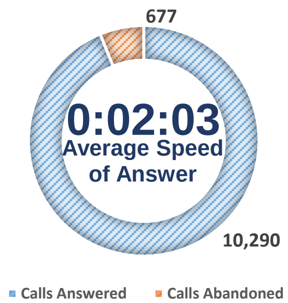
Striving for Excellence in Service

Outreach Attendance	Outreach Events	Outreach Satisfaction	Member Service Center	Member Services Calls
6,146	68	94.9%	100.0%	10,967
15,474 Year-to-Date	180 Year-to-Date	0.6% Change Since Last Mo.	1.8% Change Since Last Mo.	10,577 3 Mo. Avg.

Member Services



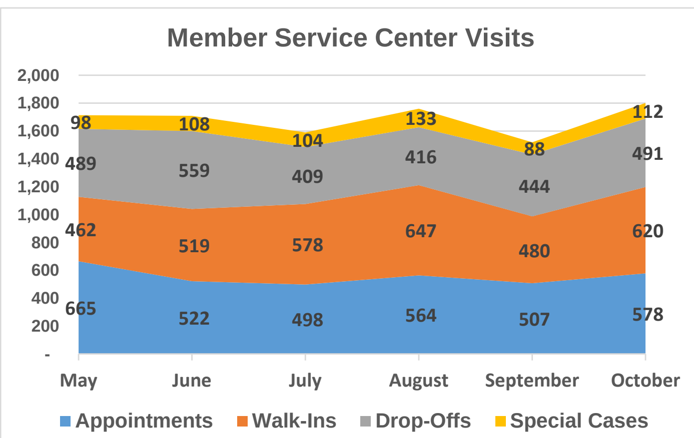


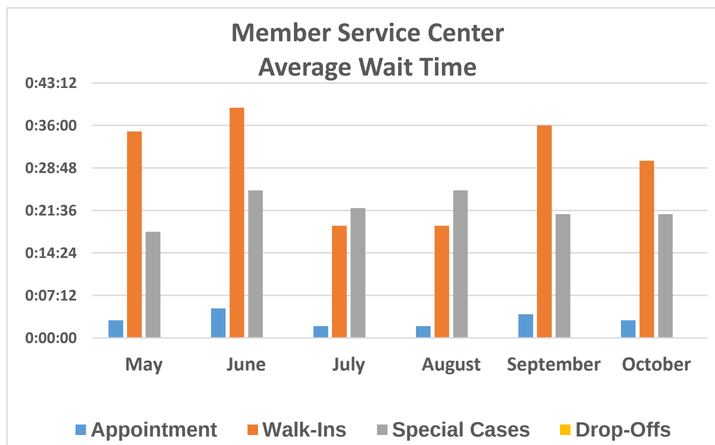


Top Calls

1. Workshop Info/Appointments Inquiry
2. Benefit Payments Gen. Inquiry/Payday Info
3. Retirement Counseling: Estimates

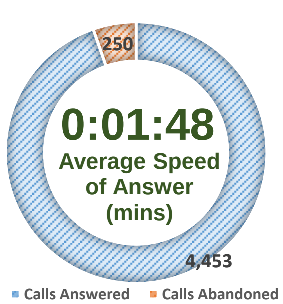
385 Emails
3:22 hours
Avg. Response Time (ART)





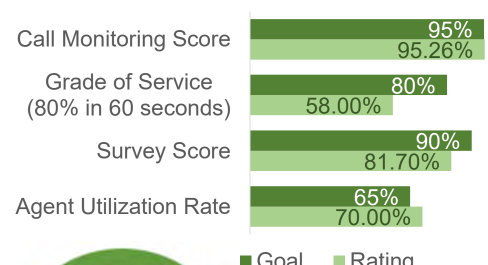
*Drop Off Wait Time: No Waiting

Retiree Healthcare



Top Calls

1. New Enrollment/Change/Cancel
2. Med. Benefits - General Inquiries (RHC)
3. Dental/Vision Benefits Gen. Inquiries



119 Emails
1 day
Avg. Response Time (ART)

Striving for Excellence in Service (Continued)

Disability

Applications

538 On Hand

48	Received
154	Year-to-Date
0	Re-opened
0	Year-to-Date
49	To Board - Initial
182	Year-to-Date
0	Closed
13	Year-to-Date
537	In Process
537	Year-to-Date

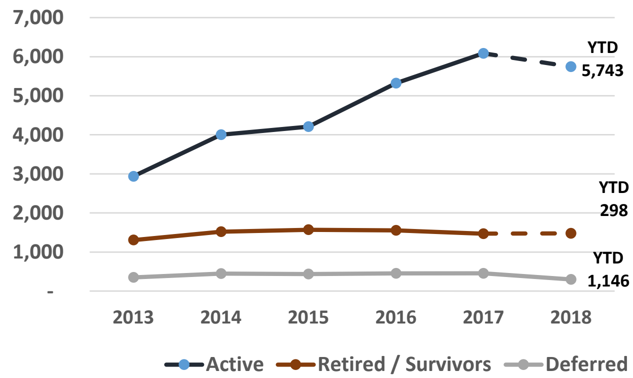
Appeals

100 On Hand

3	Received
9	Year-to-Date
1	Admin Closed/Rule 32
7	Year-to-Date
1	Referee Recommended
4	Year-to-Date
2	Revised/Reconsidered for Granting
4	Year-to-Date
99	In Process
99	Year-to-Date

My LACERA

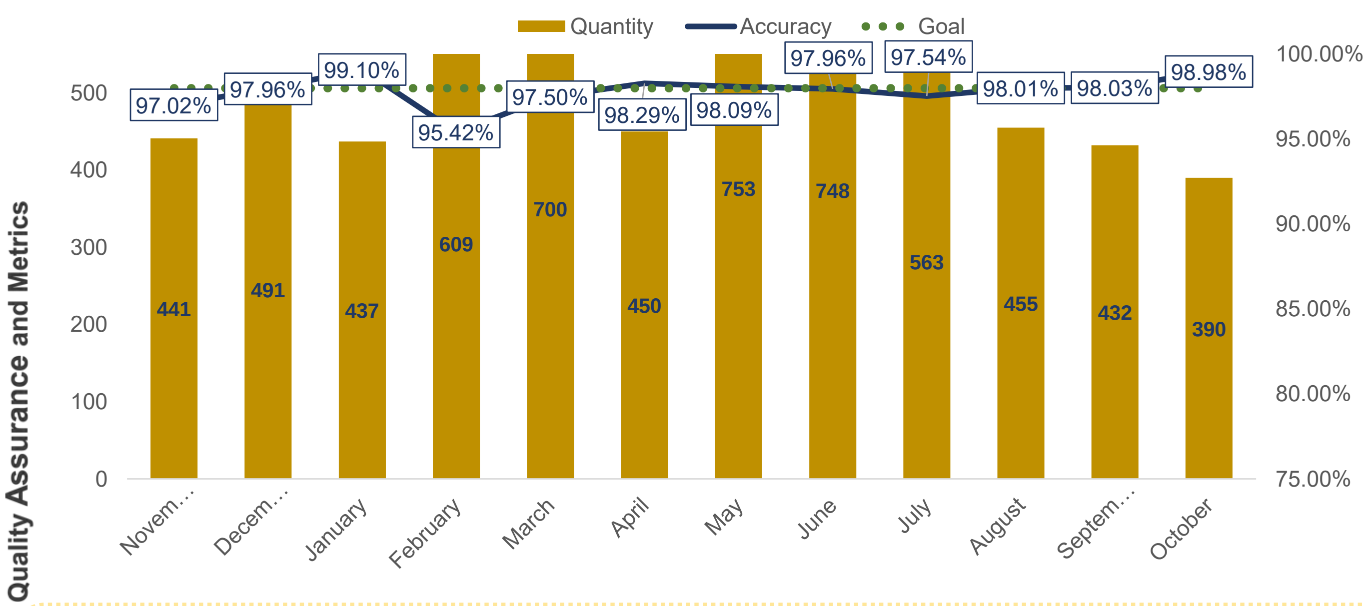
My LACERA Registrations



MORE COMING SOON!

Striving for Excellence in Quality

Audits of Retirement Elections, Payment Contracts, and Data Entry



October 2018

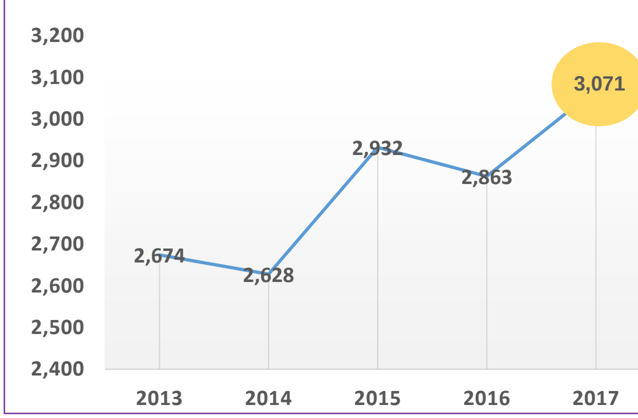
98.98%

Retirement Elections		Payment Contracts		Data Entry	
159	Samples	103	Samples	90	Samples
98.83%	Accuracy	98.89%	Accuracy	99.22%	Accuracy

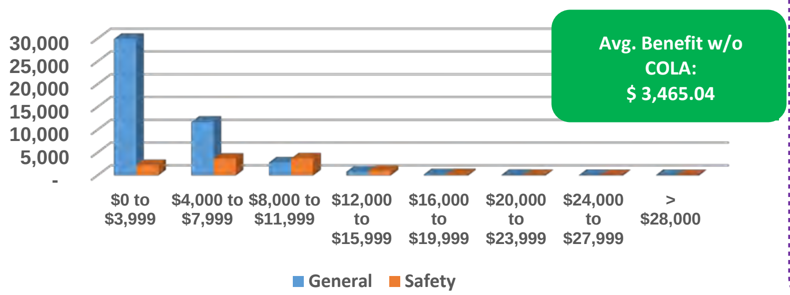
Member Snapshot

	Members as of 11/29/18				
	Plan	Active	Retired	Survivors	Total
General	Plan A	131	17,332	4,487	**21,950**
	Plan B	42	684	66	**792**
	Plan C	54	420	66	**540**
	Plan D	43,018	14,542	1,334	**58,894**
	Plan E	18,070	12,557	1,126	**31,753**
	Plan G	24,853	19	1	**24,873**
	Total General	**86,168**	**45,554**	**7,080**	**138,802**
Safety	Plan A	5	5,384	1,590	**6,979**
	Plan B	10,182	5,410	274	**15,866**
	Plan C	2,705	8	0	**2,713**
	Total Safety	**12,892**	**10,802**	**1,864**	**25,558**
TOTAL MEMBERS		**99,060**	**56,356**	**8,944**	**164,360**
% by Category		**60%**	**34%**	**5%**	**100%**

Retirements Per Year



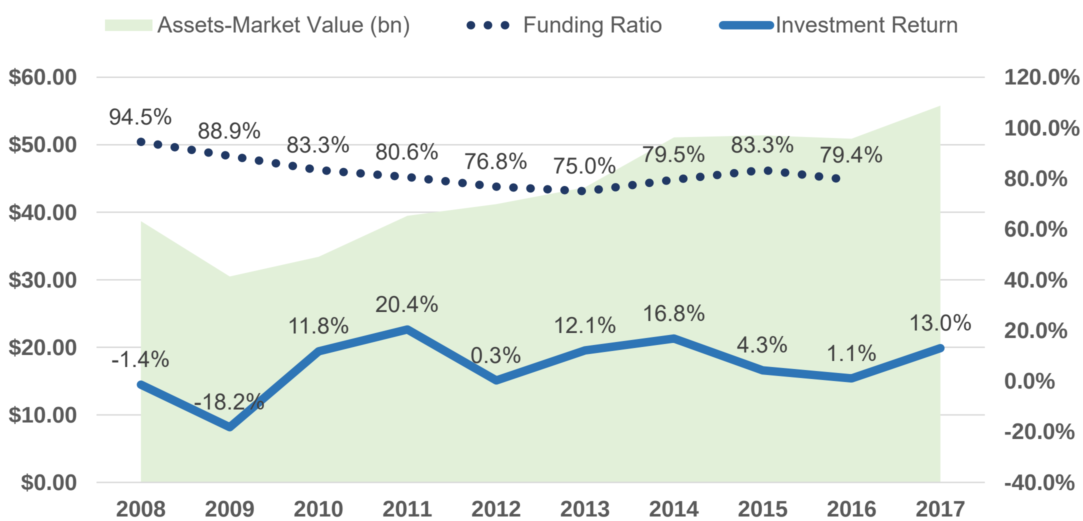
Average Monthly Benefit Allowance w/ COLA Distribution



Healthcare Program (YTD)	Employer	Member
Medical	$170.4m	$14.3m
Dental	$14.5m	$1.5m
Part B	$20.9m	xxxx
Total	**$205.8m**	**$15.8m**

Healthcare Enrollments (Monthly)	
Medical	50,124
Dental	51,422
Part B	33,727
LTC	669
Total	**135,942**

Key Financial Metrics



Funding Metrics (as of 6/30/17)

Employer NC	9.97%*
UAAL	9.73%*
Assumed Rate	7.25%*
Star Reserve	$614m*
Total Assets	$52.7b*

Contributions (as of 6/30/17)

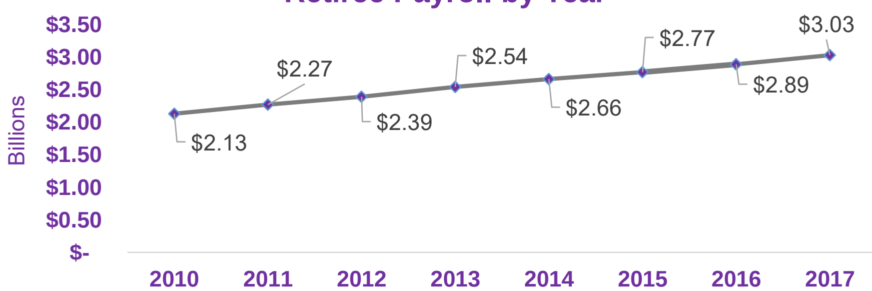
	Employer	Member
Annual Add	$1,331.4m	$526.6m
% of Payroll	19.7%*	6.65%*

*Effective July 1, 2017, as of 06/30/16 actuarial valuation

Retired Members Payroll

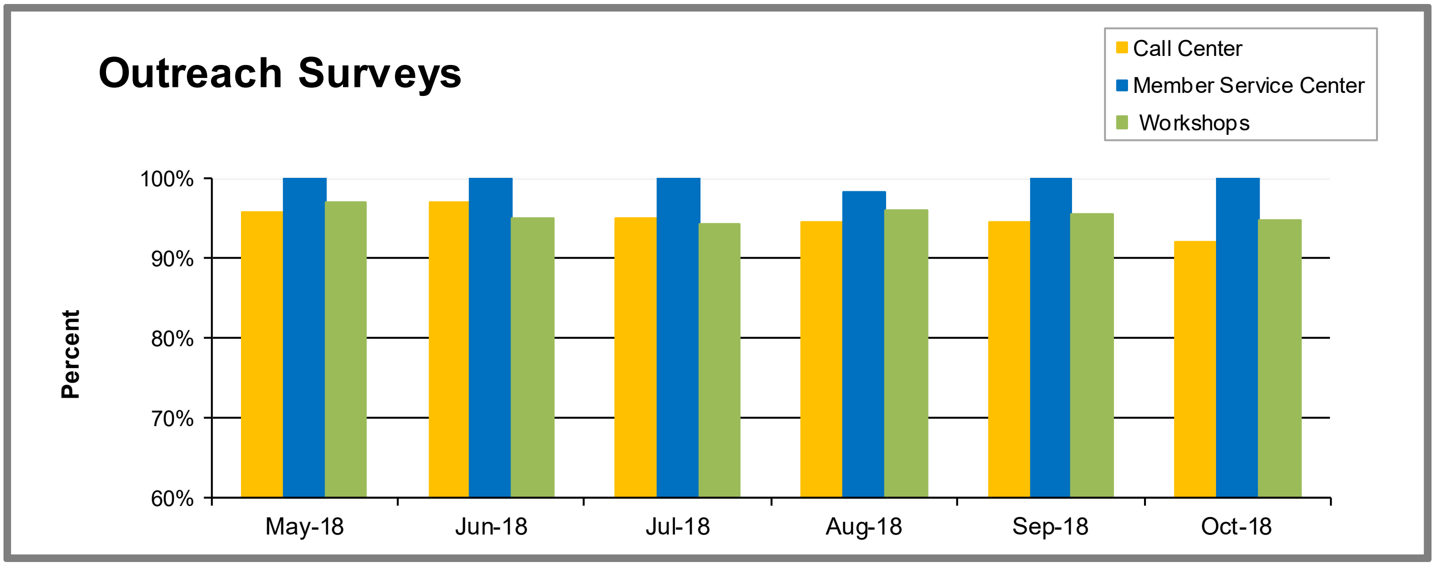
Monthly Payroll	$282.21m
Payroll YTD	1.1b
New Retired Payees Added	286
Seamless %	96.85%
New Seamless Payees Added	1,212
Seamless YTD	97.77%
By Check %	4.00%
By Direct Deposit %	96.00%

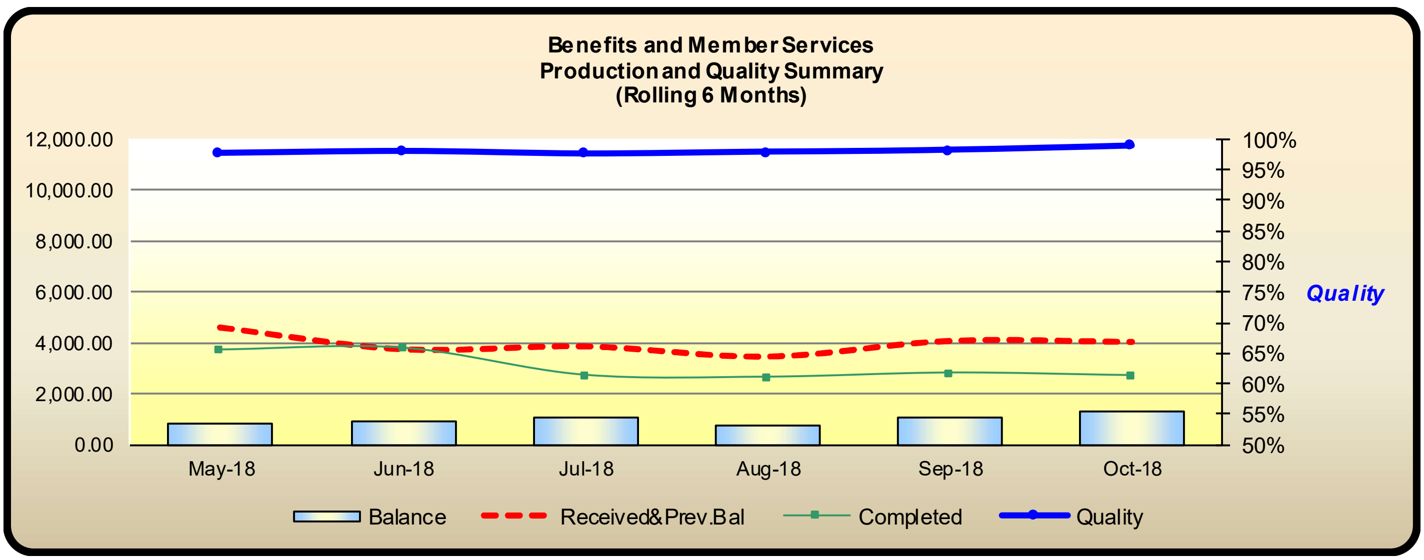
Retiree Payroll by Year



LACERA's KEY BUSINESS METRICS

OUTREACH EVENTS AND ATTENDANCE				
Type	# of WORKSHOPS		# of MEMBERS	
	Monthly	YTD	Monthly	YTD
Benefit Information	30	76	3,028	5,483
Mid Career	6	12	510	730
New Member	12	41	252	1,007
Pre-Retirement	9	24	263	607
General Information	8	15	168	752
Retiree Events	1	2	120	200
Member Service Center	Daily	Daily	1,801	6,669
TOTALS	**66**	**170**	**6,142**	**15,448**





Member Services Contact Center			RHC Call Center	Top Calls	
Overall Key Performance Indicator (KPI)		97.73%			
Category	Goal	Rating			Member Services
Call Center Monitoring Score	95%	97.10%	95.26%	1)	Workshop Info.\Appointments: Inquiry
Grade of Service (80% in 60 seconds)	80%	67%	58%	2)	Benefit Pmts-Gen Inquiry/Payday Info
Call Center Survey Score	90%	92.16%	81.70%	3)	Retirement Counseling Estimate
Agent Utilization Rate	65%	68%	70%		
Number of Calls		10,967	4,704		Retiree Health Care
Number of Calls Answered		10,290	4,453	1)	New Enrollment/Change/Cancel
Number of Calls Abandoned		677	250	2)	Medical Benefits-General Inquiries
Calls-Average Speed of Answer (hh:mm:ss)		00:02:03	00:01:48	3)	Dental/Vision Benefits-Gen Inquiries
Number of Emails		385	119		
Emails-Average Response Time (hh:mm:ss)		03:21:36	(Days) 1		Adjusted for weekends

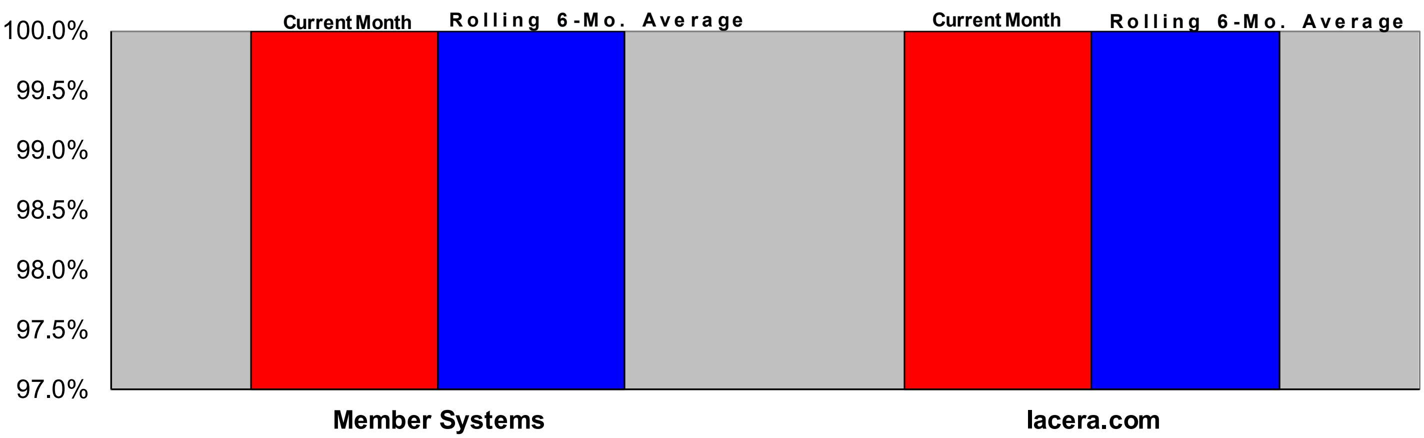
LACERA's KEY BUSINESS METRICS

Fiscal Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Assets-Market Value	$38.7	$30.5	$33.4	$39.5	$41.2	$43.7	$51.1	$51.4	$50.9	$55.8
Funding Ratio	94.5%	88.9%	83.3%	80.6%	76.8%	75.0%	79.5%	83.3%	79.4%	n/a
Investment Return	-1.4%	-18.2%	11.8%	20.4%	0.3%	12.1%	16.8%	4.3%	1.1%	13.0%

DISABILITY INVESTIGATIONS

APPLICATIONS	TOTAL	YTD		APPEALS	TOTAL	YTD
On Hand	538	xxxxxxx		On Hand	100	xxxxxxx
Received	48	154		Received	3	9
Re-opened	0	0		Administratively Closed/Rule 32	1	7
To Board – Initial	49	182		Referee Recommendation	1	4
Closed	0	13		Revised/Reconsidered for Granting	2	4
In Process	**537**	**537**		**In Process**	**99**	**99**

SYSTEMS AVAILABILITY - OCTOBER 2018



Active Members as of 11/29/18	
General-Plan A	131
General-Plan B	42
General-Plan C	54
General-Plan D	43,018
General-Plan E	18,070
General-Plan G	24,853
Total General	**86,168**
Safety-Plan A	5
Safety-Plan B	10,182
Safety-Plan C	2,705
Total Safety	**12,892**
TOTAL ACTIVE	**99,060**

Retired Members/Survivors as of 11/29/18	Retirees	Survivors	Total
General-Plan A	17,332	4,487	21,819
General-Plan B	684	66	750
General-Plan C	420	66	486
General-Plan D	14,542	1,334	15,876
General-Plan E	12,557	1,126	13,683
General-Plan G	19	1	20
Total General	**45,554**	**7,080**	**52,634**
Safety-Plan A	5,384	1,590	6,974
Safety-Plan B	5,410	274	5,684
Safety-Plan C	8	0	8
Total Safety	**10,802**	**1,864**	**12,666**
TOTAL RETIRED	**56,356**	**8,944**	**65,300**

Retired Members	
Monthly Payroll	282.21 Million
Payroll YTD	1.1 Billion
No. Monthly Added	286
Seamless %	96.85%
No. YTD Added	1,212
Seamless YTD %	97.77%
Direct Deposit %	96.00%

Health Care Program (YTD Totals)

	Employer Amount	Member Amount
Medical	170,429,806	14,276,179
Dental	14,517,556	1,469,076
Med Part B	20,889,867	xxxxxxxxxx
Total Amount	**$205,837,229**	**$15,745,255**

Health Care Program Enrollments (Monthly)

Medical	50,124
Dental	51,422
Med Part B	33,727
Long Term Care (LTC)	669

Funding Metrics as of 6/30/17	
Employer Normal Cost	9.97%*
UAAL	9.73%*
Assumed Rate	7.25%*
Star Reserve	$614 million
Total Assets	$52.7 billion

Member Contributions as of 6/30/17	
Annual Additions	$526.6 million
% of Payroll	6.65%*

Employer Contributions as of 6/30/17	
Annual Addition	$1,331.4 million
% of Payroll	19.70%*

*Effective July 1, 2017, as of 6/30/16 actuarial valuation.

Metrics YTD from July 1, 2018 through October 31, 2018

Date	Conference
January, 2019	
27-29	NCPERS (National Conference on Public Employee Retirement Systems) Legislative Conference Washington D.C.
February, 2019	
5-6	IMN (Information Management Network) Annual Beneficial Owners' Intl. Securities Finance & Collateral Mgmt. Conference Fort Lauderdale, FL
27-March 1	Pacific Pension Institute (PPI) North American Winter Roundtable Los Angeles, CA
March, 2019	
2-5	CALAPRS (California Association of Public Retirement Systems) General Assembly Meeting Monterey, CA
4-6	Council of Institutional Investors (CII) Spring Conference Washington D.C.
13-14	AHIP (America's Health Insurance Plans) National Health Policy Conference Washington D.C.
14-15	PREA (Pension Real Estate Association) Spring Conference Dallas, TX
27-29	CALAPRS (California Association of Public Retirement Systems) Advanced Principles of Pension Management for Trustees at UCLA Los Angeles, CA
28	NASP (National Association of Securities Professionals) Day of Education in Private Equity Los Angeles, CA
April, 2019	
8-10	IFEBP (International Foundation of Employment Benefit Plans) Investments Institute Phoenix, AZ
14-17	CRCEA (California Retired County Employees Association) Spring Conference San Diego, CA
28-May 1	World Healthcare Congress Washington D.C.
28-May 1	Milken Institute Global Conference Beverly Hills, CA
May, 2019	
6-8	IFEBP (International Foundation of Employment Benefit Plans) Health Care Mgmt. Conference Boston, MA

December 3, 2018

TO: Each Member
Board of Investments

FROM: Jon Grabel
Chief Investment Officer

SUBJECT: **CHIEF INVESTMENT OFFICER'S REPORT—OCTOBER 2018**

The following memorandum and attachments constitute the CIO report for October 2018. **Attachment 1** presents summary investment information including market values, actual and target allocations, and returns. **Attachment 2** is a summary investment report for the OPEB Master Trust. A list of all current applicants for public investment-related searches is included as **Attachment 3** and will be provided on a monthly basis to identify firms with whom LACERA is in a quiet period. **Attachment 4** includes a preview of the 2019 work plan themes, to be presented in January 2019, which crystallizes key strategies developed in recent off-site and regular Board meetings.

PERFORMANCE

The Total Fund finished the month with an investment balance of approximately $54.8 billion.[1] The month had a return of -3.9%. For fiscal year to date, the Total Fund is down -1.3% net of fees.

The OPEB Master Trust generated a negative return in October. For the month, the L.A. County, LACERA, and the Superior Court funds had a net loss of -4.6%. Fiscal year to date, the L.A. County, LACERA, and the Superior Court funds are down -2.6%.

CASH FLOWS, CASH BALANCES, AND FIDUCIARY NET POSITION[2]

As illustrated in Chart 1 below, included to provide detail on the sources of monthly transactional flows, the Plan's Fiduciary Net Position decreased by $2.3 billion during the month of October. Over the last twelve months, the Plan's net position is marginally positive.

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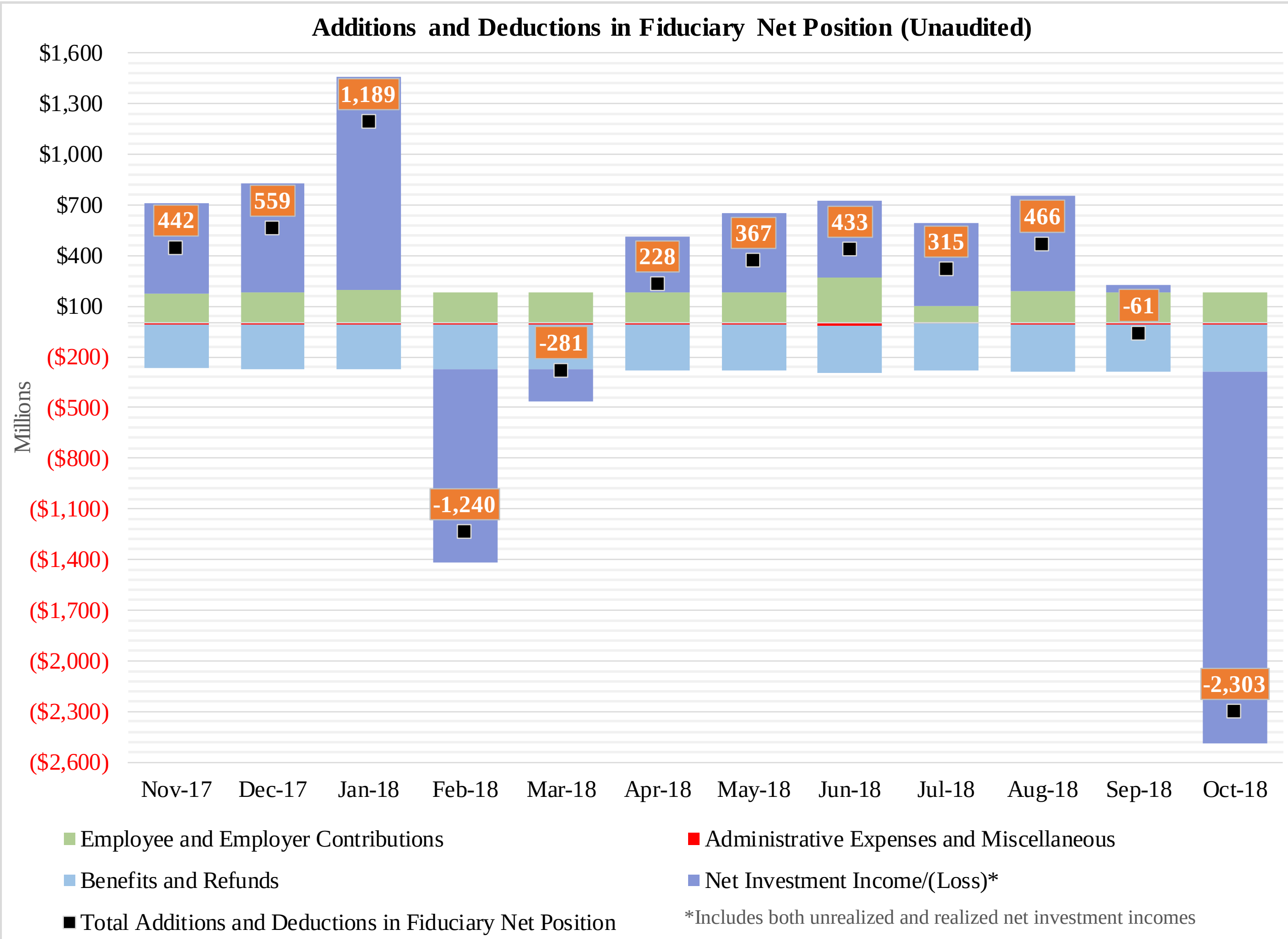
[1] For months that coincide with calendar quarter end, the Total Fund value is calculated using the custodian's quarter-end market values for all asset classes. For inter-quarter periods, the Total Fund value is calculated using the custodian's month-end market value for all asset classes except for private equity and real estate. Private equity and real estate market values are calculated by adjusting the preceding quarter-end market value for subsequent cash flows.

[2] LACERA's fiduciary net position is an unaudited snapshot of account balances as of the preceding month end and reflects assets available for future payments to retirees and their beneficiaries, including investment fund assets, as well as any liabilities owed as of the report date. The Plan's net position is inclusive of both investment and operational net assets, while the Total Fund's position includes investment net assets only.

Chart 1: Additions and Deductions in Fiduciary Net Position (Unaudited)



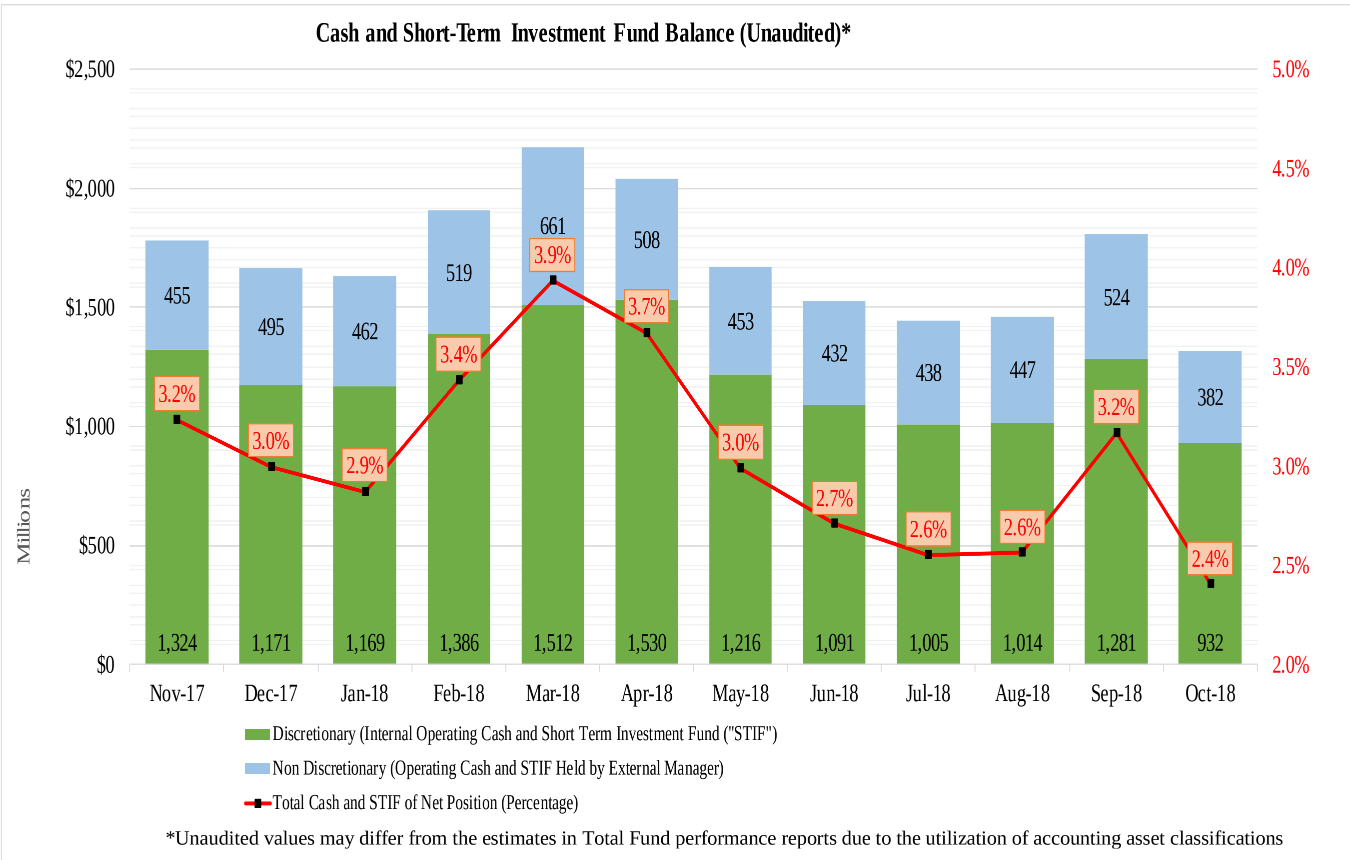
With respect to cash, LACERA finished the month of October with approximately $879 million in the Fund's primary operating account, as reported by the master custodian and identified as "cash" on various Total Fund reports. There was additional cash held in internal accounts dedicated to asset categories with frequent cash flows as well as cash held by select external managers. As illustrated in Chart 2, LACERA held a total of $932 million of internal operating cash and short-term investments across all of its operating accounts and LACERA's external investment managers held a further $382 million in cash and short-term investments.

In total, LACERA held approximately $1.3 billion in cash and short-term investment funds at the end of October, which can be categorized as follows:

- Non-discretionary (operating cash and Short Term Investment Fund ("STIF") balances held by external investment managers): $382 million
- Discretionary (internal operating cash and STIF balances accessible for the daily operating needs of the Plan): $932 million

The Fund’s total cash and short-term investment fund balance represented 2.4% of the Plan’s unaudited net position, while its discretionary cash and short-term investment fund balance represented 1.7% of the Plan’s unaudited net position.

<u>Chart 2: Cash and Short-Term Investment Fund Balance (Unaudited)</u>



The following table (Table 1) provides a summary of cash flows at the asset category level. For the month of October, the Total Fund had net investment outflows totaling $228.2 million.

<u>Table 1: Asset Category Cash Flows</u>

Asset Category and Activity	$ in Millions	Cash Impact
<u>Private Equity</u>		
Distributions	$81.5	Inflow
Capital calls	<u>-$40.7</u>	<u>Outflow</u>
Private Equity	*$40.7*	*Net Inflow*
<u>Public Equity: U.S.</u>		
Distributions	$0.0	n/m

Contributions	-$17.0	Outflow
U.S. Equity	*-$17.0*	*Net Outflow*
Public Equity: Non-U.S.		
Distributions	$0.0	n/m
Contributions	-$160.3	Outflow
Currency hedge	$8.0	Inflow
Non-U.S. Equity	*-$152.3*	*Net Outflow*
Fixed Income		
Distributions	$0.0	n/m
Contributions	-$25.0	Outflow
Fixed Income	*-$25.0*	*Net Outflow*
Commodities		
No activity	$0.0	n/m
Commodities	*$0.0*	*n/m*
Hedge Funds		
Distributions	$0.6	Inflow
Contributions	-$10.1	Outflow
Hedge Funds	*-$9.5*	*Net Outflow*
Real Estate		
Separate account net activity	-$63.9	Outflow
Commingled fund net activity	-$1.2	Outflow
Real Estate	*-$65.1*	*Net Outflow*

The Public Equity asset class realized an $8.0 million cash inflow from the Non-U.S. Equity currency-hedging program. LACERA's Non-U.S. Equity Investment Policy requires that the developed markets Non-U.S. Equity allocation, currently $8.8 billion, maintain a passive currency hedge overlay on 50% of its investment value. Note that when the currency overlay program sustains a loss due to a depreciating U.S. dollar, underlying Non-U.S. equity values should be positively impacted. Conversely, in an appreciating U.S. dollar environment, the currency-hedging program will have a gain, while underlying Non-U.S. equity values should be negatively impacted. Due to currency market movements in the previous three months, the currency hedges maturing in early October realized a gain and $8.0 million was transferred to cash from LACERA's passive currency overlay account. The hedged Non-U.S. Equity portfolio was down -7.7% net of fees, or approximately -$674.2 million during the month. A change in currency valuation is one of many variables that influences returns for a hedged Non-U.S. Equity portfolio. Cash flow from the currency-hedging program and the related equity portfolio can both deliver positive or negative results in a given period due to the staggered rolling of multiple futures contracts across three months.

ACTIVE SEARCHES

This section is intended to keep the Board of Investments apprised of active investment-related searches that include Requests for Proposal (RFP), Information (RFI), and Quote (RFQ). At this time, there are seven searches currently underway.

The first is a targeted search requesting information from select investment management firms that have an offering in the hedged equity hedge fund category. Responses have been received and are being reviewed.

The second is a targeted search requesting information from select investment management firms that have an offering in the macro or tactical trading hedge fund category. Responses have been received and are being reviewed.

The third is a targeted search for passive exposure to Treasury Inflation Protected Securities (TIPS) through a separate account. The targeted search was issued in October 2018 and responses have been received and are being reviewed. A recommendation is expected at the December BOI.

The fourth search is an RFP issued for a liquid real assets completion portfolio manager. Responses have been received and are being reviewed.

The fifth search is an RFP issued for specialized consultant services in each asset category of hedge funds, illiquid credit and real assets. The RFP was released in October 2018 and responses have been received and are being reviewed.

The sixth search is an RFP issued for a cash overlay manager. The RFP was released in November 2018 and responses are due December 2018.

The seventh search is an RFI issued for real estate administrative services. The RFP was released in November 2018 and responses have been received and are being reviewed.

UPDATES

This section provides a brief synopsis of recent developments, near-term work priorities and upcoming projects.

<u>Total Fund</u>

- Staff is working with State Street to re-onboard the custodial bank relationship. Internal processes are being re-evaluated with and between different LACERA divisions.
- A procurement procedure for investment-related searches is in development.

- A program to utilize local MBA interns within the Investment Division is in development and interviews are underway.

Growth

- Public Equity
  - Staff is in the process of moving assets from public market commingled strategies to separate account structures. The Domestic Equity portion of this transition was completed in June with the international portion of the transition scheduled to begin once the Public Equity structure review is completed.

- Private Equity
  - A personnel search has been launched for an Investment Officer to focus on venture capital fund investments.
  - Staff has reviewed the structure of the co-investment program and will provide the results to the Board in December.

Credit

- Staff is developing a Credit structure review to position closer to its strategic targets. The second part of the structure review will be completed in conjunction with a dedicated consultant for illiquid credit.

Real Assets and Inflation Hedges

- Real Estate
  - Staff is implementing the findings from the real estate structure review.
  - Staff is underwriting several potential commingled fund opportunities.

- Natural Resources, Infrastructure, TIPS and Commodities
  - Staff is developing this new allocation through several aforementioned RFPs and the inclusion of the existing commodities exposure.

Risk Reducing and Mitigating

- Fixed Income
  - Subject to Board approval, staff anticipates launching an Emerging Manager RFP.
  - Staff is preparing a structure review and anticipants recommending changes to strategy weights and manager allocations in December.
  - A personnel search is underway for an Investment Officer position.

- Hedge Funds
  - A direct portfolio is being built with individual manager recommendations.

Portfolio Analytics

- LACERA signed the Global Investor Statement to Governments regarding climate change following the November Board approval.
- An offer has been extended for a Senior Investment Analyst.
- Staff is working on enhancing the risk and return attribution reporting at the Total Fund level.

OPEB

- Transition to the updated asset allocation was completed.

COMPLIANCE MONITOR

Evaluating the Fund's investment portfolios against established policies and guidelines is an integral part of the ongoing portfolio management process and is commonly referred to as compliance. The Fund's portfolio is implemented in a nuanced way across multiple asset categories, so LACERA utilizes a multi-faceted approach to evaluate compliance. A summary of compliance activities across the Total Fund identifying advisory notifications where appropriate is provided on a calendar quarter basis. Compliance categories include allocation target weights, portfolio policies such as the use of leverage, and guidelines for various items such as types of permissible holdings. The next report is scheduled to be provided as part of the December CIO Report.

INVESTMENT MANAGER MEETINGS

The purpose of this section is to promote transparency and governance best practices through the timely listing of manager meeting requests that the staff and/or consultant(s) receive from either the Chief Executive Officer (CEO) or a member of the Board of Investments.

In the normal course of business, the CEO or a Board member might recommend that staff meet with a specific manager; there might even be a subsequent discussion regarding a specific manager. If a third communication about the manager takes place within a rolling one-year period, LACERA's Investment Policy Statement directs that the full Board be notified of the requests. This process is designed to preserve the integrity of the decision-making process. Such contact would be reported in this section.

There are no contacts to report this month.

NOVEMBER FORECAST

Re-pricing and volatility across global growth assets continued in November. Market volatility has been more pronounced in growth and commodity assets relative to credit and fixed income assets. During the month, tariffs, interest rate trajectory and pacing, and revisions to global growth projections have contributed to the heightened volatility. In late November, the Federal Reserve Chairman said that he considers the central bank's benchmark interest rate to be near a neutral level. This comment may help sooth uncertainty and calm sentiment that has contributed to the disquiet that has dominated activity across most asset categories. Trade concerns and related uncertainties remain a source of apprehension for market participants.

As of publication of this report, during the month of November, the S&P 500 stock index was up 1.8% while the Bloomberg Barclays Global Aggregate bond index was up by 0.5%. The Total Fund will likely have a positive month.

Attachments

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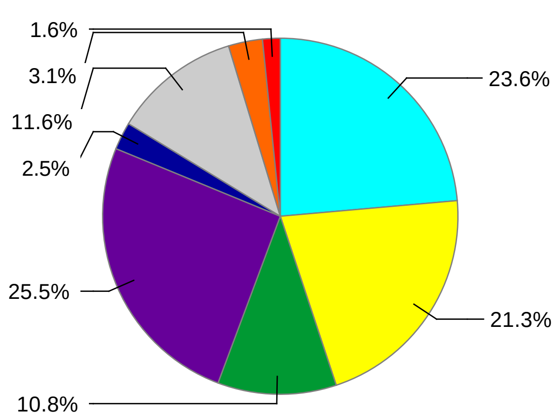
Attachment 1

LACERA'S ***ESTIMATED*** TOTAL FUND

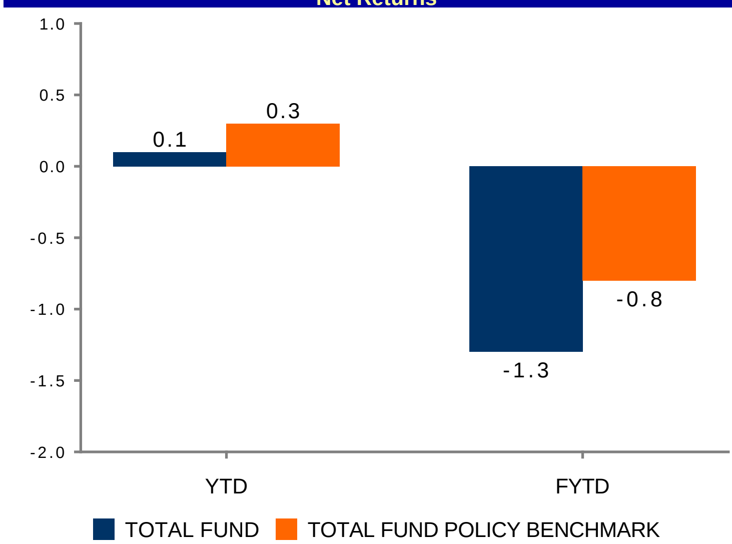
October 31, 2018

	Market Value (millions)	Actual % Total Fund	Target % Total Fund	TOTAL RETURNS (NET) YTD	FYTD	3 Year	5 Year	10 Year
U.S. EQUITY	**12,948.9**	**23.6**	**22.7**	**1.2**	**-1.7**	**10.6**	**10.4**	**13.1**
RUSSELL 3000 (DAILY)				2.4	-0.8	11.3	10.8	13.3
Non-U.S. EQUITY (Hedged)	**11,671.2**	**21.3**	**18.7**	**-9.0**	**-7.0**	**5.8**	**4.1**	**8.5**
CUSTOM MSCI ACWI IMI N 50%H				-9.2	-6.9	5.3	3.6	8.3
PRIVATE EQUITY [1]	**5,949.4**	**10.8**	**10.0**	**14.1**	**4.0**			
PRIVATE EQUITY TARGET [2]				12.2	4.9			
FIXED INCOME	**13,987.4**	**25.5**	**27.8**	**-1.2**	**-0.2**	**2.9**	**2.9**	**6.0**
FI CUSTOM INDEX				-2.2	-0.6	1.6	2.2	4.5
REAL ESTATE [1]	**6,363.2**	**11.6**	**11.0**	**7.2**	**2.9**			
REAL ESTATE TARGET				6.7	2.6			
COMMODITIES	**1,354.1**	**2.5**	**2.8**	**-3.3**	**-4.0**	**1.1**	**-6.1**	**-2.3**
Bloomberg Comm Index TR				-4.1	-4.1	-0.7	-7.3	-4.2
HEDGE FUNDS [3]	**1,690.3**	**3.1**	**5.0**	**3.0**	**0.4**	**3.8**	**3.7**	
HEDGE FUND CUSTOM INDEX [3]				5.6	2.3	5.8	5.5	
CASH	**878.6**	**1.6**	**2.0**	**1.7**	**0.8**	**1.2**	**0.9**	**1.2**
FTSE 6 M Treasury Bill Index				1.5	0.7	0.9	0.6	0.4
TOTAL FUND [1]	**54,843.1**	**100.0**	**100.0**	**0.1**	**-1.3**			
TOTAL FUND POLICY BENCHMARK				0.3	-0.8			
7.25% Annual Hurdle Rate				6.0	2.4			

Asset Allocation



Net Returns



[1] Returns for private equity and real estate are calculated on a quarterly basis and are not updated intra quarter. Therefore, 3-, 5- and 10-year returns are only calculated at quarter-end for private equity and real estate. In addition, the Total Fund's returns are based on the latest available quarterly returns for these two asset classes.

[2] Rolling ten-year return of the Russell 3000 plus 500 basis points (one-quarter lag).

[3] One-month lag. Performance included in the Total Fund beginning 10/31/11

These are preliminary returns

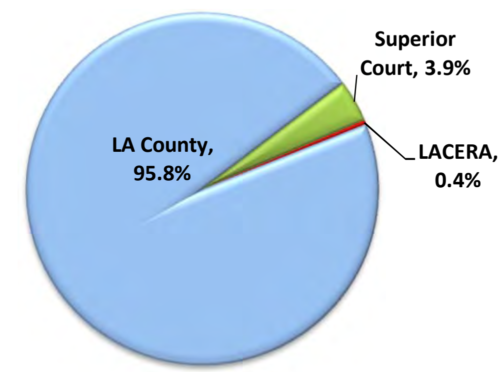
Periods greater than 1-year are annualized

OPEB MASTER TRUST

October 31, 2018

Fund Name		Inception Date	Market Value (millions)	Trust Ownership	Month	3 Month	FYTD	1 Year	3 Year	5 Year	Since Incept.
Los Angeles County:	Gross	Feb-2013	$919.9	95.8%	-4.56	-3.96	-2.52	1.25	7.56	5.81	5.08
	Net				-4.58	-3.99	-2.56	1.18	7.51	5.77	5.03
	Net All				-4.58	-4.00	-2.57	1.15	7.47	5.72	4.98
LACERA:	Gross	Feb-2013	$3.5	0.4%	-4.57	-3.97	-2.52	1.26	7.62	5.84	5.10
	Net				-4.59	-4.00	-2.56	1.19	7.57	5.80	5.06
	Net All				-4.61	-4.08	-2.67	0.92	6.86	5.36	4.67
Superior Court:	Gross	Jul-2016	$37.2	3.9%	-4.54	-3.93	-2.53	1.25	---	---	7.83
	Net				-4.55	-3.96	-2.57	1.18	---	---	7.78
	Net All				-4.56	-4.00	-2.62	1.07	---	---	7.05
TRUST OWNERSHIP TOTAL:			**$960.6**	**100.0%**							

Trust Ownership



Fund Name		Inception Date	Market Value (millions)	Trust Ownership	Month	3 Month	FYTD	1 Year	3 Year	5 Year	Since Incept.
OPEB Growth	Gross	Jul-2016	$462.9	48.2%	-7.80	-6.76	-4.16	-0.65	---	---	10.97
	Net				-7.81	-6.77	-4.18	-0.69	---	---	10.93
OPEB Credit	Gross	Jul-2018	$199.4	20.8%	-0.96	-0.63	0.26	---	---	---	0.26
	Net				-0.99	-0.73	0.13	---	---	---	0.13
OPEB Risk Reduction & Mitigation	Gross	Jul-2016	$103.7	10.8%	-0.57	-0.46	-0.29	0.98	---	---	1.05
	Net				-0.57	-0.46	-0.29	0.95	---	---	1.01
OPEB Inflation Hedges	Gross	Jul-2018	$194.4	20.2%	-2.13	-2.11	-2.37	---	---	---	-2.37
	Net				-2.14	-2.12	-2.40	---	---	---	-2.40
Uninvested Cash			$0.1	0.0%	---	---	---	---	---	---	---
TRUST OWNERSHIP TOTAL:			**$960.6**	**100.0%**							

Allocation		Inception Date	Market Value (millions)	Allocation %	Month	3 Month	FYTD	1 Year	3 Year	5 Year	Since Incept.
OPEB Global Equity:	Gross	Mar-2014	$462.9	48.2%	-7.80	-6.76	-4.16	-0.65	8.15	---	5.99
	Net				-7.81	-6.77	-4.17	-0.69	8.11	---	5.95
Benchmark: MSCI ACWI IMI Net					-7.82	-6.83	-4.25	-0.95	7.78	---	5.63
Excess Return (Net - Benchmark)					*0.01*	*0.06*	*0.07*	*0.26*	*0.33*	*---*	*0.33*
OPEB BTC High Yield Bonds:	Gross	Jul-2018	$59.9	6.2%	-1.65	-0.36	0.72	---	---	---	0.72
	Net				-1.67	-0.39	0.68	---	---	---	0.68
Benchmark: BC High Yield Index					-1.60	-0.32	0.77	---	---	---	0.77
Excess Return (Net - Benchmark)					*-0.07*	*-0.07*	*-0.08*	*---*	*---*	*---*	*-0.08*
OPEB BTC EM Debt LC:	Gross	Jul-2018	$38.6	4.0%	-2.10	-5.75	-3.99	---	---	---	-3.99
	Net				-2.11	-5.78	-4.02	---	---	---	-4.02
Benchmark: JPM GBI-EM Global Diversified Index					-1.96	-5.54	-3.75	---	---	---	-3.75
Excess Return (Net - Benchmark)					*-0.15*	*-0.24*	*-0.28*	*---*	*---*	*---*	*-0.28*
OPEB BTC Inv. Grade Bonds:	Gross	Jul-2018	$80.1	8.3%	-0.80	-0.76	-0.72	---	---	---	-0.72
	Net				-0.80	-0.76	-0.73	---	---	---	-0.73
Benchmark: BBG BARC US Aggregate Index					-0.79	-0.79	-0.77	---	---	---	-0.77
Excess Return (Net - Benchmark)					*-0.01*	*0.03*	*0.04*	*---*	*---*	*---*	*0.04*
OPEB BTC TIPS:	Gross	Jul-2018	$59.2	6.2%	-1.43	-1.73	-2.19	---	---	---	-2.19
	Net				-1.43	-1.73	-2.19	---	---	---	-2.19
Benchmark: BBG US TIPS Index					-1.43	-1.77	-2.24	---	---	---	-2.24
Excess Return (Net - Benchmark)					*0.00*	*0.04*	*0.05*	*---*	*---*	*---*	*0.05*
OPEB BTC REITs:	Gross	Jul-2018	$96.8	10.1%	-2.55	-2.36	-1.82	---	---	---	-1.82
	Net				-2.55	-2.37	-1.84	---	---	---	-1.84
Benchmark: DJ US Select Real Estate Sec Index					-2.55	-2.38	-1.85	---	---	---	-1.85
Excess Return (Net - Benchmark)					*0.00*	*0.01*	*0.01*	*---*	*---*	*---*	*0.01*
OPEB BTC Commodities:	Gross	Jul-2018	$38.5	4.0%	-2.15	-2.08	-4.11	---	---	---	-4.11
	Net				-2.16	-2.12	-4.17	---	---	---	-4.17
Benchmark: Bloomberg Commodity Index (Total Return)					-2.16	-2.05	-4.14	---	---	---	-4.14
Excess Return (Net - Benchmark)					*-0.01*	*-0.08*	*-0.03*	*---*	*---*	*---*	*-0.03*
OPEB BlackRock Bank Loans:	Gross	Jul-2018	$101.0	10.5%	-0.10	1.29	1.69	---	---	---	1.69
	Net				-0.15	1.12	1.46	---	---	---	1.46
Benchmark: S&P/LSTA Leveraged Loan Index					-0.03	1.06	1.81	---	---	---	1.81
Excess Return (Net - Benchmark)					*-0.12*	*0.06*	*-0.34*	*---*	*---*	*---*	*-0.34*
OPEB Enhanced Cash:	Gross	Feb-2013	$23.6	2.5%	0.21	0.58	1.19	2.23	1.44	1.03	0.93
	Net				0.20	0.59	1.19	2.20	1.40	0.97	0.87
Benchmark: FTSE 6 M T-Bill Index					0.19	0.54	0.71	1.71	0.94	0.59	0.53
Excess Return (Net - Benchmark)					*0.01*	*0.05*	*0.48*	*0.49*	*0.46*	*0.38*	*0.35*

Disclosure

PUBLIC INVESTMENT-RELATED SEARCHES APPLICANTS

This document identifies firms who have pro-actively submitted an application to LACERA in response to a publicly posted request. These publicly posted requests are commonly referred to as searches and may include minimum qualifications. When an external firm submits an application to a search, LACERA is in a quiet period with the applying firm while the search is active.

The following firms have responded to a targeted request for proposal regarding a passive exposure mandate to Treasury Inflation Protected Securities (TIPS) through a separate account:

BlackRock Capital Investment Corporation
Fidelity Institutional Asset Management
Northern Trust Investments, Inc.
State Street Global Advisors Trust Company

The following firms have responded to a request for proposal regarding specialized consultant services in hedge funds, illiquid credit and real assets:

Albourne America LLC
StepStone Group LP
Cliffwater LLC
Cambridge Associates
Aksia LLC
Hamilton Lane
Wilshire Private Markets
TorreyCove Capital Partners
Portfolio Advisors LLC
Pension Consulting Alliance
Meketa Investment Group

The following firms have responded to a request for proposal regarding a liquid real assets completion portfolio manager:

AQR Capital Management
Blackrock
Brookfield Asset Management
Cohen & Steers
DWS
Invesco
Pimco
Principal Global Investors

RARE Infrastructure
State Street Global Advisors
Wellington Management

The following firms have responded to a request for information regarding Real Estate Administrative Services:

SS&C Technologies Holdings, Inc./SS&C Globe Op
Citco Fund Services (USA), Inc.
State Street Bank and Trust Company

JG: cq

Attachment 4

Chief Investment Officer Report

Board of Investments

December 12, 2018

Jonathan Grabel – Chief Investment Officer

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

A Few Active Strategic Initiatives…

Several key strategic interests have been highlighted in recent off-site and regular Board meetings*

- ✓ **Investment implementation model:**

  How to position LACERA to have the resources, capacity, and bench to determine how certain investments are managed: ***internally, externally, or via hybrid solutions***

- ✓ **Ownership rights:**

  How to retain and responsibly exercise rights attached to LACERA's assets, such as proxy voting rights, to safeguard and advance LACERA's economic interests

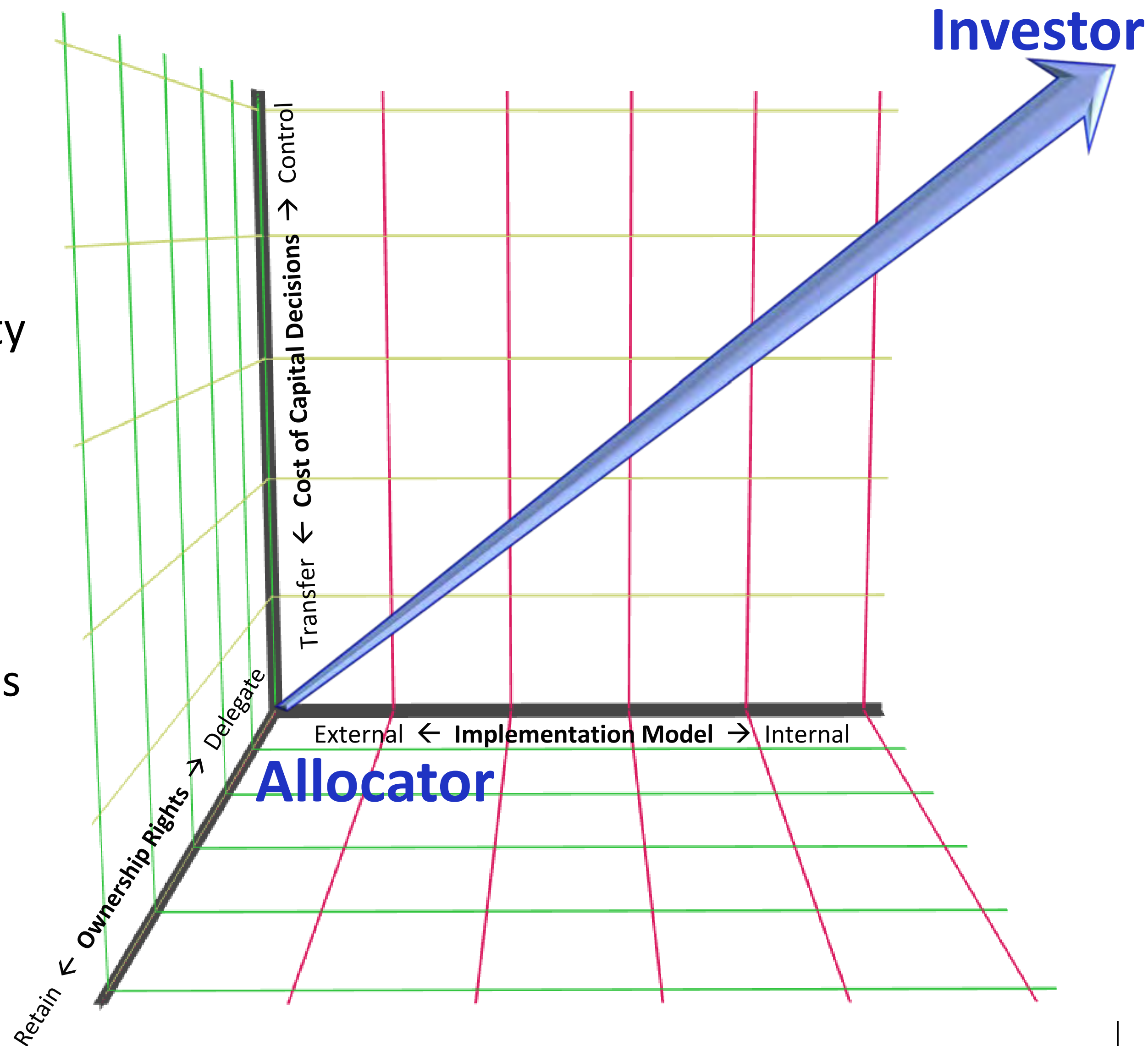
- ✓ **Investment costs and influence over cost of capital:**

  How to access, analyze, and act on information to optimize the financial performance of LACERA's asset allocation decisions

*Not an exhaustive list of current projects

From *Allocator* to *Investor*

Strengthen LACERA's ability to achieve its mission by migrating from an **allocator of capital** to a **proactive, intentional investor** across multiple dimensions



Building a Cohesive Work Plan for 2019 and Beyond

Upcoming 2019 Work Plan to be Presented at the January Board Meeting
Will Reflect Key Strategic Priorities and Projects to Fulfill
Building a More Active, Engaged, and Informed Investor Model

From ***Allocator***

Investment Implementation Model	✓ Feasibility study on insourcing select mandates ✓ Implement risk analytics platform* ✓ Enhanced compliance processes
Ownership Rights – From Delegation to Retention	✓ Expanded proxy voting authority ✓ Enhanced due diligence encompassing ESG, diversity and inclusion ✓ Optimize strategic relationships
Investment Costs and Influence Over Cost of Capital	✓ Use data analytics to evaluate multidimensional portfolio fit and ensure that risks are compensated ✓ Deliberate investment structures, e.g. private equity co-investments* and direct hedge fund program ✓ Assess alternative fee structures

To A** **More** **Active, Engaged, Informed Investor

*Subject to Board approval

November 30, 2018

TO: Each Member
Board of Investments

FROM: Portfolio Risk Committee
Jude Pérez, Principal Investment Officer

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **RISK SYSTEM SEARCH MINIMUM QUALIFICATIONS AND SCOPE OF WORK**

RECOMMENDATION

Approve the proposed Minimum Qualifications ("MQs") and Scope of Work ("SOW") thereby authorizing staff to initiate the Request for Information ("RFI") process for a total Fund risk system search.

BACKGROUND

On November 8, 2018, the Portfolio Risk Committee ("Committee") unanimously approved the MQs and SOW for a total Fund risk system RFI. The recommendation is intended to facilitate a risk system search that may allow for better measuring and monitoring of the total Fund. Accordingly, a risk system can assist in the implementation of the new strategic asset allocation and with resulting structure reviews. It will also provide the tools for quantitative measurement of environmental, social, and governance factors. Such a system may also serve as the execution and portfolio modeling system for an internal asset management program if LACERA decides to implement in that fashion at a later date.

Attachment 1 is the memorandum that staff presented to the Committee.

OPTIONS AVAILABLE TO THE BOARD

The Board may wish to approve, modify, or reject the recommendation.

DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE

Committee members asked questions about the following topics on November 8:

- Will a new risk system be customizable to LACERA
  - Any recommendation from this RFI would include a risk system that is customizable to the total Fund and LACERA's needs. This includes a service model to address any questions, education, and customizable reporting.

- Will a new risk system have a higher cost than LACERA is currently paying
  - A new risk system would most likely have a higher cost than what LACERA currently pays, but a new risk system would include additional features, more timely information, and services that would assist in implementing the new strategic asset allocation and enhance the monitoring of the total Fund. Due to the higher cost, and as mentioned at the April 2018 Portfolio Risk Committee meeting, a recommendation from this RFI may include the elimination of other duplicative software services. The RFI will ascertain if the benefits from a higher cost solution have the potential to add value to the Fund.

RISKS OF ACTION AND INACTION

If the Board approves the recommendation, staff will release an RFI to conduct a search for a total Fund risk system for consideration by the Board at a later date.

If the Board does not approve the recommendation, this will result in no changes to the current risk system.

CONCLUSION

The Committee approved the proposed MQs and SOW thereby recommending that the Board authorize staff to initiate an RFI for a total Fund risk system. A risk system allows for better understanding of a complex portfolio such as LACERA's, and allows for a total Fund view by aggregating data, such as position level holdings, across the various asset categories. This type of information will add context around every decision that is made and not made. Staff would report findings and conclusions, and possibly a recommendation, to the Board for consideration.

Attachment

Noted and Reviewed:

____

Jonathan Grabel
Chief Investment Officer

October 30, 2018

ATTACHMENT

TO: Each Member
Portfolio Risk Committee

FROM: Jude Pèrez
Principal Investment Officer

FOR: November 8, 2018 Portfolio Risk Committee Meeting

SUBJECT: **RISK SYSTEM SEARCH MINIMUM QUALIFICATIONS AND SCOPE OF WORK**

RECOMMENDATION

Advance a recommendation to conduct a Request for Information ("RFI") for a total Fund risk system search for approval by the Board of Investments.

DISCUSSION

A good risk management program is multidimensional and includes a wide range of aspects such as good decision-making, sound governance, good processes, sound operations, compliance monitoring, and investment monitoring and measuring. The purpose of this RFI is to focus on the latter, which should be viewed as a tool to be used within a risk management program and should not be looked at as risk management in itself.

A risk analysis software system allows for better understanding of a complex portfolio such as LACERA's, and allows for a total Fund view by aggregating data, such as position level holdings, across the various asset categories. This type of information will add context around every decision that is made and not made. Also, as discussed at the August Portfolio Risk Committee meeting, one of the goals for the investment division is to develop a risk budget. Risk budgeting helps pensions control their risk-return profiles by incorporating risk tolerance into the asset allocation process. This process would allow LACERA to better understand and control the active risk the Fund is willing to bear. To accomplish this, a comprehensive risk software system is needed to allow for better measuring and monitoring of the total Fund. Accordingly, a risk system can assist in the implementation of the new strategic asset allocation and with resulting structure reviews. It will also provide the tools for quantitative measurement of environmental, social, and governance factors. Such a system may also serve as the execution and portfolio modeling system for an internal asset management program if LACERA decides to implement in that fashion at a later date.

BACKGROUND

In 2016, LACERA initiated a project to use TruView, a total Fund risk software system bundled with State Street's custodial solutions. This was LACERA's first attempt at using a total Fund aggregator for risk analysis. TruView has served as a good first step into risk analysis software, but at this time staff would like to conduct an RFI to explore more comprehensive risk systems. It should be noted that these other systems would be at higher cost than what LACERA is currently paying. Due to this, and as mentioned at the April 2018 Portfolio Risk Committee meeting, a recommendation from this RFI may include the elimination of other duplicative software services. The RFI will ascertain if the benefits from a higher cost solution have the potential to add value to the Fund.

MANDATE DESCRIPTION

LACERA will seek a comprehensive, multi-asset class, investment risk analysis software system to assist in systematically identifying, assessing, monitoring and reporting on portfolio risk, including ESG factors, for the total Fund. The solution should cover all the major asset classes within the total Fund and enable a comprehensive view of aggregate total risk and active risk across the portfolios and within each asset class. The software system should inform LACERA's analysis of the performance of existing external asset managers as well as potential new external asset managers. The risk system should also have the ability to serve as an execution management system, at a later date, if the Board wishes to manage assets internally.

Through this search, LACERA seeks to procure software that will enable the investment division to generate risk reports and analysis for the benefit of the Board and staff.

SCOPE OF WORK

1. Integration of manager holdings and benchmark information across all asset classes including: equities, fixed income, private equity, hedge funds, real assets and real estate. The ideal solution would be the ability to integrate position details across all managers, holding all asset classes within a business day,

2. Source and aggregate data from various vendors including custodian, investment managers, fund of funds and various service providers,

3. Value at Risk (VaR): the ability to measure VaR at the manager, sub-asset class, asset class, and total Fund level,

4. Stress Testing: the ability to measure potential losses given certain historical or prospective events,

5. Scenario analysis: the ability to measure potential losses or gains given certain scenarios,

6. Portfolio reporting: risk and exposure with the capabilities of performance reporting,

7. Reporting: asset level detail reports, individual manager level reporting, portfolio level reporting, total Fund level reporting, and the ability to report by user defined groupings, and

8. Ability to create and run reports necessary to perform ad hoc analysis.

MINIMUM QUALIFICATIONS

1. Must offer a multi-asset class, factor-based risk model appropriate for analyzing the risk and performance of a broad institutional portfolio invested globally in both public and private (liquid and illiquid) markets. The application must enable users to both identify risk and measure investment performance within asset classes and across multi-asset class portfolios.

2. Must have experience providing a comprehensive multi-asset class investment risk analysis software system to institutional investors such as pension funds, endowments or other large asset managers. The Proposing Firm must have at least five (5) such clients each overseeing assets in excess of $5 billion.

3. Must identify and quantify risk to the following factors:
    a. Index factors
    b. Equity style factors
    c. Interest rates
    d. Credit spreads
    e. Inflation factors
    f. Real assets
    g. Foreign exchange

4. Must include tools for analyzing the following asset categories:
    a. Public equities
    b. Fixed income, including investment grade bonds
    c. Credit, including high yield, emerging market debt, bank loans, and other illiquid credit strategies
    d. Private equity
    e. Private real estate
    f. Hedge funds
    g. Real assets, including private infrastructure and natural resources

5. Must offer quantitative measurement of environmental, social, and governance (ESG) factors.

6. Must offer technical support services including guidance in the configuration and use of the proposed product.

7. At least one key professional member of the firm assigned to the LACERA account must have a minimum of five years' experience in assisting clients with the implementation of risk oversight solutions.

8. Must allow for stress testing, scenario analysis, and value at risk at the sub-asset class, asset class, and total Fund level.

PROPOSED TIMELINE

The proposed RFI timeline (**Table 1)** seeks to ensure a thorough and thoughtful process that efficiently enables LACERA to engage market-leading risk management system providers.

Table 1 Proposed RFI Timeline

Phase	Steps	Actions	Firms in Process (Est.)	Timing	Status
I	**RFI Design and Launch**	- Codify and gain Board approval of Minimum Qualifications, Evaluation Criteria, and Scope of Work - Publish the RFI document	N/A	Nov-Jan/18-19	In process
II	**RFI Evaluation**	– Staff to review and rank RFI responses, select semi-finalists	3-8	Feb/19	Not started
III	**Semi-Finalist Evaluation**	– Staff to conduct in-person interviews, complete reference calls - Sandbox exercise	2-3	March/19	Not started
IV	**Finalist Recommendations**	- Staff presents to the Board a review of the RFI process and finalist selections - Finalists present to the BOI - BOI selects manager	1-2	June-July/19	Not started

CONCLUSION

Staff anticipates the proposed minimum qualifications and scope of work for the total Fund risk system search will attract qualified candidates. Therefore, with the Committee's approval, the advancement of an RFI for a total Fund risk system will be recommended to the Board of Investments. Staff would report findings and conclusions, and possibly a recommendation, to the Board for consideration.

Noted and Reviewed:

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Jonathan Grabel
Chief Investment Officer

JG:jp

L//.CERA

November 21, 2018

TO: Each Member
Board of Investments

FROM: Equity: Public/Private Committee
Herman Santos, Chair
Wayne Moore, Vice Chair
Gina V. Sanchez
Shawn R. Kehoe
David Green, Alternate

CJW
Christopher J. Wagner
Principal Investment Officer

DES
David E. Simpson, CFA
Investment Officer

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **2019 PRIVATE EQUITY OBJECTIVE, POLICIES, AND PROCEDURES**

RECOMMENDATION

Approve the 2019 Private Equity Objectives, Policies, and Procedures.

BACKGROUND

On November 8, 2018, staff presented proposed changes to the 2019 Private Equity Objectives, Policies, and Procedures ("OPP") to the Equities: Public/Private Committee. The changes are noted in the discussion section of the attached staff cover memo to the Committee. The Committee voted to advance this item to the Board of Investments ("BOI") for approval.

The following documents enclosed are i) the cover memo to the Committee (**Attachment**), ii) a redline version of the OPP with changes from last year (**Attachment A**), and iii) a clean version of the OPP (**Attachment B**).

OPTIONS AVAILABLE TO THE BOARD

The OPP covers the entire Private Equity Program. If the Board does not approve the OPP, staff will consult with the Committee and propose alternative OPP language or include the Board's direction in revised documents.

DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE

As the proposed recommendations seek to align the OPP with prior BOI actions, there was minimal debate by the Committee members.

RISKS OF ACTION AND INACTION

If the Board approves the revised OPP, the document will incorporate benchmark and asset allocation changes previously approved by the BOI.

If the Board does not approve the revised OPP, the existing benchmark and asset allocation classifications will continue. Staff will revert to the Committee to determine appropriate next steps.

CONCLUSION

Staff has revised the OPP, the document that governs the Private Equity Program. The Equity Public/Private Committee reviewed and advanced the document for approval at its November 2018 meeting. Staff recommends the Board approve the document.

Attachments

Noted and Reviewed:

Jonathan Grabel
Chief Investment Officer

CW:DES:mm

October 29, 2018

TO: Each Member
Equity: Public/Private Committee

FROM: Christopher J. Wagner CJW
Principal Investment Officer

David E. Simpson, CFA DES
Investment Officer

FOR: November 8, 2018 Equity: Public/Private Committee Meeting

SUBJECT: **PRIVATE EQUITY OBJECTIVES, POLICIES, AND PROCEDURES**

RECOMMENDATION

Advance the revised Private Equity Objectives, Policies, and Procedures to the Board of Investments for approval.

BACKGROUND

LACERA's Private Equity Objectives, Policies, and Procedures ("OPP") document i) defines and describes the objectives and strategy for investing in private equity assets, ii) delineates the methods and guidelines used in making private equity investments, and iii) articulates the responsibilities of the Board of Investments ("BOI"), investment staff, private equity advisor(s), and LACERA's general consultant.

Staff is reviewing and consolidating the policy statements and OPPs for all asset classes. The framework of policy and procedure documents is under review as well. Given that ongoing work, at this time, staff recommends four minor changes to the Private Equity OPP, the first three of which conform to prior BOI actions at the August 2018 and September 2018 BOI meetings related to the asset allocation study. The fourth proposed change moves the sub-asset class target allocation section to the Private Equity Structure Review document.

1. Under Section B, Investment Objective and Strategy, staff proposes updating the target return to an annualized return of 200 basis points in excess of the MSCI ACWI IMI[1] index return, net of all partnership and advisor fees, on a quarterly lag.
2. Under Section C, Definitions, staff proposes reclassifying Special Situations, as the strategies within the asset class belong to Credit and Real Assets.

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[1] MSCI ACWI IMI is an acronym for the Morgan Stanley Capital International All Country World Index Investable Market Index

3. Under Section D. I., Total Fund Target Allocations, staff updates figures and proposes modifying the Target Allocation Range to 7%-13% of the Total Fund.
4. Finally, Section D. II., staff proposes moving the Sub-Asset Class Target Allocations section to the Private Equity Structure Review document.

The attached shows the revised OPP with proposed changes from the previous version in red.

CONCLUSION

The current LACERA policy requires an annual review of the OPP, including an analysis of LACERA's target allocation to the various private equity sub-asset classes. The OPP further requires that any necessary revisions be submitted for Board approval. Staff has completed its review of the OPP and recommends the Committee advance the revised OPP to the BOI for approval of the proposed changes.

Attachment

NOTED AND REVIEWED:

Jonathan Grabel
Chief Investment Officer

CJW:DES:mm

Los Angeles County Employees Retirement Association
Private Equity Objectives, Policies, and Procedures

Adopted: April 23, 1997

Last Revised: ~~January 10~~November 8, 2018

Table of Contents

A. DOCUMENT PURPOSE

The Private Equity Objectives, Policies, and Procedures ("OPP") document sets forth LACERA's investment objective and strategy for investing in private equity as outlined in the Fund's Investment Policy Statement. The OPP stipulates the policies that establish parameters on the program, spells out the procedures to be followed, and delineates the responsibilities of the Board of Investments (the "Board"), staff, and the Private Equity Advisor(s) ("PEA"). In essence, the OPP provides the blueprint that guides the portfolio's construction and composition.

B. INVESTMENT OBJECTIVE AND STRATEGY

LACERA invests in private equity to obtain attractive returns for the Fund at an acceptable level of risk. The target return for this asset class, as measured by Internal Rate of Return (IRR), is an annualized return of 2~~3~~00 ~~to 500~~ basis points in excess of over the MSCI ACWI IMI[1] ~~Russell 3000~~ Index return, ~~over a rolling 10-year time frame,~~ net of all partnership and advisor fees, on a quarterly lag. The primary strategy is to prudently build a diversified portfolio of the most attractive investment opportunities securing the best possible terms while mitigating risks.

C. DEFINITIONS

I. Private Equity

Private equity refers to privately negotiated investments in companies. These investments are predominantly equity interests that are illiquid and long-term in nature. Private equity investments can be made directly, but they are more commonly made through investments in limited partnerships and other types of investment vehicles that offer limited liability to investors. Private equity strategies are classified into the following sub-asset class categories:

Buyouts	**Venture Capital**	**~~Special Situations*~~**
Acquisitions and Takeovers	Seed Stage	~~Mezzanine Financing~~
Industry-Focused	Early Stage	~~Distressed Debt~~
Specialized Strategies	Middle Stage	~~Oil and Gas (Energy)~~
Non-controlling Interests	Late Stage	~~Alternative Energy Sources~~
Structured Equity	Growth Equity	~~Infrastructure~~
		~~Natural Resources~~

[1] MSCI ACWI IMI is an acronym for the Morgan Stanley Capital International All Country World Index Investable Market Index

In addition to these sub-asset class categories, LACERA classifies private equity investments by general partner, industry, and geography.

II. Related Terms

Co-Investments are investments made directly into companies by a limited partner, when invited to be part of the consortium by an existing private equity fund. General partners make co-investment opportunities available to limited partners when the total required equity investment in a specific company by the fund exceeds that fund's per-company maximum investment.

Direct investments are investments made directly into companies by investors where no private equity fund is involved. The investors are not limited partners, and as such may be involved in the management of the companies and sit on their board of directors.

Emerging markets are countries other than Canada and those in the Morgan Stanley Capital Index – Europe Asia, Far East (MSCI EAFE) Index.

Fund-of-funds are vehicles comprised of a portfolio of funds which frequently target a particular sub-asset class or category of investments.

General Partners ("GPs") are the managing partners in a private equity management company, who have unlimited personal liability for the debts and obligations of the limited partnership and have the right to participate in its management. Their activities include raising capital, investing the capital, actively monitoring the portfolio companies, reporting results to limited partners, and exiting the investments. The general partner receives an annual management fee and may earn "carried interest," which is a negotiated percentage of the profits.

Limited Partners ("LPs") are passive investors with limited liability in the partnerships who have no involvement in the day-to-day management of the partnership and underlying portfolio companies.

Non-U.S. investments are private equity investments in any of the sub-asset classes outside of the United States in both developed and emerging markets. These investments may focus on an individual country, a geographical region, or they might span the globe.

Secondary investments are limited partnership interests bought from or sold by existing investors in private equity funds. The secondary market offers limited partners the opportunity to actively manage the composition of their existing private equity portfolio.

D. INVESTMENT POLICIES AND GUIDELINES

I. Total Fund Target Allocation

In September 2018~~October 2015~~, the Board established a target allocation of 10 percent for private equity investments, with an acceptable range of 7 percent to 134 percent. Given the unpredictable nature of cash flows in this asset class, the actual allocation number fluctuates. Staff will closely monitor the actual market value of and committed exposure (new commitments and unfunded existing commitments) to this asset class.

LACERA's Plan Level Target Allocation Status[1]
(As of June 30, 2018~~7~~ - Millions)

Net Asset Value[2]	Total Fund Value[2]	Allocation %	Target Allocation Range
$5,947~~086~~	$56,1422~~,755~~	10~~9~~.6%	7% - 143%

[1] Values adjusted from the 6/30/18~~7~~ Total Asset Allocation report by +$188~~221~~ million eliminating PE reporting lag.
[2] Factoring in $3,759~~852~~ million in Undrawn Capital, the combined PE allocation percentage equals 16.25~~.8~~%.

In the Annual Investment Plan, staff and PEA will recommend an annual commitment pace to ensure that investments fall within the policy's allocation range. Even so, LACERA seeks to avoid an undue concentration of commitments in any one calendar year. LACERA will adjust the amount of new commitments to the portfolio each year to capture the benefits of time diversification and to match the expected growth of LACERA's total plan assets.

~~II. Sub-Asset Class Target Allocations~~

~~The Board, staff, and the PEA shall annually review target allocation ranges to the various sub-asset classes and international investments. These target allocation ranges will be measured and set following LACERA's review and consideration of the private equity marketplace over the forthcoming three to five years for each investment sub-asset class.~~

~~**LACERA's Sub-Asset Class Target Allocation Status**~~
~~***(As of June 30, 2017 - Millions)***~~

~~Sub-asset Class~~	~~Net Asset Value~~	~~Sub-asset Class Allocation %~~	~~Target Allocation Ranges~~
~~**Buyouts**~~	~~$2,874~~	~~57%~~	~~50 – 85%~~
~~**Venture Capital/ Growth Equity**~~	~~$716~~	~~14%~~	~~10 – 25%~~
~~**Special Situations[1]**~~	~~$520~~	~~10%~~	~~5 – 25%~~
~~**Other[2]**~~	~~$975~~	~~19%~~	
~~**Grand Total**~~	~~**$5,086**~~	~~**100%**~~	
~~**Non-U.S.[3]**~~	~~$1,322~~	~~26%~~	~~20 – 45%~~

~~[1] Comprised of distressed debt, mezzanine, energy, and natural resources-focused funds.~~
~~[2] Comprised of Co-Investments, Fund-of-Funds, and Secondaries.~~
~~[3] Estimated total of non-U.S. investments based on company domicile, excludes cash.~~

~~LACERA recognizes that cash flows are unpredictable and at the discretion of the general partner. Accordingly, LACERA allows staff and the PEA(s) some latitude outside of the ranges. In the short term, LACERA does not wish to constrain staff or its PEA to the designated sub-asset class ranges; i.e., fulfilling target allocations will not drive the investment recommendation process. LACERA will invest consistently over time to gain the proper exposure to the various sub-asset classes.~~

II~~I~~. Investment Exposure Limits

LACERA's private equity portfolio will be diversified by vintage year, sub-asset category, industry, general partner, and geography. The following guidelines will apply unless a waiver is approved by the Board.

Size of Investments: The minimum size of a fund commitment shall be $5 million, while the maximum size of investment made shall be 10 percent of LACERA's market value exposure plus undrawn commitments. The $5 million minimum is expected to be utilized for venture capital-type investments while the maximum would most typically apply to separate account or fund-of-fund mandates.

Partnership Limits:

1. LACERA's share in a single partnership, once the partnership has closed to new investors, shall not exceed 50 percent of that partnership's total commitments from all limited partners. (This policy does not apply to separate accounts where LACERA may be 100% of the capital.)
2. LACERA shall limit maximum exposure (market value plus unfunded commitments) to any one general partner such that the aggregate investment with that general partner across multiple funds is not greater than 10 percent of LACERA's private equity portfolio market value plus unfunded commitments at the time of commitment.

Emerging Markets: No more than 15 percent of the portfolio will be invested in emerging markets.

I~~V~~II. Prohibited Investments

Hostile Takeovers: LACERA avoids investment strategies that primarily involve hostile takeovers, defined as acquisitions opposed by the board of directors of the target company.

Derivatives: Derivative instruments are not permitted to the extent that they expose LACERA to new risks not associated with the original intent of the investment.

LACERA Private Equity Privatization Policy: LACERA does not aim to promote privatization of public jobs through its private equity investment program. It is highly unlikely that LACERA would invest in private equity investments that are dependent on privatization strategies.

When performing due diligence prior to making the initial investment in a domestic partnership, staff and/or PEA, as applicable, will use reasonable efforts to ascertain the following:

1. Whether the partnership's current investment strategy includes the privatization of jobs held by LACERA members, and
2. Whether previous partnerships operated by the general partners, if any, have invested in companies dependent upon privatization of jobs held by LACERA members.

Staff and/or PEA will seek guidance from the Board before investing in a domestic partnership if the due diligence establishes a positive answer to either (1) or (2) above.

United Nations Principles for Responsible Investments: LACERA is a signatory of the United Nations Environment Programme Finance Initiative's Principles for Responsible Investments ("UNPRI") and has a conviction that environmental, social, and governance-related considerations should provide material input into the Investor's investment decision and that the integration of such criteria supports its commitment to sustainable value creation. Presently, this shall not be interpreted so as to require the general partner or the partnership to adopt the UNPRI in its analysis of any potential investment.

IV. Investment Vehicle Guidelines

LACERA deems the following types of investment vehicles appropriate for investing in this asset class, subject to the constraints mentioned in this document:

Limited Partnerships: LACERA anticipates that the majority of its exposure to this asset class will take place through these pooled investment vehicles.

Separate Accounts: Separate account vehicles may be appropriate in certain cases, e.g., to gain access, or additional exposure, to a particular sub-asset class or category of investments, or to secure favorable terms.

Fund-of-Funds: Fund-of-funds vehicles may be appropriate in certain cases, e.g., to gain access, or additional exposure, to a particular sub-asset class or category of investments.

Secondary Investments: Staff and the PEA will seek to improve long-term returns by adding exposure through the acquisition of attractively priced secondary investment opportunities in partnerships in which LACERA is already invested. In addition, dispositions of LACERA's existing interests and future commitments may be undertaken after a favorable evaluation of market pricing is determined in comparison to potential future returns.

A complete description of the LACERA Private Equity Secondary Program and its investment guidelines is attached as **Appendix A**.

Co-Investments: LACERA may employ manager(s) to make co-investments alongside partnerships that may or may not have an existing relationship with LACERA.

Direct Investments: The Board has not authorized the staff or the PEA to autonomously make direct investments or co-investments.

E. INVESTMENT PROCEDURES

LACERA follows clearly established methodologies when investing in this asset class. In this section, these are defined and explained.

I. Managing Risk

Private equity investments entail a number of unique risks. Prior to investing, staff and the PEA will ascertain the pertinent risks of a particular private equity investment. This knowledge will enable the implementation of appropriate risk mitigation measures. The types of risks and LACERA's method for managing them follow:

1. *Illiquidity*: Illiquidity (whether due to the form of asset or to the investment structure) is a fundamental characteristic of the asset class and a source of the expected return premium. LACERA will ensure that each limited partnership investment provides for the maximum liquidity practical, through utilization and structure of appropriate investment vehicles and exit strategies. In addition, LACERA may opportunistically buy and sell interests in the secondary market to mitigate the liquidity risks inherent in the asset class.
2. *Volatility*: Concentrated portfolios, the uncertain prospects of companies undergoing transformational change, and the use of leverage all lead to volatility in private equity returns. LACERA will mitigate total volatility by diversifying the portfolio by strategy, sub-asset class category, manager, geography, and across vintage years.
3. *Lack of Public Information*: The limited public financial reporting requirements of most private equity investments makes it difficult to obtain unbiased, reliable information to analyze potential investments and to conduct consistent performance evaluations. LACERA will employ specialized resources (e.g., advisors, databases), as needed to evaluate potential investments in this area. LACERA will establish and maintain appropriate resources and procedures to obtain quarterly valuations of assets held in the private equity portfolio and to monitor interim performance.
4. *Non-U.S. Investments*: Non-U.S. private equity investments are exposed to all the risks associated with domestic private equity investments. In addition, they bring with them risks specific to international investments, including currency risk, political risk, regulatory risk, legal system risk, and accounting standard risk. LACERA will employ the appropriate legal resources needed to review each non-U.S. investment partnership agreement and associated documentation.

II. Sourcing Investments

Staff, and the PEA, will source potential investments and designate those that meet the Program's selection criteria and performance goals. LACERA will consider all reasonable investment opportunities. Sourcing prospective investments will entail but not be limited to the following:

1. Attending investment conferences to meet GPs
2. Traveling to the offices of general partners
3. Meeting general partners in LACERA's offices
4. Cold-calling potential general partners
5. Accessing the PEA's market intelligence on fundraising
6. Meeting with placement agents

7. Accessing proprietary databases (such as Preqin or Pitchbook) to identify potential GPs
8. Reading industry publications to keep abreast of deal, people, and fund news

III. Conducting Due Diligence

When conducting due diligence, staff, and the PEA, will pursue viable investments prioritizing the best opportunities that fit the program's goals and add value to the existing portfolio, and rejecting those that do not meet the program's criteria. Major factors to be considered include, but are not limited to, the following:

1. Experience and cohesiveness of the general partners or principals involved
2. Depth of the general partner's organization and resources
3. Assessment of the general partner's strategy
4. Analysis of the general market environment
5. Appropriateness of the investment for inclusion in LACERA' s portfolio
6. Compliance with LACERA's guidelines
7. Compliance with all national, state, and local regulatory and legal requirements
8. Extensive reference and background checks on the investment sponsor
9. Comprehensive track record analysis

IV. Addressing Conflicts of Interest

Staff and the PEA shall not recommend/make any investment until all identified real and potential conflicts of interest have been addressed and mitigated. The Board shall not approve any investment until all identified conflicts of interest have been addressed and mitigated.

V. Structuring and Negotiating Key Terms, Provisions, and Fees

Staff shall negotiate terms and provisions and structure fees so as to provide maximum investor protection and value.

VI. Monitoring and Reporting Portfolio Performance

Reporting to LACERA's Board: Staff shall issue semi-annual portfolio performance reports to the Board. In addition, staff and the PEA shall report to the Board at least yearly on the status of investments currently held in the portfolio. Reports shall include, but not be limited to, such items as the following:

1. The general investment environment and expected opportunities coming to the private equity markets

2. Allocations made across different industries and sub-asset classes of private equity
3. Summary of investment portfolio performance, along with an update on overall market performance
4. New commitments made since the last report
5. Summary of drawdowns and distributions

Performance Reporting: The PEA or other service provider shall provide annual and quarterly portfolio performance reports to LACERA's staff. In general, there will be a greater level of detailed reporting on the annual report when compared to the quarterly reports. Quarterly reporting is meant to serve the purpose of alerting staff to possible adverse developments as well as providing timely updates on the performance and analyses of investments.

Returns will be measured against the universe of performance numbers for vintage year funds, as provided by a third party source such as Cambridge Associates or Burgiss. The comparison of performance to top quartile funds will be a secondary measure of the program's success for the asset class, as it will allow LACERA to measure the ability of its staff and PEA to add value within the asset class.

Monitoring Adherence to Strategy: Staff shall monitor the type, amount, and allocation of investments to ensure that the strategy set forth in this document is adhered to. While some flexibility shall be permitted because of the time that may be required to find attractive investment opportunities, LACERA expects staff and the PEA to adhere to the ranges set forth in this document as well as the investment guidelines as set forth in the Annual Investment Plan.

Proxy Voting for Distributed Securities: LACERA will retain the right to vote all proxies and will vote in accordance with LACERA's public equity proxy voting policy. Proxies for distributed securities must be voted based on protecting and promoting the economic interests of LACERA's members and beneficiaries.

Distributions: LACERA prefers cash distributions to in-kind distributions (stock distributions). Distribution management shall be handled by the PEA, or specialized distribution advisor, who will work closely with staff to ensure the timely sale or transfer of securities. Exceptions to this will be handled on a case-by-case basis.

Cash Management: The amount of cash held by partnerships should be kept to a minimum, and should be used only for working capital. "Just-in-time" drawdowns are preferred in order to stay as fully invested as possible.

F. SUMMARY OF ROLES AND RESPONSIBILITIES

The roles of the Board, staff, PEA, and the general consultant are summarized below:

Board Responsibilities

1. Review and approve the Private Equity Objectives, Policies, and Procedures.
2. Review and approve the Annual Investment Plan.
3. Review performance of the private equity investment portfolio with the PEA and/or staff at least annually.
4. Review and approve primary fund investments and any investment exception or waiver to the investment guidelines, to the extent not delegated.
5. Refer private equity investment opportunities to staff for evaluation, either directly or with the assistance of the PEA.

Staff Responsibilities

1. Develop, evaluate, review, and make recommendations to the Board on the Private Equity Objectives, Policies, and Procedures developed with the PEA or general consultant.
2. Review and evaluate the Investment Plan annually with the PEA, recommending changes to the Board as appropriate.
3. Monitor and report on the activities of the PEA to the Board. Make appropriate recommendations on retention and/or hiring of PEAs.
4. Screen, evaluate, and recommend investments to the Board of Investments in consultation with the PEA.
5. Approve the purchase or sale of any existing fund investment within the Private Equity portfolio in accordance with the secondary program investment guidelines (Appendix A).
6. Determine the most effective procedures for addressing stock distributions.
7. Ensure that adequate measurement systems are implemented to monitor the performance and fees of LACERA's private equity investments and its PEA.
8. Meet with the PEA and the Board at least yearly to review performance, asset allocation to the various sub-asset classes of private equity, and other issues that arise.
9. Assure that LACERA has appropriate legal counsel as needed to work with staff to review terms and conditions on all proposed investment vehicles.

10. Document due diligence procedures undertaken for recommended investments, and maintain a checklist to be certified by senior management.
11. The CIO is authorized to approve capital commitments in follow-on-funds up to $150 million per fund [or at the same ownership percentage in the predecessor fund], provided:
    i. LACERA's prior investments in each predecessor fund greater than three years old exceeds the benchmark Median Return for the fund's sub-asset class strategy, and
    ii. There have been no material changes in the investment strategy or key persons, and
    iii. LACERA's PEA concurs with the investment

    The Board will receive written notification of all such actions from staff and PEA.
12. Retain a veto right over which investments are approved for investment in the separate account programs to ensure portfolio fit and no overlapping positions.

PEA(s)Responsibilities

1. Serve the interest of the Board, in support of its fiduciary obligation to LACERA.
2. Proactively disclose any perceived or actual conflicts of interest that might arise.
3. Carry out strategic initiatives, as directed by the Board.
4. Identify opportunities, conduct due diligence, and make investment recommendations/ selections within their approved mandates, working in conjunction with staff.
5. Develop, with staff, the Annual Investment Plan.
6. Monitor investments in conjunction with staff.
7. Work with staff to address the process for handling stock distributions.
8. Work with staff on portfolio performance measurement.
9. Meet with the Board and staff at least annually to review performance of the private equity portfolio.
10. Provide the Board and staff with ongoing educational presentations and/or materials covering market conditions and developments.
11. Adhere to the "prudent expert" standard throughout all phases of the investment process, as overseen by LACERA. Specific processes covered include investment sourcing, consideration, evaluation, recommendation, negotiation, reporting, and monitoring.

General Consultant Responsibilities

1. Work with staff to review the OPP, as necessary.
2. Work with staff, as necessary, to determine the annual private equity allocation.

G. CONCLUDING REMARKS

This Objectives, Policies, and Procedures document provides the framework to guide the private equity portfolio's construction and composition. The OPP states LACERA's investment objective and strategy and details the responsibilities of all parties. Acknowledging the unique characteristics of the asset class, LACERA will continue to be flexible, opportunistic, and innovative, striving to partner with the best managers to obtain attractive returns at acceptable levels of risk.

LACERA's Private Equity Secondary Program

A. Secondary Purchases

The purchase of existing limited partnership interests in the secondary market is an effective tool in the management of institutional private equity investment programs. The main objective of the secondary program is to strategically and tactically increase investment exposure to fund managers with the goal of improving the long-term economic returns. Secondary investments typically consist of acquiring an interest in a private equity limited partnership from an existing investor that is looking to gain liquidity prior to the full term of the partnership. Attractive secondary purchases provide numerous benefits, such as:

- Investing in an existing portfolio, not a blind pool.
- Shorter average holding periods due to nearer term realizations.
- Ability to minimize the "j-curve" effect due to the more mature portfolio status.
- Ability to strategically and tactically manage a portfolio's diversification.
- Possibility of purchasing assets at a discount to current carrying value and a further discount to fair market value.

The increasing supply and broadening access to secondaries has enabled many institutional investors to move beyond the traditional buy-and-hold strategy enabling to actively manage their portfolios through the acquisition of secondary partnership interests.

I. Secondary Purchase Investment Guidelines

- Secondary investments are permitted in funds where LACERA is an existing investor.
- Mature secondary investments are permitted in funds that are of the same institutional quality and are substantially similar to those which LACERA commits to on a primary basis. Mature secondary investments are those where blind pool risk is eliminated, as the fund is no longer in its investment period.
- Investments are permitted on single limited partnership interests or broad portfolios of multiple interests.
- CIO authority to approve secondary purchases phased in over five years:
  - Up to $100 million/year in calendar years 2018 and 2019
- CIO has the authority to approve secondary purchases at prices deemed attractive by the Investment Division and an approved Secondary Advisor.
- Investments are not permitted where they would violate the most recently Board-approved Private Equity Objectives, Policies, and Procedures document, including, for example Sub-Asset Class target allocation ranges and manager concentration limits.
- Investments are not permitted if they would result in LACERA breaching a maximum exposure to secondary fund investments of 10 percent of LACERA's private equity portfolio market value plus unfunded commitments at the time of purchase.

- Secondary purchases are permitted if they match the parameters defined in the table below. Purchase price is defined as net asset value (“NAV”) plus unfunded commitments.

	SECONDARY PURCHASE PARAMETERS -
	CIO DELEGATED AUTHORITY
(Includes NAV + Unfunded Commitments - $MM)	2018-2019
Annual Purchase Limit	$100
Maximum Any Single Interest	$65
Maximum Non-U.S.	75
Single Non-U.S. Country Limits	50
Maximum Emerging Market	50
Maximum to Venture Capital	65
Maximum to Special Situations	65
Manager Concentration Limits	65
Percent of Mature Secondaries	100%
Fund Generation	No Fund I’s

II. Secondary Purchase Investment Process

Staff will implement secondary purchases through the following process:

Sourcing: Secondary investment opportunities would be sourced directly from general partners and limited partners of private equity funds. Opportunities may also be sourced through secondary managers, intermediaries and industry databases.

Screening: Investments would be considered in partnerships that provide strategic and/or tactical benefits to the overall private equity program. This includes partnerships that have the potential to enhance returns and/or help manage sector exposure for LACERA’s private equity program.

Evaluating: Secondary opportunities that fall within the secondary purchase investment guidelines of enhancing potential returns and/or helping manage sector exposure would be evaluated to determine if a full valuation analysis should be conducted by Staff and the Secondary Advisor. A valuation analysis will be conducted to estimate the fair market value of the partnership and help determine the negotiation parameters, including a bidding range, which obtains CIO approval.

Offer and Negotiation: If a secondary opportunity meets all of LACERA’s investment guidelines, Staff will have discretion to make an offer, negotiate a final price, and execute transfer documents on behalf of LACERA. Since the purchase of specific partnership interests are unique to LACERA, to the extent negotiations of terms and contracts require legal counsel, outside legal counsel may need to be retained and paid for by LACERA.

Reporting: CIO's monthly letter and staff's semi-annual update report to the Board will include a summary of completed secondary purchase transactions. The information provided will include:

fund name, vintage year, fund type, original commitment amount, date of transfer, total amount of the transaction, and net asset value.

Monitoring: Secondary investments will be monitored along with all private equity investments. Secondary investments will be placed in the appropriate sub-asset class of the private equity program based on the investment strategy of the fund.

B. Secondary Sales

The disposition of existing limited partnership interests in the secondary market is a complicated process; however, it is an effective tool in strategically and tactically managing a private equity portfolio. Selling certain interests in a private equity portfolio can serve to:

- Eliminate lower-impact holdings including mature and non-strategic assets.
- Reduce the number of holdings in the portfolio.
- Provide added liquidity to recycle capital into new private equity investments.
- Adjust the risk profile of the portfolio by adjusting the asset mix.

While still resource intensive, the secondary sale process has become efficient. Sophisticated buyers and sellers, leveraging advisors, are able to ascertain fair market value for securities.

I. Secondary Sale Disposition Guidelines

- All sales must provide strategic, tactical and/or economic benefits that assist LACERA in meeting its investment goals.
- The program will consider selling undesired holdings that include both mature secondaries, as well as hybrid secondaries.
  - Sell determinations will fall under the following criteria:
    - *Poor Performing*: Poor performing assets that have little to no potential to materially improve the future performance of the private equity program.
    - *Tail Ends*: Mature assets that have provided a significant portion of their potential performance, whether attractive or poor, and the remainder of the assets have little to no potential to materially improve the future performance of the private equity program. These assets will typically have little value remaining in the capital account and/or few holdings remaining in the fund.
    - *Non-strategic*: Assets that have an investment focus that is no longer a strategic part of LACERA's investment objectives and there is little to no potential to materially improve the future performance of the private equity program.
    - *Strategic*: Assets that can help improve the overall purchase prices and returns associated with the secondary sale.
- The sale program will opportunistically consider the sale of single limited partnership interests and portions of partnership interests as well as portfolios of interests. Portfolio

sales will be considered when the aggregated benefit to the private equity program is more attractive than individual dispositions.

- The CIO would have the authority to approve the disposition of portfolio assets within LACERA’s disposition guidelines as long as the sale is in the best interest of the Trust.
- CIO authorized to approve secondary sales up to $500 million/year.

II. Secondary Sale Disposition Process

Staff will conduct secondary sales through the following process:

Identify assets for disposition: Analysis of private equity investments will be conducted at least annually to determine if any assets are appropriate for disposition and whether the resources are available to conduct a disposition process over the coming year. The assessment will be done based on the sell criteria noted in the Secondary Sale Disposition Guidelines.

Analysis of individual partnerships: The next step in the process is to gather information on each fund and the underlying portfolio companies for analysis. Further due diligence will be conducted with the general partner and the Secondary Advisor to estimate the fair market value of the underlying holdings. Discussions with the general partner to determine transferability of each partnership interest will also occur. The result of the analysis will be a determination of the desired value range for the portfolio of assets.

Coordinating offers: At this stage, third party market makers may be contacted to evaluate the marketability of the portfolio and offer their own value assessment. If third party market makers are used, staff may interview more than one market maker to help ensure best execution. The preliminary pricing expectations will be compared to LACERA’s valuation range. A determination will be made on whether the process should continue and a market maker hired. At this stage, consideration will also be given to the attractiveness of the portfolio mix and make-up. Adjustments may be made to improve marketability. Examples of possible adjustments would be to add more attractive (i.e., “Strategic”) assets to pique buyer interests or to expand the portfolio’s size to appeal to larger buyers.

Facilitating due diligence: Once staff selects the partnerships to be sold, staff will organize due diligence material, screen potential buyers and solicit bids. Staff will provide potential buyers with access to pertinent information and data within a defined time frame with the objective of maximizing LACERA’s value. If a third party market maker is hired to coordinate offers, they could also assist with facilitating due diligence.

Negotiations: At the end of the defined due diligence time frame, final terms and prices will be collected and a preferred buyer will be selected to begin negotiating transfer and purchase/sale agreements. If the value does not meet LACERA’s expectations, the process may be halted.
Since the sale of specific partnership interests are unique to LACERA, to the extent negotiations of terms and contracts require legal counsel, outside legal counsel may need to be retained and paid for by the market maker or LACERA.

Approval: Staff has discretion within the established guidelines of the disposition program to finalize terms and pricing and execute the transaction.

Completing transfer process: Final legal documents will be reviewed by legal counsel and executed by the CIO.

Reporting: Once this pool of assets has been fully disposed, Staff will report to the Board of Investments as part of the semi-annual review, and CIO as part of the monthly letter. The report will include a summary of the completed secondary transaction. The information provided will include: fund names, vintage years, fund types, commitment amounts, dates of transfer, the aggregate general partner reported net asset value, the aggregate estimated fair market value and the aggregate sale value. Periodic reporting will include information on any holdings sold under the program, as well as the remaining values of partially sold interests.

III. Secondary Market Firms

Secondary Advisors: The Secondary Advisor is a fee-based consultant with a fiduciary responsibility to LACERA whose role is to advise on the valuations of secondary sales and purchases. Staff will establish criteria, evaluate, and periodically recommend Secondary Advisors to the Board. Staff will select Secondary Advisors from the approved list as deemed appropriate for specific situations.

Secondary Brokers or Intermediaries: Secondary Brokers or Intermediaries are commission-based consultants whose role is to facilitate the sale or purchase of secondaries by connecting buyers and sellers. Staff will establish criteria, evaluate, and periodically recommend Secondary Brokers and Intermediaries to the Board. Staff will select Secondary Brokers and Advisors from the approved list as they deem appropriate for specific situations.

Los Angeles County Employees Retirement Association
Private Equity Objectives, Policies, and Procedures

Adopted: April 23, 1997

Last Revised: November 8, 2018

Table of Contents

A. DOCUMENT PURPOSE

The Private Equity Objectives, Policies, and Procedures ("OPP") document sets forth LACERA's investment objective and strategy for investing in private equity as outlined in the Fund's Investment Policy Statement. The OPP stipulates the policies that establish parameters on the program, spells out the procedures to be followed, and delineates the responsibilities of the Board of Investments (the "Board"), staff, and the Private Equity Advisor(s) ("PEA"). In essence, the OPP provides the blueprint that guides the portfolio's construction and composition.

B. INVESTMENT OBJECTIVE AND STRATEGY

LACERA invests in private equity to obtain attractive returns for the Fund at an acceptable level of risk. The target return for this asset class, as measured by Internal Rate of Return (IRR), is an annualized return of 200 basis points in excess of over the MSCI ACWI IMI[1] Index return, net of all partnership and advisor fees, on a quarterly lag. The primary strategy is to prudently build a diversified portfolio of the most attractive investment opportunities securing the best possible terms while mitigating risks.

C. DEFINITIONS

I. Private Equity

Private equity refers to privately negotiated investments in companies. These investments are predominantly equity interests that are illiquid and long-term in nature. Private equity investments can be made directly, but they are more commonly made through investments in limited partnerships and other types of investment vehicles that offer limited liability to investors. Private equity strategies are classified into the following sub-asset class categories:

Buyouts	**Venture Capital**
Acquisitions and Takeovers	Seed Stage
Industry-Focused	Early Stage
Specialized Strategies	Middle Stage
Non-controlling Interests	Late Stage
Structured Equity	Growth Equity

[1] MSCI ACWI IMI is an acronym for the Morgan Stanley Capital International All Country World Index Investable Market Index

In addition to these sub-asset class categories, LACERA classifies private equity investments by general partner, industry, and geography.

II. Related Terms

Co-Investments are investments made directly into companies by a limited partner, when invited to be part of the consortium by an existing private equity fund. General partners make co-investment opportunities available to limited partners when the total required equity investment in a specific company by the fund exceeds that fund's per-company maximum investment.

Direct investments are investments made directly into companies by investors where no private equity fund is involved. The investors are not limited partners, and as such may be involved in the management of the companies and sit on their board of directors.

Emerging markets are countries other than Canada and those in the Morgan Stanley Capital Index – Europe Asia, Far East (MSCI EAFE) Index.

Fund-of-funds are vehicles comprised of a portfolio of funds which frequently target a particular sub-asset class or category of investments.

General Partners ("GPs") are the managing partners in a private equity management company, who have unlimited personal liability for the debts and obligations of the limited partnership and have the right to participate in its management. Their activities include raising capital, investing the capital, actively monitoring the portfolio companies, reporting results to limited partners, and exiting the investments. The general partner receives an annual management fee and may earn "carried interest," which is a negotiated percentage of the profits.

Limited Partners ("LPs") are passive investors with limited liability in the partnerships who have no involvement in the day-to-day management of the partnership and underlying portfolio companies.

Non-U.S. investments are private equity investments in any of the sub-asset classes outside of the United States in both developed and emerging markets. These investments may focus on an individual country, a geographical region, or they might span the globe.

Secondary investments are limited partnership interests bought from or sold by existing investors in private equity funds. The secondary market offers limited partners the opportunity to actively manage the composition of their existing private equity portfolio.

D. INVESTMENT POLICIES AND GUIDELINES

I. Total Fund Target Allocation

In September 2018, the Board established a target allocation of 10 percent for private equity investments, with an acceptable range of 7 percent to 13 percent. Given the unpredictable nature of cash flows in this asset class, the actual allocation number fluctuates. Staff will closely monitor the actual market value of and committed exposure (new commitments and unfunded existing commitments) to this asset class.

LACERA's Plan Level Target Allocation Status[1]
(As of June 30, 2018 - Millions)

Net Asset Value[2]	Total Fund Value[2]	Allocation %	Target Allocation Range
$5,947	$56,142	10.6%	7% - 13%

[1] Values adjusted from the 6/30/18 Total Asset Allocation report by +$188 million eliminating PE reporting lag.
[2] Factoring in $3,759 million in Undrawn Capital, the combined PE allocation percentage equals 16.2%.

In the Annual Investment Plan, staff and PEA will recommend an annual commitment pace to ensure that investments fall within the policy's allocation range. Even so, LACERA seeks to avoid an undue concentration of commitments in any one calendar year. LACERA will adjust the amount of new commitments to the portfolio each year to capture the benefits of time diversification and to match the expected growth of LACERA's total plan assets.

II. Investment Exposure Limits

LACERA's private equity portfolio will be diversified by vintage year, sub-asset category, industry, general partner, and geography. The following guidelines will apply unless a waiver is approved by the Board.

Size of Investments: The minimum size of a fund commitment shall be $5 million, while the maximum size of investment made shall be 10 percent of LACERA's market value exposure plus undrawn commitments. The $5 million minimum is expected to be utilized for venture capital-type investments while the maximum would most typically apply to separate account or fund-of-fund mandates.

Partnership Limits:

1. LACERA's share in a single partnership, once the partnership has closed to new investors, shall not exceed 50 percent of that partnership's total commitments from all limited partners. (This policy does not apply to separate accounts where LACERA may be 100% of the capital.)
2. LACERA shall limit maximum exposure (market value plus unfunded commitments) to any one general partner such that the aggregate investment with that general partner across multiple funds is not greater than 10 percent of LACERA's private equity portfolio market value plus unfunded commitments at the time of commitment.

Emerging Markets: No more than 15 percent of the portfolio will be invested in emerging markets.

III. Prohibited Investments

Hostile Takeovers: LACERA avoids investment strategies that primarily involve hostile takeovers, defined as acquisitions opposed by the board of directors of the target company.

Derivatives: Derivative instruments are not permitted to the extent that they expose LACERA to new risks not associated with the original intent of the investment.

LACERA Private Equity Privatization Policy: LACERA does not aim to promote privatization of public jobs through its private equity investment program. It is highly unlikely that LACERA would invest in private equity investments that are dependent on privatization strategies.

When performing due diligence prior to making the initial investment in a domestic partnership, staff and/or PEA, as applicable, will use reasonable efforts to ascertain the following:

1. Whether the partnership's current investment strategy includes the privatization of jobs held by LACERA members, and
2. Whether previous partnerships operated by the general partners, if any, have invested in companies dependent upon privatization of jobs held by LACERA members.

Staff and/or PEA will seek guidance from the Board before investing in a domestic partnership if the due diligence establishes a positive answer to either (1) or (2) above.

United Nations Principles for Responsible Investments: LACERA is a signatory of the United Nations Environment Programme Finance Initiative's Principles for Responsible Investments ("UNPRI") and has a conviction that environmental, social, and governance-related considerations should provide material input into the Investor's investment decision and that the integration of such criteria supports its commitment to sustainable value creation. Presently, this shall not be interpreted so as to require the general partner or the partnership to adopt the UNPRI in its analysis of any potential investment.

IV. Investment Vehicle Guidelines

LACERA deems the following types of investment vehicles appropriate for investing in this asset class, subject to the constraints mentioned in this document:

Limited Partnerships: LACERA anticipates that the majority of its exposure to this asset class will take place through these pooled investment vehicles.

Separate Accounts: Separate account vehicles may be appropriate in certain cases, e.g., to gain access, or additional exposure, to a particular sub-asset class or category of investments, or to secure favorable terms.

Fund-of-Funds: Fund-of-funds vehicles may be appropriate in certain cases, e.g., to gain access, or additional exposure, to a particular sub-asset class or category of investments.

Secondary Investments: Staff and the PEA will seek to improve long-term returns by adding exposure through the acquisition of attractively priced secondary investment opportunities in partnerships in which LACERA is already invested. In addition, dispositions of LACERA's existing interests and future commitments may be undertaken after a favorable evaluation of market pricing is determined in comparison to potential future returns.

A complete description of the LACERA Private Equity Secondary Program and its investment guidelines is attached as **Appendix A**.

Co-Investments: LACERA may employ manager(s) to make co-investments alongside partnerships that may or may not have an existing relationship with LACERA.

Direct Investments: The Board has not authorized the staff or the PEA to autonomously make direct investments or co-investments.

E. INVESTMENT PROCEDURES

LACERA follows clearly established methodologies when investing in this asset class. In this section, these are defined and explained.

I. Managing Risk

Private equity investments entail a number of unique risks. Prior to investing, staff and the PEA will ascertain the pertinent risks of a particular private equity investment. This knowledge will enable the implementation of appropriate risk mitigation measures. The types of risks and LACERA's method for managing them follow:

1. *Illiquidity*: Illiquidity (whether due to the form of asset or to the investment structure) is a fundamental characteristic of the asset class and a source of the expected return premium. LACERA will ensure that each limited partnership investment provides for the maximum liquidity practical, through utilization and structure of appropriate investment vehicles and exit strategies. In addition, LACERA may opportunistically buy and sell interests in the secondary market to mitigate the liquidity risks inherent in the asset class.
2. *Volatility*: Concentrated portfolios, the uncertain prospects of companies undergoing transformational change, and the use of leverage all lead to volatility in private equity returns. LACERA will mitigate total volatility by diversifying the portfolio by strategy, sub-asset class category, manager, geography, and across vintage years.
3. *Lack of Public Information*: The limited public financial reporting requirements of most private equity investments makes it difficult to obtain unbiased, reliable information to analyze potential investments and to conduct consistent performance evaluations. LACERA will employ specialized resources (e.g., advisors, databases), as needed to evaluate potential investments in this area. LACERA will establish and maintain appropriate resources and procedures to obtain quarterly valuations of assets held in the private equity portfolio and to monitor interim performance.
4. *Non-U.S. Investments*: Non-U.S. private equity investments are exposed to all the risks associated with domestic private equity investments. In addition, they bring with them risks specific to international investments, including currency risk, political risk, regulatory risk, legal system risk, and accounting standard risk. LACERA will employ the appropriate legal resources needed to review each non-U.S. investment partnership agreement and associated documentation.

II. Sourcing Investments

Staff, and the PEA, will source potential investments and designate those that meet the Program's selection criteria and performance goals. LACERA will consider all reasonable investment opportunities. Sourcing prospective investments will entail but not be limited to the following:

1. Attending investment conferences to meet GPs
2. Traveling to the offices of general partners
3. Meeting general partners in LACERA's offices
4. Cold-calling potential general partners
5. Accessing the PEA's market intelligence on fundraising
6. Meeting with placement agents

7. Accessing proprietary databases (such as Preqin or Pitchbook) to identify potential GPs
8. Reading industry publications to keep abreast of deal, people, and fund news

III. Conducting Due Diligence

When conducting due diligence, staff, and the PEA, will pursue viable investments prioritizing the best opportunities that fit the program's goals and add value to the existing portfolio, and rejecting those that do not meet the program’s criteria. Major factors to be considered include, but are not limited to, the following:

1. Experience and cohesiveness of the general partners or principals involved
2. Depth of the general partner's organization and resources
3. Assessment of the general partner's strategy
4. Analysis of the general market environment
5. Appropriateness of the investment for inclusion in LACERA' s portfolio
6. Compliance with LACERA's guidelines
7. Compliance with all national, state, and local regulatory and legal requirements
8. Extensive reference and background checks on the investment sponsor
9. Comprehensive track record analysis

IV. Addressing Conflicts of Interest

Staff and the PEA shall not recommend/make any investment until all identified real and potential conflicts of interest have been addressed and mitigated. The Board shall not approve any investment until all identified conflicts of interest have been addressed and mitigated.

V. Structuring and Negotiating Key Terms, Provisions, and Fees

Staff shall negotiate terms and provisions and structure fees so as to provide maximum investor protection and value.

VI. Monitoring and Reporting Portfolio Performance

Reporting to LACERA's Board: Staff shall issue semi-annual portfolio performance reports to the Board. In addition, staff and the PEA shall report to the Board at least yearly on the status of investments currently held in the portfolio. Reports shall include, but not be limited to, such items as the following:

1. The general investment environment and expected opportunities coming to the private equity markets

2. Allocations made across different industries and sub-asset classes of private equity
3. Summary of investment portfolio performance, along with an update on overall market performance
4. New commitments made since the last report
5. Summary of drawdowns and distributions

Performance Reporting: The PEA or other service provider shall provide annual and quarterly portfolio performance reports to LACERA's staff. In general, there will be a greater level of detailed reporting on the annual report when compared to the quarterly reports. Quarterly reporting is meant to serve the purpose of alerting staff to possible adverse developments as well as providing timely updates on the performance and analyses of investments.

Returns will be measured against the universe of performance numbers for vintage year funds, as provided by a third party source such as Cambridge Associates or Burgiss. The comparison of performance to top quartile funds will be a secondary measure of the program's success for the asset class, as it will allow LACERA to measure the ability of its staff and PEA to add value within the asset class.

Monitoring Adherence to Strategy: Staff shall monitor the type, amount, and allocation of investments to ensure that the strategy set forth in this document is adhered to. While some flexibility shall be permitted because of the time that may be required to find attractive investment opportunities, LACERA expects staff and the PEA to adhere to the ranges set forth in this document as well as the investment guidelines as set forth in the Annual Investment Plan.

Proxy Voting for Distributed Securities: LACERA will retain the right to vote all proxies and will vote in accordance with LACERA's public equity proxy voting policy. Proxies for distributed securities must be voted based on protecting and promoting the economic interests of LACERA's members and beneficiaries.

Distributions: LACERA prefers cash distributions to in-kind distributions (stock distributions). Distribution management shall be handled by the PEA, or specialized distribution advisor, who will work closely with staff to ensure the timely sale or transfer of securities. Exceptions to this will be handled on a case-by-case basis.

Cash Management: The amount of cash held by partnerships should be kept to a minimum, and should be used only for working capital. "Just-in-time" drawdowns are preferred in order to stay as fully invested as possible.

F. SUMMARY OF ROLES AND RESPONSIBILITIES

The roles of the Board, staff, PEA, and the general consultant are summarized below:

Board Responsibilities

1. Review and approve the Private Equity Objectives, Policies, and Procedures.
2. Review and approve the Annual Investment Plan.
3. Review performance of the private equity investment portfolio with the PEA and/or staff at least annually.
4. Review and approve primary fund investments and any investment exception or waiver to the investment guidelines, to the extent not delegated.
5. Refer private equity investment opportunities to staff for evaluation, either directly or with the assistance of the PEA.

Staff Responsibilities

1. Develop, evaluate, review, and make recommendations to the Board on the Private Equity Objectives, Policies, and Procedures developed with the PEA or general consultant.
2. Review and evaluate the Investment Plan annually with the PEA, recommending changes to the Board as appropriate.
3. Monitor and report on the activities of the PEA to the Board. Make appropriate recommendations on retention and/or hiring of PEAs.
4. Screen, evaluate, and recommend investments to the Board of Investments in consultation with the PEA.
5. Approve the purchase or sale of any existing fund investment within the Private Equity portfolio in accordance with the secondary program investment guidelines (**Appendix A**).
6. Determine the most effective procedures for addressing stock distributions.
7. Ensure that adequate measurement systems are implemented to monitor the performance and fees of LACERA's private equity investments and its PEA.
8. Meet with the PEA and the Board at least yearly to review performance, asset allocation to the various sub-asset classes of private equity, and other issues that arise.

9. Assure that LACERA has appropriate legal counsel as needed to work with staff to review terms and conditions on all proposed investment vehicles.
10. Document due diligence procedures undertaken for recommended investments, and maintain a checklist to be certified by senior management.
11. The CIO is authorized to approve capital commitments in follow-on-funds up to $150 million per fund [or at the same ownership percentage in the predecessor fund], provided:
    i. LACERA's prior investments in each predecessor fund greater than three years old exceeds the benchmark Median Return for the fund's sub-asset class strategy, and
    ii. There have been no material changes in the investment strategy or key persons, and
    iii. LACERA's PEA concurs with the investment

    The Board will receive written notification of all such actions from staff and PEA.
12. Retain a veto right over which investments are approved for investment in the separate account programs to ensure portfolio fit and no overlapping positions.

PEA(s)Responsibilities

1. Serve the interest of the Board, in support of its fiduciary obligation to LACERA.
2. Proactively disclose any perceived or actual conflicts of interest that might arise.
3. Carry out strategic initiatives, as directed by the Board.
4. Identify opportunities, conduct due diligence, and make investment recommendations/ selections within their approved mandates, working in conjunction with staff.
5. Develop, with staff, the Annual Investment Plan.
6. Monitor investments in conjunction with staff.
7. Work with staff to address the process for handling stock distributions.
8. Work with staff on portfolio performance measurement.
9. Meet with the Board and staff at least annually to review performance of the private equity portfolio.
10. Provide the Board and staff with ongoing educational presentations and/or materials covering market conditions and developments.

11. Adhere to the "prudent expert" standard throughout all phases of the investment process, as overseen by LACERA. Specific processes covered include investment sourcing, consideration, evaluation, recommendation, negotiation, reporting, and monitoring.

General Consultant Responsibilities

1. Work with staff to review the OPP, as necessary.
2. Work with staff, as necessary, to determine the annual private equity allocation.

G. CONCLUDING REMARKS

This Objectives, Policies, and Procedures document provides the framework to guide the private equity portfolio's construction and composition. The OPP states LACERA’s investment objective and strategy and details the responsibilities of all parties. Acknowledging the unique characteristics of the asset class, LACERA will continue to be flexible, opportunistic, and innovative, striving to partner with the best managers to obtain attractive returns at acceptable levels of risk.

LACERA's Private Equity Secondary Program

A. Secondary Purchases

The purchase of existing limited partnership interests in the secondary market is an effective tool in the management of institutional private equity investment programs. The main objective of the secondary program is to strategically and tactically increase investment exposure to fund managers with the goal of improving the long-term economic returns. Secondary investments typically consist of acquiring an interest in a private equity limited partnership from an existing investor that is looking to gain liquidity prior to the full term of the partnership. Attractive secondary purchases provide numerous benefits, such as:

- Investing in an existing portfolio, not a blind pool.
- Shorter average holding periods due to nearer term realizations.
- Ability to minimize the "j-curve" effect due to the more mature portfolio status.
- Ability to strategically and tactically manage a portfolio's diversification.
- Possibility of purchasing assets at a discount to current carrying value and a further discount to fair market value.

The increasing supply and broadening access to secondaries has enabled many institutional investors to move beyond the traditional buy-and-hold strategy enabling to actively manage their portfolios through the acquisition of secondary partnership interests.

I. Secondary Purchase Investment Guidelines

- Secondary investments are permitted in funds where LACERA is an existing investor.
- Mature secondary investments are permitted in funds that are of the same institutional quality and are substantially similar to those which LACERA commits to on a primary basis. Mature secondary investments are those where blind pool risk is eliminated, as the fund is no longer in its investment period.
- Investments are permitted on single limited partnership interests or broad portfolios of multiple interests.
- CIO authority to approve secondary purchases phased in over five years:
    - Up to $100 million/year in calendar years 2018 and 2019
- CIO has the authority to approve secondary purchases at prices deemed attractive by the Investment Division and an approved Secondary Advisor.
- Investments are not permitted where they would violate the most recently Board-approved Private Equity Objectives, Policies, and Procedures document, including, for example Sub-Asset Class target allocation ranges and manager concentration limits.
- Investments are not permitted if they would result in LACERA breaching a maximum exposure to secondary fund investments of 10 percent of LACERA's private equity portfolio market value plus unfunded commitments at the time of purchase.

- Secondary purchases are permitted if they match the parameters defined in the table below. Purchase price is defined as net asset value (“NAV”) plus unfunded commitments.

	SECONDARY PURCHASE PARAMETERS - CIO DELEGATED AUTHORITY
(Includes NAV + Unfunded Commitments - $MM)	2018-2019
Annual Purchase Limit	$100
Maximum Any Single Interest	$65
Maximum Non-U.S.	75
Single Non-U.S. Country Limits	50
Maximum Emerging Market	50
Maximum to Venture Capital	65
Maximum to Special Situations	65
Manager Concentration Limits	65
Percent of Mature Secondaries	100%
Fund Generation	No Fund I’s

II. Secondary Purchase Investment Process

Staff will implement secondary purchases through the following process:

Sourcing: Secondary investment opportunities would be sourced directly from general partners and limited partners of private equity funds. Opportunities may also be sourced through secondary managers, intermediaries and industry databases.

Screening: Investments would be considered in partnerships that provide strategic and/or tactical benefits to the overall private equity program. This includes partnerships that have the potential to enhance returns and/or help manage sector exposure for LACERA’s private equity program.

Evaluating: Secondary opportunities that fall within the secondary purchase investment guidelines of enhancing potential returns and/or helping manage sector exposure would be evaluated to determine if a full valuation analysis should be conducted by Staff and the Secondary Advisor. A valuation analysis will be conducted to estimate the fair market value of the partnership and help determine the negotiation parameters, including a bidding range, which obtains CIO approval.

Offer and Negotiation: If a secondary opportunity meets all of LACERA’s investment guidelines, Staff will have discretion to make an offer, negotiate a final price, and execute transfer documents on behalf of LACERA. Since the purchase of specific partnership interests are unique to LACERA, to the extent negotiations of terms and contracts require legal counsel, outside legal counsel may need to be retained and paid for by LACERA.

Reporting: CIO's monthly letter and staff's semi-annual update report to the Board will include a summary of completed secondary purchase transactions. The information provided will include:

fund name, vintage year, fund type, original commitment amount, date of transfer, total amount of the transaction, and net asset value.

Monitoring: Secondary investments will be monitored along with all private equity investments. Secondary investments will be placed in the appropriate sub-asset class of the private equity program based on the investment strategy of the fund.

B. Secondary Sales

The disposition of existing limited partnership interests in the secondary market is a complicated process; however, it is an effective tool in strategically and tactically managing a private equity portfolio. Selling certain interests in a private equity portfolio can serve to:

- Eliminate lower-impact holdings including mature and non-strategic assets.
- Reduce the number of holdings in the portfolio.
- Provide added liquidity to recycle capital into new private equity investments.
- Adjust the risk profile of the portfolio by adjusting the asset mix.

While still resource intensive, the secondary sale process has become efficient. Sophisticated buyers and sellers, leveraging advisors, are able to ascertain fair market value for securities.

I. Secondary Sale Disposition Guidelines

- All sales must provide strategic, tactical and/or economic benefits that assist LACERA in meeting its investment goals.
- The program will consider selling undesired holdings that include both mature secondaries, as well as hybrid secondaries.
    - Sell determinations will fall under the following criteria:
        - *Poor Performing*: Poor performing assets that have little to no potential to materially improve the future performance of the private equity program.
        - *Tail Ends*: Mature assets that have provided a significant portion of their potential performance, whether attractive or poor, and the remainder of the assets have little to no potential to materially improve the future performance of the private equity program. These assets will typically have little value remaining in the capital account and/or few holdings remaining in the fund.
        - *Non-strategic*: Assets that have an investment focus that is no longer a strategic part of LACERA's investment objectives and there is little to no potential to materially improve the future performance of the private equity program.
        - *Strategic*: Assets that can help improve the overall purchase prices and returns associated with the secondary sale.
- The sale program will opportunistically consider the sale of single limited partnership interests and portions of partnership interests as well as portfolios of interests. Portfolio

sales will be considered when the aggregated benefit to the private equity program is more attractive than individual dispositions.

- The CIO would have the authority to approve the disposition of portfolio assets within LACERA's disposition guidelines as long as the sale is in the best interest of the Trust.
- CIO authorized to approve secondary sales up to $500 million/year.

II. Secondary Sale Disposition Process

Staff will conduct secondary sales through the following process:

Identify assets for disposition: Analysis of private equity investments will be conducted at least annually to determine if any assets are appropriate for disposition and whether the resources are available to conduct a disposition process over the coming year. The assessment will be done based on the sell criteria noted in the Secondary Sale Disposition Guidelines.

Analysis of individual partnerships: The next step in the process is to gather information on each fund and the underlying portfolio companies for analysis. Further due diligence will be conducted with the general partner and the Secondary Advisor to estimate the fair market value of the underlying holdings. Discussions with the general partner to determine transferability of each partnership interest will also occur. The result of the analysis will be a determination of the desired value range for the portfolio of assets.

Coordinating offers: At this stage, third party market makers may be contacted to evaluate the marketability of the portfolio and offer their own value assessment. If third party market makers are used, staff may interview more than one market maker to help ensure best execution. The preliminary pricing expectations will be compared to LACERA's valuation range. A determination will be made on whether the process should continue and a market maker hired. At this stage, consideration will also be given to the attractiveness of the portfolio mix and make-up. Adjustments may be made to improve marketability. Examples of possible adjustments would be to add more attractive (i.e., "Strategic") assets to pique buyer interests or to expand the portfolio's size to appeal to larger buyers.

Facilitating due diligence: Once staff selects the partnerships to be sold, staff will organize due diligence material, screen potential buyers and solicit bids. Staff will provide potential buyers with access to pertinent information and data within a defined time frame with the objective of maximizing LACERA's value. If a third party market maker is hired to coordinate offers, they could also assist with facilitating due diligence.

Negotiations: At the end of the defined due diligence time frame, final terms and prices will be collected and a preferred buyer will be selected to begin negotiating transfer and purchase/sale agreements. If the value does not meet LACERA's expectations, the process may be halted.
Since the sale of specific partnership interests are unique to LACERA, to the extent negotiations of terms and contracts require legal counsel, outside legal counsel may need to be retained and paid for by the market maker or LACERA.

Approval: Staff has discretion within the established guidelines of the disposition program to finalize terms and pricing and execute the transaction.

Completing transfer process: Final legal documents will be reviewed by legal counsel and executed by the CIO.

Reporting: Once this pool of assets has been fully disposed, Staff will report to the Board of Investments as part of the semi-annual review, and CIO as part of the monthly letter. The report will include a summary of the completed secondary transaction. The information provided will include: fund names, vintage years, fund types, commitment amounts, dates of transfer, the aggregate general partner reported net asset value, the aggregate estimated fair market value and the aggregate sale value. Periodic reporting will include information on any holdings sold under the program, as well as the remaining values of partially sold interests.

III. Secondary Market Firms

Secondary Advisors: The Secondary Advisor is a fee-based consultant with a fiduciary responsibility to LACERA whose role is to advise on the valuations of secondary sales and purchases. Staff will establish criteria, evaluate, and periodically recommend Secondary Advisors to the Board. Staff will select Secondary Advisors from the approved list as deemed appropriate for specific situations.

Secondary Brokers or Intermediaries: Secondary Brokers or Intermediaries are commission-based consultants whose role is to facilitate the sale or purchase of secondaries by connecting buyers and sellers. Staff will establish criteria, evaluate, and periodically recommend Secondary Brokers and Intermediaries to the Board. Staff will select Secondary Brokers and Advisors from the approved list as they deem appropriate for specific situations.

L//.CERA

November 21, 2018

TO: Each Member
Board of Investments

FROM: Equity: Public/Private Committee
Herman Santos, Chair
Wayne Moore, Vice Chair
Gina V. Sanchez
Shawn R. Kehoe
David Green, Alternate

Christopher J. Wagner CJW
Principal Investment Officer

David E. Simpson, CFA DES
Investment Officer

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **2019-2020 PRIVATE EQUITY STRUCTURE REVIEW**

RECOMMENDATION

Approve the 2019-2020 Private Equity Structure Review.

BACKGROUND

On November 8, 2018, staff presented a proposed 2019-2020 Private Equity Structure Review to the Equities: Public/Private Committee. The biennial Structure Review adopts a new format and replaces the Annual Investment Plan ("AIP"). The proposed commitment pace is noted in the discussion section of the attached staff cover memo to the Committee. The investment themes and initiatives are detailed in the Structure Review document. The Committee voted to advance this item to the Board of Investments for approval with no additional changes.

The following documents enclosed are i) the cover memo to the Committee (**Attachment**), ii) the 2019-2020 Structure Review (**Attachment A**), iii) for your reference, the 2018 AIP (**Attachment B**), and iv) StepStone Group LLC, LACERA's private equity advisor, recommendation memo (**Attachment C**).

OPTIONS AVAILABLE TO THE BOARD

The Structure Review covers the entire Private Equity Program. If the Board does not approve the Structure Review, staff will consult with the Committee and propose an alternative or include the Board's direction in revised documents.

DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE

Some of the opinions expressed by Committee members during its debate and staff's response include the following:

Committee members lauded the forward-looking strategic focus of the Structure Review and concurred that the biennial review was an appropriate governance timeframe. Staff discussed the impact of the potential secondary sale on the StepStone pacing model. Committee members also expressed appreciation for inclusion of the Operations slide that provided insights into the investment opportunity due diligence and approval processes.

RISKS OF ACTION AND INACTION

Board approval of the 2019-2020 Structure Review authorizes LACERA to commit $1.5 billion in 2019 and $1.6 billion in 2020 to private equity investments during the coming calendar years (+/- 20%).

If the Board does not approve the 2019-2020 Structure Review, private equity investments and strategy initiatives could be delayed.

CONCLUSION

Staff, in consultation with StepStone, LACERA's Private Equity Advisor, proposed the 2019-2020 Structure Review, the primary planning document for the Private Equity Program. The Equity Public/Private Committee reviewed and advanced the document for approval at its November 2018 meeting. Staff recommends the Board approve the document.

Attachments

Noted and Reviewed:

____
Jonathan Grabel
Chief Investment Officer

CW:DES:mm

October 29, 2018

TO: Each Member
Equity: Public/Private Committee

FROM: Christopher J. Wagner cjw
Principal Investment Officer

David E. Simpson, CFA DES
Investment Officer

FOR: November 8, 2018 Equity: Public/Private Committee Meeting

SUBJECT: **2019-2020 PRIVATE EQUITY STRUCTURE REVIEW**

RECOMMENDATION

Advance the 2019-2020 Structure Review to the Board of Investments for approval.

BACKGROUND

Staff has prepared the 2019-2020 Private Equity Structure Review (**Attachment A**) for review by the Board of Investments Equity Committee and ultimately for approval by the Board of Investments. Staff proposes that this biannual Structure Review replace the annual Investment Plan.[1] StepStone Group LLC ("StepStone" or "Advisor"), LACERA's private equity advisor, has reviewed the Structure Review and concurs with the recommendation (their memo is included as **Attachment C**). The primary purpose of the Structure Review is to establish an appropriate commitment pace for the 2019-2020 calendar year, identify key investment themes, outline upcoming initiatives, and ensure appropriate diversification to private equity investment strategies (i.e., Buyouts, Venture Capital, and Co-Investments/Fund-of-Funds).

StepStone calculated a potential annual commitment pace for the 2018-2027 period. Using their investment-pacing model for estimating private equity commitments, for the years covered by this Structure Review, StepStone projected that LACERA should commit up to $1.5 billion (+/- 20%) in 2019 and $1.6 billion (+/- 20%) in 2020. The wide range recognizes variability in the economy, the private equity marketplace, fund availability, constraints to allocation access, and fluctuations in the total plan assets denominator. StepStone factored in LACERA's potential secondary sale disposition. In subsequent years, LACERA expects to increase gradually the deployment pace to maintain the 10% target allocation level.

In calculating the projected commitment pace, StepStone made several assumptions about the rate of contributions and distributions to the Fund, economic growth rates, fund durations, and

[1] The 2018 Private Equity Investment Plan (**Attachment B**) is included for reference.

LACERA's commitments by strategy. As the economy and market are subject to change, the pacing model is viewed as a planning tool and proposed investments during the year will depend on market conditions, the availability of high-quality opportunities, and LACERA's overall exposure to private equity.

Throughout calendar years 2019-2020, staff and StepStone will look for quality investments (both re-ups and new) in each investment strategy of the Private Equity Program. Over the past five years, LACERA's commitments have been approximately 70% to Buyouts and 78% to U.S. managers. While LACERA will maintain relationships with compelling managers returning to the marketplace, an emphasis in the upcoming period will be on increasing exposure to top-tier funds outside of the United States. Staff and StepStone expect this strategy will incorporate several new, top-quality managers.

CONCLUSION

The deployment pace of up to $1.5 billion (+/- 20%) in 2019 and $1.6 billion (+/- 20%) in 2020 which staff and StepStone recommend, positions LACERA to execute its plan of investing in top-tier private equity funds coming to market in the coming years. This also allows LACERA to move toward the target private equity exposure of 10% of the overall Fund.

Attachments

NOTED AND REVIEWED:

____

Jonathan Grabel
Chief Investment Officer

CJW:DES:mm

ATTACHMENT A

Private Equity
2019-2020 Structure Review

Equity: Public/Private Committee

November 8, 2018

Christopher J. Wagner – Principal Investment Officer
David E. Simpson, CFA – Investment Officer

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

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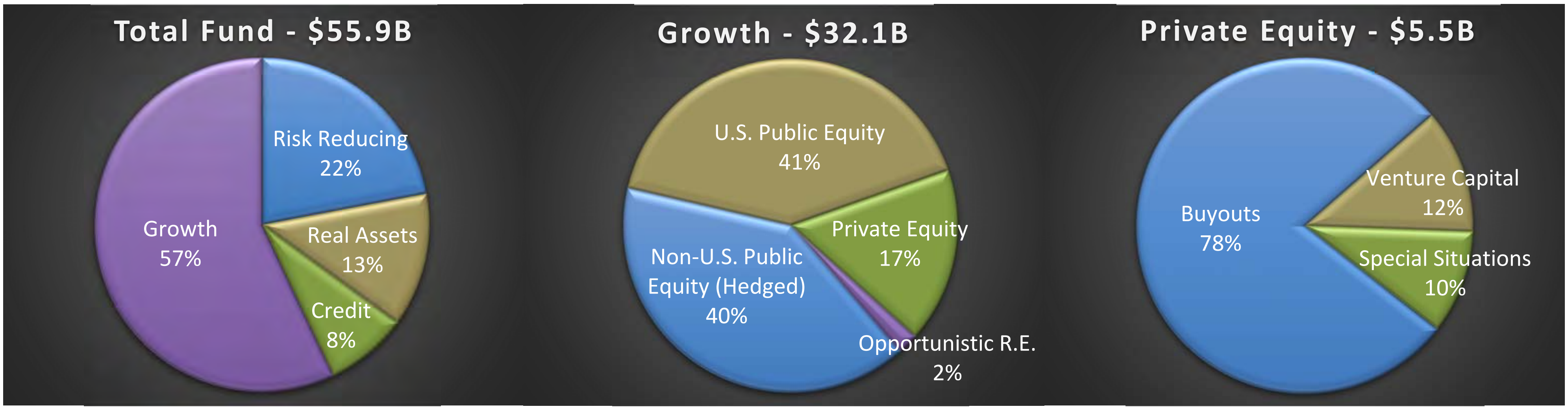
Role of Private Equity*



- Growth investments are the primary driver of long term total Fund returns.
- Within the growth category, private equity is expected to generate the highest performance at an acceptable level of risk.
- The target return for private equity is 200 basis points over the MSCI ACWI IMI** Index, net of all fees.

**Data as of March 31, 2018.*
***Morgan Stanley Capital International, All Country World Index, Investable Market Index.*

Market Environment and Opportunity

High valuations

- Market valuations remain at all time high levels. Current U.S. LBO EV/EBITDA* ratio stands at 11.5x. This exceeds the pre-GFC levels.

Increased political risk

- Populism is creating a level of political and economic uncertainty related to trade, economic unions, currencies, and regulatory environments.

Demographic shifts

- Aging populations in developed markets, surging youth in emerging markets, growing minority populations in the U.S., migrations driven by despair and hope, emerging market middle class growth and consumption, and sustainability.

Technological advancement

- The convergence of media, technology, and connectivity (combined with big data and artificial intelligence) is in early stages of disrupting many industries.

** Enterprise Value / Earnings Before Interest, Taxes & Depreciation.*

Portfolio Structure - Allocation and Commitment*

LACERA's Plan Level Target Allocation Status Projected December 31, 2018 ($MM)	
Total Fund Value	$58,311
Net Asset Value	$5,220
Allocation %	9.0%
Target Allocation	10%
Target Allocation Range	7%-13%

Recommendation

Adopt proposed target commitment amounts for 2019 and 2020 of $1.5 billion and $1.6 billion (both +/- 20%) respectively, until the next Structure Review.

StepStone Pacing Model: 2019 -2024 Projections** ($MM)						
Calendar Year	New Commitments	PE Draw-downs	PE Distributions	PE Market Value	Total Portfolio Value	PE Allocation %
2019	$1,500	$1,452	$1,416	$5,872	$61,199	9.6%
2020	$1,600	$1,453	$1,700	$6,207	$64,249	9.7%
2021	$1,600	$1,491	$1,884	$6,535	$67,441	9.7%
2022	$1,700	$1,544	$1,865	$6,994	$70,744	9.9%
2023	$1,700	$1,585	$1,982	$7,448	$74,156	10.0%
2024	$1,800	$1,644	$2,139	$7,865	$77,695	10.1%

Target Allocation Model Commentary

1. New commitment targets assume a +/- 20% range, based on opportunities available in the marketplace.
2. Model projects increasing allocations over the next five years i) to recoup potential 2018 secondary sale disposition, and ii) methodically pace deployment 10 years into a bull market.

** StepStone model factors in LACERA's potential secondary sale.*

*** StepStone model assumptions are in Appendix A.*

Portfolio Structure by Investment Type*

As of 6/30/2018	Active GPs	Market Value	Outstanding Commitments	Sum of Exposure	% of Total Exposure	Current Range	Proposed Range
Buyout - Global	5	$766	$703	$1,468	19%		
Buyout - Large	4	$932	$639	$1,571	20%		
Buyout - Mid	7	$602	$452	$1,054	13%		
Buyout - Small	11	$595	$730	$1,325	17%		
Buyouts SubTotal	**27**	**$2,894**	**$2,524**	**$5,418**	**68%**	**50% - 85%**	**50% - 85%**
Co-Investments	1	$330	$35	$365	5%		
Fund of Funds**	2	$656	$313	$969	12%		
FoF/Co-Inv Subtotal	**3**	**$987**	**$349**	**$1,336**	**17%**	**N/A**	**10% - 25%**
Growth Equity	4	$256	$102	$358	5%		
VC - Balanced	3	$270	$46	$316	4%		
VC - Early Stage	5	$150	$153	$304	4%		
VC - Late Stage	2	$166	$35	$201	3%		
VC/GE SubTotal	**14**	**$842**	**$337**	**$1,179**	**15%**	**10% - 25%**	**15% - 30%**
Grand Total	**44**	**$4,723**	**$3,210**	**$7,933**	**100%**		

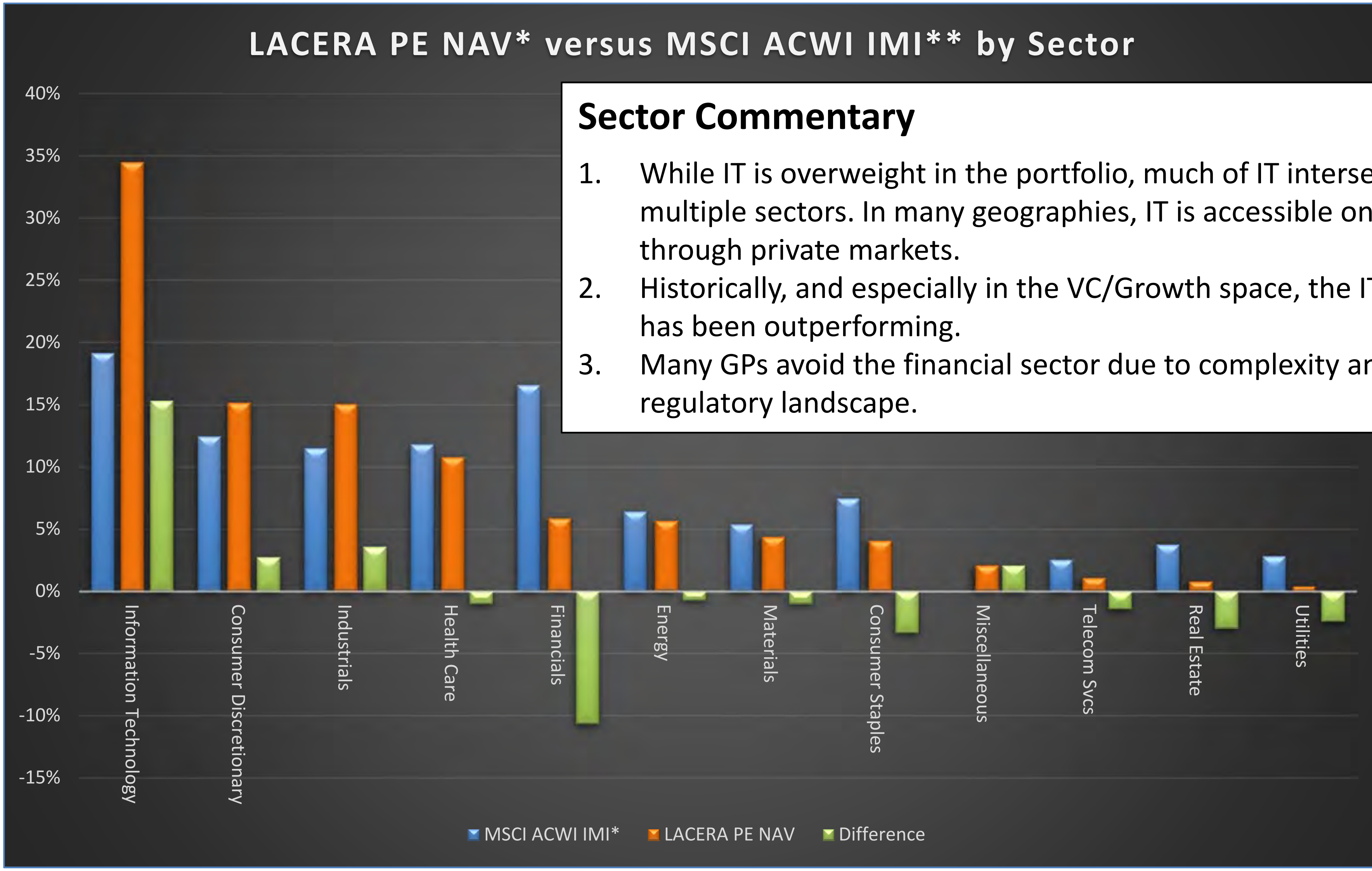
Investment Type Commentary

1. Propose reclassifying Special Situations (formerly 5%-25% range) to Credit and Real Assets.
2. Propose formally establishing a target range for Co-Investments/FoF at 10%-25%.
3. Continued goal is to increase the average exposure to GPs at smaller end of market.
4. Given attractive return profile and opportunity set (see Appendix D), propose increasing VC/Growth Equity allocation to 15%-30%.

** Excludes GPs associated with proposed secondary sale.*

*** Fund-of-Funds represent an additional 95 primary fund relationships.*

Portfolio Structure – Industrial Sector



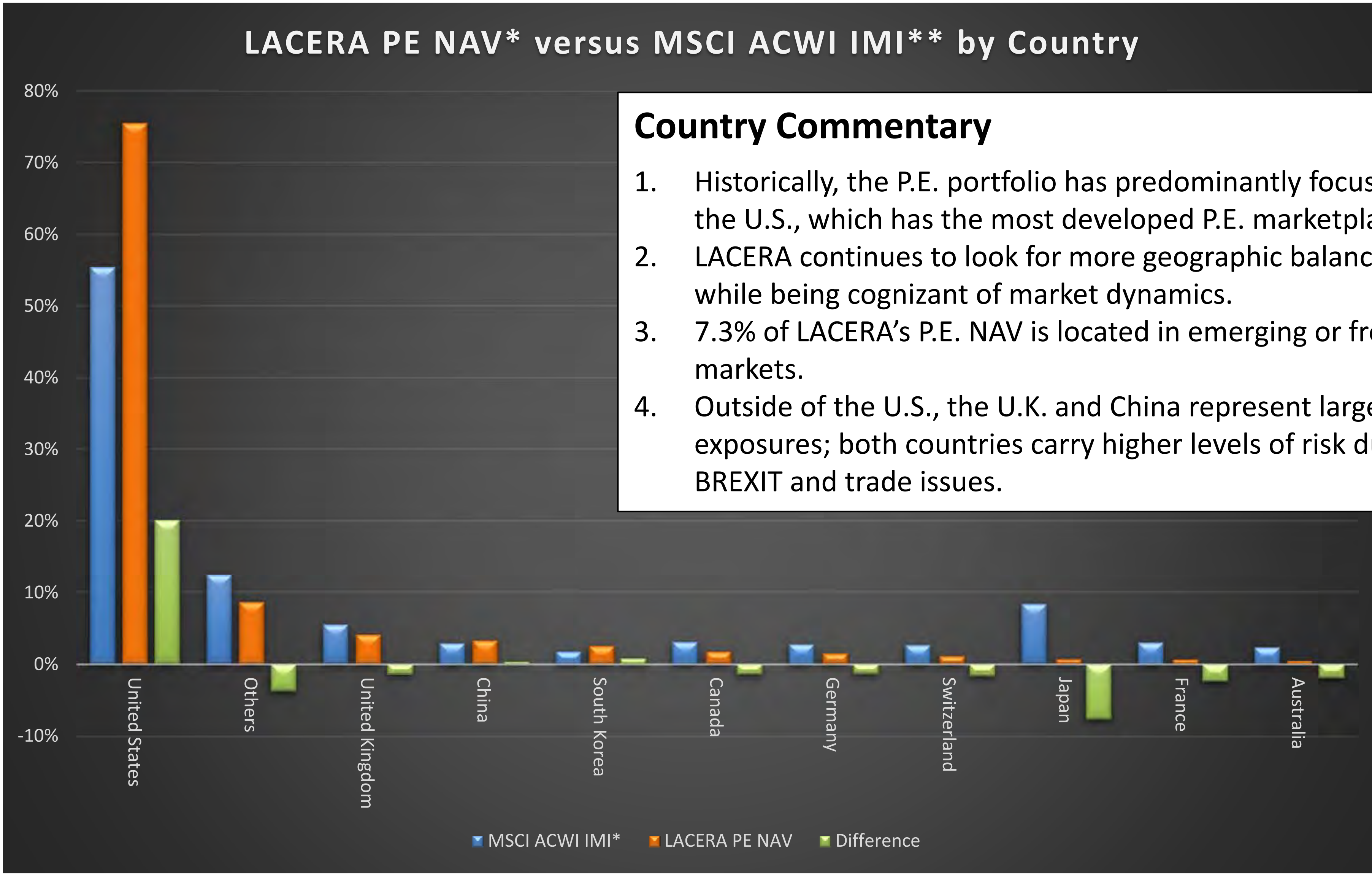
Sector Commentary

1. While IT is overweight in the portfolio, much of IT intersects multiple sectors. In many geographies, IT is accessible only through private markets.
2. Historically, and especially in the VC/Growth space, the IT sector has been outperforming.
3. Many GPs avoid the financial sector due to complexity and the regulatory landscape.

**Based on September 28, 2018 values.*

***Morgan Stanley Capital International, All Country World Index, Investable Market Index.*

Portfolio Structure - Country



Country Commentary

1. Historically, the P.E. portfolio has predominantly focused on the U.S., which has the most developed P.E. marketplace.
2. LACERA continues to look for more geographic balance, while being cognizant of market dynamics.
3. 7.3% of LACERA's P.E. NAV is located in emerging or frontier markets.
4. Outside of the U.S., the U.K. and China represent largest exposures; both countries carry higher levels of risk due to BREXIT and trade issues.

**Based on September 28, 2018 values.*

***Morgan Stanley Capital International, All Country World Index, Investable Market Index.*

Portfolio Performance - Sub-Strategy

Strategy / Sub-Strategy	Cumulative Contributions	Cumulative Distributions	Market Value	Total Value	Total Value to Paid-in	Since-Inception Net IRR	Since-Inception PME*
Buyout	$7,732.0	$9,402.9	$3,447.2	$12,850.1	1.66x	13.8%	1.21
Buyout - Global	2,818.5	4,078.1	902.9	4,981.0	1.77x	16.3%	1.28
Buyout - Large	2,139.7	2,508.8	1,177.7	3,686.5	1.72x	15.4%	1.26
Buyout - Mid	1,470.6	1,455.1	704.0	2,159.1	1.47x	10.2%	1.09
Buyout - Small	1,303.2	1,360.9	662.6	2,023.5	1.55x	10.9%	1.08
Venture Capital	$1,251.3	$1,807.6	$598.7	$2,406.3	1.92x	21.7%	1.21
Venture Capital - Balanced	561.2	754.0	275.0	1,029.0	1.83x	16.3%	1.09
Venture Capital - Early Stage	444.4	772.6	157.8	930.4	2.09x	73.0%	1.34
Venture Capital - Late Stage	245.8	281.1	165.8	446.9	1.82x	24.7%	1.33
Co-Investments	$575.2	$594.4	$366.2	$960.6	1.67x	18.7%	1.12
Fund of Funds	$865.1	$546.6	$715.7	$1,262.3	1.46x	10.6%	1.07
Growth Equity	$566.9	$1,026.3	$257.4	$1,283.8	2.26x	86.8%	1.58
Secondaries	$151.3	$230.0	$2.0	$231.9	1.53x	17.2%	1.23

Performance Commentary

1. In each sub-strategy, LACERA has generated performance that exceeds the PME benchmark.
2. Growth equity and venture capital, driven by long term relationships, have performed exceptionally well.

*Public Market Equivalent designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.

Investment Themes

High valuations

- Focus on GPs who have invested through several cycles.
- Target GPs with sustainable competitive advantages that translate into proprietary sourcing, preferential valuations, and the ability to accelerate value creation.

Increased political risk

- Remain cautious about increased geopolitical risk.
- Favor countries with strong internal domestic consumption.

Demographic shifts

- Target GPs globally specializing in healthcare, education, logistics, and healthy lifestyles.
- Domestically and in select emerging markets, target GPs positioned to address predictable consumption patterns of identifiable market segments.

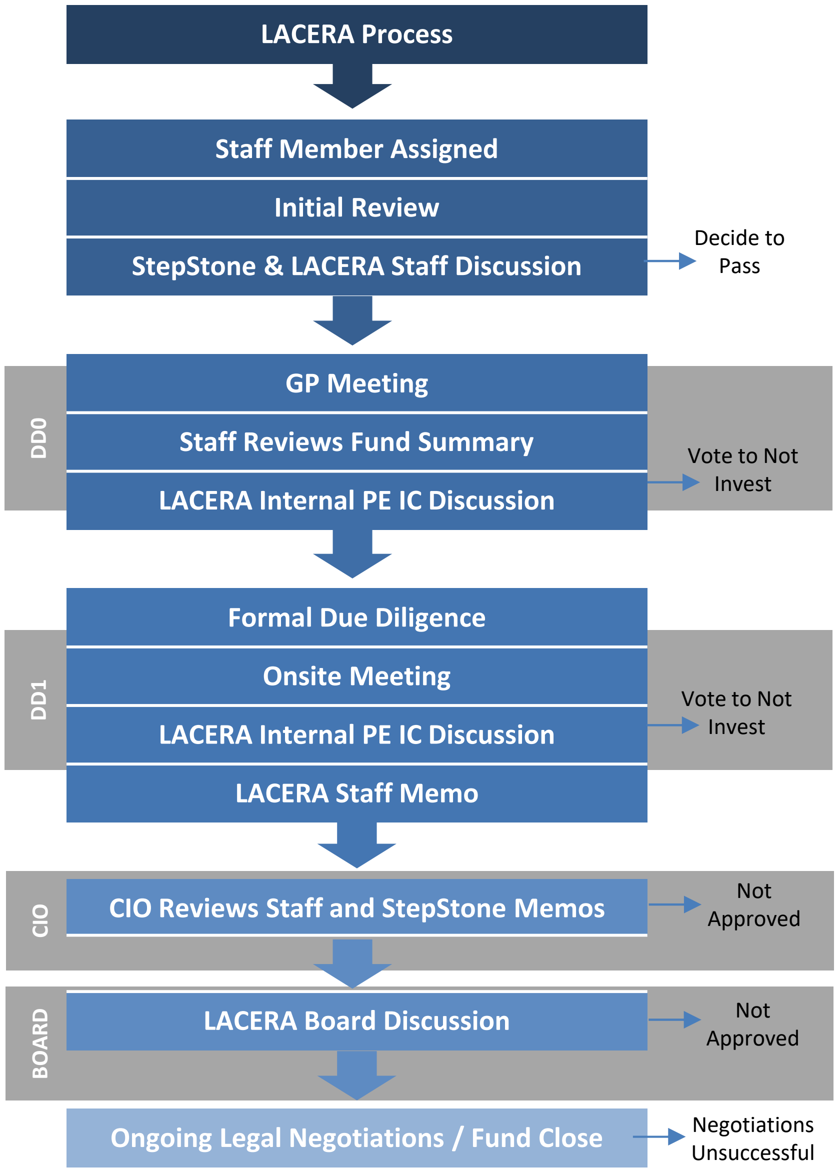
Technological advancement

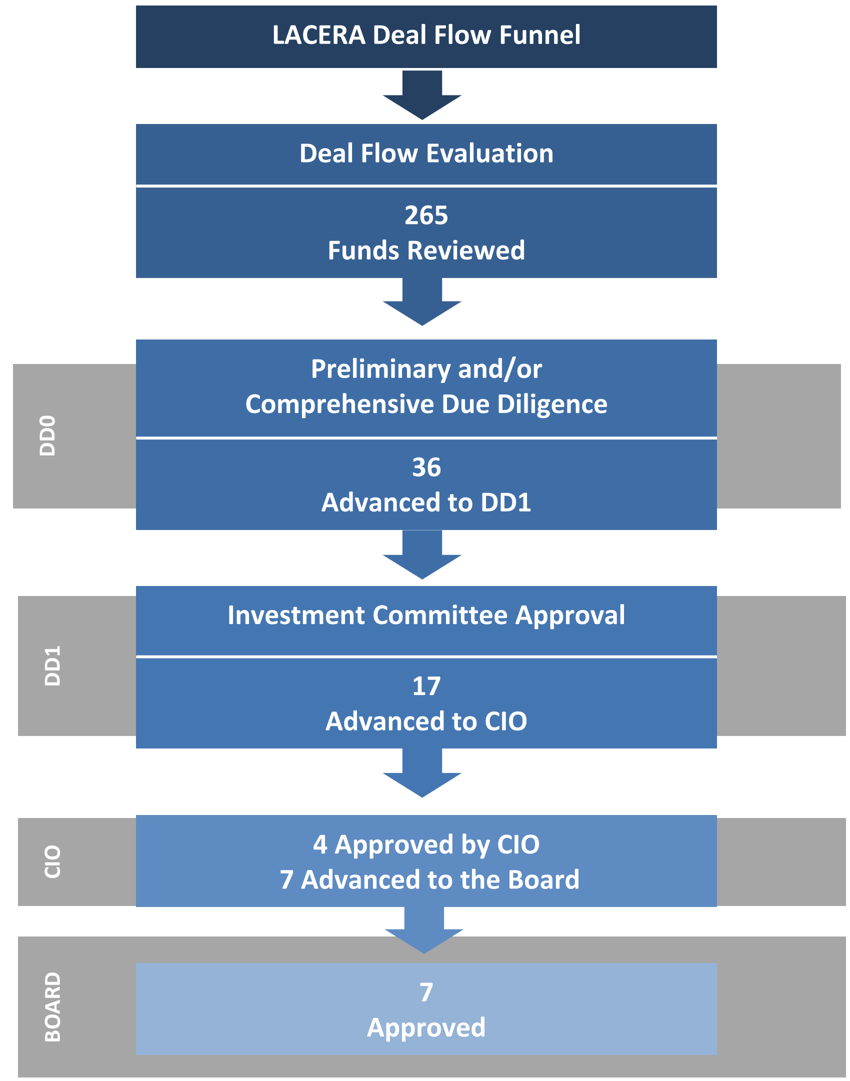
- Remain cautious about industries undergoing transformation (e.g., retail, auto).
- Increase exposure to GPs specializing in financial technology, mobility and e-commerce, artificial intelligence, big data, and cybersecurity.

Initiatives

- Review of Co-Investment program.
- Exploration of VC incubators.
- Incorporating ILPA ESG diversity and inclusion initiatives.
- Continued assessment of legacy relationships.
- Manager scorecard development.
- Implementation of knowledge management system.

Operations


LACERA Process
Staff Member Assigned
Initial Review
StepStone & LACERA Staff Discussion
Decide to Pass
DD0
GP Meeting
Staff Reviews Fund Summary
LACERA Internal PE IC Discussion
Vote to Not Invest
DD1
Formal Due Diligence
Onsite Meeting
LACERA Internal PE IC Discussion
LACERA Staff Memo
Vote to Not Invest
CIO
CIO Reviews Staff and StepStone Memos
Not Approved
BOARD
LACERA Board Discussion
Not Approved
Ongoing Legal Negotiations / Fund Close
Negotiations Unsuccessful


LACERA Deal Flow Funnel
Deal Flow Evaluation
265
Funds Reviewed
DD0
Preliminary and/or
Comprehensive Due Diligence
36
Advanced to DD1
DD1
Investment Committee Approval
17
Advanced to CIO
CIO
4 Approved by CIO
7 Advanced to the Board
BOARD
7
Approved

Advance to Board

Staff proposes advancing the following

- Adopt proposed target commitment amounts for 2019 and 2020 of $1.5 billion and $1.6 billion (both +/- 20%) respectively, until the next Structure Review.
- Reclassify Special Situations to Credit and Real Assets.
- Establish a target range for Separately Managed Accounts at 10%-25%.
- Increase the allocation to VC/Growth Equity to 15%-30%.

Appendices

Appendix A – Allocation Model Assumptions

- StepStone pacing model driven by five independent variables[1]:
  - Rate of contributions
  - Rate of distributions
  - Annual growth or return by sub-sector
  - Life of fund in years
  - Annual commitments by sub-sector
- StepStone's preliminary pacing model utilizes the following assumptions for LACERA's portfolio:
  - Total Portfolio Value: $55.6 billion[2]
  - Actuarial Rate of Return (net): 7.25%[3]
  - Annual Cash Contributions: $2.1 billion for 2018, growing 3.8% per year on average through 2027[4]
  - Annual Cash Distributions: $3.4 billion for 2017, growing 4.5% per year on average through 2027[4]
  - Target Private Equity (% of Total FMV): 10.0%
- PE Weighted Average Return assumptions equate to:
  - Base Case Net IRR of 12.50% (only scenario used for purposes of chart on previous page)
  - High Case Net IRR of 18.75%
  - Low Case Net IRR of 6.25%
- StepStone assumed the following exposures going forward:
  - Buyout 75%
  - VC/Growth 20%
  - Co-investments 5%

(1) Any return contained herein is hypothetical and is not a guarantee of future performance. The returns set forth herein do not constitute a forecast; rather they are indicative of the internal transaction analysis regarding outcome potentials. Any returns set forth herein are based on Stepstone's belief about the returns that may be achievable on investments that the Partnership intends to pursue. Such returns are based on current view in relation to future events and financial performance of potential investments and various models, estimations and "base case" assumptions made, including estimations and assumptions about events that have not occurred. Actual events and conditions may differ materially from the assumptions used to establish returns and there is no guarantee that the assumptions will be applicable to the Partnership's investments

(2) Total Portfolio Value for YE2017 provided by LACERA

(3) The Actuarial Assumed Rate of Return as adopted by the LACERA Board of Investments

(4) Projected portfolio contributions and distributions for calendar years, as provided by LACERA on 9/25/18

Appendix B – 2018 Commitments

Board Date	Fund Name	Commitment ($ in Millions)
February 14, 2018	GTB II-B	$100
April 11, 2018	Juggernaut Capital Partners IV	$125
May 9, 2018	AE Industrials Fund II	$100
June 13, 2018	Storm Ventures Fund VI*	$50
August 8, 2018	Accel-KKR Growth Capital Partners III	$50
September 12, 2018	Riverside Micro-Cap Fund V, L.P.	$65
September 12, 2018	Triton Fund V, L.P.	$175
September 12, 2018	GGV Discovery II, GGV VII, GGV VII Plus*	$100
September 12, 2018	Hellman & Friedman Capital Partners IX*	$150
October 10, 2018	Siris Partners IV*	$100
		$1,015

LACERA did not re-up in the following funds

- ABRY Advanced Securities Fund III
- Carlyle Partners VII
- Institutional Venture Partners XVI
- Palladium Equity Partners V
- Riverside Capital Appreciation Fund VII
- Vista Equity Partners Fund VII

** Denotes re-up commitment approved under CIO authority.*

Appendix C – 2019 Potential Re-Ups

MOST RECENT FUND INVESTMENT	COMMITMENT DATE	VINTAGE YEAR	STRATEGY	PRIOR COMMITMENT	CUMULATIVE CONTRIBUTIONS	PERCENT COMMITTED
Insignia Capital Partners (Parallel A), L.P.	9/2013	2013	Buyout - Small	100.0	49.5	50%
Palladium Equity Partners IV, L.P.	2/2014	2014	Buyout - Small	100.0	90.1	90%
The Energy & Minerals Group Fund III, L.P.	3/2014	2014	Energy	150.0	142.6	95%
Centerbridge Capital Partners III, L.P.	10/2014	2015	Distressed	75.0	41.1	55%
Carlye U.S. Equity Opportunity Fund II, L.P.	3/2015	2015	Buyout - Mid	200.0	106.1	53%
BDCM Opportunity Fund IV, L.P.	6/2015	2015	Distressed	100.0	83.2	83%
GBOF V Feeder SCS	11/2015	2016	Buyout - Mid	87.4	39.0	45%
Harvest Partners VII, L.P.	12/2015	2016	Buyout - Mid	80.0	48.7	61%
BRV Aster Fund II, L.P.	9/2016	2017	Venture Capital - Early Stage	40.0	24.0	60%
LAV Biosciences Fund IV, L.P.	2/2017	2017	Venture Capital - Balanced	40.0	17.9	45%
Livingbridge 6, L.P.	7/2016	2016	Buyout - Small	52.9	18.8	36%
Green Equity Investors VII, L.P.	2/2016	2017	Buyout - Mid	150.0	55.8	37%
Blackstone Capital Partners VII, L.P.	5/2015	2016	Buyout - Global	200.0	48.5	24%

Appendix D – Fund Opportunity Set

Global Regions	Fund Type	Vintage Years 2016-2018: Fund Count	Fund Size Sum ($ Millions)	% of Capital Raised
United States	Buyout	453	432,031	71%
	PE Growth-Expansion	114	58,258	10%
	Venture Capital	692	94,537	16%
	Venture Capital - Early Stage	135	13,788	2%
	Venture Capital - Later Stage	15	5,708	1%
	All	1,409	604,321	100%
All	Buyout	777	727,140	67%
	PE Growth-Expansion	206	185,751	17%
	Venture Capital	1,113	149,894	14%
	Venture Capital - Early Stage	206	21,432	2%
	Venture Capital - Later Stage	24	7,641	1%
	All	2,326	1,091,858	100%

Rationale for Increasing VC/GE Allocation

Currently, 10% of LACERA's PE NAV is in VC and 5% in Growth Equity funds.

Per PitchBook, over the past three years, in the U.S., 19% of the capital targeted VC and 10% Growth Equity.

Globally, over that same period of time, 17% of the capital targeted VC and 17% Growth Equity strategies.

Given this opportunity set, combined with LACERA's desire to increase non-U.S. exposure, raising LACERA's target range from 10%-25% to 15%-30% is justified.

ATTACHMENT B

Los Angeles County Employees Retirement Association
2018 Private Equity Investment Plan

January 10, 2018

Table of Contents

APPENDICES

A. Introduction

The Private Equity Annual Investment Plan ("Plan") reviews the portfolio's target allocations, current composition, and the 2017 investment activity. The document then looks forward to the investment pace and strategies for the Private Equity Program ("Program") in calendar year 2018.

The primary objective of the Program is to achieve an attractive total return for the Fund at an acceptable level of risk. The target return for this asset class, as measured by Internal Rate of Return (IRR)[1], is an annualized return of 300 to 500 basis points over the Russell 3000 Index over a rolling 10-year time frame, net of all partnership and advisor fees. The primary strategy is to prudently build a diversified portfolio of the most attractive investment opportunities securing the best possible terms while mitigating risks. The 2018 Investment Plan provides a tactical roadmap for how the Program will be managed in order to execute this strategy.

Three appendices are attached to the Plan. A glossary of terms is included in **Appendix A**. LACERA's policy regarding the privatization of jobs held by LACERA's members is included in **Appendix B**. StepStone Group LP ("StepStone" or "Advisor") serves as a private equity advisor ("PEA") to LACERA and provided their memorandum confirming agreement with the Plan, included as **Appendix C**.

[1] IRR: A measure of performance used to evaluate the attractiveness of an investment. The interest rate at which the net present value of all cash flows is zero.

B. Portfolio Target Allocations

The target allocations for the asset class and the sub-asset classes are approved annually by the Board during their review of the Private Equity Objectives, Policies, and Procedures document. The allocations are incorporated herein to restate current exposure and diversification levels.

I. Asset Class Allocation Target

In October 2015, the Board established a target allocation of 10 percent for private equity investments, with an acceptable range of 7 percent to 14 percent. Given the unpredictable nature of cash flows in this asset class, the actual allocation number fluctuates. Staff closely monitors the actual market value and committed exposure (new commitments and undrawn capital) to this asset class.

LACERA's Plan Level Target Allocation Status
(As of June 30, 2017[1] - Millions)

Net Asset Value	Total Fund Value	Allocation %[2]	Target Allocation Range
$5,086	$52,755	9.6%	7% - 14%

[1] Values adjusted from the 6/30/17 Total Asset Allocation report by +$221 million eliminating PE reporting lag.
[2] Factoring in $3,852 million in undrawn capital, the combined PE allocation percentage equals 15.8 percent.

In the Annual Investment Plan, staff and PEA recommend an annual commitment pace to ensure that investments fall within the policy allocation range. LACERA seeks to avoid an undue concentration of commitments in any one calendar year. Accordingly, LACERA adjusts the target amount of new commitments to capture the benefits of time diversification and to match the expected growth of LACERA's total plan assets.

II. Sub-Asset Class Allocation Targets

The Board, staff, and the PEA(s) annually review target allocation ranges to the various sub-asset classes and international investments. These target allocation ranges are measured and set following LACERA's review and consideration of the private equity marketplace over the forthcoming three to five years for each investment sub-asset class.

LACERA's Sub-Asset Class Target Allocation Status
(As of June 30, 2017 - Millions)

Sub-asset Class	Net Asset Value	Sub-asset Class Allocation %	Target Allocation Ranges
Buyouts[1]	$3,849	75.7%	50 – 85%
Venture Capital/ Growth Equity	$716	14.1%	10 – 25%
Special Situations[2]	$520	10.2%	5 – 25%
Grand Total	**$5,086**	**100%**	
Non-U.S. [3]	$1,322	26%	20 – 45%

[1] Includes Co-Investments, Fund-of-Funds, and Secondaries.
[2] Comprised of distressed debt, mezzanine, energy, and natural resources-focused funds.
[3] Total of non-U.S. investments based on company domicile across the sub-asset class categories, excluding cash.

LACERA recognizes that cash flows are unpredictable and at the discretion of the general partner. Accordingly, LACERA allows staff and the PEA(s) some latitude outside of the ranges. In the short term, LACERA does not wish to have staff or its PEA(s) constrained by the designated sub-asset class ranges; i.e., fulfilling target allocations will not drive the investment recommendation process. LACERA will invest consistently over time to gain the proper exposure to the various sub-asset classes.

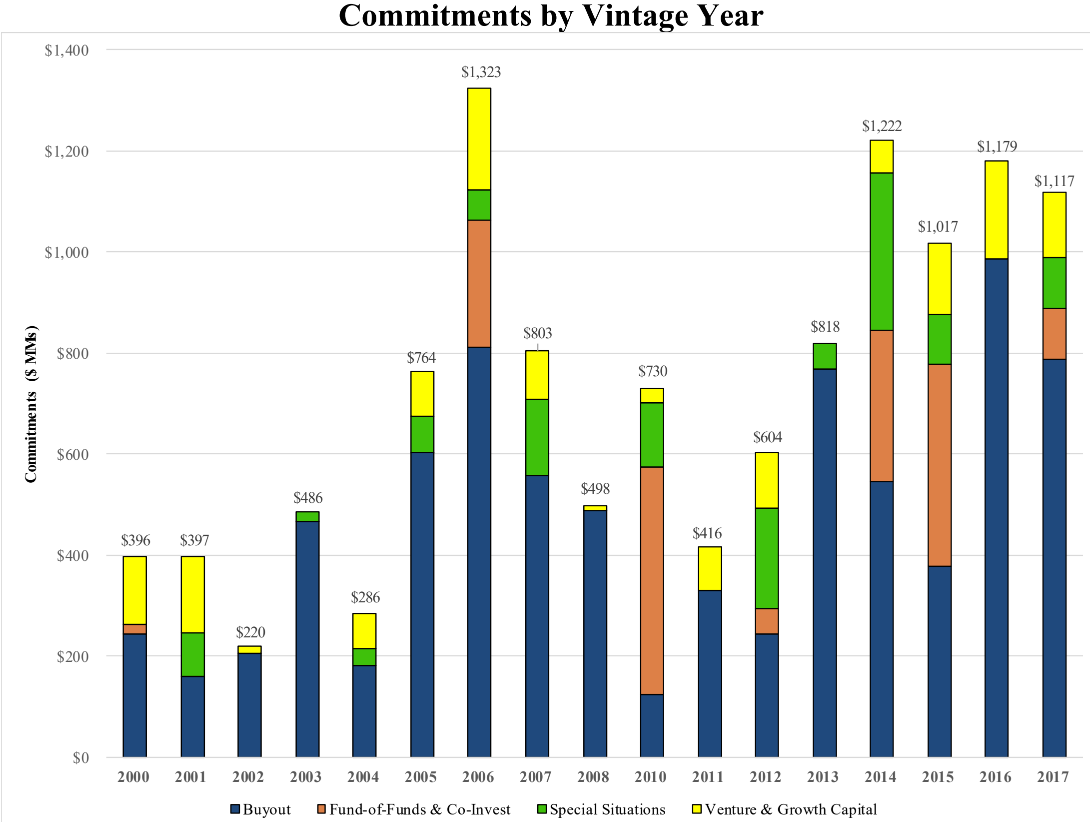
C. Portfolio Composition

From the inception of the Program in October 1986 through June 30 2017, LACERA has committed $14.6 billion to 310 private equity fund investments managed by 149 general partners. The Program currently has 209 active investments managed by 104 general partners. Given the large number of general partners in the portfolio, staff now adds new general partners primarily for strategic purposes. Diversification mitigates risk and is achieved by investing consistently over time and in a variety of investment strategies. The following charts depict the portfolio's composition and diversification by vintage year, investment type, geography, and sector.

I. Vintage Year

A goal of the Program is to invest in private equity steadily over time. **Chart 1** reflects commitments by vintage year and strategy, or the year a fund first draws capital for investment. As depicted in the chart, LACERA has made commitments relatively consistently over the past several years with the exception of 2009, which was due to liquidity concerns brought on by the financial crisis. The 2017 numbers include commitments through June 30, 2017. The increase in deployments, starting in 2013, is in line with the strategic objective of increasing LACERA's private equity exposure.

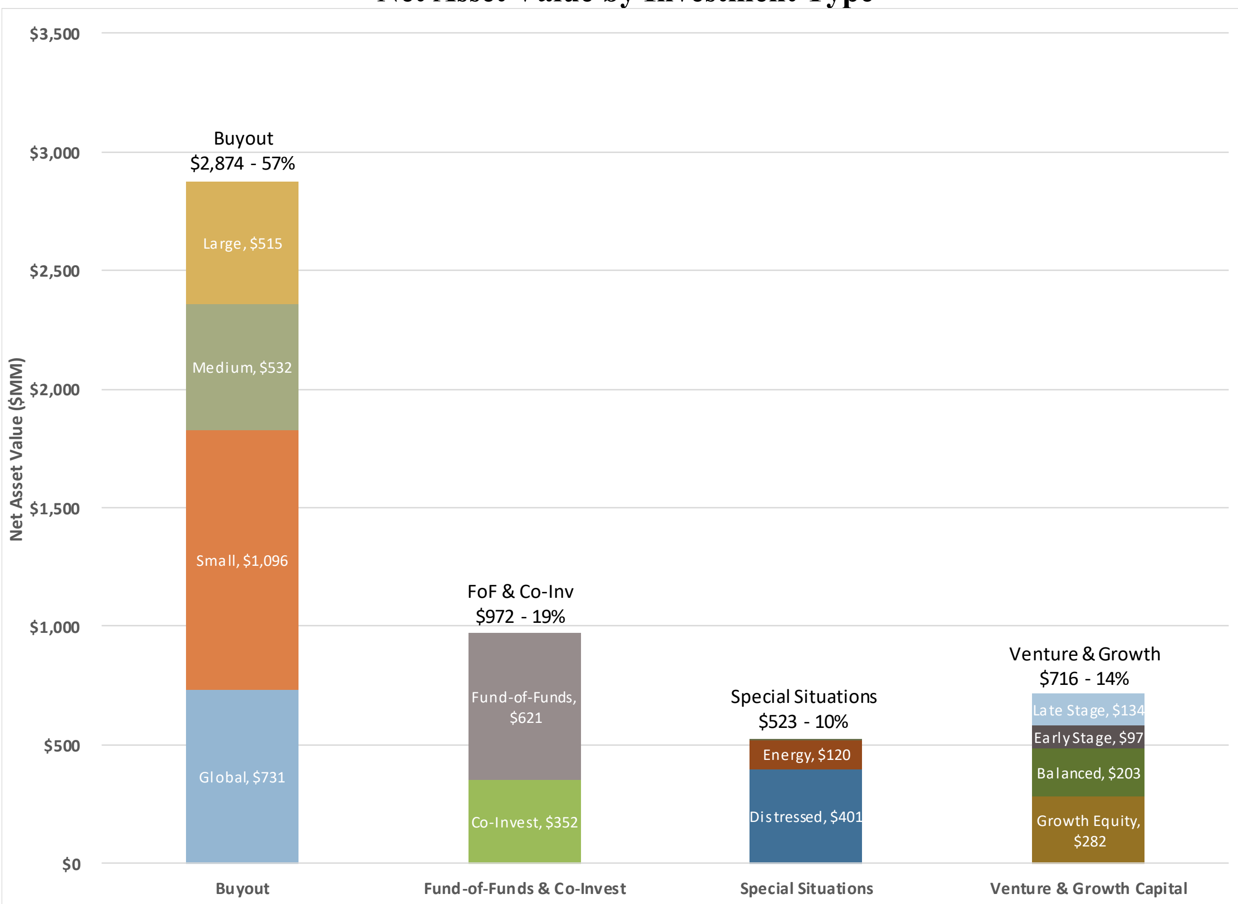
Chart 1
Commitments by Vintage Year



II. Investment Type

A central strategy of the Program is to diversify investments by strategy. The June 30, 2017 net asset values by sub-asset class and their components are presented in **Chart 2**. At $2,874 million in net asset value, or 57 percent of the Program, LACERA's portfolio is heavily weighted to buyouts. Exposure to venture capital and growth equity stands at $716 million, or 14 percent of the Program's net asset value.

Chart 2
Net Asset Value by Investment Type



Historically, the Venture Capital and Growth Equity strategies have generated the best results (21.7 percent and 86.8 percent Net IRRs since inception, respectively). Buyouts and the Co-Investment platform have performed solidly (13.5 percent and 18.9 percent, respectively). The Special Situations and Fund-of-Funds managers have not, as a whole, generated strong results (10.4 percent and 9.7 percent, respectively). LACERA remains committed to seeking out and maintaining relationships with top managers in each strategy.

III. Geography

As of June 30, 2017, LACERA held 2,192 company positions with a reported market value of $5.1B via its underlying fund investments. Geographic diversification of portfolio companies weighted by market value, based on the location of their headquarters, is shown in **Charts 3** and **Chart 4.**

Chart 3
Portfolio Investments – U.S. versus Non-U.S.

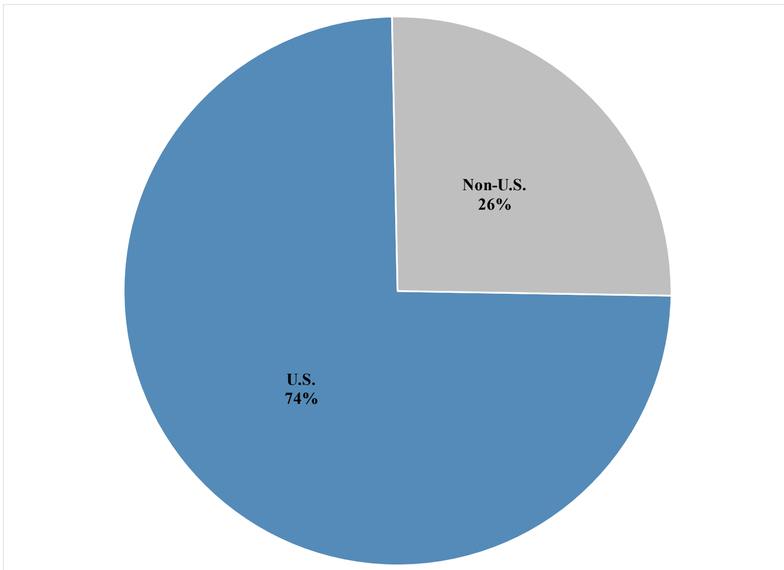
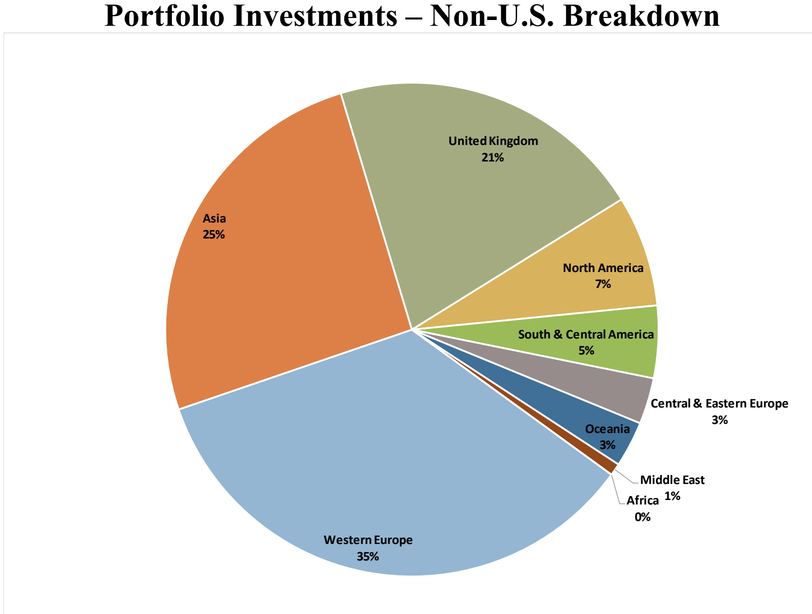


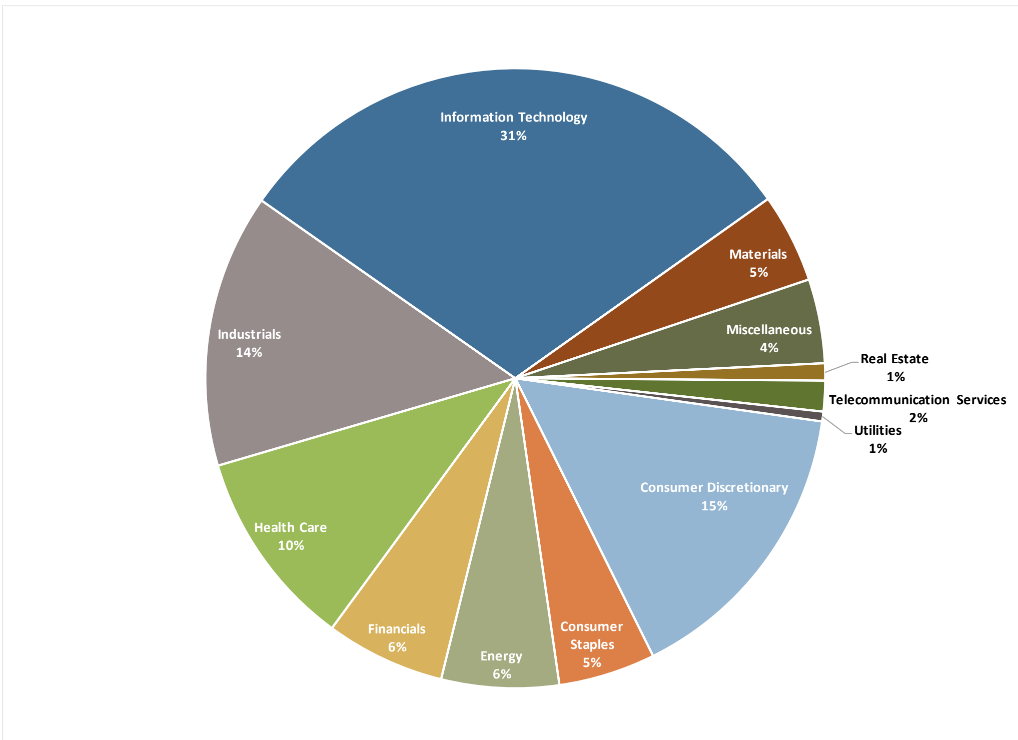
Chart 4
Portfolio Investments – Non-U.S. Breakdown



IV. Sector

Staff and Advisor closely monitor the portfolio's sector and industry diversification to avoid over-concentration and to identify opportunities to increase exposure. The June 30, 2017, portfolio sector diversification is presented in **Chart 5.** The primary objective of sector diversification is to mitigate volatility due to economic cycles. While Information Technology exposure appears over-weighted at 31 percent, the sector crosses virtually all other sectors, decreasing the sensitivity to economic cycles.

Chart 5
Portfolio Investments – Sector



D. 2017 Investment Activity

The Private Equity program is managed internally at LACERA and externally through three separate accounts managed on a discretionary basis. This section provides greater detail on each of the four programs.

I. Private Equity Program

Year-to-date, as of November 2, 2017, LACERA will have successfully committed $1,300 million to ten private equity funds as seen in **Table 1**. The investment pace is on target to achieve the 2017 Annual Investment Plan (which allocated up to $1,500 million +/- 20 percent to private equity investments). Staff maintained its rigorous scrutiny of opportunities in the marketplace from both existing and prospective general partners to ensure LACERA maintains and establishes relationships with a diversified roster of high quality managers.

Table 1

2017 Commitments

Partnership	**Type**	**Region**	**Commitments ($ millions)**
One Rock Capital Partners II	Buyout - Small	North America	$73
Silver Lake Partners V	Buyout - Large	Global, North America	$180
CVC VII	Buyout - Large	Europe, Global	$228
Glendon Opportunities Fund II	Special Situations	Global	$100
Canaan Partners XI	Venture - Early	North America	$50
Alchemy Special Opportunities IV	Special Situations	Europe	$117
Onex Partners V	Buyout – Large	Europe, North America	$200
Clarion Investors III	Buyout - Small	U.S.	$50
Clearlake Capital Partners V	Buyout – Middle Market	U.S.	$125
PAI Europe VII	Buyout – Middle Market	Europe	$177
Total			**$1,300**

Through the first six months of 2017, the Program has received $564.5 million in distributions and disbursed $501.9 million in capital calls, resulting in a net cash flow of +$62.6 million.

II. Separate Account Programs

LACERA has three active separate account programs managed on a discretionary basis. A brief summary of each program and its most recent activity is provided below.

Middle Market Program: Pathway Capital Management ("Pathway") manages $600 million in two separate account vehicles ("Gateway A" and "Gateway B") targeting the middle market. Gateway A is fully invested, with commitments of $307.7 million made to 31 partnerships. For the 12 month period ending March 31, 2017, Gateway A's cumulative contributions and distributions equaled $29.8 million and $28.5 million, respectively. No new investments were made into Gateway A during this period. The since-inception IRR for Gateway A stands at 11.1 percent. Gateway B was approved by the Board in September 2015. Through March 31, 2017, Gateway B had committed $288.8 million to 13 private equity partnerships. For the 12 month period ending March 31, 2017, cumulative contributions equaled $50.8 million. There have been no distributions. Performance at this stage of the fund's life is not meaningful.

Emerging Manager Program: JP Morgan manages $350 million in three separate account vehicles ("JPM EM1", "JPM EM2", and "JPM EM3") targeting emerging managers. JPM EM1 is fully invested, with commitments of $149 million made to 19 investments. As of June 30, 2017, since-inception cumulative contributions and distributions equaled $146.8 million and $112.9 million, respectively. The reported valuation of unrealized investments stands at $134.1 million. No new investments were made into JPM EM1 in 2016. The since-inception IRR for JPM EM1 stands at 19.2 percent and the TVPI[2] at 1.67x.

JPM EM2 is also fully invested, with commitments of $100 million made to 16 investments. As of June 30, 2017, the since-inception cumulative contributions equaled $62.7 million while distributions equaled $11.5 million. The reported valuation of unrealized investments stands at $121.4 million. The since-inception IRR for JPM EM2 stands at 52.2 percent and the TVPI at 2.12x.

JPM EM3 was approved by the Board on August 10, 2016 for a $100 million allocation. As of June 30, 2017, the since-inception cumulative contributions equaled $2.0 million. No distributions have taken place to date. The reported valuation of unrealized investments stands at $1.8 million. The since-inception metrics for JPM EMP3 (-30.2 percent IRR, 0.89x TVPI) are not deemed meaningful.

Co-Investment Program: Morgan Stanley manages $550 million in two separate accounts ("GTB I" and "GTB II") targeting co-investment opportunities. Since-inception though June 30, 2017, GTB I has drawn down $261.2 million and distributed $436.0 million. The net asset value of unrealized investments stands at $110.0 million. No new investments were made during the year. The since-inception net IRR and TVPI for GTB I stand at 11.9 percent and 1.8x, respectively.

As of June 30, 2017, since-inception, GTB II had drawn down $213.8 million. The portfolio has had distributions of $10.3 million. GTB II made five investments since June 30, 2016 totaling $71.5 million in commitments. The net asset value of unrealized investments stands at $266.5 million. The since-inception net IRR and TVPI for GTB II stand at 14.7 percent and 1.2x, respectively.

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[2] TVPI: total value to paid-in capital = (distributions + market value)/contributions.

E. 2018 Commitment Target

In an effort to impact the Total Fund's investment performance while maintaining an adequate level of diversification, LACERA has established a long-term private equity target allocation of 10.0 percent of the Total Fund's market value. The private equity allocation of 9.6 percent is currently below its 10.0 percent target. Based on the prevailing private equity market conditions, staff and the Advisor believe that with $1.5 billion (+/- 20 percent) annually in 2018-2026 commitments, LACERA's portfolio will sustain exposure in the 10 percent target range. It is anticipated that LACERA will pace its annual commitments evenly, with allowance for some flexibility based on the number of quality investments available in a calendar year. In this manner, the portfolio will continue to be constructed over full market cycles, thereby reducing the portfolio's risk and exposure to a specific time period.

Staff and Advisor used the Advisor's allocation model to determine the appropriate commitment pace for achieving LACERA's objectives. Several assumptions were made, identified below, about the economy and the private equity market, and their impact on the development of LACERA's Portfolio. Since the economy and market are unpredictable, these assumptions are subject to change, and the model should be viewed as a planning tool rather than an absolute determinant of future results. Further, it is important to monitor the progress of the portfolio and make adjustments on an annual basis.

ASSUMPTIONS USED IN ALLOCATION MODEL

Total Fund Value.	$49.4 billion at December 31, 2016.
Expected growth of LACERA's Total Fund	7.25 percent per annum.
Asset mix of future commitments	Assumes that during each year 65 percent of commitments will go to Buyouts, 15 percent to Venture Capital, 15 percent to Special Situations, and 5 percent to Co-Investments.
Expected timing of future commitments	Commit evenly throughout the year, rather than at the beginning or end of a calendar year.
Expected draw-down and distribution rate for future commitments	Different for each investment strategy and developed based on historical draw-down and distribution data as captured by Venture Economics.
Expected draw-down and distribution rate for existing partnership unfunded commitments	Different for each investment strategy and developed based on historical draw-down and distribution data as captured by Venture Economics and LACERA.
Expected annual ending market values	Based upon a partnership's average residual value to paid-in capital using vintage year partnership data provided by Venture Economics.
Expected life of the partnership	Different for each strategy and developed based on historical data as captured by Venture Economics.
Availability of quality investment opportunities	Assumes the availability of enough quality investments to meet targeted annual commitments.

Based on these assumptions and the status of LACERA's existing portfolio, staff and the Advisor believe LACERA should commit $1.5 billion (+/- 20 percent) in 2018. Over the following years, it is anticipated that LACERA will continue a steady deployment pace between $1.2 billion and $1.8 billion to achieve and maintain its 10 percent target, while being mindful of the fluctuations in the total portfolio.

In **Table 2,** staff and Advisor present projected commitments, draw-downs, distributions, Total Fund market value, and exposure to the private equity asset class over the next six years. Data through 2023 is provided to illustrate the impact of recent commitments on future years. New commitments do not impact the Total Fund's private equity exposure immediately because they are drawn down over five years, on average. Given this projected commitment pace, staff and the Advisor estimate that LACERA's portfolio will reach the 10.0 percent target allocation in 2019.

Table 2

2018 - 2023 PROJECTIONS *($ in millions)*

Calendar Year	New Commitments	PE Draw-downs	PE Distributions	PE Market Value	Total Portfolio Value(1)	PE Allocation
2018	$1,500	$1,256	$1,249	$5,290	$53,551	9.9%
2019	$1,500	$1,340	$1,480	$5,683	$55,991	10.2%
2020	$1,500	$1,426	$1,592	$6,107	$58,468	10.4%
2021	$1,500	$1,443	$1,755	$6,482	$61,014	10.6%
2022	$1,500	$1,460	$1,802	$6,900	$63,641	10.8%
2023	$1,500	$1,483	$2,023	$7,154	$66,340	10.8%

(1) Total Portfolio Value is projected using an assumed 7.25% annual growth with estimated contributions/distributions as provided by Milliman

It is important to remember the following facts when reviewing this information. First, regardless of the projected and expected increase in investment pace, staff will adhere to its rigorous due diligence and underwriting standards. Second, the actual deployment of capital is dependent upon the availability of and accessibility to the world's best managers executing proven strategies in attractive markets. Third, substantially increasing or decreasing the investment pace exposes the Portfolio to increased risk, possibly resulting in overexposure to poor-performing vintage year funds or under-exposure to top-performing years.

The model takes into account the Total Fund's market value as of December 31, 2016, and assumes a 7.25 percent growth rate from that point forward. For the past nine years, staff has observed significant public equity market appreciation. Even so, volatility in global markets impacts the Total Fund's exposure to public equities and creates swings in the private equity component of the Total Fund (the Denominator Effect). Staff and the Advisor continually monitor the portfolio and remain alert to adjust the commitment pace should long-term market trends warrant such change.

F. 2018 Prospective Investment Activity

Staff and the Advisor(s) constantly search for the highest caliber investments (both re-ups and new) in each sub-investment strategy of the Program. Staff diligently attends industry events, analyzes databases, reads all forms of communications, and taps into networks, including our separate account managers, to generate deal flow and ascertain best thinking on opportunities and strategies in the marketplace. In addition to those core activities, staff will actively pursue several investment themes and strategies during 2018.

I. Potential Candidates for Planning Purposes

Funds listed in **Table 3** are the anticipated 2018 calendar year investment offerings from existing LACERA managers. It is unlikely that LACERA will re-up with all of these managers, or that all the managers will decide to raise a fund in 2018. Of the twelve existing LACERA managers expected to raise funds in 2018, Staff anticipates re-upping with seven to nine. The rationale for re-ups will depend in part on past fund performance, on whether LACERA can make a meaningful commitment to the fund ($50-$200 million), and on the availability of potentially better alternatives in the market. Staff also assesses if a fund size has outgrown the manager's strategy potentially indicating a mindset transition from investing to generate returns to gathering assets to generate fees. Another differentiator will be strategy overlap. If two funds with the same strategy come to market, staff and the Advisor will consider recommending only the manager with the most potential to earn top-quartile returns. Staff will also assess how the general partner has amended Limited Partnership Agreement terms and nurtured Limited Partner relations during its history with LACERA.

Taking into account re-ups and likely new relationships, staff believes there will be enough quality funds in the market to meet LACERA's $1.5 billion (+/- 20 percent) target.

Table 3
Active Existing Managers Likely to Raise a New Fund in 2018

Expected Next Fund	Prior Fund Vintage Year	% Drawn as of June 30, 2017	LACERA's Previous Commitment ($ millions)
Buyout			
ABRY Partners IX	2014	87%	$35
Jordan Resolute IV*	2013	67%	60
Juggernaut	2015	54%	100
MS GTB III	2014	72%	300
Palladium Equity Partners V	2014	70%	100
Riverside CAF VII	2013	76%	100
Siris Partners IV	2014	51%	60
Thomas H Lee VIII*	2015	65%	60
Vista Equity Partners VII	2016	55%	200
Total Buyout			**$1,015**
Special Situations			
ABRY ASF IV	2014	43%	25
BDCM Opportunity VII	2015	57%	100
Energy & Minerals Group IV*	2014	85%	150
Total Special Situations			**$275**
Venture Capital			
Storm Ventures VI	2015	48%	50
Total Venture Capital			**$50**
Total Past Commitments to Returning Managers			**$1,340**

**LACERA did not commit to most recent fund.*

II. Co-Investment Mandate

As discussed earlier, GTB II, the co-investment separate account managed by Morgan Stanley, is nearing depletion. As of October 12, 2017, LACERA had made capital contributions of $237.7 million, or 79 percent of the $300 million in committed capital. Staff will review the program and recommend next best steps to the Board.

III. In-house Emerging Manager Program Feasibility Study

Staff will draft a feasibility study that assesses the costs and benefits of developing in-house capabilities to develop an emerging manager practice, in contrast to outsourcing the program to third party managers. The study will also consider logical and sequential stages and optimal timing for such a program.

IV. Secondary Sale

Staff and the Board recently amended the Private Equity Secondary Policy (Appendix A of the Objectives, Policies, and Procedures document), underscoring broad agreement on the intent to undertake a sale of non-core assets in the portfolio. Adhering to policy guidelines, staff will work with advisors to identify non-core limited partnership interests, to determine fair valuations, and to execute appropriate transactions. Staff will proactively communicate with the Board at all stages of the transactions.

V. 2018 Investment Themes

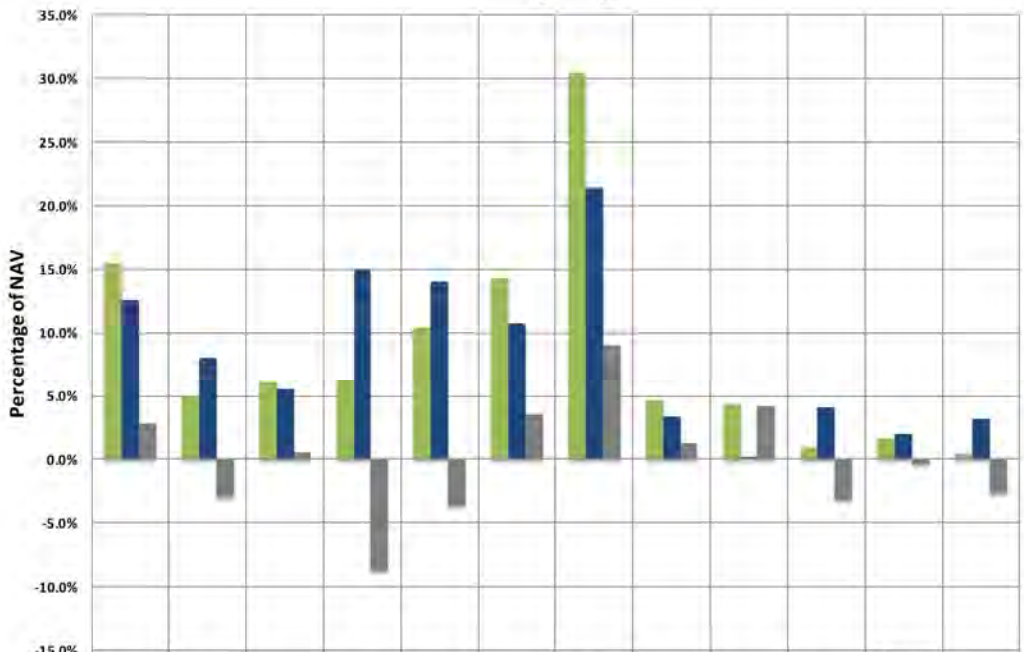
The dominant activity of staff is the ongoing assessment of managers in each sub-asset class strategy. Even so, staff is attentive to economic cycles, private equity industry developments, and research emanating from thought leaders in the marketplace. Emergent strategies under consideration in 2018 are presented below.

Sector Discussion

Staff and Advisor(s) are continually evaluating geographic and sector exposure to identify opportunities to increase or decrease projected future allocations.

Sector weightings - In **Chart 6**, Relative to the Russell 3000 Index sector weightings, LACERA is most underweight in the Financials and Consumer Staples sectors. While this underweighting may be reflective of a lack of quality opportunities or lack of required rate of return, staff and Advisor are alert to opportunities in those sectors. Conversely, the portfolio is over-weighted to Information Technology/Telecommunications by 900 basis points.

Chart 6
Sector Weightings



	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Miscellaneous	Real Estate	Telecommunication Services	Utilities
LACERA P.E.	15.4%	5.1%	6.1%	6.2%	10.4%	14.3%	30.5%	4.7%	4.4%	0.9%	1.6%	0.5%
Russell 3000	12.6%	8.0%	5.6%	14.9%	14.0%	10.8%	21.4%	3.4%	0.2%	4.1%	2.0%	3.2%
Over/(Under)	2.9%	-2.9%	0.6%	-8.7%	-3.6%	3.5%	9.0%	1.3%	4.2%	-3.2%	-0.4%	-2.7%

Staff has had numerous discussions on technology exposure over the past year. We continue to believe that diversification across sectors remains the best strategy to mitigate economic cycle risk. Even so, Information Technology permeates every sector. LACERA’s technology exposure includes financial technology, healthcare IT, data security, tech-enabled services, and software. Generalist funds, as well as specialist finds such as Silver Lake, Vista and Siris, are deploying larger dollars to companies with global presences. Furthermore, technology is still in the early innings of disrupting many of the traditional business models (case in point – department stores). Basically, we expect that technology will continue to play a dominant role in the portfolio.

Under-represented Geographies

Country Weightings – In **Table 4**, LACERA's net asset value is presented by country, based on company headquarter domicile. Alongside those numbers are the World Bank 2016 Gross Domestic Product (GDP) numbers and the Pitchbook 2016 private equity deal numbers.

Table 4
LACERA NAV Exposure by Country vs World GDP and 2016 PE Activity

									Pitchbook 2016 PE Activity (Exc VC) (No. of Deals x Median Value)		
GDP Rank	Country	LACERA PE Market Value	% of LACERA PE MV	World Bank GDP	% of World Bank GDP	2016 GDP Growth Rate	MSCI Index Status	Region	PE Deals	Est. PE Capital	% of Est. PE Capital
1	**United States**	$3,517.7	74%	$18,569	**29%**	1.6%	Developed	Americas	4,806	$151,870	**37.7%**
2	**China**	$97.5	2%	$11,199	**18%**	6.7%	Emerging	Asia	136	$40,907	**10.1%**
3	**Japan**	$19.6	0%	$4,939	**8%**	1.0%	Developed	Asia	34	$1,307	**0.3%**
4	**Germany**	$81.8	2%	$3,467	**5%**	1.9%	Developed	Europe	400	$48,810	**12.1%**
5	**United Kingdom**	$249.7	5%	$2,619	**4%**	1.8%	Developed	Europe	1,161	$19,853	**4.9%**
6	**France**	$27.0	1%	$2,466	**4%**	1.2%	Developed	Europe	670	$7,397	**1.8%**
7	**India**	$11.7	0%	$2,264	**4%**	7.1%	Emerging	Asia	203	$5,422	**1.3%**
8	**Italy**	$14.7	0%	$1,850	**3%**	0.9%	Developed	Europe	207	$15,980	**4.0%**
9	**Brazil**	$19.1	0%	$1,796	**3%**	-3.6%	Emerging	Americas	68	$4,512	**1.1%**
10	**Canada**	$83.8	2%	$1,530	**2%**	1.5%	Developed	Americas	753	$2,331	**0.6%**
11	**South Korea**	$130.9	3%	$1,411	**2%**	2.8%	Emerging	Asia	46	$2,924	**0.7%**
12	**Russia**	$5.0	0%	$1,283	**2%**	-0.2%	Emerging	Europe	50	$1	**0.0%**
13	**Spain**	$8.2	0%	$1,232	**2%**	3.2%	Developed	Europe	165	$8,225	**2.0%**
14	**Australia**	$35.5	1%	$1,205	**2%**	2.8%	Developed	Pacific	252	$3,699	**0.9%**
15	**Indonesia**	$1.5	0%	$932	**1%**	5.0%	Emerging	Asia	10	$750	**0.2%**
	Others	$424.6	**9%**	**$6,954**	**11%**				**1,789**	**$89,078**	**22%**
	Totals	**$4,728.3**	**100%**	**$105,563**	**166%**	2.4%			**10,750**	**$403,068**	**100%**

Several takeaways from the data:

1. LACERA's PE portfolio is 74 percent weighted to the U.S., which makes up 29 percent of world GDP and an estimated 38 percent of PE transaction value.
2. In the developed markets, LACERA's combined 3 percent exposure to Germany and France is significantly below the two countries' 9 percent GDP share and 14 percent share of PE deal flow.
3. Several large deals in China propelled them to being the only emerging market country with substantial GDP, high GDP growth, and a critical mass of PE activity.
4. The inverse of #3 above, the expected high GDP growth emerging country markets of India, Brazil, and Indonesia evidenced light PE volume in 2016.

In terms of action items, LACERA will continue to diversify the private equity portfolio into global markets to diversify country exposure, and to capture emerging market high GDP growth opportunities that are not accessible through the public equity markets.

Strategies Discussion
Staff monitors current net asset value exposure and committed but not yet called capital (**Table 5**), to validate the direction of the portfolio.

Table 5
LACERA NAV and Unfunded Commitments Exposure by Strategy

	Strategy	Market Value	% of Market Value	Unfunded Commitments	% of Unfunded Commitments
Buyouts	Buyout - Global	$731,013,087	14.4%	$960,415,974	24.9%
	Buyout - Large	$1,096,211,823	21.6%	$427,638,447	11.1%
	Buyout - Mid	$531,909,424	10.5%	$559,390,754	14.5%
	Buyout - Small	$515,009,897	10.1%	$604,401,754	15.7%
	BO SubTotal	**$2,874,144,231**	**56.5%**	**$2,551,846,929**	**66.2%**
Fund-of-Funds / Co-Investments	Co-Investments	$351,693,266	6.9%	$90,814,121	2.4%
	Fund of Funds	$620,602,183	12.2%	$461,415,199	12.0%
	FoF/Co-In SubTotal	**$972,295,449**	**19.1%**	**$552,229,320**	**14.3%**
Special Situations	Distressed	$400,824,474	7.9%	$362,484,340	9.4%
	Energy	$119,540,615	2.4%	$11,095,496	0.3%
	Secondaries	$2,754,248	0.1%	$1,166,264	0.0%
	SS SubTotal	**$523,119,337**	**10.3%**	**$374,746,100**	**9.7%**
Venture Capital / Growth Caopital	Growth Equity	$281,664,004	5.5%	$105,092,461	2.7%
	VC - Balanced	$203,387,350	4.0%	$72,785,996	1.9%
	VC - Early Stage	$97,376,403	1.9%	$121,248,498	3.1%
	VC - Late Stage	$133,746,398	2.6%	$74,112,500	1.9%
	VC/GC SubTotal	**$716,174,155**	**14.1%**	**$373,239,454**	**9.7%**
	Grand Total	**$5,085,733,171**	**100.0%**	**$3,852,061,804**	**100.0%**

A few trends can be extracted from Table 5 as to conscious changes in portfolio construction:

- On the Buyout front, at 30.2 percent of combined unfunded commitments, Small and Middle Market Buyout funds show the largest increase relative to net asset value exposure, of any strategies. This trend is consistent with staff's efforts to increase exposure to this end of the market.
- Under Special Situations, while the energy sector volatility constrained new commitments, failure to commit capital to a sector that represents 6 percent of the Russell 3000 market cap might prove shortsighted. Staff notes that at the company level, the energy exposure equals $253 million or 8.5 percent of portfolio company value. But large portions of that are attributed to managers whose most recent funds LACERA did not commit to (EMG, $104M; First Reserve, $24M; Kelso, $18M). Active relationships that transact in the energy space do include BDCM, $7M; Blackstone, $21M; and Clearlake, $38M.

VI. Alternative Investment Structures

Staff will continue to evaluate alternative investment structures such as fund of funds, separate accounts, or overage pools with general partners specializing in attractive, access-constrained market subsectors where LACERA can gain sizeable allocations and reasonable fee structures. As the private equity marketplace evolves, new structures are continually being introduced. Alternative structures staff anticipates evaluating in the current investment cycle include:

- Structured/synthetic private equity solutions
- Permanent/long-term capital vehicles
- Dedicated co-investment vehicles attached to primary fund investments
- Joint ventures and partnerships with other investors
- Fund commitments offering general partner ownership stakes

Many of these vehicles pose unique challenges in that they require an opportunistic mindset coupled with an accelerated due diligence process. Benchmarking terms and return expectations can be difficult as comparable data is sparse. Finally, structural innovations tend to arise out of necessity or opportunism depending on the strength or weakness of the investment manager.

APPENDIX A

Glossary

Private Equity
Investments that are privately negotiated and typically do not trade in an efficient capital market. Investments are illiquid and long term in nature, thereby introducing greater risk into a portfolio. Investors seek to be rewarded with higher returns than traditional asset classes. LACERA classifies its private equity investments into the following categories: Buyouts, Venture Capital, Special Situations, and non-U.S. (international) investments. Additionally, these categories utilize several different investment sub-strategies.

Buyouts
Buyout funds acquire companies through the purchase of controlling interests of preferred and common equity. Transactions utilize some degree of leverage. Target companies are established businesses in more mature industries. The target holding period of a Buyout investment is four to seven years. Exit strategies are less dependent on the public market and primarily involve strategic sales. This reduced reliance on the public market allows for liquidity events to occur continually throughout the life of a fund. Buyout investments have lower overall business risk than venture investments; however, depending on the amount of leverage in the capital structure of the investment and general economic conditions, Buyouts can have meaningful total risk. LACERA's Private Equity Strategic Plan defines Buyouts as acquisition and takeover, specialized strategy, non–controlling interest, structured equity, and development capital/growth equity funds. Several of the more popular Buyout investment strategies are addressed below.

Acquisition and Takeover
The acquisition and takeover investment strategy involves the purchase of a company, division, or subsidiary that is currently undervalued or underperforming. This strategy generally involves the use of leverage. Within this category, there is further diversification by the size of the Buyout: small, medium, or large. The acquisition and takeover strategy may involve the existing management of a business acquiring the company with a financial buyer, or the financial buyer may introduce a new management team to the company.

Value Buyouts
Leveraged financing with control position (over 50 percent equity ownership) that is used to purchase a company, subdivision, or subsidiary of a company that is currently undervalued or underperforming. Companies typically sell low or non-technology products in industries not subject to wide profitability swings.

Growth Buyouts
Leveraged financing with control position (over 50 percent equity ownership) that is used to purchase a company, subdivision, or subsidiary of a company that operates in an industry that is expected to experience rapid growth or is potentially subject to wide profitability swings.

Development Capital/Growth Equity

The development capital/growth equity investment strategy focuses on building a small company into a much larger, rapidly growing company. Attractive candidates must be able to capitalize on key competitive advantages, as they have to increase revenues and cash flow through market share gains, rapid market growth, distribution, or product line expansion, and/or market consolidation.

Platform Add-ons

A growth strategy that involves the acquisition of a company that will be the base (or platform) from which future acquisitions will be made. The platform is similar to Growth Buyouts in that both are considered high-growth investment strategies; however, platforms rely on growth through industry consolidation or acquisitions.

Venture Capital

Venture Capital investing involves the financing of start-up, growth, or expansion stage companies focused primarily on the information technology, healthcare, or clean technology sectors. The holding period for most Venture Capital investments generally is longer than that of Buyout investments because companies are in the early stages of the product life cycle, requiring multiple rounds of financing before achieving sufficient critical mass and a positive exit. Both strategic sales and the public market are used as the exit mechanisms for Venture Capital investments. LACERA's Private Equity Strategic Plan defines Venture Capital as: Seed, Early, Middle, Late Stage, and Balanced Venture Capital funds. Each category within Venture Capital is addressed below.

Seed Stage

Investments in companies with an idea, but which at the time of investment have no commercial products. Capital is provided for research and product development. Generally, the company is not generating revenues.

Early Stage

Investment in companies for product development and initial marketing, manufacturing, and sales activities. May include companies that have developed an initial product but are receiving venture capital for the first time.

Middle Stage

Working capital for the initial expansion of a company that is producing and shipping products. The company may have growing revenues, accounts receivable, and inventories, but still may not be showing a profit.

Late Stage

A fund strategy involving financing for the expansion of a company that is producing, shipping, and increasing its sales volume. Funds are utilized for further plant expansion, marketing, working capital, or an improved product.

Balanced
A fund strategy that involves a balanced approach including a combination of Seed, Early, and/or Late Venture Capital strategies.

Special Situations
Special situations invest in mezzanine securities, execute distressed debt trading strategies, invest in distressed principal transactions, or focus on specific industry niches such as commodity-based oil and gas strategies. The following is a brief description of several special situations strategies.

Mezzanine Financing
Some private equity fund managers raise captive mezzanine funds to provide financing solely to their portfolio companies. Third-party mezzanine funds are typically raised by independent fund managers to provide financing to a general populace of companies, independent of any particular equity fund. Mezzanine funds can invest in companies independent of an equity sponsor or may partner with an equity sponsor to complete a transaction. Returns from mezzanine funds are garnered by providing subordinated debt to companies that produce current income. In addition, a mezzanine fund may enhance its returns by requiring equity warrants as part of the financing package.

Distressed Debt
Distressed debt funds invest in the securities or obligations of distressed companies. Typically, portfolio companies are undergoing, are likely to undergo, or have undergone a reorganization under the federal bankruptcy law or similar laws in other countries, or have undergone other extraordinary transactions outside of bankruptcy, such as a debt restructuring, reorganization, or liquidation.

Natural Resources
Natural resource fund managers pursue investments in companies involved directly or indirectly in the extraction of economic value from the earth's raw materials. Examples include oil & gas, mining, and water.

Oil and Gas (Energy)
Energy funds invest in the exploration and production of oil and gas, the energy service sector, the processing, storing, transporting, and marketing of oil, natural gas and natural gas liquids, and clean technology.

Venture Leasing
Venture leasing strategy offers equipment leasing arrangements to venture-backed businesses in exchange for above-average lease yields and possibly equity participation. A venture leasing investment is generally secured by the physical and intellectual assets of the company.

Project Finance
Project finance investing involves financing of large "projects"–such as oil pipelines, power generation plants, or electric utilities–in exchange for a claim on the revenues generated by the assets.

Secondary Market
The market for the sale of partnership interests in private equity funds. Sometimes limited partners choose to sell their interest in a partnership, typically to raise cash or because they cannot meet their obligation to invest more capital according to the takedown schedule. Certain investment companies specialize in buying these partnership interests at a discount.

Co-investment
The syndication of a private equity financing round or an investment by individuals (usually limited partners) alongside a private equity fund in a financing round. Two or more investors in a given transaction. Also known as syndication.

APPENDIX B

LACERA Private Equity Privatization Policy

LACERA does not aim to promote privatization of public jobs through its private equity investment program. It is highly unlikely that LACERA private equity investments would be in domestic partnerships or similar pooled investment vehicles ("partnerships") that are dependent on privatization strategies.

When performing due diligence prior to making the initial investment in a domestic partnership, staff and/or Advisor, as applicable, will use their reasonable efforts to ascertain the following:

1) whether the partnership's current investment strategy includes the privatization of jobs held by LACERA members;

2) whether previous partnerships operated by the general partners, if any, have invested in companies dependent upon privatization of jobs held by LACERA members.

Staff and/or Advisor will seek guidance from the Board of Investments before investing in a domestic partnership if the due diligence establishes a positive answer to either (1) or (2) above.

StepStone Group LP
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Phone +1 858.558.9700

December 22, 2017

Board of Investments
Los Angeles County Employees Retirement Association ("LACERA")
300 N Lake Avenue, Suite 850
Pasadena, CA 91101-6130

Re: Proposed 2018 Investment Plan

Dear Board Members,

StepStone Group L.P. ("StepStone") was honored to be chosen as the private equity advisor to LACERA's Board of Investments since September 2016. We worked closely with LACERA Staff to build and evaluate the Private Equity 2018 Investment Plan. A number of assumptions were included in arriving at the projections and developing the plan during this collaborative process. The 2018 proposed commitment target was developed with the goal achieving the 10% portfolio target allocation by the end of 2018 and maintaining it through 2026, with the recognition that market conditions can lead to deviations from the target. We believe the Private Equity 2018 Investment Plan further explained below serves the long-term interests of LACERA's portfolio.

The analysis resulted in a proposed commitment of $1.5 billion, plus or minus 20% ($300 million), in 2018 and each year thereafter through 2026. Consistent with prior year's recommendation, we believe that a target range of $1.2 to $1.8 billion is more appropriate than targeting a specific figure in order to allow flexibility to invest more or less according to market conditions. While a consistent pace of investment year over year is important to maintain proper vintage year diversification, LACERA should not feel forced to invest a specific amount every year if enough high quality opportunities are not available and should have the flexibility to invest more if there are more high quality opportunities in a given year than could be accommodated with a fixed allocation target.

StepStone will review this recommendation each year to ensure it continues to align with the goal of maintaining a 10% exposure based on fair market value of the private equity portfolio relative to LACERA's overall investment portfolio.

StepStone Group LP

Jose Fernandez, Partner

To the knowledge of StepStone, (i) this recommendation does not take into account the interest of StepStone or any StepStone Entity (as defined in the Advisory Services Agreement between LACERA and StepStone) in this investment, (ii) neither StepStone nor any StepStone Entity will receive any benefit from this recommendation other than compensation paid by LACERA to StepStone pursuant to the Advisory Services Agreement, and (iii) there are no conflicts of interest among StepStone and its affiliates and the Fund in connection with the recommendation herein.

ATTACHMENT C

StepStone Group LP
4275 Executive Square, Suite 500
La Jolla, CA 92037
Phone +1 858.558.9700

October 25, 2018

Board of Investments
Los Angeles County Employees Retirement Association ("LACERA")
300 N Lake Avenue, Suite 850
Pasadena, CA 91101-6130

Re: Proposed 2019 Investment Plan

Dear Board Members,

StepStone Group L.P. ("StepStone") was honored to be chosen as the private equity advisor to LACERA's Board of Investments since September 2016. We worked closely with LACERA Staff to build and evaluate the Private Equity 2019 Investment Plan. A number of assumptions were included in arriving at the projections and developing the plan during this collaborative process. The 2019 proposed commitment target was developed with the plan of gradually increasing annual commitments by up to US$300 million to achieve the 10% portfolio target allocation by the end of 2023, with the recognition that market conditions can lead to deviations from the target. We believe the Private Equity 2019 Investment Plan further explained below serves the long-term interests of LACERA's portfolio.

For the 2019 plan we have taken into account the potential secondary sale of a number of existing investments as currently contemplated. The analysis resulted in a proposed commitment of US$1.5 billion in 2019 and gradually increase the annual commitment by up to US$300 million. Increasing the annual commitment allows the private equity portfolio to recover exposure from the secondary transaction and stay within +/-1% of the 10% target. Consistent with prior year's recommendation, we believe that a target range of $1.2 to $1.8 billion is more appropriate than targeting a specific figure in order to allow flexibility to invest more or less according to market conditions. While a consistent pace of investment year over year is important to maintain proper vintage year diversification, LACERA should not feel forced to invest a specific amount every year if enough high quality opportunities are not available and should have the flexibility to invest more if there are more high quality opportunities in a given year than could be accommodated with a fixed allocation target.

StepStone will review this recommendation each year to ensure it continues to align with the goal of maintaining a 10% exposure based on fair market value of the private equity portfolio relative to LACERA's overall investment portfolio.

StepStone Group LP

Jose Fernandez, Partner

To the knowledge of StepStone, (i) this recommendation does not take into account the interest of StepStone or any StepStone Entity (as defined in the Advisory Services Agreement between LACERA and StepStone) in this investment, (ii) neither StepStone nor any StepStone Entity will receive any benefit from this recommendation other than compensation paid by LACERA to StepStone pursuant to the Advisory Services Agreement, and (iii) there are no conflicts of interest among StepStone and its affiliates and the Fund in connection with the recommendation herein.

December 3, 2018

TO: Each Member
Board of Investments

FOR: Board of Investments Meeting of December 12, 2018

SUBJECT: 2019 Milken Institute MENA Summit on February 12 – 13, 2019

The 2019 Milken Institute MENA Summit will be held on February 12 – 13, 2019 at the St. Regis Saadiyat Island, Abu Dhabi, UAE. The 2019 MENA Summit will bring together a curated group of high-profile senior executives, investors, government officials, sovereign wealth fund directors, and philanthropists to discuss, develop, and create solutions. Through research and networking platforms, the Institute will continue to identify opportunities for the deployment of public, private, and philanthropic capital to spur policy action and drive development in the region.

The main conference highlights include the following:

- Global Overview: Power Dynamics and Market Maturation, the Role of Consolidation vs. Privatization
- Bringing Trust to the Marketplace: Blockchain for Enterprise
  Mitigating the Risk: Cost of Obesity and Diabetes in Young Adults
- Maintaining Competitiveness Amidst Global Trade Disruption
  The Creative Economies

The conference meets LACERA's policy of an average of five (5) hours of substantive educational content. The standard hotel rate at the St. Regis Saadiyat Island hotel is $360.00 per night plus applicable taxes and the registration fee to attend is included in LACERA's annual membership.

If the registration fee is insufficient to pay the cost of the meals provided by the conference sponsor, LACERA must reimburse the sponsor for the actual cost of the meals, less any registration fee paid. Otherwise, the attendee will be deemed to have received a gift equal to the value of the meals, less any registration fee paid, under California's Political Reform Act.

IT IS THEREFORE RECOMMENDED THAT YOUR BOARD:

Approve attendance of Board members at the 2019 Milken Institute MENA Summit on February 12 – 13, 2019 in Abu Dhabi and approve reimbursement of all travel costs incurred in accordance with LACERA's Education and Travel Policy.

LG
Attachment

2019 MENA Summit

February 12-13, 2019
St. Regis Saadiyat Island, Abu Dhabi, UAE

The Middle East and North Africa (MENA) is rich in human capital and poised to assume greater influence in today's global economy. As economic growth and political reforms continue, many countries have been compelled to accelerate structural reforms to diversify their economies and boost the role of the private sector in creating jobs for rapidly growing labor forces.

What lessons can be learned from modernizing economies across the globe? How are governments prioritizing investments in health-care systems to address a growing population suffering from chronic disease? How will the regional workforce adapt and adopt new skills to respond to technological innovation? How will shifts in oil prices and supply affect the region's commitment to economic diversification? How are regional trade ties improving in light of global trade instability? How will the region win its battle against water scarcity and food insecurity?

Finding answers to these questions requires leadership and collaboration—across the government, private, academic, and nonprofit sectors. The 2019 MENA Summit will bring together a curated group of high-profile senior executives, investors, government officials, sovereign wealth fund directors, and philanthropists to discuss, develop, and create solutions. Through research and networking platforms, the Institute will continue to identify opportunities for the deployment of public, private, and philanthropic capital to spur policy action and drive development in the region.

Working Agenda

Monday, February 11, 2019

07:00 AM - 06:00 PM	*- Registration -*
05:45 PM - 07:00 PM	**Private Sessions** *(Invite only)*
07:00 PM - 10:00 PM	**Private Reception and Dinner for Speakers and Sponsors** *(Invite only)*

Tuesday, February 12, 2019

07:00 AM - 06:00 PM	*- Registration -*
09:00 AM - 09:45 AM	**Global Overview: Power Dynamics and Market Maturation, the Role of Consolidation vs. Privatization**
09:45 AM - 10:00 AM	*- Networking Break -*
10:00 AM - 11:00 AM	**Bringing Trust to the Marketplace: Blockchain for Enterprise**
	Mitigating the Risk: Cost of Obesity and Diabetes in Young Adults
	The Emergence of Venture Capital Mega-Funds *(Invite only)*
	MENA's Next-Gen Startups *(Invite only)*
11:00 AM - 11:15 AM	*- Networking Break -*
11:15 AM - 12:15 PM	**Sifting Through the Sandbox**
	From Stigma to Treatment: Tackling the Global Mental Health Crisis
	Women in Business: Advancing Equity for Economic Progress *(Invite only)*

	The Artist as Activist *(Invite only)*
12:15 PM - 12:30 PM	*- Networking Break -*
12:30 PM - 02:00 PM	**Lunch Program - Fireside Chat**
02:00 PM - 02:30 PM	*- Networking Break -*
02:30 PM - 03:30 PM	**U.S. Policy**
	World-class Healthcare: Investing in Biomedical Innovation
	Global Capital Markets Advisory Roundtable *(Invite only)*
	African Government Funds *(Invite only)*
03:30 PM - 03:45 PM	*- Networking Break -*
03:45 PM - 04:45 PM	**Maintaining Competitiveness Amidst Global Trade Disruption**
	The Creative Economies
	Tapping Capital Markets to Foster Entrepreneurship and Job Creation *(Invite only)*
04:45 PM - 05:00 PM	*- Networking Break -*
05:00 PM - 06:00 PM	**Cryptocurrencies: A New Asset Class for Institutional Investors?**
06:00 PM - 07:00 PM	**Art Collection Reception**
07:00 PM - 09:00 PM	**Public Welcome Dinner**
07:00 PM - 09:00 PM	**Private Dinner Receptions**

Wednesday, February 13, 2019

07:00 AM - 06:00 PM	*- Registration -*
09:00 AM - 09:45 AM	**A Leadership Strategy for the 21st Century Digital Workforce**
09:45 AM - 10:00 AM	*- Networking Break -*
10:00 AM - 11:00 AM	**Investing in Space**
	Across Sectors & Borders: Building Tomorrow's Global Workforce
	Forum for Family Asset Management *(Invite only)*
	Millennials: Drivers for the New Consumer Era *(Invite only)*
11:00 AM - 11:15 AM	*- Networking Break -*
11:15 AM - 12:15 PM	**Africa: The Next Frontier for Fund Investors**
	A Deliberate Evolution: The Greater Impact of 'Organized Philanthropy' *(Invite only)*
	Regional Security/Geo-politics *(Invite only)*
12:15 PM - 12:30 PM	*- Networking Break -*
12:30 PM - 02:00 PM	**Lunch Program**
02:00 PM - 02:30 PM	*- Networking Break -*
02:30 PM - 03:30 PM	**Global Credit Markets**
	Investment Landscape: Egypt

03:30 PM - 03:45 PM	*- Networking Break -*
03:45 PM - 04:45 PM	**Global Food Security and the Role of Technology**
	Collaborative Advocacy for Women's Equality
04:45 PM - 05:00 PM	*- Networking Break –*
05:00 PM - 06:00 PM	**Impact of Technological Advancement on Global Capital Markets**
06:00 PM - 07:00 PM	**Closing Reception**
08:00 PM - 10:00 PM	**Private Dinner Reception for The Young Leaders Circle**

Confirmed Speakers

Speakers confirmed for 2018 MENA Summit

- His Excellency Nana Akufo-Addo, President, Republic of Ghana
- Francois Chopard, Founder & CEO, Starburst Accelerator
- Hadley Gamble, Reporter & Anchor, CNBC
- His Excellency Youssef Boutros Ghali, Former Minister of Finance, The Arab Republic of Egypt
- Mohammed Hafiz, Founding Vice Chair, Saudi Art Council
- Khaled Helioui, Managing Director, Bigpoint
- Robert Howard, Chief Executive, United Arab Emirates, Lockheed Martin & Former Deputy Commander, United States Central Command
- His Excellency Sultan bin Ahmad Sultan Al Jaber, Minister of State, United Arab Emirates & Group CEO, Abu Dhabi National Oil Company
- Her Excellency Noura bint Mohammed Al Kaabi, Minister of Culture and Knowledge Development, United Arab Emirates
- Kerry Kennedy, President, Robert F. Kennedy Human Rights
- Gary Landesberg, Chairman, Principal Shreholder & Managing Partner, The Arts Club
- Michael Milken, Chairman, Milken Institute
- His Excellency Khaldoon Khalifa Al Mubarak, Group CEO & Managing Director, Mubadala Investment Company
- Mike Novogratz, Founder, Galaxy Digital
- Charles Noyes, Partner, Paradigm
- His Excellency Yousef Al Otaiba, Ambassador of the United Arab Emirates to the United States of America
- Sean Parker, Chairman, The Parker Foundation
- Princess Alia Al-Senussi, VIP Representitive, United Kingdom and Middle East, Art Basel; Member of Tate Modern Advisory Council
- Dr. Alanoud AlSharekh, Consulting Partner, Ibtkar Strategic Consultancy; Academic Activist on Youth and Gender Demographics
- D.A. Wallace, Co-Founder & Managing Partner, Inevitable Ventures
- Hugh Waters, Director, Health Economics Research, Milken Institute
- Michael Wystrach, CEO, Freshly

Previous MENA Speakers

Speakers that participated in the 2018 MENA Summit

- Khalid Abdulla Janahi, Chairman, Ithmaar Bank
- Iyinoluwa Aboyeji, Co-Founder and CEO, Flutterwave; Co-Founder, Andela
- Clare Akamanzi, CEO, Rwanda Development Board
- Mishaal Al Gergawi, Co-Director, emerge85
- His Excellency Abdul Aziz Al Ghurair, CEO, Mashreq Bank; Chairman, Abdulla Al Ghurair Foundation for Education
- His Excellency Waleed Al Mokarrab Al Muhairi, Deputy Group CEO & Chief Executive Officer, Alternative Investments & Infrastructure, Mubadala Investment Company
- Saud Al Nowais, UAE Commercial Attache (Counselor), Embassy of the UAE, Trade & Commercial Office
- His Excellency Yousef Al Otaiba, Ambassador of the United Arab Emirates to the United States of America
- Sultan Sooud Al Qassemi, Director's Fellow, MIT Media Lab; Founder, Barjeel Art Foundation
- Eng. Abdulla Abdulaziz Al Shamsi, Head of Healthcare, Mubadala Investment Company
- Sarah Al Suhaimi, CEO, NCB Capital; Chairperson of the Board of Directors, Tadawul
- His Excellency Mohamed Alabbar, Founder and Chairman, Emaar Properties
- His Excellency Ahmed Ali Al Sayegh, Chairman, Abu Dhabi Global Market
- Tracy Alloway, Executive Editor, Bloomberg Markets
- Ihsan Husein Al-Marzouqi, Partner, High Dominion Healthcare
- Mina Al-Oraibi, Editor in Chief, The National
- Princess Alia Al-Senussi, UK and MENA Representative, Art Basel; Member, Tate Modern Advisory Council
- Mohammed Alshaya, CBE, Executive Chairman, Alshaya Group
- Yasmin Altwaijiri, Senior Scientist, King Faisal Specialist Hospital and Research Center; Board Member, Alnahda Philanthropic Organization
- Karim Al-Wadi, Board Member, Beltway Group (One Belt One Road)
- Chris Austin, Director, National Center for Advancing Translational Sciences, NIH
- Miguel Azevedo, Head of Investment Banking, Middle East and Africa, Citigroup
- Matt Barnard, CEO and Co-Founder, Plenty Inc.
- Thomas Barrack, Executive Chairman, Colony Northstar
- Saad Berrada Sounni, Chairman, Palmeraie Industries and Services
- Her Excellency Reem bint Ebrahim Al Hashimy, Minister of State for International Cooperation, UAE; Managing Director for Dubai Expo 2020
- Her Excellency Noura bint Mohammed Al Kaabi, Minister of Culture and Knowledge Development, United Arab Emirates
- Olive Boles, Chief Exceutive, Leuka
- John Burbank, Founder, Chief Investment Officer and Portfolio Manager, Passport Capital
- George W. Bush, 43rd President of the United States; Founder of the George W. Bush Presidential Center
- Hani Buttikhi, Chief Investment Officer and Executive Board Member, NMC Health

- Maria Cantillon, Executive Vice President and Global Head of Alternative Asset Managers Solutions, State Street
- Eric Cantor, Vice Chairman and Managing Director, Moelis & Co; Former Majority Leader, U.S. House of Representatives
- Ron Cao, Founder and Managing Director, Sky9 Capital
- Karan A. Chanana, Chairman, Amira Nature Foods Limited
- Tom Chapman, Trustee, Chair of the Investment and Deferred Compensation Committees, Wyoming Retirement System
- Curtis S. Chin, Asia Fellow, Milken Institute; Former U.S. Ambassador to the Asian Development Bank
- Joaquim Alberto Chissano, 2nd President of Mozambique
- Simon Cooper, CEO, Corporate and Institutional Banking, Standard Chartered
- Court Coursey, Managing Partner, TomorrowVentures, LLC
- Mark Cutis, Chief Investment Officer, Special Situations, Abu Dhabi Investment Council
- Richard Ditizio, President and Chief Operating Officer, Milken Institute
- Rayan Fayez, CEO, Savola Group
- Thomas Finke, Chairman and CEO, Barings
- Lukasz Gadowski, Founder, Team Europe; Chairman, Volocopter
- Hadley Gamble, Reporter and Anchor, CNBC
- Fares Ghandour, Partner, Wamda Capital
- Daniel Goldin, Founder and CEO, KnuEdge; Former NASA Administrator
- Jonathan Goldstein, CEO, Cain International
- Christine Gulbranson, Senior Vice President, Innovation and Entrepreneurship, University of California System
- Sir Michael Hintze, Founder, Chief Executive and Senior Investment Officer, CQS
- Cyrus Hodes, Founder and Director, AI Initiative; Board Member, Aitheon
- Paul Horvath, Group CEO, Orchard Global Capital Group
- Badr Jafar, CEO, Crescent Enterprises; President, Crescent Petroleum
- Maysa Jalbout, CEO, Abdulla Al Ghurair Foundation for Education
- Annalisa Jenkins, MBBS FRCP, CEO, PlaqueTec
- Vilma Jurkute, Director, Alserkal Avenue; Advisory Board Member, Global Cultural Districts Network and the Jean-Paul Najar Foundation
- Salah-Eddine Kandri, Global Head of Education, International Finance Corporation
- Rishi Kapoor, Co-CEO, Investcorp Bank
- Abbas Kazmi, Founding and Managing Partner, Collegiate Capital
- David Kenny, Senior Vice President IBM Watson and Cloud Platform, IBM
- Michael Klowden, CEO, Milken Institute
- Barbara Leaf, United States Ambassador to the United Arab Emirates
- Sumant Mandal, Managing Director, March Capital Partners; Co-Founder, The Hive
- Prasanth Manghat, CEO and Executive Director, NMC Health
- James McCormack, Global Head of Sovereign and Supranational Ratings, Fitch Ratings
- Charlie McNairy, CEO and Chief Investment Officer, International Farming Corporation
- Richard Merkin, Founder, Heritage Medical Research Institute; Board Member, FasterCures
- His Excellency Salaheddine Mezouar, President, COP 22; Former Minister of Foreign Affairs and Economy and Finance, Morocco
- Michael Milken, Chairman, Milken Institute

- Michael Moe, Founder and CEO, GSV
- James Morgon, Managing Director, Europe, Milken Institute
- Patrice Motsepe, Founder and Chairman, African Rainbow Minerals
- Iman Mutlaq, Founder and CEO, Sigma Investments
- Dima Najim, Managing Director, Education for Employment, UAE
- Kim Nguyen, Co-Founder and CEO, DeepRadiology
- Mike Novogratz, CEO, Galaxy Investment Partners
- Charles Noyes, Quantitative Researcher, Pantera Capital
- Karl Magnus Olsson, Chief Xperience Officer and Co-Founder, Careem
- Katie O'Reilly, Executive Director, Business and Program Development, Milken Institute
- Marc Oshima, Co-Founder and Chief Marketing Officer, AeroFarms; Board Co-Chair, Chefs Collaborative
- Her Majesty's Ambassador Philip Parham, UK Ambassador to United Arab Emirates
- Pamela Paulk, President and CEO, Johns Hopkins Medicine International
- Jean Christophe Renondin, Senior Investment Manager, State General Reserve Fund, Oman
- Angela Rodell, CEO, Alaska Permanent Fund Corporation
- Jennifer Sacheck, Sanofi Professor of Prevention and Wellness, Milken Institute School of Public Health, George Washington University
- Suna Said, Founder and CEO, Nima Capital LLC
- Josh Sandler, CEO and Founder, Lori Systems
- V. Shankar, CEO, Gateway Partners
- Steven Shapiro, Partner, GoldenTree Asset Management
- Howard Shore, Executive Chairman, Shore Capital Group
- Jonathan Simons, President and CEO, Prostate Cancer Foundation; Senior Advisor, Milken Institute
- Jonathan Sokoloff, Managing Partner, Leonard Green & Partners, L.P.
- David Spetzler, President and Chief Scientific Officer, Caris Life Sciences
- Rakesh Suri, CEO, Cleveland Clinic Abu Dhabi
- Ali Tabbara, Managing Director, Saudi Medicare Company; Chairman, UME Group Limited
- Louise Tabbiner, Senior Advisor, Business and Program Development, Milken Institute
- Bill Tai, Venture Capitalist; Founder, ACTAI Global
- Steven Tananbaum, Founding Partner and Chief Investment Officer, GoldenTree Asset Management
- Abdulrahman Tarabzouni, CEO and Managing Director, STV
- Heidi Toribio, Global Head, Banks and Broker Dealers, Corporate and Institutional Banking, Standard Chartered
- Staci Warden, Executive Director, Center for Financial Markets, Milken Institute
- David Warren, CEO, Chief Investment Officer and Founding Partner, DW Partners LP
- Eric Wilson, Managing Director, Global Investment Bank
- Cameron Winklevoss, Co-Founder and President, Gemini
- Tyler Winklevoss, Co-Founder and CEO, Gemini
- Hamed Zaghw, Chief Executive, AECOM Middle East Ltd.

Milken Institute Strategic Partners

- Accenture
- Barings
- Bombardier Business Aircraft
- Citi
- CreditEase
- Credit Suisse

- EJF Capital LLC
- EY
- GoldenTree Asset Management LP
- Guggenheim Partners
- Helmsley Charitable Trust
- Jefferies
- KBBO Group
- PepsiCo
- Principal Financial Group
- Sheth Sangreal Foundation
- State Street
- Värde Partners
- Vista Equity Partners
- WorldQuant LLC

Contact Us

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TREASURY INFLATION PROTECTED SECURITIES MANAGER SEARCH

For the December 12, 2018
Board of Investments Meeting

VACHE MAHSEREDJIAN—PRINCIPAL INVESTMENT OFFICER
ADAM CHENG—SENIOR INVESTMENT ANALYST
ROBERT Z. SANTOS—INVESTMENT OFFICER
RON SENKANDWA—SENIOR INVESTMENT ANALYST

LACERA INVESTMENTS

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STAFF MEMORANDUM

November 21, 2018

TO: Each Member
Board of Investments

FROM: Vache Mahseredjian, CFA, CAIA, FRM, ASA
Principal Investment Officer

Adam Cheng, CFA AC
Senior Investment Analyst

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **TREASURY INFLATION PROTECTED SECURITIES (TIPS) MANAGER SEARCH**

RECOMMENDATION

Hire BlackRock to manage a passive Treasury Inflation Protected Securities (TIPS) strategy within a separate account.

BACKGROUND

On May 9, 2018, LACERA's Board of Investments approved a new strategic asset allocation with a functional overlay consisting of four new categories: Growth, Credit, Real Assets and Inflation Hedges, and Risk Mitigation. Within Real Assets and Inflation Hedges, an allocation of 3% to TIPS was approved. In August of 2018, LACERA's Board of Investments approved a targeted search for an indexed TIPS manager within the newly formed Real Assets and Inflation Hedges category.

EVALUATION PROCESS

In collaboration with Meketa, staff evaluated the universe of passive TIPS managers and narrowed it down to a handful of the largest and most experienced firms. As defined in the RFP authorization memo, passive mandates are best managed by large firms that can utilize economies of scale to efficiently track its benchmark. A list of six eligible firms were identified. Two firms were eliminated from the list because they do not offer separate accounts; these firms managed ETF and mutual fund products that focus more on retail investors. Request for Proposal (RFP) questionnaires were then sent to the remaining four firms: BlackRock, Fidelity, Northern Trust and State Street. All four responded to the invitation. Each response was evaluated on a number of quantitative and qualitative measures. A supplemental ESG questionnaire was also sent to each candidate.

After reviewing the RFP responses, Fidelity was eliminated for several reasons. First, they had the shortest track record of the remaining candidates, having managed TIPS only since 2010. Although Fidelity managed $9.0 billion in TIPS assets, they do not currently manage any separate accounts.

Lastly, Fidelity had the highest fees and highest tracking error. The remaining three candidates were invited for in-house interviews.

In-house interviews were conducted by staff at LACERA's office. Each firm was asked to bring in the product's portfolio manager and provide an overview of the portfolio construction process. This also allowed staff to dive deeper into the RFP responses. After the in-house interviews, BlackRock was the leading candidate. Staff and Meketa agreed that an on-site interview with BlackRock would not be necessary given that BlackRock already manages multiple index strategies for LACERA. Final scores were assigned (see **Table 1),** reflecting all information gathered throughout the evaluation process. These scores are based on an assessment of each manager's organization, investment professionals, philosophy, process, risk management, performance, systems, operations, compliance, and fees. Further detail is provided in the **Manager Evaluations** section.

TABLE 1: FINAL SCORES

Investment Manager	Final Score
BlackRock	**91**
Northern Trust	**88**
State Street	**87**

Following is a brief overview of the three managers.

BlackRock (Final Score, 91), is the world's largest asset manager with $6.3 trillion in AUM. BlackRock leads the industry for index strategies and is the largest TIPS manager with $50.2 billion in TIPS AUM as of June 30, 2018. BlackRock has been managing TIPS strategies since 2001. Mr. James Mauro would be the lead manager on this portfolio. Mr. Mauro is the Deputy Head of San Francisco Core Portfolio Management within Systematic Fixed Income. Mr. Mauro joined BlackRock in 2010. His past experience includes helping to build the fixed income indexing business at State Street overseeing the first TIPS portfolio and launch of several ETFs.

Northern Trust Asset Management (Final Score, 88), is the asset management division of Northern Trust bank with $946.5 billion in AUM. Northern Trust has been managing TIPS strategies since 2000 and has $12.1 billion dedicated to TIPS as of June 30, 2018. Mr. Daniel Personette, CFA is the Senior Fixed Income Portfolio Manager assigned to this mandate. Mr. Personette joined the firm in 1996 and has managed the TIPS product since its inception.

State Street Global Advisors (Final Score, 87), is the asset management division of State Street Bank with $2.5 trillion in AUM. State Street has been managing TIPS strategies since 2000 and has $32.8 billion dedicated to TIPS as of June 30, 2018. Ms. Cynthia Moy would be the lead manager on this account and has 13 years of experience. Ms. Moy is a Portfolio Manager in the Fixed Income Beta Solutions group and is responsible for managing government bond strategies.

Due to the nature of a passive TIPS mandate, the differentiation between managers is subtle. All three firms are very capable of managing an index strategy for LACERA. Currently, with only 38 securities in the index, there is little room for variation. All three managers employ a full replication index approach. This means the portfolio holds the same constituents as the U.S. TIPS Index at or very near the index weight. Cost savings and trading efficiency become primary drivers of performance. Each manager utilizes scale and trading strategies to drive down transaction costs. Analytic systems, compliance, and back office operations are all institutional quality. The business of passive investment management has become a commodity business and is generally decided based on fee. BlackRock and Northern Trust both came in tied for the lowest price.

Meketa collaborated with staff throughout different phases of this search and Meketa concurs with staff's recommendations. Their memo is in the section labeled ***Meketa Memorandum****.*

CONCLUSION

Staff recommends selecting BlackRock to manage a $1.5 billion passive TIPS mandate within a separate account to be custodied at State Street Bank. BlackRock is the leading provider of index strategies and the largest manager of indexed TIPS. BlackRock currently manages several equity and fixed income mandates for LACERA and it is a well-known entity. Therefore, staff recommends hiring BlackRock without further interviews. LACERA's longstanding relationship with BlackRock allows for operational ease where existing contracts can be utilized to expedite the onboarding process.

As an alternative, if the Board prefers having finalist interviews, staff proposes inviting both BlackRock and Northern Trust for Board interviews. Northern Trust is a qualified index manager offering a comparable fee to BlackRock.

The remainder of this report is as follows:

Section II:	Evaluation Process
Section III:	Manager Profiles
Section IV:	Manager Scores
Section V:	Performance
Section VI:	Fees
Section VII:	Meketa Memorandum
Section VIII:	Appendix
	Staff Memorandum: Search For TIPS Manager

Noted and Reviewed:

Jonathan Grabel
Chief Investment Officer

EVALUATION PROCESS

EVALUATION PROCESS

The Treasury Inflation Protected Securities (TIPS) search consisted of two phases; RFP questionnaires and in-house interviews. Meketa compiled an initial list of the largest indexed TIPS managers. A total of 6 firms were screened based on years of experience managing indexed TIPS, product track record, and assets under management (AUM). Two firms were eliminated on the basis of product offering; these firms did not offer separate accounts.

An invitation to respond to an RFP questionnaire was sent to the remaining 4 firms. Staff and Meketa independently evaluated the responses. Staff scoring was based on an assessment of each manager's organization, investment professionals, philosophy, process, performance, and fees. Manager evaluations followed a two-phase process as described below.

PHASE ONE: REQUEST FOR PROPSAL (RFP) EVALUATION

Phase One consisted of an evaluation of RFP responses. Questions addressed the following Six broad areas:

Organization (20%)

This section included a review of the firm’s history, ownership structure, products offered, AUM, capacity limits, client base, client turnover, Securities and Exchange Commission (SEC) audits, and past or pending litigation.

A firm’s ownership structure is considered important for two primary reasons. First, the availability of direct ownership opportunities for employees generally improves recruitment and enhances retention. Second, privately-owned firms are usually not under the same profit generation pressure as large publicly-owned firms or subsidiaries of large firms. Therefore, firms that are either employee-owned and/or offer ownership opportunities for key professionals were viewed more favorably than wholly-owned subsidiaries.

Any recent organizational changes were reviewed to assess their impact on the firm, investment team, and investment process. Organizational changes that appear to be disruptive to the investment team and process were scored negatively. Firms with clean SEC audits and no current or prior litigation and/or investigations were viewed more favorably.

AUM is important for indexing strategies as scale often creates opportunities for cost savings and trading efficiency. Also, a firm with insufficient assets may lack the resources needed to provide robust risk controls and compliance procedures, or the infrastructure and personnel to support the investment team.

Professional Staff (15%)

Knowledgeable investment professionals are vital to the success of any investment strategy. Important factors in this category included portfolio manager continuity, staff turnover, size and depth of the investment team, and portfolio manager experience investing in TIPS.

The portfolio manager is primarily responsible for developing, defining, implementing, and monitoring the investment process. Well-established investment firms with seasoned professionals that have demonstrated track records in indexed TIPS strategies were viewed favorably. Additionally, low turnover for key investment professionals was viewed positively.

Investment Philosophy, Portfolio Construction and Research Capabilities (15%)
This critical category encompasses the firms' core investment principles, decision-making process, and risk controls. In addition to evaluating the merits of the investment process, staff assessed how well the proposed product fits the parameters of LACERA's search.

Staff reviewed the strategies employed by the candidates. Firms utilizing a full replication strategy with strong processes around monthly rebalancing and trading were viewed favorably. Experience researching and investing in the TIPS market was viewed favorably.

Trading and Operations (15%)
This category assessed managers' trading capabilities, operations, performance, compliance procedures, and risk management.

Staff reviewed each firms' trading operation and systems used for analytics. Firms that use automated systems to integrate portfolio management, trading, risk management, compliance checks, accounting and settlement were viewed positively.

Performance and Risk (15%)
This category evaluated manager performance and tracking error. Firms with lower tracking error were viewed positively.

Fees (20%)
This category ranked managers' fees from low to high. Managers with the lowest fee proposals received higher scores in this category.

Three managers advanced to Phase Two.

PHASE TWO: INTERVIEWS

In-house Interviews

Interviews enabled staff to go beyond the written RFP and gain a deeper understanding of each manager's investment philosophy and process. They also provided staff with an opportunity to ask questions about the RFP, as well as to identify and evaluate a firm's competitive advantage.

Key investment decision-makers were requested to attend the interviews, and staff evaluated firms on the ability to clearly articulate their philosophy and process. Managers unable to respond adequately to questions about their portfolio construction and risk management were viewed less favorably.

Final Fee Quote

After the in-house interviews were completed, Staff asked each finalist to provide a final fee quote based on an allocation of approximately $1.5 billion. To preserve the integrity of the evaluation process and to ensure that managers negotiate in good faith, staff informed managers that any recommendation to retain a manager would be withdrawn if the manager attempts to re-negotiate their fee subsequent to this memorandum.

Final Manager Scores

Upon staff's completion of in-house interviews, the candidates received final scores (see **Manager Scores** section) based on all information gathered during the entire evaluation process.

MANAGER PROFILES

MANAGER PROFILES

	BlackRock	Northern Trust	State Street
Office Location	San Francisco	Chicago	Boston
Year Firm Began Managing TIPS	2001	2000	2000
Total AUM	$6,299.7 B	$946.5 B	$2,487.2 B
Total TIPS AUM	$50.2 B	$12.1 B	$32.8 B
Total Passive TIPS AUM	$41.8 B	$12.1 B	$32.8 B
Total Passive TIPS AUM (Separate Accounts)	$2.5 B	$2.7 B	$17.2 B
Total Number of Separate Accounts	4	7	12

MANAGER SCORES

MANAGER SCORES

	Firm	Final Score	Ranking	Reason Did Not Advance
1)	**BlackRock**	**91**	1	
2)	**Northern Trust**	**88**	2	
3)	**State Street**	**87**	3	
4)	Fidelity	78	4	No separate account clients, highest tracking error and fee
5)	Charles Schwab		NR	Only mutual fund and ETF vehicles offered
6)	Vanguard		NR	Only mutual fund vehicles offered

PERFORMANCE

Manager vs Benchmark: Return
March 2014 - June 2018 (not annualized if less than 1 year)

	YTD	1 year	2 years	3 years	4 years	Analysis Period
BlackRock TIPS SMA Gross-of-Fees	-0.04%	2.15%	0.78%	1.97%	1.03%	1.71%
Northern BB TIPS SMA Gross-of-Fees	-0.02%	2.11%	0.73%	1.94%	1.02%	1.73%
SSgA TIPS Gross-of-Fees	-0.03%	2.11%	0.73%	1.92%	1.00%	1.68%
Bloomberg Barclays U.S. Treasury: U.S. TIPS	-0.02%	2.11%	0.73%	1.93%	1.00%	1.68%

Calendar Year Return

As of June 2018

	YTD	2017	2016	2015
BlackRock TIPS SMA Gross-of-Fees	-0.04%	3.07%	4.75%	-1.44%
Northern BB TIPS SMA Gross-of-Fees	-0.02%	3.00%	4.77%	-1.44%
SSgA TIPS Gross-of-Fees	-0.03%	3.01%	4.67%	-1.44%
Bloomberg Barclays U.S. Treasury: U.S. TIPS	-0.02%	3.01%	4.68%	-1.44%

Risk / Return Table

Annualized Summary Statistics: March 2014 - June 2018

	Return (%)	Std Dev (%)	Downside Risk (%)	Beta vs. Market	Alpha vs. Market (%)	R-Squared vs. Market (%)	Sharpe Ratio	Tracking Error vs. Market (%)	Observs.
BlackRock TIPS SMA Gross-of-Fees	1.71	3.57	2.43	1.0008	0.03	99.99	0.3540	0.0435	52
Northern BB TIPS SMA Gross-of-Fees	1.73	3.59	2.44	1.0070	0.03	99.98	0.3557	0.0594	52
SSgA TIPS Gross-of-Fees	1.68	3.57	2.43	0.9990	0.00	100.00	0.3461	0.0171	52
Bloomberg Barclays U.S. Treasury: U.S. TIPS	1.68	3.57	2.43	1.0000	0.00	100.00	0.3459	0.0000	52

FEES

FEES

INVESTMENT MANAGER	MANAGEMENT FEE
BlackRock	1 bps
Northern Trust	1 bps
State Street	1.5 bps
Fidelity	2.5 bps

MEKETA MEMORANDUM

MEMORANDUM

To: LACERA Board of Investments

From: Stephen McCourt, Leandro Festino, Tim Filla
Meketa Investment Group

Date: December 12, 2018

Re: Treasury Inflation Protected Securities (TIPS) Manager Search

BACKGROUND

In May 2018, the Board of Investments ("Board") approved a new strategic asset allocation, which includes a 3% allocation to Treasury Inflation Protected Securities ("TIPS"), under the Real Assets and Inflation Hedges functional overlay. At the August 2018 Board meeting, the Board approved a targeted search for a passive TIPS manager.

PROCESS

Staff led the search for a passive TIPS manager. Meketa collaborated with Staff providing feedback and insight with respect to the language in the RFP, which was issued during the third quarter of 2018. In an already small universe of TIPS managers, the selection was limited to passive managers with a separate account option and a minimum level of assets managed in TIPS mandates. Working with staff, a list of four qualified managers that fit the required parameters was selected. Responses to the RFP were reviewed and due diligence performed in the following months. After a thorough vetting process, BlackRock, Northern Trust, and State Street were the finalist selected for an in-house interview with Staff.

While all three candidates were found to be capable of managing LACERA's TIPS mandate, BlackRock had the highest scores based on Staff's comprehensive assessment process. State Street had the lowest score, in part because of costs, while BlackRock and Northern Trust had the same low fee.

SUMMARY AND RECOMMENDATION

Staff has proposed that the Board hire BlackRock to manage a passive TIPS strategy within a separate account. We collaborated with Staff throughout the search and can attest that Staff followed LACERA's process. Furthermore, we concur with Staff's recommendation to hire BlackRock, though we note that Northern Trust would be a compelling option as well. We look forward to discussing this matter with you at the December 12th meeting.

SM/TF/LF/srt

MEKETA INVESTMENT GROUP
5796 ARMADA DRIVE SUITE 110 CARLSBAD CA 92008
760 795 3450 fax 760 795 3445 www.meketagroup.com

APPENDIX

July 26, 2018

TO: Each Member
Board of Investments

FROM: Adam Cheng, CFA AC
Senior Investment Analyst

FOR: August 8, 2018 Board of Investments Meeting

SUBJECT: **SEARCH FOR TREASURY INFLATION PROTECTED SECURITIES (TIPS) MANAGER**

RECOMMENDATION

Authorize a targeted search for a Treasury Inflation Protected Securities (TIPS) manager.

BACKGROUND

On May 9, 2018, LACERA's Board of Investments approved a new strategic asset allocation mix with a functional overlay consisting of four new categories: Growth, Credit, Real Assets and Inflation Hedges, and Risk Mitigation. Within Real Assets and Inflation Hedges, an allocation of 3% to Treasury Inflation Protected Securities (TIPS) was approved. In an effort to expedite the new Strategic Asset Allocation implementation, staff is presenting this recommendation directly to the full BOI.

MANDATE DESCRIPTION

TIPS, as the name suggests, are securities issued by the U.S. Treasury that are designed to provide inflation protection by increasing the bond's principal in proportion to increases in the Consumer Price Index (CPI). The entire U.S. TIPS market is roughly $1.1 trillion and is comprised of 38 securities. In contrast, the U.S. treasury market is approximately $7.6 trillion and consists of 256 securities. Given the limited size of the U.S. TIPS market and the relatively low return dispersion among managers within the space (see the accompanying presentation by Meketa), staff recommends that LACERA look to gain passive exposure to TIPS through a separate account. As with any index strategy, low cost, scale, tenure, systems, and trading will be major factors in evaluating potential managers.

Given that the new asset allocation calls for a 3% allocation to TIPS, the mandate size will be approximately $1.5 billion. Based on LACERA's Investment Manager Search Process for Public Markets, one of the selection criteria is that LACERA's portfolio should represent no more than 25% of the manager's assets in the particular strategy. This requirement narrows the investable universe to managers above $4.5 billion in TIPS assets. Staff utilized the eVestment database and worked with Meketa to identify the handful of managers that meet this selection criterion. The managers will be scored on both qualitative and quantitative criteria such as:

- Organization
- Professional Staff
- Investment Process
- Trading, Operations and Risk Management

PROPOSED TIMELINE

Staff recommends conducting a targeted search by sending these managers an RFP for a TIPS mandate. The goal is to expedite the search, while maintaining a thorough, fair, and transparent process. LACERA's standard due diligence procedures would be used, consisting of a questionnaire, followed by interviews. Here is an anticipated timeline:

Phase	Steps	Timing
I	**Draft and Issue RFP**	Aug/18
II	**RFP Evaluation**	Sep/18
III	**Manager Diligence & Finalist Recommendation**	Oct-Nov/18
IV	**Board Interviews**	Dec/18

Based on this timeline, the Board will interview candidates and make its final selection in December.

Attachment

Noted and Reviewed:

Jonathan Grabel
Chief Investment Officer

ALC:cll

Los Angeles County Employees Retirement Association

Treasury Inflation Protected Securities (TIPS)
A Refresher and a Recommendation

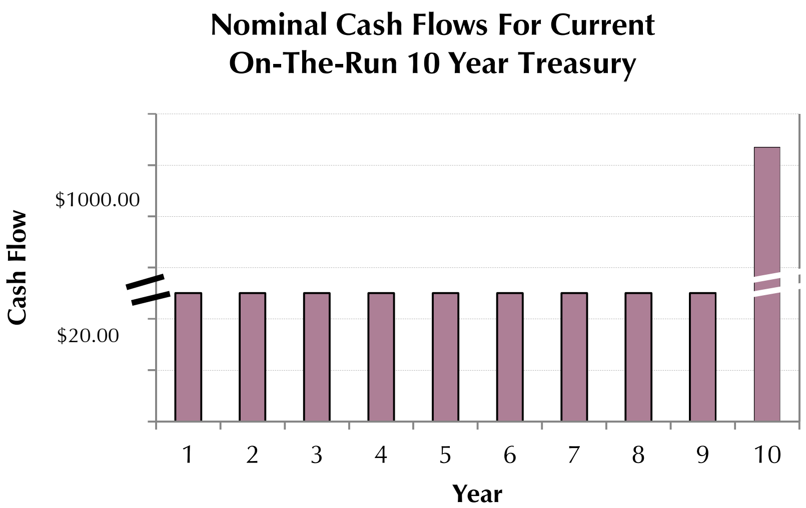
M E K E T A   I N V E S T M E N T   G R O U P
5796 ARMADA DRIVE SUITE 110   CARLSBAD CA 92008
760 795 3450   fax 760 795 3445   www.meketagroup.com

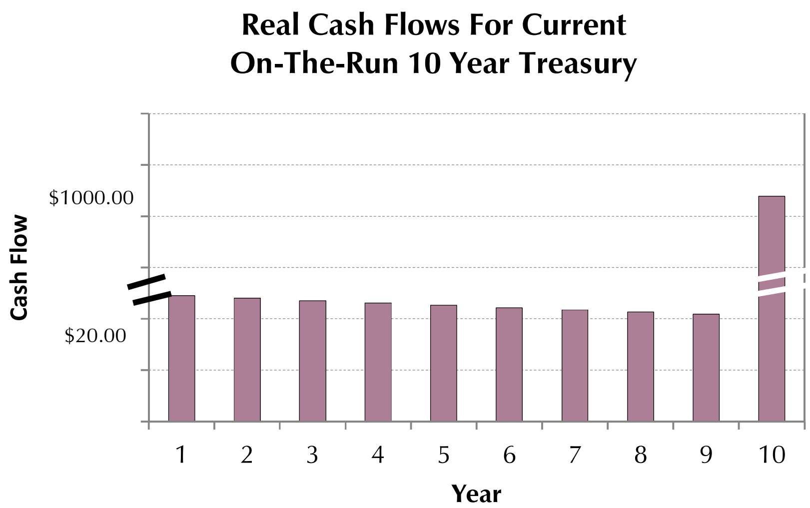
Characteristics of Inflation Linked Bonds: Overview

- **T**reasury **I**nflation **P**rotected **S**ecurities
- 5-, 10-, and 30-year maturities issued
- Offer a return guaranteed by the U.S. government based on inflation (a real rate of return)
- Principal is adjusted at the rate of inflation
- In the case of deflation, the principal will not fall below the initial investment (nominal amount)
- The majority of a TIPS investor's return is compensation for taking two types of risks:
  - Interest Rate Risk
  - Inflation Risk
- Market value fluctuates
- Prices rise when higher inflation is perceived
- High quality security backed by the U.S. Government
- Highly liquid security

Nominal versus Real: U.S. Treasury

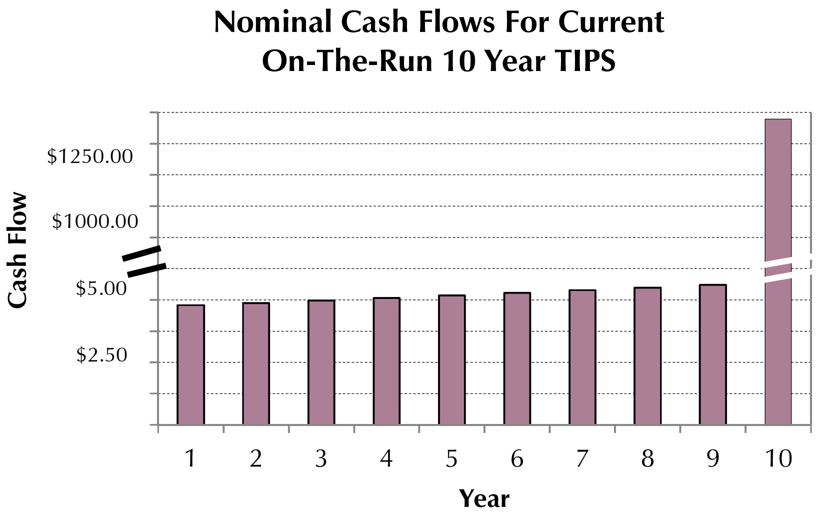
- Distinguishing between nominal and real return is a way of accounting for the effects of inflation.
- For example, if a basket of goods costs $1.00 today and next year it costs $1.02, then inflation has been 2%.
- Another way to think of this could be that the $1.00 you have today will only be worth about 98 cents next year.
- This real versus nominal return is highlighted in the difference between Treasury (nominal) and TIPS (real) cash flows. The charts below show a constant nominal coupon paid each year, but due to inflation that dollar amount is worth less each year in real terms.

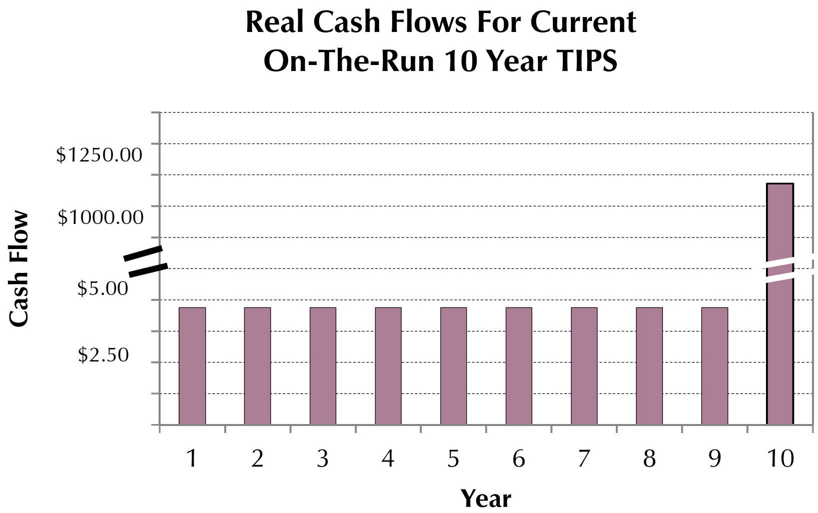




Nominal versus Real: U.S. TIPS

- The previous U.S. Treasury charts showed a constant nominal coupon paid each year, but due to inflation that dollar amount was worth less each year in real terms.
- In the charts below for the TIPS example, the nominal amount increases each year to offset the inflation effect, and therefore maintains a constant value in real terms.





Why should investors own TIPS?

- Inflation Protection
  - As illustrated above, if inflation rises the real value of TIPS remains constant, as opposed to other assets whose real value may depreciate.
- Diversification
  - As previously discussed, TIPS investors are compensated for taking two types of risk (interest rate, and inflation).
  - Investing in TIPS can diversify the risk profile of a portfolio (e.g. puts “some eggs” in a different basket).
- Safety
  - Like other U.S. government backed bonds, TIPS are relatively low risk, especially when compared with equities.
- TIPS can improve a fund’s long-term risk-reward relationship

Duration of TIPS

- The duration of a bond portfolio estimates how much the price of the bond portfolio will change due to movements in its yield.
- A duration of 10 implies that the price of a bond will drop about 10% with a 1% increase in interest rates.
- Longer duration bonds are more sensitive to interest rate changes.
- Shorter duration bonds are less exposed to interest rate risk.
- The Barclays U.S. TIPS Index has a duration that significantly exceeds that of the Barclays Aggregate Bond Index.

6/30/2018	Duration (Years)[1]	Yield to Maturity[2] (%)
Barclays U.S. TIPS	7.9	3.0
Barclays Aggregate Bond	6.4	3.3
Barclays 1-5 Year TIPS	3.0	2.8

- The longer duration of the Barclays U.S. TIPS Index has several implications that investors should consider.

[1] The duration for TIPS cannot be precisely calculated as the exact size of future cash flows is unknown (since future inflation is unknown). Hence, duration is estimated based upon market expectations for future inflation. Duration estimate from Bloomberg.
[2] TIPS are quoted in terms of their real yield. The yield to maturity quoted here adds in the market expectations for inflation.

Inflation Protection

- The interest rate duration of bonds is a widely used metric.
- However, assets may have similar risk exposures relative to other factors.
- Perhaps most important among these factors for TIPS is inflation sensitivity.
- The table below shows how TIPS with different levels of duration would have performed during the highest and lowest annual inflation periods since 1971.

1971-2018[1]	U.S. TIPS 1-5 Year (%)	U.S. TIPS 5 Year Constant Maturity (%)	U.S. TIPS 10 Year Constant Maturity (%)	Inflation (CPI) (%)
Top 20% of Inflation Periods[2]	7.8	6.0	3.2	9.5
Bottom 20% of Inflation Periods[2]	1.9	2.7	3.8	1.3

- TIPS are exposed to inflation and duration, and lower duration TIPS tend to outperform during high inflation scenarios.
- Over the historical period since 1971, high inflation tended to be associated with rising rates and vice-versa.

[1] One traditional difficulty in analyzing TIPS returns is their relatively short history, as the first TIPS was issued in 1997. To compensate for this drawback the results above use simulated TIPS returns based on an internal Meketa Investment Group model that is built upon industry and academic research.
[2] Represents ranked rolling 12-month inflation. Performance represent average of rolling 12-month returns during these periods.

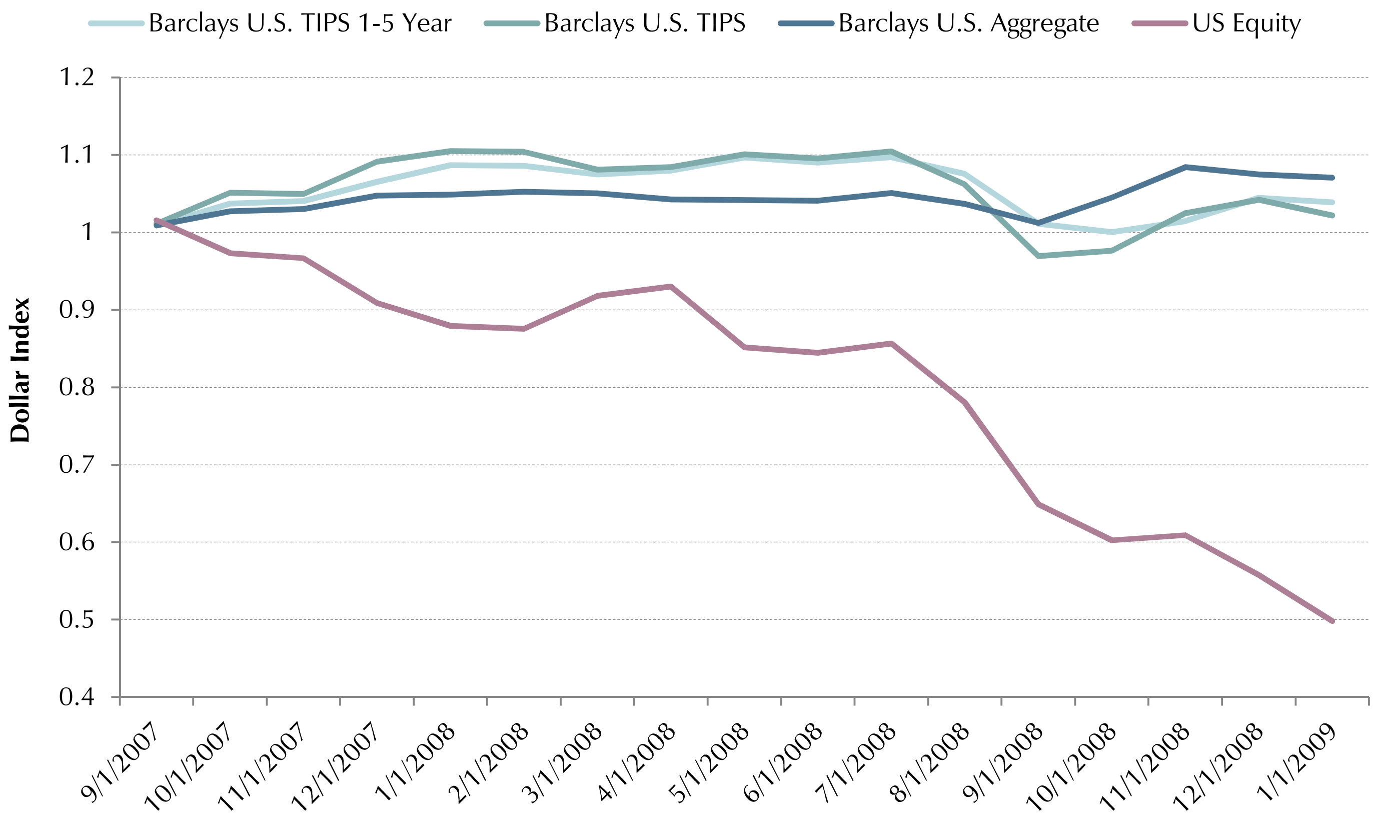
Historical Performance

Period	Barclays U.S. TIPS (%)	Barclays U.S. TIPS 1-5 Years (%)	Barclays Aggregate (%)	CPI (inflation (%)
One Year	0.7	1.1	-0.4	2.8
Three Year	1.5	0.9	1.4	1.9
Five Year	0.9	0.4	2.0	1.6
Ten Year	4.1	1.7	4.7	1.5
Longest Common Period[1]	5.4	4.2	4.9	2.2
Q3 2007 – Q1 2009	5.4	4.5	5.6	1.3
Standard Deviation	5.8	3.4	3.5	1.4

- The Barclays U.S. TIPS Index has had strong long-term performance, but underperformed the Barclays Aggregate Index over the trailing 10-year time period.
- The Barclays U.S. TIPS Index has been almost twice as volatile as the Barclays Aggregate Index.
- The Barclays U.S. TIPS Index has outperformed the Barclays Aggregate over the past year, a period of rising interest rates.
- Unsurprisingly, because the shorter term TIPS index is less volatile and less exposed to changes in interest rates, it tends to return less than either the longer term TIPS index or the broader bond market.

1 Longest common time period is from August 1997, inception of the Barclays 1-5 year TIPS Index, to June 2018.

Financial Crisis Performance



- During the Financial Crisis, longer duration assets performed relatively better at a time when most portfolios needed this protection. The S&P 500 was down 50% over this period.[1]

1 Source: Thomson Reuters.

TIPS: Active vs. Passive

Actively Managed TIPS Universe as of 3/31/18	5-Yr Returns (gross)	5-Yr Excess Returns	10-Yr Returns (gross)	10-Yr Excess Returns	Fees ($1b mandate)
25th Percentile	0.06	0.01	2.83	-0.09	.08
Median	0.15	0.10	3.03	0.10	.11
75th Percentile	0.27	0.23	3.21	0.29	.15
Barclays US TIPS Index	**0.05**		**2.93**		

- We compared the universe of 28 actively managed US TIPS strategies to the Barclays US TIPS Index.
- While the median actively managed US TIPS manager outperformed the index by 10 basis points over the five and ten-year periods, the median annual fee for actively managed accounts with a $1 billion mandate was 11 basis points.
- After taking fees into account, strategies in the 50th percentile and below underperformed the index for the five and ten-year periods.
- There is a limited universe of offerings for TIPS, with only 38 issues available since the late 1990s.
- Of the 28 active strategies, there are only six that would be able to accommodate LACERA's needs, having assets under management of $5 billion or above.
- We found little evidence to support LACERA's use of active management for TIPS.

Summary

- Meketa Investment Group believes that investors should allocate a portion of their bond portfolios to TIPS.
- TIPS offer protection against inflation, as well as a diversification benefit. They are a high quality, liquid asset that can be incorporated as part of a safety reserve for intermediate spending needs.
- The diversification benefit of any asset is portfolio dependent, but increasing inflation exposure could offer a diverse source of risk for some portfolios.
- Meketa recommends that LACERA consider a passive allocation to TIPS.

LACERA

Documents not attached are exempt from disclosure under the California Public Records Act and other legal authority.

For further information, contact:
LACERA
Attention: Public Records Act Requests
300 N. Lake Ave., Suite 620
Pasadena, CA 91101

LACERA

November 29, 2018

TO: Each Member
Board of Investments

FROM: Equity: Public/Private Committee
Herman Santos, Chair
Wayne Moore, Vice Chair
Gina V. Sanchez
Shawn R. Kehoe
David Green, Alternate

Christopher J. Wagner CJW
Principal Investment Officer

David Chu D.C.
Senior Investment Officer

Calvin Chang CC
Senior Investment Analyst

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **PROPOSED PRIVATE EQUITY INTERNAL CO-INVESTMENT PROGRAM GUIDELINES**

RECOMMENDATION

Approve the proposed investment guidelines for an in-house co-investment program.

BACKGROUND

At the November 8, 2018 Equity: Public/Private Committee ("Committee") meeting, staff presented a summary review of LACERA's co-investment program in addition to an assessment of the costs and benefits of managing co-investments internally. At the conclusion, the Committee advanced a motion directing staff to deliver the same presentation, along with a set of proposed investment guidelines to the Board of Investments ("BOI") for consideration in establishing an internal co-investment program.

Attached for your review is the Committee memo that includes the presentation[1]. Page three of this memo contains the proposed co-investment guidelines.

[1] The information on Slide 8 of the attached presentation is regarded as confidential by LACERA's managers. Please refer to the footnote on the attached November 2018 Committee cover memo.

OPTIONS AVAILABLE TO THE BOARD

The Board may wish to approve, modify, or reject the recommendation.

DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE

Some of the opinions expressed by Committee members during its discussion and staff's response include the following:

Committee members supported the idea of establishing an in-house co-investment program based on the potential cost savings and the Committee's confidence in staff's abilities. Staff proffered to only co-invest alongside funds approved by the BOI and LACERA's private equity consultant. The Committee backed this proposed investment guideline.

A Committee member suggested that staff's draft investment parameters could be too conservative and advocated expanding deployment and geographical limits. The general consultant concurred and stated how increasing the program's size could maximize the potential impact and have diversification benefits. Staff's rationale for having stricter investment guidelines initially were to help minimize risks and better position the in-house program for long-term success.

The general consultant inquired whether staff had contemplated the use of an outside party to diligence co-investments or to provide a fiduciary opinion. Staff discussed the duplicative nature of using an outside party to diligence a co-investment from an existing manager that had been approved by the Board and LACERA's private equity consultant. However, staff believes there is merit in having an outside party confirm whether LACERA's due diligence process for co-investments was properly followed. Staff is in dialogue with Morgan Stanley (the current outsourced co-investment program manager) to provide this service.

RISKS OF ACTION AND INACTION

If the Board approves the recommendation, staff will develop a private equity in-house co-investment program based on the proposed investment guidelines which include, amongst other parameters, focusing on U.S.-based opportunities. Morgan Stanley will manage international co-investment opportunities.

If the Board does not approve this recommendation, LACERA's co-investment program will continue to be outsourced to Morgan Stanley in its entirety, including both U.S. and international opportunities.

It is likely that in the next 18-24 months, the most recent commitment to Morgan Stanley ($100 million) will be fully deployed. At that time, regardless of the Board's decision, LACERA will need to consider whether: (1) to launch an RFP for outsourced co-investment manager services or, 2) to expand the internal co-investment program (as proposed herein) to include international investments.

PROPOSED PRIVATE EQUITY IN-HOUSE CO-INVESTMENT GUIDELINES

The following co-investment guidelines will mitigate some of the risks inherent in private equity co-investments. Since co-investment opportunities require prompt action, the CIO will need the authority to approve co-investments when all of the following conditions are met:

Transaction Parameters

1. **Sourcing –** from BOI-approved funds where LACERA is an existing limited partner (including those funds approved by the CIO through LACERA's private equity fund re-up procedure);
2. **Investment size –** not to exceed $40 million in a single opportunity;
3. **Geography –** companies headquartered in the United States (international co-investments will continue to be outsourced to Morgan Stanley);
4. **Deal types –** buyout and growth capital transactions[2];
5. **Annual capital deployment –** up to $100 million in calendar year 2019 and up to $150 million in calendar year 2020.

Staff will perform many of the same diligence steps on potential co-investments as currently undertaken with private equity fund commitments. Additionally, staff will evaluate deal and company specific factors. Major evaluation criteria to be considered include, but are not limited to, the following:

Due Diligence Guidelines

1. Fit with LACERA' s portfolio,
2. Fit with the general partner's investment strengths,
3. Reasonableness of valuation and proposed deal structure and terms,
4. Analysis of the general market environment,
5. Analysis of the investment merits and concerns,
6. Compliance with all regulatory and legal requirements,
7. Reference checks on the company management and the general partner investment principals,
8. ESG considerations, and
9. Third-party documentation that confirms LACERA's due diligence process was followed in a satisfactory manner (currently being discussed with Morgan Stanley).

Monitoring Policy

Staff shall promptly notify the Board in writing of any CIO-approved co-investments. Post-investment, staff will monitor the status of the co-investments in tandem with LACERA's private equity fund investments. Additionally, staff will provide updates to the BOI annually, or as appropriate, with regard to the in-house co-investment program's performance and progress.

[2] Buyouts involve the purchase of a controlling share in a company. Growth capital is usually defined as a minority investment, in relatively mature companies that are typically looking for capital to expand or restructure operations, enter new markets, or finance acquisitions.

CONCLUSION

In response to the Committee's direction, staff has prepared prospective investment guidelines for an in-house co-investment program. Staff's presentation booklet explains the rationale as well as LACERA's in-house capabilities to undertake such an endeavor. It is therefore recommended that the BOI approve the proposed private equity in-house co-investment guidelines.

Attachment

Noted and Reviewed:

Jonathan Grabel
Chief Investment Officer

CJW:DC:mm

October 29, 2018

TO: Equity: Public/Private Committee
Herman Santos, Chair
Wayne Moore, Vice Chair
Shawn R. Kehoe
Gina V. Sanchez
David Green, Alternate

FROM: Christopher J. Wagner CJW
Principal Investment Officer

David Chu D.C.
Senior Investment Officer

FOR: November 8, 2018 Equity: Public/Private Committee Meeting

SUBJECT: **PRIVATE EQUITY CO-INVESTMENT PROGRAM REVIEW**

BACKGROUND

Earlier this year, the Board approved an additional $100 million commitment to Morgan Stanley Alternative Investment Partners ("MSAIP"), the discretionary manager of LACERA's Private Equity Co-Investment Program (the "Program") since 2006. The Program was originally conceived to invest in co-investment opportunities sourced primarily from LACERA's private equity managers, while also benefiting from deals sourced from MSAIP relationships. Including the most recent commitment, MSAIP is managing a total of approximately $650 million across three separate commitments for LACERA.

The primary reason for the $100 million commitment was to ensure continued investment in co-investments, while allowing LACERA sufficient time to conduct a comprehensive review of the Program, including assessing the costs and benefits of managing co-investments internally. Over the past six months, staff conducted this review and will present its summary findings at the November committee meeting. Attached for your review is the presentation booklet.[1]

Attachment

NOTED AND REVIEWED:

Jonathan Grabel
Chief Investment Officer

CJW:DC:mm

[1] The information on Slide 8 of the attached presentation is regarded as confidential by LACERA's managers. It is also not subject to disclosure under the Public Records Act. Cal. Gov't Code §§ 6254.26(a)(4), 6255. Accordingly, under the Brown Act, this information is not subject to public disclosure and is presented to the Board on a confidential basis; the information on Slide 8 should not be discussed in open session. Cal. Gov't Code §§ 54956.9(f), 54957.5(a). The other slides of the presentation contain public information.

ATTACHMENT

Private Equity Co-Investment Program Review

Equity: Public/Private Committee

November 8, 2018

Christopher Wagner – Principal Investment Officer
David Chu – Senior Investment Officer
Calvin Chang – Senior Investment Analyst

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

Discussion Topics

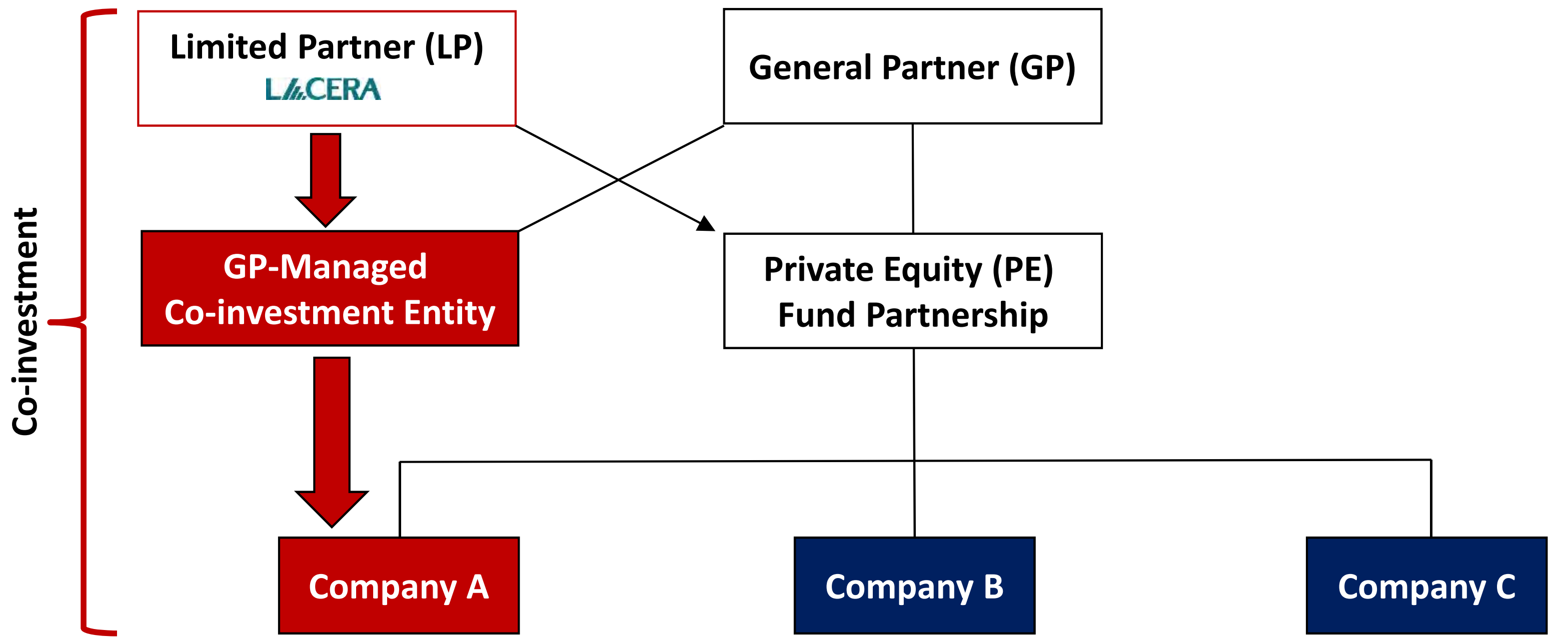
I. Overview of Private Equity Co-Investments
II. Current Private Equity Co-Investment Program
III. Evaluation of Co-Investment Options
IV. Establishing an In-house Co-Investment Program
V. Appendix

I. Overview of Private Equity Co-Investments

Private Equity Co-Investments Definition

Co-investments are typically minority investments made directly in portfolio companies by fund limited partners alongside a private equity fund partnership

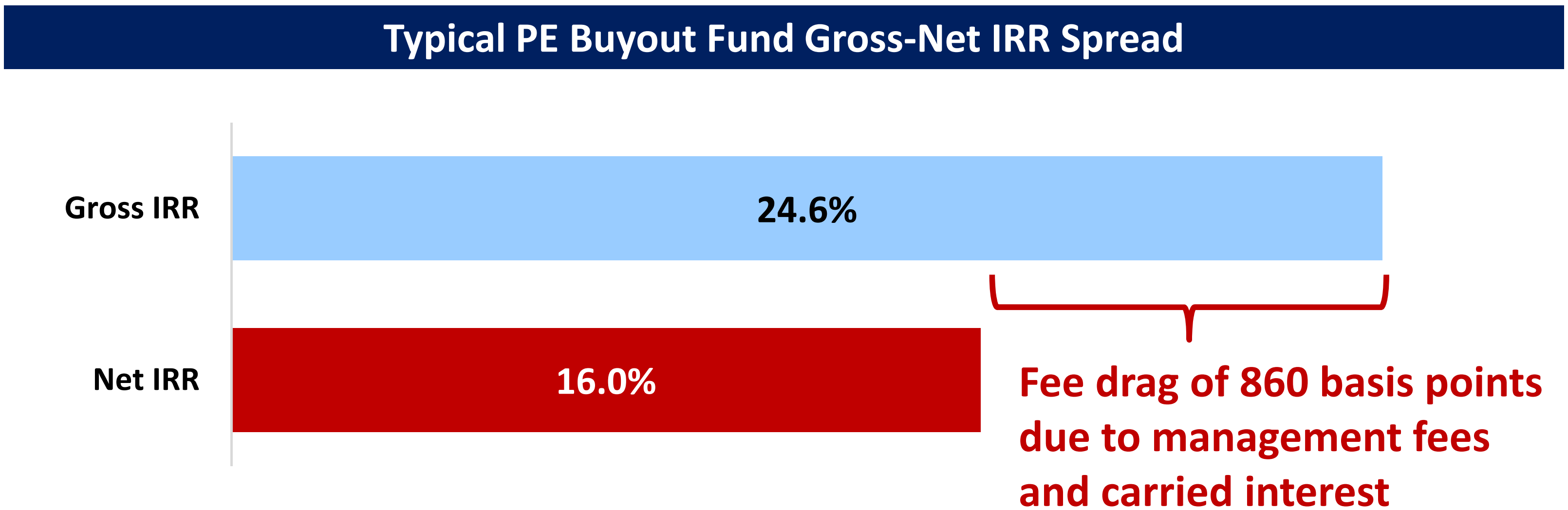
Illustrative Co-Investment Deal Structure



In this example, LACERA has exposure to "Company A" through its commitment to the private equity fund AND further exposure through a co-investment

Fee Savings: Co-Investment Vs. Fund Investment

Many co-investments enable limited partners to participate in potentially attractive investments without paying the usual "2% and 20%" management and carried interest fees charged by a typical private equity fund



Source: CEPRES.

II. Current Private Equity Co-Investment Program

LACERA's Co-Investment Program

Since 2006, LACERA has outsourced its co-investment program to Morgan Stanley across three commitments

As of 3/31/18 ($ in millions)	GTB I	GTB II	GTB III
Vintage	2006	2014	2018
LACERA Committed Capital	$250M	$300M	$100M
# Investments	20	17	Recently Activated
Cumulative Contributions	$263	$250	
Cumulative Distributions	$451	$20	
Net IRR*	12.4%	15.2%	
Net MOIC*	2.0x	1.3x	
Distributed to Paid-In-Capital Ratio (DPI)*	1.7x	.08x	
Total Projected Fees to be Paid by LACERA	$44M	$50M	$16M

Quartile Key 1st 2nd 3rd

*Quartile benchmarking based on the Burgiss Private iQ Global PE performance benchmarks as of March 31, 2018.

[redacted]

The information on this Slide 8 of the attached presentation is regarded as confidential by LACERA's managers. It is also not subject to disclosure under the Public Records Act. Cal. Gov't Code §§ 6254.26(a)(4), 6255. Accordingly, under the Brown Act, this information is not subject to public disclosure and is presented to the Board on a confidential basis; **the information on this Slide 8 should not be discussed in open session.** Cal. Gov't Code §§ 54956.9(f), 54957.5(a).

III. Evaluation of Co-Investment Options

Different Ways to Access Co-Investments

Per the Board's guidance, staff focused on evaluating the development of an in-house co-investment program versus the current externally managed solution; a fund-of-funds solution was not contemplated given the program's maturity and relative disadvantages around costs and portfolio construction

	INTERNALLY MANAGED	EXTERNALLY MANAGED	FUND OF FUNDS
COST			
Management Fees	●	◔	○
Carried Interest	●	◔	○
In-house Team	◑	◕	●
PORTFOLIO CONSTRUCTION			
Customization	●	◑	○
Diversification	●	◕	●
Blind Pool Risk	●	◑	◔
OTHER FACTORS			
Decision Making Process	◕	◕	●
Due Diligence Benefits	●	◕	◑
Investment Opportunities	◕	●	●

● ⇨ Best to Worst ⇨ ○

Source: StepStone with staff's own ratings for the internally managed option, as well as management fees and carried interest ratings for all three options.

In-house Program Strategy Evaluation Process

Staff's six-month process involved detailed interviews with LACERA's peers and private equity advisors, as well as extensive market research

Key Findings

Current Co-Investment Program	▪ While performance has been generally above the median, staff believes the returns have been driven mainly by: (1) deal sourcing from LACERA's high quality manager pool, and (2) the substantial fee savings inherent in co-investments due to the reduced fee burden
LACERA Peer Interviews	▪ Staff conducted detailed interviews with 5 limited partners who are currently insourcing co-investments ▪ All 5 reported superior performance of co-investments versus their respective overall PE program returns; moreover, all 5 had achieved this performance with minimal dedicated co-investment team members (0-1)
LACERA PE Advisor Interviews	▪ Staff conducted detailed interviews with Morgan Stanley, StepStone, and Pathway, all of whom advise or manage money on behalf of LACERA's private equity program and have co-investment capabilities ▪ Deal sourcing and assessing the co-investment deal's fit with the manager's strengths are keys
Market Research and Studies	▪ Academic studies are mixed – reports of both outperformance and underperformance from co-investments ▪ Preqin limited partner surveys, StepStone research, LACERA peer interviews, and LACERA's own experience support the notion that co-investments can be additive to a private equity program's returns

Peers with In-house Co-Investment Programs

Staff interviews with several peers yielded the following observations:

(1) internal co-investment teams leveraged the broader private equity teams for sourcing and execution;

(2) performance was additive; and

(3) staff (or staff + outside consultant) were given delegated authority with parameters given the accelerated decision timeframes (~2-4 weeks) inherent with co-investments

Criteria	U.S. Public Pension	U.S. Endowment	U.S. Endowment	Sovereign Wealth Fund	U.S. Public Pension
Total Assets Under Management ($ billions)	> $100B	> $25B	> $25B	> $50B	> $100B
Number of Dedicated PE Co-Investment Team Members	1	0	0	1	0
Outperform Overall PE Program	Yes	Yes	Yes	Yes	Yes
Require Board Approval	No	No	No	No	No
Co-investment Decision Delegation	Staff	Staff	Staff	Staff + Outside Consultant	Staff + Outside Consultant

Common delegation guidelines included limiting co-investments to specific size limits, strategies, geographies, and board-approved managers

Potential In-House Co-Investment Program Cost Benefit Analysis

Staff estimates insourcing will save LACERA about $350 million over 15 years

$26.3 Million — Externally Managed Expenses per Year × **15** Years = **$394 Million** in Total Externally Managed Expenses

$2.9 Million — Internally Managed Expenses per Year × **15** Years = **$43 Million** in Total Internally Managed Expenses

	Total Cost ($ In Millions)		
	Internally Managed	External Managed	Fund of Fund
1.50x	$43	$228	$403
1.75x	$43	$280	$472
2.00x	$43	$394	$541
2.25x	$43	$464	$611
2.50x	$43	$533	$680

Difference = $351 Million in Total In-house Cost Savings

*Assumptions include increasing co-investment commitments from $100 million to $450 million annually over a 10-year period for a total of $2.8 billion; 2x gross return on co-investments.

Other Potential Benefits to In-house Asset Management

Besides financial considerations, there are many intangible benefits from insourcing for LACERA

- ✓ Enhanced investment culture and image
- ✓ Increased portfolio control
- ✓ Fewer agency issues

Source: "Investment Business Model Dimensions," July 10, 2017, LACERA Board of Investments Offsite.

IV. Establishing an In-house Co-Investment Program

In-house Co-Investment Program Concerns and Mitigants

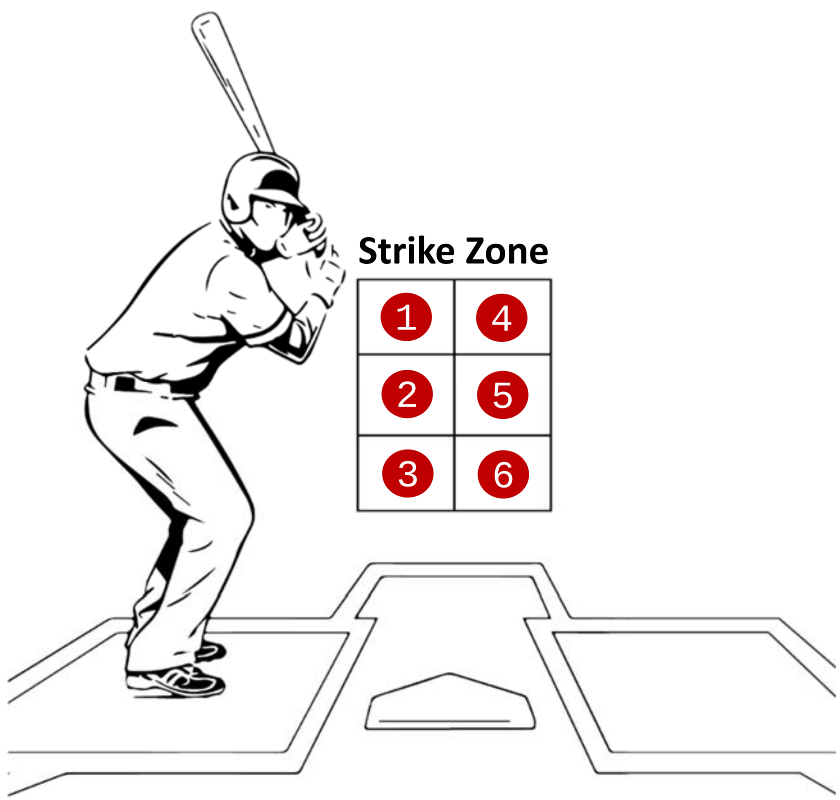
LACERA has the necessary experience and resources internally to develop and manage an in-house co-investment program

Concerns	Mitigants
Adverse Selection / Headline Risk	▪ Managers that show bad deals risk cutting-off their capital sources which should be a major deterrent ▪ Constructing a diversified portfolio helps to mitigate both concerns
Deal Sourcing	▪ LACERA's sizable general partner roster produces sufficient high quality deal flow ▪ LACERA's meaningful commitment sizes and high participation rate on fund advisory boards helps secure preferred access to co-investments
Team	▪ LACERA has the in-house capabilities and experience to execute co-investments ▪ Over 130 years of relevant private equity experience, including multiple team members with direct and co-investment skills; understanding of how to build and manage diversified portfolios
Due Diligence	▪ Existing knowledge of its managers' core areas of expertise will enable the private equity team to quickly assess opportunities within the accelerated decision timeframes inherent with co-investments ▪ Only investments that fit LACERA's "Strike Zone" will be considered (discussed on next slide)
Post-Investment Monitoring	▪ LACERA's private equity team is already monitoring our managers' investments

Co-investment Evaluation Criteria - Illustrative

Thorough co-investment guidelines can be developed to mitigate risks and ensure consistent decision making; only investments that fit LACERA's "Strike Zone" will be considered

1. **Strong LACERA portfolio fit**
2. **Fit with general partner's investment strengths**
3. **Reasonable valuation and deal structure**



4. **Acceptable downside risk or protections**
5. **Positive macro tailwinds and/or manageable headwinds**
6. **Achievable company value creation strategy**

Existing Staff Delegated Co-Investment Authority

Since co-investment opportunities require prompt action, the Board has delegated investment staff co-investment authority for real estate investments when certain conditions are met. They are:

- ☑ The amount of co-investment per opportunity by LACERA does not exceed $50 million;
- ☑ The subject property of the co-investment is located within the United States of America; and
- ☑ The co-investment is sourced by an existing separate account manager or sponsor of a commingled fund in which LACERA is an investor.

Similar staff delegation guidelines can be developed for private equity co-investments

Source: LACERA Real Estate Objectives, Policies, and Procedures.

Proposed Next Steps

Gather Committee feedback and discuss further actions

Jun-Nov 2018	**Nov 2018** **Equity: Public/Private Committee Meeting**	Next Equity: Public/Private Committee Meeting
Evaluation of LACERA co-investment program and options	**Present findings and gather feedback**	Present revised co-investment strategy based on committee feedback
In-person visits and interviews with peers and LACERA PE advisors		
Review market research on co-investments		

V. Appendix

Potential In-house Co-Investment Program Parameters

Potential parameters could be similar to the staff-delegated guidelines for co-investments in LACERA's real estate program, and designed to minimize risks

Initial Targeted Annual deployment	• $100 million	**Deal Sourcing**	• 100% from BOI-approved managers
Annual # of Co-Investments	• 4-6	**Deal types**	• Primarily buyouts and growth capital • No venture capital
Co-Investment size	• Average: $25 million • Maximum: $40 million	**Geography**	• 100% from USA headquartered companies

LACERA's Deal Sourcing Advantage

LACERA's meaningful commitment size and high participation rate on advisory boards provides preferred access to co-investments

CLEARLAKE | SILVERLAKE | LGP LEONARD GREEN & PARTNERS | CVC | HELLMAN & FRIEDMAN | ONEX

INCLINE | EXCELLERE PARTNERS | Centerbridge | AKKR | PAI PARTNERS | AUSTRALIS Partners

ae Industrial Partners | Riverside | MBK PARTNERS | Gilde Buy Out Partners | HP HARVEST PARTNERS | THE ENERGY & MINERALS GROUP

JUGGERNAUT CAPITAL PARTNERS | LIGHTYEAR CAPITAL | ALCHEMY | BLACK DIAMOND CAPITAL MANAGEMENT | STERLING INVESTMENT PARTNERS | Triton

- **Represent ~8% on average of total commitments to PE managers' latest funds**
- **Serve on ~70% of advisory boards of core managers' latest funds**

Note: Only a portion of LACERA's private equity manager logos are shown above. PE managers excludes venture capital managers and managers included in pending secondary sale.

Current Private Equity Co-Investment Market

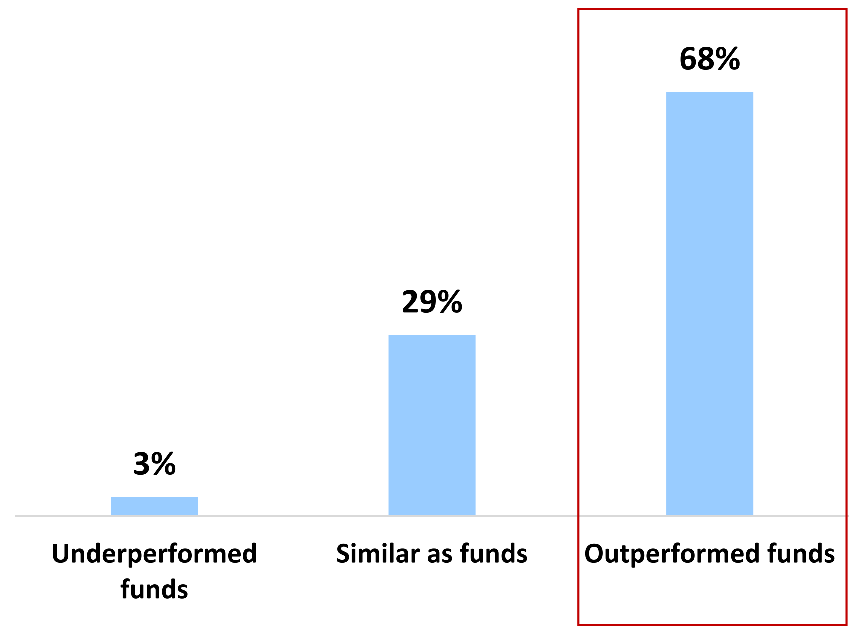
Co-investments are now mainstream, and many limited partners have reported outperformance from their co-investments, contradicting other studies about adverse selection

2017 Co-Investment Market Size

$100 billion or 40%
of total buyout capital called

Source: Cambridge Associates.

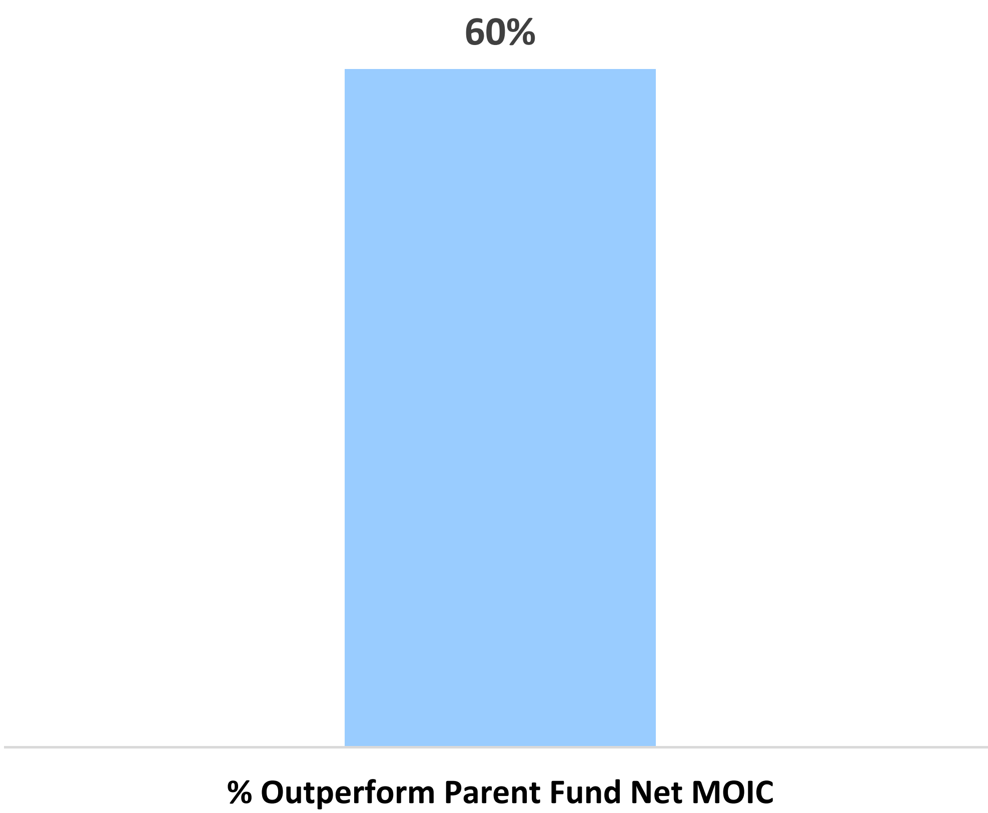
2017 Limited Partner Survey on Co-Investment Returns Vs. Fund Returns



Source: Preqin Global Private Equity and Venture Capital Report 2017.

Adverse Selection?

A StepStone study of nearly 1,000 co-investment deals conducted between 2000-2013 showed that 60% of co-investment deals outperformed the net multiple of invested capital (MOIC) of their parent funds



Source: StepStone, based on analysis of 959 co-investment transactions across 128 general partners.

Potential Benefits of Private Equity Co-Investments

There are compelling reasons why co-investments are viewed favorably by limited partners

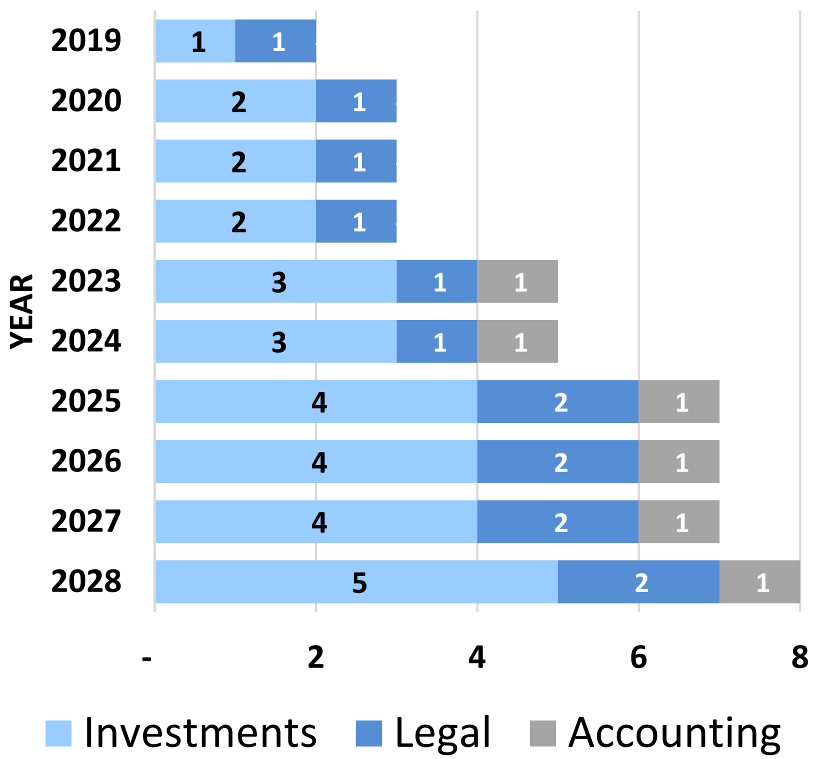
Limited Partners

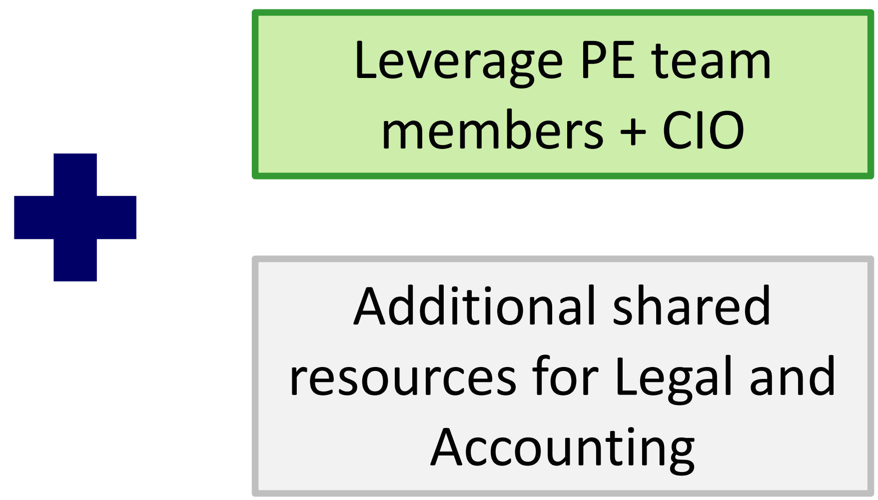
- Better performance over fund investing due to reduced fee burden and/or skillful deal selection
- Intentional portfolio construction
- Improved manager selection
- Gain industry knowledge
- Stronger manager relationships

Expected Internal Staffing Resources

Staffing for the in-house co-investment program will be efficiently established in tranches to meet the anticipated resourcing needs and comparable to industry peers

Projected Co-Investments Internal Staffing Over the Next 10 years





*Assumptions include increasing co-investment commitments from $100 million to $450 million annually over a 10-year period for a total of $2.8 billion; co-investment internal staff assumed to spend 50% of their time on co-investments and 50% on other activities.

November 29, 2018

TO: Each Member
Board of Investments

FROM: Beulah S. Auten, CPA, CGFM, CGMA
Chief Financial Officer

FOR: Meeting of December 12, 2018

SUBJECT: **RECOMMENDATION TO ACCEPT THE JUNE 30, 2018 VALUATION**

RECOMMENDATIONS

Staff recommends that your Board:

1. Accept the June 30, 2018, Retirement Benefits Actuarial Valuation prepared by LACERA's consulting actuary, Milliman.
2. Adopt recommended employer contribution rates (all tiers) and employee contribution rates (plan tiers General Plan G and Safety Plan C).
3. Direct the Chief Executive Officer to communicate the results of the Retirement Benefits Actuarial Valuation to the Board of Supervisors by May 15, 2019, with a recommendation to implement the employer and employee rates no later than September 30, 2019.

SUMMARY OF VALUATION RESULTS

	June 30, 2018 Valuation	2017 Valuation	2016 Valuation	2015 Valuation
Funded Ratio	**80.6%**	79.9%	79.4%	83.3%
Employer Normal Cost Rate	**9.92%**	9.94%	9.97%	9.28%
Employer UAAL Rate	**10.99%**	11.06%	11.24%	8.49%
	20.91%	21.00%	21.21%	17.77%
Less cost phase-in	**0.00%**	-0.96%	-1.51%	n/a
Total Employer Rate with cost phase-in	**20.91%**	20.04%	19.70%	n/a

The Unfunded Actuarial Accrued Liability (UAAL) as of June 30, 2018, is $13.29 billion and requires the County of Los Angeles to make additional payments to the Plan using closed 30-year layered amortization periods. The actuary projects the expected annual employer contributions for fiscal year 2019/2020 to be $1.7 billion. The actuary is recommending changes to the employer contribution rates (all tiers) and the employee contribution rate for Safety Plan C. The employee contribution rate for General Plan G remained the same as the prior year.

LEGAL REQUIREMENTS FOR ACTUARIAL VALUATIONS

The actuarial process at LACERA is governed by provisions contained in the County Employees Retirement Law (California Government Code, Sections 31450-31899.10) and the California Constitution (Article XVI, Section 17).

The California Constitution assigns "the sole and exclusive power to provide for actuarial services" to the governing body of the public employees' retirement system. Such power is given by the Constitution in order to "assure the competency of the assets of the public pension or retirement system." Section 31453 of the County Employees Retirement Law requires LACERA to obtain an actuarial valuation at least once every three years. This section further requires the Board of Investments to transmit its recommendations concerning assumptions, interest rates, and contributions to the Board of Supervisors at least 45 days prior to the beginning of the succeeding fiscal year.

Section 31454 requires the Board of Supervisors to adjust contribution rates in accordance with LACERA's recommendations not later than 90 days following the beginning of the immediately succeeding fiscal year. Section 31454.1 exempts the independent assumptions and calculations of LACERA's actuary from "meet and confer" requirements. This same section also recognizes the "meet and confer" responsibility of the Board of Supervisors in implementing the recommendations contained in the actuarial valuation report.

LACERA's VALUATION POLICY

The Board of Investments' Retirement Benefit Funding Policy requires LACERA's actuary to conduct annual retirement benefit valuations to measure the Plan's funding progress and recommend the employers' contribution rates.

In addition to the annual valuations, LACERA requires its actuary to review the reasonableness of the economic and non-economic actuarial assumptions every three years. This review, commonly referred to as the investigation of experience, or experience study, is accomplished by comparing actual experience during the preceding three years to what was expected to happen according to the actuarial assumptions. On the basis of this review, the actuary determines whether changing the assumptions or methodology will better project benefit liabilities and asset growth. Milliman completed the most recent experience study as of June 30, 2016.

For plan tiers using age-based employee contribution rates (General Plans A, B, C and D and Safety Plans A and B), LACERA's actuary will recommend adjusted employee rates, as required, due to changes in the underlying assumptions and methodologies used to calculate the employee rates. Therefore, it is expected the age-based employee rates will change no more frequently than every three years when the actuary reviews the assumptions and methodologies as part of the experience study. As there was no experience study conducted in connection with the June 30, 2018 valuation, the actuary is not recommending new employee rates for the plan tiers using age-based employee contribution rates (General Plans A, B, C and D and Safety Plans A and B).

For the plan tiers using single-rate employee contribution rates (plan tiers General Plan G and Safety Plan C), the employee is required to contribute one-half of the total Normal Cost rate for the plan. As there was a change in Safety Plan C's total Normal Cost, the actuary is recommending a new employee contribution rate. For General Plan G, the total Normal Cost rate for the plan was unchanged since the prior valuation, and therefore the actuary determined there was no employee contribution rate adjustment required.

RETIREMENT BENEFIT FUNDING POLICY

The Board of Investments' Retirement Benefit Funding Policy strives to provide benefit security for its members as well as achieving and maintaining stable employer contributions that are as low as possible. The policy further provides LACERA's actuary with guidance in establishing contribution rates.

Asset Smoothing Period

Asset gains and losses are smoothed over a five-year period.

Amortization Period

The unfunded portion of the liability (or UAAL) is amortized over closed 30-year layered periods. When LACERA moves to a funding ratio greater than 120%, the "surplus" amount will be amortized over an open 30-year period.

Excess Earnings

Excess Earnings, as defined in the County Employees Retirement Law, may be appropriated upon reaching a funding status exceeding 120%.

INCLUDING STAR RESERVES WITH VALUATION ASSETS

The STAR Reserve represents money set aside for the payment of *future* STAR Program benefits that have not been determined nor vested. The Retirement Benefit Funding Policy requires the actuary to include the STAR Reserve as a retirement plan asset. If the $614 million STAR Reserve was excluded from valuation assets, the funded ratio would decrease by 0.9% and the employer's UAAL contribution rate would be higher by 0.44%.

2018 VALUATION RESULTS

A valuation report is often described as a snapshot of a retirement Plan's funded status at a particular point in time. This year's snapshot finds LACERA funded at 80.6%. That is to say, the estimated benefit liability is greater than the actuarial value of assets. However, this snapshot includes smoothing previous investment gains and losses over a five-year period. LACERA's actuary reports that using the actual market value of assets without an actuarial smoothing period results in an 81.3% funded ratio.

Since the June 2017 valuation, the Actuarial Accrued Liability (AAL) increased 4.9% to $68.5 billion. The valuation measures how well the Plan's assumptions estimated the actual Plan experience. On page 28 of the 2018 valuation report, we see that there was an actuarial gain on investments, meaning that the return on investments was greater than assumed, and a net actuarial loss on all other experience. These gains and losses are nearly identical resulting in a net impact of 0% on the AAL.

Plan demographics reported in the valuation indicate a 1.3% increase in the size of the active member population that totals approximately 98,400, with an overall average age of 46.6. The retired population increased by 2.5% and totals over 64,000. The average benefit payment increased by 3.5% to approximately $4,233 per month. The retirees' average age increased by approximately one month to 72.8.

ACTUARIALLY REQUIRED EMPLOYEE CONTRIBUTION RATES

Employees participating in the closed plan tiers (General Plans A, B, C and D and Safety Plans A and B) contribute using age-based rates to fund a defined annuity at a specified age and to fund one-half the cost-of-living benefit. Employee age-based annuity contribution rates are affected by changes made in the salary, investment, and life expectancy assumptions and will vary according to the employee's age at first membership. As this valuation does not include revised salary, investment, and life expectancy actuarial assumptions, the actuary is not recommending new employee contribution rates for closed plan tiers General Plans A, B, C and D and Safety Plans A and B.

Employee contribution rates for all plans at every entry age can be found in the valuation report's Appendix D.

Employees participating in the open plan tiers (General Plan G and Safety Plan C) are required to contribute one-half of the plan's total Normal Cost rate. Because the total Normal Cost for Safety Plan C has changed since 2017, the actuary recommends changing the corresponding employee contribution rate. The Safety Plan C employee rate is recommended to decrease by 0.18% to 13.69%. The General Plan G employee rate remained the same as calculated for the previous valuation and is recommended to be approved at 8.43%. A sample of employee contribution rates compared to the previous employee contribution rates are presented in Exhibit 9 of the valuation report on page 33.

ACTUARIALLY REQUIRED EMPLOYER CONTRIBUTION RATES

Liabilities not funded through employee contributions and portfolio earnings are the responsibility of the employer. The employer is responsible to contribute the cost of benefits expected to be earned in the future in excess of those funded by employee contributions, and one-half the cost-of-living benefit. These contributions are known as employer Normal Cost contributions. The actuary has calculated employer Normal Cost rates for all retirement plans. Comparing the recommended 2018 employer Normal Cost rates to the 2017 valuation rates currently in effect, the general plan's average and the safety plan's average both decreased by 0.02%, for an aggregate decrease of 0.02%. A comparison by plan is presented in the valuation report's Exhibit 10 on page 37. Overall, the employer Normal Cost rate has decreased from 9.94% to 9.92% of covered payroll.

The employer is also responsible to contribute for funding shortfalls related to liabilities accrued in the past (which includes changes in the economic and non-economic assumptions affecting past service, if any). This portion of the employer's contribution is known as the UAAL contribution. Under the terms of the Retirement Benefit Funding Policy, contributions to retire an unfunded liability are calculated using a closed 30-year layered amortization period when the funded ratio is below 100%. As the funded ratio as of June 30, 2018 is 80.6%, the employer is required to contribute an additional 10.99% of covered payroll towards the unfunded liability for the fiscal year beginning July 1, 2019. The Board of Investments provided direction to the Plan actuary to phase-in the cost of the 2016 experience investigation report's assumption changes over a three year period (2016–2018 valuations) using a "direct rate smoothing" method. For the 2018 valuation results, the assumption changes are considered fully phased-in, therefore, the smoothing method has been fully implemented. As such, the 10.99% UAAL contribution rate was not changed from the actuary's calculation.

Together, the employer's 9.92% Normal Cost and 10.99% UAAL contribution rates equal 20.91% of covered payroll. For the fiscal year 2019-2020, the annual employer contribution will increase approximately $140 million compared to fiscal year 2018-2019, resulting in an approximate annual employer cost of $1.7 billion.

ACTUARIAL ASSUMPTION CHANGE COST PHASE-IN

The Board's December 14, 2016 action to use "direct rate smoothing" to phase-in the actuarial assumption change cost impact on the employer contribution rate is an implicit adjustment (lengthening) of the UAAL amortization period. The phase-in approach initially results in a lower employer contribution rate. However, as calculated in the 2016 valuation, future employer contribution rates after the phase-in period are projected to be greater by approximately 0.14% of covered payroll due to lower employer contributions received during the phase-in period. Applying the 0.14% cost factor to the $8.3 billion estimated county payroll for fiscal year 2019 results in an estimated additional cost of $11.7 million beginning July 1, 2019. Employee contribution rates are not impacted by the cost phase-in approach.

ACTUARIAL AUDITS

Our valuation policy requires actuarial audits of retirement benefit valuations at regular intervals in the same cycle as our triennial experience study and valuation. An actuarial audit was conducted by The Segal Company on Milliman's 2016 experience study and valuation report. The Segal Company did not identify any significant issues with the 2016 experience study or valuation.

The Segal Company concluded, "Milliman has employed generally accepted actuarial practices and principles in studying plan experience, selecting assumptions, computing employer contribution rates, and presenting the results of their work. We believe that the actuarial assumptions as recommended by Milliman, as well as those approved by the Board of Investments are reasonable for use in LACERA's actuarial valuation" and the audit of Milliman's valuation report "confirms that the actuarial calculations as of June 30, 2016 are reasonable and based on generally accepted actuarial principles and practices." The next triennial experience study and valuation audit will be performed as of June 30, 2019.

CONCLUSION

The LACERA Board of Investments adopted the Retirement Benefit Funding Policy to require the employer contribution rates to be adjusted annually based on the LACERA actuary's annual valuation. The Plan actuary, Milliman, has performed the actuarial valuation and recommends changes to the employer contribution rates (all tiers) and employee contribution rate (Safety Plan C), and to keep the General Plan G contribution rate the same. California State Law requires LACERA to transmit the contribution rate recommendations to the Board of Supervisors prior to May 15 and for the Board of Supervisors to implement the recommended rates no later than September 30.

LACERA's consulting actuaries, Mark Olleman and Craig Glyde with Milliman, will be attending the December 12, 2018 meeting to discuss the valuation report and answer any questions you may have.

BA:tg
ActVal18BOI (final).doc

Attachments

LACERA

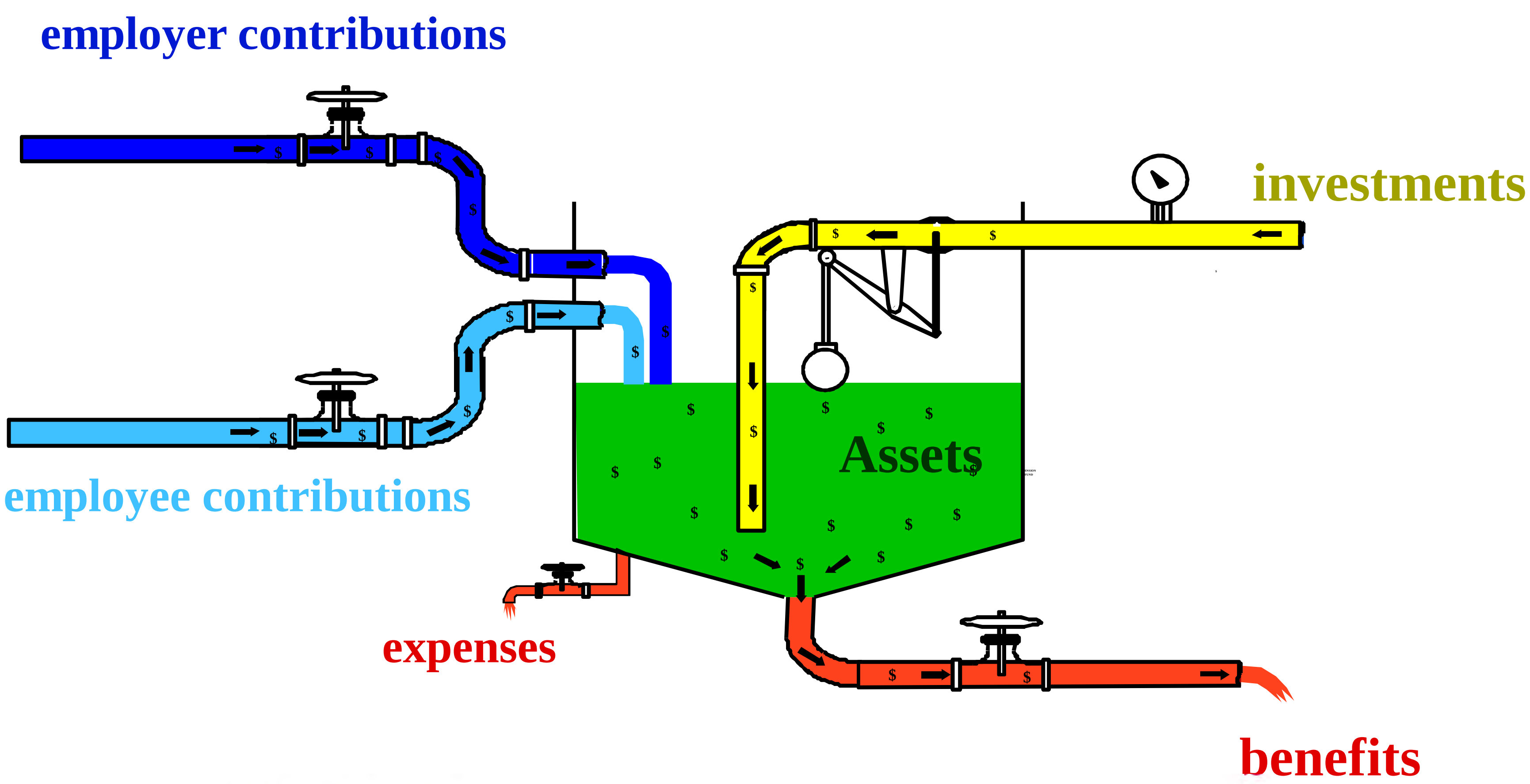
June 30, 2018 Actuarial Valuation

Mark Olleman and Craig Glyde
December 12, 2018

Overview

- Significant results
  - Increase in employer contribution rate
    - Primarily due to phase-in of 2016 assumption changes
    - 2016 assumption changes now fully phased-in
  - Small change in member contribution rate for Safety Plan C
    - No changes for other plans
  - Increase in Funded Ratio
- Changes since last year
  - Benefit provisions, actuarial methods -> no changes since prior year
  - Assumptions -> no changes since prior year
    - Assumptions will be reviewed in the 2019 Investigation of Experience
- Upcoming BOI / Milliman education session
  - Changes to ASOPs (Actuarial Standards of Practice)
  - Discussion of recent CalPERS changes
  - Actuarial 101
  - How LACERA compares to other ‘37 Act systems

Funding Principles



Ultimately:

Contributions + Investment Earnings
= Benefit Payments + Expenses

Summary of Results
Employer Contribution Rates

	June 30th Valuation 2018	June 30th Valuation 2017
Gross Normal Cost Rate	16.80%	16.70%
Member Contribution Rate[1]	(6.88)%	(6.76)%
Employer Normal Cost Rate	9.92%	9.94%
UAAL Rate	10.99%	11.06%
Preliminary Employer Rate	20.91%	21.00%
Deferred Recognition of new assumptions	0.00%	(0.96)%
Employer Contribution Rate with phase-in	20.91%	20.04%

1. Includes non-contributory members.

- 20.91% is a weighted average of all plans
  - Details by plan in Exhibit 11 (page 38) of Milliman's June 30, 2018 valuation report
  - Employer rate would be 0.45% higher if STAR Reserve was excluded

Summary of Results
Assets & Liabilities

(in $millions)	June 30th Valuation 2018	June 30th Valuation 2017
Actuarial Accrued Liability (AAL):		
Active Members	$ 29,335	$ 28,234
Retired Members	38,087	36,032
Vested Terminated Members	1,105	1,045
Total	$ 68,527	$ 65,311
Valuation Assets	$ 55,233	$ 52,166
Unfunded AAL	$ 13,294	$ 13,145
Funded Ratio (Valuation Assets / AAL)	80.6%	79.9%

Summary of Results
Member Contribution Rates beginning July 1, 2019

- Member contribution rates
  - Members of General Plan G and Safety Plan C (PEPRA plans) contribute one-half of plan's normal cost
    - Minor changes recommended this year

	General Plan G	Safety Plan C
All Ages: Recommended	**8.43%**	**13.69%**
All Ages: Current	8.43%	13.87%
Ratio (Recommended / Current)	100.0%	98.7%

  - Other contributory plans determined by formula using investment return, salary increase and mortality assumptions, and adjusted for value of COLA.
    - No changes to these rates since no assumption changes
      - Assumptions will next be reviewed in the 2019 Investigation of Experience

Summary of Results
Analysis of changes since last year

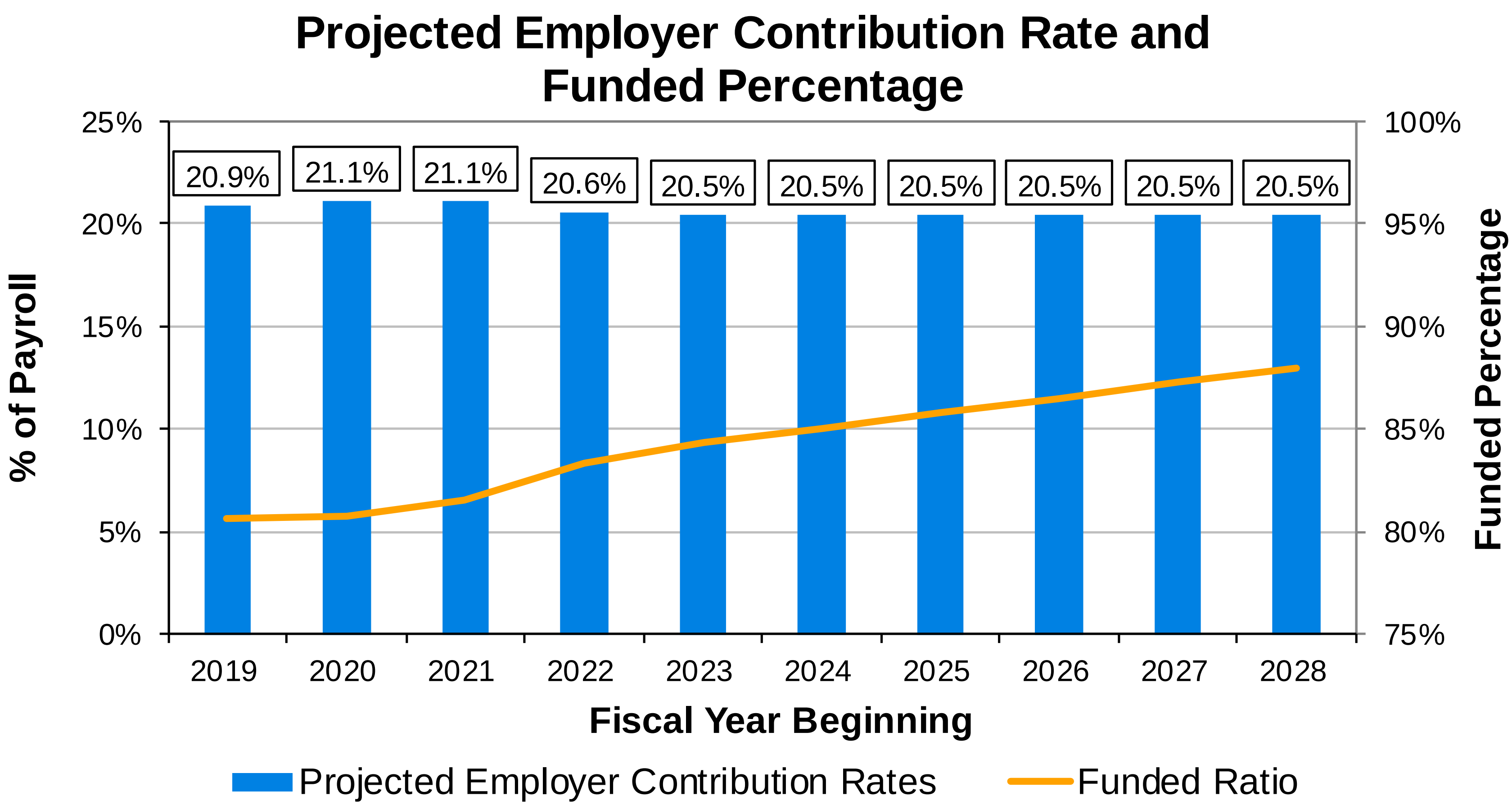
Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2017 Actuarial Valuation	**20.04%**	**79.9%**
Expected Year-to-Year Change	0.00%	0.6%
Investment Return > Assumed	-0.30%	0.6%
Payroll Increase > Assumed	-0.11%	0.0%
Liability Gain/Loss		
Salary Increase > Assumed	0.15%	-0.3%
Other	0.17%	-0.2%
Recognition of 2016 Assumptions	0.96%	0.0%
Total Change	**0.87%**	**0.7%**
June 30, 2018 Actuarial Valuation	**20.91%**	**80.6%**

Looking Ahead

- Projection: 1 Year
  - Increase in employer contribution rate next valuation projected to be about 0.2% of pay if LACERA earns 7.25% for FYE 2019
    - Increase is primarily due to recognition of prior net asset losses
    - Actual rate will be dependent on other factors
- Projection: 10 Years
  - Future required employer contribution rates will be highly dependent on investment returns
  - Baseline projection shows projection with:
    - All assumptions met, no changes in assumptions
  - Alternate projection #1 includes:
    - 25th percentile returns (approx. 0%) for 1 year
  - Alternate projection #2 includes:
    - 25th and 75th percentile returns for 10 years

* *Projections based on June 30, 2018 valuation and do not reflect actual investment returns since that date.*

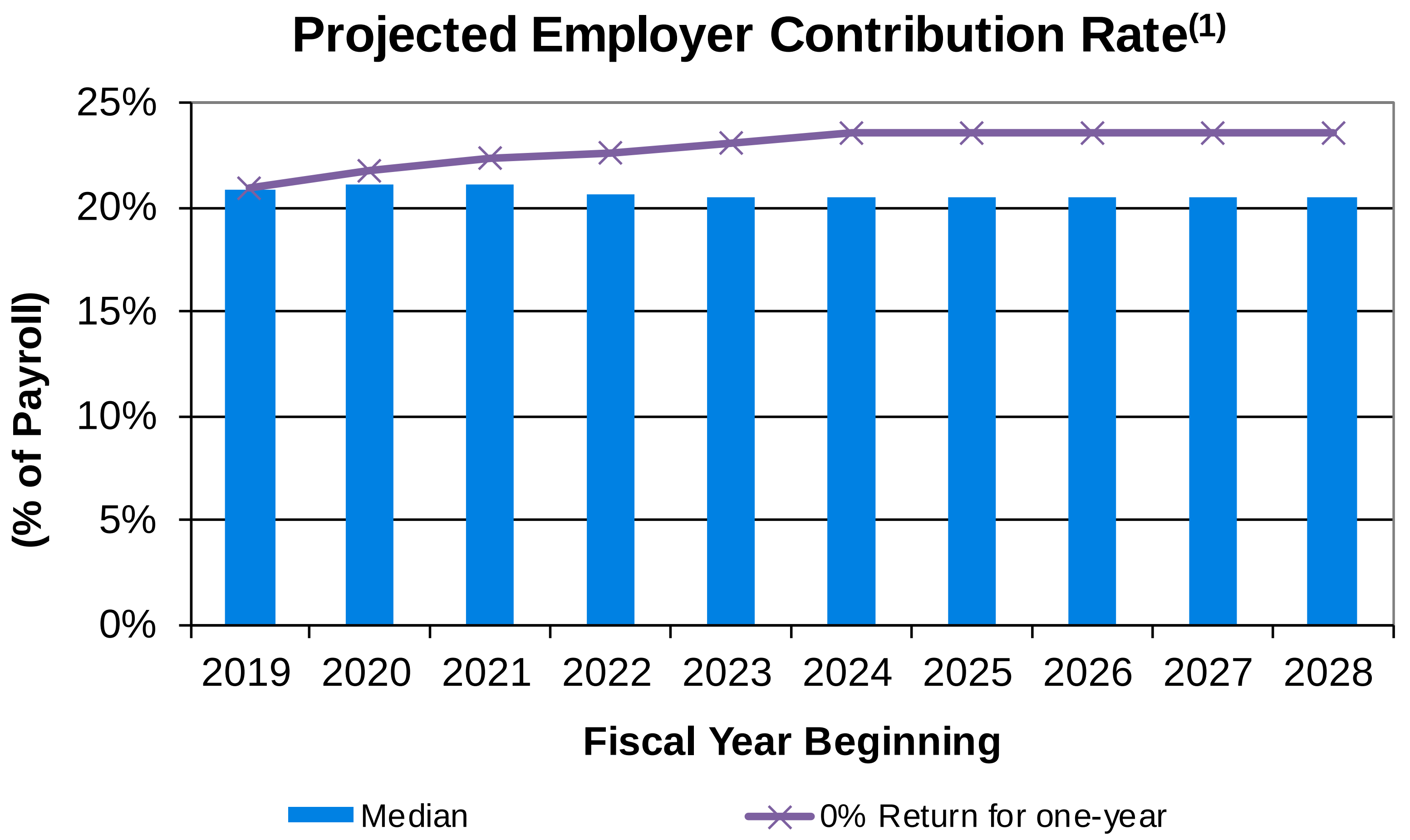
Looking Ahead - Baseline



Projections assume that all actuarial assumptions are met after June 30, 2018, and reflect the phasing in of the new assumption costs and the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

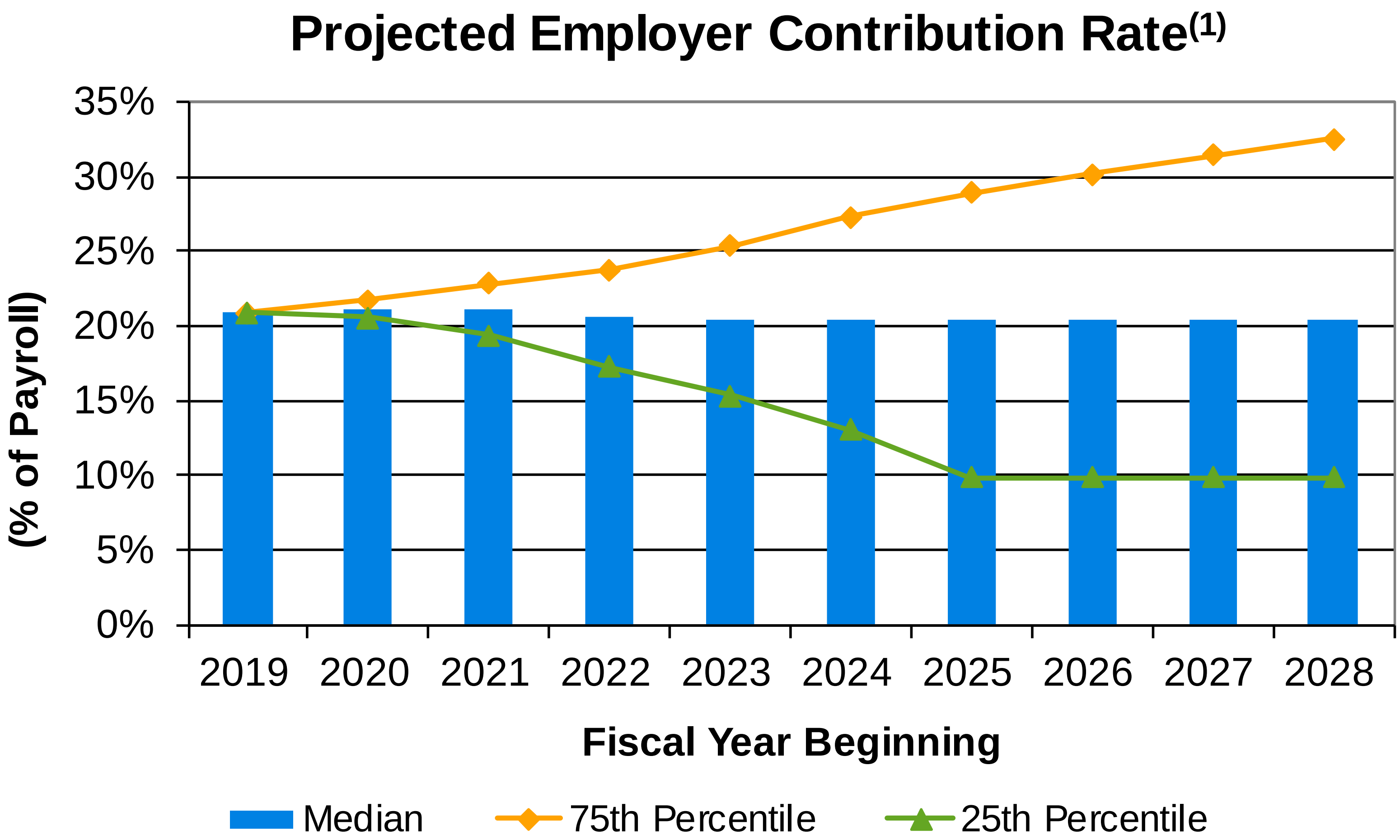
Looking Ahead – 0% Return in 2018-2019

(7.25% annual returns in future years)



1. Projections assume that all actuarial assumptions are met after June 30, 2018 (except alternate returns where noted) and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Looking Ahead – Good & Bad Returns



1. Projections assume that all actuarial assumptions are met after June 30, 2018 (except alternate returns where noted) and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Recommendation

For the fiscal year beginning July 1, 2019:

- Adopt new member contributions rates for the following plan(s):
  - General Plan G = 8.43% (no change)
  - Safety Plan C = 13.69%
  - No changes to other plans
- Adopt new employer contribution rates shown in Exhibit 11 (page 38) of Milliman's June 30, 2018 valuation report

Questions?

Caveats and Disclaimers

This presentation is based on the data, methods, assumptions and plan provisions described in our actuarial valuation report dated November 29, 2018. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

These statements include reliance on data provided, on actuarial certification, and the purpose of the report.

Milliman's work product was prepared exclusively for LACERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning LACERA's operations, and uses LACERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

Los Angeles County Employees Retirement Association

Actuarial Valuation of Retirement Benefits
June 30, 2018

Prepared by:

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November 29, 2018

Board of Investments
LACERA
300 North Lake Avenue, Suite 820
Pasadena, CA 91101-4199

Dear Members of the Board:

As requested, we have performed an actuarial valuation of retirement benefits for the Los Angeles County Employees Retirement Association (LACERA) as of June 30, 2018 to be used in determining the contribution rates effective July 1, 2019. The major findings of the valuation are contained in this report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2018, and LACERA's Funding Policy that was adopted in December of 2009 and amended as of February 2013. It should be noted that under the amended Funded Policy, the reserve value for STAR benefits is included in the Valuation Assets for 2014 and future valuations; however, the liability for any potential STAR benefits that may be granted in the future is not included in this valuation.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by LACERA's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for LACERA have been determined on the basis of actuarial assumptions and methods that are individually reasonable (taking into account the experience of LACERA and reasonable expectations); and that, in combination, offer a reasonable estimate of anticipated experience affecting LACERA. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Plan and to reasonable expectations, which, in combination, represent a reasonable estimate of anticipated experience for LACERA.

This valuation report is only an estimate of LACERA's financial condition as of a single date. It can neither predict LACERA's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of benefits, only the timing of contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement, although for informational purposes we have shown valuation results at +/- 0.5% on the investment return assumption at the end of the Executive Summary.

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; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Investments has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A of this report.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts of LACERA. The calculations in the enclosed report have been made on a basis consistent with our understanding of LACERA's funding requirements as stated under their Funding Policy, with a modification to reflect the three-year phase-in of the employer contribution rate change due to the new assumptions. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Milliman has provided LACERA financial reporting results relevant to GASB Statements No. 67 and 68 in separate reports.

Milliman's work is prepared solely for the internal business use of LACERA. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

(a) LACERA may provide a copy of Milliman's work, in its entirety, to LACERA's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit LACERA.

(b) LACERA may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We would like to express our appreciation to Mr. Robert Hill, Interim Chief Executive Officer of LACERA, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

Mark C Olleman

Mark Olleman, FSA, EA, MAAA
Consulting Actuary

Nick Collier

Nick Collier, ASA, EA, MAAA
Consulting Actuary

Craig Glyde

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Section 1 Summary of the Findings

2018 Valuation Results

	June 30, 2018	June 30, 2017
Employer Contribution Rate	20.91%[(1)]	20.04%[(2)]
Funded Ratio	80.6%	79.9%

1. *The impact of the 2016 assumption changes is fully phased into the employer contribution rate for the FYB 2019.*
2. *The FYB 2018 employer contribution rate without phase-in is 21.00%.*

Overview

This report presents the results of the June 30, 2018 actuarial valuation. This valuation determines the required contribution rates payable starting July 1, 2019. Several key points are summarized as follows:

- **Funding:** The Funded Ratio increased from 79.9% to 80.6% primarily due to employer contributions to amortize the Unfunded Actuarial Accrued Liability (UAAL) and the recognition of current and prior year investment gains. On a market value basis, the Funded Ratio increased from 80.0% to 81.3%.

  The "Analysis of Change" section that follows later in Section 1 provides an analysis of the sources of change in the Funded Ratio since last year.

- **Investment Returns:** For the fiscal year ending in 2018, the fund returned 9.0% on a market value basis (net of investment expenses). In total, there was an $858 million gain on market assets relative to the assumed rate of return of 7.25%. Under the actuarial asset method, which recognizes investment gains and losses over a five-year period, the return on actuarial assets was 8.1%, equivalent to a gain of $411 million relative to the assumed return.

- **Employer Contribution Rates:** The total calculated employer contribution rate increased from the prior valuation by 0.87% (from 20.04% to 20.91%) of payroll. The increase in the employer contribution rate is primarily due to the additional year of phase-in of the cost impact of the 2016 assumption changes. This increase was partially offset by typical year-to-year fluctuations, including the impact of strong investment returns discussed above. The cost impact of the assumption changes has been fully phased into the employer contribution rate as of the June 30, 2018 valuation.

  The "Analysis of Change" section provides an analysis of the sources of change in employer contribution rates since last year. In addition, the section "Projected Future Employer Contribution Rates" below shows a 10-year projection of employer contribution rates.

Overview (continued)

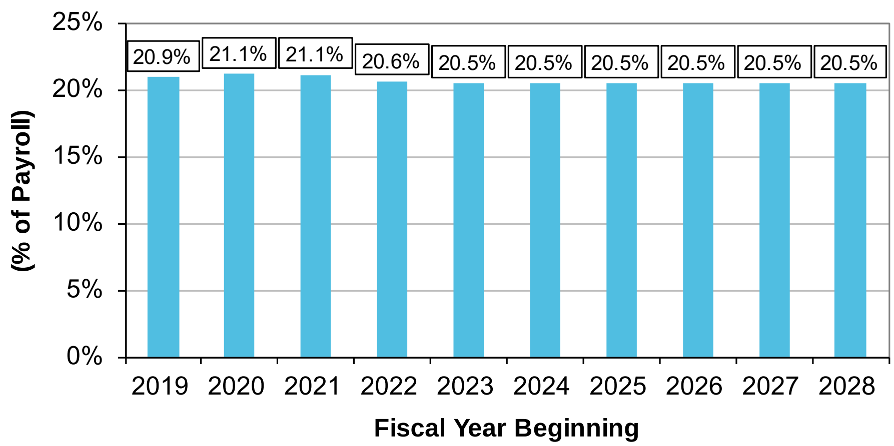
- **Member Contribution Rates:** New member contribution rates are recommended for Safety Plan C effective July 1, 2019, based on the normal cost rates calculated in the 2018 valuation. The recommended member rate for Safety Plan C is 13.69%, compared to 13.87% effective July 1, 2018. No changes in member rates are recommended for the other plans. Note that although General Plan G member rates are subject to change every year, the Plan G Normal Cost rate was identical to last year, and therefore the associated member rate remains the same.

Projected Future Employer Contribution Rates

The employer contribution rate beginning July 1, 2019 is 20.91% of payroll, which is a weighted average for all LACERA plans. The actual percent of payroll to be contributed by the employers varies by plan as shown in Exhibit 11 on page 38.

The new calculated rate is effective for the fiscal year beginning July 1, 2019. Even if all actuarial assumptions are met over the next few years, we project additional modest changes in the employer contribution rate as deferred asset gains and losses are recognized. To illustrate this impact, we have performed a 10-year projection of the employer contribution rate that assumes all actuarial assumptions are met and reflects the projected recognition of the remaining deferred asset gains and losses as of June 30, 2018. This projection is shown in the graph below.

Projected Future Employer Contribution Rates(1)



1. Projections assume that all actuarial assumptions are met after June 30, 2018, and reflect the scheduled recognition of asset gains and losses currently being deferred. Actual results will vary.

Analysis of Change

The following table shows an analysis of the primary causes of the change in employer contribution rate and Funded Ratio over the last year. The impact of the phase-in of the assumption changes was the most significant factor affecting the employer contribution rate.

Sources of Change	Employer Contribution Rate	Funded Ratio
June 30, 2017 Actuarial Valuation	**20.04%**	**79.9%**
Expected Year-to-Year Change	0.00%	0.6%
Assumption Changes	0.00%	0.0%
Recognized Asset Gain/Loss		
From Current Year	-0.09%	0.2%
From Prior Years	-0.21%	0.4%
Combined Asset Gain/Loss	-0.30%	0.6%
Contributions > Assumed	-0.03%	0.1%
Payroll Increase > Assumed	-0.11%	0.0%
Liability Gain/Loss		
Salary Increase > Assumed	0.15%	-0.3%
Retiree COLAs > Assumed	0.03%	-0.1%
Other	0.17%	-0.2%
Combined Liability Gain/Loss	0.35%	-0.6%
Recognition of 2016 Assumptions	0.96%	0.0%
Total Change	**0.87%**	**0.7%**
June 30, 2018 Actuarial Valuation	**20.91%**	**80.6%**

Based on the 2017 valuation, the expected UAAL as of June 30, 2018 was $13.29 billion, which is equal to actual UAAL. Although the expected and actual UAAL is equal as of June 30, 2018, there were several offsetting sources of actuarial gains and losses. An analysis of the difference between expected and actual UAAL is shown in Exhibit 8a on page 28.

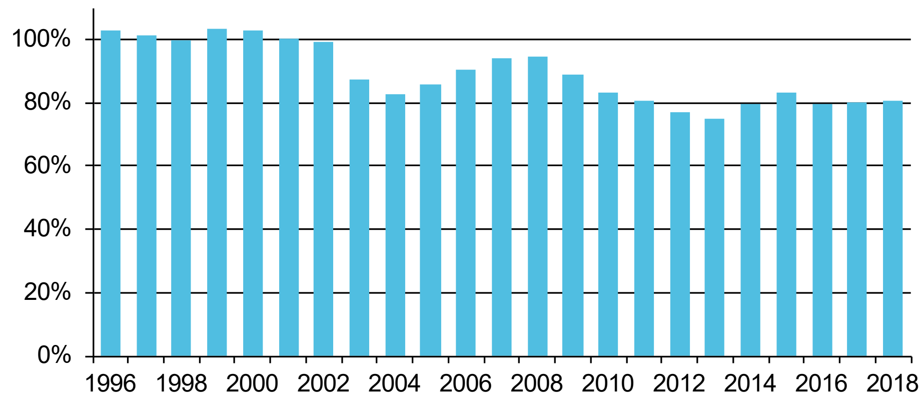
Funding Progress

One measure of the funding adequacy of the Plan is the Funded Ratio, which compares the value of the actuarial value of assets (net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL), for all LACERA plans combined. LACERA's Funded Ratio was 94.5% as of June 30, 2008. As shown in the graph that follows, the Funded Ratio decreased steadily over the five year period following the economic downturn, to a low of 75.0% as of June 30, 2013 as asset losses were gradually recognized. The Funded Ratio has gradually increased since that time.

Funding Progress (continued)

On June 30, 2018, the market value of the fund (including non-valuation reserves) was $56.3 billion. The actuarial value of assets was $55.8 billion, split between $0.6 billion of Non-Valuation Assets and $55.2 billion of Valuation Assets. The Valuation Assets are equal to 80.6% of the $68.5 billion AAL. The actuarial value of assets is approximately 99% of the market value of assets. A historical perspective of the Funded Ratio is shown in the following table.

Funded Ratio History



Association Assets

- **Market Value:** The market value of assets has increased over the past 10 years. The average rate of return for the fund over that period is 6.3% (net of investment expenses), as reported by LACERA. However, due to benefit payments being greater than contributions, the annual increase in the market value has averaged less. This is typical of a mature retirement plan. The values shown in the market value column are total assets net of liabilities and include all reserves.

- **Actuarial Assets:** The market value of total assets is used in calculating the actuarial value of assets. Under the actuarial asset method, the market value returns in excess of (or less than) the assumed return are smoothed over a five-year period.

- **Valuation Reserves:** The reserves represent the ownership of LACERA's assets. The reserves are established in compliance with the County Employees Retirement Law of 1937 as administered by the Board of Investments. These assets also reflect five-year smoothing. On a smoothed basis, the fund returned 8.1% for the prior year.

- **Non-Valuation Reserves:** The non-valuation reserves are set aside for obligations or contingencies. They are not used to fund the retirement benefits unless explicitly stated. These assets may also reflect smoothing.

- **Valuation Assets:** This is the combination of the valuation reserves and the portion of the non-valuation reserves that are recognized for funding purposes only as specified in LACERA's Funding Policy. Under this Policy, the reserve value for STAR benefits is included in the Valuation Assets; however, the liability for any STAR benefits that may be granted in the future is not included in the valuation.

Future Impact of Recognition of Deferred Gains/Losses

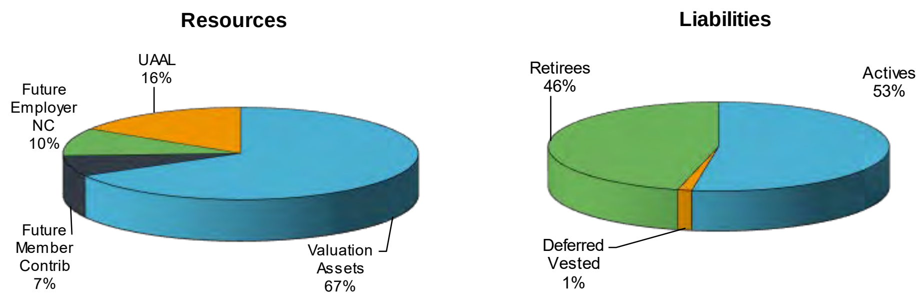
The smoothing method is currently deferring $504 million in net asset gains. As the currently deferred gains and losses are recognized over upcoming valuations, it is projected there will be short-term increases in the calculated employer contribution rate, followed by a small decrease as the asset gain from the fiscal year ended June 30, 2018 is fully recognized over the next four years.

The potential future impact of the recognition of these deferred gains and losses on the projected employer contribution rate is illustrated in the graph on page 2.

Actuarial Balance Sheet

The first step in the valuation process is to compare the total actuarial assets of LACERA with its total liabilities for all plans. In this analysis, assets equal those currently on hand at the actuarial value, and also equal expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the pie charts below. The AAL is the total of these liabilities less expected future Normal Cost contributions.

The 2018 actuarial valuation indicates that LACERA's Valuation Assets are less than its AAL. The difference between these two values is the UAAL. It is discussed, along with the effect of the experience gains and losses, in detail in Section 4, Actuarial Liabilities.



Funding Policy

The Board of Investments adopted a new Funding Policy in 2009, which was amended in 2013. Significant provisions of this policy, first reflected in the June 30, 2009 actuarial valuation, are as follows:

- **Asset Smoothing Period:** Asset gains and losses are smoothed over a five-year period.
- **Amortization Period:** The Funding Policy utilizes a "layered" amortization method. Under the policy, the UAAL amount as of the valuation for which the policy was first effective (June 30, 2009) is amortized over a closed 30-year period. Subsequent gains and losses on the UAAL are amortized over new closed 30-year periods. The employer contribution rate is not allowed to be less than the rate if LACERA amortized the total UAAL over a 30-year period. Exhibit 12 of this report illustrates in detail the calculation of the total UAAL rate for the fiscal year beginning in 2019.

  If LACERA moves to a negative UAAL position, only the normal cost rate will generally be paid. If the Funded Ratio exceeds 120%, the "surplus" amount will be amortized over an open 30-year period.

Funding Policy (continued)

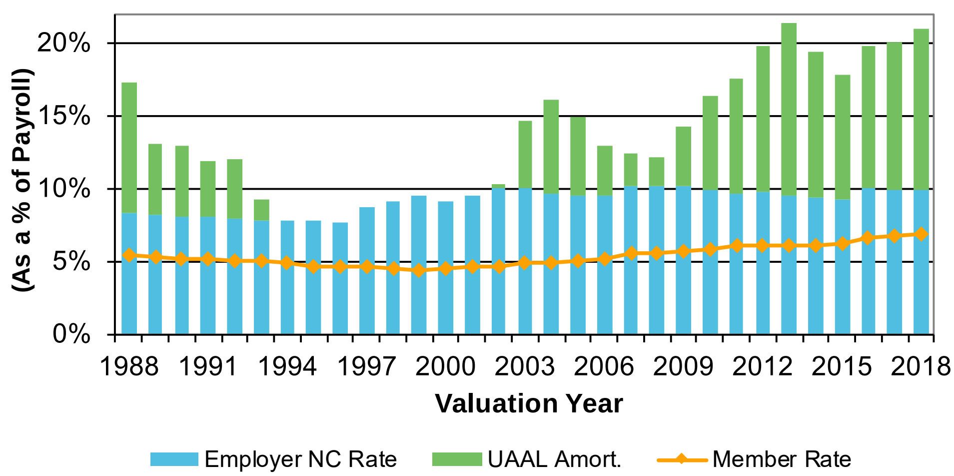
- **STAR Reserve:** The STAR reserve is included in the Valuation Assets. There is no corresponding liability for future STAR benefits included in the valuation. The inclusion of the STAR reserve in the Valuation Assets was formalized for the current and future actuarial valuations in the February 2013 amendment to LACERA's Funding Policy.

  Note that if the STAR reserve of $614 million was excluded from the Valuation Assets, the UAAL would increase by this amount. Under this hypothetical scenario, the calculated employer contribution rate for the fiscal year beginning July 1, 2019 would increase by 0.44% of payroll, and the Funded Ratio would decrease by 0.9% to 79.7%.

Employer Contribution Rate History

Based on the results of the valuation, the calculated employer contribution rate will increase for the fiscal year beginning in 2019 to a rate of 20.91% of pay. A historical perspective of the employer contribution rates is shown in the following graph.

Employer Contribution Rate History

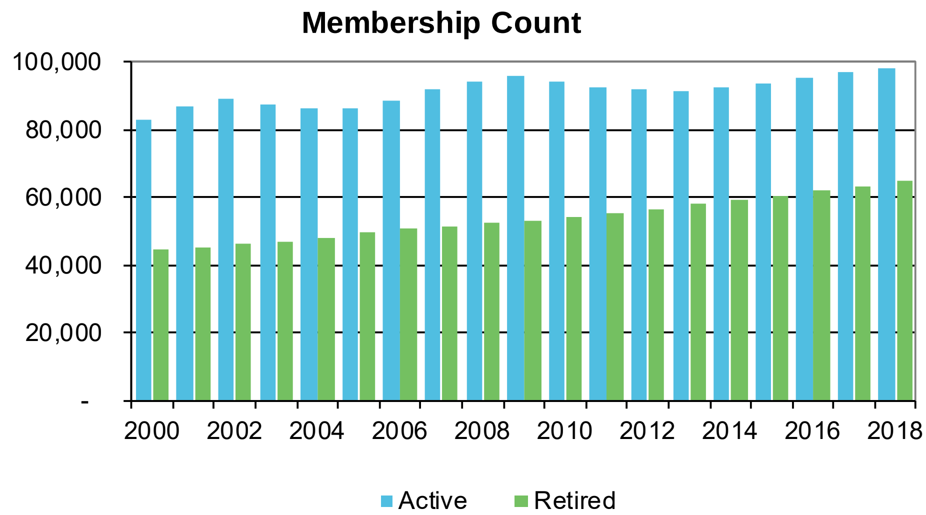


Member Rates

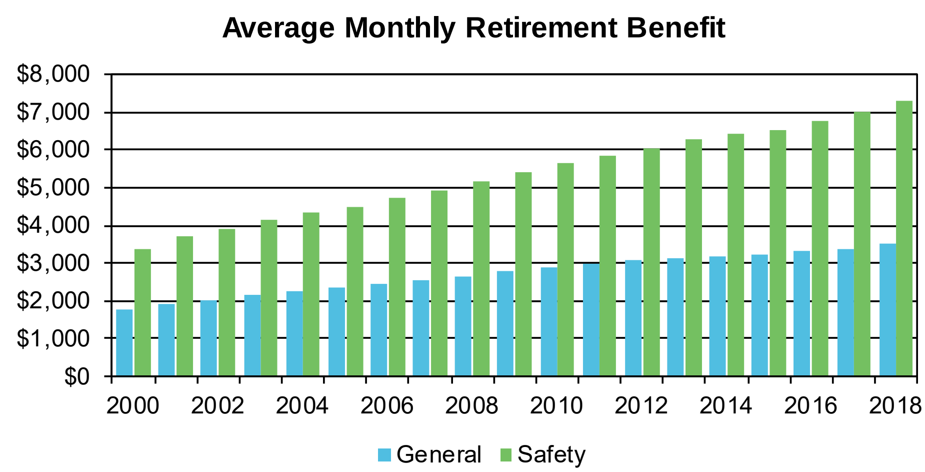
A new member rate for members of Safety Plan C is being recommended that is equal to one-half of the Plan's normal cost rate calculated as of the June 30, 2018 valuation. No changes in the member rates are recommended for the other plans. Note that although General Plan G member rates are subject to change every year, the Plan G Normal Cost rate was identical to last year, and therefore the associated member rate remains the same. Member rates for all plans are discussed in Section 5 and are shown in detail in Appendix D.

Member Information

Active membership and payroll have each increased since 2017. As of June 30, 2018, the annualized payroll is $8.1 billion for 98,474 active members. This reflects a 2.9% increase in average member pay and a 1.3% increase in the number of active members.



Retired member counts and average retirement benefit amounts continue to increase steadily. For 2018, there were 64,880 retired members and beneficiaries with an average benefit of $4,233 per month. This represents a 2.5% increase in count and a 3.5% increase in the average monthly benefit.



Analysis of Change in Member Population

The following table summarizes the year-to-year change in member population.

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
As of June 30, 2017	**97,211**	**14,243**	**45,009**	**9,489**	**8,826**	**174,778**
New Members	5,840	179	15	2	595	6,631
Status Change:						
to Active	136	(136)				-
to Inactive	(1,351)	1,351				-
to Service Retirement	(2,564)	(388)	2,952			-
to Disabled Retirement	(244)	(9)	(219)	472		-
Refunds	(357)	(329)				(686)
Terminated non-vested	(10)					(10)
Benefits Expired			(6)		(19)	(25)
Deaths	(187)	(5)	(1,455)	(256)	(525)	(2,428)
As of June 30, 2018	**98,474**	**14,906**	**46,296**	**9,707**	**8,877**	**178,260**

Note: Inactive Members include non-vested former members who have not taken a refund of their contributions.

Sensitivity to Investment Return

The valuation results are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing the ultimate cost. Of the assumptions, the investment return generally has the biggest impact. The following table provides a simple analysis on how the short-term costs are affected by the investment return assumption. Note that the long-term cost of the Plan will be largely driven by actual investment returns and other experience; the assumptions used in the valuation impact the timing of the contributions over the long term.

	Investment Return Assumption		
	Current 7.25%	+0.5% 7.75%	-0.5% 6.75%
Employer Contribution Rate	20.91%	17.12%	24.80%
Change		-3.79%	3.89%
Funded Ratio	80.6%	85.6%	75.7%
Change		5.0%	-4.9%

Summary Valuation Results

Exhibit 1 on the following page presents a summary of key data elements as of June 30, 2018 and June 30, 2017, and shows the relative change over the past year. More detail on each of these elements can be found in the following sections and exhibits of this report.

Exhibit 1 Summary of Significant Valuation Results

	June 30, 2018	June 30, 2017	Percentage Change
Total Membership			
A. Active Members	98,474	97,211	1.3%
B. Retired Members & Beneficiaries	64,880	63,324	2.5%
C. Vested Former Members[1]	14,906	14,243	4.7%
D. Total	178,260	174,778	2.0%
Pay Rate as of June 30, 2018			
A. Annual Total ($millions)	$ 8,079	$ 7,749	4.3%
B. Monthly Average per Active Member	6,837	6,643	2.9%
Average Monthly Benefit Paid to Current Retirees and Beneficiaries			
A. Service Retirement	4,200	4,078	3.0%
B. Disability Retirement	5,579	5,321	4.8%
C. Surviving Spouse and Dependents	2,934	2,832	3.6%
D. Total	4,233	4,091	3.5%
Actuarial Accrued Liability ($millions)			
A. Active Members	29,335	28,234	3.9%
B. Retired Members	38,087	36,032	5.7%
C. Vested Former Members	1,105	1,045	5.7%
D. Total	68,527	65,311	4.9%
Assets			
A. Market Value of Fund ($millions)	56,300	52,744	6.7%
B. Actuarial Value ($millions)			
1. Valuation Reserves	55,233	52,166	5.9%
2. Non-valuation Reserves	563	527	6.7%
C. Annual Investment Return			
1. Market Basis (Net Return)	9.0%	12.7%	n/a
2. Valuation (Actuarial) Basis	8.1%	8.2%	n/a
Unfunded Actuarial Accrued Liability or (Surplus Funding) in $millions	$ 13,294	$ 13,145	1.1%
Employer contribution rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	16.80%	16.70%	0.6%
B. Member Contributions[2]	(6.88)%	(6.76)%	1.8%
C. Employer Normal Cost	9.92%	9.94%	(0.2)%
D. UAAL Amortization	10.99%	11.06%	(0.6)%
E. Calculated Contribution Rate	20.91%	21.00%	(0.4)%
F. Deferred Recognition of new assumptions	-	(0.96)%	n/a
G. Employer Contribution Rate with phase-in	20.91%	20.04%	4.3%
Funded Ratio	80.6%	79.9%	0.9%
Results Based on Market Value (Informational Purposes Only)			
Calculated Contribution Rate	20.55%	20.96%	(2.0)%
Funded Ratio (excluding non-valuation reserves)	81.3%	80.0%	1.6%

1. Includes non-vested former members with contributions on deposit.
2. Includes non-contributory members. The average rate for contributory plans increased from 8.31 % to 8.32%.

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Section 2 Scope of the Report

This report presents the actuarial valuation of the Los Angeles County Employees Retirement Association as of June 30, 2018. This valuation was requested by the Board of Investments. Section 31453 of the County Employees Retirement Law of 1937 (the ’37 Act) requires an actuarial valuation to be performed at least every three years for the purpose of setting contribution rates. The 2018 valuation meets this requirement. Under LACERA’s Funding Policy, annual valuations determine the employer contribution rates each year. Member contribution rates for all plans except General Plan G and Safety Plan C are set in years in which relevant actuarial assumptions are altered, such as 2016. For members of General Plan G and Safety Plan C, member contribution rates are recalculated each year, based on one-half of the Plan’s normal cost rate.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the Plan. The assets and investment income are presented in Exhibits 2-4. Exhibit 5 develops the actuarial value of assets as of June 30, 2018. Exhibit 6 develops the Valuation Assets used for funding benefits.

Section 4 describes the benefit obligations of LACERA. Exhibit 7 is the Actuarial Balance Sheet and Exhibit 8a analyzes the change in UAAL. Exhibit 8b shows a history of these changes.

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions needed to fund the benefits under the actuarial cost method in use.

Section 7 discloses supplemental information for use in the Comprehensive Annual Financial Report (CAFR). Milliman provides LACERA financial reporting information relevant to GASB Statements No. 67 and 68 in separate reports.

Section 8 shows the estimated cash flow of the Plan, including a projection of both contributions and benefit payments.

This report includes several appendices:

Appendix A	A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
Appendix B	A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2018.
Appendix C	Schedules of valuation data classified by various categories of plan members.
Appendix D	Member contribution rates by plan.
Appendix E	Historical information.
Appendix F	A glossary of actuarial terms used in this report.

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Section 3 Assets

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is June 30, 2018. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the actuarial liabilities (both accrued and future) for current members, which are generally in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits.

This section of the report looks at the determination of assets used for funding purposes. In the next section, the actuarial liabilities will be discussed. Section 6 reviews the process for determining required contributions based on the relationship between the actuarial assets and the actuarial liabilities.

A historical summary of the Plan's assets is presented below (dollar amounts in billions).

		Actuarial Value		
	Market Value of Total Assets	Non-Valuation Reserves	Valuation Assets	Total Fund Return (%)[1]
2009	$ 30.5	$ 0.8	$ 39.5	(18.3)
2010	33.4	0.8	38.8	11.6
2011	39.5	0.9	39.2	20.2
2012	38.3	0.9	39.0	0.0
2013	41.8	0.4	39.9	11.9
2014	47.7	0.5	43.7	16.5
2015	48.8	0.5	47.3	4.1
2016	47.8	0.5	49.4	0.8
2017	52.7	0.5	52.2	12.7
2018	56.3	0.6	55.2	9.0

1. As reported in the Investment Section of LACERA's CAFR for the fiscal year ended June 30, 2018. All returns are shown net of investment expenses.

On June 30, 2018, the total market value of the fund, less current liabilities, was $56.3 billion. The actuarial value of the fund was determined to be $55.8 billion, including the non-valuation reserves. The average total fund return for the last 10 years is 6.3% net of fees, as reported by LACERA.

Financial Exhibits

Exhibit 2 presents a Statement of Fiduciary Net Position and Exhibit 3 presents a Statement of Changes in Fiduciary Net Position. Exhibit 4 describes the allocation of LACERA's assets by the various reserve values determined for accounting purposes as disclosed in the audited financial statements.

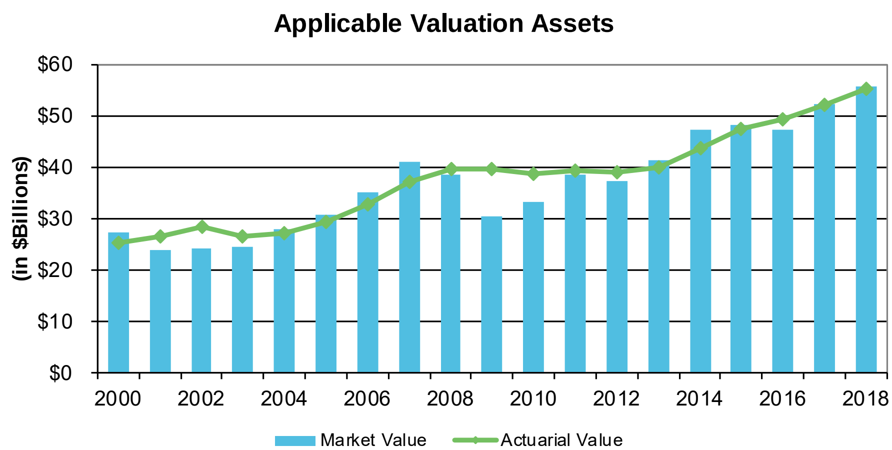
Exhibits 2-4 are taken directly from data furnished to us by LACERA in its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them both for the prior year and the current year for reasonableness and consistency with previous reports.

Actuarial Asset Method

The actuarial asset method computes the expected market value of assets based on the prior year's market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return. For the previous year, the assumed rate of return was 7.25%, net of all expenses. The difference between the actual market value and the expected market value is smoothed, or recognized, over a five-year period.

Actuarial Value of Assets

The development of the June 30, 2018 actuarial value of assets is shown in Exhibit 5. Note the smoothing process is deferring past investment gains and losses, and is currently in a net actuarial gain position. The result is an actuarial value of assets that is less than the June 30, 2018 market value by $504 million. The following graph shows a historical comparison of the actuarial and market assets used for valuation purposes.



Funding Policy

Under the Board of Investments' long-term Funding Policy, the following is the allocation of actuarial assets. A Funded Ratio equal to 100% is the Funding Goal.

For funding purposes and for setting contributions rates, recognized earnings for a plan year is the recognized investment income as determined by the Actuarial Asset Method and includes both unrealized income and net realized income, together with the prior balance in the Contingency Reserve. The allocation of recognized earnings is performed once a year as of the Valuation Date in the following order of priority:

Priority 1: Allocate to the Member Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 2: Allocate to the Advanced Employer Contributions Reserve so the Actuarial Asset allocation to that Reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 3: Allocate to the Employer Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date.

Priority 4: Allocate to the County Contribution Credit Reserve so the Actuarial Asset allocation to that reserve equals the accounting value for that Reserve on the Valuation Date. Note: This Reserve is not a Valuation Reserve.

Priority 5: Allocate to the Employer Reserve so the total amounts allocated equal one-year's interest at the assumed interest rate used in the actuarial valuation as of the preceding Valuation Date to the extent there are positive recognized earnings to allocate.

Priority 6: Allocate to the Contingency Reserve an amount equal to 1% of the Market Value of Assets as of the Valuation Date to the extent there are positive recognized earnings to allocate.

Priority 7: Allocate to the Employer Reserve an amount, if necessary, when combined with other Valuation Reserves, to provide 100% funding of the AAL as of the Valuation Date to reach the Funding Goal. In the event there are negative recognized earnings, allocate the entire amount.

Priority 8: The Board may consider additional actions as permitted under the County Employee Retirement Law (CERL) using funds in excess of the amount needed to meet the Funding Goal for funding discretionary benefits. "Excess Earnings" as defined in the County Employees Retirement Law (CERL) may be appropriated upon reaching the Funding Goal; however, the Board may consider adjustment to the employer's contributions only upon satisfying California Government Code Section 7522.52(b).

Valuation Assets

Valuation Assets are the actuarial value of the fund, less the value of any Non-Valuation Reserves. Non-Valuation Reserves include Contingency Reserves and other reserves that have been set aside for current liabilities and special benefits to be funded outside of the actuarially determined contribution rates. The Contingency Reserve is set at a minimum of 1.0% of the market value of the total assets.

The Funding Policy allows the STAR Reserve to be allocated to the Valuation Assets (subject to periodic review), if needed. The June 30, 2018 STAR Reserve accounting value of $614 million was included in Valuation Assets and used to determine the employer contribution rates for the fiscal year beginning July 1, 2019. Although the STAR Reserve is included in the 2018 Valuation Assets, there is no liability included in this valuation for STAR benefits that may be granted in the future.

The Non-Valuation Reserves shown in Exhibit 6 for funding purposes are not the same as those shown in the audited financial statements and in Exhibit 4.

Exhibit 2 Statement of Fiduciary Net Position
As of June 30, 2018 and June 30, 2017

	2018	2017
Assets		
Cash and Short-Term Investments	$ 1,786,940,488	$ 1,523,990,094
Cash Collateral on Loaned Securities	1,191,235,028	922,583,739
Receivables		
Contributions Receivable	89,180,657	76,586,764
Accounts Receivable - Sale of Investments	707,664,801	931,019,669
Accrued Interest and Dividends	102,733,511	106,074,155
Accounts Receivable - Other	47,090,340	33,278,035
Total Receivables	946,669,308	1,146,958,623
Investments at Fair Value		
Equity	25,661,002,621	25,471,070,361
Fixed Income	15,934,586,918	14,126,188,089
Private Equity	5,929,098,297	5,050,441,901
Real Estate	6,326,245,674	6,139,831,656
Hedge Funds	1,592,125,696	1,437,924,968
Total Investments	55,443,059,206	52,225,456,976
Total assets	**59,367,904,030**	**55,818,989,432**
Liabilities		
Accounts Payable - Purchase of Investments	1,803,896,893	2,074,418,652
Retiree Payroll and Other Payables	912,029	1,148,844
Accrued Expenses	35,830,507	38,780,205
Tax Withholding Payable	32,848,312	34,913,612
Obligations under Securities Lending Program	1,191,235,028	922,583,739
Accounts Payable - Other	3,199,091	3,493,409
Total liabilities	3,067,921,859	3,075,338,461
Fiduciary Net Position restricted for pension benefits	**$ 56,299,982,171**	**$ 52,743,650,971**

Exhibit 3 Statement of Changes in Fiduciary Net Position For the Fiscal Years Ended June 30, 2018 and 2017

	2018	2017
Additions		
Contributions		
Employer	$ 1,564,284,149	$ 1,370,921,787
Member	551,800,960	487,016,114
Total Contributions	2,116,085,109	1,857,937,901
Investment Income		
From Investing Activities:		
Net Appreciation/(Depreciation) in Fair Value of Investments	974,529,583	3,600,947,713
Investment Income/(Loss)	3,925,181,008	2,672,282,072
Total Investing Activity Income	4,899,710,590	6,273,229,785
Less Expenses From Investing Activities	(188,753,319)	(150,350,042)
Net Investing Activity Income	4,710,957,272	6,122,879,743
From Securities Lending Activities:		
Securities Lending Income	18,795,978	11,596,901
Less Expenses From Securities Lending Activities:		
Borrower Rebates	(11,786,852)	(3,709,500)
Management Fees	(1,326,534)	(1,467,113)
Total Expenses from Securities Lending Activities	(13,113,386)	(5,176,613)
Net Securities Lending Income	5,682,591	6,420,288
Total Net Investment Income	4,716,639,863	6,129,300,031
Miscellaneous	5,613,034	6,370,288
Total Additions	6,838,338,006	7,993,608,220
Deductions		
Retiree Payroll	3,177,726,363	3,002,929,279
Administrative Expenses	67,490,603	58,779,188
Investment Expenses	10,690,610	8,051,288
Refunds	23,220,662	24,451,924
Lump Sum Death Benefits	2,428,048	2,251,344
Miscellaneous	450,521	188,062
Total Deductions	3,282,006,806	3,096,651,085
Net increase/(decrease)	3,556,331,199	4,896,957,136
Fiduciary Net Position restricted for pension benefits		
Beginning of Year	52,743,650,971	47,846,693,836
End of Year	**$ 56,299,982,171**	**$ 52,743,650,971**

Exhibit 4 Allocation of Assets by Accounting Reserve Amounts
(Dollars in Thousands)

	June 30, 2018	June 30, 2017
1. Member Reserves		
a. Active Members	$ 21,438,279	$ 20,380,431
b. Unclaimed Deposits	-	-
c. Total Member Reserves	21,438,279	20,380,431
2. Employer Reserves		
a. Actual Employer Contributions	22,610,763	21,086,809
b. Advanced Employer Contributions	-	-
c. Total Employer Contributions	22,610,763	21,086,809
3. County Contribution Credit Reserve	-	-
4. STAR Reserve	614,011	614,011
5. Contingency Reserve	-	-
6. Total Reserves at Book Value	44,663,053	42,081,251
7. Unrealized Investment Portfolio Appreciation	11,636,929	10,662,400
8. **Total Reserves at Fair Value**	**$ 56,299,982**	**$ 52,743,651**

Note: These amounts were determined by LACERA for accounting purposes and are reported in the CAFR for the fiscal year ended June 30, 2018.

Exhibit 5 Five-Year Smoothing of Gains and Losses on Market Value
(Dollars in Thousands)

June 30, 2018 Valuation

Plan Year Ending	Contributions	Benefit Payments	Expected Market Value	Actual Market Value	Phase-Out of Gain / (Loss)					
06/30/2018	$ 2,116,085	$ 3,203,375	$ 55,441,551	$ 56,299,982	80.00%	x	$ 858,431	=	$ 686,745
06/30/2017	1,857,938	3,029,633	50,102,154	52,743,651	60.00%	x	2,641,497	=	1,584,898
06/30/2016	1,901,795	2,889,186	51,455,977	47,846,694	40.00%	x	(3,609,283)	=	(1,443,713)
06/30/2015	1,936,233	2,768,410	50,438,628	48,818,350	20.00%	x	(1,620,278)	=	(324,056)
06/30/2014	1,759,443	2,662,401	43,970,326	47,722,277	0.00%	x	3,751,951	=	0
							(a) Total Phase-Out of Gain / (Loss)	=	$ 503,874
							(b) Total Market Value of Assets	=	$ 56,299,982
							(c) Total Actuarial Value of Assets [(b) - (a)]	=	**$ 55,796,108**

Total Actuarial Value of Assets = Total Market Value of Assets less the Total Phase-Out amount
Phase-Out amounts will be recognized in future years.

Exhibit 6 Allocation of Valuation and Non-Valuation Assets
(Dollars in Thousands)

	June 30, 2018	June 30, 2017
1. Total Market Value of Assets	$ 59,367,904	$ 55,818,989
2. Current Liabilities	3,067,922	3,075,338
3. Net Assets Held in Trust for Pension Benefits	56,299,982	52,743,651
4. Market Stabilization Reserve(1)	503,874	49,907
5. Actuarial Value of Fund Assets	55,796,108	52,693,744
6. Non-Valuation Reserves(2)		
a. Unclaimed Deposits	-	-
b. Contingency Reserve	563,000	527,437
c. Advanced Employer Contributions	-	-
d. County Contribution Credit Reserve	-	-
e. Reserve for STAR Program	-	-
f. Total	563,000	527,437
7. Valuation Assets(2)		
a. Member Reserves	21,438,279	20,380,431
b. Employer Reserves for Funding Purposes	33,794,829	31,785,876
c. Total	55,233,108	52,166,307

1. The Market Stabilization Reserve represents the difference between the Market Value of the fund less Current Liabilities, and the Actuarial Value of the fund as determined in Exhibit 5.

2. The values used for funding purposes for all reserves are based on the Board's Funding Policy. Amounts used for funding purposes may differ from those reported in the audited financial statements as shown in Exhibit 4.

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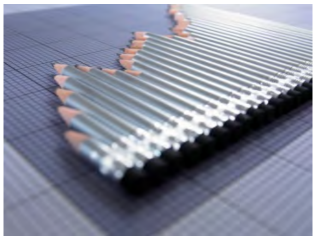
Section 4 Actuarial Liabilities



In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of LACERA's assets as of the valuation date, June 30, 2018. In this section, the discussion will focus on the commitments of LACERA for retirement benefits, which are referred to as its actuarial liabilities.

Actuarial Balance Sheet – Liabilities

Actuarial liabilities attributable to both past and future benefits are included on the actuarial balance sheet. The difference between the Valuation Assets and the total actuarial liabilities is the amount that needs to be funded by future member and employer contributions. Both the current and future assets (contributions) are included on the actuarial balance sheet and compared to the total actuarial liabilities. The determination of the level of future member and employer contributions needed is discussed in the next section.

Exhibit 7 contains an analysis of the actuarial present value of all future benefits for inactive members (both retired and vested former members) and active members. The analysis is given by class of membership, by plan and by type of benefit. Note that for purposes of this exhibit the Valuation Assets are shown allocated by plan in proportion to each plan's reserves (employer and member).

The actuarial liabilities include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits to be earned. For all members, active and inactive, the value extends over the rest of their lives and for the lives of any surviving beneficiaries.

The actuarial assumptions used to determine the liabilities are based on the results of the 2016 Investigation of Experience Report. New assumptions were adopted by the Board effective with the June 30, 2016 actuarial valuation. See Appendix A of this report for details.

All liabilities reflect the benefits effective through June 30, 2018. This includes permanent STAR COLAs that have been adopted through the valuation date, but does not include the value of any STAR benefits that may be granted in the future.

Exhibit 7 Actuarial Balance Sheet – June 30, 2018
(Dollars in Millions)

	General						Safety			
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Plan A	Plan B	Plan C	All Plans
LIABILITIES										
Present Value of Benefits - Inactives										
- Retirees and Beneficiaries	$ 11,788	$ 457	$ 257	$ 7,273	$ 3,635	$ 3	$ 7,344	$ 7,323	$ 7	$ 38,087
- Vested Former	8	4	1	535	425	18	0	112	2	1,105
- Inactive Total	11,796	461	258	7,808	4,060	21	7,344	7,435	9	39,192
Present Value of Benefits - Actives										
- Service Retirement	131	43	52	18,765	6,037	3,434	7	7,273	619	36,361
- Transfer Service (prior LACERA plan)	0	0	0	217	438	2	0	14	0	671
- Disability Retirement	2	1	1	950	N/A	282	1	3,578	403	5,218
- Death	1	0	0	365	N/A	80	0	62	11	519
- Termination	0	0	0	203	84	219	0	38	29	573
- Active Total	134	44	53	20,500	6,559	4,017	8	10,965	1,062	43,342
Total Actuarial Liabilities	**$ 11,930**	**$ 505**	**$ 311**	**$ 28,308**	**$ 10,619**	**$ 4,038**	**$ 7,352**	**$ 18,400**	**$ 1,071**	**$ 82,534**
ASSETS										
Valuation Assets	(1,356)	423	304	26,025	12,753	1,149	(717)	16,448	204	55,233
PV Future Member Contributions	1	1	1	2,723	N/A	1,792	0	977	495	5,990
PV Future Employer Normal Cost Contributions	4	1	1	3,111	1,130	1,622	0	1,700	448	8,017
UAAL or (Surplus Funding)	13,281	80	5	(3,551)	(3,264)	(525)	8,069	(725)	(76)	13,294
Total Current and Future Assets	**$ 11,930**	**$ 505**	**$ 311**	**$ 28,308**	**$ 10,619**	**$ 4,038**	**$ 7,352**	**$ 18,400**	**$ 1,071**	**$ 82,534**

Actuarial Balance Sheet – Assets

For the purpose of the Actuarial Balance Sheet, LACERA's assets are equal to the sum of:

(a) Assets currently available to pay benefits and considered for funding purposes (the Valuation Assets);

(b) The present value of future contributions expected to be made by current active members; and

(c) The present value of future contributions expected to be made by the employer.

Actuarial Cost Method

The Actuarial Balance sheet determines the amount of future contributions that are needed, but the method used to determine when those future contributions will be made in future years is called the "actuarial cost method." For this valuation, the entry age actuarial cost method has been used. Under this method, the contributions required to meet the difference between current assets and current actuarial liabilities are allocated each year between two elements:

- A normal cost amount; and
- An amount to amortize the UAAL (Unfunded Actuarial Accrued Liability). Note that the UAAL may be negative (representing current assets greater than current actuarial liabilities).

The two items described above – the Normal Cost and UAAL – are the keys to understanding the actuarial cost method.

Normal Cost

The Normal Cost is the theoretical contribution rate that will meet the ongoing costs of a group of average new employees. Suppose that a group of new employees was covered under a separate fund from which all benefits and to which all contributions and associated investment returns were paid. Under the entry age actuarial cost method, the Normal Cost contribution rate maintains the funding of benefits as a level percentage of pay. If experience follows the actuarial assumptions precisely, the fund would be completely liquidated when the last payment to the last survivor of the group is made.

By applying the Normal Cost contribution rate to the present value of salaries expected to be paid in the future, we determine the present value of future Normal Cost contributions. Future contributions are expected to be made by both the members and the employer. The member contribution rates are determined based upon requirements established in the '37 Act and the actuarial assumptions. Based on these member contribution rates, we determine the present value of future member contributions. We subtract that value from the total future Normal Cost contributions expected, based on the entry age cost method. The remaining difference is the employer's portion of the future Normal Cost contributions.

Actuarial Accrued Liability

The difference between the present value of all future obligations and the present value of the future Normal Cost contributions is referred to as the Actuarial Accrued Liability (AAL). The AAL is then compared to the value of assets available to fund benefits, and the difference is referred to as the UAAL. The results for LACERA for all plans are summarized below:

(Dollars in millions)	2018	2017	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	$ 82,534	$ 78,576	5.0%
B. Actuarial present value of total future normal costs for current members	14,007	13,265	5.6%
C. Actuarial accrued liability [A-B]	68,527	65,311	4.9%
D. Valuation Assets	55,233	52,166	5.9%
E. UAAL or (Surplus Funding) [C-D]	13,294	13,145	1.1%
F. Funded Ratio [D/C]	80.6%	79.9%	0.9%

Unfunded Actuarial Accrued Liability

The portion allocated to service already rendered or accrued is called the AAL. The difference between the AAL and the Valuation Assets is called the UAAL. If a UAAL amount exists, it usually results from prior years' benefit or assumption changes and the net effect of accumulated gains and losses. If the employer had always contributed the current Normal Cost, and if there were no prior benefit or assumption changes, and if actual experience exactly matched the actuarial assumptions, then the present value of all future Normal Cost contributions would be sufficient to fund all benefits and there would be no UAAL.

Exhibit 7 shows how the UAAL was derived for each level of plan benefits. In the Actuarial Balance sheet, the total actuarial liability for all future benefits must be equal to the current and future assets.

The Actuarial Balance Sheet for each plan, as well as its UAAL is based on an estimated allocation of the total LACERA Valuation Assets, as disclosed in Exhibit 7. The allocation is based on the relative value of each plan's employer and member reserves as reported to us by LACERA. These allocations are shown for illustrative purposes only, as the UAAL contribution rates are assumed paid by the employer based on the valuation results in aggregate.

Funding Adequacy

A key consideration in determining the adequacy of the funding of LACERA is how the UAAL is being funded. Under LACERA's Funding Policy, a new UAAL "layer" is established each year when the Funded Ratio is less than 100% or greater than or equal to 120%. All layers are amortized over 30-year periods.

If future experience is significantly more favorable than expected based on the actuarial assumptions, then LACERA may move to a Surplus Funding position. Conversely, if experience is less favorable, a larger UAAL will develop.

Analysis of Change in Unfunded Actuarial Accrued Liability

The UAAL, at any date after establishment of a retirement plan, is affected by any actuarial gains (decreases in UAAL) or losses (increases in UAAL) arising when the actual experience of the retirement plan varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience, as it develops, differs from that expected according to the assumptions used, so also will the emerging costs differ from the estimated costs.

The 2018 actuarial valuation reflects an actuarial experience loss of $3 million for the fiscal year just ended. The effect of the gains and losses on the UAAL is shown in Exhibit 8a. A summary of these factors is:

- **Investment Returns:** Returns on market assets were 9.0% (net of investment expenses) compared to the assumed return of 7.25%. This, combined with recognitions of gains and losses from prior periods, resulted in an actuarial asset gain of $411 million.
- **Active Member Experience (non salary):** This includes gains and losses from termination, service retirement, disability retirement, and death different than expected, and from service purchases of active members. This resulted in an actuarial loss of $119 million.
- **Salary Increases:** Individual salaries for continuing active members increased at a rate greater than the valuation assumption. This resulted in an actuarial loss of $223 million.
- **Actual CPI versus Assumption:** The actual CPI increase was greater than assumed for members of Plan A. The members who received COLA increases more than the assumption generated an actuarial loss of $45 million.
- **Mortality Experience:** An actuarial loss due to mortality generally indicates that retired members are living longer than the current assumption would predict. This year, there was an actuarial gain of $20 million due to mortality, indicating retirees are currently living slightly shorter lives than assumed.
- **Other Experience:** Examples of this are gains and losses from retirement and mortality experience of inactive members, service purchases of inactive members, reciprocity, and transfers between plans. These factors combined resulted in an actuarial loss of $47 million.

Change in Unfunded Actuarial Accrued Liability – History

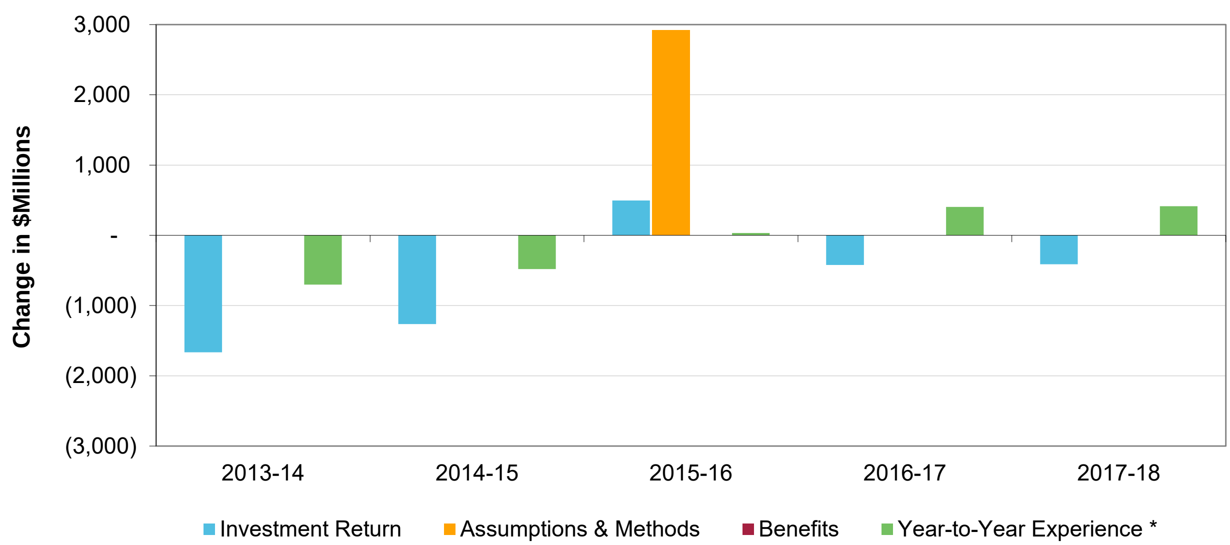
Exhibit 8b shows the sources of change in the UAAL over the past five valuations. The single biggest source of annual change in most years is the return on investments being either greater than or less than the assumption.

Exhibit 8a Analysis of Change in Unfunded Actuarial Accrued Liability (Dollars in Millions)

			Amount	As a Percent of June 30, 2018 Actuarial Accrued Liability
Unfunded Actuarial Accrued Liability - June 30, 2017			**$ 13,145**	**19.2%**
Increase in UAAL due to New Assumptions			-	0.0%
Interest Accrued			968	1.4%
Benefits Accrued (Normal Cost)			1,294	1.9%
Contributions				
Employer - Cash	$	(1,564)		-2.3%
Employer - Contribution Credit		-		0.0%
Member		(552)		-0.8%
Total			(2,116)	-3.1%
Expected Unfunded Actuarial Accrued Liability - June 30, 2018			**$ 13,291**	**19.4%**
Sources of Change:				
Asset (Gains) and Losses				
(Gain) / Loss due to Investment Income			(411)	-0.6%
Liability (Gains) and Losses				
Active Member Experience (non salary)	$	119		0.2%
Salary Increases Greater than Expected		223		0.3%
CPI Greater than Expected		45		0.1%
Mortality Experience		(20)		0.0%
All Other Experience		47		0.1%
Total			414	0.6%
Total Changes			**$ 3**	0.0%
Unfunded Actuarial Accrued Liability - June 30, 2018			**$ 13,294**	**19.4%**

Exhibit 8b History of Changes in Unfunded Actuarial Accrued Liability (Dollars in Millions)

	2013-14	2014-15	2015-16	2016-17	2017-18	2013-18
Prior Valuation UAAL	**$ 13,315**	**$ 11,288**	**$ 9,491**	**$ 12,841**	**$ 13,145**	**$ 13,315**
Increase in UAAL due to:						
Expected Increase / (Decrease)	338	(54)	(102)	320	146	648
Asset (Gains) and Losses	(1,664)	(1,263)	496	(421)	(411)	(3,263)
Changes in Benefits	-	-	-	-	-	-
Changes in Assumptions	-	-	2,922	-	-	2,922
Changes in Methods	-	-	-	-	-	-
Salary Increases	(291)	79	162	277	223	450
CPI Increases	(427)	(570)	(191)	(139)	45	(1,282)
Mortality Experience	(26)	(59)	(4)	(51)	(20)	(160)
All Other Experience	43	70	67	318	166	664
Total Increase / (Decrease)	**(2,027)**	**(1,797)**	**3,350**	**304**	**149**	**(21)**
Valuation UAAL	**$ 11,288**	**$ 9,491**	**$ 12,841**	**$ 13,145**	**$ 13,294**	**$ 13,294**
Funded Ratio	**79.5%**	**83.3%**	**79.4%**	**79.9%**	**80.6%**	**80.6%**



** Year-to-Year Experience includes changes due to Salary, CPI, Mortality and Other Experience.*

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Section 5 Member Contributions

Normal Contributions for non-PEPRA Plans

Member contributions are of two types: Normal contributions and cost-of-living contributions.

Normal contributions for each non-PEPRA plan (all plans except General Plan G and Safety Plan C) are defined in the following sections of the County Employees' Retirement Law:

Plan	'37 Act Reference	Formula
General A	31621.3	1/240th of FAC at age 55
General B	31621.1	1/120th of FAC at age 55
General C	31621	1/120th of FAC at age 60
General D	31621	1/120th of FAC at age 60
General E	N/A	Plan E is non-contributory
Safety A	31639.5	1/200th of FAC at age 50
Safety B	31639.25	1/100th of FAC at age 50

Note: FAC = Final Average Compensation

Normal member contributions are determined using the Entry Age Normal Funding Method and the following actuarial assumptions:

1. Expected rate of return on assets.
2. Individual salary increase rate (wage growth + merit).
3. Mortality for members on service retirement.

As no assumption changes were implemented for the current valuation, no changes are recommended to the current member contribution rates, except for General Plan G and Safety Plan C, as discussed below.

Cost-of-Living Contributions for non-PEPRA Plans

The determination of the member cost-of-living contributions is based on Section 31873 of the County Employees' Retirement Law. This section requires that the cost of this benefit be shared equally between members and the employer. Unlike the member normal contributions, these rates are based on the actuarial cost of the benefits and reflect all assumptions used in the valuation of liabilities.

Cost-of-Living Contributions for non-PEPRA Plans (continued)

As no assumption changes were adopted for the current valuation, we are recommending no change in the member cost-of-living contribution rates. The cost-of-living contributions, expressed as a percentage of the normal contribution rates, are based on the June 30, 2016 actuarial valuation (the most recent valuation where non-PEPRA member rates were changed) and are as follows:

Plan	COLA %
General A	79.37%
General B	23.97%
General C	25.46%
General D	24.49%
General E	0.00%
Safety A	86.98%
Safety B	31.63%

The relative magnitude of these amounts reflects the differences in the normal contribution rates for each plan and the different cost-of-living benefits offered by the different plans. The rate for Plan E is 0.00%, since it is non-contributory.

A sample of the current member contribution rates (normal plus cost-of-living) can be found in Exhibit 9.

Full disclosure of the member rates, showing both the normal and the total (normal plus cost-of-living) contribution rates, can be found in Appendix D.

Member Contribution Rates for General Plan G and Safety Plan C (PEPRA Plans)

Members of the two plans developed in compliance with the California Public Employees' Pension Reform Act of 2013 (PEPRA) contribute a flat rate (i.e., does not vary by entry age) based on whether they are in the General or Safety plan. This rate is set equal to one-half of the total Normal Cost rate. We are recommending changes to the member contribution rates for these plans, as shown below, to reflect the Plan's Normal Cost rates for the 2018 valuation.

	General Plan G	Safety Plan C
All Ages: Recommended	**8.43%**	**13.69%**
All Ages: Current	8.43%	13.87%
Ratio (Recommended / Current)	100.0%	98.7%

Note that the member contribution rates for these plans are further split for purposes of this report into a "Normal" and "Cost of Living" component. The cost-of-living component for these members, as shown in Exhibit 9 below, represents one-half of the cost of COLA for these plans.

Average Member Rates

The average member contribution rate for only those members in contributory plans at June 30, 2018 is 8.32% of covered payroll. This number compares to 6.88% of covered payroll, which is the average member contribution rate among all members. The 6.88% offsets the gross normal cost to yield the employer normal cost rate. Note that covered payroll does not include pay for PEPRA plan members that is above the PEPRA compensation limit.

Exhibit 9 Sample Member Contribution Rates

	Entry Age	Recommended Rates (Based on 2018 Valuation) Normal	Cost of Living	Total as a % of Pay	Current Rate (Total)	Ratio (New / Current)
General Members						
Plan A	25	2.97%	2.36%	5.33%	5.33%	100.0%
	35	3.71%	2.94%	6.65%	6.65%	100.0%
	45	4.56%	3.62%	8.18%	8.18%	100.0%
	55	4.93%	3.91%	8.84%	8.84%	100.0%
Plan B	25	5.93%	1.42%	7.35%	7.35%	100.0%
	35	7.41%	1.78%	9.19%	9.19%	100.0%
	45	9.13%	2.19%	11.32%	11.32%	100.0%
	55	9.87%	2.37%	12.24%	12.24%	100.0%
Plan C	25	5.04%	1.28%	6.32%	6.32%	100.0%
	35	6.29%	1.60%	7.89%	7.89%	100.0%
	45	7.86%	2.00%	9.86%	9.86%	100.0%
	55	9.29%	2.37%	11.66%	11.66%	100.0%
Plan D	25	5.04%	1.23%	6.27%	6.27%	100.0%
	35	6.29%	1.54%	7.83%	7.83%	100.0%
	45	7.86%	1.92%	9.78%	9.78%	100.0%
	55	9.29%	2.28%	11.57%	11.57%	100.0%
Plan G	All Ages	6.82%	1.61%	8.43%	8.43%	100.0%
Safety Members						
Plan A	25	4.18%	3.64%	7.82%	7.82%	100.0%
	35	5.15%	4.48%	9.63%	9.63%	100.0%
	45	6.15%	5.35%	11.50%	11.50%	100.0%
	55	6.21%	5.40%	11.61%	11.61%	100.0%
Plan B	25	8.36%	2.64%	11.00%	11.00%	100.0%
	35	10.31%	3.26%	13.57%	13.57%	100.0%
	45	12.31%	3.89%	16.20%	16.20%	100.0%
	55	12.42%	3.93%	16.35%	16.35%	100.0%
Plan C	All Ages	10.65%	3.04%	13.69%	13.87%	98.7%

Note: A portion of some of the member contribution rates is paid for ("picked up") by the employer and is not considered part of the member's contribution account for refund purposes. Such contributions are referred to as the surcharge amount and are subject to change each year. The rates shown in the table above are prior to any surcharge payments.

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Section 6 Employer Contributions

Contributions to LACERA are determined using the Entry Age Normal Cost Method. The portion of the actuarial present value of retirement benefits allocated to a valuation year by the Actuarial Cost Method is called the Normal Cost. These amounts are usually expressed as a percentage of payroll and called the Normal Cost Contribution Rate. Exhibit 10 illustrates the Normal Cost Rates by type of benefit and for each plan based on this valuation. A comparison with last year is also shown.

Under the Funding Policy, the total contribution rate is set equal to the Normal Cost contribution plus a payment by the employer towards the UAAL. The calculation of the UAAL contribution rate is shown in Exhibit 12. A portion of the Normal Cost contribution is funded by member contributions. The remainder is paid for by the employer.

Calculated Employer Contribution Rate

The total calculated employer contribution rates for each plan, along with a comparison to the prior year's calculated rates, can be found in Exhibit 11. These results are expressed as a percentage of payroll and annual contribution dollars. Note that LACERA's UAAL contribution rate is not determined separately for each plan, but is funded evenly as a percentage of pay over salaries for all members. The total calculated employer contribution rate was 21.00% for the fiscal year beginning in 2018 (prior to the phase-in recognition).

For the fiscal year beginning in 2019, the total calculated employer contribution rate decreases to 20.91%. This is equal to the net aggregate calculated Normal Cost contribution rate of 9.92% based on the 2018 valuation, plus a 30-year layered amortization payment of the UAAL.

(All values as a % of Payroll)

Employer Normal Cost	9.92%
30-year Layered Amortization of UAAL	10.99%
Calculated Employer Contribution Rate	20.91%

The 0.09% decrease from last year in the calculated employer contribution rate is primarily due to the recognition of investment gains, which resulted in a decrease of 0.30% in the employer contribution rate. Other sources, including COLA increases and salary increases greater than assumed, increased the UAAL rate by about 0.21%. The UAAL rate reflects a layered 30-year amortization from the valuation date with a July 1, 2019 implementation date for the new employer contribution rate.

Employer Contribution Rate with phase-in

At the December 2016 meeting, the Board of Investments adopted a three-year phase-in of the impact of the change in employer contribution rate resulting from the new assumptions adopted effective June 30, 2016. For the fiscal year beginning July 1, 2019, the impact of the June 30, 2016 assumption changes are fully phased in.

Section II 1A(4) of the Funding Policy states: "In no case shall the total amount contributed by the employer be less than the Normal Cost Rate for the year, plus a 30-year amortization of the total UAAL." The employer contribution rate of 20.91% is greater than the minimum contribution that would be required under Section II 1A(4) of the Funding Policy.

Exhibit 10 Calculated Normal Cost Contribution Rates – June 30, 2018

	General							Safety				Grand
A. Normal Cost Contribution Rate	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	**Total**
Service Retirement	20.01%	14.96%	12.72%	13.37%	9.25%	14.31%	12.71%	16.11%	14.74%	15.39%	14.83%	13.10%
Disability Retirement	1.15%	0.82%	0.71%	1.17%	0.00%	1.29%	0.95%	10.24%	9.69%	10.96%	9.87%	2.61%
Death	0.28%	0.23%	0.20%	0.35%	0.00%	0.33%	0.27%	0.32%	0.29%	0.26%	0.29%	0.27%
Termination	0.39%	0.39%	0.35%	0.92%	0.55%	0.93%	0.84%	0.61%	0.70%	0.77%	0.71%	0.82%
Total	**21.83%**	**16.40%**	**13.98%**	**15.81%**	**9.80%**	**16.86%**	**14.77%**	**27.28%**	**25.42%**	**27.38%**	**25.70%**	**16.80%**
B. Member Contributions	(5.47)%	(8.06)%	(6.64)%	(7.38)%	0.00%	(8.43)%	(6.04)%	(2.95)%	(10.10)%	(13.69)%	(10.59)%	(6.88)%
C. Net Employer Normal Cost as of June 30, 2018 (A) - (B)	16.36%	8.34%	7.34%	8.43%	9.80%	8.43%	8.73%	24.33%	15.32%	13.69%	15.11%	9.92%
D. Net Employer Normal Cost as of June 30, 2017	16.38%	7.94%	6.75%	8.41%	9.74%	8.43%	8.75%	24.01%	15.27%	13.87%	15.13%	9.94%
E. Increase (Decrease) as a Percentage of Payroll (C) - (D)	(0.02)%	0.40%	0.59%	0.02%	0.06%	0.00%	(0.02)%	0.32%	0.05%	(0.18)%	(0.02)%	(0.02)%
F. Estimated Payroll for fiscal year beginning July 1, 2019*	$ 14	$ 4	$ 5	$ 3,876	$ 1,453	$ 1,433	$ 6,785	$ 1	$ 1,340	$ 216	$ 1,556	$ 8,341
G. Estimated Total Normal Cost Contribution in Dollars (A x F)**	$ 3	$ 1	$ 1	$ 613	$ 142	$ 242	$ 1,002	$ -	$ 341	$ 59	$ 400	$ 1,402

** Estimated Payroll based upon annualized salary rate as of June 30, 2018 increased by 3.25% wage inflation. Dollar figures in millions.*
*** The timing of the Normal Cost shown in this exhibit is spread over the entire year and corresponds to payroll timing.*

Exhibit 11 Total Employer Contributions

	General							Safety				All
	Plan A	Plan B	Plan C	Plan D	Plan E	Plan G	Total	Plan A	Plan B	Plan C	Total	Plans
A. Net Employer Normal Cost												
1. Basic Benefits	13.02%	6.66%	5.92%	6.91%	8.12%	6.82%	7.16%	17.76%	12.18%	10.65%	11.97%	8.05%
2. Cost-of-Living Benefits	3.34%	1.68%	1.42%	1.52%	1.68%	1.61%	1.57%	6.57%	3.14%	3.04%	3.14%	1.87%
3. Total June 30, 2018	16.36%	8.34%	7.34%	8.43%	9.80%	8.43%	8.73%	24.33%	15.32%	13.69%	15.11%	9.92%
B. UAAL Contribution Rate	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%	10.99%
C. Total June 30, 2018 Contribution Rate (A) + (B)	**27.35%**	**19.33%**	**18.33%**	**19.42%**	**20.79%**	**19.42%**	**19.72%**	**35.32%**	**26.31%**	**24.68%**	**26.10%**	**20.91%**
D. Total June 30, 2017 Contribution Rate	27.44%	19.00%	17.81%	19.47%	20.80%	19.49%	19.81%	35.07%	26.33%	24.93%	26.19%	21.00%
E. Estimated Payroll for fiscal year beginning July 1, 2019*	$ 14	$ 4	$ 5	$ 3,876	$ 1,453	$ 1,433	$ 6,785	$ 1	$ 1,340	$ 216	$ 1,556	$ 8,341
F. Estimated Annual Contribution (C x E)	**$ 4**	**$ 1**	**$ 1**	**$ 753**	**$ 302**	**$ 278**	**$ 1,338**	**$ -**	**$ 353**	**$ 53**	**$ 406**	**$ 1,744**
G. Last Year's Estimated Annual Contribution	$ 5	$ 1	$ 1	$ 716	$ 296	$ 204	$ 1,224	$ -	$ 343	$ 37	$ 380	$ 1,604
H. Increase / (Decrease) in Annual Contribution	$ (1)	$ -	$ -	$ 37	$ 6	$ 74	$ 114	$ -	$ 10	$ 16	$ 26	$ 140

** Estimated Payroll based upon annualized salary rate as of June 30, 2018 increased by 3.25% wage inflation. Dollar figures in millions.*

Exhibit 12 Unfunded Actuarial Accrued Liability Detail
(Dollars in Millions)

Unfunded Actuarial Accrued Liability - 30 Year Layered Amortization Detail							
Date Established	Description	Balance as of June 30, 2018	Interest on Balance	Amort. Payment on June 30, 2019 (1)	Balance as of June 30, 2019 (2)	Remaining Period as of June 30, 2019	July 1, 2019 Amortization Payment
June 30, 2009	Initial UAAL	$ 5,631.8	$ 408.3	$ 409.7	$ 5,630.4	20 Years	$ 402.6
June 30, 2010	(Gain) / Loss(3)	3,061.2	221.9	216.1	3,067.0	21 Years	212.4
June 30, 2011	(Gain) / Loss(3)	1,511.5	109.6	103.7	1,517.4	22 Years	101.9
June 30, 2012	(Gain) / Loss(3)	2,462.6	178.5	164.6	2,476.5	23 Years	161.8
June 30, 2013	(Gain) / Loss(3)	1,387.6	100.6	90.5	1,397.7	24 Years	88.9
June 30, 2014	(Gain) / Loss	(2,561.5)	(185.7)	(163.2)	(2,584.0)	25 Years	(160.4)
June 30, 2015	(Gain) / Loss	(1,995.5)	(144.7)	(124.4)	(2,015.8)	26 Years	(122.2)
June 30, 2016	(Gain) / Loss(3)	3,824.0	277.2	233.5	3,867.7	27 Years	229.5
June 30, 2017	(Gain) / Loss	(18.4)	(1.3)	(1.1)	(18.6)	28 Years	(1.1)
June 30, 2018	(Gain) / Loss	(9.4)	(0.7)	(70.4) (4)	60.4	29 Years	3.4
					Total Amortization Payment July 1, 2019:		$ 916.8
					Projected Payroll July 1, 2019:		$ 8,341.4
	UAAL as of June 30, 2018:	**$ 13,294.0**			**UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2019:**		**10.99%**

Explanatory Notes:

1. Amortization Payments are based on a fixed schedule that increases by the payroll assumption each year.
2. The assets and liabilities used in the calculation of the UAAL are as of June 30, 2018, whereas, the contribution rates are not effective until July 1, 2019. Therefore, the UAAL is adjusted to June 30, 2019 based on the actual contribution rate for the period.
3. (Gain) / Loss layers include impact of assumption changes in these years.
4. The amortization of UAAL does not begin until July 1, 2019; therefore, the UAAL amount is adjusted by one year to reflect the actual July 1, 2018 contribution rate.

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Section 7 Supplemental Information

Governmental Accounting Standards Board (GASB) Statement No. 67 sets out requirements for defined benefit pension plan reporting and disclosures. GASB Statement No. 68 sets out requirements for accounting by state and local government employers.

Milliman provides LACERA with results relevant to Statements No. 67 and 68 in separate stand-alone financial reporting valuation reports.

For informational purposes, we have provided the following exhibits in this report that LACERA may use in the audited financial statements:

Exhibit 13: Schedule of Funding Progress
Exhibit 14: Schedule of Employer Contributions
Exhibit 15: Solvency Test
Exhibit 16: Actuarial Analysis of Financial Experience
Exhibit 17: Retirants and Beneficiaries added to / removed from Retiree Payroll

Exhibit 13, Schedule of Funding Progress, compares actuarial assets and liabilities of the Plan, based on the actuarial funding method used.

Exhibit 14, Schedule of Employer Contributions, compares the employer contributions required based on the actuarial valuation with the employer contributions actually made. Information shown in this exhibit comes from LACERA's audited financial statements.

Exhibit 15 compares the Actuarial Value of Valuation Assets to the types of Actuarial Accrued Liabilities, applying them first to Active Member contributions, then to retirees and beneficiaries, and then the remaining amount to the Active Members benefits. This is referred to as the Solvency Test.

Exhibit 16 shows the changes in actual versus expected UAAL from year to year.

Exhibit 17 reconciles the retired members and beneficiaries who have been added to and removed from the retiree payroll.

Exhibit 13 Schedule of Funding Progress
(Dollars in Thousands)

Actuarial Valuation Date	(a) Actuarial Value of Valuation Assets	(b) Actuarial Accrued Liabilities	(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)	(a/b) Funded Ratio	(c) Covered Payroll[1]	[(b-a)/c] UAAL as a Percentage of Covered Payroll
June 30, 2009	$ 39,541,865	$ 44,468,636	$ 4,926,771	88.9%	$ 6,547,616	75.2%
June 30, 2010[2]	38,839,392	46,646,838	7,807,446	83.3%	6,695,439	116.6%
June 30, 2011[2]	39,193,627	48,598,166	9,404,539	80.6%	6,650,674	141.4%
June 30, 2012[2]	39,039,364	50,809,425	11,770,061	76.8%	6,619,816	177.8%
June 30, 2013[2]	39,932,416	53,247,776	13,315,360	75.0%	6,595,902	201.9%
June 30, 2014	43,654,462	54,942,453	11,287,991	79.5%	6,672,228	169.2%
June 30, 2015	47,328,270	56,819,215	9,490,945	83.3%	6,948,738	136.6%
June 30, 2016[2]	49,357,847	62,199,214	12,841,367	79.4%	7,279,777	176.4%
June 30, 2017	52,166,307	65,310,803	13,144,496	79.9%	7,637,032	172.1%
June 30, 2018	55,233,108	68,527,354	13,294,246	80.6%	7,957,981	167.1%

1. Covered Payroll includes compensation paid to all active employees on which contributions are calculated, as reported by LACERA. Covered Payroll differs from the Active Member Valuation Payroll shown in Table C-1, which is an annualized compensation of only those members who were active on the actuarial valuation date.

2. Assumption changes.

Exhibit 14 Schedule of Contributions from the Employer (Dollars in Thousands)

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contributions: Cash Payment	Actual Employer Contributions: Transfer from Reserve Accounts	Actual Employer Contributions: Total	Percentage of Actuarially Determined Contribution Contributed
06/30/2009	$ 847,172	$ 831,672	$ 15,500	$ 847,172	100%
06/30/2010	843,704	843,703	-	843,703	100%
06/30/2011	944,174	944,174	-	944,174	100%
06/30/2012	1,078,929	1,078,929	-	1,078,929	100%
06/30/2013	1,172,014	723,195	448,819	1,172,014	100%
06/30/2014	1,320,442	1,320,442	-	1,320,442	100%
06/30/2015	1,494,975	1,494,975	-	1,494,975	100%
06/30/2016	1,443,130	1,443,130	-	1,443,130	100%
06/30/2017 (1)	1,392,813	1,370,922	21,891	1,392,813	100%
06/30/2018	1,564,284	1,564,284	-	1,564,284	100%

1. *The County Contribution Reserve was used to offset the contribution required from the Courts in the fiscal year ended June 30, 2017. Exhibit 14 in the June 30, 2017 actuarial valuation report did not reflect this transfer amount.*

Exhibit 15 Solvency Test
(Dollars in Millions)

		Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
Actuarial Valuation Date	Actuarial Value of Valuation Assets	Active Member Contributions (A)	Retirees and Beneficiaries[1] (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2009	$ 39,542	$ 5,795	$ 24,692	$ 13,982	100%	100%	65%
June 30, 2010	38,839	6,278	26,220	14,148	100%	100%	45%
June 30, 2011	39,194	6,529	27,559	14,511	100%	100%	35%
June 30, 2012	39,039	6,961	29,118	14,730	100%	100%	20%
June 30, 2013	39,932	7,837	30,980	14,430	100%	100%	8%
June 30, 2014	43,654	8,354	31,882	14,706	100%	100%	23%
June 30, 2015	47,328	8,805	32,734	15,280	100%	100%	38%
June 30, 2016	49,358	8,767	35,316	18,116	100%	100%	29%
June 30, 2017	52,166	9,482	37,077	18,752	100%	100%	30%
June 30, 2018	55,233	9,882	39,192	19,453	100%	100%	32%

1. *Includes vested and non-vested former members.*

Exhibit 16 Actuarial Analysis of Financial Experience
(Dollars in Millions)

	Valuation as of June 30						
	2012	2013	2014	2015	2016	2017	2018
Unfunded Actuarial Accrued Liability	$9,405	$11,770	$13,315	$11,288	$9,491	$12,841	$13,145
Expected Increase/(Decrease) from Prior Valuation	772	1,380	338	(54)	2,820	320	146
Salary Increases Greater/(Less) than Expected	(629)	(563)	(291)	79	162	277	223
CPI Less than Expected	(181)	(190)	(427)	(570)	(191)	(139)	45
Asset Return Less/(Greater) than Expected	2,337	893	(1,664)	(1,263)	496	(421)	(411)
All Other Experience	66	25	17	11	63	267	146
Ending Unfunded Actuarial Accrued Liability	**$11,770**	**$13,315**	**$11,288**	**$9,491**	**$12,841**	**$13,145**	**$13,294**

Exhibit 17 Retirants and Beneficiaries added to and removed from Retiree Payroll (Dollars in Thousands)

Valuation Date	Added to Rolls: Member Count	Added to Rolls: Annual Allowance[1]	Removed from Rolls: Member Count	Removed from Rolls: Annual Allowance[1]	Rolls at End of Year: Member Count	Rolls at End of Year: Annual Allowance[1]	% Increase in Retiree Allowance	Average Annual Allowance
June 30, 2009	2,505	$ 157,469 [2]	(1,786)	$ (50,619)	53,069	$ 2,085,725	5.40%	$ 39.3
June 30, 2010	2,947	188,724 [2]	(1,820)	(54,105)	54,196 [3]	2,220,344	6.45%	41.0
June 30, 2011	3,134	185,204 [2]	(1,959)	(62,923)	55,371	2,342,625	5.51%	42.3
June 30, 2012	3,194	193,865 [2]	(1,795)	(61,588)	56,770 [3]	2,474,902	5.65%	43.6
June 30, 2013	3,373	205,659 [2]	(2,057)	(69,494)	58,086 [3]	2,611,067	5.50%	45.0
June 30, 2014	3,128	172,743 [2]	(1,985)	(71,730)	59,229 [3]	2,712,080	3.87%	45.8
June 30, 2015	3,501	180,549 [2]	(2,124)	(80,028)	60,606 [3]	2,812,601	3.71%	46.4
June 30, 2016	3,479	220,632 [2]	(2,171)	(80,881)	61,914 [3]	2,952,352	4.97%	47.7
June 30, 2017	3,721	245,915 [2]	(2,311)	(89,624)	63,324 [3]	3,108,643	5.29%	49.1
June 30, 2018	3,826	276,118 [2]	(2,270)	(89,033)	64,880 [3]	3,295,728	6.02%	50.8

1. Annual allowance is the monthly benefit allowance annualized for those members counted as of June 30.
2. Includes COLAs that occurred during the fiscal year and therefore were not included in the previous years' Annual Allowance totals.
3. For the actuarial valuation year, Member Count includes retirees who due to timing at year end, are not yet included in the total Retired Members count disclosed in Note A - Plan Description of LACERA's CAFR for the fiscal year ended June 30, 2018.

Section 8 Cash Flow History and Projections

Cash Flow Projection

Exhibits 18a and 18b contain tables and graphs that illustrate both the cash flow history for the past 10 years and a projection on the valuation basis for the next 10 years.

Contributions include both employer and member contributions. Exhibit 18a shows that net cash outflow has gradually increased over the last five years. In future years, the cash flow is expected to become increasingly negative. This is a typical pattern for a mature retirement plan where it is expected that contributions will be less than benefits and that the plan will begin drawing on the fund that has been built up over prior years.

Note that the actual cash contributions do not reflect the transfers made between reserve funds, but only cash coming into the Plan. We are assuming no further transfers, only full cash contributions. In addition, LACERA will receive dividends and interest payments from its investments. These types of payments are not considered for this analysis, which focuses solely on comparing contributions with benefit payments and administrative expenses.

The projected cash flows include contributions, statutory benefits, and administrative expenses only. They are based on the actuarial assumptions as stated in Appendix A of this valuation report. The total employer contribution rate is assumed to be 20.04% for the first year and 20.91% for the second year; total employer contributions for the remainder of the period reflect the expected recognition of asset gains currently being deferred. The aggregate member rate is assumed to stay at the calculated rate for June 30, 2018 of 6.88% of payroll. Expenses are based on the expenses for the year ended June 30, 2018, increased annually with the actuarial inflation assumption of 2.75%.

Any increases or reductions in future contribution rates will increase or decrease the net cash flow. The projected cash flows do not include:

- Projected STAR benefits that have not yet been granted. STAR benefits that were vested as of January 2018 are included.
- Projected benefits payable under certain insurance contracts for a group of retired members. These payments are netted against the total expected retiree benefits.

Exhibit 18a Cash Flow History and Projections – Dollars

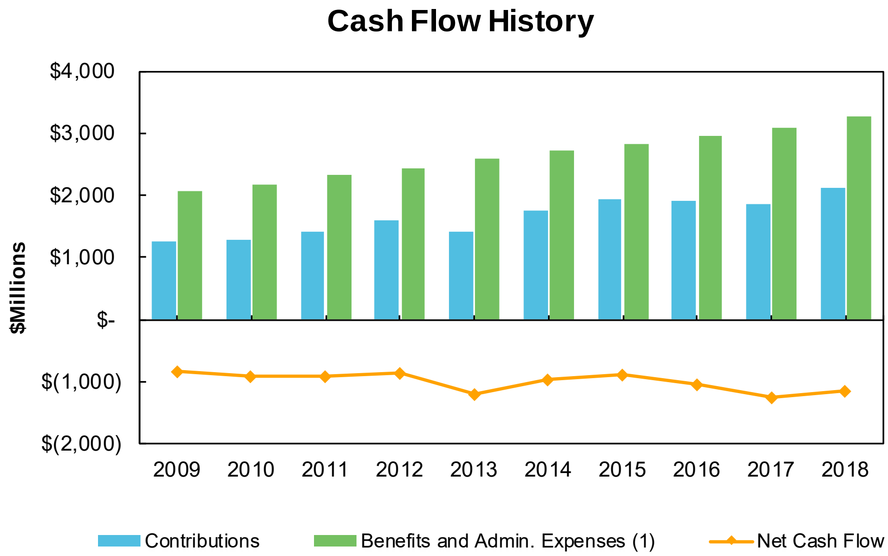
Plan Year Ending	Cash Flow History		
	Total Contributions	Benefits & Administrative Expenses[1]	Net Cash Flow
2009	$ 1,247	$ 2,065	$ (818)
2010	1,273	2,177	(904)
2011	1,408	2,318	(910)
2012	1,586	2,439	(853)
2013	1,403	2,593	(1,190)
2014	1,759	2,719	(960)
2015	1,936	2,829	(893)
2016	1,902	2,954	(1,052)
2017	1,858	3,094	(1,236)
2018	2,116	3,268	(1,152)

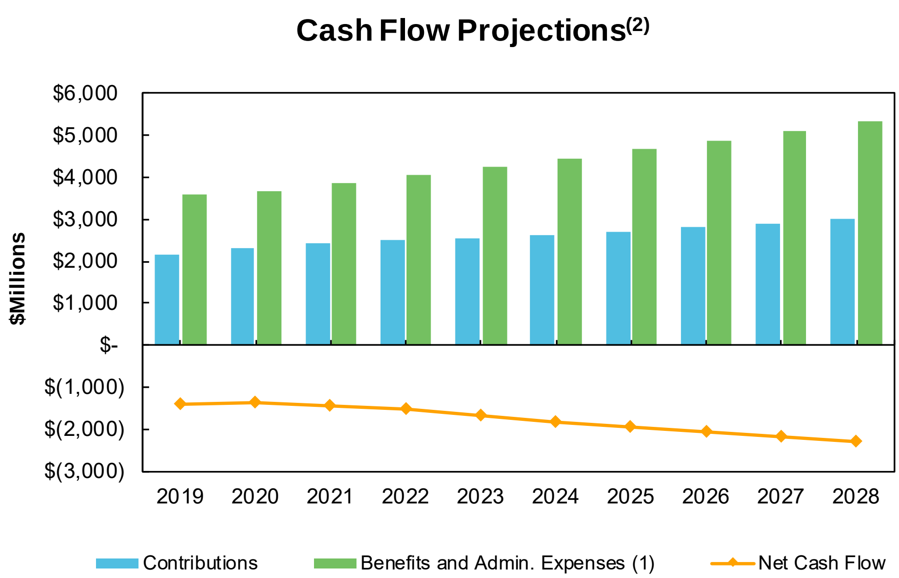
Plan Year Ending	Cash Flow Projections[2]		
	Total Contributions	Benefits & Administrative Expenses[1]	Net Cash Flow
2019	$ 2,165	$ 3,577	$ (1,411)
2020	2,324	3,682	(1,358)
2021	2,425	3,860	(1,435)
2022	2,507	4,046	(1,539)
2023	2,548	4,240	(1,692)
2024	2,624	4,446	(1,821)
2025	2,716	4,659	(1,943)
2026	2,811	4,878	(2,067)
2027	2,910	5,102	(2,192)
2028	3,011	5,329	(2,317)

1. Investment expenses are assumed to be covered by investment return.

2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Exhibit 18b Cash Flow History and Projections – Graphs





1. Investment expenses are assumed to be covered by investment return.

2. Future contributions reflect the expected impact of asset gains and losses currently being deferred.

Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions used in this valuation are described in this section. The assumptions were reviewed and changed for the June 30, 2016 actuarial valuation as a result of the 2016 triennial Investigation of Experience Study. Please refer to that Investigation of Experience report for the data and rationale used in the selection and recommendation of each assumption.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of LACERA and of LACERA itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of LACERA's benefits.

Table A-1 summarizes the assumptions. The mortality rates are taken from the sources listed.

Tables A-2 and A-3 show how members are expected to leave retired status due to death.

Table A-4 presents the probability of refund of contributions upon termination of employment while vested.

Table A-5 presents the expected annual percentage increase in salaries.

Tables A-6 to A-13 were developed from the experience as measured by the 2016 Investigation of Experience Study. The rates shown are the probabilities a member will leave the Plan for various reasons.

Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method. Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age).

For members who transferred between plans, entry age is based on original entry into the Plan.

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 sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The original UAAL as of June 30, 2009 is amortized as a level percentage of the projected salaries of present and future members of LACERA over a closed 30-year period. Future gains and losses are amortized over new closed 30-year periods. This is referred to as “layered” amortization.

Actuarial Cost Method (continued)	For all plans, the present value of future benefits minus the present value of future normal costs will be equal to the Actuarial Accrued Liability (AAL). For General Plan G and Safety Plan C, the normal cost rate is rounded up to the nearest 0.02%.
Records and Data	The data used in this valuation consist of financial information and the age, service, and salary records for active and inactive members and their survivors. All of the data were supplied by LACERA and are accepted for valuation purposes without audit.
Replacement of Former Members	The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain fairly stable in future years unless there are changes in the governing law, the actuarial assumptions, or the pattern of the new entrants.
Growth in Membership	For benefit determination purposes, no growth in the membership of LACERA is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.
Internal Revenue Code Section 415 Limit	The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.
Internal Revenue Code Section 401(a)(17)	The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.
Employer Contributions	The employer contribution rate is set by the Board of Investments based on actuarial valuations.
Member Contributions	The member contribution rates vary by entry age and are described in the law. Code references are shown in Appendix B of the valuation report. The methods and assumptions used are detailed later in this section. The individual member rates by entry age, plan and class are illustrated in Appendix D of the valuation report.
Valuation of Assets	The assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption. The five-year smoothing valuation basis for all assets was adopted effective June 30, 2009.

Investment Earnings and Expenses

The future investment earnings of the assets of LACERA are assumed to accrue at an annual rate of 7.25% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2016.

Postretirement Benefit Increases

Postretirement increases are assumed in accordance with the benefits described in Appendix B, with consideration of the Consumer Price Index (CPI) assumption of 2.75% per year and COLA Accumulation Banks (Plan A). This CPI rate was adopted effective June 30, 2016.

Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 7.25% compounded semi-annually for an annualized rate of 7.38%. This rate was adopted effective June 30, 2016.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 3.25% per annum rate of increase in the general wage level of the membership. These rates were adopted effective June 30, 2016.

Increases are assumed to occur mid-year (i.e., January 1st) and only apply to base salary, excluding megaflex compensation. The mid-year timing reflects that salary increases occur throughout the year, or on average mid-year.

For plans with a one-year final average compensation period, actual average annual compensation is used. For other plans, the monthly rate as of June of the valuation year was annualized. Due to irregular compensation payments included as pensionable earnings, actual annual pay is preferred over annualizing a single monthly payment amount.

Social Security Wage Base

Plan E members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and the annual Wage Base will increase at the rate of 3.25% per year. Note, statutory provisions describe exactly how to compute the offset for purposes of determining a member's offset amount at time of termination or retirement. This rate was adopted effective June 30, 2016.

Note that it is assumed all Plan E members born after 1950 have less than 10 years of Social Security-covered service and, therefore, do not have their benefit offset.

Social Security Wage Base (continued)

General Plan G and Safety Plan C members have their compensation limited pursuant to Section 7522.10 of the Government Code. The limit for 2018 is $145,666 (after applying the 120% factor) and is projected to increase at the CPI rate of 2.75%. This rate of future increase was adopted effective June 30, 2016.

Retirement

Members in General Plans A-D may retire at age 50 with 10 years of service, or any age with 30 years of service, or age 70 regardless of the number of years of service. General Plan G members are eligible to retire at age 52 with 5 years of service. Non-contributory Plan E members may retire at age 55 with 10 years of service. Members of Safety Plans A and B may retire at age 50 with 10 years of service, or any age with 20 years of service. Safety Plan C members are eligible to retire at age 50 with 5 years of service. The retirement rates vary by age and are shown by plan in Tables A-6 through A-13.

All general members who attain or who have attained age 75 in active service and all safety members who have attained age 65 in active service are assumed to retire immediately (except for Safety Plan C members who have not yet attained 5 years of service).

Vested former members are assumed to retire at the later of their current age and the assumed retirement age specified as follows:

Assumption for Deferred Commencement

Plan	Age at Commencement
GA	62
GB	62
GC	62
GD	57
GE	62
GG	57
SA	55
SB	50
SC	50

The assumptions regarding termination of employment, early retirement, and unreduced service retirement are treated as a single set of decrements in regards to a particular member. For example, a General Plan D member hired at age 30 has a probability to withdraw from LACERA due to death, disability, or other termination of employment until age 50. After age 50, the member could still withdraw due to death, disability, or retirement. Thus, in no year during the member's projected employment would they be eligible for both a probability of other termination of employment and a probability of retirement.

The retirement probabilities were adopted effective June 30, 2016.

Disability

The rates of disability used in the valuation are also illustrated in Tables A-6 through A-13. These rates were adopted effective June 30, 2016.

Postretirement Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active members, members retired for service, and beneficiaries. These rates are illustrated in Table A-2. Current beneficiary mortality is assumed to be the same assumption as healthy members of the same sex. Future beneficiaries are assumed to be of the opposite sex, and have the same mortality as General members. Note that these assumptions include a projection for expected future mortality improvement. These rates were adopted effective June 30, 2016.

Males General members: RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 105%, with MP-2014 Ultimate Projection Scale.

Safety members: RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 95%, with MP-2014 Ultimate Projection Scale.

Females General members: RP-2014 Healthy Annuitant Mortality Table for Females, with MP-2014 Ultimate Projection Scale.

Safety members: Same as General Females.

Postretirement Mortality – Disabled Members

For disabled members, the mortality rates used in the valuation rates are illustrated in Table A-3. Note that these assumptions include a projection for expected future mortality improvement. These rates were adopted effective June 30, 2016.

Males General members: Average of RP-2014 Healthy Annuitant Mortality Table for Males multiplied by 105% and RP-2014 Disabled Annuitant Mortality Table for Males, both projected with MP-2014 Ultimate Projection Scale.

Safety members: RP-2014 Healthy Annuitant Mortality Table for Males, with MP-2014 Ultimate Projection Scale.

Females General members: Average of RP-2014 Healthy Annuitant Mortality Table for Females multiplied by 100% and RP-2014 Disabled Annuitant Mortality Table for Females, both projected with MP-2014 Ultimate Projection Scale.

Safety members: RP-2014 Healthy Annuitant Mortality Table for Females, with MP-2014 Ultimate Projection Scale.

Mortality while in Active Status

For active members, the mortality rates used in the valuation rates are illustrated in Tables A-6 through A-13. These rates were adopted effective June 30, 2016.

Class	Gender	Proposed Table	
General	Male	RP 2014E Male, Generational(1)	-2
General	Female	RP 2014E Female, Generational(1)	-0
Safety	Male	RP 2014E Male, Generational(1)	-6
Safety	Female	RP 2014E Female, Generational(1)	-0

1. Projection using MP-2014 Ultimate projection scale.

Note that Safety members have an additional service-connected mortality rate of 0.01% per year. No mortality improvement is applied to this assumption.

Other Employment Terminations

Tables A-6 to A-13 show, for all ages, the rates assumed in this valuation for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement. These rates were adopted effective June 30, 2016.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with LACERA. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work or may remain inactive until becoming eligible to receive a retirement benefit under either LACERA or a reciprocal retirement plan. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

All terminating members are assumed not to be rehired. Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred retirement allowance. All non-vested members are assumed to elect a refund and withdraw their contributions. These rates were adopted effective June 30, 2016.

Probability of Eligible Survivors

For members not currently in pay status, 77% of all males and 50% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be four years younger than male members and two years older than female members. Survivors are assumed to be of the opposite sex as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

Valuation of Vested Former Members

The deferred retirement allowance is calculated based on the member's final compensation and service at termination. The compensation amount is projected until the assumed retirement age for members who are assumed to be employed by a reciprocal agency. For members who are missing compensation data, Final Compensation is estimated as the average amount for all members who terminated during the same year and had a valid compensation amount. The greater of the present value of the calculated benefit and the employee's current contribution balance is valued.

Reciprocal Employment

16% of General and 35% of Safety current and future vested former members are assumed to work for a reciprocal employer.

Current vested reciprocal members are assumed to receive annual salary increases of 4.25%. Future reciprocal vested members are assumed to receive the same salary increases they would have received if they had stayed in active employment with LACERA and retired at the assumed retirement age.

Valuation of Annuity Purchases

Over 30 years ago, LACERA purchased single life annuities from two insurance companies for some retired members (currently less than 1% of the retired population). The total liability for these members is calculated and then offset by the expected value of the benefit to be paid by the insurance companies.

For affected members, the insurance companies are responsible for:

(1) Straight life annuity payments
(2) Statutory COLAs

LACERA is responsible for:

(1) Benefit payments payable to any beneficiary
(2) STAR COLAs

Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, the member rate is determined by the Present Value of the Future Benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL:

A. The Annuity factor used for general members is based on a 35% / 65% blend of the male and female valuation mortality tables and projection scale, with a static projection to 2040. For Safety members, it is based on a 90% / 10% blend of the male and female annuity factors.

B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 7.25%.

C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

   Example: For a Plan C Member who enters at age 59 or earlier, the Final Compensation at retirement (age 60) will be the monthly average of the annual salaries during age 59.

D. Member Rates are assumed to increase with entry age. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age (for example, age 53 for General A). In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

Implementation Schedule for Changes in Assumptions

LACERA implements changes in member and employer contribution rates, interest crediting rates and operating tables in the fiscal year following adoption of the valuation or investigation of experience that the rates and tables are based upon. For example, a change in the investment return assumption adopted for use in the June 30, 2016 actuarial valuation is used for crediting interest to reserves in the fiscal year beginning July 1, 2017.

Table A-1 Summary of Valuation Assumptions as of June 30, 2018

I. Economic assumptions

A. General wage increases	3.25%
B. Investment earnings	7.25%
C. Growth in membership	0.00%
D. Postretirement benefit increases (varies by plan)	Plan COLA not greater than CPI assumption.
E. CPI inflation assumption	2.75%

II. Demographic assumptions

A. Salary increases due to service	Table A-5
B. Retirement	Tables A-6 to A-13
C. Disability	Tables A-6 to A-13
D. Mortality during active employment	Tables A-6 to A-13
E. Mortality for active members after termination and service retired members	Table A-2

Basis – RP-2014 Healthy Annuitant Mortality Table for respective genders with MP-2014 Ultimate Projection Scale:

Class of Members	Adjustment
General – males	105% of rates
General – females	100% of rates
Safety – males	95% of rates
Safety – females	100% of rates

F. Mortality among disabled members — Table A-3

Basis – Average of RP-2014 Healthy Annuitant and Disabled Mortality Tables for respective genders, with MP-2014 Ultimate Projection Scale:

General – males	105% of Healthy Rates; 100% of Disabled Rates
General – females	100% of rates

Basis – RP-2014 Healthy Mortality Table, for respective genders with MP-2014 Ultimate Projection Scale:

Safety – males	100% of rates
Safety – females	100% of rates

G. Mortality for beneficiaries — Table A-2

Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite sex who has taken a service retirement.

H. Other terminations of employment — Tables A-6 to A-13

I. Refund of contributions on vested termination — Table A-4

Table A-2 Mortality for Members Retired for Service[1]

Age	Safety Male	Safety Female	General Male	General Female
20	0.090%	0.041%	0.103%	0.041%
25	0.108%	0.044%	0.122%	0.044%
30	0.101%	0.055%	0.114%	0.055%
35	0.116%	0.072%	0.132%	0.072%
40	0.140%	0.100%	0.159%	0.100%
45	0.217%	0.165%	0.246%	0.165%
50	0.386%	0.277%	0.427%	0.277%
55	0.545%	0.362%	0.602%	0.362%
60	0.738%	0.519%	0.816%	0.519%
65	1.046%	0.805%	1.156%	0.805%
70	1.593%	1.287%	1.761%	1.287%
75	2.548%	2.094%	2.817%	2.094%
80	4.249%	3.484%	4.696%	3.484%
85	7.362%	6.050%	8.137%	6.050%
90	12.911%	10.713%	14.270%	10.713%

Annual Projected Mortality Improvement

Age	All Groups
65 & Less	1.000%
70	1.000%
75	1.000%
80	1.000%
85	1.000%
90	0.930%
95	0.850%
100	0.640%
105	0.430%
110	0.210%
115	0.000%

1. *Mortality rates are those applicable for the fiscal year beginning in 2014. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality rate for an 85-year old Safety male in fiscal year beginning in 2018 is 7.072% calculated as follows:*

Age 85 rate in 2018 = Age 85 rate in 2014 with 4 years improvement
= 7.362% x (100.0% - 1.0%) x (100.0% - 1.0%) x (100.0% - 1.0%) x (100.0% - 1.0%)
= 7.072%

Table A-3 Mortality for Members Retired for Disability(1)

Age	Safety Male	Safety Female	General Male	General Female
20	0.098%	0.041%	0.407%	0.132%
25	0.117%	0.044%	0.485%	0.141%
30	0.109%	0.055%	0.453%	0.178%
35	0.126%	0.072%	0.524%	0.233%
40	0.151%	0.100%	0.629%	0.322%
45	0.234%	0.165%	0.975%	0.535%
50	0.406%	0.277%	1.233%	0.734%
55	0.573%	0.362%	1.470%	0.905%
60	0.777%	0.519%	1.738%	1.109%
65	1.101%	0.805%	2.162%	1.445%
70	1.677%	1.287%	2.898%	2.054%
75	2.683%	2.094%	4.123%	3.099%
80	4.472%	3.484%	6.179%	4.794%
85	7.750%	6.050%	9.734%	7.546%
90	13.591%	10.713%	15.785%	11.989%

1. Mortality rates are those applicable for the fiscal year beginning in 2014. Annual projected improvements are assumed in the following years under the schedule shown on the preceding page.

Table A-4 Immediate Refund of Contributions upon Termination of Employment (Excludes Plan E)

Years of Service	Safety	General
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	35%	35%
6	35%	35%
7	35%	35%
8	33%	34%
9	31%	34%
10	29%	33%
11	27%	33%
12	25%	32%
13	22%	31%
14	19%	30%
15	16%	30%
16	13%	29%
17	10%	28%
18	6%	25%
19	2%	23%
20	0%	20%
21	0%	18%
22	0%	15%
23	0%	12%
24	0%	9%
25	0%	6%
26	0%	3%
27	0%	0%
28	0%	0%
29	0%	0%
30 or More	0%	0%

Table A-5 Annual Increase in Salary[1]

Years of Service	General	Safety
<1	6.00%	8.00%
1	5.25%	7.00%
2	4.50%	6.00%
3	3.75%	4.00%
4	3.00%	3.00%
5	2.50%	2.50%
6	2.00%	2.00%
7	1.75%	1.75%
8	1.50%	1.50%
9	1.30%	1.30%
10	1.15%	1.15%
11	1.00%	1.00%
12	0.85%	0.85%
13	0.70%	0.70%
14	0.60%	0.60%
15	0.50%	0.50%
16	0.40%	0.50%
17	0.35%	0.50%
18	0.30%	0.50%
19	0.25%	0.50%
20 or More	0.25%	0.50%

1. The total expected increase in salary includes both merit (shown above) and the general wage increase assumption of 3.25% per annum. The total result is compounded rather than additive. For example, the total increase to service less than one year is 9.44% for General members.

Appendix A Rates of Separation From Active Service
Tables A-6 to A-13

A schedule of the probabilities of termination of employment due to the following causes can be found on the following pages:

Service Retirement:	Member retires after meeting age and service requirements for reasons other than disability.
Other terminations:	Member terminates and elects a refund of member contributions, or a deferred retirement allowance.
Service-Connected Disability:	Member receives disability retirement; disability is service-connected.
Nonservice-Connected Disability:	Member receives disability retirement; disability is not service-connected.
Service-Connected Pre-Retirement Death:	Member dies before retirement; death is service-connected.
Nonservice-Connected Pre-Retirement Death:	Member dies before retirement; death is not service-connected.

Each rate represents the probability that a member will separate from service at each age due to the particular cause. For example, a rate of 0.0300 for a member's service retirement at age 50 means we assume that 30 out of 1,000 members who are age 50 will retire at that age.

Each table represents the detailed rates needed for each LACERA plan by sex:

Table	A-6: General Plan A, B & C Males	A-10: General Plan E Males
	A-7: General Plan A, B & C Females	A-11: General Plan E Females
	A-8: General Plan D & G Males	A-12: Safety Plan A, B & C Males
	A-9: General Plan D & G Females	A-13: Safety Plan A, B & C Females

Table A-6 Rate of Separation From Active Service For General Members Plans A, B and C - Male

Age	Service Retirement	Other Terminations	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
19	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
20	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
21	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
22	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
23	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
24	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
25	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
26	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
27	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
28	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
29	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
30	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
31	0.0000	0.0050	0.0002	0.0001	N/A	0.0004
32	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
33	0.0000	0.0050	0.0002	0.0001	N/A	0.0005
34	0.0000	0.0050	0.0003	0.0001	N/A	0.0005
35	0.0000	0.0050	0.0003	0.0001	N/A	0.0005
36	0.0000	0.0050	0.0004	0.0001	N/A	0.0005
37	0.0000	0.0050	0.0004	0.0001	N/A	0.0005
38	0.0000	0.0050	0.0005	0.0001	N/A	0.0005
39	0.0000	0.0050	0.0006	0.0001	N/A	0.0006
40	0.0300	0.0050	0.0006	0.0002	N/A	0.0006
41	0.0300	0.0050	0.0007	0.0002	N/A	0.0006
42	0.0300	0.0050	0.0008	0.0002	N/A	0.0006
43	0.0300	0.0050	0.0008	0.0003	N/A	0.0007
44	0.0300	0.0050	0.0009	0.0003	N/A	0.0007
45	0.0300	0.0050	0.0009	0.0003	N/A	0.0008
46	0.0300	0.0050	0.0010	0.0004	N/A	0.0009
47	0.0300	0.0050	0.0010	0.0004	N/A	0.0010
48	0.0300	0.0050	0.0010	0.0004	N/A	0.0011
49	0.0300	0.0050	0.0011	0.0004	N/A	0.0012
50	0.0300	0.0050	0.0011	0.0004	N/A	0.0014
51	0.0300	0.0050	0.0012	0.0004	N/A	0.0015
52	0.0300	0.0050	0.0012	0.0004	N/A	0.0017
53	0.0300	0.0050	0.0016	0.0005	N/A	0.0019
54	0.0600	0.0050	0.0019	0.0006	N/A	0.0021
55	0.1000	0.0050	0.0023	0.0006	N/A	0.0023
56	0.1200	0.0050	0.0026	0.0007	N/A	0.0025
57	0.1700	0.0050	0.0030	0.0008	N/A	0.0028
58	0.2200	0.0050	0.0035	0.0009	N/A	0.0031
59	0.2400	0.0050	0.0040	0.0010	N/A	0.0034
60	0.2600	0.0050	0.0045	0.0010	N/A	0.0038
61	0.3100	0.0050	0.0050	0.0011	N/A	0.0042
62	0.3500	0.0050	0.0055	0.0012	N/A	0.0047
63	0.2800	0.0050	0.0053	0.0014	N/A	0.0052
64	0.2800	0.0050	0.0051	0.0015	N/A	0.0059
65	0.2800	0.0050	0.0049	0.0017	N/A	0.0066
66	0.2800	0.0050	0.0047	0.0018	N/A	0.0074
67	0.2800	0.0050	0.0045	0.0020	N/A	0.0083
68	0.2800	0.0050	0.0045	0.0022	N/A	0.0092
69	0.2800	0.0050	0.0045	0.0023	N/A	0.0102
70	0.2800	0.0050	0.0045	0.0025	N/A	0.0113
71	0.2800	0.0050	0.0045	0.0026	N/A	0.0125
72	0.2800	0.0050	0.0045	0.0028	N/A	0.0139
73	0.2800	0.0050	0.0045	0.0030	N/A	0.0154
74	0.2800	0.0050	0.0045	0.0031	N/A	0.0170
75	1.0000	0.0000	0.0000	0.0000	N/A	0.0189

Table A-7 Rate of Separation From Active Service For General Members Plans A, B and C - Female

Age	Service Retirement	Other Terminations	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
19	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
20	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
21	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
22	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
23	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
24	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
25	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
26	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
27	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
28	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
29	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
30	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
31	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
32	0.0000	0.0050	0.0002	0.0001	N/A	0.0002
33	0.0000	0.0050	0.0002	0.0001	N/A	0.0003
34	0.0000	0.0050	0.0003	0.0001	N/A	0.0003
35	0.0000	0.0050	0.0003	0.0001	N/A	0.0003
36	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
37	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
38	0.0000	0.0050	0.0004	0.0001	N/A	0.0003
39	0.0000	0.0050	0.0004	0.0001	N/A	0.0004
40	0.0300	0.0050	0.0005	0.0002	N/A	0.0004
41	0.0300	0.0050	0.0005	0.0002	N/A	0.0004
42	0.0300	0.0050	0.0005	0.0002	N/A	0.0005
43	0.0300	0.0050	0.0006	0.0003	N/A	0.0005
44	0.0300	0.0050	0.0007	0.0003	N/A	0.0006
45	0.0300	0.0050	0.0008	0.0003	N/A	0.0007
46	0.0300	0.0050	0.0009	0.0004	N/A	0.0007
47	0.0300	0.0050	0.0010	0.0004	N/A	0.0008
48	0.0300	0.0050	0.0011	0.0004	N/A	0.0009
49	0.0300	0.0050	0.0012	0.0004	N/A	0.0010
50	0.0300	0.0050	0.0013	0.0004	N/A	0.0011
51	0.0300	0.0050	0.0014	0.0004	N/A	0.0012
52	0.0300	0.0050	0.0015	0.0004	N/A	0.0013
53	0.0300	0.0050	0.0016	0.0005	N/A	0.0014
54	0.0600	0.0050	0.0016	0.0006	N/A	0.0015
55	0.1000	0.0050	0.0017	0.0006	N/A	0.0017
56	0.1200	0.0050	0.0017	0.0007	N/A	0.0018
57	0.1700	0.0050	0.0018	0.0008	N/A	0.0019
58	0.2200	0.0050	0.0020	0.0009	N/A	0.0021
59	0.2400	0.0050	0.0023	0.0010	N/A	0.0023
60	0.2600	0.0050	0.0025	0.0010	N/A	0.0024
61	0.3100	0.0050	0.0028	0.0011	N/A	0.0026
62	0.3500	0.0050	0.0030	0.0012	N/A	0.0029
63	0.2800	0.0050	0.0030	0.0014	N/A	0.0031
64	0.2800	0.0050	0.0030	0.0015	N/A	0.0034
65	0.2800	0.0050	0.0030	0.0017	N/A	0.0037
66	0.2800	0.0050	0.0030	0.0018	N/A	0.0041
67	0.2800	0.0050	0.0030	0.0020	N/A	0.0046
68	0.2800	0.0050	0.0030	0.0022	N/A	0.0051
69	0.2800	0.0050	0.0030	0.0023	N/A	0.0057
70	0.2800	0.0050	0.0030	0.0025	N/A	0.0063
71	0.2800	0.0050	0.0030	0.0026	N/A	0.0070
72	0.2800	0.0050	0.0030	0.0028	N/A	0.0078
73	0.2800	0.0050	0.0030	0.0030	N/A	0.0087
74	0.2800	0.0050	0.0030	0.0031	N/A	0.0097
75	1.0000	0.0000	0.0000	0.0000	N/A	0.0108

Table A-8 Rate of Separation From Active Service For General Members Plan D and G - Male

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0002	0.0001	N/A	0.0003
19	0.0000	0.0002	0.0001	N/A	0.0003
20	0.0000	0.0002	0.0001	N/A	0.0003
21	0.0000	0.0002	0.0001	N/A	0.0004
22	0.0000	0.0002	0.0001	N/A	0.0004
23	0.0000	0.0002	0.0001	N/A	0.0004
24	0.0000	0.0002	0.0001	N/A	0.0005
25	0.0000	0.0002	0.0001	N/A	0.0005
26	0.0000	0.0002	0.0001	N/A	0.0005
27	0.0000	0.0002	0.0001	N/A	0.0005
28	0.0000	0.0002	0.0001	N/A	0.0005
29	0.0000	0.0002	0.0001	N/A	0.0004
30	0.0000	0.0002	0.0001	N/A	0.0004
31	0.0000	0.0002	0.0001	N/A	0.0004
32	0.0000	0.0002	0.0001	N/A	0.0005
33	0.0000	0.0002	0.0001	N/A	0.0005
34	0.0000	0.0003	0.0001	N/A	0.0005
35	0.0000	0.0003	0.0001	N/A	0.0005
36	0.0000	0.0004	0.0001	N/A	0.0005
37	0.0000	0.0004	0.0001	N/A	0.0005
38	0.0000	0.0005	0.0001	N/A	0.0005
39	0.0000	0.0006	0.0001	N/A	0.0006
40	0.0150	0.0006	0.0002	N/A	0.0006
41	0.0150	0.0007	0.0002	N/A	0.0006
42	0.0150	0.0008	0.0002	N/A	0.0006
43	0.0150	0.0008	0.0003	N/A	0.0007
44	0.0150	0.0009	0.0003	N/A	0.0007
45	0.0150	0.0009	0.0003	N/A	0.0008
46	0.0150	0.0010	0.0004	N/A	0.0009
47	0.0150	0.0010	0.0004	N/A	0.0010
48	0.0150	0.0010	0.0004	N/A	0.0011
49	0.0150	0.0011	0.0004	N/A	0.0012
50	0.0150	0.0011	0.0004	N/A	0.0014
51	0.0120	0.0012	0.0004	N/A	0.0015
52	0.0120	0.0012	0.0004	N/A	0.0017
53	0.0150	0.0016	0.0005	N/A	0.0019
54	0.0200	0.0019	0.0006	N/A	0.0021
55	0.0250	0.0023	0.0006	N/A	0.0023
56	0.0250	0.0026	0.0007	N/A	0.0025
57	0.0300	0.0030	0.0008	N/A	0.0028
58	0.0350	0.0035	0.0009	N/A	0.0031
59	0.0500	0.0040	0.0010	N/A	0.0034
60	0.0600	0.0045	0.0010	N/A	0.0038
61	0.0800	0.0050	0.0011	N/A	0.0042
62	0.1000	0.0055	0.0012	N/A	0.0047
63	0.0900	0.0053	0.0014	N/A	0.0052
64	0.1500	0.0051	0.0015	N/A	0.0059
65	0.2000	0.0049	0.0017	N/A	0.0066
66	0.2000	0.0047	0.0018	N/A	0.0074
67	0.1800	0.0045	0.0020	N/A	0.0083
68	0.1800	0.0045	0.0022	N/A	0.0092
69	0.1800	0.0045	0.0023	N/A	0.0102
70	0.2000	0.0045	0.0025	N/A	0.0113
71	0.2000	0.0045	0.0026	N/A	0.0125
72	0.2000	0.0045	0.0028	N/A	0.0139
73	0.2000	0.0045	0.0030	N/A	0.0154
74	0.2000	0.0045	0.0031	N/A	0.0170
75	1.0000	0.0000	0.0000	N/A	0.0189

Years of Service	Other Terminations
0	0.0800
1	0.0550
2	0.0375
3	0.0300
4	0.0250
5	0.0233
6	0.0217
7	0.0200
8	0.0190
9	0.0180
10	0.0170
11	0.0160
12	0.0150
13	0.0140
14	0.0130
15	0.0120
16	0.0110
17	0.0100
18	0.0092
19	0.0084
20	0.0076
21	0.0068
22	0.0060
23	0.0056
24	0.0052
25	0.0048
26	0.0044
27	0.0040
28	0.0040
29	0.0040
30 & Above	0.0000

Table A-9 Rate of Separation From Active Service For General Members Plan D and G - Female

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	0.0002	0.0001	N/A	0.0002	0	0.0800
19	0.0000	0.0002	0.0001	N/A	0.0002	1	0.0550
20	0.0000	0.0002	0.0001	N/A	0.0002	2	0.0375
21	0.0000	0.0002	0.0001	N/A	0.0002	3	0.0300
22	0.0000	0.0002	0.0001	N/A	0.0002	4	0.0250
23	0.0000	0.0002	0.0001	N/A	0.0002	5	0.0233
24	0.0000	0.0002	0.0001	N/A	0.0002	6	0.0217
25	0.0000	0.0002	0.0001	N/A	0.0002	7	0.0200
26	0.0000	0.0002	0.0001	N/A	0.0002	8	0.0190
27	0.0000	0.0002	0.0001	N/A	0.0002	9	0.0180
28	0.0000	0.0002	0.0001	N/A	0.0002	10	0.0170
29	0.0000	0.0002	0.0001	N/A	0.0002	11	0.0160
30	0.0000	0.0002	0.0001	N/A	0.0002	12	0.0150
31	0.0000	0.0002	0.0001	N/A	0.0002	13	0.0140
32	0.0000	0.0002	0.0001	N/A	0.0002	14	0.0130
33	0.0000	0.0002	0.0001	N/A	0.0003	15	0.0120
34	0.0000	0.0003	0.0001	N/A	0.0003	16	0.0110
35	0.0000	0.0003	0.0001	N/A	0.0003	17	0.0100
36	0.0000	0.0004	0.0001	N/A	0.0003	18	0.0092
37	0.0000	0.0004	0.0001	N/A	0.0003	19	0.0084
38	0.0000	0.0004	0.0001	N/A	0.0003	20	0.0076
39	0.0000	0.0004	0.0001	N/A	0.0004	21	0.0068
40	0.0150	0.0005	0.0002	N/A	0.0004	22	0.0060
41	0.0150	0.0005	0.0002	N/A	0.0004	23	0.0056
42	0.0150	0.0005	0.0002	N/A	0.0005	24	0.0052
43	0.0150	0.0006	0.0003	N/A	0.0005	25	0.0048
44	0.0150	0.0007	0.0003	N/A	0.0006	26	0.0044
45	0.0150	0.0008	0.0003	N/A	0.0007	27	0.0040
46	0.0150	0.0009	0.0004	N/A	0.0007	28	0.0040
47	0.0150	0.0010	0.0004	N/A	0.0008	29	0.0040
48	0.0150	0.0011	0.0004	N/A	0.0009	30 & Above	0.0000
49	0.0150	0.0012	0.0004	N/A	0.0010		
50	0.0150	0.0013	0.0004	N/A	0.0011		
51	0.0120	0.0014	0.0004	N/A	0.0012		
52	0.0120	0.0015	0.0004	N/A	0.0013		
53	0.0150	0.0016	0.0005	N/A	0.0014		
54	0.0200	0.0016	0.0006	N/A	0.0015		
55	0.0250	0.0017	0.0006	N/A	0.0017		
56	0.0250	0.0017	0.0007	N/A	0.0018		
57	0.0300	0.0018	0.0008	N/A	0.0019		
58	0.0350	0.0020	0.0009	N/A	0.0021		
59	0.0500	0.0023	0.0010	N/A	0.0023		
60	0.0600	0.0025	0.0010	N/A	0.0024		
61	0.0800	0.0028	0.0011	N/A	0.0026		
62	0.1000	0.0030	0.0012	N/A	0.0029		
63	0.0900	0.0030	0.0014	N/A	0.0031		
64	0.1500	0.0030	0.0015	N/A	0.0034		
65	0.2000	0.0030	0.0017	N/A	0.0037		
66	0.2000	0.0030	0.0018	N/A	0.0041		
67	0.1800	0.0030	0.0020	N/A	0.0046		
68	0.1800	0.0030	0.0022	N/A	0.0051		
69	0.1800	0.0030	0.0023	N/A	0.0057		
70	0.2000	0.0030	0.0025	N/A	0.0063		
71	0.2000	0.0030	0.0026	N/A	0.0070		
72	0.2000	0.0030	0.0028	N/A	0.0078		
73	0.2000	0.0030	0.0030	N/A	0.0087		
74	0.2000	0.0030	0.0031	N/A	0.0097		
75	1.0000	0.0000	0.0000	N/A	0.0108		

Table A-10 Rate of Separation From Active Service For General Members Plan E - Male

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	N/A	N/A	N/A	0.0003
19	0.0000	N/A	N/A	N/A	0.0003
20	0.0000	N/A	N/A	N/A	0.0003
21	0.0000	N/A	N/A	N/A	0.0004
22	0.0000	N/A	N/A	N/A	0.0004
23	0.0000	N/A	N/A	N/A	0.0004
24	0.0000	N/A	N/A	N/A	0.0005
25	0.0000	N/A	N/A	N/A	0.0005
26	0.0000	N/A	N/A	N/A	0.0005
27	0.0000	N/A	N/A	N/A	0.0005
28	0.0000	N/A	N/A	N/A	0.0005
29	0.0000	N/A	N/A	N/A	0.0004
30	0.0000	N/A	N/A	N/A	0.0004
31	0.0000	N/A	N/A	N/A	0.0004
32	0.0000	N/A	N/A	N/A	0.0005
33	0.0000	N/A	N/A	N/A	0.0005
34	0.0000	N/A	N/A	N/A	0.0005
35	0.0000	N/A	N/A	N/A	0.0005
36	0.0000	N/A	N/A	N/A	0.0005
37	0.0000	N/A	N/A	N/A	0.0005
38	0.0000	N/A	N/A	N/A	0.0005
39	0.0000	N/A	N/A	N/A	0.0006
40	0.0000	N/A	N/A	N/A	0.0006
41	0.0000	N/A	N/A	N/A	0.0006
42	0.0000	N/A	N/A	N/A	0.0006
43	0.0000	N/A	N/A	N/A	0.0007
44	0.0000	N/A	N/A	N/A	0.0007
45	0.0000	N/A	N/A	N/A	0.0008
46	0.0000	N/A	N/A	N/A	0.0009
47	0.0000	N/A	N/A	N/A	0.0010
48	0.0000	N/A	N/A	N/A	0.0011
49	0.0000	N/A	N/A	N/A	0.0012
50	0.0000	N/A	N/A	N/A	0.0014
51	0.0000	N/A	N/A	N/A	0.0015
52	0.0000	N/A	N/A	N/A	0.0017
53	0.0000	N/A	N/A	N/A	0.0019
54	0.0000	N/A	N/A	N/A	0.0021
55	0.0200	N/A	N/A	N/A	0.0023
56	0.0200	N/A	N/A	N/A	0.0025
57	0.0200	N/A	N/A	N/A	0.0028
58	0.0200	N/A	N/A	N/A	0.0031
59	0.0300	N/A	N/A	N/A	0.0034
60	0.0400	N/A	N/A	N/A	0.0038
61	0.0600	N/A	N/A	N/A	0.0042
62	0.0900	N/A	N/A	N/A	0.0047
63	0.0900	N/A	N/A	N/A	0.0052
64	0.2000	N/A	N/A	N/A	0.0059
65	0.2500	N/A	N/A	N/A	0.0066
66	0.1800	N/A	N/A	N/A	0.0074
67	0.1800	N/A	N/A	N/A	0.0083
68	0.1800	N/A	N/A	N/A	0.0092
69	0.1800	N/A	N/A	N/A	0.0102
70	0.2000	N/A	N/A	N/A	0.0113
71	0.2000	N/A	N/A	N/A	0.0125
72	0.2000	N/A	N/A	N/A	0.0139
73	0.2000	N/A	N/A	N/A	0.0154
74	0.2000	N/A	N/A	N/A	0.0170
75	1.0000	N/A	N/A	N/A	0.0189

Years of Service	Other Terminations
0	0.1500
1	0.0800
2	0.0600
3	0.0450
4	0.0350
5	0.0310
6	0.0270
7	0.0230
8	0.0220
9	0.0210
10	0.0200
11	0.0190
12	0.0180
13	0.0168
14	0.0156
15	0.0144
16	0.0132
17	0.0120
18	0.0116
19	0.0112
20	0.0108
21	0.0104
22	0.0100
23	0.0100
24	0.0100
25	0.0100
26	0.0100
27	0.0100
28	0.0100
29	0.0100
30 & Above	0.0100

Table A-11 Rate of Separation From Active Service For General Members Plan E - Female

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.0002	0	0.1500
19	0.0000	N/A	N/A	N/A	0.0002	1	0.0800
20	0.0000	N/A	N/A	N/A	0.0002	2	0.0600
21	0.0000	N/A	N/A	N/A	0.0002	3	0.0450
22	0.0000	N/A	N/A	N/A	0.0002	4	0.0350
23	0.0000	N/A	N/A	N/A	0.0002	5	0.0310
24	0.0000	N/A	N/A	N/A	0.0002	6	0.0270
25	0.0000	N/A	N/A	N/A	0.0002	7	0.0230
26	0.0000	N/A	N/A	N/A	0.0002	8	0.0220
27	0.0000	N/A	N/A	N/A	0.0002	9	0.0210
28	0.0000	N/A	N/A	N/A	0.0002	10	0.0200
29	0.0000	N/A	N/A	N/A	0.0002	11	0.0190
30	0.0000	N/A	N/A	N/A	0.0002	12	0.0180
31	0.0000	N/A	N/A	N/A	0.0002	13	0.0168
32	0.0000	N/A	N/A	N/A	0.0002	14	0.0156
33	0.0000	N/A	N/A	N/A	0.0003	15	0.0144
34	0.0000	N/A	N/A	N/A	0.0003	16	0.0132
35	0.0000	N/A	N/A	N/A	0.0003	17	0.0120
36	0.0000	N/A	N/A	N/A	0.0003	18	0.0116
37	0.0000	N/A	N/A	N/A	0.0003	19	0.0112
38	0.0000	N/A	N/A	N/A	0.0003	20	0.0108
39	0.0000	N/A	N/A	N/A	0.0004	21	0.0104
40	0.0000	N/A	N/A	N/A	0.0004	22	0.0100
41	0.0000	N/A	N/A	N/A	0.0004	23	0.0100
42	0.0000	N/A	N/A	N/A	0.0005	24	0.0100
43	0.0000	N/A	N/A	N/A	0.0005	25	0.0100
44	0.0000	N/A	N/A	N/A	0.0006	26	0.0100
45	0.0000	N/A	N/A	N/A	0.0007	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0007	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0008	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0009	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0010		
50	0.0000	N/A	N/A	N/A	0.0011		
51	0.0000	N/A	N/A	N/A	0.0012		
52	0.0000	N/A	N/A	N/A	0.0013		
53	0.0000	N/A	N/A	N/A	0.0014		
54	0.0000	N/A	N/A	N/A	0.0015		
55	0.0200	N/A	N/A	N/A	0.0017		
56	0.0200	N/A	N/A	N/A	0.0018		
57	0.0200	N/A	N/A	N/A	0.0019		
58	0.0200	N/A	N/A	N/A	0.0021		
59	0.0300	N/A	N/A	N/A	0.0023		
60	0.0400	N/A	N/A	N/A	0.0024		
61	0.0600	N/A	N/A	N/A	0.0026		
62	0.0900	N/A	N/A	N/A	0.0029		
63	0.0900	N/A	N/A	N/A	0.0031		
64	0.2000	N/A	N/A	N/A	0.0034		
65	0.2500	N/A	N/A	N/A	0.0037		
66	0.1800	N/A	N/A	N/A	0.0041		
67	0.1800	N/A	N/A	N/A	0.0046		
68	0.1800	N/A	N/A	N/A	0.0051		
69	0.1800	N/A	N/A	N/A	0.0057		
70	0.2000	N/A	N/A	N/A	0.0063		
71	0.2000	N/A	N/A	N/A	0.0070		
72	0.2000	N/A	N/A	N/A	0.0078		
73	0.2000	N/A	N/A	N/A	0.0087		
74	0.2000	N/A	N/A	N/A	0.0097		
75	1.0000	N/A	N/A	N/A	0.0108		

Table A-12 Rate of Separation From Active Service For Safety Members Plan A, B, and C - Male

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0020	0.0000	0.0001	0.0002
19	0.0000	0.0020	0.0000	0.0001	0.0002
20	0.0000	0.0020	0.0000	0.0001	0.0002
21	0.0000	0.0020	0.0000	0.0001	0.0002
22	0.0000	0.0020	0.0000	0.0001	0.0003
23	0.0000	0.0020	0.0000	0.0001	0.0003
24	0.0000	0.0020	0.0000	0.0001	0.0003
25	0.0000	0.0020	0.0000	0.0001	0.0004
26	0.0000	0.0020	0.0000	0.0001	0.0004
27	0.0000	0.0020	0.0000	0.0001	0.0004
28	0.0000	0.0020	0.0000	0.0001	0.0005
29	0.0000	0.0020	0.0000	0.0001	0.0005
30	0.0000	0.0020	0.0000	0.0001	0.0005
31	0.0000	0.0020	0.0000	0.0001	0.0005
32	0.0000	0.0020	0.0000	0.0001	0.0005
33	0.0000	0.0021	0.0000	0.0001	0.0004
34	0.0000	0.0022	0.0000	0.0001	0.0004
35	0.0000	0.0023	0.0000	0.0001	0.0004
36	0.0000	0.0024	0.0000	0.0001	0.0005
37	0.0000	0.0025	0.0000	0.0001	0.0005
38	0.0000	0.0026	0.0000	0.0001	0.0005
39	0.0000	0.0027	0.0000	0.0001	0.0005
40	0.0100	0.0028	0.0000	0.0001	0.0005
41	0.0100	0.0029	0.0000	0.0001	0.0005
42	0.0100	0.0030	0.0000	0.0001	0.0005
43	0.0100	0.0031	0.0000	0.0001	0.0006
44	0.0100	0.0032	0.0000	0.0001	0.0006
45	0.0100	0.0033	0.0000	0.0001	0.0006
46	0.0100	0.0034	0.0000	0.0001	0.0006
47	0.0100	0.0035	0.0000	0.0001	0.0007
48	0.0100	0.0040	0.0000	0.0001	0.0007
49	0.0100	0.0050	0.0000	0.0001	0.0008
50	0.0100	0.0100	0.0000	0.0001	0.0009
51	0.0200	0.0120	0.0000	0.0001	0.0010
52	0.0250	0.0140	0.0000	0.0001	0.0011
53	0.0300	0.0300	0.0000	0.0001	0.0012
54	0.1200	0.0500	0.0000	0.0001	0.0014
55	0.2400	0.1200	0.0000	0.0001	0.0015
56	0.1500	0.0900	0.0000	0.0001	0.0017
57	0.1600	0.1000	0.0000	0.0001	0.0019
58	0.1800	0.1000	0.0000	0.0001	0.0021
59	0.2500	0.1000	0.0000	0.0001	0.0023
60	0.3000	0.1000	0.0000	0.0001	0.0025
61	0.3000	0.1000	0.0000	0.0001	0.0028
62	0.3000	0.1000	0.0000	0.0001	0.0031
63	0.3000	0.1000	0.0000	0.0001	0.0034
64	0.3000	0.1000	0.0000	0.0001	0.0038
65	1.0000	0.0000	0.0000	0.0000	0.0042

Years of Service	Other Terminations
0	0.0300
1	0.0250
2	0.0200
3	0.0150
4	0.0120
5	0.0113
6	0.0107
7	0.0100
8	0.0092
9	0.0084
10	0.0076
11	0.0068
12	0.0060
13	0.0054
14	0.0048
15	0.0042
16	0.0036
17	0.0030
18	0.0024
19	0.0018
20 & Above	0.0000

Table A-13 Rate of Separation From Active Service For Safety Members Plan A, B, and C – Female

Age	Service Retirement	Service-Connected Disability	Nonservice-Connected Disability	Service-Connected Pre-Retirement Death	Non service-Connected Pre-Retirement Death
18	0.0000	0.0030	0.0000	0.0001	0.0002
19	0.0000	0.0030	0.0000	0.0001	0.0002
20	0.0000	0.0030	0.0000	0.0001	0.0002
21	0.0000	0.0030	0.0000	0.0001	0.0002
22	0.0000	0.0030	0.0000	0.0001	0.0002
23	0.0000	0.0030	0.0000	0.0001	0.0002
24	0.0000	0.0030	0.0000	0.0001	0.0002
25	0.0000	0.0030	0.0000	0.0001	0.0002
26	0.0000	0.0030	0.0000	0.0001	0.0002
27	0.0000	0.0030	0.0000	0.0001	0.0002
28	0.0000	0.0034	0.0000	0.0001	0.0002
29	0.0000	0.0038	0.0000	0.0001	0.0002
30	0.0000	0.0042	0.0000	0.0001	0.0002
31	0.0000	0.0046	0.0000	0.0001	0.0002
32	0.0000	0.0050	0.0000	0.0001	0.0002
33	0.0000	0.0056	0.0000	0.0001	0.0003
34	0.0000	0.0062	0.0000	0.0001	0.0003
35	0.0000	0.0068	0.0000	0.0001	0.0003
36	0.0000	0.0074	0.0000	0.0001	0.0003
37	0.0000	0.0080	0.0000	0.0001	0.0003
38	0.0000	0.0084	0.0000	0.0001	0.0003
39	0.0000	0.0088	0.0000	0.0001	0.0004
40	0.0100	0.0092	0.0000	0.0001	0.0004
41	0.0100	0.0096	0.0000	0.0001	0.0004
42	0.0100	0.0100	0.0000	0.0001	0.0005
43	0.0100	0.0104	0.0000	0.0001	0.0005
44	0.0100	0.0108	0.0000	0.0001	0.0006
45	0.0100	0.0112	0.0000	0.0001	0.0007
46	0.0100	0.0116	0.0000	0.0001	0.0007
47	0.0100	0.0120	0.0000	0.0001	0.0008
48	0.0100	0.0130	0.0000	0.0001	0.0009
49	0.0100	0.0150	0.0000	0.0001	0.0010
50	0.0100	0.0180	0.0000	0.0001	0.0011
51	0.0200	0.0200	0.0000	0.0001	0.0012
52	0.0250	0.0240	0.0000	0.0001	0.0013
53	0.0300	0.0280	0.0000	0.0001	0.0014
54	0.1200	0.0320	0.0000	0.0001	0.0015
55	0.2400	0.1100	0.0000	0.0001	0.0017
56	0.1500	0.0700	0.0000	0.0001	0.0018
57	0.1600	0.0700	0.0000	0.0001	0.0019
58	0.1800	0.0800	0.0000	0.0001	0.0021
59	0.2500	0.0800	0.0000	0.0001	0.0023
60	0.3000	0.0800	0.0000	0.0001	0.0024
61	0.3000	0.0800	0.0000	0.0001	0.0026
62	0.3000	0.0800	0.0000	0.0001	0.0029
63	0.3000	0.0800	0.0000	0.0001	0.0031
64	0.3000	0.0800	0.0000	0.0001	0.0034
65	1.0000	0.0000	0.0000	0.0000	0.0037

Years of Service	Other Terminations
0	0.0300
1	0.0250
2	0.0200
3	0.0150
4	0.0120
5	0.0113
6	0.0107
7	0.0100
8	0.0092
9	0.0084
10	0.0076
11	0.0068
12	0.0060
13	0.0054
14	0.0048
15	0.0042
16	0.0036
17	0.0030
18	0.0024
19	0.0018
20 & Above	0.0000

Appendix B Summary of Plan Provisions

All actuarial calculations are based on our understanding of the statutes governing LACERA as contained in the County Employees Retirement Law (CERL) of 1937 and the California Public Employees' Pension Relief Act (PEPRA) with provisions adopted by the LACERA Board, effective through July 1, 2018. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the California State Code. This summary does not attempt to cover all the detailed provisions of the law.

MEMBERSHIP	**Government Code Section**
Permanent employees of Los Angeles County (County) and participating districts who work ¾ time or more are eligible for membership in LACERA.	(31551, 31552, Bylaws)
Employees eligible for safety membership (law enforcement, firefighting and specific lifeguards) become safety members on the first day of the month after date of hire. Employees who become members on or after January 1, 2013, will enter into Safety Plan C.	(31558)
All other employees become general members on the first day of the month after date of hire or the first day of the month after they make an election of either Plan D or Plan E, depending on the law in effect at that time. Employees who become members on or after January 1, 2013 will enter into General Plan G.	(31493, Bylaws)
Elective officers become members on the first day of the month after filing a declaration with the Board of Retirement (Board).	(31553, 31562)
General members in Plan E may transfer all their Plan E service credit to Plan D during an approved transfer period by making the required contributions. Transferred members relinquish, waive, and forfeit any and all vested or accrued benefits available under any other retirement plan and are entitled only to the benefits of Plan D.	

RETIREMENT PLANS

The County has established nine defined benefit plans. The following outlines the dates these plans were available, based on a member's date of entry into LACERA: (31494.1, 31494.3)

Safety Member Plans:

Plan A: Inception to August 1977

Plan B: September 1977 through December 2012

Plan C: January 2013 to present (7522.02)

General Member Plans:

Plan A: Inception through August 1977

Plan B: September 1977 through September 1978

Plan C: October 1978 through May 1979

Plan D: June 1979 through December 2012

Plan E: January 1982 through December 2012 (31487, 31496)

Plan G: January 2013 to present (7522.02)

NOTE: After review of a new member's account, a member with prior membership may be enrolled into one of the pre-PEPRA plans.

MEMBER CONTRIBUTIONS

Plans A, B, D and General Plan C members

Contributions are based on the entry age and class of each member and are required of all members in Plans A, B, C, and D. Current member rates are shown in Appendix D. Section 5 provides additional detail on how these rates are calculated. (31620)

Contributions cease when general members are credited with 30 years of service in a contributory plan, provided they were members of LACERA or a reciprocal plan on March 7, 1973, and continuously thereafter. All safety members are eligible for the 30-year cessation of contributions. (31625.2, 31836.1)

Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Investments on amounts that have been on deposit for at least six months. (31591, 31700)

In addition to the normal contributions, members pay one-half of the cost of their plan's COLA. This is discussed further in Section 5 of this report. (31873)

General Plan G and Safety Plan C members

Members contribute 50% of the aggregate Normal Cost rate for their Plan. (7522.30)

EMPLOYER CONTRIBUTIONS

The employer (County or District) contributes to the retirement fund a percent of the total compensation provided for all members based on an actuarial valuation and recommendation of the actuary and the Board of Investments.	(31453, 31454 31581)

SERVICE RETIREMENT ALLOWANCE

Eligibility

Plans A-B:	**Safety members** Age 50 with 10 years of County service; Any age with 20 years of service; or	(31662.4, 31662.6, 31663.25)
Plans A-D:	**General members** Age 50 with 10 years of County service; Any age with 30 years of service; or Age 70, regardless of service.	(31672)
Plan C:	**Safety members** Age 50 with 5 years of service.	(7522.25(d))
Plan E:	**General members** Age 65 with 10 years of service. A reduced benefit is also payable at age 55 with 10 years of service.	(31491.3)
Plan G:	**General members** Age 52 with 5 years of service.	(7522.20(a))

Final Compensation

Plans A, B, D and General Plan C	Average of the member's highest monthly pensionable earnings during any 12-consecutive-month period.	(31462.3, 31461.45)
Plan E:	Average of the member's highest monthly pensionable earnings during any three 12-consecutive month periods.	(31488)
General Plan G and Safety Plan C	Average of the member's highest monthly pensionable earnings during any 36-consecutive month period.	(7522.32)

The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code.	(31671)
The amount of compensation taken into account for General Plan G and Safety Plan C members is limited to $145,666 for 2018. The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers. Adjustments shall be effective annually on January 1.	(7522.10)

SERVICE RETIREMENT ALLOWANCE (continued)

Monthly Allowance

Plans A-B:	**Safety members** 1/50 x Final Compensation x Safety age factor x Years of service. (The Safety Plan A and Safety Plan B age factors are the same.)	(31664)
Plans A-D:	**General members** 1/60 x Final Compensation x a Plan specific age factor x years of service.	(31676.1) (31676.11) (31676.14)
Plan C:	**Safety members** Final Compensation x Safety Plan percentage x Years of service.	(7522.25(d))
Plan E:	**General members [(a)+(b)-(c)] x d where:** (a) 2% x Final Compensation x (Years of Service (up to 35 years), plus (b) 1 % x Final Compensation x Years of Service in excess of 35 (up to 10) (c) Estimated Primary Insurance Amount (PIA) x Years of Covered Service (up to 35) divided by 35. (d) Age Factor The PIA is calculated based on certain assumptions specified by statute, and an assumed Social Security retirement age of 62. If retirement occurs prior to age 65, benefit amount is adjusted by an actuarial equivalent factor (see Sample Plan Age Factors).	(31491, 31491.3 (b)&(c))
Plan G:	**General members** Final Compensation x General Plan percentage x Years of Service.	(7522.20(a))

Social Security Integration

Plans A-C:	**General Members** For County service covered by Social Security prior to January 1, 1983, the 1/60 factor is replaced by 1/90 for the first $350 of compensation.	(31808)
Plan D:	The 1/90 factor is applied to the first $1,050 of compensation.	

SERVICE RETIREMENT ALLOWANCE (continued)

Sample Plan Age Factors

Plan	Age 50	Age 55	Age 60	Age 65 & Up	
General A	0.885	1.169	1.464	1.567	(31676.14)
General B	0.745	1.000	1.309	1.567	(31676.11)
General C&D	0.709	0.895	1.150	1.459	(31676.1)
General E	N/A	0.375	0.601	1.000	(31491.3(a))
Safety A&B	1.000	1.310	1.310	1.310	(31664)

Sample Plan Age Percentages

Plan	Age 50	Age 55	Age 60	Age 65 & Up	
General G	N/A	1.30%	1.80%	2.30%*	(7522.20(a))
Safety C	2.00%	2.50%	2.70%	2.70%	(7522.25(d))

**Maximum percentage for General Plan G is 2.50% at age 67.*

Maximum Allowance

Plans A-D, G: Allowance may not exceed 100% of final compensation.

Plan E: The sum of the normal retirement allowance and the estimated PIA cannot exceed 70% of Final Compensation for a member with 35 or less years of service, and cannot exceed 80% of Final Compensation if service exceeds 35 years. (31491.3)

Unmodified Retirement Allowance (Normal Form)

Plans A-D, G: Life Annuity payable to retired member with 65% continuance to an eligible survivor (or eligible children). (31760.12, 31785.4)

Plan E: Life Annuity payable to retired member with 55% continuance to an eligible survivor (or eligible children). (31491, 31492.1)

Eligible survivor includes certain domestic partners. (31780.2)

SERVICE RETIREMENT ALLOWANCE (continued)

Optional Retirement Allowance

A member may elect to have the actuarial equivalent of the service or disability retirement allowance applied to a lesser retirement allowance during the retired member's life in order to provide an optional survivor allowance.		(31760)
Unmodified Plus:	Members with eligible survivors may elect a higher percent than the standard unmodified continuance, up to 100%. The benefit is actuarially reduced from the unmodified amount. The elected percent of the member's reduced allowance is payable to the eligible survivor.	(31760.5)
Option 1:	Member's allowance is reduced to pay a cash refund of any unpaid annuity payments (up to the amount of the member's contributions at retirement) to the member's estate or to a beneficiary having an insurable interest in the life of the member.	(31761)
Option 2:	100% of member's reduced allowance is payable to a surviving spouse or beneficiary having an insurable interest in the life of the member.	(31762)
Option 3:	50% of member's reduced allowance is payable to a surviving spouse or beneficiary having an insurable interest in the life of the member.	(31763)
Option 4:	Other % of member's reduced allowance is payable to a surviving spouse or beneficiary(ies) having an insurable interest in the life of the member.	(31764)
A member may not revoke and name another beneficiary if the member elects Option 2, 3, or 4.		(31782)
Pension Advance Option:	The Pension Advance Option is available to members who are fully insured under Social Security for the purpose of coordinating a member's retirement allowance with benefits receivable from Social Security. It is not available to disability retirees or members who elect Option 2, 3, or 4. The allowance is increased prior to age 62 and then reduced after 62 by amounts which have equivalent actuarial values. The automatic 65% continuance for eligible spouses of members who elect the Pension Advance Option is based on the unmodified allowance the member would have received if the member had not elected the option.	(31810, 31811)

All Allowances (31600)

All allowances are made on a pro-rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. For deaths that occur mid-month, the full month's payment is made.

SERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE

Eligibility

Plans A-D, G:	Any age or years of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty.	(31720, 31720.5)
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

Greater of (1) 50% of final compensation, and (2) the service retirement allowance, if eligible to retire.	(31727.4)

Normal Form Of Payment

Life Annuity with 100% continuance to a surviving spouse (or eligible children).	(31760, 31786)

NONSERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE

Eligibility

Plans A-D, G:	Any age with five years of service, and permanently incapacitated for the performance of duty.	(31720, 31836)
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

The monthly allowance is equal to a service retirement allowance if the member is eligible to retire; otherwise allowance equals (a) or (b) where:	(31726, 31726.5)

General Members:	(a) 90% of 1/60 of Final Compensation x years of service, if member must rely on service in another retirement plan in order to be eligible to retire, or allowance exceeds 1/3 of final compensation.	(31727(a))
	(b) 90% of 1/60 of Final Compensation x years of service projected to age 65, not to exceed 1/3 of Final Compensation.	(31727(b))
Safety Members:	1/60 is replaced by 1/50 and age 65 is replaced by age 55 in (a) and (b) above.	(31727.2)

Normal Form of Payment

Life Annuity with 65% continuance to a surviving spouse (or eligible children).	(31760, 31760.1, 31760.12, 31785, 31785.4)

SERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS

Eligibility

(31787)

Plans A-D, G:	Active members who die in service as a result of injury or disease arising out of and in the course of employment.	
Plan E:	Not available under Plan E.	(31487)

Monthly Allowance

An annual death allowance is payable monthly to an eligible survivor (or eligible children) equal to 50% of the member's Final Compensation. (31787)

Optional Combined Benefit

(31781.3)

In lieu of the monthly allowance above, a surviving spouse may elect:

(a) A lump sum equal to 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation), plus

(b) A monthly payment equal to 50% of the member's Final Compensation, reduced by a monthly amount, which is the actuarial equivalent of (a) above based on the age of surviving spouse.

Death Benefit (Lump Sum)

(31781)

The member's accumulated contributions with interest, plus 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation).

Additional Allowance for Children

(31787.5)

25% of death allowance (whether or not the monthly allowance or combined benefit is chosen) for one child, 40% for two children, and 50% for three or more children.

Additional Amount for Spouse of Safety Member

(31787.6)

A surviving spouse of a safety member is also entitled to receive a lump-sum death benefit equal to 12 x monthly rate of compensation at the time of member's death in addition to all other benefits.

Note: *For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the monthly allowance or the lump sum, whichever is more valuable.*

NONSERVICE-CONNECTED PRE-RETIREMENT DEATH BENEFITS

Eligibility (31780)

Plans A-D, G:	Active members who die while in service or while physically or mentally incapacitated for the performance of duty.	
Plan E:	Not available under Plan E.	(31487)

Death Benefit (Lump Sum) (31781)

The member's accumulated contributions with interest, plus 1/12 of the compensation earned in preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation).

Optional Death Benefit

In lieu of the lump-sum death benefit, the following several optional death benefits are available to provide flexibility to survivors.

First Optional Death Benefit (31781.1, 31781.12)

If a member who would have been entitled to a non-service-connected disability retirement allowance dies prior to retirement as a result of such disability, the surviving spouse (or eligible children) may elect to receive an optional death allowance equal to 65% of the monthly retirement allowance to which the member would have been entitled as of the date of death.

Second Optional Death Benefit (31781.2, 31765.2)

If a member dies prior to reaching the minimum retirement age but has 10 or more years of County service, a surviving spouse (or eligible children) may elect to leave the amount of the death benefit on deposit until the earliest date the member could have retired and at that time receive the allowance provided for in Section 31765 (an Option 3 benefit) or 31765.2 (a 65% continuance).

Third Optional Death Benefit

A surviving spouse of a member who dies after five years of County service may elect a combined benefit equal to:

(a) A lump sum equal to 1/12 of the compensation earnable in the preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation), plus (31781.3)

(b) A monthly payment equal to 65% of the monthly retirement allowance to which the member would have been entitled if the member retired or could have retired for a non-service-connected disability as of the date of death, reduced by a monthly amount which is the actuarial equivalent of (a) above based on the age of surviving spouse. (31781.1, 31781.12)

Fourth Optional Death Benefit

If a member dies while eligible for a service retirement and the surviving spouse is designated as beneficiary, the spouse (or eligible children) may elect to receive 65% of the monthly retirement allowance to which the member would have been entitled as of the date of death. (31765.1, 31765.2)

Fifth Optional Death Benefit

If a member dies while eligible for a service retirement and the surviving spouse is designated as beneficiary and survives the member by not less than 30 days, the spouse (or eligible children) may elect to receive the same retirement allowance as the spouse would have received had the member retired on the date of death and selected Option 3. (31765)

Note: *For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the first optional death benefit or the lump sum, whichever is more valuable.*

POSTRETIREMENT DEATH/BURIAL BENEFIT

Plans A-E:	A one-time lump-sum benefit of $5,000 is payable to the estate or to the beneficiary designated by the member upon the death of any member while receiving a retirement allowance. This is in addition to any other death or survivor benefits. The amount may be paid from surplus earnings of the Plan, if any, but is currently paid by the County based on agreement with LACERA. It is not included for valuation purposes.	(31789.3)

DEFERRED RETIREMENT ALLOWANCE

Eligibility

Plans A, B, D and General Plan C:		
	Five years of county or reciprocal service. Member contributions must be left on deposit.	(31700)
Safety Plan C:	Age 50 with 5 years of service.	(7522.20(a))
Plan E:	Age 55 with 10 years of service.	(31491)
Plan G:	Age 52 with 5 years of service.	(7522.25(d))

DEFERRED RETIREMENT ALLOWANCE (continued)

Monthly Allowance

Plans A-D, G:	Same as service retirement allowance; payable any time after the member would have been eligible for service retirement.	(31703, 31704, 31705)
	If a former member dies before the effective date of the deferred retirement allowance, the member's accumulated contributions are paid to the estate or to the named beneficiary.	(31702)
Plan E:	Same as service retirement allowance at normal retirement age 65 or in an actuarially equivalent reduced amount at early retirement, after age 55.	(31491)

TRANSFERS BETWEEN PLAN D AND PLAN E

Members in Plan D may transfer to Plan E on a prospective basis. Members in Plan E may transfer to Plan D on a prospective basis. (31494.2, 31494.5)

RECIPROCITY

All Plans:	Reciprocal benefits are may be granted to members who are entitled to retirement benefits from two or more retirement plans established under the CERL or from a County retirement plan and the California Public Employees' Retirement System (CalPERS). Reciprocity also applies to the members of the State Teachers' Retirement System Defined Benefit Plan.	(31830, 31840.4, 31840.8)
	Final Compensation may be based on service with CalPERS or another County retirement plan, if greater.	
	Vested former members are eligible for disability and death benefits from LACERA, if disabled while a member of CalPERS or another County retirement plan, but combined benefits are limited.	(31835)

TRANSFER FROM CALPERS

Whenever firefighting or law enforcement functions performed by a city of the state subject to the California Public Employees Retirement Law are transferred to the County, fire authority, or district, employees performing those functions become members of LACERA. LACERA and CalPERS may enter into an agreement whereby the members' service credit plus the members' and the cities' or states' retirement contributions are transferred from CalPERS to LACERA. (31657)

COST-OF-LIVING INCREASES

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest ½ of 1%. (31870, 31870.1)

Plan A:	Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.	
Plans B-D, G:	Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. When the CPI exceeds 2% or 3%, the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation. It may be used in future years to provide cost-of-living increases when the CPI falls below 2% or 3%, depending on the retirement plan.	(31870, 31870.1)
Plan E:	Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase. The 2% is pro-rated based on service earned after June 4, 2002. "Elective COLA" increases for service earned prior to June 4, 2002 may be purchased by the member.	(31495.5)

STAR PROGRAM

Contributory plan members who have a COLA Accumulation of more than 20% resulting from CPI increases that exceeded the maximum cost-of-living increases that could be granted are eligible for a supplemental cost-of-living increase effective January 1 known as the Supplemental Targeted Adjustment for Retirees Cost-of-Living Adjustment (STAR COLA). These benefits are not evaluated in this report, or as part of the actuarially required funding amount, unless they have been vested by the Board of Retirement. (31874.3(b))

Appendix C Valuation Data and Schedules

On the following table, Exhibit C-1, we present a summary of LACERA membership at June 30, 2018 for active members. Similar information is shown in Exhibit C-2 Retired for retired members and C-2 Former for vested former members.

The number of total active members increased by 1.3% and the total salary increased by 4.3% since the last valuation. The total number of retired members and their beneficiaries increased by 2.5%, while the average retirement benefit amount increased by 3.5%.

Note that salary amounts shown are the prior year annual pensionable earnings for those members of plans with a one-year final compensation period. For plans with a three-year final compensation period, the monthly rate of pay at June 2018 is shown.

Additional statistical data on both active and retired members is shown in the following tables. Additional detailed summaries are supplied to LACERA staff in a supplementary report.

Exhibit C-3: Age Distribution of Active Members

Exhibit C-4: Age, Service, Compensation Distribution of Active Members

Exhibit C-5: Age, Retirement Year, Benefit Amount and Plan Distribution of Retired Members

Exhibits C-4 and C-5 are shown for all plans combined as well as for each plan separately.

Data on LACERA membership as of June 30, 2018 was supplied to us by LACERA staff. Based on our review of this data and discussions with LACERA staff, all retiree and beneficiary records were included in our valuation.

All records for active and former members supplied by LACERA were included in the valuation.

Exhibit C-1 LACERA Membership – Active Members as of June 30, 2018

	Sex	Vested	NonVested	Total Number	Annual Salary	Average Age	Average Monthly Salary	Average Credited Service
General Members								
Plan A	M	44	-	44	$ 5,599,644	71.9	$ 10,605	38.4
	F	93	-	93	7,819,668	68.2	7,007	37.9
Plan B	M	10	-	10	1,067,736	67.0	8,898	34.9
	F	33	-	33	3,032,580	63.8	7,658	37.8
Plan C	M	13	-	13	1,196,784	64.5	7,672	37.7
	F	42	-	42	3,864,624	64.2	7,668	38.4
Plan D	M	14,078	139	14,217	1,306,084,428	50.0	7,656	17.5
	F	29,026	259	29,285	2,438,644,056	49.5	6,939	17.6
Plan E	M	5,295	614	5,909	511,440,168	54.2	7,213	21.2
	F	11,583	945	12,528	895,311,336	54.1	5,955	22.2
Plan G	M	508	7,428	7,936	514,077,516	37.6	5,398	2.5
	F	978	14,615	15,593	922,174,788	36.9	4,928	2.4
Total		61,703	24,000	85,703	$ 6,610,313,328	47.2	$ 6,428	14.4
Safety Members								
Plan A	M	5	-	5	$ 648,912	63.0	$ 10,815	36.2
	F	-	-	-	-	N/A	N/A	N/A
Plan B	M	8,711	76	8,787	1,071,403,620	45.4	10,161	18.8
	F	1,459	15	1,474	169,972,764	43.0	9,609	16.5
Plan C	M	97	2,081	2,178	180,990,156	30.7	6,925	2.2
	F	13	314	327	28,441,872	30.4	7,248	2.5
Total		10,285	2,486	12,771	$ 1,451,457,324	42.2	$ 9,471	15.3
Grand Total		71,988	26,486	98,474	$ 8,061,770,652	46.6	$ 6,822	14.5

Exhibit C-2 Retired LACERA Membership – Retired Members as of June 30, 2018

	Sex	Number	Annual Allowance	Average Age	Average Monthly Benefit
General Members					
Plan A	M	8,146	$ 537,515,892	79.1	$ 5,499
	F	13,975	652,764,269	79.1	3,892
Plan B	M	233	14,405,198	73.9	5,152
	F	519	25,742,797	73.4	4,133
Plan C	M	147	7,780,098	72.1	4,410
	F	343	14,146,098	73.6	3,437
Plan D	M	5,453	227,046,064	68.5	3,470
	F	10,033	358,512,600	68.3	2,978
Plan E	M	4,411	131,520,889	71.9	2,485
	F	9,019	222,101,711	71.6	2,052
Plan G	M	5	164,156	75.4	2,736
	F	8	105,946	64.6	1,104
Total		52,292	$ 2,191,805,718	73.9	$ 3,493
Safety Members					
Plan A	M	4,985	$ 490,156,398	75.4	$ 8,194
	F	2,023	135,663,165	77.6	5,588
Plan B	M	4,532	410,322,062	59.7	7,545
	F	1,044	67,240,724	56.5	5,367
Plan C	M	3	506,648	54.7	14,074
	F	1	33,179	32.0	2,765
Total		12,588	$ 1,103,922,176	68.5	$ 7,308
Grand Total		64,880	$ 3,295,727,894	72.8	$ 4,233

Exhibit C-2 Former LACERA Membership – Vested Former Members as of June 30, 2018[1]
Subtotaled by Plan and Retirement Type

	Sex	Number	Average Age
General Members			
Plan A	M	25	71.4
	F	47	70.2
Plan B	M	4	72.0
	F	13	66.8
Plan C	M	5	65.0
	F	15	63.6
Plan D	M	2,586	48.2
	F	5,397	47.3
Plan E	M	1,059	56.5
	F	2,400	56.4
Plan G	M	705	37.0
	F	1,675	36.2
Total		13,931	48.1
Safety Members			
Plan A	M	5	67.8
	F	-	-
Plan B	M	709	42.0
	F	128	42.0
Plan C	M	118	31.0
	F	15	34.0
Total		975	40.7
Grand Total		14,906	47.6

1. *Includes non-vested former members who still have member contributions with LACERA.*

Exhibit C-2a LACERA Membership – Retired Members as of June 30, 2018 Subtotaled by Plan and Retirement Type

Plan	Retirement Type	Number		Annual Benefits in Thousands		Average Monthly Benefit
General Plans:						
Plan A						
	Healthy	15,986	$	974,208	$	5,078
	Disabled	1,612		63,299		3,272
	Beneficiaries	4,523		152,774		2,815
	Total	22,121	$	1,190,281	$	4,484
Plan B						
	Healthy	626	$	35,986	$	4,790
	Disabled	58		2,033		2,921
	Beneficiaries	68		2,129		2,609
	Total	752	$	40,148	$	4,449
Plan C						
	Healthy	376	$	18,806	$	4,168
	Disabled	51		1,680		2,745
	Beneficiaries	63		1,440		1,904
	Total	490	$	21,926	$	3,729
Plan D						
	Healthy	12,235	$	493,838	$	3,364
	Disabled	1,958		64,848		2,760
	Beneficiaries	1,293		26,872		1,732
	Total	15,486	$	585,558	$	3,151
Plan E						
	Healthy	12,343	$	339,182	$	2,290
	Disabled	N/A		N/A		N/A
	Beneficiaries	1,087		14,440		1,107
	Total	13,430	$	353,622	$	2,194
Plan G						
	Healthy	11	$	218	$	1,654
	Disabled	1		48		3,977
	Beneficiaries	1		4		339
	Total	13	$	270	$	1,731
Safety Plans:						
Plan A						
	Healthy	2,322	$	238,838	$	8,572
	Disabled	3,109		286,433		7,678
	Beneficiaries	1,577		100,549		5,313
	Total	7,008	$	625,820	$	7,442
Plan B						
	Healthy	2,395	$	231,860	$	8,067
	Disabled	2,916		231,404		6,613
	Beneficiaries	265		14,299		4,497
	Total	5,576	$	477,563	$	7,137
Plan C						
	Healthy	2	$	473	$	19,718
	Disabled	2		67		2,775
	Beneficiaries	0		0		N/A
	Total	4	$	540	$	11,246
Grand Totals		64,880		3,295,728		4,233

Exhibit C-2b LACERA Membership – Retired Members as of June 30, 2018 Subtotaled by Retirement Type and Plan

Type	Plan	Number	Annual Benefits in Thousands	Average Monthly Benefit
Healthy Retirees				
	General A	15,986	$ 974,208	$ 5,078
	General B	626	35,986	4,790
	General C	376	18,806	4,168
	General D	12,235	493,838	3,364
	General E	12,343	339,182	2,290
	General G	11	218	1,654
	Safety A	2,322	238,838	8,572
	Safety B	2,395	231,860	8,067
	Safety C	2	473	19,718
	Total	46,296	$ 2,333,409	$ 4,200
Disabled Retirees				
	General A	1,612	$ 63,299	$ 3,272
	General B	58	2,033	2,921
	General C	51	1,680	2,745
	General D	1,958	64,848	2,760
	General E	N/A	N/A	N/A
	General G	1	48	3,977
	Safety A	3,109	286,433	7,678
	Safety B	2,916	231,404	6,613
	Safety C	2	67	2,775
	Total	9,707	$ 649,812	$ 5,579
Beneficiaries				
	General A	4,523	$ 152,774	$ 2,815
	General B	68	2,129	2,609
	General C	63	1,440	1,904
	General D	1,293	26,872	1,732
	General E	1,087	14,440	1,107
	General G	1	4	339
	Safety A	1,577	100,549	5,313
	Safety B	265	14,299	4,497
	Safety C	0	0	N/A
	Total	8,877	$ 312,507	$ 2,934
Grand Totals		64,880	$ 3,295,728	$ 4,233

Exhibit C-3 Age Distribution of Active Members as of June 30, 2018

	Age Groups						
	0-29	30-39	40-49	50-59	60-69	70+	Total
General Plans:							
Plan A							
Male	-	-	-	-	17	27	44
Female	-	-	-	-	63	30	93
Plan B							
Male	-	-	-	-	8	2	10
Female	-	-	-	4	26	3	33
Plan C							
Male	-	-	-	1	10	2	13
Female	-	-	-	11	24	7	42
Plan D							
Male	62	2,269	4,560	4,772	2,284	270	14,217
Female	80	4,969	9,724	9,668	4,424	420	29,285
Plan E							
Male	10	542	1,325	2,032	1,689	311	5,909
Female	17	1,003	2,714	4,886	3,491	417	12,528
Plan G							
Male	1,801	3,403	1,577	864	271	20	7,936
Female	3,730	6,940	2,956	1,544	405	18	15,593
Safety Plans:							
Plan A							
Male	-	-	-	-	5	-	5
Female	-	-	-	-	-	-	-
Plan B							
Male	121	2,177	3,400	2,916	168	5	8,787
Female	32	500	606	324	12	-	1,474
Plan C							
Male	1,109	907	118	41	3	-	2,178
Female	170	135	19	3	-	-	327
Grand Totals:	7,132	22,845	26,999	27,066	12,900	1,532	98,474

Exhibit C-4 Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
All Plans

Count

	Years of Service												Total
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Count
Under 25	476	250	122	24	8	1	-	-	-	-	-	-	881
25-29	1,659	1,624	1,224	806	471	447	19	1	-	-	-	-	6,251
30-34	1,324	1,436	1,405	1,314	1,082	2,469	1,404	40	-	-	-	-	10,474
35-39	898	936	910	793	692	2,673	4,451	963	53	2	-	-	12,371
40-44	558	584	514	508	474	1,737	3,966	3,664	867	74	-	-	12,946
45-49	376	384	414	351	343	1,244	2,926	3,826	2,690	1,368	129	2	14,053
50-54	295	288	267	250	266	893	2,067	2,770	2,302	3,457	1,495	165	14,515
55-59	197	179	176	203	200	746	1,738	2,119	1,529	2,436	2,104	924	12,551
60-64	77	78	104	93	117	532	1,189	1,572	1,125	1,427	1,326	1,490	9,130
65 & Over	16	46	25	48	44	306	810	1,139	791	747	526	804	5,302
Total Count	5,876	5,805	5,161	4,390	3,697	11,048	18,570	16,094	9,357	9,511	5,580	3,385	98,474

Compensation

	Years of Service												Average
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Comp.
Under 25	50,181	55,095	58,238	56,869	66,228	47,088	-	-	-	-	-	-	53,016
25-29	51,378	57,188	58,160	61,252	64,919	71,093	69,444	52,404	-	-	-	-	57,974
30-34	57,475	61,297	61,560	65,084	68,688	76,324	78,229	90,232	-	-	-	-	68,010
35-39	62,052	63,924	66,198	71,938	73,170	83,417	82,741	85,267	91,920	117,408	-	-	77,758
40-44	59,248	63,977	69,108	67,857	74,318	86,083	83,360	88,474	97,631	107,580	-	-	82,848
45-49	60,545	66,494	67,034	68,391	69,256	84,556	84,027	89,811	100,766	103,075	105,796	115,986	88,552
50-54	64,768	61,910	66,771	66,235	71,278	78,694	77,858	84,704	96,772	106,223	104,915	112,447	91,044
55-59	63,989	64,406	65,916	68,646	68,678	78,874	74,204	79,919	93,804	98,064	105,301	100,290	89,004
60-64	67,876	71,569	69,023	63,832	68,859	82,272	72,473	78,045	87,886	89,227	102,308	92,555	85,911
65 & Over	70,826	107,812	124,436	83,435	61,670	85,142	73,494	74,171	81,114	82,870	95,089	94,987	82,693
Avg. Annual Compensation	$ 56,984	$ 61,550	$ 63,557	$ 66,563	$ 69,924	$ 81,182	$ 80,318	$ 84,796	$ 95,095	$ 99,309	$ 103,535	$ 96,227	$ 81,867

Exhibit C-4a Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 General Plan A

Count

	Years of Service												Total
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	2	5	3	1	18	29
65 & Over	-	-	-	-	-	1	5	6	11	6	4	75	108
Total Count	-	-	-	-	-	1	5	8	16	9	5	93	137

Compensation

	Years of Service												Average
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	37,620	89,162	64,028	97,248	83,635	79,855
65 & Over	-	-	-	-	-	96,948	97,229	125,666	89,463	92,510	114,972	103,565	102,810
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ 96,948	$ 97,229	$ 103,655	$ 89,369	$ 83,016	$ 111,427	$ 99,707	$ 97,951

Exhibit C-4b Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 General Plan B

Count

	Years of Service												Total
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	4	4
60-64	-	-	-	-	-	-	-	-	1	-	1	15	17
65 & Over	-	-	-	-	-	-	-	2	2	2	-	16	22
Total Count	-	-	-	-	-	-	-	2	3	2	1	35	43

Compensation

	Years of Service												Average
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	78,354	78,354
60-64	-	-	-	-	-	-	-	-	56,400	-	86,580	91,733	89,351
65 & Over	-	-	-	-	-	-	-	129,342	100,962	128,598	-	96,883	103,088
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 129,342	$ 86,108	$ 128,598	$ 86,580	$ 92,558	$ 95,356

Exhibit C-4c Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
General Plan C

Count

Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
	Years of Service												
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	1	-	-	11	12
60-64	-	-	-	-	-	-	-	-	-	-	2	18	20
65 & Over	-	-	-	-	-	-	-	1	-	-	1	21	23
Total Count	-	-	-	-	-	-	-	1	1	-	3	50	55

Compensation

Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
	Years of Service												
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	61,920	-	-	76,190	75,001
60-64	-	-	-	-	-	-	-	-	-	-	92,148	85,938	86,559
65 & Over	-	-	-	-	-	-	-	130,236	-	-	195,972	100,191	105,662
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 130,236	$ 61,920	$ -	$ 126,756	$ 89,780	$ 92,026

Exhibit C-4d Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 General Plan D

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	1	-	-	1	2	127	10	1	-	-	-	-	142
30-34	6	9	10	14	18	1,281	684	33	-	-	-	-	2,055
35-39	10	21	20	19	27	1,667	2,791	582	45	1	-	-	5,183
40-44	4	16	9	15	29	1,148	2,666	2,235	525	55	-	-	6,702
45-49	5	19	16	11	13	839	2,012	2,393	1,475	709	88	2	7,582
50-54	6	13	10	10	11	610	1,430	1,795	1,382	1,532	657	130	7,586
55-59	3	3	3	9	8	453	1,205	1,408	975	1,302	984	501	6,854
60-64	1	5	5	4	6	337	842	990	744	767	624	491	4,816
65 & Over	-	1	3	2	-	171	522	686	461	381	209	146	2,582
Total Count	36	87	76	85	114	6,633	12,162	10,123	5,607	4,747	2,562	1,270	43,502

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	131,160	-	-	49,512	78,510	57,363	57,290	52,404	-	-	-	-	58,086
30-34	64,554	79,369	72,289	72,032	78,640	72,801	65,362	88,363	-	-	-	-	70,623
35-39	67,320	67,841	90,031	97,470	75,673	81,602	78,014	79,536	87,671	76,992	-	-	79,466
40-44	92,304	84,002	89,060	72,678	91,488	86,829	81,617	84,757	90,314	103,135	-	-	84,460
45-49	93,324	111,563	86,087	81,667	115,117	83,958	83,587	87,970	95,166	93,612	100,008	115,986	88,534
50-54	148,566	84,747	100,410	66,058	105,572	77,834	77,918	85,305	93,898	95,288	99,321	107,452	88,560
55-59	109,420	126,356	134,512	65,101	119,750	81,157	77,158	82,508	95,614	95,344	104,800	105,292	90,721
60-64	66,264	80,539	101,626	145,641	113,070	83,706	74,844	82,705	91,601	90,420	109,161	105,120	89,821
65 & Over	-	42,564	71,028	113,412	-	79,426	75,783	76,602	82,565	85,901	105,776	115,796	83,647
Avg. Annual Compensation	$ 92,040	$ 86,537	$ 89,886	$ 81,815	$ 92,659	$ 80,315	$ 78,586	$ 84,256	$ 92,908	$ 93,600	$ 104,372	$ 106,671	$ 86,082

Exhibit C-4e Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 General Plan E

Count

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	1	25	1	-	-	-	-	-	27
30-34	-	-	-	-	-	231	218	1	-	-	-	-	450
35-39	-	-	-	-	-	306	650	139	-	-	-	-	1,095
40-44	-	-	-	-	-	230	702	673	88	3	-	-	1,696
45-49	-	-	-	-	1	198	576	794	499	258	17	-	2,343
50-54	-	-	-	-	-	159	474	697	529	872	460	14	3,205
55-59	-	-	-	-	-	176	492	626	434	819	838	328	3,713
60-64	-	-	-	-	-	131	331	559	350	618	674	910	3,573
65 & Over	-	-	-	-	-	101	281	443	311	352	308	539	2,335
Total Count	-	-	-	-	2	1,557	3,725	3,932	2,211	2,922	2,297	1,791	18,437

Compensation

Age	Years of Service 0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	56,844	54,574	65,184	-	-	-	-	-	55,051
30-34	-	-	-	-	-	62,492	58,978	43,764	-	-	-	-	60,748
35-39	-	-	-	-	-	72,746	65,369	61,677	-	-	-	-	66,962
40-44	-	-	-	-	-	77,210	68,826	69,769	73,365	69,016	-	-	70,573
45-49	-	-	-	-	52,272	80,021	71,206	71,912	80,288	74,006	85,552	-	74,529
50-54	-	-	-	-	-	76,489	65,239	69,015	81,784	83,439	74,844	80,473	75,746
55-59	-	-	-	-	-	70,850	63,561	68,577	80,786	87,290	88,752	79,376	79,082
60-64	-	-	-	-	-	80,438	64,472	68,504	77,384	85,022	94,412	83,071	80,892
65 & Over	-	-	-	-	-	94,618	68,367	68,938	77,623	78,469	86,892	87,263	79,172
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ 54,558	$ 74,751	$ 66,440	$ 69,312	$ 79,634	$ 83,407	$ 87,354	$ 83,636	$ 76,300

Exhibit C-4f Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 General Plan G

Count

	Years of Service												Total
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Count
Under 25	338	168	79	17	4	1	-	-	-	-	-	-	607
25-29	1,396	1,322	1,022	688	364	131	1	-	-	-	-	-	4,924
30-34	1,194	1,236	1,255	1,164	914	435	3	-	-	-	-	-	6,201
35-39	829	838	819	721	629	306	-	-	-	-	-	-	4,142
40-44	537	541	480	476	428	165	8	-	-	-	-	-	2,635
45-49	360	357	388	331	324	132	5	1	-	-	-	-	1,898
50-54	284	272	255	235	250	90	3	1	-	-	-	-	1,390
55-59	193	175	170	189	183	103	4	1	-	-	-	-	1,018
60-64	76	73	99	88	110	58	4	1	-	-	-	-	509
65 & Over	15	45	22	46	44	32	-	1	-	-	-	-	205
Total Count	5,222	5,027	4,589	3,955	3,250	1,453	28	5	-	-	-	-	23,529

Compensation

	Years of Service												Average
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Comp.
Under 25	42,541	45,384	44,424	44,481	43,659	47,088	-	-	-	-	-	-	43,642
25-29	47,410	51,804	52,753	56,262	56,622	57,696	33,456	-	-	-	-	-	51,887
30-34	55,779	58,225	58,593	61,989	64,474	65,608	57,644	-	-	-	-	-	59,974
35-39	60,849	62,252	63,902	69,799	71,810	77,275	-	-	-	-	-	-	66,173
40-44	58,399	62,411	67,703	66,814	72,222	72,779	71,414	-	-	-	-	-	65,623
45-49	58,881	63,671	65,615	67,290	67,156	84,941	86,282	34,956	-	-	-	-	65,910
50-54	62,364	60,513	64,508	65,339	69,339	78,969	150,308	198,984	-	-	-	-	65,516
55-59	62,784	63,096	62,875	66,579	63,860	76,013	160,758	105,168	-	-	-	-	65,516
60-64	67,898	70,955	67,376	60,003	66,015	74,753	80,700	97,152	-	-	-	-	67,402
65 & Over	63,407	109,262	131,719	82,132	61,670	84,221	-	249,648	-	-	-	-	88,790
Avg. Annual Compensation	$ 54,788	$ 58,551	$ 60,570	$ 63,974	$ 66,630	$ 72,250	$ 93,781	$ 137,182	$ -	$ -	$ -	$ -	$ 61,042

Exhibit C-4g Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 Safety Plan A

Count

	Years of Service												Total
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	1	-	-	3	4
65 & Over	-	-	-	-	-	-	-	-	-	-	-	1	1
Total Count	-	-	-	-	-	-	-	-	1	-	-	4	5

Compensation

	Years of Service												Average
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	150,528	-	-	124,772	131,211
65 & Over	-	-	-	-	-	-	-	-	-	-	-	124,068	124,068
Avg. Annual Compensation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 150,528	$ -	$ -	$ 124,596	$ 129,782

Exhibit C-4h Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018
Safety Plan B

Count

Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	1	2	1	2	3	137	7	-	-	-	-	-	153
30-34	3	9	3	7	5	491	498	6	-	-	-	-	1,022
35-39	6	4	11	4	-	369	1,010	242	8	1	-	-	1,655
40-44	1	4	5	4	5	187	589	755	254	16	-	-	1,820
45-49	4	1	-	1	1	68	333	637	716	401	24	-	2,186
50-54	-	-	1	1	-	32	159	277	391	1,053	378	21	2,313
55-59	-	-	-	1	-	9	37	84	119	315	282	80	927
60-64	-	-	-	-	-	5	12	20	24	39	24	35	159
65 & Over	1	-	-	-	-	1	2	-	6	6	4	6	26
Total Count	16	20	21	20	14	1,299	2,647	2,021	1,518	1,831	712	142	10,261

Compensation

Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	70,272	75,684	70,500	83,442	101,232	95,571	92,556	-	-	-	-	-	94,796
30-34	75,436	81,683	92,916	92,546	95,782	100,152	104,412	108,256	-	-	-	-	101,945
35-39	93,850	86,442	89,933	101,247	-	104,503	106,985	112,600	115,818	157,824	-	-	107,101
40-44	71,676	86,283	96,778	105,201	101,570	103,711	108,714	116,156	121,160	130,088	-	-	113,082
45-49	123,825	105,456	-	98,172	99,372	103,275	108,829	119,118	126,574	138,510	141,356	-	123,285
50-54	-	-	274,416	93,300	-	103,778	113,485	119,879	127,207	140,999	151,233	164,688	135,656
55-59	-	-	-	318,384	-	129,891	110,141	120,747	126,712	137,315	156,231	159,115	141,127
60-64	-	-	-	-	-	112,740	124,058	117,072	124,332	134,346	147,601	168,446	138,712
65 & Over	182,112	-	-	-	-	123,072	136,938	-	128,720	123,740	122,727	147,182	133,378
Avg. Annual Compensation	$ 100,548	$ 84,143	$ 99,849	$ 107,518	$ 99,273	$ 101,942	$ 107,614	$ 117,350	$ 125,758	$ 139,535	$ 152,597	$ 161,735	$ 120,980

Exhibit C-4i Age and Service Distribution of Active Members by Count and Average Compensation as of June 30, 2018 Safety Plan C

Count

	Years of Service												
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Total Count
Under 25	138	82	43	7	4	-	-	-	-	-	-	-	274
25-29	261	300	201	115	101	27	-	-	-	-	-	-	1,005
30-34	121	182	137	129	145	31	1	-	-	-	-	-	746
35-39	53	73	60	49	36	25	-	-	-	-	-	-	296
40-44	16	23	20	13	12	7	1	1	-	-	-	-	93
45-49	7	7	10	8	4	7	-	1	-	-	-	-	44
50-54	5	3	1	4	5	2	1	-	-	-	-	-	21
55-59	1	1	3	4	9	5	-	-	-	-	-	-	23
60-64	-	-	-	1	1	1	-	-	-	-	-	-	3
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	602	671	475	330	317	105	3	2	-	-	-	-	2,505

Compensation

	Years of Service												
Age	0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	Average Comp.
Under 25	68,894	74,990	83,618	86,954	88,797	-	-	-	-	-	-	-	73,781
25-29	72,228	80,791	85,590	90,821	93,552	91,774	-	-	-	-	-	-	82,252
30-34	73,420	80,258	87,270	90,770	93,083	97,973	99,480	-	-	-	-	-	85,509
35-39	76,263	80,759	85,248	91,111	95,059	99,037	-	-	-	-	-	-	85,860
40-44	78,727	83,006	86,932	88,989	96,226	98,009	94,164	82,452	-	-	-	-	86,900
45-49	86,563	82,565	91,592	91,988	86,970	95,429	-	95,268	-	-	-	-	89,702
50-54	100,776	89,644	99,648	112,512	92,760	102,774	91,380	-	-	-	-	-	99,202
55-59	160,128	107,952	169,668	111,834	121,237	121,582	-	-	-	-	-	-	127,107
60-64	-	-	-	73,536	116,388	122,880	-	-	-	-	-	-	104,268
65 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-
Avg. Annual Compensation	$ 72,781	$ 80,109	$ 86,596	$ 91,184	$ 94,313	$ 97,918	$ 95,008	$ 88,860	$ -	$ -	$ -	$ -	$ 83,606

Exhibit C-5 Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
All Plans

	Retirement Year											
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	1	2	16	16	88	123	$ 1,003
35-39	-	-	-	-	-	-	2	9	27	51	89	2,651
40-44	-	-	-	-	-	1	8	31	78	91	209	2,954
45-49	-	-	-	-	1	11	70	72	115	126	395	3,223
50-54	-	-	-	1	42	105	136	136	261	573	1,254	3,196
55-59	-	-	2	21	83	151	178	196	872	2,065	3,568	5,112
60-64	-	4	29	65	114	155	222	820	2,662	2,590	6,661	4,647
65-69	4	32	82	103	127	238	841	2,700	3,837	3,952	11,916	4,395
70-74	13	126	223	187	286	1,033	2,966	3,332	3,740	1,767	13,673	4,495
75-79	40	144	186	259	916	2,030	2,593	2,138	1,310	1,001	10,617	4,325
80-84	75	126	221	694	1,508	1,469	1,360	750	497	865	7,565	3,861
85-89	91	159	527	804	1,215	742	406	280	283	644	5,151	3,614
90-94	72	254	448	489	458	193	143	151	168	300	2,676	3,303
95-99	47	150	180	150	77	52	50	44	49	61	860	2,904
100 & Over	24	24	32	9	8	6	5	3	7	5	123	2,235
Total Count	366	1,019	1,930	2,782	4,835	6,187	8,982	10,678	13,922	14,179	**64,880**	
Avg Monthly Benefit	$ 2,204	$ 2,881	$ 2,972	$ 3,418	$ 4,259	$ 4,157	$ 4,833	$ 4,211	$ 4,317	$ 4,293		**$ 4,233**

Exhibit C-5a Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan A

Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	4	2	11	17	$ 424
35-39	-	-	-	-	-	-	1	3	3	-	7	1,975
40-44	-	-	-	-	-	-	-	4	5	-	9	2,260
45-49	-	-	-	-	-	-	-	4	3	6	13	2,765
50-54	-	-	-	1	1	1	3	3	4	3	16	2,123
55-59	-	-	-	1	-	5	3	10	7	17	43	2,668
60-64	-	2	5	6	2	13	28	77	209	145	487	4,733
65-69	2	20	31	28	24	76	300	758	896	210	2,345	5,240
70-74	6	56	77	64	112	545	1,219	1,389	504	294	4,266	5,358
75-79	23	72	85	120	644	1,003	1,512	538	214	421	4,632	4,958
80-84	43	82	129	542	991	968	546	171	135	499	4,106	4,207
85-89	49	108	411	567	987	393	137	116	124	440	3,332	3,718
90-94	45	198	359	430	354	106	84	86	105	241	2,008	3,247
95-99	41	132	174	140	50	42	35	35	33	47	729	2,888
100 & Over	22	24	32	8	6	3	4	2	6	4	111	2,340
Total Count	231	694	1,303	1,907	3,171	3,155	3,872	3,200	2,250	2,338	**22,121**	
Avg Monthly Benefit	$ 1,667	$ 2,366	$ 2,434	$ 2,971	$ 4,148	$ 4,228	$ 5,707	$ 5,781	$ 5,721	$ 3,577		**$ 4,484**

Exhibit C-5b Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan B

Age	Retirement Year Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	-	-	-	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	1	1	2,632
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	2	1	1	4	1,515
60-64	-	-	-	-	1	1	2	15	31	46	96	5,097
65-69	-	-	-	3	3	2	11	39	86	44	188	5,843
70-74	-	-	2	4	4	16	30	47	50	10	163	4,555
75-79	-	-	1	3	2	11	40	29	16	5	107	4,153
80-84	-	-	1	2	8	19	27	19	7	4	87	3,679
85-89	-	-	2	5	12	26	7	3	1	9	65	2,439
90-94	-	-	2	6	11	5	3	2	-	6	35	1,998
95-99	-	-	-	2	2	-	-	-	-	1	5	2,590
100 & Over	-	-	-	-	-	-	-	-	-	1	1	761
Total Count	-	-	8	25	43	80	120	156	192	128	**752**	
Avg Monthly Benefit	$ -	$ -	$ 1,460	$ 1,284	$ 1,956	$ 2,469	$ 3,513	$ 4,507	$ 6,105	$ 5,652		**$ 4,449**

Exhibit C-5c Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan C

	Retirement Year											
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	-	2	2	$ 4,809
35-39	-	-	-	-	-	-	-	-	1	-	1	1,560
40-44	-	-	-	-	-	-	-	-	1	-	1	1,275
45-49	-	-	-	-	-	-	-	-	1	-	1	1,560
50-54	-	-	-	-	-	-	-	-	-	1	1	1,234
55-59	-	-	-	-	-	-	1	-	2	5	8	3,737
60-64	-	-	1	4	-	1	-	7	13	28	54	4,332
65-69	-	1	3	2	2	3	16	16	52	29	124	5,218
70-74	-	-	2	2	4	7	11	31	32	9	98	4,234
75-79	-	-	-	4	8	10	18	20	14	3	77	2,871
80-84	-	-	-	6	8	11	23	7	4	5	64	2,459
85-89	-	-	2	3	8	11	4	4	-	4	36	2,050
90-94	-	-	-	3	9	1	-	1	1	4	19	1,445
95-99	-	-	-	-	2	-	-	-	-	2	4	1,633
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	1	8	24	41	44	73	86	121	92	**490**	
Avg Monthly Benefit	$ -	$ 1,773	$ 1,449	$ 972	$ 1,347	$ 1,988	$ 2,768	$ 3,312	$ 5,673	$ 5,158		**$ 3,729**

Exhibit C-5d Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan D

	Retirement Year											Average
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Monthly Benefit
Under 35	-	-	-	-	-	-	1	3	7	32	43	$ 578
35-39	-	-	-	-	-	-	-	4	9	18	31	1,797
40-44	-	-	-	-	-	1	1	6	33	25	66	2,020
45-49	-	-	-	-	1	3	19	17	40	44	124	2,194
50-54	-	-	-	-	6	10	30	46	132	342	566	1,936
55-59	-	-	-	1	9	37	53	83	467	674	1,324	2,531
60-64	-	-	3	8	27	48	87	409	786	1,320	2,688	3,342
65-69	-	1	3	15	27	56	240	499	1,331	1,706	3,878	3,745
70-74	-	-	2	10	32	150	288	706	1,359	725	3,272	3,389
75-79	-	-	3	13	47	142	324	627	503	227	1,886	2,933
80-84	-	-	3	14	47	133	310	247	146	94	994	2,453
85-89	-	-	3	9	39	130	117	67	47	55	467	2,260
90-94	-	-	1	7	27	30	9	13	10	17	114	1,682
95-99	-	1	-	3	11	2	4	1	3	5	30	1,615
100 & Over	-	-	-	1	-	1	-	1	-	-	3	1,937
Total Count	-	2	18	81	273	743	1,483	2,729	4,873	5,284	**15,486**	
Avg Monthly Benefit	$ -	$ 5,566	$ 1,599	$ 1,516	$ 1,659	$ 1,944	$ 2,295	$ 2,677	$ 3,387	$ 3,694		**$ 3,151**

Exhibit C-5e Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan E

Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	1	-	4	3	11	19	$ 506
35-39	-	-	-	-	-	-	1	1	4	5	11	1,254
40-44	-	-	-	-	-	-	-	1	9	16	26	1,555
45-49	-	-	-	-	-	-	1	2	11	12	26	1,175
50-54	-	-	-	-	-	-	2	7	17	11	37	904
55-59	-	-	-	-	-	-	1	4	70	317	392	987
60-64	-	-	-	-	-	-	4	85	585	609	1,283	1,536
65-69	-	-	-	-	-	4	71	645	1,149	1,833	3,702	2,691
70-74	-	-	-	-	1	41	440	831	1,709	602	3,624	2,506
75-79	-	-	-	-	11	247	419	892	512	210	2,291	2,113
80-84	-	-	-	6	84	196	425	279	166	120	1,276	1,715
85-89	-	-	1	27	81	166	109	54	62	35	535	1,284
90-94	-	-	2	14	49	37	19	20	20	8	169	1,188
95-99	-	-	-	5	10	4	5	3	6	2	35	599
100 & Over	-	-	-	-	2	2	-	-	-	-	4	450
Total Count	-	-	3	52	238	698	1,497	2,828	4,323	3,791	**13,430**	
Avg Monthly Benefit	$ -	$ -	$ 266	$ 312	$ 666	$ 832	$ 1,297	$ 1,687	$ 2,552	$ 2,893		**$ 2,194**

Exhibit C-5f Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
General Plan G

Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	-	-	-	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	6	6	1,019
65-69	-	-	-	-	-	-	-	-	-	1	1	3,977
70-74	-	-	-	-	-	-	-	-	-	3	3	1,219
75-79	-	-	-	-	-	-	-	-	-	2	2	3,408
80-84	-	-	-	-	-	-	-	-	-	1	1	1,944
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	-	13	**13**	
Avg Monthly Benefit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,731		**$ 1,731**

Exhibit C-5g Distribution of Retired Members by Age and Retirement Year as of June 30, 2018
Safety Plan A

Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	2	5	7	$ -
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	1	1	2	6,284
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	1	1	3	-	1	2	8	5,371
55-59	-	-	-	-	2	-	2	-	6	9	19	6,180
60-64	-	2	7	11	5	9	9	40	129	30	242	9,471
65-69	2	10	41	33	41	67	150	482	111	71	1,008	8,739
70-74	7	70	133	101	118	250	920	242	52	109	2,002	7,945
75-79	17	72	96	119	201	614	266	29	48	128	1,590	7,410
80-84	32	44	88	123	369	140	29	27	37	141	1,030	6,612
85-89	42	51	107	192	85	16	31	36	49	99	708	5,987
90-94	27	56	84	29	8	14	28	29	32	24	331	5,526
95-99	6	17	6	-	2	4	6	5	7	4	57	5,319
100 & Over	2	-	-	-	-	-	1	-	1	-	4	1,704
Total Count	135	322	562	608	832	1,115	1,445	890	476	623	**7,008**	
Avg Monthly Benefit	$ 3,124	$ 3,976	$ 4,354	$ 5,647	$ 7,082	$ 7,866	$ 9,226	$ 9,624	$ 8,417	$ 6,426		**$ 7,442**

Exhibit C-5h Distribution of Retired Members by Age and Retirement Year as of June 30, 2018 Safety Plan B

	Retirement Year											
Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	1	5	2	25	33	$ 2,017
35-39	-	-	-	-	-	-	-	1	10	28	39	3,872
40-44	-	-	-	-	-	-	7	20	29	49	105	3,899
45-49	-	-	-	-	-	8	50	49	60	63	230	4,044
50-54	-	-	-	-	34	93	98	80	107	214	626	4,473
55-59	-	-	2	19	72	109	118	97	319	1,042	1,778	8,005
60-64	-	-	13	36	79	83	92	187	909	406	1,805	8,131
65-69	-	-	4	22	30	30	53	261	212	57	669	7,502
70-74	-	-	7	6	15	24	58	86	33	15	244	5,520
75-79	-	-	1	-	3	3	14	3	3	5	32	4,095
80-84	-	-	-	1	1	2	-	-	2	1	7	2,899
85-89	-	-	1	1	3	-	1	-	-	2	8	1,609
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	28	85	237	352	492	789	1,686	1,907	**5,576**	
Avg Monthly Benefit	$ -	$ -	$ 2,315	$ 2,514	$ 3,365	$ 3,682	$ 4,082	$ 6,123	$ 8,194	$ 8,794		**$ 7,137**

Exhibit C-5i Distribution of Retired Members and Beneficiaries by Age and Retirement Year as of June 30, 2018
Safety Plan C

Age	Pre-1975	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19	Total Count	Average Monthly Benefit
Under 35	-	-	-	-	-	-	-	-	-	2	2	$ 2,775
35-39	-	-	-	-	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-	-	1	1	22,270
70-74	-	-	-	-	-	-	-	-	1	-	1	17,165
75-79	-	-	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-	-	-
85-89	-	-	-	-	-	-	-	-	-	-	-	-
90-94	-	-	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-	-	-
Total Count	-	-	-	-	-	-	-	-	1	3	**4**	
Avg Monthly Benefit	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 17,165	$ 9,273		**$ 11,246**

Appendix D Member Contribution Rates

This section illustrates the member normal contribution rates and the normal plus cost-of-living contribution rates by entry age.

Exhibit D-1 Normal Member Contribution Rates

	General					Safety		
Entry Age	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	2.43%	4.86%	4.12%	4.12%	6.82%	3.63%	7.26%	10.65%
17	2.48%	4.97%	4.21%	4.21%	6.82%	3.63%	7.26%	10.65%
18	2.54%	5.08%	4.31%	4.31%	6.82%	3.63%	7.26%	10.65%
19	2.60%	5.19%	4.41%	4.41%	6.82%	3.70%	7.41%	10.65%
20	2.66%	5.31%	4.51%	4.51%	6.82%	3.78%	7.56%	10.65%
21	2.71%	5.43%	4.61%	4.61%	6.82%	3.86%	7.71%	10.65%
22	2.78%	5.55%	4.71%	4.71%	6.82%	3.94%	7.87%	10.65%
23	2.84%	5.68%	4.82%	4.82%	6.82%	4.02%	8.03%	10.65%
24	2.90%	5.80%	4.93%	4.93%	6.82%	4.10%	8.20%	10.65%
25	2.97%	5.93%	5.04%	5.04%	6.82%	4.18%	8.36%	10.65%
26	3.03%	6.06%	5.15%	5.15%	6.82%	4.27%	8.54%	10.65%
27	3.10%	6.20%	5.27%	5.27%	6.82%	4.36%	8.71%	10.65%
28	3.17%	6.34%	5.38%	5.38%	6.82%	4.45%	8.89%	10.65%
29	3.24%	6.48%	5.51%	5.51%	6.82%	4.54%	9.08%	10.65%
30	3.31%	6.63%	5.63%	5.63%	6.82%	4.63%	9.27%	10.65%
31	3.39%	6.78%	5.75%	5.75%	6.82%	4.73%	9.46%	10.65%
32	3.46%	6.93%	5.88%	5.88%	6.82%	4.83%	9.66%	10.65%
33	3.54%	7.09%	6.01%	6.01%	6.82%	4.94%	9.87%	10.65%
34	3.62%	7.25%	6.15%	6.15%	6.82%	5.04%	10.09%	10.65%
35	3.71%	7.41%	6.29%	6.29%	6.82%	5.15%	10.31%	10.65%
36	3.79%	7.59%	6.43%	6.43%	6.82%	5.27%	10.53%	10.65%
37	3.88%	7.76%	6.57%	6.57%	6.82%	5.37%	10.75%	10.65%
38	3.97%	7.93%	6.72%	6.72%	6.82%	5.48%	10.96%	10.65%
39	4.05%	8.11%	6.88%	6.88%	6.82%	5.59%	11.18%	10.65%
40	4.14%	8.28%	7.04%	7.04%	6.82%	5.69%	11.38%	10.65%
41	4.23%	8.46%	7.20%	7.20%	6.82%	5.79%	11.59%	10.65%
42	4.32%	8.63%	7.36%	7.36%	6.82%	5.89%	11.79%	10.65%
43	4.40%	8.80%	7.53%	7.53%	6.82%	5.99%	11.98%	10.65%
44	4.48%	8.97%	7.69%	7.69%	6.82%	6.08%	12.16%	10.65%
45	4.56%	9.13%	7.86%	7.86%	6.82%	6.15%	12.31%	10.65%
46	4.64%	9.28%	8.03%	8.03%	6.82%	6.21%	12.42%	10.65%
47	4.72%	9.43%	8.19%	8.19%	6.82%	6.21%	12.42%	10.65%
48	4.79%	9.57%	8.35%	8.35%	6.82%	6.21%	12.42%	10.65%
49	4.85%	9.70%	8.51%	8.51%	6.82%	6.21%	12.42%	10.65%
50	4.90%	9.79%	8.66%	8.66%	6.82%	6.21%	12.42%	10.65%
51	4.93%	9.85%	8.81%	8.81%	6.82%	6.21%	12.42%	10.65%
52	4.93%	9.87%	8.95%	8.95%	6.82%	6.21%	12.42%	10.65%
53	4.93%	9.87%	9.08%	9.08%	6.82%	6.21%	12.42%	10.65%
54	4.93%	9.87%	9.20%	9.20%	6.82%	6.21%	12.42%	10.65%
55	4.93%	9.87%	9.29%	9.29%	6.82%	6.21%	12.42%	10.65%
56	4.93%	9.87%	9.35%	9.35%	6.82%	6.21%	12.42%	10.65%
57	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
58	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
59	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%
60	4.93%	9.87%	9.36%	9.36%	6.82%	6.21%	12.42%	10.65%

Note: For general members entering after age 60, the rate equals the rate at age 60. Likewise, for safety members entering after age 50, the rate equals the rate at age 50.

Exhibit D-2 Normal Plus Cost-of-Living Member Contribution Rates

	General					Safety		
Entry Age	Plan A	Plan B	Plan C	Plan D	Plan G	Plan A	Plan B	Plan C
16	4.36%	6.02%	5.17%	5.13%	8.43%	6.79%	9.56%	13.69%
17	4.45%	6.16%	5.28%	5.24%	8.43%	6.79%	9.56%	13.69%
18	4.56%	6.30%	5.41%	5.37%	8.43%	6.79%	9.56%	13.69%
19	4.66%	6.43%	5.53%	5.49%	8.43%	6.92%	9.75%	13.69%
20	4.77%	6.58%	5.66%	5.61%	8.43%	7.07%	9.95%	13.69%
21	4.86%	6.73%	5.78%	5.74%	8.43%	7.22%	10.15%	13.69%
22	4.99%	6.88%	5.91%	5.86%	8.43%	7.37%	10.36%	13.69%
23	5.09%	7.04%	6.05%	6.00%	8.43%	7.52%	10.57%	13.69%
24	5.20%	7.19%	6.19%	6.14%	8.43%	7.67%	10.79%	13.69%
25	5.33%	7.35%	6.32%	6.27%	8.43%	7.82%	11.00%	13.69%
26	5.43%	7.51%	6.46%	6.41%	8.43%	7.98%	11.24%	13.69%
27	5.56%	7.69%	6.61%	6.56%	8.43%	8.15%	11.46%	13.69%
28	5.69%	7.86%	6.75%	6.70%	8.43%	8.32%	11.70%	13.69%
29	5.81%	8.03%	6.91%	6.86%	8.43%	8.49%	11.95%	13.69%
30	5.94%	8.22%	7.06%	7.01%	8.43%	8.66%	12.20%	13.69%
31	6.08%	8.41%	7.21%	7.16%	8.43%	8.84%	12.45%	13.69%
32	6.21%	8.59%	7.38%	7.32%	8.43%	9.03%	12.72%	13.69%
33	6.35%	8.79%	7.54%	7.48%	8.43%	9.24%	12.99%	13.69%
34	6.49%	8.99%	7.72%	7.66%	8.43%	9.42%	13.28%	13.69%
35	6.65%	9.19%	7.89%	7.83%	8.43%	9.63%	13.57%	13.69%
36	6.80%	9.41%	8.07%	8.00%	8.43%	9.85%	13.86%	13.69%
37	6.96%	9.62%	8.24%	8.18%	8.43%	10.04%	14.15%	13.69%
38	7.12%	9.83%	8.43%	8.37%	8.43%	10.25%	14.43%	13.69%
39	7.26%	10.05%	8.63%	8.56%	8.43%	10.45%	14.72%	13.69%
40	7.43%	10.26%	8.83%	8.76%	8.43%	10.64%	14.98%	13.69%
41	7.59%	10.49%	9.03%	8.96%	8.43%	10.83%	15.26%	13.69%
42	7.75%	10.70%	9.23%	9.16%	8.43%	11.01%	15.52%	13.69%
43	7.89%	10.91%	9.45%	9.37%	8.43%	11.20%	15.77%	13.69%
44	8.04%	11.12%	9.65%	9.57%	8.43%	11.37%	16.01%	13.69%
45	8.18%	11.32%	9.86%	9.78%	8.43%	11.50%	16.20%	13.69%
46	8.32%	11.50%	10.07%	10.00%	8.43%	11.61%	16.35%	13.69%
47	8.47%	11.69%	10.28%	10.20%	8.43%	11.61%	16.35%	13.69%
48	8.59%	11.86%	10.48%	10.39%	8.43%	11.61%	16.35%	13.69%
49	8.70%	12.03%	10.68%	10.59%	8.43%	11.61%	16.35%	13.69%
50	8.79%	12.14%	10.86%	10.78%	8.43%	11.61%	16.35%	13.69%
51	8.84%	12.21%	11.05%	10.97%	8.43%	11.61%	16.35%	13.69%
52	8.84%	12.24%	11.23%	11.14%	8.43%	11.61%	16.35%	13.69%
53	8.84%	12.24%	11.39%	11.30%	8.43%	11.61%	16.35%	13.69%
54	8.84%	12.24%	11.54%	11.45%	8.43%	11.61%	16.35%	13.69%
55	8.84%	12.24%	11.66%	11.57%	8.43%	11.61%	16.35%	13.69%
56	8.84%	12.24%	11.73%	11.64%	8.43%	11.61%	16.35%	13.69%
57	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
58	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
59	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%
60	8.84%	12.24%	11.74%	11.65%	8.43%	11.61%	16.35%	13.69%

Note: For general members entering after age 60, the rate equals the rate at age 60. Likewise, for safety members entering after age 50, the rate equals the rate at age 50.

Appendix E Historical Information

This section presents historical statistical information on LACERA's membership and the calculated contribution rates.

Exhibit E-1 Active Membership Data

	General Members					Safety Members					Total Members				
Valuation Date (June 30)	Number	Annual Salary (in millions)	Average Age	Average Credited Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Credited Service	Average Monthly Salary	Number	Annual Salary (in millions)	Average Age	Average Credited Service	Average Monthly Salary
1998	65,782	$ 2,837	44.7	12.9	$ 3,594	10,947	$ 725	39.9	13.8	$ 5,519	76,729	$ 3,562	44.0	13.0	$ 3,870
1999	68,652	$ 3,105	44.6	12.7	$ 3,769	11,024	$ 753	40.0	13.7	$ 5,696	79,676	$ 3,858	43.9	12.8	$ 4,035
2000	71,940	$ 3,353	44.4	12.5	$ 3,884	11,264	$ 790	39.8	13.8	$ 5,849	83,204	$ 4,143	43.8	12.6	$ 4,150
2001	75,048	$ 3,608	44.5	12.3	$ 4,006	12,021	$ 860	39.6	13.0	$ 5,967	87,069	$ 4,468	43.9	12.4	$ 4,277
2002	77,062	$ 3,833	44.7	12.3	$ 4,145	12,190	$ 894	39.6	13.8	$ 6,115	89,252	$ 4,727	44.0	12.5	$ 4,414
2003	75,995	$ 3,954	45.2	12.7	$ 4,336	11,765	$ 899	40.1	13.7	$ 6,370	87,760	$ 4,853	44.5	12.9	$ 4,609
2004	74,826	$ 3,967	45.6	13.1	$ 4,418	11,409	$ 885	40.6	14.7	$ 6,467	86,235	$ 4,852	44.9	13.3	$ 4,689
2005	75,167	$ 4,046	45.8	13.2	$ 4,486	11,217	$ 905	41.0	14.9	$ 6,722	86,384	$ 4,951	45.2	13.4	$ 4,777
2006	77,167	$ 4,267	45.7	13.0	$ 4,608	11,464	$ 969	41.2	15.0	$ 7,047	88,631	$ 5,236	45.1	13.3	$ 4,924
2007	79,829	$ 4,673	45.7	12.8	$ 4,878	12,267	$ 1,104	40.8	14.4	$ 7,499	92,096	$ 5,777	45.1	13.0	$ 5,227
2008	81,664	$ 5,017	45.8	12.8	$ 5,119	12,828	$ 1,187	40.5	13.7	$ 7,714	94,492	$ 6,204	45.1	12.9	$ 5,471
2009	82,878	$ 5,348	46.1	13.1	$ 5,377	12,910	$ 1,240	40.8	14.0	$ 8,002	95,788	$ 6,588	45.4	13.2	$ 5,731
2010	81,413	$ 5,318	46.6	13.6	$ 5,444	12,997	$ 1,257	41.3	14.5	$ 8,062	94,410	$ 6,575	45.9	13.7	$ 5,804
2011	80,145	$ 5,295	47.0	14.0	$ 5,506	12,641	$ 1,240	41.9	15.1	$ 8,172	92,786	$ 6,535	46.3	14.2	$ 5,869
2012	79,467	$ 5,272	47.3	14.4	$ 5,528	12,485	$ 1,230	42.3	15.5	$ 8,209	91,952	$ 6,502	46.7	14.6	$ 5,892
2013	79,006	$ 5,253	47.6	14.8	$ 5,541	12,539	$ 1,235	42.3	15.7	$ 8,207	91,545	$ 6,488	46.9	14.9	$ 5,906
2014	79,943	$ 5,488	47.6	14.9	$ 5,720	12,523	$ 1,253	42.6	15.8	$ 8,337	92,466	$ 6,741	47.0	15.0	$ 6,075
2015	81,228	$ 5,706	47.6	14.8	$ 5,854	12,446	$ 1,300	42.8	16.0	$ 8,702	93,674	$ 7,006	46.9	15.0	$ 6,233
2016	82,916	$ 5,950	47.4	14.6	$ 5,980	12,528	$ 1,343	42.8	16.0	$ 8,931	95,444	$ 7,293	46.8	14.8	$ 6,367
2017	84,513	$ 6,290	47.3	14.5	$ 6,202	12,698	$ 1,388	42.5	15.6	$ 9,110	97,211	$ 7,678	46.7	14.6	$ 6,582
2018	85,703	$ 6,610	47.2	14.4	$ 6,428	12,771	$ 1,452	42.2	15.3	$ 9,471	98,474	$ 8,062	46.6	14.0	$ 6,822

Exhibit E-2 Retired Membership Data

	General Members				Safety Members				Total Members			
Valuation Date (June 30)	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit	Number	Annual Allowance (in millions)	Average Age	Average Monthly Benefit
1998	35,462	$ 692	71.1	$ 1,626	7,425	$ 267	62.5	$ 3,001	42,887	$ 959	69.6	$ 1,864
1999	35,837	$ 725	71.4	$ 1,686	7,674	$ 291	63.1	$ 3,166	43,511	$ 1,016	70.0	$ 1,947
2000	36,596	$ 780	71.4	$ 1,778	8,032	$ 324	63.1	$ 3,358	44,628	$ 1,104	69.9	$ 2,062
2001	37,077	$ 890	71.6	$ 2,001	8,319	$ 382	63.4	$ 3,828	45,396	$ 1,272	70.1	$ 2,336
2002	37,618	$ 914	71.8	$ 2,025	8,624	$ 403	63.7	$ 3,892	46,242	$ 1,317	70.3	$ 2,374
2003	38,283	$ 984	71.9	$ 2,142	8,949	$ 443	63.9	$ 4,128	47,232	$ 1,427	70.4	$ 2,518
2004	39,097	$ 1,056	72.0	$ 2,250	9,235	$ 478	64.2	$ 4,318	48,332	$ 1,534	70.5	$ 2,645
2005	40,251	$ 1,138	72.1	$ 2,355	9,518	$ 514	64.6	$ 4,504	49,769	$ 1,652	70.7	$ 2,766
2006	41,309	$ 1,224	72.2	$ 2,469	9,683	$ 549	65.0	$ 4,728	50,992	$ 1,773	70.8	$ 2,898
2007	41,584	$ 1,280	72.2	$ 2,565	9,808	$ 578	65.4	$ 4,914	51,392	$ 1,858	70.9	$ 3,013
2008	42,298	$ 1,356	72.4	$ 2,671	10,052	$ 623	65.8	$ 5,167	52,350	$ 1,979	71.1	$ 3,150
2009	42,825	$ 1,423	72.6	$ 2,768	10,244	$ 663	66.3	$ 5,394	53,069	$ 2,086	71.4	$ 3,275
2010	43,752	$ 1,514	72.7	$ 2,883	10,444	$ 706	66.7	$ 5,638	54,196	$ 2,220	71.6	$ 3,414
2011	44,726	$ 1,597	72.9	$ 2,976	10,645	$ 746	67.0	$ 5,836	55,371	$ 2,343	71.7	$ 3,526
2012	45,899	$ 1,686	73.0	$ 3,061	10,871	$ 789	67.3	$ 6,049	56,770	$ 2,475	71.9	$ 3,633
2013	46,939	$ 1,774	73.2	$ 3,149	11,147	$ 837	67.5	$ 6,261	58,086	$ 2,611	72.1	$ 3,746
2014	47,867	$ 1,836	73.4	$ 3,196	11,362	$ 876	67.8	$ 6,427	59,229	$ 2,712	72.3	$ 3,816
2015	48,958	$ 1,898	73.5	$ 3,231	11,648	$ 914	68.0	$ 6,541	60,606	$ 2,813	72.5	$ 3,867
2016	50,034	$ 1,988	73.6	$ 3,311	11,880	$ 965	68.3	$ 6,766	61,914	$ 2,952	72.6	$ 3,974
2017	51,083	$ 2,079	73.8	$ 3,391	12,241	$ 1,030	68.4	$ 7,012	63,324	$ 3,109	72.7	$ 4,091
2018	52,292	$ 2,192	73.9	$ 3,493	12,588	$ 1,104	68.5	$ 7,308	64,880	$ 3,296	72.8	$ 4,233

Exhibit E-3 Contribution Rates

	General Plans					Safety Plans					Total All Plans				
Valuation Date (June 30)	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution	Calculated Normal Cost	Member Contributions	Net Employer Normal Cost	UAAL Rate	Total Employer Contribution
1998	10.27%	3.06%	7.21%	0.00%	7.21%	25.00%	8.70%	16.30%	0.00%	16.30%	13.27%	4.21%	9.06%	0.00%	9.06%
1999	10.98%	3.20%	7.78%	0.00%	7.78%	25.41%	9.12%	16.29%	0.00%	16.29%	13.81%	4.36%	9.45%	0.00%	9.45%
2000	10.91%	3.33%	7.58%	0.00%	7.58%	25.22%	9.44%	15.78%	0.00%	15.78%	13.66%	4.51%	9.15%	0.00%	9.15%
2001	11.27%	3.45%	7.82%	0.00%	7.82%	25.47%	9.27%	16.20%	0.00%	16.20%	14.01%	4.57%	9.44%	0.00%	9.44%
2002	12.04%	3.53%	8.51%	0.21%	8.72%	25.92%	9.37%	16.55%	0.21%	16.76%	14.66%	4.63%	10.03%	0.21%	10.24%
2003	12.25%	3.72%	8.53%	4.66%	13.19%	25.89%	9.55%	16.34%	4.66%	21.00%	14.80%	4.81%	9.99%	4.66%	14.65%
2004	12.20%	3.82%	8.38%	6.41%	14.79%	24.61%	9.61%	15.00%	6.41%	21.41%	14.48%	4.88%	9.60%	6.41%	16.01%
2005	12.22%	3.91%	8.31%	5.33%	13.64%	24.69%	9.68%	15.01%	5.33%	20.34%	14.50%	4.97%	9.53%	5.33%	14.86%
2006	12.22%	4.07%	8.15%	3.49%	11.64%	24.70%	9.70%	15.00%	3.49%	18.49%	14.54%	5.12%	9.42%	3.49%	12.91%
2007	13.15%	4.38%	8.77%	2.24%	11.01%	26.04%	10.18%	15.86%	2.24%	18.10%	15.67%	5.51%	10.16%	2.24%	12.40%
2008	13.18%	4.47%	8.71%	1.99%	10.70%	26.01%	10.22%	15.79%	1.99%	17.78%	15.68%	5.59%	10.09%	1.99%	12.08%
2009	13.29%	4.57%	8.72%	4.12%	12.84%	26.08%	10.21%	15.87%	4.12%	19.99%	15.75%	5.65%	10.10%	4.12%	14.22%
2010	13.32%	4.68%	8.64%	6.47%	15.11%	25.00%	10.19%	14.81%	6.47%	21.28%	15.59%	5.75%	9.84%	6.47%	16.31%
2011	13.36%	4.91%	8.45%	7.89%	16.34%	25.09%	10.50%	14.59%	7.89%	22.48%	15.65%	6.00%	9.65%	7.89%	17.54%
2012	13.50%	5.01%	8.49%	10.09%	18.58%	25.42%	10.52%	14.90%	10.09%	24.99%	15.81%	6.08%	9.73%	10.09%	19.82%
2013	13.25%	5.01%	8.24%	11.90%	20.14%	24.67%	10.26%	14.41%	11.90%	26.31%	15.47%	6.03%	9.44%	11.90%	21.34%
2014	13.14%	5.09%	8.05%	10.04%	18.09%	24.71%	10.23%	14.48%	10.04%	24.52%	15.37%	6.08%	9.29%	10.04%	19.33%
2015	13.28%	5.22%	8.06%	8.49%	16.55%	24.71%	10.26%	14.45%	8.49%	22.94%	15.46%	6.18%	9.28%	8.49%	17.77%
2016	14.51%	5.72%	8.79%	9.73%	18.52%	25.54%	10.57%	14.97%	9.73%	24.70%	16.62%	6.65%	9.97%	9.73%	19.70%
2017	14.62%	5.87%	8.75%	10.10%	18.85%	25.69%	10.56%	15.13%	10.10%	25.23%	16.70%	6.76%	9.94%	10.10%	20.04%
2018	14.77%	6.04%	8.73%	10.99%	19.72%	25.70%	10.59%	15.11%	10.99%	26.10%	16.80%	6.88%	9.92%	10.99%	20.91%

Exhibit E-4 Funded Status History

(Dollars in Millions)

		Market Value Basis			Actuarial Value Basis						
Valuation Year	Actuarial Accrued Liability (AAL)	Market Value of Assets (MVA)[1]	Unfunded AAL (UAAL)/Surplus MVA Basis	Funded Ratio MVA Basis	Actuarial Value of Assets (AVA)[1]	Unfunded AAL (UAAL)/Surplus AVA Basis	Funded Ratio AVA Basis	Annual Total Payroll	Asset Smoothing Ratio (AVA / MVA)	Asset Volatility Ratio (MVA / Payroll)	Liability Volatility Ratio (AAL / Payroll)
1996 [2]	17,300	18,600	1,300	107.5%	17,700	400	102.3%	3,356	95.2%	5.5	5.2
1997 [2]	19,300	21,100	1,800	109.3%	19,600	300	101.6%	3,373	92.9%	6.3	5.7
1998	20,960	22,332	1,372	106.5%	20,851	(109)	99.5%	3,562	93.4%	6.3	5.9
1999	22,785	24,382	1,597	107.0%	23,536	751	103.3%	3,858	96.5%	6.3	5.9
2000	24,721	27,257	2,536	110.3%	25,427	706	102.9%	4,143	93.3%	6.6	6.0
2001	26,490	23,916	(2,574)	90.3%	26,490	-	100.0%	4,469	110.8%	5.4	5.9
2002	28,437	24,085	(4,352)	84.7%	28,262	(175)	99.4%	4,730	117.3%	5.1	6.0
2003	30,474	24,616	(5,858)	80.8%	26,564	(3,910)	87.2%	4,934	107.9%	5.0	6.2
2004	32,700	28,094	(4,606)	85.9%	27,089	(5,611)	82.8%	4,942	96.4%	5.7	6.6
2005	34,375	30,904	(3,471)	89.9%	29,497	(4,878)	85.8%	5,051	95.4%	6.1	6.8
2006	36,259	34,256	(2,003)	94.5%	32,820	(3,439)	90.5%	5,333	95.8%	6.4	6.8
2007	39,503	40,073	570	101.4%	37,042	(2,461)	93.8%	5,886	92.4%	6.8	6.7
2008	41,975	37,834	(4,141)	90.1%	39,662	(2,313)	94.5%	6,257	104.8%	6.0	6.7
2009	44,469	29,723	(14,746)	66.8%	39,542	(4,927)	88.9%	6,673	133.0%	4.5	6.7
2010	46,646	32,629	(14,017)	69.9%	38,839	(7,807)	83.3%	6,739	119.0%	4.8	6.9
2011	48,599	38,587	(10,012)	79.4%	39,194	(9,405)	80.6%	6,705	101.6%	5.8	7.2
2012	50,809	37,453	(13,356)	73.7%	39,039	(11,770)	76.8%	6,675	104.2%	5.6	7.6
2013	53,247	41,334	(11,913)	77.6%	39,932	(13,315)	75.0%	6,656	96.6%	6.2	8.0
2014	54,942	47,223	(7,719)	86.0%	43,654	(11,288)	79.5%	6,815	92.4%	6.9	8.1
2015	56,819	48,308	(8,511)	85.0%	47,328	(9,491)	83.3%	7,078	98.0%	6.8	8.0
2016	62,199	47,347	(14,852)	76.1%	49,358	(12,841)	79.4%	7,390	104.2%	6.4	8.4
2017	65,311	52,217	(13,094)	80.0%	52,166	(13,145)	79.9%	7,749	99.9%	6.7	8.4
2018	68,527	55,737	(12,790)	81.3%	55,233	(13,294)	80.6%	8,079	99.1%	6.9	8.5

1. *Asset values exclude non-valuation reserves*
2. *Only rounded values are available.*

Exhibit E-5 Reconciliation of Changes in Unfunded Actuarial Accrued Liability or Surplus

(Dollars in Millions)

Valuation Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Prior Year UAAL	2,461	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145
Normal Cost	990	1,053	1,219	1,200	1,237	1,430	1,163	1,068	1,118	1,246	1,243
Contributions	(1,249)	(1,310)	(1,322)	(1,461)	(1,646)	(1,455)	(1,824)	(1,936)	(1,902)	(1,880)	(2,116)
Interest	191	179	382	605	724	895	999	814	682	954	968
Changes in Assumptions/Methodology	-	-	54	221	457	511	-	-	2,922	-	-
Changes in Benefit Provisions	-	-	-	-	-	-	-	-	-	-	-
Expected Current Year UAAL	2,393	2,235	5,260	8,372	10,177	13,151	13,653	11,234	12,311	13,161	13,240
Actual Current Year UAAL	2,313	4,927	7,807	9,405	11,770	13,315	11,288	9,491	12,841	13,145	13,294
Total (Gain)/Loss on UAAL	(80)	2,692	2,547	1,033	1,593	164	(2,365)	(1,743)	530	(16)	54
Asset (Gains)/Losses	(429)	2,465	2,879	1,761	2,337	893	(1,664)	(1,263)	496	(421)	(411)
Ventura Settlement/Court Cases	15	-	-	-	-	-	-	-	-	-	-
Salary Increases	298	380	(353)	(579)	(629)	(563)	(291)	79	162	277	223
All Other Actuarial (Gains)/Losses	36	(153)	21	(149)	(115)	(166)	(410)	(559)	(128)	128	242

Exhibit E-6 Reconciliation of Changes in Calculated Employer Contribution Rate

Valuation Year	Prior Year Contribution Rate	Changes in Existing Amortization Bases	Assumption/ Method Changes	Salary/Payroll Variations	Plan Amendments	Asset (Gains)/Losses	Demographic/Other (Gains)/Losses	Current Year Contribution Rate
2004	14.65%	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	16.01%
2005	16.01%	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	14.86%
2006	14.86%	-0.29%	0.00%	0.02%	0.00%	-1.82%	0.14%	12.91%
2007	12.91%	-0.28%	1.34%	0.61%	0.00%	-2.14%	-0.04%	12.40%
2008	12.40%	-0.17%	0.00%	0.21%	0.00%	-0.24%	-0.12%	12.08%
2009	12.08%	-0.04%	-1.76%	0.21%	0.00%	3.91%	-0.18%	14.22%
2010	14.22%	0.00%	-0.27%	-0.10%	0.00%	2.29%	0.17%	16.31%
2011	16.31%	0.00%	0.25%	-0.14%	0.00%	1.39%	-0.27%	17.54%
2012	17.54%	0.00%	0.54%	-0.11%	0.00%	1.92%	-0.07%	19.82%
2013	19.82%	0.00%	0.82%	-0.01%	0.00%	0.74%	-0.03%	21.34%
2014	21.34%	0.00%	0.00%	-0.15%	0.00%	-1.43%	-0.43%	19.33%
2015	19.33%	0.00%	0.00%	0.04%	0.00%	-1.04%	-0.56%	17.77%
2016	17.77%	0.00%	2.87%	0.20%	0.00%	0.39%	-0.02%	21.21%
2017	21.21%	0.00%	0.00%	0.05%	0.00%	-0.32%	0.06%	21.00%
2018	21.00%	0.00%	0.00%	0.04%	0.00%	-0.30%	0.17%	20.91%

1. Data not available.

Note: 2016 and 2017 changes are based on the calculated employer contribution rate prior to the phase-in.

Exhibit E-7 Funding Policy History

	Description of changes, if any	Effective Date	Impact on Contribution Rate	Impact on Funded Ratio	Rationale
2009	Changed from 3-year to 5-year asset smoothing. Included STAR reserve as a valuation asset. Adopted 30-year layered amortization period.	June 30, 2009	-1.68% [1]	4.40%	See June 30, 2009 valuation report.
2010	Included STAR reserve as a valuation asset.	June 30, 2010	-0.52% [1]	1.40%	See June 30, 2010 valuation report.
2011	Included STAR reserve as a valuation asset.	June 30, 2011	-0.52% [1]	1.20%	See June 30, 2011 valuation report.
2012	Included STAR reserve as a valuation asset for 2012 and future valuations (adopted February 2013).	June 30, 2012	-0.53% [1]	1.20%	See June 30, 2012 valuation report.

1. Note that savings due to inclusion of STAR reserve as valuation asset are not cumulative from year to year.

Exhibit E-8 History of Changes in Economic Assumptions

(Years with no changes excluded)

Valuation Year	Price Inflation	Wage Inflation	Real Wage Inflation[1]	Investment Return Assumption	Real Investment Return[2]	Effective Date	Change in Contribution Rate	Change in Funded Ratio	Rationale
2004	3.50%	3.75%	0.25%	7.75%	4.25%	July 1, 2004	1.65%	N/A[3]	See 2004 Investigation of Experience Report.
2007	3.50%	4.00%	0.50%	7.75%	4.25%	July 1, 2007	0.66%	-1.3%	See 2007 Investigation of Experience Report.
2011	3.45%	3.95%	0.50%	7.70%	4.25%	July 1, 2011	0.25%	-0.3%	See 2010 Investigation of Experience Report.
2012	3.35%	3.85%	0.50%	7.60%	4.25%	July 1, 2012	0.54%	-0.7%	See 2010 Investigation of Experience Report.
2013	3.00%	3.50%	0.50%	7.50%	4.50%	July 1, 2013	0.37%	-0.1%	See 2013 Investigation of Experience Report.
2016	2.75%	3.25%	0.50%	7.25%	4.50%	July 1, 2016	1.14%	-1.4%	See 2016 Investigation of Experience Report.

1. *Excess of assumed wage inflation over price inflation.*
2. *Excess of assumed investment return over price inflation.*
3. *Information not available.*

Note: 2016 changes are based on the calculated employer contribution rate prior to the phase-in.

Exhibit E-9 History of Changes in Demographic and Other Non-Economic Assumptions

(Years with no changes excluded)

	Demographic Assumption Revisions	Effective Date	Change in Contribution Rate	Change in Funded Ratio	Rationale
2004	Mortality, merit salary scale, retirement, termination, probability of refund, probability of eligible survivor revised.	July 1, 2004	-0.63%	N/A[1]	Refer to the 2004 Investigation of Experience Report.
2007	Mortality, retirement, termination, probability of refund, merit salary scale for Safety members revised.	July 1, 2007	0.68%	N/A[1]	Refer to the 2007 Investigation of Experience Report.
2010	Mortality, retirement, termination, probability of refund, assumed benefit commencement age revised.	July 1, 2010	-0.27%	-0.1%	Refer to the 2010 Investigation of Experience Report.
2013	Mortality, retirement, termination, probability of refund, merit salary scale for Safety members, probability of eligible survivor, assumption for beneficiary age, reciprocity assumption revised.	July 1, 2013	0.45%	-0.6%	Refer to the 2013 Investigation of Experience Report.
2016	Mortality, retirement, termination, probability of eligible survivor, assumed benefit commencement age, reciprocity assumption revised.	July 1, 2016	1.73%	-2.5%	Refer to the 2016 Investigation of Experience Report.

1. Information not available.

Note: 2016 changes are based on the calculated employer contribution rate prior to the phase-in.

Appendix F Glossary

The following definitions include excerpts from a list adopted by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to LACERA and include terms used exclusively by LACERA. Defined terms are capitalized throughout this Appendix.

Accrued Benefit
The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability
That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions
Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Gain (Loss)
A measure of the difference between actual experience and that expected based on a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value
The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Valuation
The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets
The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent
Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment
That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Contingency Reserve
Reserves accumulated for future earning deficiencies, investment losses, and other contingencies. Additions include investment income and other revenues; deductions include investment expense, administrative expense, interest allocated to other reserves, funding the STAR Reserve, and distributions to the Contribution Credit Reserve. Amounts are allocated to the Contingency Reserve to the extent there are positive recognized earnings to allocate. The California Government Code (Sections 31592 and 31592.2) requires the Contingency Reserve to be set at a minimum of 1.0% of the market value of total assets.

County Contribution Credit Reserve	The accumulated balance of the County's proportionate share of excess earnings as stipulated in the Retirement System Funding Agreement between LACERA and the County. Additions include distributions from excess earning during the fiscal years ending 1994 through 1998 and related earnings. Deductions include payments, as the County authorizes, for future employer contributions due LACERA and for funding a portion of the Retiree Healthcare Program under the provisions of Internal Revenue Code 401(h).
Employer Reserve	The accumulation of employer contributions for future retirement benefit payments. Additions include contributions from employers and related earnings. Deductions include annuity payments to retired members and survivors, lump sum death benefit payments to member survivors, and supplemental disability payments.
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 ages. 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.
Funded Ratio	A measurement of the funded status of the Plan. The Funded Ratio is calculated by dividing the Valuation Assets by the Actuarial Accrued Liability. For example, a Funded Ratio of 90% indicates assets are 10% less than liabilities.
Funding Goal	The Funding Goal is the funded status the Board of Investments would like LACERA to achieve. The main goal is to provide benefit security for its members as well as to achieve and maintain stable employer contributions that are as low as possible. A Funded Ratio equal to 100% is the Funding Goal.
Layered Amortization Period	Payment of each year's change in the Unfunded Actuarial Accrued Liability (UAAL) is amortized over separate closed periods. For LACERA, the original UAAL as of June 30, 2009 is being amortized over a closed 30-year period, while each year's subsequent gain or loss on the UAAL is amortized over a new closed 30-year period starting with that date. The amortization payments are based on a level percent of pay.
Member Reserve	The accumulation of member contributions. Additions include member contributions and related earnings. Deductions include annuity payments to retirees and refunds to members.
Non-Valuation Reserves	Reserves excluded from the calculation of contribution rates, including the Contingency Reserve, the County Contribution Credit Reserve, and any other reserves specifically excluded by the Board of Investments.
Normal Cost	That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
Plan Year	A 12-month period beginning July 1 and ending June 30.

Projected Benefits	Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.
STAR Reserve	Reserves accumulated for the payment of cost-of-living benefits as defined in California Government Code Section 31874.3.
Supplemental Targeted Adjustment for Retirees (STAR) Benefits	Supplemental cost-of-living payments to retired members to restore purchasing power at a specified percentage level, as described in California Government Code Section 31874.3.
Surplus Funding	The excess, if any, of the Actuarial Value of Assets over the Actuarial Accrued Liability. Standard actuarial terminology defines this as the “Funding Excess.” LACERA uses the term “Surplus Funding.”
Unfunded Actuarial Accrued Liability	The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.
Valuation Date	The date upon which the Normal Cost, Actuarial Accrued Liability, and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the ending of a Plan Year.
Valuation Reserves	All reserves excluding the Non-Valuation Reserves.

L//.CERA

November 30, 2018

TO: Each Member
Board of Investments

FROM: Richard Bendall
Chief Audit Executive

Kathryn Ton KT
Senior Internal Auditor

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **REPORTED FINDINGS FROM FOREIGN TAX RECLAMATION RFP**

RECOMMENDATION

Staff recommends that the Board (1) accept and file the report and (2) direct the Investments Office to more closely oversee State Street Bank's foreign tax reclamation process and reporting going forward.

BACKGROUND

At the April 12, 2017 Board of Investments meeting, the Board directed staff to issue a Request for Proposal (RFP) to hire a firm to determine the extent of LACERA's exposure to unclaimed foreign withholding taxes from investment income. At the conclusion of the RFP process, LACERA engaged WTAX, a division of VAT IT, for the audit.

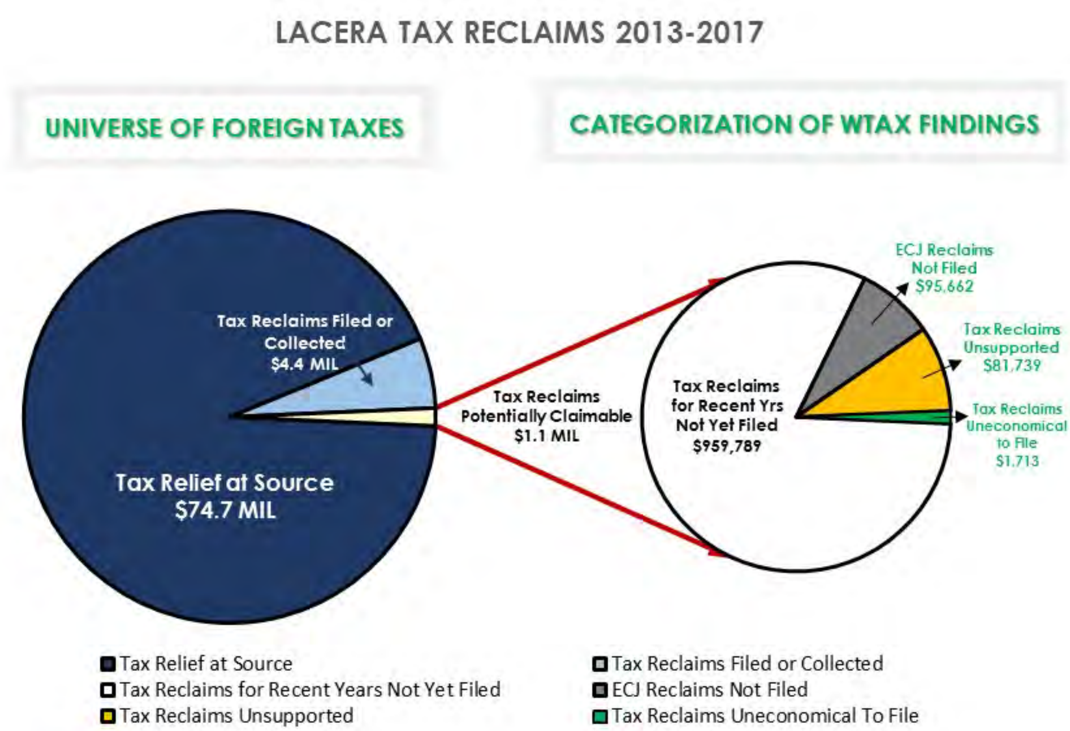
The Board of Investments requested that for purposes of independence, Internal Audit oversee the engagement with WTAX.

The Statement of Work on the RFP was twofold. First, it required WTAX to review foreign tax reclaims filed by State Street Bank on LACERA's behalf, for the period from July 1, 2013 to December 31, 2017. Second, it required WTAX to review LACERA's exposure to unclaimed foreign taxes on commingled fund investments managed by third-party service providers. WTAX submitted a written report based on its findings. Staff shared this report with State Street Bank and the respective commingled fund managers. In return, State Street Bank submitted a response to the WTAX report. WTAX was given the opportunity to revise their report based on State Street Bank's response, but chose not to do so. The WTAX report and State Street Bank response are attached. Staff conducted ongoing discussions with WTAX and State Street Bank to understand the tax reclaim process and findings. Staff's understanding of the audit findings are summarized in the next section.

RESULTS AND OBSERVATIONS

LACERA has been subject to $80.2 million in foreign income taxes from 2013 to 2017. During this period, State Street Bank has successfully filed or recovered for LACERA $79.1 million (or 98.6%) in available claims. Specifically, State Street Bank effectively filed for LACERA $74.7 million (or 93.1%) in "tax relief at source", the most beneficial tax arrangement possible. Once LACERA has obtained tax relief at source status in countries that offer it, investment income is taxed at the lowest rate possible, eliminating the need to file tax reclaims at a later date. In markets that do not offer tax relief at source, State Street Bank has filed for LACERA $4.4 million (or 5.5%) in tax reclaims. For the WTAX audit, State Street Bank provided WTAX with a report of all foreign income and withholding tax data related to LACERA's international investments custodied with State Street Bank for the period. The purpose of the WTAX audit was to identify any tax reclaims not filed or recovered by State Street Bank that should have been. Based on their audit report, WTAX indicated that at the time the tax data was received from State Street Bank in April of 2018, up to $1.1 million (or 1.4%) in potential tax reclaims were not filed by State Street Bank. The following sections provide additional details regarding the $1.1 million identified by WTAX and Internal Audit's analysis of those findings.

The pie chart on the left illustrates LACERA's universe of foreign taxes for the period, either averted through State Street Bank filing for relief at source/tax reclaims, or identified by WTAX as potentially claimable, which total $80.2 million. State Street Bank has effectively obtained 98.6% of available claims, or the two areas shaded in blue. Collectively, LACERA has received $74.7 million (or 93.1%) in tax relief at source and State Street Bank has filed claims of $4.4 million (or 5.5%) in tax recoveries. The pie chart on the right breaks the $1.1 million (or 1.4%) that is potentially claimable from the WTAX audit as noted by State Street Bank into four categories:



1. **Recent Years' Tax Reclaims Not Yet Filed ($959,789):** State Street Bank indicated that $862,899 of the $1.1 million in reclaims that WTAX identified as potentially claimable are from 2017, and not missed or late. Rather, these claims will be filed at the earliest time possible based on existing/normal practices. State Street Bank indicated that $25,879 in reclaims have been filed in Germany and Switzerland since the date of the audit. In addition, $48,369 in reclaims from 2015 and 2016 will be filed in Denmark. Denmark temporarily shut down its reclaims market because of fraud.
2. **ECJ Reclaims Not Filed ($95,662):** State Street Bank indicated that it does not file European Court of Justice (ECJ) claims. Staff is not aware of any US public pension funds that have successfully recovered taxes from the ECJ.
3. **Tax Reclaims Unsupported ($81,739):** State Street Bank indicated that $81,739 of the claims identified by WTAX as not having been filed are unrecoverable due to a variety of reasons. For example, LACERA has some investment income in Germany, Spain, Italy, and Japan that are cross-settled. Cross-settlement occurs when securities issued in one country, settle in a different country, making it difficult to recover taxes in the country of origin. In addition, State Street Bank indicated that Canadian REITS, South Korean surcharges, and Australian Sundry Other Income (SOI) are not entitled to reclaims. Finally, Indonesia does not have an operating reclaim market.
4. **Tax Reclaims Uneconomical to File ($1,713):** State Street Bank indicated that it did not file potential reclaims of $1,713 in Austria because it was not cost effective to do so.

CONCLUSION

The WTAX audit shows that State Street Bank has substantially recovered all foreign withholding taxes for LACERA (or 98.6%). It appears that LACERA may have some small unclaimed foreign withholding taxes, but the amount varies based on the collectability and practicality of claims, which may range from several thousand dollars up to $179,114 (or 0.2%) as identified in bullets 2, 3, and 4 above. Based on prior years' collections, Internal Audit accepts State Street Bank's assertion that recent years' tax reclaims of $959,789 (or 1.2%) will be filed and recovered in normal course, as identified in bullet 1 above.

WTAX in their report proposes taking over the tax reclaim process from State Street Bank. We do not believe their audit results support such a proposal. State Street Bank is the largest tax reclaims agent in the US, and provides this service in its bundled custodial price to LACERA. In addition, the contingent fee model proposed by WTAX would not be cost effective, as their fees would far exceed any potential additional recoveries received through State Street Bank. Further, WTAX or any contingent fee vendor may have less incentive to file for relief at source when available in the future, which may reduce net reclaims available to LACERA.

In subsequent conversations with WTAX, they have suggested that as an alternative to their proposal of taking over the entire tax reclaim process, WTAX work with State Street Bank to maximize recoveries. This option would make sense if there was a material amount in claims that could reasonably be recovered. However, the amount that State Street Bank did not file claims for LACERA is immaterial relative to the foreign income earned from 2013 to 2017, and it is unlikely that these amounts are recoverable. Staff believes that this alternative would result in inefficiencies in the process, and be a drain on LACERA's legal, accounting, and investment staff resources.

Internal Audit believes it would be more prudent and efficient for LACERA staff to more closely oversee State Street Bank's tax reclaim process going forward. The purpose of the oversight would be to minimize LACERA's amount of unclaimed foreign withholding taxes. LACERA staff can communicate with State Street Bank on anticipated tax recoveries and obtain periodic reports, so that staff can follow up and remedy any potential issues to a small amount.

Noted and approved:

Richard Bendall
Chief Audit Executive, LACERA

November 30, 2018
Date

ATTACHMENTS
RB:rb

WTAX

LACERA Report

Executive Summary

WTax has performed a review of the withholding tax exposure which LACERA could have through their direct investments and commingled fund investments.

A - Commingled Investments

- It is important to make note of the following: Because LACERA has no discretion over these commingled funds, WTax was not able to perform an in-depth withholding tax analysis per fund. What follows in this report is a high level overview as per discussions held with each commingled fund manager.

- From the information obtained; the investment managers are either already pursuing reclaims through their custodian, a third-party service provider or in the process of addressing the withholding tax exposure. Once again this is information that the Investment Manager was comfortable to provide to WTax.

- The tax structuring of the funds/accounts minimize tax exposure but also limit the withholding tax reclaim opportunities available through the various claim mechanisms. It is vital to mention here, the way in which these commingled funds have been structured and the domicile of these funds is under the full discretion of the investment manager. It is LACERA's choice as to which fund to invest in. WTax can only comment on the withholding tax implications per your investment.

DISCUSSION SUMMARY

Conference calls with the relevant representatives from the tax team were held with each investment manager. Results are discussed below.

Items covered during each call were as follows:

1. Understanding of LACERA invested fund structure & domicile
2. Understanding of investment markets for the fund
3. Discussion of current measures being taken to minimize withholding tax exposure
4. Discussion of withholding tax recovery services being provided by custodian bank and/or 3rd party service providers

B - Results

a. COMMINGLED INVESTMENT MANAGERS

i. Aberdeen Asset Management

LACERA is invested in the Emerging Markets Bond Fund. Aberdeen Asset Management have minimised their withholding tax exposure entirely for this fund.

The only exception is withholding tax being suffered in Indonesia. However, the exposure of Indonesian withholding tax represents less than 1% of the total dividend value received for the fund.

For this reason, Aberdeen Asset Management do not feel that it makes commercial sense to pursue further action to remedy this.

ii. Acadian Asset Managements

LACERA is invested in the Emerging Markets Equity II Fund, a Delaware LLC. Acadian Asset Management have employed the services of Globetax to address withholding tax recoveries and receive quarterly reporting of all recoveries being performed.

Acadian is confident that all their withholding tax requirements are being addressed.

iii. AQR Capital Management

LACERA is invested in the Emerging Equities Fund, a US Limited Partnership. As AQR is already a client of WTax, we believe that there could be a possible conflict of interest with WTax reviewing our services with them. WTax feels it would be prudent for LACERA to make contact with AQR directly.

iv. Ashmore Investment Management

LACERA is invested in the Emerging Markets Total Return Fund, a SICAV. As Ashmore is already a client of WTax we believe that there could be a possible conflict of interest with WTax reviewing our services with them. WTax feels it would be prudent for LACERA to make contact with Ashmore directly.

v. Blackrock Institutional Trust Company

LACERA is invested in various Blackrock us 81-100 group trusts also referred to as the “A” funds. The A funds are eligible to withholding tax reductions to or exemptions from withholding tax in various investment markets pursuant to a double taxation treaty or domestic law exemption.

Blackrock seeks to minimize the withholding impact to the A funds by ensuring appropriate documentation is provided to service providers and, where possible, fund assets placed in accounts that enable a reduction “at source” or at the time of dividend payment.

In cases where reduction at source is not possible and withholding tax is suffered, BlackRock pursues withholding tax recovery via a tax reclaim filing. Tax servicing and the tax reclaim filing process is currently administered by State Street Bank out of Boston. The A fund assets and associated tax servicing are in the process of being transitioned to JPM Bank. The tax servicing and tax reclaim filing processes will be administered out of JPM’s Bournemouth location.

Blackrock has full discretion over their funds and all the tax implications involved.

vi. Cevian Capital

LACERA is invested in the Cevian Capital II LP. Cevian minimizes tax exposure through structuring their accounts in tax-beneficial domiciles including Malta and the Cayman Islands which, among other benefits, achieves a tax efficient exposure.

Cevian is not subject to any income, withholding or capital gains taxes in the Cayman Islands. The Cayman Islands are a tax haven, thus there is a limited withholding tax recovery opportunity. Income received by Cevian may be subject to withholding tax in the jurisdiction in which the income arises.

However, in cases where there is still withholding tax exposure, it is our understanding based on current legislation that the structure of their companies and funds would not allow them to benefit from double tax treaties. Should LACERA request more information about Cevian Capital's fund structures, we suggest you make contact with them directly.

vii. Genesis Investment Management

LACERA is invested in the Emerging Markets Fund which is a US Group Trust specifically for ERISA pension funds. At the time of the investigation call with WTax, Genesis were actively exploring options of service providers for minimizing withholding tax. WTax has now entered these talks.

WTax is unaware of what withholding tax recovery mechanisms were put in place prior to our call with them.

viii. Symphony Financial Partners

LACERA is invested in the SFP Value Realization Fund which is a Cayman Limited Company. Due to the very limited double tax treaty network available to the Cayman Islands, there is no possibility for withholding tax reclaims for this fund.

Should LACERA request more information about Symphony Financial Partners fund structures, we suggest you contact them directly.

C - State Street Bank

Reports detailing all income where withholding tax was suffered in all investment markets were requested from SSB Edinburgh Central Tax Team.

Reports detailing all SSB reclaims performed to date with relevant statuses were requested from SSB Service Team (Matthew Holler).

Analysis was performed to identify all withholding tax reclaim opportunities and a comparison was done with those reclaims performed by SSB.

State Street Bank provides withholding tax reclaim services for certain established markets. These reclaims include both double tax treaty and exemption claims. Please see table below for summary of opportunities identified by WTax with a comparison of claims being pursued by SSB.

LEGEND FOR LACERA ANALYSIS

WTax Identified	The reclaimable withholding tax value
Successful	Claims that have been confirmed as refunded based on the data
Submitted (Not yet refunded)	Claims that have been annotated within the data as having been filed at the relevant tax office, however no refunds have been made at the time of analysis
Inactive	Claims that have been identified by the custodian for refund but for which there is not yet an indication of submission within the data
Difference	Valid claims that have not been identified at all, together with claims in inactive
% Missed	Claims in difference divided by claims in WTax identified

LACERA - Analysis

US Pension Fund

Custodian; State Street

All values in USD

			Custodian Reclaims					
DTT or Exemption	Year	WTax Identified	Successful	Submitted	Pending Submission	Difference	% Difference	Reason for Difference (including feedback from State Street (SSB))
Australia	2014	48 225	-	-	-	48 225	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied, this is from before exemption letter was received.
	2015	13 289	-	-	-	13 289	100%	
	2016	1 956	-	-	-	1 956	100%	
South Korea	2015	4 131	-	-	-	4 131	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied.
	2016	3 391	-	-	-	3 391	100%	
	2017	6 632	-	-	-	6 632	100%	
Canada	2016	1 832	-	-	-	1 832	100%	REITS - not claimable for Pension Funds
Italy	2017	1 419	-	-	-	1 419	100%	SSB did not pursue due to high costs
Japan	2017	1 174	-	-	-	1 174	100%	SSB did not pursue due to high costs
Indonesia	2014	318	-	-	-	318	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied.
Austria	2014	7 058	6 349	-	-	709	10%	
	2015	7 221	6 674	-	-	547	8%	
	2016	11 894	-	11 762	-	132	1%	
	2017	50 276	-	-	50 119	50 276	100%	Cannot be filed during year of dividend, pending filing according to SSB response
Switzerland	2015	221 397	221 397	-	-	-	0%	
	2016	360 432	-	335 822	-	24 610	7%	
	2017	241 136	-	-	241 136	241 136	100%	Cannot be filed during year of dividend, pending filing according to SSB response
Denmark	2014	2 484	-	2 484	-	-	0%	Not claimed yet due to Denmark shutting down claim process as a result of fraud. WTax has submitted claims using new process as of end 2016.
	2015	297 578	297 020	-	557	557	0%	
	2016	47 812	-	-	47 812	47 812	100%	
	2017	62 524	-	-	62 524	62 524	100%	
Germany	2014	391 460	390 190	-	-	1 269	0%	
	2015	398 743	398 743	-	-	-	0%	
	2016	587 826	567 302	-	-	20 524	3%	
	2017	454 943	-	-	454 943	454 943	100%	New claiming process from Germany, pending filing according to SSB response

Spain	2014	2 975	2 975	-	-	-	0%	
	2015	578	578	-	-	-	0%	
	2016	2 476	2 178	-	-	298	12%	
	2017	4 323	3 131	-	-	1 192	28%	Cross-settled position, cannot be claimed
Netherlands	2015	195 678	195 512	-	-	166	0%	
	2016	209 251	209 251	-	-	-	0%	
	2017	311 490	258 124	-	53 366	53 366	17%	Reclaims to be filed (SSB)
United Kingdom REIT	2013	18 324	18 324	-	-	-	0%	
	2014	39 147	39 147	-	-	-	0%	
	2017	811	-	-	811	811	100%	SSB did not pursue due to high costs
Portugal	2016	5 769	-	5 769	-	-	0%	
South Africa	2017	126	126	-	-	-	0%	

DTT Total	4 016 099	2 617 022	355 836	911 268	1 043 241	26%

In addition to DTT & Exemption claims, there are certain European Court of Justice claims which are available to LACERA. However, these claims are not offered by custodian banks.

			Custodian Reclaims				
ECJ	Year	WTax Identified	Successful	Submitted (not yet refunded)	Inactive	Difference	% Missed
Poland	2013	3 448	-	-	-	3 448	100%
	2014	1 416	-	-	-	1 416	100%
	2015	5 396	-	-	-	5 396	100%
	2016	19 260	-	-	-	19 260	100%
	2017	29 455	-	-	-	29 455	100%
Spain	2014	7 439	-	-	-	7 439	100%
	2015	1 817	-	-	-	1 817	100%
	2016	9 285	-	-	-	9 285	100%
	2017	16 211	-	-	-	16 211	100%
Italy	2017	1 935	-	-	-	1 935	100%

ECJ Total	95 662	-	-	-	95 662	100%

ANALYSIS CONCLUSION

		Custodian Reclaims				
Combined	WTax Identified	Successful	Submitted (not yet refunded)	Inactive	Difference	% Missed
Combined Total	4 111 760	2 617 022	355 836	911 268	1 138 902	28%

D - Conclusion

LACERA currently has exposure to withholding tax through certain commingled funds and through the claims which are not being pursued by SSB.

WTax believes that the most efficient method to minimize withholding tax recoveries is for WTax to take over all reclaims available to the LACERA. This would include working with those commingled funds who do not currently have a service provider and taking over all reclaims being performed by SSB.

WTax provides the full array of Relief at Source, DTT, Exemption & ECJ claims for all markets which would ensure that there is no withholding tax exposure for LACERA. WTax can service all of LACERA's withholding tax recovery needs in-house with its hassle-free boutique service.

State Street's analysis – LACERA's Foreign Tax Withholding Reclamation – September 2018

State Street has reviewed WTax's analysis of withholding tax reclaim opportunities and compared that analysis to State Street's records, specific to LACERA's foreign tax withholding reclamation. The comments here outline a summary of the results of our analysis, along with a market specific commentary. State Street **rejects** the premise that WTax has outlined in their analysis.

Overall Summary

State Street files tax reclaims for LACERA to obtain the lowest amount of tax withholding in your markets of investment according to the tax rates in double taxation agreements (DTAs) between the United States and foreign markets, and the local laws in the foreign markets. (DTAs specify the agreed upon tax withholding rates that should be charged to US investors when receiving dividends or bond interest payments in the foreign market.) LACERA's tax entitlement is contingent upon many factors, including the tax rates in DTAs, your fiscal domicile in the U.S., your legal structure, and your ability to provide any necessary tax documentation that is required by the foreign markets. State Street files tax reclaims for each reclaim market on an ongoing basis on behalf of LACERA, with the filing frequency determined by local market practice, residency, and availability of applicable tax documentation. The State Street program demonstrates our comprehensive understanding and knowledge of the market specific nuances, current measures being taken to minimize withholding tax exposure married with client specific details as part of the service.

State Street's Response Summary

State Street does not agree with WTax's conclusion that State Street has missed tax reclaim filing opportunities for LACERA, specifically noting the "% Difference" column completely misrepresents the work accomplished by State Street.

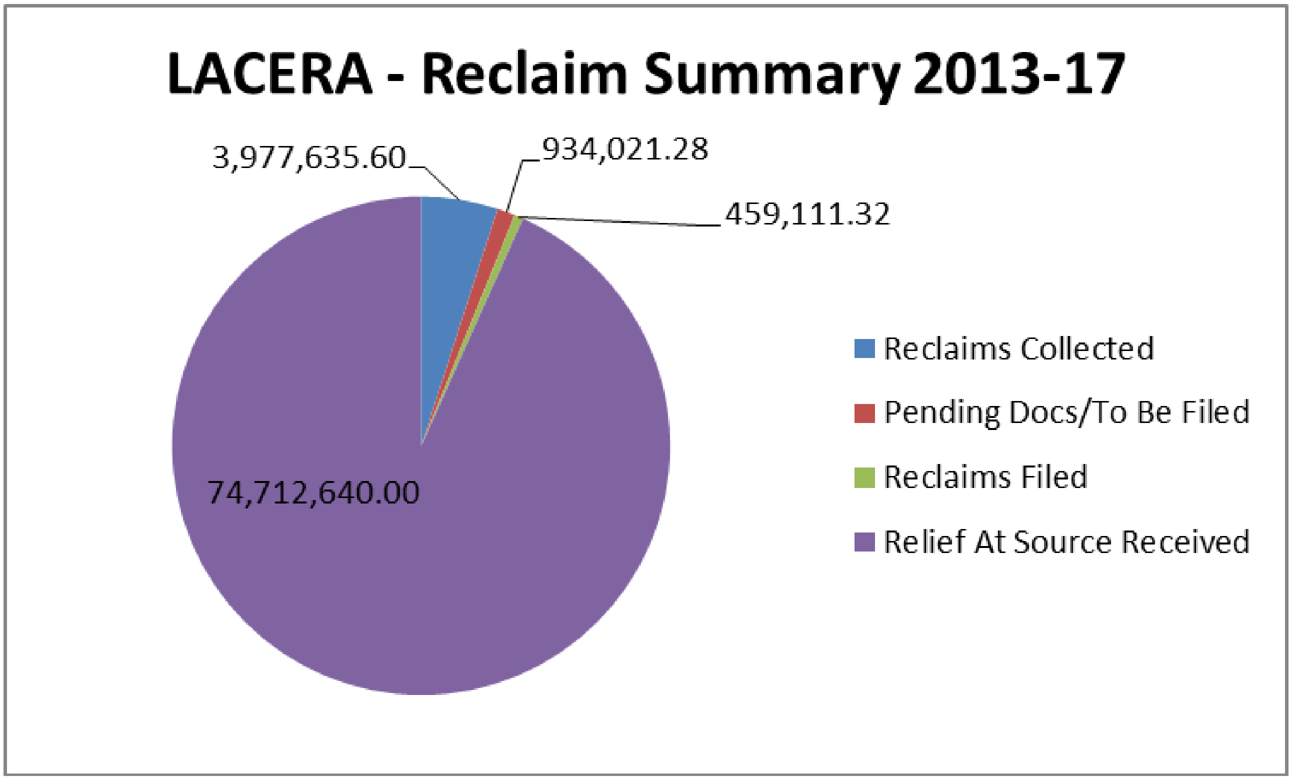
Based on State Street's analysis of income earned since 2013, LACERA has:

- Received $74,712,640.00 USD by the full relief at source process on income paydate. Relief at source avoids a lengthy tax reclaim process and delays in payments, benefiting LACERA through an immediate reduction in tax withheld.
    - The relief at source is obtained when State Street gathers LACERA's tax documents and provides them to the foreign markets to prove that LACERA is a U.S. resident and is entitled to reduced tax withholding on dividends and bond interest payments. Through relief at source, tax reclaim filings are not required;
- Obtained $3,977,636 USD in tax reclaim payments through quick refund processes or standard reclaim process;
    - certain markets offer quick refund processes which State Street files shortly after the dividends and interest payments are received, thus tremendously expediting the receipt of payments to LACERA. Payments from standard tax reclaim filings can take from six months to several years to be received from the foreign tax authorities and the quick refund process significantly shortens that timeframe.
- Within the normal market tax reclaim processing timeframe, tax reclaims valued at $459,111 USD are already filed, pending payment by the respective market benefiting LACERA;
- According to the normal market practices and timeframes, tax reclaims that are to be filed at the earliest date possible, totaling $934,021 USD. Of this, tax reclaims worth $92,081 USD have been filed with the foreign tax authorities in 2018 since the data files were delivered to WTax for analysis. The remaining tax reclaims will be filed, however, are in process due to various reasons including, but not limited to pending market documentation, new market requirements, etc. however, will be processed at the earliest time possible.

STATE STREET

One of the primary focuses for State Street and LACERA is obtaining tax relief at source, where LACERA funds are taxed the lowest amount on income paydate and avoid the often lengthy tax reclaim process resulting in instant relief for LACERA. As a result, State Street has obtained $74,712,640 USD from 2013 to 2017 for LACERA funds in seven major markets of investment (Australia, Belgium, Canada, France, Italy, Japan, and Korea).

The following chart shows the breakdown of amounts received through relief at source, as well as the reclaim amounts that have been successfully collected, have been filed with the foreign tax authorities, and are to be filed.



STATE STREET

In order for an easy comparison between State Street's and WTax's comments, we are providing our comments in the same format used by WTax's report.

Custodian Reclaims										
DTT or Exemption	Year	WTAX Identified	Successful	Submitted	Pending Submission	Difference	% Difference	Reason for Difference (including feedback from State Street (SSB))	State Street Comments	State Street % Difference
Australia	2014	48,225				48,225	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied, this is from before exemption letter was received.	LACERA's exemption ruling was received in 2016, but was granted back to 2009. Based on LACERA's request SSB will file reclaims to recover a portion of this tax withholding. The exemption does not cover the tax applied to "Sundry Other Income" payments. However, SSB can reclaim 22,642 of the 63,470 difference, related to non-SOI payments. SSB to file reclaims.	0%
	2015	13,289				13,289	100%			
	2016	1,956				1,956	100%			

STATE STREET

Custodian Reclaims										
DTT or Exemption	Year	WTAX Identified	Successful	Submitted	Pending Submission	Difference	% Difference	Reason for Difference (including feedback from State Street (SSB))	State Street Comments	State Street % Difference
South Korea	2015	4,131				4,131	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied.	Tax was withheld at 16.5%, while the tax treaty between the US and Korea indicates 15% tax should be withheld. The 1.5% difference is an income surcharge, which is not reclaimable.	0%
	2016	3,391				3,391	100%			
	2017	6,632				6,632	100%			
Canada	2016	1,832				1,832	100%	REITS - not claimable for Pension Funds	Agreed	0%
Italy	2017	1,419				1,419	100%	SSB did not pursue due to high costs	Position held outside of Italy, SSB did not pursue due to high costs	0%
Japan	2017	1,174				1,174	100%	SSB did not pursue due to high costs	Position held outside of Japan, cannot be claimed	0%
Indonesia	2014	318				318	100%	SSB do relief at source in this territory. WTax picked up dividends that according to SSB data have full WHT still applied.	Indonesia does not have a working tax reclaim process. No reclaims are received in this market.	0%

STATE STREET

Custodian Reclaims										
DTT or Exemption	Year	WTAX Identified	Successful	Submitted	Pending Submission	Difference	% Difference	Reason for Difference (including feedback from State Street (SSB))	State Street Comments	State Street % Difference
Austria	2014	7,058	6,349			709	10%		Several reclaims were below SSB's filing tolerance of 250 EUR. The tolerance is set at this level due to onerous amount of requirements associated with the reclaim filings.	0%
	2015	7,221	6,674			547	8%			
	2016	11,894		11,762		132	1%			
	2017	50,276			50,119	50,276	100%	Cannot be filed during year of dividend, pending filing according to SSB response	All 2017 reclaims have been filed for Austria in early 2018.	0%
Switzerland	2015	221,397	221,397				0%			0%
	2016	360,432		335,822		24,610	7%		All 2016 income events are accounted for in SSB's reclaim system, 0% were missed.	0%
	2017	241,136			241,136	241,136	100%	Cannot be filed during year of dividend, pending filing according to SSB response	Agreed	0%
Denmark	2014	2,484		2,484			0%	Not claimed yet due to Denmark shutting down claim process as a result of fraud. WTax has submitted claims using new process as of end of 2016.	Not claimed yet due to Denmark shutting down claim process as a result of fraud. SSB has started filing according to the new requirements.	0%
	2015	297,578	297,020		557	557	0%			
	2016	47,812			47,812	47,812	100%			
	2017	62,524			62,524	62,524	100%			

STATE STREET

Custodian Reclaims										
DTT or Exemption	Year	WTAX Identified	Successful	Submitted	Pending Submission	Difference	% Difference	Reason for Difference (including feedback from State Street (SSB))	State Street Comments	State Street % Difference
Germany	2014	391,460	390,190			1,269	0%		Reclaim was filed for larger share position, and has been collected. 0% missed.	0%
	2015	398,743	398,743				0%			0%
	2016	587,826	567,302			20,524	3%		Position held outside of Germany, reclaim not supported	0%
	2017	454,943			454,943	454,943	100%	New claiming process in Germany, pending filing according to SSB response	Agreed	0%
Spain	2014	2,975	2,975				0%		Position held outside of Spain, cannot be claimed	0%
	2015	578	578				0%			
	2016	2,476	2,178			298	12%			
	2017	4,323	3,131			1,192	28%	Cross-settled position, cannot be claimed		
Netherlands	2015	195,678	195,512			166	0%		Agreed	0%
	2016	209,251	209,251				0%			
	2017	311,490	258,124		53,366	53,366	17%	Reclaims to be filed (SSB)		
UK REIT	2013	18,324	18,324				0%		Agreed	0%
	2014	39,147	39,147				0%			
	2017	811			811	811	100%	SSB did not pursue due to high costs		
Portugal	2016	5,769		5,769			0%			0%
South Africa	2017	126	126				0%			0%

STATE STREET

The detail in the above table is summarized as follows:

WTAX Analysis – State Street Bank Comments	USD Equivalent
WTAX Difference Cited	1,043,241
2017 Reclaims - Not Filed yet	-862,899
Denmark 2015-16 Reclaims to be filed	-48,369
Australia Reclaims not available, SOI related, not covered by Exemption	-40,828
Switzerland 2016 - All Items Filed, pending market payment	-24,610
Australia Reclaims to be filed, non-SOI, covered by Exemption	-22,642
Germany Cross Settled, not supported	-20,524
Korea - Claims to recover 1.5% income surcharge (difference between 15% treaty rate and 16.5% tax withheld) cannot be filed as this amount is not reclaimable	-14,154
Canada – REITS for Pension Funds are not entitled to a reclaim	-1,832
Spain - Cross Settled, cannot be reclaimed due to market regulation	-1,490
Italy - Cross Settled, not supported	-1,419
Austria - Below Tolerance	-1,388
Germany 2014 – Reclaim has been filed, payment market payment	-1,269
Japan - Cross Settled, not supported	-1,174
Miscellaneous Small Items	-325
Indonesia – Market has no reclaim process in order to file reclaims	-318
TOTAL	**0**

State Street's ECJ Claim Support

State Street does not file claims related to the European Court of Justice process; this is supported by the client-appointed tax agent. State Street will provide the income files that reflect all of the client's payments received that are eligible for the ECJ claim process. We will also provide the necessary tax vouchers to the client-appointed tax agent to support the claim filings.

Conclusion

Since 2013, State Street has effectively obtained tax relief at source for LACERA, highlighted by $74 million received in seven key markets, and successfully collected nearly $4 million via the tax reclaim process.
The items cited by WTax as missed by State Street fall into the categories of not yet filed due to age or market requirements, below minimum filing tolerance based on associated fees, not eligible for reclaim filing, or not supported by State Street due to onerous requirements.

State Street feels that this analysis demonstrates the accomplishments of State Street and solidifies the stance that the tax reclaim and relief at source services should remain assigned to State Street, your global custodian. Also to reiterate, the analysis performed by WTax does not accurately reflect the tax reclaim filings for LACERA.

November 20, 2018

TO: Each Member
Board of Investments

FROM: Corporate Governance Committee
Shawn Kehoe, Chair
David Muir, Vice Chair
Joseph Kelly
Herman Santos
Gina Sanchez, Alternate

Jonathan Grabel, Chief Investment Officer

FOR: December 12, 2018 Board of Investments Meeting[i]

SUBJECT: **LACERA NOMINATION FOR COUNCIL OF INSTITUTIONAL INVESTORS BOARD OF DIRECTORS ELECTIONS**

RECOMMENDATION

Approve LACERA formally nominating Board member Gina Sanchez for the Council of Institutional Investors' 2019 board elections.

BACKGROUND

LACERA is a member of the Council of Institutional Investors ("CII"). As detailed in the attached memo to the Corporate Governance Committee ("Committee"), dated September 19, 2018, public fund members such as LACERA elect nine of CII's 15 board seats. CII board members serve up to five consecutive one-year terms. No current CII board members are terming off the CII board in the 2019 elections. Nominations from public fund members are anticipated to be solicited in January 2019 in advance of elections that will occur at CII's March 2019 Spring conference.

Per LACERA policy, the Committee recommends nominations to governing boards of corporate governance-related investors associations for full Board of Investment consideration and approval, time-permitting. The Committee approved a motion that the Board of Investments nominate Gina Sanchez as LACERA's nomination for CII's 2019 elections. The Committee is now presenting the recommended affiliation for consideration by the Board of Investments.

DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE

The Committee discussed nominating a board member for the 2019 CII board elections. The Committee discussed LACERA's history of nominations to the CII board and the importance of nominating a candidate who is electable.

RISKS OF ACTION AND INACTION

If successfully elected, LACERA's representation on the boards of outside associations, such as CII, may create certain reputational risks. For example, Board service may associate LACERA with public actions of the organization that may or may not be aligned with LACERA policy.

The risk of inaction is namely that, absent a nomination from LACERA, LACERA will voluntarily vacate its current representation on CII's board. LACERA's participation in CII is one method by which LACERA collaborates with other institutional investors to advance investors' interests in financial market policy and promote sound governance practices at companies in which LACERA invests. Representation on the CII board provides LACERA with a mechanism to collaborate and shape CII's priorities and programming.

CONCLUSION

LACERA has a longstanding membership in CII. Service on CII's board is an opportunity to contribute to CII's oversight and initiatives, while representing LACERA to external audiences and furthering LACERA's corporate governance initiatives. It is therefore recommended that the Board of Investments approve that the Board nominate Ms. Gina Sanchez for CII's 2019 board elections.

Attachment

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[i] This item was presented for Board of Investments consideration at its November 8, 2018 meeting. Upon Board of Investment action, the item was postponed for consideration at the December 12, 2018 meeting. This memorandum has been dated accordingly and is otherwise the same in all respects to the material presented to the Board of Investments at its November 8, 2018 meeting.

LACERA ATTACHMENT

September 19, 2018

TO: Each Member
Corporate Governance Committee

FROM: Jonathan Grabel
Chief Investment Officer

FOR: October 10, 2018 Corporate Governance Committee Meeting

SUBJECT: **COUNCIL OF INSTITUTIONAL INVESTORS BOARD NOMINATION**

RECOMMENDATION

That the Corporate Governance Committee recommend for Board of Investments approval a nomination for election or re-election to the Council of Institutional Investors board of directors.

BACKGROUND

LACERA is a member of several corporate governance associations, including the Council of Institutional Investors ("CII"). CII bylaws provide that public fund CII members elect nine members to its board each year. Scott Zdrazil, Senior Investment Officer, is currently serving a first term on the CII board. CII board members are permitted to serve five consecutive one-year terms. In accordance with CII's stated governance principles for public companies, CII holds annual elections for all board members who generally serve five terms to provide consistent vision and oversight. There are no sitting CII board members who are terming off the board this year. CII has respectfully requested six-month notice from any incumbent member of the board who will not be nominated for re-election.

LACERA Board of Investment members have on occasion expressed interest in putting forward a trustee nominee for CII board elections. I would therefore suggest that the Committee consider nominating LACERA board member Mr. David Muir for CII's 2019 board elections.

CII board nominations are anticipated to be due in January 2019 for consideration and a vote by all public fund CII members at the Spring CII Conference, scheduled to take place in Washington, D.C., March 4-6, 2019. LACERA's *Corporate Governance Policy* provides that the Board of Investments, "[a]pproves LACERA representatives for nomination to governing bodies of the corporate governance associations to which LACERA is affiliated, as recommended by the Corporate Governance Committee…" (pages 1-2). This item is being presented for Committee consideration in order to allow for timely consideration by the Board of Investments, should the Committee take action on the item.

LACERA

November 30, 2018

TO: Each Member
Board of Investments

FROM: Jonathan Grabel
Chief Investment Officer

Calvin Chang
Senior Investment Analyst

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **ASSEMBLY BILL 2833 REPORT – FISCAL YEAR 2018**

California Assembly Bill 2833 ("AB 2833") requires the public pension systems to obtain information on fees, expenses, and carried interest information in connection with their investments in alternative investment vehicles and disclose, at least on an annual basis, the results to the public in an open meeting for all new commitments made on and after January 1, 2017. In addition, the bill requires each public pension system to undertake reasonable efforts to obtain the aforementioned information for any existing contracts to which the public pension has not made a new capital commitment on or after January 1, 2017. This expense and fee report provides maximum transparency within the limitations of the law and existing confidentiality agreements.

LACERA collected data from 266 active alternative investment vehicles and aggregated the data consistent with the mandate and spirit of AB 2833. The total alternative investment fees paid (accrued, if applicable) for the fiscal year ending June 30, 2018 are summarized below:

- Total alternative investment manager fees were $130.8 million ($123.7 million for fiscal year 2017)
- Total carried interests were $129.8 million ($130.4 million for fiscal year 2017)
- Total fund and other expenses were $43.9 million ($33.5 million for fiscal year 2017)

An overview of AB 2833 (**Attachment 1**) and the fees listed in the summary above will be discussed at the December 12, 2018 Board of Investments meeting. An expanded view of the fees is provided (**Attachment 2**) as required by AB 2833, in addition to Section 6254.26(b) reporting (**Attachment 3**).

Attachments

JG : cq

ATTACHMENT 1

AB 2833 Fiscal Year 2018

Board of Investments

December 12, 2018

Jonathan Grabel – Chief Investment Officer
Calvin Chang – Senior Investment Analyst
Sabrina Chen – Investment Accountant

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

Overview of AB 2833

The intent of California Assembly Bill 2833 ("AB 2833") is to increase the transparency of fees paid by public investment funds to alternative investments[1] by requiring public investment funds to disclose the fees, expenses, and carried interest in connection with alternative investment vehicles and their underlying investments at least once annually at an open meeting. The fee transparency disclosure requirements are applicable to:

- New contracts entered into on and after January 1, 2017; and
- Existing contracts for which a new capital commitment is made on or after January 1, 2017
- In addition, each public pension system is required to undertake reasonable efforts to disclose such information for any existing contract for which the public investment fund has not made a new capital commitment on or after January 1, 2017

[1] "Alternative investment" is defined in AB 2833 as an investment in a private equity fund, venture fund, hedge fund, or absolute return fund.

Requirements Under AB 2833

Effective January 1, 2017, annual reporting rules require the disclosure of the following:

1) The fees and expenses paid directly to the alternative investment vehicle, the fund manager, or related parties;
2) Pro rata share of fees and expenses not covered by item (1) above that are paid from the alternative investment vehicle to the fund manager or related parties;
3) Pro rata share of carried interest distributed to the fund manager or related parties;
4) Pro rata share of aggregate fees and expenses paid by all of the portfolio companies held within the alternative investment vehicle to the fund manager or related parties;
5) The gross and net rate of return of each alternative investment vehicle since inception; and
6) The information described in subdivision (b) of Section 6254.26 of the Public Records Act.

Government Code Section 6254.26 (b)

Included as a subset of AB 2833, Section 6254.26(b) requires the disclosure of the following:

1) Name, address and vintage year of fund;
2) Dollar amount since inception of Public Plan's commitment to fund;
3) Dollar amount since inception of Public Plan's cash contributions to fund;
4) Fiscal year-end dollar amount of fund's cash distributions received by Public Plan from fund;
5) Fiscal year-end dollar amount of cash distributions received plus the remaining value of fund's assets attributable to the investment by Public Plan;
6) Net internal rate of return of fund since inception;
7) Investment multiple of fund since inception;
8) Dollar amount of total management fees and costs paid by Public Plan on an annual fiscal year-end basis; and
9) Annual fiscal year-end dollar amount of cash profit Public Plan has received from fund.

Summary of Alternative Investment Fees, Expenses, and Carried Interest for the period July 1, 2017 through June 30, 2018

Asset Category[1]	Management Fee[2]	Fund Expenses[3]	Carried Interest[4]	Total Costs
Private Equity	$ 83,929,056	$ 28,732,875	$ 101,645,322	$ 214,307,254
Hedge Fund	26,174,240	8,762,521	21,946,822	$ 56,883,583
Real Estate	10,318,925	4,179,582	2,219,295	$ 16,717,802
Global Equity	6,742,342	843,877	3,951,343	$ 11,537,562
Fixed Income	3,613,494	1,347,823	-	$ 4,961,317
Total	**$ 130,778,058**	**$ 43,866,679**	**$ 129,762,782**	**$ 304,407,518**

[1] Cost data represetative for only alternative investment vehicles within each respective asset category

[2] Management fees paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, calculation using the resepective management fee rate, and pro rata share of the alternative investment fund's total managment fee. Negative values indicate giveback of previousily accrued or paid fees.

[3] Fund expenses paid or accrued to the alternative investment fund during the fiscal year, including by portfolio companies. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, pro rata share of the alternative investment fund's total fund expenses, and estimations based on alternative investment fund's operating expense ratios obtained from the most recent audited financial statement. Negative values indicate giveback of previousily accrued or paid fees.

[4] Carried interest paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, and pro rata share of the alternative investment fund's total carried interest. Negative values indicate giveback of previousily accrued or paid fees.

Summary of Alternative Investment Fees, Expenses, and Carried Interest for the period July 1, 2016 through June 30, 2017

Asset Category[1]	Management Fee[2]	Fund Expenses[3]	Carried Interest[4]	Total Costs
Private Equity	$ 78,056,977	$ 23,080,689	$ 106,101,986	$ 207,239,653
Hedge Fund	28,177,289	8,774,557	21,850,796	$ 58,802,642
Real Estate	9,401,322	-	-	$ 9,401,322
Global Equity	4,645,998	692,934	2,466,439	$ 7,805,372
Fixed Income	3,466,919	978,138	-	$ 4,445,057
Total	**$ 123,748,506**	**$ 33,526,318**	**$ 130,419,221**	**$ 287,694,046**

[1] Cost data represetative for only alternative investment vehicles within each respective asset category

[2] Management fees paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, calculation using the resepective management fee rate, and pro rata share of the alternative investment fund's total managment fee. Negative values indicate giveback of previousily accrued or paid fees.

[3] Fund expenses paid or accrued to the alternative investment fund during the fiscal year, including by portfolio companies. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, pro rata share of the alternative investment fund's total fund expenses, and estimations based on alternative investment fund's operating expense ratios obtained from the most recent audited financial statement. Negative values indicate giveback of previousily accrued or paid fees.

[4] Carried interest paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, and pro rata share of the alternative investment fund's total carried interest. Negative values indicate giveback of previousily accrued or paid fees.

Year-Over-Year Changes

Asset Category	Management Fee	Fund Expenses	Carried Interest	Total Costs
Private Equity	+8%	+24%	-4%	+3%
Hedge Fund	-7%	0%	0%	-3%
Real Estate	+10%	>100%	>100%	+78%
Global Equity	+45%	+22%	+60%	+48%
Fixed Income	+4%	+38%	0%	+12%
Total	**+6%**	**+31%**	**-1%**	**+6%**

- **Private Equity**: Greater manager adoption of the ILPA template has improved data quality
- **Hedge Fund**: Decreased management fees due to culmination of San Gabriel 2 credit hedge fund of funds
- **Real Estate**: Increased fees due to a higher number of funds as well as earned carried interest. Fee data has been presented on a more granular level in 2018 than the prior year.
- **Global Equity**: Increased fees due to market appreciation and prior period did not include results for all four fiscal quarters
- **Fixed Income**: Increased fees due to prior period did not include results for all four fiscal quarters

- Total aggregate costs for the Fund was flat compared to prior fiscal year
- Early implementation matters may distort year-over-year data points for the next couple reporting cycles
- Full adoption is still a few years away and consistent usage will improve with experience

Assembly Bill 2833

Attachment 2

Fiscal Year-Ended June 30, 2018

		A	B		C			Sum of A + B + C
Asset Category	**Alternative Investment Fund**	**Management Fees[1]**	**Fund Expenses[2]**	**Carried Interest[3]**	**Portfolio Company Expenses[4]**	**Since Inception Gross Return[5]**	**Since Inception Net Return[6]**	**Total Fees**
Fixed Income	BPC Opportunities Fund II, L.P.	$ 1,019,913	$ 381,267	$ -	$ -	9.84%	7.33%	$ 1,401,180
Fixed Income	BPC Opportunities Fund III, L.P.	$ 651,414	$ 574,695	$ -	$ -	14.60%	10.01%	$ 1,226,109
Fixed Income	Tennenbaum Senior Loan Fund V, LLC	$ 1,942,167	$ 391,861	$ -	$ -	8.32%	7.34%	$ 2,334,028
Global Equity	Cevian Capital II Master Fund L.P.	$ 4,577,976	$ 164,560	$ -	$ -	25.04%	20.41%	$ 4,742,536
Global Equity	JANA Strategic Investment Fund V, L.P.	$ 1,200,000	$ 202,308	$ 1,755,191	$ 2,020	35.23%	22.81%	$ 1,404,328
Global Equity	The SFP Value Realization Master Fund Ltd	$ 964,366	$ 474,989	$ 2,196,152	$ -	27.80%	24.00%	$ 1,439,355
Hedge Fund	Alyeska Fund 2, L.P. - Class A	$ 649,253	$ 30,078	$ 61,856	$ -	2.12%	-0.93%	$ 679,330
Hedge Fund	AQR Liquid Enhanced Alternative Premia Fund, L.P.	$ 136,367	$ 30,523	$ -	$ -	-8.87%	-9.82%	$ 166,889
Hedge Fund	Atreaus Fund, L.P. - Tranche F	$ 161,719	$ 38,667	$ -	$ -	-2.36%	-4.83%	$ 200,387
Hedge Fund	BP Transtrend Diversified Fund, LLC	$ 9,442	$ 12,824	$ -	$ -	0.07%	-0.80%	$ 22,266
Hedge Fund	Brevan Howard, L.P.- Series B	$ -	$ -	$ -	$ -	-0.76%	-3.25%	$ -
Hedge Fund	Bridgewater Pure Alpha Major Markets II, LLC	$ 589,298	$ 28,664	$ -	$ -	3.86%	0.33%	$ 617,962
Hedge Fund	Caxton Global Investments (USA), LLC - Class T	$ 112,705	$ -	$ 10,705	$ -	2.28%	-1.93%	$ 112,705
Hedge Fund	Coolmore Partners, L.P.	$ 35,300	$ 2,652	$ -	$ -	-3.08%	-4.63%	$ 37,952
Hedge Fund	Crabel Fund, L.P. - Class A	$ 171,206	$ 152,129	$ -	$ -	7.79%	4.41%	$ 323,335
Hedge Fund	D.E. Shaw Valence Fund, LLC	$ 944,956	$ 28,111	$ 1,518,866	$ -	23.13%	13.41%	$ 973,067
Hedge Fund	Davidson Kempner Institutional Partners, L.P.	$ 212,500	$ 53,827	$ 105,585	$ -	0.90%	0.72%	$ 266,327
Hedge Fund	Deep Basin Long-Short Fund, L.P.	$ 95,344	$ 52,405	$ 129,580	$ -	10.38%	8.11%	$ 147,749
Hedge Fund	Dymon Asia Macro (US) Fund - Class P3 Unrestricted	$ 204,833	$ 40,580	$ -	$ -	2.08%	-0.16%	$ 245,412
Hedge Fund	Edgestream Sumatra Fund, L.P.	$ 150,747	$ 57,535	$ 2,406	$ -	5.93%	4.40%	$ 208,282
Hedge Fund	Empyrean Capital Fund, L.P. - Class 2 Series N	$ 251,481	$ 1,351	$ 470,942	$ -	9.40%	6.56%	$ 252,832
Hedge Fund	EMSO Saguaro Ltd. - Class A	$ 70,117	$ 19,414	$ 11,910	$ -	-3.17%	-3.69%	$ 89,531
Hedge Fund	Farallon Capital Institutional Partners, L.P.	$ 145,837	$ 31,698	$ 187,485	$ -	6.36%	4.20%	$ 177,535
Hedge Fund	Glen Point Global Macro Fund, L.P. - Class A	$ 150,821	$ 93,393	$ -	$ -	-3.60%	-5.96%	$ 244,214
Hedge Fund	Goldman Sachs Hedge Fund Strategies, LLC[8]	$ 1,799,120	$ 29,412	$ -	$ -	3.12%	2.47%	$ 1,828,532
Hedge Fund	HBK Multi-Strategy Fund, L.P.	$ 281,964	$ 82,889	$ 486,897	$ -	4.26%	1.56%	$ 364,853
Hedge Fund	HG Vora Special Opportunities Fund, LP - Series 1	$ 239,289	$ 51,179	$ 550,167	$ -	13.27%	8.80%	$ 290,468
Hedge Fund	Holocene Advisors Fund, L.P. - Class AI-A	$ 516,347	$ 60,030	$ 837,716	$ -	13.65%	11.38%	$ 576,377
Hedge Fund	Kintbury Equity Fund L.P. - Class F	$ 224,341	$ 31,460	$ -	$ -	3.44%	2.80%	$ 255,802
Hedge Fund	Lakewood Capital Partners, L.P.	$ 324,405	$ 27,527	$ 209,646	$ -	8.28%	5.09%	$ 351,933
Hedge Fund	Macquarie Global Alpha US Feeder Fund - Class L	$ 211,087	$ 22,450	$ 113,346	$ -	3.32%	3.10%	$ 233,537
Hedge Fund	Manikay Onshore Fund, L.P.	$ 383,709	$ 69,825	$ 301,719	$ -	9.04%	6.13%	$ 453,534
Hedge Fund	Palestra Capital Partners, LP - Series 3G Interests	$ 273,103	$ 32,936	$ 758,693	$ -	14.58%	12.03%	$ 306,039
Hedge Fund	Palmetto Catastrophe Fund L.P. - Class H	$ 18,856	$ 2,270	$ 2,832	$ -	0.56%	0.42%	$ 21,126
Hedge Fund	PFM Oncology Opportunities Fund, L.P. - Class A	$ -	$ 161,043	$ 226,121	$ -	12.25%	9.28%	$ 161,043
Hedge Fund	Rubric Capital Partners, L.P. - Series F1 G	$ 263,248	$ 69,832	$ 703,807	$ -	15.52%	12.91%	$ 333,080
Hedge Fund	San Gabriel Fund, L.P.[9]	$ 8,924,114	$ 4,611,318	$ 8,680,597	$ -	4.69%	3.93%	$ 13,535,432
Hedge Fund	San Gabriel Fund 2, L.P.[9]	$ 1,418,367	$ 566,167	$ 1,066,351	$ -	6.71%	5.95%	$ 1,984,534
Hedge Fund	San Gabriel Fund 3, L.P.[9]	$ 6,342,810	$ 2,133,343	$ 4,820,346	$ -	10.43%	9.67%	$ 8,476,153
Hedge Fund	Stone Milliner Macro Fund Delaware L.P. - Class A	$ 314,212	$ 18,076	$ -	$ -	3.33%	0.85%	$ 332,288
Hedge Fund	Swiftcurrent Partners, L.P. - Class C	$ 277,091	$ 21,317	$ 434,424	$ -	6.72%	4.55%	$ 298,408
Hedge Fund	Taconic Opportunity Fund L.P.	$ 78,116	$ 32,386	$ 160,113	$ -	4.33%	3.28%	$ 110,502
Hedge Fund	Warlander Partners, L.P. - Class W	$ 91,753	$ 19,554	$ -	$ -	-4.49%	-6.37%	$ 111,307

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Fiscal Year-Ended June 30, 2018

		A	B		C			Sum of A + B + C
Asset Category	**Alternative Investment Fund**	**Management Fees[1]**	**Fund Expenses[2]**	**Carried Interest[3]**	**Portfolio Company Expenses[4]**	**Since Inception Gross Return[5]**	**Since Inception Net Return[6]**	**Total Fees**
Hedge Fund	Winton Diversified Strategy Fund (US), L.P.	$ 100,383	$ 45,657	$ 94,712	$ -	5.50%	3.72%	$ 146,040
Private Equity	Alsop Louie Capital II, L.P.	$ 87,500	$ 11,434	$ -	$ -	N/A	-3.73%	$ 98,934
Private Equity	Alsop Louie Capital III, L.P.	$ 92,856	$ 13,809	$ -	$ -	N/A	16.88%	$ 106,665
Private Equity	Alta California Partners III, L.P.	$ -	$ 3,138	$ -	$ -	7.23%	2.20%	$ 3,138
Private Equity	Apollo Investment Fund V, L.P.	$ -	$ 8,064	$ -	$ 27,987	N/A	37.63%	$ 36,051
Private Equity	Atlantic Street Capital II, L.P.	$ -	$ 11,586	$ -	$ -	53.90%	39.62%	$ 11,586
Private Equity	Atlantic Street Capital III, L.P.	$ 200,000	$ 40,156	$ -	$ -	60.69%	24.09%	$ 240,156
Private Equity	Australis Partners Fund, L.P.	$ 1,533,129	$ 291,161	$ -	$ -	N/A	-13.42%	$ 1,824,290
Private Equity	Blackstone Capital Partners IV - Secondary	$ -	$ 446	$ 12,000	$ 166	N/A	13.78%	$ 612
Private Equity	Blackstone Capital Partners IV, L.P.	$ -	$ 6,684	$ 179,996	$ 2,494	50.80%	37.54%	$ 9,179
Private Equity	Blackstone Capital Partners V, L.P.	$ 6,757	$ 19,003	$ -	$ 23,742	9.60%	7.76%	$ 49,501
Private Equity	Blackstone Capital Partners VI, L.P.	$ 300,467	$ 104,951	$ 1,336,333	$ 170,436	19.80%	14.40%	$ 575,854
Private Equity	Blackstone Capital Partners VII, L.P.	$ 2,700,000	$ 407,488	$ 50,384	$ 54,874	36.10%	16.90%	$ 3,162,362
Private Equity	Blackstone Communications Partners I, L.P.	$ -	$ 1,372	$ -	$ 292	12.70%	6.55%	$ 1,664
Private Equity	Brinson International Partners Fund	$ -	$ 8,670	$ -	$ 10,304	N/A	11.26%	$ 18,974
Private Equity	BRV Aster Fund II, L.P.	$ 961,111	$ 75,521	$ -	$ -	9.94%	-8.67%	$ 1,036,632
Private Equity	Canaan XI, L.P.	$ 451,587	$ 63,585	$ -	$ -	NM	-3.00%	$ 515,171
Private Equity	Candover 2005 Fund, L.P.	$ -	$ 49,159	$ -	$ -	N/A	-11.19%	$ 49,159
Private Equity	Carlye U.S. Equity Opportunity Fund II, L.P.	$ 2,585,982	$ 503,742	$ -	$ 873,865	N/A	8.16%	$ 3,963,589
Private Equity	Carlyle Partners V, L.P.	$ 32,136	$ 11,025	$ 1,893,878	$ 83,857	N/A	13.80%	$ 127,018
Private Equity	Carlyle Partners VI, L.P.	$ 1,048,295	$ 295,960	$ -	$ 503,209	N/A	12.83%	$ 1,847,464
Private Equity	Centerbridge Capital Partners II, L.P.	$ 392,299	$ 87,818	$ -	$ 9,840	N/A	2.37%	$ 489,957
Private Equity	Centerbridge Capital Partners III, L.P.	$ 1,124,294	$ 416,308	$ 217,320	$ 8,734	N/A	13.30%	$ 1,549,336
Private Equity	Centerbridge Capital Partners, L.P.	$ 86,272	$ 62,636	$ 35,886	$ 45,323	N/A	19.94%	$ 194,231
Private Equity	Chart Capital Partners II	$ 888	$ 23,785	$ -	$ 55,430	14.80%	10.04%	$ 80,103
Private Equity	Clarion Investors II, L.P.	$ (45,564)	$ 16,538	$ 1,089,323	$ 272,546	41.30%	29.89%	$ 243,520
Private Equity	Clearlake Capital Partners III, L.P.	$ 42,131	$ 111,393	$ 6,727,363	$ 948,806	N/A	42.71%	$ 1,102,330
Private Equity	Clearlake Capital Partners IV, L.P.	$ 1,203,026	$ 130,643	$ -	$ 97,663	N/A	33.97%	$ 1,431,332
Private Equity	Clearlake Capital Partners V, L.P.	$ 628,612	$ 180,181	$ -	$ -	N/A	23.26%	$ 808,793
Private Equity	CVC Capital Partners VI (B) L.P.	$ 1,250,460	$ 401,453	$ -	$ 21,931	17.40%	12.71%	$ 1,673,844
Private Equity	CVC Capital Partners VII, L.P.	$ 1,686,568	$ 446,095	$ -	$ -	N/A	0.00%	$ 2,132,663
Private Equity	CVC European Equity Partners III, L.P.	$ -	$ 11,560	$ -	$ -	57.80%	41.04%	$ 11,560
Private Equity	CVC European Equity Partners IV (D), L.P.	$ -	$ 14,982	$ 921,305	$ -	22.60%	16.66%	$ 14,982
Private Equity	CVC European Equity Partners Tandem Fund, L.P.	$ (228)	$ 5,202	$ 44,466	$ 228	12.00%	6.56%	$ 5,202
Private Equity	CVC European Equity Partners V (A), L.P.	$ 61,530	$ 23,453	$ 2,732,570	$ 49,178	26.40%	16.27%	$ 134,161
Private Equity	Exponent Private Equity Partners II, L.P.	$ 107,573	$ 27,494	$ 1,586,514	$ 16,554	17.78%	9.03%	$ 151,621
Private Equity	Exponent Private Equity Partners, L.P.	$ -	$ 21,543	$ -	$ 1,671	14.65%	7.28%	$ 23,215
Private Equity	Financial Partners Fund II, L.P.	$ 255,447	$ 92,087	$ -	$ 240,432	15.10%	-11.85%	$ 587,966
Private Equity	First Reserve Fund X, L.P.	$ -	$ 5,781	$ -	$ -	N/A	31.05%	$ 5,781
Private Equity	First Reserve Fund XI, L.P.	$ -	$ 10,218	$ -	$ -	N/A	-8.43%	$ 10,218
Private Equity	First Reserve Fund XII, L.P.	$ 439,149	$ 39,592	$ -	$ 2,921	N/A	-9.36%	$ 481,662
Private Equity	GBOF V Feeder SCS	$ 1,199,849	$ 149,611	$ -	$ 27,031	6.30%	-0.33%	$ 1,376,491
Private Equity	GGV Capital IV, L.P.	$ 778,836	$ 49,250	$ -	$ -	28.10%	19.69%	$ 828,086

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Fiscal Year-Ended June 30, 2018

Asset Category	Alternative Investment Fund	A Management Fees[1]	B Fund Expenses[2]	Carried Interest[3]	C Portfolio Company Expenses[4]	Since Inception Gross Return[5]	Since Inception Net Return[6]	Sum of A + B + C Total Fees
Private Equity	GGV Capital V, L.P.	$ 879,412	$ 733,912	$ -	$ -	45.10%	31.77%	$ 1,613,323
Private Equity	GGV Capital VI Plus, L.P.	$ -	$ 625	$ -	$ -	N/A	26.94%	$ 625
Private Equity	GGV Capital VI, L.P.	$ 900,000	$ 16,558	$ -	$ -	49.30%	24.90%	$ 916,558
Private Equity	GGV Discovery I, L.P.	$ 270,871	$ 11,263	$ -	$ 29,129	90.80%	43.95%	$ 311,263
Private Equity	Glendon Opportunities Fund, L.P.	$ 1,001,242	$ 111,610	$ -	$ 6,109	N/A	7.96%	$ 1,118,961
Private Equity	Goode Partners Consumer Fund II, L.P.	$ (31,301)	$ 5,992	$ 1,604,376	$ 134,450	60.10%	60.02%	$ 109,141
Private Equity	Goode Partners Consumer Fund III, L.P.	$ 145,073	$ 10,092	$ -	$ 54,927	N/A	-23.09%	$ 210,092
Private Equity	Green Equity Investors VII, L.P.	$ 2,163,589	$ -	$ -	$ -	8.70%	2.22%	$ 2,163,589
Private Equity	Greycroft Growth II, L.P.	$ 150,000	$ 6,211	$ -	$ -	72.70%	36.51%	$ 156,211
Private Equity	Greycroft Growth, L.P.	$ 150,000	$ 9,328	$ -	$ -	N/A	6.10%	$ 159,328
Private Equity	Greycroft Partners II, L.P.	$ 131,252	$ 11,323	$ 27,044	$ -	N/A	19.15%	$ 142,575
Private Equity	Greycroft Partners III, L.P.	$ 214,000	$ 12,883	$ -	$ -	N/A	9.45%	$ 226,883
Private Equity	Greycroft Partners IV, L.P.	$ 187,500	$ 13,139	$ -	$ -	N/A	16.28%	$ 200,639
Private Equity	Gridiron Capital Fund II, L.P.	$ 17,925	$ 6,338	$ -	$ 94,303	18.07%	13.03%	$ 118,566
Private Equity	GTB Capital Partners II, L.P.	$ 1,861,973	$ 682,040	$ -	$ -	N/A	12.55%	$ 2,544,013
Private Equity	GTB Capital Partners, L.P.	$ 252,959	$ 149,673	$ 8,642,779	$ -	N/A	12.14%	$ 402,632
Private Equity	Hellman & Friedman Capital Partners VIII, L.P.	$ 1,859,798	$ 787,699	$ -	$ 15,202	N/A	26.48%	$ 2,662,699
Private Equity	Incline Equity Partners III, L.P.	$ -	$ 4,076	$ -	$ 188,720	45.60%	30.68%	$ 192,796
Private Equity	Incline Equity Partners IV, L.P.	$ 492,616	$ 9,742	$ -	$ 184,444	5.00%	0.95%	$ 686,802
Private Equity	Incline Equity Partners IV, L.P. (JPM)	$ 131,365	$ 2,597	$ -	$ 49,184	5.00%	0.95%	$ 183,146
Private Equity	Insignia Capital Partners (Parallel A), L.P.	$ 1,175,547	$ 457,174	$ -	$ 419,174	27.40%	12.37%	$ 2,051,895
Private Equity	Institutional Venture Partners XIV, L.P.	$ 1,500,000	$ 27,787	$ 2,767,392	$ -	N/A	15.02%	$ 1,527,787
Private Equity	Institutional Venture Partners XV, L.P.	$ 2,250,000	$ 87,042	$ 465,796	$ -	N/A	11.61%	$ 2,337,042
Private Equity	Intersouth Partners VII, L.P.	$ 31,673	$ 2,146	$ -	$ -	N/A	-9.76%	$ 33,819
Private Equity	J.P. Morgan Emerging Managers Program	$ 503,250	$ -	$ -	$ -	19.63%	18.51%	$ 503,250
Private Equity	J.P. Morgan Emerging Managers Program II	$ 446,422	$ -	$ -	$ -	54.78%	53.93%	$ 446,422
Private Equity	J.P. Morgan Emerging Managers Program III	$ 236,145	$ 109,772	$ -	$ -	19.20%	16.62%	$ 345,917
Private Equity	JMI Equity Fund V, L.P.	$ -	$ 16,680	$ 1,041,273	$ -	N/A	19.34%	$ 16,680
Private Equity	JMI Equity Fund VI, L.P.	$ 171,766	$ 6,662	$ 192,196	$ -	N/A	54.14%	$ 178,428
Private Equity	JMI Equity Fund VII, L.P.	$ 441,003	$ 12,030	$ 621,952	$ 8,547	N/A	19.20%	$ 461,580
Private Equity	Joy Capital I, L.P.	$ 115,625	$ 8,821	$ -	$ -	74.15%	39.38%	$ 124,446
Private Equity	Joy Capital II, L.P.	$ 96,807	$ 10,055	$ -	$ -	12.67%	11.21%	$ 106,862
Private Equity	JZI Fund III, L.P.	$ 83,308	$ 44,254	$ -	$ 46,884	N/A	15.12%	$ 174,445
Private Equity	Juggernaut Capital Partners II, L.P.	$ 1,500,000	$ 125,318	$ -	$ 108,261	20.50%	13.90%	$ 1,733,579
Private Equity	Juggernaut Capital Partners III, L.P.	$ 1,650,000	$ 351,485	$ -	$ 219,592	16.20%	8.90%	$ 2,221,077
Private Equity	KarpReilly Capital Partners II, L.P.	$ 83,742	$ 3,984	$ -	$ 9,888	2.50%	-0.04%	$ 97,614
Private Equity	Kerogen Expansion Fund, L.P.	$ 122,374	$ 86,728	$ -	$ -	84.80%	81.34%	$ 209,102
Private Equity	Kerogen Pandion Energy AS	$ -	$ 31,473	$ -	$ -	84.80%	25.08%	$ 31,473
Private Equity	Knightsbridge Integrated Holdings V, L.P.	$ 3,858	$ 3,281	$ -	$ -	N/A	1.07%	$ 7,139
Private Equity	Kohlberg Investors IV, L.P.	$ -	$ 13,187	$ (377,574)	$ 5,419	17.15%	9.62%	$ 18,606
Private Equity	LAV Biosciences Fund IV, L.P.	$ 911,844	$ 139,373	$ -	$ -	48.20%	19.42%	$ 1,051,217
Private Equity	Lindsay Goldberg & Bessemer, L.P.	$ -	$ 2,717	$ -	$ -	48.00%	33.25%	$ 2,717
Private Equity	Madison Dearborn Capital Partners IV, L.P.	$ -	$ 4,770	$ -	$ -	19.20%	13.99%	$ 4,770

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Fiscal Year-Ended June 30, 2018

Asset Category	Alternative Investment Fund	Management Fees[1] (A)	Fund Expenses[2] (B)	Carried Interest[3]	Portfolio Company Expenses[4] (C)	Since Inception Gross Return[5]	Since Inception Net Return[6]	Total Fees (Sum of A + B + C)
Private Equity	Madison Dearborn Capital Partners V-A, L.P.	$ 146,009	$ 12,176	$ 1,720,450	$ 21,271	9.20%	7.21%	$ 179,456
Private Equity	Madison Dearborn Capital Partners VI, L.P.	$ 160,533	$ 46,103	$ 71,773	$ 20,289	30.80%	23.60%	$ 226,925
Private Equity	MBK Partners Fund IV, L.P.	$ 1,837,295	$ 137,391	$ -	$ -	21.00%	8.61%	$ 1,974,686
Private Equity	Menlo Ventures IX, L.P.	$ -	$ 864	$ -	$ -	N/A	0.81%	$ 864
Private Equity	NeoTribe Ventures I, L.P.	$ 152,452	$ 784	$ -	$ -	-23.00%	-27.93%	$ 153,236
Private Equity	New Mainstream Capital II, L.P.	$ 63,583	$ 24,467	$ 224,133	$ 89,292	N/A	16.40%	$ 177,342
Private Equity	Next Coast Ventures I, L.P.	$ 125,000	$ 9,395	$ -	$ -	18.81%	2.60%	$ 134,395
Private Equity	Nordic Capital Fund VI, L.P.	$ -	$ 22,262	$ 592,457	$ -	N/A	6.87%	$ 22,262
Private Equity	Nordic Capital V, L.P.	$ -	$ 202	$ 256,004	$ -	N/A	20.63%	$ 202
Private Equity	Nordic Capital VII Beta, L.P.	$ 312,114	$ 105,188	$ -	$ -	N/A	5.23%	$ 417,301
Private Equity	Nordic Capital VIII Beta, L.P.	$ 1,143,583	$ 796,953	$ -	$ -	N/A	14.72%	$ 1,940,537
Private Equity	Northgate Venture Partners VI, L.P.	$ 400,000	$ 35,501	$ -	$ -	11.53%	8.93%	$ 435,501
Private Equity	Oak Investment Partners IX, L.P.	$ -	$ 1,051	$ -	$ -	N/A	-6.65%	$ 1,051
Private Equity	Oak Investment Partners X, L.P.	$ -	$ 36,169	$ -	$ -	N/A	3.72%	$ 36,169
Private Equity	Oak Investment Partners XI, L.P.	$ -	$ 8,921	$ -	$ -	N/A	0.07%	$ 8,921
Private Equity	Oak Investment Partners XII, L.P.	$ 147,705	$ 16,447	$ -	$ -	N/A	0.07%	$ 164,151
Private Equity	Oaktree Opportunties Fund IX, L.P.	$ 1,356,588	$ 256,919	$ -	$ 6,285	N/A	3.22%	$ 1,619,792
Private Equity	One Rock Capital Partners II, L.P.	$ 491,728	$ 224,429	$ -	$ 593,158	N/A	-4.51%	$ 1,309,315
Private Equity	Onex Partners II, L.P.	$ -	$ 4,327	$ -	$ 794	17.20%	13.38%	$ 5,121
Private Equity	Onex Partners III, L.P.	$ 218,201	$ 21,395	$ 1,686,572	$ 68,963	20.90%	14.21%	$ 308,559
Private Equity	Onex Partners IV, L.P.	$ 2,360,980	$ 728,214	$ -	$ 197,119	6.60%	1.38%	$ 3,286,313
Private Equity	Onex Partners, L.P.	$ -	$ 15,757	$ -	$ -	55.00%	38.29%	$ 15,757
Private Equity	Palladium Equity Partners IV, L.P.	$ 346,216	$ 324,301	$ 5,552,288	$ 409,115	25.00%	16.45%	$ 1,079,632
Private Equity	Palm Beach Capital Fund IV, L.P.	$ 349,819	$ 63,956	$ -	$ -	30.90%	8.52%	$ 413,775
Private Equity	Permira Europe III, L.P.	$ -	$ 13,462	$ 163,017	$ -	29.00%	25.84%	$ 13,462
Private Equity	Permira Europe IV, L.P.	$ (4,307)	$ 8,406	$ 1,913,619	$ 8,615	N/A	8.66%	$ 12,714
Private Equity	Quad-C Partners VII Co-Investment Fund, L.P.	$ 8,202	$ 7,337	$ -	$ -	N/A	7.93%	$ 15,539
Private Equity	Quad-C Partners VII, L.P.	$ 20,788	$ 11,252	$ 52,505	$ -	N/A	10.80%	$ 32,040
Private Equity	Riverside Capital Appreciation Fund VI, L.P.	$ 1,812,459	$ 259,521	$ 4,988,092	$ -	27.20%	16.09%	$ 2,071,980
Private Equity	Silver Lake Partners III, L.P.	$ 111,131	$ 16,114	$ 909,224	$ -	N/A	19.69%	$ 127,245
Private Equity	Silver Lake Partners IV, L.P.	$ 1,324,829	$ 123,140	$ -	$ 69,732	N/A	28.65%	$ 1,517,701
Private Equity	Silver Lake Partners V, L.P.	$ 1,020,000	$ 393,584	$ -	$ 669	N/A	-9.12%	$ 1,414,253
Private Equity	Sinovation Fund IV, L.P.	$ 468,750	$ 128,409	$ -	$ -	-35.00%	-35.61%	$ 597,159
Private Equity	Siris Partners III, L.P.	$ 1,015,009	$ 112,551	$ -	$ 135,443	21.40%	17.03%	$ 1,263,003
Private Equity	Solera Partners, L.P.	$ -	$ 20,597	$ -	$ -	N/A	9.52%	$ 20,597
Private Equity	Sterling Investment Partners III, L.P.	$ 111,780	$ 349,023	$ 159,417	$ 2,353,226	N/A	15.44%	$ 2,814,029
Private Equity	Storm Ventures Fund V, L.P.	$ 1,000,000	$ 41,910	$ -	$ -	N/A	15.80%	$ 1,041,910
Private Equity	Summit Park I-A	$ -	$ 13,696	$ 930,700	$ -	32.60%	29.48%	$ 13,696
Private Equity	Summit Park II, L.P.	$ 50,000	$ 20,392	$ 1,095,868	$ 574,670	40.30%	23.94%	$ 645,062
Private Equity	Summit Partners Growth Equity Fund VIII-A, L.P.	$ 1,050,537	$ 36,338	$ 9,619,422	$ 20,838	N/A	24.74%	$ 1,107,713
Private Equity	TPG Partners IV, L.P.	$ -	$ 103,675	$ 407,259	$ -	N/A	15.41%	$ 103,675
Private Equity	TPG Partners V, L.P.	$ (6,411)	$ 23,862	$ -	$ 29,329	6.00%	5.05%	$ 46,780
Private Equity	TPG Partners VI, L.P.	$ 250,033	$ 95,063	$ 1,408,750	$ 141,520	16.00%	11.06%	$ 486,616

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Attachment 2

Fiscal Year-Ended June 30, 2018

		A	B		C			Sum of A + B + C
Asset Category	**Alternative Investment Fund**	**Management Fees[1]**	**Fund Expenses[2]**	**Carried Interest[3]**	**Portfolio Company Expenses[4]**	**Since Inception Gross Return[5]**	**Since Inception Net Return[6]**	**Total Fees**
Private Equity	Undisclosed[7]	$ 17,185,566	$ 5,114,047	$ 35,780,873	$ -	N/A	11.08%	$ 22,299,613
Private Equity	Vista Equity Partners Fund III, L.P.	$ 88,861	$ 52,153	$ -	$ -	N/A	28.50%	$ 141,014
Private Equity	Vista Equity Partners Fund IV, L.P.	$ 1,116,630	$ 74,662	$ -	$ -	N/A	18.54%	$ 1,191,292
Private Equity	Vista Equity Partners Fund V, L.P.	$ 3,000,000	$ 234,294	$ 21,881	$ -	N/A	22.51%	$ 3,234,294
Private Equity	Vista Equity Partners Fund VI, L.P.	$ 2,964,924	$ 282,631	$ -	$ -	N/A	8.60%	$ 3,247,555
Private Equity	Wayzata Opportunities Fund II, L.P.	$ -	$ 20,855	$ 2,248,552	$ -	N/A	16.46%	$ 20,855
Private Equity	Wayzata Opportunities Fund III, L.P.	$ 415,870	$ 11,627	$ -	$ -	N/A	-1.14%	$ 427,497
Private Equity	Wayzata Opportunities Fund, LLC	$ -	$ 17,699	$ 29,894	$ -	N/A	8.40%	$ 17,699
Private Equity	Worldview Technology Partners IV, L.P.	$ -	$ 4,914	$ -	$ -	-6.70%	-8.24%	$ 4,914
Real Estate	AEW Value Investors Asia III, L.P.	$ 520,833	$ 655,496	$ -	$ -	NM	-29.79%	$ 1,176,329
Real Estate	AG Europe Realty Fund II, L.P.	$ 562,500	$ 227,863	$ -	$ -	NM	-45.46%	$ 790,363
Real Estate	CapMan Nordic Real Estate II FCP-RAIF	$ 247,597	$ -	$ -	$ 13,865	NM	16.65%	$ 261,461
Real Estate	Capri Urban Investors, LLC	$ 617,250	$ 50,263	$ -	$ -	N/A	-4.32%	$ 667,513
Real Estate	Carlyle Europe Real Estate Partners III, L.P.	$ 102,893	$ 5,183	$ -	$ -	N/A	-2.91%	$ 108,075
Real Estate	CBRE Asia Value Fund L.P.	$ -	$ -	$ -	$ -	N/A	8.90%	$ -
Real Estate	CBRE Strategic Partners European Fund III	$ -	$ 990	$ -	$ -	N/A	-17.14%	$ 990
Real Estate	CBRE Strategic Partners UK Fund III	$ -	$ -	$ -	$ -	N/A	-24.62%	$ -
Real Estate	CityView Bay Area Fund II, L.P.	$ 1,209,927	$ -	$ -	$ -	N/A	14.96%	$ 1,209,927
Real Estate	CityView LA Urban Fund I, L.P.	$ 45,964	$ -	$ 2,162,091	$ -	N/A	11.85%	$ 45,964
Real Estate	CityView Southern California Fund II, L.P.	$ 1,176,923	$ -	$ -	$ 942,589	N/A	16.98%	$ 2,119,512
Real Estate	CityView Western Fund I, L.P.	$ 1,875,000	$ -	$ -	$ 810,073	N/A	-25.73%	$ 2,685,073
Real Estate	Cornerstone Hotel Income Equity Fund II, L.P.	$ -	$ -	$ -	$ -	N/A	9.18%	$ -
Real Estate	Europa Fund III, L.P.	$ 55,302	$ 19,029	$ -	$ -	N/A	8.34%	$ 74,331
Real Estate	Europa Fund IV, L.P.	$ 629,386	$ 148,723	$ -	$ -	N/A	9.05%	$ 778,108
Real Estate	Genesis Workforce Housing Fund II, LLC	$ -	$ -	$ -	$ -	N/A	8.61%	$ -
Real Estate	Heitman Asia-Pacific Property Investors, L.P.	$ 13,919	$ -	$ -	$ -	NM	-65.21%	$ 13,919
Real Estate	Hunt UK Realty Partners, L.P.	$ -	$ 31,609	$ -	$ -	N/A	-22.67%	$ 31,609
Real Estate	Invesco Asian Real Estate Partners II, L.P.	$ 5,592	$ 9,665	$ -	$ -	N/A	7.55%	$ 15,257
Real Estate	Invesco Real Estate Asia Fund, L.P.	$ 902,645	$ 213,004	$ -	$ 201,267	N/A	7.63%	$ 1,316,916
Real Estate	LaSalle Medical Office Fund II	$ -	$ -	$ -	$ -	N/A	5.82%	$ -
Real Estate	Prologis European Logistics Fund	$ 1,351,067	$ 644,994	$ -	$ -	N/A	16.52%	$ 1,996,061
Real Estate	RREEF Core Plus Industrial Fund, L.P.	$ 412,410	$ 116,761	$ -	$ -	NM	18.96%	$ 529,171
Real Estate	SH Group (Branco)	$ 11,507	$ 17,367	$ 57,204	$ -	N/A	26.75%	$ 28,874
Real Estate	Starwood Capital Hospitality Fund II, L.P.	$ 578,212	$ 70,841	$ -	$ -	N/A	9.68%	$ 649,053

[1] Management fees paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, calculation using the resepective management fee rate, and pro rata share of the alternative investment fund's total managment fee. Negative values indicate giveback of previously accrued or paid fees.

[2] Fund expenses paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, pro rata share of the alternative investment fund's total fund expenses, and estimations based on alternative investment fund's operating expense ratios obtained from the most recent audited financial statement. Negative values indicate giveback of previously accrued or paid fees.

[3] Carried interest paid or accrued to the alternative investment fund during the fiscal year. Data sources include: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, and pro rata share of the alternative investment fund's total carried interest. Negative values indicate giveback of previously accrued or paid fees.

[4] LACERA's pro rata share of fees and expenses paid by the portfolio companies to the general partner or related parties.

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Attachment 2

Fiscal Year-Ended June 30, 2018

		A	B		C			Sum of A + B + C
Asset Category	**Alternative Investment Fund**	**Management Fees[1]**	**Fund Expenses[2]**	**Carried Interest[3]**	**Portfolio Company Expenses[4]**	**Since Inception Gross Return[5]**	**Since Inception Net Return[6]**	**Total Fees**

[5] Since-inception money-weighted gross returns for Private Equity, Fixed Income, Real Estate, and Global Equity were calculated by the respective alternative investment funds, custodian banks, or asset category advisor. Hedge Funds since-inception gross returns were provided by the manager or estimated by annualizing the manager's total fees as an annualized percentage of monthly average NAV and adding the annualized fee return to the fund's since-inception net return. Hedge Funds since-inception gross returns are cumulative geometric returns for holding periods less than 12 months of the alternative investment fund and annualized geometric return for holding periods greater than 12 months. Performance results marked "NM" signifies not meaningful due to recency of the fund.

[6] Since-inception money-weighted net returns for Private Equity were calculated by LACERA using all the outflows to and inflows from the underlying fund investments, including cash flows for expenses and fees paid by the Portfolio to those underlying fund investments. The terminal values used are the capital account balances as of the reporting period, as stated by the General Partners of the underlying fund investment, whether at cost or fair value. If the underlying fund investment's terminal value is prior to the reporting period, the internal rate of return (IRR) was calculated as of the last valuation date indicated by the fund manager. Real Estate since-inception IRR were provided by Townsend Group (asset category advisor). Hedge Fund, Fixed Income, and Global Equity (excluding JANA Strategic Investment Fund V) are cumulative geometric returns for holding periods less than 12 months of the alternative investment fund and annualized geometric return for holding periods greater than 12 months. JANA Strategic Investment Fund V (Global Equity) is a money-weighted return provided by the alternative investment fund.

[7] Cost data for a subset of alternative investment funds were aggregated due to existing confidentiality agreements. Management fees, fund expenses, and since inception net returns for these funds are disclosed individually in the Section 6254.26(b) report.

[8] Since-inception gross return is gross of Goldman Sachs Hedge Fund Strategies, LLC fund of hedge fund fees. Since-inception gross return does not include underlying hedge fund fees.

[9] Since-inception gross return is gross of Grosvenor Capital Management's fund of hedge fund fees. Since-inception gross return does not include underlying hedge fund fees.

Section 6254.26 (b)

Attachment 3

Fiscal Year-Ended June 30, 2018

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Fixed Income										
BPC Opportunities Fund II, L.P.	1620 26th Street, Suite 6000N, Santa Monica, California 90404	2014	$ 150,000,000	$ -	$ 116,810,345	$ 188,612,401	9.84%	1.26x	$ 1,401,180	N/A
BPC Opportunities Fund III, L.P.	1620 26th Street, Suite 6000N, Santa Monica, California 90404	2016	$ 170,000,000	$ 98,197,623	$ -	$ 103,852,024	14.60%	1.06x	$ 1,226,109	N/A
Tennenbaum Senior Loan Fund V, LLC	2951 28th Street, Suite 1000, Santa Monica, CA 90405	2014	$ 275,000,000	$ 224,970,448	$ -	$ 275,205,816	8.32%	1.22x	$ 2,334,028	N/A
Global Equity										
Cevian Capital II Master Fund L.P.	LaMotte Chambers, St. Helier, Jersey, JE1-1BJ	2016	$ 250,000,000	$ 250,000,000	$ -	$ 301,016,300	25.04%	1.20x	$ 4,742,536	N/A
JANA Strategic Investment Fund V, L.P.	767 Fifth Avenue, 8th Floor, New York, NY 10153	2016	$ 120,000,000	$ 227,898,502	$ 164,424,241	$ 255,737,417	35.23%	1.14x	$ 1,404,328	N/A
The SFP Value Realization Master Fund Ltd	80 Raffles Place, #24-21 UOB Plaza 2, Singapore, 048624	2016	$ 100,000,000	$ 100,000,000	$ -	$ 142,947,494	27.80%	1.43x	$ 1,439,355	N/A
Hedge Fund										
Alyeska Fund 2, L.P. - Class A	77 West Wacker Drive, Suite 700, Chicago, IL 60601	2015	$ 24,500,000	$ 24,500,000	$ -	$ 24,131,522	-0.93%	0.98x	$ 679,330	$ -
AQR Liquid Enhanced Alternative Premia Fund, L.P.	Two Greenwich Plaza, Greenwich, CT 06830	2018	$ 75,000,000	$ 75,000,000	$ -	$ 67,637,691	-9.82%	0.90x	$ 166,889	$ -
Atreaus Fund, L.P. - Tranche F	599 Lexington Avenue, 38th Floor, New York, NY 10022	2015	$ 19,000,000	$ 19,000,000	$ 6,000,000	$ 17,061,740	-4.83%	0.90x	$ 200,387	$ (392,075)
BP Transtrend Diversified Fund, LLC	909 Third Avenue, New York, NY 10022	2015	$ 13,750,000	$ 13,750,000	$ 13,623,610	$ 13,623,610	-0.80%	0.99x	$ 22,266	$ (126,390)
Brevan Howard, L.P.- Series B	590 Madison Avenue, 8th Floor, New York, NY 10022	2015	$ 11,000,000	$ 11,000,000	$ 2,473,299	$ 2,473,299	-3.25%	0.96x	$ -	$ 0
Bridgewater Pure Alpha Major Markets II, LLC	1 Glendinning Place, Westport, CT 06880	2015	$ 21,250,000	$ 21,250,000	$ 2,000,000	$ 21,740,741	0.33%	1.02x	$ 617,962	$ 162,698
Caxton Global Investments (USA), LLC - Class T	500 Park Avenue, New York, NY 10022	2015	$ 25,500,000	$ 25,500,000	$ 24,360,095	$ 24,360,095	-1.93%	0.96x	$ 112,705	$ (1,139,905)
Coolmore Partners, L.P.	992 Davidson Drive, Suite B, Nashville, TN 37205	2015	$ 11,250,000	$ 11,250,000	$ 10,002,851	$ 10,002,851	-4.63%	0.89x	$ 37,952	$ (1,243,587)
Crabel Fund, L.P. - Class A	1 Trans Am Plaza Drive, Suite 400, Oakbrook Terrace, IL 60181	2015	$ 14,000,000	$ 14,000,000	$ 12,000,000	$ 13,282,920	4.41%	1.13x	$ 323,335	$ 1,292,527
Davidson Kempner Institutional Partners, L.P.	520 Madison Avenue, 30th Floor, New York, NY 10022	2018	$ 60,000,000	$ 60,000,000	$ -	$ 60,422,341	0.72%	1.01x	$ 266,327	$ -
D.E. Shaw Valence Fund, LLC	1166 Avenue of the Americas, 9th Floor, New York, NY 10036	2016	$ 20,000,000	$ 20,000,000	$ -	$ 27,110,533	13.41%	1.36x	$ 973,067	$ -
Deep Basin Long-Short Fund, L.P.	6 Suburban Ave, Stamford, CT 06901	2017	$ 9,000,000	$ 9,000,000	$ -	$ 9,730,278	8.11%	1.08x	$ 147,749	$ -
Dymon Asia Macro (US) Fund - Class P3 Unrestricted	10 Changi Business Park Central 2, #01-02 Hansapoint @ CBP, Singapore	2015	$ 14,162,736	$ 14,162,736	$ -	$ 14,683,020	13.25%	1.04x	$ 245,412	$ -
Edgestream Sumatra Fund, L.P.	902 Carnegie Center, Suite 200, Princeton, NJ 8540	2015	$ 11,750,000	$ 11,750,000	$ 3,500,000	$ 12,705,198	4.40%	1.08x	$ 208,282	$ 523,311
Empyrean Capital Fund, L.P. - Class 2 Series N	10250 Constellation Boulevard, Los Angeles, CA 90067	2015	$ 22,500,000	$ 22,500,000	$ -	$ 27,067,854	6.56%	1.20x	$ 252,832	$ -
EMSO Saguaro Ltd. - Class A	21 Grosvenor Pl, Belgravia, London SW1X 7HN, UK	2018	$ 13,500,000	$ 13,500,000	$ -	$ 13,002,097	-3.69%	0.96x	$ 89,531	$ -
Farallon Capital Institutional Partners, L.P.	1 Maritime Plaza, Suite 2100, San Francisco, CA 94111	2015	$ 17,750,000	$ 17,750,000	$ -	$ 10,200,680	4.20%	0.57x	$ 177,535	$ -
Glen Point Global Macro Fund, L.P. - Class A	10 Stratton St, Mayfair, London W1J 8DA, UK	2017	$ 13,500,000	$ 13,500,000	$ -	$ 12,695,854	-5.96%	0.94x	$ 244,214	$ -
Goldman Sachs Hedge Fund Strategies, LLC	200 West Street, New York, NY 10282	2015	$ 450,000,000	$ 450,000,000	$ -	$ 486,181,441	2.47%	1.08x	$ 1,828,532	$ -
HBK Multi-Strategy Fund, L.P.	2101 Cedar Springs Road, Suite 700, Dallas, TX 75201	2018	$ 125,000,000	$ 125,000,000	$ -	$ 126,947,585	1.56%	1.02x	$ 364,853	$ -
HG Vora Special Opportunities Fund, LP - Series 1	330 Madison Ave, New York, NY 10017	2017	$ 25,000,000	$ 25,000,000	$ -	$ 27,200,669	8.80%	1.09x	$ 290,468	$ -
Holocene Advisors Fund, L.P. - Class AI-A	15 East 26th Street, 6th Floor, New York, NY 10010	2017	$ 25,000,000	$ 25,000,000	$ -	$ 28,348,977	11.38%	1.13x	$ 576,377	$ -
Kintbury Equity Fund L.P. - Class F	75 St. Stephen's Green, Floor 1 + 2, Dublin 2, Ireland	2015	$ 23,526,750	$ 23,526,750	$ -	$ 23,675,356	2.80%	1.01x	$ 255,802	$ -
Lakewood Capital Partners, L.P.	650 Madison Avenue, 25th Floor, New York, NY 10022	2015	$ 18,000,000	$ 18,000,000	$ -	$ 20,873,842	13.41%	1.16x	$ 351,933	$ -
Macquarie Global Alpha US Feeder Fund - Class L	HSBC Centre 580 George Street, Sydney, NSW 2000 Australia	2015	$ 23,016,123	$ 23,016,123	$ 23,965,431	$ 23,965,431	3.10%	1.04x	$ 233,537	$ 965,427
Manikay Onshore Fund, L.P.	HSBC Centre 580 George Street, Sydney, NSW 2000 Australia	2015	$ 22,000,000	$ 22,000,000	$ -	$ 26,323,285	6.13%	1.20x	$ 453,534	$ -
Palestra Capital Partners, LP - Series 3G Interests	1330 Avenue of the Americas, 21st Floor, New York,NY 10019	2015	$ 20,750,000	$ 20,750,000	$ -	$ 28,974,720	12.03%	1.40x	$ 306,039	$ -
Palmetto Catastrophe Fund L.P. - Class H	69 Pitts Bay Road, Pembroke HM 08, Bermuda	2018	$ 15,000,000	$ 15,000,000	$ -	$ 15,062,872	0.42%	1.00x	$ 21,126	$ -
PFM Oncology Opportunities Fund, L.P. - Class A	75 St. Stephen's Green, Floor 1 + 2, Dublin 2, Ireland	2015	$ 9,000,000	$ 9,000,000	$ -	$ 11,532,527	13.25%	1.28x	$ 161,043	$ -
Rubric Capital Partners, L.P. - Series F1 G	23rd Floor, 20 Fenchurch Street, London, EC3M 3BY, United Kingdom	2016	$ 23,000,000	$ 23,000,000	$ -	$ 27,041,436	12.91%	1.18x	$ 333,080	$ -
San Gabriel Fund, L.P.	101 Barclay Street, 20th Floor West, New York, NY 102586	2011	$ 400,000,000	$ 400,000,000	$ -	$ 488,054,134	3.93%	1.22x	$ 13,535,432	$ -
San Gabriel Fund 2, L.P.	101 Barclay Street, 20th Floor West, New York, NY 102586	2013	$ 200,000,000	$ 200,000,000	$ 175,500,000	$ 197,357,468	5.95%	1.32x	$ 1,984,534	$ 44,343,608
San Gabriel Fund 3, L.P.	101 Barclay Street, 20th Floor West, New York, NY 102586	2016	$ 300,000,000	$ 300,000,000	$ -	$ 359,873,648	9.67%	1.20x	$ 8,476,153	$ -
Stone Milliner Macro Fund Delaware L.P. - Class A	One Curzon Street, 5th Floor, London, W1J 5HD United Kingdom	2015	$ 17,750,000	$ 17,750,000	$ -	$ 18,018,443	0.85%	1.02x	$ 332,288	$ -
Swiftcurrent Partners, L.P. - Class C	90 Park Avenue, 40th Floor, New York, NY 10016	2015	$ 18,000,000	$ 18,000,000	$ -	$ 20,465,347	4.55%	1.14x	$ 298,408	$ -
Taconic Opportunity Fund L.P.	280 Park Ave, New York, NY 10017	2018	$ 23,000,000	$ 23,000,000	$ -	$ 23,754,818	3.28%	1.03x	$ 110,502	$ -
Warlander Partners, L.P. - Class W	250 West 55th Street, New York, NY 10019	2016	$ 7,000,000	$ 7,000,000	$ -	$ 5,970,863	-6.37%	0.85x	$ 111,307	$ -
Winton Diversified Strategy Fund (US), L.P.	807 Montgomery Street, San Francisco, CA 94133	2015	$ 14,640,258	$ 14,640,258	$ 5,000,000	$ 15,177,238	3.72%	1.04x	$ 146,040	$ (125,221)
Private Equity										
ABRY Advanced Securities Fund III, L.P.	888 Boylston Street, 16th Floor, Boston, MA 02199	2014	$ 25,000,000	$ 13,126,905	$ 1,503,760	$ 17,467,730	11.93%	1.33x	$ 519,131	N/A
ABRY Partners VIII, L.P.	888 Boylston Street, 16th Floor, Boston, MA 02199	2014	$ 35,000,000	$ 31,566,216	$ 10,049,248	$ 38,160,815	9.42%	1.21x	$ 761,875	N/A
Accel IV, L.P.	428 University Avenue, Palo Alto, CA 94301	1993	$ 5,000,000	$ 5,010,800	$ 40,440,003	$ 40,440,003	78.00%	8.07x	$ -	$ 35,429,203
Accel V, L.P.	428 University Avenue, Palo Alto, CA 94301	1996	$ 9,000,000	$ 9,000,000	$ 176,580,105	$ 176,580,105	188.44%	19.62x	$ -	$ 167,580,105
Accel VI, L.P.	428 University Avenue, Palo Alto, CA 94301	1998	$ 9,000,000	$ 9,000,000	$ 3,267,735	$ 3,720,171	-7.35%	0.41x	$ 1,341	N/A
Accel VIII, L.P.	428 University Avenue, Palo Alto, CA 94301	2000	$ 7,293,000	$ 5,858,250	$ 7,197,110	$ 8,401,572	4.62%	1.43x	$ 806	N/A
Accel VI-S, L.P.	428 University Avenue, Palo Alto, CA 94301	2001	$ 1,451,613	$ 1,154,031	$ 4,494,408	$ 5,511,788	14.97%	4.78x	$ 1,146	N/A
AE Industrial Partners Fund II, L.P.	2500 North Military Trail, Suite 470, Boca Raton, FL 33431	2018	$ 100,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Alchemy Plan (Pasadena), L.P.	21 Palmer Street, London, SW1H 0AD United Kingdom	2005	$ 44,416,660	$ 28,571,492	$ 32,314,515	$ 32,525,225	1.74%	1.14x	$ 13,144	N/A
Alchemy Special Opportunities Fund IV, L.P.	21 Palmer Street, London, SW1H 0AD United Kingdom	2018	$ 85,816,283	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Aldrich Capital Partners Fund LP	8614 Westwood Center Drive, Suite 710, Vienna, VA 22182	2018	$ 10,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A

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Attachment 3

Fiscal Year-Ended June 30, 2018

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Alsop Louie Capital II, L.P.	50 Pacific Avenue, San Francisco, CA 94111	2010	$ 5,000,000	$ 5,000,000	$ -	$ 3,965,181	-3.73%	0.79x	$ 98,934	N/A
Alsop Louie Capital III, L.P.	50 Pacific Avenue, San Francisco, CA 94111	2015	$ 5,000,000	$ 4,400,000	$ 155,182	$ 6,122,626	16.88%	1.39x	$ 106,665	N/A
Alta California Partners II, L.P.	One Embarcadero Center, 37th Floor, San Francisco, CA 94111	1998	$ 15,000,000	$ 15,000,000	$ 10,576,049	$ 10,576,049	-5.57%	0.71x	$ -	$ (4,423,951)
Alta California Partners III, L.P.	One Embarcadero Center, 37th Floor, San Francisco, CA 94111	2000	$ 15,000,000	$ 15,000,000	$ 17,083,596	$ 17,528,449	2.20%	1.17x	$ 3,138	N/A
Apax Europe IV-A, L.P.	Third Floor Royal Bank Place, 1 Glategny Esplanade, St. Peter Port, GY1 2HJ Guernsey	1999	$ 19,543,836	$ 20,079,264	$ 27,299,661	$ 27,299,661	7.10%	1.36x	$ -	$ 7,220,398
Apax Europe V-A, L.P.	Third Floor Royal Bank Place, 1 Glategny Esplanade, St. Peter Port, GY1 2HJ Guernsey	2001	$ 57,967,184	$ 59,047,867	$ 125,378,810	$ 125,378,810	36.09%	2.12x	$ -	$ 66,330,943
Apollo Investment Fund III, L.P.	2 Manhattanville Road, 2nd Floor, Suite 203, Purchase, NY 10577	1995	$ 15,000,000	$ 17,236,337	$ 24,695,084	$ 24,695,084	9.62%	1.43x	$ -	$ 7,458,747
Apollo Investment Fund IV, L.P.	2 Manhattanville Road, 2nd Floor, Suite 203, Purchase, NY 10577	1998	$ 50,000,000	$ 51,236,447	$ 84,562,235	$ 84,626,205	8.47%	1.65x	$ 11,148	N/A
Apollo Investment Fund V, L.P.	2 Manhattanville Road, 2nd Floor, Suite 203, Purchase, NY 10577	2001	$ 30,000,000	$ 45,638,384	$ 92,217,650	$ 92,720,460	37.63%	2.03x	$ 36,051	N/A
ASC Network Corporation	4041 Macarthur Boulevard, Suite 210, Newport Beach, CA 92660	1992	$ 5,000,000	$ 5,000,000	$ 8,502,725	$ 8,502,725	14.24%	1.70x	$ -	$ 3,502,725
Atlantic Street Capital II, L.P.	545 Middlefield Road, Suite 250, Menlo Park, CA 94025	2011	$ 7,000,000	$ 7,407,908	$ 10,904,828	$ 19,786,642	39.62%	2.67x	$ 11,586	N/A
Atlantic Street Capital III, L.P.	545 Middlefield Road, Suite 250, Menlo Park, CA 94025	2015	$ 10,000,000	$ 2,702,584	$ 270	$ 3,373,052	24.09%	1.25x	$ 240,156	N/A
Aurora Equity Partners II, L.P.	10877 Wilshire Boulevard, Suite 2100, Los Angeles, CA 90024	1998	$ 30,000,000	$ 33,792,031	$ 47,497,863	$ 47,497,863	4.69%	1.41x	$ -	$ 13,705,832
Austin Ventures IX, L.P.	300 West Sixth Street, Suite 2300, Austin, TX 78701	2006	$ 7,600,000	$ 7,664,734	$ 8,647,062	$ 10,587,980	5.35%	1.38x	$ -	N/A
Austin Ventures VII, L.P.	300 West Sixth Street, Suite 2300, Austin, TX 78701	1999	$ 5,000,000	$ 5,000,000	$ 3,981,710	$ 3,981,710	-3.04%	0.80x	$ 769	$ (1,018,290)
Austin Ventures VIII, L.P.	300 West Sixth Street, Suite 2300, Austin, TX 78701	2001	$ 11,066,667	$ 11,563,792	$ 18,320,651	$ 18,866,400	6.91%	1.63x	$ 6,374	N/A
Australis Partners Fund, L.P.	745 Fifth Avenue, Suite 1406, New York, NY 10151	2016	$ 125,000,000	$ 43,265,273	$ 19,227	$ 39,860,847	-13.42%	0.92x	$ 1,824,290	N/A
BDCM Opportunity Fund IV, L.P.	One Sound Shore Drive, Suite 200, Greenwich, CT 6830	2015	$ 100,000,000	$ 83,194,654	$ 19,469,915	$ 98,402,838	13.84%	1.18x	$ 1,521,918	N/A
Behrman Capital II, L.P.	One Letterman Drive, Suite D4900, San Francisco, CA 94129	1998	$ 34,101,071	$ 34,101,071	$ 41,945,892	$ 41,945,892	3.03%	1.23x	$ -	$ 7,844,821
Behrman Capital III, L.P.	One Letterman Drive, Suite D4900, San Francisco, CA 94129	2000	$ 35,000,000	$ 34,999,999	$ 62,109,146	$ 62,109,146	11.79%	1.77x	$ -	$ 27,109,147
Berkshire Fund III, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	1993	$ 5,000,000	$ 4,839,500	$ 18,502,393	$ 18,502,393	55.07%	3.82x	$ -	$ 13,662,893
Berkshire Fund IV, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	1996	$ 20,000,000	$ 19,160,798	$ 49,899,467	$ 49,899,467	33.41%	2.60x	$ -	$ 30,738,668
Berkshire Fund V, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	1998	$ 40,000,000	$ 38,259,380	$ 100,517,633	$ 100,517,633	22.98%	2.63x	$ -	$ 62,258,253
Berkshire Fund VI, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	2002	$ 60,000,000	$ 59,710,881	$ 143,892,987	$ 177,542,864	25.20%	2.97x	$ -	N/A
Berkshire Fund VII, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	2006	$ 60,000,000	$ 61,474,445	$ 107,281,382	$ 123,811,474	16.96%	2.01x	$ 924,434	N/A
Berkshire Fund VIII, L.P.	200 Clarendon Street, 35th Floor, Boston, MA 02116	2011	$ 75,000,000	$ 72,204,343	$ 65,477,361	$ 114,043,719	14.56%	1.58x	$ 1,344,043	N/A
Bertram Growth Capital I, L.P.	800 Concar Drive, Suite 100, San Mateo, CA 94402	2006	$ 10,000,000	$ 9,404,833	$ 12,219,178	$ 14,821,139	9.90%	1.58x	$ 14,899	N/A
Best Friends Pet Care	19717 62 Avenue South, Suite F103, Kent, WA, 98032	1994	$ 3,665,530	$ 3,665,530	$ 64,260	$ 64,260	0.00%	0.02x	$ -	$ (3,601,270)
Binary Capital Fund II, L.P.	1550 Bryant Street, Suite 700, San Francisco, CA 94103	2017	$ 34,000,000	$ 2,104,600	$ -	$ 1,471,503	-28.49%	0.70x	$ 94,682	N/A
Blackstone Capital Partners II, L.P.	345 Park Avenue, New York, NY 10154	1993	$ 25,000,000	$ 26,330,670	$ 59,014,041	$ 59,014,041	37.56%	2.24x	$ -	$ 32,683,371
Blackstone Capital Partners III Merchant, L.P.	345 Park Avenue, New York, NY 10154	1997	$ 50,000,000	$ 54,055,169	$ 105,629,528	$ 105,629,528	14.63%	1.95x	$ -	$ 51,574,360
Blackstone Capital Partners IV - Secondary	345 Park Avenue, New York, NY 10154	2012	$ 5,000,000	$ 3,084,893	$ 3,589,421	$ 3,905,807	13.78%	1.27x	$ 612	N/A
Blackstone Capital Partners IV, L.P.	345 Park Avenue, New York, NY 10154	2003	$ 75,000,000	$ 89,235,764	$ 206,033,760	$ 210,779,557	37.54%	2.36x	$ 9,179	N/A
Blackstone Capital Partners V, L.P.	345 Park Avenue, New York, NY 10154	2006	$ 74,054,134	$ 73,679,282	$ 115,824,085	$ 124,510,235	7.76%	1.69x	$ 49,501	N/A
Blackstone Capital Partners VI, L.P.	345 Park Avenue, New York, NY 10154	2010	$ 75,000,000	$ 76,967,664	$ 41,631,623	$ 120,784,193	14.40%	1.57x	$ 575,854	N/A
Blackstone Capital Partners VII, L.P.	345 Park Avenue, New York, NY 10154	2016	$ 200,000,000	$ 48,493,848	$ 3,968,147	$ 55,970,822	16.90%	1.15x	$ 3,162,362	N/A
Blackstone Communications Partners I, L.P.	345 Park Avenue, New York, NY 10154	2000	$ 25,000,000	$ 27,657,709	$ 33,725,886	$ 33,917,804	6.55%	1.23x	$ 1,664	N/A
Blackstone Mezzanine Partners, L.P.	345 Park Avenue, New York, NY 10154	1999	$ 10,000,000	$ 6,785,498	$ 9,127,513	$ 9,127,513	10.15%	1.35x	$ -	$ 2,342,015
Brinson International Partners Fund	One North Wacker Drive, Suite 2200, Chicago, IL 60606	1998	$ 49,256,579	$ 53,350,625	$ 90,191,996	$ 92,622,003	11.26%	1.74x	$ 18,974	N/A
Bruckmann, Rosser, Sherrill & Co. II, L.P.	126 East 56th Street, 29th Floor, New York, NY 10022	1999	$ 25,000,000	$ 26,673,337	$ 49,831,212	$ 53,032,125	11.93%	1.99x	$ 7,168	N/A
Bruckmann, Rosser, Sherrill & Co., L.P.	126 East 56th Street, 29th Floor, New York, NY 10022	1996	$ 28,000,000	$ 29,307,496	$ 51,731,311	$ 51,731,311	10.35%	1.77x	$ -	$ 22,423,814
BRV Aster Fund II, L.P.	Unit 1308, Tower 1, China Central, NO. 81 Jian Guo Road, Chaoyang Distric, Beijing 100025 China	2017	$ 40,000,000	$ 12,000,000	$ -	$ 11,293,516	-8.67%	0.94x	$ 1,036,632	N/A
Canaan VII, L.P.	285 Riverside Avenue, Suite 250, Westport, CT 06880	2005	$ 9,500,000	$ 9,500,000	$ 19,640,726	$ 23,150,096	14.97%	2.44x	$ 12,005	N/A
Canaan XI, L.P.	285 Riverside Avenue, Suite 250, Westport, CT 06880	2018	$ 50,000,000	$ 7,000,000	$ -	$ 6,866,474	-3.00%	0.98x	$ 515,171	N/A
Candover 2005 Fund, L.P.	12 Charles II Street, 3rd Floor, London, SW1Y 4QU United Kingdom	2005	$ 78,210,646	$ 93,797,310	$ 51,210,873	$ 51,210,873	-11.19%	0.55x	$ 49,159	$ (42,586,437)
Cardinal Health Partners, L.P.	230 Nassau Street, Princeton, NJ 08542	1997	$ 10,000,000	$ 10,000,000	$ 18,733,679	$ 18,733,679	9.70%	1.87x	$ -	$ 8,733,679
Carlye U.S. Equity Opportunity Fund II, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2015	$ 200,000,000	$ 106,084,508	$ 13,113,818	$ 117,562,703	8.16%	1.11x	$ 3,963,589	N/A
Carlyle Management Group Partners, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2002	$ 5,364,308	$ 5,364,308	$ 5,798,577	$ 5,798,577	6.01%	1.08x	$ -	$ 434,269
Carlyle Partners II, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	1994	$ 30,000,000	$ 33,939,244	$ 81,622,138	$ 81,622,138	25.74%	2.40x	$ -	$ 47,682,894
Carlyle Partners III, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2000	$ 22,487,354	$ 26,871,391	$ 58,770,979	$ 58,770,979	22.93%	2.19x	$ -	$ 31,899,588
Carlyle Partners IV, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2005	$ 75,000,000	$ 77,630,059	$ 151,515,502	$ 153,630,857	13.02%	1.98x	$ (210)	N/A
Carlyle Partners V, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2007	$ 75,000,000	$ 67,701,664	$ 112,993,856	$ 127,470,139	13.80%	1.88x	$ 127,018	N/A
Carlyle Partners VI, L.P.	1001 Pennsylvania Avenue N.W., Suite 220 South, Washington, D.C. 20004	2013	$ 150,000,000	$ 156,776,925	$ 54,525,089	$ 199,532,361	12.83%	1.27x	$ 1,847,464	N/A
Centerbridge Capital Partners II, L.P.	375 Park Avenue, 12th Floor, New York, NY 10152	2010	$ 50,000,000	$ 55,803,165	$ 35,528,766	$ 60,721,306	2.37%	1.09x	$ 489,957	N/A
Centerbridge Capital Partners III, L.P.	375 Park Avenue, 12th Floor, New York, NY 10152	2014	$ 75,000,000	$ 41,106,471	$ 8,476,697	$ 50,665,641	13.30%	1.23x	$ 1,549,336	N/A
Centerbridge Capital Partners, L.P.	375 Park Avenue, 12th Floor, New York, NY 10152	2006	$ 60,000,000	$ 57,442,644	$ 119,020,359	$ 136,841,806	19.94%	2.38x	$ 194,231	N/A
Chart Capital Partners II	555 Fifth Avenue, 19th Floor, New York, NY 10017	2010	$ 6,700,000	$ 7,762,455	$ 5,437,313	$ 12,341,250	10.04%	1.59x	$ 80,103	N/A
CHP II, L.P.	230 Nassau Street, Princeton, NJ 08540	2000	$ 10,000,000	$ 10,000,000	$ 15,266,971	$ 15,382,612	12.68%	1.54x	$ 3,357	N/A
CHS Private Equity V, L.P.	10 South Wacker Drive, Suite 3300, Chicago, IL 60606	2005	$ 60,000,000	$ 53,524,388	$ 98,712,992	$ 98,994,600	9.84%	1.85x	$ -	N/A
Churchill Capital Partners II, L.P.	333 South 7th Street, Suite 3100, Minneapolis, MN 55402	1992	$ 25,000,000	$ 25,000,000	$ 34,314,641	$ 34,314,641	10.11%	1.37x	$ -	$ 9,314,641

Section 6254.26 (b)

Attachment 3

Fiscal Year-Ended June 30, 2018

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Clarion Investors II, L.P.	527 Madison Avenue, 10th Floor, New York, NY 10022	2013	$ 7,500,000	$ 6,001,390	$ 8,179,398	$ 11,061,509	29.89%	1.84x	$ 243,520	N/A
Clarion Investors III, L.P.	527 Madison Avenue, 10th Floor, New York, NY 10022	2018	$ 50,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Clearlake Capital Partners III, L.P.	233 Wilshire Boulevard, Suite 800, Santa Monica, CA 90401	2012	$ 75,000,000	$ 106,282,511	$ 133,194,374	$ 260,104,912	42.71%	2.45x	$ 1,102,330	N/A
Clearlake Capital Partners IV, L.P.	233 Wilshire Boulevard, Suite 800, Santa Monica, CA 90401	2015	$ 77,000,000	$ 82,098,751	$ 47,548,771	$ 116,326,882	33.97%	1.42x	$ 1,431,332	N/A
Clearlake Capital Partners V, L.P.	233 Wilshire Boulevard, Suite 800, Santa Monica, CA 90401	2018	$ 100,000,000	$ 22,009,679	$ 24,087	$ 24,468,512	23.26%	1.11x	$ 808,793	N/A
Clearstone Venture Partners II-A, L.P.	1351 4th Street, 4th Floor, Santa Monica, CA 90401	1999	$ 5,000,000	$ 5,000,000	$ 1,184,982	$ 1,184,982	-20.04%	0.24x	$ -	$ (3,815,018)
Columbia Capital Equity Partners II (QP), L.P.	204 South Union Street, Alexandria, VA 22314	1999	$ 12,000,000	$ 12,039,711	$ 9,537,357	$ 9,537,357	-4.62%	0.79x	$ -	$ (2,502,354)
Columbia Capital Equity Partners III (QP), L.P.	204 South Union Street, Alexandria, VA 22314	2000	$ 15,000,000	$ 16,899,640	$ 19,690,899	$ 20,024,289	3.19%	1.18x	$ 2,255	N/A
Copley Partners 1, L.P.	N/A	1986	$ 15,000,000	$ 15,000,000	$ 27,320,000	$ 27,320,000	9.53%	1.82x	$ -	$ 12,320,000
Copley Partners 2, L.P.	N/A	1986	$ 15,000,000	$ 15,000,000	$ 21,782,515	$ 21,782,515	5.66%	1.45x	$ -	$ 6,782,515
Cornerstone Equity Partners IV, L.P.	355 Lexington Avenue, Suite 1400, New York, NY 10017	1996	$ 25,000,000	$ 25,000,000	$ 40,412,377	$ 40,412,377	8.58%	1.62x	$ -	$ 15,412,377
CVC Capital Partners VI (B) L.P.	111 Strand, London, WC2R OAG United Kingdom	2013	$ 115,329,616	$ 108,568,611	$ 24,668,160	$ 131,995,873	12.71%	1.22x	$ 1,673,844	N/A
CVC Capital Partners VII, L.P.	111 Strand, London, WC2R OAG United Kingdom	2017	$ 233,514,095	$ -	$ -	$ 1,884,093	0.00%	0.00x	$ 2,132,663	N/A
CVC European Equity Partners II, L.P.	111 Strand, London, WC2R OAG United Kingdom	1998	$ 50,000,000	$ 46,360,215	$ 110,703,608	$ 110,703,608	18.94%	2.39x	$ -	$ 64,343,393
CVC European Equity Partners III, L.P.	111 Strand, London, WC2R OAG United Kingdom	2001	$ 30,000,000	$ 29,566,313	$ 83,252,788	$ 85,398,680	41.04%	2.89x	$ 11,560	N/A
CVC European Equity Partners IV (D), L.P.	111 Strand, London, WC2R OAG United Kingdom	2005	$ 76,050,177	$ 69,855,346	$ 137,276,634	$ 137,378,797	16.66%	1.97x	$ 14,982	N/A
CVC European Equity Partners Tandem Fund, L.P.	111 Strand, London, WC2R OAG United Kingdom	2006	$ 30,437,452	$ 28,657,123	$ 38,215,122	$ 38,507,870	6.56%	1.34x	$ 5,202	N/A
CVC European Equity Partners V (A), L.P.	111 Strand, London, WC2R OAG United Kingdom	2008	$ 87,653,999	$ 91,727,979	$ 135,956,056	$ 175,291,233	16.27%	1.91x	$ 134,161	N/A
CVC European Equity Partners, L.P.	111 Strand, London, WC2R OAG United Kingdom	1996	$ 25,000,000	$ 24,301,498	$ 61,070,457	$ 61,070,457	22.96%	2.51x	$ -	$ 36,768,959
Cypress Merchant Banking Partners II, L.P.	437 Madison Avenue, 33rd Floor, New York, NY 10022	1999	$ 40,000,000	$ 41,816,808	$ 40,563,605	$ 40,563,605	-0.51%	0.97x	$ -	$ (1,253,204)
Cypress Merchant Banking Partners, L.P.	437 Madison Avenue, 33rd Floor, New York, NY 10022	1995	$ 10,000,000	$ 10,465,248	$ 12,641,091	$ 12,641,091	2.57%	1.21x	$ -	$ 2,175,843
DLJ Merchant Banking Partners II, L.P.	11 Madison Avenue, 16th Floor, New York, NY 10010	1997	$ 25,000,000	$ 28,545,519	$ 36,654,221	$ 36,654,221	6.01%	1.28x	$ -	$ 8,108,702
Draper Fisher Jurvetson Fund VII, L.P.	2882 Sand Hill Road, Suite 150, Menlo Park, CA 94025	2000	$ 10,000,000	$ 10,000,000	$ 5,424,821	$ 6,920,629	-3.67%	0.69x	$ 5,965	N/A
Enterprise Partners III, L.P.	2223 Avenide de la Playa, Suite 300, La Jolla, CA 92037	1993	$ 10,000,000	$ 10,000,000	$ 74,198,158	$ 74,198,158	63.67%	7.42x	$ -	$ 64,198,158
Excellere Capital Fund II, L.P.	3033 East First Avenue, Suite 700, Denver, CO 80206	2011	$ 50,000,000	$ 38,789,655	$ 55,954,179	$ 75,198,633	33.54%	1.94x	$ 408,570	N/A
Excellere Capital Fund III, L.P.	3033 East First Avenue, Suite 700, Denver, CO 80206	2016	$ 70,000,000	$ 10,178,760	$ -	$ 8,509,531	-25.38%	0.84x	$ 985,365	N/A
Excellere Capital Fund, L.P.	3033 East First Avenue, Suite 700, Denver, CO 80206	2007	$ 25,000,000	$ 21,410,078	$ 45,267,872	$ 45,267,872	32.71%	2.11x	$ -	$ 23,857,794
Exponent Private Equity Partners II, L.P.	2 London Bridge, London, SE1 9RA United Kingdom	2007	$ 42,495,858	$ 41,356,770	$ 57,570,307	$ 62,322,357	9.03%	1.51x	$ 151,621	N/A
Exponent Private Equity Partners, L.P.	2 London Bridge, London, SE1 9RA United Kingdom	2004	$ 46,303,565	$ 52,872,752	$ 69,105,611	$ 70,156,666	7.28%	1.33x	$ 23,215	N/A
Falcon Mezzanine Partners, L.P.	21 Custom House Street, 10th Floor, Boston, MA 02110	2003	$ 20,000,000	$ 19,559,608	$ 37,695,417	$ 37,695,417	26.03%	1.93x	$ -	$ 18,135,809
Financial Partners Fund I - (Secondary)	280 Park Avenue, 3rd Floor, New York, NY 10017	2018	$ 2,902,557	$ 2,554,584	$ -	$ 2,761,360	8.23%	1.08x	$ -	N/A
Financial Partners Fund II, L.P.	280 Park Avenue, 3rd Floor, New York, NY 10017	2018	$ 8,225,000	$ 1,259,669	$ -	$ 1,066,161	-11.85%	0.85x	$ 587,966	N/A
First Data Corporation	5565 Glenridge Connector NE, Suite 2000, Atlanta, GA 30342	1992	$ 5,000,000	$ 5,000,000	$ 24,897,520	$ 24,897,520	91.84%	4.98x	$ -	$ 19,897,520
First Reserve Fund X, L.P.	1 Lafayette Place, Greenwich, CT 06830	2004	$ 50,000,000	$ 50,000,000	$ 91,214,503	$ 91,386,028	31.05%	1.83x	$ 5,781	N/A
First Reserve Fund XI, L.P.	1 Lafayette Place, Greenwich, CT 06830	2006	$ 60,000,000	$ 60,000,000	$ 36,079,157	$ 40,153,933	-8.43%	0.67x	$ 10,218	N/A
First Reserve Fund XII, L.P.	1 Lafayette Place, Greenwich, CT 06830	2008	$ 100,000,000	$ 100,084,288	$ 45,223,485	$ 64,326,626	-9.36%	0.64x	$ 481,662	N/A
Forward Ventures IV, L.P.	4747 Executive Drive, Suite 700, San Diego, CA 92121	2000	$ 10,000,000	$ 10,051,899	$ 5,003,075	$ 6,737,357	-4.05%	0.67x	$ 2,952	N/A
Foundation Investment Partners, L.P.	250 Middlefield Road, Menlo Park, CA 94025	2015	$ 5,516,189	$ 3,526,462	$ 3,018,118	$ 5,782,294	40.18%	1.64x	$ 106,613	N/A
Gateway Private Equity Fund, L.P.	2211 Michelson Drive, 9th Floor, Irvine, CA 92612	2010	$ 300,000,000	$ 266,352,724	$ 134,974,368	$ 358,201,436	9.57%	1.34x	$ 2,354,072	N/A
Gateway Private Equity Fund-B, L.P.	2211 Michelson Drive, 9th Floor, Irvine, CA 92612	2015	$ 300,000,000	$ 164,502,526	$ -	$ 163,100,719	-0.74%	0.99x	$ 1,033,928	N/A
GBOF V Feeder SCS	Herculesplein 104, 3584, AA Utrecht Netherlands	2016	$ 87,449,407	$ 39,024,571	$ -	$ 38,904,187	-0.33%	1.00x	$ 1,376,491	N/A
Geocapital IV, L.P.	1821 Hillandale Road, Suite 1 B-341, Durham, NC 27705	1996	$ 9,000,000	$ 9,000,000	$ 14,551,209	$ 15,548,333	14.15%	1.73x	$ 32,078	N/A
GGV Capital IV, L.P.	2494 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2012	$ 50,000,000	$ 49,659,342	$ 20,906,401	$ 115,313,173	19.69%	2.32x	$ 828,086	N/A
GGV Capital V, L.P.	2494 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2014	$ 50,000,000	$ 46,250,070	$ 7,716,911	$ 101,919,002	31.77%	2.20x	$ 1,613,323	N/A
GGV Capital VI Plus, L.P.	2494 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2017	$ 15,000,000	$ 3,750,000	$ -	$ 3,967,714	26.94%	1.06x	$ 625	N/A
GGV Capital VI, L.P.	2494 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2016	$ 45,000,000	$ 25,425,000	$ -	$ 31,751,389	24.90%	1.25x	$ 916,558	N/A
GGV Discovery I, L.P.	2494 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2016	$ 15,000,000	$ 9,600,000	$ -	$ 13,218,821	43.95%	1.38x	$ 311,263	N/A
GKH Investments, L.P.	200 West Madison Street, Suite 3800, Chicago, IL 60606	1988	$ 150,000,000	$ 166,588,304	$ 350,453,542	$ 350,453,542	13.13%	2.10x	$ -	$ 183,865,238
Glendon Opportunities Fund II, L.P.	1620 26th Street, Suite 2000N, Santa Monica, CA 90404	2017	$ 100,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Glendon Opportunities Fund, L.P.	1620 26th Street, Suite 2000N, Santa Monica, CA 90404	2014	$ 60,000,000	$ 45,299,529	$ -	$ 56,700,745	7.96%	1.25x	$ 1,118,961	N/A
Goode Partners Consumer Fund II, L.P.	767 Third Avenue, 22nd Floor, New York, NY 10017	2013	$ 8,040,750	$ 10,344,677	$ 19,125,688	$ 32,618,168	60.02%	3.15x	$ 109,141	N/A
Goode Partners Consumer Fund III, L.P.	767 Third Avenue, 22nd Floor, New York, NY 10017	2015	$ 10,000,000	$ 4,740,596	$ 66,207	$ 3,306,673	-23.09%	0.70x	$ 210,092	N/A
Goode Supreme Holdings Co-Invest, LLC	767 Third Avenue, 22nd Floor, New York, NY 10017	2015	$ 4,600,206	$ 4,600,206	$ 47,507,864	$ 93,760,862	147.81%	20.38x	$ -	N/A
Green Equity Investors VII, L.P.	11111 Santa Monica Boulevard, Suite 2000, Los Angeles, CA 90025	2017	$ 150,000,000	$ 55,761,638	$ 593,982	$ 56,594,315	2.22%	1.01x	$ 2,163,589	N/A
Greycroft Growth II, L.P.	292 Madison Avenue, 20th Floor, New York, NY 10017	2017	$ 7,500,000	$ 2,468,633	$ 1,016,876	$ 2,858,403	36.51%	1.16x	$ 156,211	N/A
Greycroft Growth, L.P.	292 Madison Avenue, 20th Floor, New York, NY 10017	2014	$ 7,500,000	$ 7,542,951	$ 238,672	$ 8,607,141	6.10%	1.14x	$ 159,328	N/A
Greycroft Partners II, L.P.	292 Madison Avenue, 20th Floor, New York, NY 10017	2010	$ 7,500,000	$ 9,693,043	$ 9,305,963	$ 18,733,320	19.15%	1.93x	$ 142,575	N/A
Greycroft Partners III, L.P.	292 Madison Avenue, 20th Floor, New York, NY 10017	2012	$ 8,560,000	$ 9,316,342	$ 2,219,080	$ 12,001,684	9.45%	1.29x	$ 226,883	N/A
Greycroft Partners IV, L.P.	292 Madison Avenue, 20th Floor, New York, NY 10017	2015	$ 7,500,000	$ 6,528,268	$ 1,592,966	$ 7,623,465	16.28%	1.17x	$ 200,639	N/A
Gridiron Capital Fund II, L.P.	220 Elm Street, New Canaan, CT 06840	2012	$ 10,000,000	$ 10,226,166	$ 7,915,055	$ 15,858,713	13.03%	1.55x	$ 118,566	N/A

Section 6254.26 (b)

Fiscal Year-Ended June 30, 2018

Attachment 3

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
GS Capital Partners II, L.P.	85 Broad Street, New York, NY 10004	1995	$ 20,000,000	$ 19,716,236	$ 24,256,758	$ 24,256,758	4.78%	1.23x	$ -	$ 4,540,522
GTB Capital Partners II, L.P.	100 Front Street, Suite 400, West Conshohocken, PA 19248	2014	$ 300,000,000	$ 278,250,325	$ 24,469,398	$ 354,412,742	12.55%	1.27x	$ 2,544,013	N/A
GTB Capital Partners II-B, L.P.	100 Front Street, Suite 400, West Conshohocken, PA 19248	2018	$ 100,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
GTB Capital Partners, L.P.	100 Front Street, Suite 400, West Conshohocken, PA 19248	2006	$ 250,000,000	$ 264,767,115	$ 470,449,306	$ 506,733,925	12.14%	1.91x	$ 402,632	N/A
GTCR Fund IX/A, L.P.	7776 Ivanhoe Avenue, Suite 200, La Jolla, CA 92037	2006	$ 60,000,000	$ 57,132,136	$ 95,315,598	$ 102,441,079	13.70%	1.79x	$ 30,452	N/A
GTCR Fund VIII, L.P.	7776 Ivanhoe Avenue, Suite 200, La Jolla, CA 92037	2003	$ 75,000,000	$ 69,393,692	$ 114,672,612	$ 120,757,678	22.31%	1.74x	$ 26,154	N/A
Halpern Denny Fund II, L.P.	500 Boylstone Street, Suite 1880, Boston, MA 02116	1997	$ 10,000,000	$ 10,199,997	$ 2,334,835	$ 2,334,835	-22.36%	0.23x	$ -	$ (7,865,162)
HarbourVest International Private Equity Partners	One Financial Center, 44th Floor, Boston, MA 2111	1998	$ 25,000,000	$ 24,625,000	$ 38,182,604	$ 38,236,850	8.56%	1.55x	$ 576	N/A
Harvest Partners VII, L.P.	280 Park Avenue, 25th Floor, New York, NY 10017	2016	$ 80,000,000	$ 48,658,100	$ 5,403,763	$ 51,592,415	8.45%	1.06x	$ 634,968	N/A
Hellman & Friedman Capital Partners V, L.P.	1 Maritime Plaza, 12th Floor, San Francisco, CA 94111	2004	$ 39,953,351	$ 38,080,179	$ 101,285,159	$ 101,872,921	27.87%	2.68x	$ 2,518	N/A
Hellman & Friedman Capital Partners VI, L.P.	1 Maritime Plaza, 12th Floor, San Francisco, CA 94111	2007	$ 60,000,000	$ 61,617,926	$ 95,151,824	$ 110,424,643	11.81%	1.79x	$ 823	N/A
Hellman & Friedman Capital Partners VIII, L.P.	1 Maritime Plaza, 12th Floor, San Francisco, CA 94111	2016	$ 125,000,000	$ 85,291,823	$ 7,327,029	$ 98,318,214	26.48%	1.15x	$ 2,662,699	N/A
Incline Equity Partners III, L.P.	625 Liberty Avenue, Suite 340, Pittsburgh, PA 15222	2013	$ 10,000,000	$ 10,679,709	$ 8,792,948	$ 17,362,808	30.68%	1.63x	$ 192,796	N/A
Incline Equity Partners IV, L.P.	625 Liberty Avenue, Suite 340, Pittsburgh, PA 15222	2017	$ 37,500,000	$ 3,719,998	$ -	$ 2,760,615	-44.89%	0.74x	$ 686,802	N/A
Incline Equity Partners IV, L.P. (JPM)	625 Liberty Avenue, Suite 340, Pittsburgh, PA 15222	2017	$ 10,000,000	$ 991,999	$ -	$ 736,164	-44.89%	0.74x	$ 183,146	N/A
Indigo N.V.	5 Limburglaan, Maastricht, 6229 SH, Netherlands	1996	$ 8,385,925	$ 7,000,000	$ 9,251,063	$ 9,251,063	5.11%	1.32x	$ -	$ 2,251,063
Infinity Capital Venture Fund 1999, L.P.	N/A	1999	$ 15,000,000	$ 15,000,000	$ 1,643,938	$ 1,643,938	-33.68%	0.11x	$ -	$ (13,356,062)
Information Technology Venture II, L.P.	N/A	1998	$ 15,000,000	$ 15,000,000	$ 11,580,601	$ 11,580,601	-11.07%	0.77x	$ -	$ (3,419,399)
Insight Venture Partners V Coinvestment Fund, L.P.	1114 Avenue of the Americas, 36th Floor, New York, NY 10036	2005	$ 8,180,615	$ 8,266,245	$ 27,709,359	$ 28,033,809	26.88%	3.39x	$ -	N/A
Insight Venture Partners V, L.P.	1114 Avenue of the Americas, 36th Floor, New York, NY 10036	2005	$ 9,500,000	$ 9,916,890	$ 25,622,876	$ 27,100,217	21.09%	2.73x	$ -	N/A
Insignia Capital Partners (Parallel A), L.P.	1333 North California Blvd, Suite 520, Walnut Creek, CA 94596	2013	$ 100,000,000	$ 49,507,266	$ 9,334,822	$ 62,397,529	12.37%	1.26x	$ 2,051,895	N/A
Institutional Venture Partners XIV, L.P.	3000 Sand Hill Road, Building 2, Suite 250, Menlo Park, CA 94025	2012	$ 60,000,000	$ 60,054,117	$ 26,535,196	$ 94,047,448	15.02%	1.57x	$ 1,527,787	N/A
Institutional Venture Partners XV, L.P.	3000 Sand Hill Road, Building 2, Suite 250, Menlo Park, CA 94025	2015	$ 90,000,000	$ 73,800,000	$ 9,851,124	$ 87,721,369	11.61%	1.19x	$ 2,337,042	N/A
Intersouth Partners VII, L.P.	102 City Hall Plaza, Suite 200, Durham, NC 27701	2006	$ 6,700,000	$ 6,700,000	$ 916,420	$ 3,627,654	-9.76%	0.54x	$ 33,819	N/A
Invesco Partnership Fund II, L.P.	1166 Avenue of the Americas, New York, NY 10036	1999	$ 20,000,000	$ 21,480,641	$ 16,500,663	$ 16,500,663	-4.14%	0.77x	$ 2,659	$ (4,979,978)
J.P. Morgan Emerging Managers Program	320 Park Avenue, New York, NY 10022	2010	$ 150,000,000	$ 157,252,785	$ 153,218,686	$ 278,944,359	19.34%	1.77x	$ 503,250	N/A
J.P. Morgan Emerging Managers Program II	320 Park Avenue, New York, NY 10022	2015	$ 100,000,000	$ 78,046,644	$ 81,618,074	$ 197,328,274	54.14%	2.53x	$ 446,422	N/A
J.P. Morgan Emerging Managers Program III	320 Park Avenue, New York, NY 10022	2017	$ 100,000,000	$ 23,913,701	$ 1,042,948	$ 26,266,078	19.20%	1.10x	$ 345,917	N/A
JMI Equity Fund V, L.P.	100 International Drive, Suite 19100, Baltimore, MD 21202	2005	$ 16,200,000	$ 16,203,728	$ 86,961,715	$ 86,961,715	39.38%	5.37x	$ 16,680	$ 70,757,987
JMI Equity Fund VI, L.P.	100 International Drive, Suite 19100, Baltimore, MD 21202	2007	$ 19,500,000	$ 19,509,927	$ 32,966,151	$ 33,616,999	11.21%	1.72x	$ 178,428	N/A
JMI Equity Fund VII, L.P.	100 International Drive, Suite 19100, Baltimore, MD 21202	2010	$ 30,000,000	$ 29,340,000	$ 28,186,636	$ 52,806,554	14.84%	1.80x	$ 461,580	N/A
Joy Capital I, L.P.	Room 1501, Wangjing Greenland Center B, Chaoyang District, China	2015	$ 5,000,000	$ 4,403,266	$ 2,750,000	$ 11,646,981	58.95%	2.65x	$ 124,446	N/A
Joy Capital II, L.P.	Room 1501, Wangjing Greenland Center B, Chaoyang District, China	2018	$ 5,000,000	$ 2,633,719	$ -	$ 2,803,738	12.66%	1.06x	$ 106,862	N/A
Juggernaut Capital Partners II, L.P.	4445 Willard Avenue, Suite 1040, Chevy Chase, MD 20815	2012	$ 75,000,000	$ 73,452,146	$ 25,186,030	$ 115,123,278	13.42%	1.57x	$ 1,733,579	N/A
Juggernaut Capital Partners III, L.P.	4445 Willard Avenue, Suite 1040, Chevy Chase, MD 20815	2015	$ 100,000,000	$ 83,120,475	$ 1,816,809	$ 93,876,524	9.02%	1.13x	$ 2,221,077	N/A
Juggernaut Capital Partners IV, L.P.	4445 Willard Avenue, Suite 1040, Chevy Chase, MD 20815	2018	$ 125,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
JZI Fund III, L.P.	17A Curzon Street, London, W1J 5HS, United Kingdom	2015	$ 6,821,385	$ 3,950,792	$ 128,596	$ 4,853,666	15.12%	1.23x	$ 174,445	N/A
KarpReilly Capital Partners II, L.P.	104 Field Point Road, Greenwich, CT 06830	2012	$ 10,000,000	$ 9,673,832	$ 2,921,677	$ 9,660,638	-0.04%	1.00x	$ 97,614	N/A
Kelso Investment Associates VII, L.P.	320 Park Ave, 24th Floor, New York, NY 10022	2004	$ 46,000,000	$ 49,479,790	$ 77,552,341	$ 78,644,082	11.42%	1.59x	$ 10,394	N/A
Kelso Investment Associates VIII, L.P.	320 Park Ave, 24th Floor, New York, NY 10022	2007	$ 75,000,000	$ 74,132,534	$ 64,472,911	$ 99,561,513	6.83%	1.34x	$ 354,410	N/A
Kerogen Expansion Fund, L.P.	190 Elgin Avenue, George Town, Grand Cayman KY1-9001, Cayman Islands	2018	$ 6,666,667	$ 2,092,094	$ -	$ 3,461,971	81.34%	1.65x	$ 209,102	N/A
Kerogen Pandion Energy AS	190 Elgin Avenue, George Town, Grand Cayman KY1-9001, Cayman Islands	2018	$ 3,333,333	$ 1,994,880	$ -	$ 2,542,080	25.08%	1.27x	$ 31,473	N/A
Kidd Kamm Equity Partners, L.P.	N/A	1992	$ 15,000,000	$ 14,874,159	$ 587,583	$ 587,583	-49.85%	0.04x	$ -	$ (14,286,575)
Kinderhook Capital III, L.P.	521 Fifth Avenue, 34th Floor, New York, NY 10175	2010	$ 7,000,000	$ 8,054,945	$ 6,745,216	$ 12,817,668	14.00%	1.59x	$ 47,308	N/A
KKR 1996 Fund, L.P.	9 West 57th Street, Suite 4200, New York, NY 10019	1997	$ 125,000,000	$ 131,822,098	$ 235,069,550	$ 235,069,550	13.18%	1.78x	$ -	$ 103,247,452
KKR 2006 Fund, L.P.	9 West 57th Street, Suite 4200, New York, NY 10019	2006	$ 60,000,000	$ 64,070,508	$ 88,985,927	$ 108,736,374	8.85%	1.70x	$ (15,385)	N/A
KKR Millennium Fund, L.P.	9 West 57th Street, Suite 4200, New York, NY 10019	2002	$ 50,000,000	$ 67,839,702	$ 121,234,126	$ 122,830,970	16.37%	1.81x	$ -	N/A
Kleiner Perkins Caufield & Byers VI, L.P.	2750 Sand Hill Road, Menlo Park, CA 94025	1992	$ 5,000,000	$ 5,000,000	$ 16,562,188	$ 16,562,188	39.44%	3.31x	$ -	$ 11,562,188
Kleiner Perkins Caufield & Byers VII, L.P.	2750 Sand Hill Road, Menlo Park, CA 94025	1994	$ 3,750,000	$ 3,750,000	$ 121,557,017	$ 121,557,017	124.57%	32.42x	$ -	$ 117,807,017
Kline Hawkes Pacific, L.P.	11726 San Vicente Boulevard, Suite 300, Los Angeles, CA 90049	2000	$ 5,000,000	$ 5,000,000	$ 2,832,048	$ 3,375,251	-4.81%	0.68x	$ 40,869	N/A
Knightsbridge Integrated Holdings IV	122 S.W. Frank Phillips Boulevard, Bartlesville, OK 74003	1999	$ 12,000,000	$ 11,817,257	$ 11,834,267	$ 11,834,267	0.02%	1.00x	$ -	$ 17,010
Knightsbridge Integrated Holdings V, L.P.	122 S.W. Frank Phillips Boulevard, Bartlesville, OK 74003	2000	$ 20,000,000	$ 19,743,132	$ 19,027,809	$ 21,393,743	1.07%	1.08x	$ 7,139	N/A
Kohlberg Investors IV, L.P.	111 Radio Circle, Mount Kisco, NY 10549	2001	$ 25,000,000	$ 21,656,624	$ 28,621,703	$ 29,683,386	9.62%	1.37x	$ 18,606	N/A
Landmark Equity Partners III, L.P.	681 Fifth Avenue, 14th Floor, New York, NY 10022	1993	$ 10,000,000	$ 10,286,670	$ 26,789,111	$ 26,789,111	35.08%	2.60x	$ -	$ 16,502,441
Landmark Equity Partners IV, L.P.	681 Fifth Avenue, 14th Floor, New York, NY 10022	1994	$ 10,533,677	$ 11,011,182	$ 16,218,022	$ 16,218,022	15.81%	1.47x	$ -	$ 5,206,840
LAV Biosciences Fund IV, L.P.	Room 1504, 1 Corporate Avenue, No.222 Hubin Road, Huangpu District, Shanghai, China PR	2017	$ 40,000,000	$ 17,878,374	$ -	$ 20,304,939	19.42%	1.14x	$ 1,051,217	N/A
Levine Leichtman Capital Partners II, L.P.	335 North Maple Drive, Suite 130, Beverly Hills, CA 90210	1998	$ 30,000,000	$ 50,043,193	$ 57,458,553	$ 58,371,305	5.17%	1.17x	$ -	N/A
Lexington Capital Partners II, L.P.	660 Madison Avenue, 23rd Floor, New York, NY 10065	1998	$ 50,000,000	$ 49,422,500	$ 65,710,274	$ 65,710,274	8.17%	1.33x	$ 3,059	$ 16,287,774
Lexington Capital Partners III, L.P.	660 Madison Avenue, 23rd Floor, New York, NY 10065	1999	$ 25,000,000	$ 24,654,618	$ 30,973,827	$ 31,158,192	8.64%	1.26x	$ 1,661	N/A
Lexington Capital Partners V, L.P.	660 Madison Avenue, 23rd Floor, New York, NY 10065	2001	$ 50,000,000	$ 49,756,618	$ 82,156,252	$ 83,600,625	18.22%	1.68x	$ 14,207	N/A

Section 6254.26 (b)

Fiscal Year-Ended June 30, 2018

Attachment 3

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Liberty Co-Investors, L.P.	180 Royal Palm Way, Suite 203, Palm Beach, FL 33480	2014	$ 2,000,000	$ 2,000,000	$ 4,448,746	$ 4,975,762	46.64%	2.49x	$ -	N/A
Lightspeed Venture Partners VI, L.P.	2200 Sand Hill Road, Menlo Park, CA 94025	2000	$ 8,000,000	$ 7,340,182	$ 7,727,896	$ 7,817,940	1.21%	1.07x	$ 1,783	N/A
Lightyear Fund III, L.P.	9 West 57th Street, 31st Floor, New York, NY 10019	2011	$ 105,000,000	$ 105,128,584	$ 103,043,239	$ 205,830,877	23.70%	1.96x	$ 413,432	N/A
Lightyear Fund IV, L.P.	9 West 57th Street, 31st Floor, New York, NY 10019	2016	$ 150,000,000	$ 52,110,485	$ 2,342,461	$ 48,672,257	-6.48%	0.93x	$ 3,149,695	N/A
Lindsay Goldberg & Bessemer, L.P.	630 Fifth Avenue, 30th Floor, New York, NY 10111	2002	$ 30,000,000	$ 29,160,283	$ 70,217,712	$ 70,217,712	33.25%	2.41x	$ 2,717	$ 41,057,429
Livingbridge 6, L.P.	100 Wood Street, London, EC2V 7AN United Kingdom	2016	$ 52,867,737	$ 18,782,777	$ -	$ 17,073,078	-14.20%	0.91x	$ 1,336,353	N/A
M/C Venture Partners VI, L.P.	75 State Street, Suite 2500, Boston, MA 02109	2006	$ 19,000,000	$ 18,813,924	$ 39,688,491	$ 39,855,139	13.34%	2.12x	$ 17,091	N/A
Madison Dearborn Capital Partners III, L.P.	Three First National Plaza, Suite 4600, Chicago, IL 60602	1999	$ 30,000,000	$ 30,021,318	$ 45,791,560	$ 45,791,560	8.59%	1.53x	$ -	$ 15,770,243
Madison Dearborn Capital Partners IV, L.P.	Three First National Plaza, Suite 4600, Chicago, IL 60602	2000	$ 25,000,000	$ 24,258,894	$ 46,119,536	$ 47,259,729	13.99%	1.95x	$ 4,770	N/A
Madison Dearborn Capital Partners V-A, L.P.	Three First National Plaza, Suite 4600, Chicago, IL 60602	2006	$ 75,000,000	$ 64,994,501	$ 106,442,533	$ 108,959,321	7.21%	1.68x	$ 179,456	N/A
Madison Dearborn Capital Partners VI, L.P.	Three First National Plaza, Suite 4600, Chicago, IL 60602	2008	$ 75,000,000	$ 67,317,851	$ 101,631,605	$ 139,417,744	23.60%	2.07x	$ 226,925	N/A
Marlin Equity IV, L.P.	338 Pier Avenue, Hermosa Beach, CA 90254	2013	$ 50,000,000	$ 46,208,413	$ 478,280	$ 51,062,374	4.66%	1.11x	$ 496,156	N/A
MBK Partners Fund III, L.P.	22nd Floor, D Tower D1, 17 Jongno 3-gil, Jongno-gu, Seoul Korea	2013	$ 100,000,000	$ 101,369,648	$ 26,068,287	$ 159,368,244	18.79%	1.57x	$ 632,551	N/A
MBK Partners Fund IV, L.P.	22nd Floor, D Tower D1, 17 Jongno 3-gil, Jongno-gu, Seoul Korea	2017	$ 120,000,000	$ 36,431,804	$ -	$ 39,371,811	8.61%	1.08x	$ 1,974,686	N/A
McCown DeLeeuw & Co. Fund IV, L.P.	950 Tower Lane, Suite 800, Foster City, CA 94404	1998	$ 25,000,000	$ 21,327,148	$ 15,493,357	$ 15,493,357	-4.50%	0.73x	$ -	$ (5,833,791)
Media Communications Partners, L.P.	75 State Street, Suite 2500, Boston, MA 02109	1986	$ 25,000,000	$ 25,000,000	$ 40,272,681	$ 40,272,681	7.25%	1.61x	$ -	$ 15,272,681
Mediphase Venture Partners II, L.P.	One Gateway Center, Suite 407, Newton, MA 02458	2002	$ 10,000,000	$ 9,703,163	$ 17,506,856	$ 17,641,481	7.55%	1.82x	$ 25,541	N/A
Menlo Ventures IX, L.P.	3000 Sand Hill Road, Building 4, Suite 100, Menlo Park, CA 94025	2001	$ 10,000,000	$ 10,000,000	$ 9,437,340	$ 10,511,782	0.81%	1.05x	$ 864	N/A
Mercato Partners Growth II, L.P.	6550 South Millrock Drive, Suite 125, Salt Lake City, UT 84121	2011	$ 7,000,000	$ 7,000,000	$ 581,953	$ 3,962,839	-15.03%	0.57x	$ 27,250	N/A
MetroPCS	2250 Lakeside Boulevard, Richardson, TX 75082	1995	$ 5,784,200	$ 5,920,141	$ 54,529,368	$ 54,529,368	26.34%	9.21x	$ -	$ 48,609,227
Moelis Capital Partners Opp. Fund I-B LP	10877 Wilshire Boulevard, Suite 600, Los Angeles, CA 90024	2014	$ 10,000,000	$ 8,322,314	$ 4,003,287	$ 11,375,888	11.28%	1.37x	$ 65,803	N/A
Montagu III, L.P.	2 More London Riverside, London, SE1 2AP, United Kingdom	2005	$ 76,404,757	$ 74,273,362	$ 97,895,573	$ 97,895,573	7.34%	1.32x	$ -	$ 23,622,211
Morgan Stanley Dean Witter Venture Partners IV, L.P.	1585 Broadway, New York, NY 10036	1999	$ 5,000,000	$ 5,126,102	$ 4,098,815	$ 4,224,232	-2.50%	0.82x	$ -	N/A
Morgan Stanley Venture Partners 2002 Fund, L.P.	1585 Broadway, New York, NY 10036	2002	$ 5,000,000	$ 5,618,225	$ 8,547,949	$ 8,831,652	9.39%	1.57x	$ -	N/A
NeoTribe Ventures I, L.P.	3340 Hillview Avenue, Palo Alto, CA 94304	2017	$ 5,000,000	$ 1,100,000	$ 26,072	$ 958,548	-18.50%	0.87x	$ 153,236	N/A
New Mainstream Capital II, L.P.	77 Water Street, Suite 2602, New York, NY 10005	2014	$ 10,000,000	$ 9,753,424	$ 3,336,273	$ 13,132,059	16.40%	1.35x	$ 177,342	N/A
Next Coast Ventures I, L.P.	3600 North Capital of Texas Highway, Building B Suite 250, Austin, TX 78746	2016	$ 5,000,000	$ 1,750,000	$ -	$ 1,788,625	2.60%	1.02x	$ 134,395	N/A
Nordic Capital Fund VI, L.P.	26 Esplanade, St. Helier, Jersey, JE4 8PX Channel Islands	2006	$ 59,027,621	$ 62,740,012	$ 95,540,076	$ 96,512,703	6.87%	1.54x	$ 22,262	N/A
Nordic Capital V, L.P.	26 Esplanade, St. Helier, Jersey, JE4 8PX Channel Islands	2003	$ 46,013,772	$ 51,554,630	$ 143,077,757	$ 144,353,281	20.63%	2.80x	$ 202	N/A
Nordic Capital VII Beta, L.P.	26 Esplanade, St. Helier, Jersey, JE4 8PX Channel Islands	2007	$ 67,574,115	$ 66,719,130	$ 85,839,208	$ 91,767,577	5.23%	1.38x	$ 417,301	N/A
Nordic Capital VIII Beta, L.P.	26 Esplanade, St. Helier, Jersey, JE4 8PX Channel Islands	2012	$ 90,895,412	$ 93,537,557	$ 30,692,787	$ 127,842,424	14.72%	1.37x	$ 1,940,537	N/A
Northgate Venture Partners VI, L.P.	649 San Ramon Valley Boulevard, Danville, CA 94526	2012	$ 50,000,000	$ 44,000,000	$ -	$ 57,880,366	8.93%	1.32x	$ 435,501	N/A
Oak Investment Partners IX, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	1999	$ 10,000,000	$ 9,999,798	$ 6,341,263	$ 6,527,181	-6.65%	0.65x	$ 1,051	N/A
Oak Investment Partners V, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	1992	$ 11,250,000	$ 11,250,000	$ 17,094,361	$ 17,094,361	10.55%	1.52x	$ -	$ 5,844,361
Oak Investment Partners VI, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	1994	$ 14,000,000	$ 14,000,000	$ 40,701,314	$ 40,701,314	34.57%	2.91x	$ -	$ 26,701,314
Oak Investment Partners VIII, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	1998	$ 10,000,000	$ 10,000,000	$ 18,005,960	$ 18,005,960	54.28%	1.80x	$ -	$ 8,005,960
Oak Investment Partners X, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	2001	$ 20,000,000	$ 20,000,000	$ 20,889,915	$ 25,590,370	3.72%	1.28x	$ 36,169	N/A
Oak Investment Partners XI, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	2004	$ 32,050,000	$ 32,040,260	$ 19,953,983	$ 32,222,939	0.07%	1.01x	$ 8,921	N/A
Oak Investment Partners XII, L.P.	901 Main Avenue, Suite 600, Norwalk, CT 06851	2006	$ 40,000,000	$ 39,934,049	$ 29,524,019	$ 40,109,875	0.07%	1.00x	$ 164,151	N/A
Oaktree Opportunities Fund VIII b, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2010	$ 37,500,000	$ 37,809,562	$ 28,441,149	$ 49,280,175	5.95%	1.30x	$ 31,080	N/A
Oaktree Opportunities Fund VIII, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2010	$ 37,500,000	$ 38,535,991	$ 50,087,952	$ 54,369,083	8.73%	1.41x	$ 80,574	N/A
Oaktree Opportunties Fund IX, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2012	$ 100,000,000	$ 100,000,004	$ 32,895,430	$ 113,019,227	3.22%	1.13x	$ 1,619,792	N/A
OCM Opportunities Fund II, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	1997	$ 25,000,000	$ 25,000,000	$ 37,729,349	$ 37,729,349	8.45%	1.51x	$ -	$ 12,729,349
OCM Opportunities Fund III, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	1999	$ 25,000,000	$ 26,250,000	$ 38,928,680	$ 38,928,680	11.93%	1.48x	$ 1,083	$ 12,678,680
OCM Opportunities Fund IV, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2001	$ 35,000,000	$ 35,000,000	$ 57,817,459	$ 57,817,459	28.03%	1.65x	$ 243	$ 22,817,459
OCM Opportunities Fund V, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2004	$ 32,400,000	$ 32,400,000	$ 53,028,074	$ 53,379,357	14.17%	1.65x	$ 8,017	N/A
OCM Opportunities Fund VI, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2005	$ 32,400,000	$ 32,400,000	$ 51,168,515	$ 51,168,515	8.75%	1.58x	$ 3,592	$ 18,768,515
OCM Opportunities Fund VII b, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2007	$ 45,000,000	$ 40,500,000	$ 67,356,814	$ 70,166,253	16.60%	1.73x	$ 68,062	N/A
OCM Opportunities Fund VII, L.P.	333 South Grand Avenue, 28th Floor, Los Angeles, CA 90071	2007	$ 30,000,000	$ 30,011,836	$ 39,479,783	$ 41,607,698	7.46%	1.39x	$ 67,433	N/A
Olympus Growth Fund IV, L.P.	Metro Center, One Station Place, 4th Floor, Stamford, CT 06902	2003	$ 18,000,000	$ 16,361,176	$ 26,995,690	$ 26,995,690	8.43%	1.65x	$ -	$ 10,634,514
One Rock Capital Partners II, L.P.	30 Rockefeller Plaza, 54th Floor, New York, NY 10112	2017	$ 72,500,000	$ 21,567,555	$ -	$ 20,888,293	-4.51%	0.97x	$ 1,309,315	N/A
Onex Partners II, L.P.	161 Bay Street, P.O. Box 700, Toronto, ON M5J 2S1 Canada	2006	$ 60,000,000	$ 53,620,551	$ 96,860,529	$ 102,691,480	13.38%	1.92x	$ 5,121	N/A
Onex Partners III, L.P.	161 Bay Street, P.O. Box 700, Toronto, ON M5J 2S1 Canada	2008	$ 75,000,000	$ 81,204,615	$ 101,197,085	$ 143,750,403	14.21%	1.77x	$ 308,559	N/A
Onex Partners IV, L.P.	161 Bay Street, P.O. Box 700, Toronto, ON M5J 2S1 Canada	2014	$ 150,000,000	$ 112,861,601	$ 6,697,084	$ 116,250,640	1.38%	1.03x	$ 3,286,313	N/A
Onex Partners V, L.P.	161 Bay Street, P.O. Box 700, Toronto, ON M5J 2S1 Canada	2018	$ 200,000,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Onex Partners, L.P.	161 Bay Street, P.O. Box 700, Toronto, ON M5J 2S1 Canada	2003	$ 75,000,000	$ 71,353,014	$ 204,739,407	$ 217,161,349	38.29%	3.04x	$ 15,757	N/A
Oxford Bioscience Partners IV, L.P.	P.O. Box 2017, 12 Giles Place, Mansfield, MA 02048	2001	$ 20,000,000	$ 20,000,000	$ 12,341,882	$ 12,341,882	-9.74%	0.62x	$ 10,202	$ (7,658,118)
PAI Europe VII, L.P.	232, rue de Rivoli, 75054 Paris CEDEX 01, France	2018	$ 175,132,566	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Palladium Equity Partners IV, L.P.	1270 Avenue of the Americas, 31st Floor, New York, NY 10020	2014	$ 100,000,000	$ 90,134,057	$ 52,085,701	$ 126,523,514	16.45%	1.40x	$ 1,079,632	N/A
Palm Beach Capital Fund III, L.P.	180 Royal Palm Way, Suite 203, Palm Beach, FL 33480	2011	$ 7,000,000	$ 6,846,163	$ 8,175,340	$ 11,075,947	19.09%	1.62x	$ 22,907	N/A

Section 6254.26 (b)

Attachment 3

Fiscal Year-Ended June 30, 2018

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Palm Beach Capital Fund IV, L.P.	180 Royal Palm Way, Suite 203, Palm Beach, FL 33480	2018	$ 10,000,000	$ 4,976,382	$ -	$ 5,199,029	8.52%	1.04x	$ 413,775	N/A
Palm Beach Capital III, L.P.-Secondary	180 Royal Palm Way, Suite 203, Palm Beach, FL 33480	2015	$ 1,053,866	$ 949,156	$ 794,446	$ 1,434,821	22.54%	1.51x	$ 4,418	N/A
Peak Rock Capital Fund, L.P.	13413 Galleria Circle, Suite Q-300, Austin, TX 78738	2013	$ 11,000,000	$ 8,721,167	$ 6,355,771	$ 16,047,845	37.30%	1.84x	$ 24,581	N/A
Permira Europe III, L.P.	80 Pall Mall, London, SW1Y 5ES United Kingdom	2003	$ 95,225,609	$ 106,826,510	$ 174,297,908	$ 174,733,694	25.84%	1.64x	$ 13,462	N/A
Permira Europe IV, L.P.	80 Pall Mall, London, SW1Y 5ES United Kingdom	2006	$ 66,734,385	$ 74,363,507	$ 106,805,846	$ 114,992,033	8.66%	1.55x	$ 12,714	N/A
Phillips-Smith Specialty Retail Group III, L.P.	5080 Spectrum Drive, Suite 805, West Addison, TX 75001	1993	$ 5,000,000	$ 5,000,000	$ 10,942,836	$ 10,942,836	23.26%	2.19x	$ -	$ 5,942,836
Phoenix Equity Partners III, L.P.	123 Victoria Street, London, Sw1E 6DE United Kingdom	2000	$ 5,195,919	$ 4,017,519	$ 5,407,526	$ 5,407,526	5.99%	1.35x	$ -	$ 1,390,007
Phoenix Equity Partners IV, L.P.	123 Victoria Street, London, Sw1E 6DE United Kingdom	2001	$ 17,494,723	$ 23,037,525	$ 49,761,888	$ 49,761,888	31.41%	2.16x	$ -	$ 26,724,363
Prospect Venture Partners I, L.P.	435 Tasso Street, Suite 200, Palo Alto, CA 94301	1997	$ 10,000,000	$ 10,000,000	$ 7,469,525	$ 7,469,525	-3.80%	0.75x	$ -	$ (2,530,475)
Prospect Venture Partners II, L.P.	435 Tasso Street, Suite 200, Palo Alto, CA 94301	2001	$ 20,000,000	$ 18,500,000	$ 23,795,661	$ 24,033,874	5.28%	1.30x	$ 2,354	N/A
Providence Equity Partners III, L.P.	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	1999	$ 21,765,349	$ 25,250,994	$ 38,719,924	$ 38,719,924	14.47%	1.53x	$ -	$ 13,468,930
Providence Equity Partners IV - Secondary	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	2005	$ 1,330,097	$ 1,251,039	$ 2,233,649	$ 2,233,649	19.47%	1.79x	$ 7	$ 982,609
Providence Equity Partners IV, L.P.	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	2000	$ 35,000,000	$ 43,939,032	$ 89,498,730	$ 89,498,730	23.83%	2.04x	$ 181	$ 45,559,699
Providence Equity Partners V, L.P.	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	2005	$ 73,000,000	$ 69,499,729	$ 84,183,788	$ 86,544,089	3.26%	1.25x	$ 16,553	N/A
Providence Equity Partners VI, L.P.	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	2007	$ 80,000,000	$ 78,174,738	$ 81,672,743	$ 109,019,552	5.68%	1.39x	$ 147,944	N/A
Providence Growth Investors, L.P.	50 Kennedy Plaza, 18th Floor, Providence, RI 02903	2000	$ 10,000,000	$ 10,245,962	$ 12,397,723	$ 12,397,723	4.85%	1.21x	$ -	$ 2,151,761
Prudential Venture Partners II	355 Lexington Avenue, Suite 1400, New York, NY 10017	1987	$ 50,000,000	$ 50,000,000	$ 116,405,441	$ 116,405,441	23.45%	2.33x	$ -	$ 66,405,441
Quad C Partners V, L.P.	200 Garrett Street, Suite M, Charlottesville, VA 22902	1998	$ 25,000,000	$ 24,966,260	$ 36,516,994	$ 36,516,994	9.11%	1.46x	$ 4,358	$ 11,550,734
Quad-C Partners VII Co-Investment Fund, L.P.	200 Garrett Street, Suite M, Charlottesville, VA 22902	2007	$ 13,639,253	$ 13,489,957	$ 18,537,891	$ 18,912,632	7.93%	1.40x	$ 15,539	N/A
Quad-C Partners VII, L.P.	200 Garrett Street, Suite M, Charlottesville, VA 22902	2006	$ 43,723,396	$ 44,927,887	$ 72,377,344	$ 72,597,538	10.80%	1.62x	$ 32,040	N/A
Questor Partners Fund II, L.P.	101 Southfield Road, 2nd Floor, Birmingham, MI 48009	1999	$ 30,000,000	$ 32,873,554	$ 39,052,065	$ 39,052,065	3.89%	1.19x	$ 3,887	$ 6,178,511
Questor Partners Fund, L.P.	101 Southfield Road, 2nd Floor, Birmingham, MI 48009	1996	$ 30,000,000	$ 30,335,510	$ 42,894,358	$ 42,894,358	15.70%	1.41x	$ -	$ 12,558,848
Redpoint Ventures II, L.P.	3000 Sand Hill Road, Building 2, Suite 290, Menlo Park, CA 94025	2000	$ 4,800,000	$ 4,656,000	$ 6,213,452	$ 6,541,138	5.09%	1.40x	$ 1,380	N/A
Reliant Equity Partners, L.P.	401 North Michigan Avenue, Suite 550, Chicago, IL 60611	2003	$ 10,000,000	$ 9,058,279	$ 126,988	$ 126,988	-48.09%	0.01x	$ -	$ (8,931,291)
Ripplewood Partners, L.P.	1 Rockefeller Plaza, 32nd Floor, New York, NY 10020	1996	$ 20,000,000	$ 19,604,622	$ 36,396,534	$ 36,396,534	13.62%	1.86x	$ -	$ 16,791,912
Riverside Capital Appreciation Fund VI, L.P.	630 Fifth Avenue, Suite 400, New York, NY 10111	2013	$ 100,000,000	$ 70,794,308	$ 27,780,177	$ 110,733,930	16.09%	1.56x	$ 2,071,980	N/A
Rizvi Opportunistic Equity Fund II	260 East Brown Street, Suite 380, Birmingham, MI 48009	2010	$ 4,293,000	$ 4,860,043	$ 4,722,289	$ 7,163,282	7.79%	1.47x	$ 59,334	N/A
RLH Investors II, L.P.	10900 Wilshire Boulevard, Suite 850, Los Angeles, CA 90024	2006	$ 10,000,000	$ 10,090,612	$ 18,999,710	$ 24,413,340	22.21%	2.42x	$ 21,495	N/A
RLH Investors III, L.P.	10900 Wilshire Boulevard, Suite 850, Los Angeles, CA 90024	2010	$ 50,000,000	$ 44,045,857	$ 9,847,090	$ 63,007,465	11.41%	1.43x	$ 949,807	N/A
RSTW Partners III, L.P.	5847 San Felipe, Suite 2929, Houston, TX 77057	1997	$ 25,000,000	$ 23,010,874	$ 21,623,881	$ 21,623,881	-1.19%	0.94x	$ -	$ (1,386,993)
Sevin Rosen Fund IV, L.P.	13455 Noel Road, Suite 1670, Dallas, TX 75240	1992	$ 5,000,000	$ 5,032,048	$ 51,249,370	$ 51,249,370	87.17%	10.18x	$ -	$ 46,217,322
Sevin Rosen Fund V, L.P.	13455 Noel Road, Suite 1670, Dallas, TX 75240	1996	$ 10,000,000	$ 10,029,497	$ 11,068,441	$ 11,068,441	9.29%	1.10x	$ -	$ 1,038,945
Sevin Rosen Fund VII, L.P.	13455 Noel Road, Suite 1670, Dallas, TX 75240	1999	$ 10,000,000	$ 9,875,000	$ 1,608,459	$ 2,031,971	-10.41%	0.21x	$ 1,947	N/A
Sevin Rosen Fund VIII, L.P.	13455 Noel Road, Suite 1670, Dallas, TX 75240	2000	$ 13,720,000	$ 13,514,200	$ 15,120,454	$ 15,507,849	1.54%	1.15x	$ 2,189	N/A
Sevin Rosen VI, L.P.	13455 Noel Road, Suite 1670, Dallas, TX 75240	1998	$ 5,000,000	$ 5,000,000	$ 9,184,249	$ 9,184,249	53.46%	1.84x	$ -	$ 4,184,249
Sierra Ventures V, L.P.	1400 Fashion Island Boulevard, Suite 1010, San Mateo, CA 94404	1995	$ 5,000,000	$ 5,000,000	$ 21,267,421	$ 21,267,421	80.00%	4.25x	$ -	$ 16,267,421
Sierra Ventures VIII-A, L.P.	1400 Fashion Island Boulevard, Suite 1010, San Mateo, CA 94404	2000	$ 15,000,000	$ 15,000,000	$ 10,960,975	$ 11,717,955	-3.91%	0.78x	$ 2,036	N/A
Silver Lake Partners III, L.P.	2775 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2007	$ 60,000,000	$ 56,611,190	$ 83,997,678	$ 130,145,456	19.69%	2.30x	$ 127,245	N/A
Silver Lake Partners IV, L.P.	2775 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2013	$ 105,000,000	$ 108,128,599	$ 37,000,388	$ 176,008,446	28.65%	1.63x	$ 1,517,701	N/A
Silver Lake Partners V, L.P.	2775 Sand Hill Road, Suite 100, Menlo Park, CA 94025	2017	$ 180,000,000	$ 13,248,169	$ -	$ 12,100,769	-9.12%	0.91x	$ 1,414,253	N/A
Silver Oak Services Partners II, L.P.	1603 Orrington Avenue, Suite 2050, Evanston, IL 60201	2012	$ 12,000,000	$ 11,027,187	$ 12,268,947	$ 20,683,056	23.49%	1.88x	$ 14,100	N/A
Silverhawk Capital Partners II L.P.	660 Steamboat Road, Greenwich, CT 06830	2010	$ 7,000,000	$ 7,789,872	$ 9,509,132	$ 13,895,379	21.77%	1.78x	$ 6,919	N/A
Sinovation Fund IV, L.P.	4158 Interdale Way, Palo Alto, CA 94306	2018	$ 75,000,000	$ 11,250,000	$ -	$ 10,652,841	-7.54%	0.95x	$ 597,159	N/A
Siris Partners III, L.P.	601 Lexington Avenue, 59th Floor, New York, NY 10022	2014	$ 60,000,000	$ 42,297,378	$ 2,553,194	$ 54,325,319	17.03%	1.28x	$ 1,263,003	N/A
Solera Partners, L.P.	625 Madison Avenue, 3rd Floor, New York, NY 10022	2002	$ 10,000,000	$ 5,100,541	$ 14,405,365	$ 14,641,900	9.52%	2.87x	$ 20,597	N/A
Southvest Fund V, L.P.	40 Burton Hills Boulevard, Suite 420, Nashville, TN 37215	2005	$ 8,811,316	$ 8,598,559	$ 17,767,669	$ 18,608,368	15.56%	2.16x	$ -	N/A
SP FGT Investors, LLC	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2018	$ 2,090,000	$ 2,090,000	$ -	$ 2,090,000	0.00%	1.00x	$ -	N/A
Spectrum Equity Investors V, L.P.	333 Middlefield Road, Suite 200, Menlo Park, CA 94025	2005	$ 35,000,000	$ 32,842,996	$ 75,205,340	$ 78,033,713	17.84%	2.38x	$ -	N/A
Sprout VIII, L.P.	1 Madison Avenue, Floor 7-T, New York, NY 10010	1998	$ 20,000,000	$ 20,000,000	$ 18,911,128	$ 18,911,128	-0.89%	0.95x	$ -	$ (1,088,872)
Sterling Investment Partners III, L.P.	285 Riverside Avenue, Westport, CT 06880	2013	$ 100,000,000	$ 51,541,573	$ 10,062,895	$ 76,499,362	15.44%	1.48x	$ 2,814,029	N/A
Storm Ventures Fund V, L.P.	3000 Sand Hill Road, Building 4-210, Menlo Park, CA 94025	2015	$ 50,000,000	$ 34,000,000	$ 750,000	$ 44,003,364	15.80%	1.29x	$ 1,041,910	N/A
Summit Accelerator Fund, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	1999	$ 5,600,000	$ 5,422,717	$ 9,408,201	$ 9,561,622	9.82%	1.76x	$ 28	N/A
Summit Park Control 3 Co-Invest	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2015	$ 1,774,500	$ 1,774,486	$ 5,105,867	$ 5,105,867	62.13%	2.88x	$ -	$ 3,331,381
Summit Park I-A	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2012	$ 7,406,250	$ 7,604,725	$ 18,172,965	$ 24,144,965	29.48%	3.17x	$ 13,696	N/A
Summit Park II, L.P.	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2014	$ 10,000,000	$ 9,070,255	$ 8,422,213	$ 13,472,213	23.94%	1.49x	$ 645,062	N/A
Summit Park III, L.P.	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2018	$ 9,375,000	$ -	$ -	$ -	0.00%	0.00x	$ -	N/A
Summit Park TIE Co-Invest	1111 Metropolitan, Suite 1025, Charlotte, NC 28209	2014	$ 2,970,545	$ 2,970,545	$ 49,367	$ 2,754,904	-2.16%	0.93x	$ -	N/A
Summit Partners Growth Equity Fund VIII-A, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	2011	$ 75,000,000	$ 91,157,249	$ 103,672,145	$ 161,844,896	24.74%	1.78x	$ 1,107,713	N/A
Summit Partners Private Equity Fund VII-A, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	2006	$ 69,900,000	$ 72,310,793	$ 109,699,619	$ 139,722,927	11.47%	1.93x	$ -	N/A
Summit Partners Venture Capital Fund II-A, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	2006	$ 8,400,000	$ 10,072,628	$ 19,713,447	$ 20,917,151	19.60%	2.08x	$ -	N/A

Section 6254.26 (b)

Fiscal Year-Ended June 30, 2018

Attachment 3

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
Summit Ventures III, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	1992	$ 25,000,000	$ 20,000,000	$ 78,763,052	$ 78,763,052	61.71%	3.94x	$ -	$ 58,763,052
Summit Ventures IV, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	1995	$ 24,750,000	$ 24,007,500	$ 181,655,345	$ 181,655,345	103.98%	7.57x	$ -	$ 157,647,845
Summit Ventures V, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	1998	$ 37,000,000	$ 35,705,000	$ 49,485,953	$ 49,485,953	8.12%	1.39x	$ -	$ 13,780,953
Summit Ventures VI-A, L.P.	222 Berkeley Street, 18th Floor, Boston, MA 02116	2001	$ 50,000,000	$ 53,101,121	$ 109,632,004	$ 111,474,150	15.38%	2.10x	$ -	N/A
Symantec Corp.	350 Ellis Street, Mountain View, CA 94043	1992	$ 5,569,791	$ 5,569,791	$ 2,222,145	$ 2,222,145	-28.51%	0.40x	$ -	$ (3,347,646)
Syndicated Communications II, L.P.	4800 Hampden Lane, Suite 200, Bethesda, MD 20814	1990	$ 7,500,000	$ 7,500,000	$ 16,664,333	$ 16,664,333	12.98%	2.22x	$ -	$ 9,164,333
Syndicated Communications Venture Partners IV, L.P.	4800 Hampden Lane, Suite 200, Bethesda, MD 20814	2000	$ 7,500,000	$ 7,445,705	$ 5,205,401	$ 5,205,401	-5.29%	0.70x	$ -	$ (2,240,304)
T3 Partners II, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	2001	$ 18,707,131	$ 18,360,961	$ 56,155,357	$ 56,488,534	93.85%	3.08x	$ 53,809	N/A
TA X, L.P.	200 Clarendon Street, 56th Floor, Boston, MA 02116	2006	$ 7,900,000	$ 7,623,500	$ 9,875,000	$ 10,021,048	5.16%	1.31x	$ 865	N/A
TCV V, L.P.	528 Ramona Street, Palo Alto, CA 94301	2004	$ 39,000,000	$ 38,668,500	$ 57,516,442	$ 70,561,082	10.65%	1.82x	$ 4,235	N/A
TCV VI, L.P.	528 Ramona Street, Palo Alto, CA 94301	2006	$ 50,000,000	$ 51,685,000	$ 72,684,744	$ 84,718,836	13.51%	1.64x	$ -	N/A
TCV VII, L.P.	528 Ramona Street, Palo Alto, CA 94301	2007	$ 75,000,000	$ 73,808,429	$ 140,491,543	$ 215,908,519	24.52%	2.93x	$ -	N/A
TH Lee Putnam Parallel Ventures, L.P.	200 Madison Avenue, Suite 1900, New York, NY 10016	2000	$ 5,000,000	$ 5,055,906	$ 5,833,008	$ 5,833,008	3.01%	1.15x	$ -	$ 777,102
The 1818 Fund II, L.P.	140 Broadway, 16th Floor, New York, NY 10005	1993	$ 15,000,000	$ 12,862,874	$ 23,988,308	$ 23,988,308	12.15%	1.86x	$ -	$ 11,125,434
The Beacon Group III - Focus Value Fund, L.P.	N/A	1996	$ 40,000,000	$ 39,634,747	$ 10,102,452	$ 10,102,452	-18.19%	0.25x	$ -	$ (29,532,295)
The Energy & Minerals Group Fund III, L.P.	811 Main Street, Suite 4200, Houston, TX 77002	2014	$ 150,000,000	$ 142,645,244	$ 8,560,641	$ 122,569,387	-4.72%	0.86x	$ 1,944,438	N/A
The Resolute Fund II, L.P.	399 Park Avenue, 30th Floor, New York, NY 10022	2007	$ 60,000,000	$ 61,624,861	$ 64,576,829	$ 92,423,891	9.04%	1.50x	$ 292,872	N/A
The Resolute Fund, L.P.	399 Park Avenue, 30th Floor, New York, NY 10022	2002	$ 50,000,000	$ 47,806,413	$ 120,845,133	$ 120,845,133	16.96%	2.53x	$ -	$ 73,038,720
Thomas H. Lee Equity Fund IV, L.P.	100 Federal Street, 35th Floor, Boston, MA 02110	1998	$ 70,000,000	$ 63,149,612	$ 54,841,198	$ 54,841,198	-2.61%	0.87x	$ -	$ (8,308,414)
Thomas H. Lee Equity Fund V, L.P.	100 Federal Street, 35th Floor, Boston, MA 02110	2000	$ 45,000,000	$ 47,123,524	$ 78,980,820	$ 78,980,820	13.70%	1.68x	$ -	$ 31,857,296
Thomas H. Lee Equity Fund VI, L.P.	100 Federal Street, 35th Floor, Boston, MA 02110	2006	$ 60,000,000	$ 60,187,379	$ 75,929,294	$ 97,832,827	7.90%	1.63x	$ 96,921	N/A
TPG Partners II, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	1997	$ 75,000,000	$ 76,009,954	$ 132,273,911	$ 132,273,911	9.93%	1.74x	$ -	$ 56,263,957
TPG Partners III, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	2000	$ 25,750,055	$ 27,527,988	$ 68,457,076	$ 68,527,648	24.49%	2.49x	$ -	N/A
TPG Partners IV, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	2003	$ 69,768,736	$ 81,032,399	$ 155,762,825	$ 159,529,119	15.41%	1.97x	$ 103,675	N/A
TPG Partners V, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	2006	$ 75,000,000	$ 65,377,267	$ 82,255,967	$ 95,037,008	5.05%	1.45x	$ 46,780	N/A
TPG Partners VI, L.P.	301 Commerce Street, Suite 3300, Fort Worth, TX 76102	2008	$ 100,000,000	$ 97,822,736	$ 112,430,402	$ 155,726,653	11.06%	1.59x	$ 486,616	N/A
Union Square Ventures 2004, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2005	$ 10,000,000	$ 8,900,000	$ 121,215,962	$ 123,467,558	68.02%	13.87x	$ 7,995	N/A
Union Square Ventures 2008, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2008	$ 10,000,000	$ 9,500,000	$ 23,493,768	$ 34,260,519	21.54%	3.61x	$ 110,090	N/A
Union Square Ventures 2012 Fund, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2011	$ 11,000,000	$ 10,285,000	$ 1,163,767	$ 33,569,147	31.43%	3.26x	$ 188,164	N/A
Union Square Ventures Opportunity Fund, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2010	$ 7,000,000	$ 5,110,000	$ 11,885,123	$ 15,763,465	58.88%	3.08x	$ 47,250	N/A
USV 2014, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2014	$ 8,250,000	$ 7,095,000	$ -	$ 10,080,201	17.07%	1.42x	$ 135,076	N/A
USV 2016, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2016	$ 9,000,000	$ 2,970,000	$ -	$ 3,975,506	30.91%	1.34x	$ 156,397	N/A
USV Opportunity 2014, L.P.	915 Broadway, 19th Floor, New York, NY 10010	2014	$ 8,250,000	$ 6,022,500	$ -	$ 8,959,906	20.41%	1.49x	$ 36,076	N/A
Vestar Capital Partners IV, L.P.	245 Park Avenue, 41st Floor, New York, NY 10167	1999	$ 25,000,000	$ 24,468,267	$ 43,159,943	$ 43,557,388	13.49%	1.78x	$ 86	N/A
Vestar Capital Partners V, L.P.	245 Park Avenue, 41st Floor, New York, NY 10167	2005	$ 75,000,000	$ 76,628,340	$ 83,365,982	$ 100,465,989	3.97%	1.31x	$ 154,238	N/A
Vestar Equity Partners III, L.P.	245 Park Avenue, 41st Floor, New York, NY 10167	1997	$ 17,500,000	$ 17,154,331	$ 19,516,400	$ 19,636,271	2.67%	1.14x	$ (68)	N/A
Vestar Equity Partners, L.P.	245 Park Avenue, 41st Floor, New York, NY 10167	1993	$ 8,000,000	$ 6,796,492	$ 23,880,961	$ 23,880,961	56.48%	3.51x	$ -	$ 17,084,469
Vista Equity Partners Fund III, L.P.	1111 Broadway, Suite 1980, Oakland, CA 94607	2008	$ 50,000,000	$ 51,167,104	$ 120,528,417	$ 134,491,827	28.50%	2.63x	$ 141,014	N/A
Vista Equity Partners Fund IV, L.P.	1111 Broadway, Suite 1980, Oakland, CA 94607	2011	$ 100,000,000	$ 95,866,741	$ 108,476,096	$ 190,571,107	18.54%	1.99x	$ 1,191,292	N/A
Vista Equity Partners Fund V, L.P.	1111 Broadway, Suite 1980, Oakland, CA 94607	2014	$ 200,000,000	$ 204,107,222	$ 46,196,652	$ 347,935,207	22.51%	1.70x	$ 3,234,294	N/A
Vista Equity Partners Fund VI, L.P.	1111 Broadway, Suite 1980, Oakland, CA 94607	2016	$ 200,000,000	$ 160,735,432	$ 15,019,442	$ 177,774,274	8.60%	1.11x	$ 3,247,555	N/A
Warburg Pincus Capital Company, L.P.	466 Lexington Avenue, New York, NY 10017	1986	$ 50,000,000	$ 50,000,000	$ 218,432,276	$ 218,432,276	18.41%	4.37x	$ -	$ 168,432,276
Wayzata Opportunities Fund II, L.P.	701 East Lake Street, Suite 300, Wayzata, MN 55391	2007	$ 75,000,000	$ 23,175,000	$ 95,407,201	$ 99,740,855	16.46%	4.30x	$ 20,855	N/A
Wayzata Opportunities Fund III, L.P.	701 East Lake Street, Suite 300, Wayzata, MN 55391	2012	$ 100,000,000	$ 47,460,000	$ 23,668,780	$ 46,089,462	-1.14%	0.97x	$ 427,497	N/A
Wayzata Opportunities Fund, LLC	701 East Lake Street, Suite 300, Wayzata, MN 55391	2005	$ 40,000,000	$ 37,428,325	$ 62,606,483	$ 62,798,470	8.40%	1.68x	$ 17,699	N/A
Welsh, Carson, Anderson & Stowe VI, L.P.	320 Park Avenue, Suite 2500, New York, NY 10022	1993	$ 10,000,000	$ 10,000,000	$ 20,712,010	$ 20,712,010	13.94%	2.07x	$ -	$ 10,712,010
Welsh, Carson, Anderson & Stowe VII, L.P.	320 Park Avenue, Suite 2500, New York, NY 10022	1995	$ 20,000,000	$ 20,000,000	$ 43,513,904	$ 43,513,904	17.71%	2.18x	$ -	$ 23,513,904
Welsh, Carson, Anderson & Stowe VIII, L.P.	320 Park Avenue, Suite 2500, New York, NY 10022	1998	$ 25,000,000	$ 25,000,000	$ 32,204,360	$ 32,204,360	3.12%	1.29x	$ -	$ 7,204,360
Weston Presidio Capital IV - Secondary	200 Clarendon Street, 50th Floor, Boston, MA 02116	2003	$ 1,811,720	$ 1,811,720	$ 2,299,737	$ 2,307,826	5.20%	1.27x	$ 144	N/A
Weston Presidio Capital IV, L.P.	200 Clarendon Street, 50th Floor, Boston, MA 02116	2000	$ 9,665,712	$ 9,665,712	$ 11,345,295	$ 11,385,203	2.94%	1.18x	$ 769	N/A
Weston Presido V, L.P.	200 Clarendon Street, 50th Floor, Boston, MA 02116	2005	$ 35,000,000	$ 34,660,903	$ 76,622,219	$ 79,106,618	15.31%	2.28x	$ 23,392	N/A
Whitman Heffernan & Rhein Fund II, L.P.	N/A	1992	$ 14,200,000	$ 14,232,703	$ 8,329,230	$ 8,329,230	-23.34%	0.59x	$ -	$ (5,903,473)
William Blair Mezzanine Capital Fund II, L.P.	222 West Adams Street, Chicago, IL 60606	1997	$ 10,000,000	$ 10,000,000	$ 16,954,398	$ 16,954,398	11.84%	1.70x	$ -	$ 6,954,398
Worldview Technology Partners I, L.P.	99 South Almaden Boulevard, 6th Floor, San Jose, CA 95113	1996	$ 8,500,000	$ 8,500,000	$ 32,237,243	$ 32,237,243	68.50%	3.79x	$ -	$ 23,737,243
Worldview Technology Partners II, L.P.	99 South Almaden Boulevard, 6th Floor, San Jose, CA 95113	1998	$ 5,000,000	$ 5,000,000	$ 8,406,737	$ 8,406,737	10.06%	1.68x	$ -	$ 3,406,737
Worldview Technology Partners III, L.P.	99 South Almaden Boulevard, 6th Floor, San Jose, CA 95113	1999	$ 10,000,000	$ 10,000,000	$ 1,532,976	$ 1,532,976	-22.59%	0.15x	$ -	$ (8,467,024)
Worldview Technology Partners IV, L.P.	99 South Almaden Boulevard, 6th Floor, San Jose, CA 95113	2000	$ 12,086,682	$ 11,300,783	$ 5,242,355	$ 5,955,518	-8.24%	0.53x	$ 4,914	N/A
Real Estate										
AEW Value Investors Asia III, L.P.	Two Seaport Lane, Boston, MA 02210-2021	2018	$ 50,000,000	$ 9,941,398	$ -	$ 8,765,069	-29.79%	0.88x	$ 1,176,329	$ (9,941,398)
AG Europe Realty Fund II, L.P.	245 Park Avenue, New York, NY 10167	2018	$ 50,000,000	$ 8,875,000	$ -	$ 8,249,388	-45.46%	0.93x	$ 790,363	$ (8,875,000)

Section 6254.26 (b)

Fiscal Year-Ended June 30, 2018

Attachment 3

Name[1]	Address[1]	Vintage Year[1]	Commitment[2]	Contribution[3]	Distributions[4]	Distribution Plus Market Value[5]	Since Inception Net Return[6]	Investment Multiple[7]	Dollar amount of the total fees paid on a fiscal year-end basis[8]	Dollar amount of cash profit received on a fiscal year-end basis[9]
CapMan Nordic Real Estate II FCP-RAIF	Ludviginkatu 6, 4th Floor, 00130 Helsinki Finland	2017	$ 59,206,631	$ 8,837,532	$ -	$ 9,318,852	16.65%	1.05x	$ 261,461	$ (8,837,532)
Capri Urban Investors, LLC	875 North Michigan Avenue, Suite 3430, Chicago, IL 60611	2008	$ 150,000,000	$ 149,951,767	$ 68,858,024	$ 111,439,108	-4.32%	0.74x	$ 667,513	$ 2,091,000
Carlyle Europe Real Estate Partners III, L.P.	1001 Pennsylvania Avenue N.W., Washington, DC 20004	2007	$ 24,951,333	$ 26,601,600	$ 21,521,173	$ 23,113,612	-2.91%	0.87x	$ 108,075	$ 2,743,828
CBRE Asia Value Fund L.P.	400 South Hope Street, 25th Floor, Los Angeles, CA 90071	2011	$ 50,000,000	$ 42,740,803	$ 54,253,939	$ 54,253,939	8.90%	1.27x	$ -	$ 1,411,617
CBRE Strategic Partners European Fund III	400 South Hope Street, 25th Floor, Los Angeles, CA 90071	2007	$ 21,488,047	$ 21,523,777	$ 5,588,574	$ 6,006,450	-17.14%	0.28x	$ 990	N/A
CBRE Strategic Partners UK Fund III	400 South Hope Street, 25th Floor, Los Angeles, CA 90071	2007	$ 39,058,504	$ 17,169,081	$ 2,705,062	$ 2,705,062	-24.62%	0.16x	$ -	$ 152,286
CityView Bay Area Fund II, L.P.	10877 Wilshire Boulevard, 12th Floor, Los Angeles, CA 90024	2012	$ 100,000,000	$ 135,448,721	$ 127,465,855	$ 205,054,271	14.96%	1.51x	$ 1,209,927	$ 124,214,655
CityView LA Urban Fund I, L.P.	10877 Wilshire Boulevard, 12th Floor, Los Angeles, CA 90024	2007	$ 50,000,000	$ 122,556,477	$ 146,769,154	$ 147,244,901	11.85%	1.20x	$ 45,964	$ 4,433,612
CityView Southern California Fund II, L.P.	10877 Wilshire Boulevard, 12th Floor, Los Angeles, CA 90024	2013	$ 100,000,000	$ 95,174,956	$ -	$ 134,059,667	16.98%	1.41x	$ 2,119,512	$ (10,227,789)
CityView Western Fund I, L.P.	10877 Wilshire Boulevard, 12th Floor, Los Angeles, CA 90024	2016	$ 150,000,000	$ 39,318,668	$ -	$ 32,749,009	-25.73%	0.83x	$ 2,685,073	$ (15,884,084)
Cornerstone Hotel Income Equity Fund II, L.P.	300 South Tryon Street, Suite 2500, Charlotte, NC 28202	2008	$ 150,000,000	$ 140,830,910	$ 193,192,178	$ 193,400,647	9.18%	1.37x	$ -	$ 3,927,958
Europa Fund III, L.P.	15 Sloane Square London, SW1W 8ER, United Kingdom	2009	$ 23,128,342	$ 22,015,787	$ 26,600,867	$ 28,398,779	8.34%	1.29x	$ 74,331	$ 3,704,949
Europa Fund IV, L.P.	15 Sloane Square London, SW1W 8ER, United Kingdom	2014	$ 64,292,144	$ 55,571,200	$ 32,757,087	$ 65,492,128	9.05%	1.18x	$ 778,108	$ 13,432,852
Genesis Workforce Housing Fund II, LLC	645 Madison Avenue, 5th Floor, New York, NY 10022	2007	$ 30,000,000	$ 29,998,975	$ 43,655,413	$ 43,588,430	8.61%	1.45x	$ -	$ 273,659
Heitman Asia-Pacific Property Investors, L.P.	401 Wilshire Suite 1200 Santa Monica, CA 90401	2018	$ 50,000,000	$ 6,624,782	$ -	$ 5,747,575	-65.21%	0.87x	$ 13,919	$ (6,624,782)
Hunt UK Realty Partners, L.P.	980 North Michigan Avenue, Suite 1150, Chicago, IL 60611	2007	$ 29,833,366	$ 30,266,701	$ 1,226,453	$ 3,122,321	-22.67%	0.10x	$ 31,609	N/A
Invesco Asian Real Estate Partners II, L.P.	1555 Peachtree Street, N.E., Suite 1800, Atlanta, GA 30309	2007	$ 25,000,000	$ 11,251,165	$ 14,905,477	$ 15,091,653	7.55%	1.34x	$ 15,257	$ 1,514,427
Invesco Real Estate Asia Fund, L.P.	1555 Peachtree Street, N.E., Suite 1800, Atlanta, GA 30309	2014	$ 100,000,000	$ 118,953,151	$ 20,099,047	$ 153,377,418	7.63%	1.29x	$ 1,316,916	$ 463,776
LaSalle Medical Office Fund II	333 West Wacker Drive, Suite 2300, Chicago, IL 60606	2007	$ 25,000,000	$ 21,759,751	$ 27,989,188	$ 27,989,188	5.82%	1.29x	$ -	$ (6,229)
Prologis European Logistics Fund	Pier 1, Bay 1, San Francisco, CA 94111	2014	$ 118,147,448	$ 140,449,602	$ 5,149,355	$ 157,198,573	16.52%	1.12x	$ 1,996,061	$ (135,300,247)
RREEF Core Plus Industrial Fund, L.P.	345 Park Avenue, 24th Floor, New York, NY 10154	2017	$ 125,000,000	$ 125,000,000	$ 4,659,403	$ 149,989,429	18.96%	1.20x	$ 529,171	$ 4,659,403
SH Group (Branco)	One StarPoint, Stamford, CT 06902	2011	$ 2,000,000	$ 1,253,399	$ 2,253,075	$ 4,915,793	26.75%	3.92x	$ 28,874	$ 228,816
Starwood Capital Hospitality Fund II, L.P.	One StarPoint, Stamford, CT 06902	2010	$ 100,000,000	$ 96,340,000	$ 111,333,840	$ 148,402,031	9.68%	1.54x	$ 649,053	$ 12,123,163

[1] Name, address, and vintage year of the alternative investment fund.

[2] Since-inception dollar amount of commitments to the alternative investment fund.

[3] Since-inception dollar amount of cash contributions to the alternative investment fund.

[4] Fiscal year-end dollar amount of cash distributions received from the alternative investment funds for Hedge Fund asset category. Since-inception dollar amount of cash distributions received from the alternative investment funds for the remaining asset categories.

[5] Fiscal year-end dollar amount of cash distributions received plus the remaining value of alternative investment fund provided for the Hedge Fund asset category. Since-inception dollar amount of cash distributions received plus the remaining value of the alternative investment fund for the remaining asset categories.

[6] Since-inception net returns for Private Equity were calculated by LACERA using all the outflows to and inflows from the underlying fund investments, including cash flows for expenses and fees paid by the Portfolio to those underlying fund investments. The terminal values used are the capital account balances as of the reporting period, as stated by the General Partners of the underlying fund investment, whether at cost or fair value. If the underlying fund investment's terminal value is prior to the reporting period, the internal rate of return (IRR) was calculated as of the last valuation date indicated by the fund manager. Real Estate since-inception IRR were provided by Townsend Group (asset category advisor). Hedge Fund, Fixed Income, and Global Equity (excluding JANA Strategic Investment Fund V) are cumulative geometric returns for holding periods less than 12 months of the alternative investment fund and annualized geometric return for holding periods greater than 12 months. JANA Strategic Investment Fund V (Global Equity) is a money-weighted return provided by the alternative investment fund.

[7] Since-inception investment multiple is calculated by the sum of market value of the alternative investment fund as of the fiscal year-end and the culmulative distribution divided by the cumulative contribution.

[8] Dollar amount of total management fees and costs paid or accrued to the alternative investment manager on an annual fiscal year-end basis. Data sources included the following: aggreation of cash payments to the alternative investment fund, confirmation with the alternative investment fund, finacial statements and partner capital account statments, calculation using the resepective management fee rate, pro rata share of the alternative investment fund's total managment fee, and estimations based on alternative investment fund's operating expense ratios obtained from the most recent audited financial statement. Negative values indicate giveback of previously accrued or paid fees.

[9] Annual fiscal year-end dollar amount of cash profit received from the alternative investment fund for the Real Estate and Hedge Fund asset categories. The since-inception total cash profit after final liquidation are reported for the remaining asset categories as they are more appropriate due to the long-term nature of the investments. All periods prior to the final liquidation are reported as not applicable.

LACERA

December 3, 2018

TO: Each Member
Board of Investments

FROM: Christopher J. Wagner
Principal Investment Officer

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **PRIVATE EQUITY PORTFOLIO UPDATE**

On December 12, 2018, Jose Fernandez from LACERA's Private Equity Advisor, StepStone Group LP is scheduled to present their annual LACERA Private Equity Portfolio update to the Board. Key topics to be covered include: 1) Private Equity Market update, 2) review of LACERA's Private Equity program structure and investment process, 3) performance, and 4) 2019 Strategic Planning.

Key highlights as of June 30, 2018 include the following:

- Private Equity portfolio represents $5.9 billion of Net Asset Value, or 10.6% of LACERA’s total portfolio market value (pages 22-23)
- Since-inception net IRR of 16.1% places the Program in the second quartile of Burgiss Private iQ (page 31)
- The ten-year portfolio return was 10.9% and below its benchmark (Russell 3000 plus 500 basis points) by 430 basis points (page 25)
- Ten managers account for 45.1% of the portfolio’s total exposure (page 29)
- The portfolio is well-diversified by strategies, geographies, industries, managers, and vintage years (pages 27-31)

Please contact me at 626.564.6000, extension 3302 if you have any questions about the presentation.

Attachment

NOTED AND REVIEWED:

Jonathan Grabel
Chief Investment Officer

STEPSTONE
inside private markets

LACERA Annual Board Presentation
Private Equity Portfolio Update

December 2018

Disclosure

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All valuations are based on current values calculated in accordance with StepStone's Valuation Policies and may include both realized and unrealized investments. Due to the inherent uncertainty of valuation, the stated value may differ significantly from the value that would have been used had a ready market existed for all of the portfolio investments, and the difference could be material. The long-term value of these investments may be lesser or greater than the valuations provided.

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Prospective investors should inform themselves and take appropriate advice as to any applicable legal requirements and any applicable taxation and exchange control regulations in the countries of their citizenship, residence or domicile which might be relevant to the subscription, purchase, holding, exchange, redemption or disposal of any investments. Each prospective investor is urged to discuss any prospective investment with its legal, tax and regulatory advisors in order to make an independent determination of the suitability and consequences of such an investment.

An investment involves a number of risks and there are conflicts of interest. Please refer to the risks and conflicts disclosed herein.

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All data is as of November 15, 2018 unless otherwise noted.

PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. ACTUAL PERFORMANCE MAY VARY.

Overview

I. Private Equity Market Update

II. Review of LACERA's Private Equity Program

III. Private Equity Portfolio Review

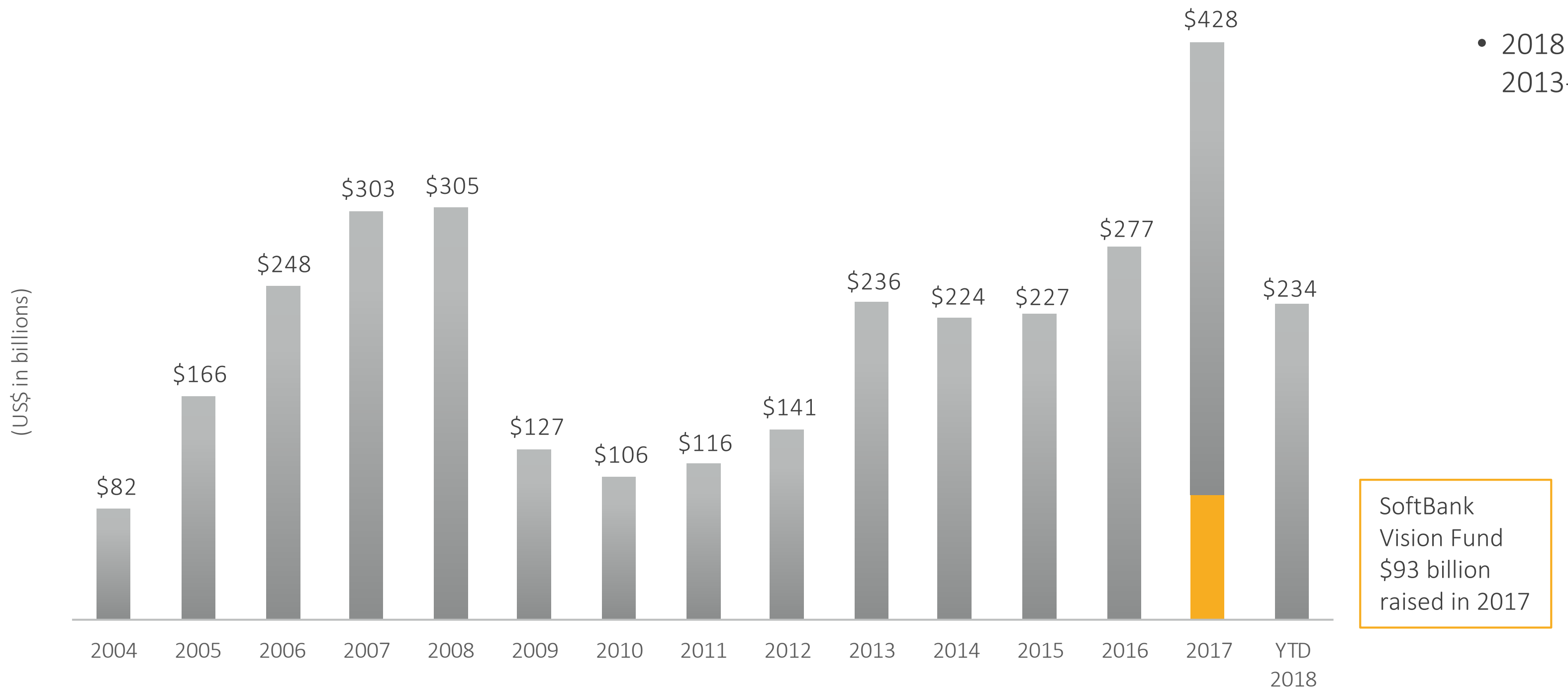
IV. 2019 Strategic Planning

I. Private Equity Market Update

Market Overview

PRIVATE EQUITY FUNDRAISING HAD STABILIZED FROM 2013-2016; HOWEVER, 2017 WAS THE LARGEST YEAR ON RECORD

GLOBAL PRIVATE EQUITY FUNDRAISING



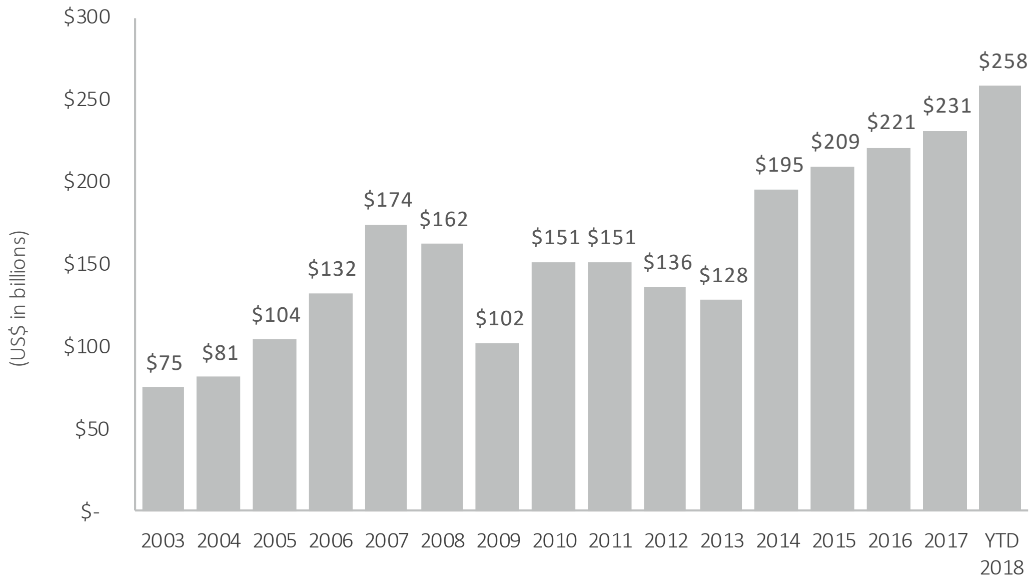
- The fundraising market has become much more friendly to GPs, with funds becoming oversubscribed in very little time
- 2018 appears to be in-line with 2013-2016 fundraising amounts

Sources: Preqin, StepStone analysis. Data subject to change as Preqin's database is continuously updated. Data shown above is as of November 2018 the above includes SoftBank Vision Fund ($93b).

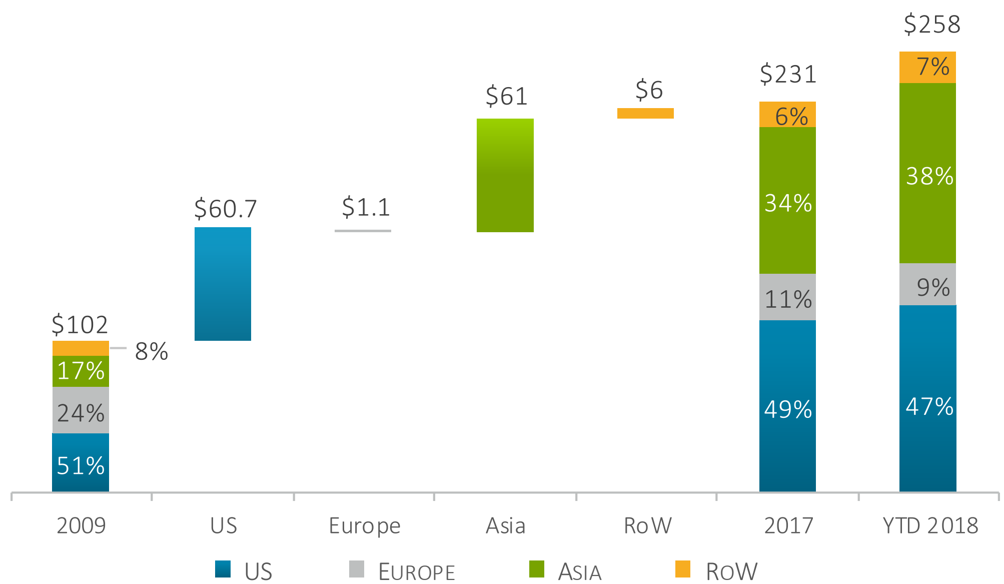
Market Overview

FIRST NINE MONTH OF 2018 RECORDED HIGHEST LEVEL OF INVESTMENT ACTIVITY

GLOBAL INVESTMENT ACTIVITY BY YEAR



INVESTED CAPITAL BY REGION



Source: ThomsonOne; data as of 9/30/18.

LBO Volume

U.S. DEAL VOLUME IN 2018 IS ON PACE TO SURPASS $500 BILLION

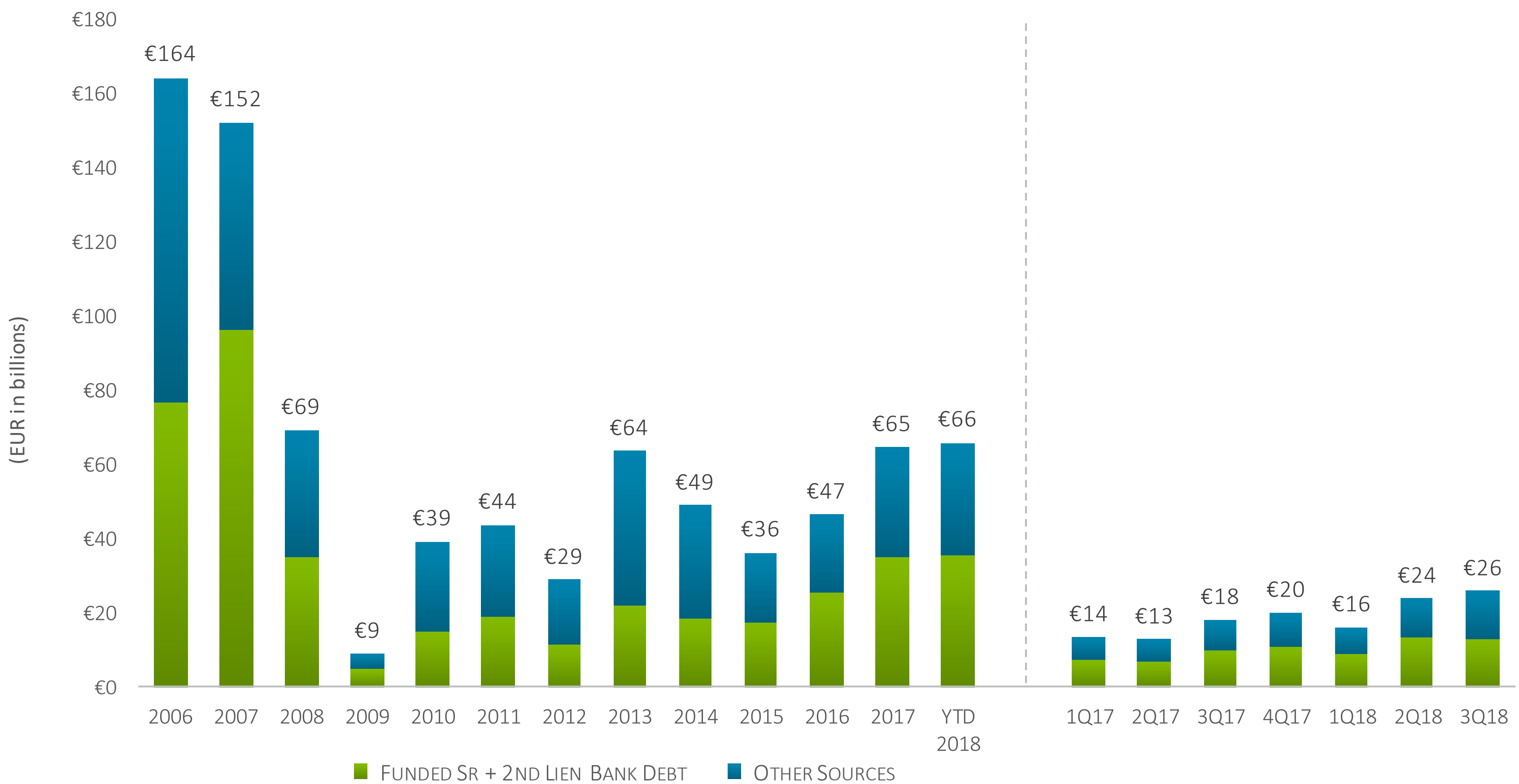
U.S. LBO VOLUME BY YEAR

Source: Q3 2018 S&P LBO Review
Some of the data from S&P conflicts with Thomson data; StepStone has not been able to reconcile the different figures.

LBO Volume

EUROPEAN LBO VOLUME HAS GROWN STEADILY SINCE 2015

EUROPEAN LBO VOLUME BY YEAR



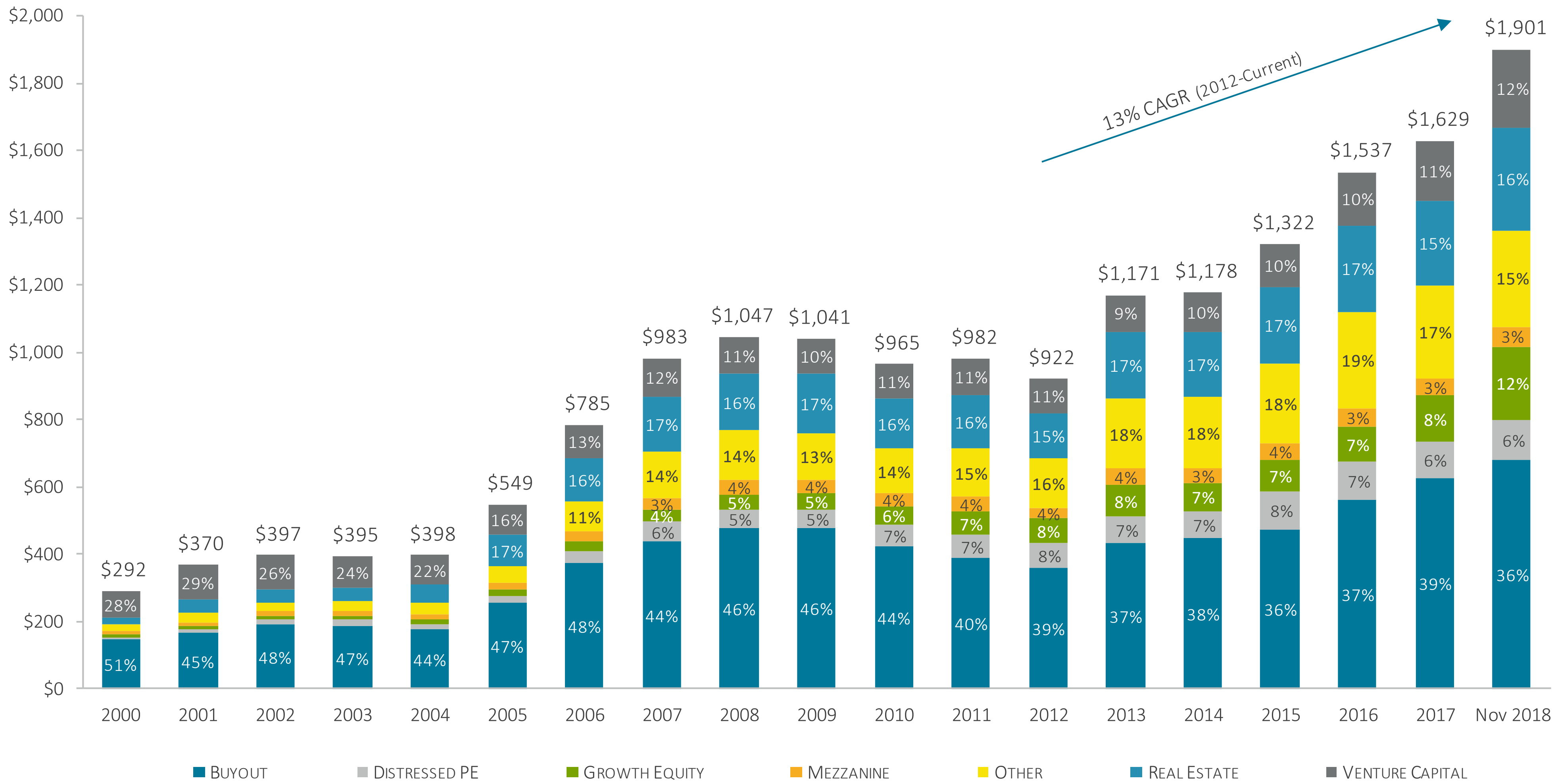
- European LBO deal volume during the first nine months of 2018 has already surpassed all years since 2008.
- Deal volume for the LTM period is €86 billion, higher than any single year since 2007.
- Low growth expectations are making it hard for LBO firms to identify attractive opportunities, thereby increasing competition for quality assets.

The volume on this page includes the Total Sources (loans, secured debt, unsecured debt, sub debt, and equity) involved in any sponsored transaction (Leveraged Buyouts, Acquisitions, Refinancing, Recaps, etc). Source: Q3 2018 S&P LBO Review. Some of the data from S&P conflicts with the Thomson data; StepStone has not been able to reconcile the different figures.

Dry Powder

FAMILIAR DRY POWDER RUN UP

PRIVATE EQUITY DRY POWDER – BY STRATEGY (US$ IN BILLIONS)

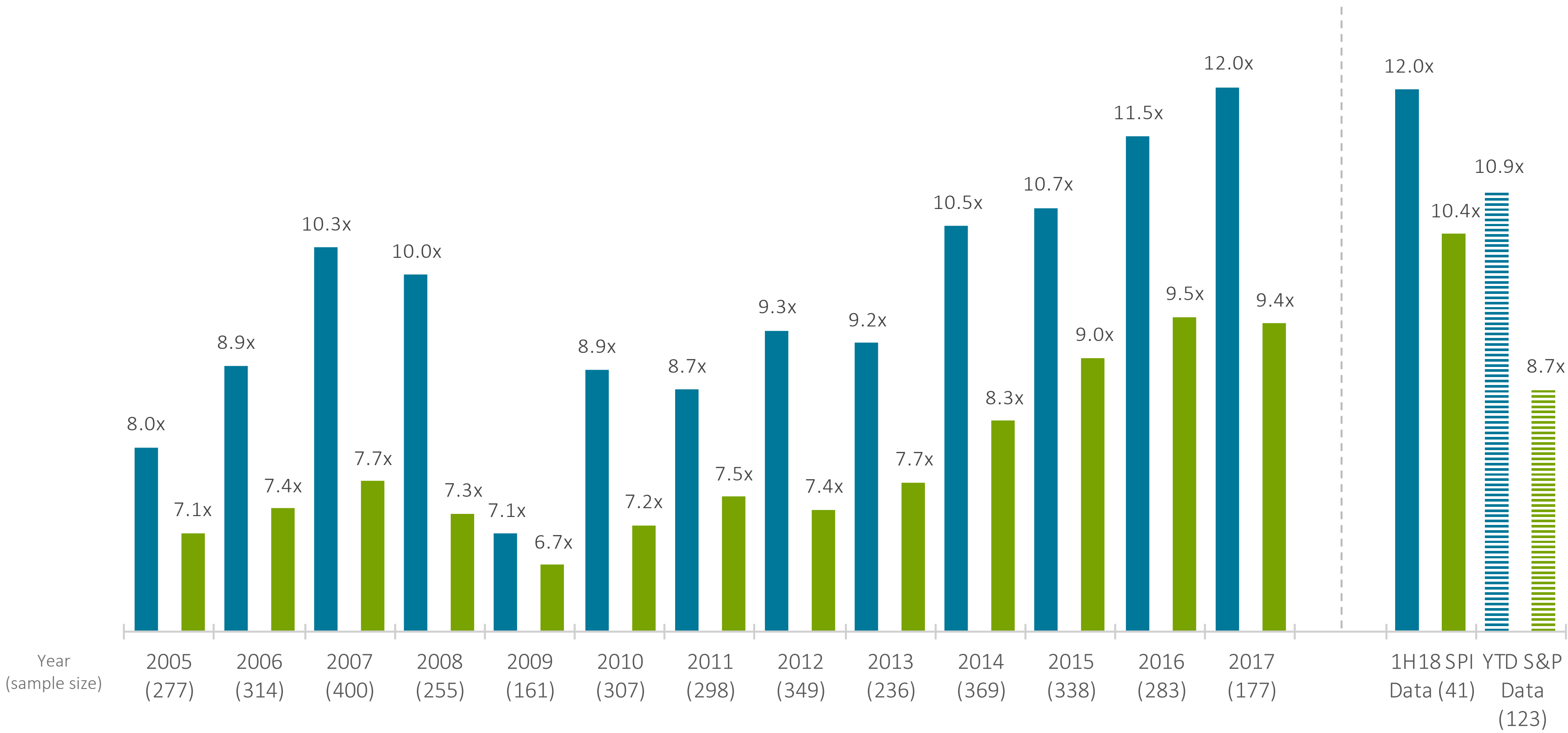


Preqin Private Equity Online. Data as of November 2018 and in USD billions.

Purchase Price Multiples

IN THE U.S., PRICES REMAIN AT HISTORICALLY HIGH LEVELS

U.S. PURCHASE PRICE MULTIPLES



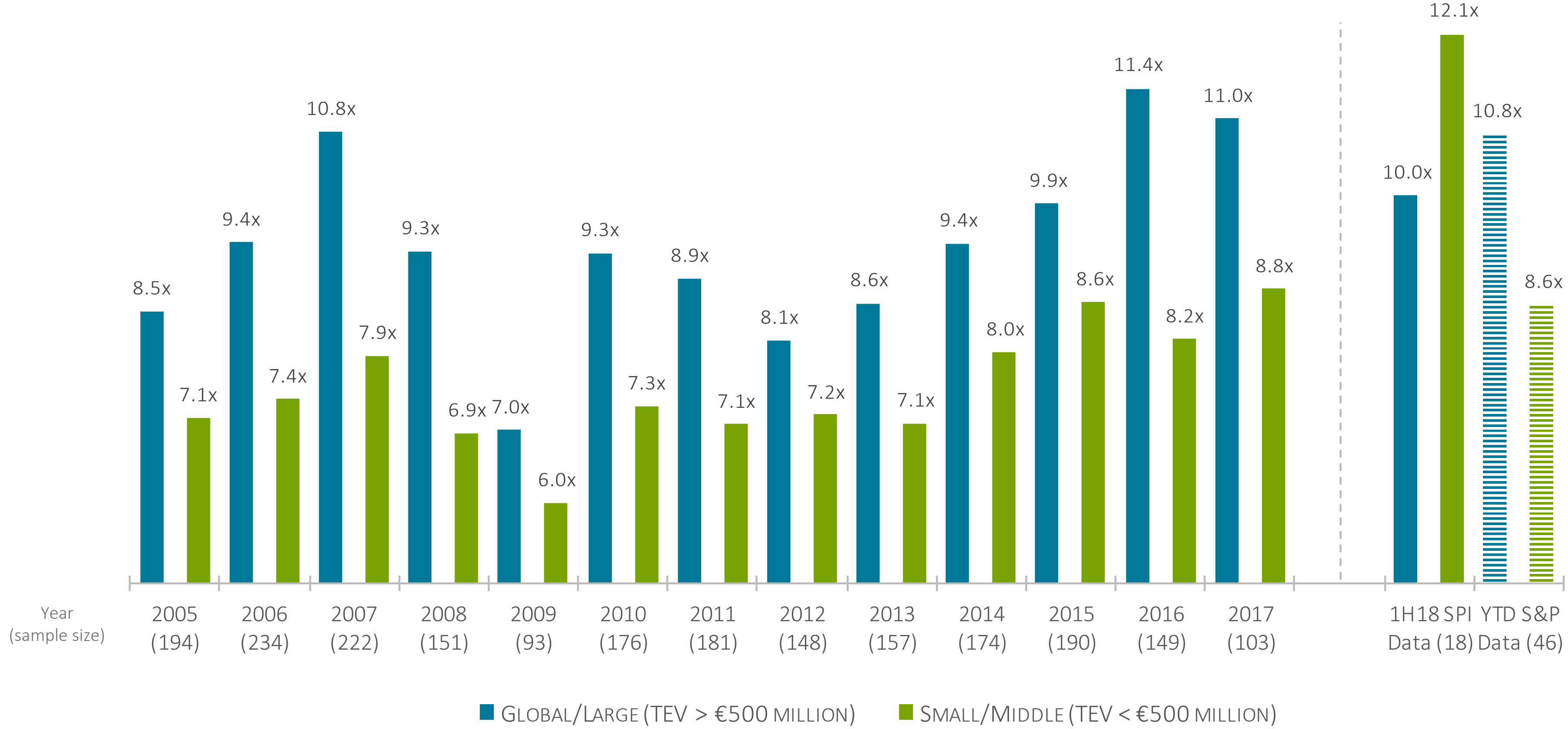
- Low interest rates and high growth expectations explain the high prices.
- StepStone would expect prices to moderate over the next fund cycle.

Source: SPI, StepStone analysis; Q3 2018 S&P data provided by 3Q18 S&P LBO Review; latest available data in SPI as of Q2 2018; SPI data is continuously updated and historical values are subject to change.

Purchase Price Multiples

PURCHASE PRICES IN EUROPE HAVE EXHIBITED SIMILAIR BEHAVIOR AS IN NORTH AMERICA

EUROPEAN PURCHASE PRICE MULTIPLES

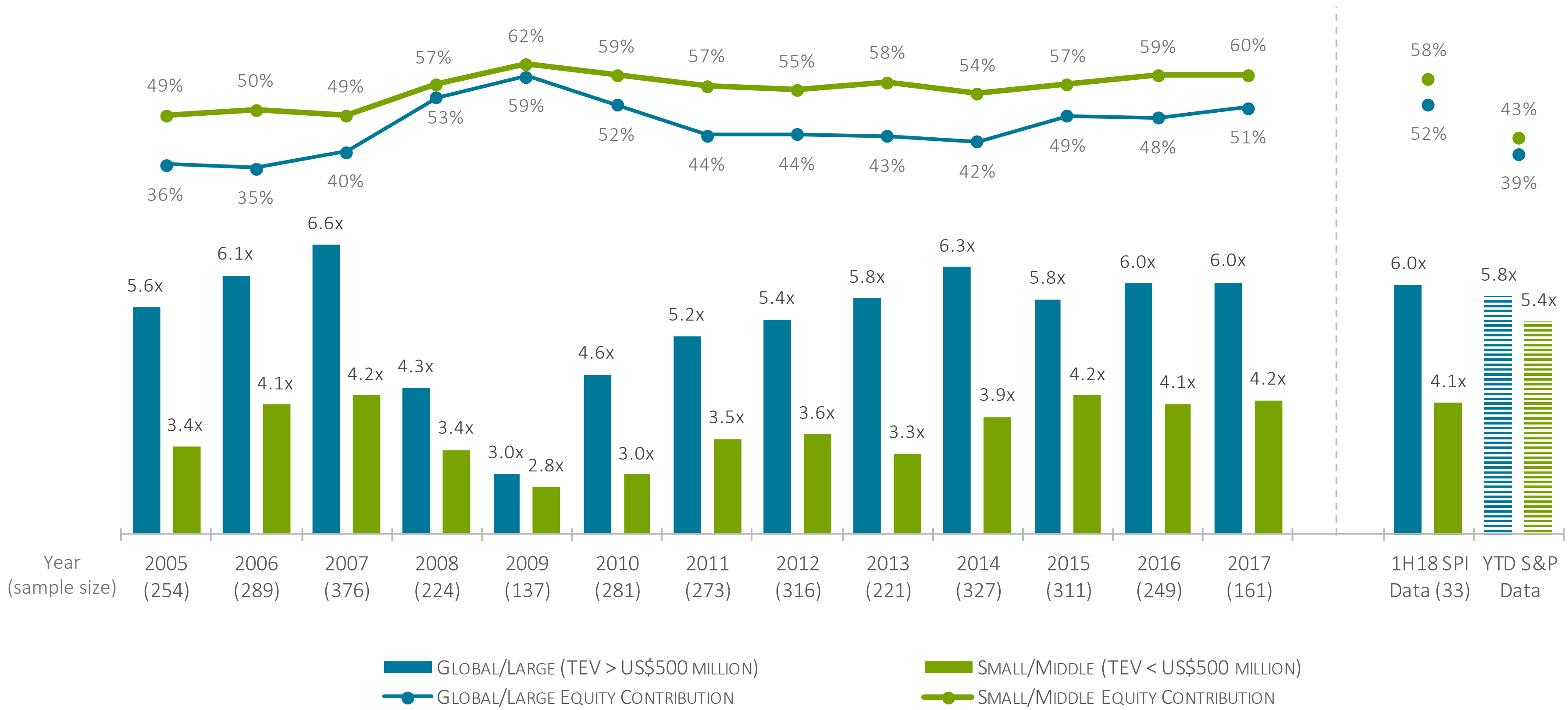


Source: SPI, StepStone analysis; Q3 2018 S&P data provided by 3Q18 S&P LBO Review; latest available data in SPI as of Q2 2018; SPI data is continuously updated and historical values are subject to change.

Leverage Multiples

EQUITY CONTRIBUTIONS HAVE REMAINED HIGHER THAN PRE-GFC LEVELS

U.S. LEVERAGE MULTIPLES



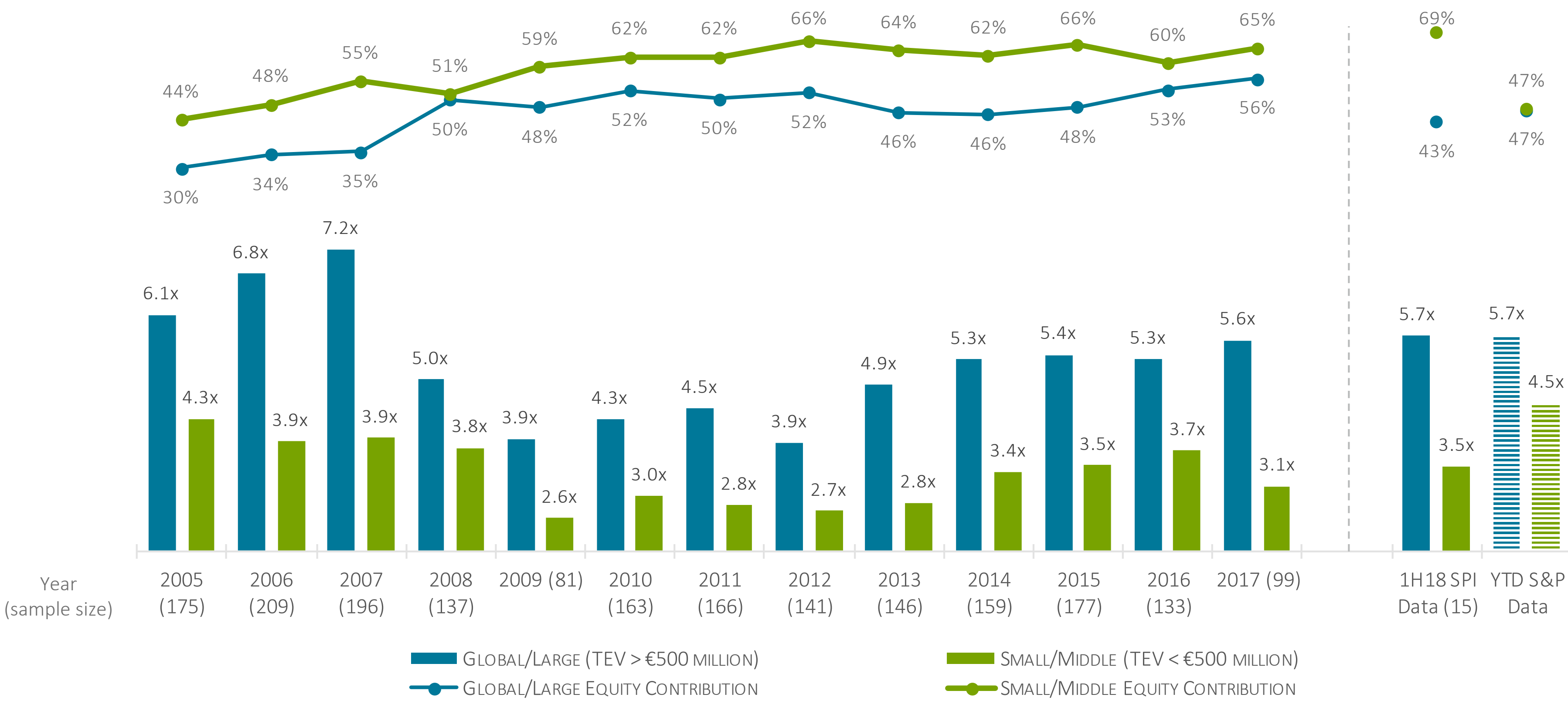
- Leverage multiples in the Global/Large market remain at ~6.0x.
- Prices are higher, but capital structures should be more durable as the equity contributions continue to remain at a healthier level than pre-GFC.

Source: SPI, StepStone analysis; SPI data is continuously updated and historical values are subject to change; Q3 2018 S&P data provided by 3Q18 S&P LBO Review.

Leverage Multiples

IN EUROPE, LEVERAGE MULTIPLES REMAIN BELOW 2005-2007 IN THE GLOBAL/LARGE MARKET

EUROPEAN LEVERAGE MULTIPLES

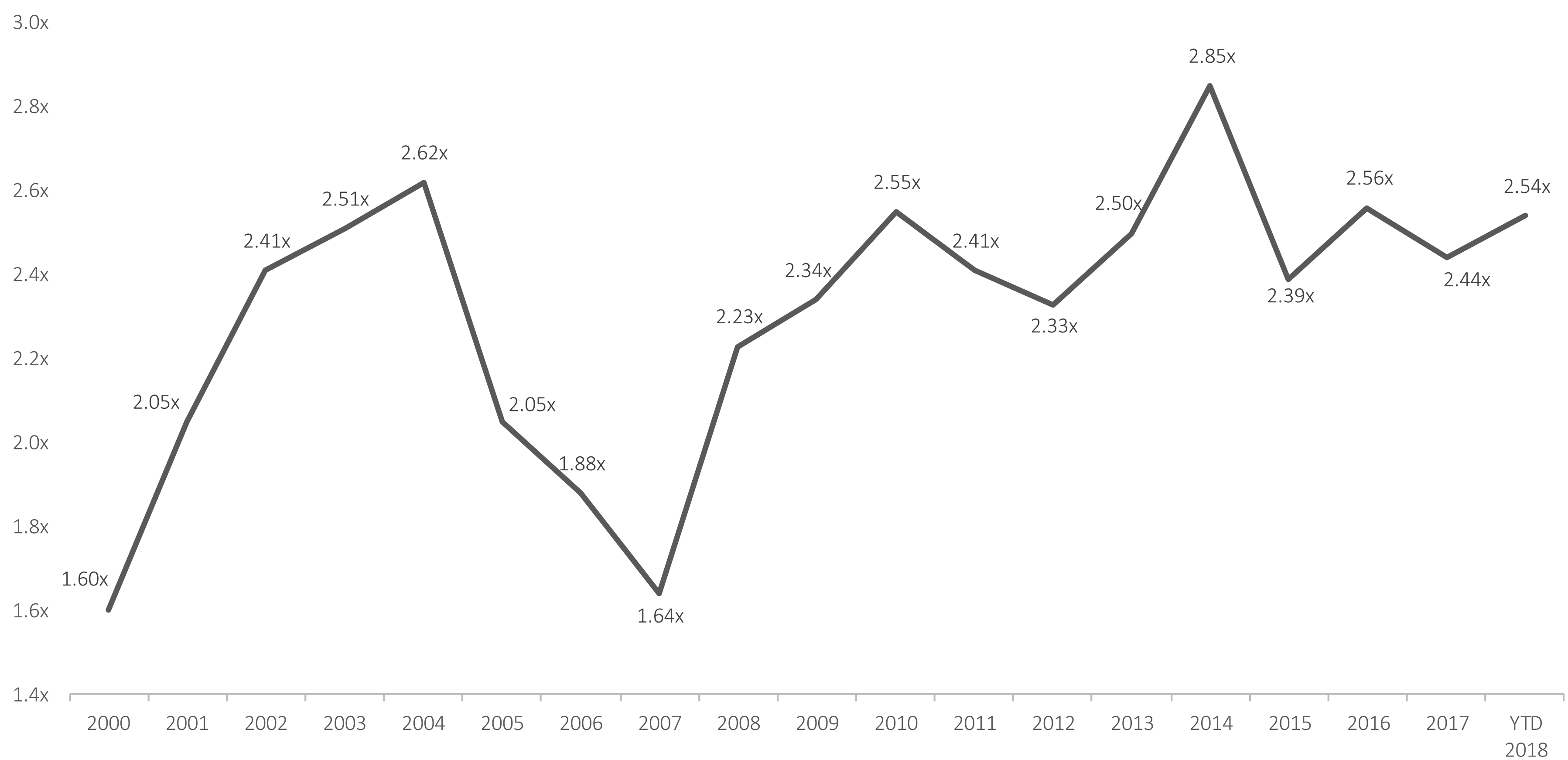


Source: SPI, StepStone analysis; SPI data is continuously updated and historical values are subject to change; Q3 2018 S&P data provided by 3Q18 S&P LBO Review.

Debt Markets

INTEREST COVERAGE LEVELS REMAIN SUFFICIENT

INTEREST COVERAGE RATIO FOR U.S. LARGE CORPORATE LBOs

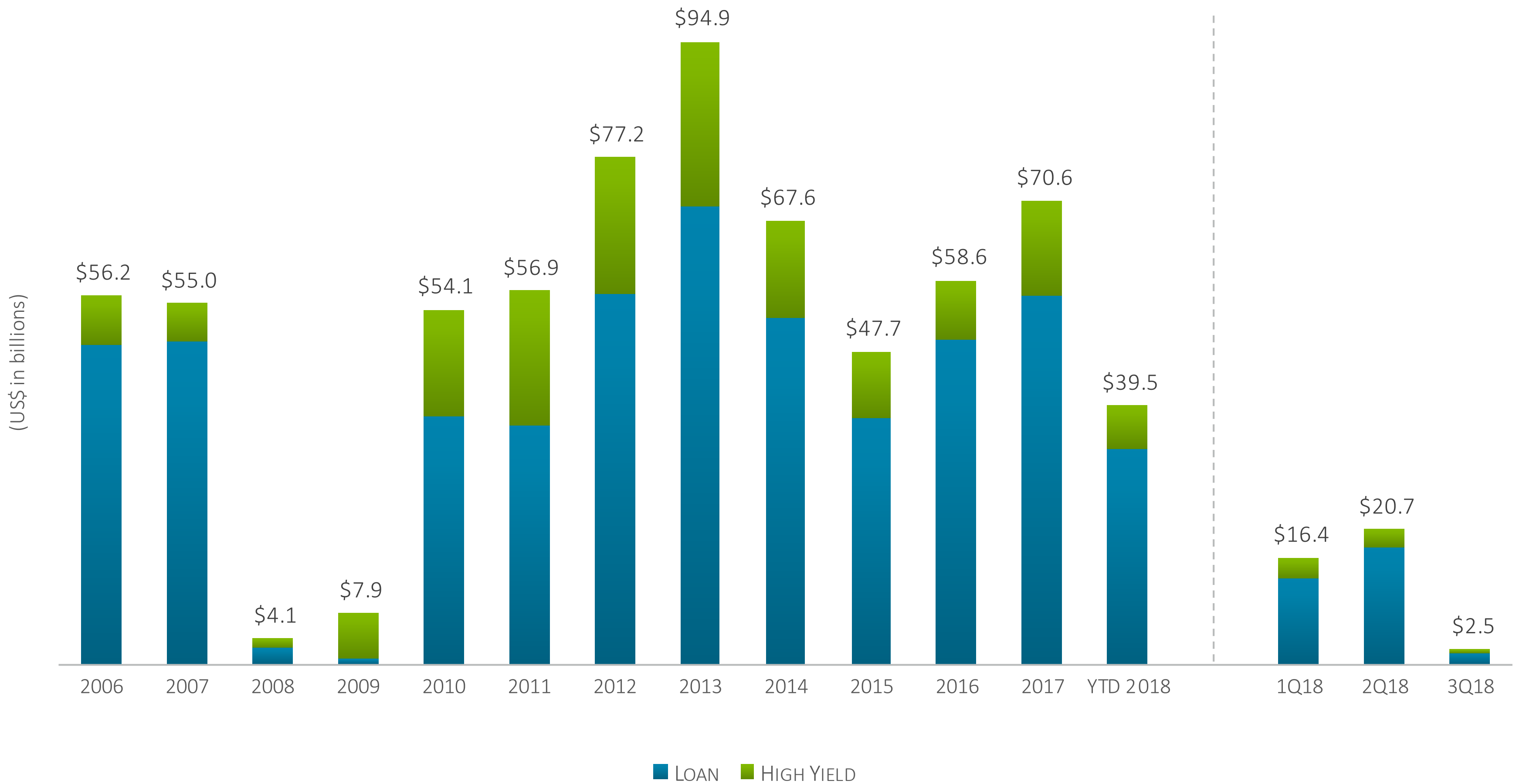


Source: Q3 2018 S&P LBO Review; StepStone Analysis
Note: Interest Coverage Ratio defined as (Adjusted EBITDA – CapEx)/Interest

Debt Markets

DIVIDEND ACTIVITY SLOWED SIGNIFICANTLY IN Q3 2018

DIVIDEND/STOCK REPURCHASE VOLUME



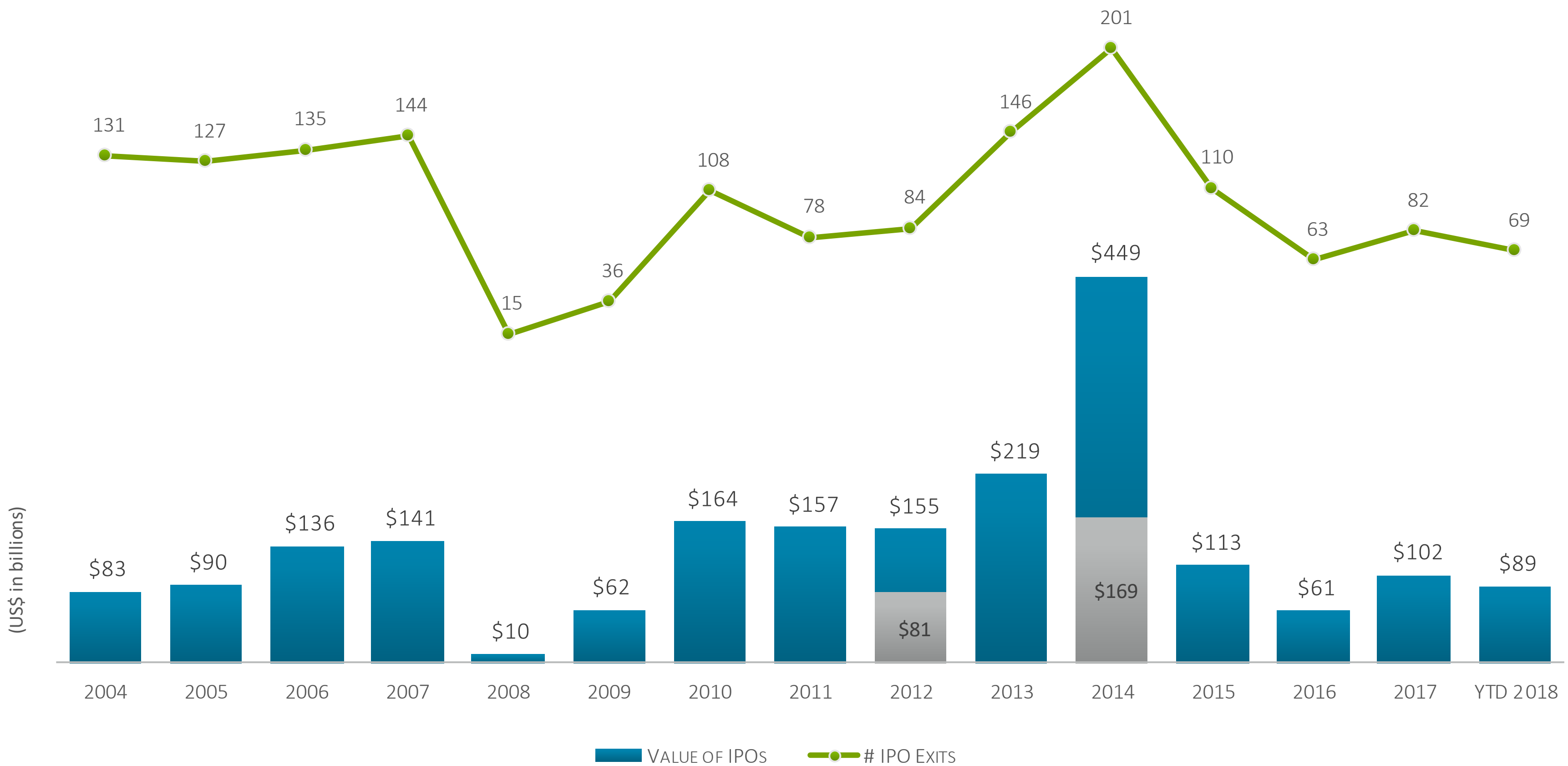
Source: Q3 2018 S&P LBO Review

IPO Market

STEPSTONE
inside private markets

IPO ACTIVITY HAS BEEN MUTED FOR THE PAST THREE YEARS

IPO ACTIVITY BY YEAR



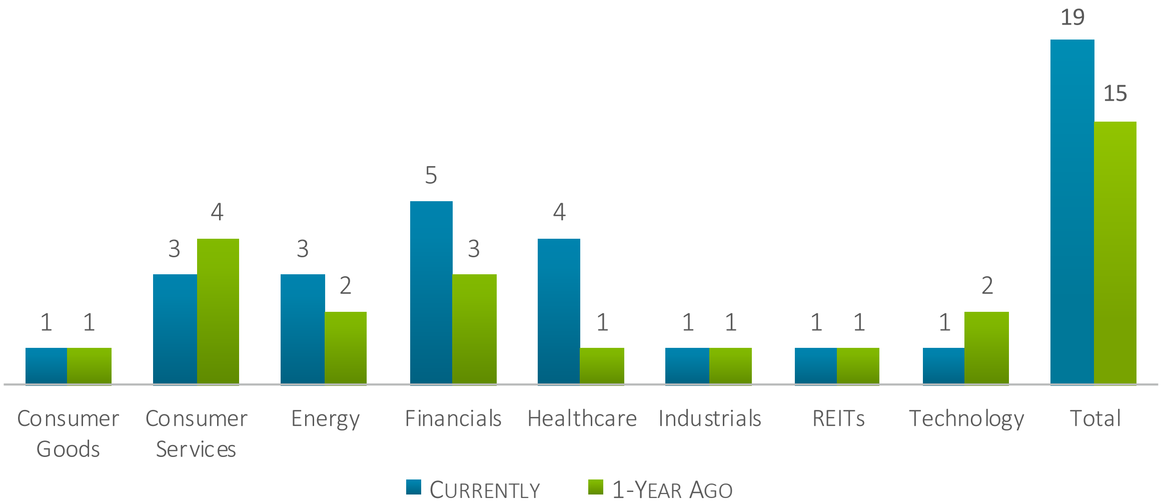
- The largest IPOs during Q3 2018 were Cushman & Wakefield ($3.5b), Eventbrite ($1.8b), and Sonos ($1.5b).

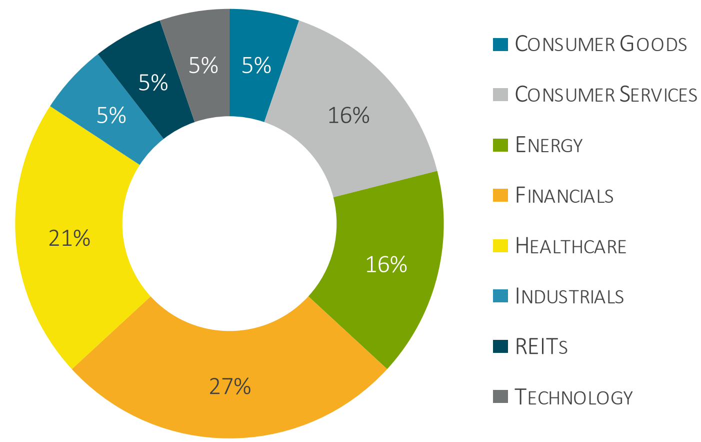
Source: ThomsonOne as of Q3 2018; StepStone Analysis
In 2012, the grey bar represents the IPO of Facebook (NASDAQ: FB)
In 2014, the grey bar represents the IPO of Alibaba (NYSE: BABA)

IPO Market

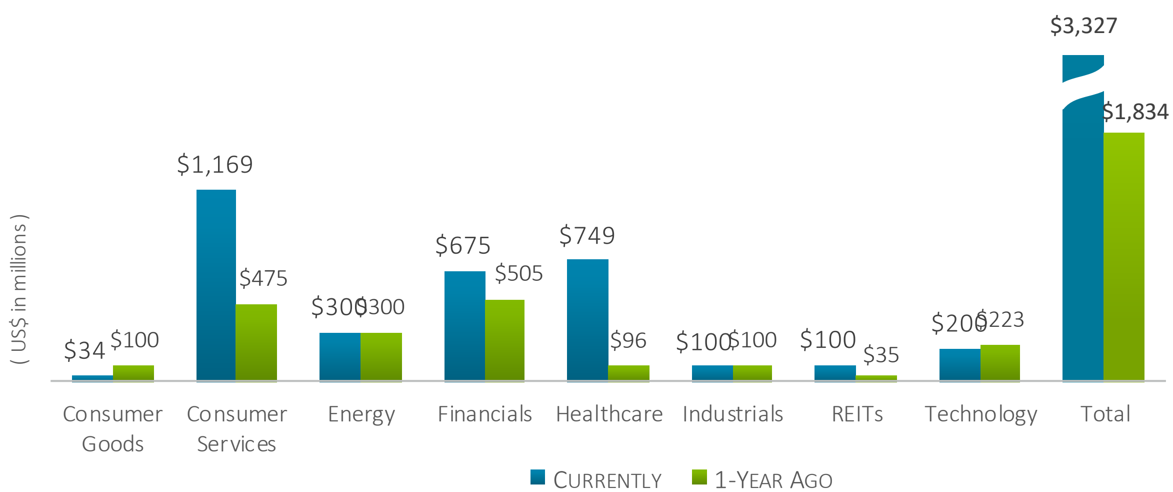
IPO BACKLOG

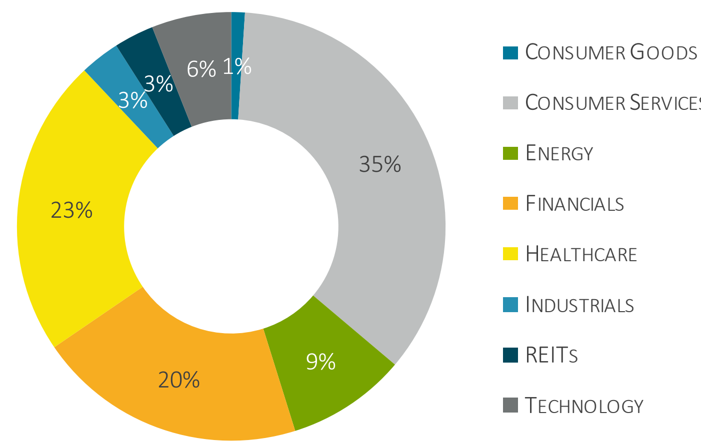
NUMBER OF PROPOSED DEALS BY SECTOR





VALUE OF PROPOSED DEALS BY SECTOR



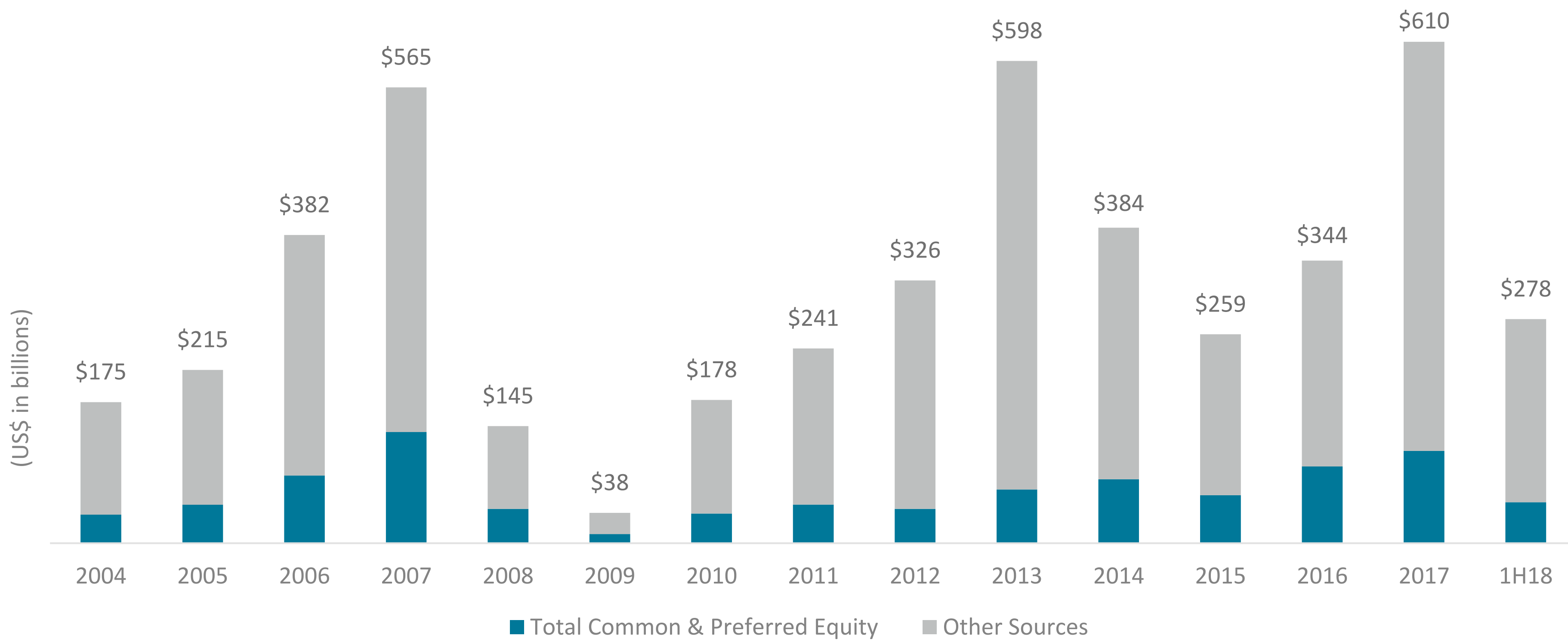


Source: NYSE Euronext, as of November 2018.

Transaction Volume

TOTAL US SPONSORED TRANSACTION VOLUME HAS BEEN ROBUST FOR 1H2018

TRANSACTION VOLUME BY YEAR



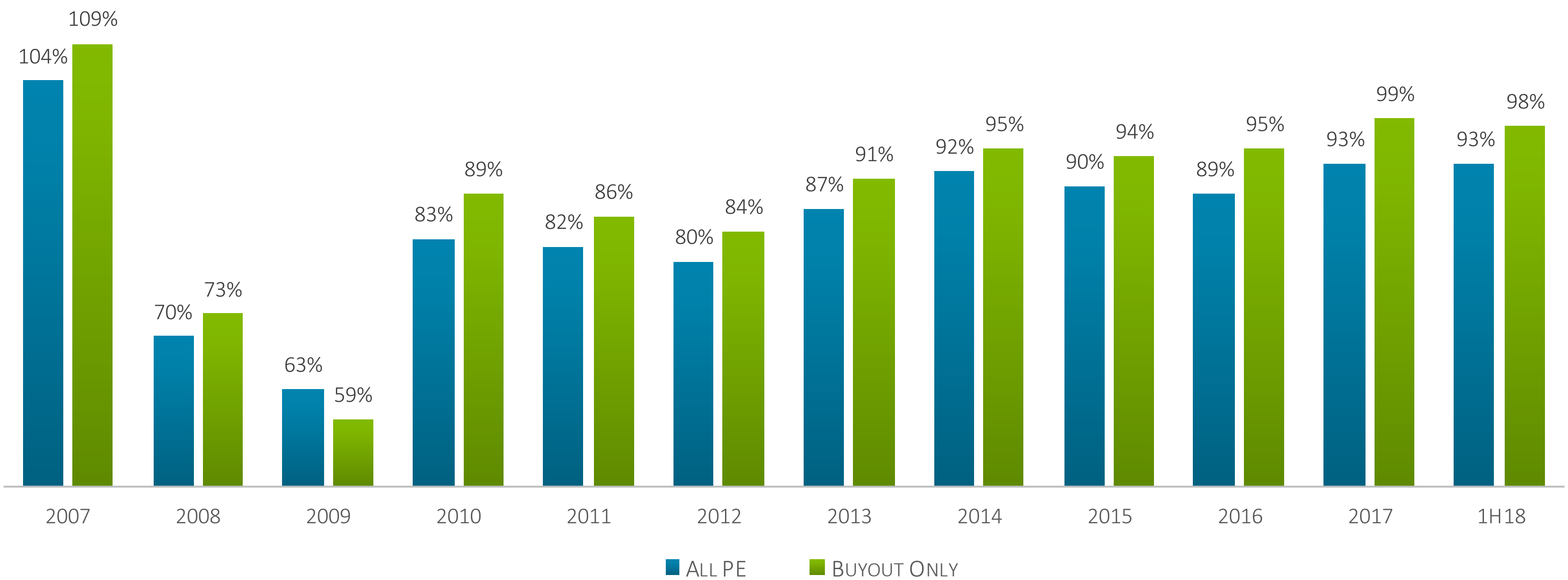
Source: ThomsonOne as of Q3 2018; StepStone Analysis
Includes all Total Sources (loans, secured debt, unsecured debt, sub debt, and equity) involved in any sponsored transaction, regardless of purpose.

Secondary Market Overview

CURRENT INVESTMENT ENVIROMENT

- Secondary market in mature phase of development.
- Conditions exist for continued efficient pricing.
- Outperformance necessitates a distinct strategy and platform advantages.

MARKET SECONDARY PURCHASE PRICE AS A % OF NAV



OFF-MARKET TRANSACTIONS, QUALITY ASSETS ARE KEY TO RETURNS IN THE CURRENT ENVIROMENT

Source: Greenhill Cogent, August 2018. There can be no assurance that the discounts in the amounts shown above will continue to be available in the market.

II. LACERA's Private Equity Investment Process

Private Equity Investment Process

Provided below is the proposed alternatives investment process, leveraging StepStone and LACERA's resources

Stage	StepStone Process		LACERA Process	
Stage 1 Initial Review	Research Vertical Assigned		Staff Member Assigned	
	Initial Review		Initial Review	
	Deal Team Discussion	No Further Action	StepStone & LACERA Staff Discussion	Decide to Pass
Stage 2 Further Review	GP Meeting		GP Meeting	
	Fund Summary to LACERA		Staff Reviews Fund Summary	
	Investment Committee Discussion	Fail to Mature	LACERA Internal PE IC Discussion	Vote to Not Invest
Stage 3 Due Diligence	Formal Due Diligence	• Questionnaire • T.R./Cash Flow Template • Reference Calls • L.P.A.: Terms and Conditions	Formal Due Diligence	
	Onsite Meeting		Onsite Meeting	
	Investment Committee Discussion	Not Approved	LACERA Staff Memo	
Stage 4 Final Approval	Fund Memo to LACERA		Staff Reviews SSG Fund Memo	
			LACERA Board Discussion	Not Approved
Stage 5 Legal Review & Fund Close			Ongoing Legal Negotiations / Fund Close	Negotiations Unsuccessful

III. Private Equity Portfolio Review

Reported data provided by State Street Global Services, and as such are not independently verified by StepStone.

Private Equity Portfolio Review

LACERA PE Portfolio (US$ in millions)			
	As of June '18	As of June '17	Yearly Change
Total Commitments	15,606.6	14,530.3	1,076.2
Total Contributions	12,427.0	11,258.9	1,168.1
Total Unfunded	3,879.0	3,834.7	44.3
Total Distributions	14,731.6	13,466.8	1,264.8
Market Value	5,949.4	5,104.9	844.5
Total Value	**20,681.1**	**18,571.8**	**2,109.3**
Gain/Loss (%)	*66.4%*	*65.0%*	*1.5%*
Gain/Loss	*8,254.1*	*7,312.8*	*941.2*
TVM	1.7x	1.6x	0.1x
DPI	1.2x	1.2x	-
Net IRR	16.1%	16.1%	0.0%

Note: Reported data provided by State Street Global Services, and as such are not independently verified by StepStone.

Benchmark IRR(%) Comparison					
	1 Year	3 Year	5 Year	10 Year	ITD IRR
LACERA	18.6	13.0	15.3	10.9	16.1
Private IQ Median Quartile [1]	7.7	6.7	9.0	7.1	8.8
Delta	*11.0*	*6.3*	*6.4*	*3.8*	*7.3*
Russell 3000 [2]	14.8	11.6	13.3	10.2	NA
Delta	*3.8*	*1.4*	*2.0*	*0.7*	*NA*

[1] Private iQ benchmarks are provided by The Burgiss Group and reflect All Global Private Equity Funds' at June 30, 2018 in local currency. Total Portfolio benchmarks reflect vintage years 1986 through 1988, 1990, 1992 through 2008, and 2010 through 2018. Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.
[2] Russell 3000 returns do not include the impact of reinvested dividends.
Notes: These index comparisons are being provided solely for informational purposes as an indication of returns that could be earned by investors by making similar investments in the Russell 3000 and should not be relied upon for any purpose. Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

Executive Summary

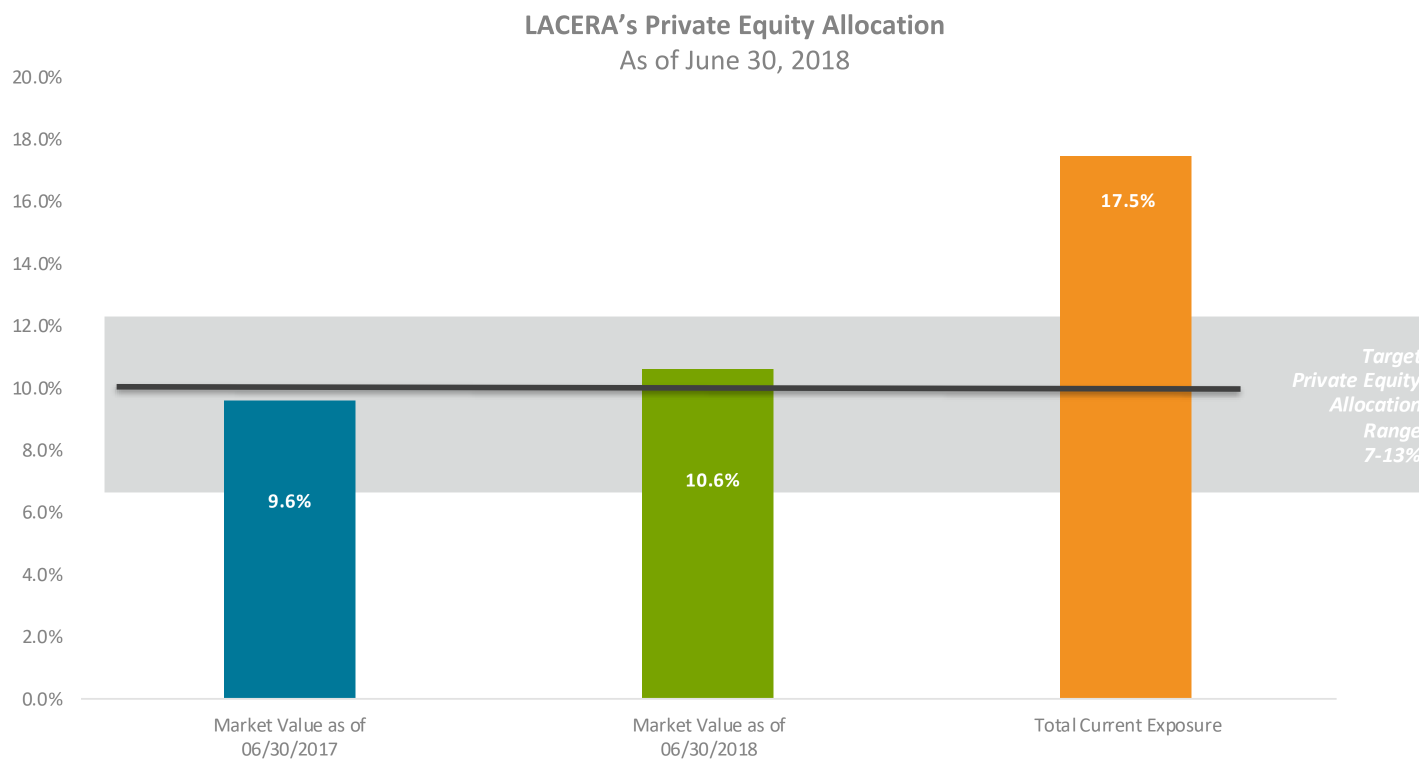
- Private Equity portfolio represents $5.9 billion of Net Asset Value ("NAV"), or 10.6% of LACERA's total portfolio market value, as of June 30, 2018. This compares to LACERA's target allocation of 10%
- Since inception, the portfolio generated a net IRR of 16.1%
- Over the LTM, the portfolio drew $1.2 billion and received $1.3 billion in distributions. The portfolio generated an aggregate net IRR of 18.6%, producing second quartile performance
- LACERA's Private Equity portfolio is well diversified by strategy, geography, industry, manager and vintage year

StepStone Recommendations

- ✓ Build a more concentrated portfolio, emphasizing core manager relationships
- ✓ Employ a consistent investment pacing plan incorporating cash flow/liquidity requirements
- ✓ Opportunistically identify niche funds that could complement LACERA's existing portfolio and be accretive to overall returns either directly or through targeted SMA
- ✓ Increase annual commitments to recover exposure from the contemplated secondary transaction
- Selectively invest in under represented strategies, geographies and sectors; Continue to increase exposure to Asia and the ROW to take advantage of growth in emerging economies and move towards Non-U.S. exposure target of 20%-45%

Private Equity Allocation

- LACERA targets an allocation of 10% for Private Equity investments, with a target range of 7%-13%
- The Private Equity portfolio represents 10.6% of LACERA's total portfolio by market value, as of June 30, 2018
  - LACERA's exposure to private equity is within the target range
- LACERA's Private Equity market value as a percent of total plan increased by ~100bps year-over-year

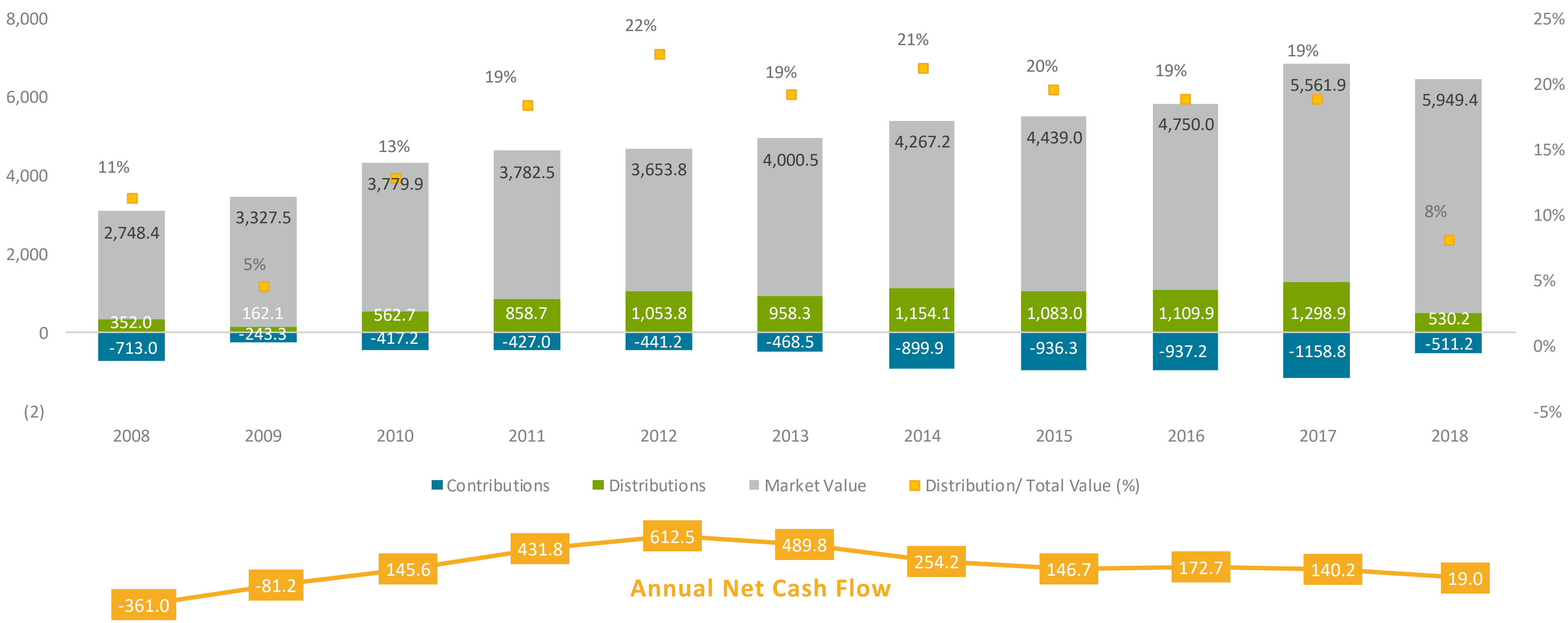


Note:
Source: Target Allocations provided in LACERA's 2018 Private Equity Investment Plan
LACERA's Total Plan Assets of $52.1 billion as of June 30, 2017 and $56.1 billion as of June 30, 2018 was provided by LACERA
LACERA Total Current Exposure (Net Asset Value (Market Value) + Unfunded Commitments) is $9.8 billion as of June 30, 2018

Annual Cash Flow

- Over the past 10 years, LACERA's PE Portfolio has recorded a total of $7.2 billion in contributions and $9.1 billion in distributions, resulting in a total positive net cash flow of $2.0 billion
- The portfolio has recorded strong distributions since 2011, and has received approximately 20% of ending NAV in distributions annually
- For the first half of 2018, LACERA has received $530.2 million in distributions, representing ~8% of total NAV of $5.9 billion

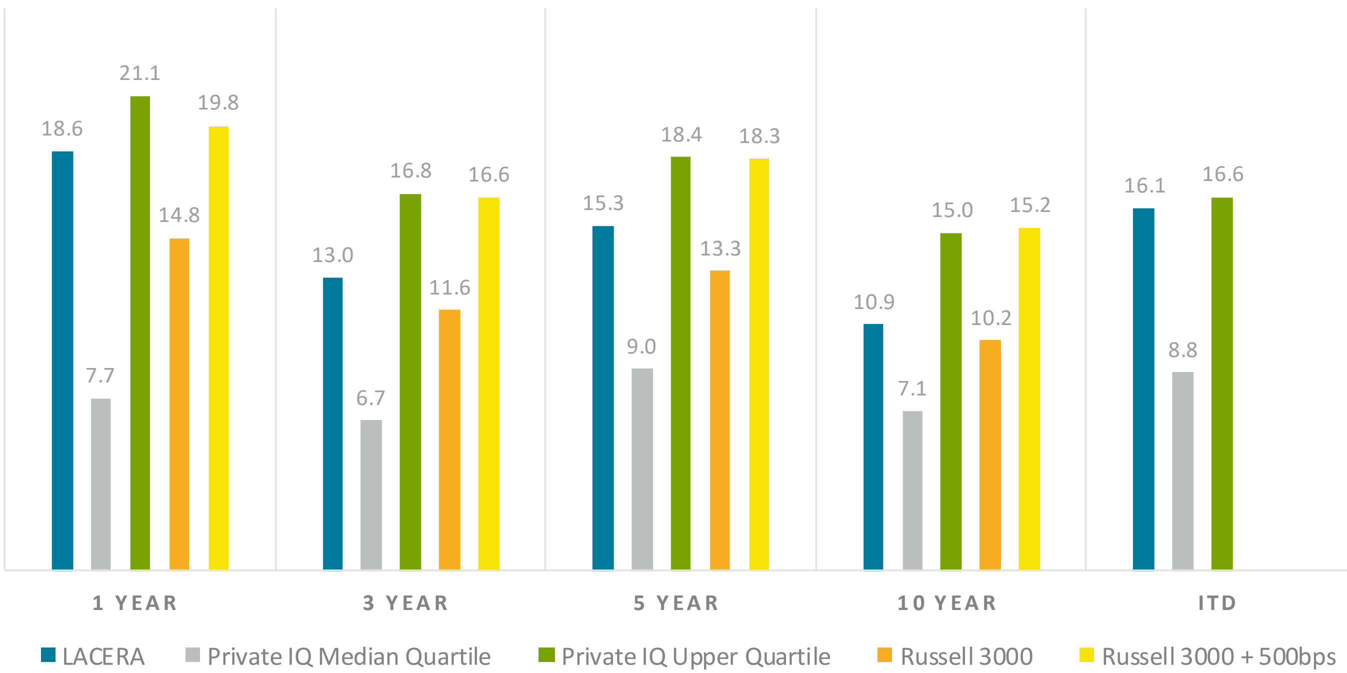
Annual Contributions and Distributions *(US$ in millions) As of June 30, 2018*



Notes:
Annual Contributions and Distributions combines cash flow activity between calendar years of 2008-2018.
Reported data provided by State Street Global Services, and as such are not independently verified by StepStone.
Contributions and distribution data reflect cash flow activity within the given calendar year.
Market Value data above reflects LACERA's Year-End Total Market Value for the calendar year.

Private Equity Performance

Benchmark Comparison as of June 30, 2018



	Benchmark IRR (%) Comparison				
	1 Year	3 Year	5 Year	10 Year	ITD
LACERA	18.6	13.0	15.3	10.9	16.1
Private IQ Median Quartile [1]	7.7	6.7	9.0	7.1	8.8
Private IQ Upper Quartile [1]	21.1	16.8	18.4	15.0	16.6
Russell 3000 [2]	14.8	11.6	13.3	10.2	NA
Russell 3000 + 500bps [2]	19.8	16.6	18.3	15.2	NA

- Over the last 12 months, the portfolio produced a second quartile return, having generated a net IRR of 18.6%. The portfolio outperformed the Russell 3000 index by 3.8%
- As of June 30, 2018, LACERA's 10-year net performance of 10.9% outperformed the Russell 3000 by 70 basis points, and underperformed the benchmark (Russell 3000 + 500 basis points) by 430 basis points
- LACERA's ITD net IRR of 16.1% places the Private Equity portfolio in the second quartile
- Since inception, LACERA's portfolio has underperformed the Private iQ Upper Quartile index by 0.5%

[1] Private iQ benchmarks are provided by The Burgiss Group and reflect All Global Private Equity Funds' at June 30, 2018 in local currency. Total Portfolio benchmarks reflect vintage years 1986 through 1988, 1990, 1992 through 2008, and 2010 through 2018. Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.

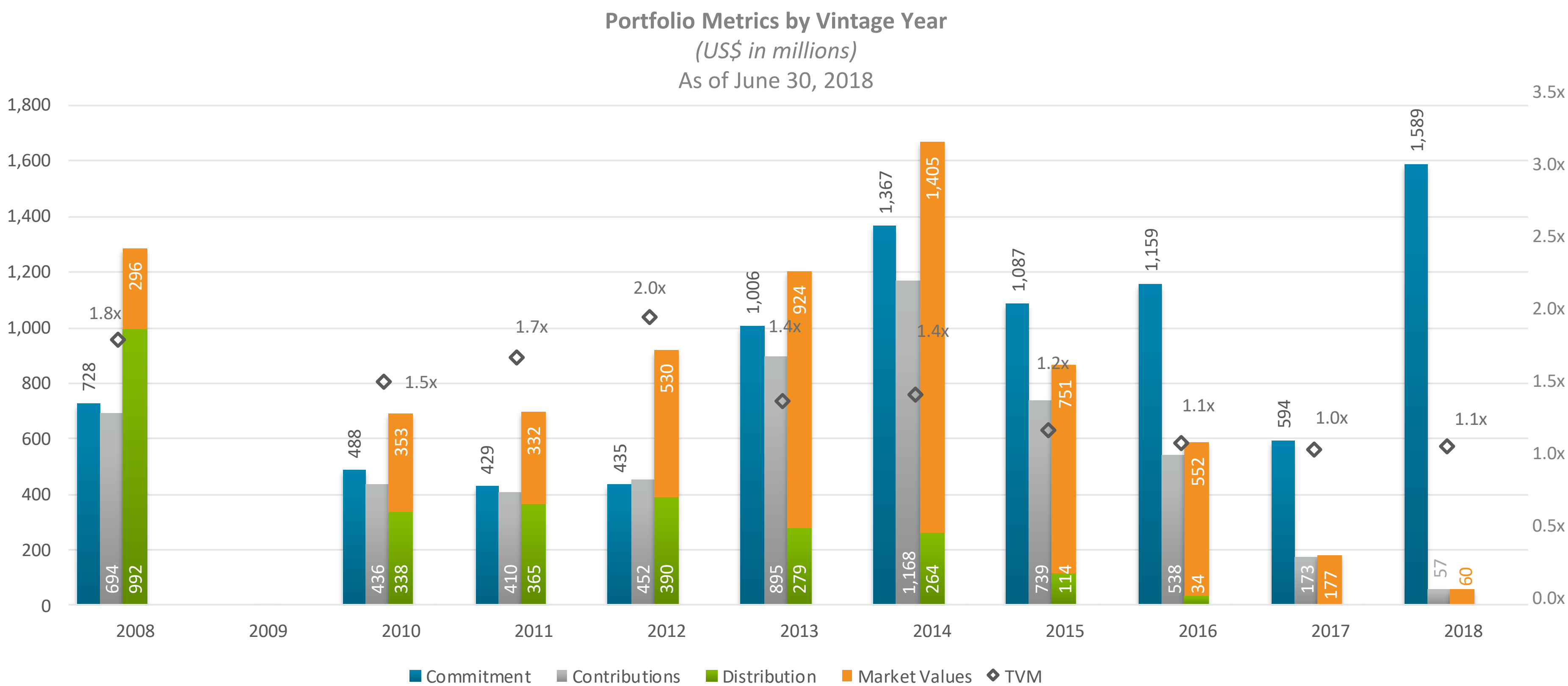
[2] Russell 3000 returns do not include the impact of reinvested dividends.

Notes: These index comparisons are being provided solely for informational purposes as an indication of returns that could be earned by investors by making similar investments in the Russell 3000 and should not be relied upon for any purpose.

Past performance is not necessarily indicative of future results and there can be no assurance that the fund will achieve comparable results or avoid substantial losses.

Private Equity Commitments by Vintage Year

- Since 2008, LACERA has committed $8.9 billion to 148 investments
  - As of June 30, 2018, these commitments have drawn down $5.6 billion, distributed $2.8 billion, and have a reported market value of $5.4 billion
  - Investments made since 2008 have generated a total return of 1.5x TVM
- Vintage 2012 funds have produced the highest return over the last 10 years, generating a total return of 2.0x TVM
  - Clearlake, Summit and Lightyear are the best performing 2012 funds and account for the majority of the value creation

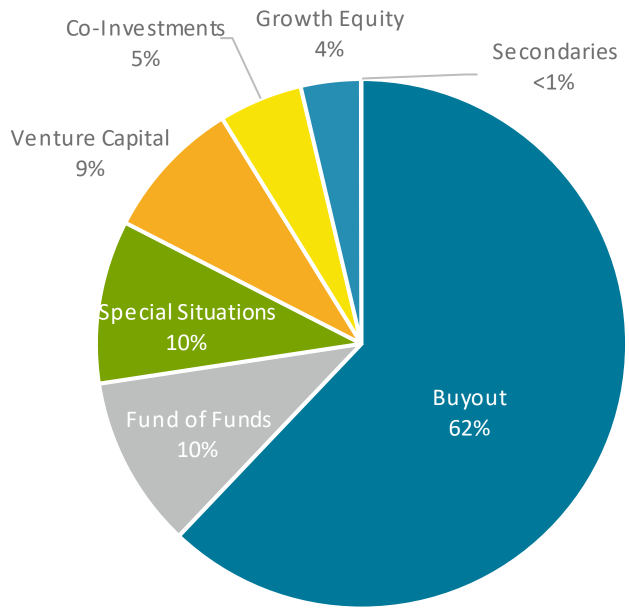


Notes:
Portfolio Metrics by Vintage Year includes data for vintage years 2008-2018. There were no investments with a 2009 vintage in the LACERA private equity portfolio. Vintage year reflects LACERA's first cashflow, which may be different from the fund's vintage year (defined as fund's first cash flow).
Contribution and Distribution data above reflects contributions and distributions attributable to investments with a given vintage year.
Market Value data above reflect total market value for investments with a given vintage year; this is different from LACERA's year-end total private equity portfolio value.

Past performance is not necessarily indicative of future results *and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.*

Performance by Strategy

Total Exposure by Sector
(US$9.8 billion)

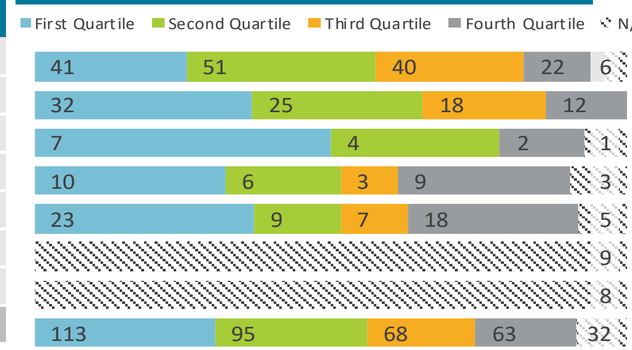


- Buyout funds represent the largest strategy in LACERA's portfolio, representing 62% of the aggregate exposure as of June 30, 2018
- Since inception, 160 Buyout funds generated a 1.7x TVM and has realized a 1.2x DPI as of June 30, 2018
  - Over half are first or second quartile: 41 Buyout funds are first quartile funds and 51 are second quartile
- Growth Equity funds have produced the strongest returns. 14 growth equity funds generated a 2.3x TVM
  - 7 of the 14 Growth Equity funds are first quartile funds and 4 are second quartile.
  - Commitments in Summit Partners and Technology Crossover Ventures account for 67% of all commitments in Growth Equity investments

As of June 30, 2018 (US$ in millions)

Sector	No. of Inv.	Commitments	Market Value	Net IRR	1 Year	3 Year	5 Year	TVM	DPI
Buyout	160	9,810.6	3,447.2	13.8%	20.3%	15.8%	16.9%	1.7x	1.2x
Venture Capital	87	1,533.0	598.7	21.7%	25.2%	7.8%	16.2%	1.9x	1.4x
Growth Equity	14	629.0	257.4	86.8%	32.0%	22.5%	27.6%	2.3x	1.8x
Special Situations	31	1,670.6	562.2	8.8%	5.8%	0.1%	0.6%	1.3x	0.9x
Fund of Funds	62	1,126.3	715.7	10.6%	15.1%	16.3%	16.9%	1.5x	0.6x
Co-Investments	9	683.4	366.2	18.7%	13.4%	8.7%	15.1%	1.7x	1.0x
Secondaries	8	153.7	2.0	17.2%	(0.2%)	(2.0%)	8.0%	1.5x	1.5x
Total	**371**	**15,606.6**	**5,949.4**	**16.1%**	**18.6%**	**13.0%**	**15.3%**	**1.7x**	**1.2x**

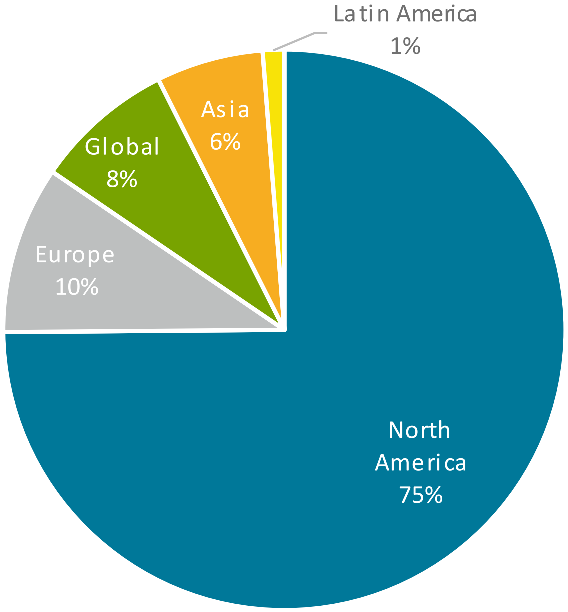
No. of Funds by TVPI Quartile[1]



LACERA's Exposure (Net Asset Value + Unfunded Commitments) consists of 371 Active and Exited funds as of June 30, 2018
[1]Private iQ benchmarks are provided by The Burgiss Group and reflect 25th percentile/Lower, 50th percentile/Median, and 75th percentile/Upper TVPI at June 30, 2018 in local currency. Each fund was benchmarked by the attributable sector and vintage year. Fund's vintage year reflects LACERA's first cashflow, which may be different from the fund's vintage year (defined as fund's first cash flow). Secondaries, Fund of Funds, Co-Investments, and investments in which capital has not been drawn have been excluded (N/A) from the quartile rankings.
Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.

***Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.*

Performance by Geography

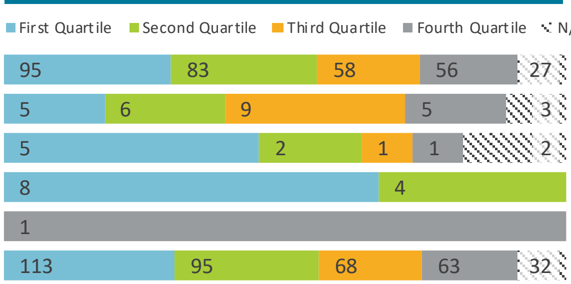


- LACERA's largest exposure is North America
  - 319 North American funds represent $12.2 billion of commitments since inception and $4.9 billion of market value as of June 30, 2018
  - 178 funds (or 56% of funds) rank in the first and second quartile
- Asian funds have generated the strongest returns with 100% of the funds ranking in the first and second quartiles
  - 12 funds generated a net TVM and IRR of 1.7x and 22.1%, respectively
  - Commitments in GGV Capital account for 38% of all Asian commitments

As of June 30, 2018 (US$ in millions)

Geography	No. of Inv.	Commitments	Market Value	Net IRR	1 Year	3 Year	5 Year	TVM	DPI
North America	319	12,157.7	4,926.6	16.1%	18.6%	12.8%	15.4%	1.7x	1.2x
Europe	28	1,869.6	331.8	15.3%	16.0%	15.7%	12.8%	1.6x	1.3x
Global	11	999.3	203.0	16.8%	0.2%	6.3%	11.5%	1.7x	1.3x
Asia	12	455.0	448.2	22.1%	33.2%	17.5%	23.2%	1.7x	0.2x
Latin America	1	125.0	39.8	(13.4%)	(3.1%)	-	-	0.9x	-
Total	**371**	**15,606.6**	**5,949.4**	**16.1%**	**18.6%**	**13.0%**	**15.3%**	**1.7x**	**1.2x**

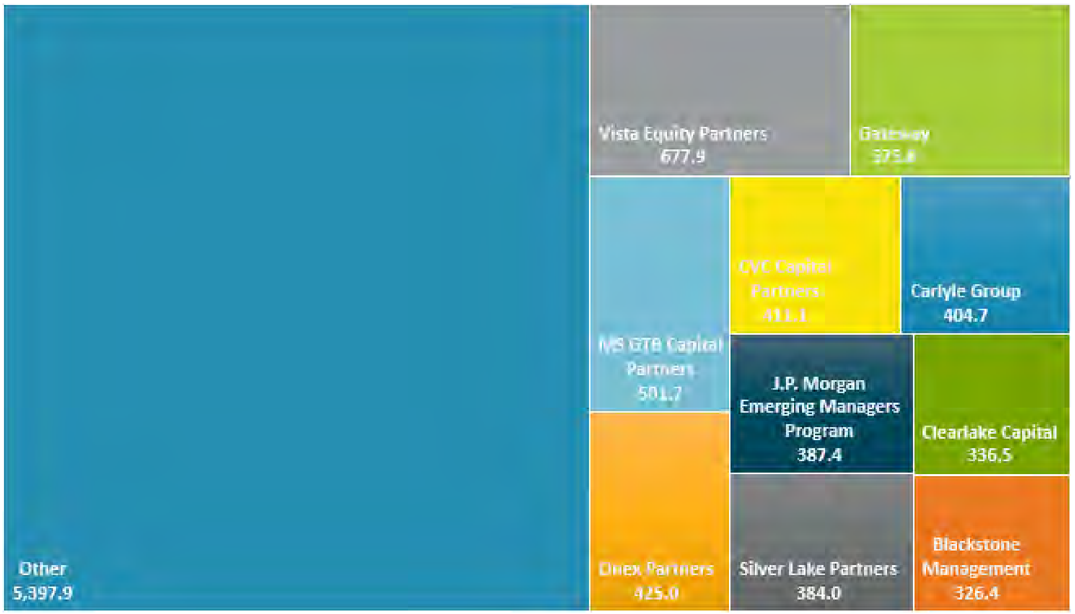
No. of Funds by TVPI Quartile[1]



LACERA's Exposure (Net Asset Value + Unfunded Commitments) consists of 371 Active and Exited funds as of June 30, 2018.
[1]Private iQ benchmarks are provided by The Burgiss Group and reflect 25th percentile/Lower, 50th percentile/Median, and 75th percentile/Upper TVPI at June 30, 2018 in local currency. Each fund has been benchmarked by their attributable Sector and Vintage year. Fund's vintage year reflects LACERA's first cashflow, which may be different from the fund's vintage year (defined as fund's first cash flow). Secondaries, Fund of Funds, Co-Investments, and new investments that have yet to be funded have been excluded (N/A) from the quartile rankings.
Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.

Past performance is not necessarily indicative of future results *and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.*

Portfolio Exposure by Manager



- The grid graph depicts LACERA's current exposure by underlying manager
- As of June 30, 2018, LACERA's portfolio consisted of 371 funds across 153 unique managers. Ten largest managers account for 45% of total exposure, or $4.4 billion out of $9.8 billion
- Vista represents the largest relationship for LACERA, representing $550.0 million of commitment and $667.9 million of exposure. Four Vista funds generated a 1.7x TVM and a 22.4% IRR

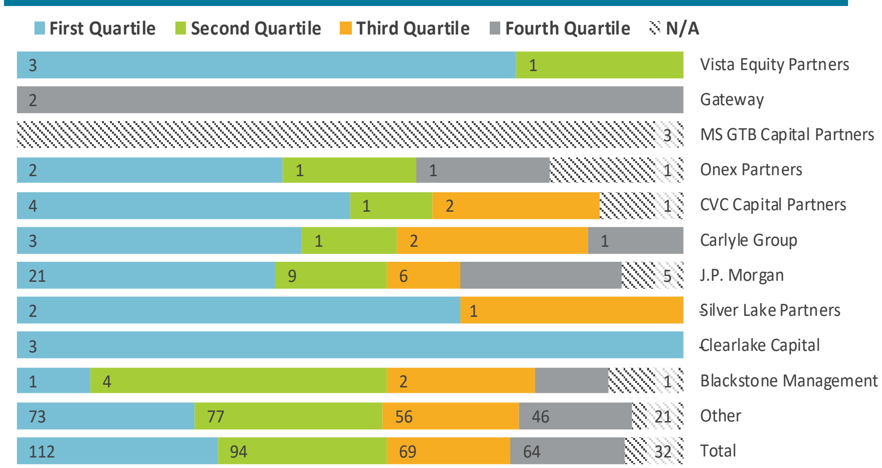
StepStone recommendations:

- Continue to build a more concentrated portfolio, emphasizing top quartile performing managers
- Invest in under represented strategies, geographies, and sectors

As of June 30, 2018 (US$ in millions)

Manager Names	No. of Funds	Exposure	TVPI	ITD IRR
Vista Equity Partners	4	677.9	1.7x	22.4%
Gateway	2	575.8	1.2x	8.0%
MS GTB Capital Partners	3	501.7	1.6x	12.2%
Onex Partners	5	425.0	1.8x	24.6%
CVC Capital Partners	8	411.1	1.9x	21.0%
Carlyle Group	7	404.7	1.6x	19.2%
J.P. Morgan Emerging Managers Program	54	387.4	1.9x	25.9%
Silver Lake Partners	3	384.0	1.8x	21.7%
Clearlake Capital	3	336.5	1.9x	41.4%
Blackstone Management	9	326.4	1.8x	21.0%
Other	273	5,397.9	1.7x	15.6%
Total	**371**	**9,828.5**	**1.7x**	**16.1%**

No. of Funds in TVPI Quartiles[1]



LACERA's Exposure (Net Asset Value + Unfunded Commitments) consists of 371 Active and Exited funds as of June 30, 2018.

[1]Private iQ benchmarks are provided by The Burgiss Group and reflect 25th percentile/Lower, 50th percentile/Median, and 75th percentile/Upper TVPI at June 30, 2018 in local currency. Each fund was benchmarked by the attributable Sector and Vintage year. Fund's vintage year reflects LACERA's first cashflow, which may be different from the fund's vintage year (defined as fund's first cash flow). Secondaries, Fund of Funds, Co-Investments, and investments in which capital has not been drawn have been excluded (N/A) from the quartile rankings.

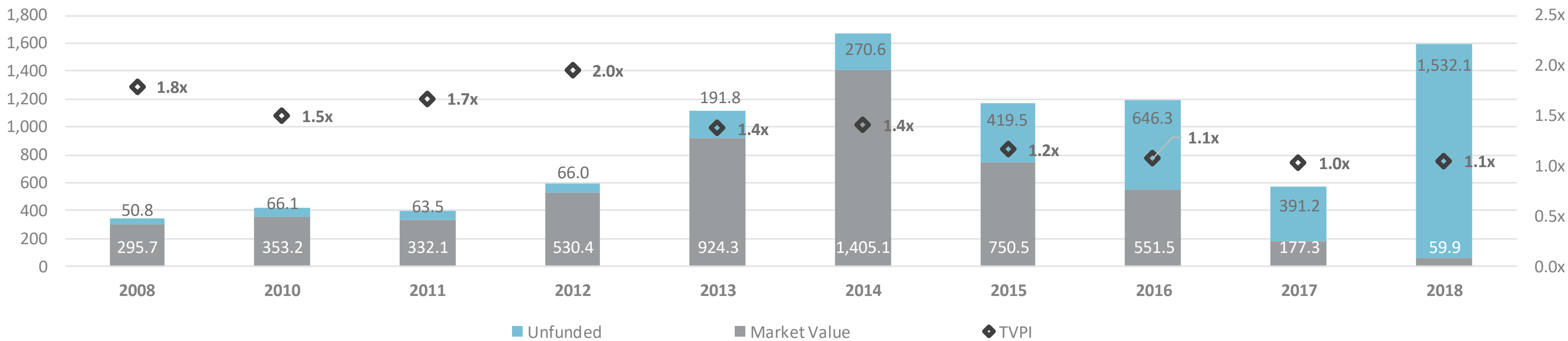
Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.

***Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses.*

Portfolio Exposure by Vintage Year

- Vintage 2014 investments represent LACERA's largest unrealized value and exposure. LACERA committed $1.4 billion across 30 investments in 2014. These investments have called $1.2 billion and are valued at $1.4 billion, as of June 30, 2018. These investments have produced a TVM of 1.4x in aggregate

Total Exposure by Vintage Year
(US$ in millions)
As of June 30, 2018



Notes:
Total Exposure by Vintage Year includes data for vintage years 2008-2018. There were no investments with a 2009 vintage in the LACERA private equity portfolio.
Reported data provided by State Street Global Services, and as such are not independently verified by StepStone.
Unfunded data above reflects unfunded commitments made to funds with a given vintage year, and Market Value data reflects total market value for investments with a given vintage year; Fund's vintage year reflects LACERA's first cashflow, which may be different from the fund's vintage year (defined as fund's first cash flow).

***Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses. No assurance can be given that the performance of unrealized investments has not significantly changed from the date the performance reflected herein was determined.*

Returns by Vintage Year

As of June 30, 2018 (US$ in millions)

Vintage Year	No. of Inv.	Committed Capital	Contributed Capital	Distributed Capital	Market Value	Total Value	DPI	TVPI	Net IRR	LACERA's Quartile	Private IQ Benchmark[1] Upper IRR	Median IRR	Lower IRR
1986	3	80.0	80.0	267.5	0.0	267.5	3.3x	3.3x	15.7%	First	11.8%	6.8%	4.5%
1987	1	25.0	25.0	40.3	0.0	40.3	1.6x	1.6x	7.3%	Third	17.8%	9.5%	2.7%
1988	2	200.0	216.6	466.9	0.0	466.9	2.2x	2.2x	15.5%	Second	15.9%	10.1%	4.5%
1990	1	7.5	7.5	16.7	0.0	16.7	2.2x	2.2x	13.0%	Third	21.2%	13.9%	7.2%
1992	10	116.0	111.0	242.5	0.0	242.5	2.2x	2.2x	29.0%	First	26.3%	14.9%	6.0%
1993	8	68.0	64.8	239.5	0.0	239.5	3.7x	3.7x	39.7%	First	30.3%	17.2%	8.1%
1994	5	56.9	58.8	237.6	0.0	237.6	4.0x	4.0x	54.1%	First	32.6%	15.9%	4.4%
1995	7	100.5	102.3	362.6	0.0	362.6	3.5x	3.5x	43.1%	First	31.4%	13.7%	3.5%
1996	12	222.9	225.2	607.7	1.0	608.7	2.7x	2.7x	37.4%	First	23.1%	10.0%	4.6%
1997	11	397.5	410.4	606.4	0.1	606.5	1.5x	1.5x	7.7%	Third	22.8%	8.2%	1.4%
1998	22	644.4	655.3	943.0	3.9	946.9	1.4x	1.4x	7.3%	Third	15.0%	8.1%	(0.1%)
1999	21	360.9	369.6	431.1	4.7	435.8	1.2x	1.2x	3.4%	Second	10.5%	1.9%	(7.6%)
2000	25	376.5	387.7	564.3	13.0	577.3	1.5x	1.5x	8.8%	Second	14.3%	4.8%	(4.4%)
2001	15	416.7	441.9	824.6	13.8	838.5	1.9x	1.9x	21.7%	Second	23.5%	10.8%	1.5%
2002	8	220.4	230.3	502.4	35.9	538.4	2.2x	2.3x	19.0%	Second	28.1%	13.6%	4.9%
2003	8	315.6	338.0	686.7	15.9	702.5	2.0x	2.1x	21.3%	Second	21.3%	11.1%	3.2%
2004	9	455.9	471.7	848.7	41.4	890.1	1.8x	1.9x	19.8%	First	15.4%	8.3%	0.1%
2005	15	534.4	505.4	1,016.3	33.1	1,049.4	2.0x	2.1x	13.5%	First	10.3%	4.6%	(1.4%)
2006	28	1,572.7	1,589.6	2,361.0	245.2	2,606.2	1.5x	1.6x	9.2%	Second	10.3%	4.8%	(2.5%)
2007	12	553.6	483.9	689.8	161.3	851.1	1.4x	1.8x	11.7%	Second	12.3%	7.2%	0.8%
2008	11	727.7	721.2	991.7	295.7	1,287.4	1.4x	1.8x	13.9%	Second	14.5%	8.4%	1.4%
2010	23	487.5	462.1	338.3	353.2	691.5	0.7x	1.5x	13.0%	Second	16.5%	10.4%	4.8%
2011	8	428.5	417.1	364.9	332.1	697.0	0.9x	1.7x	15.0%	Second	20.9%	13.2%	6.8%
2012	7	435.0	472.8	389.6	530.4	920.0	0.8x	2.0x	23.8%	First	19.2%	12.4%	6.7%
2013	11	1,005.9	877.9	278.8	924.3	1,203.1	0.3x	1.4x	12.9%	Second	17.1%	11.5%	7.2%
2014	30	1,366.8	1,183.9	263.6	1,405.1	1,668.6	0.2x	1.4x	15.5%	Second	20.7%	12.9%	7.5%
2015	10	1,087.0	741.8	113.6	750.5	864.1	0.2x	1.2x	11.7%	Second	18.6%	11.2%	3.8%
2016	12	1,159.3	544.5	34.1	551.5	585.6	0.1x	1.1x	NM	NM	NM	NM	NM
2017	22	594.0	173.4	1.6	177.3	179.0	0.0x	1.0x	NM	NM	NM	NM	NM
2018	14	1,589.5	57.3	0.0	59.9	59.9	0.0x	1.1x	NM	NM	NM	NM	NM
Total	**371**	**15,606.6**	**12,427.0**	**14,731.6**	**5,949.4**	**20,681.1**	**1.2x**	**1.7x**	**16.1%**	**Second**	**16.6%**	**8.8%**	**0.7%**

[1]Private iQ benchmarks are provided by The Burgiss Group and reflect All Global Private Equity Funds' 25th percentile/Lower, 50th percentile/Median, and 75th percentile/Upper IRRs at June 30, 2018 in local currency. Total Portfolio benchmarks reflect vintage years 1986 through 1988, 1990, 1992 through 2008, and 2010 through 2018. Note: Benchmark data is continuously updated by The Burgiss Group and may be subject to change.

Note: Returns by Vintage Year reflect LACERA's total portfolio, including 114 exited investments.

Note: Commitment data above reflects commitments made to funds with a given vintage year; this is different from the year in which a fund is approved by LACERA's board.

***Past performance is not necessarily indicative of future results** and there can be no assurance that the investment will achieve comparable results or avoid substantial losses. The referenced indices are shown for general market comparisons and are not meant to represent any particular fund. An investor cannot directly invest in an index. Moreover, indices do not reflect commissions or fees that may be charged to an investment product based on the index, which may materially affect the performance data presented.*

2018 Portfolio Summary

- Year to date as of October 10, 2018, LACERA approved $1.0 billion of commitments, compared to the target commitments of $1.5 billion (+/- 20%)
- Two funds, representing $0.2 billion of potential commitments, are in due diligence processes for the December Board meeting
- A summary commitments by strategy and sector as of October 10, 2018 are provided below:

Fund Name	Sector	Sub-Sector	Industry Focus	Commitment (US$ mm)
GTB II-B	NA	NA	NA	$100
Juggernaut IV	Buyout	Small Buyout	Consumer	$125
AE Industrial II	Buyout	Small Buyout	Generalist	$100
Storm Ventures VI	Venture Capital	Early Stage	Technology	$50
Accel-KKR Growth III	Growth	Small Growth	Technology	$50
Riverside Micro-Cap V	Buyout	Small Buyout	Generalist	$65
GGV VII / Plus / Discovery	Venture Capital	Balanced	Technology	$100
Hellman & Friedman IX	Buyout	Global Buyout	Generalist	$150
Triton V	Buyout	Middle Buyout	Generalist	$175
Siris IV	Buyout	Middle Buyout	Technology	$100
Total				**$1,015**

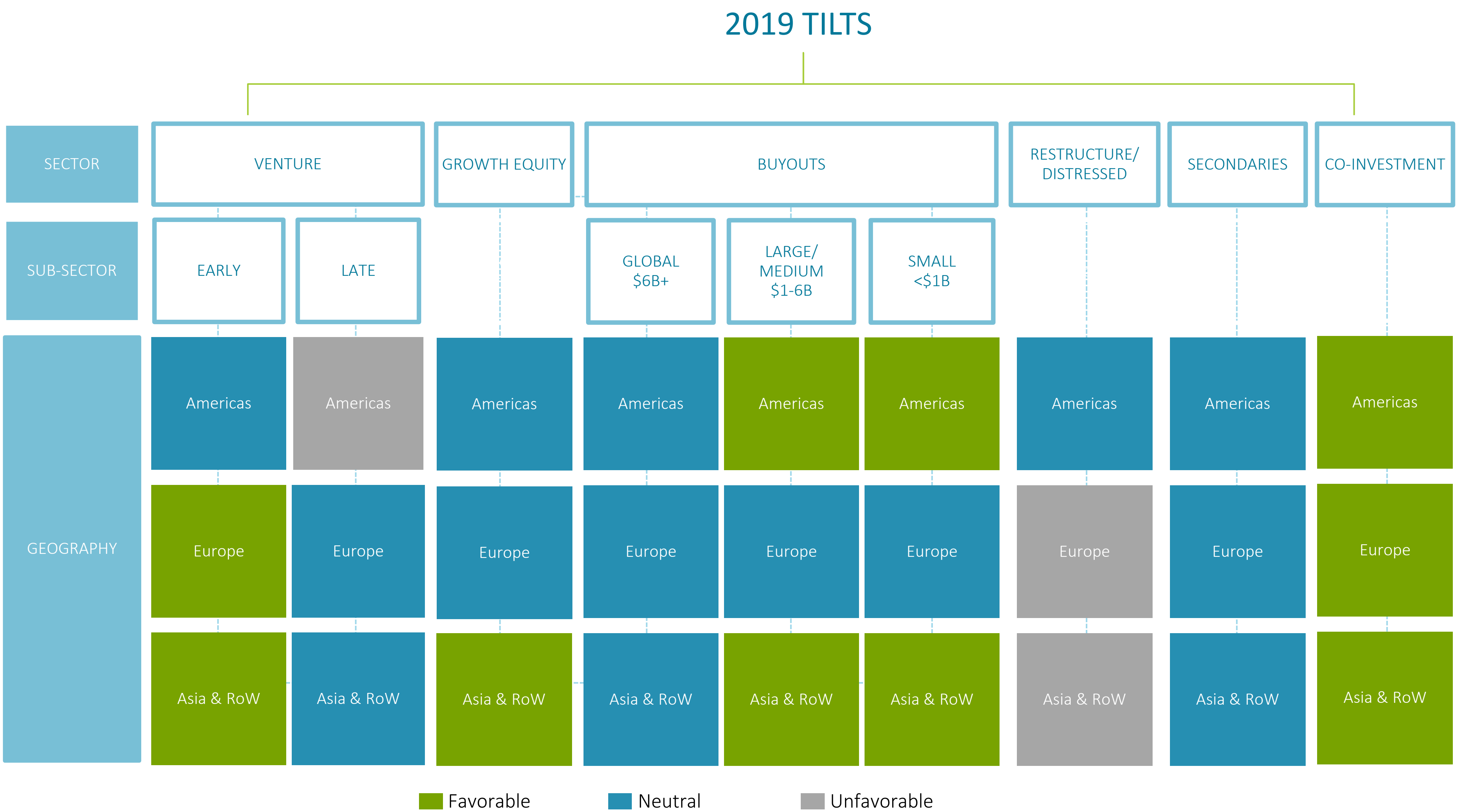
- A summary of subsequent potential commitments by strategy and sector are provided below:

Fund Name	Sector	Sub-Sector	Industry Focus	Commitment (US$ mm)
Vista VII	Buyout	Global Buyout	Technology	$200
USV 2019 (Core & Opportunity Fund)	Venture Capital	Early Stage	Technology	$20
Total				**$220**

IV. 2019 Strategic Planning

Heat Map

- Provided below are initial thoughts on portfolio construction for LACERA based on client objectives and constraints



For illustrative purposes only.

The opinions expressed herein reflect the current opinions of StepStone as of the date appearing in this material only. There can be no assurance that views and opinions expressed in this document will come to pass.

2019 Considerations

Existing managers that are in market or likely to fundraise in the next 12-18 months, categorized by strategy

LACERA Relationships				
Buyout	**Growth Equity / Venture Capital**	**Special Situations**	**Secondary Funds**	**Energy**
• Accel-KKR • Berkshire Partners* • Blackstone Capital Partners • Carlyle U.S. • Clearlake Capital • GBOF • Harvest Partners • Insignia Capital Partners • Livingbridge • Leonard Green • Montagu Private* • Palladium Equity • Riverside • TA Associates* • Vista Equity	• Financial Partners • BRV Aster • Australis Partners • Institutional Venture Partners • LAV Biosciences • Alsop Louie* • Greycroft • Accel Partners* • KPCB*	• Atlantic Street Capital • BDCM • Centerbridge Capital Partners • Falcon Investment Advisors*	• Lexington*	• Energy & Minerals Group

*LACERA did not commit to the most recent fund.

There can be no assurance made that StepStone will find any opportunities relating to the Managers or that they will achieve their objectives or avoid significant losses.

Risks Associated with Investments. Identifying attractive investment opportunities and the right underlying fund managers is difficult and involves a high degree of uncertainty. There is no assurance that the investments will be profitable and there is a substantial risk that losses and expenses will exceed income and gains.

Restrictions on Transfer and Withdrawal; Illiquidity of Interests; Interests Not Registered. The investment is highly illiquid and subject to transfer restrictions and should only be acquired by an investor able to commit its funds for a significant period of time and to bear the risk inherent in such investment, with no certainty of return. Interests in the investment have not been and will not be registered under the laws of any jurisdiction. Investment has not been recommended by any securities commission or regulatory authority. Furthermore, the aforementioned authorities have not confirmed the accuracy or determined the adequacy of this document.

Limited Diversification of Investments. The investment opportunity does not have fixed guidelines for diversification and may make a limited number of investments.

Reliance on Third Parties. StepStone will require, and rely upon, the services of a variety of third parties, including but not limited to attorneys, accountants, brokers, custodians, consultants and other agents and failure by any of these third parties to perform their duties could have a material adverse effect on the investment.

Reliance on Managers. The investment will be highly dependent on the capabilities of the managers.

Risk Associated with Portfolio Companies. The environment in which the investors directly or indirectly invest will sometimes involve a high degree of business and financial risk. StepStone generally will not seek control over the management of the portfolio companies in which investments are made, and the success of each investment generally will depend on the ability and success of the management of the portfolio company.

Taxation. An investment involves numerous tax risks. Please consult with your independent tax advisor.

Conflicts of Interest. Conflicts of interest may arise between StepStone and investors. Certain potential conflicts of interest are described below; however, they are by no means exhaustive. There can be no assurance that any particular conflict of interest will be resolved in favor of an investor.

Allocation of Investment Opportunities. StepStone currently makes investments, and in the future will make investments, for separate accounts having overlapping investment objectives. In making investments for separate accounts, these accounts may be in competition for investment opportunities.

Existing Relationships. StepStone and its principals have long-term relationships with many private equity managers. StepStone clients may seek to invest in the pooled investment vehicles and/or the portfolio companies managed by those managers.

Carried Interest. In those instances where StepStone and/or the underlying portfolio fund managers receive carried interest over and above their basic management fees, receipt of carried interest could create an incentive for StepStone and the portfolio fund managers to make investments that are riskier or more speculative than would otherwise be the case. StepStone does not receive any carried interest with respect to advice provided to, or investments made on behalf, of its advisory clients.

Other Activities. Employees of StepStone are not required to devote all of their time to the investment and may spend a substantial portion of their time on matters other than the investment.

Material, Non-Public Information. From time to time, StepStone may come into possession of material, non-public information that would limit their ability to buy and sell investments.

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Sydney NSW 2000 Australia

LACERA

November 28, 2018

TO: Each Member
Board of Investments

FROM: James Rice, CFA
Principal Investment Officer

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: **2018 THIRD QUARTER**
HEDGE FUND PERFORMANCE REPORT

Attached is the Hedge Fund Performance Report for the third quarter of 2018. The performance report provides a summary of the hedge fund program's ("Program") third quarter performance, Program objectives, and key statistics. At this month's Board meeting, Richard Quigley from Goldman Sachs Asset Management Hedge Fund Solutions will present performance for the hedge fund portfolio using the attached slides.

During the quarter, the Program returned 0.4%, which underperformed the 1.7% return of LACERA's primary hedge fund benchmark, the 90-Day U.S. T-Bills Index plus 500 basis points and outperformed the -0.4% return of LACERA's secondary hedge fund benchmark, HFRX Global Hedge Fund Index, which is comprised of hedge funds across broad strategy categories. Credit, Event Driven, Relative Value, and Multi-Strategy categories were the largest positive contributors to performance and Equity Long/Short strategies contributed negatively to performance in the third quarter.

Since inception, the Program has met its objective to reduce Total Fund volatility without materially decreasing Total Fund returns by positively impacting the risk-adjusted returns of the Total Fund, as measured by the Sharpe ratio. The Program's 1.70 Sharpe ratio since inception compares favorably to a 1.23 Sharpe ratio for LACERA's public market assets composite over the same time period. Details of this and other metrics can be found in the attached Hedge Fund Performance Report.

As of September 30, 2018, the portfolio managed by Goldman Sachs Asset Management had a relative value strategy level leverage measurement that exceeded portfolio guidelines. LACERA is working with Goldman to address this matter.

San Gabriel 2, a fund of credit hedge funds managed by Grosvenor Capital Management, has been winding down since the start of 2018 and ended September with $9.4 million in assets. The San Gabriel 2 vehicle will be dissolved in the fourth quarter of 2018.

Attachment

Noted and Reviewed:

Jonathan Grabel
Chief Investment Officer

JR:ct:mm

Goldman Sachs
Asset Management

The Alternative Investments & Manager Selection Group ("AIMS")

Requested by: Los Angeles County Employees Retirement Association

December 2018

The LACERA & AIMS partnership is collaborative, with a high level of service across all facets of the investment program

Goldman Sachs Asset Management

MANDATE OVERVIEW

- Low beta multi-strategy portfolio with high liquidity
- Direct investment structure with GS discretion
- High degree of collaboration, service and knowledge transfer
- Awarded in early 2014 with first investment in May 2015
- 3.1% annualized 3 year portfolio return with a 0.16 beta

SERVICES SUMMARY

- Guideline monitoring: detailed reporting
- Side letter negotiation and support with fee disclosure
- Collaboration on due diligence issues (e.g. detailed culture: diversity scorecard)
- Bespoke risk reporting across the entire absolute return portfolio
- Support in direct search including analytics, manager research, and access to investment professionals

PERFORMANCE & RISK

	YTD Return	1Y Return	3Y Return	ITD Max DD	ITD Beta
LACERA	1.7%	2.5%	3.1%	-3.5%	0.16
MSCI World	5.6%	11.0%	11.9%	-12.4%	1.00
HFRX Global Hedge Fund Index	-1.2%	0.2%	2.2%	-8.9%	0.34
3m T-Bill +5%	5.1%	6.7%	5.9%	0.0%	0.00

As of September 2018. Source: AIMS, Pertrac Indices Database. For illustrative purposes only. The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk.

Consistent with market dynamics, higher beta fundamental strategies have performed well while tactical trading has lagged

Goldman Sachs Asset Management

PERFORMANCE & RISK

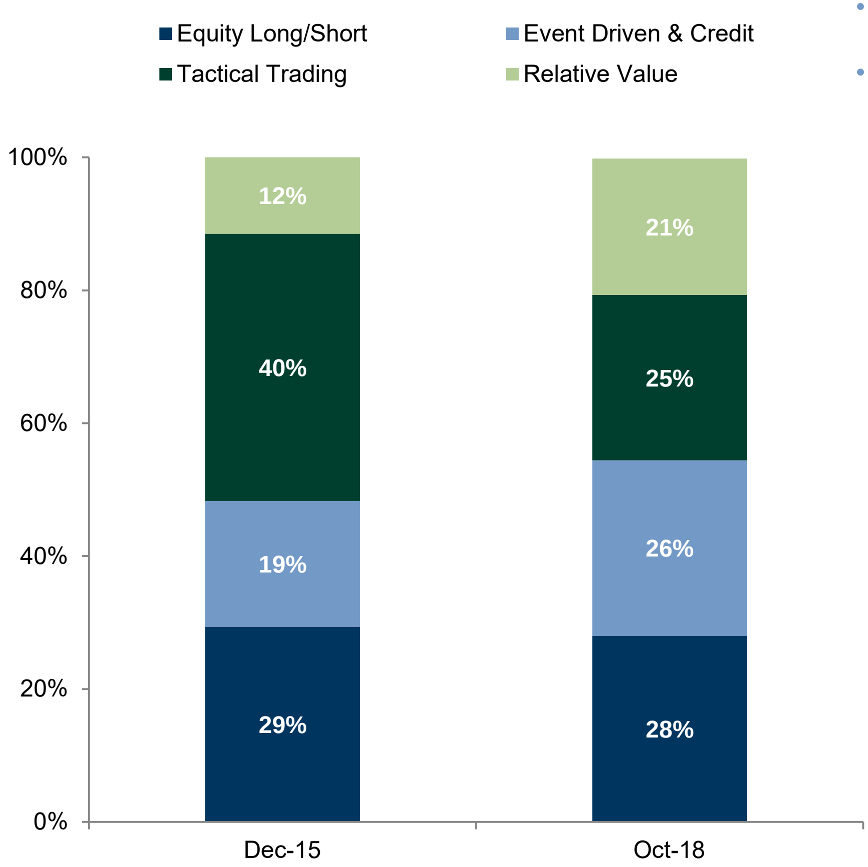
	Cumulative (%)		Annualized (%)				Max DD (%)	Beta to MSCI W	Correlation to MSCI W	Sharpe Ratio
	QTD	YTD	1Y	3Y	ITD	Vol ITD				
LACERA	**0.0%**	**1.7%**	**2.5%**	**3.1%**	**2.3%**	**2.9%**	**-3.5%**	**0.16**	**0.54**	**0.49**
Equity Long / Short	*-0.2%*	*2.2%*	*4.1%*	*5.0%*	*5.2%*	*4.4%*	*-4.5%*	*0.22*	*0.47*	*0.97*
Event Driven	*1.0%*	*3.9%*	*5.7%*	*6.6%*	*3.0%*	*4.3%*	*-10.7%*	*0.31*	*0.70*	*0.49*
Relative Value	*0.4%*	*2.9%*	*3.2%*	*4.0%*	*3.1%*	*4.1%*	*-6.2%*	*0.03*	*0.06*	*0.53*
Tactical Trading	*-0.7%*	*-0.7%*	*-0.7%*	*0.0%*	*-0.6%*	*5.2%*	*-6.1%*	*0.12*	*0.21*	*-0.29*
MSCI World	5.0%	5.6%	11.0%	11.9%	7.0%	9.5%	-12.4%	1.00	1.00	0.64
3m T-Bill +5%	1.7%	5.1%	6.7%	5.9%	5.8%	0.2%	-	-	-	-

As of September 2018. Source: AIMS, Pertrac Indices Database. For illustrative purposes only. The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk.

The portfolio has been actively managed over time, targeting LACERA's specific objectives while aligning with AIMS views

Goldman Sachs Asset Management

PORTFOLIO COMPOSITION



PORTFOLIO MANAGEMENT

- 21 managers **added** and 15 managers **removed**
- **Key Themes**
  - **High conviction new launches** (ExodusPoint, Holocene, Rubric, Deep Basin)
  - **Hard to access capacity** (DE Shaw, HG Vora, Bridgewater)
  - **Emerging Markets exposure** (Emso, Glen Point, BosValen)
  - **Proprietary opportunistic allocations** (PFM Oncology / Therapeutics)

As of October 2018. Source: AIMS. For illustrative purposes only. Allocations as of October 2018. The investment manager may change the allocations over time. Allocations may not be representative of current or future investments.

The LACERA portfolio has negotiated fees, capacity, and terms with investments in both emerging and established managers

Goldman Sachs Asset Management

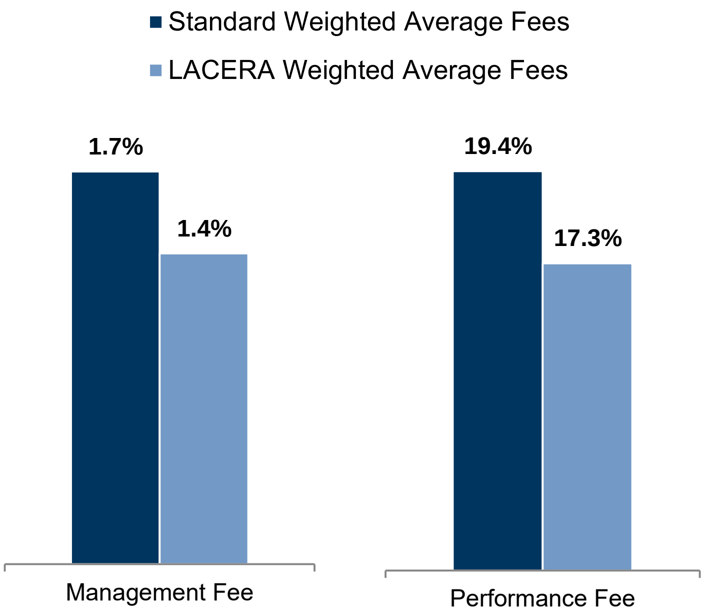
86% of the LACERA portfolio has special terms through a customized structure, discounted fees, and/or scarce capacity

41% invested in hard or soft closed managers

32% invested in emerging managers
< $1bn and/or < 3 yr track record

26% invested in managers headquartered outside of the US

74% invested in managers with discounted fees



Source: AIMS. Fees represent those in the LACERA portfolio, as of October 2018. Preferential fees refer to those with managers where we pay discounted fees in relation to the standard fees offered by the manager. [1] AIMS weighted average fees are based on AIMS allocations as of October 2018.

The LACERA portfolio has exhibited strong downside protection

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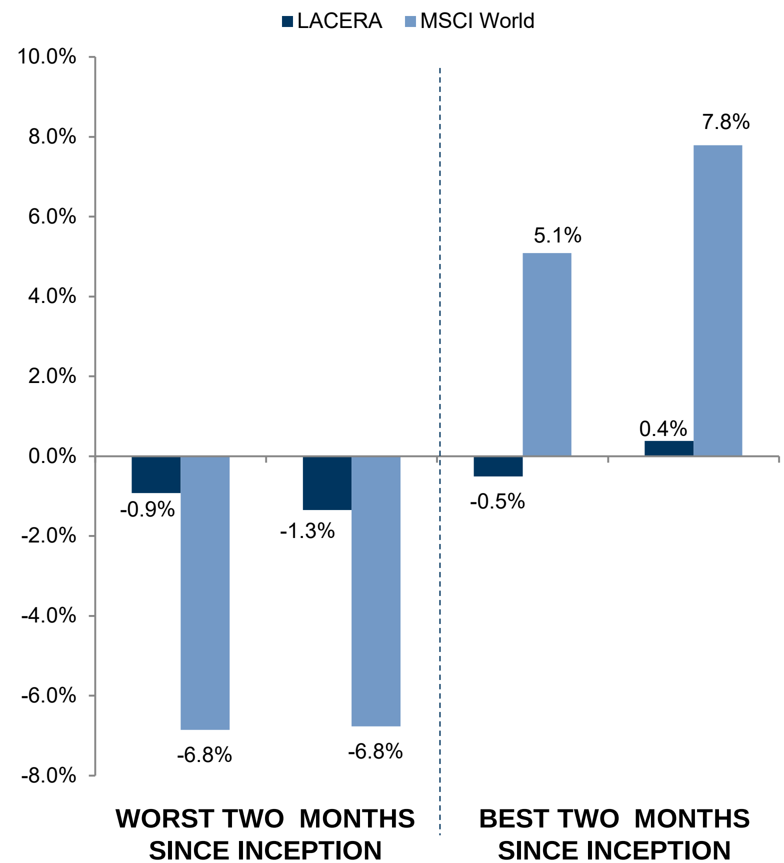
SCENARIO ANALYSIS

Scenario	Period	Equities	Estimated LACERA Returns
US Interest Rate Hike	Feb-94 - Dec-94	-7.4%	-2.7%
Russian Debt Crisis	Aug-98	-13.9%	-2.0%
Technology Meltdown	Mar-00 - Mar-01	-15.6%	-1.6%
9/11 Terrorist Attacks	Sep-01	-9.0%	-0.8%
Corporate Fraud Crisis	Jun-02 - Sep-02	-25.4%	-4.2%
The Financial Crisis	Jun-07 - Mar-09	-48.6%	-5.9%

LACERA PERFORMANCE VS. EQUITIES



As of October 2018. Source: PerTrac Indices Database, www.mscidata.com. This is the performance for Los Angeles County Employees Retirement Association (Class A, Series 1). Inception date: May 2015. Returns are net of underlying manager fees, Goldman Sachs incentive fees and Goldman Sachs management fees. The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the Investment Manager believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. Investors cannot invest directly in indices. **Past performance does not guarantee future results, which may vary.**

Asset class returns may vary significantly based on cyclical factors

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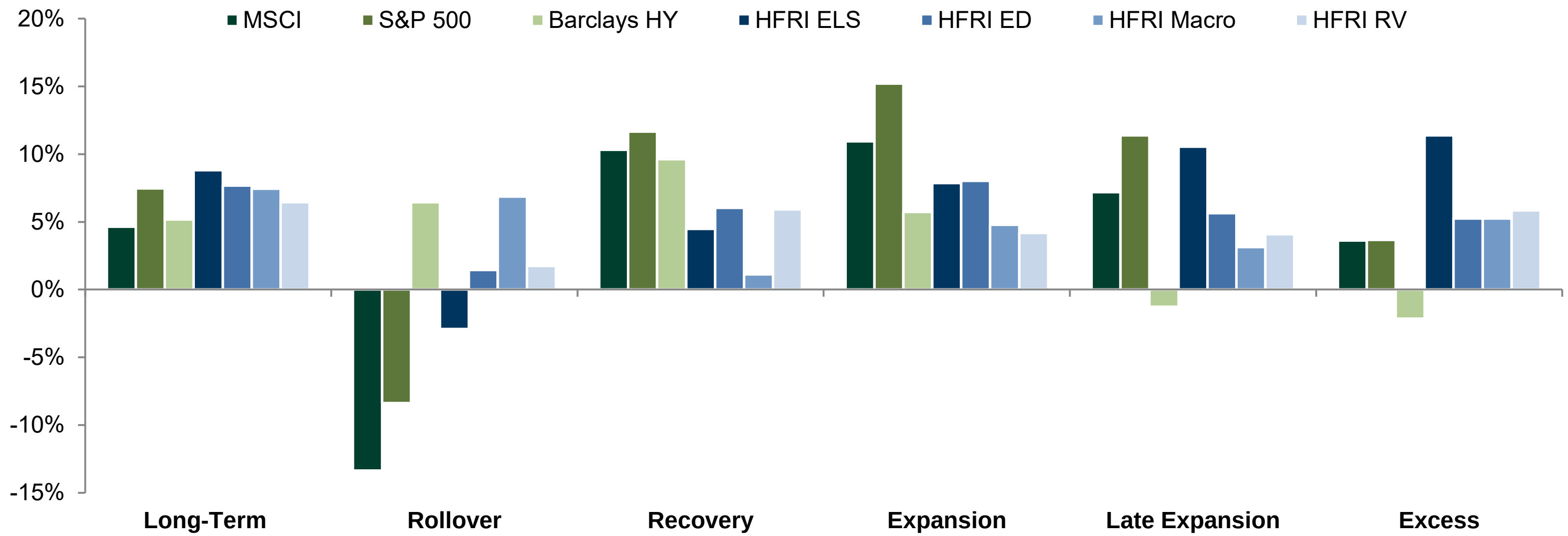
Market Signal Averages



Economic Signals Averages

Indicator	Long-Term	Rollover	Recovery	Expansion	Late Expansion	Excess
US GDP	2.8	0.4	3.5	3.4	3.1	2.4
US Labor Gap	0.5	0.8	1.7	0.2	-0.4	-0.9
Unemployment	5.6	6.2	6.9	5.3	4.8	4.2
VIX	17.4	23.2	16.0	14.5	17.0	16.2
UST 10Y – 2Y	109	161	187	86	37	21

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Strategies are categorized by risk characteristics and market cycle views are incorporated to build portfolios

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Portfolio Strategy and Sub-Strategy Classifications

Risk On	Risk Neutral	Risk Off
Equity • EM Equity • DM Equity • Distressed **Carry** • EM Debt • DM Debt • Structured Credit • Fixed Income Relative Value	• M&A • Insurance • Market Neutral/Trading • Trend • Macro	• Volatility

Cycle-Aware Views Overlay the Strategy Allocation Process

LACERA Current Portfolio	Recovery	Expansion	Late Expansion (30% Probability)	Excess (55% Probability)	Rollover (15% Probability)
Risk On	85%	85%	75%	45%	30%
Equity	20%	40%	45%	35%	10%
Carry	65%	45%	30%	10%	20%
Risk Neutral	15%	15%	25%	52%	65%
Risk Off	0%	0%	0%	3%	5%

Higher Allocation | Steady State | Lower Allocation

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AIMS Hedge Fund Outlook and Investable Themes

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Asset Management

EQUITY LONG / SHORT

- Positive on alpha opportunities, while conscious of high valuations
- Focused on more balanced, diversified strategies
- Key themes of interest include healthcare, energy, and emerging markets

EVENT DRIVEN & CREDIT

- Positive on yield-oriented strategies that are less correlated to the corporate credit cycle
- Maintain our favorable view of multi-strategy event funds who can dynamically allocate capital
- Key themes of interest include insurance strategies, select structured credit opportunities, and distressed

TACTICAL TRADING

- Monetary policy normalization and higher volatility could present opportunities as rates rise and QE unwinds
- Emerging markets offer select long/short opportunities
- Key themes of interest include long-biased volatility trading, fixed income relative value, and emerging markets

Source: AIMS. As of October 2018. For illustrative purposes only. Views and opinions expressed are for informational purposes only and do not constitute a recommendation by GSAM to buy, sell, or hold any security. Views and opinions are current as of the date of this presentation and may be subject to change, they should not be construed as investment advice.

The portfolio is managed to LACERA's specific guidelines

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Performance Objectives	Investment Guidelines	LACERA Portfolio	Measurement Period	In Compliance?	Date of Certification
Target annualized return					
–Absolute: 3-month T-Bills + 500 bps	5.9%	3.1%	3 year rolling	No	9/30/2018
–Relative: HFRX Global Hedge Fund Index	2.2%	3.1%	3 year rolling	Yes	9/30/2018
Target range of annualized volatility	3.0% – 8.0%	2.3%	3 year rolling	No	9/30/2018
Sharpe ratio	0.6 - 1.0	0.9	3 year rolling	Yes	9/30/2018
Beta to equity markets	0.2	0.1 [1]	3 year rolling	Yes	9/30/2018
Beta to fixed income markets	0.2	-0.3 [2]	3 year rolling	Yes	9/30/2018
Capital Allocation Constraints					
Number of investment managers	15-35	27	Monthly	Yes	9/30/2018
Target/compliance range of allocation to strategies (at market)	Equity Hedge: 10-50%	28.9%	Monthly	Yes	9/30/2018
	Event Driven: 10-50%	25.7%	Monthly	Yes	9/30/2018
	Directional/Tactical: 10-50%	24.3%	Monthly	Yes	9/30/2018
	Relative Value: 0-40%	20.2%	Monthly	Yes	9/30/2018
	Other Assets / Liabilities: <5%	0.9%	Monthly	Yes	9/30/2018
Maximum allocation to a single fund (at market)	10%	6.1%	Monthly	Yes	9/30/2018
Maximum allocation to a single advisor (at market)	15%	6.1%	Monthly	Yes	9/30/2018
Maximum percentage ownership of a single fund	30%	6.8%	Quarterly	Yes	9/30/2018
Downside Risk Case					
Portfolio-level RoR Impact of Severe Case Loss	25%	21.5%	Monthly	Yes	9/30/2018
Severe Case Loss in a single fund	<3% Capital at Risk	1.4%	Monthly	Yes	9/30/2018
Severe Case Loss in a single advisor	<6% Capital at Risk	1.4%	Monthly	Yes	9/30/2018
Liquidity					
Hard lockup period of 1 year or greater	<20%	2.3%	Monthly	Yes	9/30/2018
Quarterly liquidity or better (excluding locks)	>75%	80.7%	Monthly	Yes	9/30/2018
Percent of portfolio available within 1 year (excluding locks)	>65%	82.6%	Monthly	Yes	9/30/2018
Hard lockup more than 2 years (not to exceed three years)	<10%	0.0%	Monthly	Yes	9/30/2018
Leverage					
Strategy level leverage	Tactical Trading: 20x	10.1	Quarterly	Yes	9/30/2018
	Event Driven: 4x	1.8	Quarterly	Yes	9/30/2018
	Equity Long / Short: 4x	1.8	Quarterly	Yes	9/30/2018
	Relative Value: 8x	8.9	Quarterly	No	9/30/2018

As of September 2018. Investment guideline targets are subject to change and are current as of the date of this presentation. Investment guideline targets are objectives and do not provide any assurance as to future results. **Past performance does not guarantee future results, which may vary.** Source: HFR Database © HFR, Inc. 2018, www.hedgefundresearch.com. Pertrac Indices Database, www.msci.com, www.barcap.com. 1. Beta to equity markets represents target. 2. Beta to equity markets represents the LACERA portfolio's beta to the MSCI World Index Hedged USD. 3. Beta to fixed income markets represents the LACERA portfolio's beta to the Barclays Aggregate Bond Index. 4. Metrics intended to be measured over a 3-year rolling period.

Important disclosures

Goldman Sachs Asset Management

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References to indices, benchmarks or other measures of relative market performance over a specified period of time are provided for your information only and do not imply that the portfolio will achieve similar results. The index composition may not reflect the manner in which a portfolio is constructed. While an adviser seeks to design a portfolio which reflects appropriate risk and return features, portfolio characteristics may deviate from those of the benchmark.

Barclays Aggregate Bond Index

The Barclays Global Aggregate Index provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities. Source: PerTrac Indices Database, www.barcap.com.

HFRX Global Hedge Fund Index

The HFRX Global Hedge Fund Index is designed to be representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry. Source: HFR Database © HFR, Inc. 2015, www.hedgefundresearch.com.

MSCI World Index Hedged USD

Morgan Stanley Capital International's market capitalization weighted index is composed of companies representative of the market structure of 22 developed market countries in North America, Europe, and the Asia/Pacific Region. The index is calculated without dividends, with net or with gross dividends reinvested, in both US dollars and local currencies. Hedged indices represent the performance of an index of securities where currency exposures affecting index principal are hedged against a specified currency. Source: http://www.mscidata.com.

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LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

2018 Third Quarter
Hedge Fund Performance

December 12, 2018

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Plan Allocation Status
September 30, 2018

LACERA Assets	$57,132.5 mm
Hedge Fund Program Target Allocation at 4.0% of Total Fund	$2,285.3 mm
Grosvenor Diversified (San Gabriel) Portfolio Market Value	$490.6 mm
Grosvenor Opportunistic Credit (San Gabriel 2) Portfolio Market Value	$9.4 mm
Grosvenor Opportunistic Credit 2 (San Gabriel 3) Portfolio Market Value	$362.9 mm
Total GCM Grosvenor Hedge Fund Program Market Value	**$862.9 mm**
Goldman Diversified Hedge Fund Portfolio Market Value	$485.9 mm
Total GSAM Goldman Sachs Hedge Fund Program Market Value	**$485.9 mm**
Direct Hedge Fund Portfolio Market Value	$341.5 mm
Total Direct Hedge Fund Portfolio Market Value	**$341.5 mm**
Total Hedge Fund Program Market Value	**$1,690.3 mm**

Portfolio Returns
September 30, 2018

Total Hedge Fund Composite			---- Annualized ----			
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[3]
Hedge Fund Program Aggregate Portfolio [1,2]	0.44%	2.19%	3.68%	3.75%	3.70%	4.77%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	5.52%	5.39%
HFRX Global Hedge Fund Index	-0.39%	-1.23%	0.25%	2.17%	1.02%	1.76%

Grosvenor Diversified Portfolio			---- Annualized ----			
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[4]
San Gabriel Fund, L.P.[1] (Diversified)	0.52%	4.14%	5.40%	2.92%	2.77%	3.86%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	5.52%	5.39%
HFRX Global Hedge Fund Index	-0.39%	-1.23%	0.25%	2.17%	1.02%	1.76%

Grosvenor Opportunistic Credit Portfolio 2013			---- Annualized ----			
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[5]
San Gabriel Fund 2, L.P.[1] (Opportunistic Credit)	0.26%	0.78%	2.38%	3.87%	4.23%	5.73%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	5.52%	5.46%
HFRX Fixed Income Credit Index	0.21%	0.51%	1.08%	2.24%	0.80%	1.67%

Goldman Sachs Diversified Portfolio			---- Annualized ----			
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[6]
Goldman Sachs Hedge Fund of Fund[1]	-0.01%	1.65%	2.47%	3.06%	n/a	2.28%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	n/a	5.74%
HFRX Global Hedge Fund Index	-0.39%	-1.23%	0.25%	2.17%	n/a	0.32%

Grosvenor Opportunistic Credit Portfolio 2016			---- Annualized ----			
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[7]
San Gabriel Fund 3, L.P.[1] (Opportunistic Credit)	0.85%	2.45%	5.24%	n/a	n/a	9.06%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	n/a	n/a	5.93%
HFRX Fixed Income Credit Index	0.21%	0.51%	1.08%	n/a	n/a	4.25%

Direct Hedge Fund Portfolio						
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[8]
Direct Hedge Fund Portfolio[1]	0.51%	n/a	n/a	n/a	n/a	-1.98%
90-Day U.S. T-Bills plus 500 basis points	1.73%	n/a	n/a	n/a	n/a	3.43%
HFRX Global Hedge Fund Index	-0.39%	n/a	n/a	n/a	n/a	-0.22%

1 Portfolio returns are net of all fees and expenses.
2 Returns prior to 1/1/2013 are that of San Gabriel Fund, L.P. (Grosvenor Diversified Portfolio) only.
3 ITD returns for the HF Composite and benchmarks commence on 10/1/2011 (the inception date of the Composite).
4 ITD returns for San Gabriel Fund, L.P. and benchmarks commence on 10/1/2011 (the inception date of the Fund).
5 ITD returns for San Gabriel Fund 2, L.P. and benchmarks commence on 1/1/2013 (the inception date of the Fund).
6 ITD returns for Goldman Sachs and benchmarks commence on 5/1/2015 (the inception date of the Fund).
7 ITD returns for San Gabriel Fund 3, L.P. and benchmarks commence on 2/1/2016 (the inception date of the Fund).
8 ITD returns for Direct Hedge Fund Portfolio. and benchmarks commence on 4/1/2018 (the inception date of the Portfolio).

Past performance is not necessarily indicative of future results, and the performance of the portfolio could be volatile.

Portfolio Risk and Return Statistics
Measured Since Inception Through September 30, 2018

LACERA Hedge Fund Portfolios	Return [1]	Standard Deviation	Sharpe Ratio	Beta to MSCI ACWI	Inception
Total Hedge Fund Program	4.77%	2.59%	1.70	0.14	10/1/2011
Grosvenor Diversified (San Gabriel)	3.86%	2.56%	1.37	0.13	10/1/2011
Grosvenor Opportunistic Credit 2013 (San Gabriel 2)	5.73%	3.43%	1.54	0.19	1/1/2013
Goldman Sachs Diversified	2.28%	2.86%	0.55	0.11	5/1/2015
Grosvenor Opportunistic Credit 2016 (San Gabriel 3)	9.06%	2.88%	2.85	0.13	2/1/2016
Direct Portfolio	-1.98%	-- N/A: Time period insufficient --			4/1/2018

LACERA's Public Market Assets Composite	Return [1]	Standard Deviation	Sharpe Ratio	Beta to MSCI ACWI	Inception
Total Public Equities, Fixed Income, Commodities and Cash	9.16%	7.13%	1.23	0.64	10/1/2011

The Hedge Fund Program's 1.70 Sharpe ratio since inception compares favorably to a 1.23 Sharpe ratio for LACERA's public market assets composite over the same time period. This indicates that the Program is meeting its primary objective by positively impacting the risk-adjusted returns of the Total Fund.

1 Returns are net of all fees and expenses and annualized for periods greater than one year.

Portfolio Upside and Downside Capture Measured Since Inception Through September 30, 2018

LACERA Hedge Fund Portfolio Upside and Downside Capture Since October 2011 Inception

Relative to LACERA's Public Markets Assets Composite (equities, fixed income, commodities, and cash):

	Upside Capture	Downside Capture	Up / Down Spread
Total Hedge Fund Program	37.2%	20.1%	17.1%

Explanation:

Upside Capture: Using monthly returns for only those months when LACERA's Public Markets Assets Composite generated positive returns, upside capture measures the share of LACERA's Public Market Composite return captured by the hedge fund program. Example: For a 37% upside capture, on average, the hedge fund program earns 0.37% for each 1% generated by the Public Markets Assets Composite in its positively performing months.

Downside Capture: Using monthly returns for only those months when LACERA's Public Markets Assets Composite generated negative returns, downside capture measures the share of LACERA's Public Market Composite return captured by the hedge fund program. Example: For a 20% downside capture, on average, the hedge fund program loses 0.20% for each 1% lost by the Public Markets Assets Composite in its negatively performing months.

Up / Down Spread: Subtracting the Downside Capture from the Upside Capture determines the Up / Down Spread. A positive Up / Down Spread indicates that the hedge fund program has a greater degree of participation in market gains compared to market loses.

Grosvenor Capital Management

Portfolio Fund Summary

Portfolio Returns

Los Angeles County Employees Retirement Association (September 30, 2018)

				Annualized		
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[2]
San Gabriel Fund, L.P.[1] (Diversified)	0.52%	4.14%	5.40%	2.92%	2.77%	3.86%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	5.52%	5.39%
HFRX Global Hedge Fund Index	-0.39%	-1.23%	0.25%	2.17%	1.02%	1.76%

				Annualized		
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[3]
San Gabriel Fund 2, L.P.[1] (Opportunistic Credit)	0.26%	0.78%	2.38%	3.87%	4.23%	5.73%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	5.84%	5.52%	5.46%
HFRX Fixed Income Credit Index	0.21%	0.51%	1.08%	2.24%	0.80%	1.67%

				Annualized		
	3Q18	YTD	1 Year	3 Year	5 Year	ITD[4]
San Gabriel Fund 3, L.P.[1] (Opportunistic Credit)	0.85%	2.45%	5.24%	-	-	9.06%
90-Day U.S. T-Bills plus 500 basis points	1.73%	5.06%	6.65%	-	-	5.93%
HFRX Fixed Income Credit Index	0.21%	0.51%	1.08%	-	-	4.25%

1 Portfolio returns are net of fees and expenses.
2 ITD returns for San Gabriel Fund, L.P. and benchmarks commence on 10/1/2011 (the inception date of the Fund).
3 ITD returns for San Gabriel Fund 2, L.P. and benchmarks commence on 1/1/2013 (the inception date of the Fund).
4 ITD returns for San Gabriel Fund 3, L.P. and benchmarks commence on 2/1/2016 (the inception date of the Fund).

Past performance is not necessarily indicative of future results.

Hedge Fund Categories

Los Angeles County Employees Retirement Association (September 30, 2018)

San Gabriel Fund, L.P.

Hedge fund category	QTD opening balance	QTD subscriptions/ (redemptions)	QTD gain (loss)	QTD ending balance	% of NAV (As of 9/30/18)	Cumulative returns 3Q18	Cumulative returns YTD	Cumulative returns 1 Year	Annualized returns 3 Year	Annualized returns 5 Year	Annualized returns ITD[1]
Credit	$133,621,351	($6,960,037)	$1,169,134	$127,830,448	26.05%	0.91%	4.12%	6.57%	4.96%	5.32%	7.53%
Equities	$120,405,418	($5,000,000)	($944,332)	$114,461,086	23.32%	-0.82%	3.88%	5.06%	2.40%	2.38%	3.07%
Quantitative	$25,528,784	-	$874,277	$26,403,061	5.38%	3.42%	6.63%	10.49%	-	-	-5.22%
Macro	$65,002,130	-	$523,541	$65,525,672	13.35%	0.81%	8.39%	8.88%	5.89%	5.91%	5.06%
Relative Value	$67,068,236	-	$1,404,735	$68,472,971	13.95%	2.09%	7.66%	8.37%	4.46%	5.55%	7.62%
Multi-Strategy	$63,844,990	$4,400,000	$459,608	$68,704,598	14.00%	0.67%	2.43%	5.96%	7.61%	5.30%	7.52%
Commodities	-	-	-	-	-	-	-6.21%	-11.29%	-	-	-8.39%
Portfolio Hedges	-	-	-	-	-	-	-	-	-	-	-13.68%
APPA[4]	($85,644)	-	$165,791	$80,147	0.02%	-	-	-	-	-	-
Other[5]	$2,096,500	($286,063)	($71,608)	$1,738,828	0.35%	-3.96%	-1.47%	-	-	-	-
Uninvested[6]	$10,606,434	$7,846,100	($907,148)	$17,545,387	3.58%	-	-	-	-	-	-
Net asset value	**$488,088,198**	**-**	**$2,673,998**	**$490,762,197**	**100.00%**	**0.52%**	**4.14%**	**5.40%**	**2.92%**	**2.77%**	**3.86%**

San Gabriel Fund 2, L.P.

Hedge fund category	QTD opening balance	QTD subscriptions/ (redemptions)	QTD gain (loss)	QTD ending balance	% of NAV (As of 9/30/18)	Cumulative returns 3Q18	Cumulative returns YTD	Cumulative returns 1 Year	Annualized returns 3 Year	Annualized returns 5 Year	Annualized returns ITD[2]
Credit	$17,970,582	($9,641,547)	$27,402	$8,356,437	83.16%	-0.23%	1.84%	4.21%	5.86%	5.83%	7.26%
Relative Value	-	-	-	-	-	-	-	-11.47%	-	-	-8.09%
APPA[4]	-	-	($11,865)	($11,865)	-0.12%	-	-	-	-	-	-
Other[5]	$492,212	-	$82,788	$575,000	5.72%	16.82%	17.69%	-	-	-	-
Uninvested[6]	$3,423,265	($2,258,453)	($35,387)	$1,129,424	11.24%	-	-	-	-	-	-
Net asset value	**$21,886,058**	**($11,900,000)**	**$62,938**	**$10,048,996**	**100.00%**	**0.26%**	**0.78%**	**2.38%**	**3.87%**	**4.23%**	**5.73%**

San Gabriel Fund 3, L.P.

Hedge fund category	QTD opening balance	QTD subscriptions/ (redemptions)	QTD gain (loss)	QTD ending balance	% of NAV (As of 9/30/18)	Cumulative returns 3Q18	Cumulative returns YTD	Cumulative returns 1 Year	Annualized returns 3 Year	Annualized returns 5 Year	Annualized returns ITD[3]
Credit	$350,930,135	($3,927,368)	$3,795,561	$350,798,329	96.61%	1.11%	3.24%	6.25%	-	-	10.32%
APPA[4]	($231,797)	-	$65,561	($166,236)	-0.05%	-	-	-	-	-	-
Uninvested[6]	$9,213,441	$3,927,368	($649,138)	$12,491,671	3.44%	-	-	-	-	-	-
Net asset value	**$359,911,779**	**-**	**$3,211,985**	**$363,123,764**	**100.00%**	**0.85%**	**2.45%**	**5.24%**	**-**	**-**	**9.06%**

1 ITD returns for San Gabriel Fund, L.P. commence on 10/1/2011 (the inception date of the Fund).
2 ITD returns for San Gabriel Fund 2, L.P. commence on 1/1/2013 (the inception date of the Fund).
3 ITD returns for San Gabriel Fund 3, L.P. commence on 2/1/2016 (the inception date of the Fund).
4 Aggregated Prior Period Adjustment.
5 “Other” may include: residual positions with underlying funds from which the Fund has redeemed, and general trades.
6 “Uninvested” may include: cash, expenses, management fees, and net receivables/payables.

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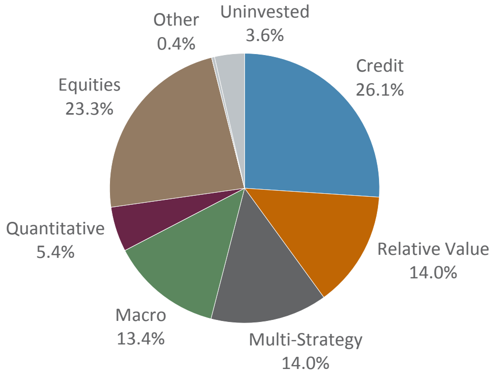
Hedge Fund Categories

Los Angeles County Employees Retirement Association (September 30, 2018)

San Gabriel Fund, L.P.

Asset allocation by strategy[1,2]

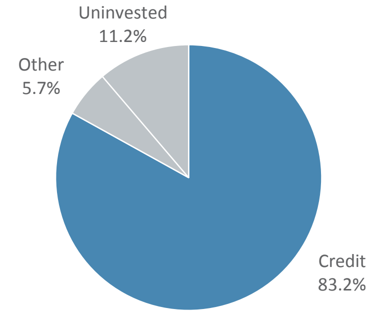
Percent of fund's net asset value



San Gabriel Fund 2, L.P.

Asset allocation by strategy[1,2]

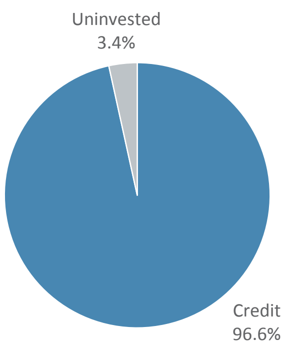
Percent of fund's net asset value



San Gabriel Fund 3, L.P.

Asset allocation by strategy[1,2]

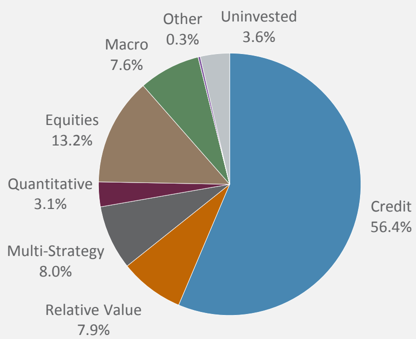
Percent of fund's net asset value



Total Hedge Fund Program

Asset allocation by strategy[1,2]

Percent of fund's net asset value



1 "Other" (if present) may include: residual positions with underlying funds from which the Fund has redeemed, and general trades.

2 "Uninvested" may include: cash, expenses, management fees, and net receivables/payables.

Hedge Fund Program Summary

Los Angeles County Employees Retirement Association (September 30, 2018)

San Gabriel Fund, L.P.

Fund Name	Fund Category	QTD ending balance	% of NAV (as of 9/30/18)	Start date of investment	End date of investment	Cumulative returns 3Q18	Cumulative returns YTD	Cumulative returns 1 Year	Annualized returns 3 Year	Annualized returns 5 Year	Annualized returns ITD[1]
Fund 1	Credit	$18,838,038	3.84%	04/01/2013	Present	2.11%	6.77%	9.91%	9.28%	6.75%	7.20%
Fund 2	Credit	$29,834,156	6.08%	02/01/2014	Present	2.31%	4.49%	7.57%	8.02%	-	6.86%
Fund 3	Credit	$8,811,895	1.80%	05/01/2013	Present	-6.91%	-5.90%	-4.54%	1.10%	4.33%	4.54%
Fund 4	Credit	$25,400,327	5.18%	10/01/2011	Present	0.98%	5.62%	8.49%	6.24%	6.77%	9.82%
Fund 5	Credit	$27,460,867	5.60%	10/01/2011	Present	1.99%	3.68%	6.82%	3.68%	5.39%	7.80%
Fund 6	Credit	$16,975,068	3.46%	11/01/2017	Present	-0.49%	4.66%	-	-	-	4.78%
Fund 7	Credit	-	-	10/01/2018	Present	-	-	-	-	-	-
Fund 8	Equities	$12,336,893	2.51%	11/01/2015	Present	4.04%	9.97%	13.01%	-	-	6.93%
Fund 9	Equities	$6,836,296	1.39%	08/01/2016	Present	3.47%	1.68%	4.64%	-	-	5.28%
Fund 10	Equities	$12,714,055	2.59%	05/01/2017	Present	2.36%	0.91%	2.44%	-	-	2.68%
Fund 11	Equities	$3,218,357	0.66%	10/01/2012	Present	2.92%	8.04%	13.19%	7.37%	12.80%	12.43%
Fund 12	Equities	$12,014,366	2.45%	07/01/2014	Present	-0.53%	-2.09%	-0.81%	2.52%	-	-3.24%
Fund 13	Equities	$18,452,413	3.76%	02/01/2018	Present	-3.91%	-4.29%	-	-	-	-4.29%
Fund 14	Equities	$18,662,290	3.80%	11/01/2017	Present	-6.16%	1.11%	-	-	-	-0.11%
Fund 15	Equities	$2,754,035	0.56%	11/01/2012	Present	1.95%	5.95%	8.96%	-5.36%	-0.26%	3.20%
Fund 16	Equities	$27,472,380	5.60%	11/01/2015	Present	-0.18%	13.08%	14.91%	-	-	15.41%
Fund 17	Quantitative	$26,403,061	5.38%	08/01/2017	Present	3.42%	6.63%	12.17%	-	-	9.54%
Fund 18	Macro	$31,254,088	6.37%	04/01/2012	Present	5.43%	24.49%	35.54%	18.46%	15.74%	14.24%
Fund 19	Macro	$16,293,821	3.32%	05/01/2017	Present	-2.59%	-0.25%	-9.56%	-	-	-4.58%
Fund 20	Macro	$17,977,763	3.66%	10/01/2013	Present	-3.50%	-4.34%	-2.75%	3.12%	3.00%	3.00%
Fund 21	Relative Value	$27,923,631	5.69%	03/01/2013	Present	4.47%	13.90%	17.92%	11.49%	14.14%	14.65%
Fund 22	Relative Value	$10,908,006	2.22%	06/01/2018	Present	0.60%	1.00%	1.00%	-	-	1.00%
Fund 23	Relative Value	$19,762,336	4.03%	05/01/2015	Present	3.68%	7.73%	9.97%	7.38%	-	5.40%
Fund 24	Relative Value	$3,639,778	0.74%	08/01/2015	Present	-1.90%	-0.59%	0.26%	-5.01%	-	-3.60%
Fund 25	Relative Value	$6,239,220	1.27%	11/01/2015	Present	-7.22%	-5.87%	-16.67%	-	-	-14.59%
Fund 26	Multi-Strategy	$24,640,343	5.02%	11/01/2011	Present	-0.80%	2.41%	4.34%	7.59%	7.06%	8.01%
Fund 27	Multi-Strategy	$20,774,715	4.23%	04/01/2017	Present	-0.82%	-3.71%	0.12%	-	-	2.59%
Fund 28	Multi-Strategy	$23,289,540	4.75%	02/01/2017	Present	3.70%	7.77%	13.61%	-	-	7.66%
Terminated Fund 48	Credit	$510,096	0.10%	10/01/2012	10/01/2018	4.84%	10.85%	12.95%	5.06%	4.88%	7.49%
APPA	APPA[2]	$80,147	0.02%	-	-	-	-	-	-	-	-
Other	Other[3]	$1,738,828	0.35%	-	-	-3.96%	-1.47%	-	-	-	-
Total Uninvested	Uninvested[4]	$17,545,387	3.58%	-	-	-	-	-	-	-	-
Net asset value	**Total**	**$490,762,197**	**100.00%**			**0.52%**	**4.14%**	**5.40%**	**2.92%**	**2.77%**	**3.86%**

1 ITD return for the portfolio commenced 10/1/2011.
Individual fund returns are over the period indicated by the Start date of investment and End date of investment columns in the table. Returns for funds for a period of 12 months or less are not annualized.

2 Aggregated Prior Period Adjustment.

3 “Other” may include: residual positions with underlying funds from which the Fund has redeemed, and general trades.

4 “Uninvested” may include: cash, expenses, management fees, and net receivables/payables.

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Hedge Fund Program Summary

Los Angeles County Employees Retirement Association (September 30, 2018)

San Gabriel Fund 2, L.P.

						Cumulative returns			Annualized returns		
Fund name	Fund category	QTD ending balance	% of NAV (As of 9/30/18)	Start date of investment	End date of investment	3Q18	YTD	1 Year	3 Year	5 Year	ITD[1]
Fund 1	Credit	$1,620,439	16.13%	01/01/2013	Present	-2.95%	-1.57%	-1.66%	-0.36%	0.31%	1.74%
Fund 2	Credit	$5,608,443	55.81%	04/01/2013	Present	-1.04%	-4.50%	-1.67%	3.02%	6.00%	6.21%
Terminated Fund 15	Credit	$1,127,554	11.22%	06/01/2014	10/01/2018	4.84%	10.85%	12.95%	5.06%	-	3.69%
APPA	APPA[2]	($11,865)	-0.12%	-	-	-	-	-	-	-	-
Other	Other[3]	$575,000	5.72%	-	-	16.82%	17.69%	-	-	-	-
Total Uninvested	Uninvested[4]	$1,129,424	11.24%	-	-	-	-	-	-	-	-
Net asset value	**Total**	**$10,048,996**	**100.00%**			**0.26%**	**0.78%**	**2.38%**	**3.87%**	**4.23%**	**5.73%**

1 ITD return for the portfolio commenced 1/1/2013. Individual fund returns are over the period indicated by the Start date of Investment and End date of Investment columns in the table. Returns for funds for a period of 12 months or less are not annualized.

2 Aggregated Prior Period Adjustment.

3 “Other” may include: residual positions with underlying funds from which the Fund has redeemed, and general trades.

4 “Uninvested” may include: cash, expenses, management fees, and net receivables/payables.

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Hedge Fund Program Summary

Los Angeles County Employees Retirement Association (September 30, 2018)

San Gabriel Fund 3, L.P.

Fund name	Fund category	QTD ending balance	% of NAV (As of 9/30/18)	Start date of investment	End date of investment	Cumulative returns 3Q18	Cumulative returns YTD	Cumulative returns 1 Year	Annualized returns 3 Year	Annualized returns 5 year	Annualized returns ITD[1]
Fund 1	Credit	$35,646,260	9.82%	02/01/2016	Present	2.31%	4.49%	7.57%	-	-	9.83%
Fund 2	Credit	$31,500,685	8.67%	02/01/2016	Present	2.55%	7.95%	9.12%	-	-	6.84%
Fund 3	Credit	$7,250,123	2.00%	02/01/2016	Present	-6.91%	-5.90%	-4.54%	-	-	1.49%
Fund 4	Credit	$49,906,928	13.74%	02/01/2016	Present	0.98%	5.62%	8.49%	-	-	8.38%
Fund 5	Credit	$17,831,841	4.91%	06/01/2017	Present	0.70%	3.68%	4.66%	-	-	5.31%
Fund 6	Credit	$20,898,605	5.76%	02/01/2016	Present	3.01%	8.54%	10.82%	-	-	15.84%
Fund 7	Credit	$14,396,962	3.96%	02/01/2018	Present	4.26%	7.87%	-	-	-	7.87%
Fund 8	Credit	$17,505,686	4.82%	08/01/2016	Present	-9.79%	-29.11%	-29.05%	-	-	-4.33%
Fund 9	Credit	$7,493,652	2.06%	02/01/2016	Present	-4.15%	-8.55%	1.30%	-	-	11.50%
Fund 10	Credit	$23,489,481	6.47%	06/01/2017	Present	3.55%	4.68%	9.72%	-	-	10.44%
Fund 11	Credit	$14,796,691	4.07%	02/01/2016	Present	2.11%	4.67%	12.62%	-	-	24.37%
Fund 12	Credit	$2,746,959	0.76%	09/01/2018	Present	2.69%	2.69%	-	-	-	2.69%
Fund 13	Credit	$28,997,987	7.99%	04/01/2016	Present	3.36%	7.84%	10.96%	-	-	9.33%
Fund 14	Credit	$17,836,059	4.91%	02/01/2016	Present	1.50%	6.27%	9.12%	-	-	7.88%
Fund 15	Credit	$21,689,224	5.97%	04/01/2017	Present	2.20%	6.93%	11.60%	-	-	9.21%
Fund 16	Credit	$38,811,183	10.69%	03/01/2016	Present	1.16%	8.45%	10.91%	-	-	10.01%
APPA	APPA[2]	($166,236)	-0.05%	-	-	-	-	-	-	-	-
Total Uninvested	Uninvested[3]	$12,491,671	3.44%	-	-	-	-	-	-	-	-
Net asset value	**Total**	**$363,123,764**	**100.00%**			**0.85%**	**2.45%**	**5.24%**	**-**	**-**	**9.06%**

1 ITD return for the portfolio commenced 2/1/2016. Individual fund returns are over the period indicated by the Start date of investment and End date of investment columns in the table. Returns for funds for a period of 12 months or less are not annualized.

2 Aggregated Prior Period Adjustment.

3 “Uninvested” may include: cash, expenses, management fees, and net receivables/payables.

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Portfolio Characteristics

Los Angeles County Employees Retirement Association (Allocation Period: October 1, 2018)

	San Gabriel Fund, L.P.[1,2,6]			San Gabriel Fund 2, L.P.[1,3,7,8]			San Gabriel Fund 3, L.P.[1,3,7]			Total Hedge Fund Program[1,4]		
Volatility	Guideline	Forward looking estimate	Realized since inception	Guideline	Forward looking estimate	Realized since inception	Guideline	Forward looking estimate	Realized since inception	Guideline	Forward looking estimate	Realized since inception
Standard deviation of returns	5-7%	4.5%	2.5%	≤10%	3.0%	3.4%	≤8%	4.2%	2.8%	5-8%	4.3%	2.7%
Sharpe Ratio	≥1.0	1.25	1.38	>1.0	1.26	1.54	>1.0	1.32	2.89			1.69

	San Gabriel Fund, L.P.				San Gabriel Fund 2, L.P.				San Gabriel Fund 3, L.P.				Total Hedge Fund Program			
Diversification	Guideline	10-year historical simulation	Forward looking estimate[5]	Realized since inception	Guideline	10-year historical simulation	Forward looking estimate[5]	Realized since inception	Guideline	10-year historical simulation	Forward looking estimate[5]	Realized since inception	Guideline	10-year historical simulation	Forward looking estimate[5]	Realized since inception
Portfolio beta to MSCI World	≤0.20	0.22	0.22	0.14	≤0.30	0.11	0.10	0.20	≤0.25	0.17	0.13	0.13	≤0.25	0.21	0.18	0.15

	San Gabriel Fund, L.P.		San Gabriel Fund 2, L.P.		San Gabriel Fund 3, L.P.		Total Hedge Fund Program	
Manager Allocation	Guideline	Actual	Guideline	Actual	Guideline	Actual	Guideline	Actual
Number of investment managers	20-40	23	7-15	1	7-15	12		32

	San Gabriel Fund, L.P.			San Gabriel Fund 2, L.P.			San Gabriel Fund 3, L.P.			Total Hedge Fund Program		
Portfolio category	Compliance range	Target allocation	Capital allocation	Target range	Maximum	Capital allocation	Target range	Maximum	Capital allocation	Target range	Maximum	Capital allocation
Credit	10%-40%	30%	26.4%			82.5%			96.5%			56.5%
Equities	5%-40%	20%	23.3%			0.0%			0.0%			13.3%
Multi-Strategy	0%-30%	15%	15.6%			0.0%			0.0%			8.9%
Relative Value	0%-30%	14%	13.9%			0.0%			0.0%			7.9%
Macro	0%-20%	13%	13.4%			0.0%			0.0%			7.6%
Commodities	0%-15%	2%	0.0%			0.0%			0.0%			0.0%
Quantitative	0%-15%	5%	5.4%			0.0%			0.0%			3.1%
Portfolio Hedges	0%-10%	1%	0.0%			0.0%			0.0%			0.0%

	San Gabriel Fund 2, L.P.			San Gabriel Fund 3, L.P.		
Look-through exposure category	Target range	Maximum	Capital allocation	Target range	Maximum	Capital allocation
Corporate Credit	15-40%		8.7%	<50%		19.7%
Mortgage Credit	30-60%		58.0%	<50%		32.4%
Structured Credit	10-25%		9.8%	<50%		24.8%
Relative Value	0-15%		0.0%			
Other (Event Driven, Macro, Equities)	0-10%		6.1%			

1 Forward looking estimates, historical simulation returns and related statistics are net of underlying manager fees/expenses but gross of GCM Grosvenor fees/expenses.

2 Assumes historical strategy correlation average of 0.3.

3 Assumes historical strategy correlation average of 0.5.

4 Assumes historical strategy correlation average of 0.4.

5 Forward Looking Estimate Beta statistic is presented for informational purposes only.

6 Forward Looking Estimate Sharpe Ratio is calculated using the Risk-based Allocation Report as follows: Portfolio ROR less Risk-free Rate (assumed to be 1.0% for this purpose) divided by Portfolio Standard Deviation at the 0.3 correlation level.

7 Forward Looking Estimate Sharpe Ratio is calculated using the Risk-based Allocation Report as follows: Portfolio ROR less Risk-free Rate (assumed to be 1.0% for this purpose) divided by Portfolio Standard Deviation at the 0.5 correlation level.

8 San Gabriel Fund 2, L.P. is in its harvest period with an anticipated termination date of December 31, 2018.

The statistics on this slide are for illustrative purposes only, and are summarized from data contained in the attached portfolio reports. The Notes and Disclosures following this presentation and accompanying the attached portfolio reports are integral to your review of the statistics, and must be read with your review of the statistics.

Risk Summary

Los Angeles County Employees Retirement Association (Allocation Period: October 1, 2018)

	San Gabriel Fund, L.P.		San Gabriel Fund 2, L.P.		San Gabriel Fund 3, L.P.		Total hedge fund program	
Leverage within hedge funds	Guideline maximum	Leverage	Guideline maximum	Leverage	Guideline maximum	Leverage	Guideline maximum	Leverage
Hedge fund category								
Credit	4.0x	1.4x	3.0x	1.0x	3.0x	1.2x		1.2x
Relative Value	8.0x	8.0x						8.0x
Event Driven	4.0x	1.8x						1.8x
Equities	4.0x	1.4x						1.4x
Macro	20.0x	9.1x						9.1x
Other	5.0x	1.5x	3.0x	1.0x	3.0x	0.0x		1.4x

Downside loss	Guideline	Current portfolio	Guideline	Current portfolio	Guideline	Current portfolio	Guideline	Current portfolio
Actual allocation to single fund, % of capital (at market)	10% maximum	6.4%						8.7%
% ROR impact of Severe Case Loss in a single fund (at market)	≥ -4%	-2.1%						-1.2%
Impact of Severe Case Loss in a single sub-strategy (at market)	≥ -7%	-2.6%						-1.5%
Fund-Level ROR Impact of Severe Case Loss (at market)	≥ -10%	-8.4%[1]	≥ -15%	-5.2%[1]	≥ -15%	-5.6%[1]		-6.7%[1]
Actual allocation to single investment manager, % of capital (at cost)			20% maximum	42.7%	25% maximum	13.9%		8.6%
Actual allocation to GCM Special Opportunities Fund (at market)	10% maximum	5.9%						
Actual allocation to Self Liquidating Funds, % of capital (at cost)	20% maximum	5.8%						
Actual allocation to Self Liquidating Funds, % of capital (at market)	20% maximum	5.9%						
% ROR impact of Severe Case Loss in a single investment manager (at market)			≥ -5%	-4.8%	≥ -7%	-2.1%		-1.2%

Liquidity excluding fund level and discretionary gates, notice periods, and side pocket investments[2]	Guideline	Actual	Guideline	Actual	Guideline	Actual	Guideline	Actual
Fund capital with lockups greater than 1 year but less than 2 years	<35%	8.6%						23.1%
Fund capital with lockups greater than 2 years	0.0%	0.0%						0.0%
Fund capital available within one year, after lockups expire, including the effect of mandatory investor-level gates	>65%	82.0%					>50%	63.6%
Fund capital with quarterly or more frequent liquidity after lockups expire, excluding the effects of mandatory investor-level gates							>50%	66.2%
Initial Anticipated End Date			60 months from San Gabriel 2 inception		At least 90% of the Fund's capital (at cost) 60 months from San Gabriel 3 inception			

1 Assumes historical strategy correlation of 0.4.

2 Self-liquidating Funds are considered to have lockups of greater than 1 year, but less than 2 years for purposes of measuring the above constraints.

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Compliance Summary

Los Angeles County Employees Retirement Association (Allocation Period: October 1, 2018)

San Gabriel Fund, L.P.

Category	In compliance	Discussion
Forward looking return, volatility, and correlation objectives	YES	-
Downside risk case	YES	-
Number of investment managers	YES	-
Allocation to single hedge fund	YES	-
Maximum leverage	YES	-
Lockups	YES	-
Fund liquidity after lockups	YES	-
Strategy categories	YES	-

San Gabriel Fund 2, L.P.

Category	In compliance	Discussion
Forward looking return, volatility, and correlation objectives	YES	-
Downside risk case	YES	-
Number of investment managers	NO	NM; Portfolio in liquidation.
Allocation to single investment manager	NO	NM; Portfolio in liquidation.
Downside risk to a single investment manager	NO	NM; Portfolio in liquidation.
Maximum leverage	YES	-
Look-through exposure categories	NO	NM; Portfolio in liquidation.

San Gabriel Fund 3, L.P.

Category	In compliance	Discussion
Forward looking return, volatility, and correlation objectives	YES	-
Downside risk case	YES	-
Number of investment managers	YES	-
Allocation to single investment manager	YES	-
Downside risk to a single investment manager	YES	-
Maximum leverage	YES	-
Look-through exposure categories	YES	-

Allocation Report – San Gabriel Fund, L.P.

GROSVENOR CAPITAL MANAGEMENT, L.P.

Allocation Report
Expressed in US Dollars
Period is 01 October 2018

GABRIEL - San Gabriel Fund, L.P. (the "Fund")

Portfolio Fund Name	Ending Balance as of 30 September 2018 Before EOM Activity: Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Allocation as of 01 October 2018: Subscriptions (Redemptions)	Allocated Balance	as Percentage of Substrategy Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Credit											
Fundamental Credit											
Fund 1	18,838,038	38.70%	14.74%	3.98%	3.84%	-	18,838,038	38.70%	14.81%	3.92%	3.84%
Fund 2	29,834,156	61.30%	23.34%	6.30%	6.08%	-	29,834,156	61.30%	23.45%	6.20%	6.08%
Total - Fundamental Credit	48,672,194	100.00%	38.08%	10.29%	9.92%	-	48,672,194	100.00%	38.26%	10.12%	9.92%
Structured Credit											
Fund 3	8,811,895	25.38%	6.89%	1.86%	1.80%	(2,520,155)	6,291,740	19.85%	4.95%	1.31%	1.28%
Fund 4	25,400,327	73.15%	19.87%	5.37%	5.18%	-	25,400,327	80.15%	19.97%	5.28%	5.18%
Terminated Fund 48	510,096	1.47%	0.40%	0.11%	0.10%	(510,096)	-	-	-	-	-
Total - Structured Credit	34,722,318	100.00%	27.16%	7.34%	7.08%	(3,030,251)	31,692,067	100.00%	24.92%	6.59%	6.46%
Long/Short Credit											
Fund 5	27,460,867	61.80%	21.48%	5.80%	5.60%	-	27,460,867	61.80%	21.59%	5.71%	5.60%
Fund 6	16,975,068	38.20%	13.28%	3.59%	3.46%	-	16,975,068	38.20%	13.35%	3.53%	3.46%
Total - Long/Short Credit	44,435,935	100.00%	34.76%	9.39%	9.05%	-	44,435,935	100.00%	34.93%	9.24%	9.05%
Emerging Market Credit											
Fund 7	-	-	-	-	-	2,400,000	2,400,000	100.00%	1.89%	0.50%	0.49%
Total - Emerging Market Credit	-	-	-	-	-	2,400,000	2,400,000	100.00%	1.89%	0.50%	0.49%
Total Credit	127,830,448		100.00%	27.01%	26.05%	(630,251)	127,200,197		100.00%	26.45%	25.92%
Equities											
Directional Equity / U.S./Canada											
Fund 8	12,336,893	100.00%	10.78%	2.61%	2.51%	-	12,336,893	100.00%	10.78%	2.57%	2.51%
Total - Directional Equity / U.S./Canada	12,336,893	100.00%	10.78%	2.61%	2.51%	-	12,336,893	100.00%	10.78%	2.57%	2.51%
Fundamental Market Neutral Equity / Global											
Fund 9	6,836,296	30.02%	5.97%	1.44%	1.39%	-	6,836,296	30.02%	5.97%	1.42%	1.39%
Fund 10	12,714,055	55.84%	11.11%	2.69%	2.59%	-	12,714,055	55.84%	11.11%	2.64%	2.59%
Fund 11	3,218,357	14.14%	2.81%	0.68%	0.66%	-	3,218,357	14.14%	2.81%	0.67%	0.66%
Total - Fundamental Market Neutral Equity / Global	22,768,708	100.00%	19.89%	4.81%	4.64%	-	22,768,708	100.00%	19.89%	4.74%	4.64%

Portfolio Fund Name	Ending Balance as of 30 September 2018 Before EOM Activity: Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Subscriptions (Redemptions)	Allocation as of 01 October 2018: Allocated Balance	as Percentage of Substrategy Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Event Driven											
Fund 12	12,014,366	100.00%	10.50%	2.54%	2.45%	-	12,014,366	100.00%	10.50%	2.50%	2.45%
Total - Event Driven	12,014,366	100.00%	10.50%	2.54%	2.45%	-	12,014,366	100.00%	10.50%	2.50%	2.45%
Specialist Equity / U.S./Canada											
Fund 13	18,452,413	100.00%	16.12%	3.90%	3.76%	-	18,452,413	100.00%	16.12%	3.84%	3.76%
Total - Specialist Equity / U.S./Canada	18,452,413	100.00%	16.12%	3.90%	3.76%	-	18,452,413	100.00%	16.12%	3.84%	3.76%
Specialist Equity / Asia											
Fund 14	18,662,290	100.00%	16.30%	3.94%	3.80%	-	18,662,290	100.00%	16.30%	3.88%	3.80%
Total - Specialist Equity / Asia	18,662,290	100.00%	16.30%	3.94%	3.80%	-	18,662,290	100.00%	16.30%	3.88%	3.80%
Specialist Equity / Global											
Fund 15	2,754,035	9.11%	2.41%	0.58%	0.56%	-	2,754,035	9.11%	2.41%	0.57%	0.56%
Fund 16	27,472,380	90.89%	24.00%	5.81%	5.60%	-	27,472,380	90.89%	24.00%	5.71%	5.60%
Total - Specialist Equity / Global	30,226,415	100.00%	26.41%	6.39%	6.16%	-	30,226,415	100.00%	26.41%	6.29%	6.16%
Total Equities	114,461,086		100.00%	24.19%	23.32%	-	114,461,086		100.00%	23.80%	23.32%
Quantitative											
Non-Directional Quantitative											
Fund 17	26,403,061	100.00%	100.00%	5.58%	5.38%	-	26,403,061	100.00%	100.00%	5.49%	5.38%
Total - Non-Directional Quantitative	26,403,061	100.00%	100.00%	5.58%	5.38%	-	26,403,061	100.00%	100.00%	5.49%	5.38%
Total Quantitative	26,403,061		100.00%	5.58%	5.38%	-	26,403,061		100.00%	5.49%	5.38%
Macro											
Diversified Macro											
Fund 18	31,254,088	65.73%	47.70%	6.60%	6.37%	-	31,254,088	65.73%	47.70%	6.50%	6.37%
Fund 19	16,293,821	34.27%	24.87%	3.44%	3.32%	-	16,293,821	34.27%	24.87%	3.39%	3.32%
Total - Diversified Macro	47,547,908	100.00%	72.56%	10.05%	9.69%	-	47,547,908	100.00%	72.56%	9.89%	9.69%
Specialist Macro											
Fund 20	17,977,763	100.00%	27.44%	3.80%	3.66%	-	17,977,763	100.00%	27.44%	3.74%	3.66%
Total - Specialist Macro	17,977,763	100.00%	27.44%	3.80%	3.66%	-	17,977,763	100.00%	27.44%	3.74%	3.66%
Total Macro	65,525,672		100.00%	13.85%	13.35%	-	65,525,672		100.00%	13.63%	13.35%
Relative Value											
Diversified Relative Value											
Fund 21	27,923,631	47.66%	40.78%	5.90%	5.69%	-	27,923,631	47.66%	40.78%	5.81%	5.69%
Fund 22	10,908,006	18.62%	15.93%	2.31%	2.22%	-	10,908,006	18.62%	15.93%	2.27%	2.22%
Fund 23	19,762,336	33.73%	28.86%	4.18%	4.03%	-	19,762,336	33.73%	28.86%	4.11%	4.03%
Total - Diversified Relative Value	58,593,973	100.00%	85.57%	12.38%	11.94%	-	58,593,973	100.00%	85.57%	12.19%	11.94%

Portfolio Fund Name	Ending Balance as of 30 September 2018 Before EOM Activity: Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Allocation as of 01 October 2018: Subscriptions (Redemptions)	Allocated Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Option Volatility Arbitrage											
Fund 24	3,639,778	36.84%	5.32%	0.77%	0.74%	-	3,639,778	36.84%	5.32%	0.76%	0.74%
Fund 25	6,239,220	63.16%	9.11%	1.32%	1.27%	-	6,239,220	63.16%	9.11%	1.30%	1.27%
Total - Option Volatility Arbitrage	9,878,998	100.00%	14.43%	2.09%	2.01%	-	9,878,998	100.00%	14.43%	2.05%	2.01%
Total Relative Value	68,472,971		100.00%	14.47%	13.95%	-	68,472,971		100.00%	14.24%	13.95%
Multi-Strategy											
Diversified Multi-Strategy											
Fund 26	24,640,343	35.86%	35.86%	5.21%	5.02%	-	24,640,343	32.12%	32.12%	5.12%	5.02%
Fund 27	20,774,715	30.24%	30.24%	4.39%	4.23%	8,000,000	28,774,715	37.51%	37.51%	5.98%	5.86%
Fund 28	23,289,540	33.90%	33.90%	4.92%	4.75%	-	23,289,540	30.36%	30.36%	4.84%	4.75%
Total - Diversified Multi-Strategy	68,704,598	100.00%	100.00%	14.52%	14.00%	8,000,000	76,704,598	100.00%	100.00%	15.95%	15.63%
Total Multi-Strategy	68,704,598		100.00%	14.52%	14.00%	8,000,000	76,704,598		100.00%	15.95%	15.63%
Aggregated Prior Period Adjustment											
Multi-Manager											
APPA USD	80,147	100.00%	100.00%	0.02%	0.02%	-	80,147	100.00%	100.00%	0.02%	0.02%
Total - Multi-Manager	80,147	100.00%	100.00%	0.02%	0.02%	-	80,147	100.00%	100.00%	0.02%	0.02%
Total Aggregated Prior Period Adjustment	80,147		100.00%	0.02%	0.02%	-	80,147		100.00%	0.02%	0.02%
Other											
Other Investments											
Terminated Fund 25	11,836	0.68%	0.68%	0.00%	0.00%	-	11,836	0.60%	0.60%	0.00%	0.00%
Terminated Fund 32	230,750	13.27%	13.27%	0.05%	0.05%	(9,390)	221,360	11.14%	11.14%	0.05%	0.05%
Terminated Fund 46	1,407,429	80.94%	80.94%	0.30%	0.29%	-	1,407,429	70.84%	70.84%	0.29%	0.29%
Terminated Fund 48	-	-	-	-	-	257,239	257,239	12.95%	12.95%	0.05%	0.05%
Terminated Fund 4	88,813	5.11%	5.11%	0.02%	0.02%	-	88,813	4.47%	4.47%	0.02%	0.02%
Total - Other Investments	1,738,828	100.00%	100.00%	0.37%	0.35%	247,850	1,986,677	100.00%	100.00%	0.41%	0.40%
Total Other	1,738,828		100.00%	0.37%	0.35%	247,850	1,986,677		100.00%	0.41%	0.40%
Total ALLOCATED	473,216,810			100.00%	96.42%	7,617,598	480,834,409			100.00%	97.98%
Cash	7,457,453				1.52%	1,917,246	9,374,699				1.91%
Expenses	(218,585)				-0.04%	310	(218,275)				-0.04%
Management Fees	(440)				0.00%	837,315	836,875				0.17%
Net Rec/(Pay)	10,306,958				2.10%	(10,372,470)	(65,511)				-0.01%
Total UNALLOCATED	17,545,387				3.58%	(7,617,598)	9,927,788				2.02%
NET ASSET VALUE	490,762,197				100.00%	0	490,762,197				100.00%

Notes and Disclosures

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GCM GROSVENOR

Allocation Report – San Gabriel Fund 2, L.P.

GROSVENOR
CAPITAL MANAGEMENT, L.P.

Allocation Report
Expressed in US Dollars
Period is 01 October 2018

GABRIEL2 - San Gabriel Fund 2, L.P. (the "Fund")

	Ending Balance as of 30 September 2018 Before EOM Activity					Allocation as of 01 October 2018					
Portfolio Fund Name	Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Subscriptions (Redemptions)	Allocated Balance	as Percentage of Substrategy Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Credit											
Structured Credit											
Fund 1	1,620,439	19.39%	19.39%	18.17%	16.13%	-	1,620,439	22.43%	22.43%	20.81%	17.17%
Fund 2	5,608,443	67.12%	67.12%	62.88%	55.81%	(5,114)	5,603,330	77.57%	77.57%	71.96%	59.36%
Terminated Fund 15	1,127,554	13.49%	13.49%	12.64%	11.22%	(1,127,554)	-	-	-	-	-
Total - Structured Credit	8,356,437	100.00%	100.00%	93.69%	83.16%	(1,132,668)	7,223,769	100.00%	100.00%	92.77%	76.53%
Total Credit	8,356,437		100.00%	93.69%	83.16%	(1,132,668)	7,223,769		100.00%	92.77%	76.53%
Aggregated Prior Period Adjustment											
Multi-Manager											
APPA USD	(11,865)	100.00%	100.00%	-0.13%	-0.12%	-	(11,865)	100.00%	100.00%	-0.15%	-0.13%
Total - Multi-Manager	(11,865)	100.00%	100.00%	-0.13%	-0.12%	-	(11,865)	100.00%	100.00%	-0.15%	-0.13%
Total Aggregated Prior Period Adjustment	(11,865)		100.00%	-0.13%	-0.12%	-	(11,865)		100.00%	-0.15%	-0.13%
Other											
Other Investments											
Terminated Fund 11	575,000	100.00%	100.00%	6.45%	5.72%	-	575,000	100.00%	100.00%	7.38%	6.09%
Total - Other Investments	575,000	100.00%	100.00%	6.45%	5.72%	-	575,000	100.00%	100.00%	7.38%	6.09%
Total Other	575,000		100.00%	6.45%	5.72%	-	575,000		100.00%	7.38%	6.09%
Total ALLOCATED	8,919,572			100.00%	88.76%	(1,132,668)	7,786,904			100.00%	82.50%
Cash	1,169,922				11.64%	7,282,578	8,452,501				89.55%
Expenses	(50,730)				-0.50%	285	(50,445)				-0.53%
Management Fees	9,826				0.10%	6,630	16,456				0.17%
Net Rec/(Pay)	407				0.00%	(6,766,825)	(6,766,418)				-71.69%
Total UNALLOCATED	1,129,424				11.24%	522,669	1,652,093				17.50%
NET ASSET VALUE	10,048,996				100.00%	(609,999)	9,438,997				100.00%

Notes and Disclosures

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Allocation Report – San Gabriel Fund 3, L.P.

GROSVENOR
CAPITAL MANAGEMENT, L.P.

Allocation Report
Expressed in US Dollars
Period is 01 October 2018

GABRIEL3 - San Gabriel Fund 3, L.P. (the "Fund")

	Ending Balance as of 30 September 2018 Before EOM Activity					Allocation as of 01 October 2018					
Portfolio Fund Name	Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Subscriptions (Redemptions)	Allocated Balance	as Percentage of Substrategy Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Credit											
Fundamental Credit											
Fund 1	35,646,260	100.00%	10.16%	10.17%	9.82%	-	35,646,260	100.00%	10.25%	10.24%	9.82%
Total - Fundamental Credit	35,646,260	100.00%	10.16%	10.17%	9.82%	-	35,646,260	100.00%	10.25%	10.24%	9.82%
Structured Credit											
Fund 2	31,500,685	24.73%	8.98%	8.98%	8.67%	-	31,500,685	25.14%	9.06%	9.05%	8.67%
Fund 3	7,250,123	5.69%	2.07%	2.07%	2.00%	(2,073,500)	5,176,623	4.13%	1.49%	1.49%	1.43%
Fund 4	49,906,928	39.18%	14.23%	14.23%	13.74%	-	49,906,928	39.83%	14.35%	14.33%	13.74%
Fund 5	17,831,841	14.00%	5.08%	5.09%	4.91%	-	17,831,841	14.23%	5.13%	5.12%	4.91%
Fund 6	20,898,605	16.41%	5.96%	5.96%	5.76%	-	20,898,605	16.68%	6.01%	6.00%	5.76%
Total - Structured Credit	127,388,183	100.00%	36.31%	36.33%	35.08%	(2,073,500)	125,314,683	100.00%	36.03%	35.99%	34.51%
Distressed											
Fund 7	14,396,962	45.13%	4.10%	4.11%	3.96%	-	14,396,962	45.13%	4.14%	4.13%	3.96%
Fund 8	17,505,686	54.87%	4.99%	4.99%	4.82%	-	17,505,686	54.87%	5.03%	5.03%	4.82%
Total - Distressed	31,902,648	100.00%	9.09%	9.10%	8.79%	-	31,902,648	100.00%	9.17%	9.16%	8.79%
Emerging Market Credit											
Fund 9	7,493,652	15.44%	2.14%	2.14%	2.06%	(392,627)	7,101,025	14.91%	2.04%	2.04%	1.96%
Fund 10	23,489,481	48.41%	6.70%	6.70%	6.47%	-	23,489,481	49.33%	6.75%	6.75%	6.47%
Fund 11	14,796,691	30.49%	4.22%	4.22%	4.07%	(521,152)	14,275,539	29.98%	4.10%	4.10%	3.93%
Fund 12	2,746,959	5.66%	0.78%	0.78%	0.76%	-	2,746,959	5.77%	0.79%	0.79%	0.76%
Total - Emerging Market Credit	48,526,784	100.00%	13.83%	13.84%	13.36%	(913,779)	47,613,005	100.00%	13.69%	13.67%	13.11%
Specialist Credit											
Fund 13	28,997,987	27.02%	8.27%	8.27%	7.99%	(24,421)	28,973,567	27.00%	8.33%	8.32%	7.98%
Fund 14	17,836,059	16.62%	5.08%	5.09%	4.91%	-	17,836,059	16.62%	5.13%	5.12%	4.91%
Fund 15	21,689,224	20.21%	6.18%	6.19%	5.97%	-	21,689,224	20.21%	6.24%	6.23%	5.97%
Fund 16	38,811,183	36.16%	11.06%	11.07%	10.69%	-	38,811,183	36.17%	11.16%	11.15%	10.69%
Total - Specialist Credit	107,334,454	100.00%	30.60%	30.61%	29.56%	(24,421)	107,310,033	100.00%	30.86%	30.82%	29.55%
Total Credit	350,798,329		100.00%	100.05%	96.61%	(3,011,700)	347,786,629		100.00%	99.88%	95.78%

Ending Balance as of 30 September 2018 Before EOM Activity						Allocation as of 01 October 2018					
Portfolio Fund Name	Ending Balance	as Percentage of Substrategy/ Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV	Subscriptions (Redemptions)	Allocated Balance	as Percentage of Substrategy Region	as a Percentage of Strategy	as a Percentage of Allocated	as a Percentage of NAV
Aggregated Prior Period Adjustment											
Multi-Manager											
APPA USD	(166,236)	100.00%	100.00%	-0.05%	-0.05%	-	(166,236)	100.00%	100.00%	-0.05%	-0.05%
Total - Multi-Manager	(166,236)	100.00%	100.00%	-0.05%	-0.05%	-	(166,236)	100.00%	100.00%	-0.05%	-0.05%
Total Aggregated Prior Period Adjustment	(166,236)		100.00%	-0.05%	-0.05%	-	(166,236)		100.00%	-0.05%	-0.05%
Other											
Other Investments											
Other Investment 1	-	-	-	-	-	568,621	568,621	100.00%	100.00%	0.16%	0.16%
Total - Other Investments	-	-	-	-	-	568,621	568,621	100.00%	100.00%	0.16%	0.16%
Total Other	-		-	-	-	568,621	568,621		100.00%	0.16%	0.16%
Total ALLOCATED	350,632,093			100.00%	96.56%	(2,443,079)	348,189,014			100.00%	95.89%
Cash	13,031,012				3.59%	(7,223,985)	5,807,027				1.60%
Expenses	(146,649)				-0.04%	584	(146,064)				-0.04%
Management Fees	(66)				-	635,164	635,098				0.17%
Net Rec/(Pay)	(392,627)				-0.11%	9,031,316	8,638,689				2.38%
Total UNALLOCATED	12,491,671				3.44%	2,443,079	14,934,750				4.11%
NET ASSET VALUE	363,123,764				100.00%	-	363,123,764				100.00%

Notes and Disclosures

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GCM Grosvenor considers numerous factors in evaluating and selecting investments, and GCM Grosvenor may use some or all of the processes described herein when conducting due diligence for an investment. Assets under management for hedge fund investments include all subscriptions to, and are reduced by all redemptions from, a GCM Fund effected in conjunction with the close of business as of the date indicated.

Asset
Management

Goldman Sachs Asset Management

Portfolio Fund Summary

Hedge Fund Categories

Los Angeles County Employees Retirement Association (September 30, 2018)

								Cumulative Returns			Annualized Returns	
Hedge Fund Category	**Inception Date**	**End Date**	**QTD Opening Balance**	**QTD Subscriptions/ (Redemptions)**	**QTD Gain/(Loss)**	**QTD Ending Balance**	**% of Nav (as of 9/30/2018)[2]**	**3Q2018[1]**	**YTD**	**1 Year**	**3 Year**	**ITD[1]**
Deep Basin Long-Short Fund LP Strategic Shares	11/1/2017	-	9,730,278.46	-	(48,296.12)	9,681,982.34	1.99%	-0.50%	4.40%	7.58%	-	7.58%
Kintbury Equity Fund LP Class F (NIE)	5/1/2015	-	23,675,355.82	-	(260,138.76)	23,415,217.06	4.82%	-1.10%	6.80%	9.37%	-3.09%	2.26%
Lakewood Capital Partners LP (NIE)	5/1/2015	-	20,873,841.89	-	(54,129.23)	20,819,712.66	4.28%	-0.26%	-4.81%	-4.72%	6.65%	4.63%
Palestra Capital Part LP (Ser 3 Int 1.5/20)(NIE)	6/1/2015	-	28,974,719.58	-	670,169.63	29,644,889.21	6.10%	2.31%	8.48%	10.07%	12.63%	11.84%
PFM Oncology Opp Fund II, LP Class A (NIE)	6/1/2015	6/30/2018	11,532,527.40	(11,532,527.40)	-	-	-	-	2.24%	6.25%	8.34%	9.29%
PFM Therapeutics Fund, L.P. Class B (NIE)	7/1/2018	-	-	11,532,527.40	(124,761.35)	11,407,766.05	2.35%	-1.08%	-1.08%	-1.08%	-	-1.08%
Rubric Capital Partners LP Series F1 Interests NIE	3/1/2017	-	27,041,436.30	-	(590,686.81)	26,450,749.49	5.44%	-2.18%	-3.66%	1.18%	-	9.23%
Swiftcurrent Partners, L.P. (Class C, NIE)	7/1/2016	-	20,465,347.49	(11,424,237.11)	229,949.38	9,271,059.76	1.91%	2.54%	6.23%	7.07%	-	6.43%
The BosValen US Feeder Fund Class F (NIE)	8/1/2018	-	-	10,000,000.00	(283,855.76)	9,716,144.24	2.00%	-2.84%	-2.84%	-2.84%	-	-2.84%
Equity Long/Short			142,293,506.94	(1,424,237.11)	(461,749.02)	140,407,520.81	28.88%	-0.23%	2.21%	4.06%	4.96%	5.24%
Empyrean Capital Fund LP (Class 2 Ser N - NIE)	7/1/2015	-	27,067,854.00	-	164,109.00	27,231,963.00	5.60%	0.61%	5.57%	5.34%	8.41%	6.24%
Farallon Capital Institutional Partners, L.P. LP	7/1/2015	6/30/2018	10,200,680.00	(10,200,680.00)	-	-	-	-	3.25%	6.08%	4.20%	4.20%
HG Vora Special Opportunities Fd LP Series 1 (NIE)	10/1/2017	-	27,200,669.00	-	(58,443.00)	27,142,226.00	5.58%	-0.21%	5.29%	8.57%	-	8.57%
Manikay Onshore Fund LP Class A1 (NIE)	6/1/2015	-	11,599,417.07	-	214,252.98	11,813,670.05	2.43%	1.85%	0.57%	4.18%	7.67%	6.24%
Manikay Onshore Fund LP Class A3 NIE	6/1/2018	-	14,723,868.00	-	288,980.32	15,012,848.32	3.09%	1.96%	2.50%	2.50%	-	2.50%
Palmetto Catastrophe Fund L.P. Class H - NV	6/1/2018	-	15,062,872.00	-	194,219.00	15,257,091.00	3.14%	1.29%	1.71%	1.71%	-	1.71%
Taconic Opportunity Fund LP (CL AA, Non Lockup)	3/1/2018	-	23,754,818.00	-	249,074.00	24,003,892.00	4.94%	1.05%	4.36%	4.36%	-	4.36%
Warlander Partners, LP Class W (NIE)	2/1/2016	-	5,970,862.62	(1,492,715.66)	193,077.87	4,671,224.83	0.96%	4.31%	5.06%	1.14%	-	-4.29%
Event Driven			135,581,040.69	(11,693,395.66)	1,245,270.17	125,132,915.20	25.74%	1.01%	3.94%	5.69%	6.58%	3.05%
Alyeska Fund 2 LP Class A - Unrestricted (NIE)	6/1/2015	-	24,131,521.76	-	(568,894.51)	23,562,627.25	4.85%	-2.36%	-5.22%	-2.36%	-1.21%	-1.57%
D.E. Shaw Valence Fund, LLC (NIE)	2/1/2016	-	27,110,533.00	-	1,183,603.00	28,294,136.00	5.82%	4.37%	11.30%	8.39%	-	13.89%
ExodusPoint Partners Fund LP Class C (NIE)	8/1/2018	-	-	18,214,482.00	93,091.00	18,307,573.00	3.77%	0.51%	0.51%	0.51%	-	0.51%
ExodusPoint Partners Fund LP Class D (NIE)	7/1/2018	7/31/2018	-	(14,482.00)	14,482.00	-	-	0.09%	0.09%	-	-	0.09%
Holocene Advisors Fund LP Class AI-A LP Int (NIE)	5/1/2017	-	28,348,977.33	-	(274,843.96)	28,074,133.37	5.77%	-0.97%	2.87%	3.64%	-	8.53%
Macquarie Global Alpha US Feeder Fund Class L	6/1/2017	5/31/2018	-	-	-	-	-	-	1.21%	3.37%	-	3.27%
Relative Value		-	79,591,032.09	18,200,000.00	447,437.53	98,238,469.62	20.21%	0.43%	2.95%	3.22%	4.00%	3.09%
Atreaus Fund, LP Class F	6/1/2017	-	11,061,740.39	-	(389,995.44)	10,671,744.95	2.20%	-3.53%	-4.94%	-10.22%	-	-6.44%
Bridgewater Pure Alpha Major Markets II, LLC	5/1/2015	-	19,740,740.58	-	(258,392.33)	19,482,348.25	4.01%	-1.31%	-1.27%	1.41%	3.22%	-0.20%
Crabel Fund, L.P. (Class A, Fee Option 1 GS, 2/20)	7/1/2015	-	1,282,919.53	9,000,000.00	87,367.51	10,370,287.04	2.13%	0.21%	9.62%	10.37%	5.35%	4.13%
Dymon Asia Macro (US) Fund Class P (NIE)	6/1/2015	-	14,683,020.01	-	(273,361.42)	14,409,658.59	2.96%	-1.86%	-0.79%	-4.64%	1.19%	-0.71%
Edgestream Sumatra Fund LP	7/1/2015	-	9,205,198.36	-	64,513.28	9,269,711.64	1.91%	0.70%	-4.31%	-1.20%	3.12%	4.27%
EMSO Saguaro Ltd Class A-NV	2/1/2018	-	13,002,096.98	-	(62,187.03)	12,939,909.95	2.66%	-0.48%	-4.15%	-4.15%	-	-4.15%
Glen Point Macro Fund LP Cl A NV USD Shares (NIE)	10/1/2017	-	12,695,853.57	-	(372,247.68)	12,323,605.89	2.53%	-2.93%	-8.19%	-8.71%	-	-8.71%
Stone Milliner Macro Fd Delaware LP Cl N (NIE)	1/1/2018	-	18,018,442.52	-	247,337.19	18,265,779.71	3.76%	1.37%	3.69%	3.69%	-	3.69%
Winton Diversified Strategy Fund (US) L.P.	9/1/2016	-	10,177,237.80	-	142,862.56	10,320,100.36	2.12%	1.40%	2.71%	11.14%	-	3.96%
Tactical Trading			109,867,249.74	9,000,000.00	(814,103.36)	118,053,146.38	24.28%	-0.69%	-0.67%	-0.72%	-0.05%	-0.57%
Total Assets and Liabilities not Allocated to Underlying Managers of Los Angeles County Employees Retirement Association						4,329,633.45	0.89%					
Net Asset Value						486,161,685.46	100.00%					

[1] The LACERA Portfolio incepted on May 1, 2015. Returns less than 12 months are cumulative, not annualized. **Past performance does not guarantee future results, which may vary.**

[2] Based on the end equity value of the Fund.

Goldman Sachs Asset Management

Los Angeles County Employees Retirement Association

PERFORMANCE HIGHLIGHT SEPTEMBER 2018 | **ALTERNATIVE INVESTMENTS & MANAGER SELECTION (AIMS)**

GOLDMAN SACHS HEDGE FUND STRATEGIES (HFS)

Overview

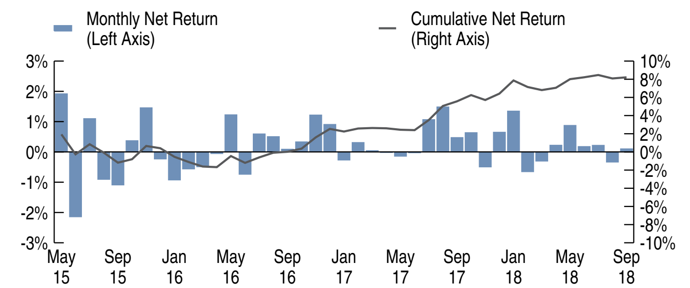
Global equities started off the month in negative territory as investor concerns regarding Argentina and Turkey weighed on sentiment. However, towards mid-month, global markets trended upwards following strong data prints on inflation, jobless claims and a lower than expected unemployment rate. The Fed increased interest rates during the month, the third time this year, boosting the dollar and further demonstrating its confidence in the markets. Japanese stocks neared 27-year highs on optimism around earnings, higher yields, and a weaker yen. Towards the end of the month, global markets seemed to be unaffected by U.S.-China trade tensions as the markets traded slightly upwards.

Equity long/short managers generated negative performance in September, underperforming equity markets on an absolute and exposure-adjusted basis. The majority of negative performance was driven by long positions, particularly technology names in the software and services industry. However, short positioning across the sector added to performance on the month and generated positive exposure-adjusted excess returns. The platform's short positioning within the consumer discretionary sector generated positive exposure-adjusted performance as well. The platform continues to be overweight the information technology, industrials, and materials sectors and underweight the consumer staples, financials, and energy sectors.

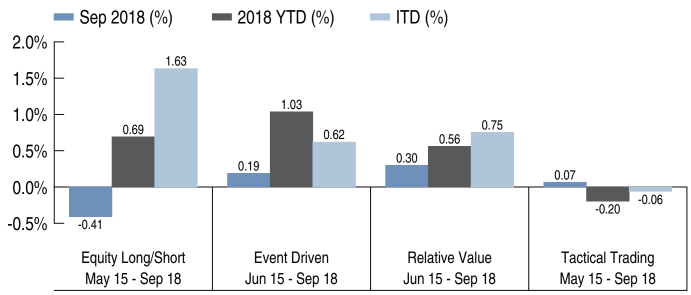
Event driven managers generated positive performance this month. Merger spreads for commonly held deals on the AIMS Event Driven platform tightened on the month, outperforming spreads for the broader merger universe, which were roughly flat. AIMS Event Driven managers' equity sub-strategies generated flat performance, driven by gains in energy and healthcare, while investments in consumer discretionary and financials detracted. Within credit, exposure to the general obligation bonds of a distressed municipality contributed after it was reported that the municipality's budget surplus is expected to increase materially following this year's influx of federal aid.

Tactical trading strategies were positive in aggregate. Developed market macro managers saw positive performance during the month; long equities and short-biased fixed income positioning contributed, while mixed FX positioning had varying performance across managers. Emerging market macro managers were mixed, as long-biased Brazilian fixed income positioning contributed while short ZAR exposure hurt. CTAs generated negative performance in aggregate this month. Losses over the period were concentrated within equities and fixed income. Within equities, long exposure to broad equity indices detracted from performance, as gains from Japan and US were offset by losses from European and Australian equities. Trading in fixed income was also negative as gains from short exposure to US short-term rates and medium-term bonds were more than offset by losses from a long bias to European bonds, with exposure to Germany accounting for most losses. These losses were somewhat offset by commodities trading where gains were driven by long exposure to energies, specifically oil, and short exposure to select metals, in particular copper, aluminium and gold. Trading in currencies was mixed across managers as gains from short exposure to JPY and CHF as well as long exposure to MXN were offset, to varying degrees, by losses from short exposure to SEK, NOK, and BRL.

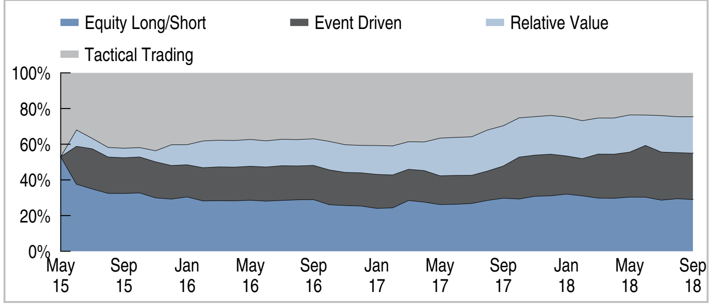
Monthly & Cumulative Net Returns[1]



Contribution to Return by Sector[2]



Historical Sector Allocations[3]



Performance & Characteristics[1]

	Cumulative (%)			Annualized (%)					Max.	MSCI World USD		Barclays Agg		Sharpe	Inception
	MTD	QTD	YTD	1Y	3Y	5Y	ITD[4]	Vol ITD	Drawdown (%)	Correlation	Beta	Correlation	Beta	Ratio[5]	Date
LACERA (A1)	**0.11**	**-0.00**	**1.69**	2.50	3.07	N/A	2.34	2.88	-3.54	0.55	0.17	-0.17	-0.19	0.44	May 15
HFRX Global Hedge Fund Index	-0.69	-0.39	-1.23	0.25	2.17	N/A	0.32	3.75	-8.92	0.87	0.34	-0.02	-0.02	-0.20	May 15
MSCI World Index Hedged USD	0.62	5.04	5.63	11.01	11.89	N/A	6.97	9.51	-12.43	1.00	1.00	-0.07	-0.26	0.62	May 15
Bloomberg Barclays Aggregate Bond Index	-0.64	0.02	-1.60	-1.22	1.32	N/A	1.13	2.62	-3.28	-0.07	-0.02	1.00	1.00	0.02	May 15
3 Month Libor	0.19	0.58	1.58	1.92	1.18	N/A	1.07	0.19	N/A	N/A	N/A	N/A	N/A	N/A	May 15

For Existing Investors Only. Past performance does not guarantee future results, which may vary. Please refer to the Disclosures page for important information.

[1] This is the performance for Los Angeles County Employees Retirement Association (Class A, Series 1). Returns are net of underlying manager fees, Goldman Sachs incentive fees and Goldman Sachs management fees. Not all investors may be holders of this Class and this Class currently may not be available for purchase. Please refer to the offering documents of the Fund for a discussion of the differences among Classes that might impact performance. Returns are presented in USD. The figures published here are final and unaudited.

[2] Contribution data is geometrically calculated based on a monthly time series. Data will not arithmetically sum to fund total due to fund level assets and liabilities not allocated to underlying managers. Cumulative geometric returns for less than 12 months are calculated as follows: $(1+r_1)*(1+r_2)*...*(1+r_n)-1$. Annualized geometric returns for returns greater than 12 months are calculated as follows: $[(1+r_1)*(1+r_2)*...*(1+r_n)]^{12/m}-1$.

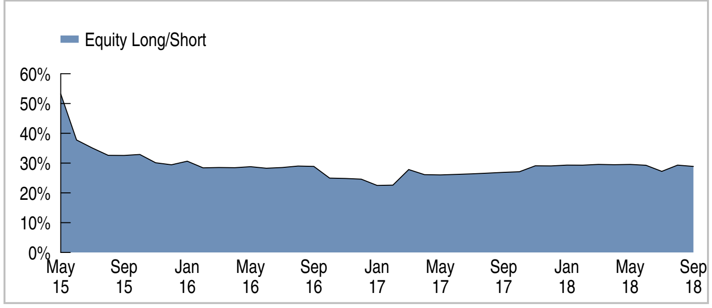
[3] Based on invested assets. The investment manager may change the allocations over time. The allocations noted should not be deemed representative of allocations in the future. All the allocations were done using the portfolio's valuations at month-end.

[4] Returns less than 12 months are cumulative, not annualized.

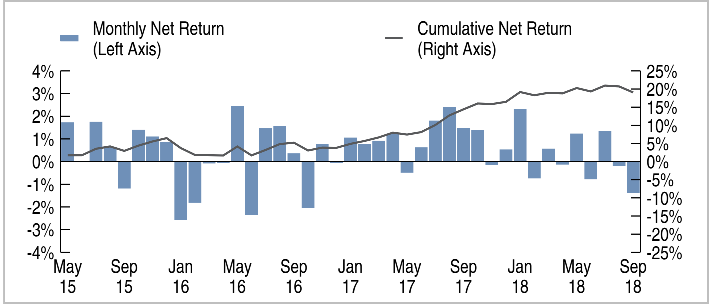
[5] The 3 Month Libor (USD) rate is used for this calculation.

Sector Level Returns — Equity Long/Short

Historical Sector Allocations[1]



Monthly & Cumulative Net Returns[2]

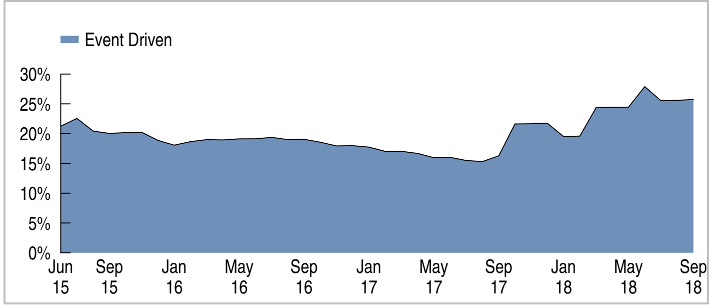


Performance & Characteristics[2,3]

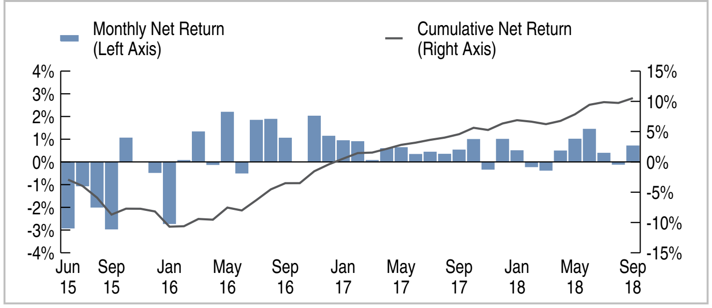
	Weight[1] (%)	Cumulative (%) MTD	QTD	YTD	Annualized (%) 1Y	3Y	5Y	ITD[4]	Vol ITD	Max. Drawdown (%)	MSCI World USD Correlation	Beta	Barclays Agg Correlation	Beta	Sharpe Ratio[5]	Inception Date	End Date
Performance	28.88	-1.38	-0.23	2.21	4.06	4.96	N/A	5.24	4.44	-4.50	0.47	0.22	-0.18	-0.30	0.94	May 15	Sep 18
Contribution	N/A	-0.41	-0.08	0.69	1.23	1.40	N/A	1.63	1.36	N/A	N/A	N/A	N/A	N/A	N/A	May 15	Sep 18

Sector Level Returns — Event Driven

Historical Sector Allocations[1]



Monthly & Cumulative Net Returns[2]



Performance & Characteristics[2,3]

	Weight[1] (%)	Cumulative (%) MTD	QTD	YTD	Annualized (%) 1Y	3Y	5Y	ITD[4]	Vol ITD	Max. Drawdown (%)	MSCI World USD Correlation	Beta	Barclays Agg Correlation	Beta	Sharpe Ratio[5]	Inception Date	End Date
Performance	25.74	0.72	1.01	3.94	5.69	6.58	N/A	3.05	4.28	-10.69	0.70	0.31	-0.16	-0.25	0.46	Jun 15	Sep 18
Contribution	N/A	0.19	0.26	1.03	1.43	1.33	N/A	0.62	0.87	N/A	N/A	N/A	N/A	N/A	N/A	Jun 15	Sep 18

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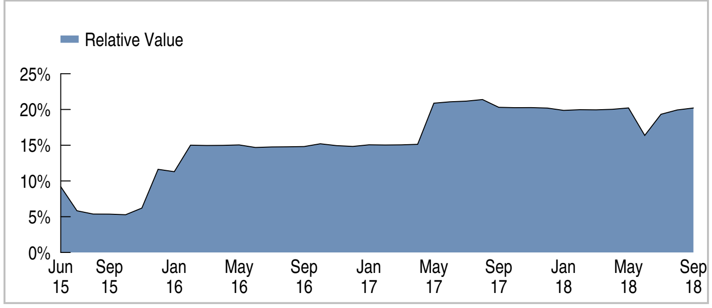
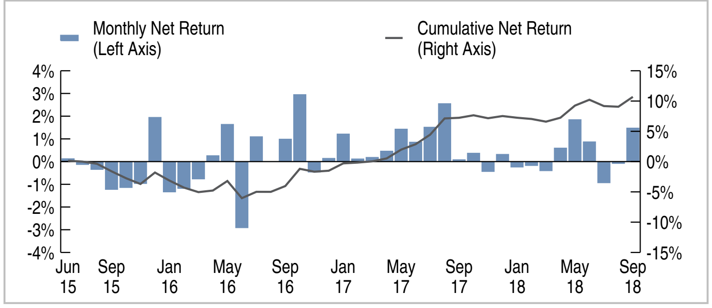
[1] Based on the end equity value of the Fund. Allocations as of September 2018. The investment manager may change the allocations over time. The allocations noted should not be deemed representative of allocations in the future.The returns presented above are net of manager management and incentive fees, but do not reflect the fees paid to GS Hedge Fund Strategies LLC.
[2] This is the performance for the Fund classification of Los Angeles County Employees Retirement Association. Returns are presented in USD. The figures published here are final and unaudited.
[3] Contribution data is geometrically calculated based on a monthly time series. Data will not arithmetically sum to fund total due to fund level assets and liabilities not allocated to underlying managers. Cumulative geometric returns for less than 12 months are calculated as follows: $(1+r_1)*(1+r_2)*...*(1+r_n)-1$. Annualized geometric returns for returns greater than 12 months are calculated as follows: $[(1+r_1)*(1+r_2)*...*(1+r_n)]^{12/m}-1$.
[4] Returns less than 12 months are cumulative, not annualized.
[5] The 3 Month Libor (USD) rate is used for this calculation.

Sector Level Returns — Relative Value

Historical Sector Allocations[1]



Monthly & Cumulative Net Returns[2]

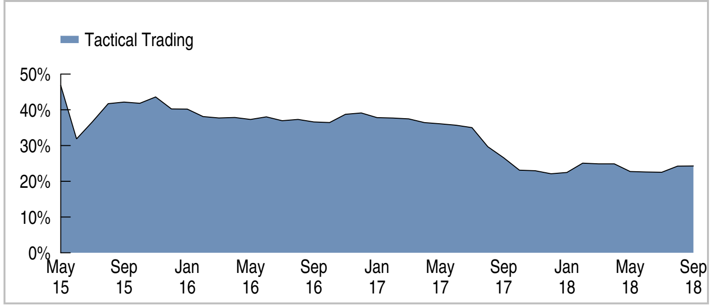


Performance & Characteristics[2,3]

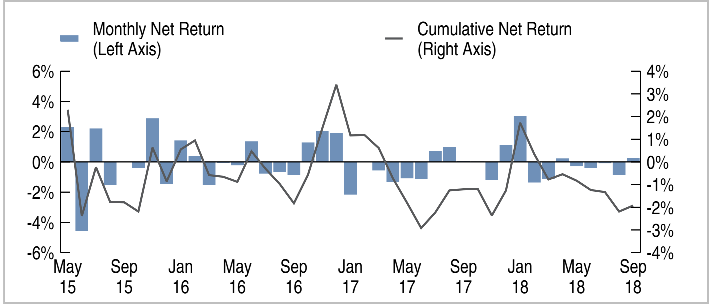
	Weight[1] (%)	Cumulative (%) MTD	QTD	YTD	Annualized (%) 1Y	3Y	5Y	ITD[4]	Vol ITD	Max. Drawdown (%)	MSCI World USD Correlation	Beta	Barclays Agg Correlation	Beta	Sharpe Ratio[5]	Inception Date	End Date
Performance	20.21	1.49	0.43	2.95	3.22	4.00	N/A	3.09	4.07	-6.17	0.07	0.03	-0.19	-0.29	0.49	Jun 15	Sep 18
Contribution	N/A	0.30	0.08	0.56	0.62	0.86	N/A	0.75	0.67	N/A	N/A	N/A	N/A	N/A	N/A	Jun 15	Sep 18

Sector Level Returns — Tactical Trading

Historical Sector Allocations[1]



Monthly & Cumulative Net Returns[2]



Performance & Characteristics[2,3]

	Weight[1] (%)	Cumulative (%) MTD	QTD	YTD	Annualized (%) 1Y	3Y	5Y	ITD[4]	Vol ITD	Max. Drawdown (%)	MSCI World USD Correlation	Beta	Barclays Agg Correlation	Beta	Sharpe Ratio[5]	Inception Date	End Date
Performance	24.28	0.27	-0.69	-0.67	-0.72	-0.05	N/A	-0.57	5.16	-6.11	0.22	0.12	-0.02	-0.04	-0.32	May 15	Sep 18
Contribution	N/A	0.07	-0.17	-0.20	-0.22	0.03	N/A	-0.06	1.87	N/A	N/A	N/A	N/A	N/A	N/A	May 15	Sep 18

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[2] This is the performance for the Fund classification of Los Angeles County Employees Retirement Association. Returns are presented in USD. The figures published here are final and unaudited.

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[4] Returns less than 12 months are cumulative, not annualized.

[5] The 3 Month Libor (USD) rate is used for this calculation.

Manager Level — Cumulative Manager Performance[1,2] (%)

Manager	Classification	Weight[3]	MTD Return	MTD Contrib.	QTD Return	QTD Contrib.	YTD Return	YTD Contrib.	Inception Date	End Date
Equity Long/Short										
Palestra Capital	United States	6.10	-0.70	-0.15	2.31	0.51	8.48	1.70	Jun 15	Sep 18
Rubric Capital	Global	5.44	-2.11	-0.40	-2.18	-0.39	-3.66	-0.68	Mar 17	Sep 18
Kintbury	Europe	4.82	-0.93	-0.15	-1.10	-0.21	6.80	1.04	May 15	Sep 18
Lakewood	Global	4.28	-1.69	-0.25	-0.26	0.02	-4.81	-0.68	May 15	Sep 18
PFM Therapeutics	Global	2.35	0.27	0.02	-1.08	-0.09	-1.08	-0.09	Jul 18	Sep 18
BosValen	Asia	2.00	-0.71	-0.05	-2.84	-0.20	-2.84	-0.20	Aug 18	Sep 18
Deep Basin Long-Short Fund	United States	1.99	-2.73	-0.19	-0.50	-0.03	4.40	0.29	Nov 17	Sep 18
Bridger (Swiftcurrent)	United States	1.91	-3.08	-0.21	2.54	0.18	6.23	0.69	Jul 16	Sep 18
PFM Oncology Opportunities Fund II	Global	N/A	N/A	N/A	N/A	N/A	2.24	0.18	Jun 15	Jun 18
Overall		**28.88**	**-1.38**	**-0.41**	**-0.23**	**-0.08**	**2.21**	**0.69**	**May 15**	**Sep 18**
Event Driven										
Empyrean Capital Partners	Multi-Strategy	5.60	0.10	0.02	0.61	0.13	5.57	1.24	Jul 15	Sep 18
HG Vora	Multi-Strategy	5.58	0.71	0.15	-0.21	-0.05	5.29	1.11	Oct 17	Sep 18
Taconic Opportunity	Multi-Strategy	4.94	0.14	0.03	1.05	0.20	4.36	0.80	Mar 18	Sep 18
Palmetto Catastrophe Fund	Credit Opps - Dist	3.14	-0.47	-0.06	1.29	0.16	1.71	0.20	Jun 18	Sep 18
Manikay Class A3	Multi-Strategy	3.09	2.84	0.33	1.96	0.23	2.50	0.29	Jun 18	Sep 18
Manikay	Multi-Strategy	2.43	2.82	0.26	1.85	0.17	0.57	-0.22	Jun 15	Sep 18
Warlander	Credit Opps - Dist	0.96	-0.38	-0.01	4.31	0.16	5.06	0.16	Feb 16	Sep 18
Farallon Capital Partners	Multi-Strategy	N/A	N/A	N/A	N/A	N/A	3.25	0.31	Jul 15	Jun 18
Overall		**25.74**	**0.72**	**0.19**	**1.01**	**0.26**	**3.94**	**1.03**	**Jun 15**	**Sep 18**
Relative Value										
D.E. Shaw Valence Fund	Equity Market Neutral	5.82	1.30	0.37	4.37	1.23	11.30	3.08	Feb 16	Sep 18
Holocene	Equity Market Neutral	5.77	0.14	0.04	-0.97	-0.29	2.87	0.78	May 17	Sep 18
Alyeska Fund 2	Equity Market Neutral	4.85	4.53	1.06	-2.36	-0.62	-5.22	-1.26	Jun 15	Sep 18
ExodusPoint	Multi-Strategy	3.77	0.12	0.02	0.51	0.10	0.51	0.10	Aug 18	Sep 18
ExodusPoint	Multi-Strategy	N/A	N/A	N/A	0.09	0.02	0.09	0.02	Jul 18	Jul 18
Macquarie Global Alpha Fund (Class L)	Equity Market Neutral	N/A	N/A	N/A	N/A	N/A	1.21	0.24	Jun 17	May 18
Overall		**20.21**	**1.49**	**0.30**	**0.43**	**0.08**	**2.95**	**0.56**	**Jun 15**	**Sep 18**
Tactical Trading										
Bridgewater Pure Alpha Major Markets II	Macro	4.01	1.19	0.19	-1.31	-0.22	-1.27	-0.16	May 15	Sep 18
Stone Milliner Macro	Macro	3.76	0.74	0.11	1.37	0.21	3.69	0.60	Jan 18	Sep 18
Dymon Asia Macro Fund	Macro	2.96	-0.32	-0.04	-1.86	-0.23	-0.79	-0.07	Jun 15	Sep 18
Emso Saguaro	Macro	2.66	0.26	0.03	-0.48	-0.05	-4.15	-0.50	Feb 18	Sep 18
Glen Point Global Macro	Macro	2.53	0.74	0.08	-2.93	-0.31	-8.19	-0.91	Oct 17	Sep 18
Atreaus (Class F)	Macro	2.20	-1.08	-0.10	-3.53	-0.34	-4.94	-0.46	Jun 17	Sep 18
Crabel	Managed Futures	2.13	-0.20	-0.02	0.21	0.07	9.62	0.90	Jul 15	Sep 18
Winton Diversified Futures Fund (US) L.P	Managed Futures	2.12	0.15	0.01	1.40	0.12	2.71	0.30	Sep 16	Sep 18
Edgestream (Sumatra/Nias)	Managed Futures	1.91	0.00	0.00	0.70	0.06	-4.31	-0.33	Jul 15	Sep 18
Overall		**24.28**	**0.27**	**0.07**	**-0.69**	**-0.17**	**-0.67**	**-0.20**	**May 15**	**Sep 18**

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[3] Based on the end equity value of the Fund. Allocations as of September 2018. The investment manager may change the allocations over time. The allocations noted should not be deemed representative of allocations in the future. Historical sector performance and contributions reflect both active and terminated managers. Managers terminated prior to the current year are excluded. For ease of presentation, active and terminated managers are shown for the current year only.

Manager Level — Annualized Manager Performance[1,2] (%)

Manager	Classification	Weight[3]	1 Year Return	1 Year Contrib.	3 Year Return	3 Year Contrib.	5 Year Return	5 Year Contrib.	ITD[4] Return	ITD[4] Contrib.	Vol ITD	Inception Date	End Date
Equity Long/Short													
Palestra Capital	United States	6.10	10.07	2.04	12.63	2.41	N/A	N/A	11.84	2.24	7.45	Jun 15	Sep 18
Rubric Capital	Global	5.44	1.18	0.32	N/A	N/A	N/A	N/A	9.23	1.81	6.71	Mar 17	Sep 18
Kintbury	Europe	4.82	9.37	1.43	-3.09	-0.64	N/A	N/A	2.26	0.39	10.74	May 15	Sep 18
Lakewood	Global	4.28	-4.72	-0.66	6.65	1.10	N/A	N/A	4.63	0.93	7.90	May 15	Sep 18
PFM Therapeutics	Global	2.35	N/A	N/A	N/A	N/A	N/A	N/A	-1.08	-0.09	N/A	Jul 18	Sep 18
BosValen	Asia	2.00	N/A	N/A	N/A	N/A	N/A	N/A	-2.84	-0.20	N/A	Aug 18	Sep 18
Deep Basin Long-Short Fund	United States	1.99	N/A	N/A	N/A	N/A	N/A	N/A	7.58	0.49	N/A	Nov 17	Sep 18
Bridger (Swiftcurrent)	United States	1.91	7.07	0.79	N/A	N/A	N/A	N/A	6.43	0.85	6.17	Jul 16	Sep 18
PFM Oncology Opportunities Fund II	Global	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.29	0.62	8.72	Jun 15	Jun 18
Overall		**28.88**	**4.06**	**1.23**	**4.96**	**1.40**	**N/A**	**N/A**	**5.24**	**1.63**	**4.44**	**May 15**	**Sep 18**
Event Driven													
Empyrean Capital Partners	Multi-Strategy	5.60	5.34	1.19	8.41	1.99	N/A	N/A	6.24	1.54	4.14	Jul 15	Sep 18
HG Vora	Multi-Strategy	5.58	8.57	1.88	N/A	N/A	N/A	N/A	8.57	1.88	3.29	Oct 17	Sep 18
Taconic Opportunity	Multi-Strategy	4.94	N/A	N/A	N/A	N/A	N/A	N/A	4.36	0.80	N/A	Mar 18	Sep 18
Palmetto Catastrophe Fund	Credit Opps - Dist	3.14	N/A	N/A	N/A	N/A	N/A	N/A	1.71	0.20	N/A	Jun 18	Sep 18
Manikay Class A3	Multi-Strategy	3.09	N/A	N/A	N/A	N/A	N/A	N/A	2.50	0.29	N/A	Jun 18	Sep 18
Manikay	Multi-Strategy	2.43	4.18	0.68	7.67	1.99	N/A	N/A	6.24	1.66	5.90	Jun 15	Sep 18
Warlander	Credit Opps - Dist	0.96	1.14	-0.06	N/A	N/A	N/A	N/A	-4.29	-0.47	7.08	Feb 16	Sep 18
Farallon Capital Partners	Multi-Strategy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.20	0.83	3.82	Jul 15	Jun 18
Overall		**25.74**	**5.69**	**1.43**	**6.58**	**1.33**	**N/A**	**N/A**	**3.05**	**0.62**	**4.28**	**Jun 15**	**Sep 18**
Relative Value													
D.E. Shaw Valence Fund	Equity Market Neutral	5.82	8.39	2.35	N/A	N/A	N/A	N/A	13.89	3.87	4.60	Feb 16	Sep 18
Holocene	Equity Market Neutral	5.77	3.64	1.00	N/A	N/A	N/A	N/A	8.53	2.25	4.35	May 17	Sep 18
Alyeska Fund 2	Equity Market Neutral	4.85	-2.36	-0.51	-1.21	-1.03	N/A	N/A	-1.57	-1.41	8.91	Jun 15	Sep 18
ExodusPoint	Multi-Strategy	3.77	N/A	N/A	N/A	N/A	N/A	N/A	0.51	0.10	N/A	Aug 18	Sep 18
ExodusPoint	Multi-Strategy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.09	0.02	N/A	Jul 18	Jul 18
Macquarie Global Alpha Fund (Class L)	Equity Market Neutral	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.27	0.75	3.31	Jun 17	May 18
Overall		**20.21**	**3.22**	**0.62**	**4.00**	**0.86**	**N/A**	**N/A**	**3.09**	**0.75**	**4.07**	**Jun 15**	**Sep 18**
Tactical Trading													
Bridgewater Pure Alpha Major Markets II	Macro	4.01	1.41	0.32	3.22	0.43	N/A	N/A	-0.20	0.15	13.40	May 15	Sep 18
Stone Milliner Macro	Macro	3.76	N/A	N/A	N/A	N/A	N/A	N/A	3.69	0.60	N/A	Jan 18	Sep 18
Dymon Asia Macro Fund	Macro	2.96	-4.64	-0.61	1.19	0.13	N/A	N/A	-0.71	-0.19	7.22	Jun 15	Sep 18
Emso Saguaro	Macro	2.66	N/A	N/A	N/A	N/A	N/A	N/A	-4.15	-0.50	N/A	Feb 18	Sep 18
Glen Point Global Macro	Macro	2.53	-8.71	-0.94	N/A	N/A	N/A	N/A	-8.71	-0.94	13.59	Oct 17	Sep 18
Atreaus (Class F)	Macro	2.20	-10.22	-1.06	N/A	N/A	N/A	N/A	-6.44	-0.60	5.59	Jun 17	Sep 18
Crabel	Managed Futures	2.13	10.37	0.97	5.35	0.54	N/A	N/A	4.13	0.45	8.95	Jul 15	Sep 18
Winton Diversified Futures Fund (US) L.P	Managed Futures	2.12	11.14	1.01	N/A	N/A	N/A	N/A	3.96	0.37	8.97	Sep 16	Sep 18
Edgestream (Sumatra/Nias)	Managed Futures	1.91	-1.20	-0.05	3.12	0.18	N/A	N/A	4.27	0.26	6.96	Jul 15	Sep 18
Overall		**24.28**	**-0.72**	**-0.22**	**-0.05**	**0.03**	**N/A**	**N/A**	**-0.57**	**-0.06**	**5.16**	**May 15**	**Sep 18**

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[4] Returns less than 12 months are cumulative, not annualized.

LACERA

Investment Guidelines Summary

Performance Objectives	Investment Guidelines	LACERA Portfolio	Measurement Period	In Compliance?	Date of Certification
•Target annualized return					
–Absolute: 3-month T-Bills + 500 bps	5.9%	3.1%	3 year rolling	No	9/30/2018
–Relative: HFRX Global Hedge Fund Index	2.2%	3.1%	3 year rolling	Yes	9/30/2018
•Target range of annualized volatility	3.0% – 8.0%	2.3%	3 year rolling	No	9/30/2018
•Sharpe ratio	0.6 - 1.0	0.9	3 year rolling	Yes	9/30/2018
•Beta to equity markets	0.2	0.1 [1]	3 year rolling	Yes	9/30/2018
•Beta to fixed income markets	0.2	-0.3 [2]	3 year rolling	Yes	9/30/2018
Capital Allocation Constraints					
•Number of investment managers	15-35	27	Monthly	Yes	9/30/2018
•Target/compliance range of allocation to strategies (at market)	Equity Hedge: 10-50%	28.9%	Monthly	Yes	9/30/2018
	Event Driven: 10-50%	25.7%	Monthly	Yes	9/30/2018
	Directional/Tactical: 10-50%	24.3%	Monthly	Yes	9/30/2018
	Relative Value: 0-40%	20.2%	Monthly	Yes	9/30/2018
	Other Assets / Liabilities (cash): <5%	0.9%	Monthly	Yes	9/30/2018
•Maximum allocation to a single fund (at market)	10%	6.1%	Monthly	Yes	9/30/2018
•Maximum allocation to a single advisor (at market)	15%	6.1%	Monthly	Yes	9/30/2018
•Maximum percentage ownership of a single fund	30%	6.8%	Quarterly	Yes	9/30/2018
Downside Risk Case (See risk report)					
•Portfolio-level RoR Impact of Severe Case Loss (at market)	25%	21.5%	Monthly	Yes	9/30/2018
•Severe Case Loss in a single fund (at market)	<3% Capital at Risk	1.4%	Monthly	Yes	9/30/2018
•Severe Case Loss in a single advisor (at market)	<6% Capital at Risk	1.4%	Monthly	Yes	9/30/2018
Liquidity					
•Hard lockup period of 1 year or greater	<20%	2.3%	Monthly	Yes	9/30/2018
•Quarterly liquidity or better (excluding locks)	>75%	80.7%	Monthly	Yes	9/30/2018
•Percent of portfolio available within 1 year (excluding locks)	>65%	82.6%	Monthly	Yes	9/30/2018
•Hard lockup more than 2 years (not to exceed three years)	<10%	0.0%	Monthly	Yes	9/30/2018
Leverage					
•Strategy level leverage	Tactical Trading: 20x	10.1	Quarterly	Yes	9/30/2018
	Event Driven: 4x	1.8	Quarterly	Yes	9/30/2018
	Equity Long / Short: 4x	1.8	Quarterly	Yes	9/30/2018
	Relative Value: 8x	8.9	Quarterly	No	9/30/2018

As of September 2018. Investment guideline targets are subject to change and are current as of the date of this presentation. Investment guideline targets are objectives and do not provide any assurance as to future results.
Past performance does not guarantee future results, which may vary. Source: HFR Database © HFR, Inc. 2018, www.hedgefundresearch.com. Pertrac Indicies Database, www.msci.com, www.barcap.com.
1. Beta to equity markets represents the LACERA portfolio's beta to the MSCI World Index Hedged USD. 2. Beta to fixed income markets represents the LACERA portfolio's beta to the Barclays Aggregate Bond Index.

Additional Information

The information contained herein is non-public and proprietary in nature and may constitute trade secrets under California law, the disclosure of which could have adverse effects on Goldman Sachs or the Fund described herein and its investments. This information includes a detailed account of investment strategy based on proprietary methods and techniques of an financial analysis and valuation, which is used in Goldman Sachs' businesses. Goldman Sachs has taken reasonable efforts to preserve the confidential nature of this information and derives independent economic value from the fact that such methods and techniques are not widely known. The following confidential information was prepared by Goldman Sachs solely in connection with a proposed investment in the Fund described herein by LACERA and may not be disclosed, reproduced or used for any other purposes. The following confidential information may be excepted from public disclosure pursuant to Section 6254.15 of the California Government Code, or alternatively pursuant to Section 6254.26 of the California Government Code. Any information provided by or on behalf of the Fund must be returned upon request of Goldman Sachs. Please advise Goldman Sachs if LACERA is subject to any additional entity-specific (including, but not limited to, pursuant to internal policies) Freedom of Information Act or similar open records disclosure requirements before any disclosure pursuant to such requirements is made.

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Index Benchmarks

Indices are unmanaged. The figures for the index reflect the reinvestment of all income or dividends, as applicable, but do not reflect the deduction of any fees or expenses which would reduce returns. Investors cannot invest directly in indices.
The indices referenced herein have been selected because they are well known, easily recognized by investors, and reflect those indices that the Investment Manager believes, in part based on industry practice, provide a suitable benchmark against which to evaluate the investment or broader market described herein. The exclusion of "failed" or closed hedge funds may mean that each index overstates the performance of hedge funds generally.

MSCI World Index
he MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. The MSCI World Index consists of the following 23 developed market country indexes: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The index is calculated without dividends, with net or with gross dividends reinvested, in both US dollars and local currencies. Source: PerTrac Indices Database, www.mscidata.com.

Barclays Aggregate Bond Index
The Barclays Capital U.S. Aggregate Index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis. Source: PerTrac Indices Database, www.barcap.com

HFRX Global Hedge Fund Index
The HFRX Global Hedge Fund Index is designed to be representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry. Source: HFR Database © HFR, Inc. 2015, www.hedgefundresearch.com. Please note that HFRX performance indications are based on preliminary estimates.

General Disclosures
Past performance does not guarantee future results, which may vary. The value of investments and the income derived from investments will fluctuate and can go down as well as up. A loss of principal may occur.

Although certain information has been obtained from sources believed to be reliable, we do not guarantee its accuracy, completeness or fairness. We have relied upon and assumed without independent verification, the accuracy and completeness of all information available from public sources.

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The strategy may include the use of derivatives. Derivatives often involve a high degree of financial risk because a relatively small movement in the price of the underlying security or benchmark may result in a disproportionately large movement in the price of the derivative and are not suitable for all investors. No representation regarding the suitability of these instruments and strategies for a particular investor is made.

LACERA Direct Portfolio

Portfolio Fund Summary

LACERA Direct Portfolio Summary (September 30, 2018)

Investment Manager and Fund	Inception	QTD Opening Balance	QTD Subscriptions / (Redemptions)	QTD Gain / (Loss)	QTD Ending Balance	% of Direct HF Program (9/30/2018)	3Q 2018	YTD	1 Year	3 Year	ITD
Multi-Strategy											
AQR Liquid Enhanced Alternative Premia Fund, L.P.	4/1/2018	67,637,691		453,434	68,091,125	24.2%	0.67%	-9.21%	-	-	-9.21%
Davidson Kempner Institutional Partners, L.P.	4/1/2018	60,422,341	25,000,000	1,166,090	86,588,431	30.8%	1.62%	2.35%	-	-	2.35%
HBK Multi-Strategy Fund L.P.	5/1/2018	126,947,585		(75,047)	126,872,538	45.1%	-0.06%	1.50%	-	-	1.50%
Multi-Strategy Total		**255,007,617**	**25,000,000**	**1,544,477**	**281,552,094**	**100.0%**	**0.49%**	**-1.99%**	**-**	**-**	**-1.99%**
Total Direct Portfolio		**255,007,617**		**1,544,477**	**281,552,094**	**100.0%**	**0.49%**	**-1.99%**	**-**	**-**	**-1.99%**

LACERA - DIRECT PORTFOLIO

Investment Guidelines Summary (as of September 30, 2018)

Performance Objectives	Investment Guidelines	LACERA Direct Portfolio	Measurement Period	In Compliance?
•Target annualized return				
–Absolute: 3-month T-Bills + 500 bps	1.67%	-1.99%	ITD	n/a
–Relative: HFRX Global Hedge Fund Index	0.17%	-1.99%	ITD	n/a
•Target range of annualized volatility	3.0% – 8.0%	n/a	3 year rolling	n/a
•Beta to equity markets referencing MSCI ACWI	< 0.2	n/a	3 year rolling	n/a
Capital Allocation Constraints				
•Number of investment managers	8 to 20	3	Quarterly	n/a
•Minimum allocation to a single fund (at market)	$5 million	$75,000,000	Quarterly	Yes
•Maximum percentage ownership of a single fund	35%	16%	Quarterly	Yes
•Maximum exposure to an investment manager across multiple funds	20% of Direct HF Portfolio (fully invested)	n/a	Quarterly	n/a
Downside Risk Case				
•Portfolio-level RoR Impact of Severe Case Loss (at market)	> -10%	n/a	Quarterly	n/a
Liquidity				
•Remaining lock up period of 1 year or greater	<40%	0.0%	Quarterly	Yes
•Remaining lock up period of 2 year or greater	<25%	0.0%	Quarterly	Yes
•Remaining lock up period of 3 year or greater	<10%	0.0%	Quarterly	Yes
•Remaining lock up period of 5 year or greater	0%	0.0%	Quarterly	Yes
•Minimum invested as % of portfolio asset value in funds where full or partial liquidity is available within one quarter (excluding notification periods and after lock-up expires)	40%	100.0%	Quarterly	Yes
•Minimum invested in funds liquid within 1 year (excluding notification periods and after lock-up expires)	65%	100.0%	Quarterly	Yes
Leverage				
•Strategy level leverage	Macro / Tactical Trading: 20x	n/a	Quarterly	n/a
	Event Driven: 4x	n/a	Quarterly	n/a
	Equity Hedge: 4x	n/a	Quarterly	n/a
	Relative Value: 8x	n/a	Quarterly	n/a
	Multi-Strategy: 5x	5.0	Quarterly	n/a

Disclosures

In the interest of transparency, Investment Staff would like to document the following two personal relationships that exist between LACERA staff and hedge fund managers where LACERA is invested. Staff have openly disclosed these relationships to avoid any perception of conflict or bias.

Jonathan Grabel, LACERA's Chief Investment Officer, and Ashish Kishore, a Partner at Manikay Partners, LLC have a long-standing, personal friendship that dates back over 20 years. Manikay Partners runs a hedge fund held by LACERA in the fund of funds portfolio managed by Goldman Sachs Asset Management. The following details are provided to establish the independence of the institutional relationship between LACERA and Manikay Partners relative to the personal relationship between Messrs. Grabel and Kishore: (1) Mr. Grabel's relationship with Mr. Kishore pre-dates the employment of Mr. Grabel as CIO of LACERA in 2017 and LACERA's investment in Manikay pre-dates Mr. Grabel's employment at LACERA; (2) Goldman Sachs has had and maintains full discretion, within established guidelines, for selecting or terminating fund managers, including the Manikay Fund, in its portfolio; and (3) Mr. Grabel disclosed that he has no current or former financial relationship with Mr. Kishore and has had no communication about LACERA's investment with Manikay with him.

James Rice, Principal Investment Officer at LACERA, and Kathleen Salvaty, Vice President Legal at AQR, have a personal friendship that dates back five years. AQR runs the Liquid Enhanced Alternative Premia Fund held by LACERA in its direct hedge fund portfolio. The following details are provided to establish the independence of the institutional relationship between LACERA and AQR relative to the personal relationship between Mr. Rice and Ms. Salvaty: (1) Even though Mr. Rice's relationship with Ms. Salvaty pre-dates Staff's recommendation of AQR to its direct portfolio in December 2017 and initial investment in April 2018, Mr. Rice only became aware that Ms. Salvaty had been hired by and accepted a position with AQR in May 2018, after LACERA was already invested in the AQR Fund. Ms. Salvaty also became aware of Mr. Rice's business relationship with AQR at that same time and no ongoing communication about LACERA's investment with AQR has been occurring; (2) Mr. Rice did not introduce Ms. Salvaty to AQR and had no communication with the firm or her about her potential employment during the hiring process; and (3) Mr. Rice disclosed that he has no current or former financial relationship with Ms. Salvaty.

Glossary of Hedge Fund Terms

Hedge Fund Strategies

Overview

- Credit strategies
  - Directional and relative value investments in debt securities, credit derivatives and related instruments
  - Strategies include long-biased credit, long/short credit, structured credit and mortgage credit
  - Hedging investments include short credit index, individual short, credit default swap and sovereign credit investments
- Relative value strategies
  - Trades constructed to capitalize on perceived mispricings of one instrument relative to another or one maturity relative to another for a given instrument
  - Generally less dependent on market direction
  - Strategies include convertible arbitrage, statistical arbitrage, fixed income arbitrage and option volatility arbitrage
- Equities strategies
  - Purchases (buying long) and/or sales (selling short) of equities based on fundamental and/or quantitative analysis and other factors
  - Managers typically seek to capitalize on discrepancies between their assessment of security valuations and current market prices
  - Strategies include long-biased hedged equities, less-correlated hedged equities and activist

Hedge Fund Strategies

Overview (continued)

- Event driven strategies
  - Investments that seek to exploit situations in which an announced or anticipated event creates inefficiencies in the pricing of securities
  - Potential events include mergers, acquisitions, recapitalizations, bankruptcies and litigation decisions
  - Strategies include risk arbitrage and diversified event driven
- Macro strategies
  - Investments based on analyses and forecasts of macroeconomic trends, including governmental and central bank policies, fiscal trends, trade imbalances, interest rate trends and inter-country relations
  - Strategies include discretionary and systematic
- Commodities strategies
  - Investments across global commodity markets based on an analysis of factors, including supply and demand, legislative and environmental policies, trends in growth rates and resource consumption, global monetary and trade policy, geopolitical events and technical factors
  - Strategies may be long/short directional, spread-oriented or volatility-oriented
  - Strategies include discretionary and systematic
- Portfolio hedging strategies
  - Investments designed to reduce a portfolio's overall exposure to various systemic risks and intended to provide protection during broad market downturns
  - Strategies include dedicated short equity, synthetic short equity, dedicated short credit and tail risk protection

Hedge Fund Strategies

Overview

Equity

- Fundamental long/short
  - Long-biased
  - Neutral
  - Short-biased
  - Variable
- Activist
- Trading-oriented long/short
- Event driven
  - Merger arbitrage
  - Spin-offs
  - Recapitalizations
  - Special situations
- Regional focus
- Sector specialist

Credit

- Long/short
- Directional credit
  - Bank debt
  - Distressed securities
  - Mezzanine debt
  - Direct lending
- Structured credit
  - Residential mortgages (RMBS)
  - Commercial mortgages (CMBS)
  - Other Asset-Backed Securities (ABS)

Relative value

- Convertible bond arbitrage
- Fixed income arbitrage
- Option volatility arbitrage
- Statistical arbitrage

Tactical trading

- Global macro
  - Discretionary
  - Systematic
- Commodities
  - Relative value
  - Directional
  - Systematic

Hedging strategies

- Short equity
- Short credit
- Synthetic put convertible bond arbitrage
- Tail risk “protection” strategies

Risk Measure

Leverage

FOR ILLUSTRATIVE PURPOSES ONLY. NOT INTENDED TO PRESENT DATA RELATED TO ANY FUND.

The leverage of investments within a portfolio should be understood within the context of the portfolio's volatility or variance.

Leverage illustrations

- Buy equity shares on margin
  - Apple stock: $345
  - Initial margin: 20%
  - Leverage = ($345 / $69) = 5x
- Buy a futures contract on margin
  - S&P 500 Index: 1330
  - E-mini futures notional value: $66,500 ($50 * 1330)
  - Exchange margin: $3,500
  - Leverage = $66,500 / $3,500 = 19x
- Buy a credit default swap (CDS)
  - Purchase $100 million notional protection for 5 years on General Electric's senior debt costing 115 bps a year
  - Leverage = $100mm / ($1.15mm * 5) = 17x
- Borrow money to buy a bond
  - Term financing on commercial mortgage-backed security collateral. 2 year term, cost is LIBOR + 150 bps, haircuts (margin) are 25%.
  - 25% margin = 4x leverage

Goal	■ Understand how leverage can magnify returns, both positive and negative ■ Understand that levered investments may have higher volatility
Formula	$Leverage = \frac{Notional\ Exposure}{Capital\ Exposure}$
History	■ Excessive use of leverage has been the source of many financial crises
Usefulness	■ Some types of leverage are risk mitigating ■ Should carefully examine levered investments to understand whether use of leverage is prudent
Limitations	■ Various sources of leverage › Borrowing › Inherent to instrument ■ Terminology can be confusing › Leverage versus exposure

Risk Measure

Liquidity

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The liquidity of investments within a portfolio should be understood within the context of the portfolio's volatility or variance.

Liquidity illustration

Investment	Liquidity
Equity	Daily, in many cases
Fixed Income	Daily, in many cases
Hedge Funds	▪ Varies from monthly liquidity to multi-year lockups ▪ Quarterly or semi-annual liquidity is common
Private Equity	5-10 year duration
Real Estate	Multi year

Goal	Understand ability to liquidate investments, especially during crises
Measures	Time needed to liquidate investment without incurring a material negative price impact as a result of the sale
History	▪ Liquidity typically "dries up" during financial crises ▪ Less liquid investments › May be more volatile than their return streams indicate › Have higher expected returns
Usefulness	▪ Liquidity indicates how quickly cash may be raised ▪ Liquidity informs the reliability of certain risk statistics when evaluating an investment
Limitations	Assessment influenced by the chosen representative market environment

The Gabriel Funds

Notes and Disclosures

In reviewing this presentation relating to San Gabriel Fund, L.P. (the "Gabriel"), San Gabriel Fund 2, L.P. ("Gabriel 2") or San Gabriel Fund 3, L.P. ("Gabriel 3" together with Gabriel and Gabriel 2, the "Gabriel Funds"), you should consider the following:

Gabriel commenced operations on October 1, 2011.

Gabriel 2 commenced investment operations on January 1, 2013.

Gabriel 3 commenced investment operations on February 1, 2016.

To the extent this report includes the performance of the Gabriel Funds, such returns are calculated net of all fees and expenses.

Figures for 2011–2017, as applicable, are derived from books and records of the Gabriel Funds that have been audited by the Gabriel Funds' independent public accountants.

Figures for 2018 are estimated based on unaudited books and records of the Gabriel Funds.

Target Returns, Forward Looking Estimates, and Risk Parameters: Target returns, forward looking estimates, and risk parameters are shown to illustrate the current risk/return profile of how the fund or investment is/will be managed. **Target returns, forward looking estimates, and risk parameters do not forecast, predict, or project any fund, investment, or investor return.** It does not reflect the actual or expected returns of any investor, investment, GCM fund, or strategy pursued by any GCM fund, and does not guarantee future results.

Target returns, forward looking estimates, and risk parameters:

- are based solely upon how the fund or investment is expected to be managed including, but not limited to, GCM Grosvenor's current view of the potential returns and risk parameters of the investment, investments in the GCM fund, or strategy pursued by a GCM fund;
- do not forecast, predict, or project the returns or risk parameters for any investor, investment, GCM fund, or any strategy pursued by any GCM fund; and
- are subject to numerous assumptions including, but not limited to, observed and historical market returns relevant to certain investments, asset classes, projected cash flows, projected future valuations of target assets and businesses, other relevant market dynamics (including interest rate and currency markets), anticipated contingencies, and regulatory issues.

Changes in the assumptions will have a material impact on the target returns, forward looking estimates, and risk parameters presented. Target returns and forward looking estimates are generally shown before fees, transactions costs and taxes and do not account for the effects of inflation. Management fees, transaction costs, and potential expenses may not be considered and would reduce returns and affect parameters. **Target Returns And Risk Parameters May Not Materialize.**

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L//.CERA

FOR INFORMATION ONLY

November 7, 2018

TO: Each Member
Board of Investments

FROM: Jude Perez
Principal Investment Officer

FOR: December 12, 2018 BOARD OF INVESTMENTS MEETING

SUBJECT: **OPEB MASTER TRUST**

Attached is the quarterly report for the OPEB Master Trust, as of September 30, 2018.

Noted and Reviewed

Jonathan Grabel
Chief Investment Officer

Attachment
JP:st

PERFORMANCE REVIEW

OPEB Master Trust

AS OF SEPTEMBER 30, 2018

OPEB MASTER TRUST

for the quarter ended September 30, 2018

COMMENTARY

The OPEB Master Trust (OPEB Trust) is comprised of three separate trusts; 1) Los Angeles County 2) LACERA and 3) Superior Court. The net-of-fee performance for all three plans was 2.1% for the third quarter and fiscal year-to-date.

As a reminder, in June 2018, the OPEB Trust was transitioned to the revised asset allocation, reflecting the functional categories adopted by the Board. Within the four categories of Growth, Credit, Risk Reduction and Mitigation, and Inflation Hedges, are eight commingled fund investments managed by BlackRock and one separate account managed by J.P. Morgan. The balance of this report will review the net-of-fee third quarter performance of these categories.

The OPEB Growth component is comprised of a global equity MSCI All Country World fund. Growth was the highest returning category on an absolute basis, returning 3.9% for the quarter.

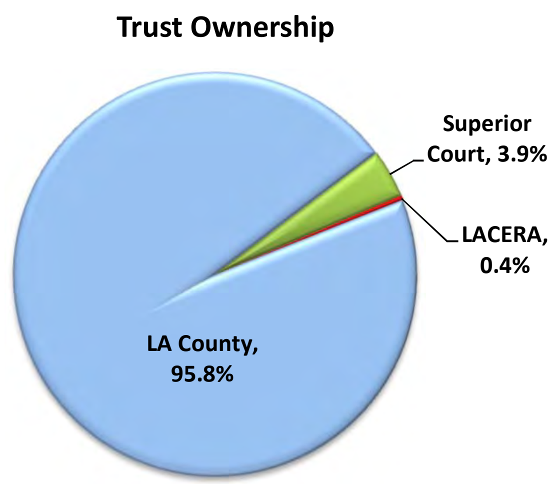
The OPEB Credit allocation consists of three funds: High yield bonds, emerging markets debt (local currency), and bank loans. The three funds returned 2.4%, -2.0%, and 1.6%, respectively. As a group, Credit returned 1.1%.

OPEB Risk Reduction and Mitigation returned 0.3% and includes an investment grade bond fund as well as a separately managed enhanced cash account. The investment grade bond fund returned 0.1% in the quarter, while enhanced cash generated a 1.0% return. The performance of enhanced cash was higher than expected due to income received in early July. The income was generated from approximately $100 million in cash raised for the reallocation to the new strategic asset allocation.

The OPEB Inflation Hedges category returned -0.3%. Returns were mixed amongst the three funds within the composite: Treasury inflation protected securities (TIPS) fell -0.8% in the quarter, real estate investment trusts (REITs) gained 0.7%, and the commodities allocation declined by -2.0%.

Fund Name	Inception Date	Market Value (millions)	Trust Ownership	Qtr	FYTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
Los Angeles County:	Feb-2013	$964.0	95.8%						
Gross				2.1	2.1	7.8	11.4	6.8	----
Net				2.1	2.1	7.8	11.3	6.8	----
Net All[1]				2.1	2.1	7.7	11.3	6.7	----
LACERA:	Feb-2013	$3.7	0.4%						
Gross				2.2	2.2	7.9	11.4	6.8	----
Net				2.1	2.1	7.8	11.4	6.8	----
Net All[1]				2.0	2.0	7.3	10.7	6.4	----
Superior Court:	Jul-2016	$39.0	3.9%						
Gross				2.1	2.1	7.8	----	----	----
Net				2.1	2.1	7.8	----	----	----
Net All[1]				2.0	2.0	7.6	----	----	----
TRUST OWNERSHIP TOTAL:		**$1,006.7**	**100.0%**						

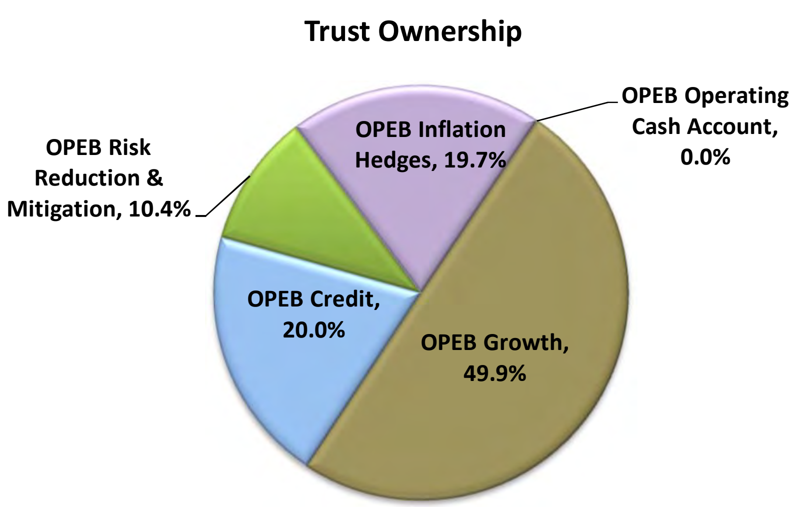
[1] Includes Custody & LACERA's Administrative Fees.



OPEB MASTER TRUST

for the quarter ended September 30, 2018

Fund Name	Inception Date	Market Value (millions)	Trust Ownership	Qtr	FYTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
OPEB Growth	Jul-2016	$502.1	49.9%						
Gross				4.0	4.0	9.9	----	----	----
Net				3.9	3.9	9.9	----	----	----
Net All				3.9	3.9	9.9	----	----	----
OPEB Credit	Jul-2018	$201.4	20.0%						
Gross				1.2	1.2	----	----	----	----
Net				1.1	1.1	----	----	----	----
Net All				1.1	1.1	----	----	----	----
OPEB Risk Reduction & Mitigation	Jul-2018	$104.3	10.4%						
Gross				0.3	0.3	----	----	----	----
Net				0.3	0.3	----	----	----	----
Net All				0.3	0.3	----	----	----	----
OPEB Inflation Hedges	Jul-2018	$198.7	19.7%						
Gross				-0.2	-0.2	----	----	----	----
Net				-0.3	-0.3	----	----	----	----
Net All				-0.3	-0.3	----	----	----	----
OPEB Operating Cash Account		$0.1	0.0%	----	----	----	----	----	----
TRUST OWNERSHIP TOTAL:		**$1,006.7**	**100.0%**						



OPEB MASTER TRUST

for the quarter ended September 30, 2018

Allocation	Inception Date	Market Value (millions)	Allocation %	Qtr	FYTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
OPEB Global Equity:	Mar-2014	$502.1	49.9%						
Gross				4.0	4.0	10.0	13.9	---	---
Net				3.9	3.9	9.9	13.8	---	---
Benchmark: MSCI ACWI IMI Net				3.9	3.9	9.6	13.5	---	---
Excess Return (Gross - Benchmark)				*0.1*	*0.1*	*0.3*	*0.4*	---	---
OPEB BTC High Yield Bonds	Jul-2018	$60.9	6.1%						
Gross				2.4	2.4	---	---	---	---
Net				2.4	2.4	---	---	---	---
Benchmark: BC High Yield Index				2.4	2.4	---	---	---	---
Excess Return (Gross - Benchmark)				*0.0*	*0.0*	---	---	---	---
OPEB BTC EM Debt LC	Jul-2018	$39.4	3.9%						
Gross				-1.9	-1.9	---	---	---	---
Net				-2.0	-2.0	---	---	---	---
Benchmark: JPM GBI-EM Global Diversified Index				-1.8	-1.8	---	---	---	---
Excess Return (Gross - Benchmark)				*-0.1*	*-0.1*	---	---	---	---
OPEB BTC Inv. Grade Bonds	Jul-2018	$80.8	8.0%						
Gross				0.1	0.1	---	---	---	---
Net				0.1	0.1	---	---	---	---
Benchmark: BBG BARC US Aggregate Index				0.0	0.0	---	---	---	---
Excess Return (Gross - Benchmark)				*0.1*	*0.1*	---	---	---	---
OPEB BTC TIPS	Jul-2018	$60.0	6.0%						
Gross				-0.8	-0.8	---	---	---	---
Net				-0.8	-0.8	---	---	---	---
Benchmark: BBG US TIPS Index				-0.8	-0.8	---	---	---	---
Excess Return (Gross - Benchmark)				*0.0*	*0.0*	---	---	---	---
OPEB BTC REITs	Jul-2018	$99.3	9.9%						
Gross				0.7	0.7	---	---	---	---
Net				0.7	0.7	---	---	---	---
Benchmark: DJ US Select Real Estate Sec Index				0.7	0.7	---	---	---	---
Excess Return (Gross - Benchmark)				*0.0*	*0.0*	---	---	---	---
OPEB BTC Commodities	Jul-2018	$39.4	3.9%						
Gross				-2.0	-2.0	---	---	---	---
Net				-2.0	-2.0	---	---	---	---
Benchmark: Bloomberg Commodity Index (Total Return)				-2.0	-2.0	---	---	---	---
Excess Return (Gross - Benchmark)				*0.0*	*0.0*	---	---	---	---
OPEB BTC Bank Loans	Jul-2018	$101.1	10.0%						
Gross				1.8	1.8	---	---	---	---
Net				1.6	1.6	---	---	---	---
Benchmark: S&P/LSTA Leveraged Loan Index				1.8	1.8	---	---	---	---
Excess Return (Gross - Benchmark)				*-0.1*	*-0.1*	---	---	---	---
OPEB Enhanced Cash:	Feb-2013	$23.6	2.3%						
Gross				1.0	1.0	2.1	1.4	1.0	---
Net				1.0	1.0	2.1	1.3	0.9	---
Benchmark: FTSE 6 M T-Bill Index				0.5	0.5	1.6	0.9	0.6	---
Excess Return (Gross - Benchmark)				*0.5*	*0.5*	*0.5*	*0.5*	*0.4*	---

Master Trust OPEB Analytics Report

Prepared for LACERA

30 September 2018

Master Trust OPEB Asset Allocation & Analytics

LACERA

30-Sep-2018

Reporting Currency: USD

Master Trust OPEB Allocation vs Policy Benchmark

	Market Value (Millions)	Allocation (%)	Policy Benchmark (%)	Benchmark	Relative (%)
Growth	502.12	49.9%	50.0%	OPEB Growth Blend	-0.1%
Credit	201.44	20.0%	20.0%	OPEB Credit Blend	0.0%
Inflation Hedges	198.69	19.7%	20.0%	OPEB Inflation Blend	-0.3%
Risk Reduction and Mitigation	104.63	10.4%	10.0%	OPEB Risk Reduc Blend	0.4%
TOTAL	**1,006.88**	**100.0%**	**100.0%**		**0.0%**

OPEB Asset Allocation & Analytics

LACERA

30-Sep-2018
Reporting Currency: USD

OPEB Allocation vs Policy Benchmark

	Market Value (Millions)	Allocation (%)	Policy Benchmark (%)	Benchmark	Relative (%)
LA County					
Growth	481.00	49.9%	50.0%	OPEB Growth Blend	-0.1%
Credit	192.96	20.0%	20.0%	OPEB Credit Blend	0.0%
Inflation Hedges	190.08	19.7%	20.0%	OPEB Inflation Blend	-0.3%
Risk Reduction and Mitigation	99.97	10.4%	10.0%	OPEB Risk Reduc Blend	0.4%
TOTAL	**964.02**	**100.0%**	**100.0%**		**0.0%**
LACERA OPEB					
Growth	1.86	50.1%	50.0%	OPEB Growth Blend	0.1%
Credit	0.74	19.9%	20.0%	OPEB Credit Blend	-0.1%
Inflation Hedges	0.73	19.6%	20.0%	OPEB Inflation Blend	-0.4%
Risk Reduction and Mitigation	0.38	10.4%	10.0%	OPEB Risk Reduc Blend	0.4%
TOTAL	**3.71**	**0.4%**	**100.0%**		**0.0%**
Superior Court					
Growth	19.26	49.4%	50.0%	OPEB Growth Blend	-0.6%
Credit	7.73	19.8%	20.0%	OPEB Credit Blend	-0.2%
Inflation Hedges	7.88	20.2%	20.0%	OPEB Inflation Blend	0.2%
Risk Reduction and Mitigation	4.10	10.5%	10.0%	OPEB Risk Reduc Blend	0.5%
TOTAL	**38.97**	**4.0%**	**100.0%**		**0.0%**

OPEB Analytics, Volatility & Tracking Error

LACERA

30-Sep-2018
Reporting Currency: USD

OPEB Analytics

	Benchmark	Market Value (Millions)	Allocation (%)	Volatility (% per annum)[1]	Standalone VaR (% of MV)[2]	Total VaR Contribution (% of Total MV)[3]	Tracking Error Contribution (% of Total MV)[4]
LA County							
Growth	OPEB Growth Blend	481.00	49.9%	10.83%	16.87%	9.03%	0.01%
Credit	OPEB Credit Blend	192.96	20.0%	5.30%	9.44%	1.25%	0.00%
Inflation Hedges	OPEB Inflation Blend	190.08	19.7%	7.53%	12.32%	1.32%	0.00%
Risk Reduction and Mitigation	OPEB Risk Reduc Blend	99.97	10.4%	3.12%	5.39%	-0.18%	0.00%
TOTAL		**964.02**	**100.0%**	**7.10%**	**11.42%**	**11.42%**	**0.01%**
	Weighted Average Benchmark [5]			*7.10%*	*11.41%*	*11.41%*	
Benchmark	**Policy Benchmark**			**7.10%**	**11.41%**	**11.41%**	**0.01%**
						Aggregate Benchmark Structural Risk [6]	**0.00%**
LACERA							
Growth	OPEB Growth Blend	1.86	50.1%	10.83%	16.87%	9.06%	0.01%
Credit	OPEB Credit Blend	0.74	19.9%	5.30%	9.44%	1.25%	0.00%
Inflation Hedges	OPEB Inflation Blend	0.73	19.6%	7.53%	12.32%	1.31%	0.00%
Risk Reduction and Mitigation	OPEB Risk Reduc Blend	0.38	10.4%	3.08%	5.32%	-0.18%	0.00%
TOTAL		**3.71**	**100.0%**	**7.11%**	**11.44%**	**11.44%**	**0.01%**
	Weighted Average Benchmark [5]			*7.11%*	*11.44%*	*11.44%*	
Benchmark	**Policy Benchmark**			**7.11%**	**11.44%**	**11.44%**	**0.01%**
						Aggregate Benchmark Structural Risk [6]	**0.00%**
Superior Court							
Growth	OPEB Growth Blend	19.26	49.4%	10.83%	16.87%	8.55%	0.01%
Credit	OPEB Credit Blend	7.73	19.8%	5.30%	9.44%	1.31%	0.00%
Inflation Hedges	OPEB Inflation Blend	7.88	20.2%	7.53%	12.32%	1.65%	0.00%
Risk Reduction and Mitigation	OPEB Risk Reduc Blend	4.10	10.5%	3.12%	5.38%	-0.16%	0.00%
TOTAL		**38.97**	**100.0%**	**7.07%**	**11.36%**	**11.36%**	**0.01%**
	Weighted Average Benchmark [5]			*7.07%*	*11.36%*	*11.36%*	
Benchmark	**Policy Benchmark**			**7.07%**	**11.36%**	**11.36%**	**0.01%**
						Aggregate Benchmark Structural Risk [6]	**0.00%**
Master Trust OPEB							
TOTAL		**1,006.88**	**100.0%**	**7.10%**	**11.47%**	**11.47%**	**0.01%**
Benchmark	**Policy Benchmark**			**7.10%**	**11.46%**	**11.46%**	

1: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each asset class.
2: Standalone VaR is the annualized Value-at-Risk at the 95th percentile expressed as a percentage of the market value of each asset class.
3: Total VaR Contribution is calculated using historic VaR at 95th percentile, 1 month horizon, annualized excluding the mean, and expressed as a percentage of the total plan assets.
4: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of the total plan assets.
5: Weighted average benchmark is the market value weighted average of the asset class benchmarks.
6: Aggregate Benchmark Structural Risk = [Tracking Error of the Total Plan to the policy benchmark] - [Tracking Error of the Total Plan to the weighted average of asset class benchmarks]

Master Trust OPEB Asset Allocation & Analytics

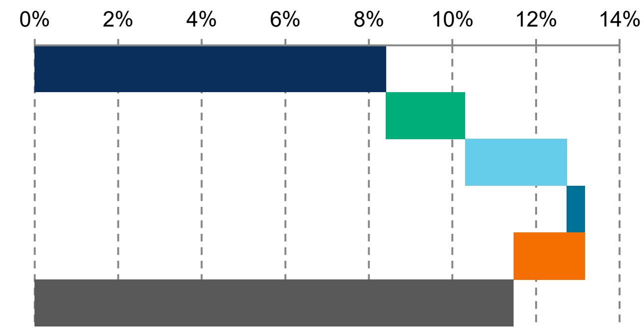
LACERA

30-Sep-2018

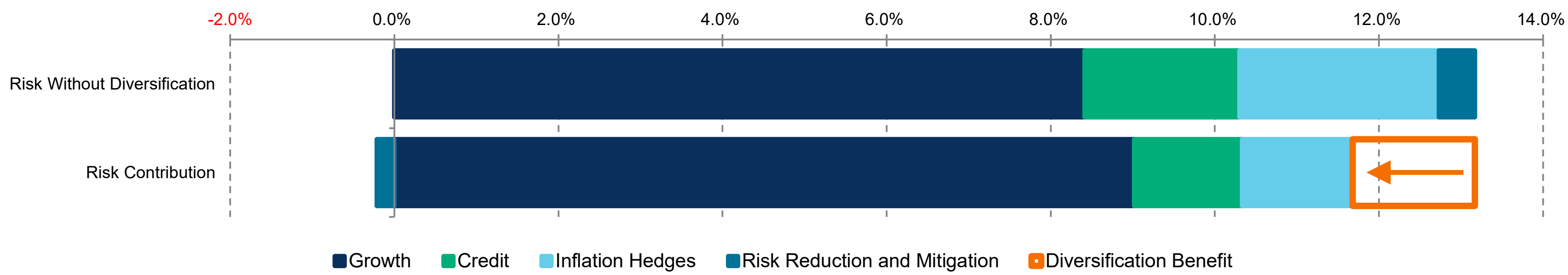
Reporting Currency: USD

Master Trust OPEB Risk & Diversification

	Allocation (%)	Weighted Standalone VaR (% of Total MV)[1] Monthly	Annual
Growth	49.9%	2.4%	8.4%
Credit	20.0%	0.5%	1.9%
Inflation Hedges	19.7%	0.7%	2.4%
Risk Reduction and Mitigation	10.4%	0.1%	0.4%
Diversification Benefit[2]	-	-0.5%	-1.7%
TOTAL	**100.0%**	**3.3%**	**11.5%**



Risk Contribution and Diversification



1: Standalone risk (historical VaR 95) of each asset class is weighted and expressed as a percent of total plan assets, i.e. contribution to risk without diversification benefit.
2: Diversification benefit is calculated as the sum of the standalone VaR at 95th percentile for each asset class less the total plan VaR.

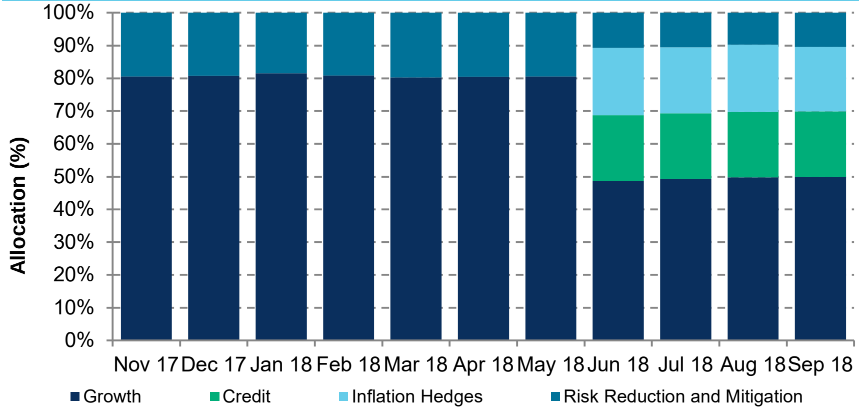
Master Trust OPEB Analytics, Volatility & Tracking Error

LACERA

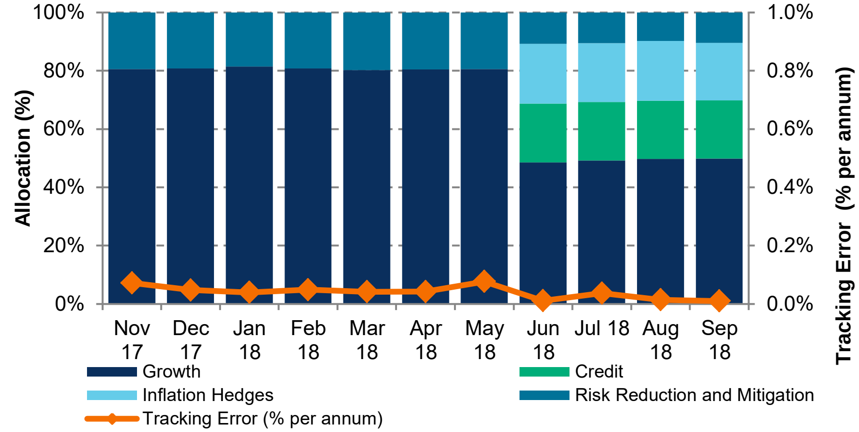
30-Sep-2018

Reporting Currency: USD

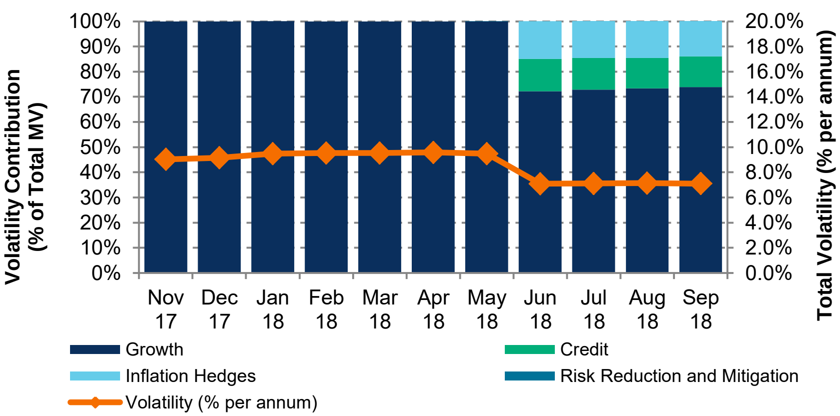
Master Trust OPEB Allocation Trend



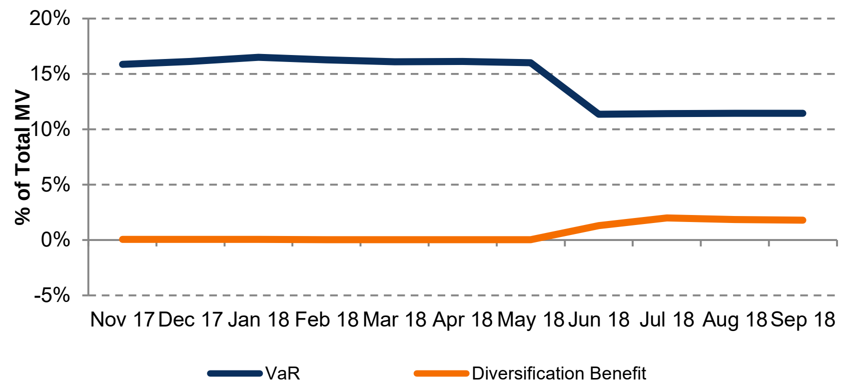
Master Trust OPEB Allocation & Tracking Error Trend[1]



Master Trust OPEB Volatility & Contrib. to Volatility Trend[2]



Master Trust OPEB Total Risk & Diversification Trend[3]



1: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of the total plan assets.
2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each asset class.
3: Diversification benefit is calculated as the sum of the standalone VaR at 95th percentile for each asset class less the total plan VaR.

Master Trust OPEB Stress Testing

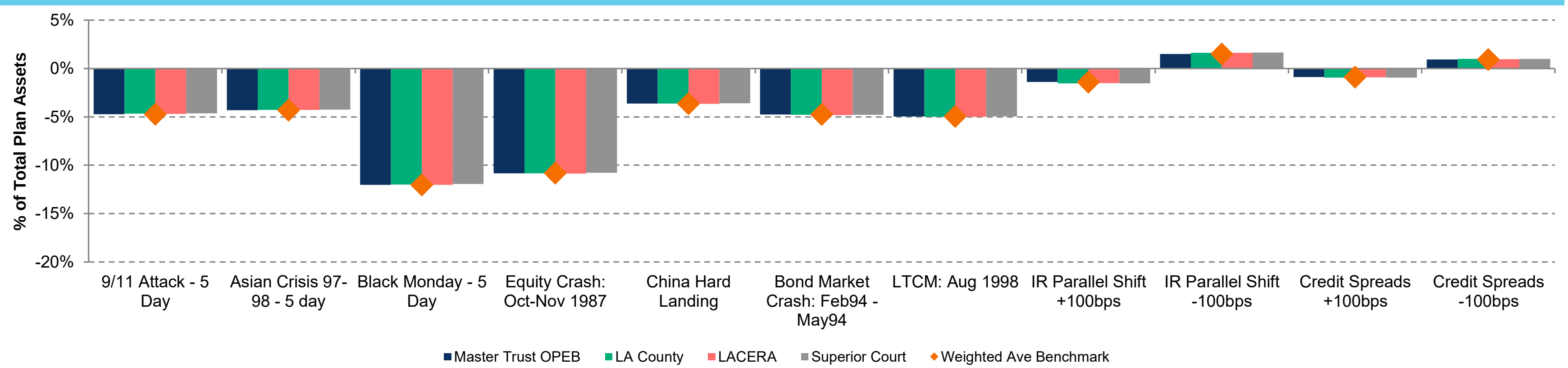
LACERA

30-Sep-2018
Reporting Currency: USD

Stress Test - % of Market Value

	Allocation (%)	9/11 Attack - 5 Day	Asian Crisis 97-98 - 5 day	Black Monday - 5 Day	Equity Crash: Oct-Nov 1987	China Hard Landing	Bond Market Crash: Feb94 - May94	LTCM: Aug 1998	IR Parallel Shift +100bps	IR Parallel Shift -100bps	Credit Spreads +100bps	Credit Spreads -100bps
Growth	49.9%	-4.6%	-4.1%	-10.7%	-9.1%	-3.3%	-3.3%	-4.2%	0.0%	-0.0%	0.0%	0.0%
Credit	20.0%	0.3%	0.2%	0.2%	-0.3%	-0.1%	-0.7%	-0.1%	-0.5%	0.5%	-0.7%	0.7%
Inflation Hedges	19.7%	-0.6%	-0.5%	-1.7%	-1.4%	-0.2%	-0.6%	-0.6%	-0.4%	0.5%	-0.1%	0.1%
Risk Reduction and Mitigation	10.4%	0.2%	0.1%	0.1%	-0.0%	0.0%	-0.2%	-0.1%	-0.5%	0.5%	-0.2%	0.2%
Master Trust OPEB	**100.0%**	**-4.7%**	**-4.3%**	**-12.0%**	**-10.8%**	**-3.6%**	**-4.8%**	**-5.0%**	**-1.4%**	**1.5%**	**-0.9%**	**0.9%**
Benchmark		*-4.7%*	*-4.3%*	*-12.0%*	*-10.8%*	*-3.6%*	*-4.7%*	*-5.0%*	*-1.4%*	*1.5%*	*-0.9%*	*0.9%*
LA County		**-4.7%**	**-4.3%**	**-12.0%**	**-10.8%**	**-3.6%**	**-4.8%**	**-5.0%**	**-1.5%**	**1.6%**	**-0.9%**	**1.0%**
Benchmark		*-4.7%*	*-4.3%*	*-12.0%*	*-10.8%*	*-3.6%*	*-4.8%*	*-5.0%*	*-1.5%*	*1.6%*	*-0.9%*	*1.0%*
LACERA		**-4.7%**	**-4.3%**	**-12.0%**	**-10.9%**	**-3.6%**	**-4.8%**	**-5.0%**	**-1.5%**	**1.6%**	**-0.9%**	**1.0%**
Benchmark		*-4.7%*	*-4.3%*	*-12.0%*	*-10.9%*	*-3.6%*	*-4.8%*	*-5.0%*	*-1.5%*	*1.6%*	*-0.9%*	*1.0%*
Superior Court		**-4.6%**	**-4.3%**	**-11.9%**	**-10.8%**	**-3.6%**	**-4.8%**	**-5.0%**	**-1.6%**	**1.6%**	**-0.9%**	**1.0%**
Benchmark		*-4.7%*	*-4.3%*	*-11.9%*	*-10.8%*	*-3.6%*	*-4.8%*	*-5.0%*	*-1.6%*	*1.6%*	*-0.9%*	*1.0%*

Stress Test Chart



Glossary

Appendix - Glossary

LACERA

30-Sep-2018
Reporting Currency: USD

Terms and Definitions

Analytics

Value-at-Risk 95%	Value-at-risk quantifies the potential loss in a portfolio at a certain level of confidence. Value-at-Risk 95th percentile means there is a 5% chance of losing more than X%. Alternatively, it can be expressed as there is a 1 in 20 chance of losing more than X% in the next month (or year if it is an annual measure).
Volatility	Volatility is another measure quantifying the potential variability in a portfolio's asset value. Volatility means there is a 1 in 3 chance the portfolio will change in value by +/- X% in 1 year. Alternatively, it can be expressed that 1 year in 3 years, the portfolio will change in value by +/- X% per annum.
Tracking Error	An ex-ante (forward looking, or before the event) measure of how closely a portfolio follows the index to which it is compared. It measures the standard deviation of the difference between the portfolio and benchmark scenario returns.
Aggregate Benchmark Structural Risk	Aggregate Benchmark Structural Risk = [Tracking Error of the Total Plan to the policy benchmark] - [Tracking Error of the Total Plan to the weighted average of asset class benchmarks]. This can equally be applied to strategy level benchmarks, compared to the aggregate of the underlying managers' benchmarks.
Diversification Benefit	Diversification benefit is calculated as the sum of the standalone Value-at Risk at 95th percentile for each asset class/strategy less the total plan Value-at Risk, 1 month horizon, annualized. This measures the reduction of risk due to the benefits of diversification.
Duration	The sensitivity of a bond's price to changes in the interest rate usually measured in years. The higher the duration, the more sensitive the portfolio is to changes in interest rates.
Expected Yield	This measures the projected annual yield on the portfolio adjusting for option-adjusted probabilities.
Beta	Beta estimates the risk of the portfolio to a single market risk factor, i.e. systematic risk.

Stress Tests

9/11 Attack - 5 Day	Historic stress scenario observed from 9/17/2001 to 9/21/2001 where the US faced an act of terrorism. Trading was suspended on the NYSE and only resumed on 9/17/2001. The US stock market (S&P 500) declined 12%.
Asian Crisis 97-98 - 5 day	Historic stress scenario observed from 10/21/1997 to 10/27/1997 where the Bank of Thailand abandons the Baht's peg to the Dollar and the currency fell 18%. US equity markets fell 7% on the realization that the crisis was no longer localized. Asian currencies were the hardest struck, such as the South Korean Won fell 47.5% and Indonesian Rupiah fell 56%.
Black Monday - 5 Day	Historic stress scenario observed from 10/13/1987 to 10/19/1987 where the US stock market (DJIA) declined 31% with the world market following the decline.
Equity Crash: Oct-Nov 1987	Historic stress scenario observed from 10/5/1987 to 11/02/1987 where the world equity markets feared another Great Depression.
China Hard Landing	This is a macro-economic stress test, developed by State Street Global Exchange's[SM] research team. The stress test aims to estimate the potential impact, if China's economy and economic growth were to experience a "hard landing".
Bond Market Crash: Feb94 - May94	Historic stress scenario observed from 2/1/1994 to 9/15/1994 where the FED raised rates by approx. 250 basis points (against market expectations). 1994 became the year of the worst bond market loss in history. The Fed hiked interest rates in 1994 also precipitated a year-long correction in the stock market.
LTCM: Aug 1998	Historic stress scenario observed from 08/03/1998 to 08/31/1998 where LTCM's failure triggered a wide spread concern of potential catastrophic losses throughout the financial system.
IR Parallel Shift +100bps	All interest rate curves are shifted up 100bps, and the portfolio is revalued to assess the impact in dollar terms.
IR Parallel Shift -100bps	All interest rate curves are shifted down 100bps, and the portfolio is revalued to assess the impact in dollar terms.
Credit Spreads +100bps	All credit spread curves are shifted up 100bps, and the portfolio is revalued to assess the impact in dollar terms.
Credit Spreads -100bps	All credit spread curves are shifted down 100bps, and the portfolio is revalued to assess the impact in dollar terms.
FX +5%	All exchange rate curves are shifted up 5%, and the portfolio is revalued to assess the impact in dollar terms.
FX -5%	All exchange rate curves are shifted down 5%, and the portfolio is revalued to assess the impact in dollar terms.

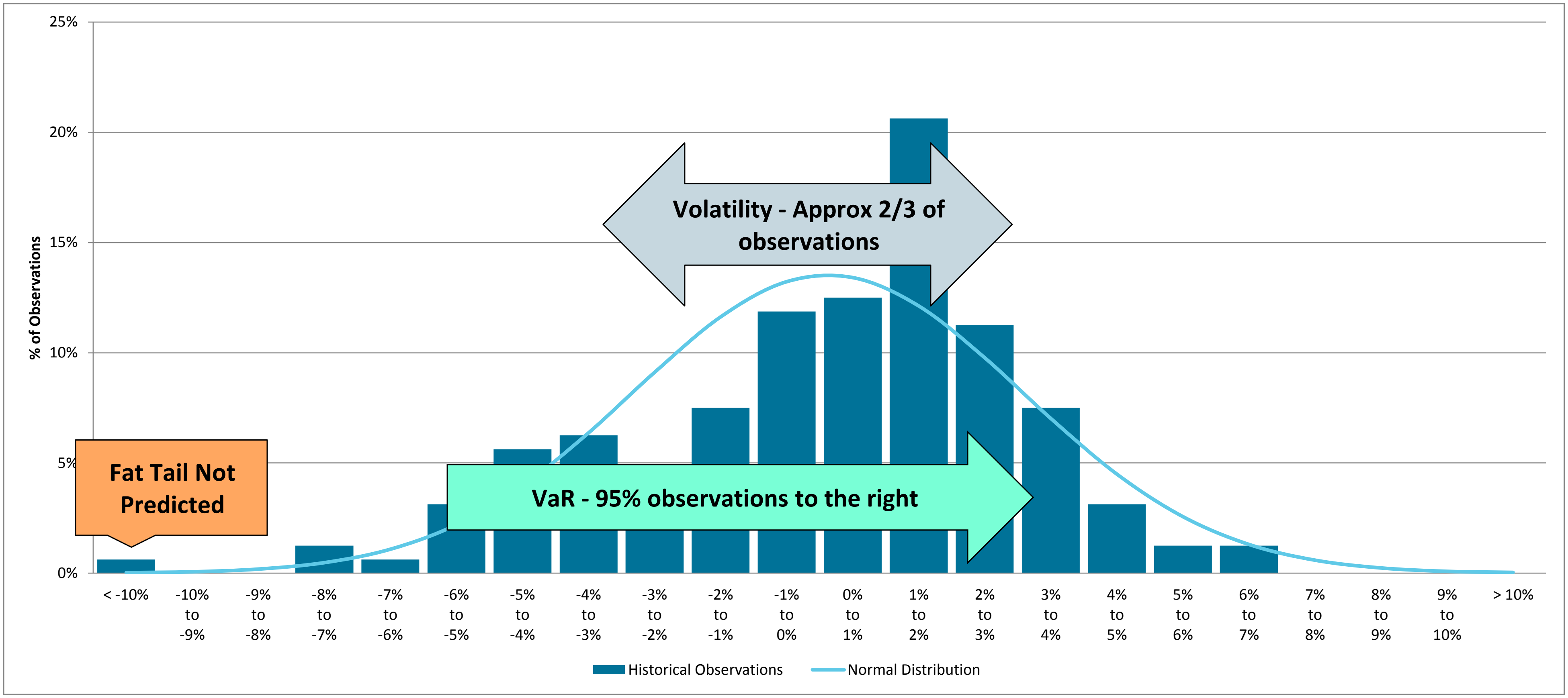
Appendix - Glossary

LACERA

30-Sep-2018
Reporting Currency: USD

VaR and Volatility

Example Illustration of VaR and Volatility
VaR = 5.6%
Volatility = 2.9%
Mean = 0.1%



FOR INFORMATION ONLY

November 7, 2018

TO: Each Member
Board of Investments

FROM: Jude Perez
Principal Investment Officer

FOR: December 12, 2018 BOARD OF INVESTMENTS MEETING

SUBJECT: **LACERA QUARTERLY PERFORMANCE BOOK**

Attached is LACERA quarterly performance book as of September 30, 2018.

Noted and Reviewed

Jonathan Grabel
Chief Investment Officer

Attachment
JP:st

PERFORMANCE REVIEW

AS OF SEPTEMBER 30, 2018

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EXECUTIVE SUMMARY

for the quarter ended September 30, 2018

TOTAL FUND PERFORMANCE

LACERA's Total Fund rose 2.6% in the third quarter and fiscal year-to-date, outperforming its policy benchmark return of 2.5% by 10 basis points (bps) on a net-of-fees basis. Commodities was the only asset class that generated a negative absolute return.

LACERA's U.S. Equity composite returned 6.7% for the quarter and trailed its benchmark by 40 bps as five of seven active managers underperformed their respective benchmarks.

LACERA's Non-U.S. Equity composite underperformed its benchmark of 0.9% by 10 bps for the quarter. Results were broad-based with underperformance from developed and emerging markets managers.

LACERA's Fixed Income composite outperformed its benchmark by 30 bps for the quarter. This outperformance was attributable to LACERA's allocation to High Yield and Opportunistic strategies, combined with solid performance by LACERA's Core and Core Plus managers.

LACERA's Real Estate portfolio outperformed its benchmark return of 1.9% by 100 bps. LACERA's Private Equity portfolio exceeded its benchmark return of 3.6% by 40 bps. The Hedge Funds portfolio returned 0.0%, 170 bps below its benchmark return. As a reminder, longer-term results are more meaningful for these three categories.

LACERA's Commodities composite outperformed the benchmark by 70 bps. All three managers within the composite outperformed for the quarter.

NET-OF-FEES

	Qtr	FYTD	1 Yr	3 Yrs	5 Yrs	10 Yrs
U.S. Equity	**6.7**	**6.7**	**16.4**	**16.5**	**13.1**	**11.9**
RUSSELL 3000 (DAILY)	7.1	7.1	17.6	17.1	13.5	12.0
Non-U.S. Equity 50% Dev Mkt Hdg'd	**0.8**	**0.8**	**3.6**	**11.3**	**6.5**	**6.6**
CUSTOM MSCI ACWI IMI N 50%H	0.9	0.9	3.4	10.7	6.0	6.4
Fixed Income*	**0.6**	**0.6**	**0.2**	**3.5**	**3.3**	**5.6**
FI CUSTOM INDEX	0.3	0.3	-1.0	2.0	2.5	4.3
BBG BC U.S. Universal	0.3	0.3	-1.0	2.0	2.5	4.2
Real Estate**	**2.9**	**2.9**	**9.3**	**8.2**	**9.4**	**3.6**
REAL ESTATE TARGET	1.9	1.9	7.9	8.8	10.5	6.4
Private Equity**	**4.0**	**4.0**	**19.1**	**13.3**	**15.2**	**11.8**
PRIVATE EQUITY TARGET	3.6	3.6	14.3	13.2	13.4	10.7
Commodities	**-1.3**	**-1.3**	**4.9**	**2.1**	**-5.8**	**-4.6**
Bloomberg Comm Index TR	-2.0	-2.0	2.6	-0.1	-7.2	-6.2
Hedge Funds***	**0.0**	**0.0**	**4.1**	**3.2**	**3.9**	
HEDGE FUND CUSTOM INDEX	1.7	1.7	6.6	5.8	5.5	
Cash	**0.6**	**0.6**	**1.6**	**1.2**	**0.8**	**1.2**
FTSE 6 M Treasury Bill Index	0.5	0.5	1.6	0.9	0.6	0.4
Total Fund	**2.6**	**2.6**	**7.9**	**9.9**	**8.0**	**7.6**
TOTAL FUND POLICY BENCHMARK	2.5	2.5	7.1	9.4	7.6	7.5

Executive Summary returns are gross-of-fees except page 1, which are net-of-fees.
See Glossary for all benchmark definitions. Yearly returns are annualized.
* The performance and market values of two opportunistic portfolios are reported with a one-month lag.
** Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.
*** Portfolio and benchmark are reported with a one-month lag.

EXECUTIVE SUMMARY
for the quarter ended September 30, 2018

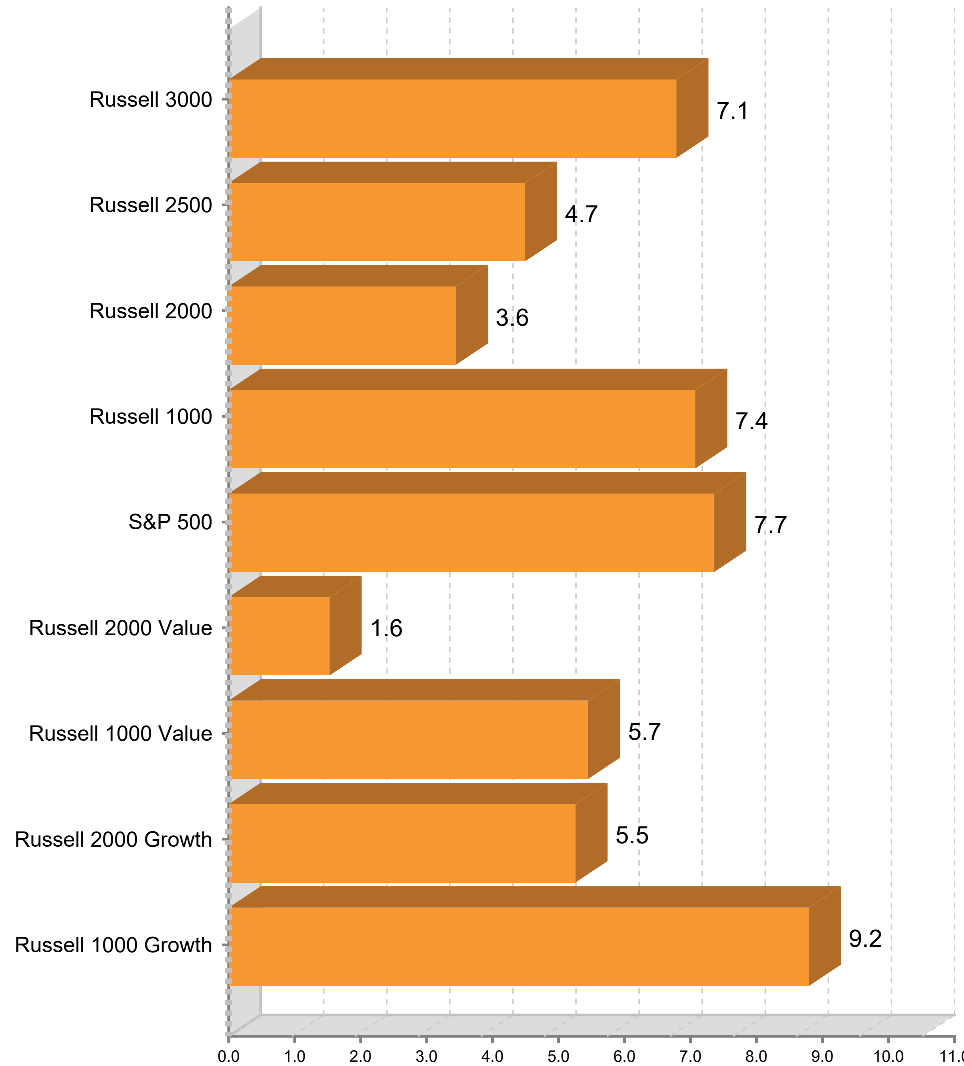
EQUITY MARKET REVIEW

Global equities posted back-to-back gains primarily due to U.S. market strength. Results were more modest across Non-U.S. equity markets as trade tensions, geopolitical concerns, U.S. dollar strength, and global central bank tightening weighed on investors. Emerging markets sold off during the quarter mainly driven by headwinds from the ongoing U.S.-China trade relations. The MSCI ACWI IMI Index rose 3.9% in the third quarter.

U.S. equities advanced for the second consecutive quarter, as broad market indices continued to reach new highs. This was the eleventh positive quarter out of the past twelve. U.S. stocks rose despite the escalating U.S.-China trade tensions as investors focused on positive economic data, notably strong GDP growth. The U.S. economy grew 4.1% in 2Q, its fastest pace in nearly four years. Robust consumer spending, strong corporate earnings, and stable employment figures also boosted stocks. The Fed raised interest rates for the third time this year at its September meeting and signaled a fourth rate hike in December.

LACERA's U.S. equity benchmark, the Russell 3000 Index, returned 7.1%. In a reversal from last quarter, large capitalization (cap) stocks outperformed small caps. The large cap Russell 1000 Index rose 7.4% compared to a 3.6% increase in the small cap Russell 2000 Index. Growth stocks outperformed their value counterparts across all market capitalizations.

U.S. INDEX



EXECUTIVE SUMMARY

for the quarter ended September 30, 2018

EQUITY MARKET REVIEW

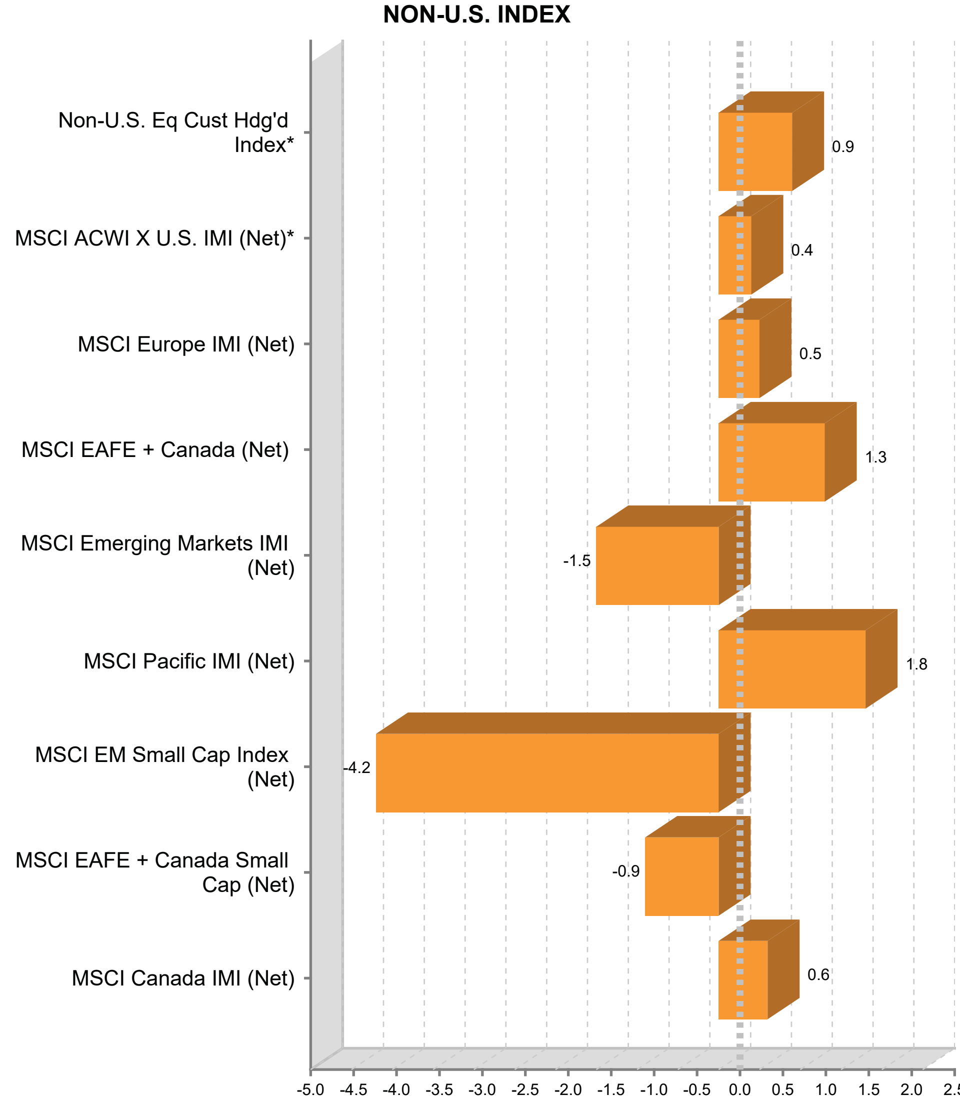
Non-U.S. equity markets, as represented by the MSCI ACWI ex-U.S. IMI (unhedged) index, returned 0.4% for the quarter. The Pacific region posted the strongest returns in the third quarter, rising 1.8%. Canada and Europe returned 0.6%, and 0.5% respectively. Emerging markets declined 1.5%.

The U.S. dollar (USD) had mixed results versus most major currencies. The USD strengthened 2.7% versus the Japanese yen, 1.3% versus the British pound, and 0.7% versus the euro. The USD depreciated 1.7% versus the Canadian dollar. Changes in the USD relative to other currencies can impact returns for dollar-based investors that own non-dollar denominated securities. LACERA's passive 50% developed markets currency hedge into USD returned 0.6% for the quarter.

European equities posted modest gains in the third quarter after posting declines in the prior two quarters. Investors remained cautious amid worries over global trade, waning demand, and rising political uncertainty both within the euro-zone and abroad. On the brighter side, investors were encouraged by the region's strong labor market and prospects for ensuing wage growth. The European Central Bank left rates unchanged at its September meeting and confirmed plans to end asset purchases in December 2018.

The Pacific Basin region posted the strongest results for the quarter as Japan led the region higher. Japanese equities were bolstered by upbeat economic data, strong corporate earnings, and Prime Minister Shinzo Abe's re-election as leader of the ruling Liberal Democratic Party.

Emerging markets fell for the second consecutive quarter. Investor risk aversion was spurred by concerns about the deepening trade tensions between the U.S. and China, USD strength, and rising U.S interest rates. At a country level, Turkey was down 21% during the quarter mainly due to a sharp sell-off in the lira.



* See Glossary

EXECUTIVE SUMMARY
for the quarter ended September 30, 2018

EQUITY MANAGER REVIEW

Large Cap

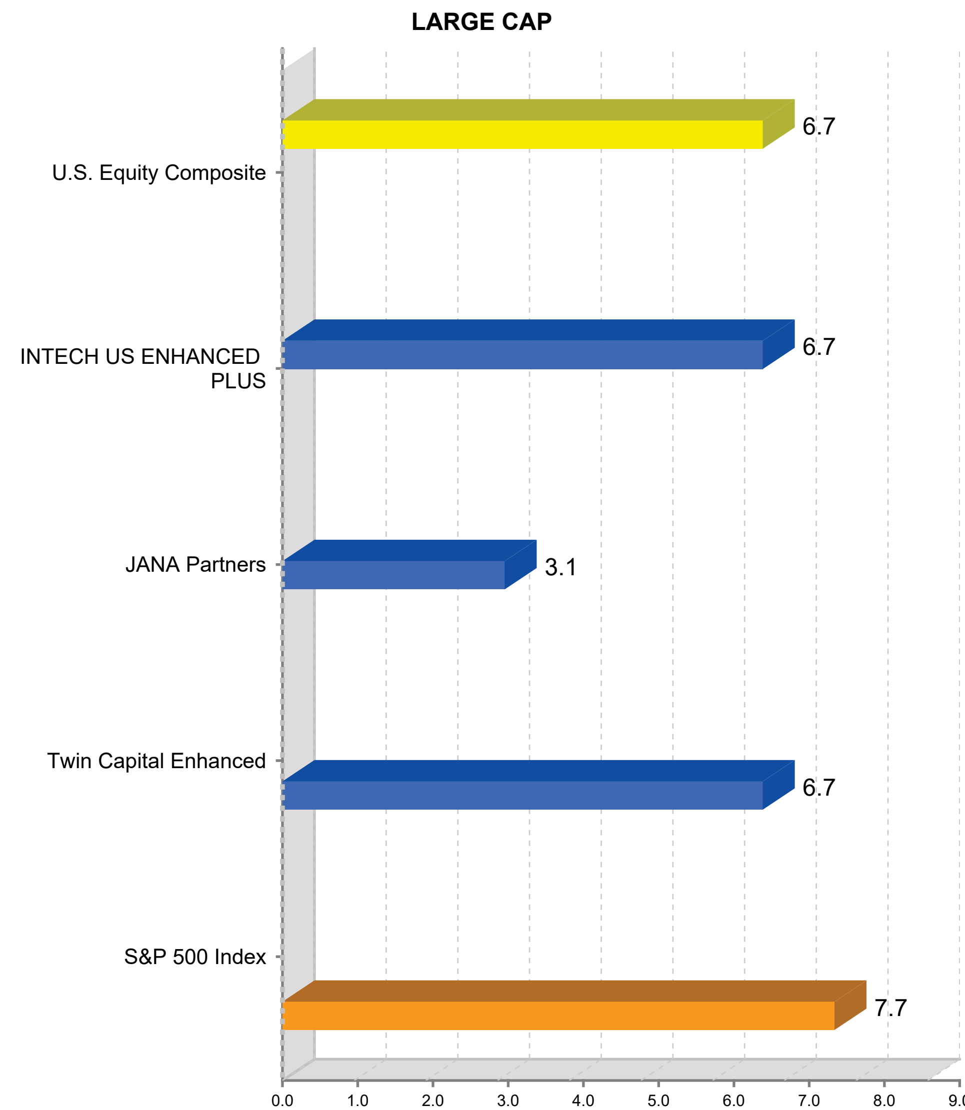
LACERA's active U.S. Large Cap managers posted negative relative returns as the two broad market managers underperformed their respective benchmarks during the quarter.

INTECH, a quantitative manager that seeks to exploit intra-stock volatility, underperformed its benchmark by 100 bps. Security selection within the information technology, financials, and consumer discretionary sectors struggled as the stocks within each industry exhibited similar price movements and the strategy was not able to capture significant price dispersions.

Twin, the other quantitative manager, underperformed its benchmark by 100 bps. As it identifies investments using reliable and predictable factors, this strategy will typically underperform in periods of low market breadth or dispersion, similar to that which existed during the quarter. From a sector perspective, the majority of the portfolio's underperformance originated in consumer staples and communication services, two sectors where the portfolio's value tilt caused the most harm in a period where growth was in favor. In addition, the portfolio's overweight to semiconductor stocks within the information technology sector, which were negatively impacted by tariff rhetoric, detracted from relative performance.

JANA Partners, the U.S. focused activist manager, underperformed its benchmark by 460 bps as the manager had large positions in the specialty retail and restaurant industries that had moderately negative price changes during the quarter.

As of quarter end, two large cap managers had observations* outside their calculated performance bands: INTECH and Twin (one observation below).



See Glossary for all Custom Index definitions.
* Each quarterly observation is based on trailing one year excess returns.

EQUITY MANAGER REVIEW (...cont.)

Small/Mid Cap

LACERA's small/mid cap managers posted mixed results as two of the four managers outperformed their respective benchmarks but underperformed in aggregate.

Eagle outperformed its benchmark by 20 bps through positioning within the health care sector. Specifically, an underweight to biotechnology, an often very volatile industry, was beneficial as the industry underperformed the broader market. The manager focuses on stable, steady earnings growth, which is not a common characteristic of biotechnology stocks.

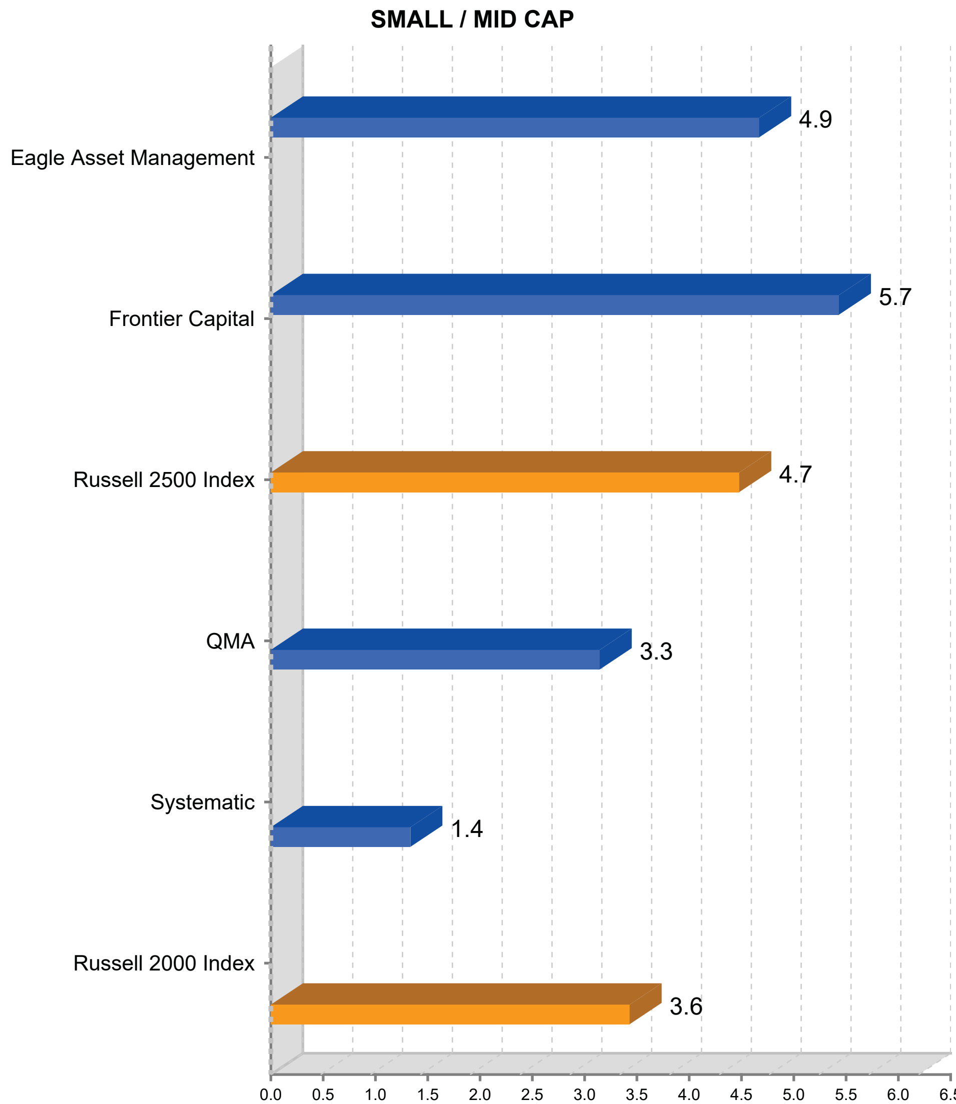
Frontier outperformed by 100 bps as the portfolio's overweight to health care equipment and supplies companies drove the positive relative results. These companies have been showing strong and sustained revenue and earnings growth over the past several quarters.

QMA, in its first full quarter since funding, underperformed by 30 bps due to selection in the consumer discretionary sector. Specifically, the manager's exposure to homebuilders detracted due to potential headwinds from tariffs on lumber and other building materials as well as increasing interest rates.

Systematic, also in its first full quarter since funding, underperformed by 220 bps due to holdings in the financials, health care, materials, and consumer discretionary sectors. The manager's overweight to thrifts, mortgage finance companies, and banks detracted as these companies gave back some of the outperformance from the second quarter in addition to rising interest rates which are a short-term headwind.

As a reminder, **CornerCap** and **Matarin**, both small capitalization emerging managers were funded in September 2018 with first full month of performance beginning in October 2018.

As of quarter end, no small/mid cap manager had observations* outside their calculated performance bands.



* Each quarterly observation is based on trailing one year excess returns.

EQUITY MANAGER REVIEW (...cont.)

Non-U.S.

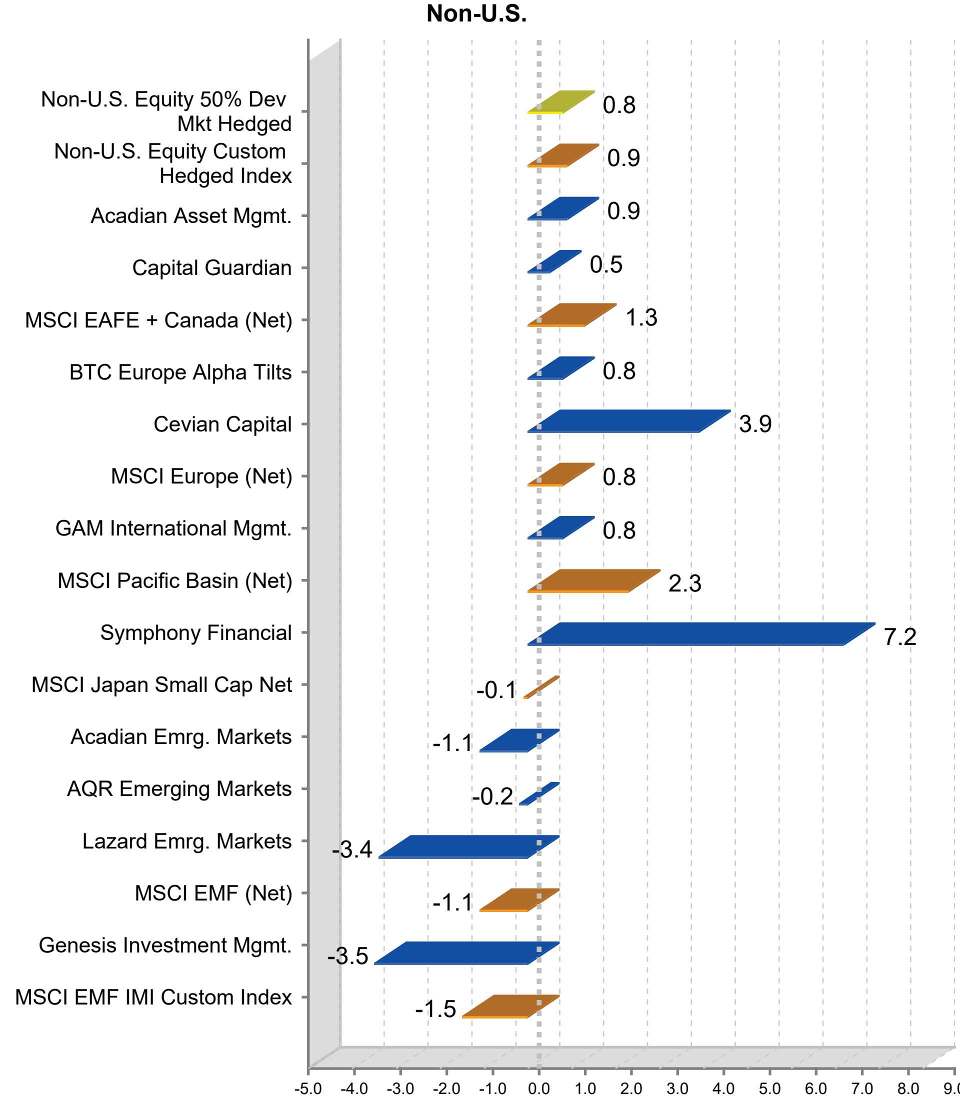
LACERA's non-U.S. equity managers underperformed the composite benchmark as a group as seven of ten active managers matched or underperformed their respective benchmarks.

Among the developed markets managers, **Acadian** underperformed its benchmark by 40 bps due to stock selection in Japan and within the consumer staples sector. **Capital Guardian's** EAFE+Canada strategy trailed its benchmark by 80 bps as portfolio holdings in Japan and in the consumer discretionary sector detracted from results.

BlackRock Europe Tilts was flat versus its benchmark as negative stock selection in France was offset by positive selection within the health care and information technology sectors. **Cevian** exceeded its benchmark by 310 bps largely driven by holdings in Sweden and an overweight allocation to the industrials sector. **GAM** trailed its benchmark by 150 bps due to an underweight to and stock selection in Japan. Information technology holdings also hurt results. **Symphony's** excess return of 730 bps was mostly attributable to positive selection within the consumer discretionary and stapels sectors.

In emerging markets, **Acadian** matched its benchmark as underperformance from an overweight to Turkey was offset by strong performance by portfolio holdings in the information technology sector. **AQR** surpassed its benchmark by 90 bps mainly due to country and currency positioning. **Lazard's** closed-end fund strategy lagged its index by 230 bps due to an underweight to Latin American funds. Negative selection among Asian funds also detracted. **Genesis**' underperformance of 200 bps was largely driven by an overweight to Turkey and strong relative performance by holdings in the energy sector.

As of quarter end, no non-U.S. equity managers had observations* outside their calculated performance bands.



See Glossary for all Custom Index definitions.
* Each quarterly observation is based on trailing one year excess returns.

EXECUTIVE SUMMARY

for the quarter ended September 30, 2018

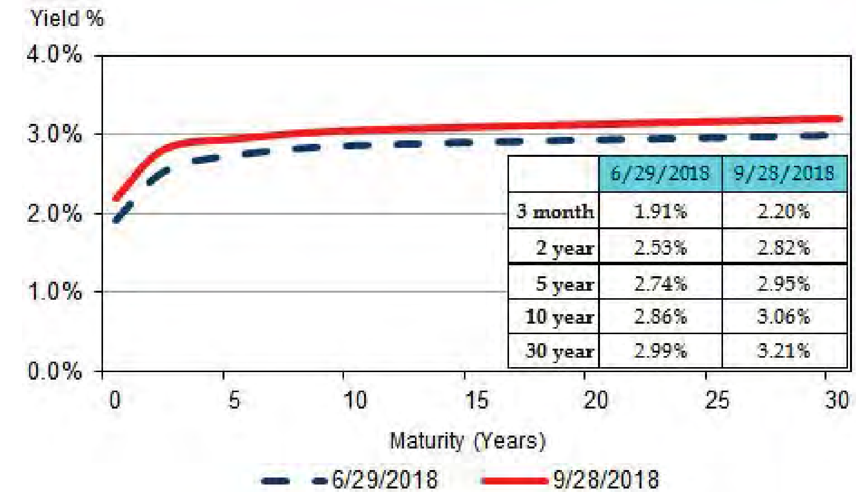
FIXED INCOME MARKET REVIEW

The U.S. fixed income market returned 0.3% for the third quarter and -1.4% year-to-date (measured by the Bloomberg Barclays U.S. Universal Index). U.S. Treasury yields rose across all points of the curve as positive economic data as well as reduced foreign demand for U.S. Treasurys caused a shift upward in the yield curve. As anticipated, the Fed raised interest rates by 25 bps in September as the economy continued to exhibit solid growth. Revised second quarter GDP came in at 4.1% while unemployment remained low. The Fed funds target rate reached 2.25% with the expectation of one more rate hike this year and another three hikes next year.

The U.S., Mexico, and Canada agreed on a revised NAFTA framework called the United States-Mexico-Canada Agreement (USMCA), which was positive for continued spread tightening. This helped to offset negative effects from choppy emerging market performance from countries such as Venezuela and Argentina. Escalating trade tensions between the U.S. and China also raised concerns. The Trump administration added tariffs on $200 billion in Chinese goods, and China quickly retaliated by taxing $60 billion in U.S. goods.

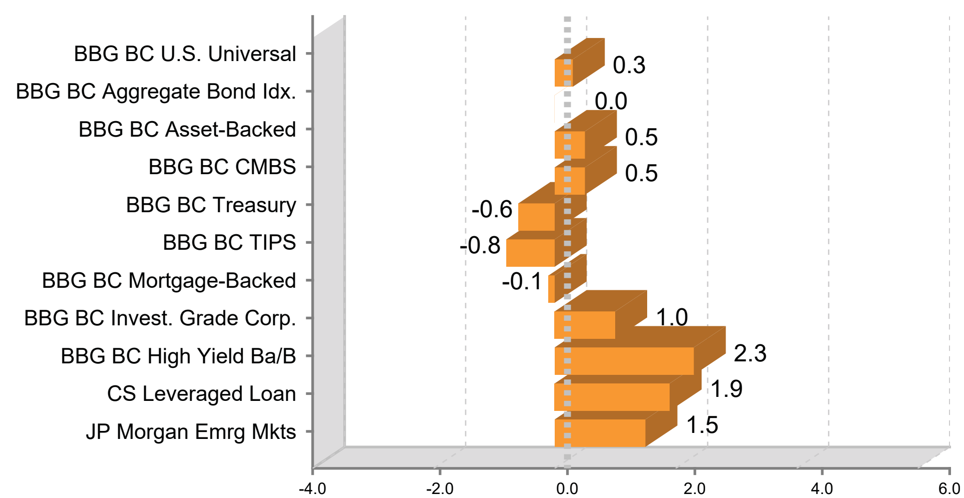
High yield bonds were the top performer for the quarter (+2.3%) followed by leveraged loans (+1.9%) and emerging markets (+1.5%). Credit spreads tightened as investment grade corporates outperformed Treasurys (+1.0% vs -0.6%). TIPS[1] underperformed nominal Treasurys (-0.8% vs -0.6%) as inflation data came in below expectations. Among securitized sectors, ABS[1] and CMBS[1] (both up 0.5%) outperformed MBS[1] (-0.1%) for the quarter. The yield curve flattened slightly during the quarter. Longer-term Treasurys underperformed shorter-term Treasurys, however longer-term corporate bonds outperformed shorter-term corporates as credit spreads tightened more on the long end.

U.S. Treasury Yield Curve



	6/29/2018	9/28/2018
3 month	1.91%	2.20%
2 year	2.53%	2.82%
5 year	2.74%	2.95%
10 year	2.86%	3.06%
30 year	2.99%	3.21%

Total Returns



1 **ABS** = asset-backed securities; **EMD** = emerging market debt; **MBS** = mortgage-backed securities; **CMBS** = commercial mortgage-backed securities; **TIPS** = Treasury Inflation Protected Securities.

FIXED INCOME MANAGER REVIEW

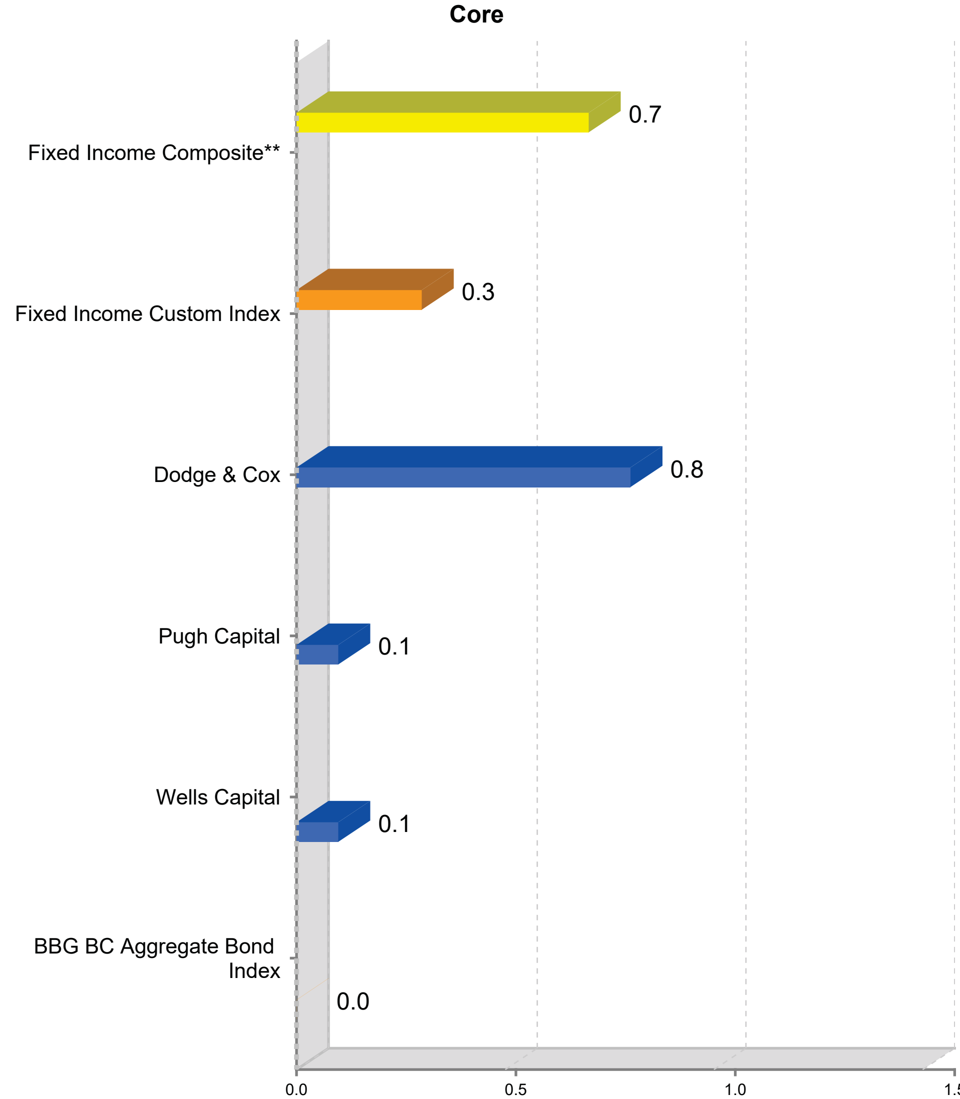
Core

All three of LACERA's core managers outperformed the Bloomberg Barclays Aggregate Index for the quarter. **Dodge & Cox** was the best performing core manager for the quarter, generating 80 bps of excess return. The portfolio's shorter-than benchmark duration and security selection within corporates were additive to performance. An overweight allocation to corporates combined with an underweight to U.S. Treasury securities also benefited the portfolio.

Wells Capital outperformed the benchmark by 10 bps for the quarter, as security selection within MBS and an overweight allocation to ABS and MBS contributed to the portfolio's performance.

Pugh Capital also outperformed the benchmark by 10 bps for the quarter. The portfolio's overweight allocation to corporates, ABS, and CMBS were positive contributors.

As of quarter end, Dodge & Cox had three observations* above its calculated performance bands.



* Each quarterly observation is based on trailing one year excess returns.
** The performance and market values of two opportunistic portfolios are reported with a one-month lag.

FIXED INCOME MANAGER REVIEW (...cont.)

Core Plus

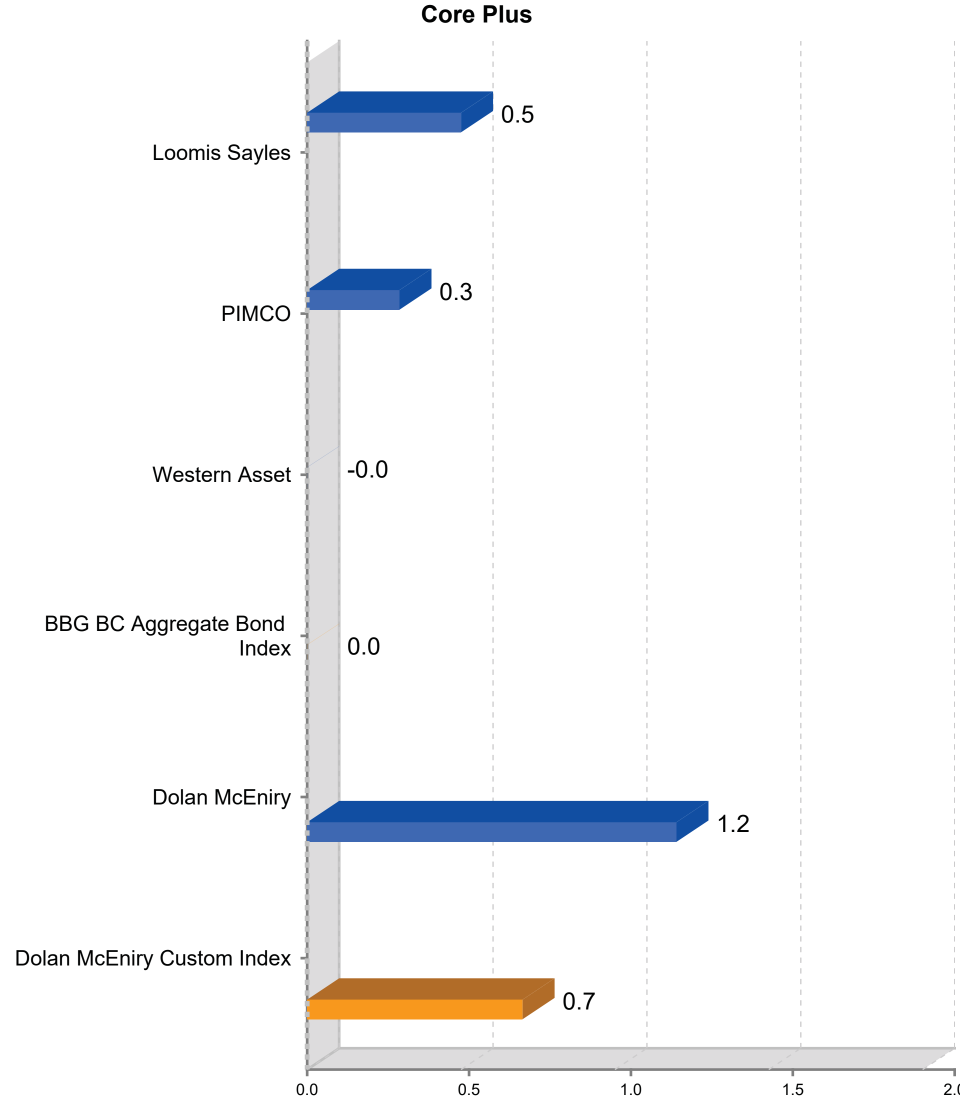
All of LACERA's four core plus managers outperformed or matched their respective benchmarks for the quarter. **Dolan McEniry** (LACERA's only fixed income emerging manager), outperformed its custom benchmark by 50 bps for the quarter. Dolan's credit selection within corporates (investment grade and high yield), primarily within communications, consumer cyclicals, and capital goods sectors was the strategy's key contributor to performance.

Loomis Sayles also outpaced its benchmark by 50 bps for the quarter. This outperformance was the result of Non-US dollar exposure to the Mexican peso, out-of-benchmark allocation to emerging market debt (EMD), and an underweight allocation to U.S. Treasury securities.

PIMCO generated 30 bps of outperformance over the Aggregate Index. The portfolio's out-of-benchmark allocation to Non-Agency MBS, allocation to EMD, and yield curve positioning were additive to performance.

Western Asset matched the benchmark for the quarter as the positive results gained from the portfolio's allocation to structured product, particularly CMBS and Non-Agency MBS, and corporates (both investment grade and high yield) were erased by the negative results from the portfolio's allocation to EMD and yield curve positioning.

As of quarter end, three core plus managers had observations* outside their calculated performance bands: Loomis Sayles (nine observations above), PIMCO (seven observations above), and Western (two observations below).



See Glossary for all Custom Index definitions.
* Each quarterly observation is based on trailing one year excess returns.

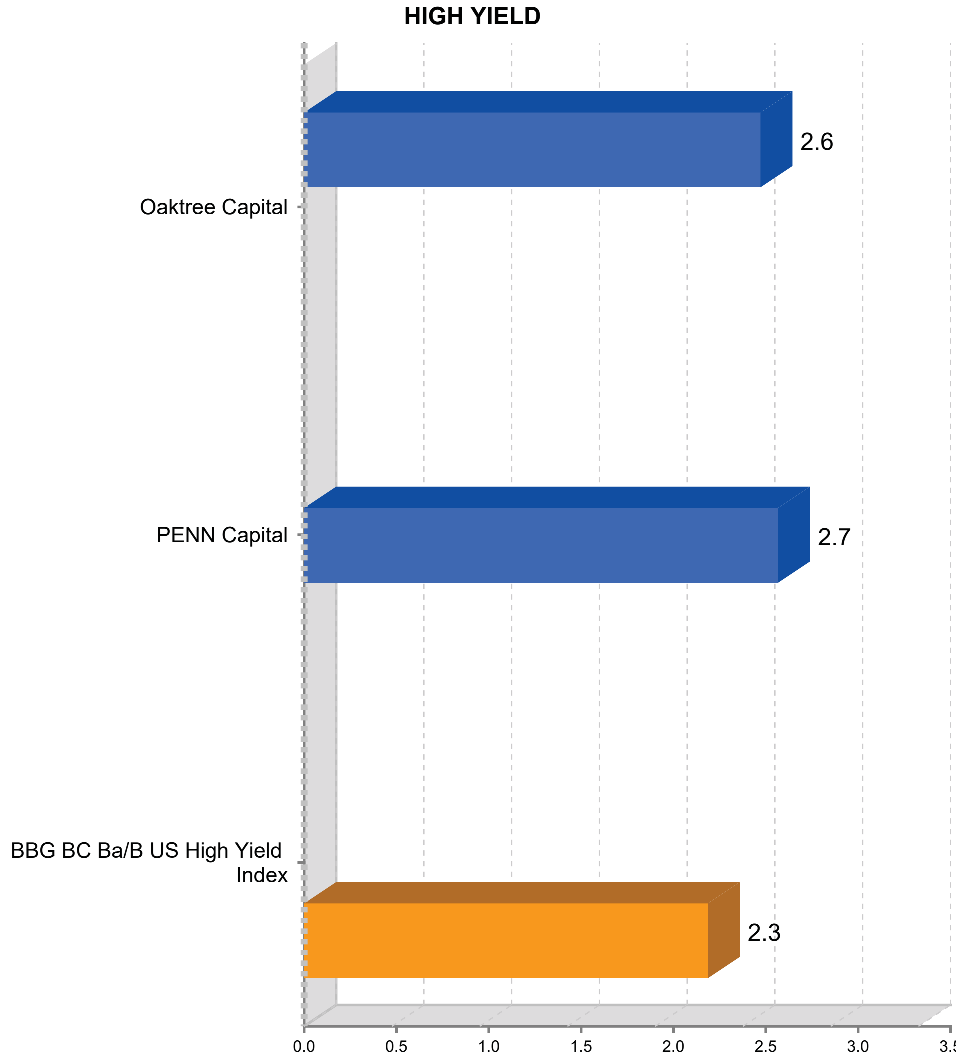
FIXED INCOME MANAGER REVIEW (...cont.)

High Yield

LACERA's high yield managers outperformed for the quarter. **PENN Capital** outperformed the Bloomberg Barclays High Yield Ba/B Index by 40 bps. The portfolio benefited from an overweight to single B-rated credits, and security selection in energy, metals & mining, retail & apparel, and building materials sectors.

Oaktree Capital outpaced the index by 30 bps. This outperformance was primarily the result of an overweight allocation to and security selection within the healthcare sector.

As of quarter end, no high yield manager had observations* outside its calculated performance bands.



* Each quarterly observation is based on trailing one year excess returns.

FIXED INCOME MANAGER REVIEW (...cont.)

Opportunistic

LACERA's Opportunistic sub-composite includes managers that specialize in or invest across three segments: 1) Corporate Credit, 2) Securitized Credit, and 3) Non-traditional fixed income such as bank loans, distressed securities, asset-backed bonds, emerging market debt (EMD), and private debt.

Brigade surpassed its index by 50 bps; the largest contributor to performance was a position in a med-tech company. **Beach Point's** 40 bps of relative outperformance came from a number of sectors including media/entertainment and technology. **Bain** underperformed the index by 20 bps, primarily driven by hedges in investment grade and high yield credit.

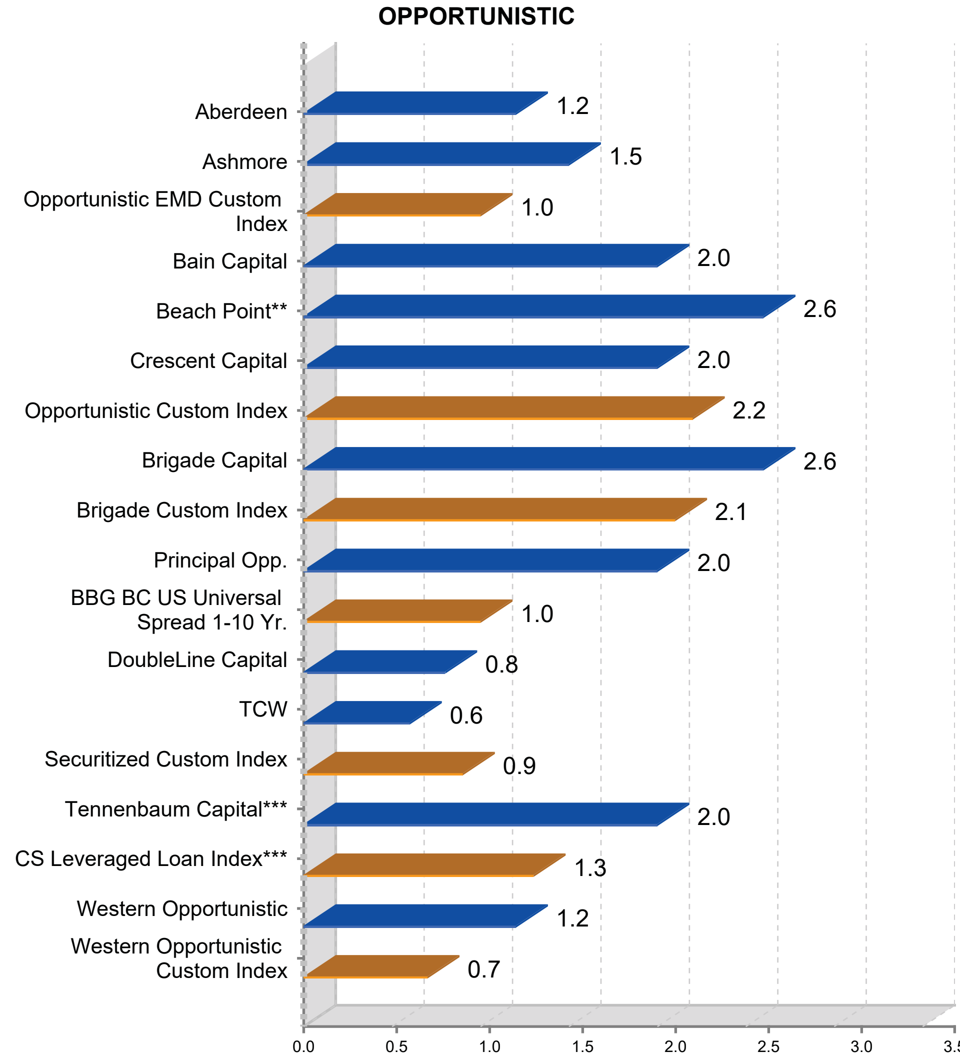
Western's portfolio beat its benchmark by 50 bps. Positions in high yield and leveraged loans contributed to performance as spreads generally tightened. **Principal's** portfolio outperformed its benchmark by 100 bps, primarily due to security selection within investment grade bonds and EMD.

Tennenbaum outperformed the benchmark by 70 bps due to successful investments in an IT services company and a specialty retail company. **Crescent's** portfolio underperformed by 20 bps, hurt by its underweight to Communications and Energy.

TCW and **DoubleLine** underperformed their benchmarks by 30 and 10 bps, respectively. TCW's position in Treasury futures was the largest detractor for the quarter. DoubleLine's holding in longer duration, Agency CMOs was the largest drag on performance.

LACERA's EMD managers, **Ashmore** and **Aberdeen**, both generated positive excess returns. Ashmore outperformed the index by 50 bps due to its overweight to external debt and underweight to local currency bonds. Aberdeen outperformed its benchmark by 20 bps, and the outperformance was driven by positions in bonds issued by Argentina and Venezuela.

As of quarter end, five opportunistic managers had observations* outside their calculated performance bands: Tennenbaum (twelve observations above), Western Opportunistic (four observations below), Aberdeen (two observations below), DoubleLine (two observations below), and Crescent (one observation below).



See Glossary for all Custom Index definitions.
* Each quarterly observation is based on trailing one year excess returns.
** Represents the combined performance of two portfolios, one of which is reported with a one-month lag.
*** One-month lag.

EXECUTIVE SUMMARY
for the quarter ended September 30, 2018

COMMODITIES MARKET REVIEW

The Bloomberg Commodity Index (BCOM) fell 2.0% this quarter. The decline was driven by negative returns from three of the five major sectors: Agriculture, Industrial Metals, and Precious Metals. Positive returns from the Energy and Livestock sectors partially compensated for the loss.

Energy, the largest sector in the Index, was the best performing sector with a gain of 4.4% for the quarter. The prospect of supply reduction from U.S. sanctions on Iran and market concern over OPEC's ability to adjust to the Iranian production shortfall boosted returns of petroleum products. Diesel/heating oil (+6.2%), Brent crude (+5.8%), unleaded gasoline (+5.5%), and WTI crude (+3.3%) all posted gains. Natural gas was up 2.9%, supported by high air conditioner usage in the summer and below average inventory levels.

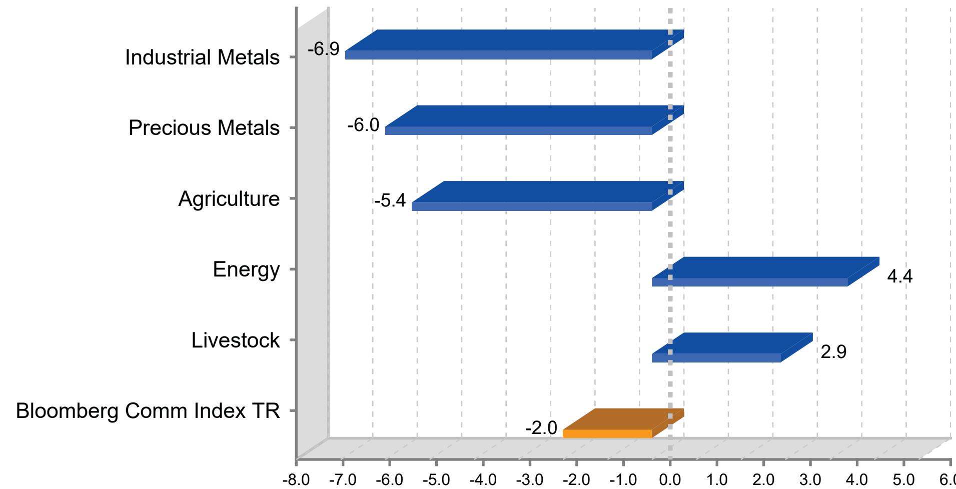
Agriculture, the second largest sector, fell 5.4%. Of the two subgroups within the sector, Softs experienced the worst performance, plunging 12.5% in the quarter: sugar (-14.1%), coffee (-13.0%), and cotton (-8.5%) fell on currency weakness in exporting countries relative to the U.S. dollar. Grains, the sector's other subgroup, decreased 3.0%. High stockpiles and retaliatory tariffs from China, a top importer of grains, were unfavorable for soybeans (-3.4%), soybean oil (-2.0%), soybean meal (-5.9%), and corn (-4.0%). Wheat was adversely affected by high global supply: Chicago wheat dropped 1.7%, while Kansas City wheat was up 0.5% due to weather issues.

Industrial Metals was the worst performing sector this quarter, declining 6.9%. All commodities within the sector were weighed down by concerns over escalating trade tensions between the U.S. and China, the biggest consumer of industrial metals. Disappointing macroeconomic data from China added further downward pressure on prices. Nickel (-15.6%) fell the most, followed by zinc (-6.2%), copper (-5.7%), and aluminum (-2.5%). Aluminum was impacted to a lesser extent by trade tensions, as a result of the growing global demand for aluminum in automotive manufacturing, which supported price levels.

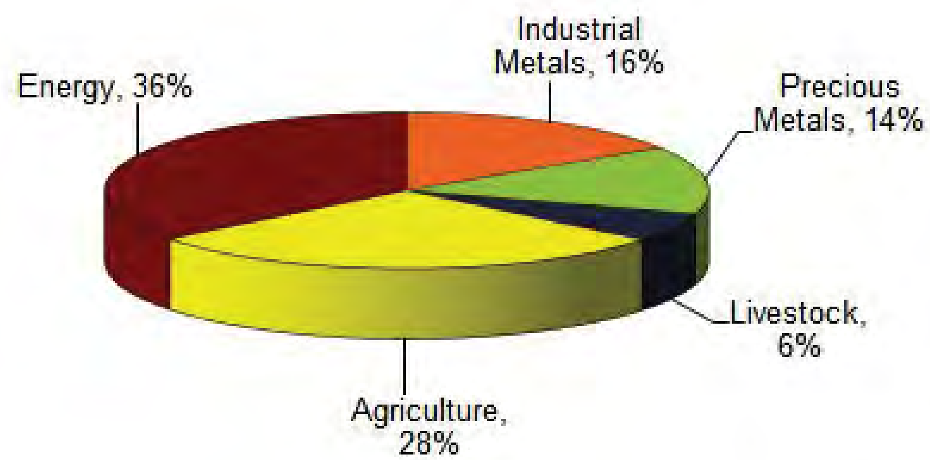
Precious Metals declined 6.0% due to rising U.S. interest rates and a strong U.S. dollar. The demand for gold, which is typically viewed as a "safe haven" for investors during risky markets, was limited in spite of ongoing trade tensions. Gold and silver were down 5.0% and 9.3%, respectively.

Livestock continued its recovery from the first quarter, returning 2.9%. News of a U.S.-Mexico trade deal alleviated some concerns over trade and lifted prices of live cattle and lean hogs, the two constituents in the sector. Live cattle rose 5.1%, benefiting from cheaper cattle feed prices. Impacted by China's tariff on U.S. pork, lean hogs slipped 0.9% in the quarter, despite surging 15.1% in September due to temporary uptick in demand from China to replace domestic supply affected by swine fever outbreaks.

Bloomberg Commodity Index Total Returns



Bloomberg Commodity Index Sector Weights



EXECUTIVE SUMMARY
for the quarter ended September 30, 2018

COMMODITIES MANAGER REVIEW

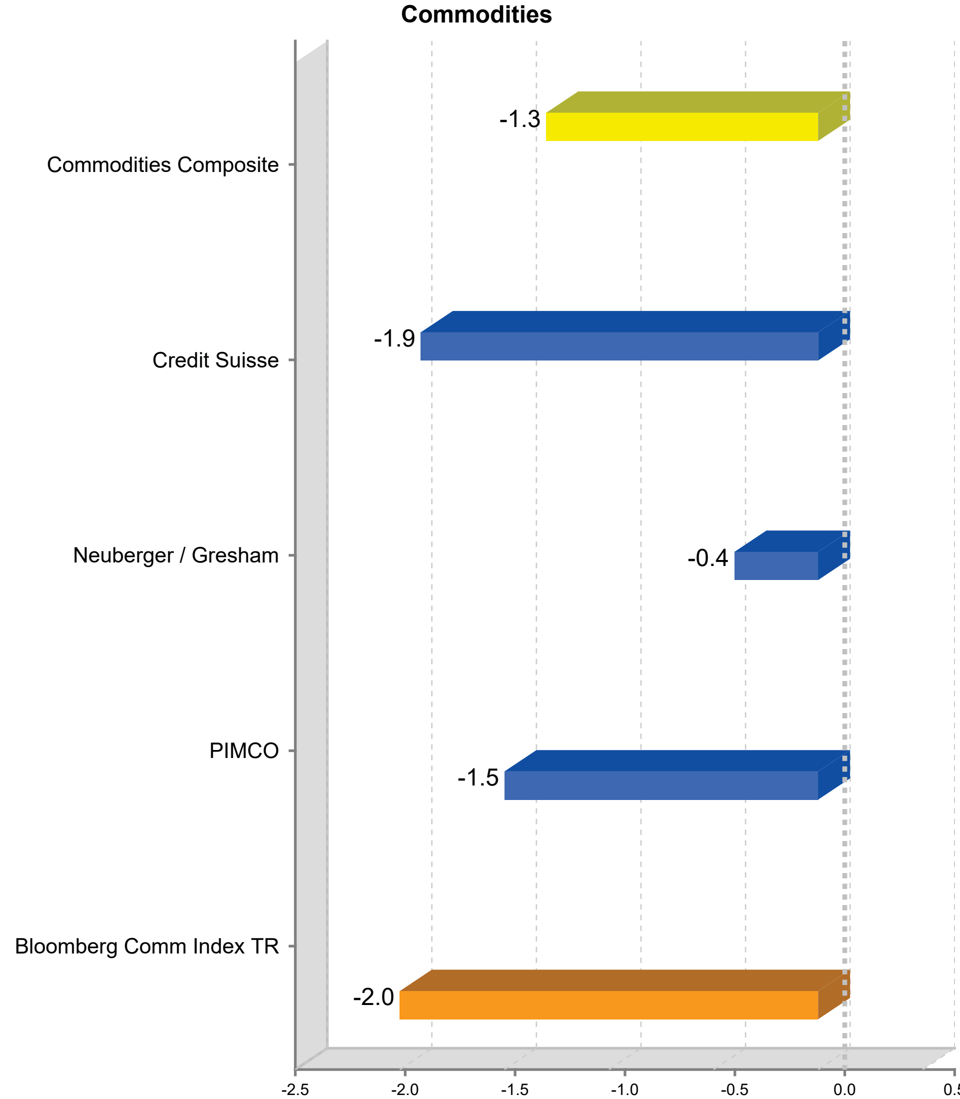
LACERA's Commodities composite outperformed the benchmark, the Bloomberg Commodity Index, by 70 bps for the quarter, with a return of -1.3% versus the index return of -2.0%. All three commodities managers outperformed the benchmark.

The **Gresham/Neuberger** portfolio was the best relative performer, beating the index by 160 bps. Active commodities management drove the excess return, contributing 140 bps of excess return over the benchmark. The portfolio benefitted from Gresham's overweight to commodities within the energy sector and underweight to nickel, which suffered a 15.6% decline in the quarter. An underweight to natural gas and out-of-benchmark exposures to cocoa and lead detracted from relative performance. Neuberger's cash collateral management added 20 bps of excess return relative to the index.

PIMCO outperformed the benchmark by 50 bps for the quarter. Management of the cash collateral and the commodity portfolio were both additive, generating 15 bps and 35 bps of excess returns, respectively. PIMCO's positioning of various energy commodities accounted for most of the portfolio's relative results, adding 25 bps. Broad basket relative value strategies also accounted for 10 bps of excess return. Positioning within the agriculture sector was the main detractor to performance.

Credit Suisse beat its benchmark by 10 bps. As the most conservative among the three managers, Credit Suisse closely follows the index's commodity exposures and seeks to add value primarily through commodity futures selection and trading. For the quarter, both strategies added 5 bps of excess return, mostly attributed to contribution from the energy sector. The portfolio's fixed income collateral portion, which is invested primarily in short duration U.S. Treasury and agency debt, also added excess return.

As of quarter end, two managers had observations* that fell outside their calculated performance bands: Gresham/Neuberger (five observations above) and PIMCO (nine observations above).



* Each quarterly observation is based on trailing one year excess returns.

TOTAL FUND
ANNUALIZED & ANNUAL RETURNS
for the quarter ended September 30, 2018

Gross-of-Fees

	Qtr End	1 Year	3 Years	5 Years	7 Years	10 Years	Dec 31 2017	Dec 31 2016	Dec 31 2015	Dec 31 2014
U.S. Equity	**6.7**	**16.5**	**16.7**	**13.3**	**16.7**	**12.0**	**21.1**	**12.6**	**0.4**	**12.6**
RUSSELL 3000 (DAILY)	7.1	17.6	17.1	13.5	16.9	12.0	21.1	12.7	0.5	12.6
Non-U.S. Equity 50% Dev Mkt Hedged	**0.8**	**3.9**	**11.5**	**6.8**	**9.5**	**6.8**	**25.6**	**7.2**	**-1.9**	**0.8**
CUSTOM MSCI ACWI IMI N 50%H	0.9	3.4	10.7	6.0	8.9	6.4	24.6	6.2	-2.0	0.1
Fixed Income*	**0.7**	**0.4**	**3.7**	**3.5**	**4.0**	**5.8**	**5.5**	**6.6**	**-0.1**	**5.3**
FI CUSTOM INDEX	0.3	-1.0	2.0	2.5	2.6	4.3	4.1	3.9	0.4	5.6
BBG BC U.S. Universal	0.3	-1.0	2.0	2.5	2.6	4.2	4.1	3.9	0.4	5.6
Real Estate**	**3.1**	**10.2**	**9.1**	**10.4**	**9.8**	**4.5**	**7.9**	**9.2**	**15.0**	**11.2**
REAL ESTATE TARGET	1.9	7.9	8.8	10.5	10.6	6.4	7.1	9.5	14.3	11.8
Private Equity**	**4.0**	**19.1**	**13.3**	**15.2**	**13.7**	**11.8**	**17.6**	**7.9**	**10.8**	**19.6**
PRIVATE EQUITY TARGET	3.6	14.3	13.2	13.4	12.9	10.7	12.8	12.7	13.6	13.5
Commodities	**-1.3**	**5.2**	**2.4**	**-5.5**	**-4.5**	**-4.2**	**4.4**	**14.9**	**-24.1**	**-16.2**
Bloomberg Comm Index TR	-2.0	2.6	-0.1	-7.2	-6.5	-6.2	1.7	11.8	-24.7	-17.0
Hedge Funds***	**0.1**	**4.3**	**3.3**	**4.0**			**5.9**	**2.2**	**-0.1**	**5.4**
HEDGE FUND CUSTOM INDEX	1.7	6.6	5.8	5.5			5.8	5.3	5.0	5.0
Cash	**0.6**	**1.7**	**1.2**	**0.9**	**0.8**	**1.3**	**1.2**	**0.9**	**0.4**	**0.3**
FTSE 6 M Treasury Bill Index	0.5	1.6	0.9	0.6	0.4	0.4	0.9	0.4	0.1	0.1
Total Fund (Gross-of-Fees)	**2.7**	**8.2**	**10.2**	**8.3**	**9.7**	**7.8**	**15.2**	**8.6**	**1.6**	**7.0**
TOTAL FUND POLICY BENCHMARK	2.5	7.1	9.4	7.6	9.2	7.5	13.4	8.3	2.1	6.6

See Glossary for all benchmark definitions.

* The performance and market values of two opportunistic portfolios are reported with a one-month lag.

** Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.

*** Portfolio and benchmark are reported with a one-month lag. Performance included in Total Fund beginning 10/31/11.

TOTAL FUND
ANNUALIZED & ANNUAL RETURNS
for the quarter ended September 30, 2018

Net-of-Fees

	Qtr End	1Year	3 Years	5 Years	7 Years	10 Years	Dec 31 2017	Dec 31 2016	Dec 31 2015	Dec 31 2014
U.S. Equity	**6.7**	**16.4**	**16.5**	**13.1**	**16.6**	**11.9**	**20.9**	**12.5**	**0.2**	**12.4**
RUSSELL 3000 (DAILY)	7.1	17.6	17.1	13.5	16.9	12.0	21.1	12.7	0.5	12.6
Non-U.S. Equity 50% Dev Mkt Hedged	**0.8**	**3.6**	**11.3**	**6.5**	**9.3**	**6.6**	**25.3**	**7.0**	**-2.1**	**0.6**
CUSTOM MSCI ACWI IMI N 50%H	0.9	3.4	10.7	6.0	8.9	6.4	24.6	6.2	-2.0	0.1
Fixed Income*	**0.6**	**0.2**	**3.5**	**3.3**	**3.7**	**5.6**	**5.2**	**6.3**	**-0.3**	**5.0**
FI CUSTOM INDEX	0.3	-1.0	2.0	2.5	2.6	4.3	4.1	3.9	0.4	5.6
BBG BC U.S. Universal	0.3	-1.0	2.0	2.5	2.6	4.2	4.1	3.9	0.4	5.6
Real Estate**	**2.9**	**9.3**	**8.2**	**9.4**	**8.9**	**3.6**	**7.2**	**8.4**	**14.1**	**10.0**
REAL ESTATE TARGET	1.9	7.9	8.8	10.5	10.6	6.4	7.1	9.5	14.3	11.8
Private Equity**	**4.0**	**19.1**	**13.3**	**15.2**	**13.7**	**11.8**	**17.6**	**7.9**	**10.8**	**19.6**
PRIVATE EQUITY TARGET	3.6	14.3	13.2	13.4	12.9	10.7	12.8	12.7	13.6	13.5
Commodities	**-1.3**	**4.9**	**2.1**	**-5.8**	**-4.9**	**-4.6**	**4.1**	**14.5**	**-24.4**	**-16.6**
Bloomberg Comm Index TR	-2.0	2.6	-0.1	-7.2	-6.5	-6.2	1.7	11.8	-24.7	-17.0
Hedge Funds (Net All) ***	**0.0**	**4.1**	**3.1**	**3.8**			**5.8**	**2.0**	**-0.2**	**5.4**
HEDGE FUND CUSTOM INDEX	1.7	6.6	5.8	5.5			5.8	5.3	5.0	5.0
Cash	**0.6**	**1.6**	**1.2**	**0.8**	**0.8**	**1.2**	**1.1**	**0.8**	**0.3**	**0.2**
FTSE 6 M Treasury Bill Index	0.5	1.6	0.9	0.6	0.4	0.4	0.9	0.4	0.1	0.1
Total Fund (Net-of-Fees)	**2.6**	**7.9**	**9.9**	**8.0**	**9.5**	**7.6**	**14.9**	**8.3**	**1.5**	**6.7**
TOTAL FUND POLICY BENCHMARK	2.5	7.1	9.4	7.6	9.2	7.5	13.4	8.3	2.1	6.6

See Glossary for all benchmark definitions.
* The performance and market values of two opportunistic portfolios are reported with a one-month lag.
** Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.
*** Portfolio and benchmark are reported with a one-month lag. Performance included in Total Fund beginning 10/31/11.

TOTAL FUND
FISCAL YEAR RETURNS

	FYTD	Jun 30 2018	Jun 30 2017	Jun 30 2016	Jun 30 2015	Jun 30 2014
U.S. Equity	**6.7**	**14.2**	**18.7**	**1.6**	**7.4**	**25.8**
RUSSELL 3000 (DAILY)	7.1	14.8	18.5	2.1	7.3	25.2
Non-U.S. Equity 50% Dev Mkt Hedged	**0.8**	**9.1**	**23.0**	**-8.7**	**1.1**	**20.9**
CUSTOM MSCI ACWI IMI N 50%H	0.9	8.2	21.7	-9.4	0.9	20.3
Fixed Income*	**0.7**	**1.1**	**4.3**	**4.7**	**1.6**	**6.6**
FI CUSTOM INDEX	0.3	-0.3	0.9	5.8	1.6	5.2
BBG BC U.S. Universal	0.3	-0.3	0.9	5.8	1.6	5.2
Real Estate**	**3.1**	**9.1**	**8.4**	**13.2**	**12.8**	**9.1**
REAL ESTATE TARGET	1.9	7.5	7.8	13.1	12.8	12.2
Private Equity**	**4.0**	**21.2**	**12.5**	**6.7**	**13.2**	**23.5**
PRIVATE EQUITY TARGET	3.6	13.7	12.7	13.0	13.8	13.3
Commodities	**-1.3**	**10.4**	**-3.6**	**-12.7**	**-23.0**	**10.2**
Bloomberg Comm Index TR	-2.0	7.3	-6.5	-13.3	-23.7	8.2
Hedge Funds***	**0.1**	**5.7**	**7.0**	**-4.2**	**3.1**	**8.3**
HEDGE FUND CUSTOM INDEX	1.7	6.3	5.4	5.1	5.0	5.0
Cash	**0.6**	**1.5**	**1.0**	**0.6**	**0.4**	**0.4**
FTSE 6 M Treasury Bill Index	0.5	1.3	0.5	0.2	0.1	0.1
Total Fund (Gross-of-Fees)	**2.7**	**9.3**	**13.0**	**1.1**	**4.3**	**16.8**
TOTAL FUND POLICY BENCHMARK	2.5	7.8	11.2	2.2	4.5	15.3
Total Fund (Net-of-Fees)	**2.6**	**9.0**	**12.7**	**0.8**	**4.1**	**16.5**

See Glossary for all benchmark definitions.
* The performance and market values of two opportunistic portfolios are reported with a one-month lag.
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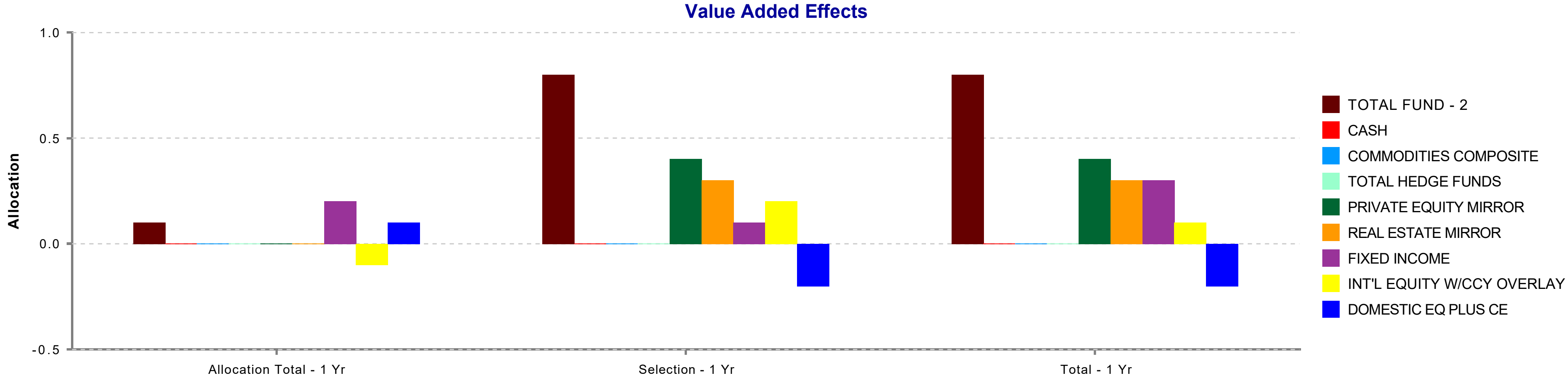
*** Portfolio and benchmark are reported with a one-month lag. Performance included in Total Fund beginning 10/31/11.

TOTAL FUND ATTRIBUTION
TOTAL FUND vs. BENCHMARK
for the one-year ended September 30, 2018

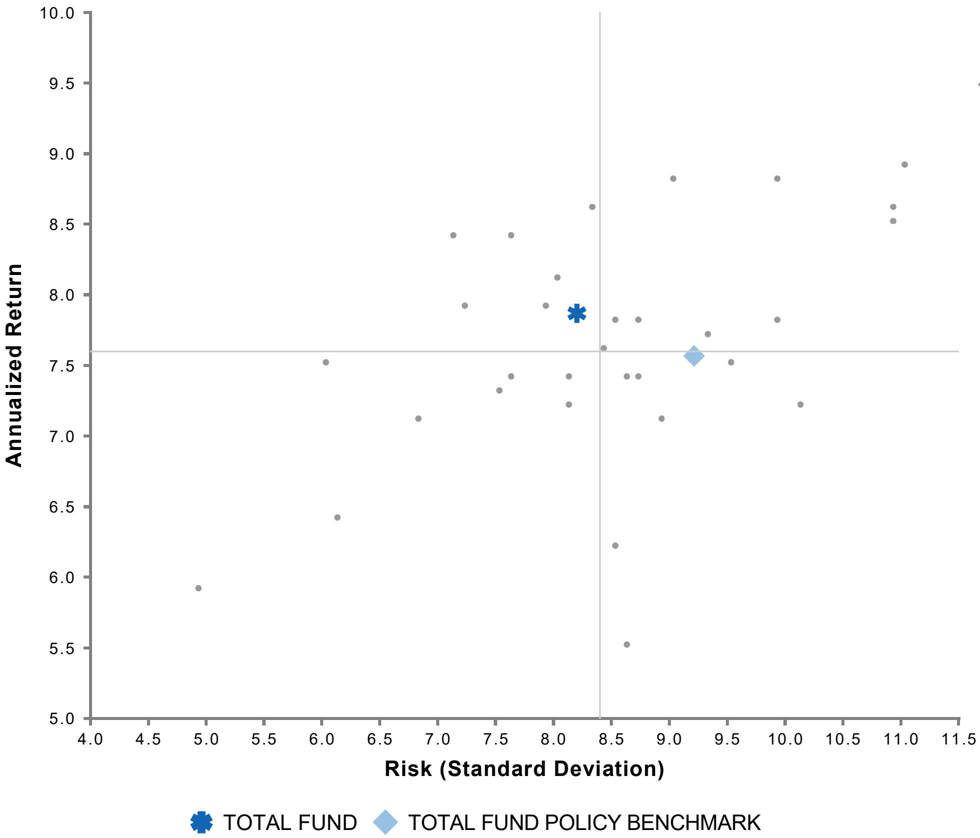


	Fund Weight	Target Weight	Relative	Fund Return	Benchmark Return	Return Difference	Allocation Effect*	Selection Effect**	BM Impact	Residual	Total Value Add
TOTAL FUND - 2	100.0	100.0	0.0	8.2	7.1	1.0	0.1	0.8	-0.3	0.5	0.8
CASH	2.1	2.0	0.1	1.7	1.6	0.1	-0.0	0.0	-	-	0.0
COMMODITIES COMPOSITE	2.4	2.8	-0.4	5.2	2.6	2.6	0.0	0.0	-	-	0.0
TOTAL HEDGE FUNDS	2.8	4.2	-1.4	4.3	6.6	-2.3	-0.0	-0.0	-	-	-0.0
PRIVATE EQUITY MIRROR	10.4	10.0	0.4	19.1	14.3	4.7	-0.0	0.4	-	-	0.4
REAL ESTATE MIRROR	11.1	11.0	0.1	10.2	7.9	2.3	-0.0	0.3	-	-	0.3
FIXED INCOME	24.6	26.6	-2.0	0.4	-1.0	1.4	0.2	0.1	-	-	0.3
INT'L EQUITY W/CCY OVERLAY	21.9	20.3	1.6	3.9	3.4	0.5	-0.1	0.2	-	-	0.1
DOMESTIC EQ PLUS CE	24.6	23.1	1.5	16.5	17.6	-1.0	0.1	-0.2	-	-	-0.2

* Allocation decision reflects the asset class over or underweight (versus the policy weight) multiplied by the difference between the asset class benchmark and Fund Policy benchmark return.
** Selection decision reflects the Fund's asset class return minus the asset class benchmark return, multiplied by the asset class weight.

TOTAL FUND
RISK-ADJUSTED RETURN
for the quarter ended September 30, 2018

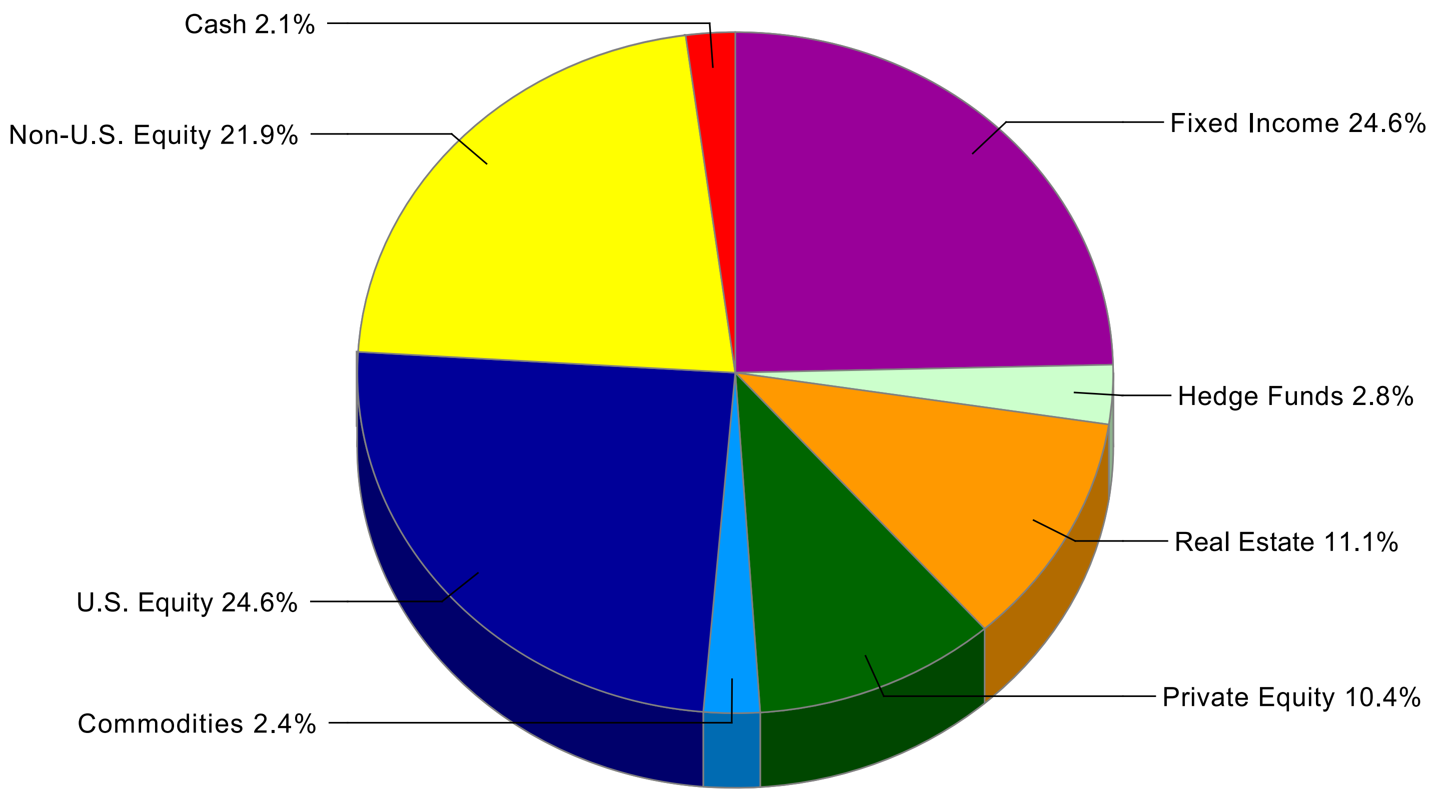
10 Year Risk vs Return



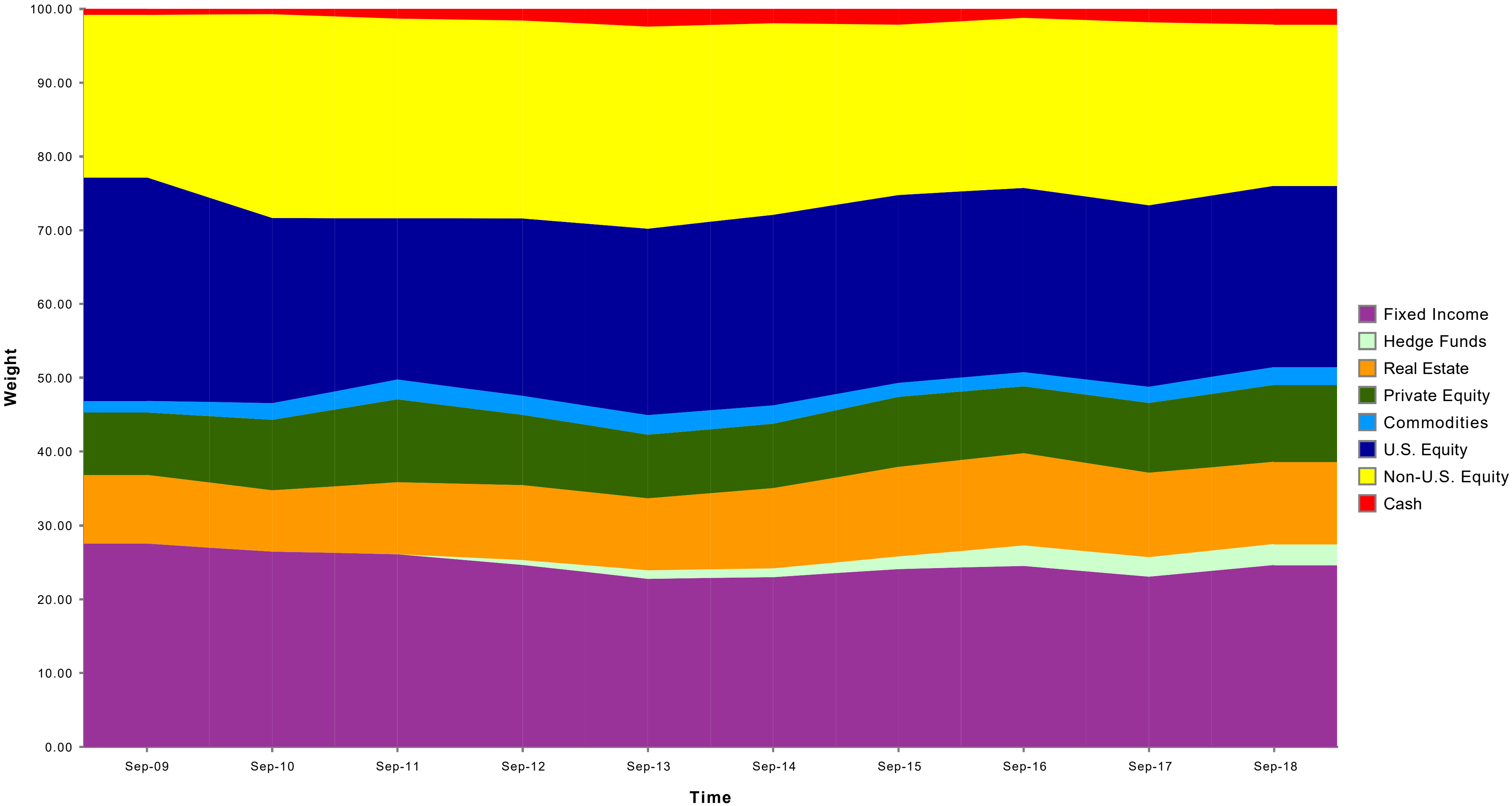
	Rate of Return 10 Years	Standard Deviation 10 Years
TOTAL FUND	**7.8** *41*	**8.1** *43*
TOTAL FUND POLICY BENCHMARK	7.5 *57*	9.1 *73*
5th Percentile	9.0	5.3
25th Percentile	8.4	7.6
50th Percentile	7.6	8.4
75th Percentile	7.3	9.2
95th Percentile	5.9	10.9
Number of Observations	33	32

	Rate of Return 10 Years	Standard Deviation 10 Years	Tracking Error 10 Years
Public Funds (DB) > $1 Billion			
TOTAL FUND - 2	7.8 *41*	8.1 *43*	1.0
TOTAL FUND POLICY BENCHMARK	7.5 *57*	9.1 *73*	

ASSET ALLOCATION
TOTAL FUND
for the quarter ended September 30, 2018

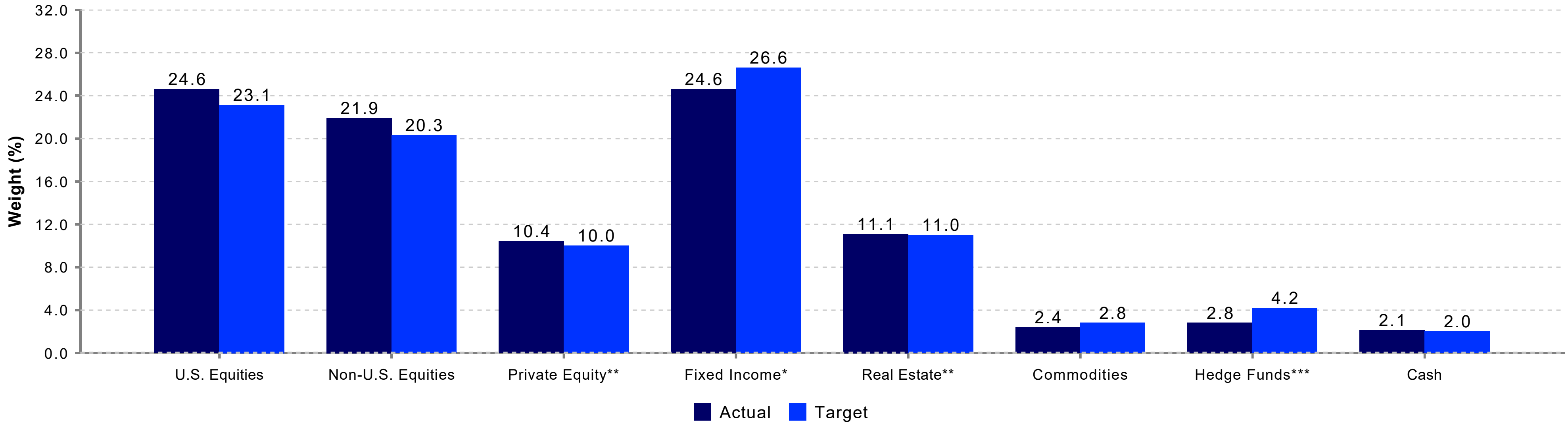


ASSET ALLOCATION
TOTAL FUND
for the quarter ended September 30, 2018



ASSET ALLOCATION
ACTUAL vs. TARGET
for the quarter ended September 30, 2018

Actual vs Target Weights



	Ending Market Value	Actual	Target	Relative	Min	Max
Total Equity	**26,513,275,281**	**46.4**	**43.4**	**3.0**	**33.4**	**53.4**
U.S. Equities	**14,029,749,755**	**24.6**	**23.1**	**1.5**		
Non-U.S. Equities	**12,483,525,526**	**21.9**	**20.3**	**1.6**		
Fixed Income*	**14,077,096,706**	**24.6**	**26.6**	**-2.0**	**23.6**	**29.6**
Real Estate**	**6,363,244,904**	**11.1**	**11.0**	**0.1**	**8.0**	**16.0**
Private Equity**	**5,949,425,609**	**10.4**	**10.0**	**0.4**	**7.0**	**14.0**
Commodities	**1,391,627,197**	**2.4**	**2.8**	**-0.4**	**0.0**	**4.8**
Hedge Funds***	**1,624,961,414**	**2.8**	**4.2**	**-1.4**	**1.2**	**6.2**
Cash	**1,212,907,840**	**2.1**	**2.0**	**0.1**	**0.0**	**4.0**
Total Fund	**57,132,538,952**	**100.0**	**100.0**	**0.0**		

* The performance and market values of two opportunistic portfolios are reported with a one-month lag.
** Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.
*** Portfolio and benchmark are reported with a one-month lag.

ASSET ALLOCATION
U.S. EQUITY MANAGERS
for the quarter ended September 30, 2018

September 30, 2018	Assets ($ millions)	% of Composite
PASSIVE		
BTC Russell 3000 Index	10,560.5	75.3
LOW RISK		
INTECH	936.6	6.7
Twin Capital	577.5	4.1
MODERATE / HIGH RISK		
CornerCap	59.9	0.4
Eagle Asset Mgmt.	381.8	2.7
Frontier Capital Mgmt.	742.7	5.3
JANA Partners	95.3	0.7
Matarin	123.3	0.9
QMA	303.8	2.2
Systematic	248.4	1.8
TOTAL U.S. EQUITY	**14,029.7**	**100.0**

June 30, 2018	Assets ($ millions)	% of Composite
PASSIVE		
BTC Russell 3000 Index	10,031.6	76.3
LOW RISK		
INTECH	878.4	6.7
Twin Capital	541.5	4.1
MODERATE / HIGH RISK		
Eagle Asset Mgmt.	364.4	2.8
Frontier Capital Mgmt.	704.0	5.4
JANA Partners	93.4	0.7
QMA	294.4	2.2
Systematic	245.2	1.9
TOTAL U.S. EQUITY	**13,152.9**	**100.0**

ASSET ALLOCATION
NON-U.S. EQUITY MANAGERS (cont's...)
for the quarter ended September 30, 2018

	September 30, 2018 Assets ($ millions)	% of Composite		*June 30, 2018* Assets ($ millions)	% of Composite
PASSIVE			**PASSIVE**		
BTC Canada Index IMI	722.4	5.8	BTC Canada Index IMI	716.9	5.7
BTC EAFE Index IMI	4,594.5	36.9	BTC EAFE Index IMI	4,705.2	37.4
BTC EAFE Small Cap	205.8	1.7	BTC EAFE Small Cap	207.4	1.7
BTC Emerging Markets Index	1,175.4	9.4	BTC Emerging Markets Index	1,188.7	9.5
BTC Europe Index	376.0	3.0	BTC Europe Index	373.1	3.0
BTC Emerging Markets Small Cap Index	130.2	1.0	BTC Emerging Markets Small Cap Index	135.8	1.1
NON-US DEVELOPED			**NON-US DEVELOPED**		
Acadian Asset Mgmt.	893.4	7.2	Acadian Asset Mgmt.	886.7	7.1
Capital Guardian	390.1	3.1	Capital Guardian	388.5	3.1
REGIONAL DEVELOPED			**REGIONAL DEVELOPED**		
BTC Europe Alpha Tilts	983.6	7.9	BTC Europe Alpha Tilts	976.8	7.8
Cevian Capital	311.5	2.5	Cevian Capital	301.0	2.4
GAM International Mgmt.	885.4	7.1	GAM International Mgmt.	879.3	7.0
Symphony Financial Partners	161.1	1.3	Symphony Financial Partners	150.3	1.2
EMERGING MARKETS			**EMERGING MARKETS**		
Acadian Emrg. Markets	379.1	3.0	Acadian Emrg. Markets	383.8	3.1
AQR Emerging Markets	249.1	2.0	AQR Emerging Markets	250.0	2.0
Genesis Investment Mgmt.	651.6	5.2	Genesis Investment Mgmt.	676.4	5.4
Lazard	335.3	2.7	Lazard	347.7	2.8
TOTAL NON-U.S. EQUITY (Unhedged)	**12,444.5**	**100.0**	**TOTAL NON-U.S. EQUITY (Unhedged)**	**12,567.6**	**100.0**

ASSET ALLOCATION
NON-U.S. EQUITY MANAGERS (...cont'd)
for the quarter ended September 30, 2018

September 30, 2018	Assets ($ millions)	*June 30, 2018*	Assets ($ millions)
PASSIVE HEDGE		**PASSIVE HEDGE**	
Currency Hedge Gain/Loss	39.0	Currency Hedge Gain/Loss	166.8
TOTAL NON-U.S. EQUITY (Hedged)	**12,483.5**	**TOTAL NON-U.S. EQUITY (Hedged)**	**12,734.4**

ASSET ALLOCATION

FIXED INCOME MANAGERS & PROGRAMS (cont's...)

for the quarter ended September 30, 2018

	September 30, 2018 Assets ($ millions)	September 30, 2018 % of Composite		June 30, 2018 Assets ($ millions)	June 30, 2018 % of Composite
CORE			**CORE**		
BTC US Debt Index	3,847.1	27.3	BTC US Debt Index	3,845.0	27.5
Dodge & Cox	1,292.3	9.2	Dodge & Cox	1,282.9	9.2
Pugh Capital Mgmt.	134.8	1.0	Pugh Capital Mgmt.	134.8	1.0
Wells Capital Mgmt.	1,338.9	9.5	Wells Capital Mgmt.	1,338.1	9.6
TOTAL CORE	**6,613.1**	**47.0**	**TOTAL CORE**	**6,600.8**	**47.2**
CORE PLUS			**CORE PLUS**		
Dolan McEniry Capital Mgmt.	347.5	2.5	Dolan McEniry Capital Mgmt.	343.6	2.5
LM Capital Group*	0.3	0.0	LM Capital Group*	0.3	0.0
Loomis, Sayles & Co.	1,079.5	7.7	Loomis, Sayles & Co.	1,074.8	7.7
PIMCO	1,055.3	7.5	PIMCO	1,053.0	7.5
Western Asset Mgmt.	1,118.2	7.9	Western Asset Mgmt.	1,118.8	8.0
TOTAL CORE PLUS	**3,600.8**	**25.6**	**TOTAL CORE PLUS**	**3,590.4**	**25.7**

Policy Ranges Core: 35% - 55% Core Plus: 15% - 35% High Yield & Opportunistic: 20% - 40%

* Manager was terminated and market value reflects residual value.

ASSET ALLOCATION
FIXED INCOME MANAGERS & PROGRAMS (...cont'd)
for the quarter ended September 30, 2018

	September 30, 2018 Assets ($ millions)	September 30, 2018 % of Composite		June 30, 2018 Assets ($ millions)	June 30, 2018 % of Composite
HIGH YIELD			**HIGH YIELD**		
Oaktree Capital Mgmt.	415.0	2.9	Oaktree Capital Mgmt.	405.0	2.9
PENN Capital Mgmt.	111.9	0.8	PENN Capital Mgmt.	109.1	0.8
TOTAL HIGH YIELD	**526.8**	**3.7**	**TOTAL HIGH YIELD**	**514.1**	**3.7**
OPPORTUNISTIC			**OPPORTUNISTIC**		
Aberdeen	195.1	1.4	Aberdeen	193.1	1.4
Ashmore	199.3	1.4	Ashmore	196.7	1.4
Bain Capital	309.8	2.2	Bain Capital	304.7	2.2
Beach Point Capital*	397.1	2.8	Beach Point Capital*	388.7	2.8
Brigade Capital Mgmt.	510.1	3.6	Brigade Capital Mgmt.	497.9	3.6
Crescent Capital	278.8	2.0	Crescent Capital	273.8	2.0
DoubleLine Capital	269.7	1.9	DoubleLine Capital	268.1	1.9
Principal Opportunistic	271.6	1.9	Principal Opportunistic	266.4	1.9
TCW Asset Mgmt.	275.2	2.0	TCW	273.9	2.0
Tennenbaum Capital**	288.9	2.1	Tennenbaum Capital**	273.9	2.0
Western Opportunistic	309.8	2.2	Western Opportunistic	306.3	2.2
TOTAL OPPORTUNISTIC	**3,305.5**	**23.5**	**TOTAL OPPORTUNISTIC**	**3,243.5**	**23.2**
MORTGAGE PROGRAM			**MORTGAGE PROGRAM**		
Member Home Loan Program (MHLP)	30.9	0.2	Member Home Loan Program (MHLP)	32.8	0.2
TOTAL FIXED INCOME* **	**14,077.1**	**100.0**	**TOTAL FIXED INCOME*** **	**13,981.6**	**100.0**

Policy Ranges Core: 35% - 55% Core Plus: 15% - 35% High Yield & Opportunistic: 20% - 40%

* Represents the combined assets of three portfolios, one of which is reported with a one-month lag.
** Reported with a one-month lag.
*** Does not include cash. The performance and market values of two opportunistic portfolios are reported with a one-month lag.

ASSET ALLOCATION
COMMODITIES MANAGERS
for the quarter ended September 30, 2018

	September 30, 2018 Assets ($ millions)	% of Composite		***June 30, 2018*** Assets ($ millions)	% of Composite
Credit Suisse	446.6	32.1	Credit Suisse	455.6	32.3
Neuberger Berman/Gresham	479.6	34.5	Neuberger Berman/Gresham	482.2	34.2
PIMCO	465.4	33.4	PIMCO	472.7	33.5
TOTAL COMMODITIES	**1,391.6**	**100.0**	**TOTAL COMMODITIES**	**1,410.5**	**100.0**

ANNUALIZED TOTAL RETURNS

U.S. EQUITY MANAGERS

for the quarter ended September 30, 2018

Gross-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
LARGE CAP						
INTECH	936.6	6.7	15.0	15.7	14.2	12.2
JANA Partners	95.3	3.1	14.8			
Twin Capital	577.5	6.7	16.4	16.4	13.8	12.1
S&P 500		7.7	17.9	17.3	13.9	12.0
BTC Russell 3000	10,560.5	7.1	17.6			
Russell 3000		7.1	17.6	17.1	13.5	12.0
SMALL / MID CAP						
Eagle Asset Management	381.8	4.9	14.7	18.3	13.4	12.3
Frontier Capital Management	742.7	5.7	12.3	18.3	12.4	13.5
Russell 2500		4.7	16.2	16.1	11.4	12.0
QMA	303.8	3.3				
Systematic	248.4	1.4				
Russell 2000		3.6	15.2	17.1	11.1	11.1

Net-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
LARGE CAP						
INTECH	936.6	6.6	14.8	15.4	13.9	11.9
JANA Partners	95.3	2.3	12.1			
Twin Capital	577.5	6.6	16.3	16.3	13.6	11.9
S&P 500		7.7	17.9	17.3	13.9	12.0
BTC Russell 3000	10,560.5	7.1	17.6			
Russell 3000		7.1	17.6	17.1	13.5	12.0
SMALL / MID CAP						
Eagle Asset Management	381.8	4.8	14.1	17.6	12.7	11.6
Frontier Capital Management	742.7	5.5	11.4	17.4	11.5	12.6
Russell 2500		4.7	16.2	16.1	11.4	12.0
QMA	303.8	3.2				
Systematic	248.4	1.3				
Russell 2000		3.6	15.2	17.1	11.1	11.1

ANNUALIZED TOTAL RETURNS
NON-U.S. EQUITY MANAGERS (cont's...)
for the quarter ended September 30, 2018

Gross-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
NON U.S.						
Acadian Asset Management	893.4	0.9	5.6	15.8	9.4	8.0
Capital Guardian	390.1	0.5	6.6	13.5	6.2	7.1
MSCI EAFE + CANADA Net (Daily)		1.3	2.7	9.3	4.2	5.2
BTC EAFE IMI*	4,594.5	1.1	3.3	10.1	5.3	6.3
MSCI EAFE IMI Custom Index		1.0	2.9	9.7	4.9	5.9
BTC EAFE Small Cap	205.8	-0.8	4.3			
MSCI EAFE Small Cap Net		-0.9	3.7	12.4	8.0	9.7
BTC Canada IMI*	722.4	0.8	2.4	11.2	2.8	4.0
MSCI Canada Custom IMI (Net)		0.6	1.6	10.3	2.0	3.3
PACIFIC BASIN						
GAM Pacific Basin	885.4	0.8	7.1	13.9	6.6	7.8
MSCI Pacific (Net)		2.3	8.2	12.4	5.8	6.6
Symphony Financial Partners	161.1	7.2	30.6			
MSCI Japan Small Cap Net		-0.1	7.4	14.9	9.8	9.8

Net-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
NON U.S.						
Acadian Asset Management	893.4	0.8	5.2	15.3	9.0	7.5
Capital Guardian	390.1	0.4	6.2	13.1	5.8	6.7
MSCI EAFE + Canada Net (Daily)		1.3	2.7	9.3	4.2	5.2
BTC EAFE IMI*	4,594.5	1.1	3.3	10.1	5.3	6.3
MSCI EAFE IMI Custom Index		1.0	2.9	9.7	4.9	5.9
BTC EAFE Small Cap	205.8	-0.8	4.2			
MSCI EAFE Small Cap Net		-0.9	3.7	12.4	8.0	9.7
BTC Canada IMI*	722.4	0.8	2.4	11.1	2.8	4.0
MSCI Canada Custom IMI (Net)		0.6	1.6	10.3	2.0	3.3
PACIFIC BASIN						
GAM Pacific Basin	885.4	0.7	6.7	13.5	6.1	7.4
MSCI Pacific (Net)		2.3	8.2	12.4	5.8	6.6
Symphony Financial Partners	161.1	7.0	27.5			
MSCI Japan Small Cap Net		-0.1	7.4	14.9	9.8	9.8

See Glossary for all Custom index definitions.
* BTC EAFE & Canada Funds; 8/31/08 - Present: BTC EAFE & Canada IMI Funds.

ANNUALIZED TOTAL RETURNS
NON-U.S. EQUITY MANAGERS (...cont'd)
for the quarter ended September 30, 2018

Gross-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
EUROPE						
BTC Euro Tilts	983.6	0.8	-0.6	8.7	6.1	6.7
BTC Europe Index	376.0	0.8	0.2	8.3	4.2	5.4
Cevian Capital	311.5	3.9	8.3			
MSCI Europe (Net)		0.8	-0.3	7.7	3.7	4.9
EMERGING MARKETS						
Acadian Emerging Markets	379.1	-1.1	-4.1	12.2	3.7	
AQR Emerging Markets	249.1	-0.2	-2.5	13.2		
Lazard Emerging Markets	335.3	-3.4	-3.1	11.8	4.5	
BTC - Emerging Markets	1,175.4	-1.1	-0.9	12.3	3.6	5.3
MSCI EM Standard (Net)		-1.1	-0.8	12.4	3.6	5.4
BTC Emerging Markets Small Cap	130.2	-4.1	-4.2	7.5	2.8	
MSCI EM Small Cap - Net Return		-4.2	-4.2	7.4	2.7	7.4
Genesis	651.6	-3.5	-1.6	11.9	3.8	7.8
MSCI EM IMI Custom Index		-1.5	-1.2	11.7	3.5	5.6
PASSIVE HEDGE						
BTC Passive Currency Hedge	39.0	0.6	2.0	0.4	1.9	
50% FX Hedge Index		0.6	2.0	0.5	1.9	

Net-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
EUROPE						
BTC Euro Tilts	983.6	0.7	-1.0	8.3	5.7	6.3
BTC Europe Index	376.0	0.8	0.2	8.3	4.2	5.4
Cevian Capital	311.5	3.5	6.6			
MSCI Europe (Net)		0.8	-0.3	7.7	3.7	4.9
EMERGING MARKETS						
Acadian Emerging Markets	379.1	-1.2	-4.6	11.7	3.2	
AQR Emerging Markets	249.1	-0.4	-3.1	12.5		
Lazard Emerging Markets	335.3	-3.6	-3.8	11.0	3.6	
BTC - Emerging Markets	1,175.4	-1.1	-1.0	12.2	3.4	5.1
MSCI EM Standard (Net)		-1.1	-0.8	12.4	3.6	5.4
BTC Emerging Markets Small Cap	130.2	-4.2	-4.4	7.3	2.5	
MSCI EM Small Cap - Net Return		-4.2	-4.2	7.4	2.7	7.4
Genesis	651.6	-3.7	-2.3	11.1	3.1	7.0
MSCI EM IMI Custom Index		-1.5	-1.2	11.7	3.5	5.6
PASSIVE HEDGE						
BTC Passive Currency Hedging	39.0	0.6	2.0	0.4	1.8	
50% FX Hedge Index		0.6	2.0	0.5	1.9	

See Glossary for all Custom index definitions.

ANNUALIZED TOTAL RETURNS
FIXED INCOME MANAGERS & PROGRAMS (cont's...)
for the quarter ended September 30, 2018

Gross-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
CORE						
BTC US Debt Index	3,847.1	0.1	-1.1	1.4	2.3	3.9
Dodge & Cox	1,292.3	0.8	0.1	3.4	3.5	5.8
Pugh Capital Mgmt.	134.8	0.1	-1.2	1.5	2.5	4.5
Wells Capital Mgmt.	1,338.9	0.1	-1.1	1.7	2.6	5.1
BBG BC Aggregate Bond Index		0.0	-1.2	1.3	2.2	3.8
CORE PLUS						
Loomis, Sayles & Co.	1,079.5	0.5	0.3	3.7	3.4	6.4
PIMCO	1,055.3	0.3	0.5	3.4	3.1	5.1
Western Asset Mgmt.	1,118.2	-0.0	-2.4	2.6	3.3	6.2
BBG BC Aggregate Bond Index		0.0	-1.2	1.3	2.2	3.8
Dolan McEniry Capital Mgmt.	347.5	1.2	0.5	4.1	3.9	6.6
Dolan McEniry Custom Index		0.7	-0.4	2.3	2.6	5.0

Net-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
CORE						
BTC US Debt Index	3,847.1	0.1	-1.1	1.4	2.3	3.9
Dodge & Cox	1,292.3	0.7	0.0	3.3	3.4	5.7
Pugh Capital Mgmt.	134.8	0.0	-1.3	1.3	2.2	4.3
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Dolan McEniry Capital Mgmt.	347.5	1.1	0.3	3.9	3.6	6.3
Dolan McEniry Custom Index		0.7	-0.4	2.3	2.6	5.0

See Glossary for all Custom index definitions.

ANNUALIZED TOTAL RETURNS

FIXED INCOME MANAGERS & PROGRAMS (...cont'd)

for the quarter ended September 30, 2018

Gross-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
HIGH YIELD						
Oaktree Capital Mgmt.	415.0	2.6	2.1	6.7	4.9	8.2
PENN Capital Mgmt.	111.9	2.7	3.6	6.9	5.0	7.9
BBG BC Ba/B US High Yield Index		2.3	2.2	7.1	5.2	8.6
OPPORTUNISTIC						
Aberdeen	195.1	1.2	-4.8			
Ashmore	199.3	1.5	-3.4			
Opportunistic EMD Custom Index		1.0	-3.0			
Bain Capital	309.8	2.0	4.5	6.8		
Beach Point Capital*	397.1	2.6	5.8	10.0		
Crescent Capital Group	278.8	2.0	3.8	5.8		
Opportunistic Custom Index		2.2	4.3	6.8	5.0	
Brigade Capital Mgmt.	510.1	2.6	6.0	9.8	6.2	
Brigade Custom Index		2.1	3.9	6.3	4.8	
Principal Opportunistic	271.6	2.0	1.2	4.2	4.1	
BBG BC US Universal Spread 1-10 Yr.		1.0	-0.1	3.3	3.1	5.7
DoubleLine Capital	269.7	0.8	2.5			
TCW	275.2	0.6	3.2	4.4		
Securitized Custom Index		0.9	3.1	5.0		
Tennenbaum Capital**	288.9	2.0	9.3	9.1		
CS Leveraged Loan Index**		1.3	5.6	5.1		
Western Opportunistic	309.8	1.2	2.7	4.2	3.6	
Western Opportunistic Custom Index		0.7	4.0	3.3	2.9	

Net-of-Fees

	Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
HIGH YIELD						
Oaktree Capital Mgmt.	415.0	2.5	1.7	6.3	4.4	7.8
PENN Capital Mgmt.	111.9	2.6	3.2	6.5	4.5	7.4
BBG BC Ba/B US High Yield Index		2.3	2.2	7.1	5.2	8.6
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Aberdeen	195.1	1.0	-5.1			
Ashmore	199.3	1.3	-4.2			
Opportunistic EMD Custom Index		1.0	-3.0			
Bain Capital	309.8	1.8	3.8	5.9		
Beach Point Capital*	397.1	2.2	4.4	8.0		
Crescent Capital Group	278.8	1.9	3.2	5.2		
Opportunistic Custom Index		2.2	4.3	6.8	5.0	
Brigade Capital Mgmt.	510.1	2.4	5.2	9.0	5.4	
Brigade Custom Index		2.1	3.9	6.3	4.8	
Principal Opportunistic	271.6	2.0	1.0	4.1	3.9	
BBG BC US Universal Spread 1-10 Yr.		1.0	-0.1	3.3	3.1	5.7
DoubleLine Capital	269.7	0.6	1.7			
TCW	275.2	0.5	2.6	3.8		
Securitized Custom Index		0.9	3.1	5.0		
Tennenbaum Capital**	288.9	1.8	8.3	8.1		
CS Leveraged Loan Index**		1.3	5.6	5.1		
Western Opportunistic	309.8	1.1	2.7	4.1	3.5	
Western Opportunistic Custom Index		0.7	4.0	3.3	2.9	

See Glossary for all Custom index definitions.

* Represents the combined assets & performance of two portfolios, one of which is reported with a one-month lag.

** Reported with a one-month lag.

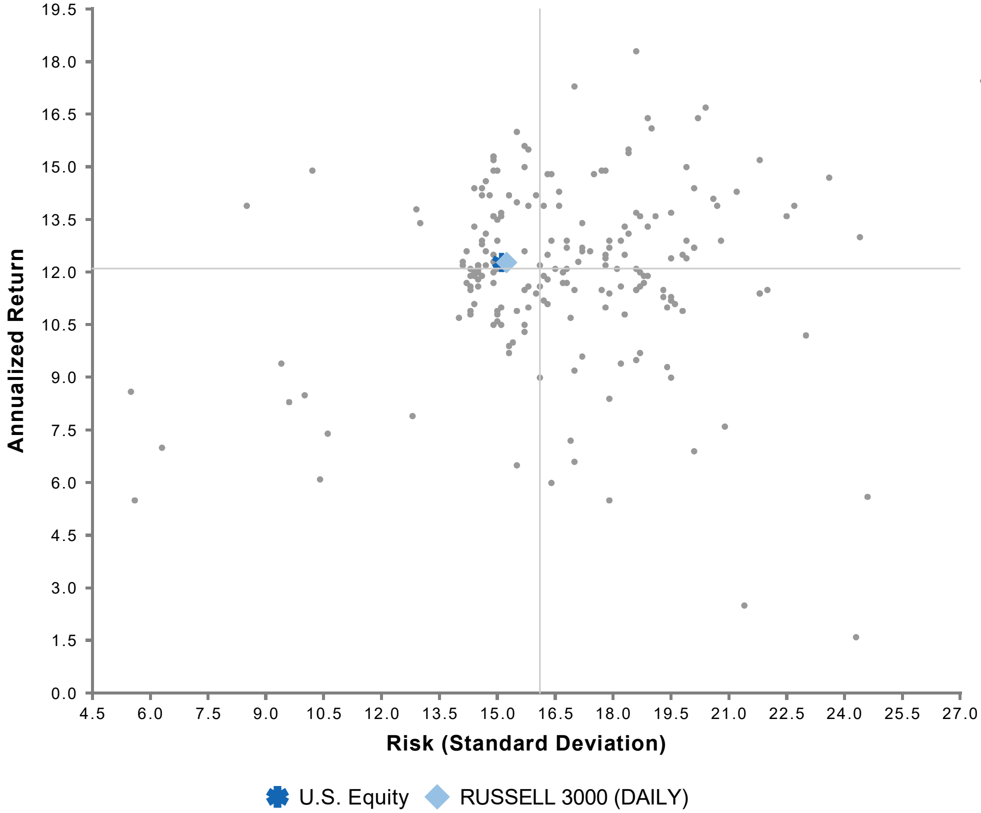
ANNUALIZED TOTAL RETURNS
COMMODITIES MANAGERS
for the quarter ended September 30, 2018

	Gross-of-Fees Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
COMMODITIES MANAGERS						
Credit Suisse	446.6	-1.9	2.0	0.7	-6.5	
Neuberger Berman/Gresham	479.6	-0.4	8.7	2.9	-5.4	-3.9
PIMCO	465.4	-1.5	4.7	3.4	-4.7	-4.0
Bloomberg Comm Index TR		-2.0	2.6	-0.1	-7.2	-6.2

	Net-of-Fees Mkt Value ($Mil)	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs
COMMODITIES MANAGERS						
Credit Suisse	446.6	-2.0	1.8	0.5	-6.8	
Neuberger Berman/Gresham	479.6	-0.5	8.2	2.5	-5.8	-4.3
PIMCO	465.4	-1.6	4.3	3.0	-5.1	-4.5
Bloomberg Comm Index TR		-2.0	2.6	-0.1	-7.2	-6.2

U.S. EQUITY
RISK ADJUSTED RETURN
for the quarter ended September 30, 2018

10 Year Risk vs Return



	Rate of Return 10 Years	Standard Deviation 10 Years
U.S. Equity	**12.0** *55*	**14.8** *32*
RUSSELL 3000 (DAILY)	12.0 *56*	14.9 *34*
5th Percentile	15.3	12.8
25th Percentile	13.5	14.6
50th Percentile	12.1	16.1
75th Percentile	11.2	18.5
95th Percentile	6.8	21.1
Number of Observations	227	224

	Rate of Return 10 Years	Standard Deviation 10 Years	Tracking Error 10 Years
U.S. Equity	12.0 *55*	14.8 *32*	0.4
RUSSELL 3000 (DAILY)	12.0 *56*	14.9 *34*	

Universe data: U.S. Equity Funds - plans > $1 billion

U.S. EQUITY - LARGE CAP
INTECH INVESTMENT MANAGEMENT LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	INTECH Investment Management LLC
Location:	West Palm Beach, FL
Year Founded:	1987
Contact:	Nancy Holden, Sr. Managing Director
Inception Date:	December 2006
Assigned Role:	Enhanced Index
Benchmark:	S&P 500
Investment Style:	Core

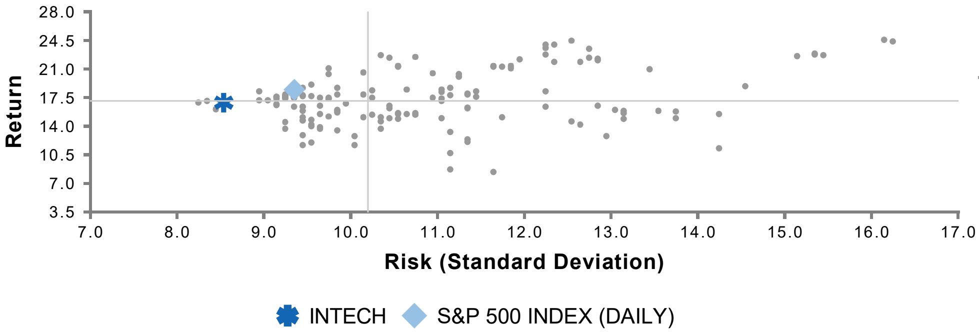
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
INTECH	936.6	6.69	15.04	15.67	14.19	12.19	9.12
S&P 500 INDEX (DAILY)		7.71	17.91	17.31	13.95	11.97	8.67

Universe

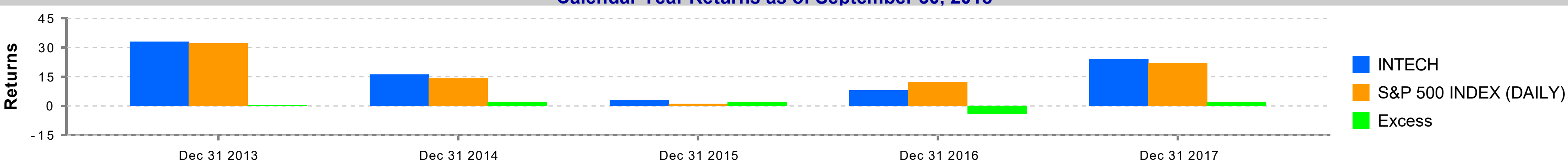
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - Large Cap				
Median	7.16	17.33	17.07	13.58
Number of Observations	175.00	176.00	172.00	161.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
INTECH	15.7	69	8.4	2
S&P 500 INDEX (DAILY)	17.3	40	9.2	11
5th Percentile	22.5		9.1	
25th Percentile	18.3		9.3	
50th Percentile	17.1		10.2	
75th Percentile	15.1		11.3	
95th Percentile	12.0		13.7	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities Total Large Cap

U.S. EQUITY - LARGE CAP

JANA PARTNERS LLC

for the quarter ended September 30, 2018

Manager Profile

Firm:	JANA Partners LLC
Location:	New York, NY
Year Founded:	2001
Contact:	Jordan Gershuny, Head of Client Adv. Group
Inception Date:	October 2016
Assigned Role:	Large Cap Equity
Benchmark:	S&P 500
Investment Style:	Activist

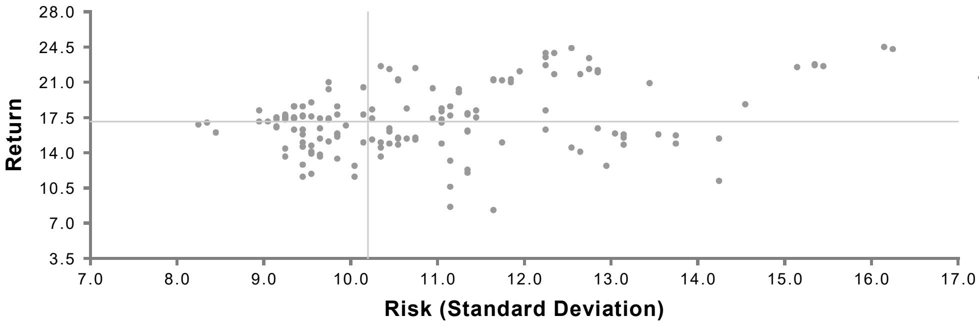
Manager vs. Benchmark: Return through September 30, 2018 (not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
JANA Partners	95.3	3.13	14.80				33.07
S&P 500 INDEX (DAILY)		7.71	17.91				18.26

Universe

	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - Large Cap				
Median	7.16	17.33	17.07	13.58
Number of Observations	175.00	176.00	172.00	161.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	22.5	9.1
25th Percentile	18.3	9.3
50th Percentile	17.1	10.2
75th Percentile	15.1	11.3
95th Percentile	12.0	13.7

Calendar Year Returns as of September 30, 2018

Universe data: U.S. Equities Total Large Cap

U.S. EQUITY - LARGE CAP
TWIN CAPITAL MANAGEMENT, INC.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Twin Capital Management, Inc.
Location:	McMurray, PA
Year Founded:	1990
Contact:	Geoffrey Gerber, Ph.D., President
Inception Date:	December 2006
Assigned Role:	Enhanced Index
Benchmark:	S&P 500
Investment Style:	Core

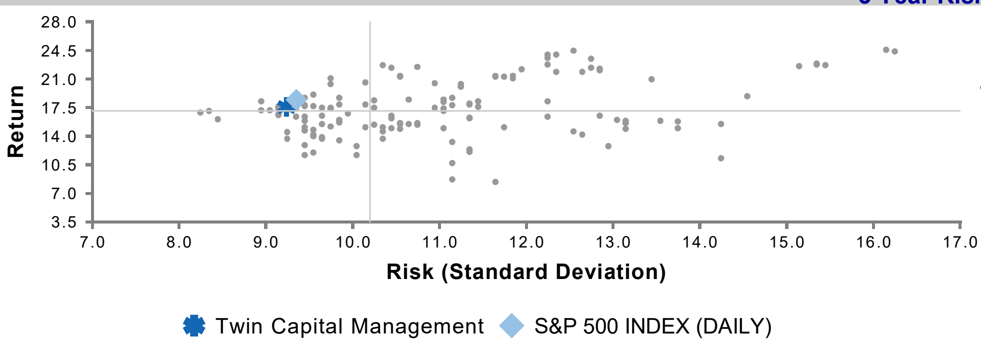
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Twin Capital Management	577.5	6.69	16.45	16.43	13.76	12.07	8.92
S&P 500 INDEX (DAILY)		7.71	17.91	17.31	13.95	11.97	8.67

Universe

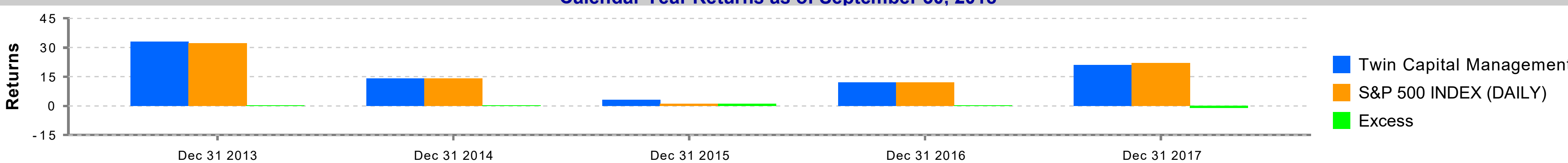
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - Large Cap				
Median	7.16	17.33	17.07	13.58
Number of Observations	175.00	176.00	172.00	161.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Twin Capital Management	16.460	9.16
S&P 500 INDEX (DAILY)	17.340	9.211
5th Percentile	22.5	9.1
25th Percentile	18.3	9.3
50th Percentile	17.1	10.2
75th Percentile	15.1	11.3
95th Percentile	12.0	13.7

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities Total Large Cap

U.S. EQUITY - SMALL/MID CAP
EAGLE ASSET MANAGEMENT, INC.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Eagle Asset Management, Inc.
Location:	St. Petersburg, FL
Year Founded:	1976
Contact:	Ed Rick, CFA, Senior Vice President
Inception Date:	February 2005
Assigned Role:	Small/Mid Cap Equity
Benchmark:	Russell 2500
Investment Style:	Core / Growth

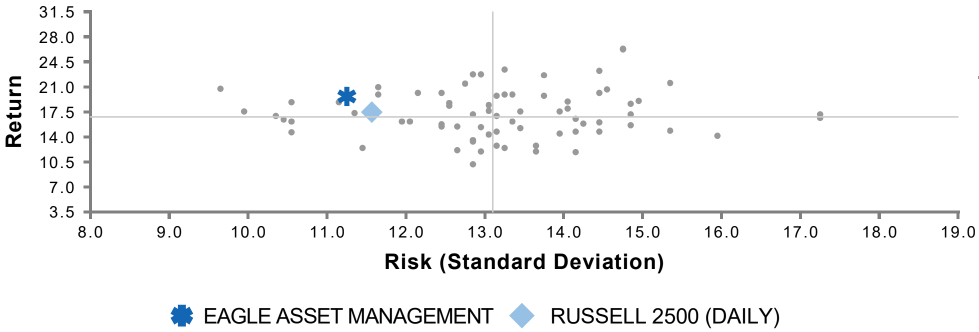
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Eagle Asset Management	381.8	4.90	14.73	18.27	13.37	12.25	10.90
RUSSELL 2500 (DAILY)		4.70	16.19	16.13	11.37	12.02	9.64

Universe

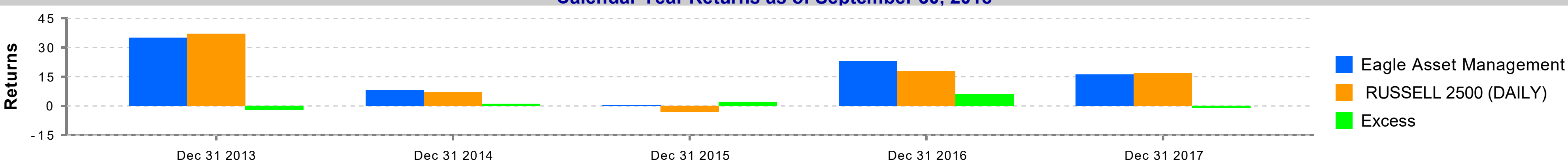
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - SMID				
Median	3.30	12.34	16.78	11.34
Number of Observations	80.00	77.00	77.00	70.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
EAGLE ASSET MANAGEMENT	18.3	35	11.1	11
RUSSELL 2500 (DAILY)	16.1	58	11.4	12
5th Percentile	22.9		10.3	
25th Percentile	19.5		12.5	
50th Percentile	16.8		13.1	
75th Percentile	14.8		14.1	
95th Percentile	11.5		15.3	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities SMID

U.S. EQUITY - SMALL/MID CAP
FRONTIER CAPITAL MANAGEMENT COMPANY, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Frontier Capital Mgmt. Company, LLC
Location:	Boston, MA
Year Founded:	1980
Contact:	Michael Cavarretta, Chairman-Portf. Manager
Inception Date:	June 2002
Assigned Role:	Small/Mid Cap Equity
Benchmark:	Russell 2500
Investment Style:	Core / Growth

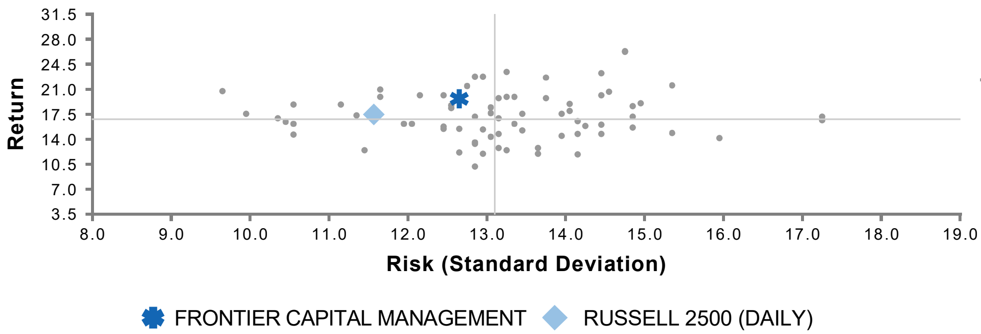
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Frontier Capital Management	742.7	5.69	12.27	18.28	12.43	13.52	12.04
RUSSELL 2500 (DAILY)		4.70	16.19	16.13	11.37	12.02	10.06

Universe

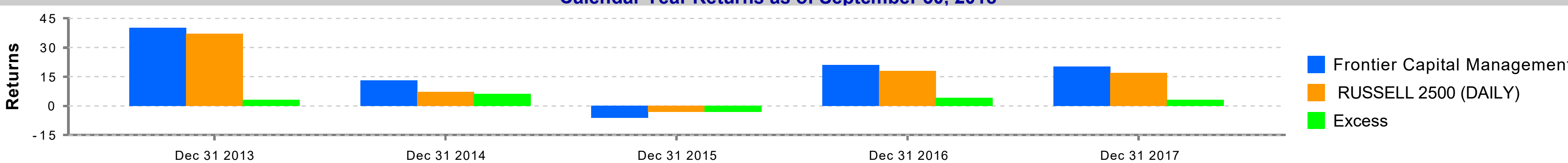
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - SMID				
Median	3.30	12.34	16.78	11.34
Number of Observations	80.00	77.00	77.00	70.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
FRONTIER CAPITAL MANAGEMENT	18.3	34	12.5	27
RUSSELL 2500 (DAILY)	16.1	58	11.4	12
5th Percentile	22.9		10.3	
25th Percentile	19.5		12.5	
50th Percentile	16.8		13.1	
75th Percentile	14.8		14.1	
95th Percentile	11.5		15.3	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities SMID

U.S. EQUITY - SMALL/MID CAP
QUANTITATIVE MANAGEMENT ASSOCIATES
for the quarter ended September 30, 2018

Manager Profile

Firm:	Quantitative Management Associates
Location:	Newark, NJ
Year Founded:	1975
Contact:	Brad Zenz, Managing Director
Inception Date:	July 2018
Assigned Role:	Small Cap Equity
Benchmark:	Russell 2000
Investment Style:	Core

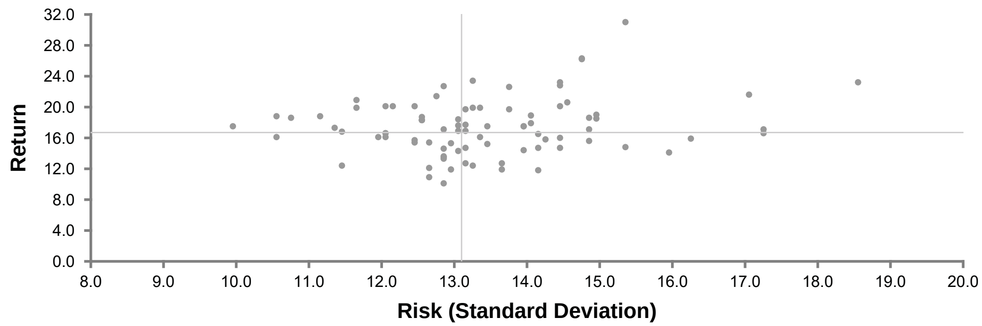
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
QMA	303.8	3.34					3.34
RUSSELL 2000 (DAILY)		3.58					3.58

Universe

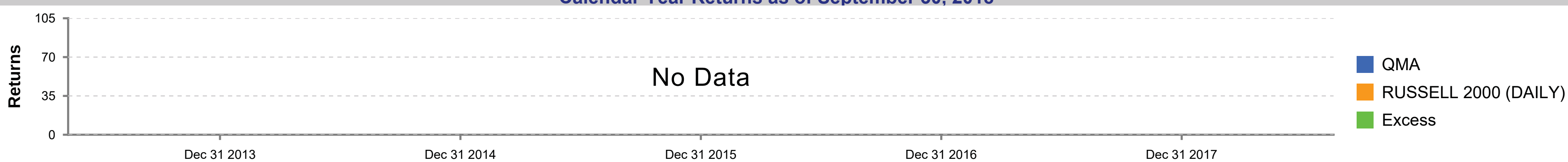
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - Small Cap				
Median	3.04	12.82	16.69	11.45
Number of Observations	92.00	91.00	87.00	81.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	22.8	10.7
25th Percentile	19.3	12.5
50th Percentile	16.7	13.1
75th Percentile	14.6	14.2
95th Percentile	11.5	16.2

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities Small Cap

U.S. EQUITY - SMALL/MID CAP
SYSTEMATIC FINANCIAL MANAGEMENT
for the quarter ended September 30, 2018

Manager Profile

Firm:	Systematic Financial Management
Location:	Teaneck, NJ
Year Founded:	1982
Contact:	Steven Shaw, Senior VP
Inception Date:	July 2018
Assigned Role:	Small Cap Equity
Benchmark:	Russell 2000
Investment Style:	Value

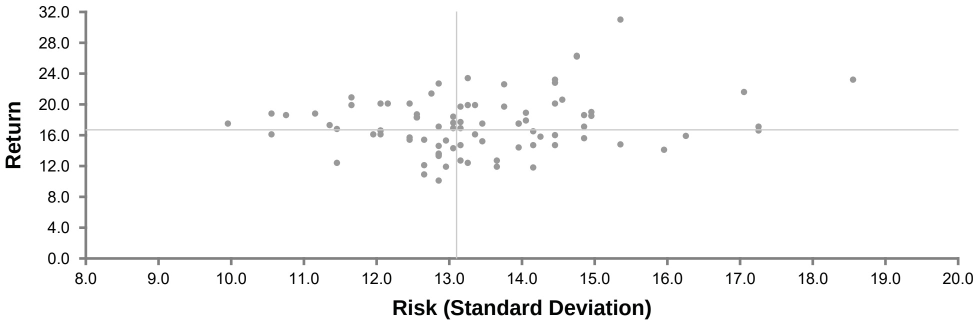
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Systematic	248.4	1.44					1.44
RUSSELL 2000 (DAILY)		3.58					3.58

Universe

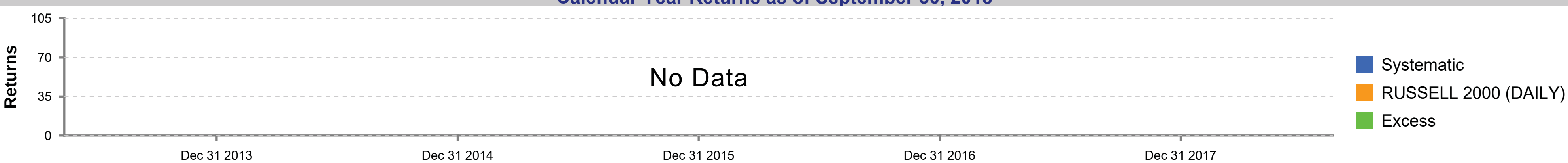
	1 Qtr	1 Year	3 Years	5 Years
US Equity Funds - Small Cap				
Median	3.04	12.82	16.69	11.45
Number of Observations	92.00	91.00	87.00	81.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	22.8	10.7
25th Percentile	19.3	12.5
50th Percentile	16.7	13.1
75th Percentile	14.6	14.2
95th Percentile	11.5	16.2

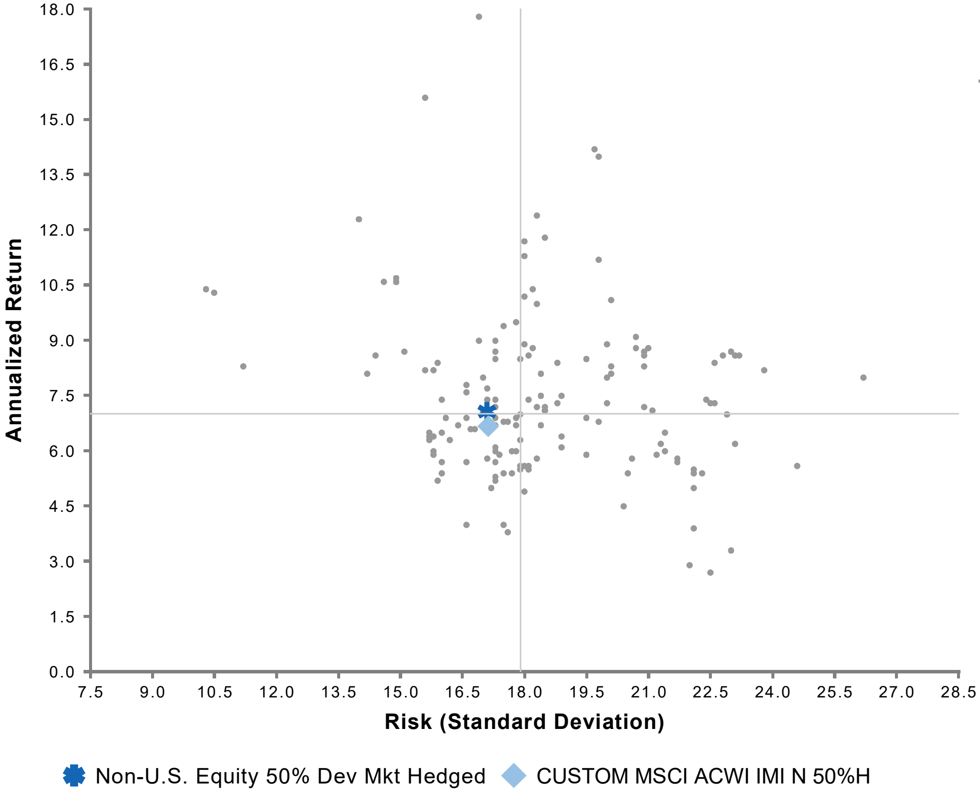
Calendar Year Returns as of September 30, 2018



Universe data: U.S. Equities Small Cap

NON-U.S. EQUITY
RISK ADJUSTED RETURN
for the quarter ended September 30, 2018

10 Year Risk vs Return



	Rate of Return 10 Years	Standard Deviation 10 Years
Non-U.S. Equity 50% Dev Mkt Hedged	**6.8** *55*	**16.8** *24*
CUSTOM MSCI ACWI IMI N 50%H	6.4 *64*	16.8 *24*
5th Percentile	11.6	14.5
25th Percentile	8.5	16.8
50th Percentile	7.0	17.9
75th Percentile	5.9	20.0
95th Percentile	4.4	22.9
Number of Observations	155	157

	Rate of Return 10 Years	Standard Deviation 10 Years	Tracking Error 10 Years
Non-U.S. Equity 50% Dev Mkt Hedged	6.8 *55*	16.8 *24*	0.5
CUSTOM MSCI ACWI IMI N 50%H	6.4 *64*	16.8 *24*	

Universe data: Non-U.S. Equity Funds

NON-U.S. EQUITY
ACADIAN ASSET MANAGEMENT, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Acadian Asset Management, LLC
Location:	Boston, MA
Year Founded:	1986
Contact:	Julia Khan, Associate Relationship Manager
Inception Date:	April 2006
Assigned Role:	Non-U.S. Equity
Benchmark:	MSCI EAFE + Canada (Net)
Investment Style:	Core / Value

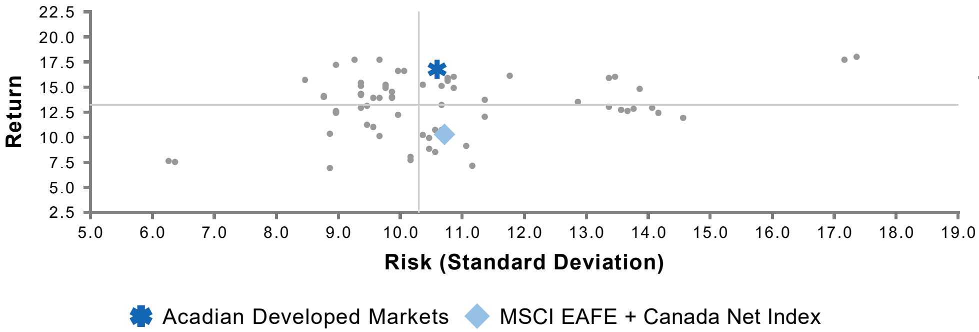
Manager vs. Benchmark: Return through September 30, 2018 (not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Acadian Developed Markets	893.4	0.85	5.59	15.76	9.40	7.96	5.00
MSCI EAFE + Canada Net Index		1.31	2.67	9.32	4.24	5.18	3.48

Universe

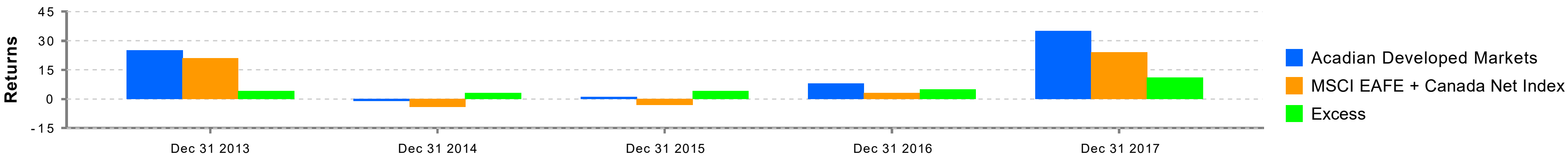
	1 Qtr	1 Year	3 Years	5 Years
Intl/Global Equity Funds - Core				
Median	3.34	6.41	13.24	8.99
Number of Observations	84.00	84.00	84.00	61.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
Acadian Developed Markets	15.8	11	10.4	52
MSCI EAFE + Canada Net Index	9.3	89	10.5	56
5th Percentile	17.4		8.7	
25th Percentile	14.8		9.3	
50th Percentile	13.2		10.3	
75th Percentile	10.7		11.0	
95th Percentile	7.4		14.0	

Calendar Year Returns as of September 30, 2018



Universe data: International Equity Funds Core

NON-U.S. EQUITY
CAPITAL GUARDIAN TRUST COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	Capital Guardian Trust Company
Location:	Los Angeles, CA
Year Founded:	1968
Contact:	Michael Bowman, Relationship Manager
Funding / Inception Date:	October 1987 / November 1994*
Assigned Role:	Non-U.S. Equity
Benchmark:	EAFE Custom Index
Investment Style:	Core / Growth

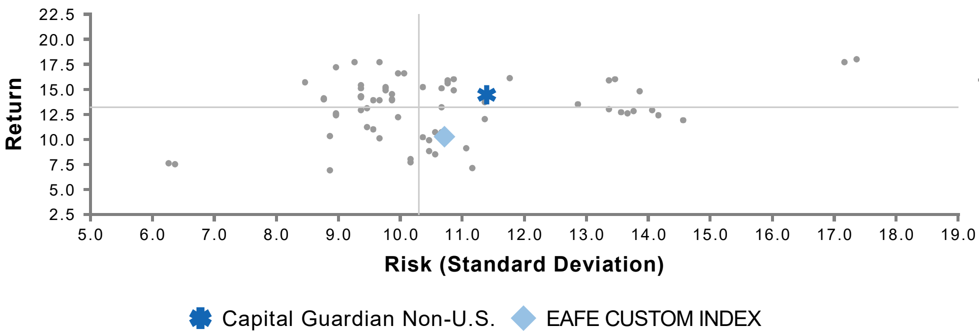
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Capital Guardian Non-U.S.	**390.1**	**0.51**	**6.56**	**13.48**	**6.16**	**7.06**	**7.69**
EAFE CUSTOM INDEX		1.31	2.67	9.32	4.24	5.18	4.92

Universe

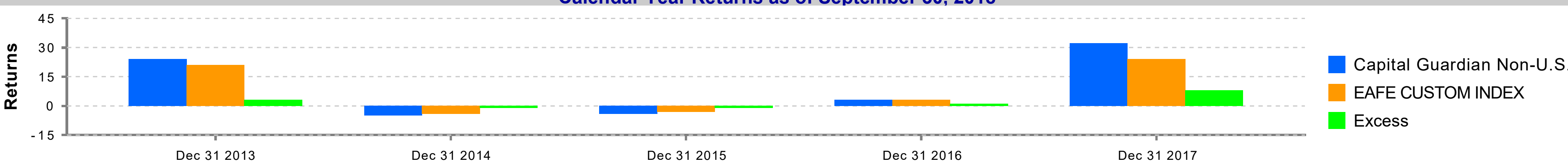
	1 Qtr	1 Year	3 Years	5 Years
Intl/Global Equity Funds - Core				
Median	3.34	6.41	13.24	8.99
Number of Observations	84.00	84.00	84.00	61.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
Capital Guardian Non-U.S.	13.5	49	11.2	77
EAFE CUSTOM INDEX	9.3	89	10.5	56
5th Percentile	17.4		8.7	
25th Percentile	14.8		9.3	
50th Percentile	13.2		10.3	
75th Percentile	10.7		11.0	
95th Percentile	7.4		14.0	

Calendar Year Returns as of September 30, 2018



* State Street performance data begins November 1994.
Universe data: International Equity Funds Core

NON-U.S. EQUITY - PACIFIC BASIN
GAM INTERNATIONAL MANAGEMENT LTD.
for the quarter ended September 30, 2018

Manager Profile

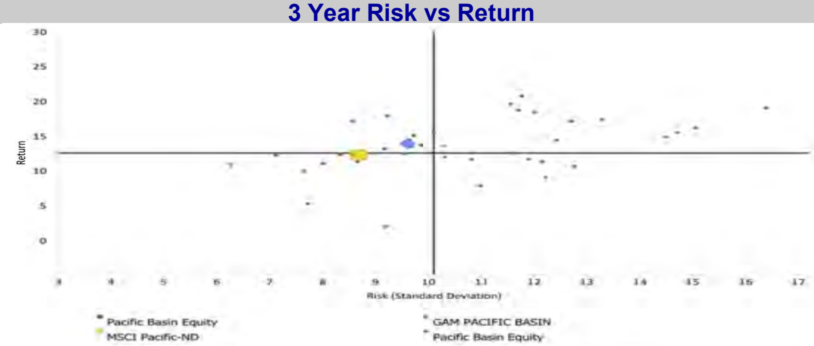
Firm:	GAM International Management Ltd.
Location:	London, England
Year Founded:	1993
Contact:	Michael Bunker, Portfolio Manager
Inception Date:	April 1994
Assigned Role:	Pacific Basin
Benchmark:	MSCI Pacific Basin Net
Investment Style:	Core

Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
GAM Pacific Basin	885.4	0.80	7.14	13.93	6.56	7.84	7.21
MSCI PACIFIC $ (DAILY)		2.28	8.22	12.35	5.77	6.55	2.80

Universe	1 Qtr	1 Year	3 Years	5 Years
Pacific Basin Equity				
Median	0.63	6.35	12.57	7.23
Number of Observations	42	42	41	36

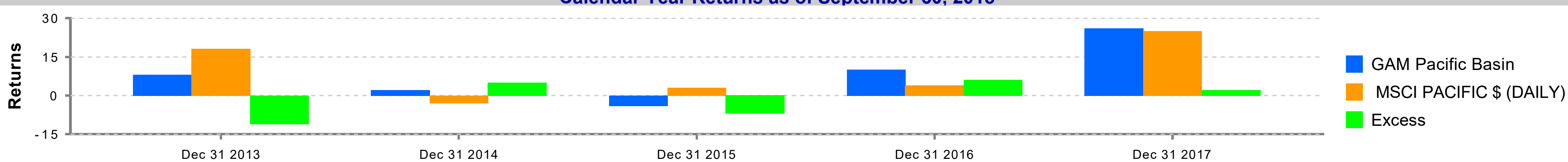
3 Year Risk vs Return



3 Year Risk vs Return

	3 Year Return		3 Year Standard Deviation (Qtr)	
GAM PACIFIC BASIN	13.9	39	9.6	39
MSCI PACIFIC $ (DAILY)	12.4	58	8.7	21
5th Percentile	19.1		7.7	
25th Percentile	15.6		8.7	
50th Percentile	12.6		10.1	
75th Percentile	11.6		12.0	
95th Percentile	7.9		14.7	

Calendar Year Returns as of September 30, 2018



Universe data: eVestment's Pacific Basin Equity

NON-U.S. EQUITY - PACIFIC BASIN
SYMPHONY FINANCIAL PARTNERS PTE. LTD.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Symphony Financial Partners Pte. Ltd.
Location:	Singapore, Singapore
Year Founded:	2001
Contact:	David Baran, Co-CEO/Co-Founder
Inception Date:	November 2016
Assigned Role:	Pacific Basin
Benchmark:	MSCI Japan Small Cap Net
Investment Style:	Activist

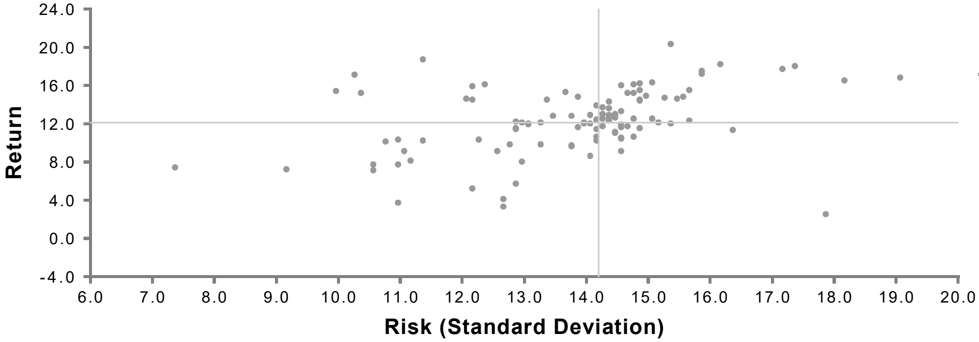
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Symphony Financial Partners	161.1	7.20	30.56				28.27
MSCI JAPAN SMALL CAP NET		-0.13	7.36				12.71

Universe

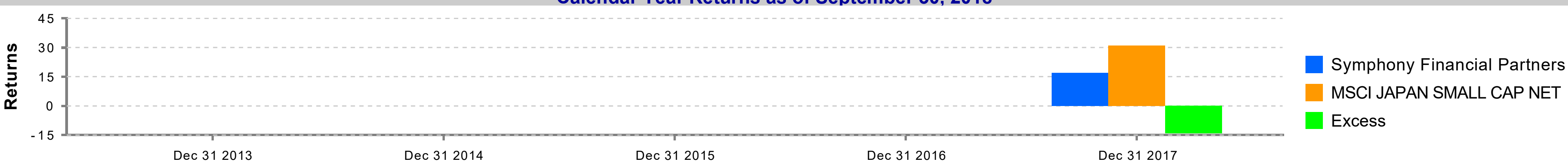
	1 Qtr	1 Year	3 Years	5 Years
Intl Equity Emerging Mkt Funds				
Median	-1.13	-1.92	12.06	3.94

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	17.4	10.3
25th Percentile	14.3	12.8
50th Percentile	12.1	14.2
75th Percentile	10.2	14.7
95th Percentile	4.9	16.3

Calendar Year Returns as of September 30, 2018



NON-U.S. EQUITY - EUROPE
BLACKROCK INSTITUTIONAL TRUST COMPANY, N.A. - EUROPE ALPHA TILTS
for the quarter ended September 30, 2018

Manager Profile

Firm:	BlackRock Institutional Trust Company, N.A.
Location:	San Francisco, CA
Year Founded:	1985
Contact:	Lilian Wan, Managing Director
Inception Date:	January 2007
Assigned Role:	Non-U.S. Equity Enhanced Index
Benchmark:	MSCI Europe Net
Investment Style:	Core

Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
BTC Euro Tilts	983.6	0.80	-0.61	8.70	6.13	6.72	3.38
MSCI EUROPE (DAILY)		0.80	-0.30	7.71	3.70	4.85	2.05

Universe

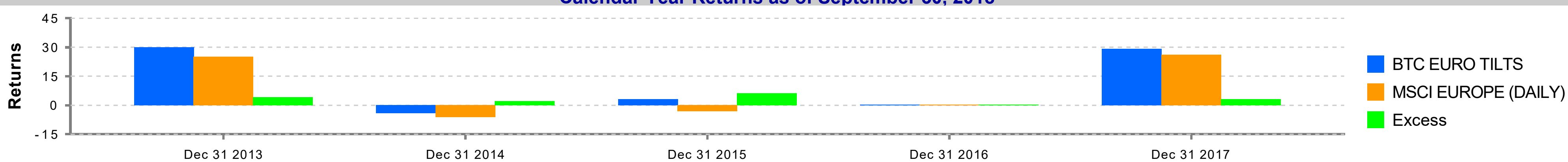
	1 Qtr	1 Year	3 Years	5 Years
Europe Equity				
Median	0.37	0.20	9.36	6.11
Number of Observations	516	516	499	460

3 Year Risk vs Return

3 Year Risk vs Return

	3 Year Return		3 Year Standard Deviation	
BTC EURO TILTS	8.7	59	8.4	87
MSCI EUROPE (DAILY)	7.7	74	7.8	79
5th Percentile	16.5		7.7	
25th Percentile	11.8		8.8	
50th Percentile	9.4		10.1	
75th Percentile	7.6		11.7	
95th Percentile	5.1		14.3	

Calendar Year Returns as of September 30, 2018



Universe data: eVestment's All Europe Equity

NON-U.S. EQUITY - EUROPE
CEVIAN CAPITAL
for the quarter ended September 30, 2018

Manager Profile

Firm:	Cevian Capital
Location:	Stockholm, Sweden
Year Founded:	2002
Contact:	David Henderson, Director
Inception Date:	October 2016
Assigned Role:	Europe
Benchmark:	MSCI Europe Net
Investment Style:	Activist

Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Cevian Capital	311.5	3.88	8.32				13.19
MSCI EUROPE (DAILY)		0.80	-0.30				10.42

Universe

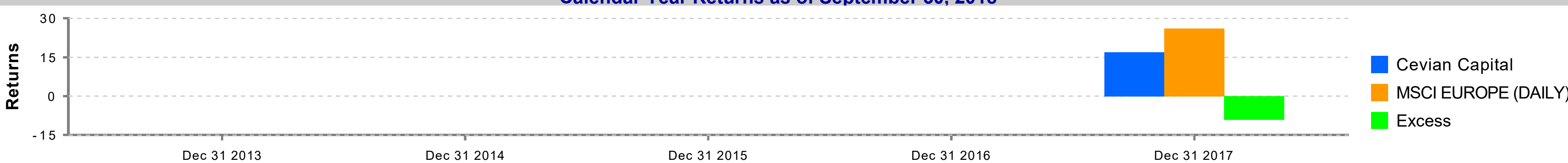
	1 Qtr	1 Year	3 Years	5 Years
Europe Equity				
Median	0.37	0.20	9.36	6.11
Number of Observations	516	516	499	460

3 Year Risk vs Return

3 Year Risk vs Return

	3 Year Return		3 Year Standard	
CEVIAN CAPITAL	N/A	-	N/A	-
MSCI EUROPE (DAILY)	7.7	74	7.8	6
5th Percentile	16.5		7.7	
25th Percentile	11.7		8.8	
50th Percentile	9.4		10.1	
75th Percentile	7.6		11.7	
95th Percentile	5.1		14.3	

Calendar Year Returns as of September 30, 2018



NON-U.S. EQUITY - EMERGING MARKETS

ACADIAN ASSET MANAGEMENT, LLC

for the quarter ended September 30, 2018

Manager Profile

Firm	Acadian Asset Management, LLC
Location	Boston, MA
Year Founded	1986
Contact	Julia Khan, Associate Relationship Manager
Inception Date	January 2013
Assigned Role	Emerging Markets
Benchmark	MSCI EMF (Net)
Investment Style	Core / Value

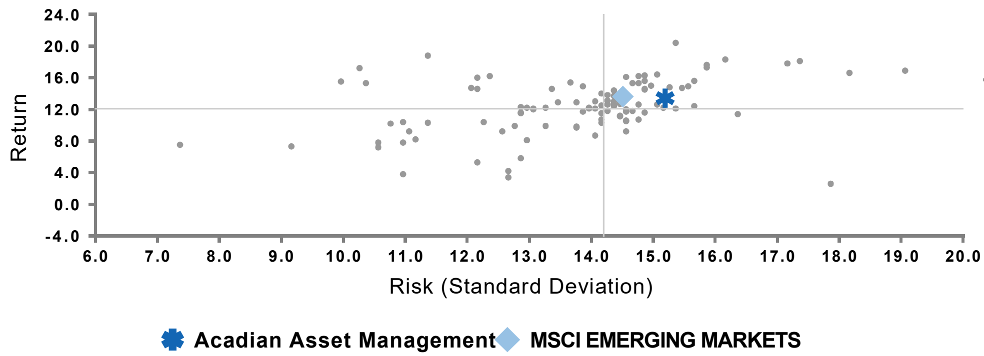
Manager vs. Benchmark Return through September 30, 2018 (not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Incept
Acadian Asset Management	379.1	-1.09	-4.10	12.21	3.74		2.97
MSCI EMERGING MARKETS		-1.09	-0.81	12.36	3.61		2.34

Universe

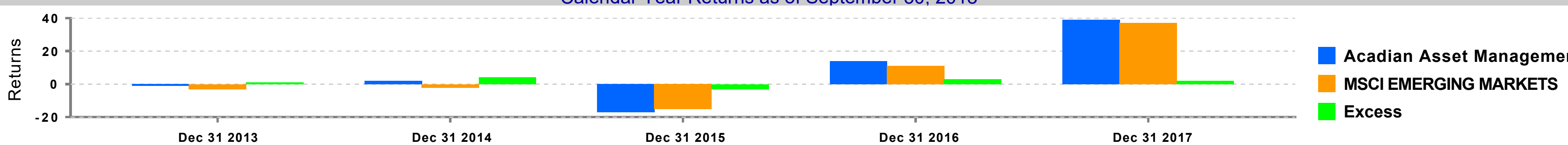
	1 Qtr	1 Year	3 Years	5 Years
Intl Equity Emerging Mkt Funds				
Median	-1.13	-1.92	12.06	3.94
Number of Observations	131.00	118.00	113.00	96.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
Acadian Asset Management	12.2	48	15.0	84
MSCI EMERGING MARKETS	12.4	45	14.3	58
5th Percentile	17.4		10.3	
25th Percentile	14.3		12.8	
50th Percentile	12.1		14.2	
75th Percentile	10.2		14.7	
95th Percentile	4.9		16.3	

Calendar Year Returns as of September 30, 2018



Universe data: International Equity Funds Emerging Markets

NON-U.S. EQUITY - EMERGING MARKETS
AQR CAPITAL MANAGEMENT, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	AQR Capital Management, LLC
Location:	Greenwich, CT
Year Founded:	1998
Contact:	Joey Lee, Vice President
Inception Date:	February 2014
Assigned Role:	Emerging Markets
Benchmark:	MSCI EMF (Net)
Investment Style:	Core

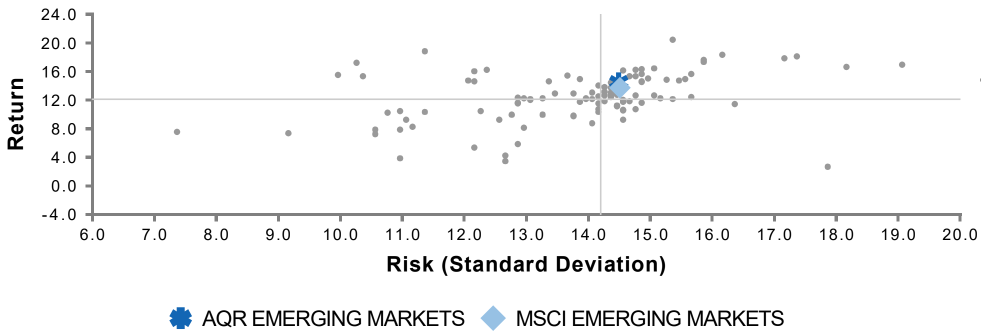
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Incept
AQR Emerging Markets	249.1	-0.19	-2.46	13.23			5.56
MSCI EMERGING MARKETS		-1.09	-0.81	12.36			4.98

Universe

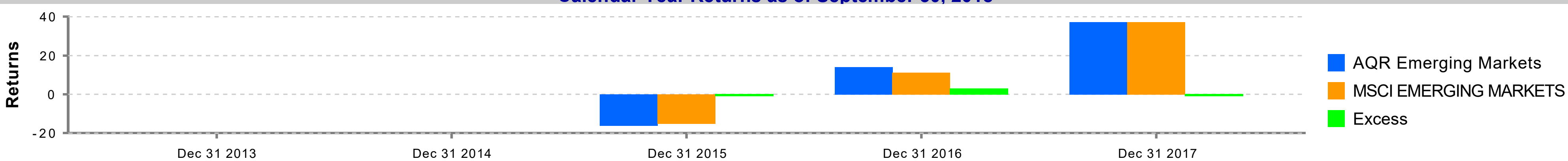
	1 Qtr	1 Year	3 Years	5 Years
Intl Equity Emerging Mkt Funds				
Median	-1.13	-1.92	12.06	3.94
Number of Observations	131.00	118.00	113.00	96.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
AQR EMERGING MARKETS	13.2 35	14.3 60
MSCI EMERGING MARKETS	12.4 45	14.3 58
5th Percentile	17.4	10.3
25th Percentile	14.3	12.8
50th Percentile	12.1	14.2
75th Percentile	10.2	14.7
95th Percentile	4.9	16.3

Calendar Year Returns as of September 30, 2018



Universe data: International Equity Funds Emerging Markets

NON-U.S. EQUITY - EMERGING MARKETS
GENESIS INVESTMENT MANAGEMENT, LLP
for the quarter ended September 30, 2018

Manager Profile

Firm:	Genesis Investment Management, LLP
Location:	London, England
Year Founded:	1989
Contact:	Jonathan Snow, Director
Inception Date:	September 2007
Assigned Role:	Emerging Markets
Benchmark:	MSCI EMF IMI Custom
Investment Style:	Core

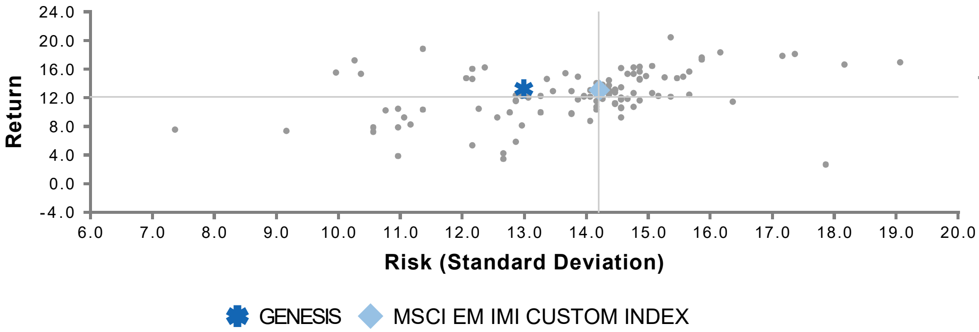
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Genesis	651.6	-3.49	-1.57	11.91	3.82	7.81	4.95
MSCI EM IMI CUSTOM INDEX		-1.45	-1.18	11.72	3.51	5.65	2.25

Universe

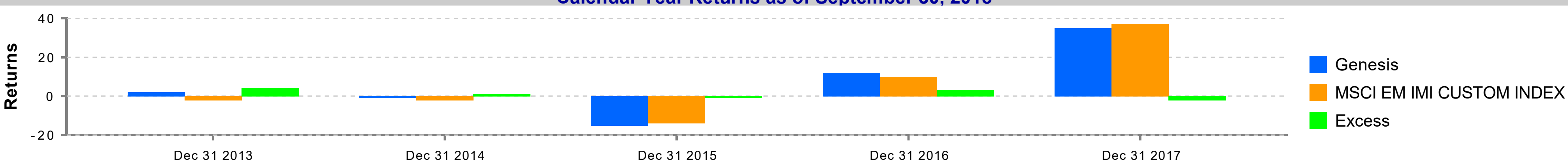
	1 Qtr	1 Year	3 Years	5 Years
Intl Equity Emerging Mkt Funds				
Median	-1.13	-1.92	12.06	3.94
Number of Observations	131.00	118.00	113.00	96.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
GENESIS	11.9	53	12.8	24
MSCI EM IMI CUSTOM INDEX	11.7	59	14.0	45
5th Percentile	17.4		10.3	
25th Percentile	14.3		12.8	
50th Percentile	12.1		14.2	
75th Percentile	10.2		14.7	
95th Percentile	4.9		16.3	

Calendar Year Returns as of September 30, 2018



Universe data: International Equity Funds Emerging Markets

NON-U.S. EQUITY - EMERGING MARKETS
LAZARD ASSET MANAGEMENT, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Lazard Asset Management, LLC
Location:	New York, NY
Year Founded:	1970
Contact:	Tony Dote, Managing Director
Inception Date:	February 2013
Assigned Role:	Emerging Markets
Benchmark:	MSCI EMF (Net)
Investment Style:	Core

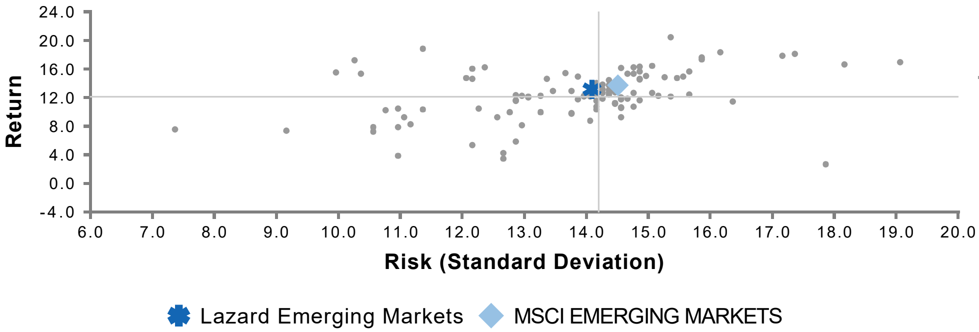
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Incept
Lazard Emerging Markets	335.3	-3.38	-3.05	11.80	4.48		2.20
MSCI EMERGING MARKETS		-1.09	-0.81	12.36	3.61		2.13

Universe

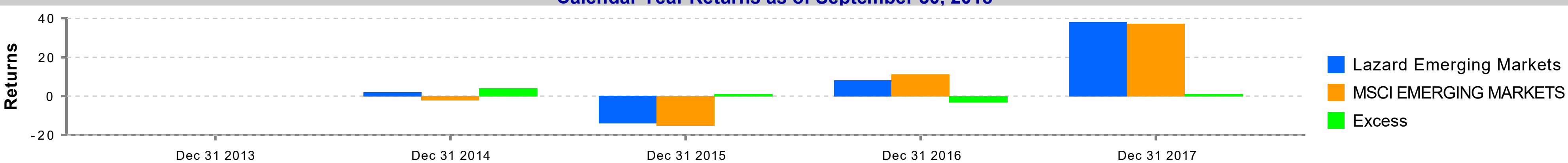
	1 Qtr	1 Year	3 Years	5 Years
Intl Equity Emerging Mkt Funds				
Median	-1.13	-1.92	12.06	3.94
Number of Observations	131.00	118.00	113.00	96.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
Lazard Emerging Markets	11.8	54	13.9	41
MSCI EMERGING MARKETS	12.4	45	14.3	58
5th Percentile	17.4		10.3	
25th Percentile	14.3		12.8	
50th Percentile	12.1		14.2	
75th Percentile	10.2		14.7	
95th Percentile	4.9		16.3	

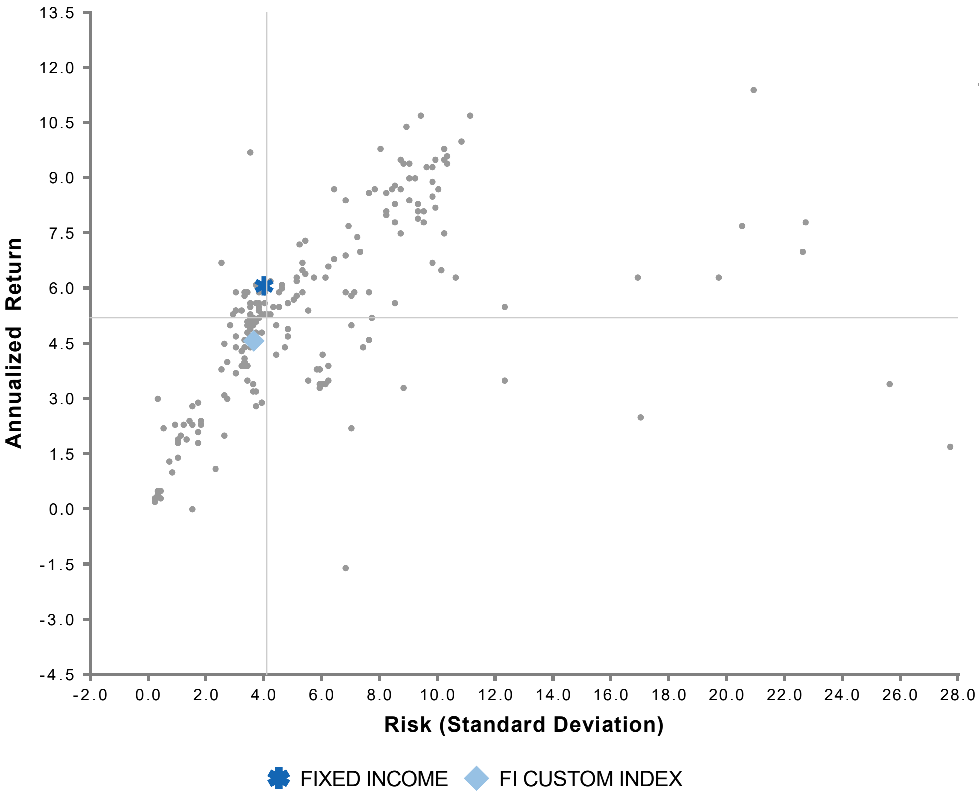
Calendar Year Returns as of September 30, 2018



Universe data: International Equity Funds Emerging Markets

FIXED INCOME
RISK ADJUSTED RETURN
for the quarter ended September 30, 2018

10 Year Risk vs Return



	Rate of Return 10 Years	Standard Deviation 10 Years
✱ **FIXED INCOME**	**5.8** *34*	**3.6** *40*
◆ FI CUSTOM INDEX	4.3 *64*	3.2 *26*
5th Percentile	9.4	0.7
25th Percentile	6.5	3.2
50th Percentile	5.2	4.1
75th Percentile	3.7	7.3
95th Percentile	1.3	10.7
Number of Observations	229	229

	Rate of Return 10 Years	Standard Deviation 10 Years	Tracking Error 10 Years
FIXED INCOME	5.8 *34*	3.6 *40*	1.6
FI CUSTOM INDEX	4.3 *64*	3.2 *26*	

Universe data: Fixed Income Funds - plans > $1 billion

FIXED INCOME - CORE
DODGE & COX
for the quarter ended September 30, 2018

Manager Profile

Firm:	Dodge & Cox
Location:	San Francisco, CA
Year Founded:	1930
Contact:	Terrill Armstrong, Client Relationship Mngr.
Inception Date:	March 1997
Assigned Role:	Full Mandate
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Fixed Income

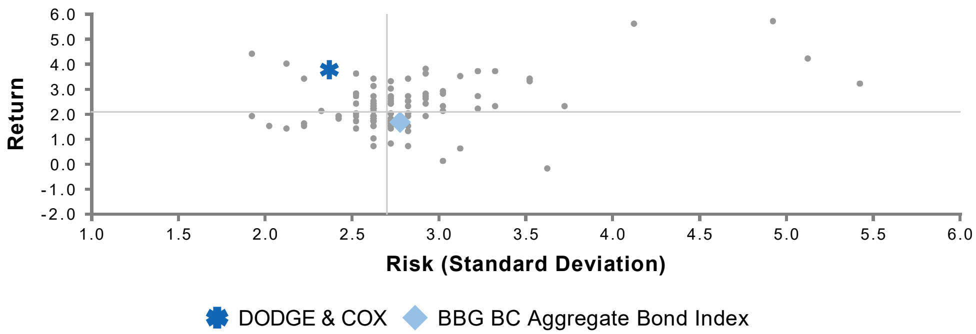
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Dodge & Cox	1,292.3	0.76	0.10	3.41	3.52	5.78	6.01
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	4.95

Universe

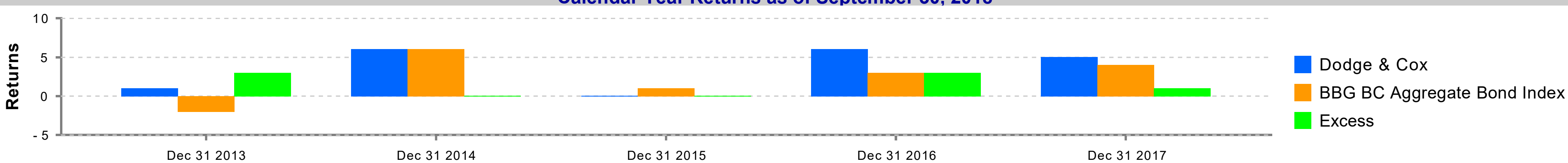
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core				
Median	0.18	-0.70	2.11	2.61
Number of Observations	112.00	109.00	107.00	104.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
DODGE & COX	3.4	10	2.3	10
BBG BC Aggregate Bond Index	1.3	91	2.7	51
5th Percentile	3.6		2.1	
25th Percentile	2.7		2.6	
50th Percentile	2.1		2.7	
75th Percentile	1.7		2.8	
95th Percentile	0.7		3.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core

FIXED INCOME - CORE
PUGH CAPITAL MANAGEMENT, INC.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Pugh Capital Management, Inc.
Location:	Seattle, WA
Year Founded:	1991
Contact:	Mary E. Pugh, President
Inception Date:	July 2005
Assigned Role:	Emerging Manager
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Fixed Income

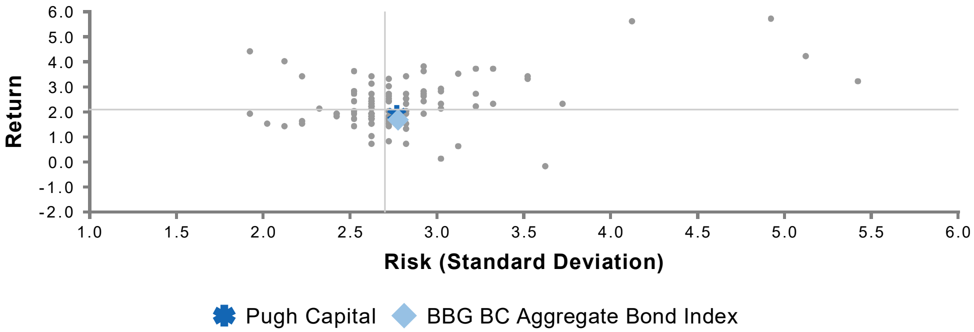
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Pugh Capital	134.8	0.07	-1.15	1.50	2.46	4.50	4.29
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	3.73

Universe

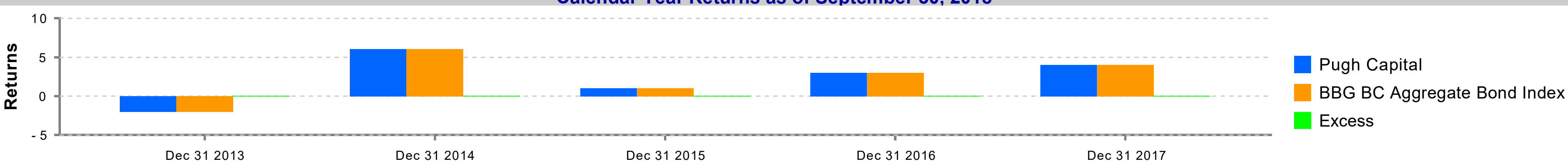
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core				
Median	0.18	-0.70	2.11	2.61
Number of Observations	112.00	109.00	107.00	104.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
Pugh Capital	1.5	82	2.7	62
BBG BC Aggregate Bond Index	1.3	91	2.7	51
5th Percentile	3.6		2.1	
25th Percentile	2.7		2.6	
50th Percentile	2.1		2.7	
75th Percentile	1.7		2.8	
95th Percentile	0.7		3.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core

FIXED INCOME - CORE
WELLS CAPITAL MANAGEMENT
for the quarter ended September 30, 2018

Manager Profile

Firm:	Wells Capital Management
Location:	Walnut Creek, CA
Year Founded:	1981
Contact:	Daniel Anderson, Client Relations Director
Inception Date:	March 2004
Assigned Role:	Full Mandate
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Fixed Income

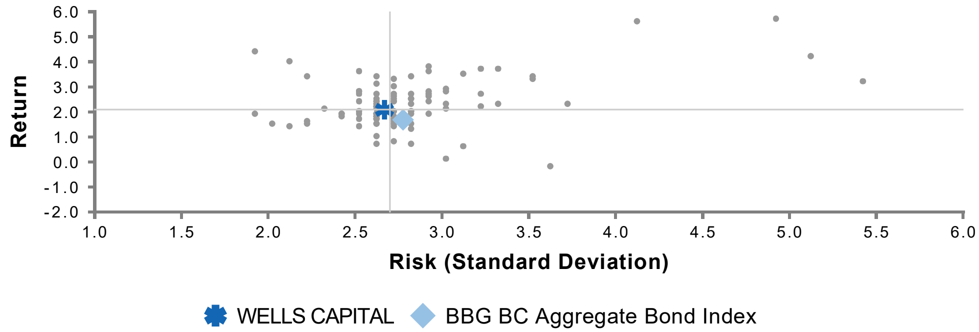
Manager vs. Benchmark: Return through September 30, 2018 (not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Wells Capital	1,338.9	0.09	-1.07	1.75	2.65	5.07	4.77
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	3.73

Universe

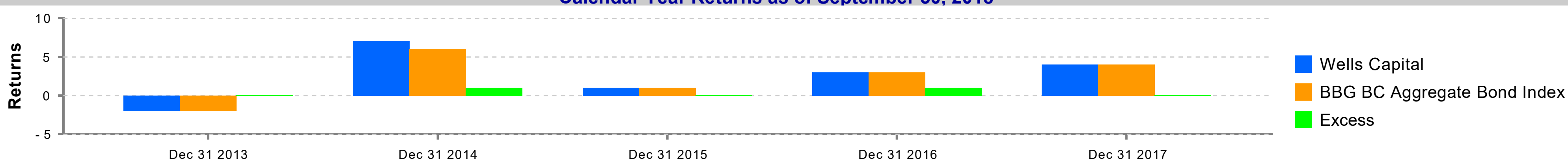
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core				
Median	0.18	-0.70	2.11	2.61
Number of Observations	112.00	109.00	107.00	104.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
WELLS CAPITAL	1.7	70	2.6	39
BBG BC Aggregate Bond Index	1.3	91	2.7	51
5th Percentile	3.6		2.1	
25th Percentile	2.7		2.6	
50th Percentile	2.1		2.7	
75th Percentile	1.7		2.8	
95th Percentile	0.7		3.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core

FIXED INCOME - CORE PLUS
DOLAN McENIRY CAPITAL MANAGEMENT, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Dolan McEniry Capital Management, LLC
Location:	Chicago, IL
Year Founded:	1997
Contact:	Daniel Dolan Jr., Principal
Inception Date:	July 2005
Assigned Role:	Emerging Manager
Benchmark:	Dolan McEniry Custom Index
Investment Style:	Core Plus Fixed Income

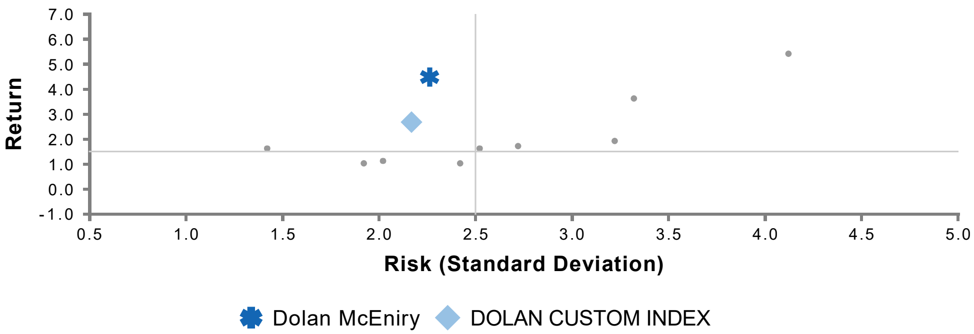
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Dolan McEniry	347.5	1.19	0.54	4.12	3.91	6.59	5.98
DOLAN CUSTOM INDEX		0.73	-0.36	2.29	2.64	5.00	4.33

Universe

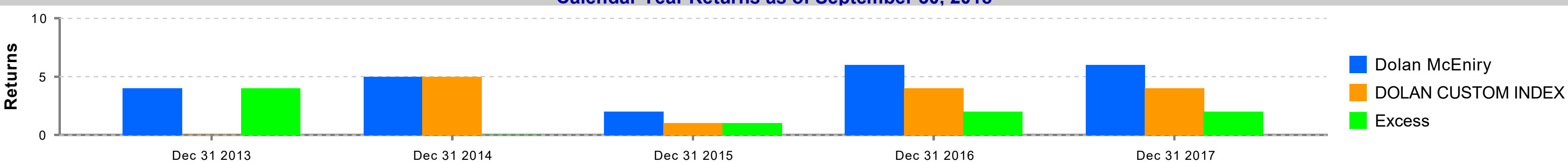
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core Plus				
Median	0.12	-1.02	1.47	2.16
Number of Observations	51.00	48.00	9.00	9.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Dolan McEniry	4.1 18	2.2 35
DOLAN CUSTOM INDEX	2.3 29	2.1 31
5th Percentile	5.3	1.4
25th Percentile	2.8	2.0
50th Percentile	1.5	2.5
75th Percentile	1.0	3.2
95th Percentile	0.9	4.1

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core Plus

FIXED INCOME - CORE PLUS
LOOMIS, SAYLES & COMPANY, LP
for the quarter ended September 30, 2018

Manager Profile

Firm:	Loomis, Sayles & Company, LP
Location:	Boston, MA
Year Founded:	1926
Contact:	Stephanie S. Lord, Vice President
Inception Date:	March 1997
Assigned Role:	Full Mandate
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Plus Fixed Income

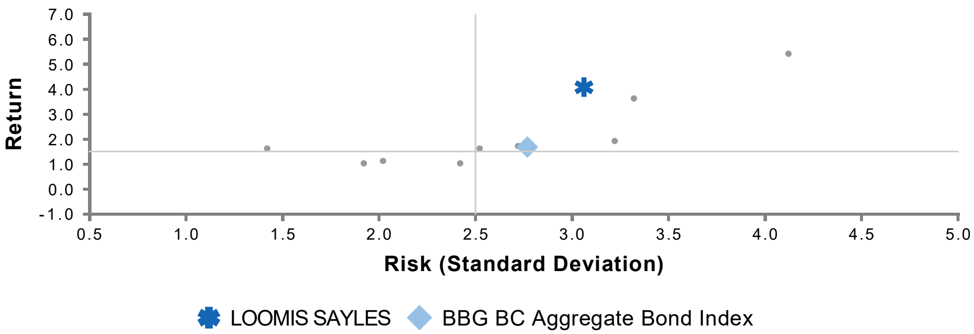
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Loomis Sayles	1,079.5	0.47	0.31	3.71	3.43	6.42	5.84
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	4.95

Universe

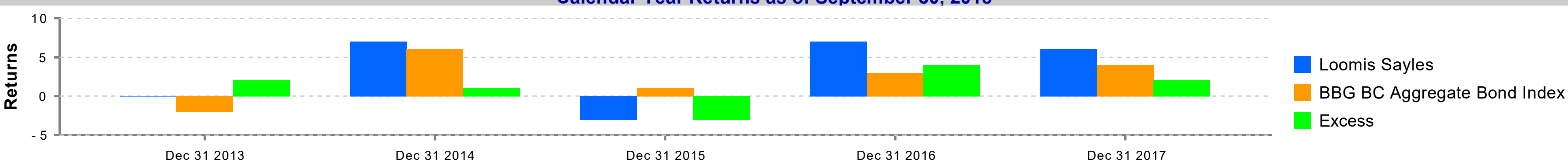
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core Plus				
Median	0.12	-1.02	1.47	2.16
Number of Observations	51.00	48.00	9.00	9.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
LOOMIS SAYLES	3.720	3.067
BBG BC Aggregate Bond Index	1.365	2.759
5th Percentile	5.3	1.4
25th Percentile	2.8	2.0
50th Percentile	1.5	2.5
75th Percentile	1.0	3.2
95th Percentile	0.9	4.1

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core Plus

FIXED INCOME - CORE PLUS
PACIFIC INVESTMENT MANAGEMENT COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	Pacific Investment Management Company
Location:	Newport Beach, CA
Year Founded:	1971
Contact:	Stephanie King, Executive Vice President
Inception Date:	March 2004
Assigned Role:	Full Mandate
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Plus Fixed Income

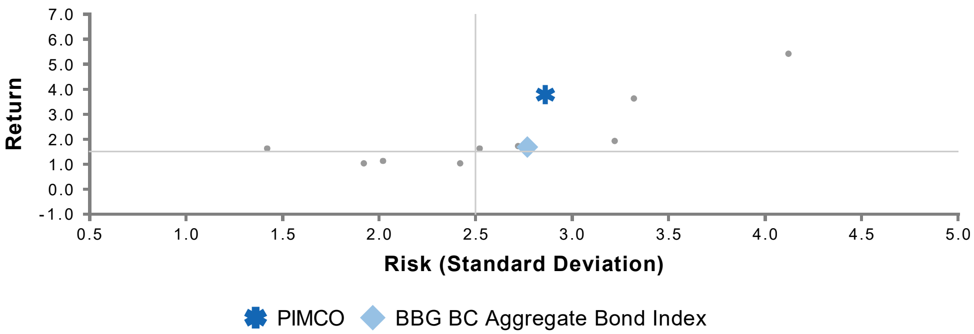
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
PIMCO	1,055.3	0.28	0.53	3.43	3.08	5.15	4.96
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	3.73

Universe

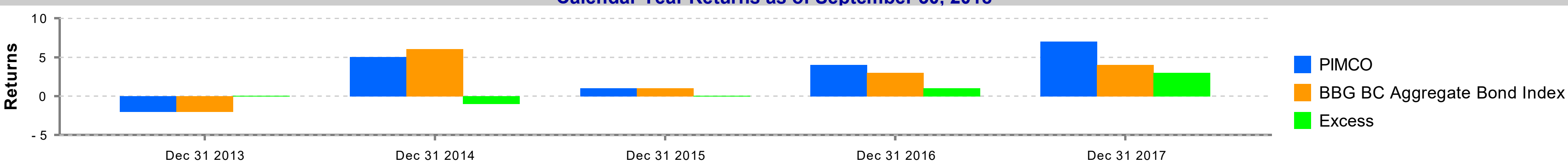
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core Plus				
Median	0.12	-1.02	1.47	2.16
Number of Observations	51.00	48.00	9.00	9.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
PIMCO	3.4 22	2.8 61
BBG BC Aggregate Bond Index	1.3 65	2.7 59
5th Percentile	5.3	1.4
25th Percentile	2.8	2.0
50th Percentile	1.5	2.5
75th Percentile	1.0	3.2
95th Percentile	0.9	4.1

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core Plus

FIXED INCOME - CORE PLUS
WESTERN ASSET MANAGEMENT COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	Western Asset Management Company
Location:	Pasadena, CA
Year Founded:	1971
Contact:	Veronica Amici, Head of Public Funds
Inception Date:	March 1997
Assigned Role:	Full Mandate
Benchmark:	BBG BC Aggregate Bond Index
Investment Style:	Core Plus Fixed Income

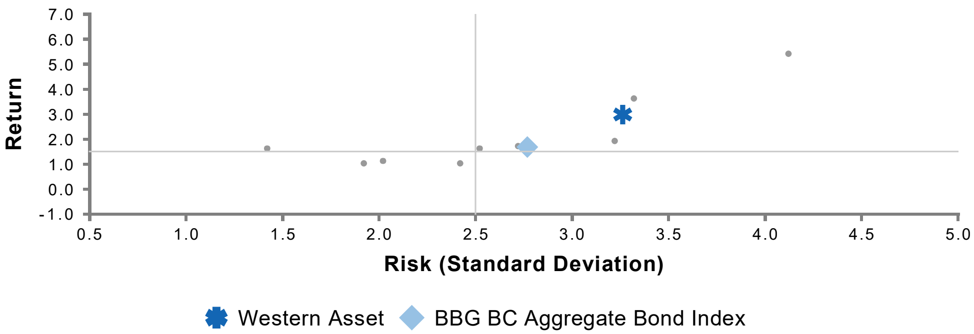
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Western Asset	1,118.2	-0.03	-2.42	2.63	3.28	6.17	6.21
BBG BC Aggregate Bond Index		0.02	-1.22	1.31	2.16	3.77	4.95

Universe

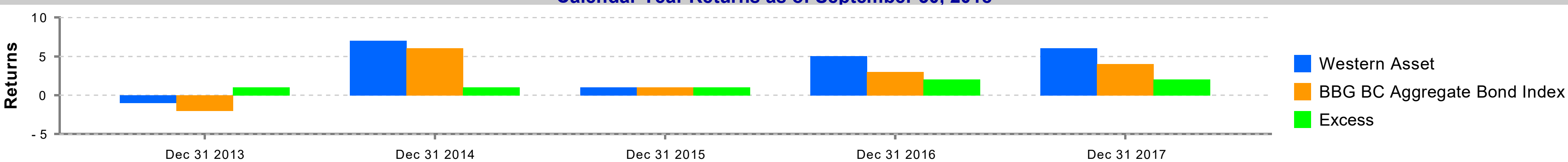
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core Plus				
Median	0.12	-1.02	1.47	2.16
Number of Observations	51.00	48.00	9.00	9.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Western Asset	2.627	3.269
BBG BC Aggregate Bond Index	1.365	2.759
5th Percentile	5.3	1.4
25th Percentile	2.8	2.0
50th Percentile	1.5	2.5
75th Percentile	1.0	3.2
95th Percentile	0.9	4.1

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds Core Plus

FIXED INCOME - HIGH YIELD
OAKTREE CAPITAL MANAGEMENT, L.P.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Oaktree Capital Management, L.P.
Location:	Los Angeles, CA
Year Founded:	1995
Contact:	Sheldon M. Stone, Principal
Inception Date:	July 1997
Assigned Role:	Full Mandate
Benchmark:	BBG BC Ba/B US High Yield Index
Investment Style:	High Yield

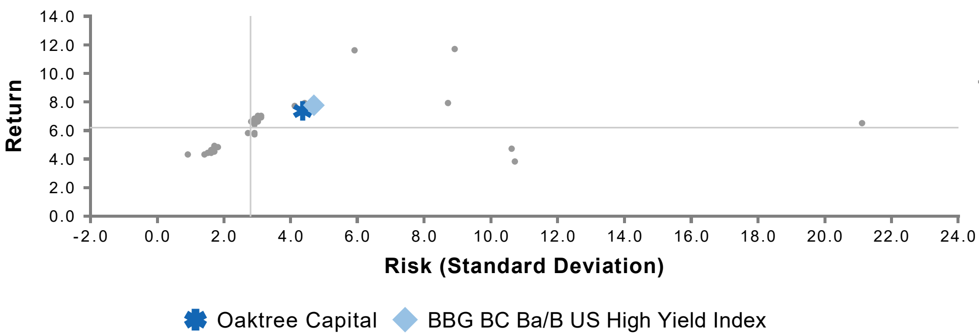
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Oaktree Capital	415.0	2.56	2.12	6.74	4.91	8.25	7.09
BBG BC Ba/B US High Yield Index		2.30	2.18	7.13	5.24	8.58	6.46

Universe

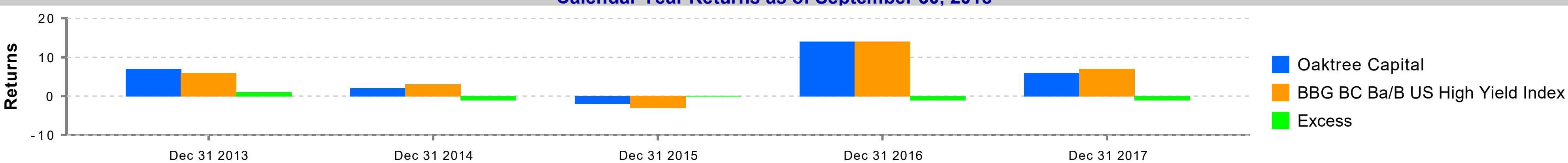
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Oaktree Capital	6.7 24	4.0 78
BBG BC Ba/B US High Yield Index	7.1 16	4.3 82
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - HIGH YIELD
PENN CAPITAL MANAGEMENT COMPANY, INC.
for the quarter ended September 30, 2018

Manager Profile

Firm:	PENN Capital Management Co., Inc.
Location:	Philadelphia, PA
Year Founded:	1987
Contact:	Steve Leming, Director
Inception Date:	July 2005
Assigned Role:	Emerging Manager Program
Benchmark:	BBG BC Ba/B US High Yield Index
Investment Style:	High Yield

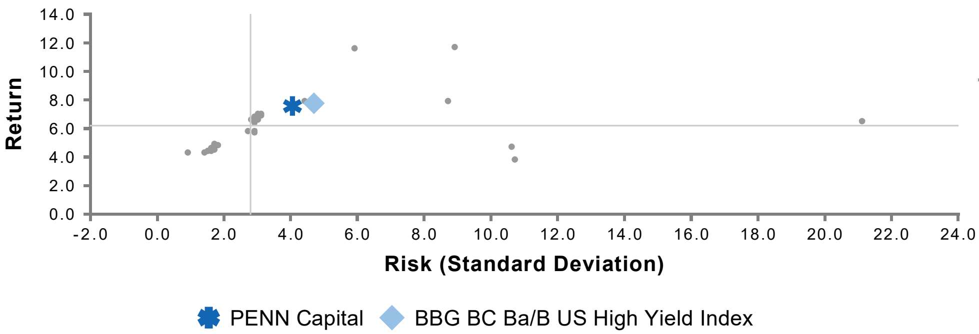
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
PENN Capital	111.9	2.69	3.65	6.95	4.97	7.89	6.71
BBG BC Ba/B US High Yield Index		2.30	2.18	7.13	5.24	8.58	6.84

Universe

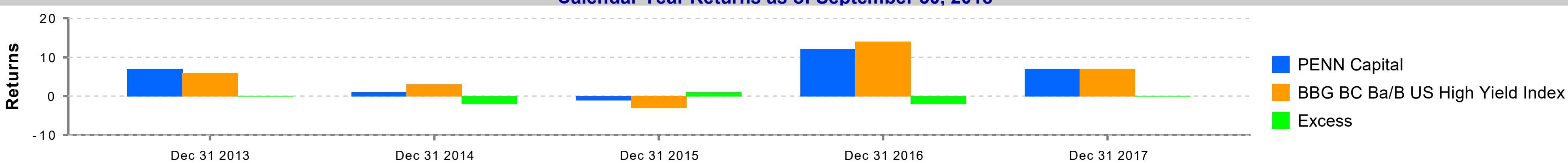
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
PENN Capital	6.9 16	3.7 78
BBG BC Ba/B US High Yield Index	7.1 16	4.3 82
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
ABERDEEN ASSET MANAGEMENT INC.
for the quarter ended September 30, 2018

Manager Profile

Firm:	Aberdeen Asset Management Inc.
Location:	London, England
Year Founded:	1983
Contact:	Teri Smith, Senior Relationship Manager
Inception Date:	July 2017
Assigned Role:	Full Mandate
Benchmark:	Opportunistic EMD Custom
Investment Style:	Opportunistic Credit – Emerging Mkt. Debt

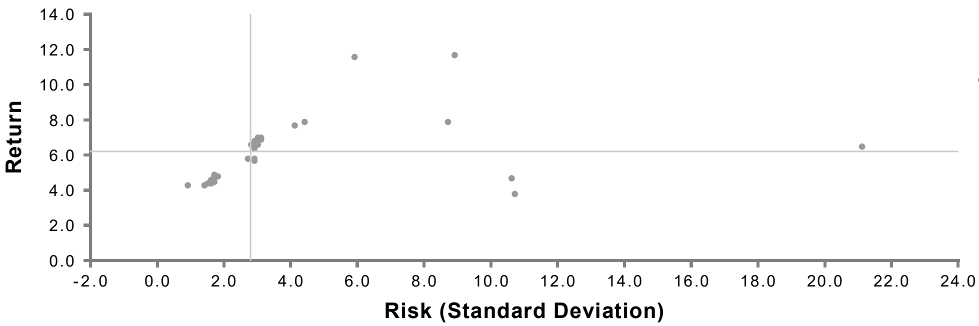
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Aberdeen	195.1	1.15	-4.76				-0.90
Opportunistic EMD Custom		1.03	-3.00				-0.27

Universe

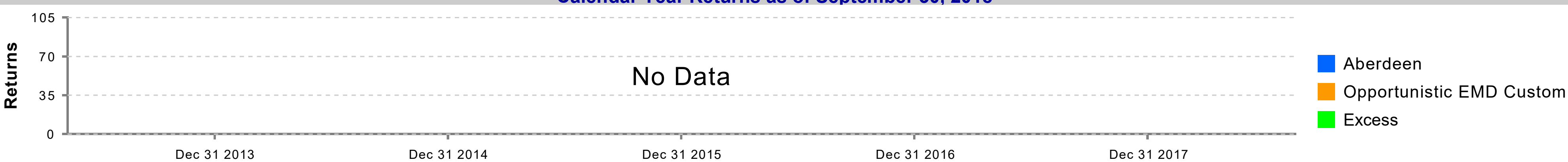
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
ASHMORE INVESTMENT MANAGEMENT LIMITED
for the quarter ended September 30, 2018

Manager Profile

Firm:	Ashmore Investment Management Limited
Location:	London, England
Year Founded:	1999
Contact:	John Ricketts, Inst. Business Development
Inception Date:	June 2017
Assigned Role:	Full Mandate
Benchmark:	Opportunistic EMD Custom
Investment Style:	Opportunistic Credit – Emerging Mkt. Debt

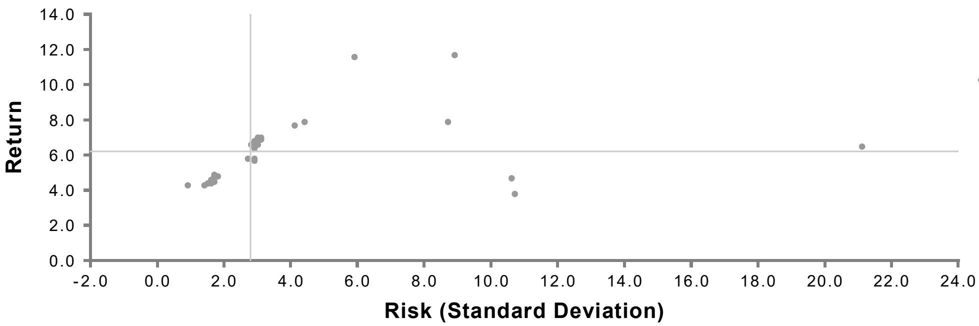
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Ashmore	199.3	1.48	-3.40				0.32
Opportunistic EMD Custom		1.03	-3.00				-0.19

Universe

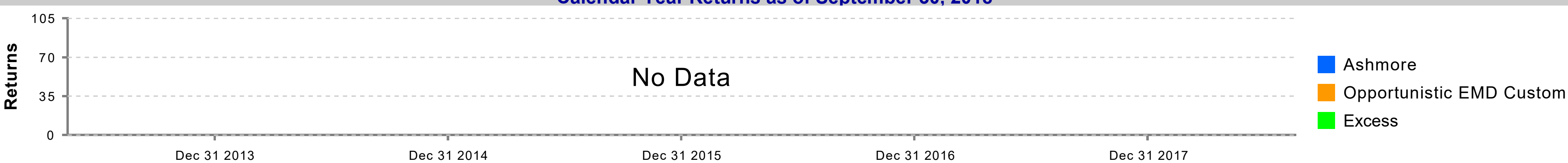
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
BAIN CAPITAL CREDIT, LP
for the quarter ended September 30, 2018

Manager Profile

Firm:	Bain Capital Credit, LP
Location:	Boston, MA
Year Founded:	1998
Contact:	Kyle Betty, Managing Director
Inception Date:	June 2014
Assigned Role:	Full Mandate
Benchmark:	Opportunistic Custom Index
Investment Style:	Opportunistic Credit – Multi Strategy

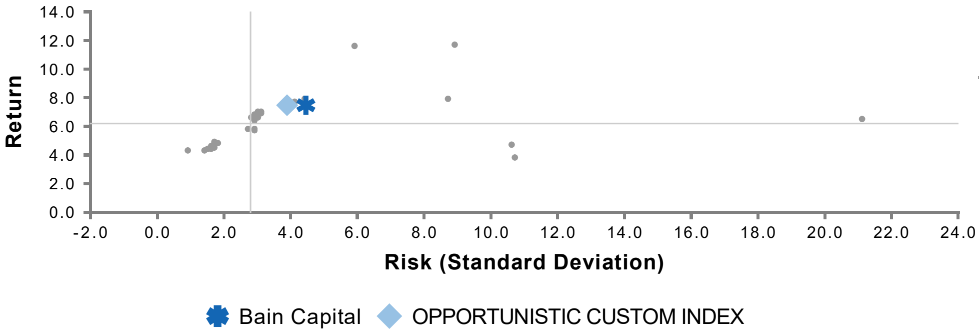
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Bain Capital	309.8	2.01	4.46	6.77			4.28
OPPORTUNISTIC CUSTOM INDEX		2.17	4.31	6.79			4.29

Universe

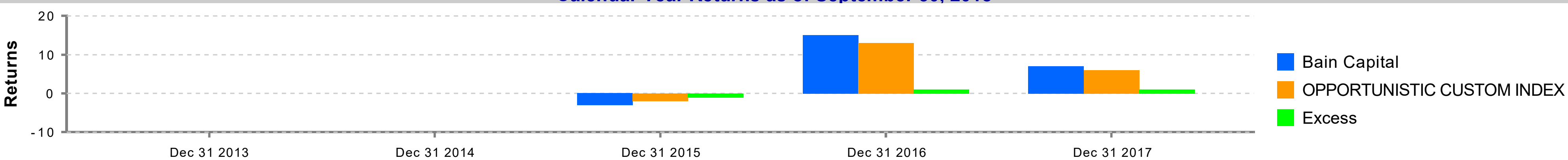
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Bain Capital	6.8 23	4.1 79
OPPORTUNISTIC CUSTOM INDEX	6.8 19	3.5 78
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
BEACH POINT CAPITAL
for the quarter ended September 30, 2018

Manager Profile

Firm:	Beach Point Capital
Location:	Santa Monica, CA
Year Founded:	2008
Contact:	Larissa Chapin, Director
Inception Date:	March 2014
Assigned Role:	Full Mandate
Benchmark:	Opportunistic Custom Index
Investment Style:	Opportunistic – Credit

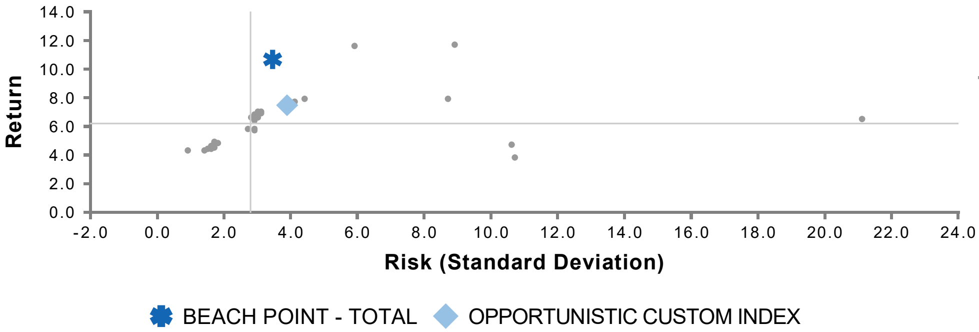
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Beach Point*	397.1	2.55	5.84	9.99			8.03
OPPORTUNISTIC CUSTOM INDEX		2.17	4.31	6.79			4.39

Universe

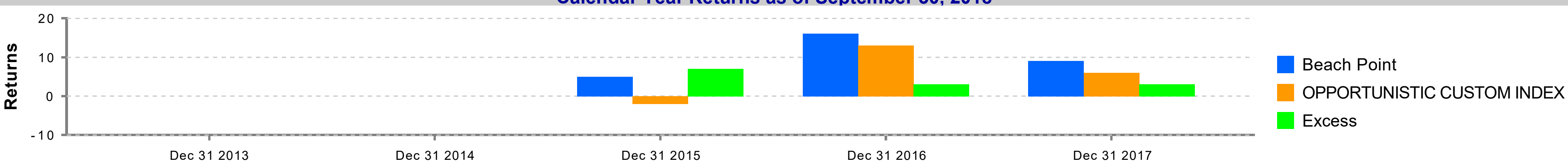
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
BEACH POINT - TOTAL	10.0	7	3.1	77
OPPORTUNISTIC CUSTOM INDEX	6.8	19	3.5	78
5th Percentile	11.5		1.1	
25th Percentile	6.7		1.6	
50th Percentile	6.2		2.8	
75th Percentile	4.4		3.0	
95th Percentile	4.1		10.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield
* Represents the combined assets & performance of two portfolios, one of which is reported with a one-month lag.

FIXED INCOME - OPPORTUNISTIC
BRIGADE CAPITAL MANAGEMENT
for the quarter ended September 30, 2018

Manager Profile

Firm:	Brigade Capital Management
Location:	New York, NY
Year Founded:	2006
Contact:	Rob Brady, Director
Inception Date:	July 2010
Assigned Role:	Full Mandate
Benchmark:	Brigade Custom Index
Investment Style:	Opportunistic – Credit

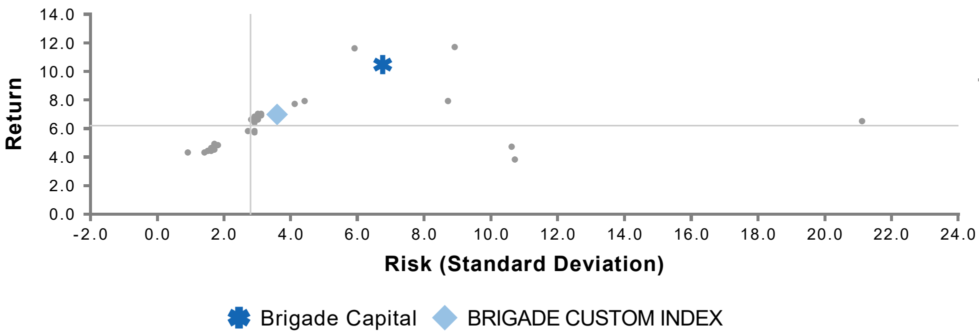
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Brigade Capital	510.1	2.64	6.00	9.79	6.19		8.67
BRIGADE CUSTOM INDEX		2.12	3.87	6.29	4.81		6.26

Universe

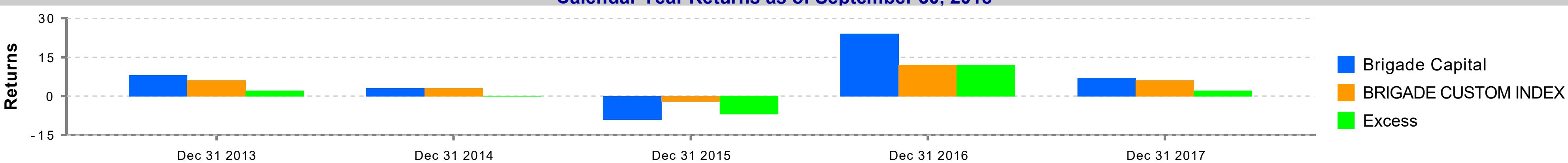
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Brigade Capital	9.8 7	6.4 85
BRIGADE CUSTOM INDEX	6.3 49	3.2 77
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
CRESCENT CAPITAL GROUP LP
for the quarter ended September 30, 2018

Manager Profile

Firm:	Crescent Capital Group LP
Location:	Los Angeles, CA
Year Founded:	1991
Contact:	John Fekete, Managing Director
Inception Date:	May 2014
Assigned Role:	Full Mandate
Benchmark:	Opportunistic Custom Index
Investment Style:	Opportunistic Credit – Direct Lending

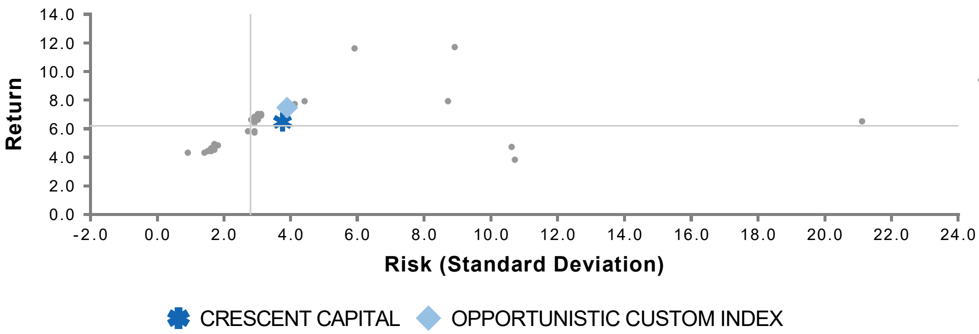
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Crescent Capital	278.8	2.00	3.78	5.83			3.50
OPPORTUNISTIC CUSTOM INDEX		2.17	4.31	6.79			4.39

Universe

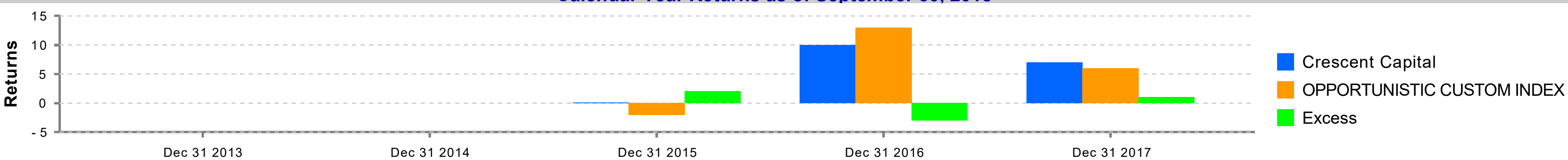
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
CRESCENT CAPITAL	5.8 53	3.4 77
OPPORTUNISTIC CUSTOM INDEX	6.8 19	3.5 78
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
DOUBLELINE CAPITAL LP
for the quarter ended September 30, 2018

Manager Profile

Firm:	DoubleLine Capital LP
Location:	Los Angeles, CA
Year Founded:	2009
Contact:	Aaron Prince, Sr. Product Specialist
Inception Date:	February 2016
Assigned Role:	Full Mandate
Benchmark:	Securitized Custom Index
Investment Style:	Opportunistic FI - Securitized Credit

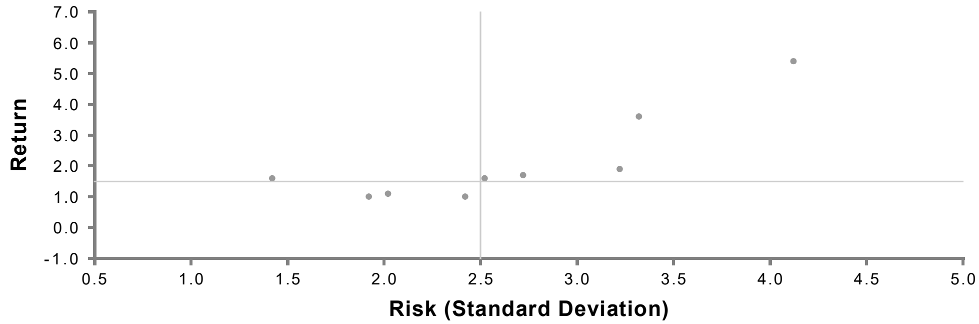
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
DoubleLine Capital	269.7	0.79	2.48				4.34
Securitized Custom Index		0.92	3.09				4.75

Universe

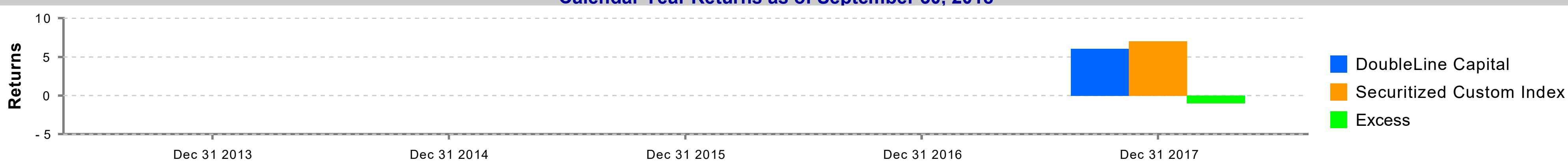
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - Core Plus				
Median	0.12	-1.02	1.47	2.16
Number of Observations	51.00	48.00	9.00	9.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
5th Percentile	5.3	1.4
25th Percentile	2.8	2.0
50th Percentile	1.5	2.5
75th Percentile	1.0	3.2
95th Percentile	0.9	4.1

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
PRINCIPAL GLOBAL INVESTORS, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Principal Global Investors, LLC
Location:	Des Moines, IA
Year Founded:	1879
Contact:	Paul Stover, Relationship Manager
Inception Date:	February 2011
Assigned Role:	Full Mandate
Benchmark:	BBG BC US Universal Spread 1-10 Yr.
Investment Style:	Opportunistic – Credit

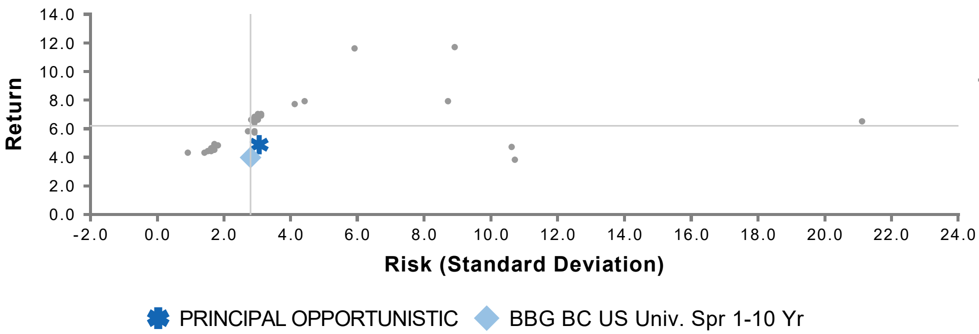
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Principal Opportunistic	271.6	2.00	1.18	4.24	4.07		4.74
BBG BC US Univ. Spr 1-10 Yr		1.03	-0.14	3.30	3.14		3.84

Universe

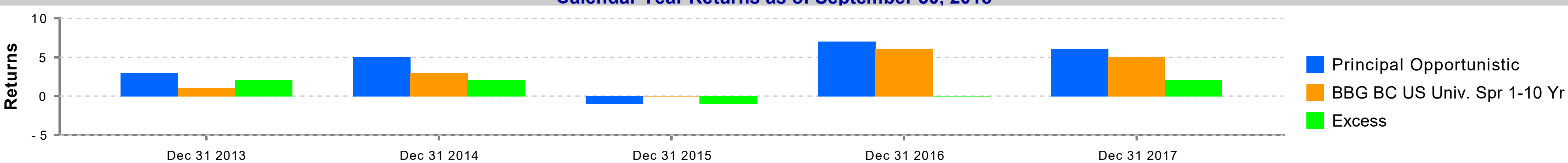
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
PRINCIPAL OPPORTUNISTIC	4.2	83	2.7	39
BBG BC US Univ. Spr 1-10 Yr	3.3	100	2.4	36
5th Percentile	11.5		1.1	
25th Percentile	6.7		1.6	
50th Percentile	6.2		2.8	
75th Percentile	4.4		3.0	
95th Percentile	4.1		10.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
TCW ASSET MANAGEMENT COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	TCW Asset Management Company
Location:	Los Angeles, CA
Year Founded:	1971
Contact:	Jeffrey Katz, Sr. Vice President
Inception Date:	October 2015
Assigned Role:	Full Mandate
Benchmark:	Securitized Custom Index
Investment Style:	Opportunistic FI – Securitized Credit

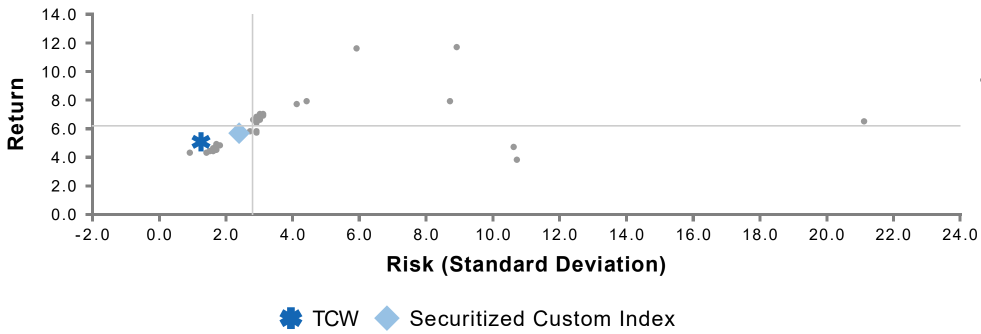
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
TCW	275.2	0.63	3.23	4.39			4.39
Securitized Custom Index		0.92	3.09	5.05			5.05

Universe

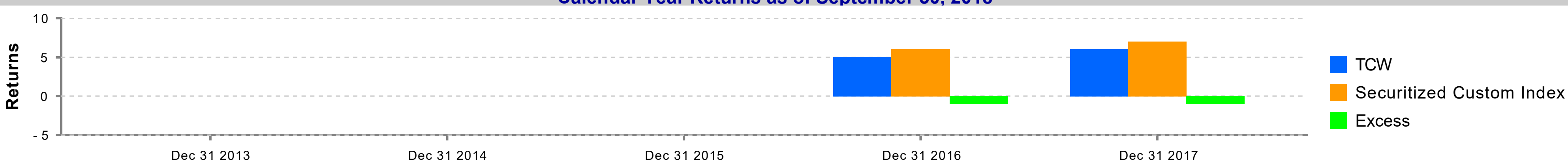
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
TCW	4.478	0.93
Securitized Custom Index	5.060	2.035
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - OPPORTUNISTIC
TENNENBAUM CAPITAL PARTNERS, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Tennenbaum Capital Partners, LLC
Location:	Santa Monica, CA
Year Founded:	1999
Contact:	Lee R. Landrum, Partner
Inception Date:	November 2014
Assigned Role:	Full Mandate
Benchmark:	Credit Suisse Leveraged Loan Index
Investment Style:	Opportunistic Credit – Direct Lending

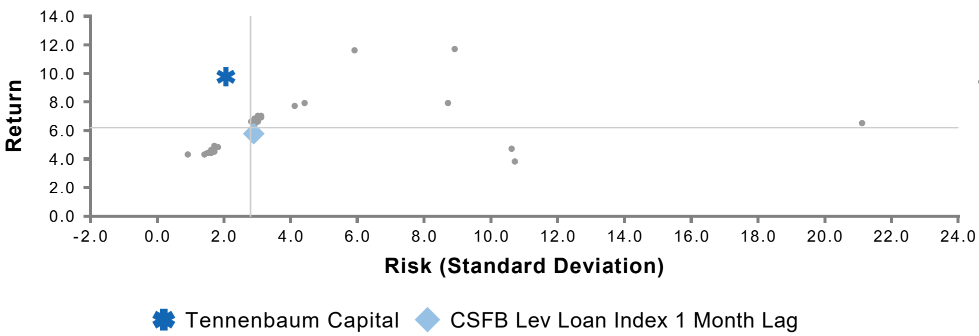
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Tennenbaum Capital*	288.9	1.99	9.26	9.11			8.31
CSFB Lev Loan Index 1 Month Lag		1.34	5.58	5.05			4.35

Universe

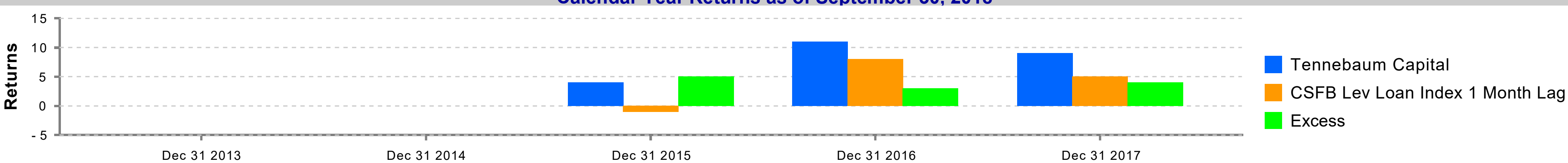
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
Tennenbaum Capital	9.1 8	1.7 35
CSFB Lev Loan Index 1 Month Lag	5.1 60	2.5 36
5th Percentile	11.5	1.1
25th Percentile	6.7	1.6
50th Percentile	6.2	2.8
75th Percentile	4.4	3.0
95th Percentile	4.1	10.6

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield
* One-month lag.

FIXED INCOME - OPPORTUNISTIC
WESTERN ASSET MANAGEMENT COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	Western Asset Management Company
Location:	Pasadena, CA
Year Founded:	1971
Contact:	Veronica Amici, Head of Public Funds
Inception Date:	February 2009
Assigned Role:	Full Mandate
Benchmark:	Western Opp. Custom Index
Investment Style:	Opportunistic - Structured Credit

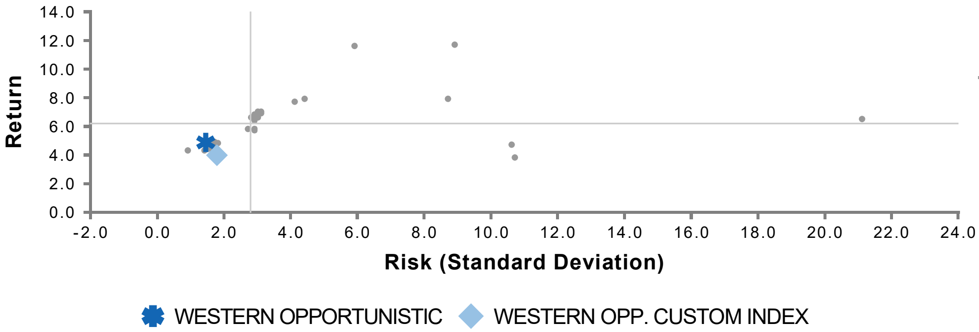
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Western Opportunistic	309.8	1.16	2.74	4.17	3.57		7.49
WESTERN OPP. CUSTOM INDEX		0.69	3.97	3.34	2.87		5.84

Universe

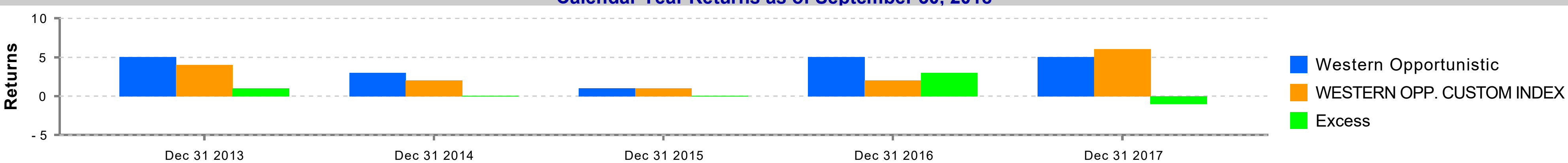
	1 Qtr	1 Year	3 Years	5 Years
US Fixed Income Funds - High Yield				
Median	2.03	2.78	6.23	5.76
Number of Observations	37.00	37.00	37.00	34.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
WESTERN OPPORTUNISTIC	4.2	88	1.1	5
WESTERN OPP. CUSTOM INDEX	3.3	100	1.4	13
5th Percentile	11.5		1.1	
25th Percentile	6.7		1.6	
50th Percentile	6.2		2.8	
75th Percentile	4.4		3.0	
95th Percentile	4.1		10.6	

Calendar Year Returns as of September 30, 2018



Universe data: U.S. Fixed Income Funds High Yield

FIXED INCOME - CASH
J.P. MORGAN ASSET MANAGEMENT
for the quarter ended September 30, 2018

Manager Profile

Firm:	J.P. Morgan Asset Management
Location:	New York, NY
Year Founded:	1871
Contact:	Kyongsoo Noh (KNoh), Executive Director
Inception Date:	September 2012
Assigned Role:	Full Mandate
Benchmark:	FTSE 6-month T-Bill
Investment Style:	Enhanced Cash

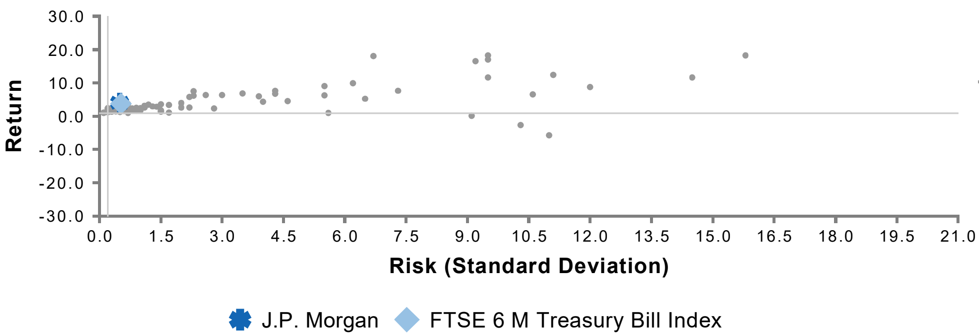
Manager vs. Benchmark: Return through September 30, 2018 (not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
J.P. Morgan	1,563.0	0.56	1.70	1.20	0.86		0.78
FTSE 6 M Treasury Bill Index		0.52	1.62	0.88	0.55		0.48

Universe

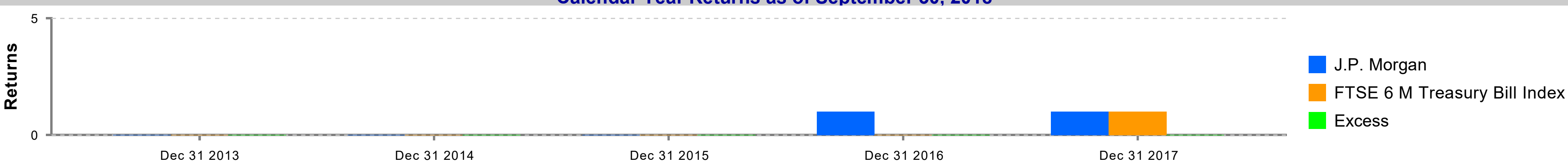
	1 Qtr	1 Year	3 Years	5 Years
Cash Funds				
Median	0.46	1.54	0.91	0.64
Number of Observations	325.00	259.00	232.00	203.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
J.P. Morgan	1.2 29	0.2 23
FTSE 6 M Treasury Bill Index	0.9 54	0.2 26
5th Percentile	7.8	0.0
25th Percentile	1.3	0.2
50th Percentile	0.9	0.2
75th Percentile	0.7	0.6
95th Percentile	0.0	9.1

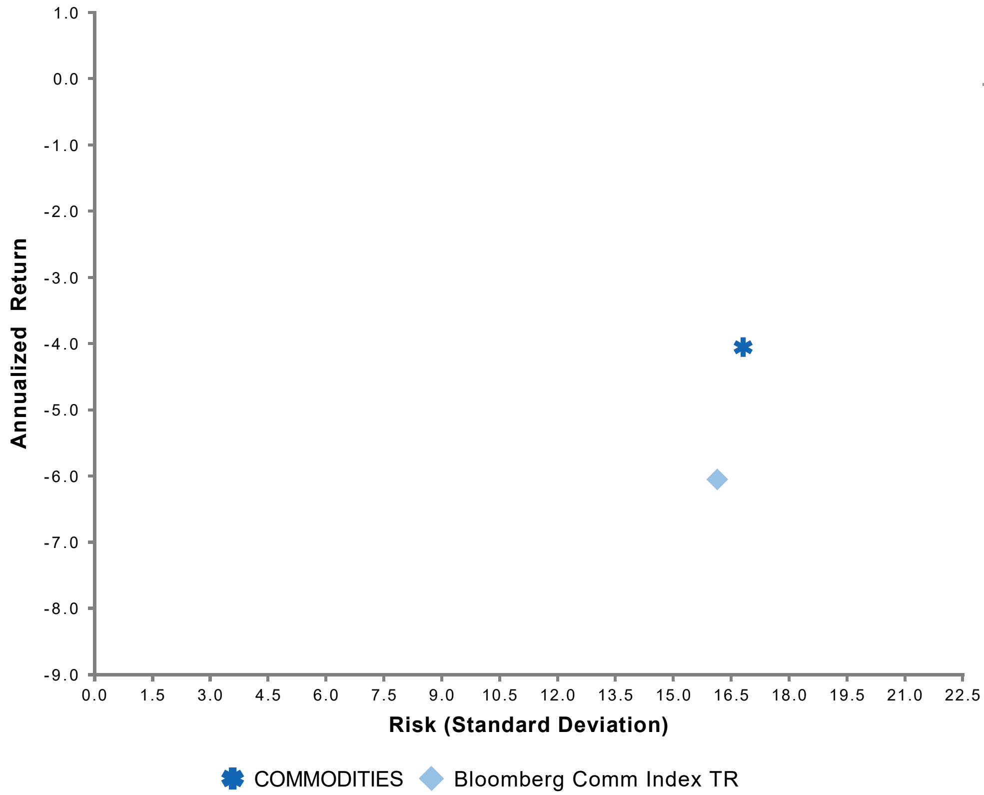
Calendar Year Returns as of September 30, 2018



Universe data: Cash Funds

COMMODITIES
RISK ADJUSTED RETURN
for the quarter ended September 30, 2018

7 Year Risk vs Return



	Rate of Return 10 Years	Standard Deviation 10 Years
COMMODITIES	**-4.2**	**16.5**
Bloomberg Comm Index TR	-6.2	15.8

	Rate of Return 10 Years	Standard Deviation 10 Years	Tracking Error 10 Years
COMMODITIES	-4.2	16.5	2.1
Bloomberg Comm Index TR	-6.2	15.8	

Universe data: Commodities Funds

COMMODITIES
CREDIT SUISSE ASSET MANAGEMENT, LLC
for the quarter ended September 30, 2018

Manager Profile

Firm:	Credit Suisse Asset Management, LLC
Location:	New York, NY
Year Founded:	1935
Contact:	Nelson Louie, Managing Director
Inception Date:	March 2011
Assigned Role:	Commodities
Benchmark:	Bloomberg Commodity Index Total Return
Investment Style:	Active Commodities

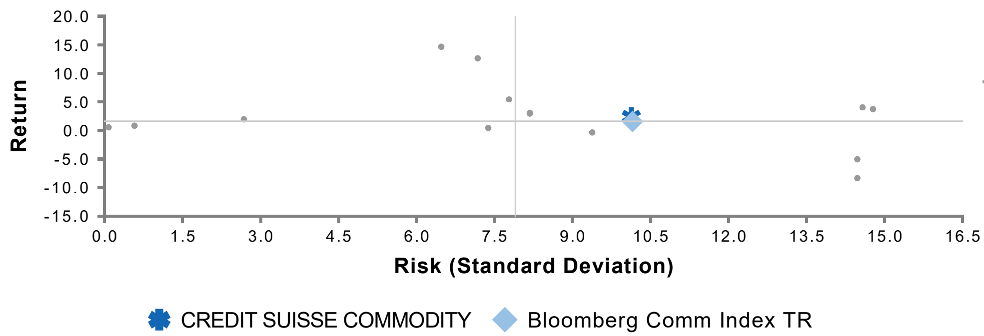
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Credit Suisse Commodity	446.6	-1.91	2.05	0.74	-6.53		-7.47
Bloomberg Comm Index TR		-2.02	2.59	-0.11	-7.18		-8.07

Universe

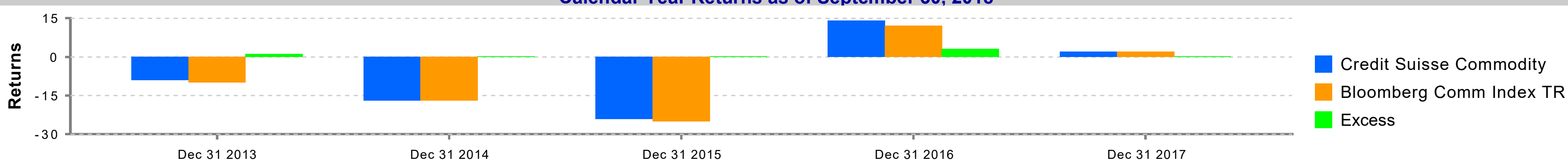
	1 Qtr	1 Year	3 Years	5 Years
Commodity Funds				
Median	0.52	4.35	1.55	-0.43
Number of Observations	34.00	30.00	15.00	10.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
CREDIT SUISSE COMMODITY	0.755	9.967
Bloomberg Comm Index TR	-0.169	9.967
5th Percentile	14.1	0.0
25th Percentile	3.7	5.3
50th Percentile	1.6	7.9
75th Percentile	-0.8	14.4
95th Percentile	-8.9	14.7

Calendar Year Returns as of September 30, 2018



Universe data: Commodities Funds

COMMODITIES
NEUBERGER BERMAN ALTERNATIVE FUND MANAGEMENT LLC/GRESHAM
for the quarter ended September 30, 2018

Manager Profile

Firm:	Neuberger Berman/Gresham
Location:	New York, NY
Year Founded:	1850/1987
Contact:	Jonathan Spencer, President (Gresham)
Inception Date:	July 2007
Assigned Role:	Commodities
Benchmark:	Bloomberg Commodity Index Total Return
Investment Style:	Active Commodities

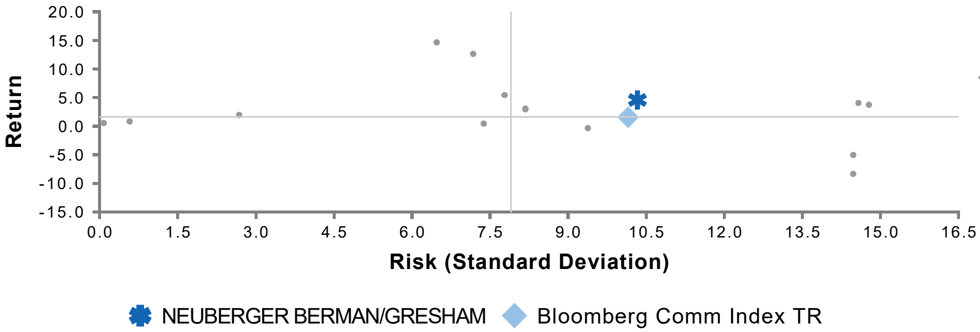
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
Neuberger Berman/Gresham	479.6	-0.43	8.66	2.90	-5.39	-3.90	-3.12
Bloomberg Comm Index TR		-2.02	2.59	-0.11	-7.18	-6.24	-5.37

Universe

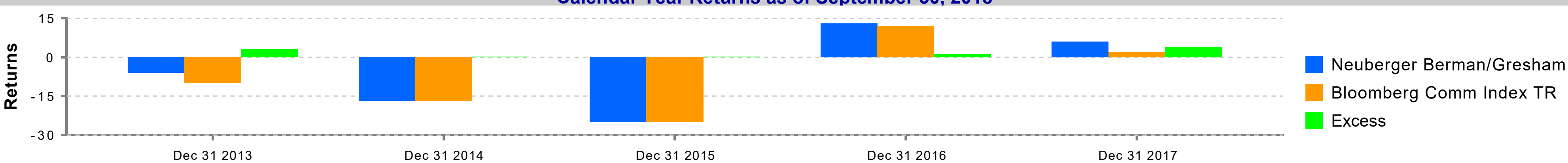
	1 Qtr	1 Year	3 Years	5 Years
Commodity Funds				
Median	0.52	4.35	1.55	-0.43
Number of Observations	34.00	30.00	15.00	10.00

3 Year Risk vs Return



	3 Year Return		3 Year Standard Deviation	
NEUBERGER BERMAN/GRESHAM	2.9	35	10.1	68
Bloomberg Comm Index TR	-0.1	69	9.9	67
5th Percentile	14.1		0.0	
25th Percentile	3.7		5.3	
50th Percentile	1.6		7.9	
75th Percentile	-0.8		14.4	
95th Percentile	-8.9		14.7	

Calendar Year Returns as of September 30, 2018



Universe data: Commodities Funds

COMMODITIES
PACIFIC INVESTMENT MANAGEMENT COMPANY
for the quarter ended September 30, 2018

Manager Profile

Firm:	Pacific Investment Management Company
Location:	Newport Beach, CA
Year Founded:	1971
Contact:	Stephanie King, Executive Vice President
Inception Date:	July 2007
Assigned Role:	Commodities
Benchmark:	Bloomberg Commodity Index Total Return
Investment Style:	Active Commodities

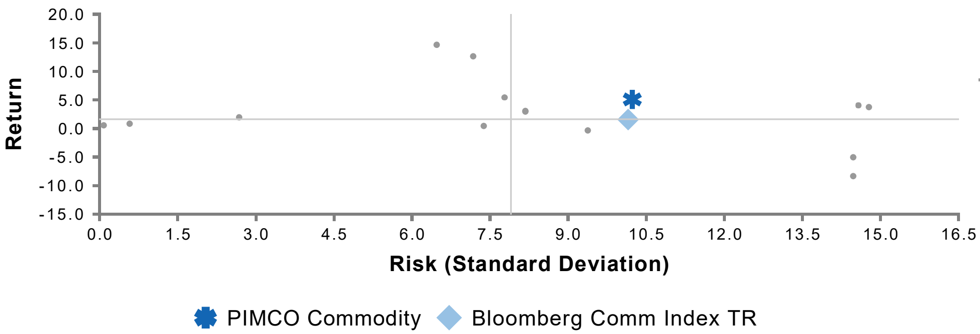
Manager vs. Benchmark: Return through September 30, 2018
(not annualized if less than 1 year)

	Ending Mkt Val ($mil)	1 Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception
PIMCO Commodity	465.4	-1.47	4.71	3.38	-4.71	-4.03	-3.38
Bloomberg Comm Index TR		-2.02	2.59	-0.11	-7.18	-6.24	-5.37

Universe

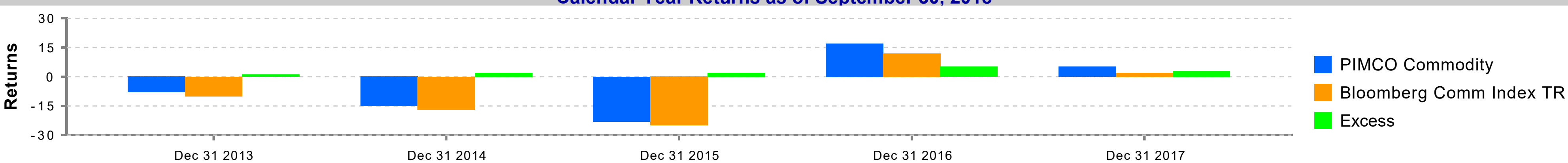
	1 Qtr	1 Year	3 Years	5 Years
Commodity Funds				
Median	0.52	4.35	1.55	-0.43
Number of Observations	34.00	30.00	15.00	10.00

3 Year Risk vs Return



	3 Year Return	3 Year Standard Deviation
PIMCO Commodity	3.4 29	10.0 68
Bloomberg Comm Index TR	-0.1 69	9.9 67
5th Percentile	14.1	0.0
25th Percentile	3.7	5.3
50th Percentile	1.6	7.9
75th Percentile	-0.8	14.4
95th Percentile	-8.9	14.7

Calendar Year Returns as of September 30, 2018

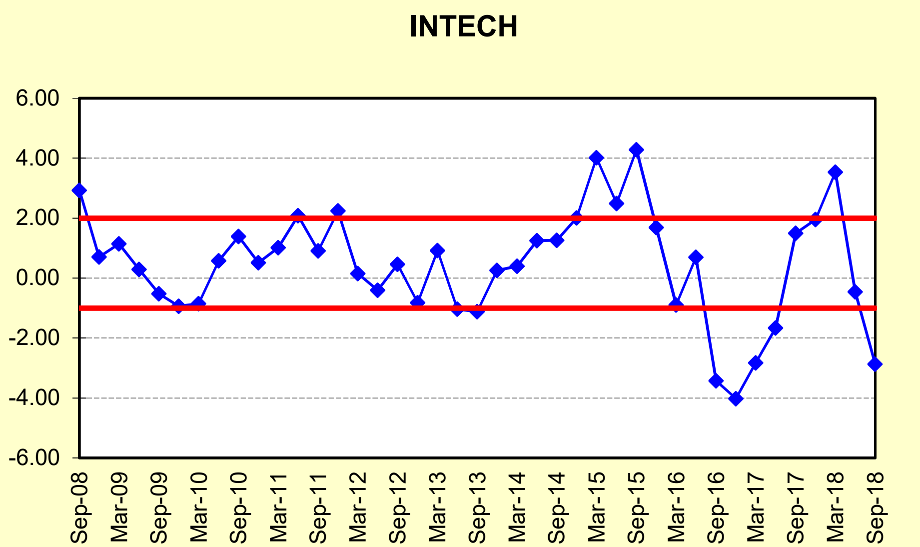


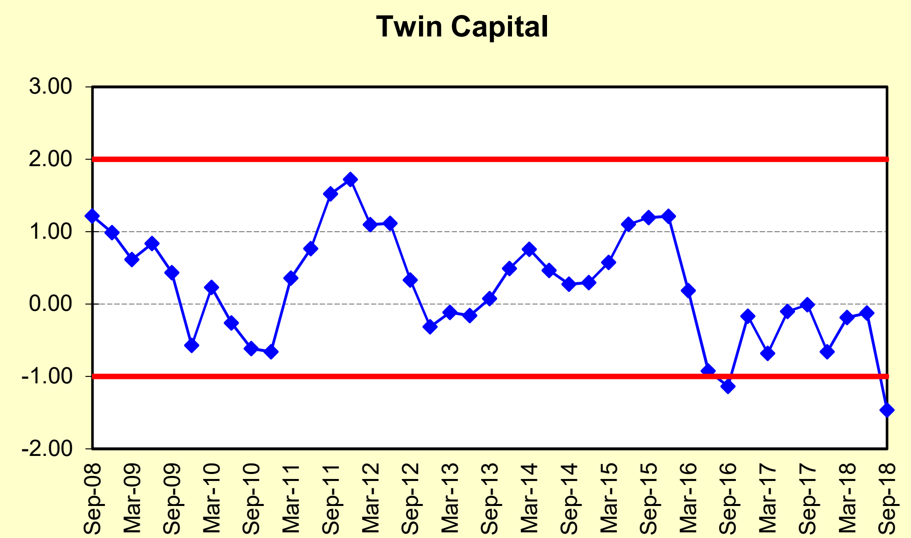
Universe data: Commodities Funds

U.S. EQUITY - LARGE CAP

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018



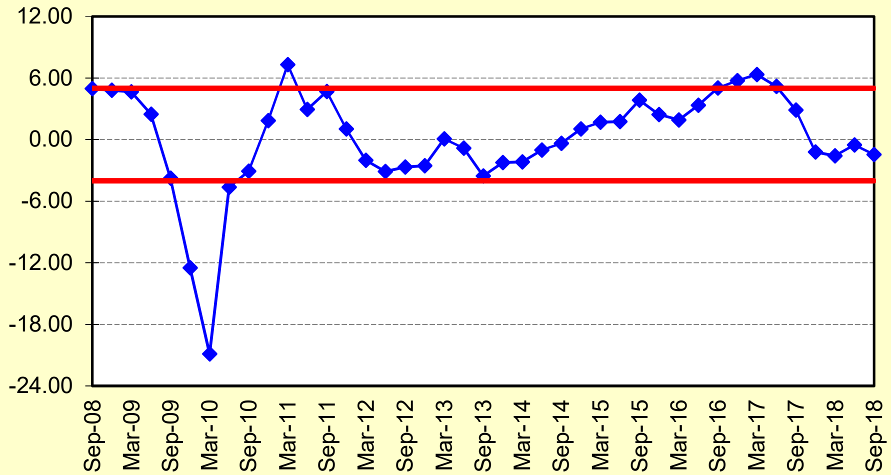


U.S. EQUITY - SMALL/MID CAP

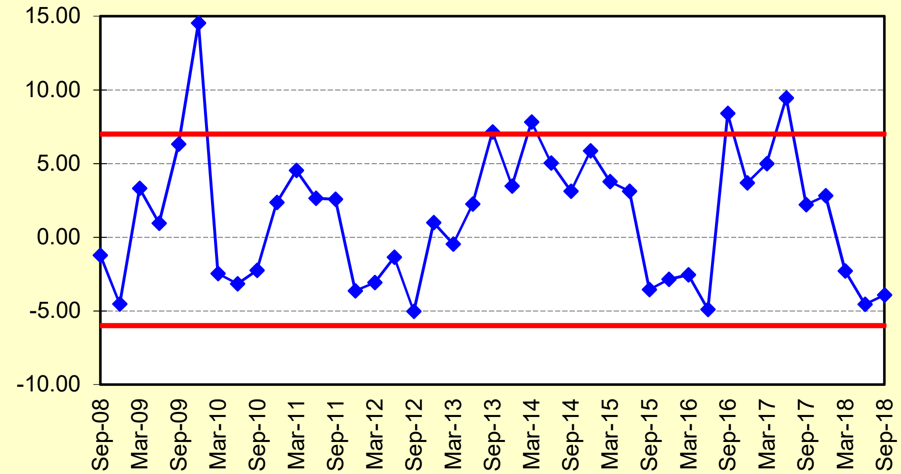
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

Eagle



Frontier

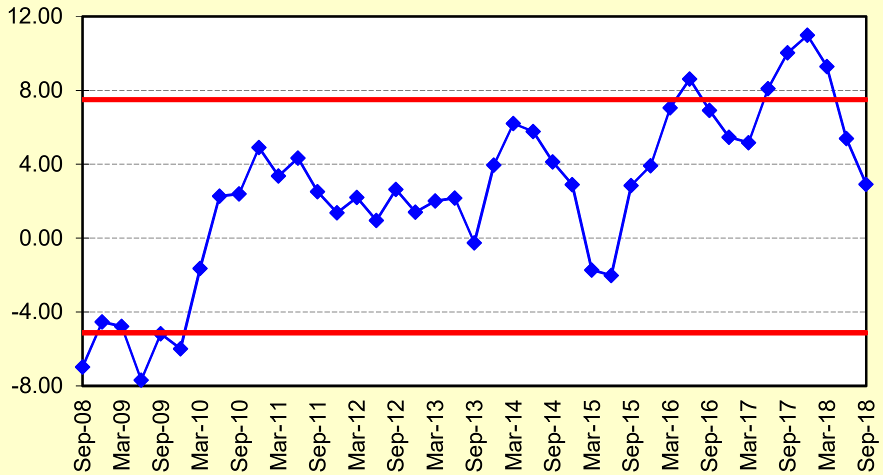


NON-U.S. EQUITY

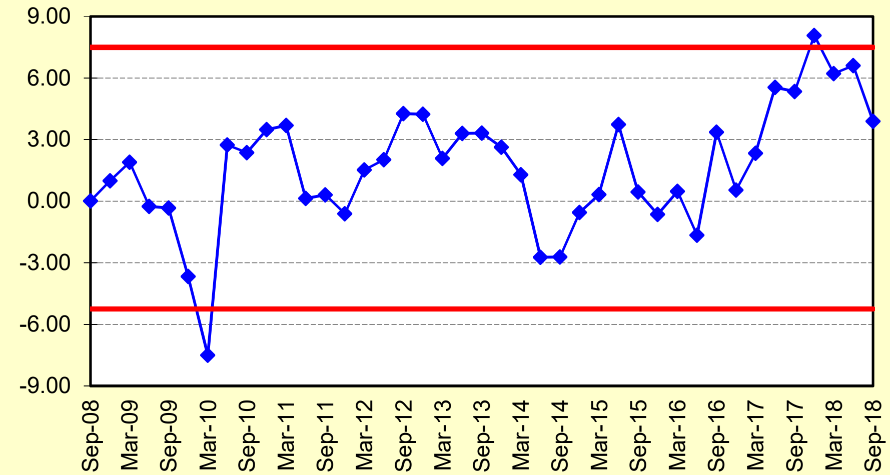
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

Acadian



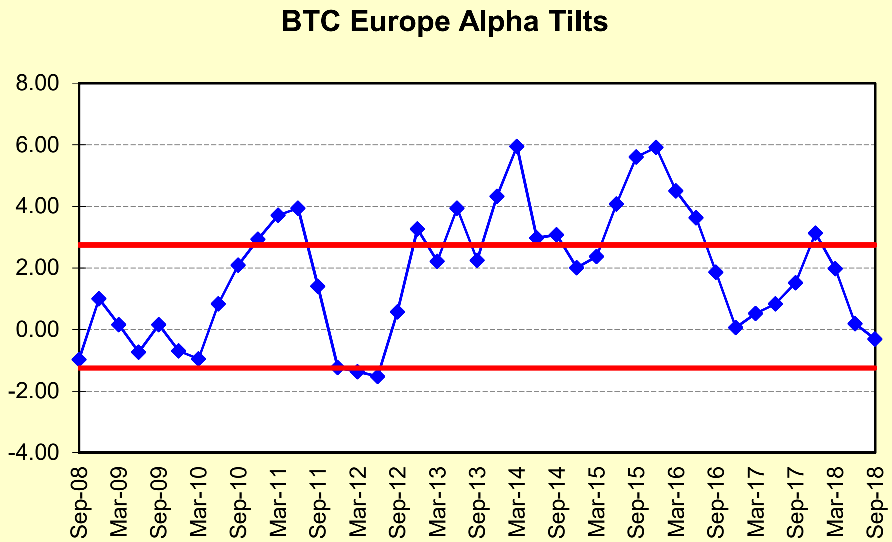
Capital Guardian Non-U.S.

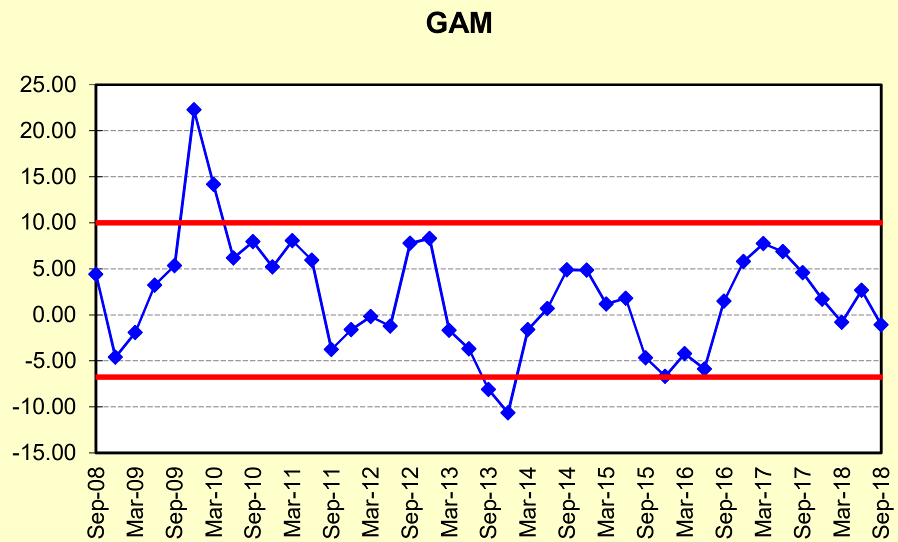


NON-U.S. EQUITY - PACIFIC BASIN & EUROPE

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

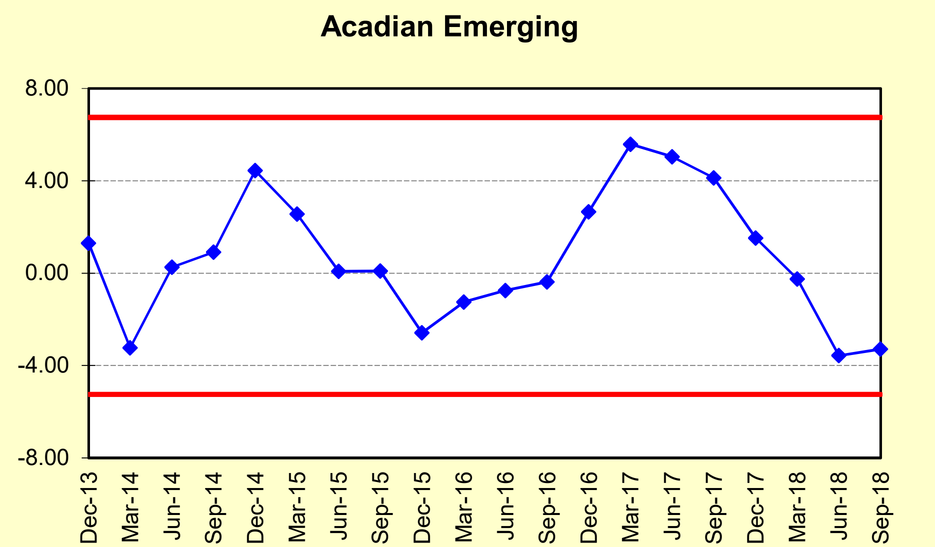


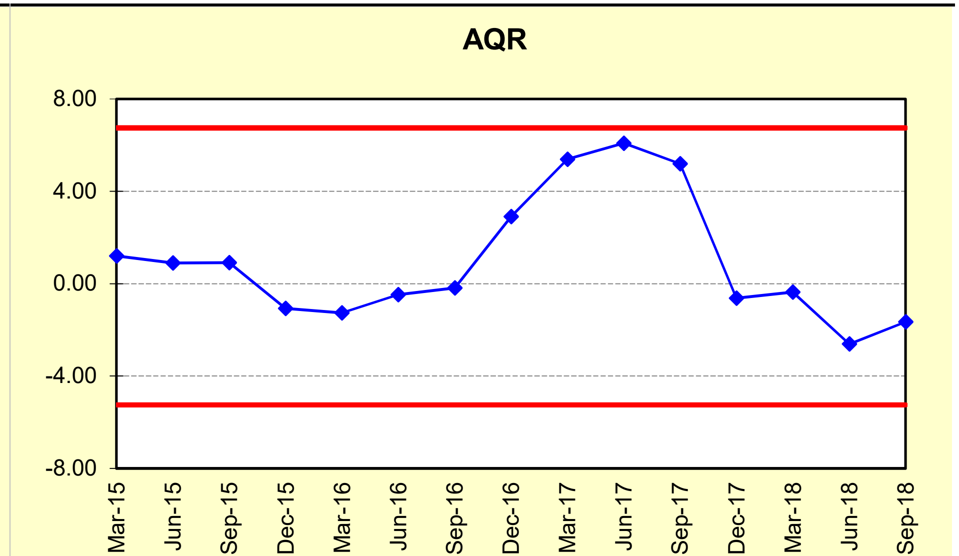


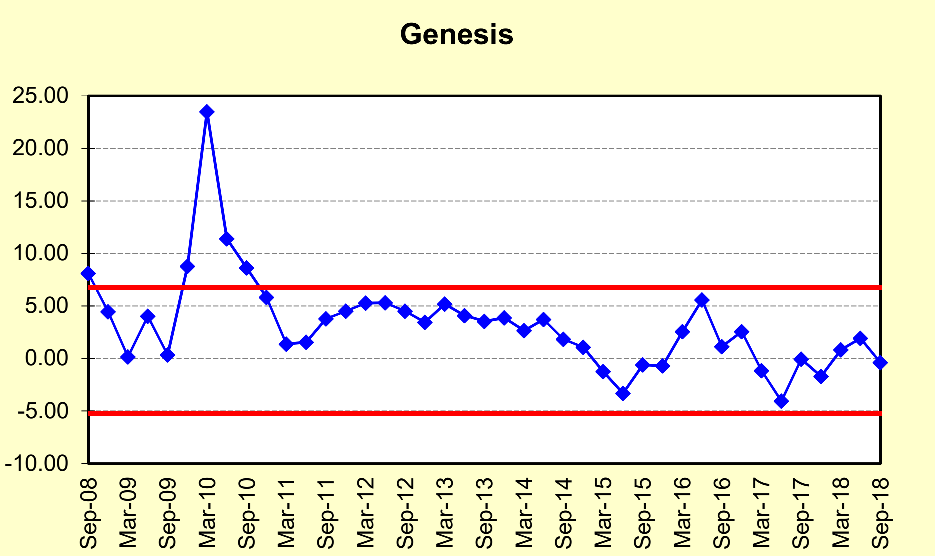
NON-U.S. EQUITY - EMERGING MARKETS

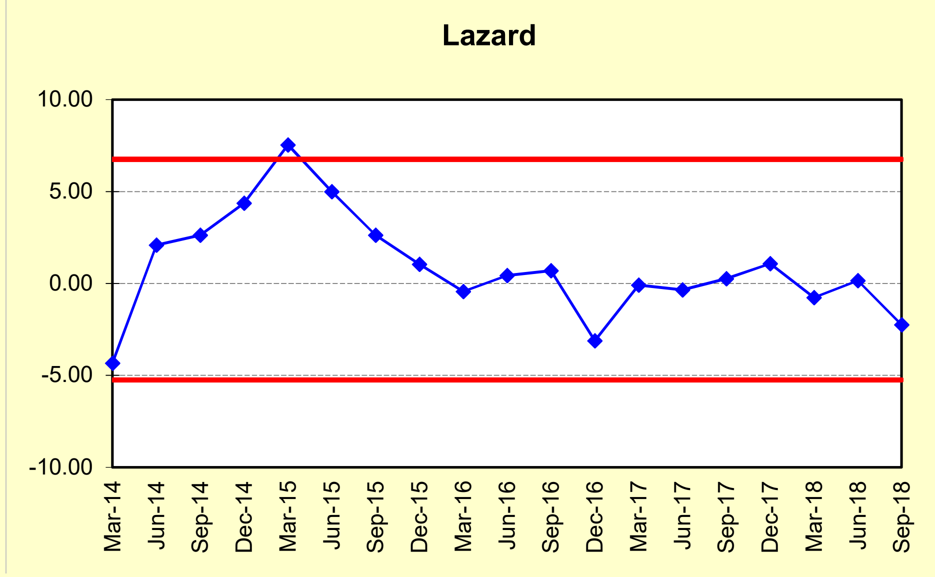
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018





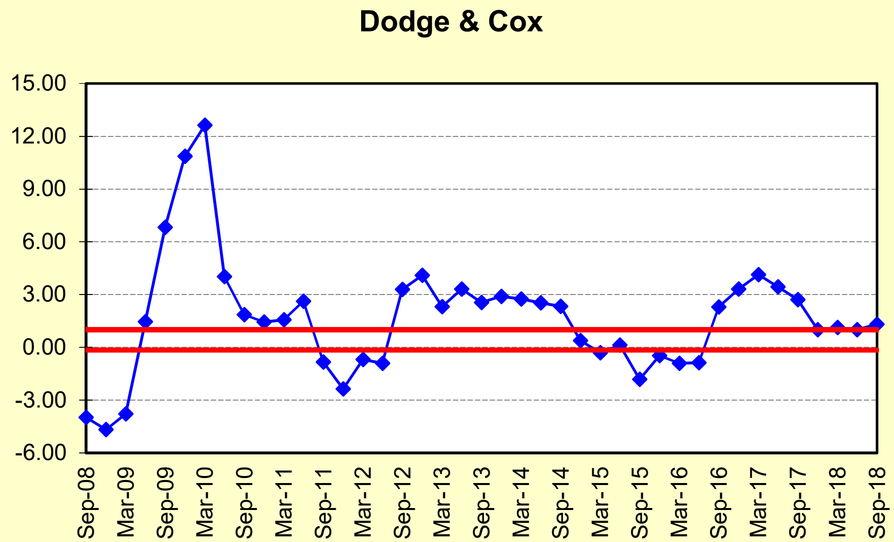


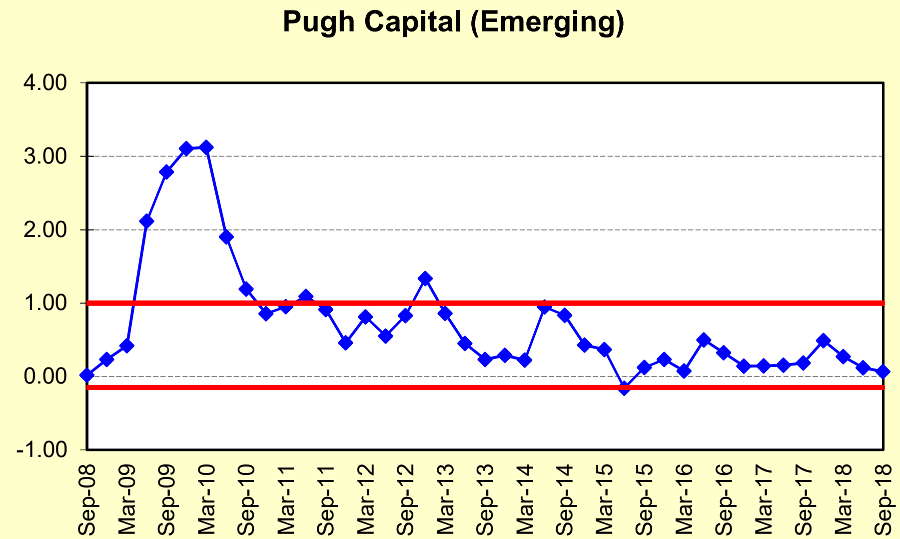


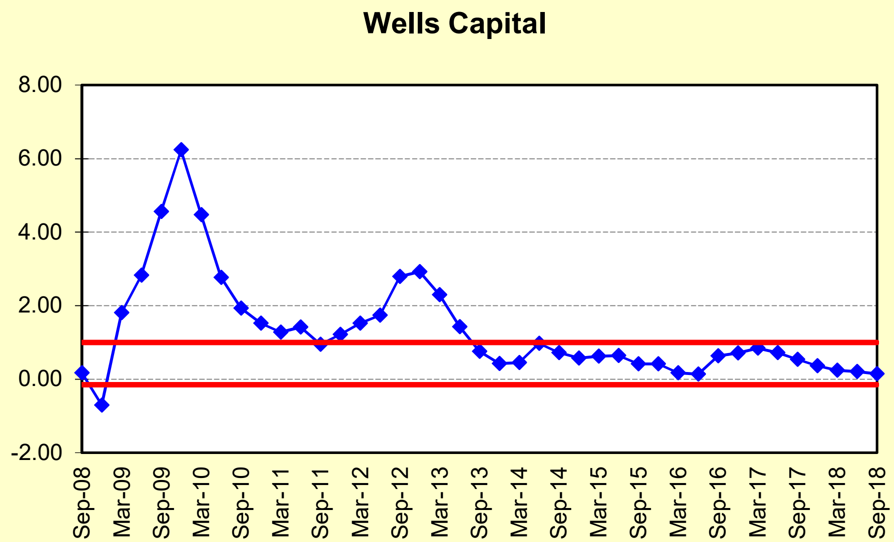
FIXED INCOME - CORE

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018



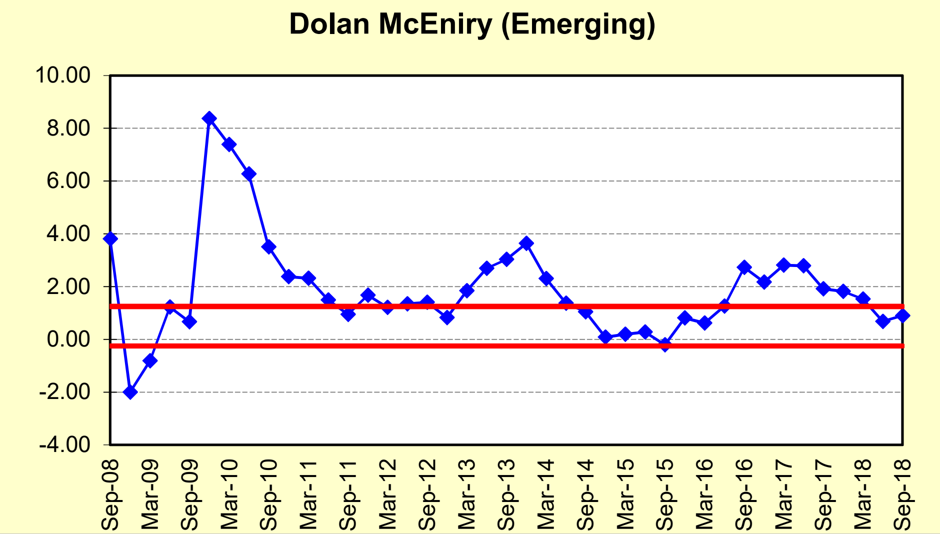


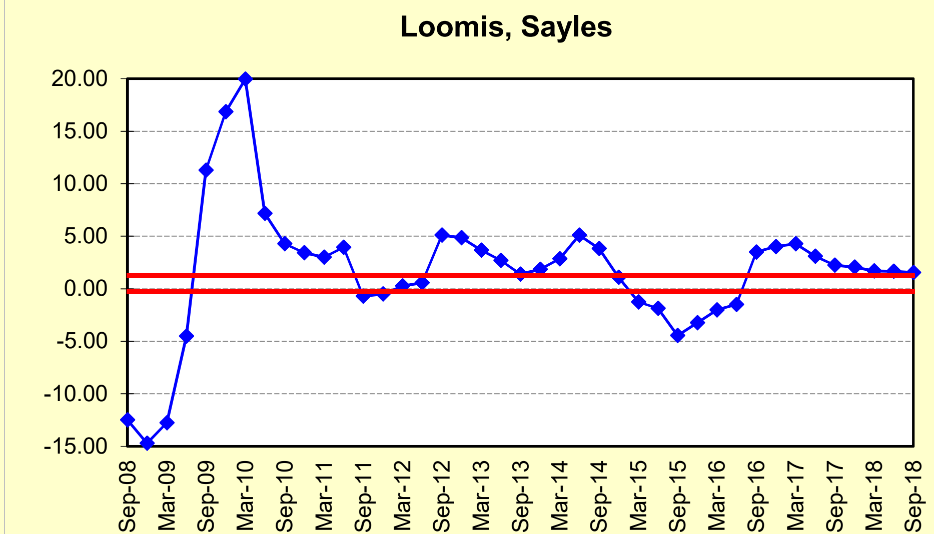


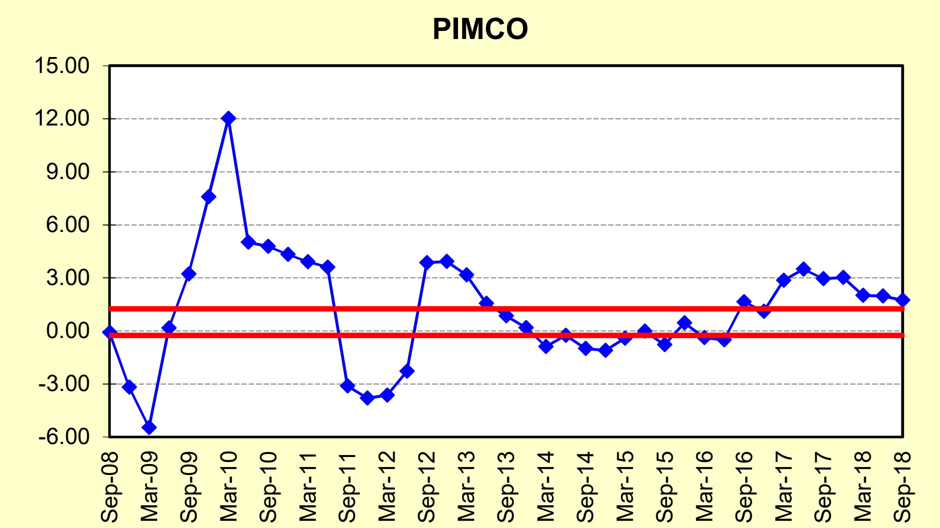
FIXED INCOME - CORE PLUS

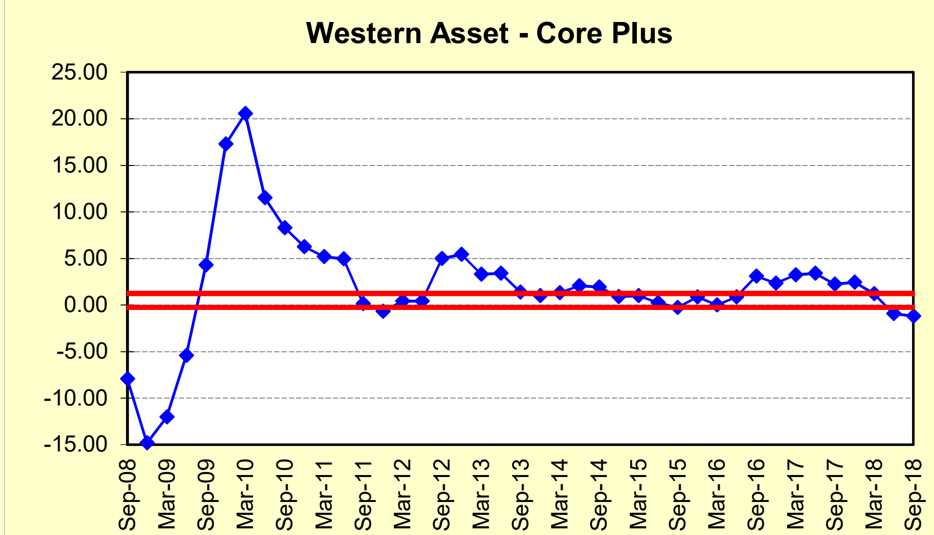
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018





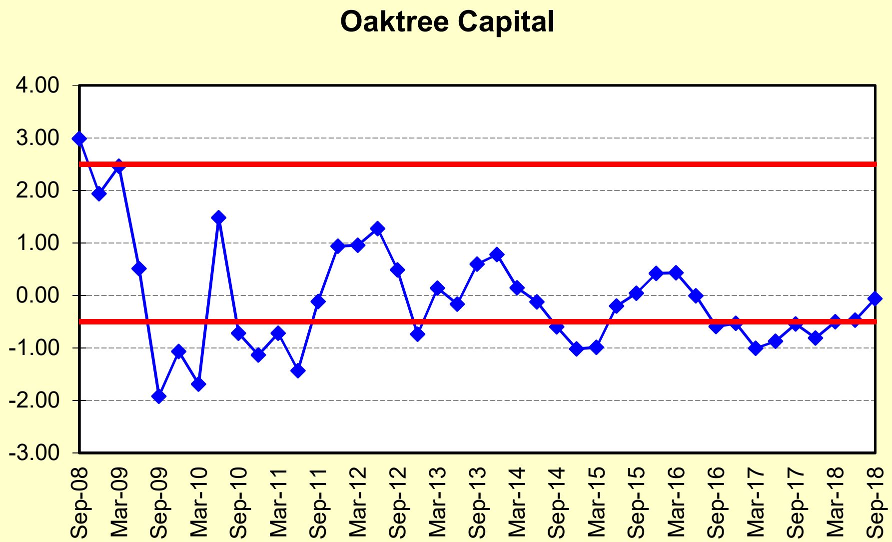


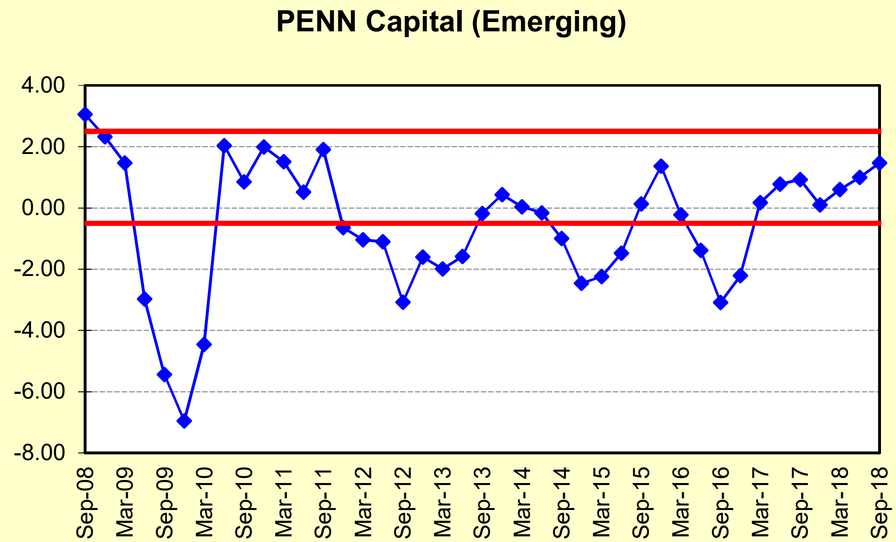


FIXED INCOME - HIGH YIELD

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018



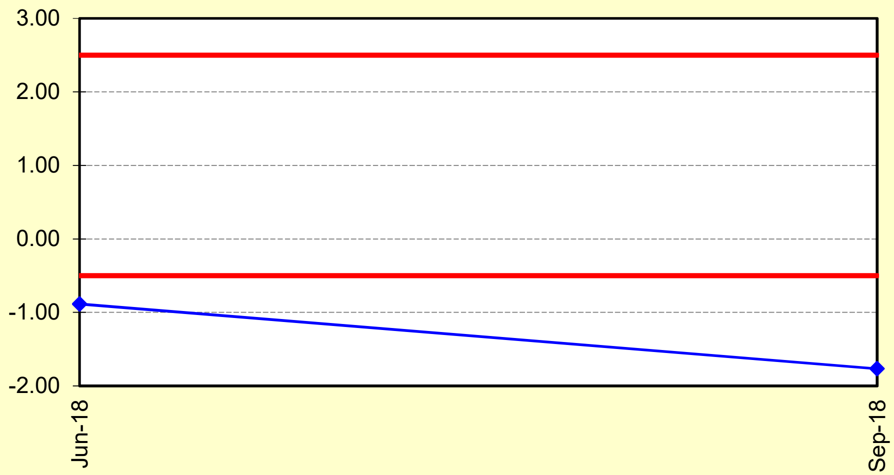


FIXED INCOME - OPPORTUNISTIC

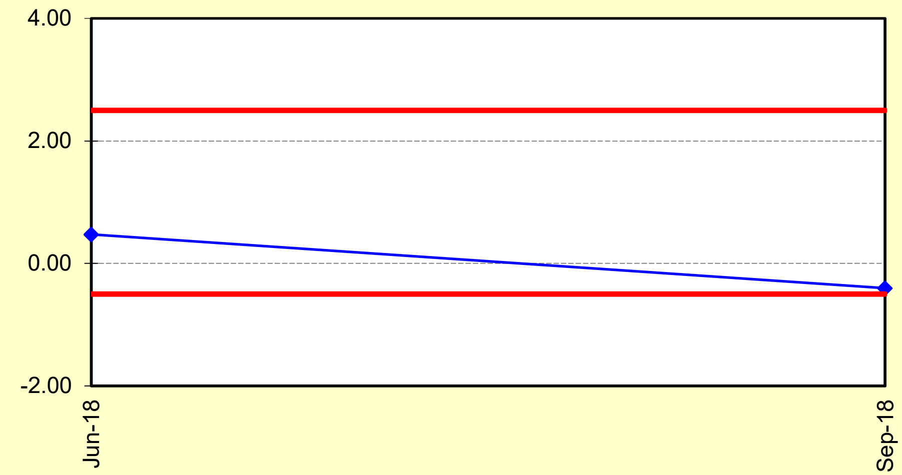
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

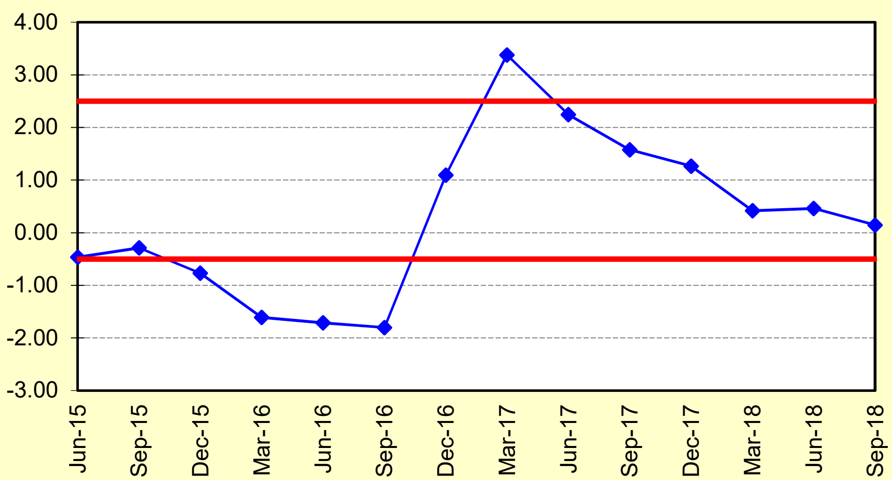
Aberdeen



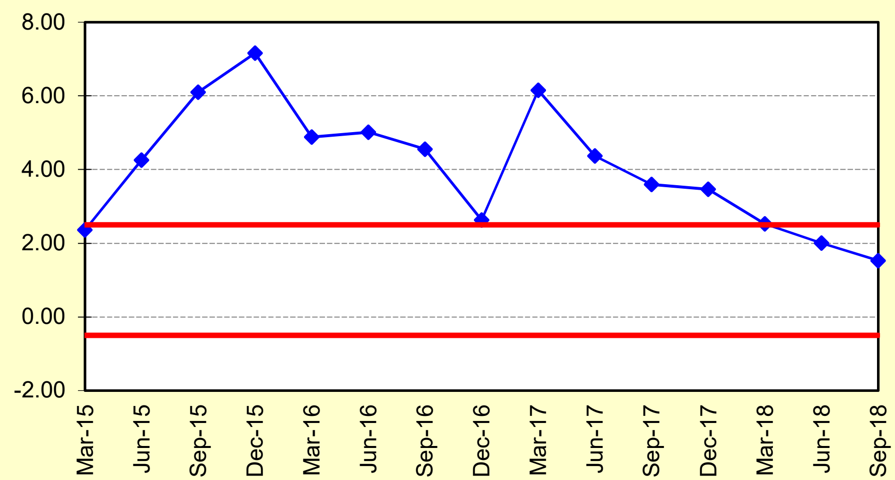
Ashmore



Bain Capital



Beach Point

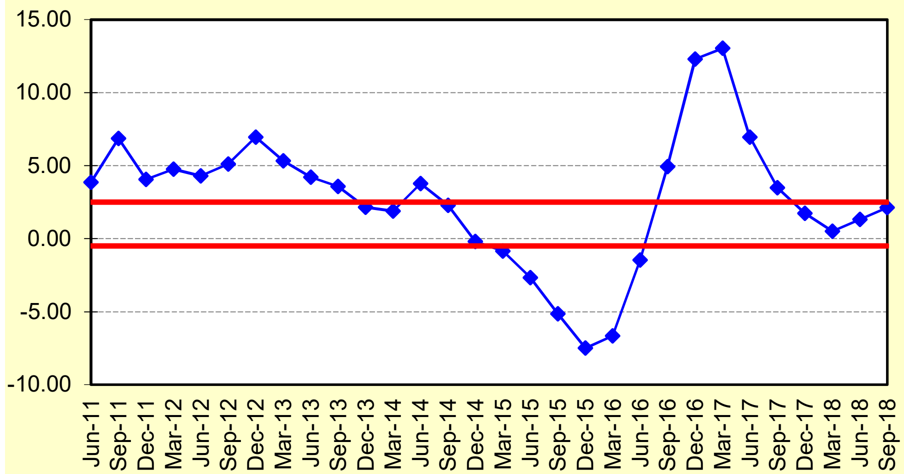


FIXED INCOME - OPPORTUNISTIC

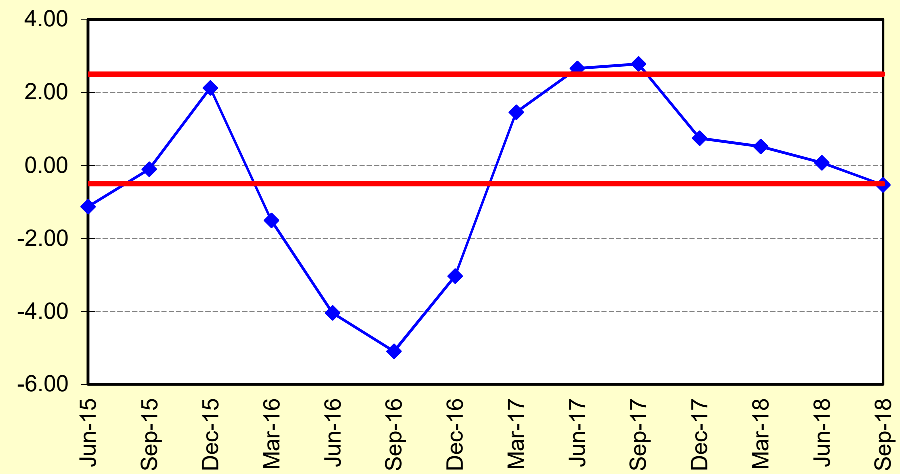
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

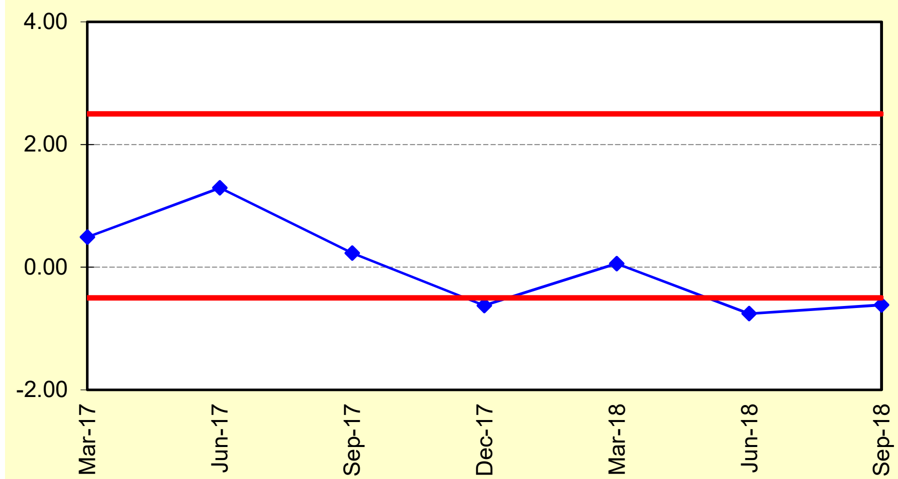
Brigade Capital



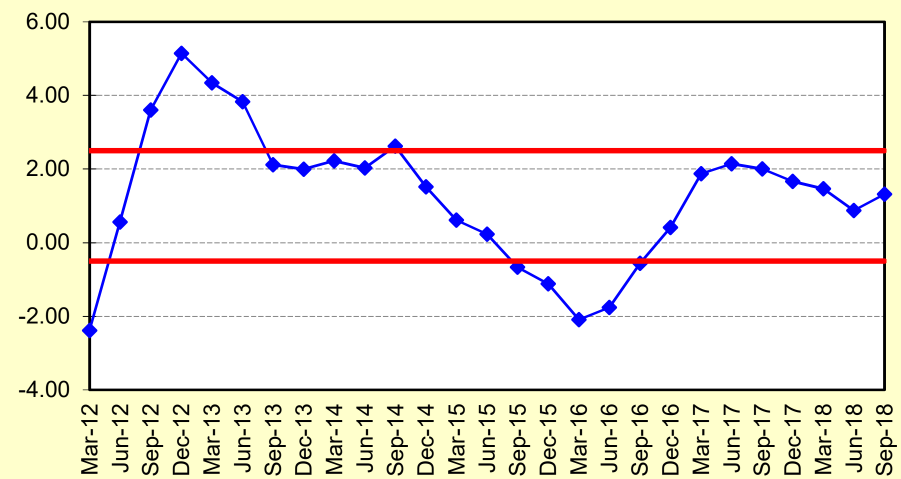
Crescent



DoubleLine



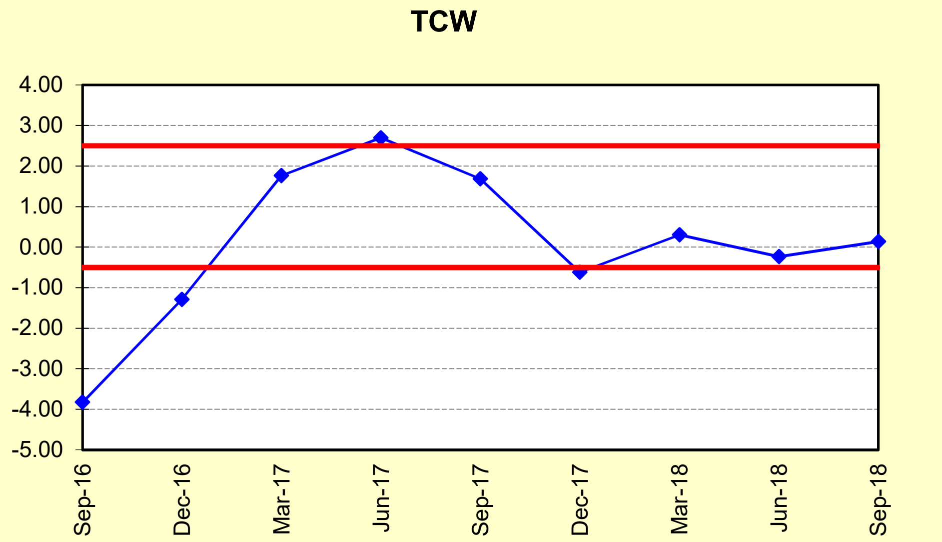
Principal Global Investors - Opportunistic

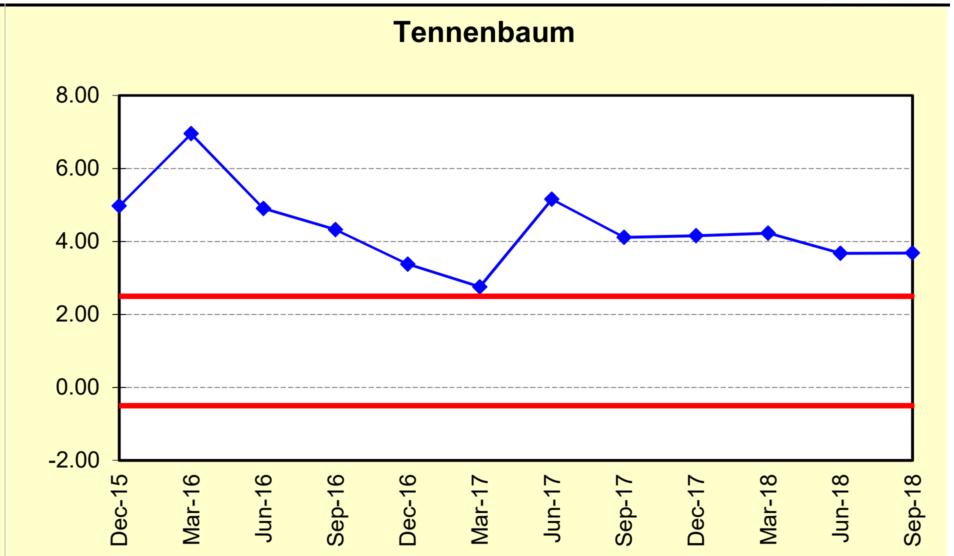


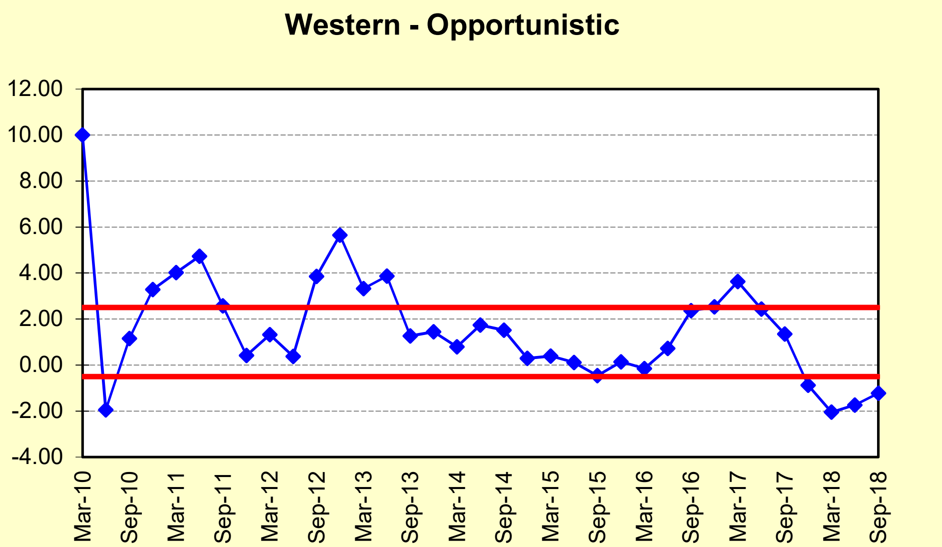
FIXED INCOME - OPPORTUNISTIC

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018



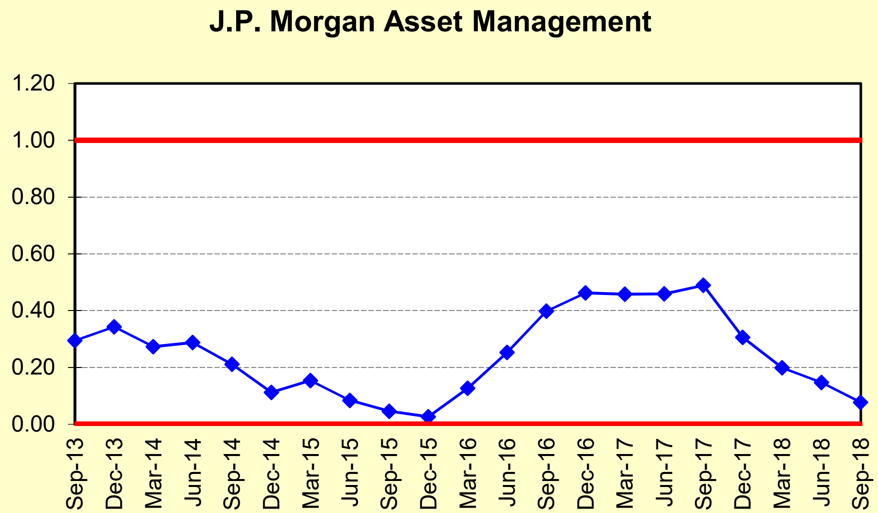




FIXED INCOME - CASH

ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

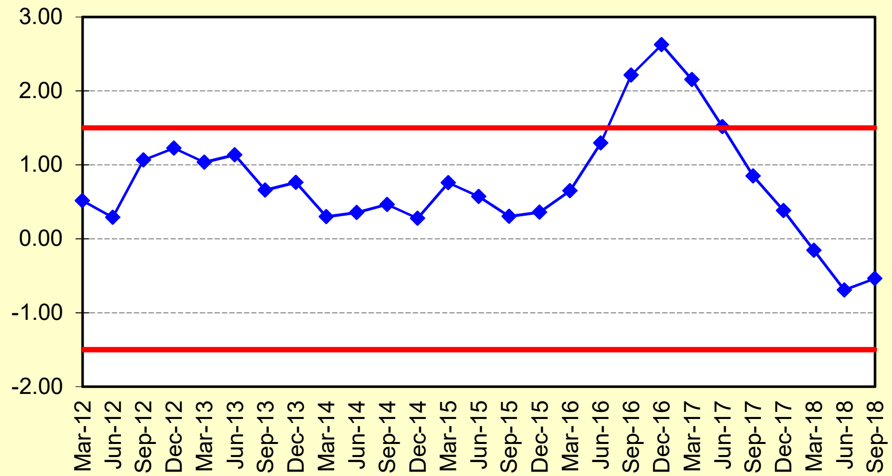


COMMODITIES

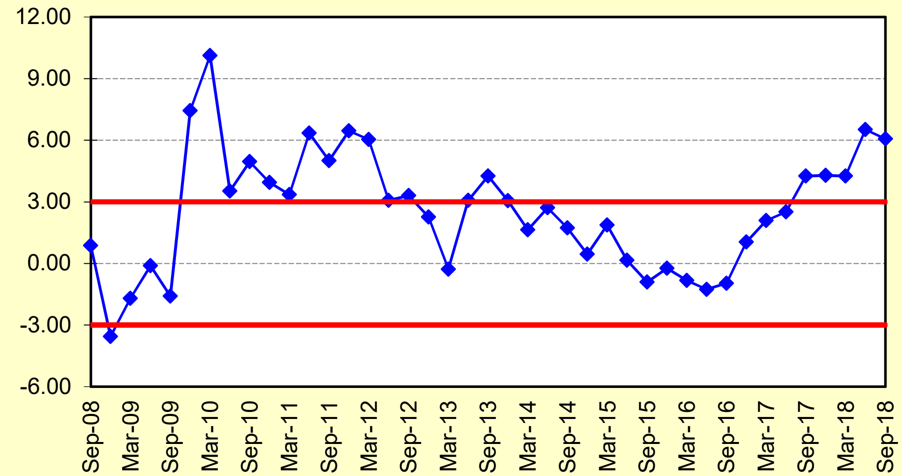
ONE-YEAR ROLLING EXCESS RETURNS

for the quarter ended September 30, 2018

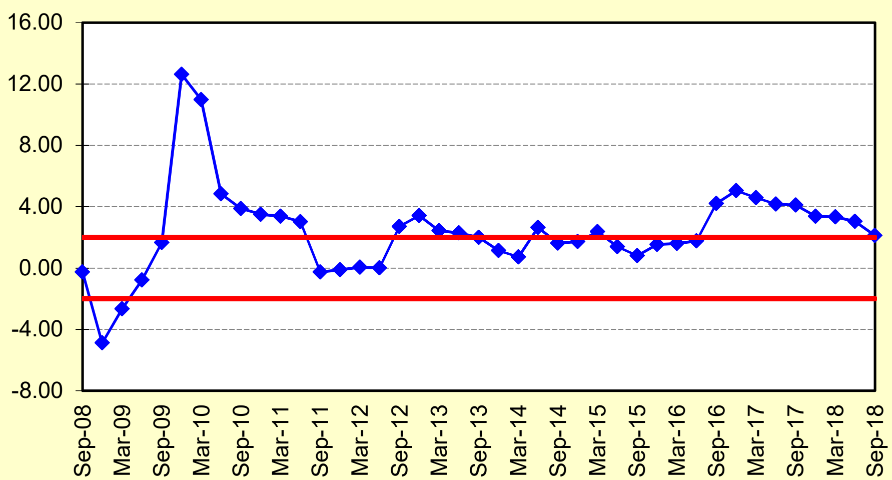
Credit Suisse



Neuberger Berman/Gresham



PIMCO



ESTIMATED FEES[1]

EQUITIES

for the quarter ended September 30, 2018

U.S. EQUITY	Avg. Market Value (Millions)	Fees	Annualized Effective Rate
Active			
Eagle Asset Mgmt.	$380.1	$500,169	52.6 bps
Frontier Capital Mgmt.	$738.4	$1,384,457	75.0 bps
INTECH	$927.0	$512,046	22.1 bps
JANA Partners[2]	$120.0	$300,000	100.0 bps
QMA	$306.0	$399,896	52.3 bps
Systematic	$252.2	$346,726	55.0 bps
Twin Capital Mgmt.	$571.6	$214,341	15.0 bps
Subtotal:	**$3,295**	**$3,657,635**	**44.4 bps**
Passive			
BTC Russell 3000 Index	$10,551.0	$226,052	0.9 bps
Subtotal:	**$10,551**	**$226,052**	**0.9 bps**
Total U.S. Equity:	**$13,846.3**	**$3,883,687**	**11.2 bps**

[1] Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

[2] Fees are based on committed capital of $120 million.

ESTIMATED FEES[1]

EQUITIES

for the quarter ended September 30, 2018

NON-U.S. EQUITY	**Avg. Market Value (Millions)**	**Fees**	**Annualized Effective Rate**
Active			
Acadian Asset Mgmt.	$898.2	$835,964	37.2 bps
Acadian Emrg. Markets	$444.3	$462,018	41.6 bps
AQR Capital Mgmt.	$251.8	$438,208	69.6 bps
BTC Europe Alpha Tilts	$991.7	$874,836	35.3 bps
Capital Guardian	$372.8	$332,005	35.6 bps
Cevian Capital	$309.8	$1,212,701	156.6 bps
GAM International Mgmt.	$870.7	$914,452	42.0 bps
Genesis Investment Mgmt.	$660.1	$1,183,056	71.7 bps
Lazard Asset Mgmt.	$341.6	$641,540	75.1 bps
Symphony Financial	$153.5	$278,317	72.5 bps
Subtotal:	**$5,294**	**$7,173,098**	**54.2 bps**
Passive			
BTC Canada Index IMI	$725.9	$27,445	1.5 bps
BTC EAFE Index IMI	$4,708.9	$178,034	1.5 bps
BTC EAFE Small Cap Index	$207.3	$20,903	4.0 bps
BTC Emerging Markets Index	$1,191.0	$270,178	9.1 bps
BTC Emrg. Mkt. Small Cap Index	$134.3	$67,690	20.2 bps
BTC Europe Index	$378.7	$9,450	1.0 bps
Subtotal:	**$7,346**	**$573,700**	**3.1 bps**
Total Non-U.S. Equity:	**$12,640.5**	**$7,746,798**	**24.5 bps**
Currency Hedge			
50% Developed Mkt. Currency Hedge	$9,522.3	$357,087	1.5 bps

[1] Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

ESTIMATED FEES[1]

FIXED INCOME

for the quarter ended September 30, 2018

FIXED INCOME	Avg. Market Value (Millions)	Fees	Annualized Effective Rate
Core			
BTC US Debt Index	$3,855.0	$96,197	1.0 bps
Dodge & Cox	$1,288.5	$317,068	9.8 bps
Pugh Capital Mgmt.	$135.1	$63,166	18.7 bps
Wells Capital Mgmt.	$1,341.6	$380,198	11.3 bps
Subtotal:	**$6,620**	**$856,629**	**5.2 bps**
Core Plus			
Dolan McEniry Capital Mgmt.	$346.7	$222,936	25.7 bps
Loomis Sayles	$1,078.6	$346,526	12.9 bps
PIMCO	$1,057.2	$547,846	20.7 bps
Western Asset Mgmt.	$1,121.1	$365,137	13.0 bps
Subtotal:	**$3,604**	**$1,482,445**	**16.5 bps**
High Yield			
Oaktree Capital Mgmt.	$412.5	$414,012	40.1 bps
PENN Capital Mgmt.	$111.1	$125,007	45.0 bps
Subtotal:	**$524**	**$539,019**	**41.2 bps**
Opportunistic			
Aberdeen	$194.3	$195,970	40.3 bps
Ashmore	$198.7	$336,135	67.7 bps
Bain Capital	$309.8	$503,367	65.0 bps
Beach Point Capital	$395.9	$1,056,591	106.7 bps
Brigade Capital Mgmt.	$506.1	$948,871	75.0 bps
Crescent Capital Group	$277.0	$383,739	55.4 bps
Doubleline Capital	$272.9	$511,633	75.0 bps
Principal Global Investors	$270.8	$93,732	13.8 bps
TCW	$264.4	$392,997	59.5 bps
Tennenbaum Capital Partners	$283.8	$627,299	88.4 bps
Western Asset Mgmt.	$308.8	$38,599	5.0 bps
Subtotal:	**$3,282**	**$5,088,933**	**62.0 bps**
Total Fixed Income:	**$14,029.8**	**$7,967,026**	**22.7 bps**
Cash			
J.P. Morgan Asset Mgmt.	$1,413.8	$176,720	5.0 bps

[1] Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

ESTIMATED FEES[1]

COMMODITIES

for the quarter ended September 30, 2018

COMMODITIES	**Avg. Market Value (Millions)**	**Fees**	**Annualized Effective Rate**
Credit Suisse	$443.9	$288,815	26.0 bps
Neuberger Berman/Gresham	$472.1	$443,129	37.5 bps
PIMCO	$461.7	$418,510	36.3 bps
Total Commodities:	**$1,378**	**$1,150,453**	**33.4 bps**

[1] Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

ALLOCATION RANGES

STRATEGIC vs. ACTUAL

for the quarter ended September 30, 2018

U.S. EQUITY:

Mandate	Strategic Allocation Range	Actual Allocation
Passive	35-75%	75.3%
Low Risk	0-25%	10.8%
Moderate/High Risk	10-30%	13.8%

U.S. Equity Managers:

Passive – BTC Russell 3000.
Low Risk – INTECH, Twin Capital.
Moderate/High Risk – JANA, Eagle, Frontier, QMA, Systematic, CornerCap, Matarin.

NON-U.S. EQUITY:

Mandate	Strategic Allocation Range	Actual Allocation
Passive Non-U.S.	40-70%	57.9%
Active Non-U.S.	0-40%	10.3%
Active Regional	0-20%	18.8%
Active Emerging Markets	10-30%	13.0%

Non-U.S. Equity Managers:

Passive – BTC Canada IMI, BTC EAFE IMI, BTC Emerging Markets, BTC EAFE - Euro Cons, BTC EAFE Small Cap, BTC Emrg Mkt Small Cap.
Non-U.S. Developed – Acadian, Capital Guardian.
Regional Developed – BTC Euro Tilts, Cevian Capital, Global Asset Management, Symphony Financial.
Emerging Markets – Acadian Emerging, AQR, Genesis, Lazard.

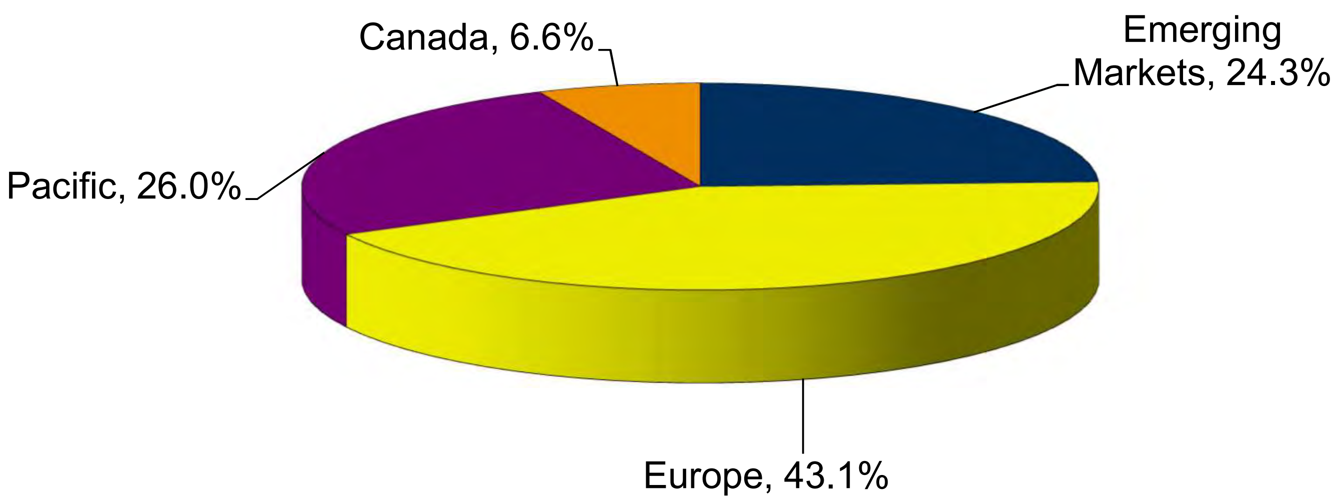
	Market Value (In Millions)	% of Total Market Value
50% Passive Currency Hedge Overlay	$ 4,685	50.0%
Total Non-US Developed Markets	**$ 9,363**	

ALLOCATION RANGES

STRATEGIC vs. ACTUAL (Cont'd)

for the quarter ended September 30, 2018

	Non-U.S. Composite	ACWI X U.S. IMI Net	Difference
Emerging Markets	24.3%	23.9%	0.4%
Europe	43.1%	43.6%	-0.5%
Pacific	26.0%	25.9%	0.2%
Canada	6.6%	6.7%	-0.1%
	100.0%	**100.0%**	**0.0%**



ALLOCATION RANGES

STRATEGIC vs. ACTUAL

for the quarter ended September 30, 2018

FIXED INCOME STRUCTURE:

Strategy	Strategic Allocation Range	Actual Allocation	Strategic Target
Core[1]	35-55%	47.2%	45%
Core Plus	15-35%	25.6%	25%
Opportunistic & High Yield	20-40%	27.2%	30%

CASH:

Strategy	Strategic Allocation Range	Actual Allocation	Strategic Target
Cash	0-4%	2.1%	2%

COMMODITIES STRUCTURE:

Strategy	Strategic Allocation Range	Actual Allocation	Strategic Target
Commodities	0-4.8%	2.4%	2.8%

[1] Includes Member Home Loan Program (MHLP).

Disclosure
Source of Bloomberg data: Bloomberg Index Services Limited. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). BARCLAYS® is a trademark and service mark of Barclays Bank Plc (collectively with its affiliates, "Barclays"), used under license. Bloomberg or Bloomberg's licensors, including Barclays, own all proprietary rights in the Bloomberg Barclays Indices. Neither Bloomberg nor Barclays approves or endorses this material, or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith.

Glossary

A

Alpha: Alpha is an estimate of the contribution to investment performance attributable to the manager's selection of securities. It is calculated by subtracting the manager's return from the benchmark return.

Annual Return: The total return of a security over a specified period, expressed as an annual rate of interest.

Annualized: A figure (as in a percentage) calculated by a formula to find the "average" performance per year for a period greater than one year.

B

Barbell Strategy: Fixed income portfolio structuring technique using a mix of short and long-term securities to achieve a targeted average maturity or duration.

BBG BC (Bloomberg Barclays) U.S. Universal Index: The Barclays U.S. Universal Index represents the union of the U.S. Aggregate Index, U.S. Corporate High-Yield, Investment Grade 144A Index, Eurodollar Index, U.S. Emerging Markets Index, and the non-ERISA eligible portion of the CMBS Index.

Basis Points (bps): One one-hundredth of one percent. One hundred basis points equal one percent.

Bear Market: A market characterized by a trend of falling prices.

Bearish: Pessimistic about the market; anticipating a decline in prices

Beta: A measure of the volatility of a stock relative to the overall market. A beta of less than one indicates lower risk than the market; a beta of more than one indicates higher risk than the market.

Brigade Custom Index: 50% Barclays U.S. Corporate High Yield Ba/B & 50% Credit Suisse Leveraged Loan Index.

Bull Market: A market characterized by a trend of rising prices.

Bullet: Fixed Income portfolio structuring technique focusing on a particular maturity or duration.

Bullish: Optimistic about the market; anticipating a rise in prices.

C

Capital Structure: The division of a company's capitalization among bonds, debentures, preferred and common stock, earned surplus and retained income.

Carried Interest: Share of profits or common stock ownership (beyond pro-rata investment) granted to a venture fund or promoter for its/his role in originating and structuring an investment. The general partner's carried interest is his share of the partnership profits.

Carrying Value: A venture capital limited partnership must list on its balance sheet a value for every investment it holds. These valuations are called the carrying values.

Cash-On-Cash Return: The return to limited partners. Cash inflows are the capital calls of the partnership. Cash outflows are all distributions to limited partners. Note that stock distributions are considered cash for this calculation.

Committed Capital: When a venture capital limited partnership is formed, each limited partner agrees to contribute a certain amount of capital to the partnership. Once the agreement is signed, the dollar amount is said to be capital committed to the partnership.

Common Stock: Ordinary capital stock (representing ownership) in a company. Common stock does not enjoy the special privileges of preferred stock, but has voting rights.

Convertible Bond: A bond which, at the option of the holder, is convertible into other types of securities.

Convexity: A measure of how the duration of a bond portfolio changes with interest rate movements. Higher convexity means that if interest rates rise, bond prices fall by relatively small amounts and when interest rates fall, bond prices rise by higher relative amounts. Therefore, for either direction of interest rate movements, the greater the convexity the more beneficial the impact on bond prices.

Coupon Income (Average Coupon): The annual coupon payments of a bond divided by the par value.

Current Yield: The annual coupon payments of a bond divided by the market price.

Current Ratio: The ratio of current assets over current liabilities. A measure of a company's ability to pay its bills.

Custom MSCI ACWI IMI N 50%H: 7/31/10 – Present MSCI ACWI X U.S. IMI (Net) with 50% hedged Developed Markets; 8/31/08 – 7/31/10 MSCI ACWI X U.S. IMI (Net); Inception – 8/31/08 MSCI ACWI X U.S. (Net), except the ten-year return (Gross).

D

50% Developed Market Currency Hedge Index: A custom index based on a MSCI FX Hedged Index return.

Deflation: A progressive reduction in the price level, which would make real interest rates greater than nominal rates.

Discount Rate: The interest rate used in present value calculations to "discount" or convert future cash flows into terms of present dollars.

Dividend: A cash or other distribution to preferred or common stockholders.

Bloomberg Commodity Index Total Return: The Bloomberg Commodity Index Total Return is composed of futures contracts on physical commodities.

Dolan McEniry Custom Index: Inception–6/30/18: Barclays Credit Intermediate (65%) and Barclays Mortgage Backed (25%) and Barclays High Yield Ba/B (10%); 6/30/18-Present: Bloomberg Barclays U.S. Intermediate Credit.

Duration: A measure of the price sensitivity of a bond portfolio to changes in interest rates. It is calculated as the weighted average time to receive a bond's coupon and principal payments. The closer the coupon and principal payments, the shorter the duration. The more distant the coupon and principal payments, the longer the duration. Portfolios with longer maturity bonds will normally have longer duration and will, therefore, have greater price sensitivities to changes in interest rates.

E

EAFE Custom Index: Inception - 6/30/06 MSCI EAFE (Net); 6/30/06 - Present MSCI EAFE + Canada (Net).

Earnings per Share: Latest reported earnings for the last 12-month period divided by the current number of shares of common stock outstanding.

Earnings Yield: The percentage found by dividing the earnings per share by the market price of a stock.

Equity: Ownership or proprietary rights and interests in a company. Synonymous with common stock.

EBITDA: Earnings before Interest, Taxes, Depreciation and Amortization.

Enterprise Value: Enterprise value represents the Equity + Debt value of the company.

F

Federal Funds Rate: The interest rate at which federal funds are traded. It is monitored by the Fed in the process of regulating the growth of bank reserves and money supply in the execution of its monetary policy. As such, it is closely watched by market participants.

Fiscal Policy: Federal Government policies affecting government spending, taxation, and deficits (or surpluses), viewed from a macroeconomics standpoint.

Fixed Income Custom Index: Inception-3/31/09: A combination of the Barclays US Aggregate Bond Index and the Barclays US High Yield Ba/B Index.

The weights have varied over time, but as of 9/30/06, the mix was 93% Aggregate and 7% high yield. 3/31/09-Present : 100% Barclays U.S. Universal.

FTSE 6-month T-Bill: The FTSE 6-Month T-Bill Index is a market value-weighted index of public obligations of the U.S. Treasury with maturities of six month.

Fully-Diluted Ownership: Proportionate ownership assuming the exercise of all common stock options, warrants, and the conversion of any convertible securities.

Futures Contract: Agreement to buy or sell a specific amount of a commodity or financial instrument at a particular price and a stipulated future date.

H

Hedging: The temporary purchase or sale of a contract calling for future delivery of a specific security at an agreed upon price to offset a present or anticipated position in the cash market.

Hedge Fund Custom Index: The FTSE 3-Month U.S. T-Bill Index plus 500 bps.

High Yield Bond: A bond with a low investment quality and credit worthiness, usually with a rating of BB or less.

I

Immunization: A process for designing fixed income portfolios to obtain a target rate of return over a specified time period, within a narrow range, despite market conditions.

Index: A statistical yardstick composed of a basket of securities with a set of characteristics. An example of this would include the "S&P 500" which is an index of 500 stocks.

Inflation: A general rise in prices, usually measured by changes in prices of major indices, such as the Consumer Price Index. An increase in a particular price may or may not be inflationary, depending on how it affects other prices and on how promptly it brings to market additional supplies of a product.

Inflation Index Bond: Fixed income securities whose principal value is periodically adjusted according to the rate of inflation. The interest rate on these bonds is fixed at issuance, but over the life of the bond this interest is paid on an increasing principal value, which has been adjusted for inflation.

Information Ratio: The information ratio is the excess return (alpha) per unit of active risk (tracking error). It is measured by dividing alpha by the tracking error.

Interest-Rate Risk: When interest rates rise, the market value of fixed-income securities (such as bonds) declines. Similarly, when interest rates decline, the market value of fixed-income securities increases.

Internal Rate of Return: The Internal rate of return is a total rate of return that gives full weight to the size and time of cash flows over the period measured and fully reflects unrealized gains and losses in addition to realized gains and losses, interest and dividend income.

J

J-Curve: Most venture partnerships go through their first few years with write-offs/write-downs exceeding write-ups, after which value increases rapidly as successful companies emerge. The plot of partnership values versus time, therefore, resembles a “J”.

L

Laddering: A fixed income portfolio strategy in which assets are distributed evenly over a range of maturities.

LBO (Leveraged Buyout): The purchase of a business using the debt capacity of the business to borrow funds (sometimes by issuing notes to the seller) to finance the purchase.

Limited Partner: The main investment subscribers to a Limited Partnership Fund. They have limited liability and no executive or management control of the Partnership. As defined by the IRS code, any investor in a venture capital limited partnership.

M

Market Capitalization: The market value of all outstanding shares of common stock of a company. Derived by multiplying the number of shares outstanding at month-end by the month-end closing price of the security.

Maturity: The date on which a loan, bond, mortgage or other debt security becomes due and is to be paid off.

Mezzanine Stage: The last private round of financing before an anticipated public offering. Implies substantial revenues and usually the expectation of imminent profitability.

Modern Portfolio Theory: The theoretical framework for designing investment portfolios based upon the risk and reward characteristics of the entire portfolio. The major tenet of the theory holds that reward is directly related to risk, which can be divided into two basic parts: 1) systematic risk (portfolios' behavior as a function of the market's behavior), and 2) unsystematic risk (portfolios' behavior attributable to selection of individual securities). Because un-systematic risk can be largely eliminated through diversification, the portfolio will be subject principally to systematic risk.

Mortgage-Backed Securities: Bonds which are a general obligation of the issuing institution but are collateralized by a pool of mortgages.

MSCI Canada IMI Custom Index (Net): Inception – 8/31/08 MSCI Canada (Net); 8/31/08 - Present MSCI Canada IMI (Net).

MSCI EMF IMI Custom Index: Inception – 12/31/00 MSCI EMF (Gross); 12/31/00 – 8/31/08 MSCI EMF (Net); 8/31/08 – Present MSCI EMF IMI (Net).

MSCI EAFE IMI Custom Index (Net): Inception – 8/31/08 MSCI EAFE (Net); 8/31/08 - Present MSCI EAFE IMI (Net).

O

Opportunistic Custom Index: 50% Barclays U.S. Corporate High Yield Index & 50% Credit Suisse Leveraged Loan Index.

Opportunistic EMD Custom Index: 50% EMBI Global Diversified + 25% GBI-EM GD + 25% CEMBI BD.

P

Private Equity Target: Rolling ten-year return of the Russell 3000 Index plus 500 bps.

Payout Ratio: A measurement of the percent of a firm’s earnings that is paid out to Shareholders in dividends. Calculated by dividing most recently reported fiscal year-end dividends per share by most recently reported annual primary earnings per share.

Preferred Stock: Securities or shares representing an ownership interest in a business, but which have "preference" over common shares, in regards to dividends and distribution of assets in the event of liquidation.

Present Value: The discounted value of a series of future cash flows so as to account for the time value of money. Alternatively, the value of a future series of cash flows stated in terms of current dollars.

Price/Book Ratio: Calculated by dividing the current month-end stock price by the book value per share.

Price/Earnings Ratio: A popular measure of relative stock value and investor expectations of future earnings growth. Calculated by dividing the current month-end stock price by the latest 12-months reported earnings per share.

R

Real Estate Target: 7/1/13-Present: Open End Diversified Core Equity (ODCE) Index + 40 basis points. Inception-6/30/13: NCREIF Property Index (NPI) minus 25 basis points.

Recession: A decline in total physical output that lasts six consecutive months or more. A growth recession is marked by a six-month or longer slowdown (but no decline) in the growth rate.

Reflation: A fiscal or monetary policy that is designed to expand a country's output and curb the effects of deflation. Reflation is usually accomplished by increasing the money supply or by reducing taxes.

Return Correlation: The relationship between the returns on investments. A negative return correlation between two investments means that most of the time when investment A has a positive return, investment B will have a negative return.

Return on Equity: A measurement of return on stockholders' investment. Calculated by dividing the most recently reported fiscal year-end Net Income by the most recently reported fiscal year-end Common Equity (Common Stock outstanding + Capital Surplus + Retained Earnings).

Risk-vs.-Return: Risk measures the probability of financial loss. Investors often compare risk, as measured by standard deviation of returns, to historical or expected return when making investment decisions. Typically, investors demand higher returns for investments they consider more risky.

ROI: Return on investment. For limited partnership investments the IRR serves as the measure of return on investment.

Rule 144: An SEC rule permitting the sale of restricted investment letter stock by affiliated persons in small amounts without first registering the stock with the SEC. It is designed to prohibit the creation of public markets in securities of issuers for which adequate current information is not available to the public. (The rule permits the public sale in ordinary trading transactions of limited amounts of securities owned by persons controlling, controlled by, or under common control with the issuer and by persons who have acquired restricted securities of the issuer).

Russell 3000 Index: The Russell 3000 Index measures the performance of the largest 3000 U.S. companies representing approximately 98% of the investable U.S. equity market.

S

Secular Trend: A long-term movement in the price of a security or of interest rates, either upward or downward, which is not related to seasonal or technical factors.

Securitized Custom Index: Barclays Securitized Index + 400 bps.

Stages of Venture Capital Investing: _Seed Capital_: Financing provided to enable an entrepreneur to establish a business plan and undertake market research etc., to the point where they can seek first round financing to establish a business.
First Round and Early Stage: Financing a company that will have a net cash outflow, maybe with only a prototype product. It will still need to establish prices, employ staff and develop the product with often little or no sales.
Middle Stage or 'Market Entry: Financing a growing company whose income may still be below expenses but sales will be generating revenue. Equity finance will normally be required to enlarge the working capital base and to extend marketing activity.
Late Stage or _Development Capital_: Equity capital required for major growth, acquisition, product development, etc.
Mezzanine and Bridge: Financing the equity capital required by rapidly expanding companies who hold off from a public offering until the public marketplace is prime.

Standard Deviation: Statistical measure of the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. In portfolio theory, the past performance of securities is used to determine the range of possible future performances and a probability is attached to each performance. The standard deviation of performance can then be calculated for each security and for the portfolio as a whole. The greater the degree of dispersion, the greater the risk.

T

Time-Weighted Rate of Return: The "time-weighted" rate of return is the investment performance (return), measured from beginning market value, of a unit of assets held continuously for the entire time period measured. This rate provides a standard for comparing the performance of different funds in which the size and timing of contributions and payouts could vary considerably. Consequently, the time-weighted rate of return is a mathematical measure that eliminates the effects of fund cash flows.

TIPS: Inflation-indexed securities issued by the U.S. Treasury Department (commonly known as Treasury Inflation-Protection Securities). TIPS have been issued in the U.S. since January 1997. These securities adjust both their principal and coupon payments upward with any rise in inflation. Like all Treasuries, they enjoy the full guarantee of the U.S. government.

Total Fund Policy Benchmark: Uses the fund's Board approved target asset allocations.

Total Return: The aggregate increase or decrease in the value of the portfolio resulting from the net appreciation or depreciation of the principal of the fund, plus or minus the net income or loss experienced by the fund during the period.

Tracking Error: Tracking error is the volatility of a manager's excess return. It is measured by subtracting the benchmark return from the manager's return and calculating the standard deviation.

Treasury Bill: A non-interest bearing obligation, fully guaranteed by the U.S. Government, payable to the bearer. Bills are sold on a discount basis so that the income is the difference between the purchase price and the face value.

Treasury Bond: A coupon security of the U.S. Treasury which may be issued with any maturity but generally carries a maturity of more than 10 years.

Treasury Note: A coupon security issued by the U.S. Treasury with a maturity of not less than one year not more than 10 years.

U

Universe Data Source: State Street utilizing Wilshire Associates' TUCS Universe Data.

V

Vintage Year: The Vintage Year benchmark approach assumes that there is a definite and unique life cycle to a group of venture capital funds formed in the same year. Venture Economics has maintained that a fund can be compared fairly on an interim basis only to other funds in its vintage year. A fund's vintage year is defined as the year of first investment or capital call. In some cases funds that were formed in the last three months of the year but did not have a capital call until the next year or those funds that made their first investment more than six months after the closing are categorized by the date of their first investment.

W

Warrant: An option to purchase stock in a corporation, typically over a specified period of time and under preset conditions.

Western Opportunistic Custom: 60% BofA Merill Lynch US Floating Rate Home Equity Loan ABS Index & 40% Barclays US Credit 1-3 Credit Index.

Y

Years to Maturity: Market value weighted average time to stated maturity for all securities held in the portfolio.

Yield: The rate of annual income return on an investment expressed as a percentage. Income yield is obtained by dividing the current dollar income by the current market price of the security.

Yield Curve: A graphic depiction of interest rates across all maturities, 0-30 years. The shape of the curve is largely influenced by the Federal Reserve Policy.

Yield to Maturity: The return a bond earns on the price at which it was purchased if it were held to maturity. It assumes that coupon payments can be reinvested at the yield to maturity.

Yield to Worst: The yield resulting from the most adverse set of circumstances from the investor's point of view; the lowest of all possible yields.

SOURCE: www.nasdaq.com & www.pimco.com

Last updated: 10/16/18

Total Plan Analytics Board Report

Prepared for LACERA

30 September 2018

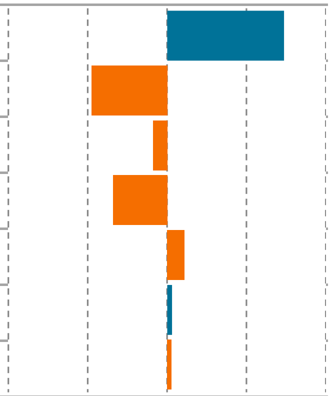
Total Plan Asset Allocation & Analytics

LACERA

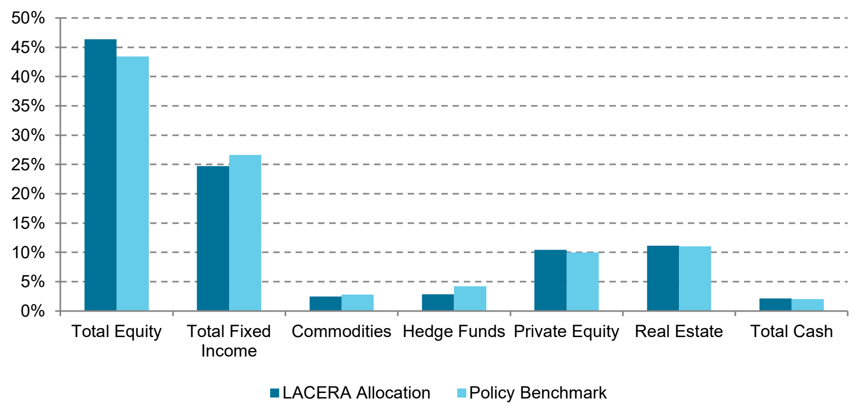
30-Sep-2018
Reporting Currency: USD

Total Plan Allocation vs Policy Benchmark

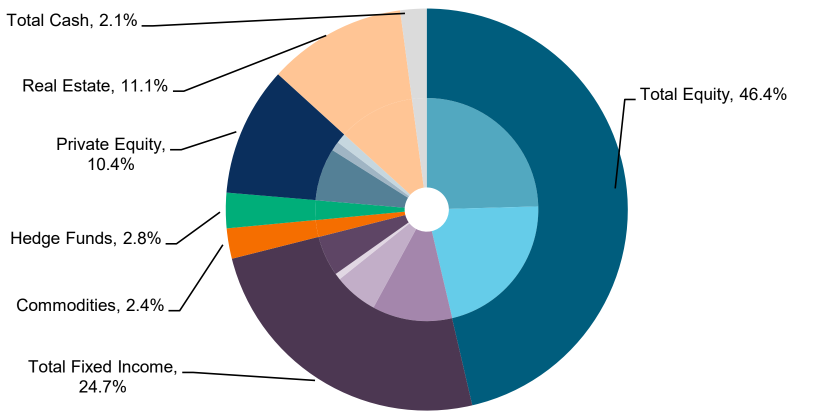
	Market Value (Millions)	Allocation (%)	Policy Benchmark (%)	Benchmark	Relative (%)
Total Equity	26,511	46.4%	43.4%	Equity Composite	2.9%
Total Fixed Income	14,126	24.7%	26.6%	Barclays US Universal	-1.9%
Commodities	1,396	2.4%	2.8%	Bloomberg Commodity Index	-0.4%
Hedge Funds (Proxy)	1,625	2.8%	4.2%	Hedge Fund Composite	-1.4%
Private Equity (Proxy)	5,949	10.4%	10.0%	Private Equity Composite	0.4%
Real Estate (Proxy)	6,363	11.1%	11.0%	Real Estate Composite	0.1%
Total Cash	1,213	2.1%	2.0%	Citigroup 6M Treas. Bill	0.1%
TOTAL	**57,183**	**100.0%**	**100.0%**		**0.0%**



Total Plan Allocation vs Policy Benchmark



Asset Class Detail



Total Plan Analytics, Volatility & Tracking Error

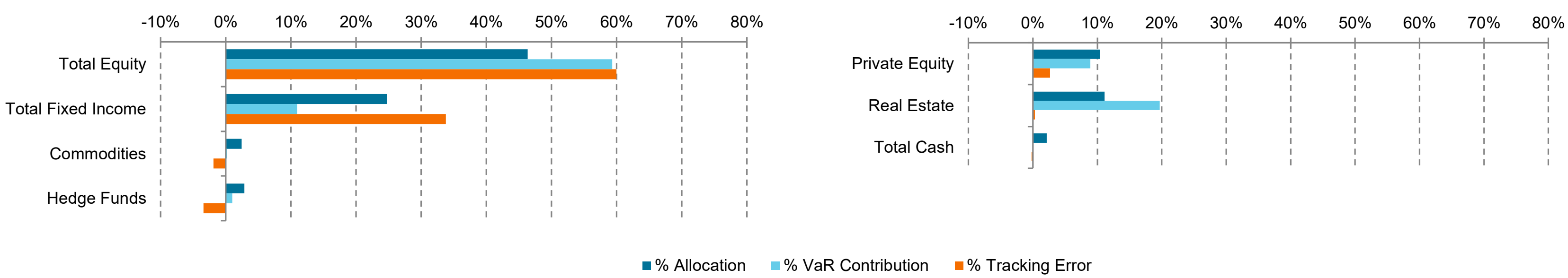
LACERA

30-Sep-2018
Reporting Currency: USD

Total Plan Risk Measures

	Benchmark	Market Value (Millions)	Allocation (%)	Volatility (% per annum)[1]	Standalone VaR (% of MV)[2]	Total VaR Contribution (% of Total MV)[3]	Tracking Error Contribution (% of Total MV)[4]
Total Equity	Equity Composite	26,511	46.4%	10.87%	17.95%	6.56%	0.43%
Total Fixed Income	Barclays US Universal	14,126	24.7%	2.36%	3.86%	1.21%	0.24%
Commodities	Bloomberg Commodity Index	1,396	2.4%	13.66%	26.08%	0.02%	-0.01%
Hedge Funds (Proxy)	Hedge Fund Composite	1,625	2.8%	3.47%	6.70%	0.11%	-0.02%
Private Equity (Proxy)	Private Equity Composite	5,949	10.4%	6.68%	11.45%	0.98%	0.02%
Real Estate (Proxy)	Real Estate Composite	6,363	11.1%	11.14%	17.71%	2.17%	0.00%
Total Cash	Citigroup 6M Treas. Bill	1,213	2.1%	0.12%	0.27%	0.01%	0.00%
TOTAL		**57,183**	**100.0%**	**6.69%**	**11.05%**	**11.05%**	***0.71%***
	Weighted Average Benchmark[5]			*6.59%*	*10.87%*	*10.87%*	
Benchmark	**Policy Benchmark**			**6.26%**	**10.25%**	**10.25%**	**0.65%**
						Aggregate Benchmark Structural Risk[6]	**-0.06%**

Dollar vs Risk Allocation



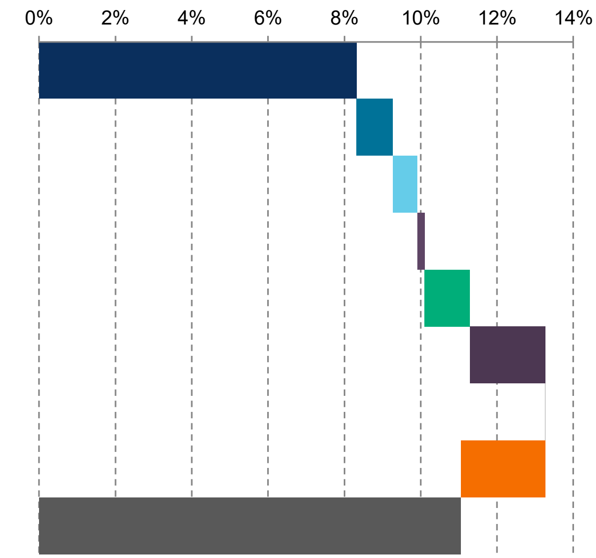
1: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each asset class.
2: Standalone VaR is the annualized Value-at-Risk at the 95th percentile expressed as a percentage of the market value of each asset class.
3: Total VaR Contribution is calculated using historic VaR at 95th percentile, 1 month horizon, annualized excluding the mean, and expressed as a percentage of the total plan assets.
4: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of the total plan assets.
5: Weighted average benchmark is the market value weighted average of the asset class benchmarks.
6: Aggregate Benchmark Structural Risk = [Tracking Error of the Total Plan to the policy benchmark] - [Tracking Error of the Total Plan to the weighted average of asset class benchmarks]

Total Plan Analytics, Volatility & Tracking Error
LACERA

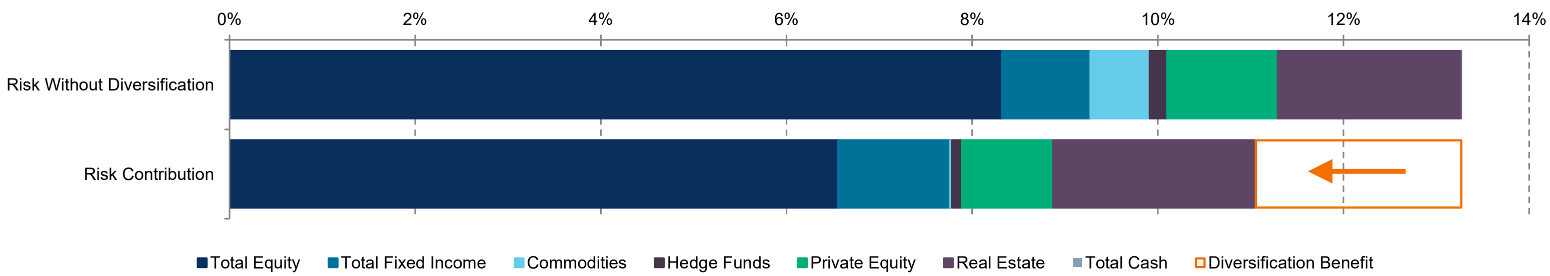
30-Sep-2018
Reporting Currency: USD

Total Plan Risk & Diversification

	Allocation (%)	Weighted Standalone VaR (% of Total MV)[1] Monthly	Annual
Total Equity	46.4%	2.4%	8.3%
Total Fixed Income	24.7%	0.3%	1.0%
Commodities	2.4%	0.2%	0.6%
Hedge Funds (Proxy)	2.8%	0.1%	0.2%
Private Equity (Proxy)	10.4%	0.3%	1.2%
Real Estate (Proxy)	11.1%	0.6%	2.0%
Total Cash	2.1%	0.0%	0.0%
Diversification Benefit[2]	-	-0.6%	-2.2%
TOTAL	**100.0%**	**3.2%**	**11.1%**



Risk Contribution and Diversification

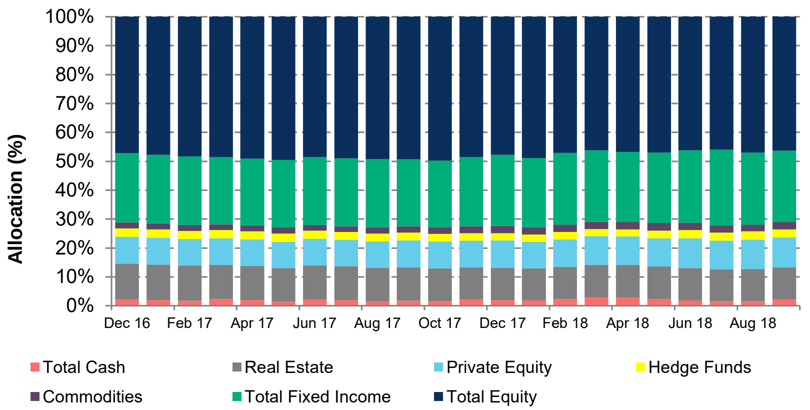


1: Standalone risk (historical VaR 95) of each asset class is weighted and expressed as a percent of total plan assets, i.e. contribution to risk without diversification benefit.
2: Diversification benefit is calculated as the sum of the standalone VaR at 95th percentile for each asset class less the total plan VaR.

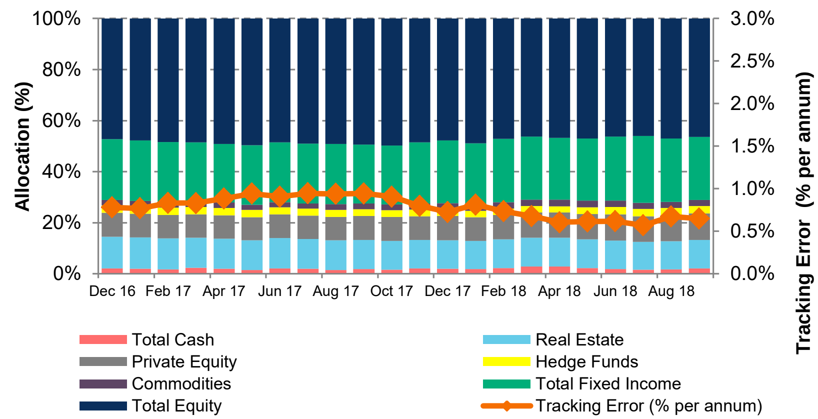
Total Plan Analytics, Volatility & Tracking Error
LACERA

30-Sep-2018
Reporting Currency: USD

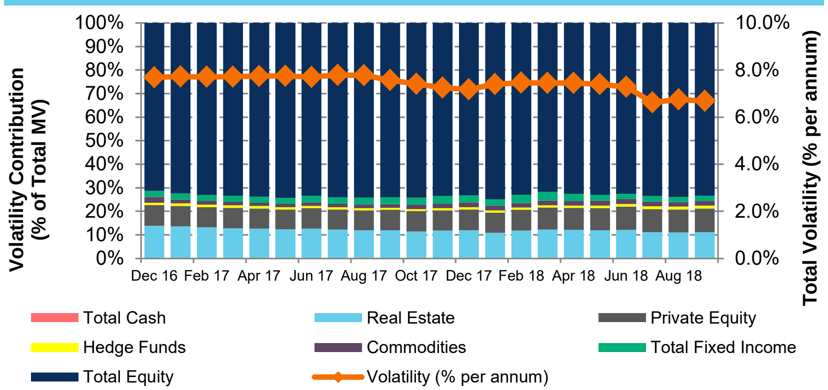
Total Plan Allocation Trend



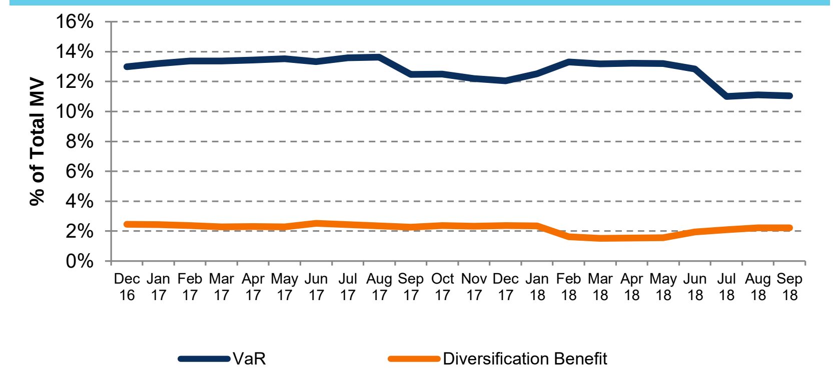
Total Plan Allocation & Tracking Error Trend[1]



Total Plan Volatility & Contribution to Volatility Trend[2]



Total Plan Risk & Diversification Trend[3]



1: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of the total plan assets.
2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each asset class.
3: Diversification benefit is calculated as the sum of the standalone VaR at 95th percentile for each asset class less the total plan VaR.

Total Plan Stress Testing

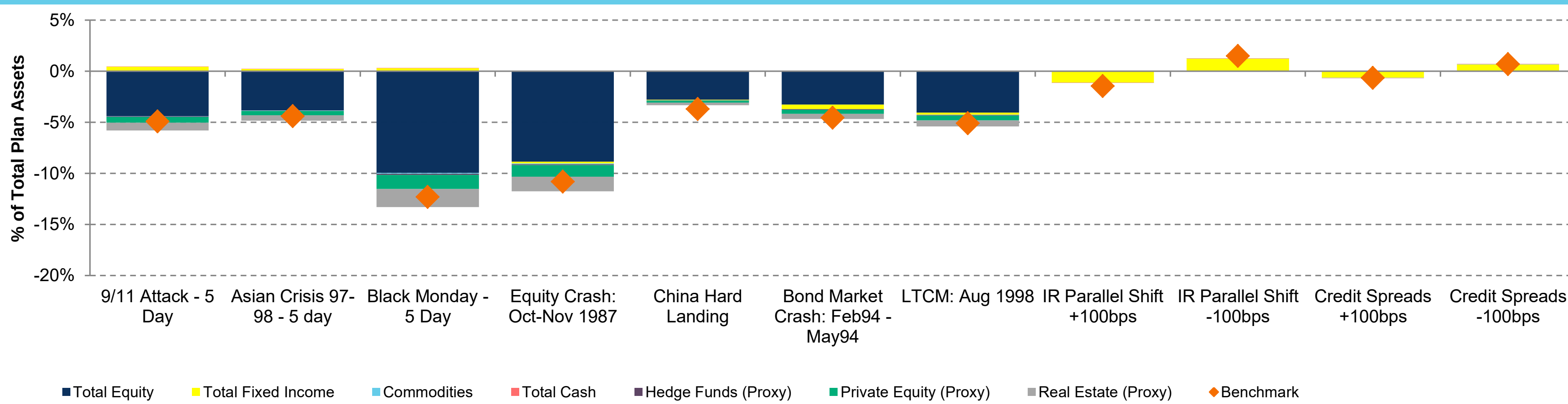
LACERA

30-Sep-2018
Reporting Currency: USD

Stress Test - % of Total Plan Assets

	Allocation (%)	9/11 Attack - 5 Day	Asian Crisis 97-98 - 5 day	Black Monday - 5 Day	Equity Crash: Oct-Nov 1987	China Hard Landing	Bond Market Crash: Feb94 - May94	LTCM: Aug 1998	IR Parallel Shift +100bps	IR Parallel Shift -100bps	Credit Spreads +100bps	Credit Spreads -100bps
Total Equity	46.4%	-4.4%	-3.8%	-10.0%	-8.9%	-2.8%	-3.3%	-4.0%	0.0%	-0.0%	0.0%	0.0%
Total Fixed Income	24.7%	0.4%	0.2%	0.3%	-0.2%	-0.0%	-0.4%	-0.2%	-1.1%	1.2%	-0.6%	0.7%
Commodities	2.4%	-0.0%	-0.0%	-0.1%	-0.1%	-0.0%	-0.0%	-0.0%	-0.0%	0.0%	-0.0%	0.0%
Hedge Funds (Proxy)	2.8%	-0.1%	-0.0%	-0.1%	-0.1%	-0.0%	-0.0%	-0.0%	0.0%	-0.0%	0.0%	0.0%
Private Equity (Proxy)	10.4%	-0.6%	-0.4%	-1.4%	-1.1%	-0.2%	-0.4%	-0.5%	0.0%	0.0%	0.0%	0.0%
Real Estate (Proxy)	11.1%	-0.8%	-0.5%	-1.8%	-1.4%	-0.3%	-0.5%	-0.6%	0.0%	0.0%	0.0%	0.0%
Total Cash	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.0%	0.0%	-0.0%	0.0%	-0.0%	0.0%
TOTAL		**-5.4%**	**-4.6%**	**-13.0%**	**-11.8%**	**-3.3%**	**-4.7%**	**-5.4%**	**-1.1%**	**1.2%**	**-0.6%**	**0.7%**
Benchmark		-4.9%	-4.4%	-12.3%	-10.8%	-3.7%	-4.5%	-5.1%	-1.5%	1.5%	-0.6%	0.7%

Stress Test Chart



Public Market (Equities & Fixed Income) Analytics By Top 10 Country & Sector

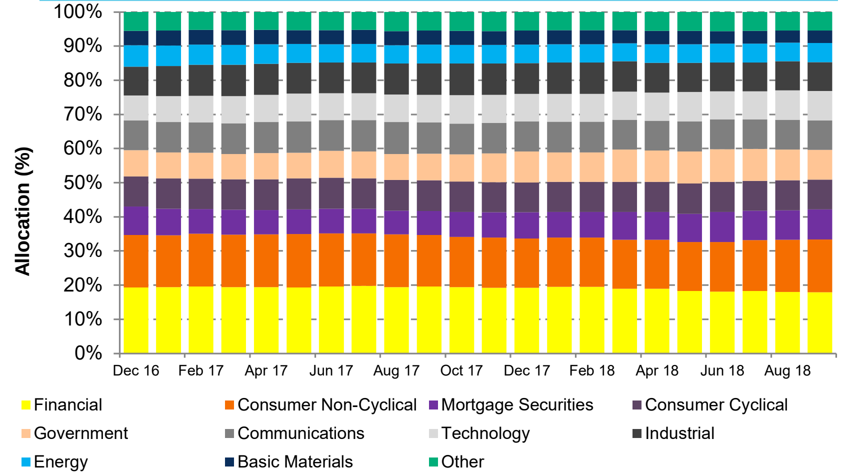
LACERA

30-Sep-2018
Reporting Currency: USD

Top 10 Sector Analysis

	Market Value (Millions)	Allocation (%)	Volatility (% per annum)[1]
Financial	7,031	17.9%	9.63%
Consumer Non-Cyclical	6,068	15.5%	8.42%
Mortgage Securities	3,435	8.8%	2.30%
Consumer Cyclical	3,432	8.7%	9.36%
Government	3,416	8.7%	3.97%
Communications	3,389	8.6%	10.01%
Technology	3,368	8.6%	12.70%
Industrial	3,321	8.5%	10.76%
Energy	2,199	5.6%	15.61%
Basic Materials	1,446	3.7%	16.64%
Other[2]	2,133	5.4%	-
TOTAL	**39,237**	**100.0%**	**7.36%**

Top 10 Sector Market Value Trend



Top 10 Country Analysis - Public Market Equities

	Market Value (Millions)	Allocation (%)	Volatility (% per annum)[1]
United States	13,661	53.1%	11.42%
Japan	2,016	7.8%	11.82%
United Kingdom	1,451	5.6%	13.07%
Canada	825	3.2%	15.75%
France	771	3.0%	14.53%
Germany	690	2.7%	14.60%
Switzerland	657	2.6%	11.25%
China	625	2.4%	21.69%
Australia	512	2.0%	15.81%
Netherlands	474	1.8%	13.95%
Other[2]	4,051	15.7%	-
TOTAL	**25,734**	**100.0%**	**10.87%**

Top 10 Country Analysis - Public Market Fixed Income

	Market Value (Millions)	Allocation (%)	Volatility (% per annum)[1]
United States	11,910	88.2%	2.40%
United Kingdom	259	1.9%	2.17%
Canada	157	1.2%	3.28%
Netherlands	146	1.1%	4.44%
Mexico	131	1.0%	9.46%
Cayman Islands	115	0.8%	1.13%
Luxembourg	98	0.7%	3.26%
France	75	0.6%	2.67%
Japan	62	0.5%	1.72%
Ireland	46	0.3%	2.31%
Other[2]	504	3.7%	-
TOTAL	**13,504**	**100.0%**	**2.36%**

1: Volatility of each category is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each category.
2: Other category contains remaining categories if displaying top 10, excluding securities that cannot be modeled.

Detailed Analytics Board Report

Prepared for LACERA

30 September 2018

Total Fixed Income

Fixed Income Analytics, Volatility & Tracking Error by Manager Category

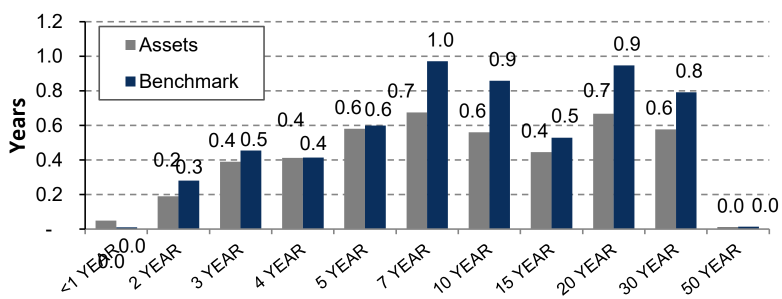
LACERA

30-Sep-2018
Reporting Currency: USD

Fixed Income Analytics

	Benchmark	Market Value (Millions)	Allocation (%)	Duration (Years)	Expected Yield (% per annum)	Credit Spread (OAS) (%)	Volatility (% per annum)[1]	Standalone VaR (% of MV)[2]	Tracking Error (% per annum)[3]
Core Managers		6,629	46.9%	5.80	3.59%	0.42%	2.90%	5.04%	0.27%
	Barclays US Aggregate			*6.11*	*3.61%*	*0.25%*	*3.13%*	*5.41%*	
Core Plus Managers		3,622	25.6%	5.65	3.61%	0.92%	3.06%	4.77%	1.03%
	Barclays US Aggregate			*6.11*	*3.61%*	*0.25%*	*3.13%*	*5.41%*	
High Yield Managers		534	3.8%	3.63	6.00%	2.45%	3.20%	5.91%	0.82%
	Barclays US High Yield Ba to B			*4.20*	*6.01%*	*2.45%*	*3.30%*	*6.32%*	
Opportunistic Managers		3,340	23.6%	1.75	4.07%	3.40%	2.57%	4.16%	1.20%
	Barclays US High Yield Ba to B			*4.20*	*6.01%*	*2.45%*	*3.30%*	*6.32%*	
TOTAL		**14,126**	**100.0%**	**4.72**	**3.80%**	**1.25%**	**2.36%**	**3.86%**	**0.40%**
	Weighted Average Benchmark[4]			*5.59*	*4.26%*	*0.85%*	*2.61%*	*4.47%*	
Benchmark	**Barclays US Universal**			**5.92**	**3.88%**	**1.25%**	**2.91%**	**4.93%**	**0.99%**
							Aggregate Benchmark Structural Risk[5]		**0.58%**

Fixed Income Contribution to Duration By Period



Fixed Income Correlations

	Core Managers	Core Plus Managers	High Yield Managers	Opportunistic Managers	TOTAL
Core Managers	1.00	0.96	0.21	0.06	0.92
Core Plus Managers	0.96	1.00	0.45	0.31	0.99
High Yield Managers	0.21	0.45	1.00	0.90	0.55
Opportunistic Managers	0.06	0.31	0.90	1.00	0.44
TOTAL	0.92	0.99	0.55	0.44	1.00

1: Volatility at each subcomposite is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each subcomposite.
2: Standalone VaR is calculated using historic Value-at-Risk at 95th percentile, 1 month horizon, annualized, and expressed as a percentage of the market value of each subcomposite, i.e. row.
3: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of the market value of each subcomposite.
4: Weighted average benchmark is the market value weighted average of the manager category benchmarks.
5: Aggregate Benchmark Structural Risk = [Tracking Error of Total Fixed Income to the Barclays US Universal] - [Tracking Error of Total Fixed Income to the weighted average of manager category benchmarks]

Total Equity

Total Equity Analytics, Volatility & Tracking Error by Manager Category

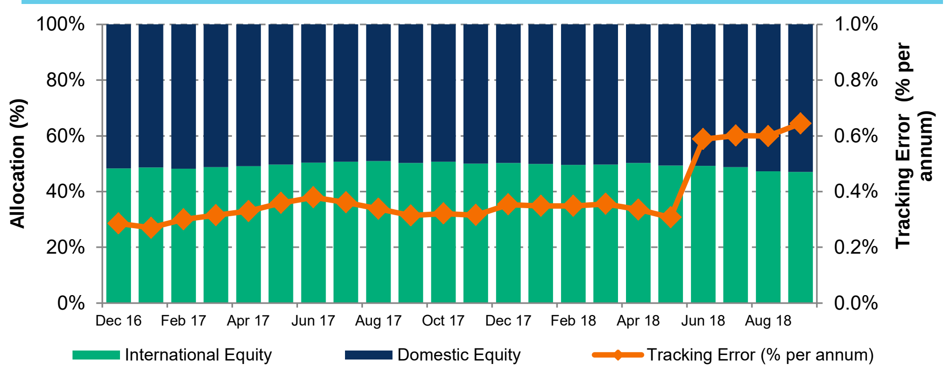
LACERA

30-Sep-2018
Reporting Currency: USD

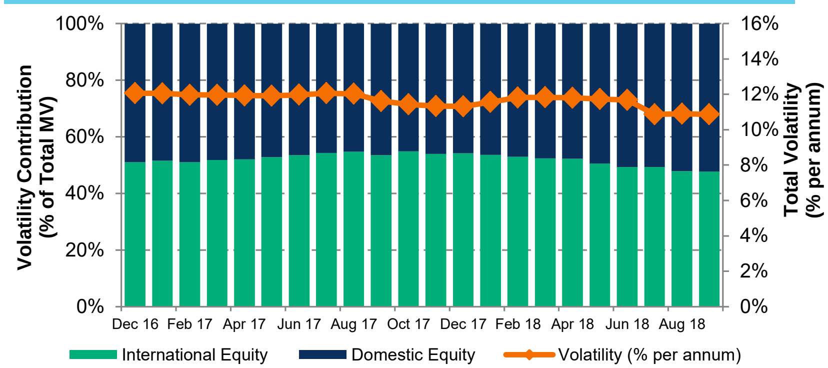
Total Equity Analytics excluding Currency Hedge

	Benchmark	Market Value (Millions)	Allocation (%)	Beta S&P 500[1]	Beta Russell 3000[1]	Beta MSCI ACWIxUS[1]	Volatility (% per annum)[2]	Standalone VaR (% of MV)[3]	Tracking Error (% per annum)[4]
Domestic Equity	Russell 3000	**14,030**	**53.0%**	**1.07**	**1.06**	**0.71**	**11.23%**	**17.34%**	**0.95%**
Moderate/High Risk		1,955	7.4%	1.20	1.23	0.77	14.38%	19.91%	
Passive		10,561	39.9%	1.05	1.03	0.69	10.92%	17.05%	
Total Low Risk		1,514	5.7%	1.06	1.04	0.71	11.15%	17.17%	
International Equity	MSCI ACWI IMI exUS	**12,444**	**47.0%**	**0.92**	**0.89**	**1.00**	**12.08%**	**19.22%**	**0.81%**
Passive		7,204	27.2%	0.92	0.89	1.00	12.11%	19.18%	
Total Active Emerging Markets		1,615	6.1%	1.01	0.97	1.15	15.21%	22.16%	
Total Active Non-U.S.		1,283	4.8%	0.89	0.87	0.94	11.67%	17.99%	
Total Active Regional		2,342	8.8%	0.88	0.86	0.92	11.44%	20.32%	
TOTAL[5]		**26,474**	**100.0%**	**1.00**	**1.00**	**1.00**	**10.89%**	**17.98%**	**0.64%**

Total Equity Allocation & Tracking Error Trend



Total Equity Volatility & Contribution to Volatility Trend



1: Ex-ante beta from truView®
2: Volatility at the subcomposite is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each subcomposite.
3: Standalone VaR is calculated using historic Value-at-Risk at 95th percentile, 1 month horizon, annualized, and expressed as a percentage of the market value of each subcomposite, i.e. row.
4: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of either the market value of each equity strategy or Total Equity assets.
5: Total Equity Tracking Error is calculated using the market value weighted average of the Domestic Equity and International Equity benchmarks.

Total Equity Analytics, Volatility & Tracking Error by Manager Category

LACERA

30-Sep-2018

Reporting Currency: USD

Domestic Equity Analytics

	Benchmark	Market Value (Millions)	Allocation (%)	Beta S&P 500[1]	Beta Russell 3000[1]	Beta MSCI ACWIxUS[1]	Volatility (% per annum)[2]	Standalone VaR (% of MV)[3]	Tracking Error (% per annum)[4]
Moderate/High Risk	Weighted Average Manager Benchmarks	1,955	13.9%	1.20	1.23	0.77	14.38%	19.91%	2.12%
Passive	Weighted Average Manager Benchmarks	10,561	75.3%	1.04	1.02	0.68	10.92%	17.05%	0.03%
Total Low Risk	Weighted Average Manager Benchmarks	1,514	10.8%	1.06	1.04	0.71	11.15%	17.17%	1.95%
TOTAL	**Weighted Average Manager Benchmarks**	**14,030**	**100.0%**	**1.06**	**1.05**	**0.70**	**11.23%**	**17.34%**	**0.40%**
Benchmark	**Russell 3000**			**1.05**	**-**	**0.69**	**10.91%**	**17.04%**	**0.95%**
								Aggregate Benchmark Structural Risk[5]	**0.55%**

International Equity Analytics excluding Currency Hedge

	Benchmark	Market Value (Millions)	Allocation (%)	Beta S&P 500[1]	Beta Russell 3000[1]	Beta MSCI ACWIxUS[1]	Volatility (% per annum)[2]	Standalone VaR (% of MV)[3]	Tracking Error (% per annum)[4]
Total Active Emerging Markets	Weighted Average Manager Benchmarks	1,615	13.0%	0.99	0.95	1.14	15.21%	22.16%	2.21%
Total Active Non-U.S.	Weighted Average Manager Benchmarks	1,283	10.3%	0.89	0.87	0.94	11.67%	17.99%	2.42%
Total Active Regional	Weighted Average Manager Benchmarks	2,342	18.8%	0.88	0.86	0.92	11.44%	20.32%	2.00%
Passive	Weighted Average Manager Benchmarks	7,204	57.9%	0.91	0.89	0.99	12.11%	19.18%	0.06%
TOTAL	**Weighted Average Manager Benchmarks**	**12,444**	**100.0%**	**0.91**	**0.89**	**0.99**	**12.08%**	**19.22%**	**0.51%**
Benchmark	**MSCI ACWI ex US IMI**			**0.92**	**0.90**	**-**	**12.26%**	**19.14%**	**0.81%**
								Aggregate Benchmark Structural Risk[5]	**0.30%**

1: Ex-ante beta from truView®

2: Volatility at the subcomposite is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each subcomposite.

3: Standalone VaR is calculated using historic Value-at-Risk at 95th percentile, 1 month horizon, annualized, and expressed as a percentage of the market value of each subcomposite, i.e. row.

4: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of either the market value of each equity strategy or total equity assets.

5: Aggregate Benchmark Structural Risk = [Tracking Error of Domestic/International Equity to the Russell 3000/MSCI ACWI ex US IMI] - [Tracking Error of Domestic/International Equity to the weighted average of manager benchmarks]

Commodities

Commodity Analytics, Volatility & Tracking Error

LACERA

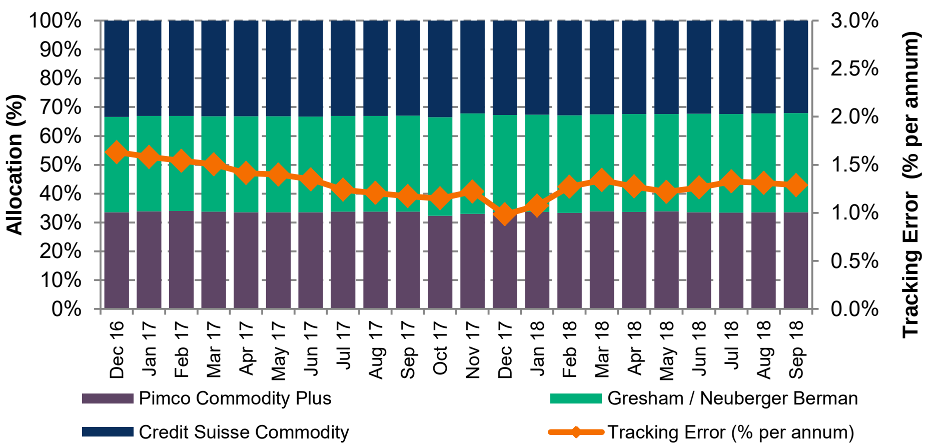
30-Sep-2018

Reporting Currency: USD

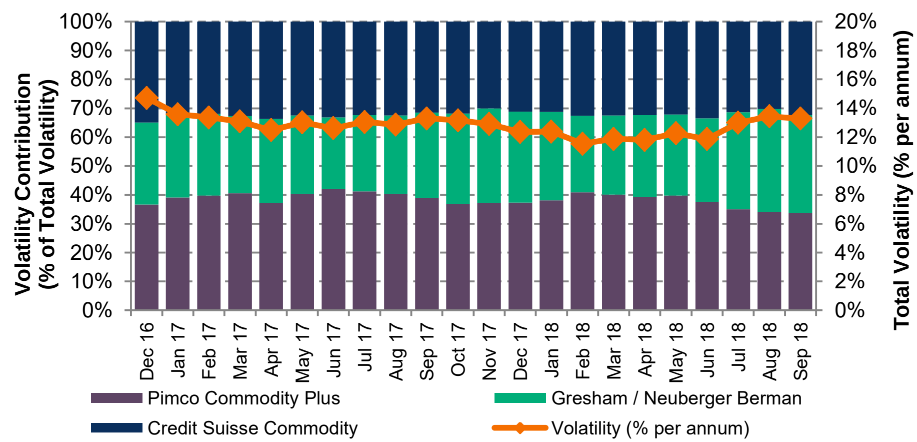
Commodity Analysis

	Market Value (Millions)	Allocation (%)	Net[1]	Beta BCOM	Volatility (% per annum)[2]	Standalone VaR (% of MV)[3]	Tracking Error (% per annum)[4]
Credit Suisse Commodity	448	32.1%	99.8%	1.11	13.46%	23.81%	0.45%
Gresham / Neuberger Berman	481	34.4%	99.8%	1.16	14.34%	26.54%	2.79%
Pimco Commodity Plus	467	33.5%	99.7%	1.02	12.42%	27.16%	3.10%
TOTAL	**1,396**	**100.0%**	**99.7%**	**1.09**	**13.28%**	**25.27%**	**1.29%**
Benchmark			*100.0%*		*13.20%*	*23.23%*	

Commodity Allocation & Tracking Error Trend



Commodity Volatility & Contribution to Volatility Trend



1: Net exposure excludes basis swaps which generally have no net exposure to the underlying commodities

2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each manager or total Commodity assets.

3: VaR is calculated using historical Value-at-Risk at 95th percentile, 1 month horizonn annualized and expressed as a percentage of each manager or total Commodity assets

4: Tracking Error is calculated using relative parametric VaR at 84th percentile (assets less benchmark), annualized and expressed as a percentage of either the market value of each manager or

Private Equity, Real Estate & Hedge Funds

Private Equity Analytics & Volatility by Strategy

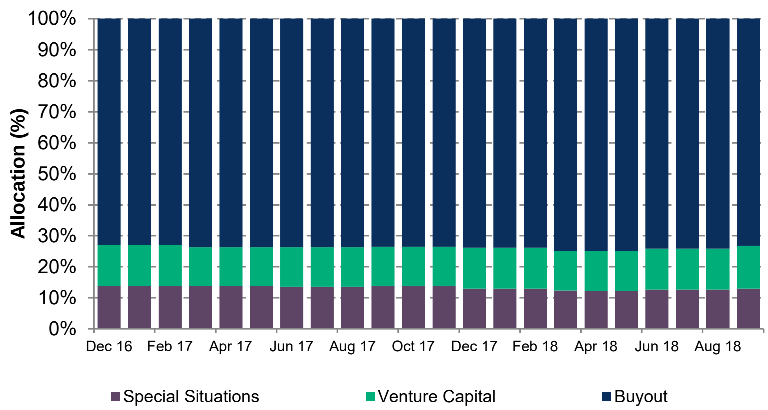
LACERA

30-Sep-2018
Reporting Currency: USD

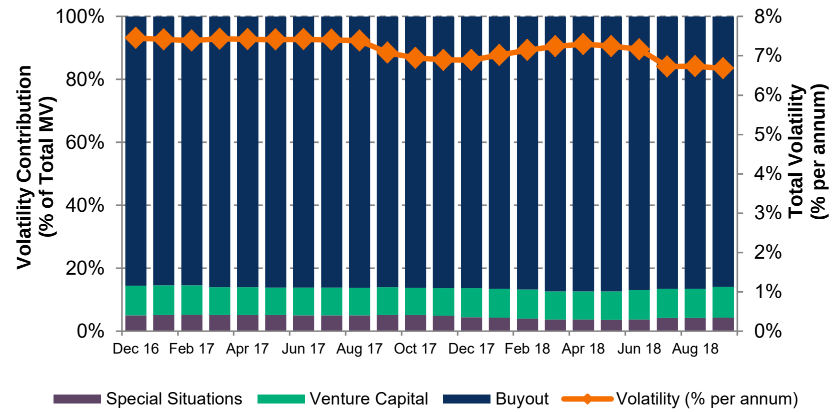
Private Equity Analytics

	Market Value (Millions)	Allocation (%)	Beta S&P 500[1]	Beta Russell 3000[1]	Beta MSCI ACWIxUS[1]	Volatility (% per annum)[2]
Buyout	4,352	73.2%	0.72	0.62	0.70	7.86%
Special Situations	775	13.0%	0.17	0.17	0.17	3.65%
Venture Capital	822	13.8%	0.49	0.32	0.48	5.04%
TOTAL	**5,949**	**100.0%**	**0.61**	**0.52**	**0.60**	**6.68%**

Private Equity Allocation Trend



Private Equity Volatility & Contribution to Volatility Trend



1: Ex-ante beta from truView®
2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each private equity strategy.

Real Estate Analytics & Volatility

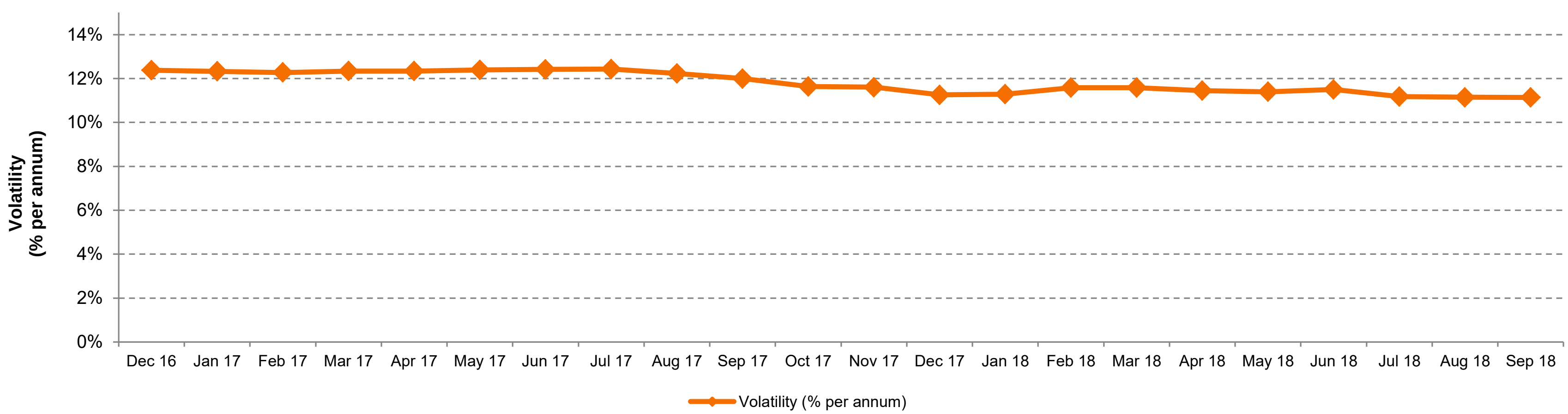
LACERA

30-Sep-2018
Reporting Currency: USD

Real Estate Analytics

	Market Value (Millions)	Beta S&P 500[1]	Beta Russell 3000[1]	Beta MSCI ACWIxUS[1]	Volatility (% per annum)[2]
TOTAL	6,363	0.51	0.30	0.50	11.14%

Real Estate Volatility Trend



1: Ex-ante beta from truView®
2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of the real estate allocation.

Hedge Funds Analytics & Volatility by Strategy

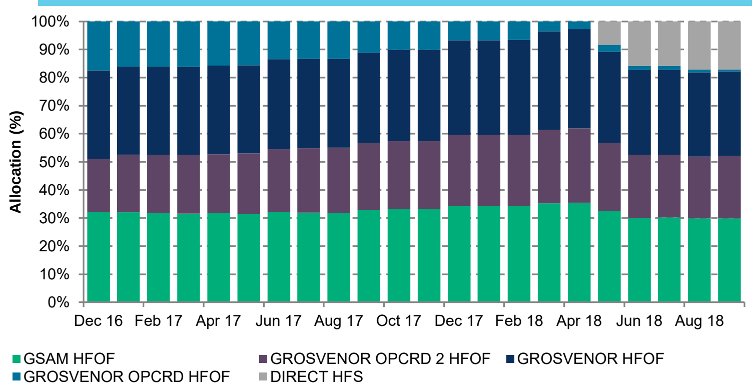
LACERA

30-Sep-2018
Reporting Currency: USD

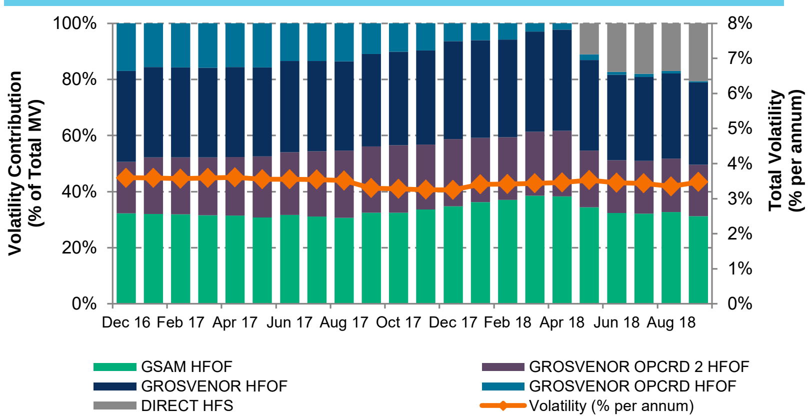
Hedge Funds Analytics

	Market Value (Millions)	Allocation (%)	Beta MSCI ACWI[1]	Beta Barclays US HY Ba to B[1]	Beta BCOM[1]	Volatility (% per annum)[2]
GROSVENOR HFOF	490	30.2%	0.27	0.47	0.11	3.41%
GROSVENOR OPCRD 2 HFOF	361	22.2%	0.21	0.50	0.14	3.37%
GROSVENOR OPCRD HFOF	10	0.6%	0.21	0.49	0.14	3.33%
GSAM HFOF	485	29.9%	0.29	0.43	0.08	3.84%
DIRECT HFS	278	17.1%	0.38	0.42	0.13	4.75%
TOTAL	**1,625**	**100.0%**	**0.28**	**0.46**	**0.11**	**3.47%**

Hedge Fund Allocation Trend



Hedge Fund Volatility & Contribution to Volatility Trend



1: Ex-ante beta from truView®
2: Volatility at the asset class level is calculated using parametric VaR at 84th percentile, annualized and expressed as a percentage of the market value of each hedge fund.

Glossary

Appendix - Glossary

LACERA

30-Sep-2018

Reporting Currency: USD

Terms and Definitions

Analytics

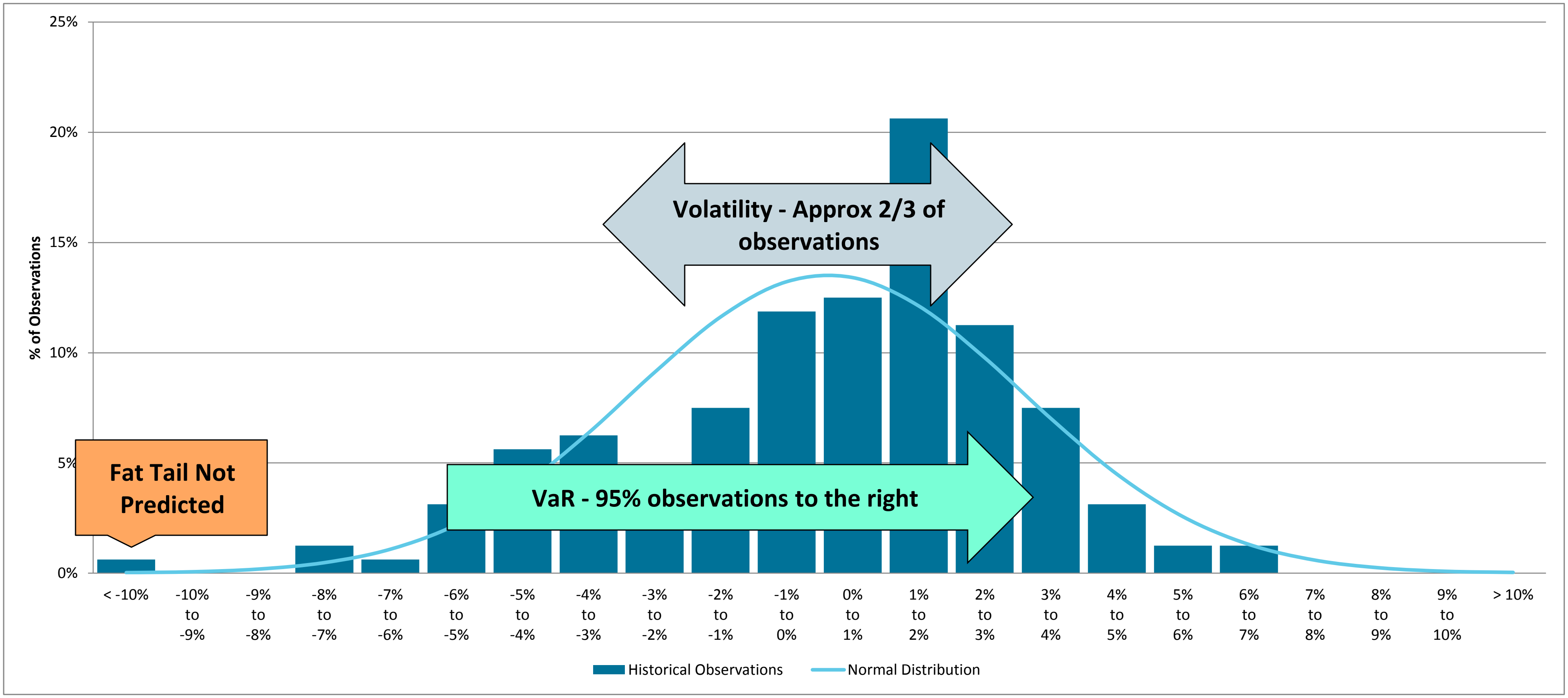
Value-at-Risk 95% (VaR)	Value-at-risk or VaR quantifies the potential loss in a portfolio at a certain level of confidence. VaR 95th percentile means there is a 5% chance of losing more than X%. Alternatively, it can be expressed as there is a 1 in 20 chance of losing more than X% in the next month (or year if it is an annual measure).
Volatility	Volatility is another measure quantifying the potential variability in a portfolio's asset value. Volatility means there is a 1 in 3 chance the portfolio will change in value by +/- X% in 1 year. Alternatively, it can be expressed that 1 year in 3 years, the portfolio will change in value by +/- X% per annum.
Tracking Error	An ex-ante (forward looking, or before the event) measure of how closely a portfolio follows the index to which it is compared. It measures the standard deviation of the difference between the portfolio and benchmark scenario returns.
Aggregate Benchmark Structural Risk	Aggregate Benchmark Structural Risk = [Tracking Error of the Total Plan to the policy benchmark] - [Tracking Error of the Total Plan to the weighted average of asset class benchmarks]. This can equally be applied to strategy level benchmarks, compared to the aggregate of the underlying managers' benchmarks.
Diversification Benefit	Diversification benefit is calculated as the sum of the standalone VaR at 95th percentile for each asset class/strategy less the total plan VaR, 1 month horizon, annualized. This measures the reduction of risk due to the benefits of diversification.
Duration	The sensitivity of a bond's price to changes in the interest rate usually measured in years. The higher the duration, the more sensitive the portfolio is to changes in interest rates.
Expected Yield	This measures the projected annual yield on the portfolio adjusting for option-adjusted probabilities.
Beta	Beta estimates the risk of the portfolio to a single market risk factor, i.e. systematic risk.

Stress Tests

9/11 Attack - 5 Day	Historic stress scenario observed from 9/17/2001 to 9/21/2001 where the US faced an act of terrorism. Trading was suspended on the NYSE and only resumed on 9/17/2001. The US stock market (S&P 500) declined 12%.
Asian Crisis 97-98 - 5 day	Historic stress scenario observed from 10/21/1997 to 10/27/1997 where the Bank of Thailand abandons the Baht's peg to the Dollar and the currency fell 18%. US equity markets fell 7% on the realization that the crisis was no longer localized. Asian currencies were the hardest struck, such as the South Korean Won fell 47.5% and Indonesian Rupiah fell 56%.
Black Monday - 5 Day	Historic stress scenario observed from 10/13/1987 to 10/19/1987 where the US stock market (DJIA) declined 31% with the world market following the decline.
Equity Crash: Oct-Nov 1987	Historic stress scenario observed from 10/5/1987 to 11/02/1987 where the world equity markets feared another Great Depression.
China Hard Landing	This is a macro-economic stress test, developed by State Street Global Exchange's[SM] research team. The stress test aims to estimate the potential impact, if China's economy and economic growth were to experience a "hard landing".
Bond Market Crash: Feb94 - May94	Historic stress scenario observed from 2/1/1994 to 9/15/1994 where the FED raised rates by approx. 250 basis points (against market expectations). 1994 became the year of the worst bond market loss in history. The Fed hiked interest rates in 1994 also precipitated a year-long correction in the stock market.
LTCM: Aug 1998	Historic stress scenario observed from 08/03/1998 to 08/31/1998 where LTCM's failure triggered a wide spread concern of potential catastrophic losses throughout the financial system.
IR Parallel Shift +100bps	All interest rate curves are shifted up 100bps, and the portfolio is revalued to assess the impact in dollar terms.
IR Parallel Shift -100bps	All interest rate curves are shifted down 100bps, and the portfolio is revalued to assess the impact in dollar terms.
Credit Spreads +100bps	All credit spread curves are shifted up 100bps, and the portfolio is revalued to assess the impact in dollar terms.
Credit Spreads -100bps	All credit spread curves are shifted down 100bps, and the portfolio is revalued to assess the impact in dollar terms.
FX +5%	All exchange rate curves are shifted up 5%, and the portfolio is revalued to assess the impact in dollar terms.
FX -5%	All exchange rate curves are shifted down 5%, and the portfolio is revalued to assess the impact in dollar terms.

VaR and Volatility

Example Illustration of VaR and Volatility
VaR = 5.6%
Volatility = 2.9%
Mean = 0.1%



FUND EVALUATION REPORT

Los Angeles County Employees Retirement Association

September 30, 2018

MEKETA INVESTMENT GROUP

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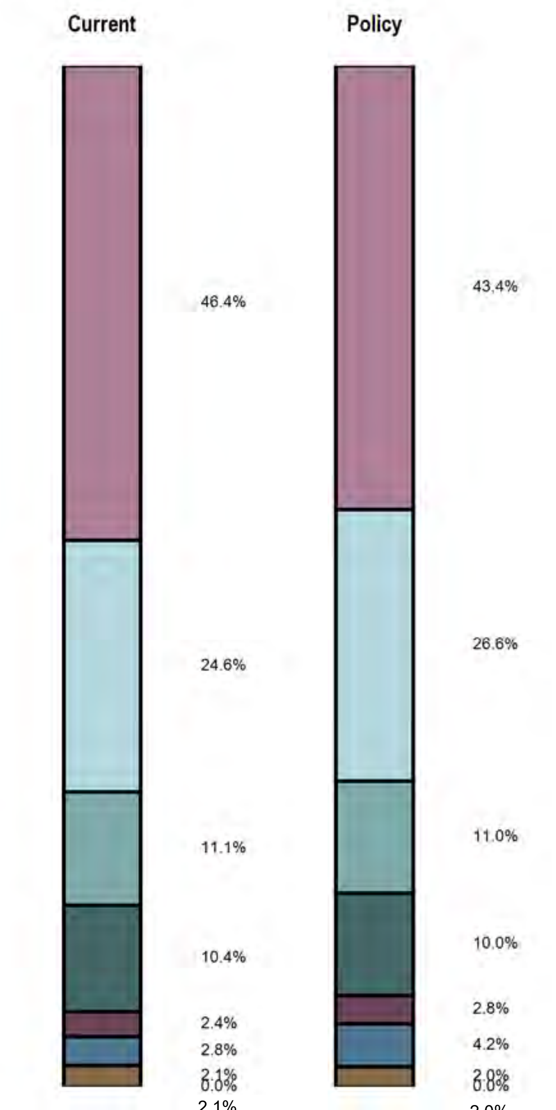
Los Angeles County Employees Retirement Association

As of September 30, 2018



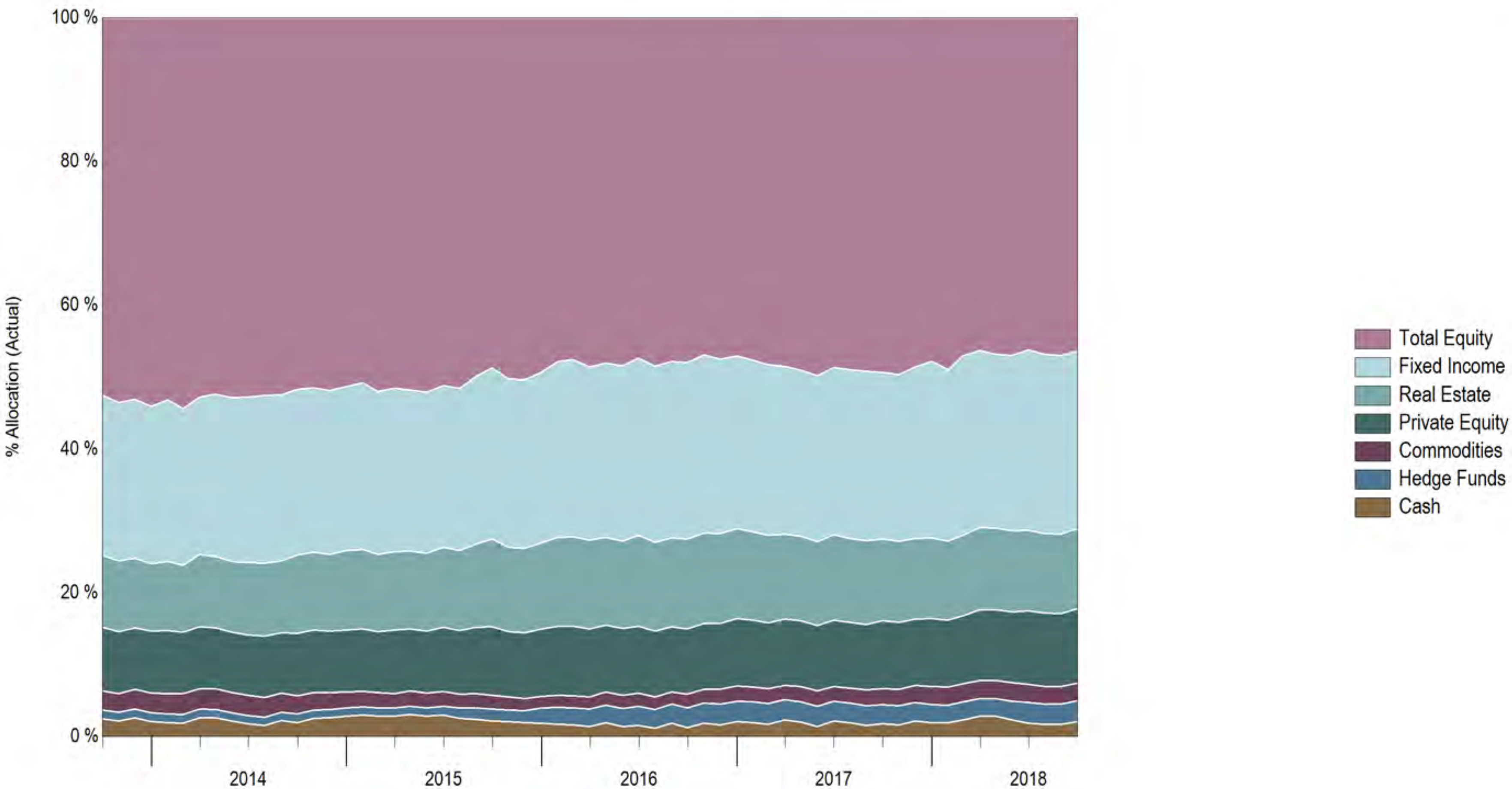
Allocation vs. Target

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Total Equity	**$26,513,275,281**	**46.4%**	**43.4%**	**3.0%**	**33.4% - 53.4%**	**Yes**
U.S. Equity	$14,029,749,755	24.6%	23.1%	1.5%	0.0% - 100.0%	Yes
Non-U.S. Equity	$12,483,525,526	21.9%	20.3%	1.6%	0.0% - 100.0%	Yes
Fixed Income[1]	**$14,077,096,706**	**24.6%**	**26.6%**	**-2.0%**	**23.6% - 29.6%**	**Yes**
Fixed Income	$14,077,096,706	24.6%	26.6%	-2.0%	23.6% - 29.6%	Yes
Real Estate[2]	**$6,363,244,904**	**11.1%**	**11.0%**	**0.1%**	**8.0% - 16.0%**	**Yes**
Real Estate	$6,363,244,904	11.1%	11.0%	0.1%	8.0% - 16.0%	Yes
Private Equity[2]	**$5,949,425,609**	**10.4%**	**10.0%**	**0.4%**	**7.0% - 14.0%**	**Yes**
Private Equity	$5,949,425,609	10.4%	10.0%	0.4%	7.0% - 14.0%	Yes
Commodities	**$1,391,627,197**	**2.4%**	**2.8%**	**-0.4%**	**0.0% - 4.8%**	**Yes**
Commodities	$1,391,627,197	2.4%	2.8%	-0.4%	0.0% - 4.8%	Yes
Hedge Funds[3]	**$1,624,961,414**	**2.8%**	**4.2%**	**-1.4%**	**1.2% - 6.2%**	**Yes**
Hedge Funds	$1,624,961,414	2.8%	4.2%	-1.4%	1.2% - 6.2%	Yes
Cash	**$1,212,907,840**	**2.1%**	**2.0%**	**0.1%**	**0.0% - 4.0%**	**Yes**
Cash	$1,212,907,840	2.1%	2.0%	0.1%	0.0% - 4.0%	Yes
Other Opportunities	**--**	**--**	**0.0%**	**0.0%**	**0.0% - 5.0%**	**Yes**
Total	**$57,132,538,952**	**100.0%**	**100.0%**			

[1] The performance and ...alues of two opportunistic ...s are reported with a one-month lag.
[2] Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.
[3] Portfolio and benchmark are reported with a one-month lag.

Prepared by Meketa Investment Group

Asset Allocation History
5 Years Ending September 30, 2018



Los Angeles County Employees Retirement Association

As of September 30, 2018

Sources of Fund Growth

Quarter ending September 30, 2018

Manager Name	Beginning Market Value ($000's)	Net Cash Flow ($000's)	Investment Fees & Expenses ($000's)	Net Investment Change ($000's)	Ending Market Value ($000's)	Quarter Return (%)
U.S. Equity	**13,152,907**	**-365**	**4,575**	**877,207**	**14,029,750**	**6.7**
BTC Russell 3000	10,031,594	-185,000	204	713,951	10,560,545	7.1
Intech	878,361	-	513	58,269	936,629	6.6
Frontier Capital Management	704,022	-	1,393	38,629	742,651	5.5
Twin Capital	541,501	-	214	35,982	577,483	6.6
Eagle Asset Management	364,433	-	508	17,333	381,766	4.8
Quantitative Management Associates	294,396	-	409	9,439	303,835	3.2
Systematic Financial Management	245,185	-	339	3,183	248,368	1.3
Jana Partners	93,404	-354	985	2,255	95,305	2.3
CornerCap	-	60,000	2	-120	59,880	
Matarin	-	125,000	8	-1,712	123,288	
Non-U.S. Equity	**12,734,415**	**-347,016**	**8,215**	**96,127**	**12,483,526**	**.8**
BTC Passive Currency Hedge	166,766	-187,258	362	59,478	38,986	.6
BTC EAFE IMI	4,705,184	-160,000	179	49,335	4,594,518	1.1
Symphony Financial Partners	150,305	279	279	10,540	161,124	7.0
Cevian Capital	301,016	-	1,176	10,504	311,520	3.5
BTC Euro Tilts	976,816	-	995	6,789	983,605	.7
Acadian Developed Markets	886,654		843	6,702	893,355	.8
GAM Pacific Basin	879,299	-	913	6,115	885,413	.7
BTC Canada IMI	716,941	-	27	5,482	722,423	.8
BTC Europe Index	373,089	-	9	2,936	376,025	.8
Capital Guardian	388,480	-	340	1,650	390,130	.4
AQR Emerging Markets	250,012	-	438	-908	249,104	-.4
BTC EAFE Small Cap	207,440	-	21	-1,597	205,843	-.8
Acadian Emerging Markets	383,759	-	486	-4,687	379,072	-1.2
BTC Emerging Markets Small Cap	135,830	-	49	-5,672	130,158	-4.2
Lazard Emerging Markets	347,691	-	642	-12,376	335,315	-3.6
BTC Emerging Markets	1,188,725	-	271	-13,370	1,175,354	-1.1
Genesis	676,355	-	1,183	-24,794	651,561	-3.7

Los Angeles County Employees Retirement Association

As of September 30, 2018

Sources of Fund Growth

Quarter ending September 30, 2018

Manager Name	Beginning Market Value ($000's)	Net Cash Flow ($000's)	Investment Fees & Expenses ($000's)	Net Investment Change ($000's)	Ending Market Value ($000's)	Quarter Return (%)
Fixed Income	**13,981,580**	**7,155**	**8,981**	**88,362**	**14,077,097**	**.6**
Brigade Capital Management	497,921	-	958	12,184	510,105	2.4
Oaktree Capital Management	405,024	-	417	9,936	414,960	2.5
Dodge & Cox	1,282,922	-	321	9,391	1,292,313	.7
Beach Point Capital	388,711	-3	1,523	8,370	397,079	2.2
Bain Capital	304,654	-495	1,004	5,605	309,765	1.8
Principal Opportunistic	266,401	-	94	5,241	271,642	2.0
Crescent Capital Group	273,753	-	386	5,074	278,827	1.9
Tennenbaum Capital	273,911	9,945	634	5,043	288,899	1.8
Loomis, Sayles & Co.	1,074,775	-	350	4,725	1,079,500	.4
Dolan McEniry Capital Management	343,580	-	224	3,871	347,452	1.1
Western Opportunistic	306,309	-	39	3,509	309,818	1.1
PENN Capital Management	109,051	-	125	2,802	111,853	2.6
Ashmore Investment Management	196,701	-	336	2,578	199,279	1.3
PIMCO	1,052,951	-	553	2,368	1,055,320	.2
BTC US Debt Index	3,844,981	-	96	2,084	3,847,065	.1
Aberdeen Asset Management	193,089	-	196	2,027	195,116	1.0
Doubleline Capital	268,102	-	510	1,618	269,720	.6
TCW	273,903	-	399	1,321	275,224	.5
Wells Capital Management	1,338,104	-	385	833	1,338,937	.1
Pugh Capital Management	134,773	-	64	26	134,799	.0
LM Capital Group	279	-	-24	26	305	
Blackrock	35	-15	-	-17	3	
Western Asset Management	1,118,829	-	369	-652	1,118,177	-.1
Member Home Loan Program Mirror (MHLP)	32,820	-1,114	13	-765	30,941	1.3

Los Angeles County Employees Retirement Association

As of September 30, 2018

Sources of Fund Growth

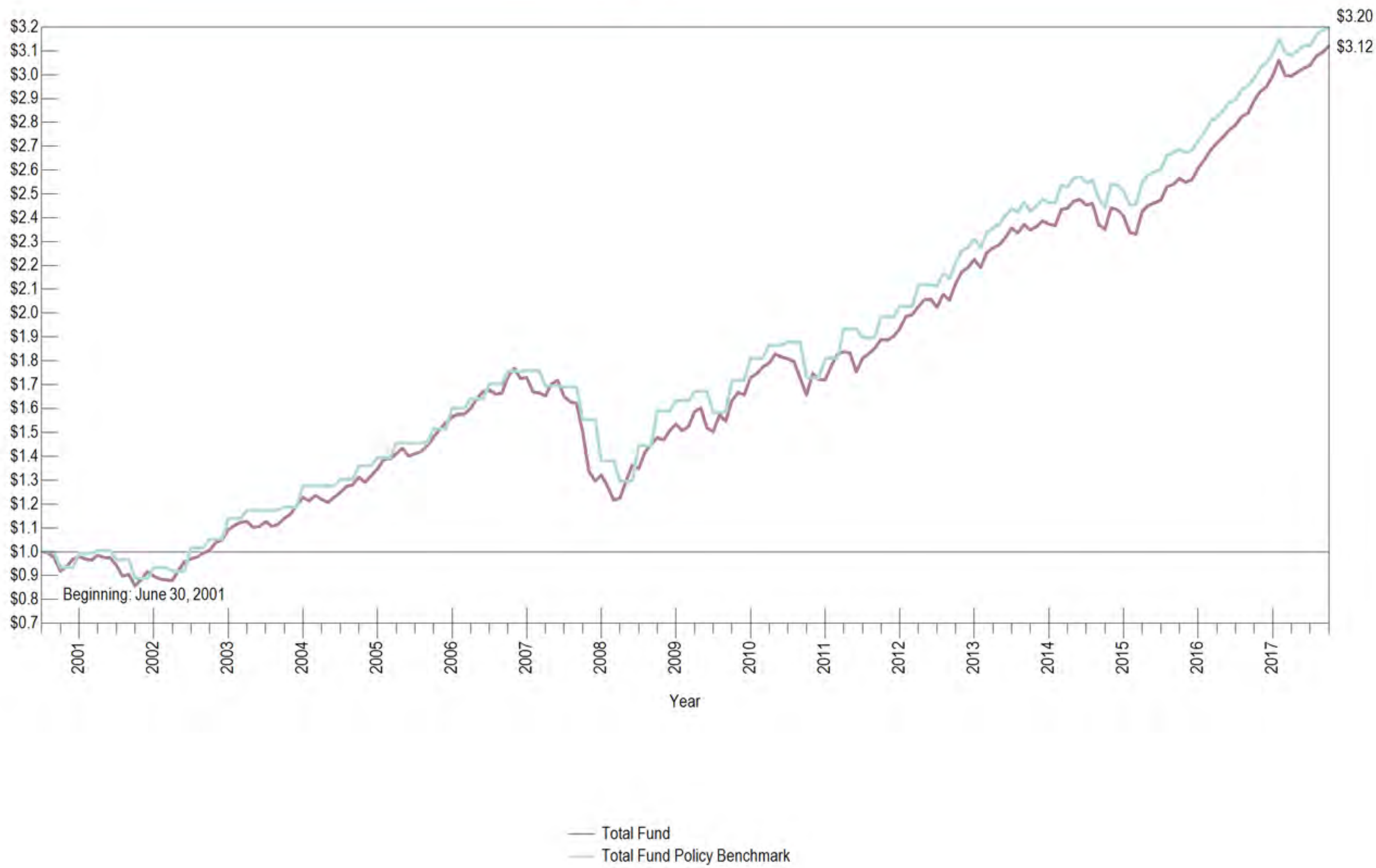
Quarter ending September 30, 2018

Manager Name	Beginning Market Value ($000's)	Net Cash Flow ($000's)	Investment Fees & Expenses ($000's)	Net Investment Change ($000's)	Ending Market Value ($000's)	Quarter Return (%)
Real Estate	**6,273,668**	**-91,895**	**11,958**	**181,472**	**6,363,245**	**2.9**
Private Equity	**5,758,339**	**-37,426**	**-**	**228,513**	**5,949,426**	**4.0**
Commodities	**1,410,506**	**-**	**1,154**	**-18,878**	**1,391,627**	**-1.3**
Neuberger Berman/Gresham	482,168	-	454	-2,523	479,645	-.5
PIMCO Commodities	472,712	-	413	-7,350	465,362	-1.6
Credit Suisse	455,626	-	286	-9,005	446,620	-2.0
Total Hedge Funds	**1,611,186**	**13,029**	**542**	**747**	**1,624,961**	**.0**
Grovsenor OPCRD 2 HFOF	359,282	-	-	2,033	361,314	.6
Grosvenor HFOF	489,418	-	-	660	490,077	.1
GSAM HFOF	485,063	-57	528	356	485,362	.1
Grosvenor OPCRD HFOF	21,777	-11,900	-	192	10,069	1.2
LACERA HF Direct	255,646	24,986	14	-2,493	278,139	-.9
Cash	**1,030,697**	**-**	**-**	**182,211**	**1,212,908**	**.6**
Cash	1,030,697	174,480	782	7,731	1,212,908	.7
GSAM HFOF Uninvested Mirror	-	-	-			
Total Fund	**55,953,296**	**-282,038**	**36,206**	**1,461,280**	**57,132,539**	**2.6**

Los Angeles County Employees Retirement Association

As of September 30, 2018

Growth of a Dollar



Asset Class Performance Summary (Gross)

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	**57,132,538,952**	**100.0**	**2.7**	**8.2**	**10.2**	**8.3**	**7.8**
Total Fund Policy Benchmark			*2.5*	*7.1*	*9.4*	*7.6*	*7.5*
U.S. Equity	**14,029,749,755**	**24.6**	**6.7**	**16.5**	**16.7**	**13.3**	**12.0**
Russell 3000			*7.1*	*17.6*	*17.1*	*13.5*	*12.0*
Non-U.S. Equity	**12,483,525,526**	**21.9**	**0.8**	**3.9**	**11.5**	**6.8**	**6.8**
Custom MSCI ACWI IMI Net 50% Hedge			*0.9*	*3.4*	*10.7*	*6.0*	*6.4*
Fixed Income[1]	**14,077,096,706**	**24.6**	**0.7**	**0.4**	**3.7**	**3.5**	**5.8**
FI Custom Index			*0.3*	*-1.0*	*2.0*	*2.5*	*4.3*
BBgBarc US Universal TR			*0.3*	*-1.0*	*2.0*	*2.5*	*4.2*
Real Estate[2]	**6,363,244,904**	**11.1**	**3.1**	**10.2**	**9.1**	**10.4**	**4.5**
Real Estate Target			*1.9*	*7.9*	*8.8*	*10.5*	*6.4*
Private Equity[2]	**5,949,425,609**	**10.4**	**4.0**	**19.1**	**13.3**	**15.2**	**11.8**
Private Equity Target			*3.6*	*14.3*	*13.2*	*13.4*	*10.7*
Commodities	**1,391,627,197**	**2.4**	**-1.3**	**5.2**	**2.4**	**-5.5**	**-4.2**
Bloomberg Commodity Index TR USD			*-2.0*	*2.6*	*-0.1*	*-7.2*	*-6.2*
Total Hedge Funds[3]	**1,624,961,414**	**2.8**	**0.1**	**4.3**	**3.3**	**4.0**	**--**
Hedge Fund Custom Index			*1.7*	*6.6*	*5.8*	*5.5*	*--*
Cash	**1,212,907,840**	**2.1**	**0.6**	**1.7**	**1.2**	**0.9**	**1.3**
FTSE 6 Month T-Bill			*0.5*	*1.6*	*0.9*	*0.6*	*0.4*

See Glossary for all Custom index definitions. Yearly returns are annualized.

1 The performance and market values of two opportunistic managers are reported with a one-month lag.

2 Portfolio and benchmark are reported with a one-quarter lag. Preliminary returns.

3 Portfolio and benchmark are reported with a one-month lag.

Trailing Performance

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund (Net)	**57,132,538,952**	**100.0**	**2.6**	**7.9**	**9.9**	**8.0**	**7.6**
Total Fund (Gross)			**2.7**	**8.2**	**10.2**	**8.3**	**7.8**
Total Fund Policy Benchmark			*2.5*	*7.1*	*9.4*	*7.6*	*7.5*
Excess Return (vs. Net)			0.1	0.8	0.5	0.4	0.1
U.S. Equity (Net)	**14,029,749,755**	**24.6**	**6.7**	**16.4**	**16.5**	**13.1**	**11.9**
U.S. Equity (Gross)			**6.7**	**16.5**	**16.7**	**13.3**	**12.0**
Russell 3000			*7.1*	*17.6*	*17.1*	*13.5*	*12.0*
Excess Return (vs. Net)			-0.4	-1.2	-0.6	-0.4	-0.1
Passive (Net)	**10,560,544,648**	**18.5**					
Passive (Gross)							
BTC Russell 3000 (Net)	10,560,544,648	18.5	7.1	17.6	--	--	--
BTC Russell 3000 (Gross)			7.1	17.6	--	--	--
Russell 3000			*7.1*	*17.6*	--	--	--
Excess Return (vs. Net)			0.0	0.0			
Low Risk (Net)	**1,514,112,079**	**2.7**					
Low Risk (Gross)							
Intech (Net)	936,629,445	1.6	6.6	14.8	15.4	13.9	11.9
Intech (Gross)			6.7	15.0	15.7	14.2	12.2
S&P 500			*7.7*	*17.9*	*17.3*	*13.9*	*12.0*
Excess Return (vs. Net)			-1.1	-3.1	-1.9	0.0	-0.1
Twin Capital (Net)	577,482,633	1.0	6.6	16.3	16.3	13.6	11.9
Twin Capital (Gross)			6.7	16.4	16.4	13.8	12.1
S&P 500			*7.7*	*17.9*	*17.3*	*13.9*	*12.0*
Excess Return (vs. Net)			-1.1	-1.6	-1.0	-0.3	-0.1

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Moderate / High Risk (Net)	**1,955,093,022**	**3.4**					
Moderate / High Risk (Gross)							
Eagle Asset Management (Net)	381,765,502	0.7	4.8	14.1	17.6	12.7	11.6
Eagle Asset Management (Gross)			4.9	14.7	18.3	13.4	12.3
Russell 2500			4.7	16.2	16.1	11.4	12.0
Excess Return (vs. Net)			0.1	-2.1	1.5	1.3	-0.4
Quantitative Management Associates (Net)	303,834,887	0.5	3.2	--	--	--	--
Quantitative Management Associates (Gross)			3.3	--	--	--	--
Russell 2000			3.6	--	--	--	--
Excess Return (vs. Net)			-0.4				
Systematic Financial Management (Net)	248,368,322	0.4	1.3	--	--	--	--
Systematic Financial Management (Gross)			1.4	--	--	--	--
Russell 2000			3.6	--	--	--	--
Excess Return (vs. Net)			-2.3				
Frontier Capital Management (Net)	742,651,146	1.3	5.5	11.4	17.4	11.5	12.6
Frontier Capital Management (Gross)			5.7	12.3	18.3	12.4	13.5
Russell 2500			4.7	16.2	16.1	11.4	12.0
Excess Return (vs. Net)			0.8	-4.8	1.3	0.1	0.6
Jana Partners (Net)	95,305,064	0.2	2.3	12.1	--	--	--
Jana Partners (Gross)			3.1	14.8	--	--	--
S&P 500			7.7	17.9	--	--	--
Excess Return (vs. Net)			-5.4	-5.8			
CornerCap (Net)	59,880,458	0.1	--	--	--	--	--
CornerCap (Gross)			--	--	--	--	--
Matarin (Net)	123,287,644	0.2	--	--	--	--	--
Matarin (Gross)			--	--	--	--	--

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Non-U.S. Equity (Net)	**12,483,525,526**	**21.9**	**0.8**	**3.6**	**11.3**	**6.5**	**6.6**
Non-U.S. Equity (Gross)			**0.8**	**3.9**	**11.5**	**6.8**	**6.8**
Custom MSCI ACWI IMI Net 50% Hedge			0.9	3.4	10.7	6.0	6.4
Excess Return (vs. Net)			-0.1	0.2	0.6	0.5	0.2
Passive (Net)	**7,204,322,124**	**12.6**					
Passive (Gross)							
BTC Canada IMI (Net)[1]	722,422,740	1.3	0.8	2.4	11.1	2.8	4.0
BTC Canada IMI (Gross)			0.8	2.4	11.2	2.8	4.0
MSCI Canada IMI Custom Index			0.6	1.6	10.3	2.0	3.3
Excess Return (vs. Net)			0.2	0.8	0.8	0.8	0.7
BTC EAFE IMI (Net)[1]	4,594,518,402	8.0	1.1	3.3	10.1	5.3	6.3
BTC EAFE IMI (Gross)			1.1	3.3	10.1	5.3	6.3
MSCI EAFE IMI Custom Index			1.0	2.9	9.7	4.9	5.9
Excess Return (vs. Net)			0.1	0.4	0.4	0.4	0.4
BTC EAFE Small Cap (Net)	205,843,371	0.4	-0.8	4.2	--	--	--
BTC EAFE Small Cap (Gross)			-0.8	4.3	--	--	--
MSCI EAFE Small Cap			-0.9	3.7	--	--	--
Excess Return (vs. Net)			0.1	0.5			
BTC Emerging Markets (Net)	1,175,354,172	2.1	-1.1	-1.0	12.2	3.4	5.1
BTC Emerging Markets (Gross)			-1.1	-0.9	12.3	3.6	5.3
MSCI Emerging Markets			-1.1	-0.8	12.4	3.6	5.4
Excess Return (vs. Net)			0.0	-0.2	-0.2	-0.2	-0.3

[1] BTC EAFE & Canada Funds from 11/1999 - 8/2008: and BTC EAFE & Canada IMI Funds from 8/2008 - Present.
See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BTC Emerging Markets Small Cap (Net)	130,158,125	0.2	-4.2	-4.4	7.3	2.5	--
BTC Emerging Markets Small Cap (Gross)			-4.1	-4.2	7.5	2.8	--
MSCI Emerging Markets Small Cap			-4.2	-4.2	7.4	2.7	--
Excess Return (vs. Net)			0.0	-0.2	-0.1	-0.2	
BTC Europe Index (Net)	376,025,312	0.7	0.8	0.2	8.3	4.2	5.4
BTC Europe Index (Gross)			0.8	0.2	8.3	4.2	5.4
MSCI Europe			0.8	-0.3	7.7	3.7	4.9
Excess Return (vs. Net)			0.0	0.5	0.6	0.5	0.5
Non-US Developed (Net)	**1,283,485,624**	**2.2**					
Non-US Developed (Gross)							
Acadian Developed Markets (Net)	893,355,303	1.6	0.8	5.2	15.3	9.0	7.5
Acadian Developed Markets (Gross)			0.9	5.6	15.8	9.4	8.0
EAFE Custom Benchmark			1.3	2.7	9.3	4.2	5.2
Excess Return (vs. Net)			-0.5	2.5	6.0	4.8	2.3
Capital Guardian (Net)	390,130,320	0.7	0.4	6.2	13.1	5.8	6.7
Capital Guardian (Gross)			0.5	6.6	13.5	6.2	7.1
EAFE Custom Benchmark			1.3	2.7	9.3	4.2	5.2
Excess Return (vs. Net)			-0.9	3.5	3.8	1.6	1.5
Regional Developed (Net)	**2,341,663,113**	**4.1**					
Regional Developed (Gross)							
BTC Euro Tilts (Net)	983,605,447	1.7	0.7	-1.0	8.3	5.7	6.3
BTC Euro Tilts (Gross)			0.8	-0.6	8.7	6.1	6.7
MSCI Europe			0.8	-0.3	7.7	3.7	4.9
Excess Return (vs. Net)			-0.1	-0.7	0.6	2.0	1.4

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Cevian Capital (Net)	311,520,474	0.5	3.5	6.6	--	--	--
Cevian Capital (Gross)			3.9	8.3	--	--	--
MSCI Europe			0.8	-0.3	--	--	--
Excess Return (vs. Net)			2.7	6.9			
GAM Pacific Basin (Net)	885,413,481	1.5	0.7	6.7	13.5	6.1	7.4
GAM Pacific Basin (Gross)			0.8	7.1	13.9	6.6	7.8
MSCI Pacific			2.3	8.2	12.4	5.8	6.6
Excess Return (vs. Net)			-1.6	-1.5	1.1	0.3	0.8
Symphony Financial Partners (Net)	161,123,710	0.3	7.0	27.5	--	--	--
Symphony Financial Partners (Gross)			7.2	30.6	--	--	--
MSCI Japan Small Cap NR USD			-0.1	7.4	--	--	--
Excess Return (vs. Net)			7.1	20.1			
Emerging Markets (Net)	**1,615,052,702**	**2.8**					
Emerging Markets (Gross)							
Acadian Emerging Markets (Net)	379,072,119	0.7	-1.2	-4.6	11.7	3.2	--
Acadian Emerging Markets (Gross)			-1.1	-4.1	12.2	3.7	--
MSCI Emerging Markets			-1.1	-0.8	12.4	3.6	--
Excess Return (vs. Net)			-0.1	-3.8	-0.7	-0.4	
AQR Emerging Markets (Net)	249,104,178	0.4	-0.4	-3.1	12.5	--	--
AQR Emerging Markets (Gross)			-0.2	-2.5	13.2	--	--
MSCI Emerging Markets			-1.1	-0.8	12.4	--	--
Excess Return (vs. Net)			0.7	-2.3	0.1		
Genesis (Net)	651,561,022	1.1	-3.7	-2.3	11.1	3.1	7.0
Genesis (Gross)			-3.5	-1.6	11.9	3.8	7.8
MSCI EM IMI Custom Index			-1.5	-1.2	11.7	3.5	5.6
Excess Return (vs. Net)			-2.2	-1.1	-0.6	-0.4	1.4

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Lazard Emerging Markets (Net)	335,315,383	0.6	-3.6	-3.8	11.0	3.6	--
Lazard Emerging Markets (Gross)			-3.4	-3.1	11.8	4.5	--
MSCI Emerging Markets			*-1.1*	*-0.8*	*12.4*	*3.6*	--
Excess Return (vs. Net)			-2.5	-3.0	-1.4	0.0	
Passive Hedge (Net)	**38,985,858**	**0.1**					
Passive Hedge (Gross)							
BTC Passive Currency Hedge (Net)	38,985,858	0.1	0.6	2.0	0.4	1.8	--
BTC Passive Currency Hedge (Gross)			0.6	2.0	0.4	1.9	--
50% FX Hedge Index			*0.6*	*2.0*	*0.5*	*1.9*	--
Excess Return (vs. Net)			0.0	0.0	-0.1	-0.1	
Fixed Income (Net)[1]	**14,077,096,706**	**24.6**	**0.6**	**0.2**	**3.5**	**3.3**	**5.6**
Fixed Income (Gross)			**0.7**	**0.4**	**3.7**	**3.5**	**5.8**
FI Custom Index			*0.3*	*-1.0*	*2.0*	*2.5*	*4.3*
Excess Return (vs. Net)			0.3	1.2	1.5	0.8	1.3
BBgBarc US Universal TR			*0.3*	*-1.0*	*2.0*	*2.5*	*4.2*
Core (Net)	**6,613,116,537**	**11.6**					
Core (Gross)							
BTC US Debt Index (Net)	3,847,064,691	6.7	0.1	-1.1	1.4	2.3	3.9
BTC US Debt Index (Gross)			0.1	-1.1	1.4	2.3	3.9
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.1	0.1	0.1	0.1	0.1
Dodge & Cox (Net)	1,292,312,986	2.3	0.7	0.0	3.3	3.4	5.7
Dodge & Cox (Gross)			0.8	0.1	3.4	3.5	5.8
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.7	1.2	2.0	1.2	1.9

[1] Does not include cash. The performance and market values of two opportunistic managers are reported with a one-month lag.
See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Pugh Capital Management (Net)	134,799,184	0.2	0.0	-1.3	1.3	2.2	4.3
Pugh Capital Management (Gross)			0.1	-1.2	1.5	2.5	4.5
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.0	-0.1	0.0	0.0	0.5
Wells Capital Management (Net)	1,338,936,901	2.3	0.1	-1.2	1.6	2.5	4.9
Wells Capital Management (Gross)			0.1	-1.1	1.7	2.6	5.1
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.1	0.0	0.3	0.3	1.1
Core Plus (Net)	**3,600,754,072**	**6.3**					
Core Plus (Gross)							
Dolan McEniry Capital Management (Net)	347,451,825	0.6	1.1	0.3	3.9	3.6	6.3
Dolan McEniry Capital Management (Gross)			1.2	0.5	4.1	3.9	6.6
Dolan Custom Index			*0.7*	*-0.4*	*2.3*	*2.6*	*5.0*
Excess Return (vs. Net)			0.4	0.7	1.6	1.0	1.3
Loomis, Sayles & Co. (Net)	1,079,500,243	1.9	0.4	0.2	3.6	3.3	6.3
Loomis, Sayles & Co. (Gross)			0.5	0.3	3.7	3.4	6.4
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.4	1.4	2.3	1.1	2.5
PIMCO (Net)	1,055,319,647	1.8	0.2	0.3	3.2	2.9	4.9
PIMCO (Gross)			0.3	0.5	3.4	3.1	5.1
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			0.2	1.5	1.9	0.7	1.1
Western Asset Management (Net)	1,118,177,054	2.0	-0.1	-2.5	2.5	3.1	6.0
Western Asset Management (Gross)			0.0	-2.4	2.6	3.3	6.2
BBgBarc US Aggregate TR			*0.0*	*-1.2*	*1.3*	*2.2*	*3.8*
Excess Return (vs. Net)			-0.1	-1.3	1.2	0.9	2.2

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
High Yield (Net)	**526,812,962**	**0.9**					
High Yield (Gross)							
Oaktree Capital Management (Net)	414,960,249	0.7	2.5	1.7	6.3	4.4	7.8
Oaktree Capital Management (Gross)			2.6	2.1	6.7	4.9	8.2
BBG BARC Ba to B US HY			2.3	2.2	7.1	5.2	8.6
Excess Return (vs. Net)			0.2	-0.5	-0.8	-0.8	-0.8
PENN Capital Management (Net)	111,852,714	0.2	2.6	3.2	6.5	4.5	7.4
PENN Capital Management (Gross)			2.7	3.6	6.9	5.0	7.9
BBG BARC Ba to B US HY			2.3	2.2	7.1	5.2	8.6
Excess Return (vs. Net)			0.3	1.0	-0.6	-0.7	-1.2
Opportunistic (Net)	**3,305,471,979**	**5.8**					
Opportunistic (Gross)							
Aberdeen Asset Management (Net)	195,116,283	0.3	1.0	-5.1	--	--	--
Aberdeen Asset Management (Gross)			1.2	-4.8	--	--	--
Opportunistic EMD Custom			1.0	-3.0	--	--	--
Excess Return (vs. Net)			0.0	-2.1			
Ashmore Investment Management (Net)	199,278,930	0.3	1.3	-4.2	--	--	--
Ashmore Investment Management (Gross)			1.5	-3.4	--	--	--
Opportunistic EMD Custom			1.0	-3.0	--	--	--
Excess Return (vs. Net)			0.3	-1.2			
Bain Capital (Net)	309,764,524	0.5	1.8	3.8	5.9	--	--
Bain Capital (Gross)			2.0	4.5	6.8	--	--
Opportunistic Custom Index			2.2	4.3	6.8	--	--
Excess Return (vs. Net)			-0.4	-0.5	-0.9		

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Beach Point Capital (Net)	397,078,714	0.7	2.2	4.4	8.0	--	--
Beach Point Capital (Gross)			2.6	5.8	10.0	--	--
Opportunistic Custom Index			2.2	4.3	6.8	--	--
Excess Return (vs. Net)			0.0	0.1	1.2		
Brigade Capital Management (Net)	510,104,833	0.9	2.4	5.2	9.0	5.4	--
Brigade Capital Management (Gross)			2.6	6.0	9.8	6.2	--
Brigade Custom Index			2.1	3.9	6.3	4.8	--
Excess Return (vs. Net)			0.3	1.3	2.7	0.6	
Crescent Capital Group (Net)	278,826,802	0.5	1.9	3.2	5.2	--	--
Crescent Capital Group (Gross)			2.0	3.8	5.8	--	--
Opportunistic Custom Index			2.2	4.3	6.8	--	--
Excess Return (vs. Net)			-0.3	-1.1	-1.6		
Doubleline Capital (Net)	269,719,795	0.5	0.6	1.7	--	--	--
Doubleline Capital (Gross)			0.8	2.5	--	--	--
Securitized Custom Index			0.9	3.1	--	--	--
Excess Return (vs. Net)			-0.3	-1.4			
Principal Opportunistic (Net)	271,641,786	0.5	2.0	1.0	4.1	3.9	--
Principal Opportunistic (Gross)			2.0	1.2	4.2	4.1	--
BBgBarc U.S. Universal Spread 1-10 Year			1.0	-0.1	3.3	3.1	--
Excess Return (vs. Net)			1.0	1.1	0.8	0.8	
TCW (Net)	275,223,604	0.5	0.5	2.6	3.8	--	--
TCW (Gross)			0.6	3.2	4.4	--	--
Securitized Custom Index			0.9	3.1	5.0	--	--
Excess Return (vs. Net)			-0.4	-0.5	-1.2		

See Glossary for all Custom index definitions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Tennenbaum Capital (Net)[1]	288,898,696	0.5	1.8	8.3	8.1	--	--
Tennenbaum Capital (Gross)			2.0	9.3	9.1	--	--
Credit Suisse Leveraged Loan (1 month lagged)			*1.3*	*5.6*	*5.1*	--	--
Excess Return (vs. Net)			0.5	2.7	3.0		
Western Opportunistic (Net)	309,818,011	0.5	1.1	2.7	4.1	3.5	--
Western Opportunistic (Gross)			1.2	2.7	4.2	3.6	--
Western Opportunistic Custom Index			*0.7*	*4.0*	*3.3*	*2.9*	--
Excess Return (vs. Net)			0.4	-1.3	0.8	0.6	
Mortgage Program (Net)	**30,941,156**	**0.1**					
Mortgage Program (Gross)							
Member Home Loan Program Mirror (MHLP) (Net)	30,941,156	0.1	1.3	17.8	7.7	6.0	5.8
Member Home Loan Program Mirror (MHLP) (Gross)			1.3	18.1	7.9	6.3	6.1
Real Estate (Net)[2]	**6,363,244,904**	**11.1**	**2.9**	**9.3**	**8.2**	**9.4**	**3.6**
Real Estate (Gross)			**3.1**	**10.2**	**9.1**	**10.4**	**4.5**
Real Estate Target			*1.9*	*7.9*	*8.8*	*10.5*	*6.4*
Excess Return (vs. Net)			1.0	1.4	-0.6	-1.1	-2.8
Private Equity (Net)	**5,949,425,609**	**10.4**	**4.0**	**19.1**	**13.3**	**15.2**	**11.8**
Private Equity (Gross)			**4.0**	**19.1**	**13.3**	**15.2**	**11.8**
Private Equity Target			*3.6*	*14.3*	*13.2*	*13.4*	*10.7*
Excess Return (vs. Net)			0.4	4.8	0.1	1.8	1.1
Commodities (Net)	**1,391,627,197**	**2.4**	**-1.3**	**4.9**	**2.1**	**-5.8**	**-4.6**
Commodities (Gross)			**-1.3**	**5.2**	**2.4**	**-5.5**	**-4.2**
Bloomberg Commodity Index TR USD			*-2.0*	*2.6*	*-0.1*	*-7.2*	*-6.2*
Excess Return (vs. Net)			0.7	2.3	2.2	1.4	1.6

See Glossary for all Custom index definitions. Yearly returns are annualized.

1 Portfolio and benchmark are reported with a one-month lag.

2 Portfolio reported on a quarterly basis with a one quarter lag. Benchmark is reported with a one quarter lag.

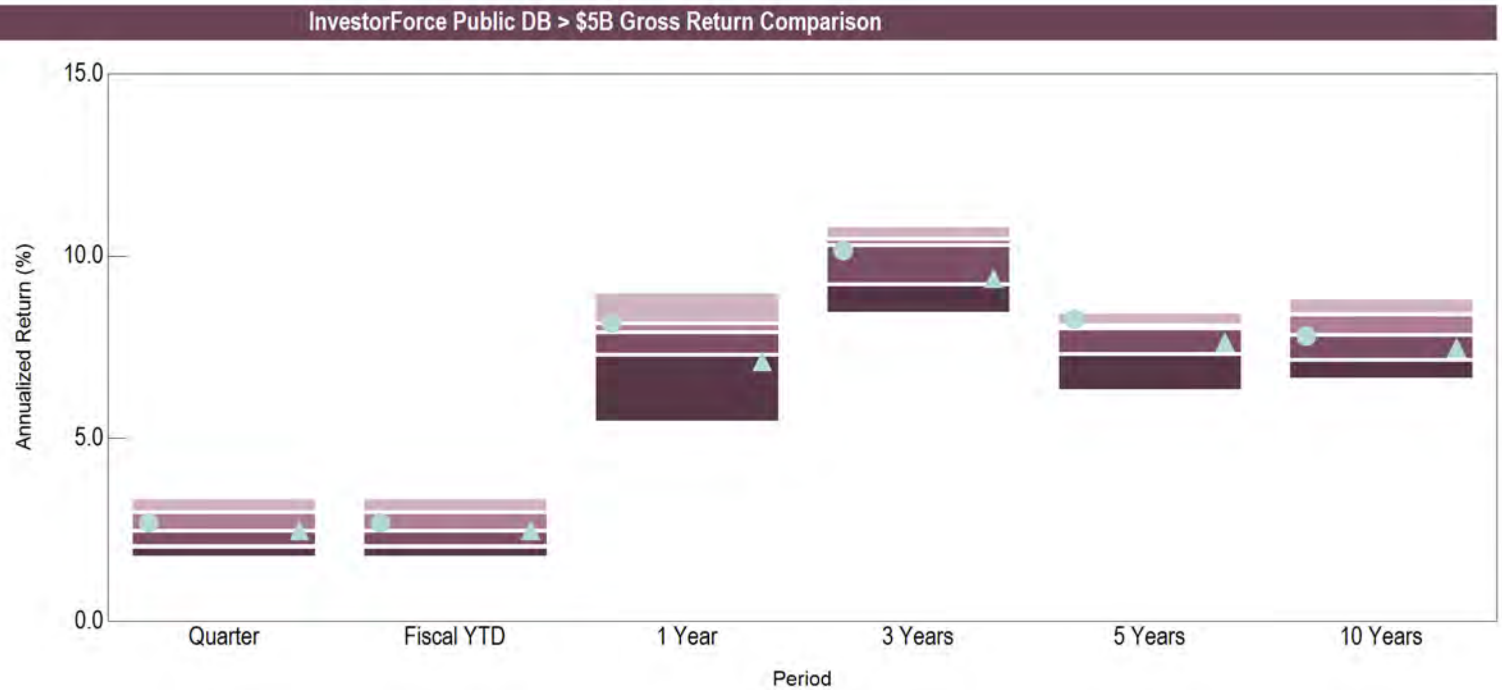
Total Fund

As of September 30, 2018

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Credit Suisse (Net)	446,620,391	0.8	-2.0	1.8	0.5	-6.8	--
Credit Suisse (Gross)			-1.9	2.0	0.7	-6.5	--
Bloomberg Commodity Index TR USD			-2.0	2.6	-0.1	-7.2	--
Excess Return (vs. Net)			0.0	-0.8	0.6	0.4	
Neuberger Berman/Gresham (Net)	479,644,818	0.8	-0.5	8.2	2.5	-5.8	-4.3
Neuberger Berman/Gresham (Gross)			-0.4	8.7	2.9	-5.4	-3.9
Bloomberg Commodity Index TR USD			-2.0	2.6	-0.1	-7.2	-6.2
Excess Return (vs. Net)			1.5	5.6	2.6	1.4	1.9
PIMCO Commodities (Net)	465,361,989	0.8	-1.6	4.3	3.0	-5.1	-4.5
PIMCO Commodities (Gross)			-1.5	4.7	3.4	-4.7	-4.0
Bloomberg Commodity Index TR USD			-2.0	2.6	-0.1	-7.2	-6.2
Excess Return (vs. Net)			0.4	1.7	3.1	2.1	1.7
Total Hedge Funds (Net)[1]	**1,624,961,414**	**2.8**	**0.0**	**4.1**	**3.1**	**3.8**	**--**
Total Hedge Funds (Gross)			**0.1**	**4.3**	**3.3**	**4.0**	**--**
Hedge Fund Custom Index			1.7	6.6	5.8	5.5	--
Excess Return (vs. Net)			-1.7	-2.5	-2.7	-1.7	
Cash (Net)	**1,212,907,840**	**2.1**	**0.6**	**1.6**	**1.2**	**0.8**	**1.2**
Cash (Gross)			**0.6**	**1.7**	**1.2**	**0.9**	**1.3**
FTSE 6 Month T-Bill			0.5	1.6	0.9	0.6	0.4
Excess Return (vs. Net)			0.1	0.0	0.3	0.2	0.8

See Glossary for all Custom index definitions. Yearly returns are annualized.

1 Portfolio and benchmark are reported with a one-month lag.

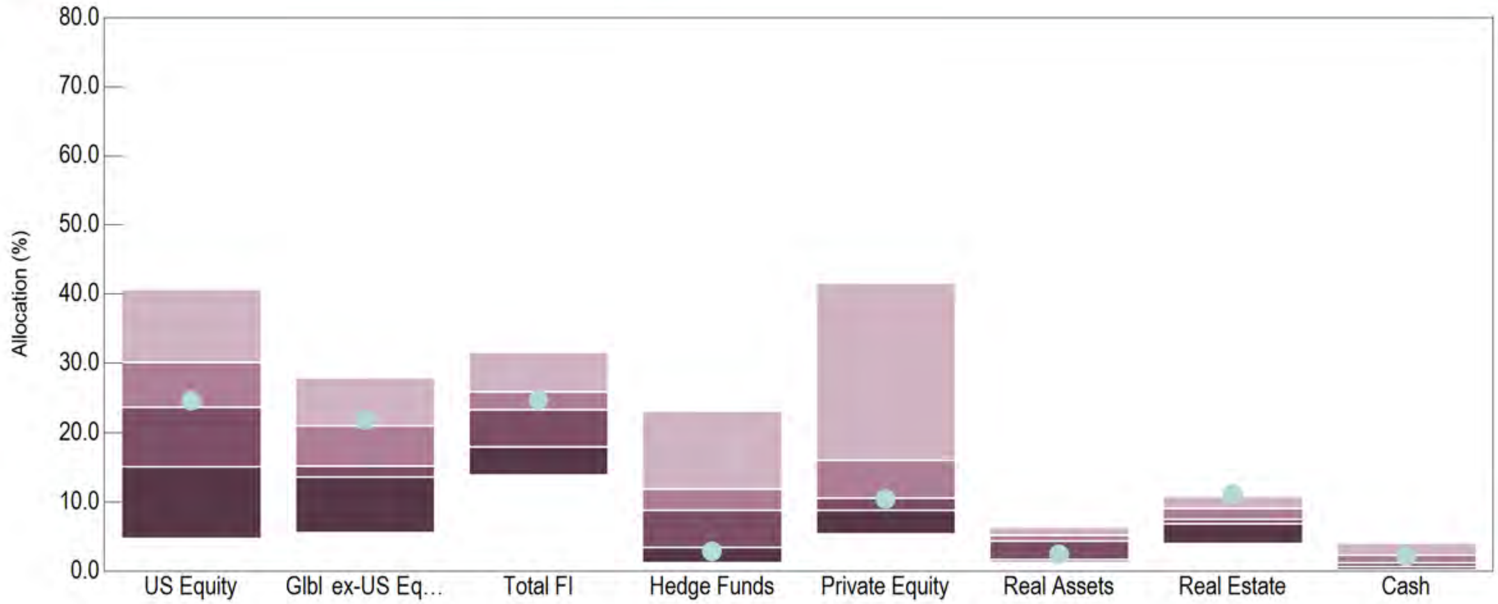


	Return (Rank)											
5th Percentile	3.4		3.4		9.0		10.8		8.5		8.9	
25th Percentile	3.0		3.0		8.2		10.5		8.1		8.4	
Median	2.5		2.5		7.9		10.3		8.0		7.9	
75th Percentile	2.1		2.1		7.3		9.2		7.3		7.2	
95th Percentile	1.8		1.8		5.4		8.4		6.3		6.6	
# of Portfolios	21		21		21		21		20		18	
Total Fund	2.7	(41)	2.7	(41)	8.2	(30)	10.2	(56)	8.3	(11)	7.8	(53)
Total Fund Policy Benchmark	2.5	(50)	2.5	(50)	7.1	(86)	9.4	(71)	7.6	(65)	7.5	(62)

Los Angeles County Employees Retirement Association

As of September 30, 2018

Total Plan Allocation (Actual) vs. InvestorForce Public DB > $5B Gross
As of September 30, 2018

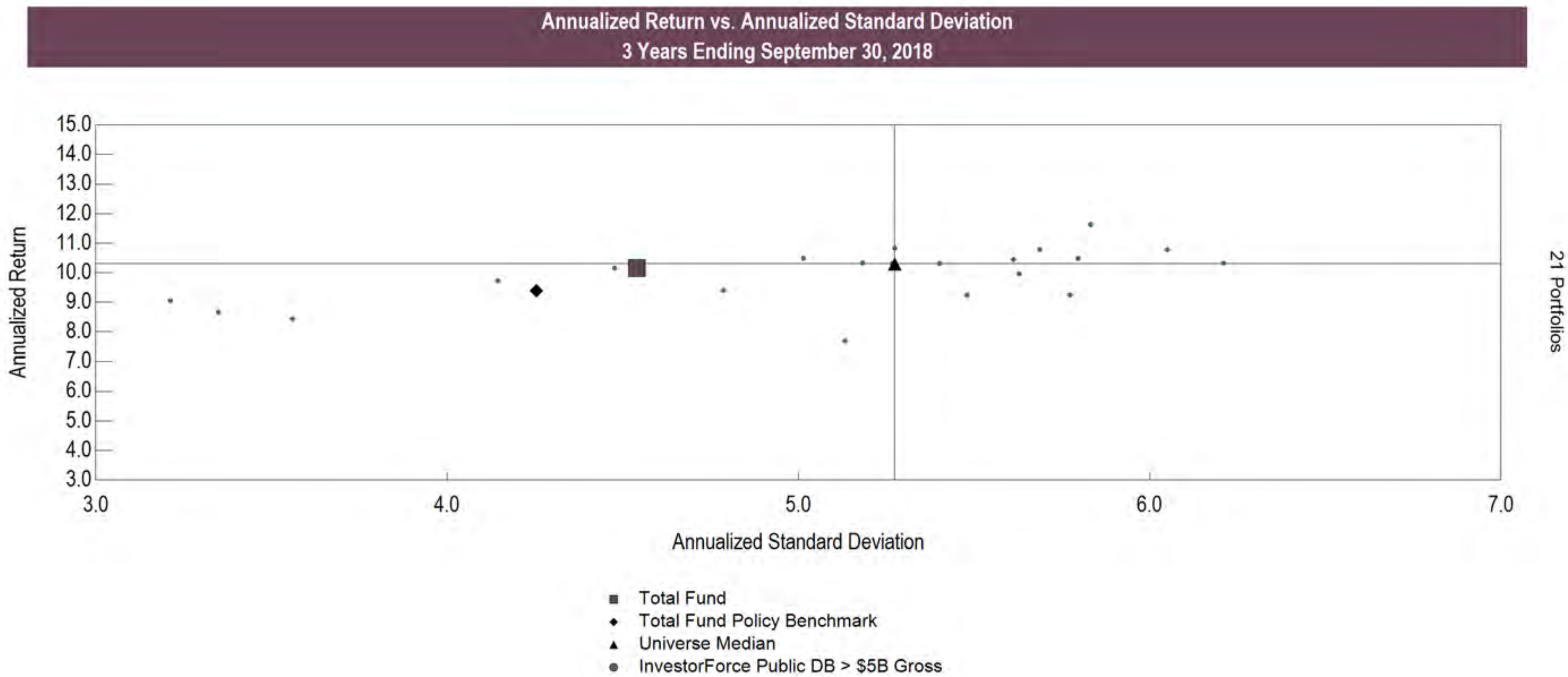


Allocation (Rank)	US Equity		Glbl ex-US Eq…		Total FI		Hedge Funds		Private Equity		Real Assets		Real Estate		Cash	
5th Percentile	40.7		27.9		31.6		23.1		41.6		6.4		10.8		4.0	
25th Percentile	30.2		21.1		25.9		12.0		16.1		5.3		9.2		2.4	
Median	23.7		15.3		23.4		8.9		10.7		4.5		7.6		1.3	
75th Percentile	15.2		13.7		18.1		3.5		8.8		1.8		7.0		0.7	
95th Percentile	4.8		5.6		14.0		1.3		5.4		1.3		4.0		0.2	
# of Portfolios	17		17		19		8		12		9		17		18	
Total Fund	24.6	(49)	21.9	(22)	24.6	(39)	2.8	(86)	10.4	(53)	2.4	(71)	11.1	(1)	2.1	(30)

Prepared by Meketa Investment Group

Los Angeles County Employees Retirement Association

As of September 30, 2018



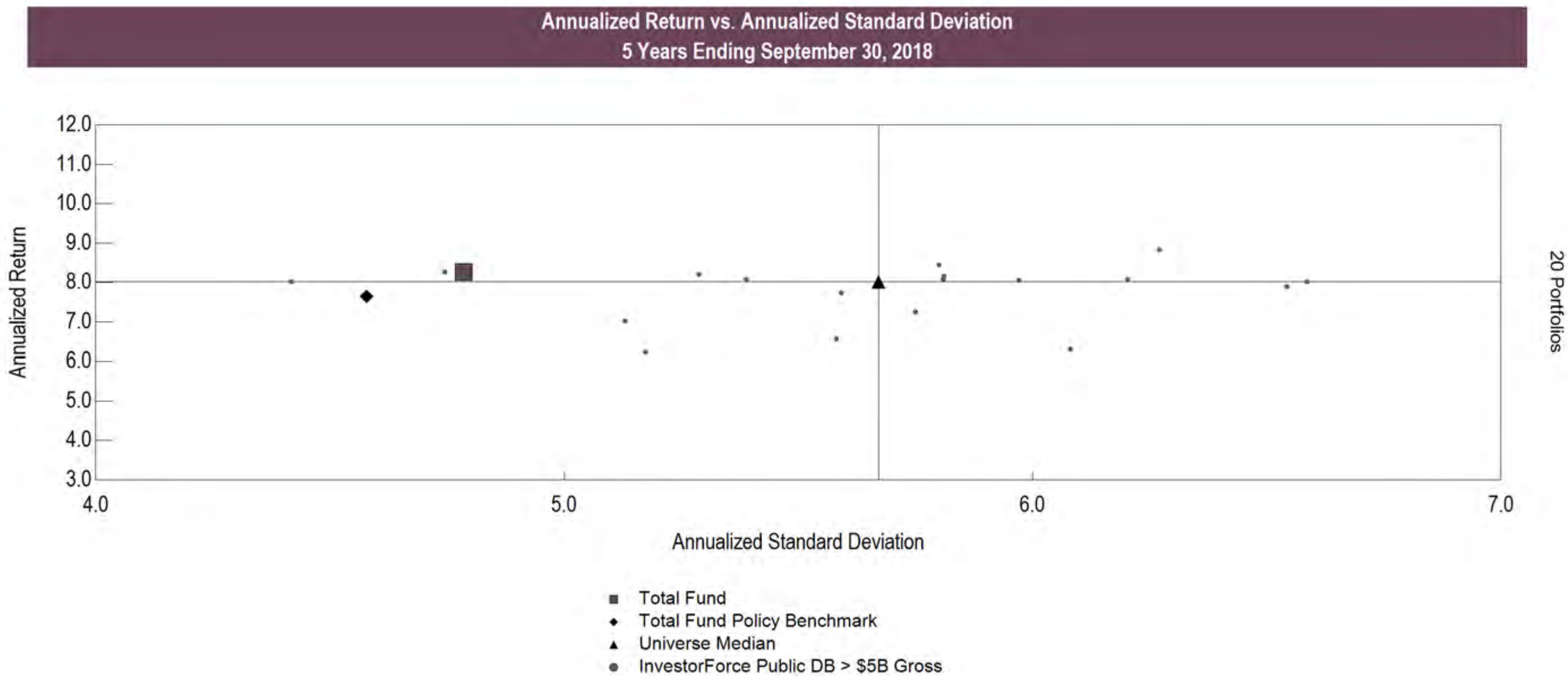
Statistics Summary

3 Years Ending September 30, 2018

	Anlzd Standard Deviation	Anlzd Return
Total Fund	4.53%	9.87%
Total Fund Policy Benchmark	4.25%	9.39%
InvestorForce Public DB > $5B Gross Median	5.27%	10.31%

Los Angeles County Employees Retirement Association

As of September 30, 2018



Statistics Summary

5 Years Ending September 30, 2018

	Anlzd Standard Deviation	Anlzd Return
Total Fund	4.78%	7.99%
Total Fund Policy Benchmark	4.58%	7.64%
InvestorForce Public DB > $5B Gross Median	5.67%	8.02%

Benchmark History

As of September 30, 2018

Total Fund		
7/1/2018	Present	23.1% Russell 3000 / 20.3% Custom MSCI ACWI IMI Net 50% Hedge / 26.6% BBgBarc US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 4.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
1/1/2018	6/30/2018	22.4% Russell 3000 / 21.0% Custom MSCI ACWI IMI Net 50% Hedge / 26.6% BBgBarc US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 4.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2017	12/31/2017	23.5% Russell 3000 / 21.9% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
7/1/2017	9/30/2017	23.7% Russell 3000 / 21.7% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
4/1/2017	6/30/2017	24.1% Russell 3000 / 21.3% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
1/1/2017	3/31/2017	24.4% Russell 3000 / 21.0% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2016	12/31/2016	23.8% Russell 3000 / 21.6% Custom MSCI ACWI IMI Net 50% Hedge / 25.4% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.4% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
7/1/2016	9/30/2016	24.5% Russell 3000 / 21.4% Custom MSCI ACWI IMI Net 50% Hedge / 25.1% BBgBarc US Universal TR / 10% Private Equity Target / 11% NCREIF ODCE +40 bps / 3.2% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR
10/1/2015	6/30/2016	3% Bloomberg Commodity Index TR USD / 25.5% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 22.5% BBgBarc US Universal TR / 11% Private Equity Target / 23% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)
4/1/2015	9/30/2015	3% Bloomberg Commodity Index TR USD / 25% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 22.5% BBgBarc US Universal TR / 11% Private Equity Target / 23.5% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2015	3/31/2015	3% Bloomberg Commodity Index TR USD / 25.5% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 22.5% BBgBarc US Universal TR / 11% Private Equity Target / 23% Custom MSCI ACWI IMI Net 50% Hedge / 3% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2014	12/31/2014	3% Bloomberg Commodity Index TR USD / 25% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 23% BBgBarc US Universal TR / 11% Private Equity Target / 24% Custom MSCI ACWI IMI Net 50% Hedge / 2% 3-month U.S. T-Bill Index + 5% (1M-lag)

1/1/2014	9/30/2014	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 23% BBgBarc US Universal TR / 11% Private Equity Target / 25% Custom MSCI ACWI IMI Net 50% Hedge / 2% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2013	12/31/2013	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF ODCE +40 bps / 2% FTSE T-Bill 6 Months TR / 24% BBgBarc US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
4/1/2013	9/30/2013	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% BBgBarc US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2013	3/31/2013	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% BBgBarc US Universal TR / 10% Private Equity Target / 27% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2012	12/31/2012	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 24% BBgBarc US Universal TR / 10% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
1/1/2012	9/30/2012	3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 27% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
10/1/2011	12/31/2011	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 28% Custom MSCI ACWI IMI Net 50% Hedge / 1% 3-month U.S. T-Bill Index + 5% (1M-lag)
4/1/2011	9/30/2011	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 29% Custom MSCI ACWI IMI Net 50% Hedge
1/1/2011	3/31/2011	3% Bloomberg Commodity Index TR USD / 22% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 30% Custom MSCI ACWI IMI Net 50% Hedge
10/1/2010	12/31/2010	3% Bloomberg Commodity Index TR USD / 23% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 29% Custom MSCI ACWI IMI Net 50% Hedge
7/1/2010	9/30/2010	3% Bloomberg Commodity Index TR USD / 26% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 26% Custom MSCI ACWI IMI Net 50% Hedge
4/1/2010	6/30/2010	3% Bloomberg Commodity Index TR USD / 26% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 26% MSCI ACWI ex USA IMI
1/1/2010	3/31/2010	3% Bloomberg Commodity Index TR USD / 29% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 26% BBgBarc US Universal TR / 7% Private Equity Target / 23% MSCI ACWI ex USA IMI

4/1/2009	12/31/2009	2% Bloomberg Commodity Index TR USD / 30% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 28% BBgBarc US Universal TR / 7% Private Equity Target / 21% MSCI ACWI ex USA IMI
10/1/2008	3/31/2009	2% Bloomberg Commodity Index TR USD / 30% Russell 3000 / 10% NCREIF Property Index - 25 bps / 2% FTSE T-Bill 6 Months TR / 1.96% BBgBarc US High Yield BA/B TR / 26.04% BBgBarc US Aggregate TR / 7% Private Equity Target / 21% MSCI ACWI ex USA IMI
3/1/2001	9/30/2008	100% LACERA TF Blended Benchmark

Custom Benchmarks Glossary

50% FX Hedge Index: Calculated by taking the MSCI World Ex.-U.S. IMI FX Hedged Index and applying a 50% factor.

Brigade Custom Index: Composed of 50% Barclays U.S. High Yield Ba/B and 50% Credit Suisse Leveraged Loan Indices.

Custom MSCI ACWI IMI Net 50% Hedged: Calculated by taking the MSCI ACWI IMI FX Hedged Index (net) and applying a 50% factor.

Dolan Custom Index: Inception–6/30/18: BBG BC Credit/Intermediate 65% / BBG BC MBSI 25%/ BCHY Ba/B 10%; 6/30/18-Present: Bloomberg Barclays U.S. Intermediate Credit.

EAFE Custom Index: Inception – 6/30/06 MSCI EAFE(Net); 6/30/06 – Present MSCI EAFE + Canada (Net).

FI Custom Index: Prior to 3/2009 the Index was composed of the Barclays U.S. Aggregate Bond Index and the Barclays U.S. High Yield Ba/B Index with weights that varied over time. From 3/2009 on the Index is composed of 100% of the Barclays U.S. Universal Index.

Hedge Fund Custom Index: Composed of the FTSE 3-month U.S. T-bill + 500 bps.

MSCI Canada IMI Custom Index: Composed of the MSCI Canada Index (net) from 11/1999 through 8/2008 and the MSCI Canada IMI Index (net) thereafter.

MSCI EAFE IMI Custom Index: Composed of the MSIC EAFE Index (net) from 11/1999 through 8/2008 and the MSCI EAFE IMI Index (net) thereafter.

MSCI EM IMI Custom Index: Composed of the MSCI EM Index (gross) from inception to 12/2000; the MSCI EM Index (net) from 1/2000 through 8/2008; and the MSCI EM IMI Index (net) thereafter.

Opportunistic Custom Index: Composed of 50% Barclays U.S. High Yield Index and 50% Credit Suisse Leveraged Loan Index.

Opportunistic EMD Custom: Composed of 50% EMBI Global Diversified, 25% GBI-EM GD, and 25% CEMBI BD.

Private Equity Target: Composed of rolling ten-year return of the Russell 3000 Index + 500 bps.

Real Estate Target: Prior to 7/2013 the Real Estate Target was composed of the NCREIF Property Index - 25 bps. From 7/2013 on it is composed of the NCREIF ODCE Index + 40 bps.

Securitized Custom Index: Composed of Barclays Securitized Index + 400 bps.

Western Opportunistic Custom Index: Composed of 60% BofA Merrill Lynch US Floating Rate Home Equity Loan ABS Index and 40% Barclays U.S. Credit 1-3 Yr Index.

FOR INFORMATION ONLY

November 30, 2018

TO: Each Member
Board of Investments

FROM: Jonathan Grabel
Chief Investment Officer

FOR: December 12, 2018 Board of Investments

SUBJECT: **IMPLEMENTATION UPDATE ON LACERA PENSION TRUST STRATEGIC ASSET ALLOCATION**

At the May 9, 2018 Board of Investments meeting (BOI), the Board approved a new Strategic Asset Allocation (SAA) for LACERA's Pension Trust. At the July 9, 2018 BOI Offsite, a prospective implementation plan was reviewed.

During the BOI Offsite, staff noted that the SAA could be prudently implemented in the next 12 to 24 months. **Table 1** below summarizes the status of the actions and reports as well as the timeline for transitioning to the new SAA targets. Future items that require BOI approval will be placed on the agenda of subsequent meetings along with supporting documentation.

Table 1
Strategic Asset Allocation Implementation Timeline

Implementation Steps	Target Dates for Completion or Discussion
Determine the appropriate policy ranges for the Pension Trust Asset Allocation	Completed
Identify the appropriate benchmarks for the Pension Trust Asset Allocation	Completed
Update Governance Documents	
• Investment Policy Statement	Completed
• Procedures manual	1st Quarter of 2019
Align Management and Oversight	
• Align Committees to new SAA	Completed
• Staffing	
• Real Assets – PIO	Completed
• Real Assets – FA-III	4th Quarter of 2018
• Real Assets – FA-II	4th Quarter of 2018
• Portfolio Analytics – SIO	Completed
• Portfolio Analytics – FA-II	Completed
• Portfolio Analytics – FA-I	In Process

• Consultant searches • Recommendation to conduct search	1st Quarter of 2019 - Completion Completed

Growth
• Public Equities
    • Structure review
        • Reduce public equity exposure
        • Possible manager consolidation
        • Rebalance passive exposure to Board approved benchmark
• Private Equity
    • Investment plan
    • Potential secondary sale
• Opportunistic Real Estate
    • Implement structure review and investment plan
	
	1st Quarter of 2019
	
	Completed
	4th Quarter of 2018
	
	Ongoing

Credit
• Conduct consultant search – Credit
• Structure review
    • Realign weights with targets
    • Resize current liquid managers
• Conduct new mandate searches
	
	In Process
	December Recommendation
	
	Ongoing

Risk Reducing & Mitigation • Conduct consultant search – Hedge Funds • Implementation of Fixed Income structure review • Potential manager rebalancing and consolidation • Conduct RFP for cash overlay program	 In Process December Recommendation In Process
Real Assets & Inflation Hedges • Conduct consultant search – Real Assets • Issue RFI for a completion portfolio • Add TIPS through invitation to bid process • Conduct new mandate searches	 In Process In Process December Recommendation Ongoing
Adapt Portfolio Analytics • Analytics Reporting • Performance Reporting	 First Quarter 2019 First Quarter 2019
Complete operational updates at State Street	4th Quarter of 2018
Transition to updated asset allocation	September 2018 – June 2020

This timeline allows for a comprehensive review and revision of LACERA's Pension Trust Investment Policy Statement as well as pertinent operational changes including composite structure, custodian accounts, investment management agreements and new target allocations. Barring any unforeseen circumstances, staff expects to complete the transition by June 2020. This document will be updated monthly, communicating the progress of individual steps and provided to the BOI throughout the implementation process.

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FOR INFORMATION ONLY

December 3, 2018

TO: Each Member
Board of Retirement

Each Member
Board of Investments

FROM: Steven P. Rice SPR
Chief Counsel

FOR: December 12, 2018 Board of Investments Meeting
December 13, 2018 Board of Retirement Meeting

SUBJECT: Code of Ethical Conduct

Section XIV. Training of the Code of Ethical Conduct approved by both Boards in December 2016 provides that a copy of the Code will be circulated to Board members every two years. This memo, and its attachment, is submitted pursuant to that provision. Staff commends the Code to Board members for rereading at this time to ensure that the ethical requirements it sets forth are kept fresh in mind.

The Code is subject to review every three years. Accordingly, the Code will be updated and presented to the Boards for discussion and action in 2019.

Attachment

c: Lou Lazatin
Robert Hill
John Popowich
Jon Grabel
All Division Managers
Harvey Leiderman

L//.CERA

CODE OF ETHICAL CONDUCT

Restated and Approved:	Board of Retirement:	December 15, 2016
	Board of Investments:	December 14, 2016

L/A CERA Los Angeles County Employees Retirement Association
300 N. Lake Ave., Pasadena, CA 91101 / PO Box 7060, Pasadena, CA 91109-7060 / www.lacera.com / 626/564-6000

To LACERA Board Members and Staff:

LACERA holds itself to the highest ethical standards of honesty, integrity, trustworthiness, and fairness.

We must employ these principles every day in fulfilling LACERA's **Mission** to *produce, protect, and provide the promised benefits*. These principles are an important part of our shared **Values** of *Professionalism, Respect, Open Communications, Fairness, Integrity, and Teamwork* (PROFIT) and our collective **Vision** of *Excellence, Commitment, Trust, and Service.*

Ethics extends to all aspects of our business, including our interactions with each other inside the organization, with LACERA's members, with our plan sponsor, with vendors, with the public, and with all others.

The attached Code of Ethical Conduct provides detailed information as to the ethical standards of conduct required at LACERA. The Code addresses specific legal requirements. The Code also includes other standards rooted beyond the law in concepts of what we want to be as an organization. The Code applies equally to everyone at LACERA, including Board members and staff, because ethical lapses by any of us will reflect on all of us.

Please read the Code carefully and familiarize yourself with it. Every ethical situation you may encounter cannot be specifically addressed in such a document, and it is important that you seek additional information when needed. In this regard, the Code has sections on Reporting and Resources, including contacts for specific questions and reporting of ethical concerns.

Ethics is one of the most important criteria by which our colleagues and stakeholders will measure us. Each and every one of us has responsibility for ensuring the excellence of LACERA's ethics. Thank you for following the Code of Ethical Conduct in your work at LACERA.

Very truly yours,

Gregg Rademacher
Chief Executive Officer

TABLE OF CONTENTS

I. Purpose and Scope

The Los Angeles County Employees Retirement Association (LACERA) is a public pension plan organized under the County Employees Retirement Law of 1937 (CERL) (Cal. Gov't Code §§ 31450 et seq.) and the California Public Employees' Pension Reform Act of 2013 (PEPRA) (Cal. Gov't Code §§ 7522 et seq.). The management and administration of LACERA are vested in the Board of Retirement. All investments of LACERA are the responsibility of the Board of Investments.

The members of the LACERA Boards are mindful of the positions of trust and confidence they hold. The Boards adopt this Code of Ethical Conduct to define standards of ethical conduct required of LACERA Board members and staff. The purpose of the Code is to ensure the proper administration of LACERA and to foster public confidence in LACERA's institutional integrity as a well-managed public pension system.

"Ethics" and "ethical conduct" are defined for purposes of this Code as conduct that complies with principles of honesty, integrity, trust, fairness, and duty in connection with LACERA's business as a public pension fund. This Code looks to three sources for determination of ethical standards:

- First, laws and regulations applicable to LACERA and its business, Board members, and staff, including the California Constitution, CERL, the Political Reform Act and the regulations adopted thereunder, and other statutes, regulations, and case law.

- Second, best practices of ethical conduct. Best practices are drawn from ethical codes and practices of other public pension systems in California and elsewhere, professional associations, and similar sources.

- Third, LACERA's **Mission**, **Values**, and **Vision**, historical LACERA practices, and judgment as to the moral principles and behavior that LACERA as an organization strives to follow.

This Code provides ethical standards for LACERA Board members and staff. The Code provides specific guidance for common situations raising ethical issues. However, the Code does not specifically address every issue that Board members and staff will encounter. As to those other situations, the Code should be used and followed as a reference for standards of conduct and the basis for evaluation of facts and circumstances. The Code requires that additional information be requested when a user is unsure as to how the Code should be interpreted or when a user encounters an ethical issue not covered in the Code.

This Code is important:

- To ensure legal compliance with ethics laws and regulations.

- To further best ethical business practices.
- To establish an organization-wide culture and accountability for ethics.
- To foster trust, credibility, and positive relationships between LACERA and all parties necessary for the effective performance of LACERA's **Mission** *to produce, protect and provide the promised benefits*. These parties include others inside the organization, members, the plan sponsor and other participating employers, vendors, the public, and all others with whom LACERA may deal.
- To further LACERA's **Values** and **Vision**, which incorporate ethics, honesty, integrity, fairness, and trust.
- To establish common ethical standards followed by everyone at LACERA, instead of leaving ethics to unguided and possibly inconsistent personal judgment and interpretation.
- To mitigate the legal and business risks associated with ethical issues.
- To further the organization's business goals and objectives.
- To confirm the process for reporting or raising ethical concerns or questions.
- To identify resources for additional information concerning ethics and the applicable laws and regulations.

The Code shall not be construed as the sole source of ethics laws and regulations which must be observed by LACERA Board members and staff. Nothing in this Code shall exempt any person from any other applicable federal, state, or local law or regulation. The standards of ethical conduct in this Code are in addition to any such other laws and regulations.

II. General Ethical Standards

This Code addresses specific ethical requirements in subsequent sections. The application of those specific requirements is summarized in this Section II as General Ethical Standards.

The following General Ethical Standards apply to LACERA Board members and staff:

- Recognize and be accountable for all fiduciary responsibilities.
- Comply with all applicable laws and regulations.
- Conduct all LACERA business in a fair manner, and be honest in all business dealings.
- Strive to provide the highest quality of performance and counsel.
- Avoid any activity which constitutes an actual conflict of interest or which could be perceived or interpreted as a conflict of interest by others.
- Avoid exerting improper influence or being improperly influenced, and the appearance of improper influence or being improperly influenced.
- Exercise prudence and integrity in the management of funds.
- Report to an appropriate person actions which may constitute violations of this Code of Ethical Conduct.
- Be responsible for maintaining professional competence.
- Be respectful, professional, and courteous to all LACERA Board members and staff, LACERA members, and all persons and entities with which LACERA does business or may otherwise interact.
- Maintain the confidentiality of all plan member information and all other confidential or privileged information so designated, including but not limited to information provided for or related to closed sessions of the Boards, which is received from or created or maintained by LACERA.
- To the extent not otherwise covered by the preceding bullets, conduct LACERA business in a manner consistent with:
  - LACERA's **Mission** *to produce, protect, and provide the promised benefits.*
  - LACERA's **Values** of *Professionalism, Respect, Open Communications, Fairness, Integrity, and Teamwork.*
  - LACERA's **Vision** of *Excellence, Commitment, Trust, and Service.*

    - All other applicable LACERA policies and procedures.

- Report or seek additional information from an appropriate person, when necessary, concerning ethical questions and issues.

III. Prohibited Transactions

The specific ethical requirements in subsequent sections of the Code define and describe certain prohibited conduct. Those prohibitions are summarized in this Section III as Prohibited Transactions.

LACERA Board members and staff shall not engage in the following Prohibited Transactions:

- Utilizing any property, resources, information, or opportunity of LACERA for personal gain.

- Falsifying or failing to record proper entries on any books or records of LACERA.

- Knowingly becoming a party to, or condoning, any illegal activity.

- Authorizing payment of any amount on behalf of LACERA, or for any purpose, other than that explicitly disclosed in the original request for payment.

- Directly or indirectly seeking or accepting gifts, money, property, or other benefit that would influence or appear to influence the conduct of duties.

- Engaging in or conducting outside activities or offices of financial or personal interest that may conflict with the impartial and objective execution of LACERA business activities.

- Selling or providing goods or services to LACERA without disclosure.

- Utilizing the services of relatives or close personal associates for LACERA business without disclosing such relationship prior to execution and obtaining the appropriate approval.

- Engaging in activities involving dishonesty, fraud, deceit or misrepresentation.

- Engaging in outside employment with any providers of supplies or services to LACERA.

- Engaging in outside employment that would interfere with or hamper expected performance at LACERA.

- Engaging in other activities which compromise or appear to compromise one's objectivity in the conduct of one's duties.

- Releasing to any third person plan member information or other confidential or privileged information so designated, including but not limited to information provided for or related to closed sessions of the Boards, which is received from or created or maintained by LACERA.

- Engaging in any other conduct prohibited by this Code of Ethical Conduct or applicable laws and regulations.

IV. Fiduciary Duties

Members of LACERA's Board of Retirement and Board of Investments have fiduciary duties under the California Constitution and other law. LACERA as an organization also has fiduciary duties, which are implemented through LACERA's employees. Finally, certain of LACERA's vendors have a fiduciary duty to LACERA. This Section IV addresses all three categories of fiduciary duty.

A. Fiduciary Duties of Board Members

The California Constitution, Article XVI, Section 17, defines the fiduciary duties of the LACERA Boards, and the Board members:

- The Boards "shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system."
- The Boards "shall have the sole and exclusive fiduciary responsibility over the assets of the system. The retirement board also has 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."
- The members of the LACERA Boards "shall discharge their duties 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."
- The member of the LACERA Boards "shall discharge their duties with the care, skill, prudence, and diligence under the prevailing circumstances that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise with a like character and like aims."
- As to the Board of Investments, the members of the Board "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."

These duties are also included in Section 31595 of CERL.

California case law provides that the Boards and the Board members have a trust relationship with LACERA's members and beneficiaries. This trust relationship means that the Boards and the Board members have a fiduciary duty of prudence and loyalty to members and beneficiaries, which must be exercised in good faith. Further, the Boards and the Board members have a duty to deal fairly with the members and beneficiaries, without the slightest misrepresentation, concealment, threat, or adverse pressure. *Hittle v. Santa Barbara County Employees Retirement Assn.* (1985) 39 Cal.3d 374.

To perform their fiduciary duties, each member of the LACERA Boards shall diligently attend to the business of the Board on which he or she serves, and shall not leave to the other members of the Board control over the administration of the affairs of such Board.

B. Fiduciary Duties of LACERA, and Staff's Role

LACERA as an organization has the same fiduciary duties. LACERA staff supports the organization, the LACERA Boards, and Board members in the fulfillment of their fiduciary duties as described in Section IV(A) of this Code. Accordingly, LACERA staff shall be familiar with the fiduciary duties described in Section IV(A) and conduct themselves at all times in a manner consistent with those duties. LACERA staff shall take no action inconsistent with those duties. LACERA staff shall avoid any conduct which is, or may be perceived to be, detrimental to LACERA and its members and beneficiaries. In dealing with members, LACERA staff shall be honest and forthright. Staff shall ensure that the information provided to members in connection with their rights, questions, choices and decisions, concerns, and issues is complete and accurate.

C. Fiduciary Duties of Certain Vendors

Certain LACERA vendors have a fiduciary duty to the organization under applicable law or under the terms of a contract with LACERA. LACERA Board members and staff shall be aware of those vendors that owe a fiduciary duty and monitor them to ensure that the vendors comply with that duty.

V. Conflicts of Interest

LACERA Board members and staff shall avoid conflicts of interest, including the appearance of conflicts of interest, in all aspects of their work for LACERA and shall comply with applicable laws and regulations relating to conflicts.

A. Form 700 Statement of Economic Interests

Public officials, including LACERA Board members and certain staff, who make or influence governmental decisions are required to submit Form 700 Statements of Economic Interests. Form 700s are an important tool in the identification of actual or potential conflicts of interest by LACERA Board members and staff. Form 700s are public documents. LACERA Board members and designated staff shall file Form 700s when and as required by applicable law and regulations, which are generally summarized here. Additional information can be obtained from LACERA's Legal Office and from Fair Political Practices Commission publications.

Pursuant to California's Political Reform Act, LACERA's Boards have adopted, and the County of Los Angeles Board of Supervisors has approved as code reviewing authority, a Conflict of Interest Code that requires the filing of a Form 700 by positions "which involve the making or participation in the making of decisions which may foreseeably have a material effect on any financial interest," except positions which manage public investments. Cal. Gov't Code § 87302(a). Persons, including members of the Board of Retirement and identified staff, who file under an agency-adopted Conflict of Interest Code are referred to as "Code Filers." LACERA's Conflict of Interest Code sets forth the positions of all Code Filers and describes the specific economic interest Disclosure Categories that apply to each position.

There is also a separate Conflict of Interest Code for staff who serve as officers or hold other positions in LACERA's wholly-owned title holding entities.

Separate provisions of the Political Reform Act require positions managing public investments to file a Form 700. Cal. Gov't Code § 87200. Persons who file under Section 87200, including members of the Board of Investments and identified staff, are referred to as "87200 Filers." 87200 Filers are required to disclose investments, interests in real property, income (including gifts, loans, and travel payments), and business positions as described in Form 700 and the Political Reform Act. While 87200 Filers are not subject to LACERA's Conflict of Interest Codes, they are listed as a matter of information in the Appendix to LACERA's Code.

Form 700s shall be filed, both by Code Filers and 87200 Filers, upon assuming an applicable position, annually thereafter, and on leaving an applicable position. Form 700s shall be filled out by all required filers in a timely, accurate, and thorough and complete manner.

B. Gifts, Honoraria, Travel & Loans

The Political Reform Act, and Regulations promulgated thereunder by the Fair Political Practices Commission (FPPC), impose limitations on gifts, honoraria, travel, and loans. The legal rules associated with gifts, honoraria, travel, and loans are lengthy and detailed. Additional information can be obtained from LACERA's Legal Office and from FPPC publications. A summary of the general standards with respect to these matters is as follows:

Gifts. LACERA Board of Retirement members and staff who are Code Filers are prohibited from receiving gifts totaling more than the legally established gift limit from any single source in a calendar year, if receipts of gifts from that source are required to be disclosed on Form 700 by LACERA's Conflict of Interest Code. LACERA Board of Investments members and staff who are 87200 Filers may not accept gifts totaling more than the legally established limit from any single source in a calendar year. Even if a gift is not subject to Form 700 reporting or the gift limit, a gift may still create a conflict of interest; therefore, LACERA requires Board members and all staff shall make disclosure to the Legal Office of all gifts from a single source with a combined total equal to or greater than $50 in a calendar year from any individual or entity. Gifts to family members are included in the gift rules under certain circumstances. There are also exceptions to the gift rules for certain gifts; questions should be addressed to LACERA's Legal Office or the FPPC. The gift limit is adjusted biennially. The gift limit for 2015-2016 is $460; the limit for 2017-2018 is $470; the limit for any date after December 31, 2018 should be confirmed with the LACERA Legal Office or the FPPC. Gifts from a single source with a combined total less than $50 in a calendar year currently are not reportable under FPPC law and regulations; gifts equal to or in excess of this limit are subject to reporting on Form 700, subject to the requirements and limitations described above. A more detailed SUMMARY OF GIFT LIMITATIONS AND RESTRICTIONS is attached as Appendix A.

Honoraria. LACERA Board of Retirement members and staff who are Code Filers are prohibited from receiving honoraria from any source if receipts of gifts from that source are required to be disclosed on Form 700 by LACERA's Conflict of Interest Code. LACERA Board of Investments members and staff who are 87200 Filers may not accept any honoraria payments. There are certain exceptions to the honoraria rules; questions should be addressed to LACERA's Legal Office or the FPPC. Even if an honorarium is not subject to disclosure, Board members and staff shall make disclosure to the Legal Office of such a payment from any individual or entity as to which LACERA will take any action.

Travel. Payments or reimbursement for travel are subject to the reporting requirements for gifts and income. If a travel payment is a gift, it is subject to the gift limit. A travel payment can also be considered an honorarium. Recusal may be required from any decision that will have a materially foreseeable financial effect on the source of a travel payment. There are exceptions to the travel rules; additional information can be obtained from LACERA's Legal Office or the FPPC.

Loans. 87200 Filers and elected members of the Boards may not receive a personal loan that exceeds $250 at any given time from an officer, employee, member, or consultant of LACERA or from any individual or entity that has a contract with LACERA. Ordinary retail loans and credit card transactions are excepted if they are offered on the same terms as generally available to the public. Elected members of the Boards may not receive a loan of $500 or more unless the loan is made in writing and clearly states the terms. There are other limitations and exceptions. A loan can constitute a gift under certain circumstances. Additional information is available from LACERA's Legal Office or the FPPC.

Board members and staff are prohibited from soliciting any gift or any other consideration (including but not limited to money, service, gratuity, favor, entertainment, hospitality, loan, or other thing of value) from anyone who is doing or is seeking to do business of any kind with LACERA.

Board members and staff are prohibited from accepting any gift from anyone who is doing or is seeking to do business of any kind with LACERA, when the gift is offered with a view toward securing favorable treatment in the awarding of any contract or agreement, or the making of any determination.

All rules relating to gifts, honoraria, travel, and loans are subject to change by the FPPC and other authority. Confirmation of the current rules can be obtained from LACERA's Legal Office or the FPPC.

C. Incompatible Activities/Incompatible Offices

LACERA Board members and staff shall not engage in any employment, activity, or enterprise which is inconsistent, incompatible, in conflict with, or inimical to his or her duties for or on behalf of LACERA, or with the duties, functions, or responsibilities of the position he or she occupies for LACERA. LACERA Board members and staff shall not perform any work, service, or counsel outside his or her responsibilities for LACERA where any part of his or her efforts will be subject to approval by the Boards or any employee of LACERA acting in that capacity. Cal. Gov't Code § 1126.

Board members may not simultaneously hold two public offices where the functions of the offices are inconsistent or where there are conflicting interests. Cal. Gov't Code § 1199.

D. Contracts

LACERA Board members and staff shall not be financially interested, directly or indirectly, in any contract made between LACERA and any individual or entity. The making of a contract includes any participation whatsoever, including the development of the need for the goods or services subject to the contract, issuance of a Request for Proposals (RFP), Request for Information (RFI), purchase order, or other solicitation or contracting process, evaluation of prospective contracting parties, selection of contracting parties, negotiation of the terms of the contract, and performance of the contract. Cal. Gov't Code § 1090 et seq.

E. Investments

LACERA Board members and staff shall not have any personal interest, direct or indirect, in the making of any investment by LACERA, or in the gains or profits from any investment. Board members and staff shall not, directly or indirectly, for himself or herself, or as an agent or partner of others, sell or provide any investment product to LACERA. Cal Gov't Code § 31528 (a), (b).

F. Disclosure and Recusal

LACERA Board members and staff shall disclose actual or potential conflict of interest, or the appearance of an actual or potential conflict of interest, to the Chief Executive Officer and the Legal Office. Board members and staff shall recuse themselves from involvement, consideration, and decision of a matter as to which the member has an actual conflict of interest. Recusal, or disqualification, is mandatory in certain circumstances, and discretionary in others. Board members and staff should consider recusing themselves from consideration and decision of a matter as to which the member has a potential conflict of interest, or the appearance of an actual or potential conflict of interest. Board members and staff shall consult with the Legal Office on any issue of recusal to discuss legal requirements that may apply to the particular circumstances, including whether recusal is required, whether recusal is an effective remedy for a conflict or potential conflict or whether other steps (up to and including disqualification of an individual or the Board) are necessary, and the way in which recusal, if possible, should be documented.

G. Conflicts of Interest by Vendors

LACERA's contracts shall include appropriate provisions to ensure that there are no conflicts of interest during the contracting process and to prevent conflicts of interest during the term of a contract. Board members and staff should be alert to, and take other appropriate steps to prevent, actual or potential conflicts of interest by vendors in connection with the making or performance of contracts.

VI. Employment of Related and Unrelated Persons

To avoid nepotism or the appearance of nepotism, LACERA may not employ a person who is related to:

- A Board member.
- The Chief Executive Officer.
- Persons serving as an Assistant Executive Officer and any other employee reporting directly to the Chief Executive Officer.
- A division manager.

This prohibition does not prevent the continued employment of a person who has already been working for LACERA in a full time and non-probationary capacity for thirty consecutive days prior to the date the Board member or other individual described above acquired their position, or the related party became related. If a related party is retained under these circumstances, any actual or potential conflict of interest must still be corrected or sufficiently mitigated.

Related parties of other LACERA staff may be considered for employment by LACERA provided the applicant possesses all the qualifications for employment. Such a related party may not be hired for or assigned to a position which would either:

1. Create either a direct or indirect supervisor/subordinate relationship with a related party; or
2. Create either an actual conflict of interest or the appearance of a conflict of interest.

These criteria will also be considered when assigning, transferring, or promoting a staff member.

For purposes of this policy, related parties include:

- Spouse, parent or grandparent, child or grandchild, or sibling.
- First degree aunt, uncle, niece, nephew or cousin.
- Any "step" or "in-law" variant of the aforementioned relationships.
- Any member of the employee's household, whether or not related.

A LACERA Board member or staff may not exercise discretionary authority to hire, evaluate or promote a related party under any circumstances, even when otherwise permitted under the standards above.

Board members and staff may participate in the hiring process for any person, whether related or unrelated, only in accordance with established LACERA policies and procedures and shall not use or attempt to use influence outside of their individual hiring authority to cause the organization to hire any individual as a permanent or temporary LACERA employee. Board members and staff may refer individuals interested in potential employment to LACERA's Human Resources.

VII. Contracting and Vendor Relationships

LACERA Board members and staff shall not have contact with individuals or entities who are seeking engagement by LACERA in response to an RFP, RFI, purchase order, or other solicitation or contracting process, except in accordance with the published terms of the contracting process or except for, and limited to, contact necessary in connection with ongoing LACERA business with an individual or entity.

LACERA's RFPs, RFIs, and other contract solicitations shall include notice that a "quiet period" will be in place from the beginning of the contracting process until the selection of the successful party such that LACERA Board members and staff, as well as potential contracting parties, are instructed that contact between Board members and staff, on the one hand, and all potential contracting parties, on the other hand, shall not occur, except as provided in the preceding paragraph. As part of the contracting process, potential contracting parties shall be required to disclose potential conflicts of interest.

LACERA Board members and staff shall participate in the contracting process only in accordance with established LACERA policies and procedures, and the published terms of the process. Board members and staff shall not use or attempt to use influence, outside of their individual authority to cause the organization to enter into a contract with any individual or entity. Board members and staff may refer individuals or entities for consideration for contracting to the appropriate LACERA staff responsible for the particular procurement or contract process.

VIII. Use of LACERA Position, Resources, and Information

LACERA Board members and staff shall not use their position or status with LACERA, LACERA property, funds, or other resources, or LACERA information, including plan member information, investment information, and other information concerning LACERA's business, for any personal purpose or gain, to secure any special privilege or exemption for himself or herself or any other individual or entity, or to assist or further the interests of any other individual or entity except in the normal course of LACERA's business. LACERA position, resources and information are to be exclusively used for LACERA business.

Board members and staff shall maintain the confidentiality of plan member information. Cal. Gov't Code § 31532.

Disclosures of public LACERA information pursuant to the Public Records Act shall be handled by the Legal Office to ensure compliance with legal requirements, consistency, and proper recordkeeping.

Board members and staff shall not disclose information acquired during a closed session of the Board unless the Board takes action to authorize disclosure. Cal. Gov't Code § 54963.

Board members and staff shall not, directly or indirectly, for himself or herself, or as an agent or partner of others, borrow or use any of the funds or deposits of LACERA, except to make authorized current and necessary payments of the retirement system. Cal. Gov't Code § 31528(a).

IX. Personal Conduct and Communication

LACERA Board members and staff shall adhere to the following standards in their personal conduct in performing their work on behalf of LACERA:

- Board members and staff shall conduct themselves in accordance with this Code of Ethical Conduct.

- Board members and staff shall abide all applicable laws and regulations.

- Board members and staff shall act in a manner consistent with LACERA's **Mission**, **Values**, and **Vision** and shall follow all LACERA policies and procedures.

- Board members and staff shall treat similarly situated individuals and entities in a similar way, absent good cause, in the conduct of LACERA's business and decision-making to ensure consistency and fairness.

- Board members and staff shall communicate with, orally and in writing, and otherwise in all respects and at all times treat each other and all others in a respectful, professional, courteous, and civil manner.

A Board member shall not correspond with a non-LACERA person or entity using LACERA letterhead unless the communication is authorized by the Board on which the member serves. Copies of all written communications from a Board member to a current service provider, or person or entity related to a current service provider, relating to LACERA's business (other than purely personal or social correspondence) shall be provided to the Chief Executive Officer for subsequent distribution to all members of the Board on which the member serves. A copy of any written communication (other than purely personal or social correspondence, routine announcements, generally distributed newsletters, and the like) received by a Board member from a current LACERA service provider, or person or entity related to a current service provider, shall be forwarded to the Chief Executive Officer for subsequent distribution to all members of the Board on which the member serves. For purposes of this paragraph, the terms "communication" and "written communication" include email and other forms of electronic communication as well as physical or hard copy forms of communication.

Board members and staff shall be aware of the risk of communicating inaccurate information to plan members. Board members and staff shall refrain from providing specific advice or counsel with respect to a plan member's rights, benefits, or obligations, except staff who are authorized to communicate with members on such matters. All others should refer plan member questions and concerns to the Chief Executive Officer or appropriate designee.

X. Political Activities

LACERA Board members and staff may work on individual candidate and ballot campaigns, and attend campaign events, during their personal time. They may make campaign contributions using personal funds, subject to applicable campaign finance laws. No LACERA funds, property, technology, letterhead, logo, or other resources may be used by LACERA Board members and staff to support personal political activities. LACERA Board members and staff may not solicit political contributions to a candidate or ballot campaign from other Board members and staff except (1) as part of a solicitation that is made to a significant segment of the public or (2) with respect to a ballot measure which would affect the rate of pay, hours of work, retirement, civil service, or other working conditions of LACERA employees; solicitations permitted by these two exceptions may only be made on personal time. LACERA Board members and staff may not use their influence or make any threats or promises relating to potential or current employment, promotion, or compensation to secure a vote or financial or other support for a candidate or ballot campaign. Cal. Gov't Code §§ 3201 et seq. LACERA Board members and staff may use their LACERA position to identify themselves when making an endorsement, provided that no statement may be made or action taken directly or indirectly indicating that the person represents LACERA in making the endorsement or that the endorsement is supported by or represents the position of LACERA, except when providing information authorized by the Boards. Nothing in this section is intended to impose any limitation on the personal political activities of LACERA Board members and staff not permitted by California law.

XI. Leaving LACERA

A. Prospective Employment

LACERA Board members and all staff shall not make, participate in making, or influence a decision by LACERA that directly relates to a nongovernmental prospective employer while negotiating or after reaching an employment agreement. The foregoing prohibition is triggered by an interview with a nongovernmental prospective employer or a nongovernmental prospective employer's agent, discussing an offer of employment with a nongovernmental prospective employer or a nongovernmental prospective employer's agent, or accepting an offer of employment. The foregoing prohibition does not apply if the Board member or staff is legally required to make or participate in the making of the decision or if the decision affects the nongovernmental prospective employer in substantially the same way as it will affect a significant segment of the public generally. Cal. Gov't Code § 87407.

B. Limitations on Subsequent Activities

LACERA Boards members, the Chief Executive Officer, Assistant Executive Officers, persons next in line to Assistant Executive Officers, Chief Counsel, chief deputy legal officers, the Chief Investment Officer, and persons next in line to the Chief Investment Officer shall not, for two years after leaving that position, for compensation, act as agent or attorney for, or otherwise represent, any person except the County of Los Angeles, by making any formal or informal appearance before, or any oral or written communication to, LACERA, or any Board member or employee of LACERA, for the purpose of influencing action by LACERA, including any action involving the awarding or issuance of a contract or sale or purchase of goods or property. Cal. Gov't Code § 31528(c).

XII. Reporting

Reporting of ethical issues is an important element of ensuring compliance with ethical requirements. Any concerns by Board members and staff about possible violations of this Code of Ethical Conduct or other ethical issues shall be reported to the Chief Executive Officer, the Chief Audit Executive, or Chief Counsel. Board members may also report concerns to their Board Chair. Staff may also report ethical issues to their immediate supervisor or division manager.

Concerns may be reported anonymously at the Internal Audit Hotline, which may be reached externally at (626) 564-6000, extension 2040, or internally by dialing extension 2040 directly.

XIII. Enforcement

LACERA's Chief Executive Officer is responsible for communicating, implementing and enforcing the Code of Ethical Conduct with respect to LACERA staff. The Board Chairs will enforce this Code with respect to Board members and the Chief Executive Officer in accordance with Board administrative policies and applicable laws.

Violations of any of the provisions of the Code by staff may result in disciplinary action as the situation may warrant, up to and including termination of employment. Violations by Board members will be handled in accordance with Board Regulations, Bylaws, and policies and applicable law.

Questions on this matter should be referred to LACERA's Director of Human Resources, Internal Audit, or the Legal Office.

XIV. Training

LACERA management will provide training to new staff on this Code of Ethical Conduct as part of the new employee orientation. Management will provide training to existing staff on this Code at least every two years.

Management will include discussion of this Code in the training for new and incoming Board members. The Code will be circulated to all Board members at least every two years.

XV. Resources

Board members and staff may refer to the following resources for additional information concerning this Code, questions concerning the application and interpretation of the Code to specific situations, and other issues concerning ethics and ethical conduct relevant to the performance of their duties and work for LACERA and its members and beneficiaries.

A. LACERA's Legal Office

The LACERA Legal Office is familiar with the laws and regulations that form the foundation for this Code. The Legal Office is experienced in applying those laws and regulations to specific situations. The Legal Office is available at any time to provide additional information concerning ethics questions and issues and provide written or oral advice or opinions with respect to specific situations. The Legal Office will respond to information about potential ethical issues, concerns, and violations in the LACERA organization and take appropriate action. Questions for the Legal Office should be directed to LACERA's Chief Counsel.

B. LACERA's Internal Audit Division/Audit Hotline

LACERA's Internal Audit Division will respond to information concerning ethical issues, problems, and concerns regarding acts or omissions in connection with LACERA's operations and will take appropriate action. Questions for the Internal Audit Division should be directed to LACERA's Chief Audit Executive. The Internal Audit Division may also be contacted anonymously on the Internal Audit Hotline, which may be reached externally at (626) 564-6000, extension 2040, or internally by dialing extension 2040 directly.

C. LACERA's Conflict of Interest Code

Board members and staff should refer to LACERA's current Conflict of Interest Code, which is available on LACERA's website, www.lacera.com, with respect to LACERA's requirements for the filing of Form 700 Statements of Economic Interests.

D. California Constitution

The California Constitution, Article XVI, Section 17, which sets forth the fiduciary duties of the Board and Board members and the retirement system, is available on line at https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=CONS&division=&title=&part=&chapter=&article=XVI.

E. CERL

CERL, California Government Code §§ 31450 et seq., is available online at https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=GOV&division=4.&title=3.&part=3.&chapter=3.&article=.

F. California Government Code Section 1090 et seq.

Conflict of interest rules relating to financial interest in the making of contracts, incompatible activities, and incompatible offices are contained in California Government Code Section 1090 et seq., which is available online at https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=4.&title=1.&part=&chapter=1.&article=4.

G. California Government Code Section 3201 et seq.

Rules regarding political activities are contained in California Government Code Section 3201 et seq., which is available on line at https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=4.&title=1.&part=&chapter=9.5.&article=.

H. Other California Statutes

Other California statutes relating to ethics issues are available online at https://leginfo.legislature.ca.gov/faces/codes.xhtml.

I. Fair Political Practices Commission

The California Fair Political Practices Commission (FPPC) has a large number of resources available concerning ethics issues under the Political Reform Act, FPPC Regulations, and related law. FPPC resources include:

1. Website: www.fppc.ca.gov/.
2. FPPC Publications available on the website:
    a. Form 700 Statement of Economic Interests, and Form 700 Statement of Economic Interests Reference Pamphlet.
    b. Limitations and Restrictions on Gifts, Honoraria, Travel and Loans: A Fact Sheet for Local Officials.
    c. Recognizing Conflicts of Interest: A Guide to the Conflict of Interest Rules of the Political Reform Act.
    d. Leaving Local Government Employment.
    e. Political Reform Act, including the full text of the law.
    f. FPPC Regulations, including the full text of the regulations.
    g. FPPC Letters and Opinions, including a searchable database of letter and opinions issued by the FPPC on ethical issues.

3. Campaign Rules/Finance. http://www.fppc.ca.gov/learn/campaign-rules.html.

4. Advice and Enforcement. The FPPC offers informal and formal advice on ethical issues and has procedures for making a complaint. Instructions for seeking advice or making a complaint are on the FPPC website.

J. California Attorney General Conflict of Interest Guide

The California Attorney General has published a Conflict of Interest Guide which contains information on a wide range of conflict of interest issues. Although the Guide was last updated in 2010, it remains a useful reference. The Guide is available online at https://oag.ca.gov/sites/all/files/agweb/pdfs/publications/coi.pdf.

K. Los Angeles County Registrar-Recorder/County Clerk

Information concerning Los Angeles County campaign rules and finance can be obtained at https://lavote.net/home/voting-elections/candidate-measure-information/campaign-finance-prop-b-reporting/campaign-disclosure-information.

L. Los Angeles County Fraud Hotline

Ethical concerns may be reported to the Los Angeles County Fraud Hotline, http://fraud.lacounty.gov/. The County Fraud Hotline will not generally investigate LACERA issues, but it will forward concerns to LACERA for response.

XVI. Review of Code

This Code shall be reviewed by the Board of Retirement and Board of Investments every three years. The Legal Office and Internal Audit shall monitor applicable laws, regulations, and best practices on an ongoing basis and shall request amendment of the Code when deemed necessary and appropriate. This Code may be amended by action of both Boards at any time.

APPENDIX A – SUMMARY OF GIFT LIMITATIONS AND RESTRICTIONS

WHAT IS A GIFT? A "gift" is any payment or other benefit that confers a personal benefit for which you do not provide payment or services of equal or greater value. Gifts are valued at fair market value as of the time the gift is received. Gifts include price discounts and rebates, unless generally available to the public. Gifts are income reportable on Form 700, Schedule D or E, subject to applicable rules and exceptions, including those below.

Examples of Gift Exceptions (no reporting/no dollar limit/no conflict of interest):

1. Items returned unused to the donor, or for which you reimburse the donor, within 30 days.
2. Items donated unused, within 30 days of receipt, to (a) a 501(c)(3) non-profit with which you do not hold a position, or (b) a government agency. You cannot claim a tax deduction.
3. Gifts from a family member (spouse or former spouse, child, parent, grandparent, grandchild, sibling, current or former parent-in-law, siblings-in-law, aunt, uncle, niece, nephew, or first cousin, or the spouse of any such person), unless the family member is acting for another person.
4. Informational material provided to assist you in performing your official duties, including books, periodicals, videos, admission or discounts to informational conferences, demonstrations, or tours. This exception does NOT apply to meals, lodging, or (generally) transportation.
5. Tickets that you do not use and do not give to another person.
6. Two tickets, used by you and one guest, to attend a fundraiser for a campaign committee or candidate or a 501(c)(3) non-profit, provided the tickets are received from the organizer.
7. Items provided to LACERA and used by you for official business.
8. Travel payments made to LACERA and used to pay for your official business travel.

Examples of Limited Gift Exceptions:

1. Gifts commonly received from a dating partner, long-time personal friend, existing personal or business relationship unrelated to LACERA, or as an act of human compassion (no reporting or dollar limit, but these exceptions do not apply if person has LACERA business).
2. Wedding gifts received (not subject to dollar limit but reportable on Form 700 if meet gift threshold, with ½ of value reportable by each spouse; disqualification applies if donor has LACERA business).
3. Gifts commonly exchanged on holidays, birthdays, or similar occasions to the extent the gifts exchanged are not disproportionate in value.
4. Reciprocal exchanges with another individual (e.g., rotating lunches) so long as payments are not substantially disproportionate, payments are roughly equal over any calendar year, and no single payment is greater than the gift limit.
5. Travel payments for actual transportation, meals, and lodging the day of, day before, and day after you give a speech for a legitimate LACERA business purpose or on a state/national policy issue. Such payments are reportable on Form 700 and subject to conflict of interest disqualification.

GIFT LIMITS

Gifts with a combined total of under $50 from a single source for the calendar year need not be disclosed. Gifts greater than the gift limit below in any 12-month period may require disqualification.

Board of Retirement and Staff Identified in LACERA Conflict of Interest Code ("Code Filers"):

For 2016, you may not accept gifts from a single source with a combined total of more than $460 for the calendar year if the Code requires you to report gifts from that source on your Form 700. For 2017-18, the limit increases to $470.

Board of Investments and Staff Identified in Appendix to the Conflict of Interest Code ("87200 Filers"):

For 2016, you may not accept gifts from ANY single source with a combined total of more than $460 for the calendar year. For 2017-18, the limit increases to $470.

IMPORTANT NOTE: This document is only a summary of applicable law as of December 2016; additional rules apply. Any gift may create the appearance of a conflict of interest. Please contact the LACERA Legal Office with any questions. This summary will be updated as needed.

L//CERA

FOR INFORMATION ONLY

December 3, 2018

TO: Each Member
Board of Investments

FROM: Steven P. Rice SPR
Chief Counsel

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: Monthly Status Report on Board of Investments Legal Projects

Attached is the monthly report on the status of Board-directed investment-related projects handled by the Legal Division as of December 1, 2018.

Attachment

c: Lou Lazatin
Robert Hill
John Popowich
Bernie Buenaflor
Jon Grabel
Vache Mahseredjian
John McClelland
Christopher Wagner
Ted Wright
Jim Rice
Jude Perez
Scott Zdrazil
Christine Roseland
John Harrington
Cheryl Lu
Barry Lew
Margo McCabe
Lisa Garcia

LACERA Legal Division
Board of Investments Projects
Monthly Status Report - Pending as of December 3, 2018

	Project/ Investment	Description	Amount	Board Approval Date	Completion Status	% Complete	Notes
HEDGE FUNDS	Capula Global Relative Value Fund, L.P.	Subscription	$250,000,000.00	October 10, 2018	Complete	100%	Completed.
PRIVATE EQUITY	Storm Ventures Fund VI, L.P.	Subscription	$50,000,000.00	June 13, 2018	In Progress	85%	Side letter negotiations in process and close to final execution.

L//.CERA

FOR INFORMATION ONLY

December 4, 2018

TO: Each Member
Board of Investments

FROM: Steven P. Rice SPR
Chief Counsel

FOR: December 12, 2018 Board of Investments Meeting

SUBJECT: Update on FPPC Advice Letter re Trustee Sanchez

SUMMARY OF FPPC LETTER

On August 31, 2018, LACERA submitted a request for formal advice to the Fair Political Practices Commission (FPPC) seeking confirmation of the rules that will apply if Trustee Sanchez, or her business Chantico Global, enter into a business relationship with LACERA non-U.S. emerging markets public equity asset manager Lazard Asset Management LLC. On October 17, 2018, the FPPC issued its response. A copy is attached. The letter is consistent with the advice previously given by staff to Trustee Sanchez and the Board.

Specifically, based on the FPPC letter, if Trustee Sanchez enters into a contract with Lazard (which she has not yet done), the following limitations will apply:

1. Under Government Code Section 1090, the Board cannot enter into a new contract with Lazard, including modification of the existing contract, while Trustee Sanchez is on the Board. As a supplier to Lazard, Trustee Sanchez would have a financial interest in Lazard that could influence her decision-making for LACERA. Section 1090 does not impact or limit the ability of the Board to continue to enforce the terms of the existing Lazard contract, which predates Trustee Sanchez's appointment to the Board.

2. Under the Political Reform Act, Trustee Sanchez cannot participate in Board decisions concerning the monitoring and oversight of Lazard. Such decisions would have a reasonably foreseeable material financial effect on Lazard, and therefore they would also be presumed to have an effect on Trustee Sanchez's own financial interest in her personal Lazard relationship. While these limitations require Trustee Sanchez's recusal, they do not impair the ability of the Board to monitor the existing relationship.

In addition, the FPPC states in a footnote that Trustee Sanchez's ability to participate in the Board's oversight and decisions regarding other managers, even in the same asset category, would not be impaired. However, the letter states the FPPC did not further analyze potential actions regarding other managers. Such actions could take a variety of forms and are hypothetical at this time. Such actions will need to be evaluated by LACERA on a case-by-case basis to determine if there is a foreseeable material financial impact on Lazard.

The Board and Trustee Sanchez, as the requesting parties of the FPPC's advice, can rely upon the letter. The letter can be offered as evidence of good faith conduct in an enforcement proceeding, to the extent the facts provided to the FPPC in obtaining the advice were complete and accurate.

POTENTIAL IMPACT ON LACERA'S INVESTMENT OPERATIONS

It is important to repeat that Trustee Sanchez has not yet formed a contract with Lazard, although negotiations continue. During the negotiation phase, she must, under the Political Reform Act, common law conflict of interest principles, and LACERA's Code of Ethical Conduct continue to recuse herself from any matters relating to the management and oversight of Lazard and take all other actions necessary to avoid a conflict. Trustee Sanchez already publicly announced that she will recuse herself, as recorded in the Minutes of the August 8, 2018 Board meeting. In addition, under Section 1090, LACERA may not amend the existing contract or enter into a new contract so long as the negotiations continue because the prospect of economic advantage creates a financial interest.

Trustee Sanchez was from the beginning, and continues to be, proactive and forthcoming in notifying LACERA of the issue and the status of her discussions with Lazard. She has complied with her conflict reporting obligations.

However, because the negotiations with Lazard are ongoing, additional information is provided below to enable the Board to assess the significance and impact of this issue and the constraints imposed by the FPPC letter.

A. The Lazard Relationship.

LACERA entered into a written Investment Management Agreement with Lazard on January 14, 2013 under which Lazard invests funds in the emerging markets public equity asset class. The contract follows the LACERA template in place at the time and addresses all issues necessary to establish the rights and obligations of LACERA and Lazard. The agreement has not been amended since it was formed.

Key provisions of the contract include:

- Assets Under Management. The contract provides that, "LACERA may at any time and from time to time adjust the amount of its assets allocated to Manager by making additional contributions to or withdrawals from the Managed Assets." Accordingly, the assets given to Lazard for investment may be adjusted by LACERA upwards or downwards, including to zero, without limitation and without the need to amend the contract.

- Investment Guidelines. Lazard's services are performed pursuant to Investment Guidelines attached to the contract; the contract gives LACERA the right to revise the Investment Guidelines from time to time, and Lazard agrees to be bound by any such revisions. Therefore, LACERA may adjust Lazard's mandate without an amendment to the agreement.

- Compensation for Services. Lazard is compensated pursuant to a fee schedule attached to the agreement. The fee schedule contains tiered percentage rates based on the amount of assets under management.

- Term and Termination. The term is structured as rolling 12-month periods commencing on the effective date of January 14, 2013 and automatically extended for successive periods unless terminated by either party. No action or contract amendment is required by LACERA to keep the existing agreement in place and fully effective for so long as LACERA desires. The agreement may be terminated by either party for convenience or upon the other party's default.

- Form 700. The contract provides for the annual filing of a Form 700 Statement of Economic Interest. The contract also provides that Lazard may provide an opinion from counsel that the Political Reform Act does not apply to it, but such opinion must be reasonably acceptable to LACERA. It is LACERA's view that Lazard is required to file a Form 700, and Lazard "acknowledges" in the contract that it is subject to the Political Reform Act.

- Nondiscrimination. Under the contract, Lazard agrees "to ensure" that applicants are employed and its employees are treated "without regard to their race, color, religion, sex, age, marital status, sexual orientation, disability, medical condition, ancestry or national origin."

- Amendment. The contract may only be amended in writing.

Lazard currently manages approximately $335 million in the non-U.S. emerging markets public equity space. LACERA has approximately $2.6 billion with other non-U.S.

emerging markets public equity managers, including three active managers and one index fund, for a total non-U.S. emerging markets program of $2.9 billion (including Lazard). Collectively, all non-U.S. public equity managers (emerging and developed markets) have $12.4 billion of LACERA's total $26.5 billion in global public equity investments. The global public equity program (U.S. and non-U.S.) has 19 active managers and one index fund, including Lazard and the other non-U.S. emerging markets public equity managers and fund referenced above.

Investment staff advises that a global equity structure review is expected to be presented to the Board in the first calendar quarter of 2019, with incremental recommendations continuing through the second calendar quarter of the review. The outcome of that review cannot be predicted at this time. Investment staff advises that it has no plans to expand the existing Lazard relationship into other categories of work that would require a new contract. This too, however, is subject to change.

B. Legal Issues Regarding Trustee Sanchez's Service Given the FPPC Letter.

In addition to the conflict principles under Section 1090 and the Political Reform Act discussed above and in the FPPC letter, there are two additional principles that govern Trustee Sanchez's obligations with respect to management of her discussions and potential contract with Lazard: fiduciary duty, and the incompatible activities doctrine. Each is discussed below.

1. <u>Fiduciary Duty</u>.

Trustee Sanchez, as all Board members, has a fiduciary obligation to put the interests of the fund and its members and their beneficiaries ahead of her own personal interests and the interests of her business, Chantico.

This fiduciary obligation is found in the California Constitution (Article XVI, Section 17). The constitutional duty include the duty of loyalty to the fund and its participants (Section 17(a), (b)) and the duty of prudence to act with the care of a similarly situated person under the circumstances (Section 17(c)). As a member of the Board of Investments, Trustee Sanchez's fiduciary duty explicitly extends to the management of the fund's assets. (Section 17(a), (d).) These constitutional fiduciary duties are mirrored in Government Code Section 31595, which is part of the County Employees Retirement Law of 1937. The fiduciary duties of Trustee Sanchez are also contained in general principles of trust law, under which a trustee must put the interests of the beneficiaries before her own interests. These principles are further documented in LACERA's Code of Ethical Conduct. (Section IV.A, page 11.)

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These principles do not mean that a trustee must forsake personal advantage, such as the advantage Trustee Sanchez and her business, Chantico, would receive from entering into their own contract with Lazard. The conflict rules set forth in the FPPC letter provide a roadmap for balancing Trustee Sanchez's obligations as a LACERA trustee with her personal business goals.

The balance is struck through recusal under the Political Reform Act on matters that may impact Lazard under the pre-existing Lazard-LACERA contract and through the inability of LACERA, under Section 1090 so long as Trustee Sanchez is on the Board, to enter into a new contract with Lazard or an amendment of the existing contract. If this balance does not interfere with the effective management of the LACERA investment portfolio, then Trustee Sanchez can remain on the Board without violating her fiduciary duty.

However, if it ever came to be in the best interests of LACERA and its beneficiaries for the Lazard contract to be amended or for a new line of LACERA business to be awarded to Lazard, Trustee Sanchez would be required to resign from the Board, lest she deprive the Board of its ability to manage the investment program in LACERA's best interests. We are not at this point, based on the information provided by Investment staff as described in the preceding section of this memo. Accordingly, Trustee Sanchez does not presently face the difficult issue of whether it is necessary to resign from the Board. She can remain on the Board, under the current circumstances, subject to compliance with the rules laid out in the FPPC letter. The structure review in the coming months, or other developments, could require this conclusion to be reevaluated, and even reversed. Of course, Trustee Sanchez's negotiations with Lazard could also end without a contract or any continuing personal business relationship, in which case the conflict issues would be resolved.

Trustee Sanchez, the Board, and LACERA staff must be diligent to monitor the Lazard relationship and related matters and squarely raise and address issues of fiduciary duty if ever it is to LACERA's advantage to amend the current contract or to give Lazard work for the fund in a new area.

Finally, while the Board must be diligent as described above, the Board, by its own vote, cannot compel Trustee Sanchez to resign from the Board. She is appointed to serve her full three-year term under Government Code Section 31520.2. In the event there came a point when it was legally necessary for Trustee Sanchez to resign and she refused to do so, staff will at that time discuss alternatives with the Board.

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2. Incompatible Activities Doctrine.

California Government Code Section 1126(a) provides that, with exceptions not relevant here, "a local agency officer or employee shall not engage in any employment, activity, or enterprise for compensation which is inconsistent, incompatible, in conflict with, or inimical to his or her duties as a local agency officer or employee or with the duties, functions, or responsibilities of his or her appointing power or the agency by which he or she is employed." Section 1126 is rooted in the idea that a public official cannot serve two masters. This doctrine is included in LACERA's Code of Ethical Conduct. (Section V.C, page 15.)

The significance of this doctrine to Trustee Sanchez, the Board, and staff is the same as that described above with respect to fiduciary duty law. There is no current incompatibility based on the information provided by Investment staff. If an incompatibility developed – such as, for example, as a result of the structure review – Trustee Sanchez would be legally required to consider resignation from the Board. This issue must be monitored by all LACERA parties.

CONCLUSION

In summary, no action by Trustee Sanchez, the Board, or staff is required at this time, other than the obligation to continue to monitor the issue, particularly in light of the upcoming structure review. Staff will stay in contact with Trustee Sanchez as her discussions with Lazard continue. Staff will bring this matter back to the Board for additional discussion when appropriate.

Attachment

c: Lou Lazatin
Robert Hill
John Popowich
Jon Grabel
Ted Wright
Harvey Leiderman

STATE OF CALIFORNIA
FAIR POLITICAL PRACTICES COMMISSION
1102 Q Street • Suite 3000 • Sacramento, CA 95811
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October 17, 2018

Steven P. Rice
Chief Counsel
Los Angeles County
Employees Retirement Association
300 N. Lake Avenue
Pasadena, CA 91101

Re: Your Request for Advice
Our File No. A-18-203

Dear Mr. Rice:

This letter responds to your request for advice regarding the conflict of interest provisions of the Political Reform Act (the "Act")[1] and Government Code section 1090. Please note that we are not a finder of fact when rendering advice (*In re Oglesby* (1975) 1 FPPC Ops. 71), and any advice we provide assumes your facts are complete and accurate. If this is not the case or if the facts underlying these decisions should change, you should contact us for additional advice.

Regarding our advice on Section 1090, we are required to forward your request and all pertinent facts relating to the request to the Attorney General's Office and the Los Angeles County District Attorney's Office, which we have done. (Section 1097.1(c)(3).) We did not receive a written response from either entity. (Section 1097.1(c)(4).) We are also required to advise you that, for purposes of Section 1090, the following advice "is not admissible in a criminal proceeding against any individual other than the requestor." (See Section 1097.1(c)(5).)

QUESTIONS

1. Does Section 1090 prohibit the Los Angeles County Employees Retirement Association ("LACERA") Board, with participation by Trustee Sanchez, from entering a new contract with an existing asset manager if Trustee Sanchez's company enters into a consulting agreement with that asset manager?

2. Does the Act prohibit Trustee Sanchez from participating in governmental decisions involved with monitoring and oversight of an existing agreement between an asset manager and LACERA if her company enters into a consulting agreement with the asset manager?

[1] The Political Reform Act is contained in Government Code Sections 81000 through 91014. All statutory references are to the Government Code, unless otherwise indicated. The regulations of the Fair Political Practices Commission are contained in Sections 18110 through 18997 of Title 2 of the California Code of Regulations. All regulatory references are to Title 2, Division 6 of the California Code of Regulations, unless otherwise indicated.

CONCLUSIONS

1. Yes. As explained below, Section 1090 would prohibit both Trustee Sanchez and the LACERA board from entering any new contracts with the asset manager if her company enters into a consulting agreement with that asset manager. In addition, the prohibition under Section 1090 would apply to any decision to modify, extend, or renegotiate the existing contract between LACERA and the asset manager.

2. Yes. As explained below, the Act would prohibit Trustee Sanchez from participating in governmental decisions involved with the monitoring and oversight of the existing contract between LACERA and the asset manager because the decisions would have a reasonably foreseeable material financial effect on the asset manager.

FACTS AS PROVIDED BY THE REQUESTOR

You are Chief Counsel of LACERA seeking advice on behalf of the LACERA Board of Investments ("Board"), and Gina Sanchez, a trustee who sits on the Board.

LACERA is the independent public agency responsible for administering retirement benefits for the active and retired employees of the County of Los Angeles and certain other participating employers. It is governed by two boards, a Board of Retirement generally responsible for administration of the fund and a Board of Investments generally responsible for investment of the fund's assets, which currently are approximately $56 billion. This request concerns only the Board of Investments and Trustee Sanchez.

Board of Investments

The Board consists of nine trustees, four appointed by the Los Angeles County Board of Supervisors, four elected by the members, and the Los Angeles County Treasurer and Tax Collector, who sits ex officio. The appointed members are required to "have had significant experience in institutional investing, either as an investment officer of a bank, or trust company; or as an investment officer of an insurance company, or in active, or advisory, capacity as to investments of institutional or endowment funds." (Gov. Code, § 31520.2(a).)

Trustee Sanchez

Trustee Sanchez is an appointed trustee on the Board. Her service as a trustee began on January 1, 2018 and terminates on December 31, 2020. She will be eligible for reappointment thereafter. As a trustee, Ms. Sanchez serves on the Board's Equity Growth Committee ("Growth Committee"), which makes recommendations to the full Board with respect to various matters, including investment manager selection, oversight, management, and reporting relating to the public and private equities portion of LACERA's portfolio.

Trustee Sanchez is the founder, Chief Executive Officer, and 75% shareholder of Chantico Global, LLC. Chantico, which was established in 2013, performs asset allocation modeling and serves as an asset allocation consultant to institutions and other clients. As a consultant, Chantico provides its clients with strategic and tactical research, review, and counseling to assist in asset allocation and performs process research and review of investment policy-setting and decision-making. Trustee Sanchez's work for Chantico has continued throughout her period of service on LACERA's Board.

Asset Manager

One of LACERA's asset managers performs as a non-U.S. emerging markets public equity manager that manages approximately $348 million for LACERA. LACERA has numerous managers across all of its other asset classes, which include private equity, hedge funds, real estate, commodities, and fixed income. The total portfolio is approximately $56 billion across all asset classes. In overseeing the portfolio, Board decisions regarding emerging markets managers are evaluated and considered separately from managers responsible for other categories. As for oversight and monitoring, emerging markets managers are evaluated in three ways: 1) as a sub-category; 2) as part of the global equity portfolio; and 3) as part of the total LACERA fund.

The asset manager performs its services for LACERA pursuant to an Investment Management Agreement ("IMA"), which became effective as of January 14, 2013, several years before Trustee Sanchez became a LACERA trustee. The IMA with this asset manager, which had an initial 12-month term and renews automatically for successive 12-month terms unless terminated pursuant to the agreement, is still in effect. The asset manager's performance is included in periodic reports to the Board and the Growth Committee, and may be discussed from time to time as part of the Board and Growth Committee's responsibility to oversee LACERA's global public equity investments.

In addition to its current services, the asset manager, and other divisions within the same corporation, have expressed interest in doing other work for LACERA and may, from time to time, participate in responding to Requests for Proposals and other opportunities for new assignments in various asset categories. For example, this asset manager unsuccessfully bid on fixed income and private equity RFPs. Currently, the asset manager performs no services for LACERA other than under the IMA for non-U.S. emerging market public equities.

Trustee Sanchez and the Asset Manager

Beginning in or around May 2018, Trustee Sanchez began discussions with the asset manager and other divisions within the same corporation, concerning various forms of potential business transactions between them. Trustee Sanchez advised LACERA's Legal Office in or around early June 2018 because she was aware of the asset manager's relationship with LACERA. Since that time, Trustee Sanchez has continued to keep LACERA's Legal Office informed of the status of her discussions with the asset manager as they continued and evolved.

By mid-August 2018, the discussions between Trustee Sanchez and the asset manager had focused to the point where it now appears that the form of transaction could be, should it go forward, a consulting agreement between Chantico and the asset manager, with a scope of work including bespoke statistical modeling and market research in connection with a mutual fund unrelated to LACERA and managed by the asset manager. Although the fee arrangement is not yet finalized, it appears likely at this time that, if a contract is signed, Chantico will be paid hourly for its consulting services.

Following the formation of Chantico in 2013, Trustee Sanchez and the asset manager had periodic discussions about potential business. However, the contract under discussion between Chantico and the asset manager, if it is finalized, will be the first actual business between those entities. Chantico and the asset manager did not have a client or contractual relationship at any time during the five years preceding Trustee Sanchez's appointment to the LACERA Board.

Trustee Sanchez's Recusal

Upon being informed by Trustee Sanchez of the discussions with the asset manager, LACERA's Legal Office evaluated the matter and advised Trustee Sanchez that, out of an abundance of caution,,she should recuse herself and leave the boardroom during consideration of any item that relates to or could have an effect upon the asset manager or its corporate family so long as the discussions with the asset manager continued. The Legal Office further advised Trustee Sanchez and other LACERA officials that the Board should not, pending additional information as to the potential conflicts issue, amend the existing contract or enter into any new contracts, with the asset manager or its corporate family.

ANALYSIS

Section 1090

Section 1090 generally prohibits public officers, while acting in their official capacities, from making contracts in which they are financially interested. Section 1090 is concerned with financial interests, other than remote or minimal interests, that prevent public officials from exercising absolute loyalty and undivided allegiance in furthering the best interests of their agencies. (*Stigall v. Taft* (1962) 58 Cal.2d 565, 569.) Section 1090 is intended "not only to strike at actual impropriety, but also to strike at the appearance of impropriety." (*City of Imperial Beach v. Bailey* (1980) 103 Cal.App.3d 191, 197.)

A contract that violates Section 1090 is void. (*Thomson v. Call* (1985) 38 Cal.3d 633, 646.) The prohibition applies regardless of whether the terms of the contract are fair and equitable to all parties. (*Id.* at pp. 646-649.) When an officer with a proscribed financial interest is a member of the governing body of a public entity, the prohibition of Section 1090 extends to the entire body. (89 Ops.Cal.Atty.Gen. 49, 50 (2006); *Fraser-Yamor Agency, Inc. v. County of Del Norte* (1977) 68 Cal.App.3d 201, 211-212.)

New Contract Between LACERO and the Asset Manager

You have asked whether Section 1090 would prohibit the Board, with participation by Trustee Sanchez, from entering a new contract with the asset manager to perform different services than it provides now if Trustee Sanchez's company enters into a consulting agreement with the asset manager for services unrelated to LACERO. The determinative issue is whether Trustee Sanchez would have a financial interest in the new contract. We conclude that she would.

Under section 1090, "the prohibited act is the making of a contract in which the official has a financial interest" (*People v. Honig* (1996) 48 Cal.App.4th 289, 333), and officials are deemed to have a financial interest in a contract if they might profit from it in any way. (*Ibid.*) Although Section 1090 nowhere specifically defines the term "financial interest," case law and Attorney General Opinions state that prohibited financial interests may be indirect as well as direct, and may involve financial losses, or the possibility of losses, as well as the prospect of pecuniary gain. (See e.g., *Thomson v. Call*, *supra*, 38 Cal.3d at pp. 645, 651-652; 85 Ops.Cal.Atty.Gen. 34, 36-38 (2002).)

In addition, case law and statutory exceptions to Section 1090 make clear that the term "financially interested" must be liberally interpreted. (See, e.g., *People v. Deysher* (1934) 2 Cal.2d 141, 146 ["(h)owever devious and winding the chain may be which connects the officer with the forbidden contract, if it can be followed and the connection made, the contract is void"].) Further, "the certainty of financial gain is not necessary to create a conflict of interest ... (t)he government's right to the absolute, undivided allegiance of a public officer is diminished as effectively where the officer acts with a hope of personal financial gain as where he acts with certainty." (*People v. Gnass* (2002) 101 Cal.App.4th 1271, 1298 (citations omitted).)

Instructive here is a 2003 California Attorney General opinion where the board of a redevelopment agency anticipated entering into contracts with business firms intending to locate or expand their offices in a certain redevelopment project area. (86 Ops.Cal.Atty.Gen. 187 (2003).) Several of those businesses were clients of one of the board member's promotional products company. (*Ibid.*) In determining that the board member would have a financial interest in any contracts between the redevelopment agency and those businesses, the opinion stated:

> The board member would have a "financial interest" in the contracts due to his business relationship with the contracting parties as a supplier of goods or services. (See 85 Ops.Cal.Atty.Gen. 176, 177-179 (2002); 85 Ops.Cal.Atty.Gen. 34, 35-37 (2002).) In this regard, the board member could be influenced by the prospect of future business opportunities directly related to the contracts or by a desire to maintain favorable ongoing relationships with the contracting parties. The Legislature has made clear that ongoing business relationships may represent financial interests for purposes of section 1090. (See, e.g., § 1091, subd. (b)(5), (b)(6), (b)(8).) The purpose of section 1090 "is to remove or limit the possibility of any personal influence, either directly or indirectly, which might bear upon an official's decision ...." (Citations omitted.)

(86 Ops.Cal.Atty.Gen. at p. 188.)

The present matter is similar. If Trustee Sanchez entered a consulting services contract with the asset manager, she would have a financial interest in any new contract between LACERO and the asset manager based on her business relationship with the asset manager as a supplier of services. She could be influenced in her decisionmaking by the possibility of future business opportunities and/or the desire to maintain a favorable relationship with the asset manager.

The conclusion that Trustee Sanchez would have a financial interest in any new contract between LACERO and the asset manager is underscored by looking to the statutory exceptions to Section 1090. As noted above, the Legislature has made clear that ongoing business relationships, including those for the provision of goods and services, represent financial interests for purposes of Section 1090. Under Section 1091(b)(8), however, an official has only a remote interest in a contract entered into by the body or board of which they are a member if they are a "supplier of goods or services when those goods or services have been supplied to the contracting party by the officer for at least five years prior to his or her election or appointment to office."

Thus, Trustee Sanchez would have a prohibitory financial interest under Section 1090 in any new contract between LACERA and the asset manager if she provides services to the asset manager, but only a remote interest if those services were provided for at least five years prior to her appointment to the LACERA Board in 2018. According to the facts, although Trustee Sanchez has engaged in periodic discussions with the asset manager about providing consulting services, she has never actually provided such services to the asset manager. In fact, you state that if the proposed contract between Chantico and the asset manager is finalized, it will be the first actual business between those entities. Therefore, no exceptions to Section 1090 apply to allow a contract between Trustee Sanchez's business and the asset manager.

You suggest Trustee Sanchez may not be financially interested in any new contracts between LACERA and the asset manager pursuant to *Eden Township Healthcare Dist. v. Sutter Health* (2011) 202 Cal.App.4th 208. There, a district official participated in negotiating public contracts with a nonprofit corporation that employed the official as its president and chief executive officer. (*Id.* at pp. 212-214.) The official had no ownership interest in the nonprofit corporation. (*Ibid.*) The *Eden* court found that the official was not financially interested in those contracts because there was no evidence to suggest that the official's compensation would in any way be impacted by those contracts. (*Id.* at p. 227.)

Eden is factually different than the present matter, and we do not view its holding so broad as to cover the facts of this situation. Trustee Sanchez is the founder, Chief Executive Officer, and 75% shareholder of Chantico, a for-profit consulting firm; she is not a salaried employee of a nonprofit organization. Nonetheless, you assert the hourly compensation her company will receive from the asset manager will not be affected by, and she will receive no other personal benefit under, the new contract between LACERA and the asset manager. Even if true, this point is not persuasive, especially when considering her company could be looking for future business opportunities with the asset manager.

As mentioned above, the underlying purpose of Section 1090 is to "remove or limit the possibility of any personal influence, either directly or indirectly, which might bear upon an official's decision . . .." (See, e.g., *Stigall*, supra, at p. 659.) In addition, "[t]he defining characteristic of a prohibited financial interest is whether it has the potential to divide an official's loyalties and compromise the undivided representation of the public interests the official is charged with protecting." (*Lexin v. Superior Court* (2010) 47 Cal.4th 1050, 1075.)

If Trustee Sanchez's business were to enter a contract with the asset manager, it is difficult to imagine, for reasons mentioned above, how she would ever be able to provide her absolute, undivided allegiance to LACERA when participating in the contracting process involving a client of her firm. This real potential to divide her loyalties is precisely the type of situation Section 1090 seeks to prevent.

Accordingly, if Trustee Sanchez's consulting business were to enter a contract with the asset manager, Section 1090 would prohibit her from participating in any new contracts between LACERA and the asset manager.[2] And when Section 1090 is applicable to one member of a governing body of a public entity, the prohibition cannot be avoided by having the interested board member abstain; the entire governing body is precluded from entering into the contract. Also, please note that a decision to modify, extend, or renegotiate a contract constitutes involvement in the making of a contract under section 1090. (See *City of Imperial Beach v. Bailey* (1980)103 Cal.App.3d 191.)

Conflicts Under the Act

Section 87100 prohibits any public official from making, participating in making, or otherwise using his or her official position to influence a governmental decision in which the official has a financial interest. A public official has a "financial interest" in a governmental decision, within the meaning of the Act, if it is reasonably foreseeable that the decision will have a material financial effect on one or more of the public official's interests. (Section 87103; Regulation 18700(a).) Relevant to the facts provided, Section 87103 identifies interests from which a conflict of interest may arise, including:

- An interest in a business entity in which the official has a direct or indirect investment of $2,000 or more (Section 87103(a)); or in which the official is a director, officer, partner, trustee, employee, or holds any position of management (Section 87103(d)).

- An interest in a source of income to the official, including promised income, which aggregates to $500 or more within 12 months prior to the decision. (Section 87103(c).)

- An interest in his or her personal finances and those of immediate family members. (See Section 87103.) An official always has an interest in his or her personal finances.

Here, Trustee Sanchez has an interest in her consulting business as a business entity and source of income, an interest in any clients of the business from whom she has received income aggregating $500 or more in the previous 12 months as sources of income, and an interest in her personal finances.[3]

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[2] In response to the inquiry in your request, this prohibition would apply to decisions on contracts related to other divisions or entities from within the same corporation as the asset manager. However, it would not apply to contracts with other LACERA managers in the same asset category but not part of the asset manager's larger corporate family. Also note that we do not further analyze this issue under the Act.

[3] An effect on an official's interest in his or her personal finances or those of immediate family members is not considered separately if the decision also affects the official's interest in a business entity or real property

Foreseeability and Materiality

Regulation 18701(a) provides that a financial effect on an official's financial interest is presumed to be reasonably foreseeable if the interest is a named party in or the subject of a governmental decision before the official's agency.

You have asked whether Trustee Sanchez could continue to provide monitoring and oversight of the current contract between LACERA and the asset manager if her consulting business were to enter a contract with the asset manager. To the extent monitoring and oversight involves governmental decisions, the asset manager would presumably be the named party in and/or the subject of such decisions, and the financial effect on her interest in the asset manager will be presumed to be reasonably foreseeable.

Regulation 18702.1(a)(7)[4] provides that a decision's reasonably foreseeable financial effect on a business entity in which an official has an interest is material whenever the business entity is "subject to an action taken by the official's agency, the effect of which is directed solely at the business entity in which the official has an interest."

Thus, the Act prohibits Trustee Sanchez from taking part in any governmental decisions involving monitoring or oversight of the contract between LACERA and the asset manager because the decisions would be directed solely at the asset manager and would have a reasonably foreseeable material financial effect on the asset manager.[5]

If you have other questions on this matter, please contact me at (916) 322-5660.

Sincerely,

Dave Bainbridge
General Counsel

By: Jack Woodside
Senior Counsel, Legal Division

JW:jgl

(Regulation 18702.5(c)). Because the decisions at issue also affect the Trustee's business interest, we do not further analyze her personal financial interests.

[4] Regulation 18702.1 sets forth the materiality standards applicable to an interest in a business entity explicitly involved in a decision, including a source of income. (Regulation 18702.3(a)(4).)

[5] Because we have already determined that the Act prohibits the Trustee Sanchez from taking part in the decisions at issue, we do not further analyze her other financial interests implicated by those decisions.

LACERA Los Angeles County Employees Retirement Association

FOR INFORMATION ONLY

December 3, 2018

TO: Each Member,
Board of Investments

FROM: Beulah S. Auten, CPA, CGFM, CGMA
Chief Financial Officer

FOR: December 12, 2018 – Board of Investments Meeting

SUBJECT: **Semi-Annual Interest Crediting for Reserves as of June 30, 2018 (AUDITED)**

Pursuant to the County Employees Retirement Law Section 31591, regular interest shall be credited semi-annually on June 30 and December 31 to all contributions in the retirement fund, which have been on deposit six months immediately prior to such date at an interest rate of 2.5% per annum, until otherwise determined by your Board.

The semi-annual interest crediting rate applicable for June 30, 2018, was 3.625% (i.e., 7.25% annual rate). You may recall that in December 2016, your Board approved a reduction in the assumed actuarial earnings rate from 7.50% to 7.25%. The new rate was implemented with your Board's adoption of the June 30, 2016 actuarial valuation. To provide ample time for both the plan sponsor and LACERA to prepare for the rate change implementation, the new 7.25% rate became effective July 1, 2017, which was also when the corresponding employer and employee contribution rates as recommended in the June 30, 2016 valuation report, took effect. Going forward, this annual rate of 7.25% will remain in effect unless your Board adopts a different rate.

The Retirement Benefit Funding Policy stipulates that interest credits for Reserve accounts are allocated in the same priority order as the allocation of actuarial assets. Such interest credits are granted based on Realized Earnings for the period. The allocation of Realized Earnings is performed twice each year on June 30 and December 31.

As of June 30, 2018, there were sufficient Realized Earnings to meet the required interest credit rate of 3.625%, applied to Priorities 1 and 3, the Member Reserve and Employer Reserve. Inasmuch as there were no Advanced Employer Contributions and County Contribution Credit Reserve balances, the remaining Realized Earnings were applied to Priority 5, Employer Reserve. The table below depicts the actual interest credit allocations for the six-month period ended June 30, 2018.

Priority Order	Reserve Account	Interest Credit Rate Applied
1	Member	3.625%
2	Advanced Employer Contributions	N/A
3	Employer	3.625%
4	County Contribution Credit	N/A
5	Employer	1.807%

REVIEWED AND APPROVED:

ROBERT R. HILL
Assistant Executive Officer

Interest Credit Rate Jun 2018 (audited)_final.doc
RH:BSA:tg

c: Board of Retirement, LACERA
Sachi A. Hamai, CEO, Los Angeles County

LACERA

Documents not attached are exempt from disclosure under the California Public Records Act and other legal authority.

For further information, contact:
LACERA
Attention: Public Records Act Requests
300 N. Lake Ave., Suite 620
Pasadena, CA 91101

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