

## 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, SEPTEMBER 11, 2019

*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 Regular Meeting of August 14, 2019
- IV. REPORT ON CLOSED SESSION ITEMS
- V. PUBLIC COMMENT
- VI. CHIEF COUNSEL'S REPORT  
(Memo dated August 26, 2019)
- VII. CHIEF INVESTMENT OFFICER'S REPORT
- VIII. CONSENT ITEMS
  - A. Recommendation as submitted by Wayne Moore, Chair, Credit and Risk Mitigation Committee: That the Board approve the Hedge Funds 2019 Structure Review and the 2019 Hedge Funds Objectives, Policies, and Procedures as advanced to the Board of Investments by the Credit and Risk Mitigation Committee. (Memo dated August 29, 2019)

IX. REPORTS

- A. Meketa Total Fund Performance Report as of June 30, 2019  
Leandro Festino, Managing Principal  
Timothy Filla, Managing Principal  
  
LACERA Total Fund Performance Review as of June 30, 2019  
Jude Perez, Principal Investment Officer  
(For Information Only) (Memo dated September 4, 2019)
- B. Yield Curve Education  
Esmeralda V. del Bosque  
Timothy Filla, Managing Principal  
(Memo dated August 27, 2019)
- C. Private Equity In-House Co-Investment Program Update  
Christopher Wagner, Principal Investment Officer  
David Chu, Senior Investment Officer  
(Memo dated August 30, 2019)
- D. LACERA OPEB Master Trust as of June 30, 2019  
Meketa OPEB Master Trust as of June 30, 2019  
Jude Perez, Principal Investment Officer  
(For Information Only) (Memo dated September 4, 2019)
- E. Performance Review of Real Estate Consultant the Townsend Group  
John McClelland, Principal Investment Officer  
(For Information Only) (Memo dated August 20, 2019)
- F. 2019 Second Quarter Hedge Fund Performance Report  
James Rice, Principal Investment Officer  
Quoc Nguyen, Senior Investment Analyst  
(For Information Only) (Memo dated August 26, 2019)
- G. The Toigo Foundation - 30th Anniversary Celebration  
November 19, 2019 in Los Angeles, California  
Jonathan Grabel, Chief Investment Officer  
(For Information Only) (Memo dated August 30, 2019)
- H. Selection and Hiring of Real Estate Legal Counsel  
Christine Roseland, Senior Staff Counsel  
(For Information Only) (Memo dated August 28, 2019)

IX. REPORTS (Continued)

- I. Monthly Status Report on Legislation  
Barry W. Lew, Legislative Affairs Officer  
(For Information Only) (Memo dated August 26, 2019)
- J. Monthly Board and Staff Education and Travel Report – July 2019  
Beulah S. Auten, Chief Financial Officer  
(Public Memo dated August 28, 2019)  
(Confidential Memo dated August 28, 2019 – Includes Anticipated Travel)
- K. Monthly Status Report on Board of Investments Legal Projects  
Steven P. Rice, Chief Counsel  
(For Information Only) (Memo dated September 3, 2019)
- L. August 2019 Fiduciary Counsel Contact and Billing Report  
Steven P. Rice, Chief Counsel  
(Privileged and Confidential)  
(Attorney-Client Communication/Attorney Work Product)  
(For Information Only) (Memo dated August 29, 2019)

X. ITEMS FOR STAFF REVIEW

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

XII. 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. Hedge Funds 2019 Structure Review
  - 2. Private Equity Co-Investment Update
- B. Conference with Legal Counsel – Anticipated Litigation Significant Exposure to Litigation (Pursuant to Paragraph (2) of Subdivision (d) of California Government Code Section 54956.9)

- 1. One Other Matter

XIII. 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.*

*Persons requiring an alternative format of this agenda pursuant to Section 202 of the Americans with Disabilities Act of 1990 may request one by calling the Board Offices at (626) 564-6000, Ext. 4401/4402, from 8:30 a.m. to 5:00 p.m. Monday through Friday, but no later than 48 hours prior to the time the meeting is to commence. Assistive Listening Devices are available upon request. American Sign Language (ASL) Interpreters are available with at least three (3) business days notice before the meeting date*



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., WEDNESDAY, AUGUST 14, 2019

PRESENT: Shawn Kehoe, Chair

Ronald Okum, Vice Chair

Wayne Moore, Secretary

Alan Bernstein

David Green

Keith Knox

David Muir

Gina V. Sanchez

Herman B. Santos

STAFF ADVISORS AND PARTICIPANTS

Jonathan Grabel, Chief Investment Officer

Steven P. Rice, Chief Counsel

Christine Roseland, Senior Staff Counsel

Christopher Wagner, Principal Investment Officer

Ted Wright, Principal Investment Officer

STAFF ADVISORS AND PARTICIPANTS (Continued)

David Chu, Senior Investment Officer

Barry W. Lew, Legislative Affairs Officer

Ted Granger, Assistant Chief Financial Officer

Didier Acevedo, Investment Officer

Shelly Tilaye, Senior Investment Analyst

Dale Johnson, Investment Officer

Jeff Jia, Senior Investment Analyst

Milliman,

Nick Collier, Consulting Actuary

Meketa Investment Group

Stephen McCourt, Managing Principal

StepStone Group LP

Natalie Walker, Partner

Reed Smith LLP

Harvey Leiderman, Fiduciary Counsel

I. CALL TO ORDER

The meeting was called to order by Chair Kehoe at 9:18 a.m., in the Board Room of Gateway Plaza.

II. ELECTION OF OFFICER (Vice Chair)

A. Vice Chair of the Board

Mr. Okum was nominated to the position of Vice Chair of the Board of Investments by Mr. Bernstein.

August 14, 2019

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## II. ELECTION OF OFFICER (Continued)

Hearing no other nominations, the Board voted unanimously and elected Mr. Okum Vice Chair of the Board of Investments.

## III. PLEDGE OF ALLEGIANCE

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

## IV. APPROVAL OF MINUTES

Mr. Muir made a motion, Mr. Okum seconded, to approve the minutes of the special meeting of July 1, 2019 and minutes of the special meeting of July 2, 2019. The motion passed with Mrs. Sanchez abstaining.

a. Approval of the Minutes of the Special Meeting of July 1, 2019

b. Approval of the Minutes of the Special Meeting of July 2, 2019

## V. REPORT ON CLOSED SESSION ITEMS

There was nothing to report.

## VI. PUBLIC COMMENT

There were no requests from the public to speak.

## VII. CHIEF COUNSEL'S REPORT (Memo dated July 31, 2019)

Mr. Rice provided a brief overview of the Chief Counsel's Report and answered questions from the Board.

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

## VIII. CONSENT ITEMS

Mr. Bernstein made a motion, Mrs. Sanchez, seconded, to approve the following agenda items. The motion passed unanimously by all members present.

- A. Recommendation as submitted by Alan Bernstein, Chair, Corporate Governance Committee. That the Board approve LACERA's affiliation to the Sustainability Accounting Standards Board Investor Advisory Group of the SASB Alliance. (Memo dated July 19, 2019)
- B. Recommendation that the Board approve attendance of Board Members at the Principles for Investment (PRI) in Person 2019 and Responsible Investment in Real Assets on September 9 -12, 2019 in Paris, France 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 Mr. Bernstein)  
(Memo dated July 24, 2019)
- C. Recommendation that the Board approve attendance of Board members at the 2019 LAVCA Summit and Investor Roundtable and LAVCA Venture Investors Annual Meeting on September 23 – 26, 2019 in New York City, New York 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 Mr. Santos)  
(Memo dated July 26, 2019)
- D. Recommendation that the Board approve attendance of Board members at the AVCJ Private Equity & Venture Forum on November 12 – 14, 2019 in Hong Kong 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 Mr. Kehoe)  
(Memo dated July 26, 2019)
- E. Recommendation that the Board approve attendance of Board members at the 2019 PPI Executive Seminar on November 3 – 5, 2019 in Shanghai and PPI's Asia Roundtable on November 6 – 8, 2019 in Shanghai 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 Mr. Kehoe)  
(Memo dated July 30, 2019)

IX. NON-CONSENT ITEMS

- A. Recommendation as submitted by Alan Bernstein, Chair, Joint Organization Governance Committee: That the Board approve the revised Education and Travel Policy. (Memo dated July 31, 2019)

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

Mr. Muir made a motion, Mr. Kehoe seconded, to approve the revised Education and Travel Policy including the four changes adopted by the Board of Retirement on August 7, 2019. The motion passed unanimously.

- B. Recommendation as submitted by Steven P. Rice, Chief Counsel: That the Board approve the Teleconference Meeting Policy. (Memo dated August 5, 2019)

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

Mr. Bernstein made a motion, Mr. Green seconded, to approve the Teleconference Meeting Policy with the following revision (1) Section C.1., Teleconference meetings shall be allowed for all meetings set on less than 20 days' notice at the request of any member who will be out of state or due to health-related concerns. A teleconference venue that meets the requirements of the Brown Act shall be provided by LACERA at its expense, only if necessary. The motion passed unanimously.

- C. Recommendation as submitted by Barry W. Lew, Legislative Affairs Officer: That the Board consider whether to:

1. Approve submission of a legislative proposal for inclusion in the SACRS 2020 Legislative Platform relating to board self-evaluations held in closed session; or

IX. NON-CONSENT ITEMS (Continued)

2. Alternatively, if the legislative proposal is submitted to but not approved by the SACRS membership for inclusion in the SACRS 2020 Legislative Platform, sponsor legislation relating to board self-evaluations held in closed session.

(Memo dated July 24, 2019)

Mr. Kehoe made a motion, Mrs. Sanchez seconded to 1.) Approve submission of a legislative proposal for inclusion in the SACRS 2020 Legislative Platform relating to board self-evaluations held in closed session; or 2.) Alternatively, if the legislative proposal is submitted to but not approved by the SACRS membership for inclusion in the SACRS 2020 Legislative Platform, sponsor legislation relating to board self-evaluations held in closed session. The motion passed with Messrs. Moore and Santos voting no.

- D. Recommendation as submitted by Barry W. Lew, Legislative Affairs Officer: that the Board review and adopt the revised Legislative Policy. (Memo dated July 23, 2019)

Mr. Bernstein made a motion, Mr. Santos seconded, to adopt the revised Legislative Policy. The motion passed unanimously.

X. REPORTS

The following reports were received and filed:

- A. Implementation Update on LACERA Pension Trust Strategic Asset Allocation  
Jonathan Grabel, Chief Investment Officer  
(For Information Only) (Memo dated July 31, 2019)
- B. Performance Review of Private Equity Consultant Stepstone Group  
Christopher J. Wagner, Principal Investment Officer  
(For Information Only) (Memo dated July 24, 2019)

X. REPORTS (Continued)

- C. Update on Pavilion Alternatives Group, LLC  
Christopher J. Wagner, Principal Investment Officer  
(For Information Only) (Memo dated July 23, 2019)
- D. Update on Chief Executive Officer Executive Recruiter Selection  
Steven P. Rice, Chief Counsel  
(For Information Only) (Memo dated July 31, 2019)
- E. Enhancing Transparency  
Steven P. Rice, Chief Counsel  
(For Information Only) (Memo dated July 31, 2019)
- F. Semi-Annual Interest Crediting for Reserves as of June 30, 2019  
(UNAUDITED)  
Beulah S. Auten, Chief Financial Officer  
(For Information Only) (Memo dated July 25, 2019)
- G. Monthly Status Report on Board of Investments Legal Projects  
Steven P. Rice, Chief Counsel  
(For Information Only) (Memo dated July 29, 2019)
- H. July 2019 Fiduciary Counsel Contact and Billing Report  
Steven P. Rice, Chief Counsel  
(Privileged and Confidential)  
(Attorney-Client Communication/Attorney Work Product)  
(For Information Only) (Memo dated July 29, 2019)

XI. ITEMS FOR STAFF REVIEW

In regards to item X.A., the Board requested staff to consider in future Travel Policy discussions the addition of a quantum limit for overall travel for each Board member.

In regards to item X.B., the Board requested staff to provide the BOR with the BOI approved Teleconference Meeting Policy for consideration.

August 14, 2019

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

The Board congratulated Mr. Okum for being elected as the Vice Chair of the Board of Investments.

Mrs. Sanchez shared her experience attending the Said Business School Social Impact Measurement Program.

Mr. Santos asked the Board to unite together in support of the mass shooting victims.

Mr. Knox shared that the global ratings agency, Standard & Poor, raised Los Angeles County's credit rating to AAA, the highest possible credit rating available in the financial markets.

Mr. Grabel welcomed Derek Kong, Investment Officer, to the Private Equity Team and announced Cindy Rivera has been promoted to a Senior Investment Analyst on the Real Estate team, Mel Tsao has been promoted to a Senior Investment Analyst on the Global Equity team and Dale Johnson will be transferring to the Portfolio Analytics team.

**XIII. GOOD OF THE ORDER**  
(For information purposes only)

Lastly, Mr. Grabel shared that Jude Perez was nominated for inclusion on the Chief Investment

Officer's 2019 NextGen list, which brings together 30 of those talented and inspiring asset allocators who show a strong ability to become potential game changers.



#### XIV. 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. Redbird Capital Partners Series 2019, L.P.

Messrs. Wagner, Chu and Acevedo and Ms. Walker of StepStone Group provided a brief presentation and answered questions from the Board.

Mr. Santos made a motion, Mr. Green seconded, to approve a commitment of up to \$150 million to Redbird Capital Partners Series 2019, L.P. Redbird 2019 is a long dated private equity fund that seeks to hold its portfolio companies for a longer period of time relative to typical funds. Redbird targets investments in communications, leisure, hospitality, and sports, energy and industrials, and opportunistic investments. The motion passed unanimously (roll call) with Messrs. Bernstein, Green, Kehoe, Knox, Moore, Muir, Okum, Santos and Mrs. Sanchez voting yes.

2. Atlantic Street Capital IV, L.P.

Mr. Wagner and Mrs. Tilaye and Ms. Walker of StepStone Group provided a brief presentation and answered questions from the Board.

Mr. Santos made a motion, Mr. Green seconded, to approve a commitment of up to \$50 million to Atlantic Street Capital IV, L.P. Atlantic IV invests in small buyout transactions in US based companies, targeting companies in retail, healthcare services, and business

XIV. EXECUTIVE SESSION (Continued)

services. The motion passed unanimously (roll call) with Messrs. Bernstein, Green, Kehoe, Knox, Moore, Muir, Okum, Santos and Mrs. Sanchez voting yes.

3. MSCI ACWI IMI Index Manager Search

Messrs. Wright, Johnson, Jia and Granger and Mr. Collier of Milliman provided a brief presentation and answered questions from the Board. There is nothing to report at this time. A report will be made at a later date in accordance with the Brown Act.

XV. ADJOURNMENT

There being no further business to come before the Board, the meeting was adjourned at 11:36 a.m., in honor of Officer Andre Maurice Moye, Jr., Officer Juan Diaz, and the victims of the mass shootings in El Paso, Texas and Dayton, Ohio. Officer Moye had served with the California Highway Patrol for 3-1/2 years and was assigned to the Riverside Area Office. He is survived by his wife, mother, father, and siblings. Officer Diaz had served with the Los Angeles Police Department for two years and was assigned to the Professional Standards Bureau.

August 14, 2019

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

1. Item IX. E. – REVISED - 2019 Pacific Pension Institute (PPI) Executive Seminar and Asia Roundtable on November 3 – 8, 2019 in Shanghai, China
2. Item X. A. – Supplemental Memo regarding Proposed Revised Education and Travel Policy

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WAYNE MOORE, SECRETARY

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SHAWN KEHOE, CHAIR



August 26, 2019

TO: Each Member,  
Board of Retirement  
Board of Investments

FROM: Steven P. Rice *SPR*  
Chief Counsel

SUBJECT: **CHIEF COUNSEL'S REPORT**

I am pleased to present the Chief Counsel'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.

### **Focusing on Leadership & Employee Engagement**

Each month the management team at LACERA meets to discuss current events, compliance issues, and new and innovative ideas on how we can continue to move LACERA forward and remain focused on our mission and values. From time to time, I may comment about these meetings, and this month we had an exceptional meeting focused on inclusionary communication, leadership, employee engagement, and what we hope will be an inspiring new recognition program at LACERA.

The monthly management team meeting consists of the executive team, division managers, and assistant division managers. Recently we received feedback that the entire supervisory team would like to be included as well so they could have a chance to share the same information at the same time and contribute to the process. This excellent suggestion towards fostering inclusionary dialogue was implemented this month and will continue to be implemented on at least a quarterly basis. Adding the supervisory team to the mix generated excellent feedback and input to the meeting's initiatives and we look forward to continuing this dialogue.

We started the meeting off with a tremendous discussion on leadership. The entire team contributed to this discussion and we delved deeper into how we can all work to be better leaders within LACERA. The team agreed we are committed to being open, communicative, innovative, compassionate leaders who lead by example and exhibit transparency and fairness in all that we do. At the same time, we all acknowledged that we have to hold each other and our staff members accountable for our actions and our promises. The discussion was lively and productive.

We also discussed one of our current strategic plan goals to implement an employee engagement program. Engaged employees are enthusiastic about their jobs, care about the outcome of the work they do, feel they have a voice in the organization, actively engage in innovation and moving an organization ever forward towards fulfilling their mission. Engaged employees feel the organization's values create an environment where they are treated fairly and with respect and that they are valued. Engagement is about more than just employee satisfaction – it is about creating and maintaining an environment where the employee is an active collaborator in delivering on the mission. The Human Resources Division is leading an effort to create an employee engagement program to measure how well we do as an organization in this area and to find a way to systematically create and maintain an environment where engagement is the norm. We will share our progress for the developing plans for this program as we define it more.

We also began a discussion on LACERA's strategic planning and budget process, and ideas for how staff will show leadership in planning for the 2020-21 budget season.

Finally, we will initiate a new recognition program for LACERA employees. In keeping with our theme of inclusion, leadership, engagement, and innovation we announced the "Why?" award. The Why? Award will be a program that encourages staff members to ask why we do something and propose innovative solutions or recommendations that answer the question. The solutions must be actionable and have a positive impact on improving our processes, procedures, and work environment. We are still fleshing out the details on how we will evaluate the suggestions and select the awardees. Those that are chosen will be acknowledged at the Board of Retirement meeting with a Why? Trophy as we explain why they are being recognized. Stay tuned for more details.

### **Empower Relocation to LACERA**

The County of Los Angeles recently concluded a competitive solicitation process for TPA services for their \$14 billion 457 and 401(k) plans. Empower was awarded a five year contract which includes moving their local office team from Glendale to LACERA's office in Suite 210. The move occurred last month. An Open House will be held on September 26. The County and Empower partnered with LACERA and building management to make this change happen. This really was a great collaborative effort and the project was completed on time!

The most obvious benefit of this move is that employees now have only one place to go to meet with service representatives for their 457, 401(k) and LACERA benefits. There are other efficiencies to be gained from being under the same roof, and the teams continue to explore those opportunities.

Please join me in welcoming the Empower team to 300 N. Lake Avenue.

### **CEO Dashboard Update – Quality Control Partial Month Data**

The CEO Dashboard report includes metrics from throughout the organization, including Quality Assurance data on the number of cases tested and the accuracy results for the previous month. This month's data represents only a partial month from July 1, 2019 to approximately mid July 2019. All data collected after that point was lost when the Quality Assurance database became corrupted. This does not mean that the team was unable to conduct their normal quality audits, it just means that they lost measured productivity for about 30% of the month. We have used the data collected to generate this month's Quality Assurance report in the CEO Dashboard.

Quality Assurance has reverted to tracking their work via Excel and are working on a more robust short-term solution for the loss of the database. As with other databases throughout LACERA, the management team is evaluating permanent solutions.

### **Update on Upcoming Key Retirements**

**Chief Financial Officer:** Beulah Auten, Chief Financial Officer, has provided a formal notification of her intent to retire by October 2019. Recruitment of her replacement will be initiated and updates will be provided to the Boards regularly.

**Director of Human Resources:** The search for a replacement for John Nogales, our retiring Director of Human Resources, is progressing on schedule. We have been working closely with our recruiter, EFL Associates, to curate a list of potential candidates to interview. We are excited that our pool of potential candidates seem to fulfill our focus on the recruitment of highly qualified, diverse individuals, with a proven record of accomplishment of employee engagement and development of internal staff members, and someone who can help grow the culture of LACERA. The team has scheduled the first round of selection interviews for the week of August 26, 2019.

In the meantime, beginning on September 2, Annette Cleary, Assistant Director for Human Resources, will serve as interim manager until the end of the selection process. Our recruiter will continue to handle all matters pertaining to the recruitment process.

### **Budget**

The Executive team continues to make progress on our goal to develop a new Strategic Planning and Budgeting process for consideration by the Joint Organizational Governance Committee. We have been focusing on recommending a plan that will deliver on two pillars: (1) sound fiduciary management of budget resources that recognizes LACERA's duty under the California Constitution to "defray reasonable expenses of administering the system;" and (2) continued focus on business needs in member services and investments, and throughout the organization.

LACERA Chief Counsel's Report

August 26, 2019

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We have added a third pillar, which is critical to the successful adoption of any strategic plan and the subsequent budget – the inclusion of the Boards in the development of a strategic plan through the JOGC.

SR: jp

CEO report September 2019.doc

Attachments

# Striving for Excellence in Service



**Outreach Attendance**  
**3,130**

3,130 Year-to-Date



**Outreach Events**  
**45**

45 Year-to-Date



**Outreach Satisfaction**  
**94.1%**

0.9% Change Since Last Mo



**Member Service Center**  
**100.0%**

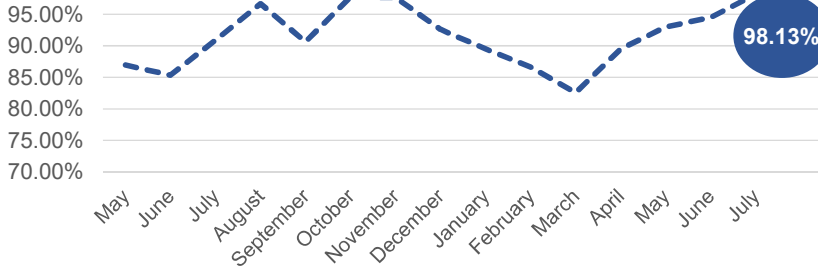
-0.2% Change Since Last Mo



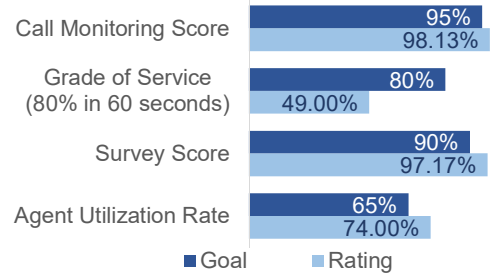
**Member Services Calls**  
**10,583**

10,649 3 Mo. Avg.

## Key Performance Indicator (Overall Performance)



## Key Performance Indicator (Components)



Member Services



■ Calls Answered ■ Calls Abandoned

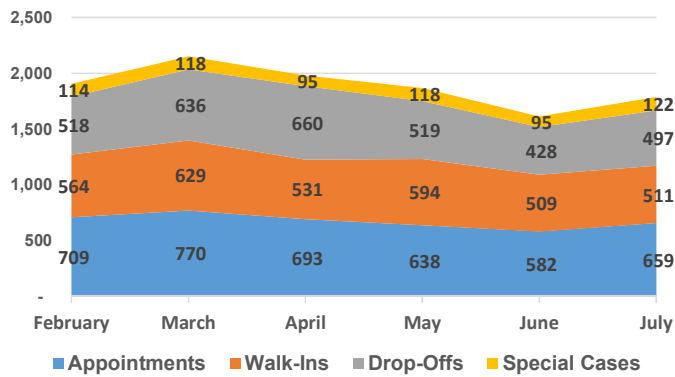
## Top Calls

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

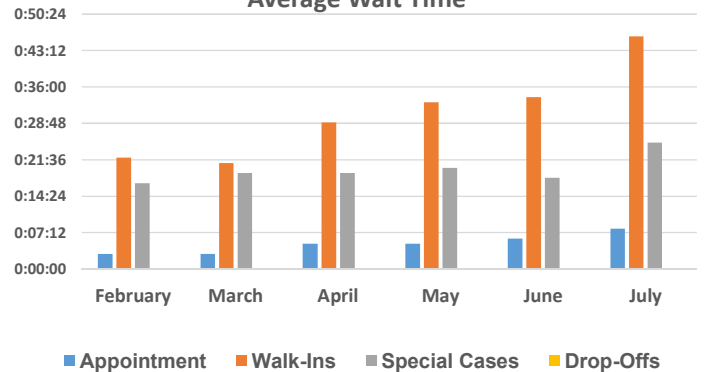


**Emails 377**  
**5:16 hours**  
Avg. Response Time (ART)  
**Secure Messages 174**

## Member Service Center Visits



## Member Service Center Average Wait Time

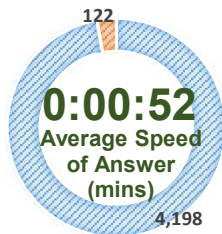


\*Drop Off Wait Time: No Waiting



**Total RHC Calls: 4,320**

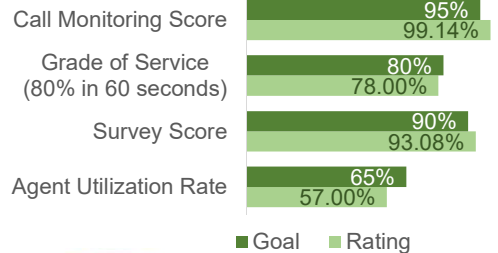
Retiree Healthcare



■ Calls Answered ■ Calls Abandoned

## Top Calls

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



**Emails 250**  
**1 Day**  
Avg. Response Time  
**Secure Messages n/a**



## Striving for Excellence in Service (Continued)

### Applications

**589**

Pending

- 37 Received
- 37 Year-to-Date

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- 0 Re-opened
- 0 Year-to-Date

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- 45 To Board - Initial
- 45 Year-to-Date

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- 2 Closed
- 2 Year-to-Date

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- 589 In Process
- 558 Year-to-Date

### Appeals

**94**

Pending

- 6 Received
- 6 Year-to-Date

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- 2 Admin Closed/Rule 32
- 2 Year-to-Date

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- 0 Referee Recommended
- 0 Year-to-Date

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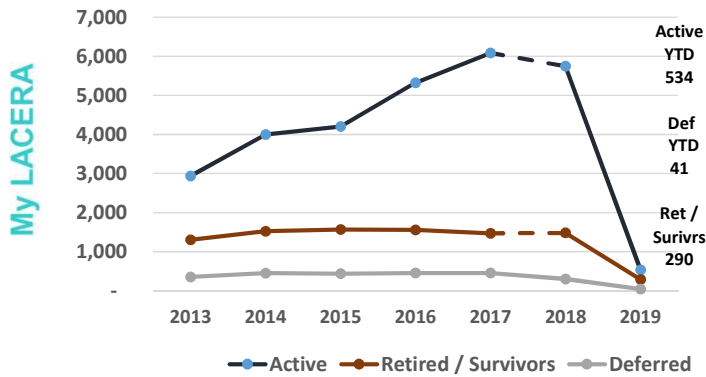
- 0 Revised/Reconsidered for Granting
- 0 Year-to-Date

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- 98 In Process
- 98 Year-to-Date

Disability

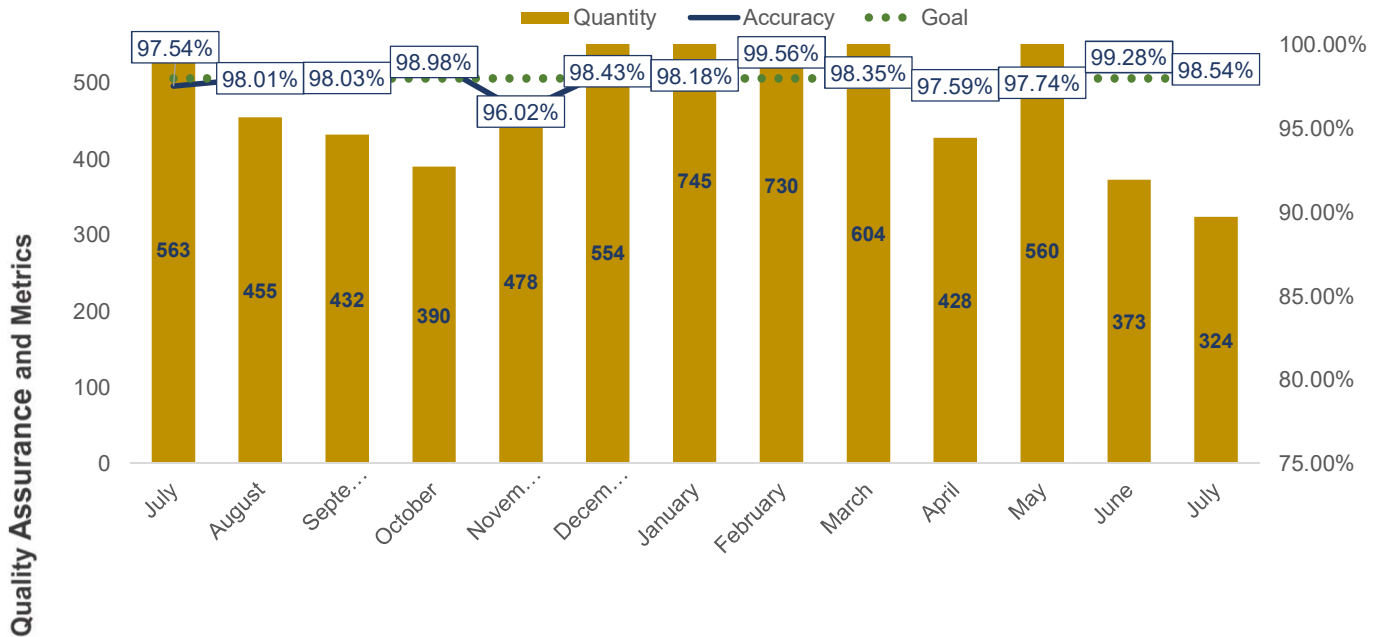
### My LACERA Registrations



MORE COMING SOON!

## Striving for Excellence in Quality

### Audits of Retirement Elections, Payment Contracts, and Data Entry



**July 2019**



**98.54%**

#### Retirement Elections

**129** Samples  
**99.24%** Accuracy

#### Payment Contracts

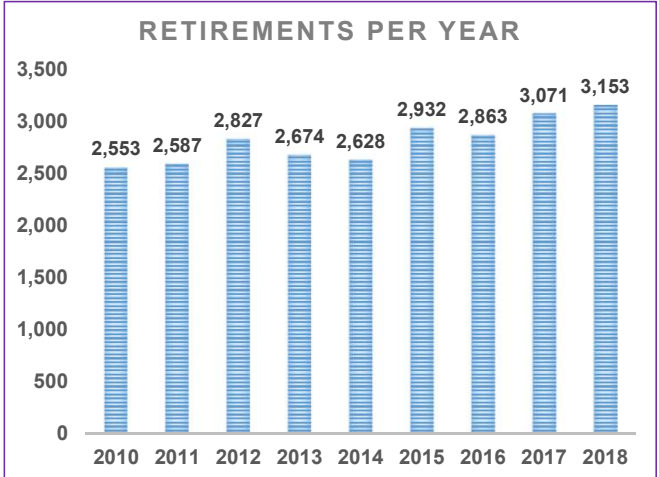
**105** Samples  
**99.10%** Accuracy

#### Data Entry

**90** Samples  
**97.28%** Accuracy

## Member Snapshot

|                      |                      | Members as of 08/14/19 |               |               |               |                |
|----------------------|----------------------|------------------------|---------------|---------------|---------------|----------------|
|                      |                      | Plan                   | Active        | Retired       | Survivors     | Total          |
| General              | Plan A               |                        | 104           | 16,717        | 4,465         | 21,286         |
|                      | Plan B               |                        | 34            | 678           | 68            | 780            |
|                      | Plan C               |                        | 42            | 428           | 67            | 537            |
|                      | Plan D               |                        | 41,714        | 15,604        | 1,450         | 58,768         |
|                      | Plan E               |                        | 17,320        | 13,054        | 1,181         | 31,555         |
|                      | Plan G               |                        | 27,299        | 26            | 2             | 27,327         |
|                      | <b>Total General</b> |                        |               | <b>86,513</b> | <b>46,507</b> | <b>7,233</b>   |
| Safety               | Plan A               |                        | 5             | 5,245         | 1,586         | 6,836          |
|                      | Plan B               |                        | 9,720         | 5,890         | 289           | 15,899         |
|                      | Plan C               |                        | 3,117         | 8             | 0             | 3,125          |
|                      | <b>Total Safety</b>  |                        |               | <b>12,842</b> | <b>11,143</b> | <b>1,875</b>   |
| <b>TOTAL MEMBERS</b> |                      |                        | <b>99,355</b> | <b>57,650</b> | <b>9,108</b>  | <b>166,113</b> |
| <b>% by Category</b> |                      |                        | <b>60%</b>    | <b>35%</b>    | <b>5%</b>     | <b>100%</b>    |

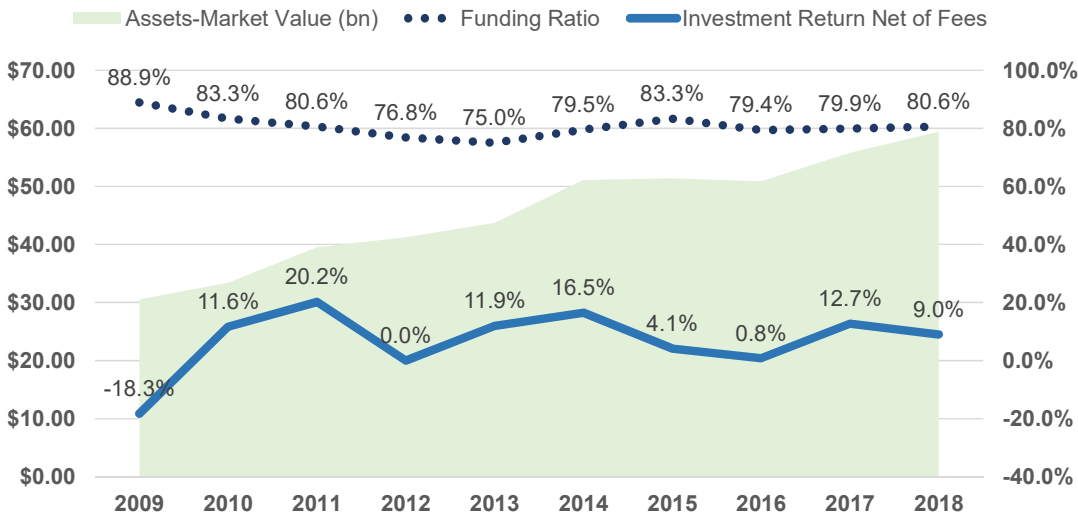


### Average Monthly Benefit Allowance

|                      | General       | Safety        | Total         | %           |
|----------------------|---------------|---------------|---------------|-------------|
| \$0 to \$3,999       | 29,794        | 2,042         | 31,836        | 55.41%      |
| \$4,000 to \$7,999   | 12,292        | 3,569         | 15,861        | 27.60%      |
| \$8,000 to \$11,999  | 3,098         | 3,939         | 7,037         | 12.25%      |
| \$12,000 to \$15,999 | 836           | 1,222         | 2,058         | 3.58%       |
| \$16,000 to \$19,999 | 243           | 232           | 475           | 0.83%       |
| \$20,000 to \$23,999 | 72            | 73            | 145           | 0.25%       |
| \$24,000 to \$27,999 | 25            | 12            | 37            | 0.06%       |
| > \$28,000           | 7             | 2             | 9             | 0.02%       |
| <b>Totals</b>        | <b>46,367</b> | <b>11,091</b> | <b>57,458</b> | <b>100%</b> |

| Healthcare Program (YTD) |                | Healthcare Enrollments (Monthly) |                      |
|--------------------------|----------------|----------------------------------|----------------------|
|                          | Employer       | Member                           |                      |
| Medical                  | \$44.9m        | \$3.7m                           | Medical 51,218       |
| Dental                   | \$3.7m         | \$373,721                        | Dental 52,502        |
| Part B                   | \$5.7m         | xxxx                             | Part B 34,487        |
| <b>Total</b>             | <b>\$54.4m</b> | <b>\$4.1m</b>                    | <b>Total 138,841</b> |

## Key Financial Metrics



### Funding Metrics (as of 6/30/18)

|              |         |
|--------------|---------|
| Employer NC  | 9.92%   |
| UAAL         | 10.99%  |
| Assumed Rate | 7.25%   |
| Star Reserve | \$614m  |
| Total Assets | \$56.3b |

### Contributions (as of 6/30/18)

|              | Employer   | Member   |
|--------------|------------|----------|
| Annual Add   | \$1,524.8m | \$591.3m |
| % of Payroll | 20.91%     | 6.88%    |

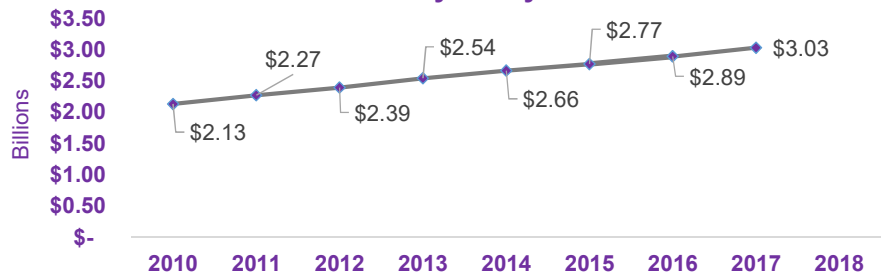
### TOTAL FUND RETURN (Net of Fees)

5 YR: 8.5%    10 YR: 6.3%

### Retired Members Payroll

|                           |          |
|---------------------------|----------|
| Monthly Payroll           | \$298.5m |
| Payroll YTD               | .3b      |
| New Retired Payees Added  | 277      |
| Seamless %                | 99.28%   |
| New Seamless Payees Added | 277      |
| Seamless YTD              | 99.28%   |
| By Check %                | 4.00%    |
| By Direct Deposit %       | 96.00%   |

### Retiree Payroll by Year



| Date                  | Conference  |
|-----------------------|---|
| <b>October, 2019</b>  |   |
| 16-17                 | INCA Investments Latin American Investment Conference<br>Buenos Aires, Argentina  |
| 16-18                 | PREA (Pension Real Estate Association)<br>Annual Institutional Investor Conference<br>Washington D.C.   |
| 20-23                 | IFEBP (International Foundation of Employment Benefit Plans)<br>Annual Employee Benefits Conference<br>San Diego, CA                            |
| 21-25                 | Investment Strategies & Portfolio Management ( <i>prev. Pension Fund &amp; Investment Mgmt.</i> )<br>Wharton School, University of Pennsylvania |
| 25                    | CALAPRS (California Association of Public Retirement Systems)<br>Round Table – Trustees<br>Hilton Oakland Airport                               |
| 27-30                 | NCPERS (National Conference on Public Employee Retirement Systems)<br>Public Safety Conference<br>New Orleans, LA                               |
| 28-30                 | CRCEA (California Retired County Employees Association) Fall Conference<br>Rohnert Park, CA   |
| <b>November, 2019</b> |   |
| 3-5                   | 2019 PPI Executive Seminar<br>Shanghai, China   |
| 6-7                   | Institutional Limited Partners Association (ILPA) General Partner Summit<br>New York, NY  |
| 6-8                   | PPI's Asia Roundtable<br>Shanghai, China  |
| 12-14                 | AVCJ Private Equity & Venture Forum<br>Hong Kong  |
| 12-15                 | SACRS Fall Conference<br>Monterey, CA   |
| <b>January, 2020</b>  |   |
| 26-28                 | NCPERS (National Conference on Public Employee Retirement Systems)<br>Legislative Conference<br>Washington D.C.                                 |
| <b>February, 2020</b> |   |
| 12-14                 | Pacific Pension Institute (PPI) North American Winter Roundtable<br>Rancho Palos Verdes, CA   |

# Chief Investment Officer Monthly Report

Board of Investments

September 11, 2019



Jonathan Grabel   
Chief Investment Officer

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

# Table of Contents

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1. Market Environment
2. Portfolio Performance Update
3. Portfolio Structural Updates
4. Key Initiatives and Operational Updates



# Market Environment

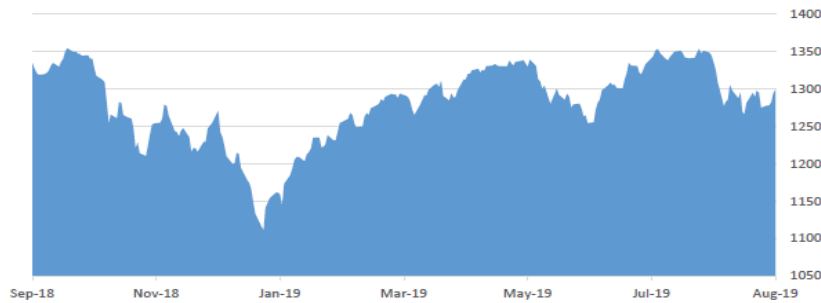


# Global Market Performance as of August 30, 2019

## MSCI ACWI Index (Global Equity Market)

| Trailing Returns (%) |         |      | Annualized Returns (%) |     |     |     |
|----------------------|---------|------|------------------------|-----|-----|-----|
| 1-month              | 3-month | YTD  | 1Y                     | 3Y  | 5Y  | 10Y |
| -2.5                 | 4.2     | 14.2 | -0.9                   | 9.4 | 5.7 | 8.7 |

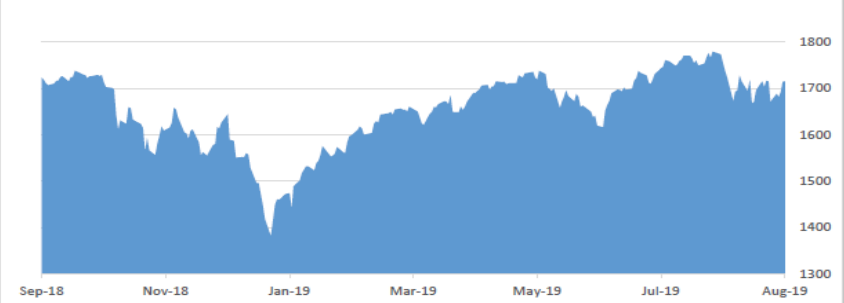
MSCI ACWI 1-Year Performance



## Russell 3000 Index (U.S. Equity Market)

| Trailing Returns (%) |         |      | Annualized Returns (%) |      |     |      |
|----------------------|---------|------|------------------------|------|-----|------|
| 1-month              | 3-month | YTD  | 1Y                     | 3Y   | 5Y  | 10Y  |
| -2.0                 | 6.4     | 18.2 | 1.6                    | 12.0 | 9.2 | 12.6 |

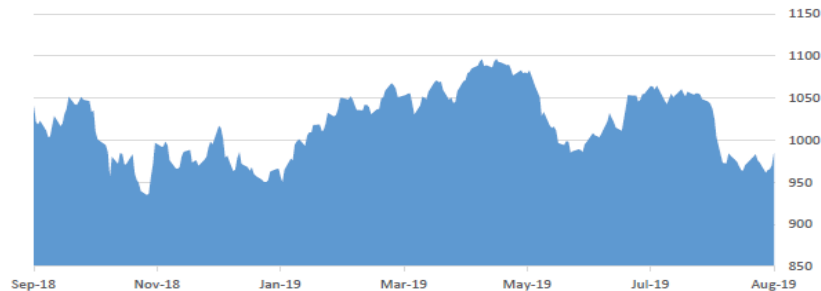
Russell 3000 1-Year Performance



## MSCI Emerging Market Index

| Trailing Returns (%) |         |     | Annualized Returns (%) |     |     |     |
|----------------------|---------|-----|------------------------|-----|-----|-----|
| 1-month              | 3-month | YTD | 1Y                     | 3Y  | 5Y  | 10Y |
| -4.7                 | 0.1     | 3.1 | -3.5                   | 6.2 | 0.7 | 4.3 |

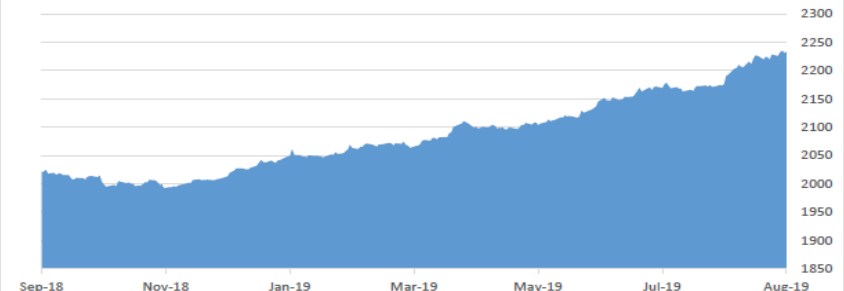
MSCI Emerging Markets 1-Year Performance



## Barclays U.S. Aggregate Bond Index

| Trailing Returns (%) |         |     | Annualized Returns (%) |     |     |     |
|----------------------|---------|-----|------------------------|-----|-----|-----|
| 1-month              | 3-month | YTD | 1Y                     | 3Y  | 5Y  | 10Y |
| 2.6                  | 4.1     | 9.3 | 10.7                   | 3.1 | 3.3 | 3.9 |

Barclays U.S. Agg 1-Year Performance

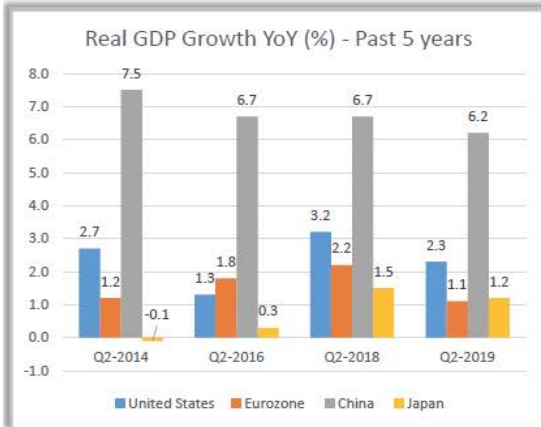


Source: Bloomberg

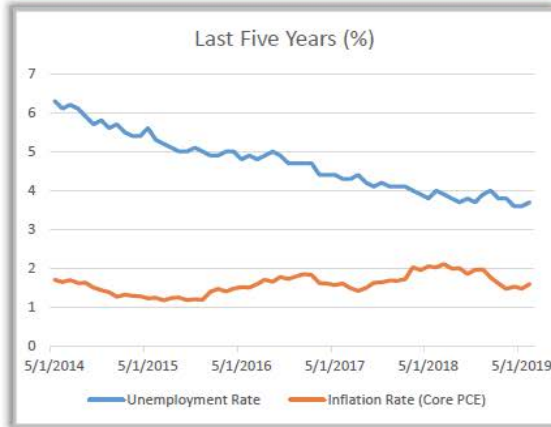


# Key Macro Indicators

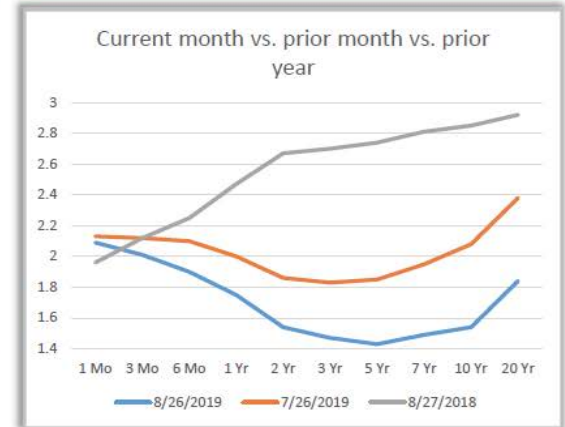
## GDP Growth of Major Economies<sup>1</sup>



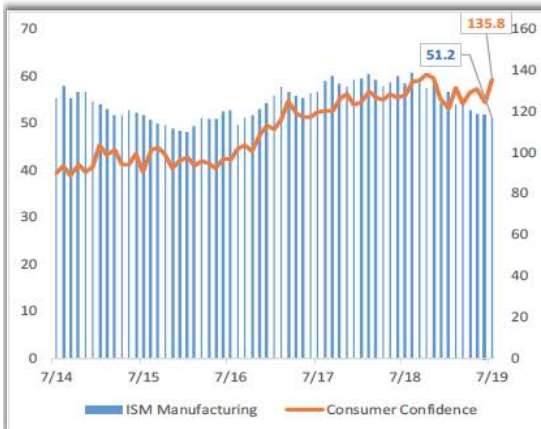
## U.S. Inflation & Unemployment<sup>2</sup>



## U.S. Treasury Yield Curve<sup>3</sup>



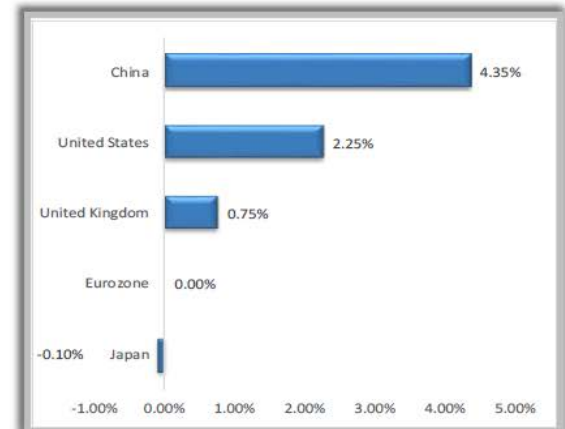
## Consumer Confidence & ISM Manufacturing<sup>4</sup>



## World Equity Valuation<sup>5</sup>



## Central Bank Rates<sup>6</sup>



Sources: 1. Bloomberg 2. Bloomberg 3. U.S. Treasury Department 4. Bloomberg 5. Factset 6. Factset





# Market Themes and Notable Items to Watch

---

## Recent Themes

- Increased volatility in markets
- Slowing global growth
- Yield curve inversion
- Geopolitical Risks
  - China trade tensions; currency devaluation
  - Brexit negotiations
  - Hong Kong protests
  - Iran
- Fed benchmark rate was reduced 25bps

## What to Watch

- Brexit negotiations deadline Oct 31
- Next Fed meeting in September
- Credit spreads
- Read on Inflation

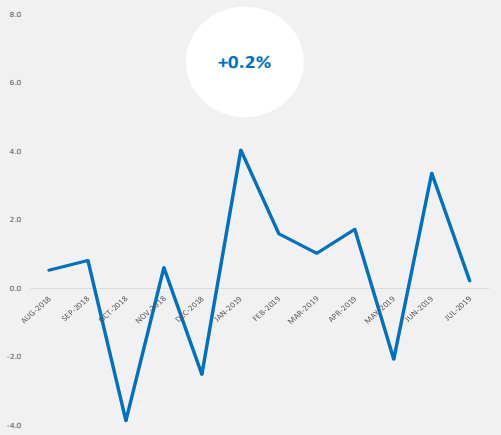


# Portfolio Performance Update

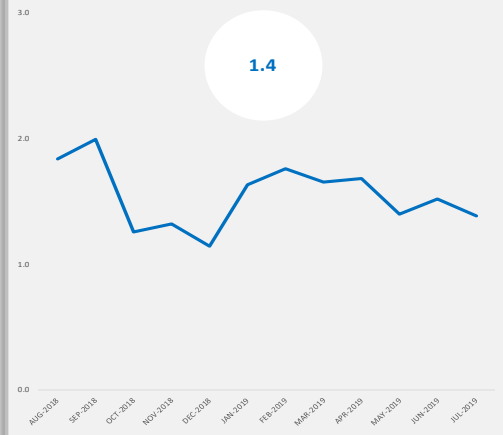


# Total Fund Summary as of July 2019 (estimated)

## Monthly Return (net)



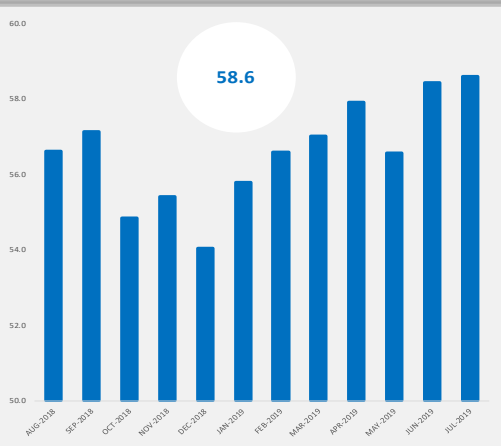
## Sharpe Ratio (3-Year Annualized)



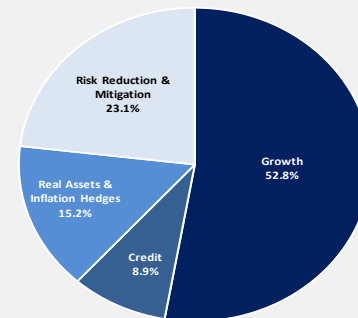
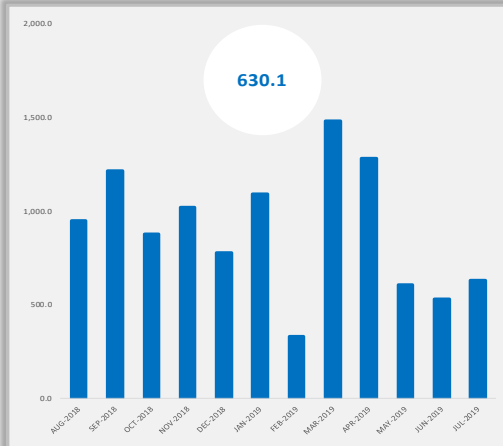
## Asset Allocation

|   | Market Value <sup>1</sup><br>(\$ millions) | % of<br>Total | Interim<br>Target <sup>2</sup> |
|---|--|---------------|--------------------------------|
| <b>TOTAL FUND</b>                             | <b>58,600</b>                              |               |                                |
| <b>Growth</b>                                 | <b>30,913</b>                              | <b>52.8%</b>  | <b>52.0%</b>                   |
| Global Equity                                 | 24,231                                     | 41.3%         | 41.0%                          |
| Private Equity <sup>3</sup>                   | 5,688                                      | 9.7%          | 10.0%                          |
| Opportunistic Real Estate <sup>4</sup>        | 922  | 1.6%          | 1.0%                           |
| Growth Overlay <sup>5</sup>                   | 73   | 0.1%          | —                              |
| <b>Credit</b>                                 | <b>5,206</b>                               | <b>8.9%</b>   | <b>10.0%</b>                   |
| High Yield                                    | 2,324                                      | 4.0%          | 4.0%                           |
| Bank Loans                                    | 876  | 1.5%          | 3.0%                           |
| Emerging Market Debt                          | 860  | 1.5%          | 1.0%                           |
| Illiquid Credit <sup>3,4,6</sup>              | 1,048                                      | 1.8%          | 2.0%                           |
| Credit Overlay <sup>5</sup>                   | 96   | 0.2%          | —                              |
| <b>Real Assets &amp; Inflation Hedges</b>     | <b>8,934</b>                               | <b>15.2%</b>  | <b>15.0%</b>                   |
| Core & Value Added Real Estate <sup>4</sup>   | 5,355                                      | 9.1%          | 8.0%                           |
| Natural Resources & Commodities               | 1,863                                      | 3.2%          | 3.0%                           |
| Infrastructure                                | 1,190                                      | 2.0%          | 2.0%                           |
| Treasury Inflation-Protected Securities       | 514  | 0.9%          | 2.0%                           |
| RA & IH Overlay <sup>5</sup>                  | 13   | 0.0%          | —                              |
| <b>Risk Reduction &amp; Mitigation</b>        | <b>13,547</b>                              | <b>23.1%</b>  | <b>23.0%</b>                   |
| Investment Grade Bonds                        | 11,329                                     | 19.3%         | 19.0%                          |
| Diversified Hedge Fund Portfolio <sup>6</sup> | 1,571                                      | 2.7%          | 3.0%                           |
| Cash  | 630  | 1.1%          | 1.0%                           |
| RR & M Overlay <sup>5</sup>                   | 17   | 0.0%          | —                              |

## Total Market Value (\$ billions)



## Cash (\$ millions)



1. Transition balances are included in subcategory totals, if applicable  
 2. Interim target weights effective as of 4/1/19  
 3. Private Equity market values reflect latest available and are adjusted for cash flows

4. Real Estate market values reflect a 3-month lag  
 5. Reflects net cash position available for overlay investing  
 6. Hedge Fund market values reflect a 1-month lag



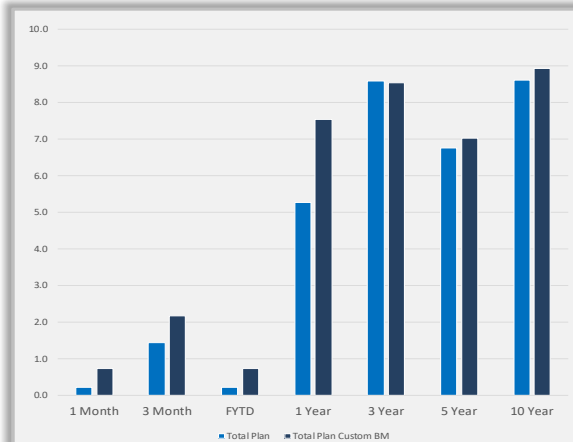
# Historical Net Performance as of July 2019 (estimated)

## LACERA Pension Fund

|   | Market Value<br>(\$ millions) | % of<br>Total Fund | Interim<br>Target <sup>2</sup> | 1 Month        | 3 Month        | FYTD | 1 Year | 3 Year | 5 Year | 10 Year |
|---|-------------------------------|--------------------|--------------------------------|----------------|----------------|------|--------|--------|--------|---------|
| <b>TOTAL FUND</b>                                   | 58,600                        | 100.0%             | 100.0%                         | 0.2            | 1.4            | 0.2  | 5.3    | 8.6    | 6.8    | 8.6     |
| <i>Total Fund Custom BM</i>                         |                               |                    |                                | 0.7            | 2.2            | 0.7  | 7.6    | 8.5    | 7.0    | 8.9     |
| <i>7.25% Annual Hurdle Rate</i>                     |                               |                    |                                | 0.6            | 1.8            | 0.6  | 7.3    | 7.3    | 7.3    | 7.3     |
| <b>Functional Composites<sup>1</sup></b>            |                               |                    |                                | <b>1 Month</b> | <b>3 Month</b> |      |        |        |        |         |
| <b>GROWTH</b>                                       | 30,913                        | 52.8%              | 52.0%                          | 0.2            | 0.8            |      |        |        |        |         |
| <i>Growth Custom BM</i>                             |                               |                    |                                | 1.2            | 2.0            |      |        |        |        |         |
| <b>CREDIT</b>                                       | 5,206                         | 8.9%               | 10.0%                          | 0.4            | 1.9            |      |        |        |        |         |
| <i>Credit Custom BM</i>                             |                               |                    |                                | 0.9            | 2.5            |      |        |        |        |         |
| <b>REAL ASSETS &amp; INFLATION HEDGES</b>           | 8,934                         | 15.2%              | 15.0%                          | 0.0            | 1.4            |      |        |        |        |         |
| <i>Real Assets &amp; Inflation Hedges Custom BM</i> |                               |                    |                                | -0.1           | 1.4            |      |        |        |        |         |
| <b>RISK REDUCTION &amp; MITIGATION</b>              | 13,547                        | 23.1%              | 23.0%                          | 0.4            | 2.9            |      |        |        |        |         |
| <i>Risk Reduction &amp; Mitigation Custom BM</i>    |                               |                    |                                | 0.2            | 2.9            |      |        |        |        |         |

## Historical Returns

(net)

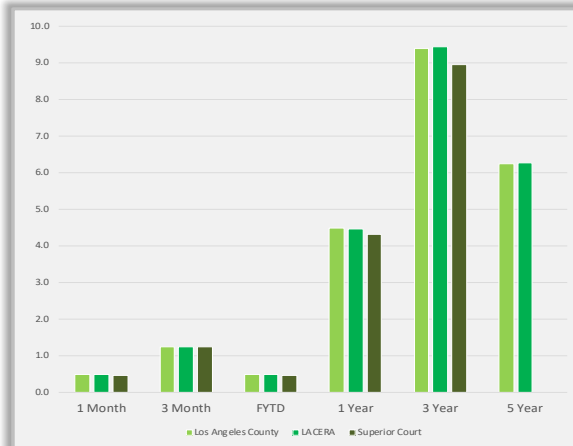


## OPEB Master Trust Fund

| Sub-Trusts                                  | Market Value<br>(\$ millions) <sup>3</sup> | Trust<br>Ownership % | Target<br>Weight | 1 Month        | 3 Month        | FYTD        | 1 Year        | 3 Year        | 5 Year |
|---|--|----------------------|------------------|----------------|----------------|-------------|---------------|---------------|--------|
| <b>TOTAL OPEB MASTER TRUST</b>              | 1,244                                      |                      |                  |                |                |             |               |               |        |
| Los Angeles County                          | 1,195                                      | 96.0%                | —                | 0.5            | 1.2            | 0.5         | 4.5           | 9.4           | 6.2    |
| LACERA                                      | 5  | 0.4%                 | —                | 0.5            | 1.2            | 0.5         | 4.5           | 9.4           | 6.3    |
| Superior Court                              | 45   | 3.6%                 | —                | 0.5            | 1.2            | 0.5         | 4.3           | 9.0           | —      |
| <b>Functional Composites</b>                |  |                      |                  | <b>1 Month</b> | <b>3 Month</b> | <b>FYTD</b> | <b>1 Year</b> | <b>3 Year</b> |        |
| <b>OPEB Growth</b>                          | 627  | 50.4%                | 50.0%            | 0.3            | 0.4            | 0.3         | 2.4           | 10.2          |        |
| <i>Custom OPEB Growth</i>                   |  |                      |                  | 0.3            | 0.4            | 0.3         | 2.0           | —             |        |
| <b>OPEB Credit</b>                          | 248  | 19.9%                | 20.0%            | 0.7            | 2.2            | 0.7         | 5.5           | —             |        |
| <i>Custom OPEB MT Credit Pool</i>           |  |                      |                  | 0.8            | 2.3            | 0.8         | 5.8           | —             |        |
| <b>OPEB Risk Reduction &amp; Mitigation</b> | 123  | 9.9%                 | 10.0%            | 0.2            | 2.8            | 0.2         | 7.0           | —             |        |
| <i>Custom OPEB MT Risk Reduction Pool</i>   |  |                      |                  | 0.2            | 2.7            | 0.2         | 6.9           | —             |        |
| <b>OPEB Inflation Hedges</b>                | 246  | 19.8%                | 20.0%            | 0.8            | 1.9            | 0.8         | 6.1           | —             |        |
| <i>Custom OPEB MT Inflation Hedges Pool</i> |  |                      |                  | 0.8            | 1.9            | 0.8         | 6.2           | —             |        |
| <b>Operating Cash</b>                       | 0.1  | 0.0%                 | —                | —              | —              | —           | —             | —             |        |

## Historical Returns

(net)

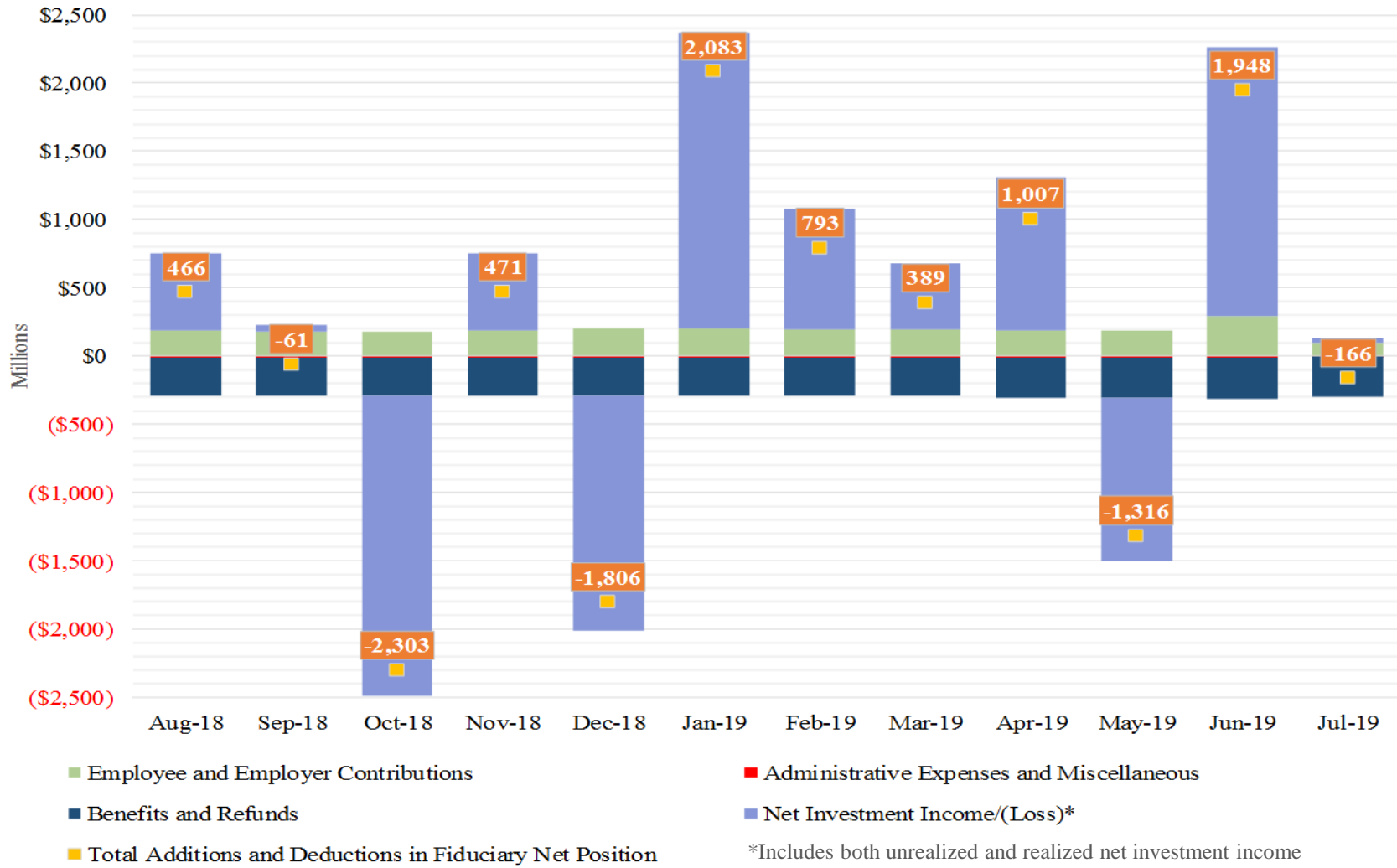


1. Functional composites were adopted on 4/1/19
2. Reflects interim target weights
3. Market value differences between the sub-trusts and functional composites are due to operational cash



# Liquidity Position

Additions and Deductions in Fiduciary Net Position (Unaudited)



# Portfolio Structural Updates



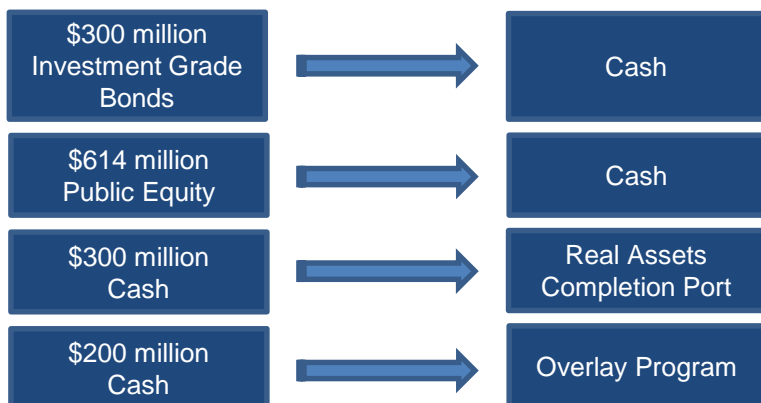
# Portfolio Structural Updates

## Portfolio Movements

### Completed Actions

- Parametric's Investment Manager Agreement finalized – Mandate for cash overlay services was approved at the April 2019 BOI

### Rebalancing Activity



### Hedges and Overlays

| Program        | July Return | Gain/Loss July | Gain/Loss Inception** |
|----------------|-------------|----------------|-----------------------|
| Currency Hedge | 1%          | \$6.6 Million  | \$932 Million         |
| Overlay        | *           | *              | *                     |

## Current Search Activity

### Status of Active Searches

| Name                                 | RFP Issued | Due Diligence | BOI Review              |
|--------------------------------------|------------|---------------|-------------------------|
| Total Fund Risk Platform             | ●          | ●             | Anticipated Fall 2019   |
| Illiquid Credit                      | ●          | ●             | Anticipated Fall 2019   |
| Syndicated Bank Loans                | ●          | ●             | Anticipated Fall 2019   |
| Factor-Based Global Equity           | ●          | ●             | Anticipated Fall 2019   |
| Alternatives Administrative Services |            |               | Anticipated Spring 2020 |
| Securities Lending Services          |            |               | Anticipated Spring 2020 |

### Quiet Period for Search Respondents

Due to heavy current search activity, please see the Appendix for this month's list of respondents to active searches



\* Overlay program will include data next report after a full month of performance  
 \*\* Currency and overlay program since inception dates are 8/2010 & 7/2019 respectively

# Key Initiatives and Operational Updates





# Notable Initiatives and Operational Updates

---

## Key Initiative Updates

- Business continuity planning is under development
- Cash overlay program was initiated – Parametric
- Affiliated to the Sustainability Accounting Standards Board (SASB) Investor Advisory Group, per August 2019 BOI approval

## Operational Updates

- Two Financial Analyst I positions promoted to Financial Analyst II positions
- Two internal transfers
- Assisting in the 2019 CAFR preparations
- Manager Scorecard included in the quarterly performance book
- Forthcoming CIO Report additions
  - Risk Update (Pending RFP)
  - Compliance Monitor (on quarterly basis)

## Manager/Consultant Updates

- StepStone Group has named Scott Hart as Co-CEO
- StepStone Group has sold a minority interest of approximately 14% to Fidelity, T. Rowe Price and a leading family office
- State Street has assigned a new Head of Institutional Client Service for LACERA, Mark Schafer and Head of Relationship Management, Bob Dolard. State Street has also named a new Global Head of US Asset Owner Business, Robert Baillie.



# Appendix



# Quiet Period for Search Respondents

## Total Fund Risk System

- ✓ BlackRock Solutions
- ✓ BNY Mellon
- ✓ FactSet
- ✓ MSCI
- ✓ State Street
- ✓ Sustainalytics
- ✓ Wilshire Associates

## MSCI ACWI IMI Index Services

- ✓ BlackRock, Inc.
- ✓ (LIGMA) Legal & General Investment Management America, Inc.
- ✓ State Street Global Advisors Trust Company
- ✓ Northern Trust Investments, Inc.

## Syndicated Bank Loan Investment Management Services

- ✓ Neuberger Berman
- ✓ Pacific Asset Management
- ✓ PineBridge Investments LLC
- ✓ Par-Four Investment Management LLC
- ✓ Symphony Asset Management LLC
- ✓ BlackRock, Inc.
- ✓ Crestline Denali Capital, LP
- ✓ T. Rowe Price Associates, Inc.
- ✓ Shenkman Capital Management, Inc.
- ✓ Barings
- ✓ Additional submission
- ✓ Crescent Capital Group LP
- ✓ THL Credit Advisors LLC
- ✓ CVC Credit Partners, LLC
- ✓ KKR Credit Advisors (US) LLC
- ✓ Lord, Abbott & Co. LLC
- ✓ Aegon Asset Management US
- ✓ Guggenheim Partners Investment Management, LLC
- ✓ Wellington Management Company LLP
- ✓ CIFC Asset Management LLC
- ✓ Seix Investment Advisors LLC
- ✓ GSO Capital Partners LP
- ✓ Credit Suisse Asset Management LLC
- ✓ Western Asset Management Company, LLC
- ✓ GoldenTree Asset Management
- ✓ Ares Management LLC
- ✓ Loomis, Sayles & Co., LP
- ✓ Goldman Sachs Asset Management LP
- ✓ Oaktree Capital Management, LP
- ✓ Brigade Capital Management, LP
- ✓ Voya Investment Management
- ✓ FIAM LLC
- ✓ M&G Investments
- ✓ Eaton Vance Management
- ✓ Invesco
- ✓ Bain Capital Credit, LP
- ✓ Franklin Resources, Inc. (Parent)
- ✓ Franklin Advisors, Inc. (Investment Adviser)

## Factor-based Equity Investment Management Services

- ✓ Allianz Global Investors
- ✓ AQR Capital Management, LLC
- ✓ AXA Investment Managers, Inc.
- ✓ BlackRock, Inc.
- ✓ Brandywine Global Investment Management
- ✓ Capital International, Inc.
- ✓ Connor, Clark, and Lunn Investment Management, Ltd.
- ✓ Dimensional Fund Advisors LP
- ✓ FFCM LLC
- ✓ Goldman Sachs Asset Management, LP
- ✓ HSBC Global Asset Management Inc.
- ✓ Invesco
- ✓ J.P. Morgan Asset Management
- ✓ Lazard Asset Management LLC
- ✓ Legal & general Investment Management
- ✓ Los Angeles Capital Management and Equity Research Inc.
- ✓ Mellon Investments Corporation
- ✓ Northern Trust Investments, Inc.
- ✓ PanAgora Asset Management, Inc.
- ✓ QMA LLC
- ✓ Robeco Institutional Asset Management US, Inc.
- ✓ State Street Global Advisors, LLC
- ✓ TOBAM
- ✓ Wells Fargo Asset Management

# Quiet Period for Search Respondents (continued)

## Illiquid Credit Investment Management Services


- ✓ Alcentra NY, LLC
- ✓ Anchorage Capital group, LLC
- ✓ Angelo, Gordon & Co LP
- ✓ Apollo Capital Management, LP
- ✓ Ares Management
- ✓ ArrowMark Partners
- ✓ Audax Group
- ✓ Barings LLC
- ✓ BeachPoint capital Management LP
- ✓ Benefit Street Partners LLC
- ✓ BlackRock, Inc.
- ✓ Brigade Capital Management, LP
- ✓ Canyon Capital Advisors LLC
- ✓ Carlyle Global Credit Investment management LLC
- ✓ CarVal Investors, LLC
- ✓ Cerberus Capital Management, LP
- ✓ Chenavari Credit partners LLP
- ✓ Cheyne Capital Management (UK) LLP
- ✓ Clarion Capital Partners
- ✓ CQS (US), LLC
- ✓ Crescent Capital Group, LP
- ✓ Crestline Management, LP
- ✓ EIG Credit Management Company, LLC
- ✓ Fortress Lending Advisors LLC
- ✓ GoldenTree Asset Management LP
- ✓ Hayfin Capital Management LLP
- ✓ HPS Investment Partners, LLC
- ✓ KKR Credit Advisors (US) LLC
- ✓ M&G Investment Management LTD
- ✓ Magnetar Financial LLC
- ✓ Marathon Asset Management, LP
- ✓ Monroe Capital, LLC
- ✓ Napier Park Global Capital (US) LP
- ✓ Neuberger Berman Investment Advisors
- ✓ Oak Hill Advisors
- ✓ Oaktree Capital Management Company LLC
- ✓ Orchard Global Asset Management
- ✓ PGIM, Inc.
- ✓ Pacific Investment Management Company LLC
- ✓ Schroder Investment Management North America Inc
- ✓ TPG Sixth Street Partners
- ✓ Varde Management LP
- ✓ Waterfall Asset Management LLC
- ✓ White Oak Global Advisors LLC
- ✓ Zais Group




August 29, 2019

TO: Each Member  
Board of Investments

FROM: Credit and Risk Mitigation Committee  
Wayne Moore, Chair  
David L. Muir, Vice Chair  
David Green  
Ronald A. Okum  
Keith Knox, Alternate

James Rice, CFA   
Principal Investment Officer

Chad Timko, CFA   
Senior Investment Officer

FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **HEDGE FUNDS 2019 STRUCTURE REVIEW**

### RECOMMENDATION

Approve the Hedge Funds 2019 Structure Review and the 2019 Hedge Funds Objectives, Policies, and Procedures as advanced to the Board of Investments by the Credit and Risk Mitigation Committee.

### BACKGROUND

On August 14, 2019, staff presented the Hedge Funds 2019 Structure Review and proposed changes to the Hedge Funds Objectives, Policies, and Procedures (“OPP”) to the Credit and Risk Mitigation Committee. The Committee voted to advance these items to the Board of Investments for approval.

The following documents enclosed are the cover memo the Committee (**Attachment**), the Hedge Funds 2019 Structure Review (**Attachment 1**), the redlined Hedge Funds OPP (**Attachment 2**), the clean version Hedge Funds OPP (**Attachment 3**), and the concurrence memo from Albourne (**Attachment 4**).

### OPTIONS AVAILABLE TO THE BOARD

The Board could approve the recommendation, thereby affirming the proposed portfolio structure and future initiatives for the Hedge Funds Program. Alternatively, the Board could not approve

the recommendation. Staff would then incorporate Board feedback and potentially consult with the Committee before making a revised recommendation.

### **DELIBERATIONS AND OPINIONS EXPRESSED BY THE COMMITTEE**

A Board member inquired about leverage constraints and staff clarified several related points. Firstly, because of the program's objective to have limited market directionality (correlation to major markets), it would be common for underlying strategies to incur leverage when targeting perceived market mispricings. Secondly, underlying investment vehicles would be permitted to incur leverage, but LACERA's hedge funds program itself would not be allowed to borrow capital. Lastly, staff would monitor individual fund leverage levels in addition to measuring the total program against an established cap. During the discussion, James Walsh from Albourne observed that most hedge funds programs do not have established leverage constraints while a specific cap was being proposed for LACERA.

Staff clarified that the proposed structure review and portfolio would be permitted to invest in emerging markets. It was mentioned that select current managers within the direct portfolio could selectively invest within emerging markets based on their views of the global opportunity set.

### **RISKS OF ACTION AND INACTION**

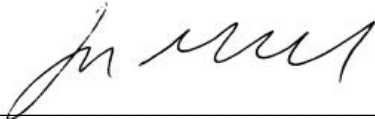
If the Board approves the recommendation, staff would implement the initiatives identified within the structure review. The Board would have additional opportunities to opine on the initiatives regarding the direct portfolio, a dedicated managed account provider, and a separate account emerging manager program. Therefore, the risk of action is limited. The risk of inaction is greater in that initiatives and the related benefits would be delayed.

### **CONCLUSION**

Staff has proposed a structure review to affirm the portfolio structure for the hedge funds program and set forth future initiatives. Staff has also proposed changes to the Hedge Funds Objectives, Policies, and Procedures, generally to remove sections that overlap with the structure review. The Credit and Risk Mitigation Committee reviewed and advanced these documents to the Board for approval at its August 14, 2019 meeting.

Attachments

Noted and Reviewed:





---

Jonathan Grabel  
Chief Investment Officer

July 29, 2019

TO: Each Member  
Credit and Risk Mitigation Committee

FROM: James Rice, CFA   
Principal Investment Officer

Chad Timko, CFA   
Senior Investment Officer

FOR: August 14, 2019 Credit and Risk Mitigation Committee Meeting

SUBJECT: **HEDGE FUNDS 2019 STRUCTURE REVIEW**

### RECOMMENDATION

Advance the Hedge Funds 2019 Structure Review and the 2019 Hedge Funds Objectives, Policies, and Procedures as recommended on page 18 of **Attachment 1** to the Board of Investments for approval.

### BACKGROUND

Consistent with current practices, a structure review has been prepared for the hedge funds program. This biennial structure review establishes the portfolio structure for the hedge funds program and sets forth future initiatives. The open session materials of the structure review are provided as **Attachment 1**. Select portions of this structure review are redacted and being placed on the agenda for closed session pursuant to Section III.B of the Policy Governing the Use of Open and Closed Sessions to Consider the Purchase or Sale of Particular, Specific Investments.

The structure review replaces the 2019 Hedge Funds Annual Investment Plan. Additionally, the structure review partially replaces the 2018 Hedge Funds Objectives, Policies, and Procedures document. Specifically, the Hedge Fund Program's role, objectives, and parameters have been incorporated into the structure review while the procedural items were maintained in the proposed 2019 Hedge Funds Objectives, Policies, and Procedures.

A redlined 2019 Hedge Funds Objectives, Policies, and Procedures document is provided as **Attachment 2** that identifies changes compared to the Board-approved 2018 version of the document. The revised document proposes removing the General Consultant from the Summary of Roles and Responsibilities section now that a specialized hedge funds consultant has been hired. A clean version of the 2019 Hedge Funds Objectives, Policies, and Procedures document is provided as **Attachment 3**. The policies and procedures for Hedge Funds that are addressed within **Attachment 3** are scheduled to be revisited in 2020.

Each Member, Credit and Risk Mitigation Committee

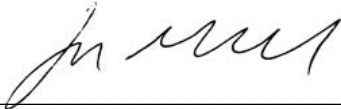
July 29, 2019

Page 2 of 2

Consistent with other asset categories, the specialty Consultant, Albourne, reviewed both the 2019 Structure Review and the 2019 Hedge Funds Objectives, Policies, and Procedures document. They concur with recommendations and proposed document changes as noted in **Attachment 4**.

Attachments

Noted and Reviewed:



---

Jonathan Grabel  
Chief Investment Officer

JR:CF:mm



# Hedge Funds 2019 Structure Review\*

*\*Select portions of this presentation have been redacted pursuant to California Government Code Sections 54956.81 and 54957.5(a) and will be reviewed in closed session.*

Credit and Risk Mitigation Committee

August 14, 2019

James Rice, CFA – Principal Investment Officer, LACERA

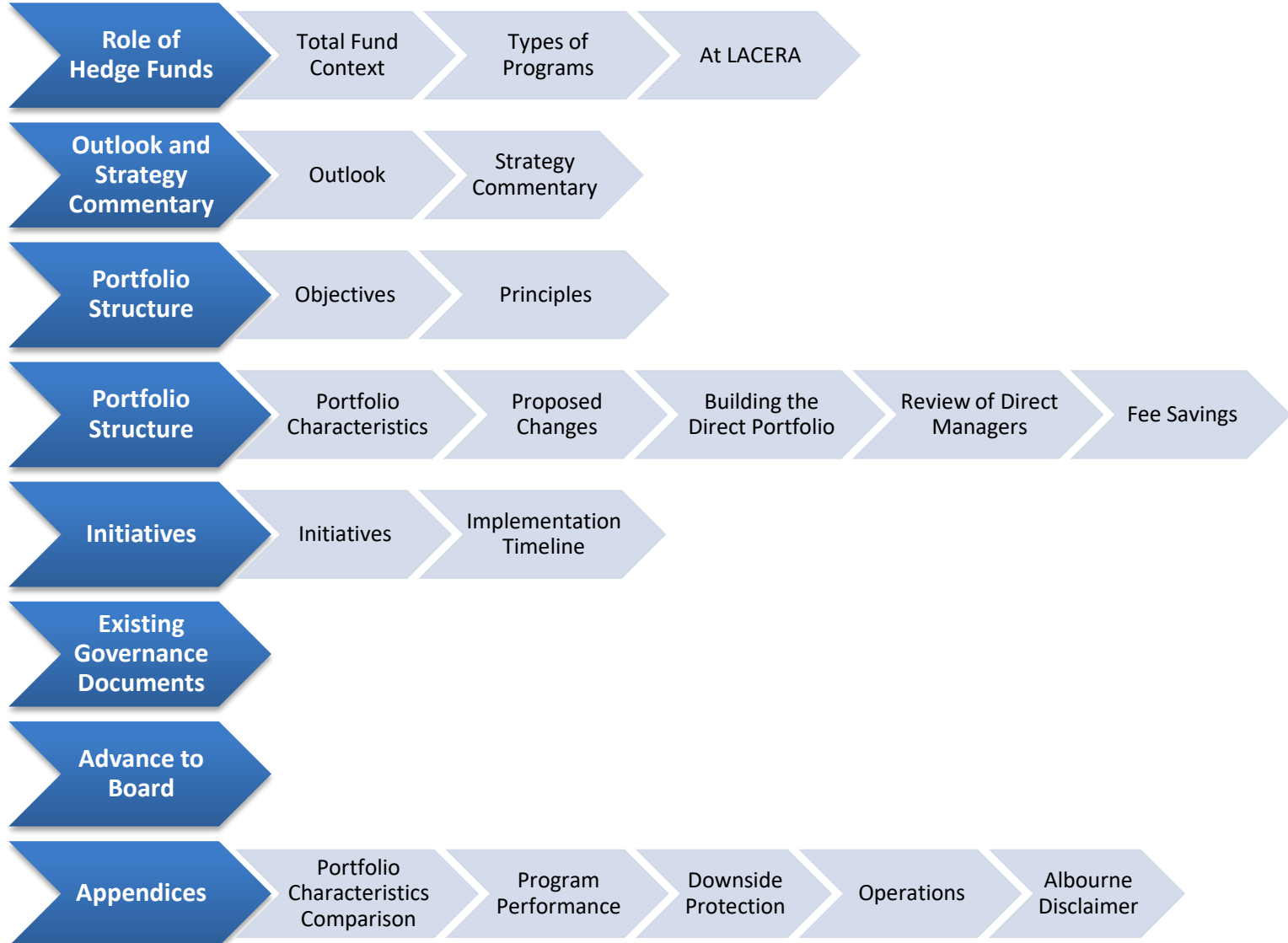
Chad Timko, CFA – Senior Investment Officer, LACERA

James Walsh – Partner, Albourne

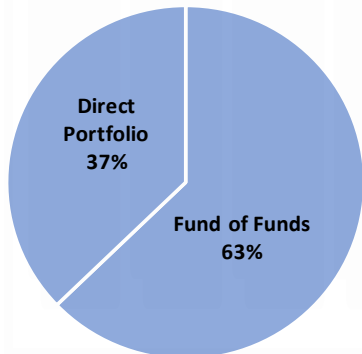
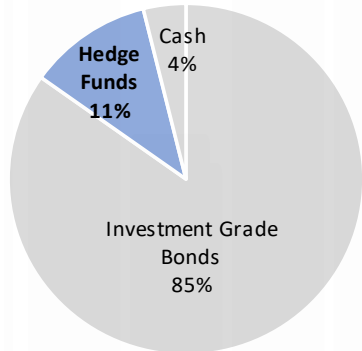
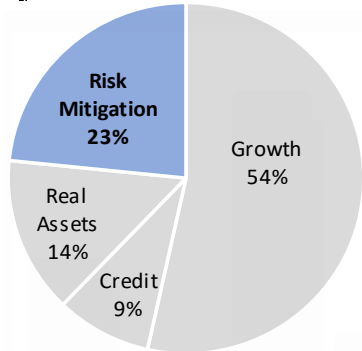
Stephen Kennedy, CFA – Partner, Albourne



# Table of Contents



# Role of Hedge Funds – Total Fund Context



## Guidance from the Investment Policy Statement (“IPS”)

IPS section:  
Risk Mitigation

- “Modest level of return while also reducing total Fund risks”
- “Low level of volatility and a low correlation to Growth assets”

IPS section:  
Investment Beliefs

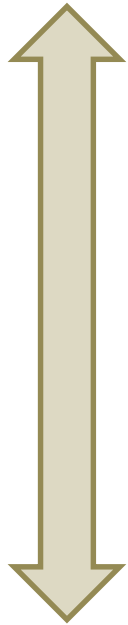
- “Diversification across different risk factors is necessary for risk reduction”
- “The pattern of returns matters”

Data as of June 30, 2019.

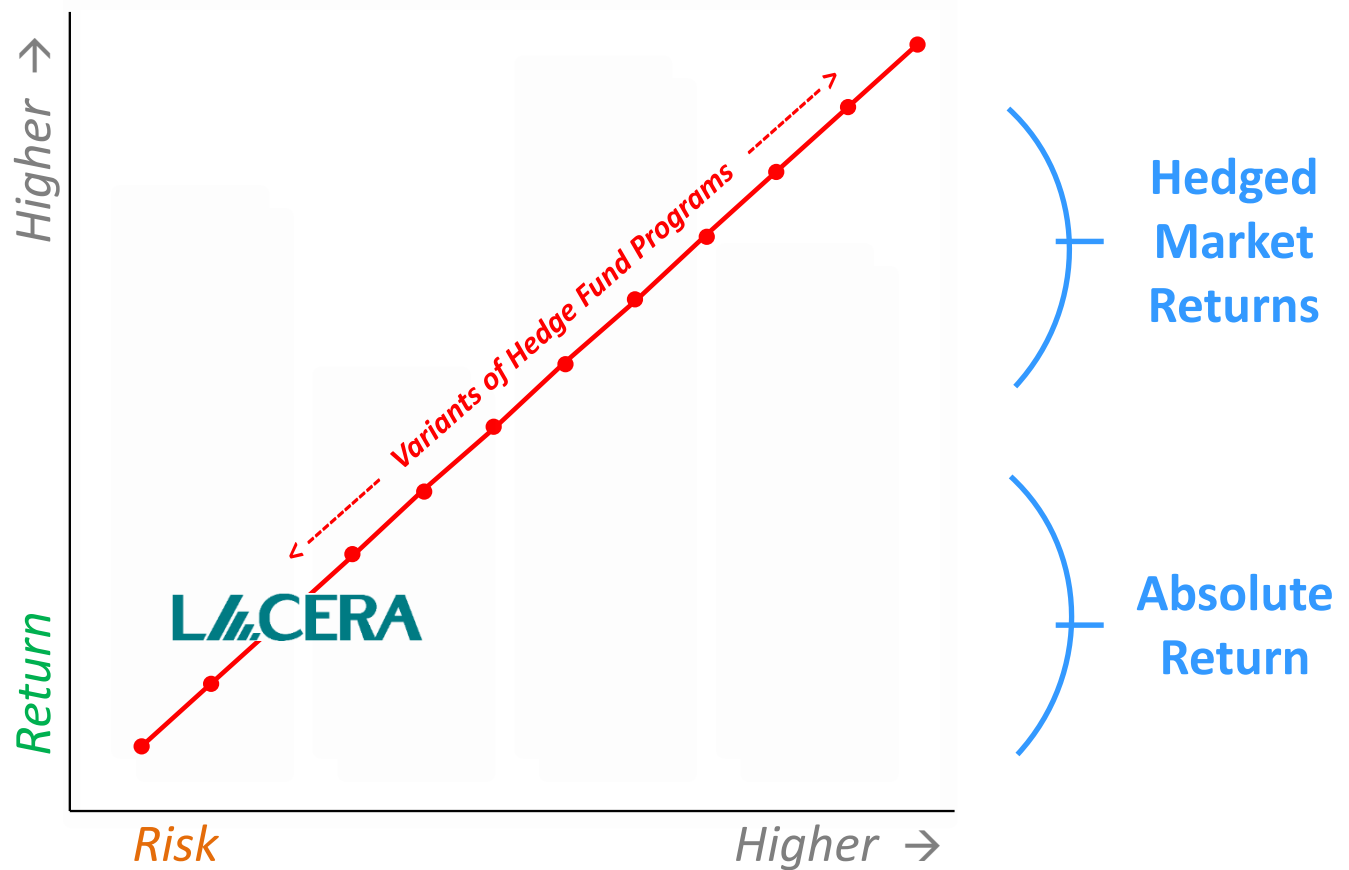


# Role of Hedge Funds – Types of Programs

Seeks Return Enhancement



Seeks Diversification

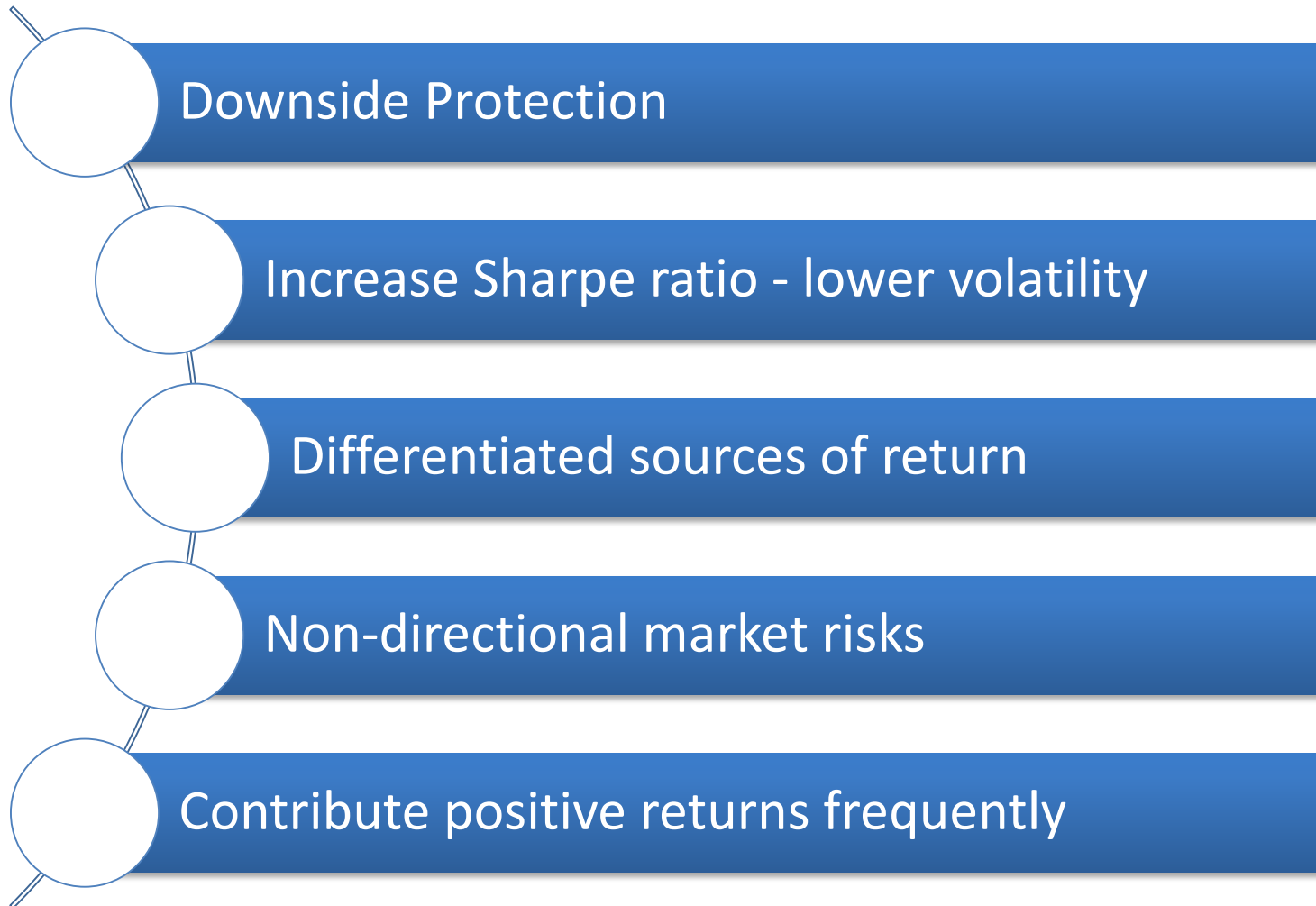


- Return Volatility
- Market Directionality
- Correlation to Total Fund



# Role of Hedge Funds – at LACERA

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# Outlook

---

## Big Picture

- Our model portfolios continue to reflect a bias toward the lower equity beta Macro/Directional and Relative Value strategies, and away from the higher beta Equity Long/Short and Event-Driven strategies.

## Relative Value

- Generally Fixed Income RV is overweight and Equity RV underweight. Relative Value Credit and Fixed Income Arbitrage expectations have been modestly reduced due in part to the rebound seen in the first quarter.

## Discretionary and Systematic Macro

- Strategies remain favored given their downside protection potential, and therefore sit toward the top of the ranking. The prospects for Global Macro have decreased slightly as a result of the recent shift in policy makers' stance from hawkish to dovish. CTAs enjoy the greatest return expectations if the Negative Case scenario plays out (although, largely depending on the path downward for risk assets).

## Equity Long/Short

- Underweight (relative to model portfolio long-term weights) across developed and emerging markets with most regions in the third or fourth quartile of the ranking. The underweight in the US, Europe, and Japan is reflective of weaker corporate earnings growth, geopolitical uncertainty, and macroeconomic noise, respectively.

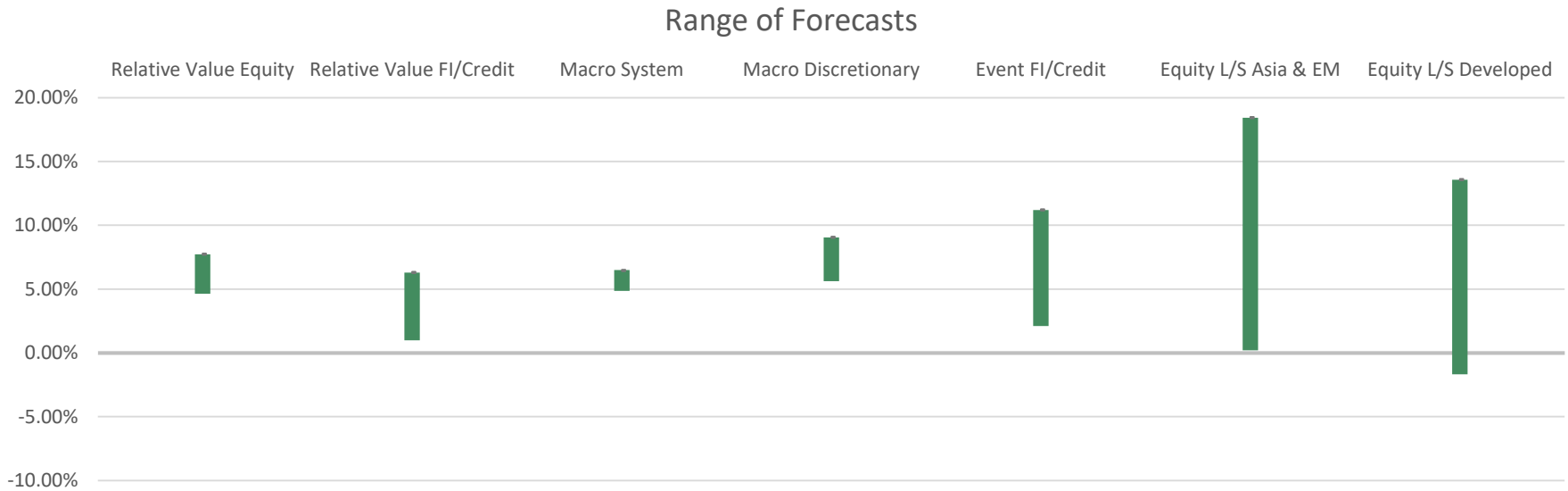
## Event Driven

- Strategy expectations have reduced quarter-over-quarter, particularly for credit-related strategies, and mostly sit mid-table. Owing to the substantial market rebound during the first quarter, the outlook for Distressed has been reduced.

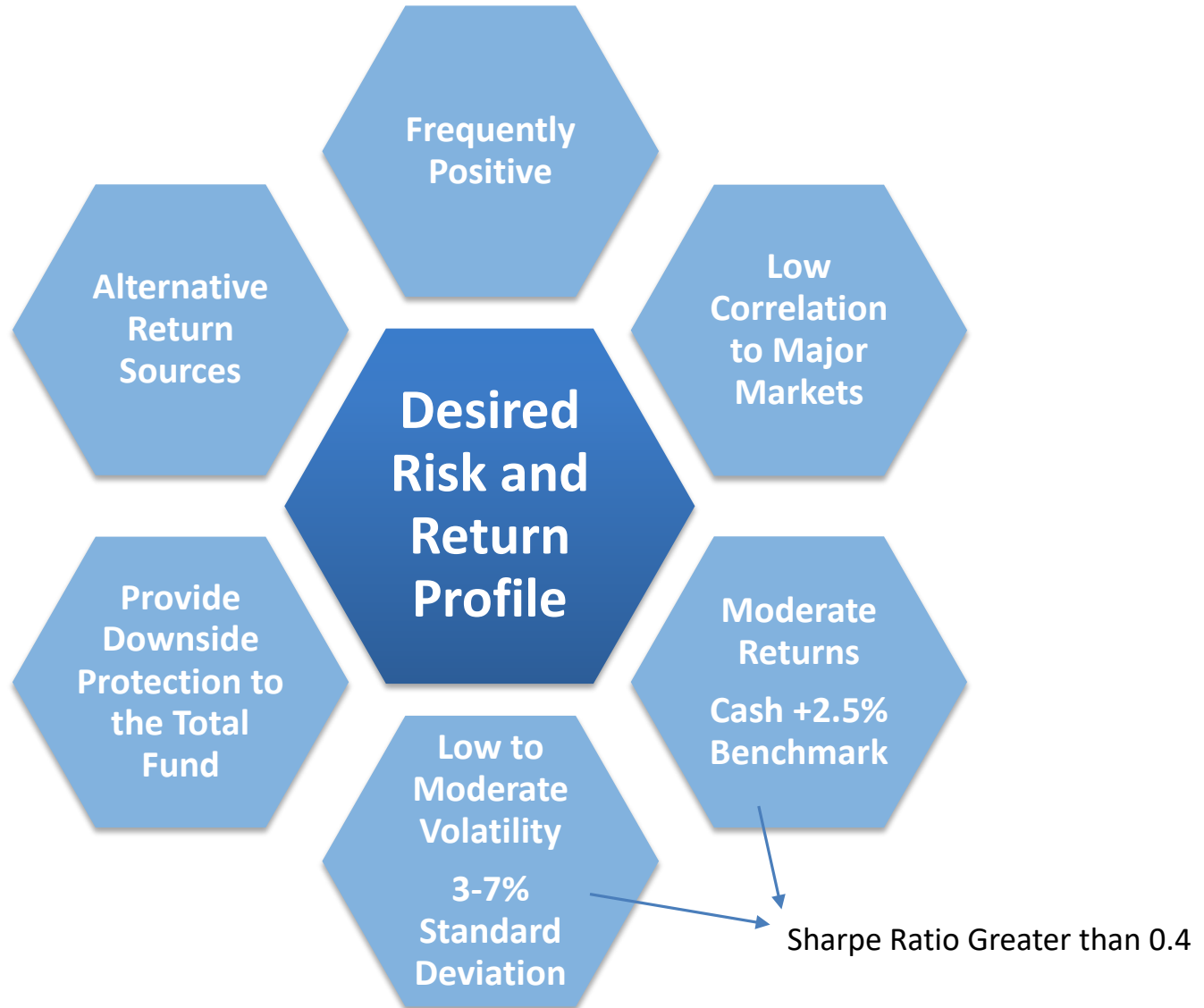
# Strategy Commentary

## Three State Return Forecast Ranges

- Relative Value and Macro Strategy forecasts lie within a tighter range across market states
- Equity Long / Short and Event Driven Strategies more varied across states
- LACERA Direct hedge fund portfolio may allocate more to RV and Macro (low equity beta)



# Portfolio Structure – Objectives





# Portfolio Structure – Principles

Total Fund Context

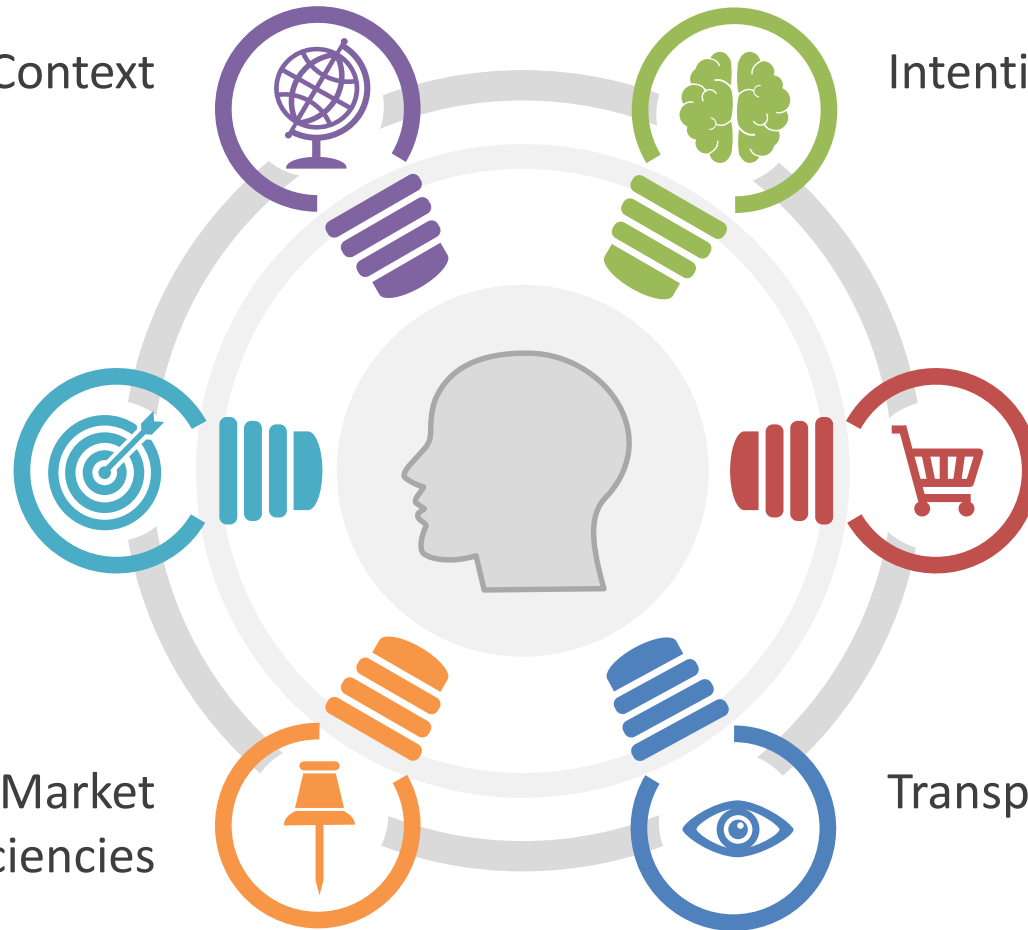
Intentional Portfolio

Objective-oriented

Cost-conscious

Target Market  
Inefficiencies

Transparency



# Portfolio Structure – Portfolio Characteristics

## Return Objective

- Cash plus 2.5% per year

## Risk Target

- 3-7% standard deviation

## Market Sensitivity

- Neutral to very low equity beta objective in the long run
- Trailing 3-year equity beta less than 0.2 for compliance

## Liquidity

- 100% of capital within 5 years; 50% of capital within 3 years
- Willing to exchange liquidity for lower fees

## Leverage

- 10x Program level limit
- Evaluate and monitor each fund for appropriateness

# Portfolio Structure – Proposed Changes

---

Proposed allocation adjustments:



# Portfolio Structure – Building the Direct Portfolio

Building  
the Direct  
Portfolio




## Add New Direct Managers

- Several recommendations expected in 2020

# Portfolio Structure – Review of Direct Managers

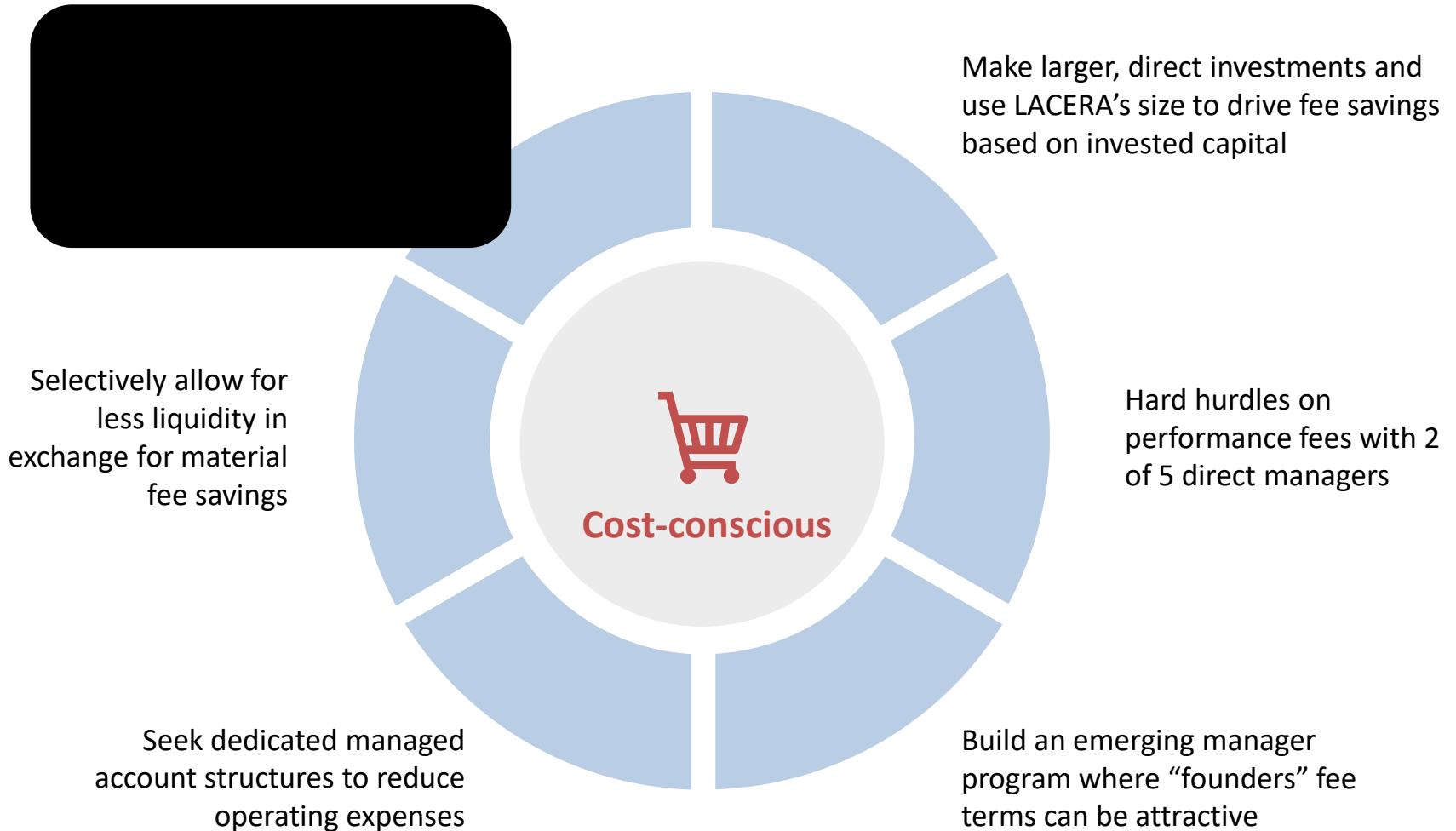
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Review of the current manager line-up:

- 
2. AQR – recommend adjusting the target volatility of the strategy from 12% to 8%
    - A lower volatility profile better fits the risk mitigation objectives and proposed portfolio structure
  3. PIMCO – recommend conducting further analysis alongside the consultant for hedge funds and credit, Albourne
    - LACERA has a new functional asset category for Credit while the hedge funds portfolio is now within a risk mitigation asset category
    - PIMCO's fund is a hedged credit strategy that may better fit within LACERA's Credit asset category



# Portfolio Structure – Fee Savings



# Initiatives \*

## Principles from page 9 ...



Intentional Portfolio



Cost-conscious



Transparency



Target Market Inefficiencies



Objective-oriented



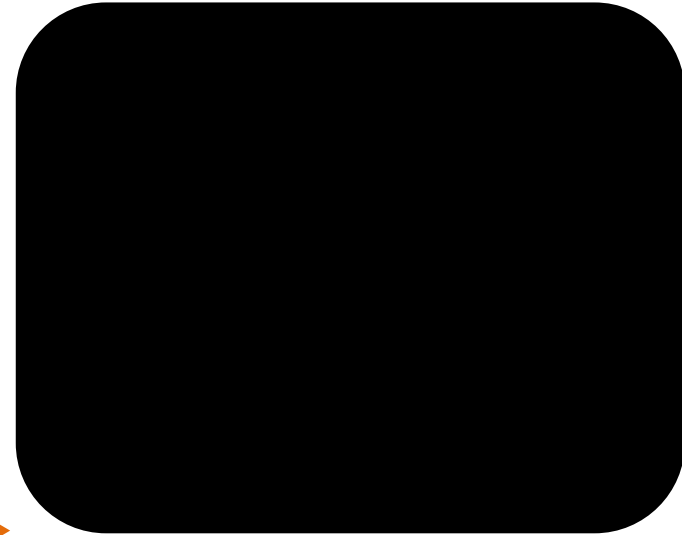
Total Fund Context

... lead to initiatives



- Complete initial build
- Hire several managers

Direct Portfolio



Account Structures

- Launch RFP for Dedicated Managed Account provider
  - Custody
  - Transparency
  - Reduced costs

Emerging Manager Program

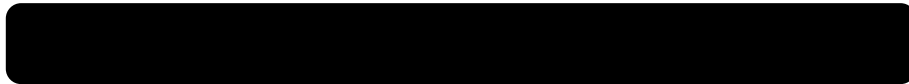
- Launch RFP for a separate account emerging manager program

\* Subject to Board Approval.

# Initiatives – Implementation Timeline \*

## Proposed Tentative Implementation Timeline:

- Launch Emerging Manager Program RFP
- Launch Dedicated Managed Account provider RFP



- Build Direct portfolio

**2019**



**2020**



- Hire separate account manager for Emerging Manager Program
- Identify a Dedicated Managed Account provider
- Build Direct portfolio

- Complete initial Direct portfolio build
- Prepare 2021 Structure Review

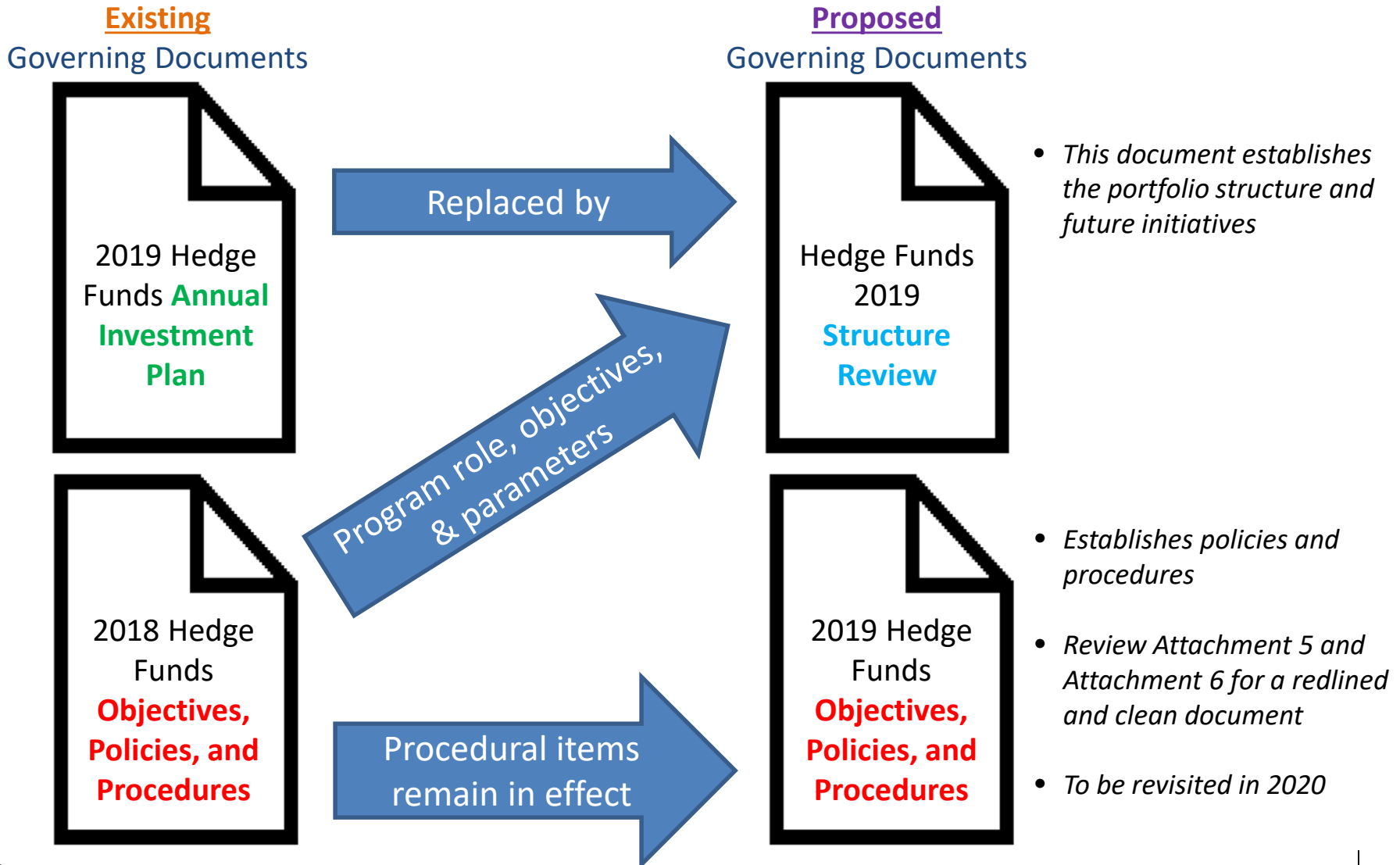
**2021**



\* Subject to Board Approval.



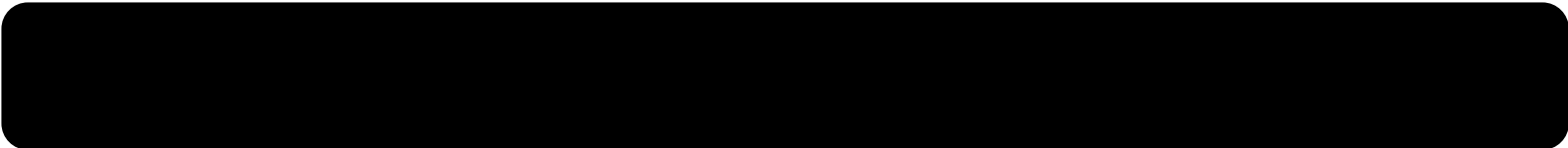
# Existing Annual Plan and Procedure Document



# Advance to Board of Investments

---

Staff recommends advancing:

1. The 2019 Structure Review including the following initiatives:
  - A. Build the Direct portfolio in line with strategic asset allocation targets
  - 
  - C. Build an Emerging Manager Program
  - D. Identify a Dedicated Managed Account provider
2. The 2019 Objectives, Policies, and Procedures document

# Appendices



# Appendix A – Portfolio Characteristics Comparison

The following table compares proposed portfolio characteristics to the current Board-approved characteristics.

|   | <b>Proposed</b>   | <b>Existing</b>   | <b>Comments</b>   |
|---|---|---|---|
| <b>Return Objective &amp; Benchmark</b> | Cash + 2.5%   | Cash + 2.5%   | No change   |
| <b>Secondary Benchmark</b>              | Intentionally omitted   | HFRX Global Index   | HFRX Global is directional and conflicts with cash +2.5%  |
| <b>Risk Target</b>                      | 3-7%  | 3-8%  | Slightly lower range  |
| <b>Market Sensitivity</b>               | MSCI ACWI equity beta < 0.2 for any portfolio and the Program; monitor individual funds | MSCI ACWI equity beta < 0.2 for the Direct portfolio<br>MSCI ACWI equity beta < 0.25 for the total Program  | Aligns Program and portfolio constraints  |
| <b>Liquidity</b>                        | 100% of capital within 5 years<br>50% within 3 years                                    | < 40 % with a greater than 1-year lock-up<br>< 25 % with a greater than 2-year lock-up<br>< 10 % with a greater than 3-year lock-up<br>0% with a greater than 5-year lock-up<br>> 40 % redeemable within one quarter<br>> 65 % redeemable within one year | Fewer liquidity requirements. The Risk Mitigation asset category has approx. \$11 billion in highly liquid investment grade bonds. The Hedge Funds Program is not expected to be a primary source of liquidity in a market downturn.                                  |
| <b>Side Pockets</b>                     | Allowed with the reasonable expectation that no side pocket would last beyond 5 years   | Prohibited unless 1) investors can opt out, 2) there is a reasonable expectation that side pockets will not occur   | Adapting to fewer liquidity requirements  |
| <b>Hedge Fund Program Leverage</b>      | Not Permitted   | Not permitted   | No change   |
| <b>Leverage</b>                         | 10x at the total program level; monitor individual funds                                | Established maximums for 6 different sub-strategy categories  | Increased less directional strategies increases leverage  |
| <b>Emerging Managers</b>                | Separate account emerging manager program   | No program  | Additional program  |
| <b>Operational Due Diligence</b>        | Required  | Required  | No change   |
| <b>Transparency</b>                     | Position-level or risk-exposure data is required from managers                          | Position-level or risk-exposure data is required from managers  | No change   |
| <b>Investment Size</b>                  | Intentionally omitted   | \$5 million minimum, 20% of direct portfolio maximum  | Appropriate size is considered without constraints  |
| <b>Partnership size limits</b>          | Less than 35% of a commingled fund structure  | Less than 35% of a commingled fund structure  | No change   |
| <b>Strategy Allocation</b>              | Intentionally omitted   | Event Driven: 7.5% target, 40% max<br>Relative Value: 15% target, 60% max<br>Hedged Equity: 15% target, 40% max<br>Macro/Tactical Trading: 15% target, 50% max<br>Hedged Credit: 7.5% target, 60% max<br>Multi-Strategy: 40% target, 60% max              | Strategy categories are difficult to define, debatable, and not comprehensive of the universe of options. Target strategy allocations can elicit undesirable investor behaviors such as a tendency to invest within a category even if the category is not desirable. |
| <b>Portfolio-level Severe Case Loss</b> | Intentionally omitted   | Better than -10%  | Use as a management tool; too subjective to be a constraint   |

# Appendix B – Program Performance

## Hedge Fund Risk Statistics

|                           |                | Standard<br>Deviation | Sharpe<br>Ratio | Beta to<br>MSCI ACWI |
|---------------------------|----------------|-----------------------|-----------------|----------------------|
| Grosvenor Diversified     | Since Oct 2011 | 2.82%                 | 0.98            | 0.15                 |
| Goldman Sachs Diversified | Since May 2015 | 3.10%                 | 0.33            | 0.14                 |
| Direct Portfolio          | Since Apr 2018 | 2.42%                 | -0.86           | 0.06                 |

## Hedge Fund Net Returns

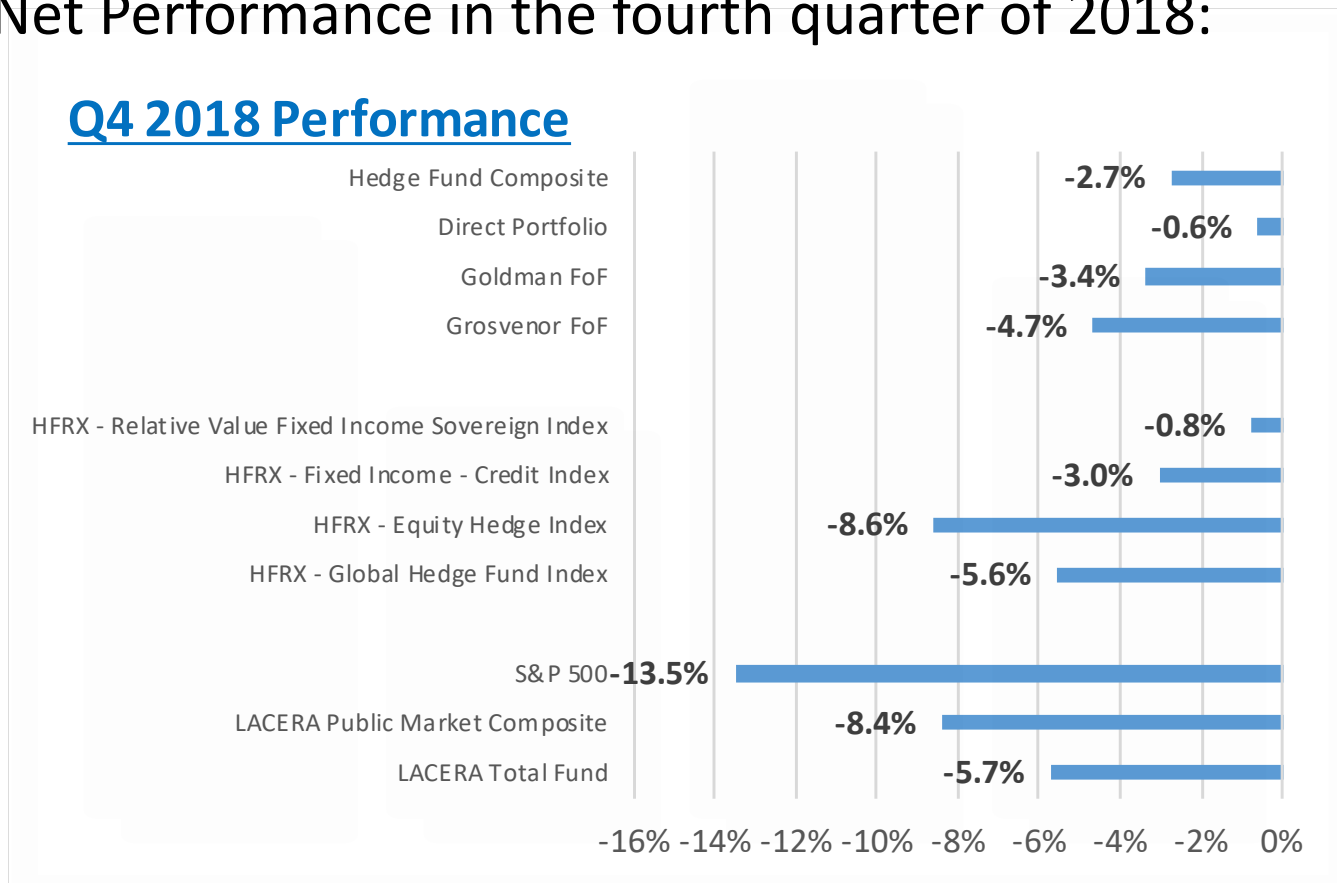
|                           | 3 Month | 1 Year | 3 Year | Since Inception |
|---------------------------|---------|--------|--------|-----------------|
| Grosvenor Diversified     | 0.73%   | -1.33% | 3.45%  | 3.31%           |
| Goldman Sachs Diversified | 1.54%   | 0.53%  | 2.94%  | 2.00%           |
| Direct Portfolio          | 1.09%   | 2.37%  | n/a    | 0.09%           |

Data is as of June 30, 2019; returns are lagged 1-month.



# Appendix C – Downside Protection

- The sequence of returns matters. Limiting drawdowns benefits LACERA’s Total Fund.
- Net Performance in the fourth quarter of 2018:



# Appendix D – Operations

## LACERA

- Investment Staff
- FASD
- Legal

## Operations

- Performance
- Accounting
- Risk Analytics
- Fee Reconciliation
- Compliance
- Transparency
- Enhanced Terms
- Control

## State Street

- Custody
- Administration

## Albourne

- Operational Due Diligence
- Reporting
- Analytics
- Independent Investment Due Diligence

*Adding a dedicated managed account provider would be an additional business partner*

# Appendix E – Disclaimer for Albourne Slides

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# LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

## HEDGE FUNDS

**Objectives, Policies, and Procedures**

**~~September-September 12~~[date], 20198**

**HEDGE FUNDS OBJECTIVES, POLICIES, and PROCEDURES**  
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# LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

## DOCUMENT PURPOSE

The Hedge Funds Objectives, Policies, and Procedures ("OPP") document sets forth in further detail certain elements of LACERA's Diversified Hedge Funds Investment Program (the "Program," "Hedge Funds," or "Hedge Funds Program") which are broadly outlined in LACERA's Investment Policy Statement ("IPS"). ~~This~~ OPP ~~defines the Program's objectives and high level parameters,~~ stipulates the ~~detailed~~ policies that govern the Program, ~~establishes risk management practices,~~ spells out the procedures to be followed, and delineates the responsibilities of the Board of Investments (the "Board"), LACERA staff, the Hedge Funds Advisor(s) ("HFA"), the hedge funds portfolio administrator(s) ("Administrator"), LACERA's custodian (Custodian"), and LACERA's general consultant ("General Consultant"). In essence, the OPP provides the blueprint that guides the ~~structure and~~ implementation of the Program and its underlying portfolios.

The Hedge Fund Program's role, objectives, and parameters have been incorporated into the 2019 Hedge Fund Structure Review materials which will be reviewed by the Credit and Risk Committee in August 2019 and, subject to approval, by the Board of Investments in September 2019.

## SECTION I – PROGRAM OBJECTIVES

### 1. Introduction

~~The Board has determined that, over the long term, inclusion of diversified hedge fund investments will enhance the risk/return characteristics of the Total Fund. As established in the Investment Policy Statement "IPS", the Hedge Funds Program has an objective to reduce the volatility of the Fund without materially decreasing Fund returns. Primarily, the Hedge Funds Program enhances the diversification of the Total Fund portfolio. This objective is achieved through investing in targeted strategies that have low to moderate correlation with public global equity returns, and have historically exhibited moderate return volatility. Hedge funds have historically had greater volatility than fixed income markets while having less than half the volatility of public global equity markets.~~

### 2. Role of Hedge Funds in the Total Fund

~~The IPS states that the Program objective to reduce Fund volatility without materially decreasing Fund returns should be measured and evaluated by the Sharpe ratio<sup>1</sup>. The Program is expected to improve the Sharpe ratio of the Total Fund. Even modest improvements in the Sharpe ratio benefit the Fund's ability to compound returns over the long run.~~

~~Investment decisions regarding the Program's primary objective of reducing volatility while maintaining returns are guided by the following separate objectives: (i) generating returns that exceed a target annualized return of 250 basis points<sup>2</sup> greater~~

<sup>1</sup>Sharpe ratio is a measure of the excess return of the program over cash divided by program volatility as measured by standard deviation of returns.

<sup>2</sup> Subject to Board approval. Benchmark review scheduled for September 12, 2018 BOI Meeting.

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than an index of 3-month United States Treasury bills ("T-bills"), (ii) achieving realized volatility of 3.8% as measured by the annualized standard deviation of monthly returns, and (iii) maintaining a Program beta of 0.25 or lower to public global equity markets as measured by the Morgan Stanley Capital International ("MSCI") All Country World Index.

### 3. Hedge Funds Asset Allocation

In May 2018, the Board established a long-term target allocation to diversified Hedge Funds of 4%. This allocation is part of a newly created Risk Reduction and Mitigation asset category that also includes investment grade fixed income and cash. Previously the asset allocation target for all hedge funds, including credit hedge funds of funds was 5% of the Total Fund asset value.

Additionally, the new May 2018 allocation policy re-categorized credit hedge fund of funds strategies, previously categorized under the Hedge Funds Program, to a new sub-category called Illiquid Credit within a new asset category named Credit. The credit hedge fund of funds portfolios comprised 0.7% of the Total Fund as of June 30, 2018. The new policy allocation to Illiquid Credit is 3%. The allocation to Illiquid Credit includes other investments apart from Credit hedge fund of funds and will be managed by the Credit team and will continue to be overseen by the Credit and Risk Mitigation Committee (formerly Fixed Income/ Hedge Funds/ Commodities Committee).

Any reference to the Diversified Hedge Funds Investments (the "Program," "Hedge Funds," or "Hedge Funds Program") herein will exclude credit hedge fund of funds investments.

As of June 30, 2018, the actual Hedge Funds Program allocation is 2.2% of the Total Fund<sup>3</sup>. As the actual allocation is currently below the long-term target allocation, which is planned to be reached in Q4 2019, an interim target allocation for Diversified Hedge Fund Investments is being recommended at the September 2018 BOI meeting to be 3.0% at the beginning of 2Q19. The Diversified Hedge Funds policy allocation is planned to change in the following quarters as shown in **Table 1** below:

**Table 1**  
**Target Hedge Funds Allocation by Quarter**

| <b>Calendar Quarter</b> | <b>Target Diversified Hedge Funds Allocation</b> |
|-------------------------|--|
| Current                 | 2.2%   |
| Q2 2019                 | 3.0%   |
| Q4 2019                 | 4.0%   |

The Total Fund asset allocation policy in the IPS limits the actual Hedge Funds allocation to a range around the target allocation whereby the minimum allocation is the lower of 0% or 4% less than target, and the maximum allocation is 2% greater than

<sup>3</sup>\$1.23 billion asset value of Hedge Funds and \$56.0 billion Total Fund asset value.

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the target. Thus, at the proposed 3% target allocation, the hedge funds allocation range is 0% to 5%. At the final 4% target allocation, the allocation range will be 0% to 6%.

## 4. Program Objectives and Parameters

### 4.1 Program Benchmark Return

A recommendation to the Board of Investments is being made at the September 2018 BOI meeting which, consistent with the General Consultant's capital market assumptions, would make the primary Diversified Hedge Fund Program benchmark an annualized return of 250 basis points greater than an index of 3-month United States Treasury bills ("T-bills")<sup>4</sup>. The benchmark is used to evaluate the performance of the Program over three to seven years. When measuring realized returns against this objective, the returns are net of all fees charged by underlying hedge funds and any fund of funds managers.

Program returns are also measured against a universe of similar hedge fund strategies, as provided by a reliable third party source such as Hedge Fund Research, Inc. ("HFR"). By measuring performance over three to seven years, the Program's performance relative to a fund universe can be considered. **Table 2** identifies benchmarks for each portfolio type within the Program. A description for each portfolio follows in Section 5 of this HFAIP.

**Table 2  
Fund Benchmarks by Type**

| Portfolio Type                                 | Primary Benchmark  | Secondary Benchmark               |
|--|--|-----------------------------------|
| Diversified Hedge Fund of Funds                | 3-month<br>T-bills plus 250 bps<br>annualized <sup>5</sup> | HFRX Global<br>Index <sup>6</sup> |
| Direct Hedge Funds                             |  |                                   |
| <b>Total Diversified Hedge Funds Portfolio</b> |  |                                   |

### 4.2 Program Parameters

The Diversified Hedge Funds Program is expected to have volatility greater than that of fixed income markets but less than that of public equity markets, generally at a level of less than half of public equity market volatility. Realized volatility, as measured by standard deviation of returns, is expected to range from 3-8% over three-year rolling time periods. The program is expected to have low to moderate correlation with public

<sup>4</sup>This benchmark has been 500 basis points greater than an index of 3-month United States Treasury bills ("T-bills") since the inception of the program.

<sup>5</sup>Subject to BOI approval.

<sup>6</sup>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, hedged equity, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted. Source: Hedge Fund Research, Inc.

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~~global equities and will be managed by maintaining a portfolio equity beta<sup>7</sup> of 0.25 or lower.~~

### ~~5. Investment Structure~~

~~The Fund currently invests in two diversified portfolio types in the Program (hedge fund of funds and direct hedge funds).~~

~~The Fund currently deploys capital to two Hedge Fund of Fund ("HFoF") managers—Grosvenor Capital Management ("GCM") and Goldman Sachs Asset Management ("GSAM"). GCM and GSAM each run a diversified HFoF portfolio for the Program. GCM also runs two credit HFoF portfolios which are categorized under the Illiquid Credit sub-category in the Credit asset category.~~

~~As the Program implementation moves forward, direct hedge fund investments are used for the advantages they provide to the Fund, namely that they are not subject to the additional layer of fees paid to fund of funds managers, they facilitate direct relationships with hedge fund managers, and they allow the Fund to have greater control over its Program.~~

~~In addition to their existing fiduciary role in investing the fund of funds portfolios, the HFoF managers have also agreed contractually to serve as HFAs, acting as a fiduciary, to support LACERA investing directly in hedge funds. The roles and responsibilities of the HFA are further described in the OPP. LACERA issued a Request for Proposal for a Consultant(s) in the Hedge Funds, Credit and Real Assets categories. When and if LACERA selects a separate Hedge Fund Consultant, the Consultant will act as an HFA.~~

#### ~~Hedge Fund Program Portfolio Types~~

- ~~1. Diversified Hedge Fund of Funds: HFoF portfolio managed by an external HFoF manager who invests across hedge fund strategies. HFoF managers have discretion to construct portfolios consistent with the Hedge Fund section of LACERA's Investment Policy Statement and any individual portfolio guidelines. Each HFoF manager identifies, selects, and monitors these investment strategies as part of a diversified portfolio.<sup>8</sup>~~
- ~~2. Direct Hedge Funds: Diversified portfolio of hedge funds invested across hedge fund strategies, with LACERA selecting the managers and strategies. LACERA retains discretion to construct and maintain a portfolio consistent with the~~

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<sup>7</sup>Portfolio equity beta is a measurement of a portfolio's volatility relative to equity market returns. A portfolio with a beta of 1.0 has the same volatility as the equity market. Mathematically, historical beta can be viewed as the slope of the regression line of portfolio returns against market returns. The Morgan Stanley Capital International All Country World Index is used as the global equity market reference against which to measure equity beta realized by the Program.

<sup>8</sup>The Fund's contractual relationship with Goldman Sachs Asset Management regarding the diversified HFoF portfolio is through a discretionary investment management agreement rather than a fund agreement in part because those underlying funds are held directly in the Fund's name.

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Program policies including the OPP and this HFAIP. As additional resources, the HFAs provide independent due diligence and technical assistance to LACERA in support of areas including market research, investment due diligence, operational due diligence, portfolio construction, and risk aggregation.

**Table 3** shows the current allocation to the portfolio types among LACERA's Hedge Funds Program and defines the allowable allocation range for the Program.

**Table 3**  
**LACERA Hedge Funds Program**  
**Current and Allowable Allocation By Portfolio Type**

| Portfolio Type                               | Allowable Allocation Range |
|--|----------------------------|
| Diversified Hedge Fund of Funds <sup>9</sup> | 0-90%                      |
| Direct Hedge Funds                           | 0-100%                     |
| <b>Total Program</b>                         |                            |

## 6. Investment Strategy Categories

LACERA's achievement of its Hedge Funds Program objectives requires an ability to adjust portfolio allocations across various hedge fund strategy categories since each may respond differently to prevailing market environments. The Program-level investment category constraints (shown in **Table 4**) limit strategy category exposures in order to promote diversification across strategy categories while also being flexible enough to allow for tactical shifts in and out of strategies based on their relative attractiveness and the market environment.

The constraints for each of the six investment strategy categories (defined and discussed below) are measured on a look through basis.<sup>10</sup> Individual fund of fund portfolios have investment guidelines that are consistent with or more limiting than these Program-level constraints.

Definitions for the categories generally draw from the index definitions created by HFR. HFR's definitions of the first four categories in the table are objective and follow predetermined rules which place all eligible hedge funds in their Global Index into one of these four categories. However, solely using these four definitions can be limiting to broad portfolio construction, and LACERA has broadened the strategy categories to include Hedged Credit and Multi-Strategy. While the six categories are commonly

<sup>9</sup>When invested to reach the 4% strategic asset allocation Total Fund target, 22% of the Hedge Funds Program would be approximately \$500 million (at a \$56 billion Total Fund valuation). LACERA's initial allocation to its two HFoF managers was \$250 million each. This minimum level of investment is necessary for LACERA to continue to receive HFA services as part of its agreements with the HFoF managers. Approximately 22% of the Program is the longer term target for the diversified HFoFs after LACERA reaches its 4% strategic allocation target.

<sup>10</sup>Look through basis for the Hedge Funds Program is defined as the total strategy category allocation based on the underlying portfolios in the Program, viewed independently of their portfolio structure.



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~~used, they do not represent an exhaustive list that covers all possible hedge fund investments. The Program may invest in some funds that are not well described by one of these strategy definitions if they otherwise meet broad objectives and constraints established for the Program.~~

~~Additionally, LACERA may consider investing in “hedge fund premia” or replication-type strategies that seek to obtain systematic exposures to investment themes used by hedge funds, but at a lower cost. These strategies are expected to fall within the six strategy categories identified below.~~

**Table 4  
Diversified Hedge Funds Investment Allocation  
Constraints by Strategy Category**

| <b>Strategy</b>                        | <b>Strategy Constraint</b> | <b>Target Allocation of Direct Portfolio</b> |
|--|----------------------------|--|
| Event Driven (excluding Hedged Credit) | Maximum 40%                | 7.5%   |
| Relative Value                         | Maximum 60%                | 15%  |
| Hedged Equity                          | Maximum 40%                | 15%  |
| Macro/Tactical Trading                 | Maximum 50%                | 15%  |
| Hedged Credit                          | Maximum 60%                | 7.5%   |
| Multi-Strategy                         | Maximum 60%                | 40%  |

~~The table includes the target allocation for the direct portfolio when it is fully invested by year end 2019.~~

~~LACERA recognizes the opportunistic nature of investing in these strategies and will allow latitude regarding the lower and upper limits of allocation constraints and targets. In the short term, as LACERA sequentially ramps up its allocations in the direct portfolio to reach the 4% Total Fund target allocation, some individual fund allocations may cause large changes in the strategy allocation weights in the direct portfolio. Thus, these strategy constraints might not be met during the ramp up phase.~~

**6.1 Event Driven Strategies**

~~Event Driven (“ED”) strategies invest in securities of companies undergoing or expected to undergo corporate transactions, including mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance, or other capital structure adjustments. Security types may include equities; senior, junior, or subordinated debt; and derivatives. ED investments may include exposure to equity markets, credit markets, and idiosyncratic, company-specific developments. Investment ideas are typically fundamental rather than quantitative and~~

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are generally realized around developments affecting a specific company rather than the general market.

The underlying sub-strategies may include activist, credit arbitrage, distressed/restructuring, merger arbitrage, private issue/Regulation D, or special situations.

### 6.2 Relative Value Strategies

Relative Value ("RV") strategies may invest across equity, fixed income, derivative, or other security types in order to realize an identified valuation discrepancy between securities. Managers' investment ideas may use fundamental and/or quantitative techniques. Fixed income RV strategies are typically quantitative and identify attractive opportunities based on value discrepancies or risk-adjusted spreads between instruments. RV may invest in corporate transactions based on the realization of a pricing discrepancy between related securities, but as opposed to ED, these investments are not based on the outcome of a corporate transaction.

The underlying sub-strategies may include fixed income convertible bond arbitrage, fixed income sovereign, statistical arbitrage, option volatility arbitrage, or yield alternatives.

### 6.3 Hedged Equity Strategies

Hedged Equity ("HE") strategies maintain long and short<sup>14</sup> positions primarily in equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including use of both quantitative and fundamental techniques. The range of processes may include a multi-portfolio manager platform or single portfolio manager structure, a broadly diversified approach or narrow sector or thematic focus, net equity exposures from 100% short to 100% long, use of zero to high levels of leverage, short-term to multi-year holding periods, regional to global geographic market focus, growth to value styles, and small to large market capitalization focus.

The underlying sub-strategies may include equity market neutral, fundamental growth, fundamental value, quantitative directions, sector-specific sub-strategies, or short bias.

### 6.4 Macro (Tactical) Strategies

Macro strategies may invest in equity, fixed income, currency, and/or commodity markets in order to benefit from ideas on economic variables and their impact on market movements, or the market movements themselves. Managers employ a variety of techniques including these: discretionary and systematic analysis, top-down and bottom-up ideas, quantitative and fundamental approaches, and long-term and short-term holding periods. Macro strategies are distinct from RV strategies in that the primary investment ideas are based on predicting future market movements rather

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<sup>14</sup>"Long" positions benefit from asset price increases while "short" positions benefit from asset price decreases.

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~~than realizing valuation discrepancies between securities. In a similar way, while both Macro and Hedged equity strategies may hold equities, Macro equity positions are based on investment ideas that predict market movements and their effect on security prices based on macroeconomic variables, as opposed to EH, where company fundamentals are more important for development of investment ideas.~~

~~The underlying sub-strategies may include active trading, commodity (including its subsectors of agriculture, energy, and metals), discretionary currency, systematic currency, discretionary thematic, or systematic diversified.~~

### 6.5 Hedged Credit Strategies

~~Hedged Credit strategies may include investment in all credit securities as well as equities, credit derivatives, sovereign bonds, commodities, currencies, or other hybrid securities. Investment ideas are based on valuation discrepancies between credit instruments, or between credit securities and other security types. Hedged Credit is distinguished from the fixed income RV strategies in that Hedged Credit includes a significant component of investment ideas based on evaluation of credit quality of underlying instruments, rather than based on sovereign debt or interest rate exposures. Also, relative to fixed income RV strategies, Hedged Credit generally has more net exposure in credit markets, is less hedged, and is less leveraged.~~

~~The underlying sub-strategies may include corporate, emerging market sovereign, distressed, mezzanine debt, structured credit—residential mortgages, structured credit—commercial mortgages, other asset-backed, bank debt, direct lending, and capital structure arbitrage.~~

### 6.6 Multi-Strategy

~~Multi-Strategy managers invest across some or all of the five main strategy categories and may make tactical shifts among strategies at any given time. Multi-Strategy managers are not expected to have a dominant consistent weighting to any one strategy and instead are expected to have significant investment in more than one strategy category.~~

## SECTION II – PROGRAM POLICIES

~~Policies for the Program are designed to allow access to returns available in flexible investment strategies that target returns from sources other than equity markets, as equity market risk is the most significant risk in LACERA's Total Fund, while controlling for risks that may lead to large losses. In the Program, controlling risk, limiting downside losses, and dampening overall volatility by diversifying the Total Fund away from general market risks are as important as seeking returns. LACERA adheres to prudent risk management practices by establishing guidelines that mitigate the main sources of risk in the Hedge Funds Program.~~

### 1. Risk Management

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Hedge fund strategies generally entail a number of identifiable risks that are distinct from or heightened compared to traditional public market strategies. These include both investment related and operational risks. It is LACERA's policy that the key risks particular to a hedge fund investment strategy be identified and understood. The HFA(s) aids LACERA in identifying, understanding, and monitoring risks in their portfolios and aggregated risks across the Program, including all fund of funds and direct portfolios.

The types of risks are summarized in the following five main areas: illiquidity, transparency, leverage, quantitative risk, and operational risk. LACERA's methods for mitigating these risks are supplied below. Staff shall manage risk by applying these risk management practices to the entire Program.

As it relates to transparency risk, to the extent that a hedge fund's risks are opaque and cannot be sufficiently understood or identified, LACERA will not undertake an investment. If risks increase to a level beyond what is allowable in this OPP, LACERA will seek to redeem or reduce investments to bring the Program into compliance.

| INVESTMENT RISK  | METHOD OF MITIGATION   |
|--|--|
| <p>1. <u>Illiquidity</u> — Illiquidity may originate from the form of the assets or securities held by the underlying hedge funds as well as terms of the investment vehicle that delay investors' receipt of cash proceeds from their investments, e.g., lock-up periods, redemption periods, notification periods, or gates.</p> | <p>LACERA generally funds only those hedge funds that invest primarily in liquid assets. Additionally, the majority of the Program asset value is in hedge funds that have a lock-up period of one year or less and, after expiration of the lock-up period, a majority of Program asset value is in funds that provide for full or partial redemption at least quarterly. Beyond the initial lock-up periods, a liquidity schedule is maintained such that the majority of Program asset value is liquid within one year.</p>                 |
| <p>2. <u>Transparency</u> — Many hedge funds may not fully disclose current position-level holdings.</p>   | <p>LACERA requires ongoing disclosure of either position-level data or risk-exposure level data from the hedge funds. Position-level data includes all of a fund's security holdings and their amounts. Examples of risk exposure level data include net and gross equity exposure, sector level net equity exposure, and net fixed income allocation by sector and credit quality category. Additionally, frequent communication with the hedge funds is undertaken by Staff and the HFA to understand the largest positions in the fund.</p> |

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|   |  |
|---|--|
| <p><del>3. <u>Leverage</u>—The underlying hedge funds may use leverage, which enables them to gain financial exposure greater than invested capital.</del></p>  | <p><del>LACERA does not permit excessive use of leverage in the Program. Appropriate leverage levels are dependent on the type of strategies used, the degree to which positions have offsetting risks, and the volatility of the assets held in the fund. The leverage ratio at the strategy level is not permitted to exceed 4.0x for hedged credit, event driven and hedged equity, 5.0x for multi-strategy, 8.0x for relative value, and 20.0x for macro and other tactical trading strategies. Portfolio-level leverage is monitored to manage the overall risk level of the Program. Only leverage derived from hedge fund managers' positions is permitted and no additional leverage will be added at the portfolio level.</del></p> |
| <p><del>4. <u>Quantitative Risk</u>—Hedge funds are exposed to a number of quantifiable market risks (e.g., beta and volatility levels).</del></p>  | <p><del>LACERA's HFAs measure quantitative risks in the Hedge Funds Program through the use of their risk measurement system(s). Risk is evaluated at both the manager level and portfolio level to comply with this policy. The system(s) are used to identify unintentional risks in the portfolio which can be reduced through diversification and to identify portfolio changes which would reduce undesired risk levels while maintaining Program objectives. Other risk analyses used include scenario analysis to determine how the portfolio might behave in certain unfavorable market environments and value-at-risk analysis to identify the potential for losses in severe downside cases.</del></p>                             |
| <p><del>5. <u>Operational Risk</u>—Hedge fund investments are made through separate legal structures such as limited partnerships. Therefore, additional operational risk can arise when assets leave LACERA's custody.</del></p> | <p><del>LACERA invests only in hedge funds where an operational due diligence review determines that the funds' control and compliance environments are sufficient for investment. LACERA invests in funds that are administered by independent third parties, have assets that are held in custody by third parties, and are audited by reputable third parties. The valuation policies of the hedge funds are reviewed periodically to make sure that they are sufficiently strong.</del></p>  |

~~2. Investment Exposure Parameters~~

~~At the portfolio level, measurable parameters are employed to mitigate some of the risks that might lead to portfolio losses.~~

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~~For HFoF portfolios, risks are managed by investment guidelines in place for each portfolio. Though not included in this document, they are consistent with or more strict than the Program-level risk constraints in Section II, Subsection 1, Risk Management, of the OPP.~~

~~For LACERA's direct hedge fund portfolio, risk management will be governed by the risk parameters appearing below. Note that this portfolio may be out of the range of these parameters temporarily as LACERA builds its direct hedge fund portfolio to reach the 4% target allocation by the fourth quarter of 2019.~~

~~Additionally, beyond the time when the 4% allocation is reached, fund notification period and redemption terms may prevent LACERA from immediately remediating an exposure outside of these parameters. LACERA will take prompt action to remediate any exposures outside the parameters.~~

### LACERA Direct Hedge Fund Portfolio Risk Parameters

#### Risk Limits:

|  |                                |
|--|--------------------------------|
| <del>Estimated portfolio equity beta<sup>12</sup></del>                    | <del>Not to exceed 0.20%</del> |
| <del>Target range of standard deviation</del>                              | <del>3-8%</del>                |
| <del>Portfolio-level rate of Return at Severe Case Loss<sup>13</sup></del> | <del>&gt;-10%</del>            |

#### Maximum Leverage by Investment Strategy Category:

|  |                |
|--|----------------|
| <del>Event Driven (excluding Credit)</del> | <del>4x</del>  |
| <del>Relative Value</del>                  | <del>8x</del>  |
| <del>Hedged Equity</del>                   | <del>4x</del>  |
| <del>Macro (Directional/Tactical)</del>    | <del>20x</del> |
| <del>Hedged Credit</del>                   | <del>4x</del>  |
| <del>Multi-Strategy</del>                  | <del>5x</del>  |

~~Number of Investment Managers: The direct portfolio is expected to have between eight and twenty individual hedge funds.~~

~~Size of Investments: The minimum size of a hedge fund investment will be \$5 million, while the maximum size of investment made will be 20% of LACERA's direct hedge~~

<sup>12</sup>~~Based on forward looking estimates or realized performance measures relative to the MSCI All Country World Index.~~

<sup>13</sup>~~Return at Severe Case Loss is determined by applying a consistent measure of an unexpected negative return event for each fund (e.g., downside returns at a two standard deviation event), while applying some level of portfolio correlation by strategy (e.g., 0.4) which implies some level of diversification benefit across strategies.~~

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~~fund market value. For the purposes of this policy, uninvested amounts that bring LACERA's total direct hedge fund investment up to the 4% strategic policy allocation target shall be considered when determining the maximum investment.~~

~~Partnership/Investment Management Organization Limits: LACERA's share in a single hedge fund partnership or other entity structure will not exceed 35% of that organization's total commitments from all limited partners.~~

~~LACERA will limit maximum Program investments to any investment management organization such that the aggregate investment with that organization across multiple funds is not greater than 20% of LACERA's direct hedge fund portfolio market value. For the purposes of this policy, uninvested amounts that bring LACERA's total direct hedge fund investment up to the 4% policy target shall be considered when determining the maximum investment.~~

~~Liquidity Limits: The portfolio may not invest so that more than 40% of the portfolio value is in funds that are subject to a remaining "lock-up" period greater than one year.~~

~~The portfolio may not invest so that more than 25% of the portfolio value is in funds that are subject to a remaining "lock-up" period greater than two years.~~

~~The portfolio may not invest so that more than 10% of portfolio value is in funds that are subject to a remaining "lock-up" period greater than three years.~~

~~The portfolio may not invest any capital in funds that require a "lock-up" period greater than five years.~~

~~Minimum capital invested as a percent of portfolio asset value in funds where full or partial liquidity is available within one quarter (excluding notification periods and after expiration of lock-up periods) is 40%.~~

~~Minimum capital invested as a percent of portfolio asset value where liquidity is available within one year (excluding notification periods and after expiration of lock-up periods) is 65%.~~

~~Side Pocket Investments: The portfolio is prohibited from investing in funds that make illiquid, "side pocket,"<sup>14</sup> or "designated" investments. Exceptions are allowable in the following cases:~~

- ~~• When the hedge fund offers investors the ability to opt-out of side pocket investments, in which case LACERA will make such election.~~

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<sup>14</sup>Side pocket investments in a hedge fund are usually less liquid than the remainder of the fund and are therefore accounted for differently. Generally, unlike the remainder of the fund, interests in these investments are allocated to investors at the time they are made and not to any future investors. Even if redeeming out of a fund, an investor may not be able to redeem out of its side pocket investments until those investments are realized.



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- ~~• When the hedge fund documents are silent about the ability to invest in side pocket investments, but LACERA and the HFA reasonably expect that the hedge fund manager will not make side pocket investments.~~
- ~~• When the hedge fund documents allow the ability to invest in side pocket investments, but LACERA and the HFA reasonably expect that the hedge fund manager will not make side pocket investments.~~

### 3.1. 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.

LACERA Hedge Funds Privatization Policy: LACERA avoids investing in hedge funds that are dependent on privatization strategies. LACERA does not aim to promote privatization of public jobs through its Hedge Funds Program.

When performing due diligence prior to making the initial investment in a fund for the direct hedge fund portfolio, Staff and/or the HFA, as applicable, will use reasonable efforts to ascertain the following:

- Whether the fund's main investment strategy includes the privatization of jobs held by LACERA members, and
- Whether other funds operated by the investment management organization, if any, have invested in companies dependent upon privatization of jobs held by LACERA members.

### 4.2. Investment Vehicle Guidelines

Limitation of Liability:

LACERA anticipates that its investments in this Program will take place through **pooled** investment vehicles that limit its liability to the amount of its capital commitment to the fund. LACERA, or its external legal advisors, will review fund documents before investment to determine that they are governed by the laws of a jurisdiction that recognizes and preserves investors' limited liability.

Taxability: LACERA, or its external legal advisors, will also review fund documents and consider the jurisdictions in which the funds are formed to confirm that they are "tax neutral."

### 5.3. Legal

Investments are made, managed, and redeemed in compliance with applicable federal, state, and local country-specific laws. Qualified legal counsel selected by the



## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

Legal Office, or Legal Office staff, reviews or negotiates fund documents, side letters, and other legal documents associated with investments.

### 6.4. Derivatives

Given that hedge fund managers may have discretion to use short selling, leverage, and derivatives, LACERA's Derivatives Policy will not apply to Hedge Funds Program investments.

### 75. Fees

LACERA requires fee transparency from its investments in hedge funds, specifying the amount of management fees and accrued performance fees which affect LACERA's net performance. LACERA is complying with new California legislation that requires disclosure of hedge fund fees.

## SECTION III – PROGRAM PROCEDURES

Investing in hedge funds requires unique investment procedures. This section defines and explains the methodologies used when investing in this Program.

### 1. Capital Planning

~~For each calendar year~~Every two years, a Hedge Funds Annual ~~Investment Plan~~ ("HFAIP")~~Structure Review~~, will establish a pace of investing that will result in an allocation that will fall within the target allocation range. Over the next few years, the focus of the ~~HFAIP-Structure Review~~ will be on new allocations to managers to fully fund the direct hedge fund portfolio. LACERA currently invests in diversified fund of funds and direct hedge funds.

### 2. Sourcing Investments

Currently the HFoF managers source investments through the resources of their manager research staffs. For the direct portfolio, LACERA and the HFA will source potential investments and identify those that meet the Program's selection criteria and performance goals. All investment opportunities that meet the established criteria and goals will be considered.

LACERA will avoid undue fund or manager overlap or concentration between LACERA's direct hedge fund portfolio and the underlying HFoF portfolio. If LACERA holds or is preparing to hold a fund or manager in its direct hedge fund portfolio, LACERA may prohibit the HFoF managers from holding or adding that fund or manager, or may require the redemption or transfer of a fund or manager already held in a HFoF portfolio.

Methods of sourcing prospective investments include, but are not limited to, the following:

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

- Meeting investment managers in LACERA's, the HFA's, or investment manager's offices,
- Accessing the market intelligence or databases from the HFA(s) or other sources,
- Referencing funds already approved for investment by an HFA or HFoF manager,
- Meeting with placement agents who represent investment managers,
- Attending investment conferences to meet investment managers,
- Cold-calling potential investment managers, and
- Reading industry publications to keep abreast of people and fund news.

### 3. Conducting Due Diligence

By conducting due diligence, LACERA, ~~and~~ the HFA, ~~and the~~ HFoF manager pursue favorable investments and reject those that do not meet the Program's criteria. Major factors to be considered include, but are not limited to, the following:

- Experience and cohesiveness of the investment manager or principals involved,
- Depth of resources at the investment management organization, including personnel and technology,
- Soundness of the investment manager's strategy,
- Attractiveness of the strategy in the current market environment and the manager's ability to capitalize on it,
- Assessment of the expected risk/return profile of the strategy, including volatility and expected diversification benefits,
- Fit and appropriateness of the investment for inclusion in LACERA's portfolio,
- Manager's knowledge of the securities or instruments used in the investment process,
- Appropriateness of the investment manager's risk management practices,
- Transparency of manager with respect to the strategy,
- Financial health and sustainability of the investment management firm,

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- Attribution of the investment manager's track record to skill rather than market factors,
- Compliance with LACERA's guidelines,
- Compliance with all national, state, and local financial, regulatory, and legal requirements and evaluation of any audit reports,
- Observations and findings of a recent full operational due diligence review by the HFA or an external provider which investigates the manager's operating, control, and compliance environments,
- Consistently positive references and background checks on the investment management firm and key personnel,
- Appropriate level of the investment manager's Environmental, Social, and Governance risk analysis in place, and
- Approach to diversity and inclusion at the investment manager organization.

#### 4. Addressing Conflicts of Interest

LACERA and the HFA will not recommend/make any investment until all identified real and potential conflicts of interest have been assessed and mitigated to the extent deemed appropriate.

#### 5. Structuring and Negotiating Key Terms, Provisions, and Fees

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

LACERA will consider opportunities to lower fees that some managers may offer for larger allocations, or for extended lock-up terms. Staff may recommend the Board approve exceptions to the policies in this document (e.g. limitations on amount of portfolio value which is subject to remaining lockup periods ~~of greater than two years~~) for certain hedge funds in order to receive lower fees. LACERA may also consider fee arrangements with a lower management fee, but potentially higher performance fee. LACERA will take into consideration the fee breaks available through its HFA relationship.

#### 6. Approving Investments in the Direct Portfolio

Consistent with LACERA's current governance model, all direct hedge fund investments will be recommended by staff and the HFA and will be subject to Board approval.

Any staff recommendation of a direct hedge fund investment for Board approval will be accompanied by an opinion memo from an HFA. This memo will address

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

investment merit, risks, fit with LACERA's portfolio, objectives, and constraints, and an assessment of the fund's operating, control, and compliance environment.

### 7. Rebalancing and Redeeming Funds in the Direct Portfolio

Investments in a direct hedge fund portfolio require the flexibility to rebalance the portfolio and terminate managers in a timely manner, within the terms of the notification period and fund redemption schedule for each fund.

In order to rebalance the portfolio to take advantage of changes in market opportunities or reflect evolving views on a manager, LACERA will need to add to or partially redeem from certain funds from time to time. When funds are recommended for approval by the Board, staff will propose an initial investment amount and maximum allocation. LACERA staff may add capital to or reduce amounts invested with already approved managers as long as the value of the new investment amount remains below the maximum allocation amount. A summary of fund additions and redemptions will be reported to the Board periodically through regular quarterly reporting and the monthly CIO Letter.

LACERA may also need to take rapid action to terminate an investment manager for various reasons that include unexplained poor performance, staff turnover, change in fund strategy, evidence of unethical manager behavior, or the existence of more attractive opportunities elsewhere. Staff may terminate funds by requesting a full redemption at the next available redemption period and will promptly report terminations to the Board.

### 8. Monitoring and Reporting Portfolio Performance

*Use of Third Party Administrators in Performance Reporting:* In order to provide additional monitoring, independent of reporting provided by HFoF managers, and to provide specialized accounting services for its direct hedge fund portfolio, LACERA requires the use of third party Administrators. Administrators are responsible for accounting for all investor-level activity in a hedge fund portfolio, reporting official independent portfolio valuations and performance on a monthly basis, and reporting interim monthly valuations as required by Staff or the HFoF manager. The selection of Administrators varies by portfolio.

Grosvenor Capital Management ("GCM") is a HFoF manager that uses partnership structures to hold underlying funds for its ~~three~~ portfolios and acts as general partner for its partnerships. As general partner, GCM is responsible for selecting and overseeing the Administrator for these partnerships, and that Administrator delivers valuation and performance reports for each partnership directly to LACERA and its Custodian.

For the Goldman Sachs Asset Management ("GSAM") HFoF portfolio, where LACERA holds the fund interests directly, the fund of funds manager acts under a discretionary Investment Management Agreement.

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

For the GSAM portfolio and direct portfolio, LACERA has procured ~~International Fund Services, LLC (“IFS”), a wholly owned division of~~ State Street, LACERA’s Custodian, to act as a portfolio-level Administrator. ~~LACERA may also substitute the Custodian as Administrator for the direct and GSAM portfolios or otherwise evaluate alternative solutions.~~

Reporting to LACERA’s Staff: The Administrators track capital flows, measure returns, and provide monthly portfolio performance reports to LACERA. Additionally, the HFoF managers provide monthly and quarterly reporting with analyses regarding the portfolios they manage for LACERA. Individual fund managers provide various forms of monthly, quarterly, or annual reports regarding fund positioning, performance, and outlook.

Calculation of Composite Returns: LACERA’s Custodian, State Street, receives portfolio values from the Administrators and calculates multiple portfolio composite returns and the Hedge Funds Program composite return. LACERA’s hedge fund performance is consolidated into the Total Fund performance on a one-month lagged basis. This approach allows the Administrator time to capture the closing period cycle for the underlying hedge funds, which have a valuation cycle that often exceeds the global custodian’s monthly cutoff for unlagged performance. LACERA may remove the lag in the future if it can obtain sufficient performance data for the hedge fund program within its normally monthly closing cycle.

Reporting to the Board: Staff shall issue quarterly portfolio performance reports to the Board. In addition, staff and ~~at least one of~~ the HFAs shall report to the Board at least annually on the performance and status of the Program. Reports shall include, but not be limited to, such items as the following:

- Risk and return across the Program and its portfolios,
  - Summary of investment portfolio performance and its relation to overall market performance,
  - Program impact on the Sharpe ratio of the Total Fund,
  - The general investment environment,
  - Allocations across different strategies of hedge funds,
  - Capital activity such as new commitments, contributions, redemptions, and terminations made since the last report,
  - Summary of new investments and redemptions by strategy, and
- Compliance with applicable LACERA policies/risk limitations.

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.

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

LACERA expects staff and any HFoF managers to strictly adhere to the ranges set forth in this document, to any other applicable portfolio guidelines, as well as to the investment guidelines as set forth in the ~~Structure Review HFAIP~~ or as agreed upon from time to time by LACERA and any HFoF managers.

### 9. Implementation Using Separate Accounts or “Funds of One”

LACERA will explore the use of structures which include directly managed separate accounts or “funds of one<sup>15</sup>” that allow LACERA greater operational control over its direct hedge fund investments. The advantages of these structures are that they allow for greater control over assets, lower operational costs, an enhanced negotiating position for lower management and performance fees, full transparency, and an enhanced comfort to take on emerging managers. The disadvantages are greater operational complexity for LACERA and an unwillingness of some fund managers to add to their own operational risk and complexity with these structures. While these structures provide some overall improvements to LACERA, a fund manager’s unwillingness to adopt these structures will be considered but not generally used to exclude funds from recommendation.

### 10. Planning for a Hedge Fund Emerging Manager Program

In 2019, LACERA will also explore strategies through Committee and Board discussions for constructing an emerging manager hedge fund portfolio. Such strategies may include converting all or a portion of an existing Diversified HFoF portfolio mandate to an Emerging Manager HFoF portfolio mandate. This portfolio would follow policies and objectives for emerging manager portfolios that already exist in LACERA’s other asset categories.

## SECTION ~~VI~~ – SUMMARY OF ROLES AND RESPONSIBILITIES

The roles of the Board, staff, HFA, Hedge Fund of Funds Manager, Administrator, Custodian, and the General Consultant are summarized below:

### 1. Board Responsibilities

- Review and approve the Hedge Funds Objectives, Policies, and Procedures,
- ~~Review and approve the Structure Review HFAIP,~~
- Review performance of the Program with the HFA and/or staff at least annually
- Review and approve direct allocations to externally managed funds and fund of funds mandates, and

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<sup>15</sup>A “Fund of One” structure is a customized investment vehicle such as a Limited Partnership for which LACERA would be the sole limited partner.

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

- Refer hedge fund investment opportunities to staff for evaluation, either directly or with the assistance of the HFA.

### 2. Staff Responsibilities

- Develop, evaluate, review, and make recommendations to the Board on the Hedge Funds Objectives, Policies, and Procedures,
- ~~Review~~ Perform the ~~Structure Review HFAIP~~ at least ~~annually~~ once every two years, recommending changes to the Board as appropriate,
- Monitor and report on the activities of the HFAs to the Board,
- Conduct searches for HFAs as authorized by the Board,
- Source, screen, evaluate, and recommend investments to the Board in consultation with the HFAs,
- Perform investment due diligence on prospective investment managers and investment opportunities that potentially fit the objectives and constraints of the Program,
- Review with an HFA the operational due diligence findings for managers recommended by staff,
- Monitor the investment managers in the direct portfolio on an ongoing basis, and consider their replacement with other more attractive investment opportunities,
- Ensure that adequate measurement systems are implemented to monitor the performance and fees of the Program,
- Meet with the HFA and the Board at least annually to review Program performance, allocation to the various hedge fund portfolios and other parameters, and other issues that arise,
- Assure that LACERA has appropriate legal counsel resources to work with staff to review terms and conditions on all proposed investment vehicles,
- Document due diligence procedures undertaken for recommended investments, and
- Maintain internal processes for administering LACERA's role in financial operations of direct and HFoF portfolios.

### 3. HFA ~~and/or~~ Hedge Fund of Funds Manager Responsibilities

## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

- Act as fiduciary throughout all phases of the investment process, as overseen by LACERA that may include investment sourcing, consideration, evaluation, recommendation, negotiation, reporting, and monitoring,
- 
- Assist LACERA Board and Staff in identifying potential investment opportunities, conducting due diligence, and monitoring investments,
- For the direct portfolio, provide a written memo and appear at Board meetings in reference to potential fund investments recommended by Staff,
- For the direct portfolio, provide an operational due diligence report addressing the operating, control and compliance environment related to funds and investment management organizations recommended by staff,
- Make investment selections within approved fund of funds mandates,
- Serve the interest of the Board in support of its fiduciary obligation to LACERA,
- Carry out strategic or portfolio-based initiatives as directed by the Board,
- Review Draft **Structure Review**~~HFAIP~~,
- Provide portfolio performance reporting and evaluation for discretionary portfolios,
- Meet with the Board and staff at least annually to review performance of the hedge fund portfolio(s) and the Program,
- Provide the Board and staff with ongoing educational presentations and/or materials covering market conditions and developments as requested,
- Proactively disclose any perceived or actual conflicts of interest which become apparent to the HFA, and
- With respect to the Grosvenor HFoF: act as general partner in HFoF partnership structures and oversee third party administration, perform cash management for fund of funds, and properly oversee all partnership functions.

#### 4. Administrator Responsibilities

- Maintain accounting records and provide timely official portfolio positions to the Custodian, LACERA, and, if applicable, the HFoF manager,
- Calculate monthly performance of each portfolio and provide this data to the Custodian and LACERA,
- Provide interim valuation and performance estimates of each portfolio to LACERA and, if applicable, the HFoF manager,



## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

### 5. Custodian Responsibilities

- Calculate performance of multi-portfolio hedge fund composites and of the Program over various time periods, and
- Provide all Hedge Funds Program performance figures that are consolidated into LACERA's Total Fund performance.

### ~~6. General Consultant Responsibilities~~

- ~~• Review the OPP and make any recommendations,~~
- ~~• Review the Structure Review at least once every two yearsHFAIP annually,~~
- ~~• Review Program-level recommendations for compliance with LACERA policy, and Report to the Board on any Program issues, as appropriate.~~

### SUMMARY STATEMENT

This document establishes the framework and practices by which the Hedge Fund Program is to be implemented. These objectives, policies, and procedures will be updated **annually every two years** to meet the evolving needs of the Hedge Fund Program.

# **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION**

## **HEDGE FUNDS**

### **Objectives, Policies, and Procedures**

**September [date], 2019**

# HEDGE FUNDS OBJECTIVES, POLICIES, and PROCEDURES

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# LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

## DOCUMENT PURPOSE

The Hedge Funds Objectives, Policies, and Procedures ("OPP") document sets forth in further detail certain elements of LACERA's Diversified Hedge Funds Investment Program (the "Program," "Hedge Funds," or "Hedge Funds Program") which are broadly outlined in LACERA's Investment Policy Statement ("IPS"). This OPP stipulates the policies that govern the Program, spells out the procedures to be followed, and delineates the responsibilities of the Board of Investments (the "Board"), LACERA staff, the Hedge Funds Advisor(s) ("HFA"), the hedge funds portfolio administrator(s) ("Administrator"), LACERA's custodian (Custodian"), and LACERA's general consultant ("General Consultant"). In essence, the OPP provides the blueprint that guides the implementation of the Program and its underlying portfolios.

The Hedge Fund Program's role, objectives, and parameters have been incorporated into the 2019 Hedge Fund Structure Review materials which will be reviewed by the Credit and Risk Committee in August 2019 and, subject to approval, by the Board of Investments in September 2019.

## SECTION I – PROGRAM POLICIES

### 1. 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.

*LACERA Hedge Funds Privatization Policy:* LACERA avoids investing in hedge funds that are dependent on privatization strategies. LACERA does not aim to promote privatization of public jobs through its Hedge Funds Program.

When performing due diligence prior to making the initial investment in a fund for the direct hedge fund portfolio, Staff and/or the HFA, as applicable, will use reasonable efforts to ascertain the following:

- Whether the fund's main investment strategy includes the privatization of jobs held by LACERA members, and
- Whether other funds operated by the investment management organization, if any, have invested in companies dependent upon privatization of jobs held by LACERA members.

### 2. Investment Vehicle Guidelines

*Limitation of Liability:*

LACERA anticipates that its investments in this Program will take place through investment vehicles that limit its liability to the amount of its capital commitment to the fund. LACERA, or its external legal advisors, will review fund documents before

## **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES**

investment to determine that they are governed by the laws of a jurisdiction that recognizes and preserves investors' limited liability.

Taxability: LACERA, or its external legal advisors, will also review fund documents and consider the jurisdictions in which the funds are formed to confirm that they are "tax neutral."

### **3. Legal**

Investments are made, managed, and redeemed in compliance with applicable federal, state, and local country-specific laws. Qualified legal counsel selected by the Legal Office, or Legal Office staff, reviews or negotiates fund documents, side letters, and other legal documents associated with investments.

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Given that hedge fund managers may have discretion to use short selling, leverage, and derivatives, LACERA's Derivatives Policy will not apply to Hedge Funds Program investments.

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## **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES**

LACERA will avoid undue fund or manager overlap or concentration between LACERA's direct hedge fund portfolio and the underlying HFoF portfolio. If LACERA holds or is preparing to hold a fund or manager in its direct hedge fund portfolio, LACERA may prohibit the HFoF managers from holding or adding that fund or manager, or may require the redemption or transfer of a fund or manager already held in a HFoF portfolio.

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- Depth of resources at the investment management organization, including personnel and technology,
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## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

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## LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

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For the GSAM portfolio and direct portfolio, LACERA has procured State Street, LACERA’s Custodian, to act as a portfolio-level Administrator.

Reporting to LACERA’s Staff: The Administrators track capital flows, measure returns, and provide monthly portfolio performance reports to LACERA. Additionally, the HFoF managers provide monthly and quarterly reporting with analyses regarding the portfolios they manage for LACERA. Individual fund managers provide various forms of monthly, quarterly, or annual reports regarding fund positioning, performance, and outlook.

Calculation of Composite Returns: LACERA’s Custodian, State Street, receives portfolio values from the Administrators and calculates multiple portfolio composite returns and the Hedge Funds Program composite return. LACERA’s hedge fund performance is consolidated into the Total Fund performance on a one-month lagged basis. This approach allows the Administrator time to capture the closing period cycle for the underlying hedge funds, which have a valuation cycle that often exceeds the global custodian’s monthly cutoff for unlagged performance. LACERA may remove the lag in the future if it can obtain sufficient performance data for the hedge fund program within its normally monthly closing cycle.

Reporting to the Board: Staff shall issue quarterly portfolio performance reports to the Board. In addition, staff and the HFA shall report to the Board at least annually on the performance and status of the Program. Reports shall include, but not be limited to, such items as the following:

- Risk and return across the Program and its portfolios,
- Summary of investment portfolio performance and its relation to overall market performance,
- Program impact on the Sharpe ratio of the Total Fund,
- The general investment environment,
- Allocations across different strategies of hedge funds,
- Capital activity such as new commitments, contributions, redemptions, and terminations made since the last report,
- Summary of new investments and redemptions by strategy, and

# LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES

Compliance with applicable LACERA policies/risk limitations.

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. LACERA expects staff and any HFoF managers to strictly adhere to the ranges set forth in this document, to any other applicable portfolio guidelines, as well as to the investment guidelines as set forth in the Structure Review or as agreed upon from time to time by LACERA and any HFoF managers.

## 9. Implementation Using Separate Accounts or “Funds of One”

LACERA will explore the use of structures which include directly managed separate accounts or “funds of one<sup>1</sup>” that allow LACERA greater operational control over its direct hedge fund investments. The advantages of these structures are that they allow for greater control over assets, lower operational costs, an enhanced negotiating position for lower management and performance fees, full transparency, and an enhanced comfort to take on emerging managers. The disadvantages are greater operational complexity for LACERA and an unwillingness of some fund managers to add to their own operational risk and complexity with these structures. While these structures provide some overall improvements to LACERA, a fund manager’s unwillingness to adopt these structures will be considered but not generally used to exclude funds from recommendation.

## 10. Planning for a Hedge Fund Emerging Manager Program

In 2019, LACERA will also explore strategies through Committee and Board discussions for constructing an emerging manager hedge fund portfolio. Such strategies may include converting all or a portion of an existing Diversified HFoF portfolio mandate to an Emerging Manager HFoF portfolio mandate. This portfolio would follow policies and objectives for emerging manager portfolios that already exist in LACERA’s other asset categories.

## SECTION III – SUMMARY OF ROLES AND RESPONSIBILITIES

The roles of the Board, staff, HFA, Hedge Fund of Funds Manager, Administrator, Custodian, and the General Consultant are summarized below:

### 1. Board Responsibilities

- Review and approve the Hedge Funds Objectives, Policies, and Procedures,
- Review and approve the Structure Review,
- Review performance of the Program with the HFA and/or staff at least annually

---

<sup>1</sup>A “Fund of One” structure is a customized investment vehicle such as a Limited Partnership for which LACERA would be the sole limited partner.

## **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES**

- Review and approve direct allocations to externally managed funds and fund of funds mandates, and
- Refer hedge fund investment opportunities to staff for evaluation, either directly or with the assistance of the HFA.

### **2. Staff Responsibilities**

- Develop, evaluate, review, and make recommendations to the Board on the Hedge Funds Objectives, Policies, and Procedures,
- Perform the Structure Review at least once every two years, recommending changes to the Board as appropriate,
- Monitor and report on the activities of the HFAs to the Board,
- Conduct searches for HFAs as authorized by the Board,
- Source, screen, evaluate, and recommend investments to the Board in consultation with the HFAs,
- Perform investment due diligence on prospective investment managers and investment opportunities that potentially fit the objectives and constraints of the Program,
- Review with an HFA the operational due diligence findings for managers recommended by staff,
- Monitor the investment managers in the direct portfolio on an ongoing basis, and consider their replacement with other more attractive investment opportunities,
- Ensure that adequate measurement systems are implemented to monitor the performance and fees of the Program,
- Meet with the HFA and the Board at least annually to review Program performance, allocation to the various hedge fund portfolios and other parameters, and other issues that arise,
- Assure that LACERA has appropriate legal counsel resources to work with staff to review terms and conditions on all proposed investment vehicles,
- Document due diligence procedures undertaken for recommended investments, and
- Maintain internal processes for administering LACERA's role in financial operations of direct and HFoF portfolios.

## **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES**

### **3. HFA and/or Hedge Fund of Funds Manager Responsibilities**

- Act as fiduciary throughout all phases of the investment process, as overseen by LACERA that may include investment sourcing, consideration, evaluation, recommendation, negotiation, reporting, and monitoring,
- Assist LACERA Board and Staff in identifying potential investment opportunities, conducting due diligence, and monitoring investments,
- For the direct portfolio, provide a written memo and appear at Board meetings in reference to potential fund investments recommended by Staff,
- For the direct portfolio, provide an operational due diligence report addressing the operating, control and compliance environment related to funds and investment management organizations recommended by staff,
- Make investment selections within approved fund of funds mandates,
- Serve the interest of the Board in support of its fiduciary obligation to LACERA,
- Carry out strategic or portfolio-based initiatives as directed by the Board,
- Review Draft Structure Review,
- Provide portfolio performance reporting and evaluation for discretionary portfolios,
- Meet with the Board and staff at least annually to review performance of the hedge fund portfolio(s) and the Program,
- Provide the Board and staff with ongoing educational presentations and/or materials covering market conditions and developments as requested,
- Proactively disclose any perceived or actual conflicts of interest which become apparent to the HFA, and
- With respect to the Grosvenor HFoF: act as general partner in HFoF partnership structures and oversee third party administration, perform cash management for fund of funds, and properly oversee all partnership functions.

### **4. Administrator Responsibilities**

- Maintain accounting records and provide timely official portfolio positions to the Custodian, LACERA, and, if applicable, the HFoF manager,
- Calculate monthly performance of each portfolio and provide this data to the Custodian and LACERA,

## **LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION HEDGE FUNDS OBJECTIVES, POLICIES, AND PROCEDURES**

- Provide interim valuation and performance estimates of each portfolio to LACERA and, if applicable, the HFoF manager,

### **5. Custodian Responsibilities**

- Calculate performance of multi-portfolio hedge fund composites and of the Program over various time periods, and
- Provide all Hedge Funds Program performance figures that are consolidated into LACERA's Total Fund performance.

### **SUMMARY STATEMENT**

This document establishes the framework and practices by which the Hedge Fund Program is to be implemented. These objectives, policies, and procedures will be updated every two years to meet the evolving needs of the Hedge Fund Program.

**LACERA Hedge Fund Structure Review Concurrence Memo**

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July 26<sup>th</sup>, 2019

**To:** Each Member  
Credit and Risk Mitigation Committee  
Board of Investments

**From:** James Walsh, Stephen Kennedy  
Albourne America LLC

**For:** August 14, 2019 Credit and Risk Mitigation Committee Meeting

**Subject:** Structure Review of Hedge Fund Portfolio

**Recommendation:** Advance the 2019 Structure Review of LACERA Hedge Fund Portfolio for approval.

**Background:** Albourne America LLC is honored to work with LACERA on the Hedge Fund portfolio. Staff has prepared the 2019 Hedge Funds Structure Review for the Credit and Risk Mitigation Committee and the Board of Investments for its consideration and ultimately approval. Albourne America LLC has reviewed the Structure Review and agrees with the recommendations. Albourne America LLC has also reviewed the 2019 Hedge Funds Objectives, Policies and Procedures document for the hedge fund portfolio and agrees in principle with the changes. Albourne will work with Staff to consider any additional changes in 2020.

The Structure Review re-asserts the Investment Objectives as updated in November 2018, which emphasize the risk mitigation characteristics of the portfolio to achieve "Absolute Returns" and diversifying returns within the overall investment plan. Commensurate with that, the portfolio focuses on downside protection, an increased Sharpe ratio with lower volatility, driven by non-directional market risks. These focus points help build a portfolio with a more stable and consistent return profile. The review further outlines a plan to establish more concentrated allocations to high quality and diversifying managers, benefiting from LACERA's size to drive fee-savings and lower operating costs. Staff has provided sizing targets to existing managers and set range of allocations for additional funds subsequent to additional qualitative and quantitative analysis.

**Conclusion:** Staff's Structure Review outlines the focus on the risk mitigation role of the portfolio and the actions and plan to move in that direction.

Please feel free to contact us if you have any questions.

Sincerely,



James Walsh



## LACERA Hedge Fund Structure Review Concurrence Memo

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### Important Notice

The information in this report does not contain all material information about the fund that is the subject of this report, its investment manager, any of their affiliates or any other related entity to which this report relates, including important disclosures and risk factors associated with an investment in the fund. As used herein, the term "Fund" refers to (i) the specific fund that is the subject of this report, (ii) collectively, the specific fund that is the subject of this report, its investment manager, any of their affiliates or any other related entity to which this report relates, or (iii) investment funds generally, as the context requires.

Before making an investment, LACERA should obtain and carefully review the relevant fund offering documents before investing in the Fund mentioned herein, as such documents may contain important information needed to evaluate the investment and may provide important disclosures regarding risks, fees and expenses. Funds are speculative, involve a high degree of risk, and are illiquid. Past performance is not indicative of future results and LACERA could lose all or a substantial amount of any investment it makes in such Funds. Furthermore, Funds may involve complex tax structures and delays in the distribution of important tax information, may have a limited operating history, may be highly volatile, and there may not be a secondary market for Fund interests. There may be restrictions on redemptions and transfers of Fund interests and such interests may otherwise be illiquid. Funds may also be highly leveraged and may have a fund manager with total investment and/or trading authority over the Fund. It should also be noted that, in the case of hedge funds, there may be a single adviser applying generally similar trading programs with the potential for a lack of diversification and corresponding higher risk; hedge funds may also affect a substantial portion of trades on foreign exchanges, which have higher trading costs.

This report, and the information contained herein, is confidential and for the sole use of LACERA and its Approved Persons. This report may not be reproduced, distributed or transmitted in whole or in part to any third party, except as otherwise permitted under the agreement between Albourne America LLC and LACERA.




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**FOR INFORMATION ONLY**

September 4, 2019

TO: Each Member  
Board of Investments

FROM: Jude Perez   
Principal Investment Officer

FOR: September 11, 2019 BOARD OF INVESTMENTS MEETING

SUBJECT: **LACERA QUARTERLY PERFORMANCE BOOK**

Attached is LACERA's quarterly performance book as of June 30, 2019. There are a two important updates to the book worth noting:

**Functional Asset Categories**

The second calendar quarter 2019 book is the inaugural quarterly report for which the functional asset allocation and interim policy target ranges adopted by the Board of Investments (BOI) in June 2018 are presented. The report also reflects the benchmarks that the BOI approved at the September 2018 meeting. Notably, all elements of LACERA's quarterly package, including TruView risk and Meketa's report, reflect the functional asset allocation.

**Investment Manager Scorecard**

At the November 2018 BOI meeting, staff introduced the investment manager scorecard and conveyed that it would become part of LACERA's quarterly report. At the time, staff observed that the scorecard could be a useful tool for enhancing staff's investment manager monitoring and due diligence process; highlighting multidimensional aspects of LACERA's investment manager relationships. The scorecard is included in the attached, under its own tab, covering all global equity, public market fixed income and credit managers, as well as hedge funds. Staff will continue to refine the scorecard as well as introduce private equity and real estate metrics into future versions.

Noted and Reviewed

  
\_\_\_\_\_  
Jonathan Grabel  
Chief Investment Officer

Attachments  
EdB:JP



# PERFORMANCE REVIEW



AS OF JUNE 30, 2019

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# EXECUTIVE SUMMARY

for the quarter ended June 30, 2019



## TOTAL FUND PERFORMANCE

The Total fund returned 3.0% in the second quarter and 6.4% for the fiscal year (FY), underperforming its policy benchmark by 70 basis points (bps) and 190 bps, respectively. For the FY period, non-U.S. equity and real estate were the only asset categories to generate meaningful positive excess returns. Notably, the second quarter marks the first full quarter that performance reporting presents functional asset category composites.

LACERA's Growth composite returned 3.6% for the quarter, trailing its benchmark by 100 bps. Within Growth, global equity outpaced the benchmark while private equity and real estate growth underperformed. Results for the composite were challenged as the shift to a new benchmark for private equity, reflecting LACERA's interim strategic asset allocation, occurred in the quarter. Specifically, the benchmark transitioned from a rolling to a trailing calculation and was exacerbated by the fact that public market equity returns outpaced private market equity by a significant amount.

LACERA's Credit composite returned 2.3% for the quarter and lagged its benchmark by 70 bps. Of the four sub-components in Credit, only bank loans outperformed. High yield, emerging markets debt, and illiquid credit lagged their respective benchmarks for the quarter.

LACERA's Real Asset and Inflation Hedges composite returned 1.4% for the quarter, underperforming its benchmark by 40 bps. Core and value-added real estate outperformed; however, those gains were more than offset by underperformance from the natural resources/commodities category.

LACERA's Risk Reduction and Mitigation composite was the only functional group to outperform in the quarter, rising 2.8%, surpassing its benchmark by 10 bps. For the quarter, results for the underlying sub-composites were mixed: Investment grade bonds were flat versus their index, diversified hedge funds lagged by 10 bps, and cash beat its benchmark by 10 bps.

## NET-OF-FEES

|   | <u>1 Month</u> | <u>3 Month</u> |
|---|----------------|----------------|
| <b>Growth</b>                             | <b>5.0</b>     | <b>3.6</b>     |
| Growth Custom BM                          | 4.1            | 4.6            |
| <b>Credit</b>                             | <b>1.3</b>     | <b>2.3</b>     |
| Credit Custom BM                          | 1.9            | 3.0            |
| <b>Real Assets &amp; Inflation Hedges</b> | <b>2.2</b>     | <b>1.4</b>     |
| Real Assets & Inflation Hedges Custom BM  | 2.1            | 1.8            |
| <b>Risk Reduction &amp; Mitigation</b>    | <b>1.1</b>     | <b>2.8</b>     |
| Risk Reduction & Mitigation Custom BM     | 1.1            | 2.7            |

|                      | <u>Qtr</u> | <u>FYTD</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|----------------------|------------|-------------|-------------|--------------|--------------|---------------|
| <b>Total Fund *</b>  | <b>3.0</b> | <b>6.4</b>  | <b>6.4</b>  | <b>9.4</b>   | <b>6.5</b>   | <b>9.1</b>    |
| Total Fund Custom BM | 3.7        | 8.3         | 8.3         | 9.1          | 6.8          | 8.9           |

## Fiscal Year Returns

|                      | <u>FYTD</u> | <u>Jun 30 2018</u> | <u>Jun 30 2017</u> | <u>Jun 30 2016</u> | <u>Jun 30 2015</u> |
|----------------------|-------------|--------------------|--------------------|--------------------|--------------------|
| <b>Total Fund</b>    | <b>6.4</b>  | <b>9.0</b>         | <b>12.7</b>        | <b>0.8</b>         | <b>4.1</b>         |
| Total Fund Custom BM | 8.3         | 7.8                | 11.2               | 2.2                | 4.5                |

See Glossary for all custom benchmark definitions. Yearly returns are annualized.  
 \* Some Credit and Hedge Fund managers and their assigned benchmarks are reported with a one-month lag.  
 Real Estate and their assigned benchmarks are reported with a three-month lag.  
 Private Equity and their assigned benchmarks are reported with a three-month lag and are adjusted for cash flows.

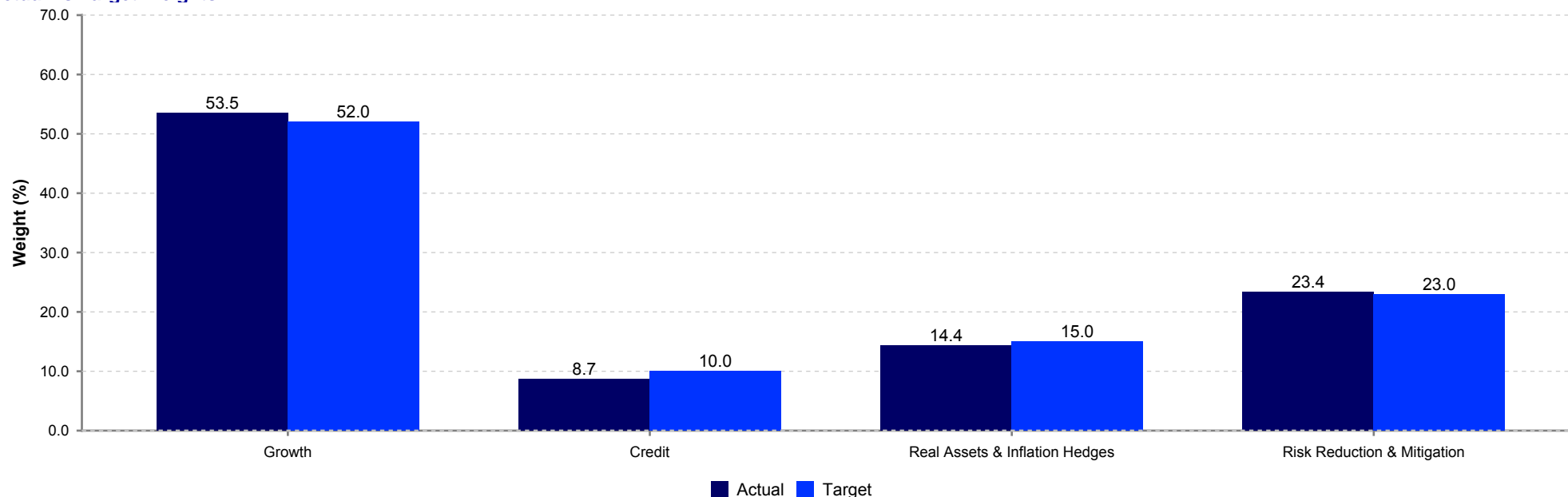
# EXECUTIVE SUMMARY

## ASSET ALLOCATION - ACTUAL vs. TARGET

for the quarter ended June 30, 2019



**Actual vs Target Weights**



|                                | Ending Market Value   | Actual       | Target       | Relative   | Min  | Max  |
|--------------------------------|-----------------------|--------------|--------------|------------|------|------|
| Growth                         | 31,256,657,423        | 53.5         | 52.0         | 1.5        | 45.0 | 59.0 |
| Credit                         | 5,089,506,462         | 8.7          | 10.0         | -1.3       | 7.0  | 13.0 |
| Real Assets & Inflation Hedges | 8,422,733,246         | 14.4         | 15.0         | -0.6       | 12.0 | 18.0 |
| Risk Reduction & Mitigation    | 13,672,574,825        | 23.4         | 23.0         | 0.4        | 17.0 | 29.0 |
| <b>Total Fund</b>              | <b>58,441,471,956</b> | <b>100.0</b> | <b>100.0</b> | <b>0.0</b> |      |      |

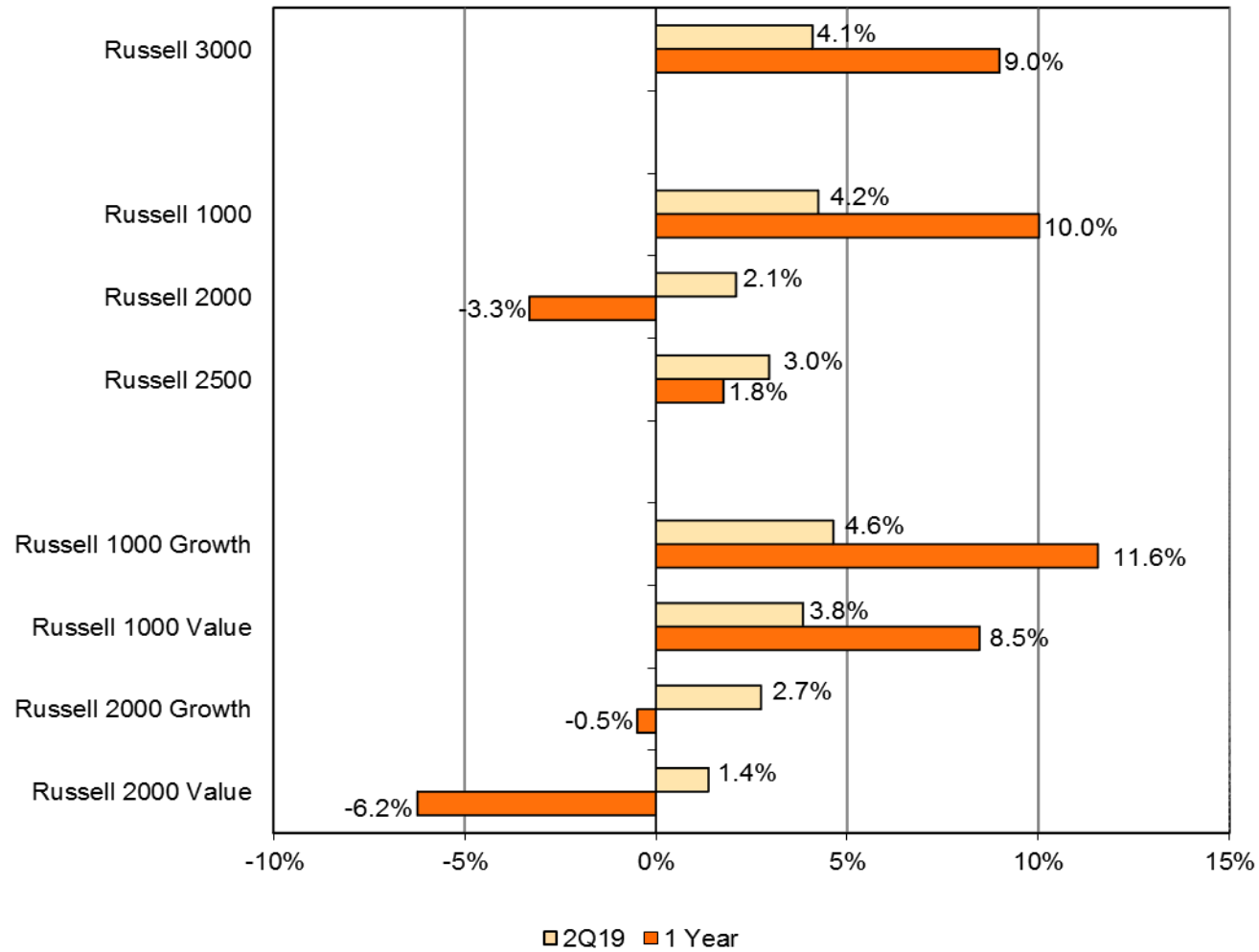
# MARKET SUMMARY

for the quarter ended June 30, 2019



## GROWTH

### U.S. EQUITY INDEX RETURNS

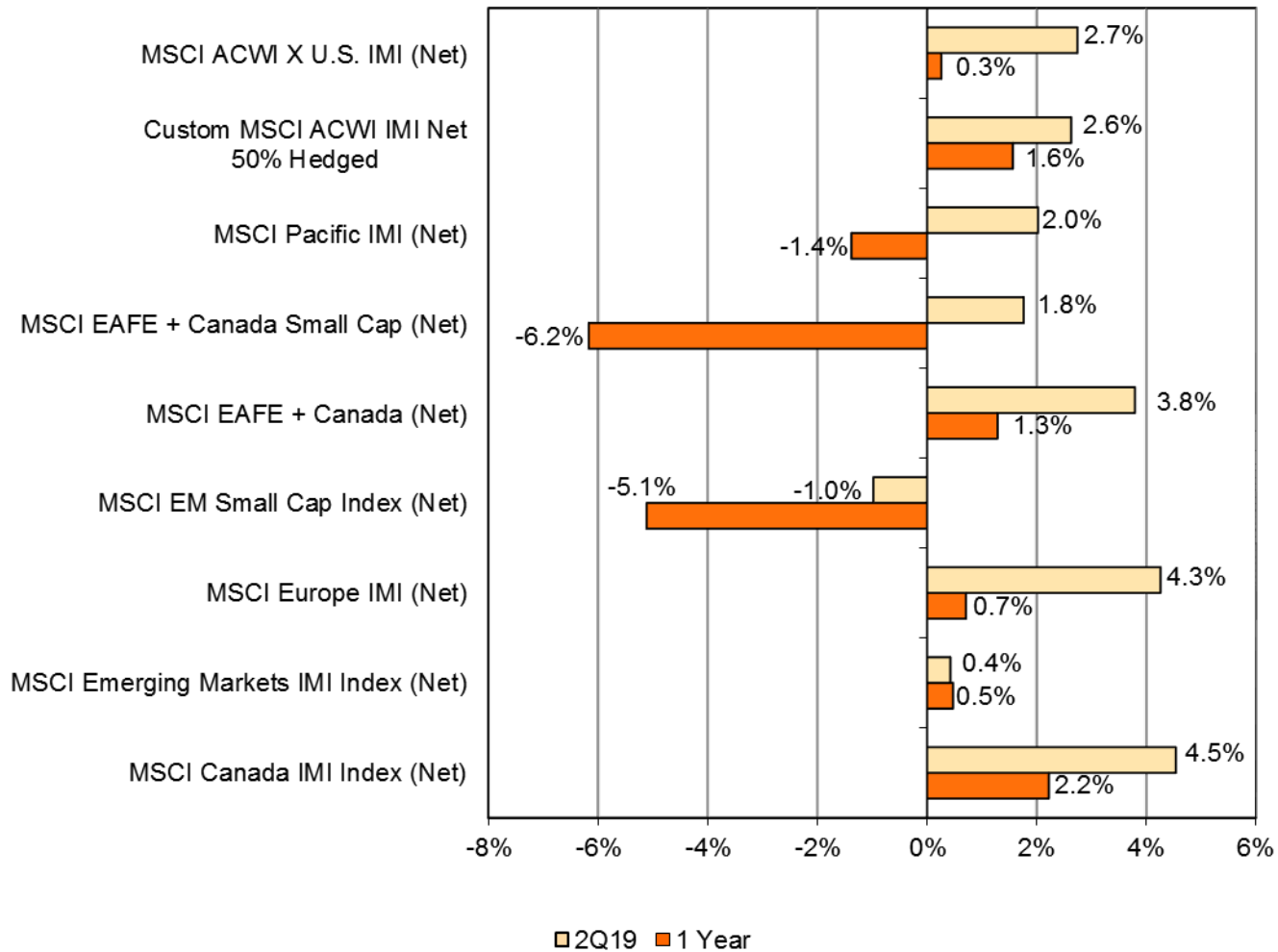


# MARKET SUMMARY

for the quarter ended June 30, 2019



## GROWTH NON-U.S. EQUITY INDEX RETURNS



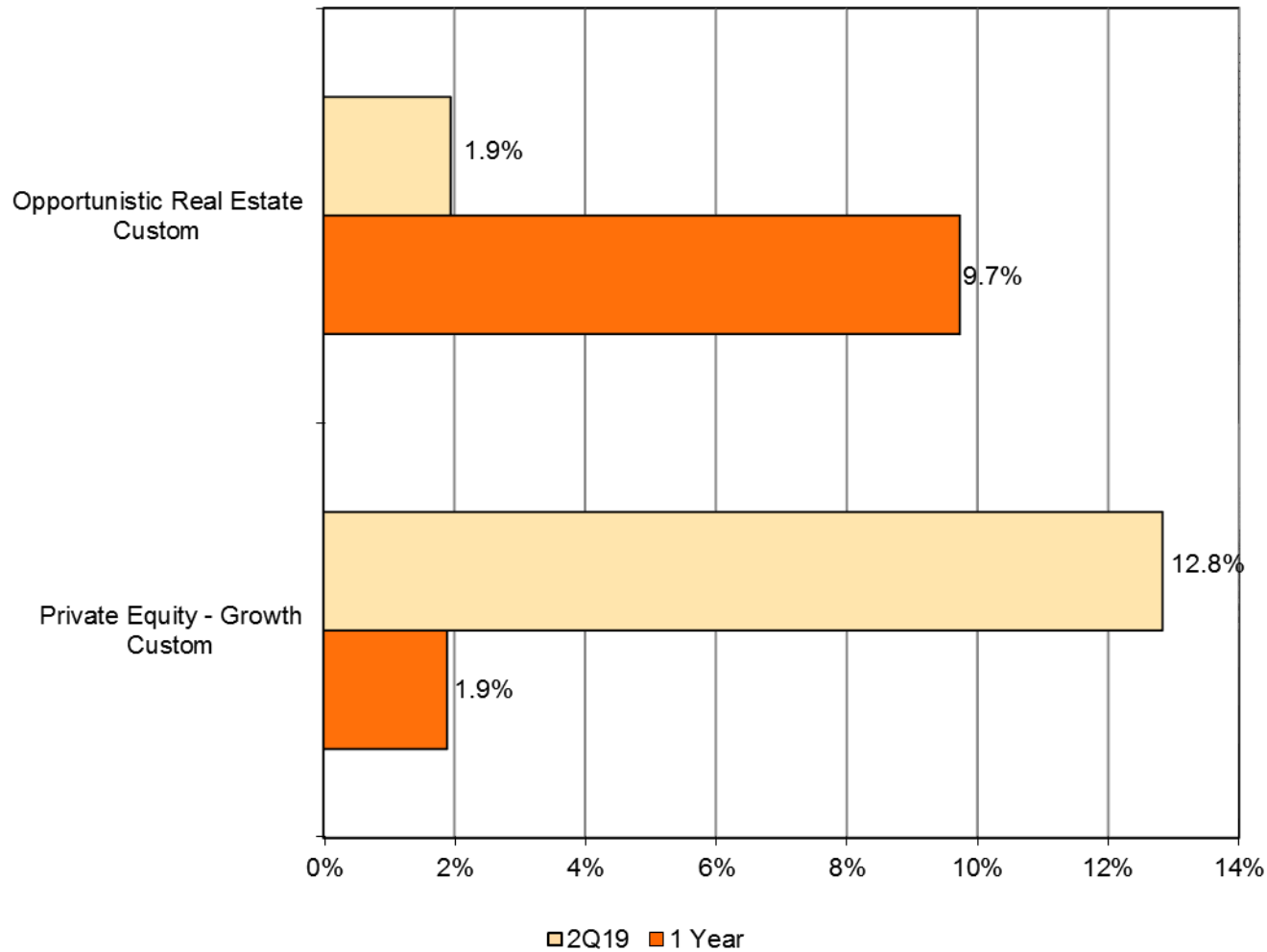
# MARKET SUMMARY

for the quarter ended June 30, 2019



## GROWTH

### PRIVATE EQUITY & OPPORTUNISTIC REAL ESTATE INDEX RETURNS



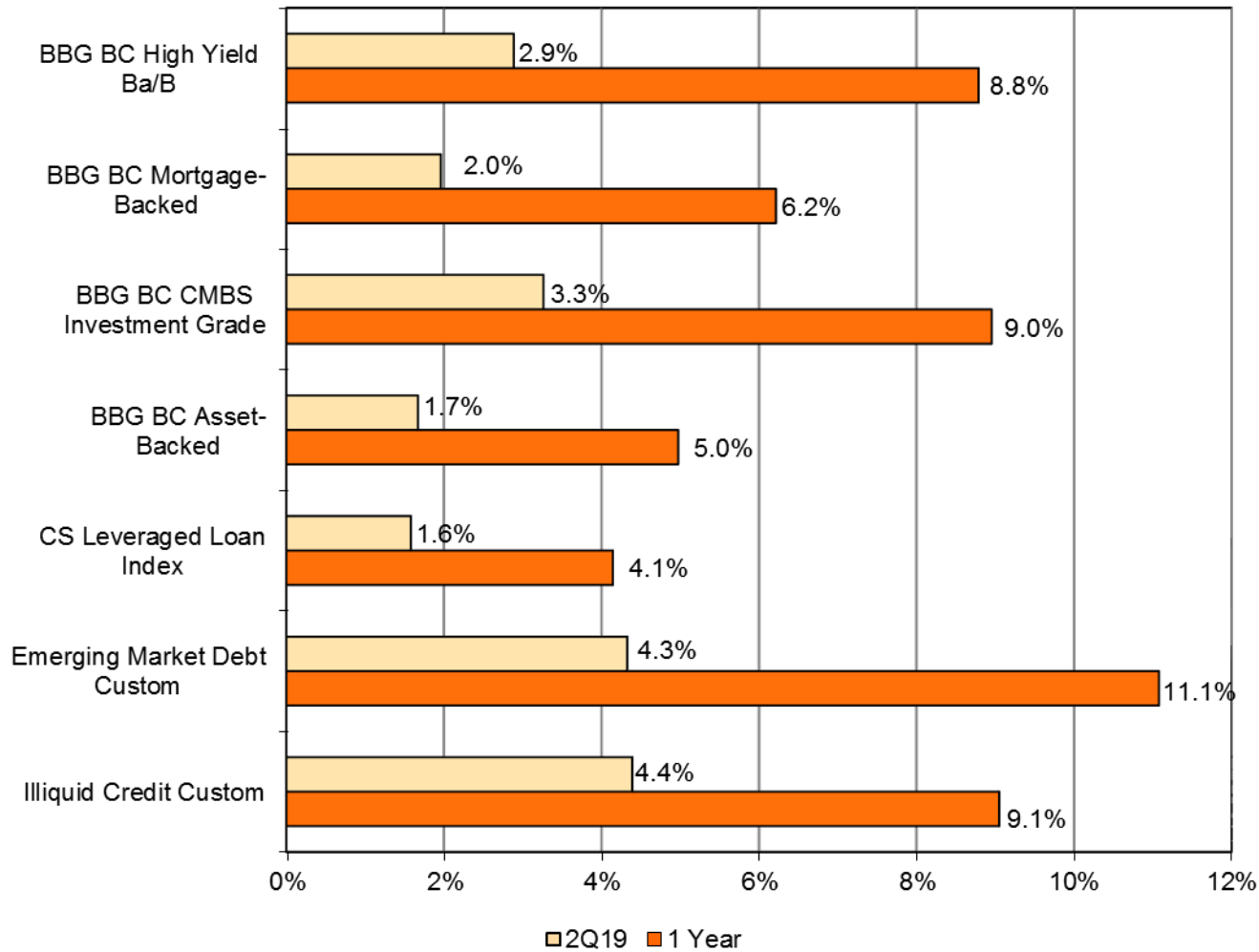


# MARKET SUMMARY

for the quarter ended June 30, 2019



## CREDIT INDEX RETURNS

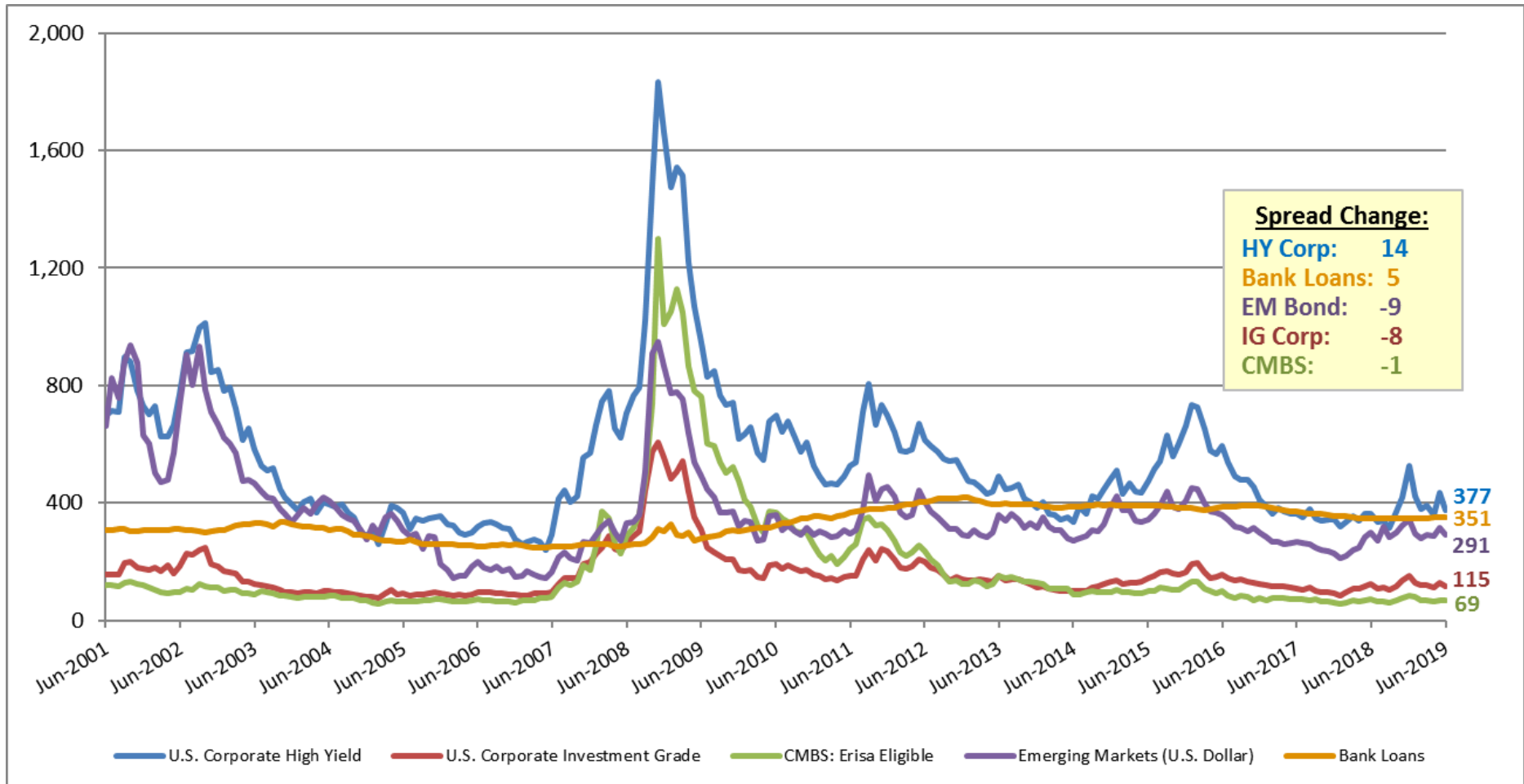


# MARKET SUMMARY

for the quarter ended June 30, 2019



## YIELD SPREADS TO TREASURIES



Source: Bloomberg Barclays

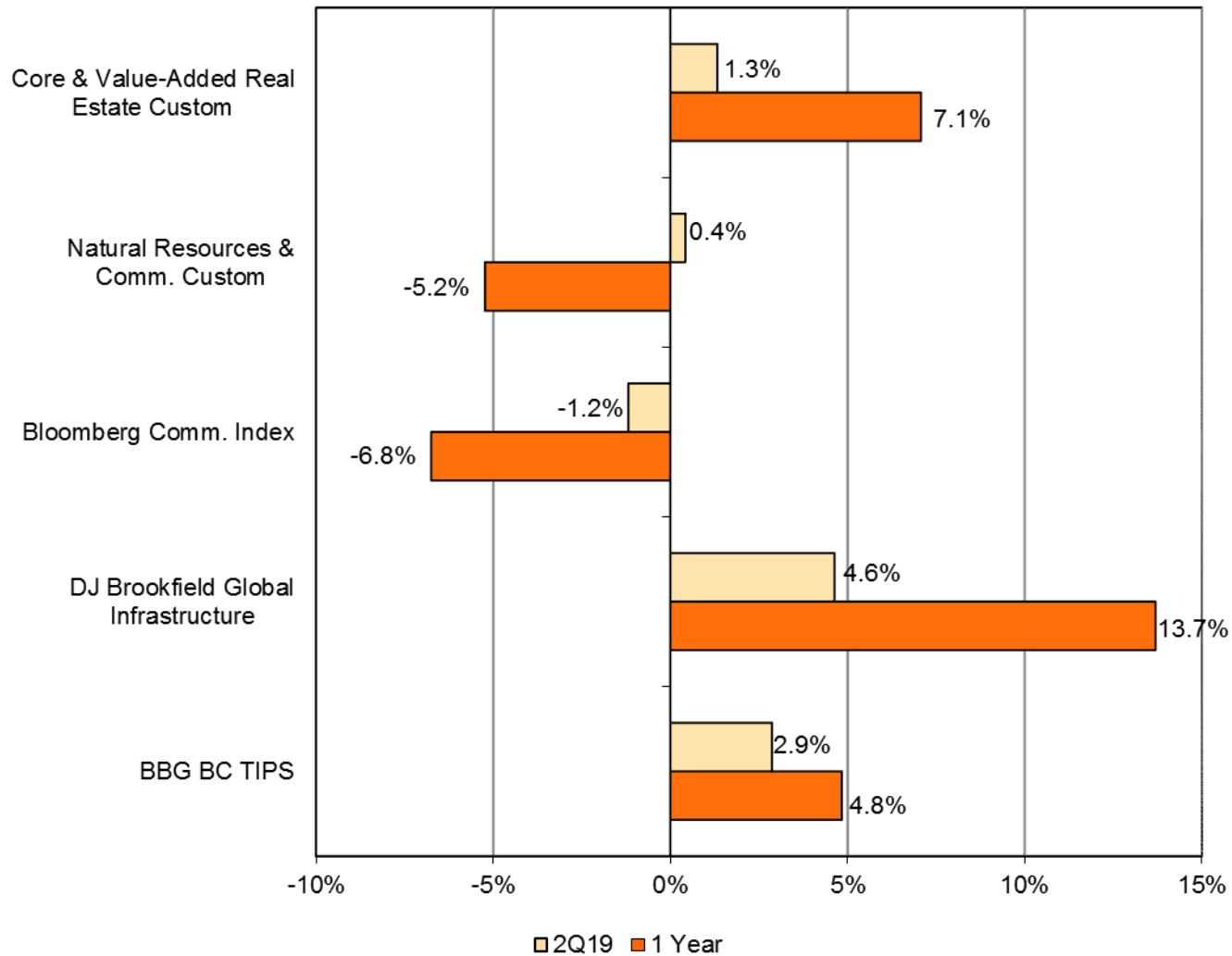
# MARKET SUMMARY

for the quarter ended June 30, 2019



## REAL ASSETS & INFLATION HEDGES

### INDEX RETURNS

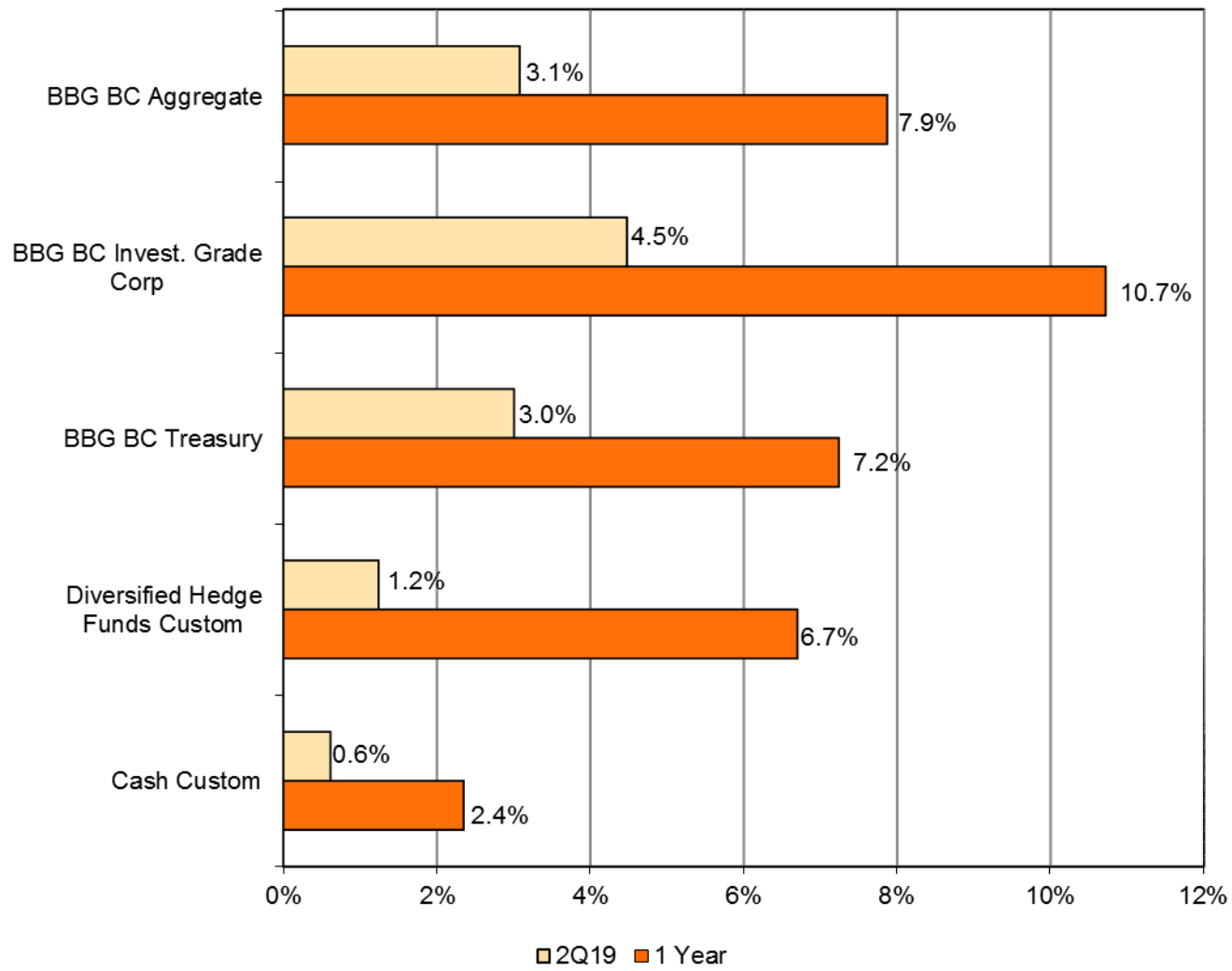


# MARKET SUMMARY

for the quarter ended June 30, 2019



## RISK REDUCTION & MITIGATION INDEX RETURNS



# TOTAL FUND

## ANNUALIZED & ANNUAL RETURNS

for the quarter ended June 30, 2019  
Net-of-Fees



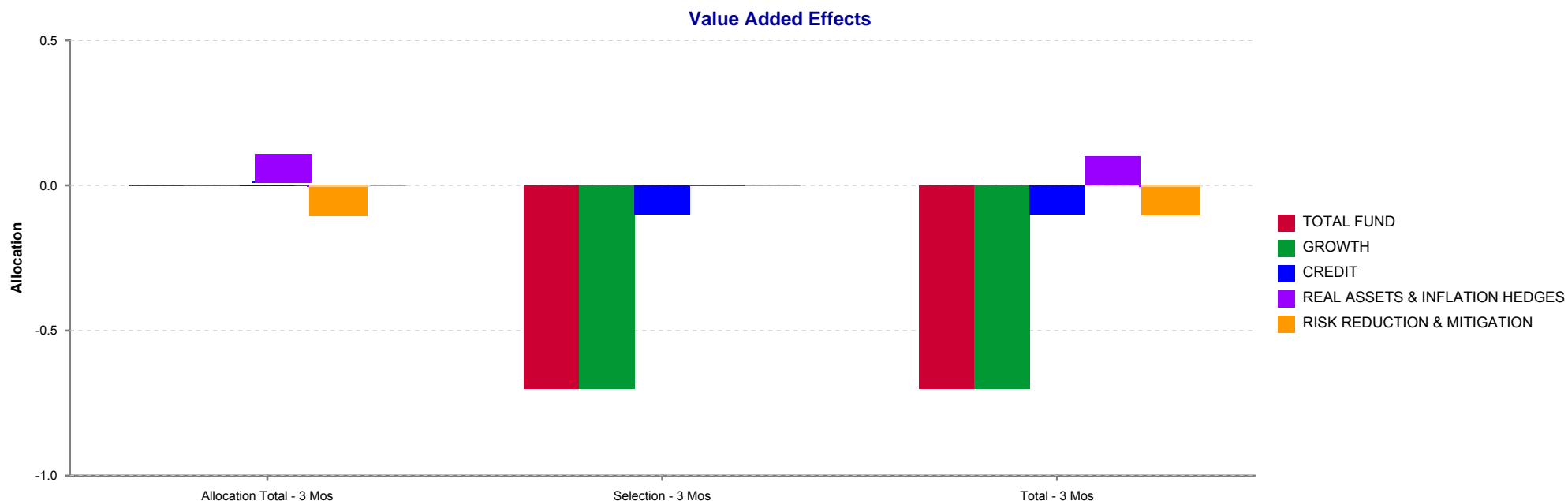
| FUNCTIONAL (After 4/1/2019)               |                | CLASSICAL (Before 3/31/2019)    |                |                |                |                 |                 |
|---|----------------|---------------------------------|----------------|----------------|----------------|-----------------|-----------------|
|   | <u>Qtr End</u> |                                 | <u>Qtr End</u> | <u>1 Year</u>  | <u>3 Years</u> | <u>5 Years</u>  | <u>10 Years</u> |
| <b>GROWTH</b>                             | <b>3.6</b>     | <b>DOMESTIC EQUITY</b>          | <b>4.0</b>     | <b>7.3</b>     | <b>13.2</b>    | <b>9.6</b>      | <b>14.4</b>     |
| Growth Custom BM                          | 4.6            | RUSSELL 3000 (DAILY)            | 4.1            | 9.0            | 14.0           | 10.2            | 14.7            |
|   |                | <b>NON-U.S. EQUITY w/ HEDGE</b> | <b>2.9</b>     | <b>2.1</b>     | <b>10.9</b>    | <b>4.6</b>      | <b>8.0</b>      |
|   |                | Custom MSCI ACWI IMI N 50% H    | 2.6            | 1.6            | 10.2           | 4.1             | 7.7             |
| <b>CREDIT</b>                             | <b>2.3</b>     | <b>FIXED INCOME</b>             | <b>2.9</b>     | <b>7.5</b>     | <b>4.1</b>     | <b>3.6</b>      | <b>5.5</b>      |
| Credit Custom BM                          | 3.0            | FI CUSTOM INDEX                 | 3.1            | 8.1            | 2.8            | 3.2             | 4.4             |
|   |                | BBG BC U.S. Universal           | 3.1            | 8.1            | 2.8            | 3.2             | 4.4             |
| <b>REAL ASSETS &amp; INFLATION HEDGES</b> | <b>1.4</b>     | <b>COMMODITIES COMPOSITE</b>    | <b>-1.6</b>    | <b>-7.1</b>    | <b>-0.6</b>    | <b>-8.1</b>     | <b>-2.1</b>     |
| Real Assets & Inflation Hedges Custom BM  | 1.8            | Bloomberg Comm Index TR         | -1.2           | -6.8           | -2.2           | -9.1            | -3.7            |
| <b>RISK REDUCTION &amp; MITIGATION</b>    | <b>2.8</b>     | <b>CASH</b>                     | <b>0.7</b>     | <b>2.7</b>     | <b>1.7</b>     | <b>1.2</b>      | <b>1.3</b>      |
| Risk Reduction & Mitigation Custom BM     | 2.7            | Cash Custom BM                  | 0.6            | 2.4            | 1.4            | 0.9             | 0.5             |
|   |                | <b>TOTAL HEDGE FUNDS</b>        | <b>1.0</b>     | <b>0.5</b>     | <b>4.3</b>     | <b>2.3</b>      |                 |
|   |                | CUSTOM HEDGE FUND BM            | 1.2            | 6.7            | 6.1            | 5.7             |                 |
|   |                | <b>TOTAL REAL ESTATE</b>        | <b>1.7</b>     | <b>8.9</b>     | <b>8.2</b>     | <b>9.7</b>      | <b>6.3</b>      |
|   |                | TOTAL REAL ESTATE BENCHMARK     | 1.4            | 7.1            | 7.5            | 9.6             | 8.7             |
|   |                | <b>PRIVATE EQUITY COMPOSITE</b> | <b>4.7</b>     | <b>13.5</b>    | <b>15.7</b>    | <b>13.3</b>     | <b>15.8</b>     |
|   |                | TOTAL PRIVATE EQUITY BENCHMARK  | 12.6           | 26.7           | 17.5           | 15.9            | 12.5            |
|   | <u>Qtr End</u> |                                 | <u>1 Year</u>  | <u>3 Years</u> | <u>5 Years</u> | <u>10 Years</u> |                 |
| <b>TOTAL FUND</b>                         | <b>3.0</b>     |                                 | <b>6.4</b>     | <b>9.4</b>     | <b>6.5</b>     | <b>9.1</b>      |                 |
| Total Fund Custom BM                      | 3.7            |                                 | 8.3            | 9.1            | 6.8            | 8.9             |                 |

See Glossary for all custom benchmark definitions.

# TOTAL FUND ATTRIBUTION

## TOTAL FUND vs. BENCHMARK

for the quarter ended June 30, 2019



|                                | Fund Weight | Target Weight | Relative | Fund Return | Benchmark Return | Return Difference | Allocation Effect* | Selection Effect** | BM Impact | Residual | Total Value Add |
|--------------------------------|-------------|---------------|----------|-------------|------------------|-------------------|--------------------|--------------------|-----------|----------|-----------------|
| TOTAL FUND                     | 100.00      | 100.00        | 0.00     | 3.04        | 3.66             | -0.62             | 0.00               | -0.71              | 0.00      | -0.01    | -0.71           |
| GROWTH                         | 53.48       | 52.00         | 1.48     | 3.64        | 4.64             | -1.00             | -0.00              | -0.67              | -         | 0.00     | -0.67           |
| CREDIT                         | 8.71        | 10.00         | -1.29    | 2.54        | 3.02             | -0.48             | 0.01               | -0.06              | -         | 0.00     | -0.06           |
| REAL ASSETS & INFLATION HEDGES | 14.41       | 15.00         | -0.59    | 1.54        | 1.84             | -0.30             | 0.05               | 0.02               | -         | 0.00     | 0.07            |
| RISK REDUCTION & MITIGATION    | 23.40       | 23.00         | 0.40     | 2.77        | 2.73             | 0.04              | -0.05              | 0.00               | -         | 0.00     | -0.05           |

\* Allocation effect reflects the asset class over or underweight (versus the policy weight) multiplied by the difference between the asset class benchmark and the Fund Policy benchmark return.

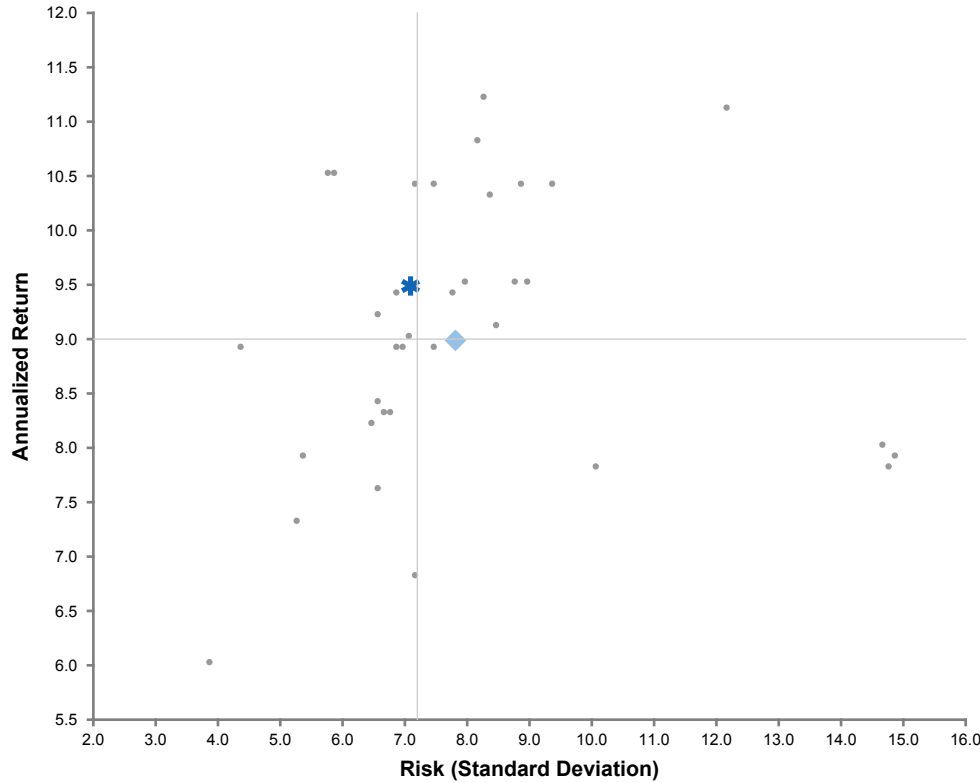
\*\* Selection effect reflects the Fund's asset class return minus the asset class benchmark return, multiplied by the asset class weight.

# TOTAL FUND RISK-ADJUSTED RETURN

for the quarter ended June 30, 2019



## 10 Year Risk vs Return



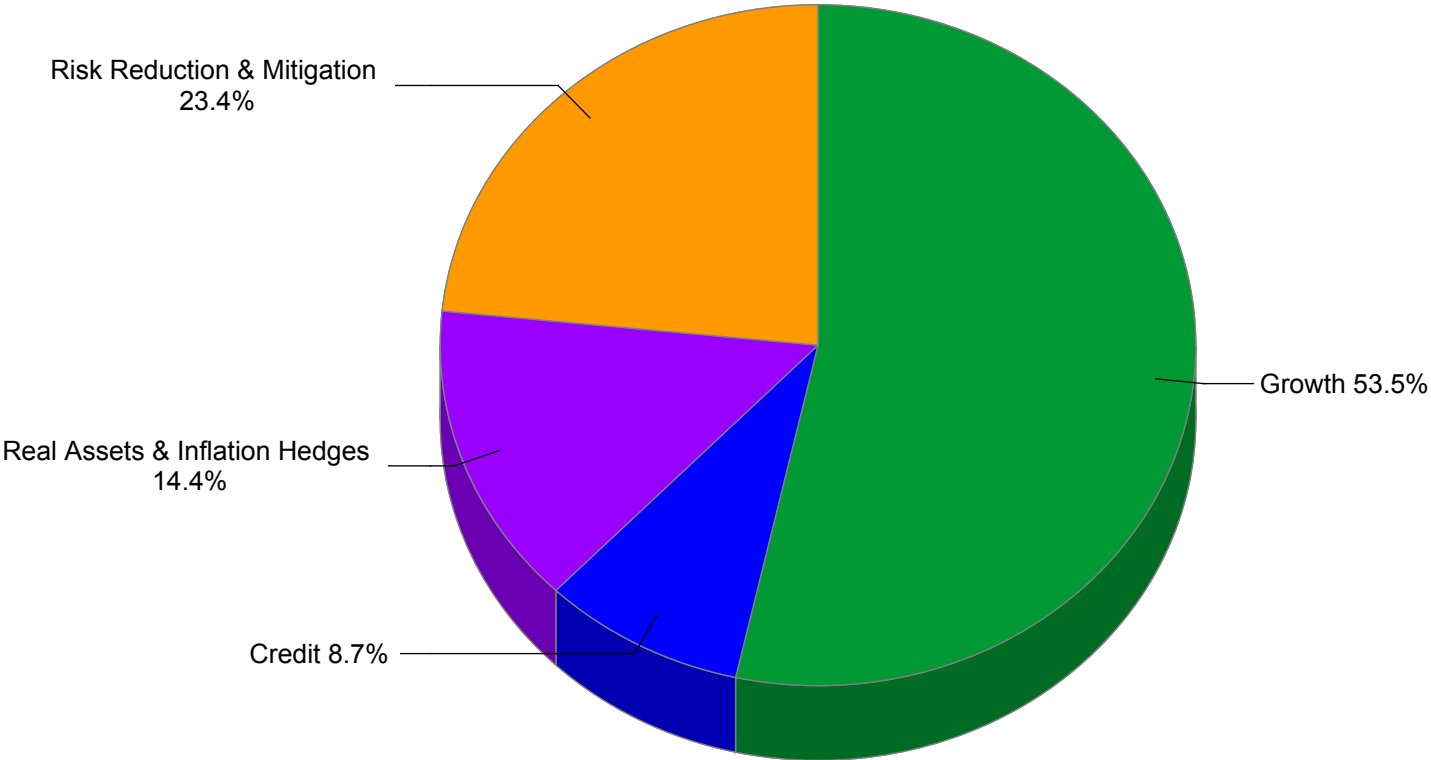
|                               | Rate of Return<br>10 Years | Standard Deviation<br>10 Years |
|-------------------------------|----------------------------|--------------------------------|
| <b>* TOTAL FUND</b>           | <b>9.4 42</b>              | <b>7.2 40</b>                  |
| <b>◆ Total Fund Custom BM</b> | <b>8.9 63</b>              | <b>7.0 57</b>                  |
| 5th Percentile                | 11.2                       | 4.2                            |
| 25th Percentile               | 10.4                       | 6.5                            |
| 50th Percentile               | 9.0                        | 7.2                            |
| 75th Percentile               | 8.1                        | 8.7                            |
| 95th Percentile               | 6.8                        | 14.7                           |
| Number of Observations        | 35                         | 35                             |

\* TOTAL FUND     
 ◆ Total Fund Custom BM

|   | <u>Rate of Return 10 Years</u> | <u>Standard Deviation 10 Years</u> | <u>Tracking Error 10 Years</u> |
|---|--------------------------------|------------------------------------|--------------------------------|
| <b>Public Funds (DB) &gt; \$1 Billion</b> |                                |                                    |                                |
| TOTAL FUND                                | 9.4 42                         | 7.2 40                             | 0.9                            |
| Total Fund Custom BM                      | 8.9 63                         | 7.0 57                             |                                |

# ASSET ALLOCATION TOTAL FUND

for the quarter ended June 30, 2019





# ASSET ALLOCATION GROWTH

for the quarter ended June 30, 2019



|                                      | <i>June 30, 2019</i>    |                   | <i>March 31, 2019</i>                |                         |
|--------------------------------------|-------------------------|-------------------|--------------------------------------|-------------------------|
|                                      | Assets<br>(\$ millions) | % of<br>Composite |                                      | Assets<br>(\$ millions) |
| <b>GLOBAL EQUITY</b>                 |                         |                   | <b>GLOBAL EQUITY</b>                 |                         |
| <b>PASSIVE</b>                       |                         |                   | <b>PASSIVE</b>                       |                         |
| BTC Russell 3000 Index               | 11,666.7                | 37.3              | BTC Russell 3000 Index               | 10,324.2                |
| <b>TOTAL PASSIVE U.S. EQUITY</b>     | <b>11,666.7</b>         | <b>37.3</b>       | <b>TOTAL PASSIVE U.S. EQUITY</b>     | **                      |
| BTC CANADA IMI                       | 738.8                   | 2.4               | BTC CANADA IMI                       | 705.3                   |
| BTC EAFE IMI                         | 4,521.3                 | 14.5              | BTC EAFE IMI                         | 4,402.0                 |
| BTC EAFE SMALL CAP                   | 134.9                   | 0.4               | BTC EAFE SMALL CAP                   | 191.6                   |
| BTC EMERGING MARKETS                 | 1,200.9                 | 3.8               | BTC EMERGING MARKETS                 | 1,194.2                 |
| BTC EMERGING MARKETS SMALL CAP       | 88.7                    | 0.3               | BTC EMERGING MARKETS SMALL CAP       | 130.3                   |
| BTC EUROPE INDEX                     | 306.5                   | 1.0               | BTC EUROPE INDEX                     | 364.2                   |
| <b>TOTAL PASSIVE NON-U.S. EQUITY</b> | <b>6,991.1</b>          | <b>22.4</b>       | <b>TOTAL PASSIVE NON-U.S. EQUITY</b> | **                      |
| <b>ACTIVE</b>                        |                         |                   | <b>ACTIVE</b>                        |                         |
| CORNERCAP US SC - EMP                | 57.6                    | 0.2               | CORNERCAP US SC - EMP                | 55.2                    |
| EAGLE US SMID CORE                   | 292.3                   | 0.9               | EAGLE US SMID CORE                   | 346.4                   |
| FRONTIER US SMID GROWTH              | 603.1                   | 1.9               | FRONTIER US SMID GROWTH              | 688.4                   |
| INTECH US ENHANCED PLUS              | 0.7                     | 0.0               | INTECH US ENHANCED PLUS              | 907.5                   |
| JANA JSI FUND V - ACTIVIST           | 106.2                   | 0.3               | JANA JSI FUND V - ACTIVIST           | 86.0                    |
| MATARIN US SC - EMP                  | 109.6                   | 0.4               | MATARIN US SC - EMP                  | 108.9                   |
| QMA US SMALL CAP CORE                | 268.5                   | 0.9               | QMA US SMALL CAP CORE                | 269.4                   |
| SYSTEMATIC US SMALL CAP VALUE        | 232.8                   | 0.7               | SYSTEMATIC US SMALL CAP VALUE        | 224.8                   |
| TWIN US ENHANCED                     | 1.1                     | 0.0               | TWIN US ENHANCED                     | 562.1                   |
| DE TRANSITION ACCOUNT                | 0.6                     | 0.0               | DE TRANSITION ACCOUNT                | 0.0                     |
| <b>TOTAL ACTIVE U.S. EQUITY</b>      | <b>1,672.5</b>          | <b>5.4</b>        | <b>TOTAL ACTIVE U.S. EQUITY</b>      | **                      |

# ASSET ALLOCATION GROWTH

for the quarter ended June 30, 2019



*June 30, 2019*

|  | Assets<br>(\$ millions) | % of<br>Composite |
|--|-------------------------|-------------------|
| <b>ACTIVE DEVELOPED MARKETS</b>              |                         |                   |
| ACADIAN DEVELOPED MARKETS                    | 768.1                   | 2.5               |
| BTC EURO TILTS                               | 988.7                   | 3.2               |
| CAPITAL GROUP DEVELOPED MARKETS              | 406.9                   | 1.3               |
| CEVIAN CAPITAL II - ACTIVIST                 | 293.5                   | 0.9               |
| GLOBAL ALPHA IE SC - EMP                     | 173.3                   | 0.6               |
| SYMPHONY FINANCIAL - ACTIVIST                | 161.8                   | 0.5               |
| <b>ACTIVE EMERGING MARKETS</b>               |                         |                   |
| ACADIAN EMERGING MARKETS                     | 306.2                   | 1.0               |
| AQR EMERGING MARKETS                         | 243.2                   | 0.8               |
| GENESIS EMERGING MARKETS                     | 712.4                   | 2.3               |
| LAZARD EMERGING MARKETS                      | 360.7                   | 1.2               |
| CURRENCY HEDGE GAIN/LOSS                     | -35.1                   | -0.1              |
| <b>TOTAL ACTIVE NON-U.S. EQUITY (HEDGED)</b> | <b>4,379.7</b>          | <b>14.0</b>       |
| <b>TOTAL GLOBAL EQUITY</b>                   | <b>24,710.0</b>         | <b>79.1</b>       |

*March 31, 2019*

|  | Assets<br>(\$ millions) |
|--|-------------------------|
| <b>ACTIVE DEVELOPED MARKETS</b>              |                         |
| ACADIAN DEVELOPED MARKETS                    | 854.0                   |
| CAPITAL GROUP DEVELOPED MARKETS              | 392.0                   |
| GLOBAL ALPHA IE SC - EMP                     | 167.9                   |
| BTC EURO TILTS                               | 946.0                   |
| CEVIAN CAPITAL II - ACTIVIST                 | 284.6                   |
| SYMPHONY FINANCIAL - ACTIVIST                | 154.8                   |
| <b>ACTIVE EMERGING MARKETS</b>               |                         |
| ACADIAN EMERGING MARKETS                     | 374.0                   |
| AQR EMERGING MARKETS                         | 242.2                   |
| GENESIS EMERGING MARKETS                     | 695.9                   |
| LAZARD EMERGING MARKETS                      | 351.9                   |
| INTERNATIONAL EQ TRANS                       | 0.9                     |
| CURRENCY HEDGE GAIN/LOSS                     | 19.9                    |
| <b>TOTAL ACTIVE NON-U.S. EQUITY (HEDGED)</b> | <b>**</b>               |
| <b>TOTAL GLOBAL EQUITY</b>                   | <b>**</b>               |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION GROWTH

for the quarter ended June 30, 2019



|                                  | <i>June 30, 2019</i>    |                   | <i>March 31, 2019</i>            |                         |
|----------------------------------|-------------------------|-------------------|----------------------------------|-------------------------|
|                                  | Assets<br>(\$ millions) | % of<br>Composite |                                  | Assets<br>(\$ millions) |
| <b>PRIVATE EQUITY GROWTH</b>     |                         |                   | <b>PRIVATE EQUITY GROWTH</b>     |                         |
| PRIVATE EQUITY - GROWTH          | 5,625.1                 | 18.0              | PRIVATE EQUITY - GROWTH          | 5,178.0                 |
| <b>OPPORTUNISTIC REAL ESTATE</b> |                         |                   | <b>OPPORTUNISTIC REAL ESTATE</b> |                         |
| OPPORTUNISTIC REAL ESTATE        | 921.6                   | 2.9               | OPPORTUNISTIC REAL ESTATE        | 890.3                   |
| TOTAL GROWTH                     | 31,256.7                | 100.0             | TOTAL GROWTH                     | **                      |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION CREDIT

for the quarter ended June 30, 2019



|                         | <i>June 30, 2019</i>    |                   |                         | <i>March 31, 2019</i>   |  |
|-------------------------|-------------------------|-------------------|-------------------------|-------------------------|--|
|                         | Assets<br>(\$ millions) | % of<br>Composite |                         | Assets<br>(\$ millions) |  |
| <b>HIGH YIELD</b>       |                         |                   | <b>HIGH YIELD</b>       |                         |  |
| BAIN CAPITAL CREDIT     | 370.7                   | 7.3               | BAIN CAPITAL CREDIT     | 365.0                   |  |
| BEACH POINT             | 260.5                   | 5.1               | BEACH POINT             | 271.0                   |  |
| BRIGADE CAP MGMT        | 587.0                   | 11.5              | BRIGADE CAP MGMT        | 577.2                   |  |
| DOUBLELINE CAPITAL      | 339.3                   | 6.7               | DOUBLELINE CAPITAL      | 329.0                   |  |
| OAKTREE CAPITAL         | 437.0                   | 8.6               | OAKTREE CAPITAL         | 426.6                   |  |
| TCW                     | 339.4                   | 6.7               | TCW                     | 332.5                   |  |
| <b>TOTAL HIGH YIELD</b> | <b>2,334.5</b>          | <b>45.9</b>       | <b>TOTAL HIGH YIELD</b> | <b>**</b>               |  |
| <b>BANK LOANS</b>       |                         |                   | <b>BANK LOANS</b>       |                         |  |
| CRESCENT CAPITAL        | 440.5                   | 8.7               | CRESCENT CAPITAL        | 432.7                   |  |
| TENNENBAUM CAPITAL      | 434.3                   | 8.5               | TENNENBAUM CAPITAL      | 330.8                   |  |
| <b>TOTAL BANK LOANS</b> | <b>874.9</b>            | <b>17.2</b>       | <b>TOTAL BANK LOANS</b> | <b>**</b>               |  |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION CREDIT

for the quarter ended June 30, 2019



|                                   | <i>June 30, 2019</i>    |                   | <i>March 31, 2019</i>             |                         |
|-----------------------------------|-------------------------|-------------------|-----------------------------------|-------------------------|
|                                   | Assets<br>(\$ millions) | % of<br>Composite |                                   | Assets<br>(\$ millions) |
| <b>EMERGING MARKET DEBT</b>       |                         |                   | <b>EMERGING MARKET DEBT</b>       |                         |
| ABERDEEN ASSET MANAGEMENT         | 423.5                   | 8.3               | ABERDEEN ASSET MANAGEMENT         | 407.8                   |
| ASHMORE INVESTMENT MANAGEMENT     | 429.4                   | 8.4               | ASHMORE INVESTMENT MANAGEMENT     | 410.8                   |
| <b>TOTAL EMERGING MARKET DEBT</b> | <b>852.9</b>            | <b>16.8</b>       | <b>TOTAL EMERGING MARKET DEBT</b> | <b>818.6</b>            |
| <b>ILLIQUID CREDIT</b>            |                         |                   | <b>ILLIQUID CREDIT</b>            |                         |
| BEACH POINT - FUND II             | 41.5                    | 0.8               | BEACH POINT - FUND III            | 132.8                   |
| BEACH POINT - FUND III            | 170.0                   | 3.3               | BEACH POINT - FUND II             | 58.4                    |
| GROSVENOR OPCRD 2 HFOF            | 360.4                   | 7.1               | GROSVENOR OPCRD 2 HFOF            | 357.8                   |
| PRIVATE EQUITY- CREDIT            | 152.9                   | 3.0               | PRIVATE EQUITY- CREDIT            | 150.4                   |
| REAL ESTATE- CREDIT               | 301.3                   | 5.9               | REAL ESTATE- CREDIT               | 296.2                   |
| <b>TOTAL ILLIQUID CREDIT</b>      | <b>1,026.1</b>          | <b>20.2</b>       | <b>TOTAL ILLIQUID CREDIT</b>      | <b>**</b>               |
| CREDIT TRANSITION ACCOUNT         | 1.1                     | 0.0               | CREDIT TRANSITION ACCOUNT         | 2.3                     |
| <b>TOTAL CREDIT</b>               | <b>5,089.5</b>          | <b>100.0</b>      | <b>TOTAL CREDIT</b>               | <b>**</b>               |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION

## REAL ASSETS & INFLATION HEDGES

for the quarter ended June 30, 2019



|  | <i>June 30, 2019</i>    |                   | <i>March 31, 2019</i>                            |                         |
|--|-------------------------|-------------------|--|-------------------------|
|  | Assets<br>(\$ millions) | % of<br>Composite |  | Assets<br>(\$ millions) |
| <b>CORE &amp; VALUE-ADDED REAL ESTATE</b>        |                         |                   | <b>CORE &amp; VALUE-ADDED REAL ESTATE</b>        |                         |
| CORE & VALUE-ADDED REAL ESTATE                   | 5,355.5                 | 63.6              | CORE & VALUE-ADDED REAL ESTATE                   | 5,308.1                 |
| <b>NATURAL RESOURCES &amp; COMMODITIES</b>       |                         |                   | <b>NATURAL RESOURCES &amp; COMMODITIES</b>       |                         |
| CREDIT SUISSE COMMODITY                          | 423.1                   | 5.0               | CREDIT SUISSE COMMODITY                          | 427.8                   |
| DWS NATURAL RESOURCES                            | 318.0                   | 3.8               | DWS NATURAL RESOURCES                            | **                      |
| NEUBERGER BERMAN/GRESHAM                         | 445.4                   | 5.3               | NEUBERGER BERMAN/GRESHAM                         | 453.9                   |
| PIMCO COMMODITY PLUS                             | 442.3                   | 5.3               | PIMCO COMMODITY PLUS                             | 450.2                   |
| PRIVATE EQUITY - REAL ASSETS                     | 111.8                   | 1.3               | PRIVATE EQUITY - REAL ASSETS                     | 112.5                   |
| <b>TOTAL NATURAL RESOURCES &amp; COMMODITIES</b> | <b>1,740.7</b>          | <b>20.7</b>       | <b>TOTAL NATURAL RESOURCES &amp; COMMODITIES</b> |                         |
| <b>INFRASTRUCTURE</b>                            |                         |                   | <b>INFRASTRUCTURE</b>                            |                         |
| DWS INFRASTRUCTURE                               | 814.4                   | 9.7               | DWS INFRASTRUCTURE                               | **                      |
| <b>TOTAL INFRASTRUCTURE</b>                      | <b>814.4</b>            | <b>9.7</b>        | <b>TOTAL INFRASTRUCTURE</b>                      | **                      |
| <b>TIPS</b>                                      |                         |                   | <b>TIPS</b>                                      |                         |
| BLACKROCK TIPS                                   | 512.1                   | 6.1               | BLACKROCK TIPS                                   | **                      |
| <b>TOTAL TIPS</b>                                | <b>512.1</b>            | <b>6.1</b>        | <b>TOTAL TIPS</b>                                | **                      |
| <b>TOTAL REAL ASSETS &amp; INFLATION HEDGES</b>  | <b>8,422.7</b>          | <b>100.0</b>      | <b>TOTAL REAL ASSETS &amp; INFLATION HEDGES</b>  | **                      |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION RISK REDUCTION & MITIGATION

for the quarter ended June 30, 2019



|                                     | <i>June 30, 2019</i>    |                   |                                     | <i>March 31, 2019</i> |                         |
|-------------------------------------|-------------------------|-------------------|-------------------------------------|-----------------------|-------------------------|
|                                     | Assets<br>(\$ millions) | % of<br>Composite |                                     |                       | Assets<br>(\$ millions) |
| <b>INVESTMENT GRADE BONDS</b>       |                         |                   | <b>INVESTMENT GRADE BONDS</b>       |                       |                         |
| BTC US DEBT INDEX FUND              | 6,536.1                 | 47.8              | BTC US DEBT INDEX FUND              |                       | 5,851.5                 |
| MHLP                                | 26.9                    | 0.2               | DODGE & COX                         |                       | 1,344.5                 |
| PUGH CAPITAL MGMT                   | 355.7                   | 2.6               | MHLP                                |                       | 28.5                    |
| WELLS CAPITAL                       | 1,544.4                 | 11.3              | PUGH CAPITAL MGMT                   |                       | 345.0                   |
| <b>TOTAL CORE MANAGERS</b>          | <b>8,463.1</b>          | <b>61.9</b>       | WELLS CAPITAL                       |                       | 1,400.1                 |
|                                     |                         |                   | <b>TOTAL CORE MANAGERS</b>          |                       | <b>8,969.6</b>          |
| DODGE & COX                         | 1,182.3                 | 8.6               |                                     |                       |                         |
| WESTERN ASSET MGMT.                 | 1,019.0                 | 7.5               | WESTERN ASSET MGMT.                 |                       | 1,178.5                 |
| PIMCO                               | 929.3                   | 6.8               | PIMCO                               |                       | 1,101.8                 |
| <b>TOTAL CORE PLUS MANAGERS</b>     | <b>3,130.6</b>          | <b>22.9</b>       | <b>TOTAL CORE PLUS MANAGERS</b>     |                       | <b>2,289.9</b>          |
|                                     |                         |                   |                                     |                       |                         |
| INVESTMENT GRADE TRANSITION ACCOUNT | 4.0                     | 0.0               | INVESTMENT GRADE TRANSITION ACCOUNT |                       | 4.0                     |
| <b>TOTAL INVESTMENT GRADE BONDS</b> | <b>11,597.7</b>         | <b>84.8</b>       | <b>TOTAL INVESTMENT GRADE BONDS</b> |                       | <b>11,231.1</b>         |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.

# ASSET ALLOCATION

## RISK REDUCTION & MITIGATION

for the quarter ended June 30, 2019



|  | <i>June 30, 2019</i>    |                   | <i>March 31, 2019</i>                            |                         |
|--|-------------------------|-------------------|--|-------------------------|
|  | Assets<br>(\$ millions) | % of<br>Composite |  | Assets<br>(\$ millions) |
| <b>DIVERSIFIED HEDGE FUNDS</b>                   |                         |                   | <b>DIVERSIFIED HEDGE FUNDS</b>                   |                         |
| GROSVENOR HFOF                                   | 482.9                   | 3.5               | GROSVENOR HFOF                                   | 479.4                   |
| GSAM HFOF  | 487.6                   | 3.6               | GSAM HFOF  | 480.2                   |
| LACERA HF DIRECT                                 | 574.8                   | 4.2               | LACERA HF DIRECT                                 | 532.2                   |
| <b>TOTAL DIVERSIFIED HEDGE FUNDS</b>             | <b>1,545.4</b>          | <b>11.3</b>       | <b>TOTAL DIVERSIFIED HEDGE FUNDS</b>             | <b>**</b>               |
| <br><b>CASH</b>                                  |                         |                   | <br><b>CASH</b>                                  |                         |
| CASH   | 529.5                   | 3.9               | CASH   | 1,481.7                 |
| <br><b>TOTAL RISK REDUCTION &amp; MITIGATION</b> | <br><b>13,672.6</b>     | <br><b>100.0</b>  | <br><b>TOTAL RISK REDUCTION &amp; MITIGATION</b> | <br><b>**</b>           |

\*\* New Account/Composite within Functional Asset Allocation, therefore there is no historical data.



# ANNUALIZED TOTAL RETURNS GROWTH

for the quarter ended June 30, 2019



## Gross-of-Fees

|                                      | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--------------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>GLOBAL EQUITY</b>                 |                          |            |             |              |              |               |
| <b>PASSIVE</b>                       |                          |            |             |              |              |               |
| BTC RUSSELL 3000                     | 11,666.7                 | 4.1        | 9.0         |              |              |               |
| <b>TOTAL PASSIVE U.S. EQUITY</b>     | <b>11,666.7</b>          | <b>4.0</b> |             |              |              |               |
| BTC CANADA IMI                       | 738.8                    | 4.8        | 3.1         | 7.9          | -0.0         | 6.1           |
| BTC EAFE IMI                         | 4,521.3                  | 3.6        | 0.4         | 9.6          | 2.9          | 7.6           |
| BTC EAFE SMALL CAP                   | 134.9                    | 1.9        | -5.9        |              |              |               |
| BTC EMERGING MARKETS                 | 1,200.9                  | 0.6        | 1.1         | 10.6         | 2.4          | 5.7           |
| BTC EMERGING MARKETS SMALL CAP       | 88.7                     | -1.0       | -5.0        | 5.6          | 0.6          |               |
| BTC EUROPE INDEX                     | 306.5                    | 4.8        | 2.3         | 9.6          | 1.8          | 7.5           |
| <b>TOTAL PASSIVE NON-U.S. EQUITY</b> | <b>6,991.1</b>           | <b>3.2</b> |             |              |              |               |
| <b>ACTIVE</b>                        |                          |            |             |              |              |               |
| CORNERCAP US SC - EMP                | 57.6                     | 4.6        |             |              |              |               |
| EAGLE US SMID CORE                   | 292.3                    | 3.6        | -1.1        | 12.7         | 9.0          | 14.4          |
| FRONTIER US SMID GROWTH              | 603.1                    | 2.7        | 1.0         | 13.4         | 7.8          | 14.9          |
| JANA JSI FUND V - ACTIVIST           | 106.2                    | 2.3        | -0.2        |              |              |               |
| MATARIN US SC - EMP                  | 109.6                    | 0.8        |             |              |              |               |
| QMA US SMALL CAP CORE                | 268.5                    | -0.2       | -8.3        |              |              |               |
| SYSTEMATIC US SMALL CAP VALUE        | 232.8                    | 3.7        | -4.5        |              |              |               |
| DE TRANSITION ACCOUNT                | 0.6                      |            |             |              |              |               |
| <b>TOTAL ACTIVE U.S. EQUITY</b>      | <b>1,672.5</b>           | <b>4.4</b> |             |              |              |               |

## Net-of-Fees

|                                      | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--------------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>GLOBAL EQUITY</b>                 |                          |            |             |              |              |               |
| <b>PASSIVE</b>                       |                          |            |             |              |              |               |
| BTC RUSSELL 3000                     | 11,666.7                 | 4.1        | 9.0         |              |              |               |
| <b>TOTAL PASSIVE U.S. EQUITY</b>     | <b>11,666.7</b>          | <b>4.0</b> |             |              |              |               |
| BTC CANADA IMI                       | 738.8                    | 4.8        | 3.1         | 7.9          | -0.0         | 6.0           |
| BTC EAFE IMI                         | 4,521.3                  | 3.6        | 0.3         | 9.5          | 2.9          | 7.6           |
| BTC EAFE SMALL CAP                   | 134.9                    | 1.9        | -5.9        |              |              |               |
| BTC EMERGING MARKETS                 | 1,200.9                  | 0.6        | 1.0         | 10.5         | 2.3          | 5.5           |
| BTC EMERGING MARKETS SMALL CAP       | 88.7                     | -1.1       | -5.1        | 5.4          | 0.4          |               |
| BTC EUROPE INDEX                     | 306.5                    | 4.8        | 2.3         | 9.6          | 1.7          | 7.5           |
| <b>TOTAL PASSIVE NON-U.S. EQUITY</b> | <b>6,991.1</b>           | <b>3.2</b> |             |              |              |               |
| <b>ACTIVE</b>                        |                          |            |             |              |              |               |
| CORNERCAP US SC - EMP                | 57.6                     | 4.5        |             |              |              |               |
| EAGLE US SMID CORE                   | 292.3                    | 3.5        | -1.6        | 12.1         | 8.4          | 13.8          |
| FRONTIER US SMID GROWTH              | 603.1                    | 2.5        | 0.2         | 12.5         | 7.0          | 14.0          |
| JANA JSI FUND V - ACTIVIST           | 106.2                    | 1.6        | -3.2        |              |              |               |
| MATARIN US SC - EMP                  | 109.6                    | 0.6        |             |              |              |               |
| QMA US SMALL CAP CORE                | 268.5                    | -0.3       | -8.8        |              |              |               |
| SYSTEMATIC US SMALL CAP VALUE        | 232.8                    | 3.6        | -5.1        |              |              |               |
| DE TRANSITION ACCOUNT                | 0.6                      |            |             |              |              |               |
| <b>TOTAL ACTIVE U.S. EQUITY</b>      | <b>1,672.5</b>           | <b>4.3</b> |             |              |              |               |

# ANNUALIZED TOTAL RETURNS GROWTH

for the quarter ended June 30, 2019



## Gross-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>ACTIVE DEVELOPED MARKETS</b>            |                          |            |             |              |              |               |
| ACADIAN DEVELOPED MARKETS                  | 768.1                    | 1.8        | -1.7        | 12.1         | 5.3          | 9.8           |
| BTC EURO TILTS                             | 988.7                    | 4.6        | 1.6         | 9.3          | 3.1          | 8.7           |
| CAPITAL GROUP DEVELOPED MARKETS            | 406.9                    | 3.9        | 5.1         | 14.3         | 5.4          | 9.1           |
| CEVIAN CAPITAL II - ACTIVIST               | 293.5                    | 3.5        | -1.1        |              |              |               |
| GLOBAL ALPHA IE SC - EMP                   | 173.3                    | 3.4        |             |              |              |               |
| SYMPHONY FINANCIAL - ACTIVIST              | 161.8                    | 4.5        | 7.6         |              |              |               |
| <b>ACTIVE EMERGING MARKETS</b>             |                          |            |             |              |              |               |
| ACADIAN EMERGING MARKETS                   | 306.2                    | 0.8        | -1.4        | 9.9          | 1.9          |               |
| AQR EMERGING MARKETS                       | 243.2                    | 0.6        | -2.0        | 10.3         | 2.4          |               |
| GENESIS EMERGING MARKETS                   | 712.4                    | 2.6        | 6.1         | 11.4         | 3.6          | 9.0           |
| LAZARD EMERGING MARKETS                    | 360.7                    | 2.7        | 4.5         | 11.8         | 4.3          |               |
| CURRENCY HEDGE GAIN/LOSS                   | -35.1                    | -0.2       | 1.5         | 1.0          | 2.1          |               |
| <b>TOTAL ACTIVE NON US EQUITY (HEDGED)</b> | <b>4,379.7</b>           | <b>2.5</b> |             |              |              |               |
| <b>TOTAL GLOBAL EQUITY</b>                 | <b>24,710.0</b>          | <b>3.5</b> |             |              |              |               |
| Global Equity Custom BM                    |                          | 2.7        |             |              |              |               |

## Net-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>ACTIVE DEVELOPED MARKETS</b>            |                          |            |             |              |              |               |
| ACADIAN DEVELOPED MARKETS                  | 768.1                    | 1.7        | -2.0        | 11.7         | 4.9          | 9.4           |
| BTC EURO TILTS                             | 988.7                    | 4.5        | 1.2         | 8.9          | 2.7          | 8.3           |
| CAPITAL GROUP DEVELOPED MARKETS            | 406.9                    | 3.8        | 4.8         | 13.9         | 5.0          | 8.7           |
| CEVIAN CAPITAL II - ACTIVIST               | 293.5                    | 3.1        | -2.5        |              |              |               |
| GLOBAL ALPHA IE SC - EMP                   | 173.3                    | 3.2        |             |              |              |               |
| SYMPHONY FINANCIAL - ACTIVIST              | 161.8                    | 4.3        | 6.9         |              |              |               |
| <b>ACTIVE EMERGING MARKETS</b>             |                          |            |             |              |              |               |
| ACADIAN EMERGING MARKETS                   | 306.2                    | 0.6        | -1.9        | 9.4          | 1.4          |               |
| AQR EMERGING MARKETS                       | 243.2                    | 0.4        | -2.7        | 9.6          | 1.7          |               |
| GENESIS EMERGING MARKETS                   | 712.4                    | 2.4        | 5.3         | 10.6         | 2.8          | 8.2           |
| LAZARD EMERGING MARKETS                    | 360.7                    | 2.5        | 3.7         | 10.9         | 3.5          |               |
| CURRENCY HEDGE GAIN/LOSS                   | -35.1                    | -0.2       | 1.5         | 1.0          | 2.1          |               |
| <b>TOTAL ACTIVE NON US EQUITY (HEDGED)</b> | <b>4,379.7</b>           | <b>2.4</b> |             |              |              |               |
| <b>TOTAL GLOBAL EQUITY</b>                 | <b>24,710.0</b>          | <b>3.4</b> |             |              |              |               |
| Global Equity Custom BM                    |                          | 2.7        |             |              |              |               |

# ANNUALIZED TOTAL RETURNS GROWTH

for the quarter ended June 30, 2019



|                                     | <i>Gross-of-Fees</i>     |            |             |              |              |               | <i>Net-of-Fees</i>                  |                 |             |              |              |               |     |
|-------------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|-------------------------------------|-----------------|-------------|--------------|--------------|---------------|-----|
|                                     | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> | <u>Mkt Value (\$Mil)</u>            | <u>Qtr</u>      | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |     |
| <b>PRIVATE EQUITY GROWTH</b>        |                          |            |             |              |              |               | <b>PRIVATE EQUITY GROWTH</b>        |                 |             |              |              |               |     |
| PRIVATE EQUITY - GROWTH             | 5,625.1                  | 4.8        |             |              |              |               | PRIVATE EQUITY - GROWTH             | 5,625.1         | 4.7         |              |              |               |     |
| Private Equity - Growth Custom BM   |                          | 12.8       |             |              |              |               | Private Equity - Growth Custom BM   |                 | 12.8        |              |              |               |     |
| <b>OPPORTUNISTIC REAL ESTATE</b>    |                          |            |             |              |              |               | <b>OPPORTUNISTIC REAL ESTATE</b>    |                 |             |              |              |               |     |
| OPPORTUNISTIC REAL ESTATE           | 921.6                    | 2.1        | 9.9         | 13.3         | 16.1         | 4.8           | OPPORTUNISTIC REAL ESTATE           | 921.6           | 1.7         | 8.1          | 11.2         | 13.6          | 1.7 |
| Opportunistic Real Estate Custom BM |                          | 1.9        |             |              |              |               | Opportunistic Real Estate Custom BM |                 | 1.9         |              |              |               |     |
| <b>TOTAL GROWTH</b>                 | <b>31,256.7</b>          | <b>3.6</b> |             |              |              |               | <b>TOTAL GROWTH</b>                 | <b>31,256.7</b> | <b>3.6</b>  |              |              |               |     |
| Growth Custom BM                    |                          | 4.6        |             |              |              |               | Growth Custom BM                    |                 | 4.6         |              |              |               |     |

# ANNUALIZED TOTAL RETURNS CREDIT

for the quarter ended June 30, 2019



|                         | <i>Gross-of-Fees</i>     |            |             |              |              |               | <i>Net-of-Fees</i>       |                |             |              |              |               |     |
|-------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|--------------------------|----------------|-------------|--------------|--------------|---------------|-----|
|                         | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u>     | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |     |
| <b>HIGH YIELD</b>       |                          |            |             |              |              |               | <b>HIGH YIELD</b>        |                |             |              |              |               |     |
| BAIN CAPITAL CREDIT     | 370.7                    | 1.8        | 5.7         | 7.3          | 4.3          |               | BAIN CAPITAL CREDIT      | 370.7          | 1.6         | 5.0          | 6.4          | 3.5           |     |
| BEACH POINT             | 260.5                    | 2.8        | 8.6         | 8.4          | 6.6          |               | BEACH POINT              | 260.5          | 2.7         | 7.9          | 7.7          | 5.9           |     |
| BRIGADE CAP MGMT        | 587.0                    | 1.9        | 3.3         | 7.8          | 4.4          |               | BRIGADE CAP MGMT         | 587.0          | 1.7         | 2.5          | 7.0          | 3.6           |     |
| DOUBLELINE CAPITAL      | 339.3                    | 3.3        | 7.9         | 5.5          |              |               | DOUBLELINE CAPITAL       | 339.3          | 3.1         | 7.1          | 4.7          |               |     |
| OAKTREE CAPITAL         | 437.0                    | 2.6        | 8.2         | 6.5          | 4.3          | 8.5           | OAKTREE CAPITAL          | 437.0          | 2.4         | 7.7          | 6.0          | 3.9           | 8.0 |
| TCW                     | 339.4                    | 2.2        | 5.7         | 5.4          |              |               | TCW                      | 339.4          | 2.1         | 5.1          | 4.8          |               |     |
| <b>TOTAL HIGH YIELD</b> | <b>2,334.5</b>           | <b>2.3</b> |             |              |              |               | <b>TOTAL HIGH YIELD</b>  | <b>2,334.5</b> | <b>2.1</b>  |              |              |               |     |
| BBG BARC BA US HY       |                          | 3.1        |             |              |              |               | BBG BARC BA US HY        |                | 3.1         |              |              |               |     |
| <b>BANK LOANS</b>       |                          |            |             |              |              |               | <b>BANK LOANS</b>        |                |             |              |              |               |     |
| CRESCENT CAPITAL        | 440.5                    | 1.9        | 5.1         | 7.1          | 3.6          |               | CRESCENT CAPITAL         | 440.5          | 1.8         | 4.5          | 6.5          | 3.0           |     |
| TENNENBAUM CAPITAL      | 434.3                    | 2.3        | 8.8         | 10.0         |              |               | TENNENBAUM CAPITAL       | 434.3          | 2.1         | 8.0          | 9.1          |               |     |
| <b>TOTAL BANK LOANS</b> | <b>874.9</b>             | <b>2.1</b> |             |              |              |               | <b>TOTAL BANK LOANS</b>  | <b>874.9</b>   | <b>1.9</b>  |              |              |               |     |
| CS Leveraged Loan Index |                          | 1.6        |             |              |              |               | CS Leveraged Loan Index  |                | 1.6         |              |              |               |     |

# ANNUALIZED TOTAL RETURNS CREDIT

for the quarter ended June 30, 2019



## Gross-of-Fees

|                                   | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|-----------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>EMERGING MARKET DEBT</b>       |                          |            |             |              |              |               |
| ABERDEEN ASSET MANAGEMENT         | 423.5                    | 4.0        | 11.5        |              |              |               |
| ASHMORE INVESTMENT MANAGEMENT     | 429.4                    | 4.7        | 12.4        |              |              |               |
| <b>TOTAL EMERGING MARKET DEBT</b> | <b>852.9</b>             | <b>4.3</b> | <b>12.0</b> |              |              |               |
| EMD Custom                        |                          | 4.3        | 11.1        |              |              |               |
| <b>ILLIQUID CREDIT</b>            |                          |            |             |              |              |               |
| BEACH POINT - FUND II             | 41.5                     | 4.2        | 4.7         | 8.3          | 8.9          |               |
| BEACH POINT - FUND III            | 170.0                    | 3.2        | 11.2        |              |              |               |
| GROSVENOR OPCRD 2 HFOF            | 360.4                    | 0.7        | 0.3         | 7.1          |              |               |
| LACERA PE - CREDIT                | 152.9                    | 4.7        |             |              |              |               |
| LACERA RE - CREDIT                | 301.3                    | 1.2        | 9.3         | 9.7          | 9.0          |               |
| <b>TOTAL ILLIQUID CREDIT</b>      | <b>1,026.1</b>           | <b>2.0</b> |             |              |              |               |
| Illiquid Credit Custom BM         |                          | 4.4        |             |              |              |               |
| CREDIT TRANSITION ACCOUNT         | 1.1                      |            |             |              |              |               |
| <b>TOTAL CREDIT</b>               | <b>5,089.5</b>           | <b>2.5</b> |             |              |              |               |
| Credit Custom BM                  |                          | 3.0        |             |              |              |               |

## Net-of-Fees

|                                   | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|-----------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>EMERGING MARKET DEBT</b>       |                          |            |             |              |              |               |
| ABERDEEN ASSET MANAGEMENT         | 423.5                    | 3.9        | 11.1        |              |              |               |
| ASHMORE INVESTMENT MANAGEMENT     | 429.4                    | 4.5        | 11.7        |              |              |               |
| <b>TOTAL EMERGING MARKET DEBT</b> | <b>852.9</b>             | <b>4.2</b> | <b>11.4</b> |              |              |               |
| EMD Custom                        |                          | 4.3        | 11.1        |              |              |               |
| <b>ILLIQUID CREDIT</b>            |                          |            |             |              |              |               |
| BEACH POINT - FUND II             | 41.5                     | 4.4        | 10.5        | 7.9          | 8.1          |               |
| BEACH POINT - FUND III            | 170.0                    | 0.3        | 7.6         |              |              |               |
| GROSVENOR OPCRD 2 HFOF            | 360.4                    | 0.7        | 0.3         | 7.1          |              |               |
| LACERA PE - CREDIT                | 152.9                    | 4.7        |             |              |              |               |
| LACERA RE - CREDIT                | 301.3                    | 1.1        | 8.4         | 8.7          | 7.9          |               |
| <b>TOTAL ILLIQUID CREDIT</b>      | <b>1,026.1</b>           | <b>1.5</b> |             |              |              |               |
| Illiquid Credit Custom BM         |                          | 4.4        |             |              |              |               |
| CREDIT TRANSITION ACCOUNT         | 1.1                      |            |             |              |              |               |
| <b>TOTAL CREDIT</b>               | <b>5,089.5</b>           | <b>2.3</b> |             |              |              |               |
| Credit Custom BM                  |                          | 3.0        |             |              |              |               |

# ANNUALIZED TOTAL RETURNS

## REAL ASSETS & INFLATION HEDGES

for the quarter ended June 30, 2019



### Gross-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u>  | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|-------------|-------------|--------------|--------------|---------------|
| <b>CORE &amp; VALUE-ADDED REAL ESTATE</b>        |                          |             |             |              |              |               |
| CORE & VALUE-ADDED REAL ESTATE                   | 5,355.5                  | 1.9         | 9.6         | 8.3          | 9.8          | 7.2           |
| Core & Value-Added Real Estate Custom BM         |                          | 1.3         |             |              |              |               |
| <b>NATURAL RESOURCES &amp; COMMODITIES</b>       |                          |             |             |              |              |               |
| CREDIT SUISSE COMMODITY                          | 423.1                    | -1.0        | -6.8        | -1.9         | -8.6         |               |
| DWS NATURAL RESOURCES                            | 318.0                    |             |             |              |              |               |
| LACERA PE - REAL ASSETS                          | 111.8                    | 1.2         |             |              |              |               |
| NEUBERGER BERMAN/GRESHAM                         | 445.4                    | -1.8        | -7.3        | 0.5          | -7.9         | -1.4          |
| PIMCO COMMODITY PLUS                             | 442.3                    | -1.7        | -6.1        | 0.4          | -7.0         | -1.4          |
| <b>TOTAL NATURAL RESOURCES &amp; COMMODITIES</b> | <b>1,740.7</b>           | <b>-0.6</b> | <b>-5.9</b> | <b>0.0</b>   | <b>-7.6</b>  | <b>-1.6</b>   |
| Natural Resources & Comm Custom BM               |                          | 0.4         | -5.2        | -1.7         | -8.9         | -3.6          |

### Net-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u>  | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|-------------|-------------|--------------|--------------|---------------|
| <b>CORE &amp; VALUE-ADDED REAL ESTATE</b>        |                          |             |             |              |              |               |
| CORE & VALUE-ADDED REAL ESTATE                   | 5,355.5                  | 1.8         | 9.0         | 7.7          | 9.1          | 6.6           |
| Core & Value-Added Real Estate Custom BM         |                          | 1.3         |             |              |              |               |
| <b>NATURAL RESOURCES &amp; COMMODITIES</b>       |                          |             |             |              |              |               |
| CREDIT SUISSE COMMODITY                          | 423.1                    | -1.1        | -7.1        | -2.2         | -8.8         |               |
| DWS NATURAL RESOURCES                            | 318.0                    |             |             |              |              |               |
| LACERA PE - REAL ASSETS                          | 111.8                    | 1.3         |             |              |              |               |
| NEUBERGER BERMAN/GRESHAM                         | 445.4                    | -1.9        | -7.6        | 0.1          | -8.3         | -1.7          |
| PIMCO COMMODITY PLUS                             | 442.3                    | -1.8        | -6.4        | 0.0          | -7.4         | -2.0          |
| <b>TOTAL NATURAL RESOURCES &amp; COMMODITIES</b> | <b>1,740.7</b>           | <b>-0.7</b> | <b>-6.2</b> | <b>-0.3</b>  | <b>-8.0</b>  | <b>-2.0</b>   |
| Natural Resources & Comm Custom BM               |                          | 0.4         | -5.2        | -1.7         | -8.9         | -3.6          |

# ANNUALIZED TOTAL RETURNS

## REAL ASSETS & INFLATION HEDGES

for the quarter ended June 30, 2019



### Gross-of-Fees

|   | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|---|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>INFRASTRUCTURE</b>                           |                          |            |             |              |              |               |
| DWS INFRASTRUCTURE                              | 814.4                    |            |             |              |              |               |
| <b>TOTAL INFRASTRUCTURE</b>                     | <b>814.4</b>             |            |             |              |              |               |
| DJ Brookfield Global Infrastructure             |                          |            |             |              |              |               |
| <b>TIPS</b>                                     |                          |            |             |              |              |               |
| BLACKROCK TIPS                                  | 512.1                    |            |             |              |              |               |
| <b>TOTAL TIPS</b>                               | <b>512.1</b>             |            |             |              |              |               |
| BBG BC TIPS                                     |                          |            |             |              |              |               |
| <b>TOTAL REAL ASSETS &amp; INFLATION HEDGES</b> | <b>8,422.7</b>           | <b>1.5</b> |             |              |              |               |
| Real Assets & Inflation Hedges Custom BM        |                          |            |             |              |              |               |

### Net-of-Fees

|   | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|---|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>INFRASTRUCTURE</b>                           |                          |            |             |              |              |               |
| DWS INFRASTRUCTURE                              | 814.4                    |            |             |              |              |               |
| <b>TOTAL INFRASTRUCTURE</b>                     | <b>814.4</b>             |            |             |              |              |               |
| DJ Brookfield Global Infrastructure             |                          |            |             |              |              |               |
| <b>TIPS</b>                                     |                          |            |             |              |              |               |
| BLACKROCK TIPS                                  | 512.1                    |            |             |              |              |               |
| <b>TOTAL TIPS</b>                               | <b>512.1</b>             |            |             |              |              |               |
| BBG BC TIPS                                     |                          |            |             |              |              |               |
| <b>TOTAL REAL ASSETS &amp; INFLATION HEDGES</b> | <b>8,422.7</b>           | <b>1.4</b> |             |              |              |               |
| Real Assets & Inflation Hedges Custom BM        |                          |            |             |              |              |               |

# ANNUALIZED TOTAL RETURNS

## RISK REDUCTION & MITIGATION

for the quarter ended June 30, 2019



### Gross-of-Fees

|                                     | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|-------------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>INVESTMENT GRADE BONDS</b>       |                          |            |             |              |              |               |
| BTC US DEBT INDEX FUND              | 6,536.1                  | 3.1        | 7.9         | 2.4          | 3.1          | 4.0           |
| MHLP                                | 26.9                     | 1.3        | 5.4         | 8.2          | 6.2          | 5.7           |
| PUGH CAPITAL MGMT                   | 355.7                    | 3.1        | 8.1         | 2.5          | 3.1          | 4.5           |
| WELLS CAPITAL                       | 1,544.4                  | 3.1        | 8.0         | 2.7          | 3.3          | 4.9           |
| <b>TOTAL CORE MANAGERS</b>          | <b>8,463.1</b>           | <b>3.1</b> | <b>7.9</b>  | <b>3.0</b>   | <b>3.4</b>   | <b>4.8</b>    |
| DODGE & COX                         | 1,182.3                  | 3.0        | 8.0         | 3.9          | 3.7          | 5.4           |
| PIMCO                               | 929.3                    | 2.6        | 7.6         | 4.1          | 3.9          | 5.1           |
| WESTERN ASSET MGMT.                 | 1,019.0                  | 3.7        | 9.3         | 3.6          | 3.9          | 6.5           |
| <b>TOTAL CORE PLUS MANAGERS</b>     | <b>3,130.6</b>           | <b>3.1</b> | <b>7.9</b>  | <b>3.7</b>   | <b>3.6</b>   | <b>5.6</b>    |
| INVESTMENT GRADE TRANSITION ACCOUNT | 4.0                      |            |             |              |              |               |
| <b>TOTAL INVESTMENT GRADE BONDS</b> | <b>11,597.7</b>          | <b>3.1</b> | <b>7.9</b>  | <b>3.3</b>   | <b>3.5</b>   | <b>5.2</b>    |
| BBG BC Aggregate Bond Index         |                          | 3.1        | 7.9         | 2.3          | 2.9          | 3.9           |

### Net-of-Fees

|                                     | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|-------------------------------------|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>INVESTMENT GRADE BONDS</b>       |                          |            |             |              |              |               |
| BTC US DEBT INDEX FUND              | 6,536.1                  | 3.1        | 7.9         | 2.4          | 3.0          | 4.0           |
| MHLP                                | 26.9                     | 1.2        | 5.1         | 8.0          | 5.9          | 5.4           |
| PUGH CAPITAL MGMT                   | 355.7                    | 3.1        | 7.9         | 2.3          | 2.9          | 4.2           |
| WELLS CAPITAL                       | 1,544.4                  | 3.1        | 7.9         | 2.6          | 3.2          | 4.8           |
| <b>TOTAL CORE MANAGERS</b>          | <b>8,463.1</b>           | <b>3.1</b> | <b>7.9</b>  | <b>2.9</b>   | <b>3.3</b>   | <b>4.7</b>    |
| DODGE & COX                         | 1,182.3                  | 3.0        | 7.9         | 3.8          | 3.6          | 5.3           |
| PIMCO                               | 929.3                    | 2.6        | 7.3         | 3.9          | 3.7          | 4.9           |
| WESTERN ASSET MGMT.                 | 1,019.0                  | 3.6        | 9.1         | 3.5          | 3.8          | 6.4           |
| <b>TOTAL CORE PLUS MANAGERS</b>     | <b>3,130.6</b>           | <b>3.0</b> | <b>7.8</b>  | <b>3.5</b>   | <b>3.4</b>   | <b>5.4</b>    |
| INVESTMENT GRADE TRANSITION ACCOUNT | 4.0                      |            |             |              |              |               |
| <b>TOTAL INVESTMENT GRADE BONDS</b> | <b>11,597.7</b>          | <b>3.1</b> | <b>7.8</b>  | <b>3.2</b>   | <b>3.3</b>   | <b>5.1</b>    |
| BBG BC Aggregate Bond Index         |                          | 3.1        | 7.9         | 2.3          | 2.9          | 3.9           |



# ANNUALIZED TOTAL RETURNS

## RISK REDUCTION & MITIGATION

for the quarter ended June 30, 2019



### Gross-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>DIVERSIFIED HEDGE FUNDS</b>               |                          |            |             |              |              |               |
| GROSVENOR HFOF                               | 482.9                    | 0.7        | -1.3        | 3.5          | 1.4          |               |
| GSAM HFOF                                    | 487.6                    | 1.6        | 0.9         | 3.4          |              |               |
| LACERA HF DIRECT                             | 574.8                    | 1.1        | 2.4         |              |              |               |
| <b>TOTAL DIVERSIFIED HEDGE FUNDS</b>         | <b>1,545.4</b>           | <b>1.2</b> |             |              |              |               |
| Diversified Hedge Funds Custom BM            |                          | 1.2        |             |              |              |               |
| <b>CASH</b>                                  |                          |            |             |              |              |               |
| <b>CASH</b>                                  | <b>529.5</b>             | <b>0.7</b> | <b>2.7</b>  | <b>1.7</b>   | <b>1.2</b>   | <b>1.3</b>    |
| Cash Custom BM                               |                          | 0.6        | 2.4         | 1.4          | 0.9          | 0.5           |
| <b>TOTAL RISK REDUCTION &amp; MITIGATION</b> | <b>13,672.6</b>          | <b>2.8</b> |             |              |              |               |
| Risk Reduction & Mitigation Custom BM        |                          | 2.7        |             |              |              |               |

### Net-of-Fees

|  | <u>Mkt Value (\$Mil)</u> | <u>Qtr</u> | <u>1 Yr</u> | <u>3 Yrs</u> | <u>5 Yrs</u> | <u>10 Yrs</u> |
|--|--------------------------|------------|-------------|--------------|--------------|---------------|
| <b>DIVERSIFIED HEDGE FUNDS</b>               |                          |            |             |              |              |               |
| GROSVENOR HFOF                               | 482.9                    | 0.7        | -1.3        | 3.5          | 1.4          |               |
| GSAM HFOF                                    | 487.6                    | 1.5        | 0.5         | 2.9          |              |               |
| LACERA HF DIRECT                             | 574.8                    | 1.1        | 2.4         |              |              |               |
| <b>TOTAL DIVERSIFIED HEDGE FUNDS</b>         | <b>1,545.4</b>           | <b>1.1</b> |             |              |              |               |
| Diversified Hedge Funds Custom BM            |                          | 1.2        |             |              |              |               |
| <b>CASH</b>                                  |                          |            |             |              |              |               |
| <b>CASH</b>                                  | <b>529.5</b>             | <b>0.7</b> | <b>2.7</b>  | <b>1.7</b>   | <b>1.2</b>   | <b>1.3</b>    |
| Cash Custom BM                               |                          | 0.6        | 2.4         | 1.4          | 0.9          | 0.5           |
| <b>TOTAL RISK REDUCTION &amp; MITIGATION</b> | <b>13,672.6</b>          | <b>2.7</b> |             |              |              |               |
| Risk Reduction & Mitigation Custom BM        |                          | 2.7        |             |              |              |               |

# GROWTH - U.S. EQUITY

## CORNERCAP INVESTMENT COUNSEL

for the quarter ended June 30, 2019



### Manager Profile

Firm: CornerCap Investment Counsel  
 Location: Atlanta, GA  
 Year Founded: 1989  
 Contact: Cannon Carr, CIO  
 Inception Date: October 2018  
 Assigned Role: Growth  
 Benchmark: Russell 2000  
 Investment Style: US Core Small Cap

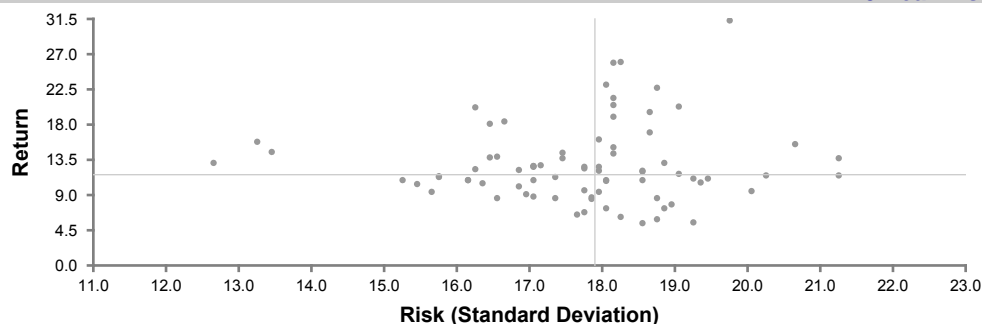
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                      | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| CornerCap            | 57.6                   | 4.62      |        |         |         |          | -3.36           |
| RUSSELL 2000 (DAILY) |                        | 2.10      |        |         |         |          | -6.65           |

### Universe

|                                    | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - Small Cap</b> |       |        |         |         |
| Median                             | 2.74  | -3.68  | 11.64   | 7.23    |
| Number of Observations             | 81.00 | 80.00  | 78.00   | 78.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 22.6          | 14.3                      |
| 25th Percentile | 14.1          | 16.8                      |
| 50th Percentile | 11.6          | 17.9                      |
| 75th Percentile | 9.2           | 18.6                      |
| 95th Percentile | 5.8           | 20.2                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## EAGLE ASSET MANAGEMENT, INC.

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: Russell 2500  
 Investment Style: US Core Small / Mid Cap

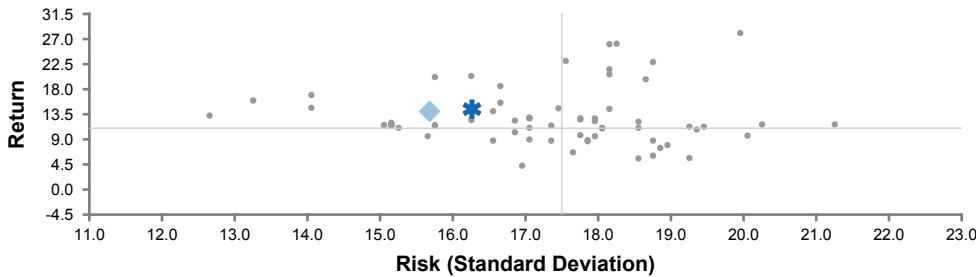
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                        | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Eagle Asset Management | 292.3                  | 3.65      | -1.10  | 12.69   | 8.97    | 14.39    | 9.86            |
| RUSSELL 2500 (DAILY)   |                        | 2.96      | 1.77   | 12.34   | 7.66    | 14.44    | 8.90            |

### Universe

|                               | 1 Qtr | 1 Year | 3 Years | 5 Years |
|-------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - SMID</b> |       |        |         |         |
| Median                        | 3.03  | -2.27  | 11.02   | 7.58    |
| Number of Observations        | 72.00 | 71.00  | 67.00   | 67.00   |

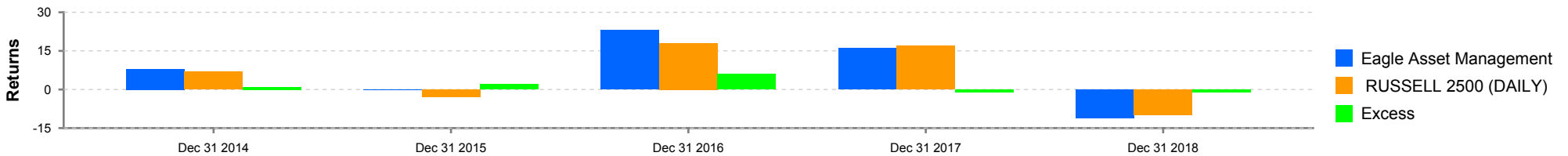
### 3 Year Risk vs Return



|                        | 3 Year Return | 3 Year Standard Deviation |
|------------------------|---------------|---------------------------|
| * EAGLE US SMID CORE   | 12.7 27       | 16.1 26                   |
| ◆ RUSSELL 2500 (DAILY) | 12.3 31       | 15.5 20                   |
| 5th Percentile         | 22.5          | 14.0                      |
| 25th Percentile        | 13.7          | 15.7                      |
| 50th Percentile        | 11.0          | 17.5                      |
| 75th Percentile        | 9.4           | 18.3                      |
| 95th Percentile        | 5.5           | 19.9                      |

\* EAGLE US SMID CORE ◆ RUSSELL 2500 (DAILY)

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## FRONTIER CAPITAL MANAGEMENT COMPANY, LLC

for the quarter ended June 30, 2019



### Manager Profile

Firm: Frontier Capital Mgmt. Company, LLC  
 Location: Boston, MA  
 Year Founded: 1980  
 Contact: Crystal Wamble, Senior Vice President  
 Inception Date: June 2002  
 Assigned Role: Growth  
 Benchmark: Russell 2500  
 Investment Style: US Core Small / Mid Cap

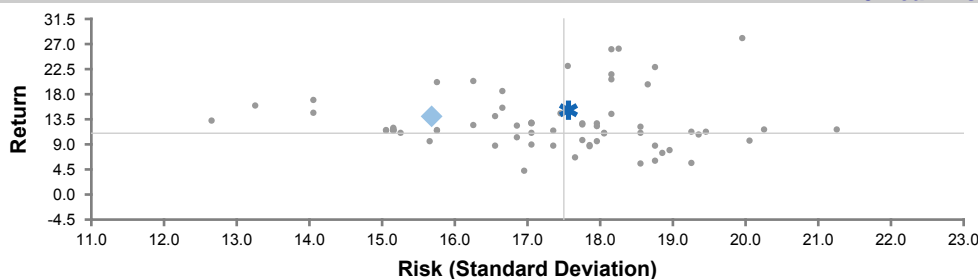
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Frontier Capital Management | 603.1                  | 2.68      | 0.97   | 13.39   | 7.77    | 14.90    | 11.19           |
| RUSSELL 2500 (DAILY)        |                        | 2.96      | 1.77   | 12.34   | 7.66    | 14.44    | 9.42            |

### Universe

|                               | 1 Qtr | 1 Year | 3 Years | 5 Years |
|-------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - SMID</b> |       |        |         |         |
| Median                        | 3.03  | -2.27  | 11.02   | 7.58    |
| Number of Observations        | 72.00 | 71.00  | 67.00   | 67.00   |

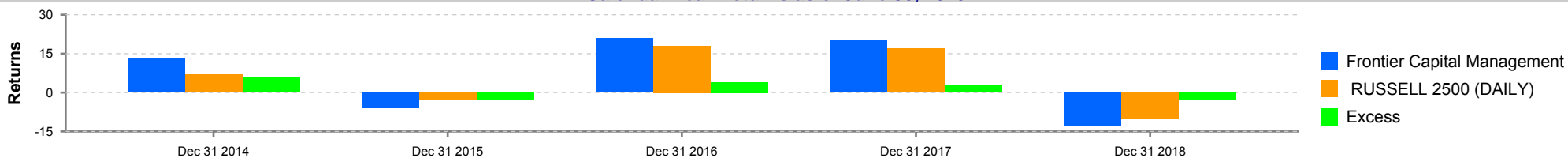
### 3 Year Risk vs Return



|                           | 3 Year Return | 3 Year Standard Deviation |
|---------------------------|---------------|---------------------------|
| * FRONTIER US SMID GROWTH | 13.4 27       | 17.4 49                   |
| ◆ RUSSELL 2500 (DAILY)    | 12.3 31       | 15.5 20                   |
| 5th Percentile            | 22.5          | 14.0                      |
| 25th Percentile           | 13.7          | 15.7                      |
| 50th Percentile           | 11.0          | 17.5                      |
| 75th Percentile           | 9.4           | 18.3                      |
| 95th Percentile           | 5.5           | 19.9                      |

\* FRONTIER US SMID GROWTH ◆ RUSSELL 2500 (DAILY)

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## JANA PARTNERS LLC

for the quarter ended June 30, 2019



### Manager Profile

Firm: JANA Partners LLC  
 Location: New York, NY  
 Year Founded: 2001  
 Contact: Darya Mastronardi, Director  
 Inception Date: October 2016  
 Assigned Role: Growth  
 Benchmark: S&P 500  
 Investment Style: US Large Cap Activist Mandate

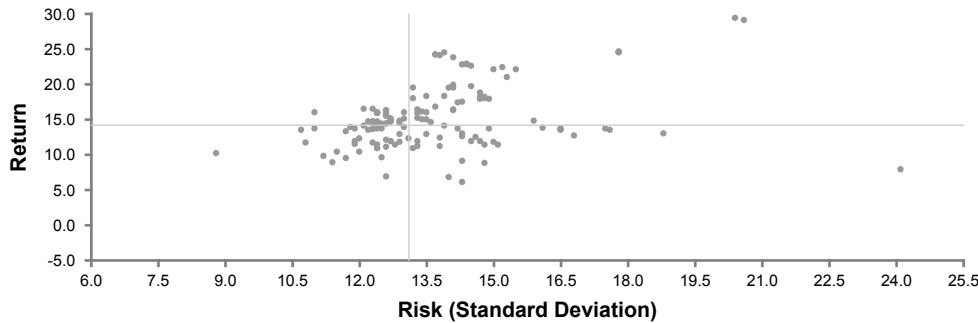
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                       | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| JANA Partners         | 106.2                  | 2.32      | -0.22  |         |         |          | 21.64           |
| S&P 500 INDEX (DAILY) |                        | 4.30      | 10.42  |         |         |          | 14.01           |

### Universe

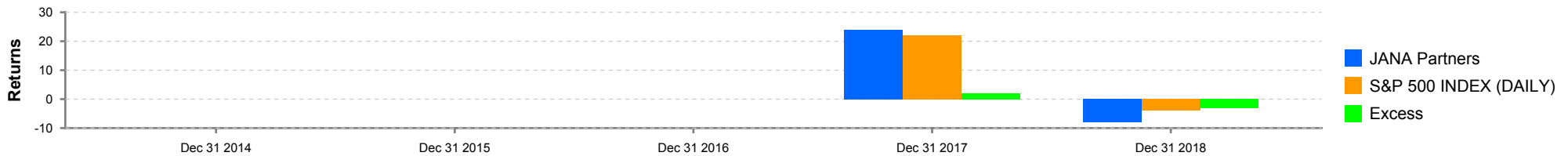
|                                    | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|------------------------------------|--------|--------|---------|---------|
| <b>US Equity Funds - Large Cap</b> |        |        |         |         |
| Median                             | 4.23   | 9.17   | 14.16   | 10.48   |
| Number of Observations             | 163.00 | 159.00 | 156.00  | 154.00  |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 23.8          | 11.3                      |
| 25th Percentile | 15.9          | 12.3                      |
| 50th Percentile | 14.2          | 13.1                      |
| 75th Percentile | 12.1          | 14.2                      |
| 95th Percentile | 8.7           | 17.7                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## MATARIN CAPITAL MANAGEMENT

for the quarter ended June 30, 2019



### Manager Profile

Firm: Matarin Capital Management  
 Location: New York, NY  
 Year Founded: 1989  
 Contact: Valerie Malter, Managing Principal  
 Inception Date: October 2018  
 Assigned Role: Growth  
 Benchmark: Russell 2000  
 Investment Style: US Core Small Cap

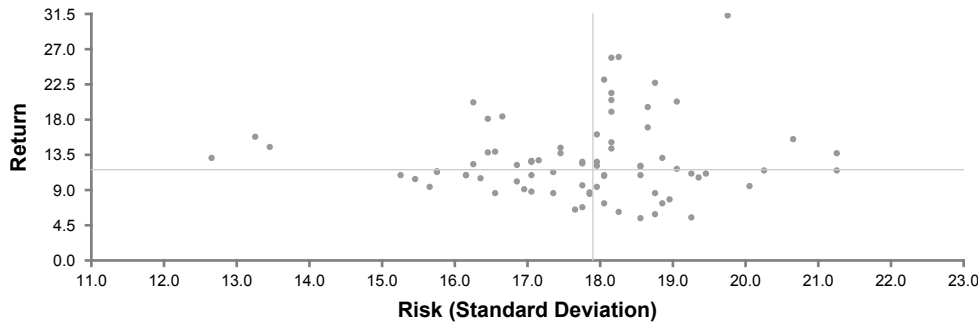
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                      | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Matarin              | 109.6                  | 0.80      |        |         |         |          | -10.70          |
| RUSSELL 2000 (DAILY) |                        | 2.10      |        |         |         |          | -6.65           |

### Universe

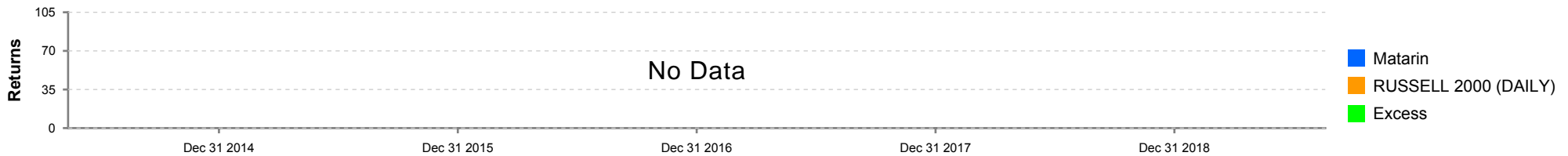
|                                    | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - Small Cap</b> |       |        |         |         |
| Median                             | 2.74  | -3.68  | 11.64   | 7.23    |
| Number of Observations             | 81.00 | 80.00  | 78.00   | 78.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 22.6          | 14.3                      |
| 25th Percentile | 14.1          | 16.8                      |
| 50th Percentile | 11.6          | 17.9                      |
| 75th Percentile | 9.2           | 18.6                      |
| 95th Percentile | 5.8           | 20.2                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## QUANTITATIVE MANAGEMENT ASSOCIATES

for the quarter ended June 30, 2019



### Manager Profile

Firm: Quantitative Management Associates  
 Location: Newark, NJ  
 Year Founded: 1975  
 Contact: Brad Zenz, Managing Director  
 Inception Date: July 2018  
 Assigned Role: Growth  
 Benchmark: Russell 2000  
 Investment Style: US Small Cap

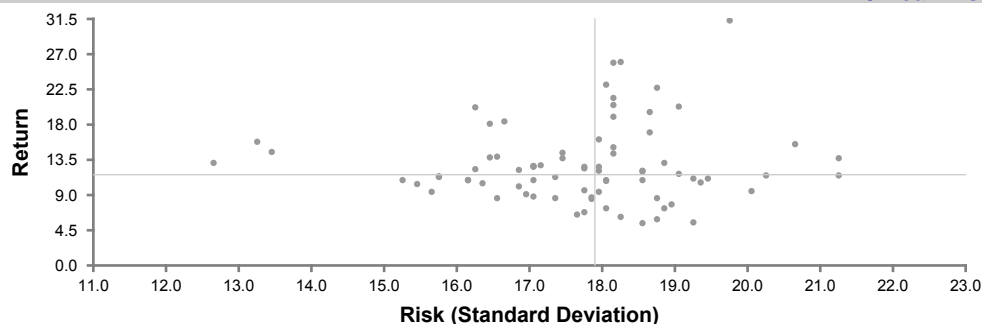
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                      | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| QMA                  | 268.5                  | -0.19     | -8.30  |         |         |          | -8.30           |
| RUSSELL 2000 (DAILY) |                        | 2.10      | -3.31  |         |         |          | -3.31           |

### Universe

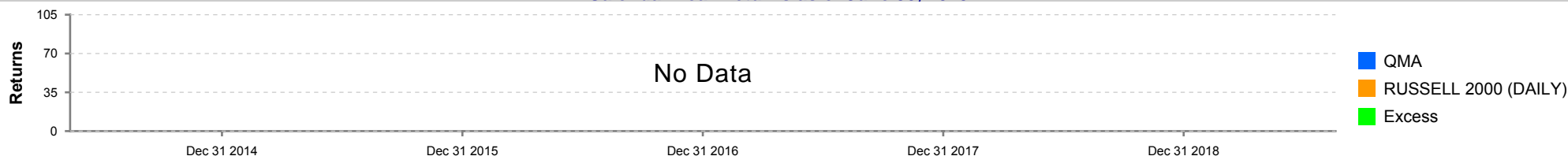
|                                    | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - Small Cap</b> |       |        |         |         |
| Median                             | 2.74  | -3.68  | 11.64   | 7.23    |
| Number of Observations             | 81.00 | 80.00  | 78.00   | 78.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 22.6          | 14.3                      |
| 25th Percentile | 14.1          | 16.8                      |
| 50th Percentile | 11.6          | 17.9                      |
| 75th Percentile | 9.2           | 18.6                      |
| 95th Percentile | 5.8           | 20.2                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - U.S. EQUITY

## SYSTEMATIC FINANCIAL MANAGEMENT

for the quarter ended June 30, 2019



### Manager Profile

Firm: Systematic Financial Management  
 Location: Teaneck, NJ  
 Year Founded: 1982  
 Contact: Steven Shaw, Senior VP  
 Inception Date: July 2018  
 Assigned Role: Growth  
 Benchmark: Russell 2000  
 Investment Style: US Small Cap

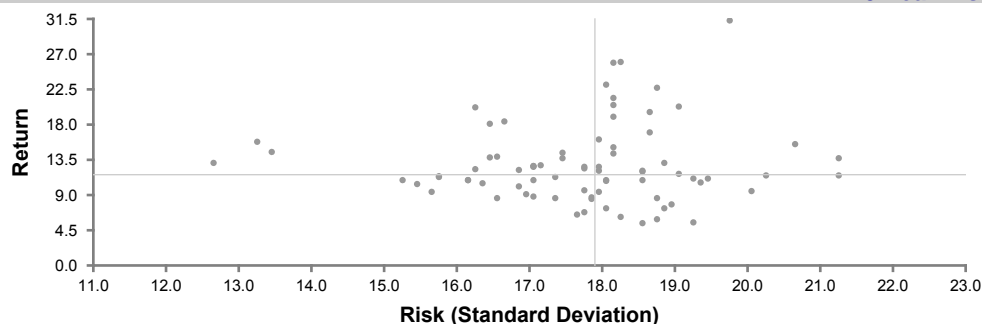
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                      | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Systematic           | 232.8                  | 3.71      | -4.54  |         |         |          | -4.54           |
| RUSSELL 2000 (DAILY) |                        | 2.10      | -3.31  |         |         |          | -3.31           |

### Universe

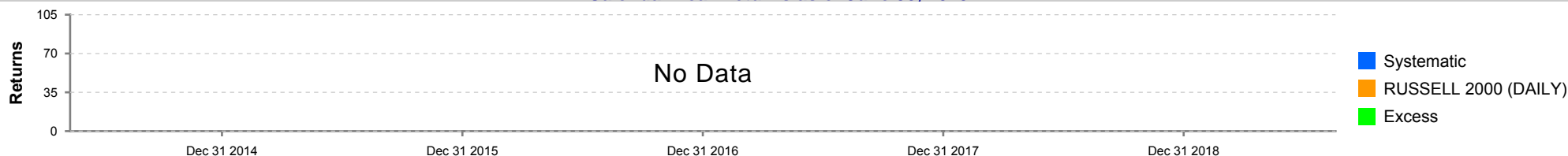
|                                    | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------------------|-------|--------|---------|---------|
| <b>US Equity Funds - Small Cap</b> |       |        |         |         |
| Median                             | 2.74  | -3.68  | 11.64   | 7.23    |
| Number of Observations             | 81.00 | 80.00  | 78.00   | 78.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 22.6          | 14.3                      |
| 25th Percentile | 14.1          | 16.8                      |
| 50th Percentile | 11.6          | 17.9                      |
| 75th Percentile | 9.2           | 18.6                      |
| 95th Percentile | 5.8           | 20.2                      |

### Calendar Year Returns as of June 30, 2019





# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## ACADIAN ASSET MANAGEMENT, LLC

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: MSCI EAFE + Canada (Net)  
 Investment Style: Non-US Core / Value

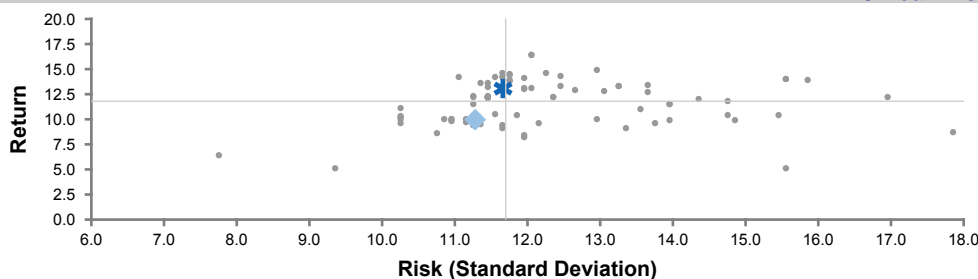
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                              | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|------------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Acadian Developed Markets    | 768.1                  | 1.81      | -1.68  | 12.15   | 5.25    | 9.82     | 4.51            |
| MSCI EAFE + Canada Net Index |                        | 3.79      | 1.29   | 9.01    | 2.04    | 6.75     | 3.28            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>Intl/Global Equity Funds - Core</b> |       |        |         |         |
| Median                                 | 2.72  | 3.45   | 11.79   | 6.54    |
| Number of Observations                 | 87.00 | 86.00  | 83.00   | 69.00   |

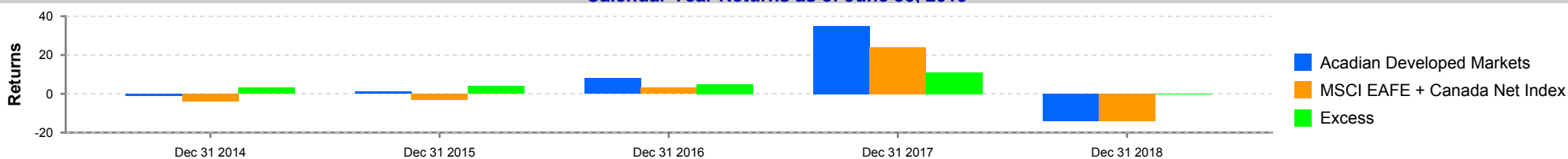
### 3 Year Risk vs Return



|                              | 3 Year Return | 3 Year Standard Deviation |
|------------------------------|---------------|---------------------------|
| Acadian Developed Markets    | 12.1 37       | 11.5 40                   |
| MSCI EAFE + Canada Net Index | 9.0 87        | 11.1 18                   |
| 5th Percentile               | 14.3          | 10.2                      |
| 25th Percentile              | 13.1          | 11.2                      |
| 50th Percentile              | 11.8          | 11.7                      |
| 75th Percentile              | 9.5           | 13.0                      |
| 95th Percentile              | 8.0           | 15.5                      |

Acadian Developed Markets MSCI EAFE + Canada Net Index

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## CAPITAL GUARDIAN TRUST COMPANY

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: EAFE Custom Index  
 Investment Style: Non-US Core / Growth

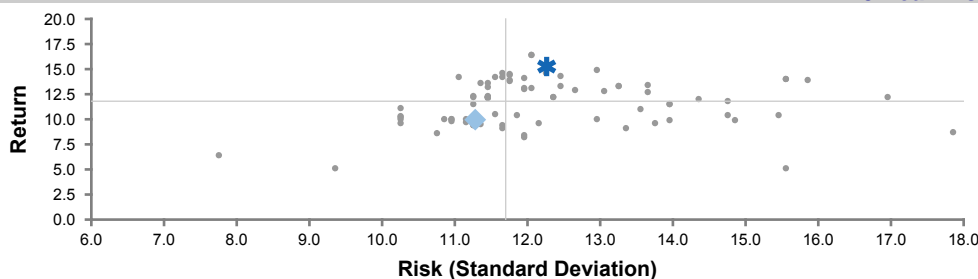
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                           | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|---------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Capital Guardian Non-U.S. | 406.9                  | 3.90      | 5.11   | 14.31   | 5.41    | 9.10     | 7.64            |
| EAFE CUSTOM INDEX         |                        | 3.79      | 1.29   | 9.01    | 2.04    | 6.75     | 4.76            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>Intl/Global Equity Funds - Core</b> |       |        |         |         |
| Median                                 | 2.72  | 3.45   | 11.79   | 6.54    |
| Number of Observations                 | 87.00 | 86.00  | 83.00   | 69.00   |

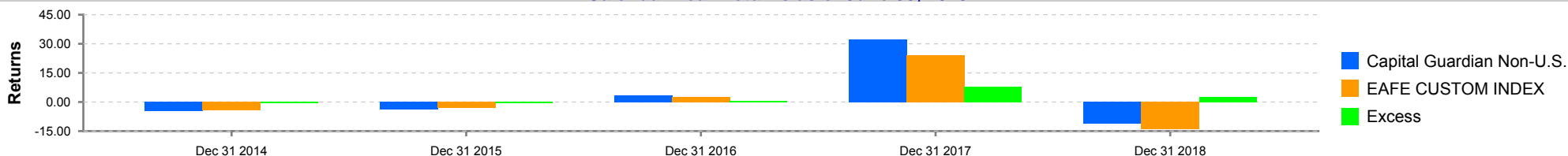
### 3 Year Risk vs Return



|                             | 3 Year Return | 3 Year Standard Deviation |
|-----------------------------|---------------|---------------------------|
| * Capital Guardian Non-U.S. | 14.3 6        | 12.1 63                   |
| ◆ EAFE CUSTOM INDEX         | 9.0 87        | 11.1 18                   |
| 5th Percentile              | 14.3          | 10.2                      |
| 25th Percentile             | 13.1          | 11.2                      |
| 50th Percentile             | 11.8          | 11.7                      |
| 75th Percentile             | 9.5           | 13.0                      |
| 95th Percentile             | 8.0           | 15.5                      |

◆ Capital Guardian Non-U.S. ◆ EAFE CUSTOM INDEX

### Calendar Year Returns as of June 30, 2019



\* State Street performance data begins November 1994  
 Universe data: International Equity Funds Core

# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## GLOBAL ALPHA CAPITAL MANAGEMENT

for the quarter ended June 30, 2019



### Manager Profile

Firm: Global Alpha Capital Management  
 Location: Montreal, Quebec Canada  
 Year Founded: 2008  
 Contact: Robert Beauregard, CEO/CIO  
 Inception Date: November 2018  
 Assigned Role: Growth  
 Benchmark: MSCI EAFE Small Cap Index  
 Investment Style: Non-US Core Small Cap

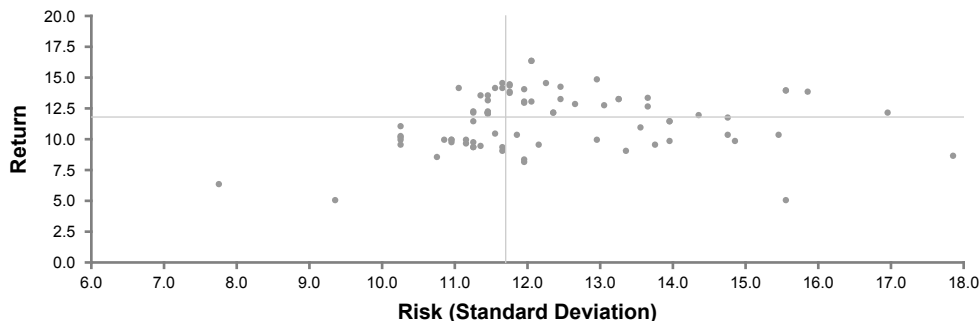
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                         | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Global Alpha            | 173.3                  | 3.39      |        |         |         |          | 9.14            |
| MSCI EAFE SMALL CAP NET |                        | 1.71      |        |         |         |          | 4.55            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>Intl/Global Equity Funds - Core</b> |       |        |         |         |
| Median                                 | 2.72  | 3.45   | 11.79   | 6.54    |
| Number of Observations                 | 87.00 | 86.00  | 83.00   | 69.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 14.3          | 10.2                      |
| 25th Percentile | 13.1          | 11.2                      |
| 50th Percentile | 11.8          | 11.7                      |
| 75th Percentile | 9.5           | 13.0                      |
| 95th Percentile | 8.0           | 15.5                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## SYMPHONY FINANCIAL PARTNERS PTE. LTD.

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: MSCI Japan Small Cap Net  
 Investment Style: Pacific Basin Small Cap Activist Mandate

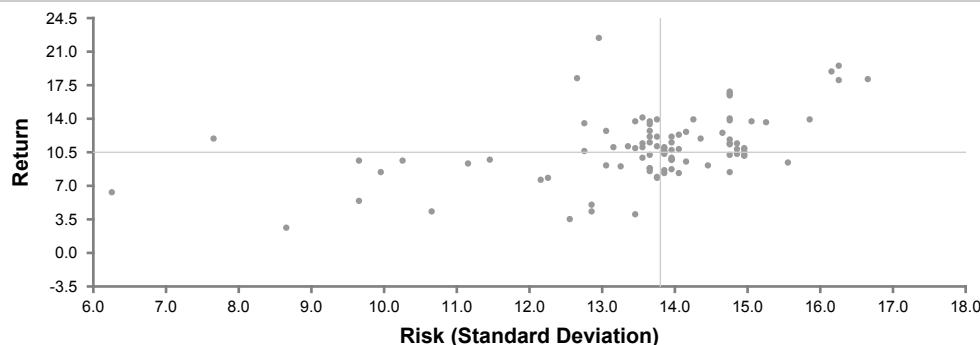
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Symphony Financial Partners | 161.8                  | 4.49      | 7.64   |         |         |          | 19.79           |
| MSCI JAPAN SMALL CAP NET    |                        | -0.87     | -9.79  |         |         |          | 4.90            |

### Universe

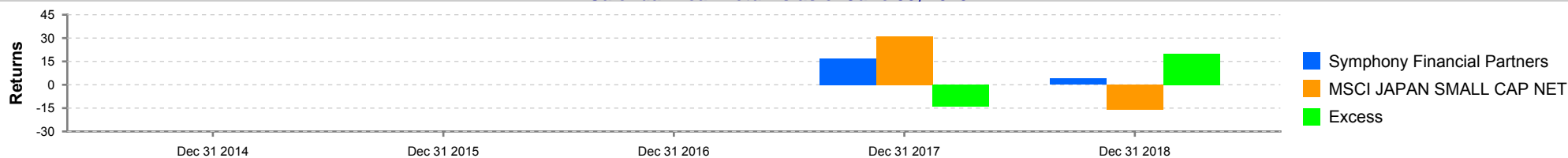
|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>Intl Equity Developed Mkt Funds (Active)</b> |       |        |         |         |
| Median  | 3.05  | 0.44   | 9.14    | 3.54    |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 17.8          | 9.6                       |
| 25th Percentile | 12.2          | 13.4                      |
| 50th Percentile | 10.5          | 13.8                      |
| 75th Percentile | 8.8           | 14.7                      |
| 95th Percentile | 4.0           | 15.8                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## BLACKROCK INSTITUTIONAL TRUST COMPANY, N.A. - EUROPE ALPHA TILTS

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: MSCI Europe Net  
 Investment Style: Europe Core Alpha Tilts

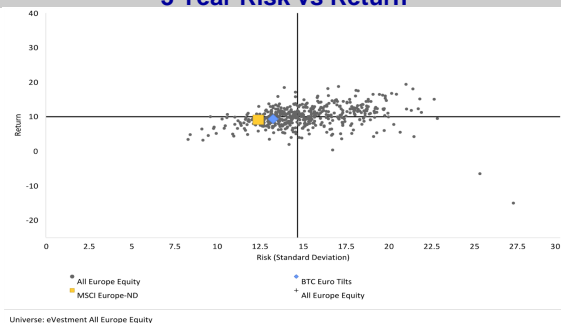
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                     | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|---------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| BTC Euro Tilts      | 988.7                  | 4.60      | 1.61   | 9.33    | 3.09    | 8.74     | 3.24            |
| MSCI EUROPE (DAILY) |                        | 4.48      | 1.88   | 9.11    | 1.27    | 6.99     | 2.01            |

### Universe

|                        | 1 Qtr | 1 Year | 3 Years | 5 Years |      |
|------------------------|-------|--------|---------|---------|------|
| <b>Europe Equity</b>   |       |        |         |         |      |
| Median                 |       | 5.05   | -0.52   | 10.01   | 3.09 |
| Number of Observations |       | 526    | 526     | 512     | 482  |

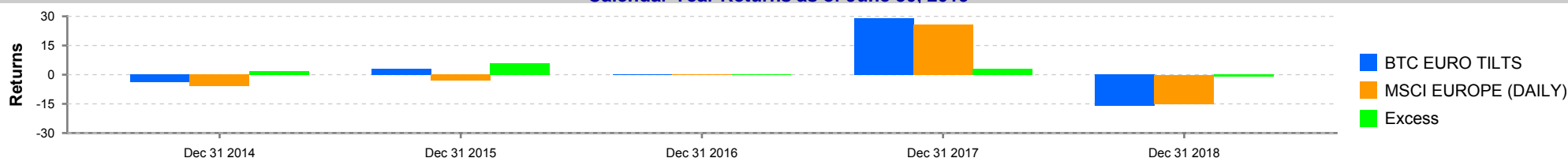
### 3 Year Risk vs Return



### 3 Year Risk vs Return

|                            | 3 Year Return | 3 Year Standard Deviation |
|----------------------------|---------------|---------------------------|
| <b>BTC EURO TILTS</b>      | 9.3           | 61                        |
| <b>MSCI EUROPE (DAILY)</b> | 9.1           | 67                        |
| 5th Percentile             | 14.9          | 11.6                      |
| 25th Percentile            | 11.7          | 13.3                      |
| 50th Percentile            | 10.0          | 14.7                      |
| 75th Percentile            | 8.3           | 16.7                      |
| 95th Percentile            | 5.3           | 19.7                      |

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US DEVELOPED MARKETS EQUITY

## CEVIAN CAPITAL

for the quarter ended June 30, 2019



### Manager Profile

Firm: Cevian Capital  
 Location: Stockholm, Sweden  
 Year Founded: 2002  
 Contact: David Henderson, Director  
 Inception Date: October 2016  
 Assigned Role: Growth  
 Benchmark: MSCI Europe Net  
 Investment Style: European Activist Mandate

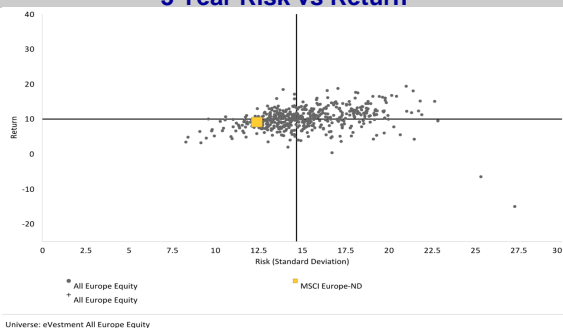
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                     | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|---------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Cevian Capital      | 293.5                  | 3.47      | -1.06  |         |         |          | 7.51            |
| MSCI EUROPE (DAILY) |                        | 4.48      | 1.88   |         |         |          | 7.90            |

### Universe

|                        | 1 Qtr | 1 Year | 3 Years | 5 Years |      |
|------------------------|-------|--------|---------|---------|------|
| <b>Europe Equity</b>   |       |        |         |         |      |
| Median                 |       | 5.05   | -0.52   | 10.01   | 3.09 |
| Number of Observations |       | 526    | 526     | 512     | 482  |

### 3 Year Risk vs Return



### 3 Year Risk vs Return

|                            | 3 Year Return |    | 3 Year Standard |   |
|----------------------------|---------------|----|-----------------|---|
| <b>CEVIAN CAPITAL</b>      | N/A           | -  | N/A             | - |
| <b>MSCI EUROPE (DAILY)</b> | 9.1           | 67 | 12.4            | 9 |
| 5th Percentile             | 14.9          |    | 11.6            |   |
| 25th Percentile            | 11.7          |    | 13.3            |   |
| 50th Percentile            | 10.0          |    | 14.7            |   |
| 75th Percentile            | 8.3           |    | 16.7            |   |
| 95th Percentile            | 5.3           |    | 19.7            |   |

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US EMERGING MARKETS EQUITY

## ACADIAN ASSET MANAGEMENT, LLC

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: MSCI Emerging Markets  
 Investment Style: Emerging Markets Core / Value

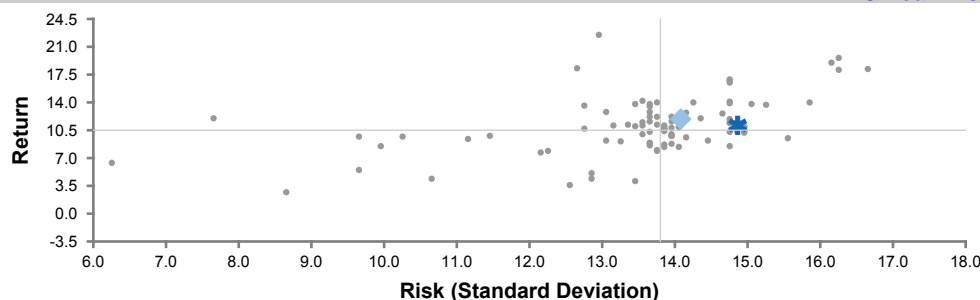
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                          | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Incept |
|--------------------------|------------------------|-----------|--------|---------|---------|----------|--------------|
| Acadian Asset Management | 306.2                  | 0.76      | -1.44  | 9.92    | 1.92    |          | 2.57         |
| MSCI EMERGING MARKETS    |                        | 0.61      | 1.21   | 10.66   | 2.49    |          | 2.43         |

### Universe

|                                       | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|---------------------------------------|--------|--------|---------|---------|
| <b>Intl Equity Emerging Mkt Funds</b> |        |        |         |         |
| Median                                | 1.83   | 2.16   | 10.45   | 2.86    |
| Number of Observations                | 129.00 | 123.00 | 96.00   | 83.00   |

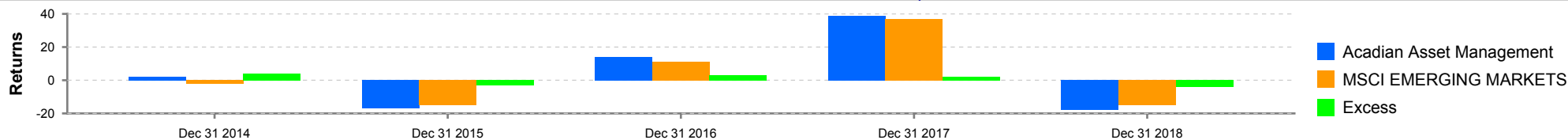
### 3 Year Risk vs Return



|                            | 3 Year Return | 3 Year Standard Deviation |
|----------------------------|---------------|---------------------------|
| * Acadian Asset Management | 9.9 61        | 14.7 77                   |
| ◆ MSCI EMERGING MARKETS    | 10.7 45       | 13.9 55                   |
| 5th Percentile             | 17.8          | 9.6                       |
| 25th Percentile            | 12.2          | 13.4                      |
| 50th Percentile            | 10.5          | 13.8                      |
| 75th Percentile            | 8.8           | 14.7                      |
| 95th Percentile            | 4.0           | 15.8                      |

\* Acadian Asset Management ◆ MSCI EMERGING MARKETS

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US EMERGING MARKETS EQUITY

## AQR CAPITAL MANAGEMENT, LLC

for the quarter ended June 30, 2019



### Manager Profile

Firm: AQR Capital Management, LLC  
 Location: Greenwich, CT  
 Year Founded: 1998  
 Contact: Joey Lee, Vice President  
 Inception Date: February 2014  
 Assigned Role: Growth  
 Benchmark: MSCI Emerging Markets  
 Investment Style: Emerging Markets Core

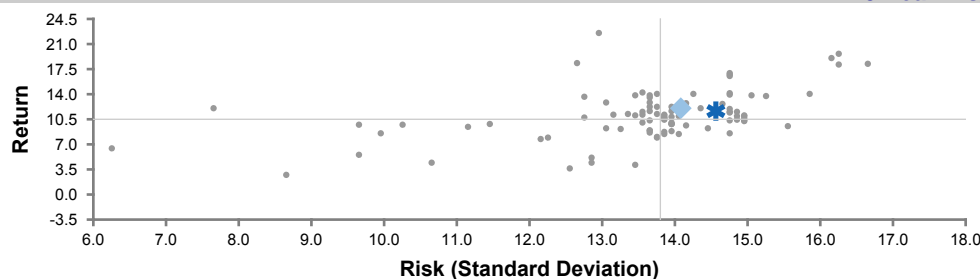
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                       | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Incept |
|-----------------------|------------------------|-----------|--------|---------|---------|----------|--------------|
| AQR Emerging Markets  | 243.2                  | 0.60      | -2.04  | 10.33   | 2.38    |          | 4.41         |
| MSCI EMERGING MARKETS |                        | 0.61      | 1.21   | 10.66   | 2.49    |          | 4.72         |

### Universe

|                                       | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|---------------------------------------|--------|--------|---------|---------|
| <b>Intl Equity Emerging Mkt Funds</b> |        |        |         |         |
| Median                                | 1.83   | 2.16   | 10.45   | 2.86    |
| Number of Observations                | 129.00 | 123.00 | 96.00   | 83.00   |

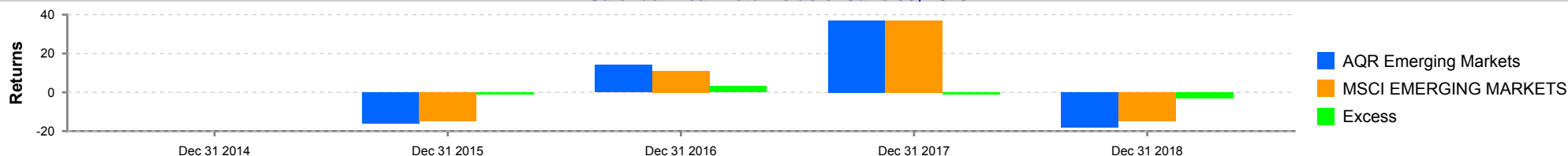
### 3 Year Risk vs Return



|                         | 3 Year Return | 3 Year Standard Deviation |
|-------------------------|---------------|---------------------------|
| * AQR EMERGING MARKETS  | 10.3 52       | 14.4 71                   |
| ◆ MSCI EMERGING MARKETS | 10.7 45       | 13.9 55                   |
| 5th Percentile          | 17.8          | 9.6                       |
| 25th Percentile         | 12.2          | 13.4                      |
| 50th Percentile         | 10.5          | 13.8                      |
| 75th Percentile         | 8.8           | 14.7                      |
| 95th Percentile         | 4.0           | 15.8                      |

\* AQR EMERGING MARKETS ◆ MSCI EMERGING MARKETS

### Calendar Year Returns as of June 30, 2019





# GROWTH - NON-US EMERGING MARKETS EQUITY

## GENESIS INVESTMENT MANAGEMENT, LLP

for the quarter ended June 30, 2019



### Manager Profile

Firm: Genesis Investment Management, LLP  
 Location: London, England  
 Year Founded: 1989  
 Contact: Sedef Koktenturk, Director  
 Inception Date: September 2007  
 Assigned Role: Growth  
 Benchmark: MSCI EM IMI Custom  
 Investment Style: Emerging Markets Core

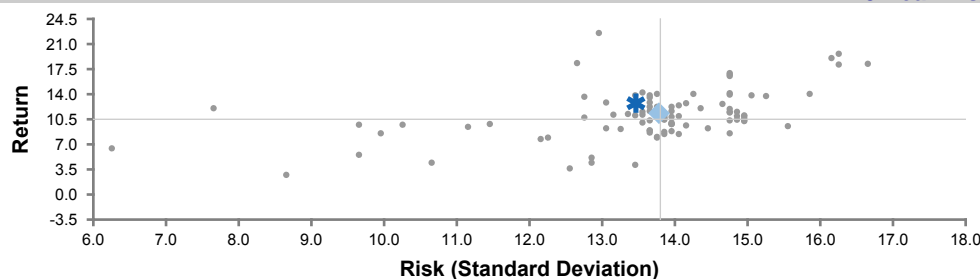
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                          | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|--------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Genesis                  | 712.4                  | 2.56      | 6.09   | 11.43   | 3.59    | 9.01     | 5.47            |
| MSCI EM IMI CUSTOM INDEX |                        | 0.43      | 0.47   | 10.01   | 2.25    | 5.83     | 2.27            |

### Universe

|                                       | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|---------------------------------------|--------|--------|---------|---------|
| <b>Intl Equity Emerging Mkt Funds</b> |        |        |         |         |
| Median                                | 1.83   | 2.16   | 10.45   | 2.86    |
| Number of Observations                | 129.00 | 123.00 | 96.00   | 83.00   |

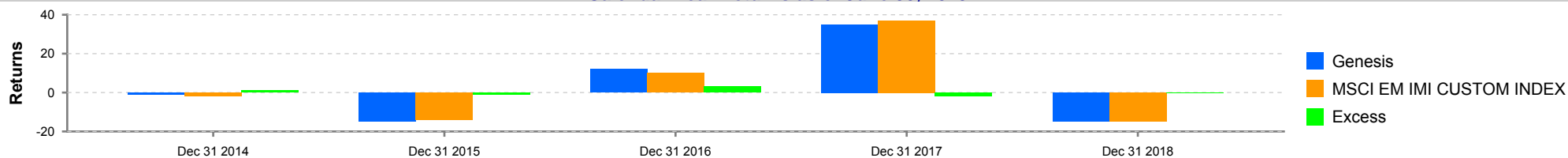
### 3 Year Risk vs Return



|                            | 3 Year Return | 3 Year Standard Deviation |
|----------------------------|---------------|---------------------------|
| * GENESIS EMERGING MARKETS | 11.4 33       | 13.3 24                   |
| ◆ MSCI EM IMI CUSTOM INDEX | 10.0 58       | 13.6 40                   |
| 5th Percentile             | 17.8          | 9.6                       |
| 25th Percentile            | 12.2          | 13.4                      |
| 50th Percentile            | 10.5          | 13.8                      |
| 75th Percentile            | 8.8           | 14.7                      |
| 95th Percentile            | 4.0           | 15.8                      |

\* GENESIS EMERGING MARKETS ◆ MSCI EM IMI CUSTOM INDEX

### Calendar Year Returns as of June 30, 2019



# GROWTH - NON-US EMERGING MARKETS EQUITY

## LAZARD ASSET MANAGEMENT, LLC

for the quarter ended June 30, 2019



### 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: Growth  
 Benchmark: MSCI Emerging Markets  
 Investment Style: Emerging Markets Core

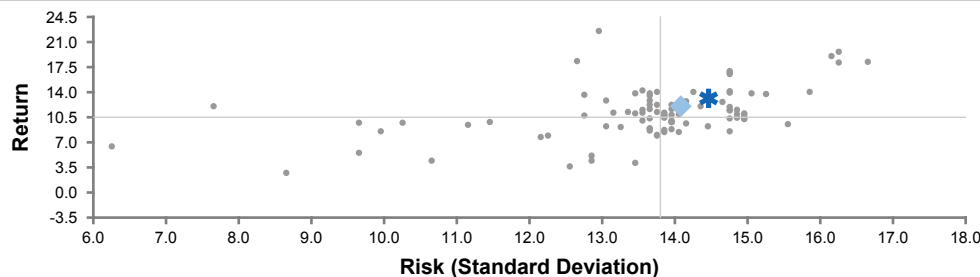
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                         | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Incept |
|-------------------------|------------------------|-----------|--------|---------|---------|----------|--------------|
| Lazard Emerging Markets | 360.7                  | 2.65      | 4.48   | 11.79   | 4.27    |          | 3.19         |
| MSCI EMERGING MARKETS   |                        | 0.61      | 1.21   | 10.66   | 2.49    |          | 2.24         |

### Universe

|                                       | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|---------------------------------------|--------|--------|---------|---------|
| <b>Intl Equity Emerging Mkt Funds</b> |        |        |         |         |
| Median                                | 1.83   | 2.16   | 10.45   | 2.86    |
| Number of Observations                | 129.00 | 123.00 | 96.00   | 83.00   |

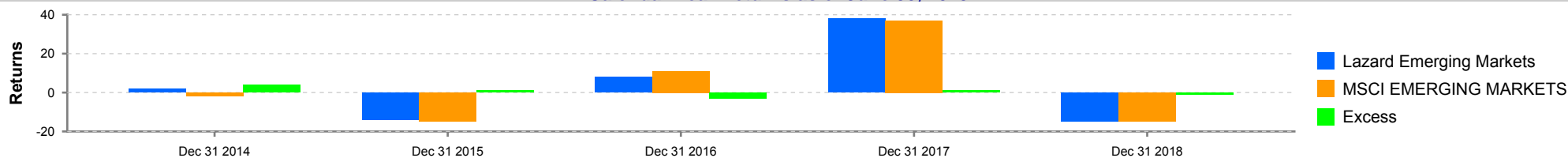
### 3 Year Risk vs Return



|                           | 3 Year Return | 3 Year Standard Deviation |
|---------------------------|---------------|---------------------------|
| * Lazard Emerging Markets | 11.8 30       | 14.3 69                   |
| ◆ MSCI EMERGING MARKETS   | 10.7 45       | 13.9 55                   |
| 5th Percentile            | 17.8          | 9.6                       |
| 25th Percentile           | 12.2          | 13.4                      |
| 50th Percentile           | 10.5          | 13.8                      |
| 75th Percentile           | 8.8           | 14.7                      |
| 95th Percentile           | 4.0           | 15.8                      |

\* Lazard Emerging Markets ◆ MSCI EMERGING MARKETS

### Calendar Year Returns as of June 30, 2019



# CREDIT - HIGH YIELD

## BAIN CAPITAL CREDIT, LP

for the quarter ended June 30, 2019



### Manager Profile

Firm: Bain Capital Credit, LP  
 Location: Boston, MA  
 Year Founded: 1998  
 Contact: Kyle Betty, Managing Director  
 Inception Date: June 2014  
 Assigned Role: Credit  
 Benchmark: High Yield / Bank Loan Custom Index  
 Investment Style: High Yield

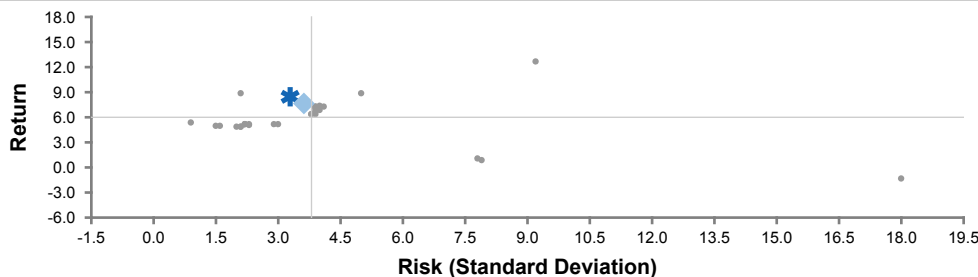
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                   | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Bain Capital      | 370.7                  | 1.76      | 5.66   | 7.30    | 4.32    |          | 4.36            |
| HYBL Custom Index |                        | 2.05      | 5.82   | 6.48    | 4.29    |          | 4.37            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

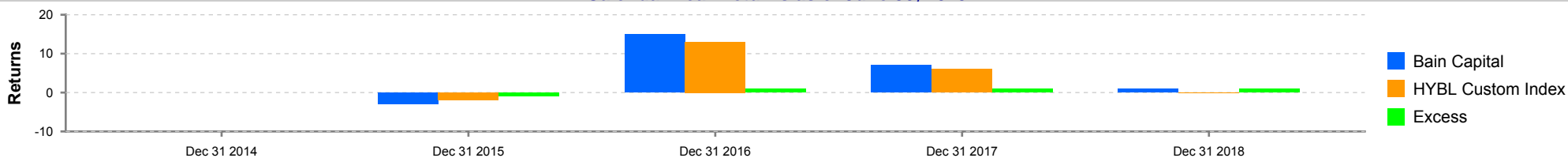
### 3 Year Risk vs Return



◆ Bain Capital ◆ HYBL Custom Index

|                     | 3 Year Return | 3 Year Standard Deviation |
|---------------------|---------------|---------------------------|
| ◆ Bain Capital      | 7.3 12        | 3.0 40                    |
| ◆ HYBL Custom Index | 6.5 39        | 3.3 41                    |
| 5th Percentile      | 9.8           | 1.2                       |
| 25th Percentile     | 6.9           | 2.1                       |
| 50th Percentile     | 6.0           | 3.8                       |
| 75th Percentile     | 4.7           | 3.9                       |
| 95th Percentile     | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# CREDIT - HIGH YIELD

## BEACH POINT CAPITAL

for the quarter ended June 30, 2019



### Manager Profile

Firm: Beach Point Capital  
 Location: Santa Monica, CA  
 Year Founded: 2008  
 Contact: Larissa Chapin, Director  
 Inception Date: March 2014  
 Assigned Role: Credit  
 Benchmark: High Yield / Bank Loan Custom Index  
 Investment Style: High Yield

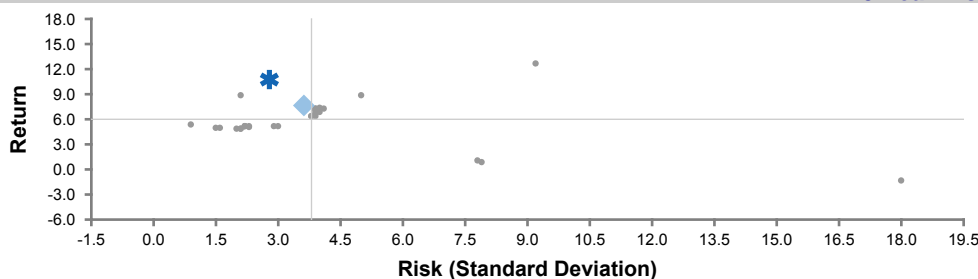
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                   | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Beach Point*      | 472.1                  | 3.09      | 8.75   | 9.55    | 8.01    |          | 8.05            |
| HYBL Custom Index |                        | 2.05      | 5.82   | 6.48    | 4.29    |          | 4.45            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

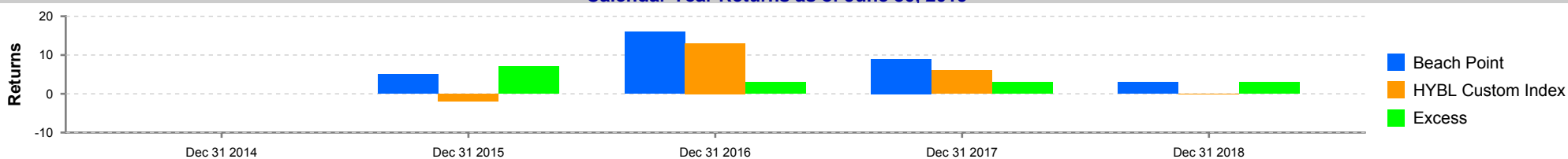
### 3 Year Risk vs Return



BEACH POINT - TOTAL (blue asterisk) HYBL Custom Index (blue diamond)

|                     | 3 Year Return | 3 Year Standard Deviation |
|---------------------|---------------|---------------------------|
| BEACH POINT - TOTAL | 9.6 6         | 2.5 36                    |
| HYBL Custom Index   | 6.5 39        | 3.3 41                    |
| 5th Percentile      | 9.8           | 1.2                       |
| 25th Percentile     | 6.9           | 2.1                       |
| 50th Percentile     | 6.0           | 3.8                       |
| 75th Percentile     | 4.7           | 3.9                       |
| 95th Percentile     | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



Universe data: U.S. Fixed Income Funds High Yield

\* Represents the combined assets & performance of three portfolios, two of which is reported with a one-month lag.

# CREDIT - HIGH YIELD

## BRIGADE CAPITAL MANAGEMENT

for the quarter ended June 30, 2019



### Manager Profile

Firm: Brigade Capital Management  
 Location: New York, NY  
 Year Founded: 2006  
 Contact: Rob Brady, Director  
 Inception Date: July 2010  
 Assigned Role: Credit  
 Benchmark: Brigade Custom Index  
 Investment Style: High Yield

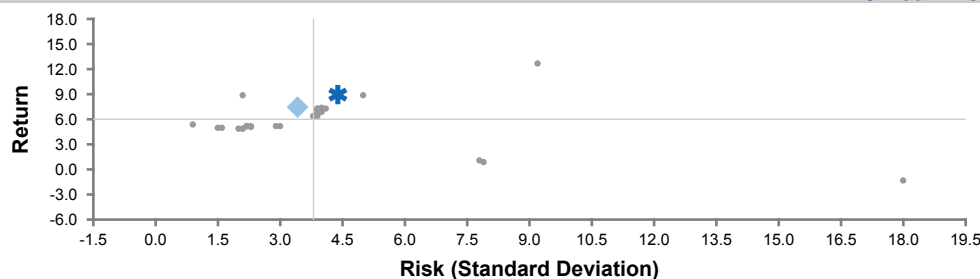
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                      | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Brigade Capital      | 587.0                  | 1.91      | 3.27   | 7.85    | 4.37    |          | 7.99            |
| Brigade Custom Index |                        | 2.24      | 6.46   | 6.28    | 4.30    |          | 6.22            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

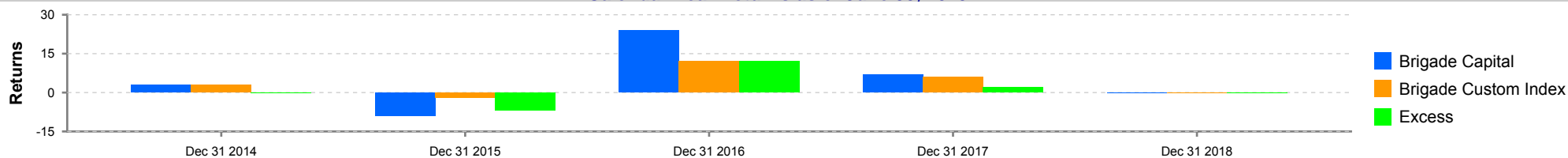
### 3 Year Risk vs Return



\* Brigade Capital   
 ◆ Brigade Custom Index

|  | 3 Year Return | 3 Year Standard Deviation |
|--|---------------|---------------------------|
| <span style="color: blue;">*</span> Brigade Capital      | 7.8 11        | 4.1 83                    |
| <span style="color: blue;">◆</span> Brigade Custom Index | 6.3 44        | 3.1 40                    |
| 5th Percentile   | 9.8           | 1.2                       |
| 25th Percentile  | 6.9           | 2.1                       |
| 50th Percentile  | 6.0           | 3.8                       |
| 75th Percentile  | 4.7           | 3.9                       |
| 95th Percentile  | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# CREDIT - HIGH YIELD

## DOUBLELINE CAPITAL LP

for the quarter ended June 30, 2019



### 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: Credit  
 Benchmark: Securitized Custom Index  
 Investment Style: High Yield

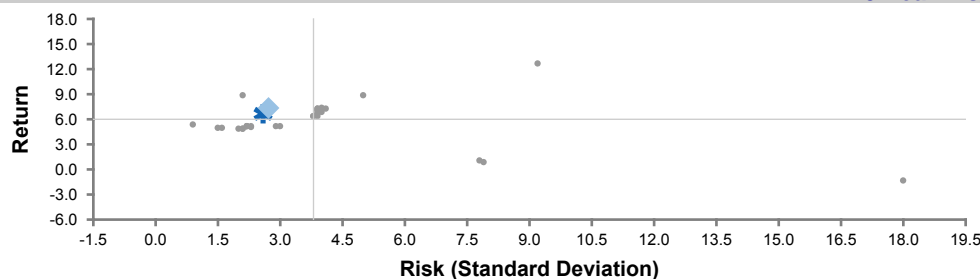
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                          | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|--------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| DoubleLine Capital       | 339.3                  | 3.32      | 7.89   | 5.48    |         |          | 5.46            |
| Securitized Custom Index |                        | 3.04      | 10.60  | 6.18    |         |          | 6.51            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

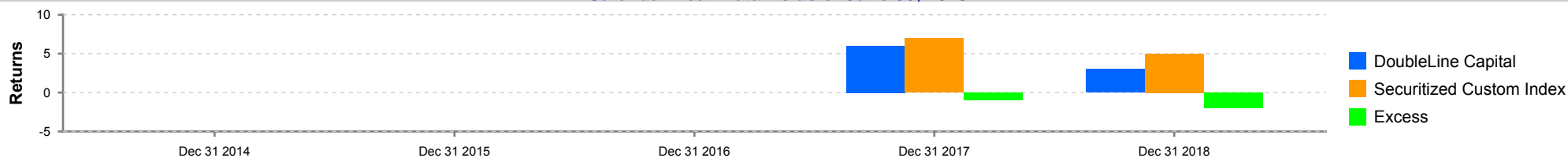
### 3 Year Risk vs Return



DoubleLine Capital Securitized Custom Index

|                          | 3 Year Return | 3 Year Standard Deviation |
|--------------------------|---------------|---------------------------|
| DoubleLine Capital       | 5.5 54        | 2.3 35                    |
| Securitized Custom Index | 6.2 45        | 2.4 35                    |
| 5th Percentile           | 9.8           | 1.2                       |
| 25th Percentile          | 6.9           | 2.1                       |
| 50th Percentile          | 6.0           | 3.8                       |
| 75th Percentile          | 4.7           | 3.9                       |
| 95th Percentile          | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# CREDIT - HIGH YIELD

## OAKTREE CAPITAL MANAGEMENT, L.P.

for the quarter ended June 30, 2019



### 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: Credit  
 Benchmark: BBG BC Ba / B US High Yield Index  
 Investment Style: High Yield

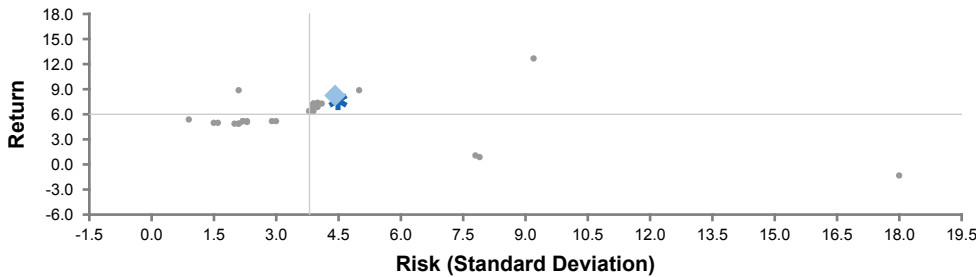
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                                 | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|---------------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Oaktree Capital                 | 437.0                  | 2.56      | 8.20   | 6.47    | 4.31    | 8.49     | 7.10            |
| BBG BC Ba/B US High Yield Index |                        | 2.89      | 8.79   | 7.11    | 4.73    | 8.61     | 6.53            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

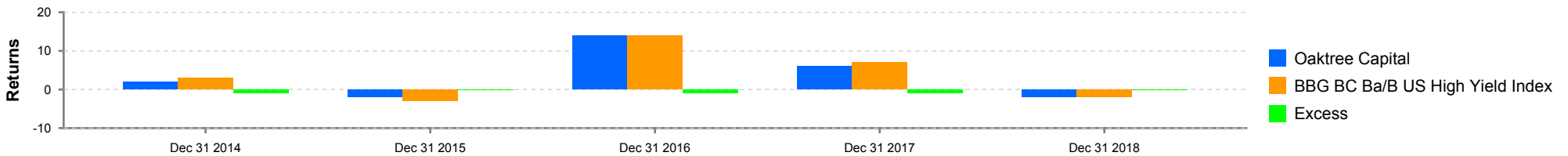
### 3 Year Risk vs Return



★ Oaktree Capital    ◆ BBG BC Ba/B US High Yield Index

|                                   | 3 Year Return |    | 3 Year Standard Deviation |    |
|-----------------------------------|---------------|----|---------------------------|----|
| ★ Oaktree Capital                 | 6.5           | 40 | 4.2                       | 83 |
| ◆ BBG BC Ba/B US High Yield Index | 7.1           | 12 | 4.1                       | 83 |
| 5th Percentile                    | 9.8           |    | 1.2                       |    |
| 25th Percentile                   | 6.9           |    | 2.1                       |    |
| 50th Percentile                   | 6.0           |    | 3.8                       |    |
| 75th Percentile                   | 4.7           |    | 3.9                       |    |
| 95th Percentile                   | 0.5           |    | 9.1                       |    |

### Calendar Year Returns as of June 30, 2019



# CREDIT - HIGH YIELD

## TCW ASSET MANAGEMENT COMPANY

for the quarter ended June 30, 2019



### 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: Credit  
 Benchmark: Securitized Custom Index  
 Investment Style: High Yield

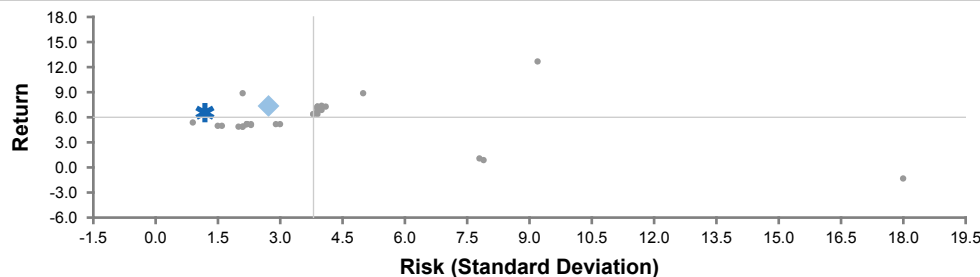
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                          | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|--------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| TCW                      | 339.4                  | 2.22      | 5.71   | 5.41    |         |          | 4.87            |
| Securitized Custom Index |                        | 3.04      | 10.60  | 6.18    |         |          | 6.60            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

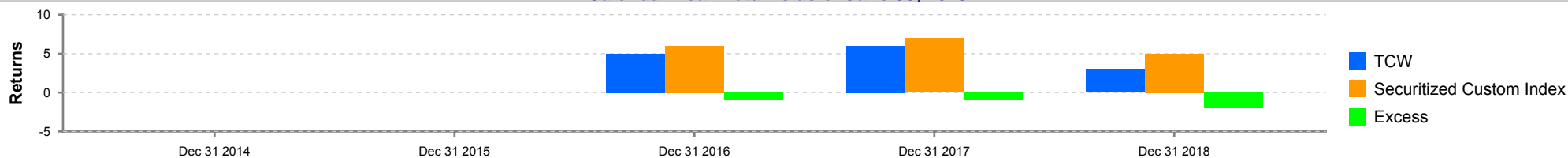
### 3 Year Risk vs Return



|                            | 3 Year Return | 3 Year Standard Deviation |
|----------------------------|---------------|---------------------------|
| * TCW                      | 5.4 54        | 0.9 3                     |
| ◆ Securitized Custom Index | 6.2 45        | 2.4 35                    |
| 5th Percentile             | 9.8           | 1.2                       |
| 25th Percentile            | 6.9           | 2.1                       |
| 50th Percentile            | 6.0           | 3.8                       |
| 75th Percentile            | 4.7           | 3.9                       |
| 95th Percentile            | 0.5           | 9.1                       |

◆ TCW ◆ Securitized Custom Index

### Calendar Year Returns as of June 30, 2019





# CREDIT - BANK LOANS

## CRESCENT CAPITAL GROUP LP

for the quarter ended June 30, 2019



### 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: Credit  
 Benchmark: High Yield / Bank Loan Custom Index  
 Investment Style: Bank Loans

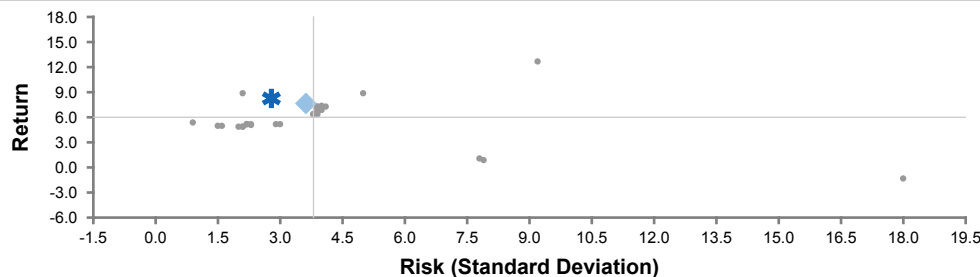
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                   | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Crescent Capital  | 440.5                  | 1.94      | 5.10   | 7.11    | 3.58    |          | 3.58            |
| HYBL Custom Index |                        | 2.05      | 5.82   | 6.48    | 4.29    |          | 4.45            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

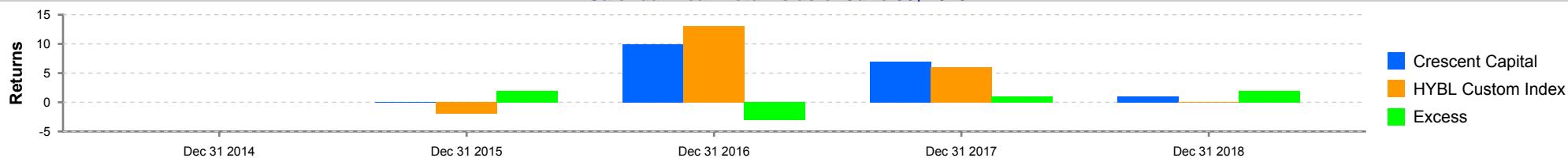
### 3 Year Risk vs Return



CRESCENT CAPITAL (blue asterisk)    HYBL Custom Index (blue diamond)

|                   | 3 Year Return | 3 Year Standard Deviation |
|-------------------|---------------|---------------------------|
| CRESCENT CAPITAL  | 7.1 12        | 2.5 36                    |
| HYBL Custom Index | 6.5 39        | 3.3 41                    |
| 5th Percentile    | 9.8           | 1.2                       |
| 25th Percentile   | 6.9           | 2.1                       |
| 50th Percentile   | 6.0           | 3.8                       |
| 75th Percentile   | 4.7           | 3.9                       |
| 95th Percentile   | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# CREDIT - BANK LOANS

## TENNEBAUM CAPITAL PARTNERS, LLC

for the quarter ended June 30, 2019



### 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: Credit  
 Benchmark: Credit Suisse Leveraged Loan Index\*  
 Investment Style: Bank Loans

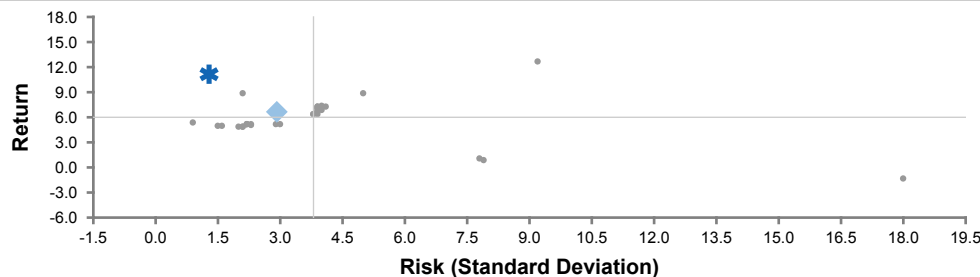
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                                 | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|---------------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Tennenbaum Capital*             | 434.3                  | 2.28      | 8.85   | 10.00   |         |          | 8.43            |
| CSFB Lev Loan Index 1 Month Lag |                        | 1.23      | 4.02   | 5.46    |         |          | 4.22            |

### Universe

|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

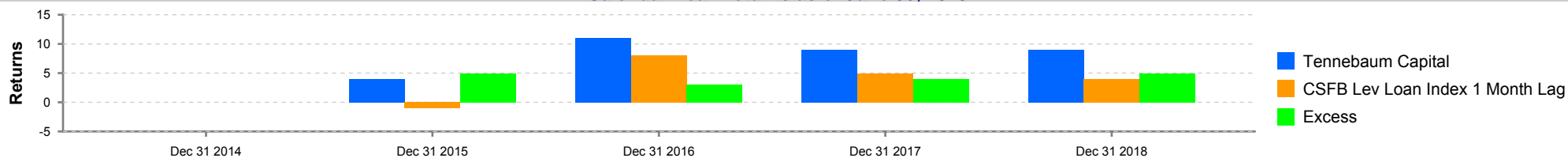
### 3 Year Risk vs Return



|                                   | 3 Year Return |    | 3 Year Standard Deviation |    |
|-----------------------------------|---------------|----|---------------------------|----|
| * Tennenbaum Capital              | 10.0          | 5  | 1.0                       | 4  |
| ◆ CSFB Lev Loan Index 1 Month Lag | 5.5           | 54 | 2.6                       | 36 |
| 5th Percentile                    | 9.8           |    | 1.2                       |    |
| 25th Percentile                   | 6.9           |    | 2.1                       |    |
| 50th Percentile                   | 6.0           |    | 3.8                       |    |
| 75th Percentile                   | 4.7           |    | 3.9                       |    |
| 95th Percentile                   | 0.5           |    | 9.1                       |    |

◆ Tennenbaum Capital ◆ CSFB Lev Loan Index 1 Month Lag

### Calendar Year Returns as of June 30, 2019



Universe data: U.S. Fixed Income Funds High Yield  
 \* One-month lag.

# CREDIT - EMERGING MARKET DEBT

## ABERDEEN ASSET MANAGEMENT INC.

for the quarter ended June 30, 2019



### Manager Profile

Firm: Aberdeen Asset Management Inc.  
 Location: London, England  
 Year Founded: 1983  
 Contact: Kieran McGlynn, Senior Director  
 Inception Date: July 2017  
 Assigned Role: Credit  
 Benchmark: EMD Custom  
 Investment Style: Emerging Market Debt

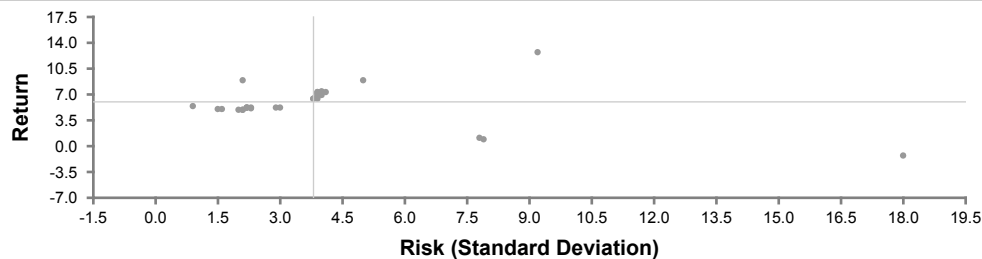
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|            | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Aberdeen   | 423.5                  | 3.96      | 11.48  |         |         |          | 4.39            |
| EMD Custom |                        | 4.33      | 11.08  |         |         |          | 4.67            |

### Universe

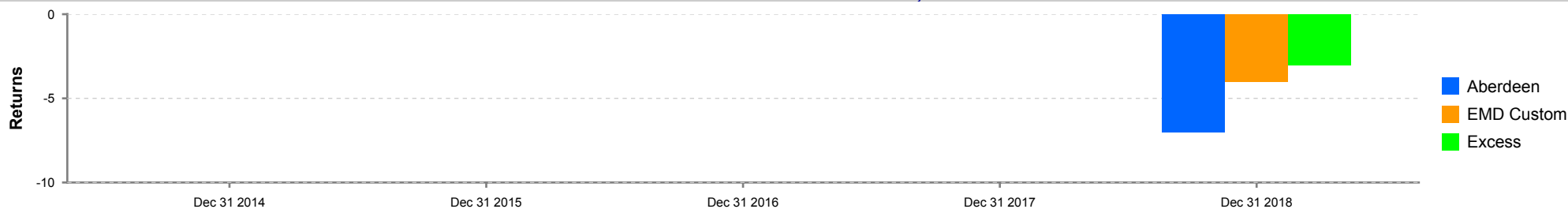
|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 9.8           | 1.2                       |
| 25th Percentile | 6.9           | 2.1                       |
| 50th Percentile | 6.0           | 3.8                       |
| 75th Percentile | 4.7           | 3.9                       |
| 95th Percentile | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# CREDIT - EMERGING MARKET DEBT

## ASHMORE INVESTMENT MANAGEMENT LIMITED

for the quarter ended June 30, 2019



### Manager Profile

Firm: Ashmore Investment Management Limited  
 Location: London, England  
 Year Founded: 1999  
 Contact: Ted Smith, Inst. Business Development  
 Inception Date: June 2017  
 Assigned Role: Credit  
 Benchmark: EMD Custom  
 Investment Style: Emerging Market Debt

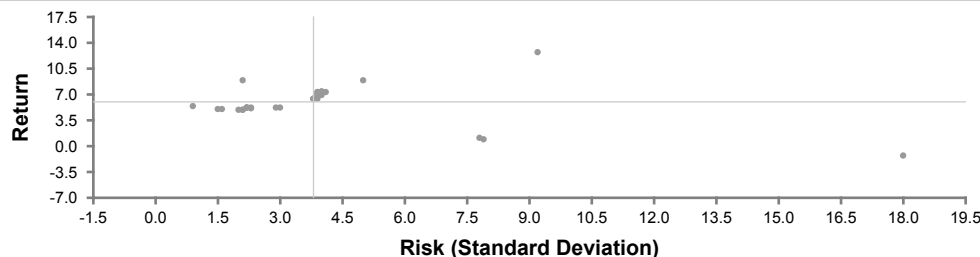
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|            | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Ashmore    | 429.4                  | 4.70      | 12.36  |         |         |          | 5.23            |
| EMD Custom |                        | 4.33      | 11.08  |         |         |          | 4.53            |

### Universe

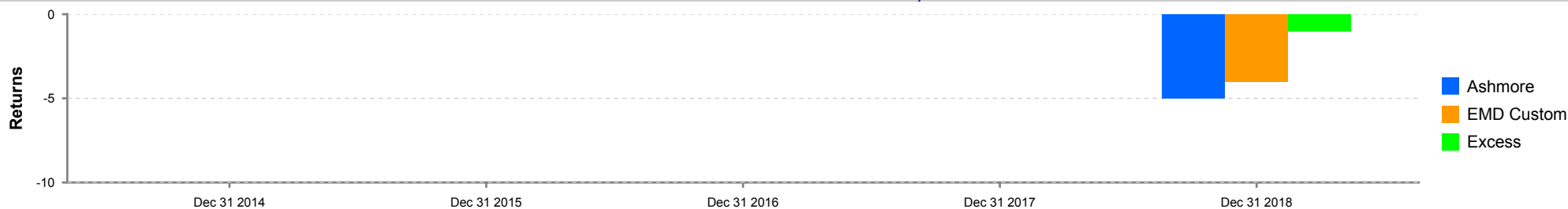
|   | 1 Qtr | 1 Year | 3 Years | 5 Years |
|---|-------|--------|---------|---------|
| <b>US Fixed Income Funds - High Yield</b> |       |        |         |         |
| Median                                    | 2.44  | 6.99   | 6.00    | 4.28    |
| Number of Observations                    | 34.00 | 34.00  | 34.00   | 30.00   |

### 3 Year Risk vs Return



|                 | 3 Year Return | 3 Year Standard Deviation |
|-----------------|---------------|---------------------------|
| 5th Percentile  | 9.8           | 1.2                       |
| 25th Percentile | 6.9           | 2.1                       |
| 50th Percentile | 6.0           | 3.8                       |
| 75th Percentile | 4.7           | 3.9                       |
| 95th Percentile | 0.5           | 9.1                       |

### Calendar Year Returns as of June 30, 2019



# REAL ASSETS & INFLATION HEDGES - NAT RESOURCES & COM.

## CREDIT SUISSE ASSET MANAGEMENT, LLC

for the quarter ended June 30, 2019



### 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: Real Assets & Inflation Hedges  
 Benchmark: Bloomberg Commodity Index Total Return  
 Investment Style: Active Commodities

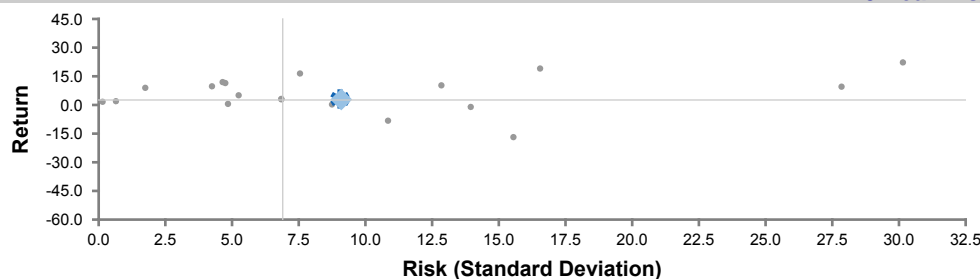
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                         | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Credit Suisse Commodity | 423.1                  | -1.03     | -6.83  | -1.90   | -8.58   |          | -7.40           |
| Bloomberg Comm Index TR |                        | -1.19     | -6.75  | -2.18   | -9.15   |          | -7.92           |

### Universe

|                        | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------|-------|--------|---------|---------|
| <b>Commodity Funds</b> |       |        |         |         |
| Median                 | 1.71  | 5.69   | 2.60    | -0.28   |
| Number of Observations | 28.00 | 27.00  | 20.00   | 8.00    |

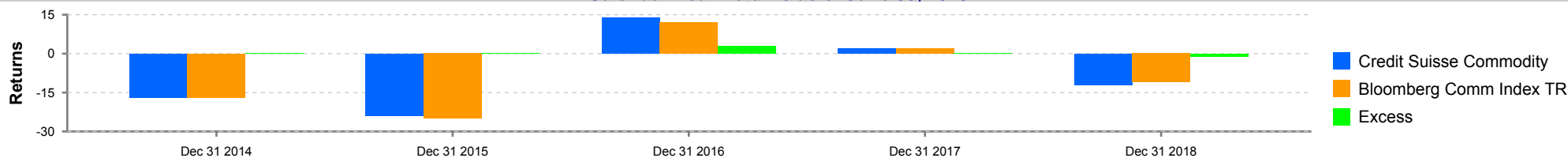
### 3 Year Risk vs Return



|                           | 3 Year Return | 3 Year Standard Deviation |
|---------------------------|---------------|---------------------------|
| * CREDIT SUISSE COMMODITY | -1.9 79       | 8.6 60                    |
| ◆ Bloomberg Comm Index TR | -2.2 80       | 8.6 60                    |
| 5th Percentile            | 20.6          | 0.0                       |
| 25th Percentile           | 9.6           | 4.5                       |
| 50th Percentile           | 2.6           | 6.9                       |
| 75th Percentile           | -1.3          | 13.8                      |
| 95th Percentile           | -28.4         | 30.0                      |

\* CREDIT SUISSE COMMODITY ◆ Bloomberg Comm Index TR

### Calendar Year Returns as of June 30, 2019



# REAL ASSETS & INFLATION HEDGES - NAT RESOURCES & COM.

## NEUBERGER BERMAN ALTERNATIVE FUND MANAGEMENT LLC/GRESHAM

for the quarter ended June 30, 2019



### 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: Real Assets & Inflation Hedges  
 Benchmark: Bloomberg Commodity Index Total Return  
 Investment Style: Active Commodities

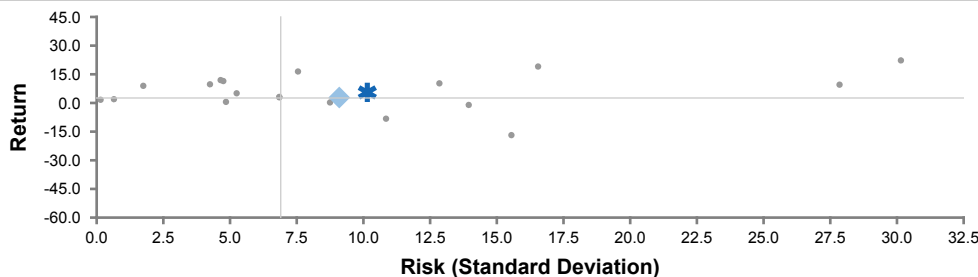
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                          | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|--------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Neuberger Berman/Gresham | 445.4                  | -1.76     | -7.27  | 0.45    | -7.92   | -1.38    | -3.50           |
| Bloomberg Comm Index TR  |                        | -1.19     | -6.75  | -2.18   | -9.15   | -3.74    | -5.43           |

### Universe

|                        | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------|-------|--------|---------|---------|
| <b>Commodity Funds</b> |       |        |         |         |
| Median                 | 1.71  | 5.69   | 2.60    | -0.28   |
| Number of Observations | 28.00 | 27.00  | 20.00   | 8.00    |

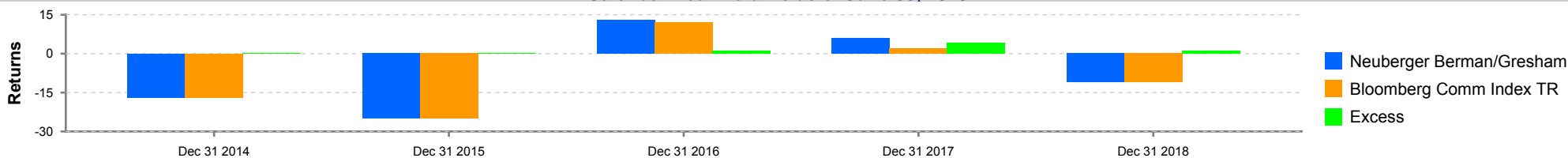
### 3 Year Risk vs Return



|                            | 3 Year Return | 3 Year Standard Deviation |
|----------------------------|---------------|---------------------------|
| * NEUBERGER BERMAN/GRESHAM | 0.5 62        | 9.7 62                    |
| ◆ Bloomberg Comm Index TR  | -2.2 80       | 8.6 60                    |
| 5th Percentile             | 20.6          | 0.0                       |
| 25th Percentile            | 9.6           | 4.5                       |
| 50th Percentile            | 2.6           | 6.9                       |
| 75th Percentile            | -1.3          | 13.8                      |
| 95th Percentile            | -28.4         | 30.0                      |

\* NEUBERGER BERMAN/GRESHAM ◆ Bloomberg Comm Index TR

### Calendar Year Returns as of June 30, 2019



# REAL ASSETS & INFLATION HEDGES - NAT RESOURCES & COM. PACIFIC INVESTMENT MANAGEMENT COMPANY



for the quarter ended June 30, 2019

## Manager Profile

Firm: Pacific Investment Management Company  
 Location: Newport Beach, CA  
 Year Founded: 1971  
 Contact: Matthew Clark, Senior Vice President  
 Inception Date: July 2007  
 Assigned Role: Real Assets & Inflation Hedges  
 Benchmark: Bloomberg Commodity Index Total Return  
 Investment Style: Active Commodities

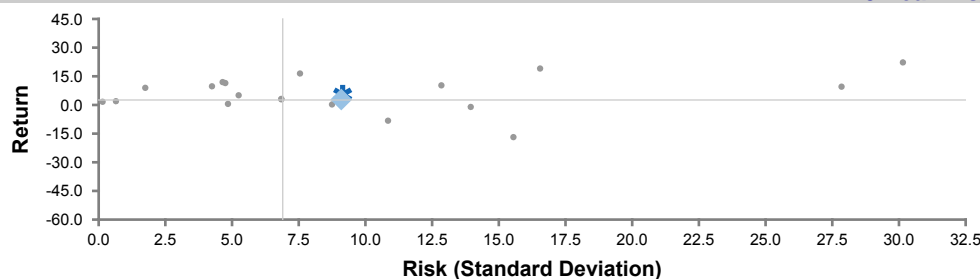
## Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                         | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| PIMCO Commodity         | 442.3                  | -1.70     | -6.11  | 0.41    | -7.00   | -1.45    | -3.57           |
| Bloomberg Comm Index TR |                        | -1.19     | -6.75  | -2.18   | -9.15   | -3.74    | -5.43           |

## Universe

|                        | 1 Qtr | 1 Year | 3 Years | 5 Years |
|------------------------|-------|--------|---------|---------|
| <b>Commodity Funds</b> |       |        |         |         |
| Median                 | 1.71  | 5.69   | 2.60    | -0.28   |
| Number of Observations | 28.00 | 27.00  | 20.00   | 8.00    |

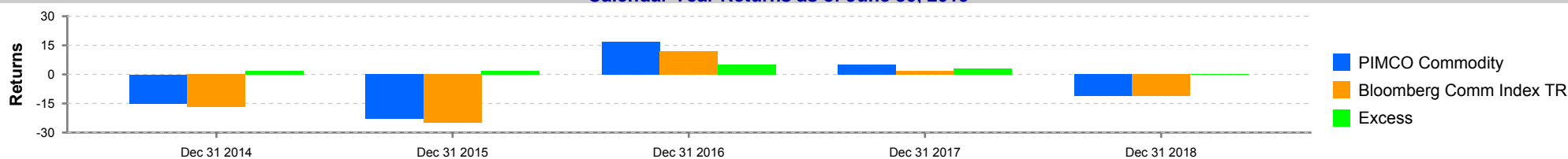
## 3 Year Risk vs Return



● PIMCO Commodity ◆ Bloomberg Comm Index TR

|                           | 3 Year Return | 3 Year Standard Deviation |
|---------------------------|---------------|---------------------------|
| ● PIMCO Commodity         | 0.4 62        | 8.7 60                    |
| ◆ Bloomberg Comm Index TR | -2.2 80       | 8.6 60                    |
| 5th Percentile            | 20.6          | 0.0                       |
| 25th Percentile           | 9.6           | 4.5                       |
| 50th Percentile           | 2.6           | 6.9                       |
| 75th Percentile           | -1.3          | 13.8                      |
| 95th Percentile           | -28.4         | 30.0                      |

## Calendar Year Returns as of June 30, 2019



# RISK REDUCTION & MITIGATION - INVESTMENT GRADE BONDS

## PUGH CAPITAL MANAGEMENT, INC.

for the quarter ended June 30, 2019



### Manager Profile

Firm: Pugh Capital Management, Inc.  
 Location: Seattle, WA  
 Year Founded: 1991  
 Contact: Mary E. Pugh, President  
 Inception Date: July 2005  
 Assigned Role: Risk Reduction & Mitigation  
 Benchmark: BBG BC Aggregate Bond Index  
 Investment Style: Core Fixed Income

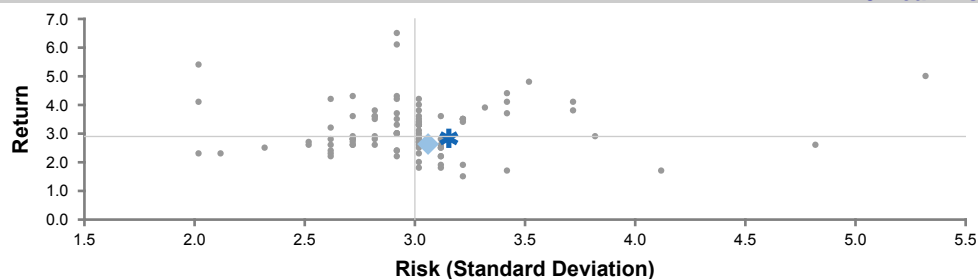
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Pugh Capital                | 355.7                  | 3.15      | 8.10   | 2.48    | 3.11    | 4.46     | 4.63            |
| BBG BC Aggregate Bond Index |                        | 3.08      | 7.87   | 2.31    | 2.95    | 3.90     | 4.09            |

### Universe

|                                     | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|-------------------------------------|--------|--------|---------|---------|
| <b>US Fixed Income Funds - Core</b> |        |        |         |         |
| Median                              | 3.14   | 8.00   | 2.86    | 3.33    |
| Number of Observations              | 101.00 | 102.00 | 98.00   | 97.00   |

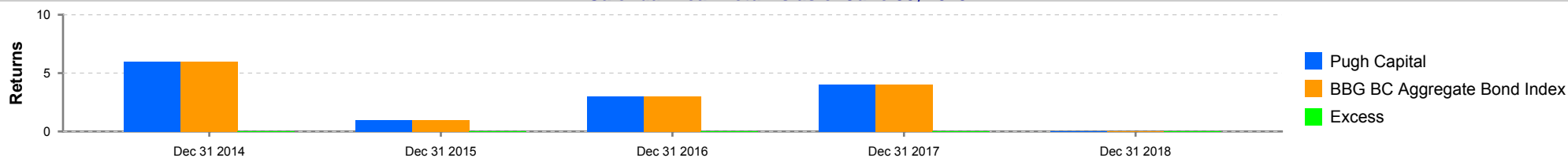
### 3 Year Risk vs Return



|                               | 3 Year Return | 3 Year Standard Deviation |
|-------------------------------|---------------|---------------------------|
| * Pugh Capital                | 2.5 74        | 3.1 77                    |
| ◆ BBG BC Aggregate Bond Index | 2.3 82        | 3.0 68                    |
| 5th Percentile                | 4.3           | 2.1                       |
| 25th Percentile               | 3.5           | 2.8                       |
| 50th Percentile               | 2.9           | 3.0                       |
| 75th Percentile               | 2.5           | 3.1                       |
| 95th Percentile               | 1.7           | 3.7                       |

\* Pugh Capital ◆ BBG BC Aggregate Bond Index

### Calendar Year Returns as of June 30, 2019





# RISK REDUCTION & MITIGATION - INVESTMENT GRADE BONDS

## WELLS CAPITAL MANAGEMENT

for the quarter ended June 30, 2019



### 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: Risk Reduction & Mitigation  
 Benchmark: BBG BC Aggregate Bond Index  
 Investment Style: Core Fixed Income

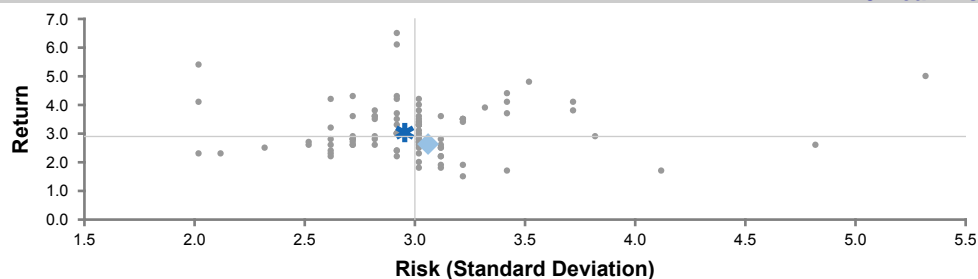
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Wells Capital               | 1,544.4                | 3.13      | 8.00   | 2.67    | 3.32    | 4.90     | 5.05            |
| BBG BC Aggregate Bond Index |                        | 3.08      | 7.87   | 2.31    | 2.95    | 3.90     | 4.06            |

### Universe

|                                     | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|-------------------------------------|--------|--------|---------|---------|
| <b>US Fixed Income Funds - Core</b> |        |        |         |         |
| Median                              | 3.14   | 8.00   | 2.86    | 3.33    |
| Number of Observations              | 101.00 | 102.00 | 98.00   | 97.00   |

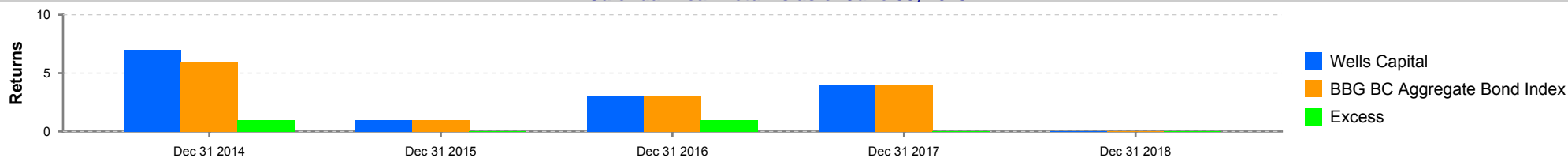
### 3 Year Risk vs Return



|                             | 3 Year Return | 3 Year Standard Deviation |
|-----------------------------|---------------|---------------------------|
| WELLS CAPITAL               | 2.7 61        | 2.9 45                    |
| BBG BC Aggregate Bond Index | 2.3 82        | 3.0 68                    |
| 5th Percentile              | 4.3           | 2.1                       |
| 25th Percentile             | 3.5           | 2.8                       |
| 50th Percentile             | 2.9           | 3.0                       |
| 75th Percentile             | 2.5           | 3.1                       |
| 95th Percentile             | 1.7           | 3.7                       |

WELLS CAPITAL BBG BC Aggregate Bond Index

### Calendar Year Returns as of June 30, 2019



# RISK REDUCTION & MITIGATION - INVESTMENT GRADE BONDS

## DODGE & COX

for the quarter ended June 30, 2019



### Manager Profile

Firm: Dodge & Cox  
 Location: San Francisco, CA  
 Year Founded: 1930  
 Contact: Terrill Armstrong, Client Relationship Mngr.  
 Inception Date: March 1997  
 Assigned Role: Risk Reduction & Mitigation  
 Benchmark: BBG BC Aggregate Bond Index  
 Investment Style: Core Plus Fixed Income

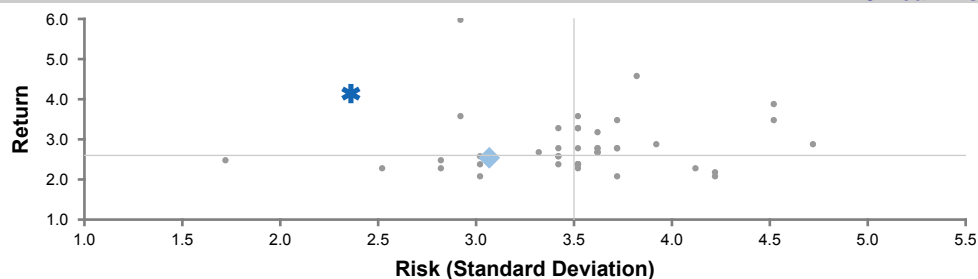
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Dodge & Cox                 | 1,182.3                | 2.99      | 8.01   | 3.87    | 3.74    | 5.44     | 6.14            |
| BBG BC Aggregate Bond Index |                        | 3.08      | 7.87   | 2.31    | 2.95    | 3.90     | 5.14            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>US Fixed Income Funds - Core Plus</b> |       |        |         |         |
| Median                                   | 3.26  | 8.22   | 2.59    | 2.95    |
| Number of Observations                   | 54.00 | 51.00  | 44.00   | 8.00    |

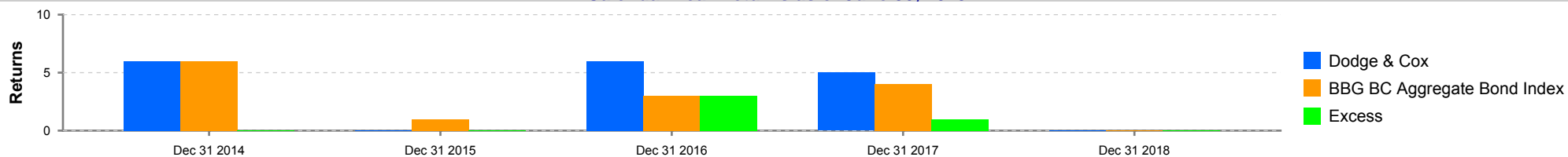
### 3 Year Risk vs Return



|                               | 3 Year Return | 3 Year Standard Deviation |
|-------------------------------|---------------|---------------------------|
| * DODGE & COX                 | 3.9 7         | 2.3 4                     |
| ◆ BBG BC Aggregate Bond Index | 2.3 75        | 3.0 19                    |
| 5th Percentile                | 4.5           | 2.5                       |
| 25th Percentile               | 3.1           | 3.4                       |
| 50th Percentile               | 2.6           | 3.5                       |
| 75th Percentile               | 2.3           | 3.7                       |
| 95th Percentile               | 2.0           | 4.5                       |

◆ DODGE & COX ◆ BBG BC Aggregate Bond Index

### Calendar Year Returns as of June 30, 2019



# RISK REDUCTION & MITIGATION - INVESTMENT GRADE BONDS

## PACIFIC INVESTMENT MANAGEMENT COMPANY

for the quarter ended June 30, 2019



### Manager Profile

Firm: Pacific Investment Management Company  
 Location: Newport Beach, CA  
 Year Founded: 1971  
 Contact: Matthew Clark, Senior Vice President  
 Inception Date: March 2004  
 Assigned Role: Risk Reduction & Mitigation  
 Benchmark: BBG BC Aggregate Bond Index  
 Investment Style: Core Plus Fixed Income

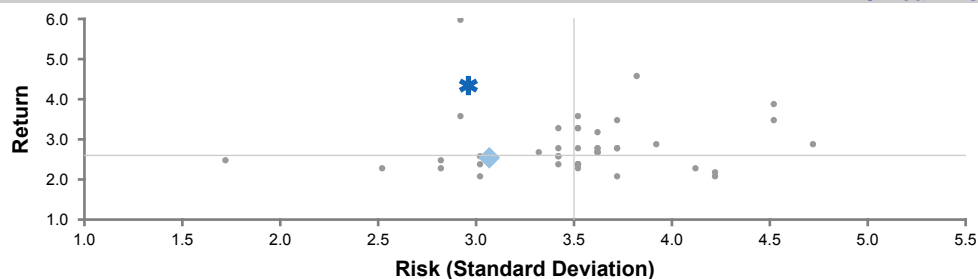
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| PIMCO                       | 929.3                  | 2.64      | 7.57   | 4.08    | 3.91    | 5.12     | 5.19            |
| BBG BC Aggregate Bond Index |                        | 3.08      | 7.87   | 2.31    | 2.95    | 3.90     | 4.06            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>US Fixed Income Funds - Core Plus</b> |       |        |         |         |
| Median                                   | 3.26  | 8.22   | 2.59    | 2.95    |
| Number of Observations                   | 54.00 | 51.00  | 44.00   | 8.00    |

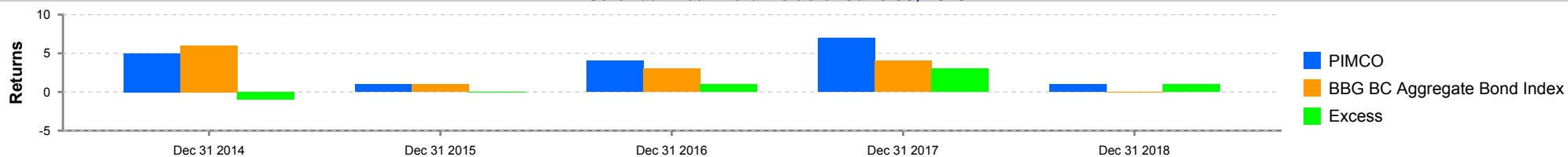
### 3 Year Risk vs Return



|                               | 3 Year Return | 3 Year Standard Deviation |
|-------------------------------|---------------|---------------------------|
| * PIMCO                       | 4.1 7         | 2.9 15                    |
| ◆ BBG BC Aggregate Bond Index | 2.3 75        | 3.0 19                    |
| 5th Percentile                | 4.5           | 2.5                       |
| 25th Percentile               | 3.1           | 3.4                       |
| 50th Percentile               | 2.6           | 3.5                       |
| 75th Percentile               | 2.3           | 3.7                       |
| 95th Percentile               | 2.0           | 4.5                       |

◆ PIMCO ◆ BBG BC Aggregate Bond Index

### Calendar Year Returns as of June 30, 2019



# RISK REDUCTION & MITIGATION - INVESTMENT GRADE BONDS

## WESTERN ASSET MANAGEMENT COMPANY

for the quarter ended June 30, 2019



### Manager Profile

Firm: Western Asset Management Company  
 Location: Pasadena, CA  
 Year Founded: 1971  
 Contact: Henry Hamrock, Client Service & Marketing  
 Inception Date: March 1997  
 Assigned Role: Risk Reduction & Mitigation  
 Benchmark: BBG BC Aggregate Bond Index  
 Investment Style: Core Plus Fixed Income

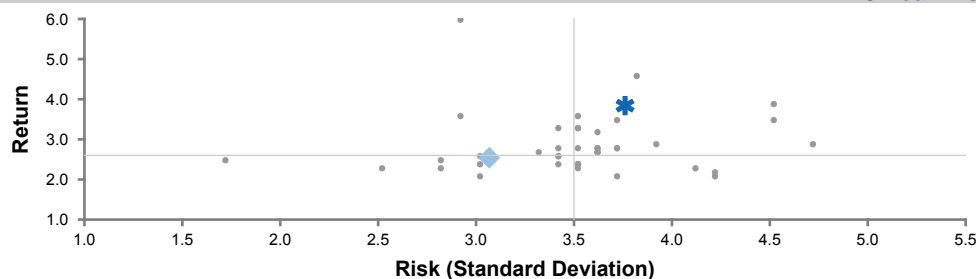
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                             | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|-----------------------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| Western Asset               | 1,019.0                | 3.67      | 9.27   | 3.59    | 3.93    | 6.54     | 6.42            |
| BBG BC Aggregate Bond Index |                        | 3.08      | 7.87   | 2.31    | 2.95    | 3.90     | 5.14            |

### Universe

|  | 1 Qtr | 1 Year | 3 Years | 5 Years |
|--|-------|--------|---------|---------|
| <b>US Fixed Income Funds - Core Plus</b> |       |        |         |         |
| Median                                   | 3.26  | 8.22   | 2.59    | 2.95    |
| Number of Observations                   | 54.00 | 51.00  | 44.00   | 8.00    |

### 3 Year Risk vs Return



|                               | 3 Year Return | 3 Year Standard Deviation |
|-------------------------------|---------------|---------------------------|
| * Western Asset               | 3.6 9         | 3.7 75                    |
| ◆ BBG BC Aggregate Bond Index | 2.3 75        | 3.0 19                    |
| 5th Percentile                | 4.5           | 2.5                       |
| 25th Percentile               | 3.1           | 3.4                       |
| 50th Percentile               | 2.6           | 3.5                       |
| 75th Percentile               | 2.3           | 3.7                       |
| 95th Percentile               | 2.0           | 4.5                       |

\* Western Asset ◆ BBG BC Aggregate Bond Index

### Calendar Year Returns as of June 30, 2019



# RISK REDUCTION & MITIGATION - CASH

## J.P. MORGAN ASSET MANAGEMENT

for the quarter ended June 30, 2019



### 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: Risk Reduction & Mitigation  
 Benchmark: Cash Custom BM  
 Investment Style: Enhanced Cash

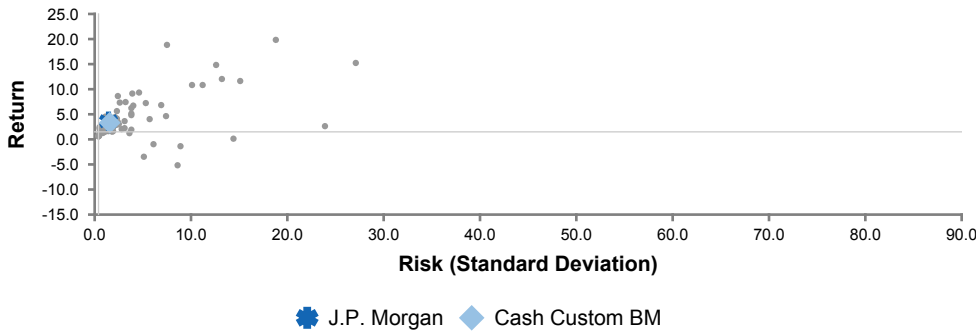
### Manager vs. Benchmark: Return through June 30, 2019 (not annualized if less than 1 year)

|                | Ending Mkt Val (\$mil) | 1 Quarter | 1 Year | 3 Years | 5 Years | 10 Years | Since Inception |
|----------------|------------------------|-----------|--------|---------|---------|----------|-----------------|
| J.P. Morgan    | 1,224.7                | 0.72      | 2.72   | 1.73    | 1.23    |          | 1.01            |
| Cash Custom BM |                        | 0.61      | 2.35   | 1.41    | 0.91    |          | 0.69            |

### Universe

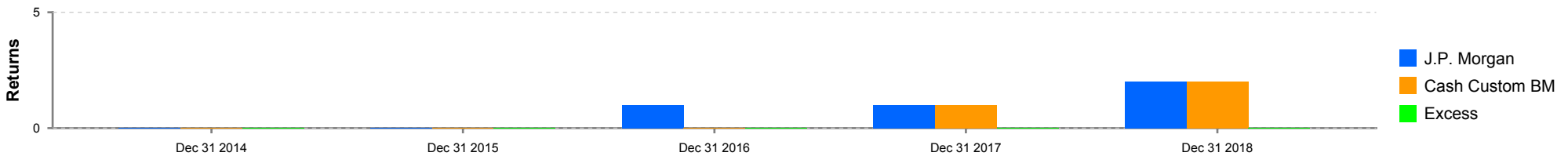
|                        | 1 Qtr  | 1 Year | 3 Years | 5 Years |
|------------------------|--------|--------|---------|---------|
| <b>Cash Funds</b>      |        |        |         |         |
| Median                 | 0.61   | 2.31   | 1.53    | 1.03    |
| Number of Observations | 294.00 | 274.00 | 203.00  | 189.00  |

### 3 Year Risk vs Return



|                  | 3 Year Return | 3 Year Standard Deviation |
|------------------|---------------|---------------------------|
| * J.P. Morgan    | 1.7 31        | 0.2 37                    |
| ◆ Cash Custom BM | 1.4 61        | 0.2 26                    |
| 5th Percentile   | 8.5           | 0.2                       |
| 25th Percentile  | 1.8           | 0.2                       |
| 50th Percentile  | 1.5           | 0.4                       |
| 75th Percentile  | 1.3           | 1.0                       |
| 95th Percentile  | 0.6           | 12.2                      |

### Calendar Year Returns as of June 30, 2019



# ESTIMATED PUBLIC MARKETS MANAGER FEES<sup>1</sup>

## GROWTH

for the quarter ended June 30, 2019



| <u>GLOBAL EQUITY</u>              | <u>Avg. Market Value</u><br><u>(Millions)</u> | <u>Fees</u>        | <u>Annualized</u><br><u>Effective Rate</u> |
|-----------------------------------|---|--------------------|--|
| <b>Active</b>                     |   |                    |  |
| Acadian Asset Mgmt.               | \$848.6                                       | \$748,977          | 35.3 bps                                   |
| Acadian Emrg. Markets             | \$366.2                                       | \$448,325          | 49.0 bps                                   |
| AQR Capital Mgmt.                 | \$239.8                                       | \$408,317          | 68.1 bps                                   |
| BTC Europe Alpha Tilts            | \$966.1                                       | \$843,018          | 34.9 bps                                   |
| Capital Guardian                  | \$378.0                                       | \$336,670          | 35.6 bps                                   |
| Cevian Capital                    | \$290.7                                       | \$923,114          | 127.0 bps                                  |
| CornerCap                         | \$56.3  | \$76,032           | 54.0 bps                                   |
| Eagle Asset Mgmt.                 | \$328.1                                       | \$406,650          | 49.6 bps                                   |
| Frontier Capital Mgmt.            | \$684.1                                       | \$1,236,614        | 72.3 bps                                   |
| Genesis Investment Mgmt.          | \$698.0                                       | \$1,231,025        | 70.5 bps                                   |
| Global Alpha                      | \$171.1                                       | \$305,458          | 71.4 bps                                   |
| JANA Partners <sup>2</sup>        | \$100.9                                       | \$300,000          | 100.0 bps                                  |
| Lazard Asset Mgmt.                | \$353.8                                       | \$568,154          | 64.2 bps                                   |
| Matarin                           | \$108.1                                       | \$171,563          | 63.5 bps                                   |
| QMA                               | \$265.0                                       | \$349,579          | 52.8 bps                                   |
| Symphony Financial                | \$165.6                                       | \$298,414          | 72.1 bps                                   |
| Systematic                        | \$227.6                                       | \$312,943          | 55.0 bps                                   |
| <b>Subtotal:</b>                  | <b>\$6,248</b>                                | <b>\$8,964,854</b> | <b>57.4 bps</b>                            |
| <b>Passive</b>                    |   |                    |  |
| BTC Canada IMI                    | \$719.1                                       | \$26,894           | 1.5 bps                                    |
| BTC EAFE IMI                      | \$4,455.9                                     | \$166,639          | 1.5 bps                                    |
| BTC EAFE Small Cap                | \$173.2                                       | \$17,269           | 4.0 bps                                    |
| BTC EM                            | \$1,183.7                                     | \$265,594          | 9.0 bps                                    |
| BTC EM Small Cap                  | \$114.4                                       | \$57,041           | 19.9 bps                                   |
| BTC Europe Index                  | \$347.3                                       | \$8,572            | 1.0 bps                                    |
| <b>Subtotal:<sup>3</sup></b>      | <b>\$18,095</b>                               | <b>\$777,274</b>   | <b>1.7 bps</b>                             |
| <b>Currency Hedge</b>             |   |                    |  |
| 50% Developed Mkt. Currency Hedge | \$8,330.3                                     | \$308,106          | 1.5 bps                                    |

<sup>1</sup> Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

<sup>2</sup> Fees are based on committed capital of \$120 million.

<sup>3</sup> Includes BTC Russell 3000 Index.

# ESTIMATED PUBLIC MARKETS MANAGER FEES<sup>1</sup>

## CREDIT

for the quarter ended June 30, 2019



|                               | <u>Avg. Market Value<br/>(Millions)</u> | <u>Fees</u>        | <u>Annualized<br/>Effective Rate</u> |
|-------------------------------|---|--------------------|--------------------------------------|
| <b>Bank Loans</b>             |   |                    |                                      |
| Crescent Capital Group        | \$438.0                                 | \$585,012          | 53.4 bps                             |
| Tennenbaum Capital Partners   | \$362.0                                 | \$808,504          | 89.3 bps                             |
| <b>Subtotal:</b>              | <b>\$800</b>                            | <b>\$1,393,516</b> | <b>69.7 bps</b>                      |
| <b>Emerging Market Debt</b>   |   |                    |                                      |
| Aberdeen Standard Investments | \$411.7                                 | \$403,596          | 39.2 bps                             |
| Ashmore Investment Mgmt.      | \$417.3                                 | \$685,392          | 65.7 bps                             |
| <b>Subtotal:</b>              | <b>\$829</b>                            | <b>\$1,088,989</b> | <b>52.5 bps</b>                      |
| <b>High Yield</b>             |   |                    |                                      |
| Bain Capital                  | \$370.7                                 | \$602,422          | 65.0 bps                             |
| Beach Point Capital           | \$273.1                                 | \$443,755          | 65.0 bps                             |
| Brigade Capital Mgmt.         | \$582.4                                 | \$1,092,075        | 75.0 bps                             |
| Doubleline Capital            | \$335.5                                 | \$629,134          | 75.0 bps                             |
| Oaktree Capital Mgmt.         | \$432.1                                 | \$432,094          | 40.0 bps                             |
| TCW                           | \$323.1                                 | \$466,402          | 57.7 bps                             |
| <b>Subtotal:</b>              | <b>\$2,317</b>                          | <b>\$3,665,881</b> | <b>63.3 bps</b>                      |
| <b>Illiquid Credit</b>        |   |                    |                                      |
| Beach Point Capital           | \$44.5                                  | \$192,840          | 173.5 bps                            |
| Beach Point Capital           | \$145.8                                 | \$925,596          | 253.9 bps                            |
| <b>Subtotal:</b>              | <b>\$190</b>                            | <b>\$1,118,436</b> | <b>235.1 bps</b>                     |

<sup>1</sup> Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

# ESTIMATED PUBLIC MARKETS MANAGER FEES<sup>1</sup>

## REAL ASSETS & INFLATION HEDGES

for the quarter ended June 30, 2019



| <u>REAL ASSETS</u>        | <u>Avg. Market Value<br/>(Millions)</u> | <u>Fees</u>        | <u>Annualized<br/>Effective Rate</u> |
|---------------------------|---|--------------------|--------------------------------------|
| Credit Suisse             | \$420.5                                 | \$274,777          | 26.1 bps                             |
| Neuberger Berman/Gresham  | \$445.0                                 | \$417,173          | 37.5 bps                             |
| PIMCO                     | \$441.7                                 | \$374,892          | 34.0 bps                             |
| <b>Total Commodities:</b> | <b>\$1,307</b>                          | <b>\$1,066,842</b> | <b>32.6 bps</b>                      |

<sup>1</sup> Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.



# ESTIMATED PUBLIC MARKETS MANAGER FEES<sup>1</sup>

## RISK REDUCTION & MITIGATION

for the quarter ended June 30, 2019



|                               | <b>Avg. Market Value<br/>(Millions)</b> | <b>Fees</b>        | <b>Annualized<br/>Effective Rate</b> |
|-------------------------------|---|--------------------|--------------------------------------|
| <b>Investment Grade Bonds</b> |   |                    |                                      |
| Dodge & Cox                   | \$1,353.1                               | \$329,990          | 9.8 bps                              |
| PIMCO                         | \$1,080.4                               | \$545,778          | 20.2 bps                             |
| Pugh Capital Mgmt.            | \$350.5                                 | \$169,067          | 19.3 bps                             |
| Wells Capital Mgmt.           | \$1,442.3                               | \$357,791          | 9.9 bps                              |
| Western Asset Mgmt.           | \$1,161.5                               | \$370,182          | 12.7 bps                             |
| <b>Subtotal:<sup>2</sup></b>  | <b>\$11,503</b>                         | <b>\$1,902,401</b> | <b>6.6 bps</b>                       |
| <b>Cash</b>                   |   |                    |                                      |
| J.P. Morgan Asset Mgmt.       | \$1,427.6                               | \$142,757          | 4.0 bps                              |
| <b>Subtotal:</b>              | <b>\$1,428</b>                          | <b>\$142,757</b>   | <b>4.0 bps</b>                       |

<sup>1</sup> Estimations may not match net-of-fee returns on "Annualized Total Returns" pages; reflects investment management fee only.

<sup>2</sup> Includes BTC US Debt Index.

# ALLOCATION RANGES

## STRATEGIC<sup>1</sup> vs. ACTUAL

for the quarter ended June 30, 2019



|  | Interim Strategic Allocation Range | Actual Allocation |
|--|------------------------------------|-------------------|
| <b>GROWTH:</b>                             | <b>45-59%</b>                      | <b>53.5%</b>      |
| Global Equity                              | 34-48%                             | 42.3%             |
| Private Equity - Growth                    | 7-13%                              | 9.6%              |
| Opportunistic Real Estate                  | 0-2%                               | 1.6%              |
| <b>CREDIT:</b>                             | <b>7-13%</b>                       | <b>8.7%</b>       |
| High Yield                                 | 1-7%                               | 4.0%              |
| Bank Loans                                 | 0-5%                               | 1.5%              |
| Emerging Market Debt                       | 0-3%                               | 1.5%              |
| Illiquid Credit                            | 0-4%                               | 1.8%              |
| <b>REAL ASSETS &amp; INFLATION HEDGES:</b> | <b>12-18%</b>                      | <b>14.4%</b>      |
| Core & Value Added Real Estate             | 5-11%                              | 9.2%              |
| Natural Resources & Commodities            | 1-5%                               | 3.0%              |
| Infrastructure                             | 0-3%                               | 1.4%              |
| Treasury Inflation-Protected Securities    | 0-4%                               | 0.9%              |
| <b>RISK REDUCTION &amp; MITIGATION</b>     | <b>17-29%</b>                      | <b>23.4%</b>      |
| Investment Grade Bonds                     | 13-25%                             | 19.8%             |
| Diversified Hedge Funds                    | 0-5%                               | 2.6%              |
| Cash                                       | 0-3%                               | 0.9%              |

<sup>1</sup> Represents interim strategic asset allocation target ranges.

# Glossary

## A

**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

**BASIS POINTS (BPS):** One one-hundredth of one percent. One hundred basis points equal one percent.

**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.

**BLOOMBERG COMMODITY INDEX TOTAL RETURN:** The Bloomberg Commodity Index Total Return is composed of futures contracts on physical commodities.

**BRIGADE CUSTOM INDEX:** 50% Bloomberg Barclays Ba to B U.S. High Yield; 50% Credit Suisse Leveraged Loan Index.

## C

**CASH CUSTOM BM:** Inception – 3/31/19 FTSE 6-Month U.S. T-Bill Index; 3/31/19 – Present FTSE 3-Month U.S. T-Bill Index

**CORE & VALUE-ADDED REAL ESTATE CUSTOM BM:** NFI ODCE + 50 bps (3-month lag).

**CREDIT CUSTOM BM:** 40% Bloomberg Barclays Ba to B U.S. High Yield; 30% Credit Suisse Leveraged Loan Index; 10% Emerging Markets Debt Custom BM; 20% Illiquid Credit Custom BM.

**CUSTOM HEDGE FUND BM:** Inception – 3/31/19 Citigroup/FTSE 3-Month U.S. T-Bill Index + 500 bps (1-month lag); 3/31/19 – Present FTSE 3-Month U.S. T-Bill Index plus 250 bps (1-month lag).

**CUSTOM MSCI ACWI IMI N 50%H:** MSCI ACWI ex U.S. IMI (Net) with 50% Developed Markets hedged to USD.

## D

**DIVERSIFIED HEDGE FUNDS CUSTOM INDEX:** FTSE 3-Month U.S. T-Bill Index plus 250 bps (1-month lag).

**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).

**EMD CUSTOM INDEX:** 50% JP Morgan EMBI; 25% JP Morgan GBI-EM GD; 25% JP Morgan CEMBI BD.

## F

**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.

**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.

## G

**GLOBAL EQUITY CUSTOM BM:** 80% MSCI ACWI IMI Net; 20% MSCI WORLD IMI ex U.S. Currency Hedged.

**GROWTH CUSTOM BM:** Based on sub-asset market value: ~79% Global Equity Custom BM; 19% Private Equity - Growth Custom BM; 2% Opportunistic Real Estate Custom BM.

## 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.

**HIGH YIELD BOND:** A bond with a low investment quality and credit worthiness, usually with a rating of BB or less.

**HY/BL CUSTOM INDEX:** 50% Barclays U.S. High Yield Index; 50% Credit Suisse Leveraged Loan Index.

## I

**ILLIQUID CREDIT CUSTOM BM:** Bloomberg Barclays U.S. Aggregate Index + 250 bps (1-month lag).

**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.

**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.

**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.

## 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.

**MSCI CANADA IMI CUSTOM INDEX (NET):**  
Inception – 8/31/08 MSCI Canada (Net);  
8/31/08 - Present MSCI Canada IMI (Net).

**MSCI EAFE IMI CUSTOM INDEX (NET):**  
Inception – 8/31/08 MSCI EAFE (Net);  
8/31/08 - Present MSCI EAFE IMI (Net).

**MSCI EM IMI CUSTOM INDEX:**  
Inception – 12/31/00 MSCI EM (Gross);  
12/31/00 – 8/31/08 MSCI EM (Net);  
8/31/08 – Present MSCI EM IMI (Net).

## N

**NATURAL RESOURCES & COMMODITIES CUSTOM BM:** 50% Bloomberg Commodity

Index; 50% S&P Global Large MidCap Commodity and Resources Index.

## O

**OPPORTUNISTIC REAL ESTATE CUSTOM BM:**  
NFI ODCE + 300 bps (3-month lag).

## P

**PE – CREDIT CUSTOM BM:** Bloomberg Barclays U.S. Aggregate + 250 bps (3-month lag).

**PRIVATE EQUITY - GROWTH CUSTOM BM:**  
MSCI ACWI IMI Net Index + 200 bps (3-month lag).

## R

**REAL ASSETS & INFLATION HEDGES CUSTOM BM:** Based on sub-asset market value: ~ 54% Core & Value-Added Real Estate Custom BM; 20% Natural Resources & Commodities Custom BM; 13% DJ Brookfield Global Infrastructure; 13% Bloomberg Barclays U.S. TSY TIPS.

**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.

**RISK REDUCTION & MITIGATION CUSTOM BM:**

Based on sub-asset market value:  
 ~ 83% Bloomberg Barclays Aggregate;  
 13% Diversified Hedge Funds Custom BM;  
 4% FTSE 3-month Treasury Bill.

**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**

**SECURITIZED CUSTOM INDEX:** Barclays U.S. Securitized Bond Index + 400 bps.

**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 CUSTOM BENCHMARK:** Uses the Board approved Total Fund Target Policy asset allocation.

**TOTAL PRIVATE EQUITY BENCHMARK:**  
 Inception – 3/31/19 Private Equity Target (Russell 3000 rolling 10 year + 500 bps);  
 3/31/19 – Present Composite weighted blend of Private Equity-Growth Custom BM, PE-Credit Custom BM, and PE-Real Assets Custom BM.

**TOTAL REAL ESTATE BENCHMARK:**  
 Inception – 3/31/19 Real Estate Target (NCREIF ODCE Net + 40 bps); 3/31/19 – Present Composite weighted blend of Opportunistic Real Estate Custom BM, NPI Income Lagged, and Core & Value-Added Real Estate Custom BM.

**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.

**U**

**UNIVERSE DATA SOURCE:** State Street utilizing Wilshire Associates’ TUCS Universe Data.

**Y**

**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 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.

SOURCE: [www.nasdaq.com](http://www.nasdaq.com) & [www.investopedia.com](http://www.investopedia.com)

Last updated: 8/30/19

Disclosure

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# L/CERA

## MANAGER SCORECARD

June 30, 2019

| Performance                       | Organization & Operations                                    | ESG                               | Partnership                           |
|-----------------------------------|--|-----------------------------------|---------------------------------------|
| 1 to 5<br>(with 5 as the highest) | Satisfactory (S), Plus, or Minus<br>(with S+ as the highest) | 1 to 5<br>(with 5 as the highest) | A, B, or C<br>(with A as the highest) |

|                               | Manager                         | Market Value<br>(in millions) | % of<br>Total Fund | SCORE | SCORE | SCORE | SCORE |  |
|-------------------------------|---------------------------------|-------------------------------|--------------------|-------|-------|-------|-------|--|
|                               |                                 |                               |                    |       |       |       |       |  |
| <b>GROWTH</b>                 | <b>GLOBAL EQUITY</b>            |                               |                    |       |       |       |       |  |
|                               | ACADIAN DEVELOPED MARKETS       | 768.06                        | 1.3%               | 5     | S-    | 4     | B     |  |
|                               | ACADIAN EMERGING MARKETS        | 306.25                        | 0.5%               | 1     | S-    | 4     | A     |  |
|                               | AQR EMERGING MARKETS            | 243.22                        | 0.4%               | 1     | S+    | 4     | B     |  |
|                               | BTC CANADA IMI                  | 738.83                        | 1.3%               | 2     | S     | 4     | A     |  |
|                               | BTC EAFE IMI                    | 4,521.30                      | 7.7%               | 4     | S     | 4     | A     |  |
|                               | BTC EAFE SMALL CAP              | * 134.85                      | 0.2%               | 3     | S     | 4     | A     |  |
|                               | BTC EMERGING MARKETS            | 1,200.90                      | 2.1%               | 2     | S     | 4     | B     |  |
|                               | BTC EMERGING MARKETS SMALL CAP  | 88.68                         | 0.2%               | 2     | S     | 4     | B     |  |
|                               | BTC EURO TILTS                  | 988.68                        | 1.7%               | 5     | S     | 4     | B     |  |
|                               | BTC EUROPE INDEX                | 306.53                        | 0.5%               | 4     | S     | 4     | A     |  |
|                               | BTC RUSSELL 3000                | * 11,666.66                   | 20.0%              | 3     | S     | 4     | B     |  |
|                               | CAPITAL GROUP DEVELOPED MARKETS | 406.94                        | 0.7%               | 4     | S     | 3     | B     |  |
|                               | CEVIAN CAPITAL II - ACTIVIST    | * 293.51                      | 0.5%               | 3     | S+    | 4     | B     |  |
|                               | CORNERCAP US SC - EMP           | * 57.64                       | 0.1%               | 3     | S     | 1     | A     |  |
|                               | EAGLE US SMID CORE              | 292.26                        | 0.5%               | 4     | S-    | 1     | A     |  |
|                               | FRONTIER US SMID GROWTH         | 603.08                        | 1.0%               | 4     | S-    | 2     | A     |  |
|                               | GENESIS EMERGING MARKETS        | 712.44                        | 1.2%               | 4     | S+    | 4     | A     |  |
|                               | GLOBAL ALPHA IE SC - EMP        | * 173.27                      | 0.3%               | 3     | S     | 4     | B     |  |
|                               | JANA JSI FUND V - ACTIVIST      | * 106.19                      | 0.2%               | 3     | S     | 2     | B     |  |
|                               | LAZARD EMERGING MARKETS         | 360.67                        | 0.6%               | 3     | S     | 4     | B     |  |
| MATARIN US SC - EMP           | * 109.65                        | 0.2%                          | 3                  | S     | 3     | A     |       |  |
| QMA US SMALL CAP CORE         | * 268.52                        | 0.5%                          | 3                  | S     | 3     | B     |       |  |
| SYMPHONY FINANCIAL - ACTIVIST | * 161.78                        | 0.3%                          | 3                  | S     | 2     | A     |       |  |
| SYSTEMATIC US SMALL CAP VALUE | * 232.79                        | 0.4%                          | 3                  | S-    | 2     | A     |       |  |
| <b>CREDIT</b>                 | <b>HIGH YIELD</b>               |                               |                    |       |       |       |       |  |
|                               | BAIN CAPITAL CREDIT             | 370.72                        | 0.6%               | 2     | S-    | 2     | B     |  |
|                               | BEACH POINT                     | 260.52                        | 0.4%               | 4     | S+    | 1     | B     |  |
|                               | BRIGADE CAP MGMT                | 587.02                        | 1.0%               | 3     | S     | 1     | B     |  |
|                               | DOUBLELINE CAPITAL              | 339.28                        | 0.6%               | 2     | S     | 1     | B     |  |
|                               | OAKTREE CAPITAL                 | 436.98                        | 0.7%               | 2     | S     | 3     | B     |  |
|                               | TCW                             | 339.43                        | 0.6%               | 3     | S     | 1     | B     |  |
|                               | <b>BANK LOANS</b>               |                               |                    |       |       |       |       |  |
|                               | CRESCENT CAPITAL                | 440.54                        | 0.8%               | 2     | S     | 2     | A     |  |
|                               | TENNENBAUM CAPITAL              | 434.34                        | 0.7%               | 5     | S+    | 2     | A     |  |
|                               | <b>EMERGING MARKET DEBT</b>     |                               |                    |       |       |       |       |  |
|                               | ABERDEEN ASSET MANAGEMENT       | * 423.51                      | 0.7%               | 3     | S     | 4     | B     |  |
|                               | ASHMORE INVESTMENT MANAGEMENT   | * 429.41                      | 0.7%               | 3     | S     | 4     | B     |  |
|                               | <b>ILLIQUID CREDIT</b>          |                               |                    |       |       |       |       |  |
|                               | BEACH POINT - FUND II           | 41.55                         | 0.1%               | 4     | S+    | 1     | B     |  |
| BEACH POINT - FUND III        | * 170.04                        | 0.3%                          | 3                  | S+    | 1     | B     |       |  |
| GROSVENOR OPCRD 2 HFOF        | 360.41                          | 0.6%                          | 3                  | S     | +     | A     |       |  |



**LACERA**  
**MANAGER SCORECARD**  
 June 30, 2019

|   |  |   |   |
|---|--|---|---|
| <b>Performance</b><br><small>1 to 5<br/>(with 5 as the highest)</small> | <b>Organization &amp; Operations</b><br><small>Satisfactory (S), Plus, or Minus<br/>(with S+ as the highest)</small> | <b>ESG</b><br><small>1 to 5<br/>(with 5 as the highest)</small> | <b>Partnership</b><br><small>A, B, or C<br/>(with A as the highest)</small> |
|---|--|---|---|

|  |  | Market Value<br>(in millions)  | % of<br>Total Fund | SCORE | SCORE | SCORE | SCORE |   |
|--|--|--------------------------------|--------------------|-------|-------|-------|-------|---|
| Manager                                |  |                                |                    |       |       |       |       |   |
| <b>RA &amp; IH</b>                     | <b>NATURAL RESOURCES &amp; COMMODITIES</b> |                                |                    |       |       |       |       |   |
|  |  | CREDIT SUISSE COMMODITY        | 423.12             | 0.7%  | 2     | S     | +     | A |
|  |  | NEUBERGER BERMAN/GRESHAM       | 445.44             | 0.8%  | 2     | S     | +     | B |
|  |  | PIMCO COMMODITY PLUS           | 442.30             | 0.8%  | 5     | S     | +     | B |
| <b>RISK REDUCTION &amp; MITIGATION</b> | <b>INVESTMENT GRADE BONDS</b>              |                                |                    |       |       |       |       |   |
|  |  | BTC US DEBT INDEX FUND         | 6,536.09           | 11.2% | 3     | S+    | 4     | A |
|  |  | DODGE & COX                    | 1,182.33           | 2.0%  | 4     | S     | 3     | B |
|  |  | PIMCO                          | 929.29             | 1.6%  | 3     | S     | 4     | B |
|  |  | PUGH CAPITAL MGMT              | 355.73             | 0.6%  | 3     | S     | 1     | B |
|  |  | WELLS CAPITAL                  | 1,544.38           | 2.6%  | 5     | S+    | 4     | B |
|  |  | WESTERN ASSET MGMT             | 1,018.96           | 1.7%  | 5     | S     | 3     | B |
|  |  | <b>DIVERSIFIED HEDGE FUNDS</b> |                    |       |       |       |       |   |
|  |  | GROSVENOR HFOF                 | 482.93             | 0.8%  | 1     | S     | +     | A |
|  |  | GSAM HFOF                      | 487.61             | 0.8%  | 1     | S     | +     | A |
|  |  | LACERA HF DIRECT               | * 574.84           | 1.0%  | 3     | S+    | +     | B |
|  |  | <b>CASH</b>                    |                    |       |       |       |       |   |
|  |  | JP MORGAN ENHANCED CASH        | 1,224.70           | 2.1%  | 5     | S+    | —     | A |

Category Descriptions

**Performance**

- Score based on Sharpe and Information Ratios, which provide insight into a manager's risk-adjusted performance and performance relative to its benchmark, respectively
- '\*' denotes a manager with an inception date of less than 3 years, resulting in a neutral score of 3

**Organization & Operations**

- Includes factors such as organization, professional staff, investment philosophy & process, risk management, legal & compliance framework
- 'S' stands for Satisfactory

**ESG**

- Evaluates the extent to which material ESG factors are identified, assessed, and incorporated into risk/return analysis and portfolio construction
- Passive index fund scores are reflective of broader stewardship activities by investment manager
- '+' denotes mandates where ESG scores are currently under review

**Partnership**

- Blended score based on:
  - Fees compared to a benchmark of median fees
  - Value added services such as providing education, providing research, and performing analytics on portfolio
  - Size of LACERA's investment relative to the firm's assets under management

# Total Plan Analytics Board Report

Prepared for LACERA

28 June 2019

Total Plan Asset Allocation & Analytics

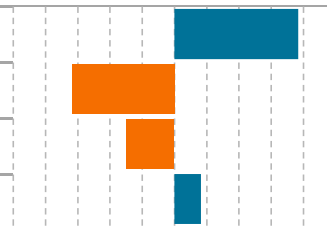
28-Jun-2019

LACERA

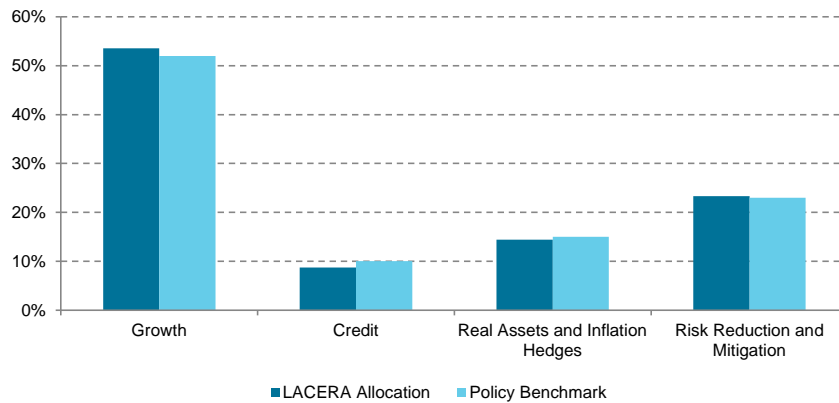
Reporting Currency: USD

Total Plan Allocation vs Policy Benchmark

|                                  | Market Value (Millions) <sup>1</sup> | Allocation (%) | Policy Benchmark (%) | Benchmark                   | Relative (%) |
|----------------------------------|--------------------------------------|----------------|----------------------|-----------------------------|--------------|
| Growth                           | 31,286                               | 53.5%          | 52.0%                | Growth Composite            | 1.5%         |
| Credit                           | 5,103                                | 8.7%           | 10.0%                | Credit Composite            | -1.3%        |
| Real Assets and Inflation Hedges | 8,417                                | 14.4%          | 15.0%                | RA & Infl. Hedges Composite | -0.6%        |
| Risk Reduction and Mitigation    | 13,633                               | 23.3%          | 23.0%                | Risk Red. & Mit. Composite  | 0.3%         |
| <b>TOTAL</b>                     | <b>58,438</b>                        | <b>100.0%</b>  | <b>100.0%</b>        |                             | <b>0.0%</b>  |

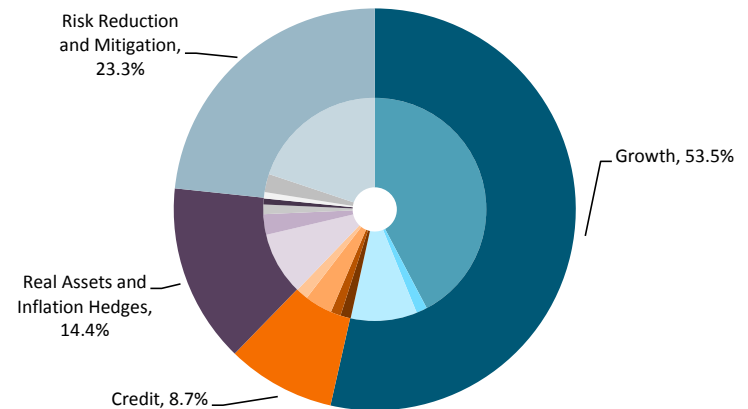


Total Plan Allocation vs Policy Benchmark



1: Currency Hedge is excluded from Growth Market Value

Asset Class Detail



Total Plan Analytics, Volatility & Tracking Error

28-Jun-2019

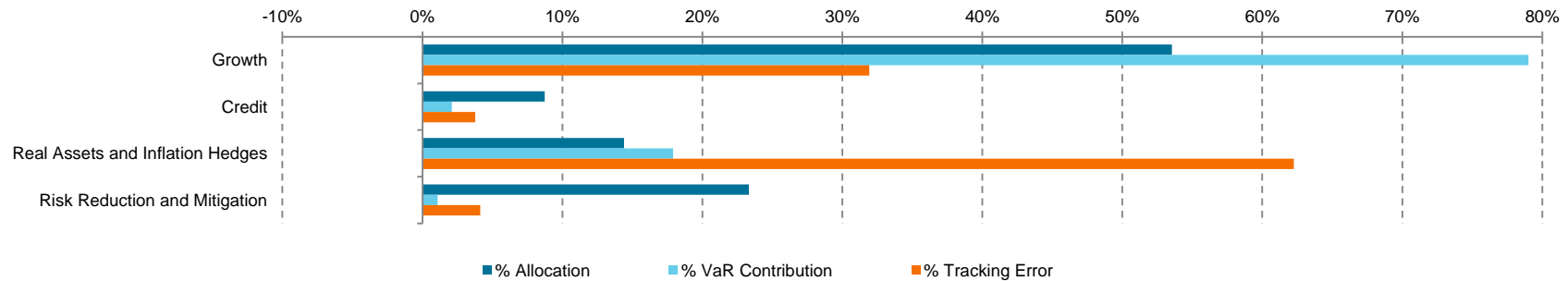
LACERA

Reporting Currency: USD

Total Plan Risk Measures

|                                  | Benchmark                                     | Market Value (Millions) <sup>1</sup> | Allocation (%) | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of MV) <sup>3</sup>                  | Total VaR Contribution (% of Total MV) <sup>4</sup> | Tracking Error Contribution (% of Total MV) <sup>5</sup> |
|----------------------------------|---|--------------------------------------|----------------|---------------------------------------|--|---|--|
| Growth                           | Growth Composite                              | 31,286                               | 53.5%          | 10.80%                                | 18.40%   | 10.02%  | 0.41%  |
| Credit                           | Credit Composite                              | 5,103                                | 8.7%           | 3.55%                                 | 5.50%  | 0.27%   | 0.05%  |
| Real Assets and Inflation Hedges | RA & Infl. Hedges Composite                   | 8,417                                | 14.4%          | 9.29%                                 | 14.86%   | 2.27%   | 0.80%  |
| Risk Reduction and Mitigation    | Risk Red. & Mit. Composite                    | 13,633                               | 23.3%          | 2.55%                                 | 4.38%  | 0.14%   | 0.05%  |
| <b>TOTAL</b>                     |   | <b>58,438</b>                        | <b>100.0%</b>  | <b>7.23%</b>                          | <b>12.68%</b>  | <b>12.68%</b>                                       | <b>1.28%</b>   |
|                                  | <i>Weighted Average Benchmark<sup>6</sup></i> |                                      |                | 6.85%                                 | 10.87%   | 10.87%  |  |
| <b>Benchmark</b>                 | <b>Policy Benchmark</b>                       |                                      |                | <b>6.75%</b>                          | <b>10.74%</b>  | <b>10.74%</b>                                       | <b>1.30%</b>   |
|                                  |   |                                      |                |                                       | <i>Aggregate Benchmark Structural Risk<sup>7</sup></i> |   | <b>0.03%</b>   |

Dollar vs Risk Allocation



1: Currency Hedge is excluded from Growth Market Value

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: Standalone VaR is the annualized Value-at-Risk at the 95th percentile expressed as a percentage of the market value of each asset class.

4: 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.

5: 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.

6: Weighted average benchmark is the market value weighted average of the asset class benchmarks.

7: 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

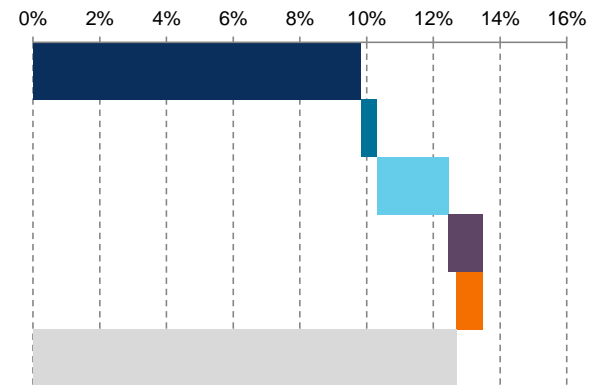
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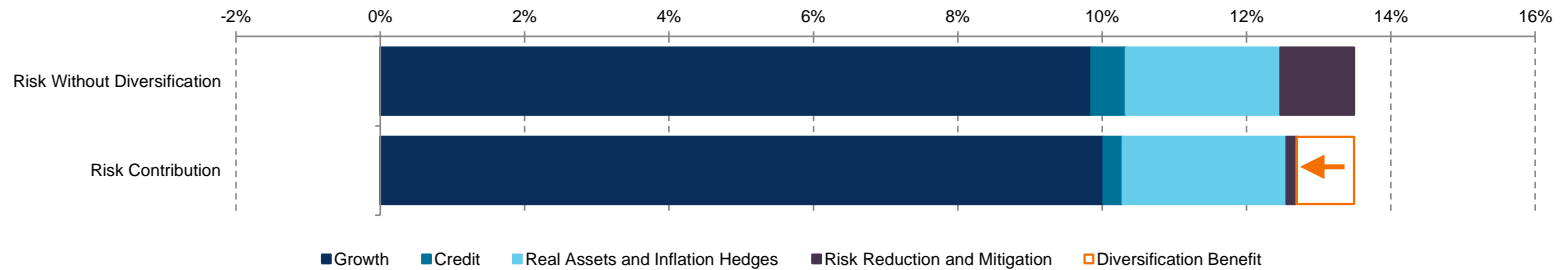
Reporting Currency: USD

Total Plan Risk & Diversification

|                                      | Allocation (%) | Weighted Standalone VaR<br>(% of Total MV) <sup>1</sup> |              |
|--------------------------------------|----------------|---|--------------|
|                                      |                | Monthly   | Annual       |
| Growth                               | 53.5%          | 2.8%  | 9.8%         |
| Credit                               | 8.7%           | 0.1%  | 0.5%         |
| Real Assets and Inflation Hedges     | 14.4%          | 0.6%  | 2.1%         |
| Risk Reduction and Mitigation        | 23.3%          | 0.3%  | 1.0%         |
| Diversification Benefit <sup>2</sup> | -              | -0.2%   | -0.8%        |
| <b>TOTAL</b>                         | <b>100.0%</b>  | <b>3.7%</b>   | <b>12.7%</b> |



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.

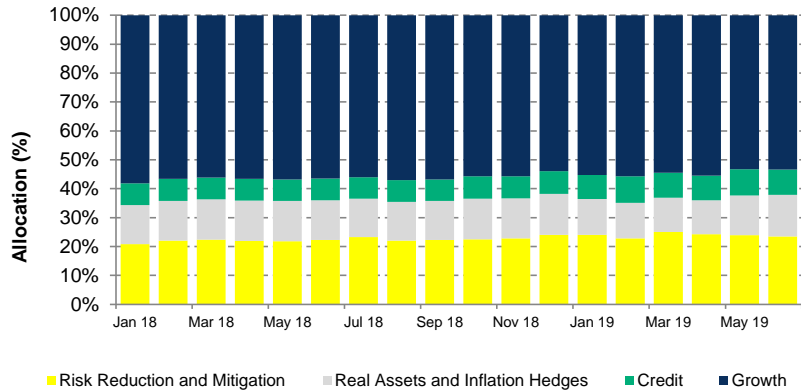
Total Plan Analytics, Volatility & Tracking Error

28-Jun-2019

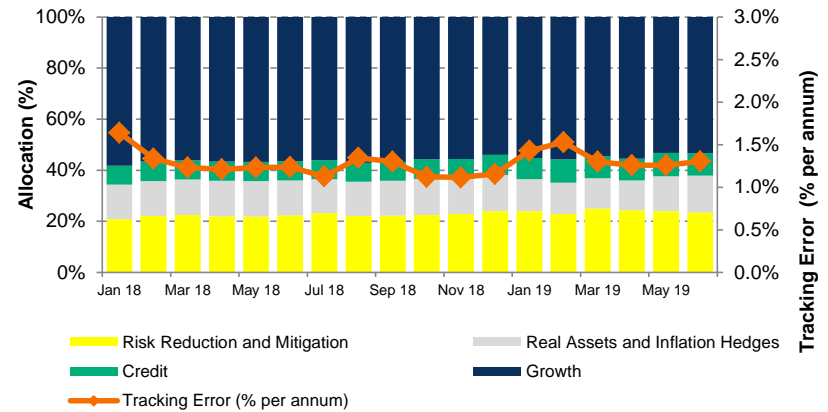
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Reporting Currency: USD

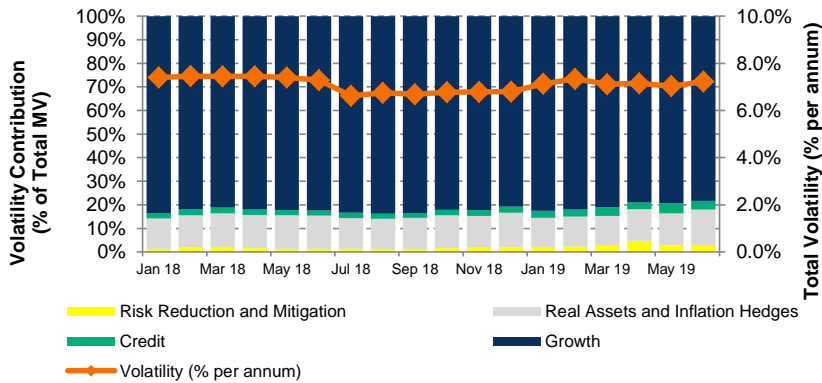
Total Plan Allocation Trend



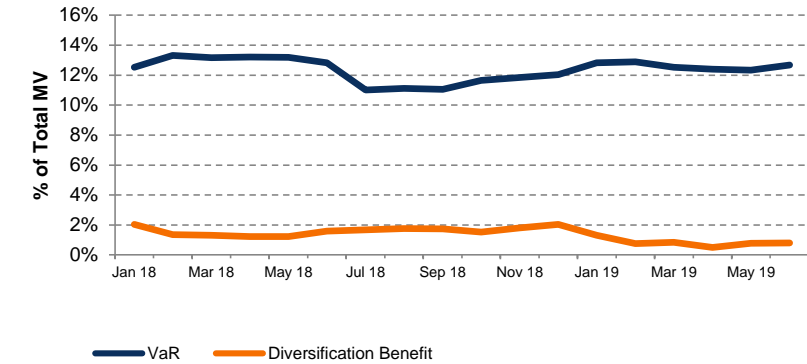
Total Plan Allocation & Tracking Error Trend<sup>1</sup>



Total Plan Volatility & Contribution to Volatility Trend<sup>2</sup>



Total Plan Risk & Diversification Trend<sup>3</sup>



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

28-Jun-2019

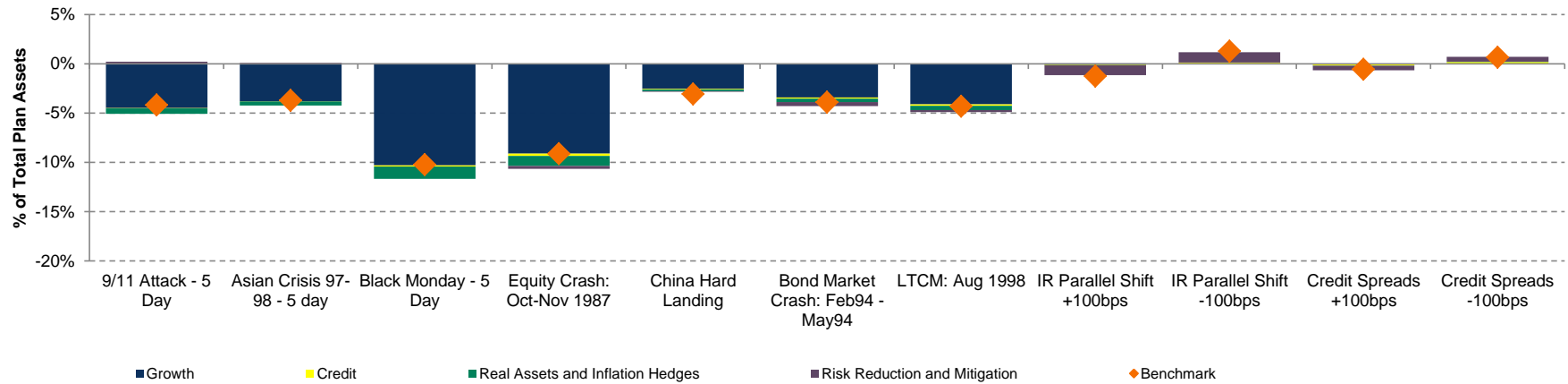
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Reporting Currency: USD

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 |
|----------------------------------|----------------|---------------------|-----------------------------|----------------------|----------------------------|--------------------|----------------------------------|----------------|---------------------------|---------------------------|------------------------|------------------------|
| Growth                           | 53.5%          | -4.5%               | -3.8%                       | -10.3%               | -9.1%                      | -2.6%              | -3.4%                            | -4.1%          | 0.0%                      | -0.0%                     | 0.0%                   | 0.0%                   |
| Credit                           | 8.7%           | -0.0%               | -0.0%                       | -0.1%                | -0.2%                      | -0.1%              | -0.1%                            | -0.1%          | -0.1%                     | 0.1%                      | -0.2%                  | 0.2%                   |
| Real Assets and Inflation Hedges | 14.4%          | -0.5%               | -0.4%                       | -1.3%                | -1.0%                      | -0.2%              | -0.4%                            | -0.4%          | -0.0%                     | -0.0%                     | -0.0%                  | 0.0%                   |
| Risk Reduction and Mitigation    | 23.3%          | 0.2%                | 0.1%                        | 0.0%                 | -0.3%                      | -0.0%              | -0.4%                            | -0.2%          | -1.0%                     | 1.0%                      | -0.4%                  | 0.5%                   |
| <b>TOTAL</b>                     |                | <b>-4.8%</b>        | <b>-4.1%</b>                | <b>-11.7%</b>        | <b>-10.6%</b>              | <b>-2.8%</b>       | <b>-4.3%</b>                     | <b>-4.9%</b>   | <b>-1.2%</b>              | <b>1.2%</b>               | <b>-0.6%</b>           | <b>0.7%</b>            |
| <b>Benchmark</b>                 |                | <b>-4.2%</b>        | <b>-3.7%</b>                | <b>-10.3%</b>        | <b>-9.1%</b>               | <b>-3.1%</b>       | <b>-3.9%</b>                     | <b>-4.3%</b>   | <b>-1.3%</b>              | <b>1.3%</b>               | <b>-0.6%</b>           | <b>0.6%</b>            |

Stress Test Chart



# Glossary



## Appendix - Glossary

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28-Jun-2019

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 <sup>SM</sup> 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.   |

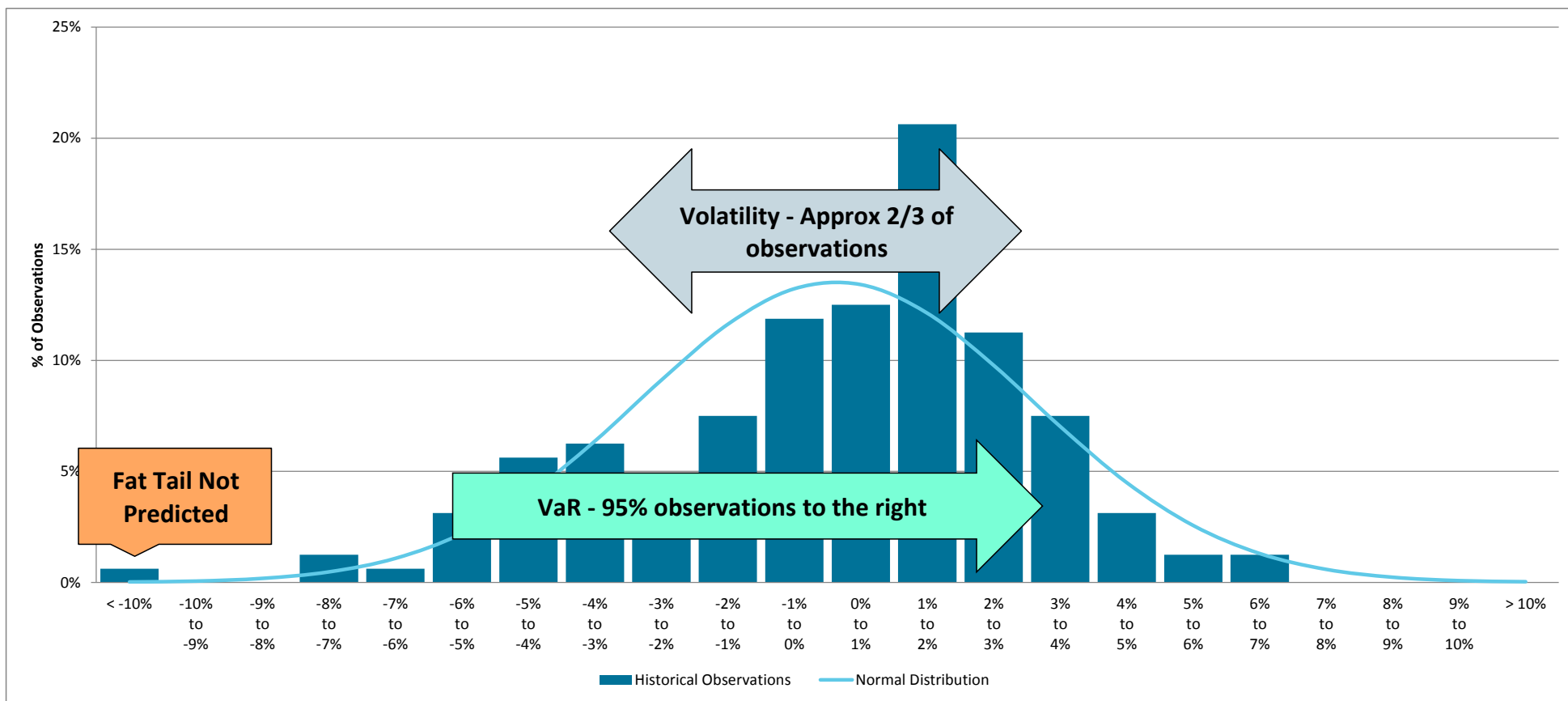
VaR and Volatility

Example Illustration of VaR and Volatility

VaR = 5.6%

Volatility = 2.9%

Mean = 0.1%



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# Detailed Analytics Board Report

Prepared for LACERA

28 June 2019

# Growth

Growth Analytics, Volatility & Tracking Error by Sub-Asset Class Category

28-Jun-2019

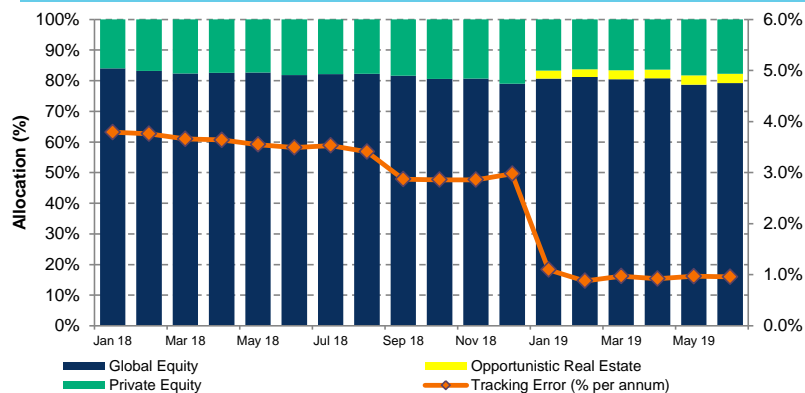
LACERA

Reporting Currency: USD

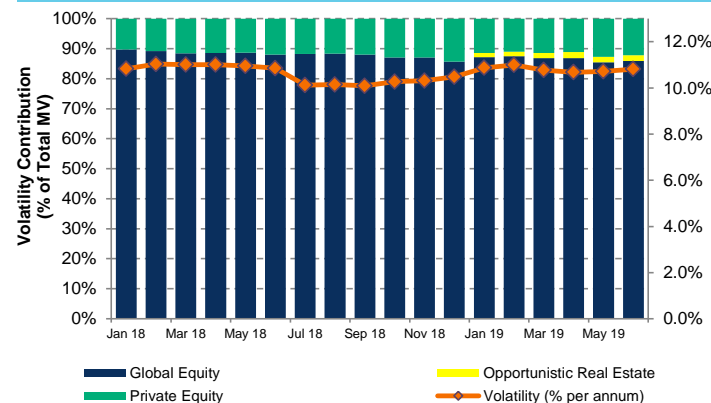
Growth Analytics excluding Currency Hedge

|                                  | Benchmark                                     | Market Value (Millions) | Allocation (%) | Beta S&P 500 <sup>1</sup> | Beta Russell 3000 <sup>1</sup> | Beta MSCI ACWIxUS <sup>1</sup> | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of MV) <sup>3</sup> | Tracking Error (% per annum) <sup>4</sup>              |
|----------------------------------|---|-------------------------|----------------|---------------------------|--------------------------------|--------------------------------|---------------------------------------|---------------------------------------|--|
| <b>Global Equity</b>             |   | <b>24,739</b>           | <b>79.1%</b>   | <b>0.96</b>               | <b>0.94</b>                    | <b>0.88</b>                    | <b>11.82%</b>                         | <b>19.73%</b>                         | <b>1.02%</b>   |
|                                  | <i>Blended BM -Global Equity</i>              |                         |                | 0.94                      | 0.92                           | 0.89                           | 11.64%                                | 19.14%                                |  |
| Domestic                         |   | 13,333                  | 42.6%          | 1.04                      | 1.02                           | 0.78                           | 12.36%                                | 20.67%                                |  |
| International                    |   | 11,406                  | 36.5%          | 0.87                      | 0.84                           | 1.00                           | 12.56%                                | 18.55%                                |  |
| <b>Private Equity - Growth</b>   |   | <b>5,625</b>            | <b>18.0%</b>   | <b>0.62</b>               | <b>0.60</b>                    | <b>0.57</b>                    | <b>7.49%</b>                          | <b>14.07%</b>                         | <b>7.24%</b>   |
|                                  | <i>MSCI ACWI IMI</i>                          |                         |                | 0.96                      | 0.93                           | 0.89                           | 11.7%                                 | 19.5%                                 |  |
| <b>Opportunistic Real Estate</b> |   | <b>922</b>              | <b>2.9%</b>    | <b>0.58</b>               | <b>0.57</b>                    | <b>0.41</b>                    | <b>11.60%</b>                         | <b>18.62%</b>                         | <b>11.57%</b>  |
|                                  | <i>NCREIF Fund Index - Daily Priced</i>       |                         |                | 0.04                      | 0.04                           | 0.03                           | 1.2%                                  | 4.3%                                  |  |
| <b>TOTAL<sup>5</sup></b>         |   | <b>31,286</b>           | <b>100.0%</b>  | <b>0.89</b>               | <b>0.87</b>                    | <b>0.81</b>                    | <b>10.80%</b>                         | <b>18.40%</b>                         | <b>0.96%</b>   |
|                                  | <i>Weighted Average Benchmark<sup>6</sup></i> |                         |                | 0.92                      | 0.89                           | 0.87                           | 11.31%                                | 18.69%                                |  |
| <b>Benchmark</b>                 | <i>Growth Composite</i>                       |                         |                | <b>0.93</b>               | <b>0.90</b>                    | <b>0.88</b>                    | <b>11.30%</b>                         | <b>18.89%</b>                         | <b>1.25%</b>   |
|                                  |   |                         |                |                           |                                |                                |                                       |                                       | <i>Aggregate Benchmark Structural Risk<sup>7</sup></i> |
|                                  |   |                         |                |                           |                                |                                |                                       |                                       | <b>0.28%</b>   |

Growth Allocation & Tracking Error Trend



Growth 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 weighted average of the benchmarks of the Growth.

5: Total Equity Tracking Error is calculated using the market value weighted average of the Domestic Equity and International Equity benchmarks.

6: Weighted average benchmark is the market value weighted average of the manager category benchmarks.

7: Aggregate Benchmark Structural Risk = [Tracking Error of Growth to the Growth Composite Benchmark] - [Tracking Error of Growth Strategies to the weighted average of Strategies Benchmarks]

## Global Equity Analytics, Volatility &amp; Tracking Error by Strategy Category

28-Jun-2019

LACERA

Reporting Currency: USD

## Domestic Equity Analytics

|                  | Benchmark                                  | Market Value (Millions) | Allocation (%) | Beta S&P 500 <sup>1</sup> | Beta Russell 3000 <sup>1</sup> | Beta MSCI ACWIxUS <sup>1</sup> | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of MV) <sup>3</sup>                  | Tracking Error (% per annum) <sup>4</sup> |
|------------------|--|-------------------------|----------------|---------------------------|--------------------------------|--------------------------------|---------------------------------------|--|---|
| Active           | Weighted Average Manager Benchmarks        | 1,665                   | 12.5%          | 1.22                      | 1.23                           | 0.90                           | 15.90%                                | 24.36%   | 2.29%                                     |
| Passive          | Weighted Average Manager Benchmarks        | 11,668                  | 87.5%          | 1.01                      | 0.99                           | 0.76                           | 12.02%                                | 20.12%   | 0.08%                                     |
| <b>TOTAL</b>     | <b>Weighted Average Manager Benchmarks</b> | <b>13,333</b>           | <b>100.0%</b>  | <b>1.04</b>               | <b>1.02</b>                    | <b>0.78</b>                    | <b>12.36%</b>                         | <b>20.67%</b>  | <b>0.27%</b>                              |
| <b>Benchmark</b> | <b>Russell 3000</b>                        |                         |                | <b>1.03</b>               | <b>-</b>                       | <b>0.78</b>                    | <b>12.05%</b>                         | <b>20.17%</b>  | <b>0.87%</b>                              |
|                  |  |                         |                |                           |                                |                                |                                       | <i>Aggregate Benchmark Structural Risk<sup>5</sup></i> | <b>0.61%</b>                              |

## International Equity Analytics excluding Currency Hedge

|                  | Benchmark                                  | Market Value (Millions) | Allocation (%) | Beta S&P 500 <sup>1</sup> | Beta Russell 3000 <sup>1</sup> | Beta MSCI ACWIxUS <sup>1</sup> | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of MV) <sup>3</sup>                  | Tracking Error (% per annum) <sup>4</sup> |
|------------------|--|-------------------------|----------------|---------------------------|--------------------------------|--------------------------------|---------------------------------------|--|---|
| Active           | Weighted Average Manager Benchmarks        | 4,415                   | 38.7%          | 0.89                      | 0.86                           | 1.03                           | 12.88%                                | 18.17%   | 1.69%                                     |
| Passive          | Weighted Average Manager Benchmarks        | 6,991                   | 61.3%          | 0.86                      | 0.83                           | 0.99                           | 12.42%                                | 19.07%   | 0.08%                                     |
| <b>TOTAL</b>     | <b>Weighted Average Manager Benchmarks</b> | <b>11,406</b>           | <b>100.0%</b>  | <b>0.87</b>               | <b>0.84</b>                    | <b>1.00</b>                    | <b>12.56%</b>                         | <b>18.55%</b>  | <b>0.67%</b>                              |
| <b>Benchmark</b> | <b>MSCI ACWI ex US IMI</b>                 |                         |                | <b>0.88</b>               | <b>0.85</b>                    | <b>-</b>                       | <b>12.79%</b>                         | <b>18.26%</b>  | <b>1.01%</b>                              |
|                  |  |                         |                |                           |                                |                                |                                       | <i>Aggregate Benchmark Structural Risk<sup>5</sup></i> | <b>0.33%</b>                              |

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]

# Credit



Credit Analytics, Volatility & Tracking Error by Sub-Asset Class Category

28-Jun-2019

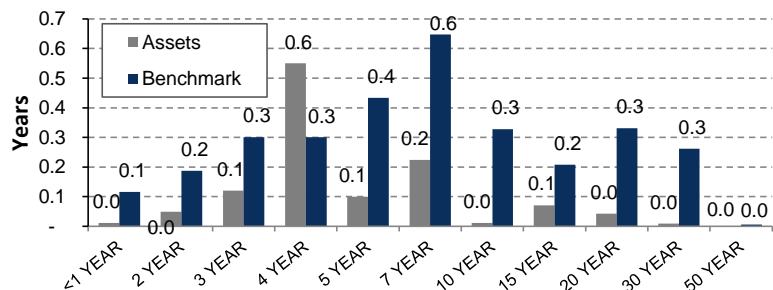
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Reporting Currency: USD

Credit Analytics

|                  | Benchmark                                     | Market Value (Millions) | Allocation (%) | Duration (Years) | Expected Yield (% per annum) | Credit Spread (OAS) (%) | Volatility (% per annum) <sup>1</sup> | Standalone VaR (% of MV) <sup>2</sup> | Tracking Error (% per annum) <sup>3</sup>              |
|------------------|---|-------------------------|----------------|------------------|------------------------------|-------------------------|---------------------------------------|---------------------------------------|--|
| High Yield       |   | 2,346                   | 46.0%          | 2.42             | 4.11%                        | 4.32%                   | 2.61%                                 | 4.56%                                 | 1.05%  |
|                  | <i>Barclays US High Yield</i>                 |                         |                | 3.64             | 6.27%                        | 3.67%                   | 3.54%                                 | 6.39%                                 |  |
| Bank Loans       |   | 877                     | 17.2%          | 0.55             | 5.60%                        | 3.77%                   | 5.48%                                 | 9.63%                                 | 0.81%  |
|                  | <i>CSFB Lev Loan Index</i>                    |                         |                | 0.10             | 4.02%                        | 4.50%                   | 6.26%                                 | 11.06%                                |  |
| EM Debt          |   | 853                     | 16.7%          | -                | -                            | -                       | 3.65%                                 | 5.64%                                 | 4.63%  |
|                  | <i>Blended - EM Debt</i>                      |                         |                | 6.09             | 4.97%                        | 2.07%                   | 5.67%                                 | 9.21%                                 |  |
| Illiquid Credit  |   | 1,026                   | 20.1%          | -                | -                            | -                       | 5.29%                                 | 8.59%                                 | 5.58%  |
|                  | <i>Barclays US Aggregate</i>                  |                         |                | 5.78             | 2.73%                        | 0.36%                   | 3.00%                                 | 4.83%                                 |  |
| <b>TOTAL</b>     |   | <b>5,103</b>            | <b>100.0%</b>  | <b>1.21</b>      | <b>2.85%</b>                 | <b>4.18%</b>            | <b>3.55%</b>                          | <b>5.50%</b>                          | <b>1.35%</b>   |
|                  | <i>Weighted Average Benchmark<sup>4</sup></i> |                         |                | 3.87             | 4.96%                        | 2.88%                   | 3.46%                                 | 5.64%                                 |  |
| <b>Benchmark</b> | <i>Credit Composite</i>                       |                         |                | <b>3.25</b>      | <b>4.49%</b>                 | <b>4.18%</b>            | <b>3.57%</b>                          | <b>5.93%</b>                          | <b>0.95%</b>   |
|                  |   |                         |                |                  |                              |                         |                                       |                                       | <i>Aggregate Benchmark Structural Risk<sup>5</sup></i> |
|                  |   |                         |                |                  |                              |                         |                                       |                                       | <b>-0.40%</b>  |

Credit Contribution to Duration By Period



Credit Correlations

|                 | Bank Loans | EM Debt | High Yield | Illiquid Credit | TOTAL |
|-----------------|------------|---------|------------|-----------------|-------|
| Bank Loans      | 1.00       | 0.93    | 0.90       | 0.71            | 0.94  |
| EM Debt         | 0.93       | 1.00    | 0.92       | 0.74            | 0.95  |
| High Yield      | 0.90       | 0.92    | 1.00       | 0.76            | 0.96  |
| Illiquid Credit | 0.71       | 0.74    | 0.76       | 1.00            | 0.87  |
| TOTAL           | 0.94       | 0.95    | 0.96       | 0.87            | 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 Credit to the Credit Composite] - [Tracking Error of Credit to the weighted average of manager category benchmarks]

# Real Assets & Inflation Hedges

Real Assets & Inflation Hedges Analytics, Volatility & Tracking Error by Sub-Asset Class Category

28-Jun-2019

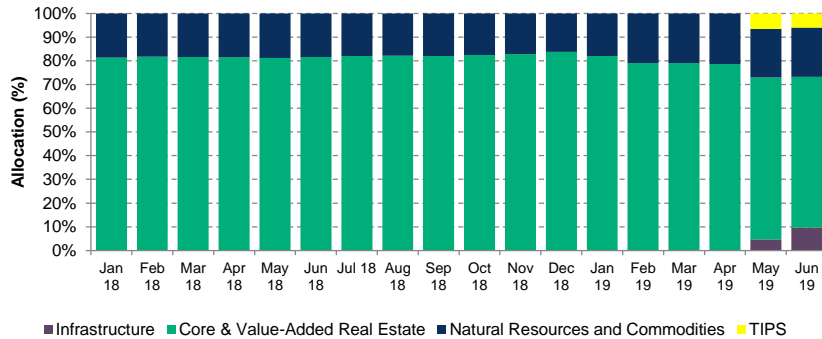
LACERA

Reporting Currency: USD

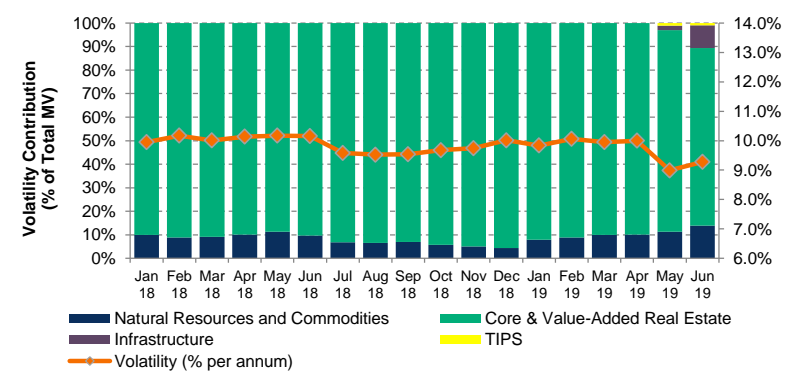
Real Assets & Inflation Hedges Analytics

| Benchmark                                     | Market Value (Millions)                | Allocation (%) | Beta S&P 500 <sup>1</sup> | Beta MSCI ACWIxUS <sup>1</sup> | Beta BCOM   | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of MV) <sup>3</sup> | Tracking Error (% per annum) <sup>4</sup>              |
|---|--|----------------|---------------------------|--------------------------------|-------------|---------------------------------------|---------------------------------------|--|
| Core & Value-Added Real Estate                | 5,352                                  | 64%            | 0.58                      | 0.41                           | 0.13        | 11.61%                                | 18.63%                                | 10.58%   |
| <i>NCREIF Fund Index - Daily Priced</i>       |  |                | <i>0.04</i>               | <i>0.03</i>                    | <i>0.00</i> | <i>1.2%</i>                           | <i>4.34%</i>                          |  |
| Natural Resources & Commodities               | 1,743                                  | 21%            | 0.35                      | 0.40                           | 0.31        | 12.21%                                | 20.03%                                | 4.58%  |
| <i>Blended BM - Natural Resources</i>         |  |                | <i>0.71</i>               | <i>0.83</i>                    | <i>1.11</i> | <i>14.84%</i>                         | <i>19.56%</i>                         |  |
| Infrastructure                                | 814                                    | 10%            | 0.61                      | 0.62                           | 0.37        | 10.47%                                | 15.46%                                | 2.77%  |
| <i>DJ-Brookfield Global Infrastructure</i>    |  |                | <i>0.61</i>               | <i>0.68</i>                    | <i>0.43</i> | <i>11.45%</i>                         | <i>18.06%</i>                         |  |
| TIPS  | 507                                    | 6%             | 0.01                      | 0.05                           | 0.03        | 3.54%                                 | 3.91%                                 | 0.03%  |
| <i>BBG-Barclays US TIPS</i>                   |  |                | <i>0.01</i>               | <i>0.05</i>                    | <i>0.03</i> | <i>3.57%</i>                          | <i>3.94%</i>                          |  |
| <b>TOTAL</b>                                  | <b>8,417</b>                           | <b>100.0%</b>  | <b>0.49</b>               | <b>0.45</b>                    | <b>0.30</b> | <b>9.29%</b>                          | <b>14.86%</b>                         | <b>6.55%</b>   |
| <i>Weighted Average Benchmark<sup>5</sup></i> |  |                | <i>0.23</i>               | <i>0.26</i>                    | <i>0.27</i> | <i>9.29%</i>                          | <i>5.37%</i>                          |  |
| <b>Benchmark</b>                              | <i>RA &amp; Infl. Hedges Composite</i> |                | <b>0.25</b>               | <b>0.28</b>                    | <b>0.28</b> | <b>4.51%</b>                          | <b>6.09%</b>                          | <b>6.31%</b>   |
|   |  |                |                           |                                |             |                                       |                                       | <b>Aggregate Benchmark Structural Risk<sup>6</sup></b> |
|   |  |                |                           |                                |             |                                       |                                       | <b>-0.24%</b>  |

Real Assets & Inflation Hedges Allocation



Real Assets & Inflation Hedges 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 manager or RA & IH.

3: VaR is calculated using historical Value-at-Risk at 95th percentile, 1 month horizon annualized and expressed as a percentage of each manager or RA & IH.

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 RA & IH.

5: Weighted average benchmark is the market value weighted average of the manager category benchmarks.

6: Aggregate Benchmark Structural Risk = [Tracking Error of RA & Infl. Hedges to the RA & Infl. Hedges Composite Benchmark] - [Tracking Error of RA & Infl. Hedges Strategies to the weighted average of Strategies Benchmarks]

# Risk Reduction & Mitigation

Risk Reduction & Mitigation Analytics, Volatility & Tracking Error by Sub-Asset Class Category

28-Jun-2019

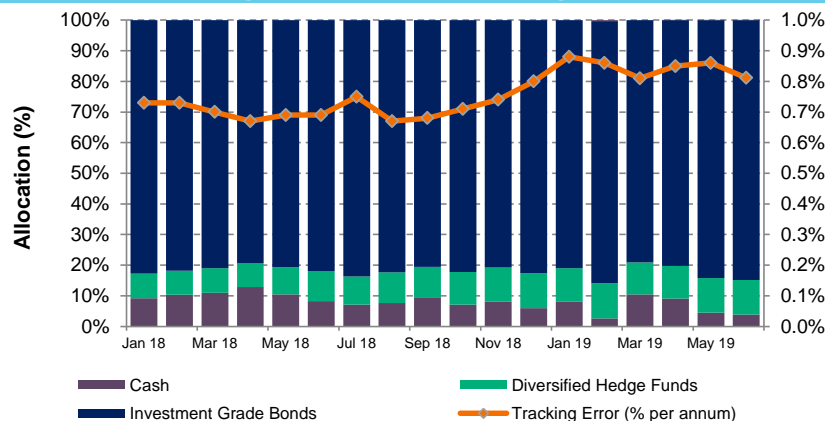
LACERA

Reporting Currency: USD

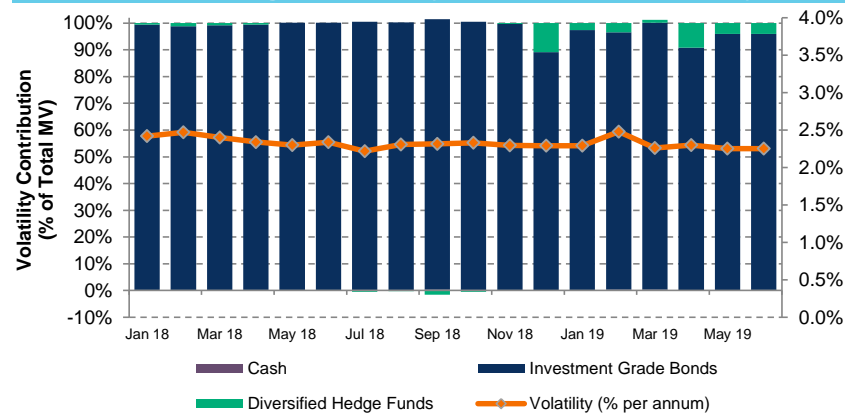
Risk Reduction & Mitigation Analytics

|                         | Benchmark                                     | Market Value (Millions) | Allocation    | Duration (Years) | Beta MSCI ACWI <sup>1</sup> | Beta Barclays US Agg | Volatility (% per annum) <sup>2</sup> | Standalone VaR (% of Total MV) <sup>3</sup> | Tracking Error (% per annum) <sup>4</sup>              |
|-------------------------|---|-------------------------|---------------|------------------|-----------------------------|----------------------|---------------------------------------|---|--|
| Investment Grade Bonds  |   | 11,559                  | 84.79%        | 5.56             | 0.01                        | 0.86                 | 2.93%                                 | 4.86%                                       | 0.36%  |
|                         | <i>Barclays US Aggregate</i>                  |                         |               | 5.78             | (0.02)                      | 1.01                 | 3.00%                                 | 4.83%                                       |  |
| Diversified Hedge Funds |   | 1,540                   | 11.30%        | 0.48             | 0.36                        | (0.06)               | 4.77%                                 | 9.41%                                       | 4.76%  |
|                         | <i>Citigroup 3 M Treasury Bill</i>            |                         |               | 0.00             | 0.00                        | 0.02                 | 0.04%                                 | 0.01%                                       |  |
| Cash                    |   | 533                     | 3.91%         | 0.25             | 0.00                        | 0.00                 | 0.08%                                 | 0.15%                                       | 0.25%  |
|                         | <i>Citigroup 3 M Treasury Bill</i>            |                         |               | 0.00             | 0.00                        | 0.02                 | 0.04%                                 | 0.01%                                       |  |
| <b>TOTAL</b>            |   | <b>13,633</b>           | <b>100.0%</b> | <b>4.78</b>      | <b>0.04</b>                 | <b>0.73</b>          | <b>2.55%</b>                          | <b>4.38%</b>                                | <b>0.79%</b>   |
|                         | <i>Weighted Average Benchmark<sup>5</sup></i> |                         |               | 4.93             | (0.02)                      | 0.86                 | 2.57%                                 | 4.11%                                       |  |
| <b>Benchmark</b>        | <i>Risk Red. &amp; Mit. Composite</i>         |                         |               | <b>4.80</b>      | <b>(0.02)</b>               | <b>0.84</b>          | <b>2.50%</b>                          | <b>3.99%</b>                                | <b>0.78%</b>   |
|                         |   |                         |               |                  |                             |                      |                                       |   | <i>Aggregate Benchmark Structural Risk<sup>6</sup></i> |
|                         |   |                         |               |                  |                             |                      |                                       |   | <b>-0.01%</b>  |

Risk Reduction & Mitigation Allocation & Tracking Error Trend



Risk Reduction & Mitigation Volatility & Contribution to Volatility Trend



1: Ex-ante beta from truView®

2: 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.

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 the market value of each subcomposite.

5: Weighted average benchmark is the market value weighted average of the manager category benchmarks.

6: Aggregate Benchmark Structural Risk = [Tracking Error of Total RR&M to the Composite Benchmark] - [Tracking Error of RR&M to the weighted average of manager category benchmarks]

# Glossary

## Appendix - Glossary

LACERA

28-Jun-2019

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 <sup>SM</sup> 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.   |

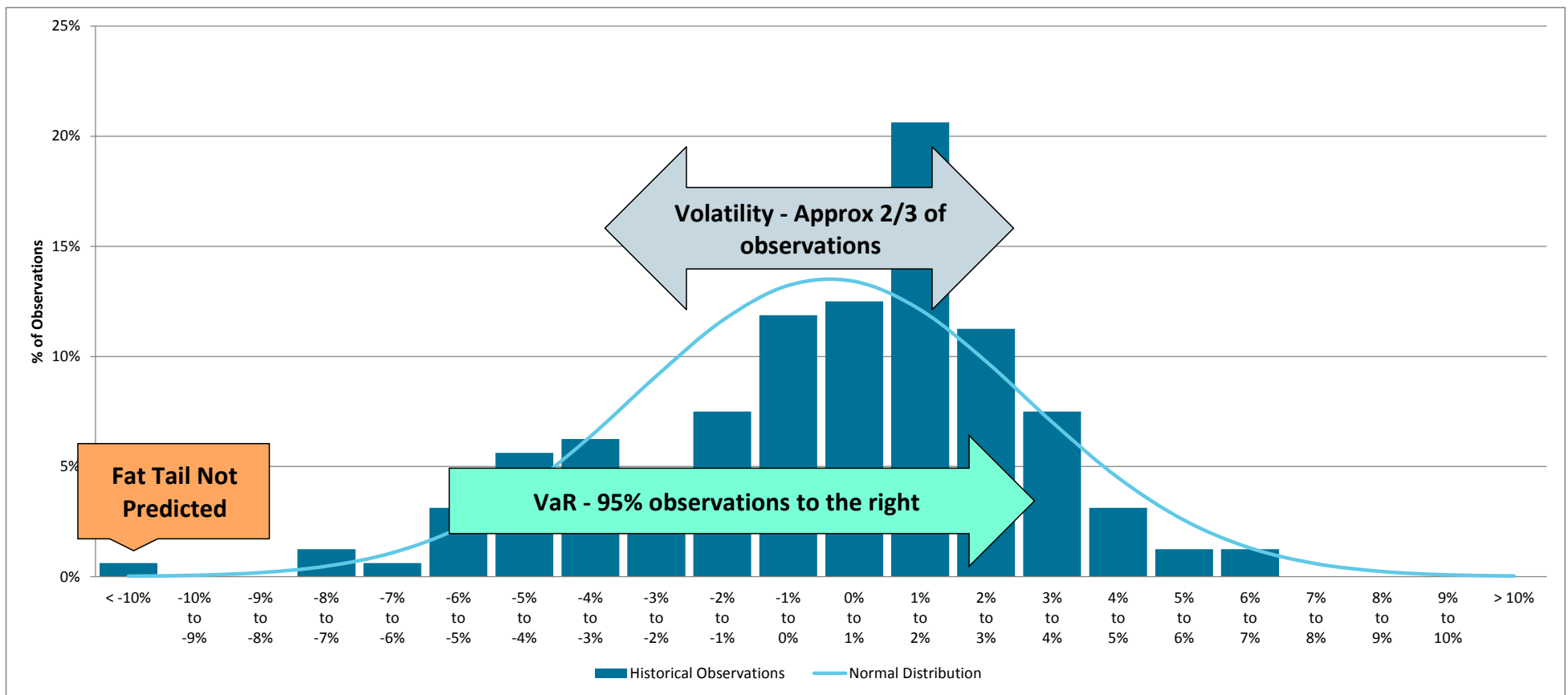
VaR and Volatility

Example Illustration of VaR and Volatility

VaR = 5.6%

Volatility = 2.9%

Mean = 0.1%





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# FUND EVALUATION REPORT

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## Los Angeles County Employees Retirement Association

June 30, 2019



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M E K E T A I N V E S T M E N T G R O U P

BOSTON  
MASSACHUSETTS

CHICAGO  
ILLINOIS

MIAMI  
FLORIDA

NEW YORK  
NEW YORK

PORTLAND  
OREGON

SAN DIEGO  
CALIFORNIA

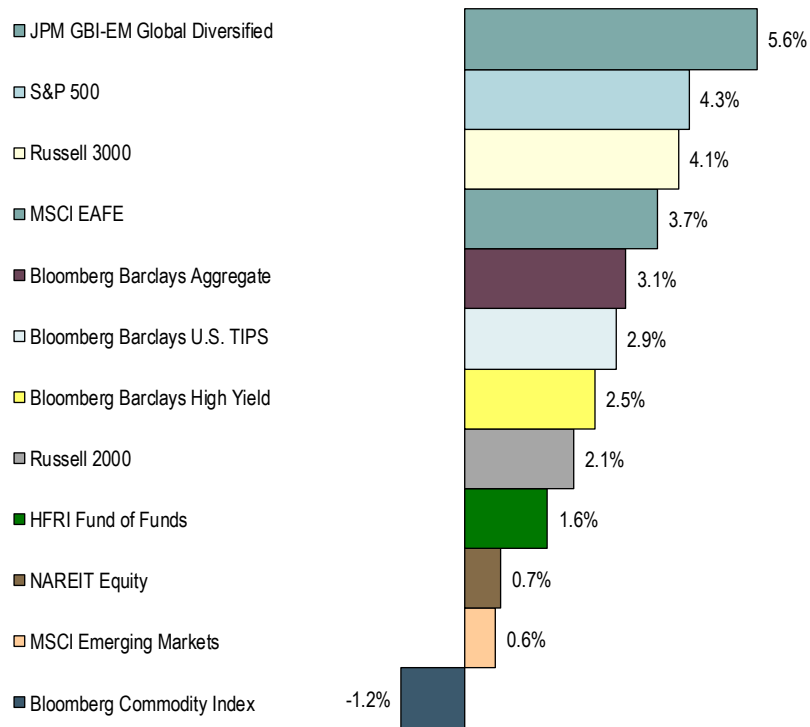
LONDON  
UNITED KINGDOM

[www.meketagroup.com](http://www.meketagroup.com)

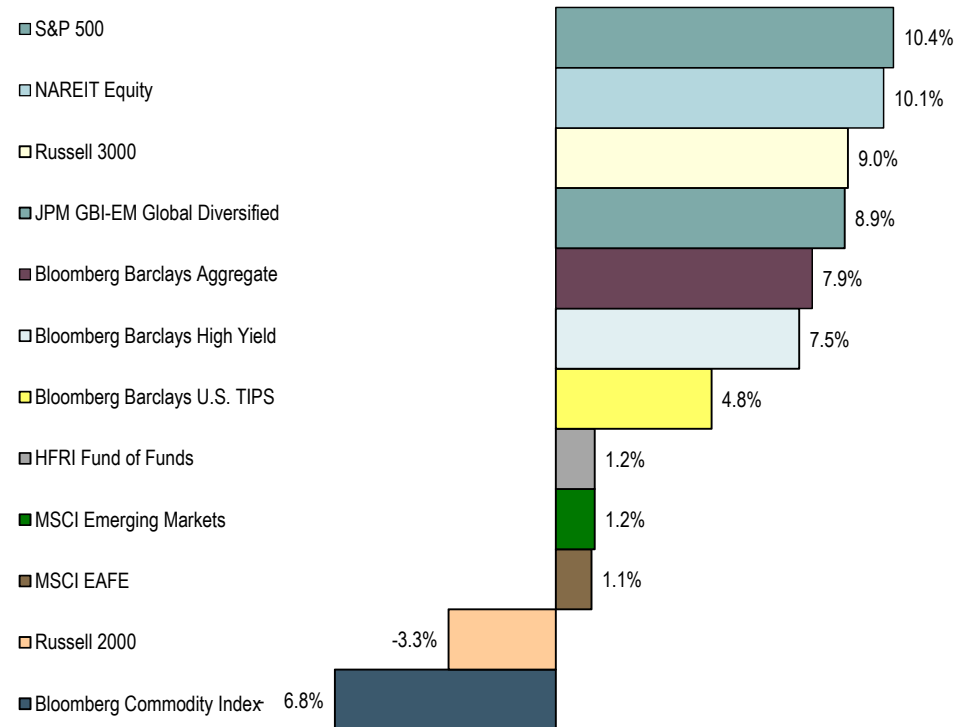
# Market Commentary

## The World Markets<sup>1</sup>

### Second Quarter of 2019



### One-Year as of Second Quarter of 2019



<sup>1</sup> Source: InvestorForce.



Index Returns<sup>1</sup>

|  | 2Q19<br>(%) | 1 YR<br>(%) | 3 YR<br>(%) | 5 YR<br>(%) | 10 YR<br>(%) |
|--|-------------|-------------|-------------|-------------|--------------|
| <b>Domestic Equity</b>                 |             |             |             |             |              |
| S&P 500                                | 4.3         | 10.4        | 14.2        | 10.7        | 14.7         |
| Russell 3000                           | 4.1         | 9.0         | 14.0        | 10.2        | 14.7         |
| Russell 1000                           | 4.2         | 10.0        | 14.1        | 10.5        | 14.8         |
| Russell 1000 Growth                    | 4.6         | 11.6        | 18.1        | 13.4        | 16.3         |
| Russell 1000 Value                     | 3.8         | 8.5         | 10.2        | 7.5         | 13.2         |
| Russell MidCap                         | 4.1         | 7.8         | 12.2        | 8.6         | 15.2         |
| Russell MidCap Growth                  | 5.4         | 13.9        | 16.5        | 11.1        | 16.0         |
| Russell MidCap Value                   | 3.2         | 3.7         | 8.9         | 6.7         | 14.6         |
| Russell 2000                           | 2.1         | -3.3        | 12.3        | 7.1         | 13.4         |
| Russell 2000 Growth                    | 2.7         | -0.5        | 14.7        | 8.6         | 14.4         |
| Russell 2000 Value                     | 1.4         | -6.2        | 9.8         | 5.4         | 12.4         |
| <b>Foreign Equity</b>                  |             |             |             |             |              |
| MSCI ACWI (ex. U.S.)                   | 3.0         | 1.3         | 9.4         | 2.2         | 6.5          |
| MSCI EAFE                              | 3.7         | 1.1         | 9.1         | 2.2         | 6.9          |
| MSCI EAFE (Local Currency)             | 2.8         | 2.2         | 9.8         | 5.9         | 8.3          |
| MSCI EAFE Small Cap                    | 1.7         | -6.3        | 9.1         | 4.4         | 9.7          |
| MSCI Emerging Markets                  | 0.6         | 1.2         | 10.7        | 2.5         | 5.8          |
| MSCI Emerging Markets (Local Currency) | 7.4         | 9.4         | 13.8        | 7.6         | 8.6          |
| <b>Fixed Income</b>                    |             |             |             |             |              |
| Bloomberg Barclays Universal           | 3.1         | 8.1         | 2.8         | 3.2         | 4.4          |
| Bloomberg Barclays Aggregate           | 3.1         | 7.9         | 2.3         | 2.9         | 3.9          |
| Bloomberg Barclays U.S. TIPS           | 2.9         | 4.8         | 2.1         | 1.8         | 3.6          |
| Bloomberg Barclays High Yield          | 2.5         | 7.5         | 7.5         | 4.7         | 9.2          |
| JPM GBI-EM Global Diversified          | 5.6         | 9.0         | 4.2         | -0.5        | 3.4          |
| <b>Other</b>                           |             |             |             |             |              |
| NAREIT Equity                          | 0.7         | 10.1        | 3.8         | 7.7         | 15.3         |
| Bloomberg Commodity Index              | -1.2        | -6.8        | -2.2        | -9.1        | -3.7         |
| HFRI Fund of Funds                     | 1.6         | 1.3         | 4.3         | 2.2         | 3.2          |

<sup>1</sup> Source: InvestorForce.

## Global Economic Outlook

**The IMF continues to reduce their growth projections as the global economic expansion slows, trade tensions escalate, and uncertainty related to Brexit continues.**

- The IMF now forecasts global growth to be 3.2% in 2019 and 3.5% in 2020 (both revised down by 0.1%).
- In advanced economies, growth is projected to slow from the 2.2% 2018 level to 1.9% in 2019 and 1.7% in 2020. While the forecast for growth in the U.S. was revised up in 2019 (2.6% versus 2.3%) given strong exports and an increase in inventories, expectations for a slowdown to 1.9% in 2020 remains due to the reduction in fiscal stimulus. Growth in the euro area and Japan are both projected to be lower than the U.S. this year and next.
- In emerging and developing economies, growth is forecasted to be 4.1% in 2019 and 4.7% in 2020, but both estimates were revised down as tariffs continue to impact investment and trade. China's growth is expected to slow even further given the escalation in trade tensions with the U.S. and overall slower growth globally. Fiscal stimulus will likely offset only part of the impact of the trade dispute.
- Overall, inflation is projected to remain level over the coming years, close to long-term averages.

|                              | Real GDP (%) <sup>1</sup> |                      |                      |                           | Inflation (%) <sup>1</sup> |                      |                      |                           |
|------------------------------|---------------------------|----------------------|----------------------|---------------------------|----------------------------|----------------------|----------------------|---------------------------|
|                              | IMF<br>2018 Actual        | IMF<br>2019 Forecast | IMF<br>2020 Forecast | Actual<br>10 Year Average | IMF<br>2018 Actual         | IMF<br>2019 Forecast | IMF<br>2020 Forecast | Actual<br>10 Year Average |
| World                        | 3.6                       | 3.2                  | 3.5                  | 3.4                       | 3.6                        | 3.6                  | 3.6                  | 3.5                       |
| U.S.                         | 2.9                       | 2.6                  | 1.9                  | 1.7                       | 2.4                        | 2.0                  | 2.7                  | 1.6                       |
| Euro Area                    | 1.9                       | 1.3                  | 1.6                  | 0.8                       | 1.8                        | 1.3                  | 1.6                  | 1.3                       |
| Japan                        | 0.8                       | 0.9                  | 0.4                  | 0.7                       | 1.0                        | 1.1                  | 1.5                  | 0.3                       |
| China                        | 6.6                       | 6.2                  | 6.0                  | 7.9                       | 2.1                        | 2.3                  | 2.5                  | 2.2                       |
| Emerging Markets (ex. China) | 3.5                       | 3.7                  | 4.1                  | 3.7                       | 6.4                        | 6.6                  | 6.2                  | 6.5                       |

<sup>1</sup> Source: IMF. World Economic Outlook. Real GDP: July 2019 Update. Inflation: April 2019 Update. "Actual 10 Year Average" represents data from 2009 to 2018.

## Global Economic Outlook (continued)

**With global growth slowing, compounded by trade tensions, major central banks are pivoting toward more accommodative policies.**

- The Federal Reserve held the federal funds rate at 2.25%-2.50% at their June meeting, but we expect they will start cutting rates. Questions remain regarding how long the rally in risk assets can last and how this easing cycle will look given the already low interest rate levels.
- The Bank of Japan (BOJ) is showing no signs of pulling back from its unprecedented monetary stimulus, as inflation remains well below target, growth is slowing globally, and the consumption tax increase planned for later this year may further dampen growth. At their June meeting the BOJ made no changes to their stimulative efforts, keeping bank deposit rates negative (-0.1%), and continuing to target a 0% yield on the 10-year government bond.
- The European Central Bank held low rates steady at their June meeting and signaled that they could restart quantitative easing and rate cuts given slowing economic conditions. Later this year former head of the IMF, Christine Lagarde, will take over the helm of the ECB from Mario Draghi with expectations for her to continue to do “whatever it takes” to support the economic region.
- The People’s Bank of China (PBOC) continues to cut bank reserve requirements in an effort to stimulate growth as the trade war with the U.S. weighs on the slowing economy. Recently, fiscal stimulus was added as a further step to support the economy, but additional stimulus increases concerns given the already high debt levels.

**Several issues are of primary concern: 1) uncertainty related to the U.S. economy and policies; 2) declining growth in China, along with uncertain fiscal and monetary policies; and 3) political uncertainty in Europe and risks related to the U.K.’s exit from the European Union.**

## Capital Markets Outlook

### Takeaways

- While not as strong as June, July was another profitable month for U.S. Equity markets whereas Non-U.S. Equity markets experienced marginal declines. YTD returns across Global Equity markets are in the double-digits, with several segments of the U.S. Equity market leading the pack at 20%+. Additionally, interest rates in the middle and long-end of the curve have continued to decline, with U.S. Long Bonds producing YTD returns of over 11%.
- In an effort to combat global growth uncertainty and persistently low inflation, the Federal Reserve elected to cut rates for the first time in a decade. The full impact of this decision on economic data and the capital markets is likely to remain uncertain over the near term.
- Geopolitical events, especially trade wars between the U.S. and China, are expected to provide variable shocks to the global economy and capital markets for the foreseeable future.
- U.S. Equity markets remain expensive whereas Non-U.S. Equity markets remain reasonably valued relative to their history.
- Implied equity market volatility<sup>1</sup> remained well-below its historical average (~19) throughout July while ticking up to 16 at month-end.
- The Market Sentiment Indicator<sup>2</sup> returned to neutral at month end.
- Market uncertainty as measured by Systemic Risk remains low, but there is potential for negative surprises, as global economies navigate their respective “late-cycle” dynamics and geopolitical events continue to unfold, as evidenced by early market movements in August.

<sup>1</sup> As measured by VIX Index.

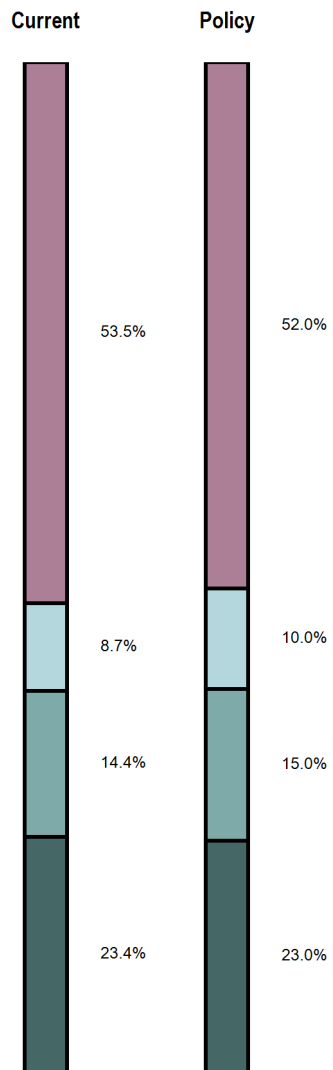
<sup>2</sup> See Appendix for the rationale for selection and calculation methodology used for the risk metrics.





## 2Q2019 Review

As of June 30, 2019



| Allocation vs. Target                   |  |                         |                    |               |              |                      |                   |
|---|--|-------------------------|--------------------|---------------|--------------|----------------------|-------------------|
|   |  | Current Balance         | Current Allocation | Policy        | Difference   | Policy Range         | Within IPS Range? |
| <b>Growth</b>                           |  | <b>\$31,256,657,423</b> | <b>53.5%</b>       | <b>52.0%</b>  | <b>1.5%</b>  | <b>45.0% - 59.0%</b> | <b>Yes</b>        |
| Global Equity                           |  | \$24,709,974,117        | 42.3%              | 41.0%         | 1.3%         | 34.0% - 48.0%        | Yes               |
| Private Equity                          |  | \$5,625,087,998         | 9.6%               | 10.0%         | -0.4%        | 7.0% - 13.0%         | Yes               |
| Opportunistic Real Estate               |  | \$921,595,308           | 1.6%               | 1.0%          | 0.6%         | 0.0% - 2.0%          | Yes               |
| <b>Credit</b>                           |  | <b>\$5,089,506,462</b>  | <b>8.7%</b>        | <b>10.0%</b>  | <b>-1.3%</b> | <b>7.0% - 13.0%</b>  | <b>Yes</b>        |
| High Yield                              |  | \$2,334,528,336         | 4.0%               | 4.0%          | 0.0%         | 1.0% - 7.0%          | Yes               |
| Bank Loans                              |  | \$874,879,495           | 1.5%               | 3.0%          | -1.5%        | 0.0% - 5.0%          | Yes               |
| EM Debt                                 |  | \$852,921,407           | 1.5%               | 1.0%          | 0.5%         | 0.0% - 3.0%          | Yes               |
| Illiquid Credit <sup>1</sup>            |  | \$1,026,126,536         | 1.8%               | 2.0%          | -0.2%        | 0.0% - 4.0%          | Yes               |
| <b>Real Assets and Inflation Hedges</b> |  | <b>\$8,422,733,246</b>  | <b>14.4%</b>       | <b>15.0%</b>  | <b>-0.6%</b> | <b>12.0% - 18.0%</b> | <b>Yes</b>        |
| Core and Value-Added Real Estate        |  | \$5,355,484,032         | 9.2%               | 8.0%          | 1.2%         | 5.0% - 11.0%         | Yes               |
| Natural Resources and Commodities       |  | \$1,740,726,135         | 3.0%               | 3.0%          | 0.0%         | 1.0% - 5.0%          | Yes               |
| Infrastructure                          |  | \$814,440,949           | 1.4%               | 2.0%          | -0.6%        | 0.0% - 3.0%          | Yes               |
| TIPS                                    |  | \$512,082,130           | 0.9%               | 2.0%          | -1.1%        | 0.0% - 4.0%          | Yes               |
| <b>Risk Reduction and Mitigation</b>    |  | <b>\$13,672,574,825</b> | <b>23.4%</b>       | <b>23.0%</b>  | <b>0.4%</b>  | <b>17.0% - 29.0%</b> | <b>Yes</b>        |
| Investment Grade Bonds                  |  | \$11,593,692,274        | 19.8%              | 19.0%         | 0.8%         | 13.0% - 25.0%        | Yes               |
| Diversified Hedge Fund Portfolio        |  | \$1,545,378,423         | 2.6%               | 3.0%          | -0.4%        | 0.0% - 5.0%          | Yes               |
| Cash                                    |  | \$529,524,355           | 0.9%               | 1.0%          | -0.1%        | 0.0% - 3.0%          | Yes               |
| <b>Total<sup>2</sup></b>                |  | <b>\$58,441,471,956</b> | <b>100.0%</b>      | <b>100.0%</b> |              |                      |                   |

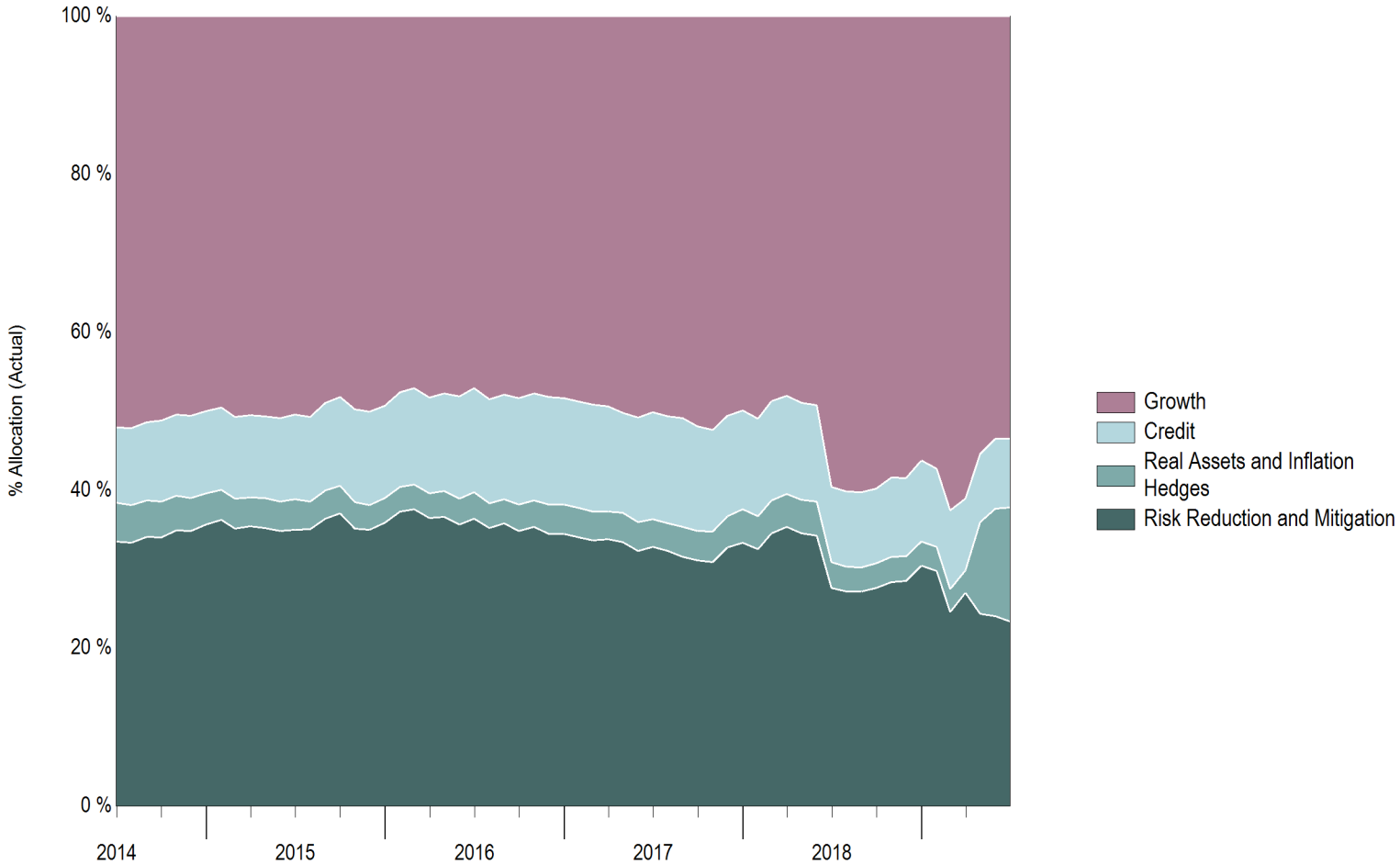
<sup>1</sup> Illiquid Credit contains credit hedge funds, real estate debt, private debt strategies and private equity-related debt.

<sup>2</sup> Totals may not add up due to rounding.

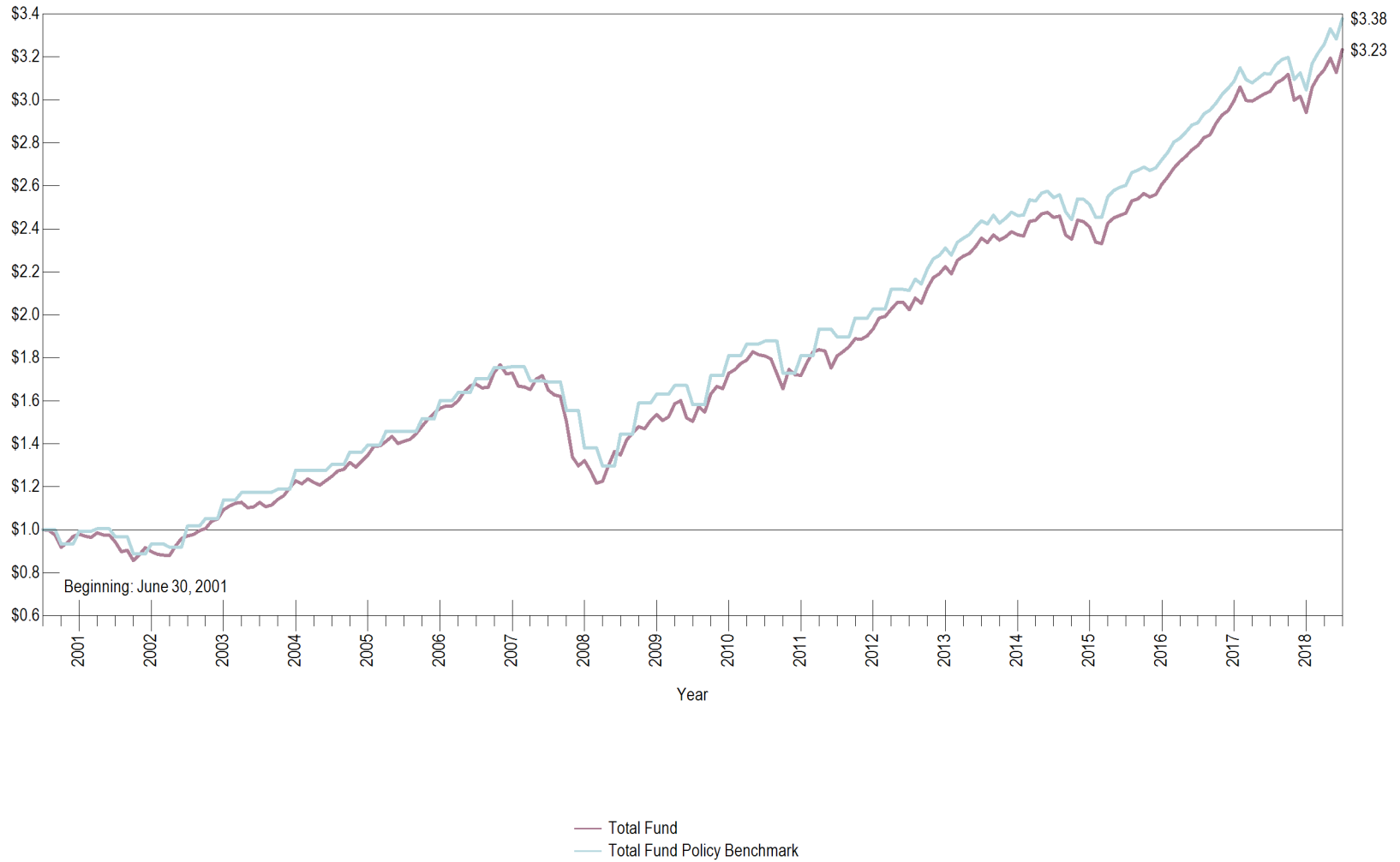
\* The Functional Framework became effective April 1, 2019.



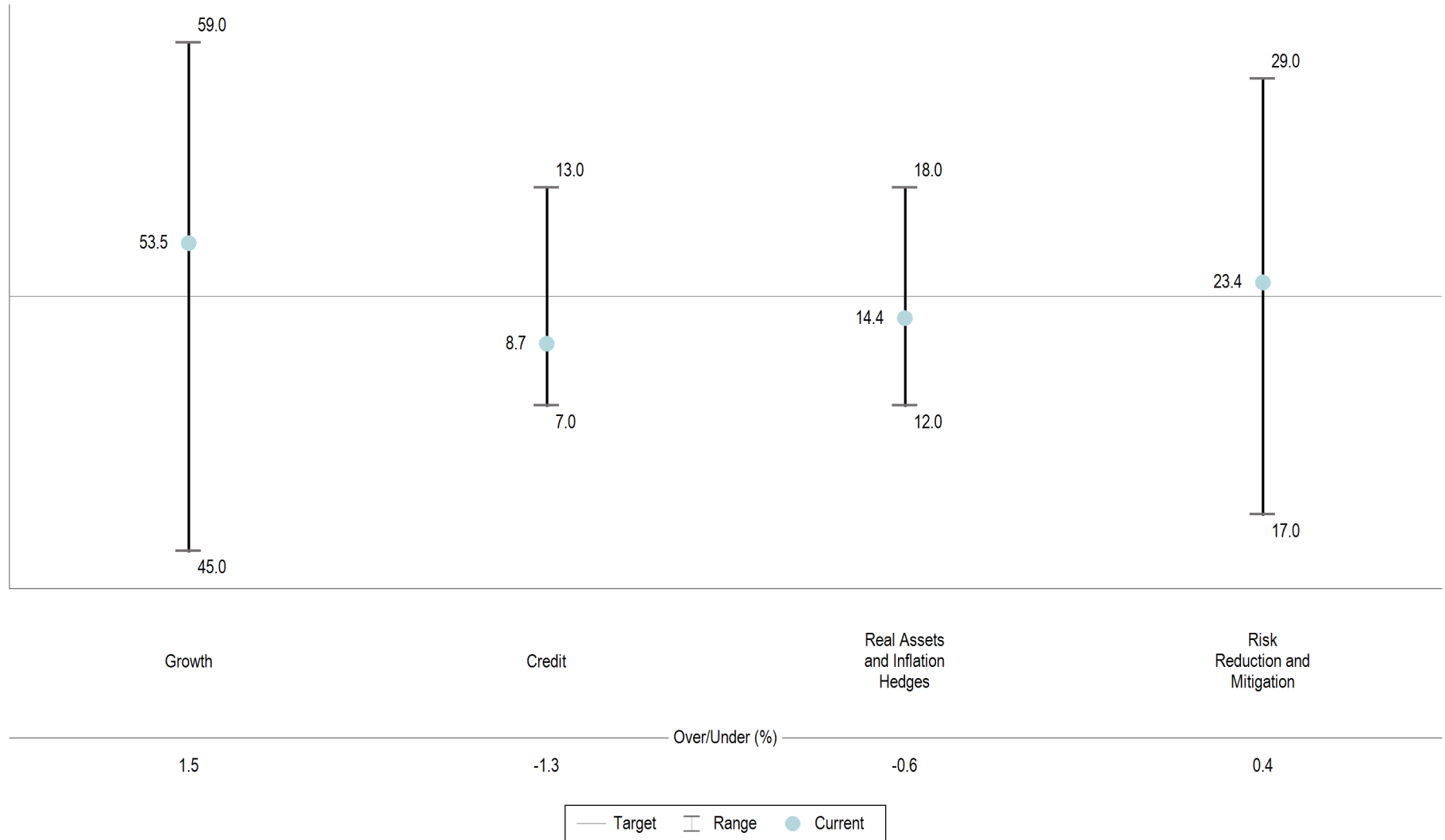
Asset Allocation History  
5 Years Ending June 30, 2019



Growth of a Dollar



Actual vs. Target



As of June 30, 2019

## Asset Class Performance Summary (Net)

|  | Market Value<br>(\$)  | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD <sup>1</sup><br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|-----------------------|-------------------|-------------|------------|-----------------------------------|-------------|--------------|--------------|---------------|
| <b>Total Fund (Net)</b>  | <b>58,441,471,956</b> | <b>100.0</b>      | <b>3.4</b>  | <b>3.0</b> | <b>6.4</b>                        | <b>6.4</b>  | <b>9.4</b>   | <b>6.5</b>   | <b>9.1</b>    |
| <i>Total Fund Policy Benchmark</i>                               |                       |                   | <u>2.9</u>  | <u>3.7</u> | <u>8.3</u>                        | <u>8.3</u>  | <u>9.1</u>   | <u>6.8</u>   | <u>8.9</u>    |
| Excess Return  |                       |                   | 0.5         | -0.7       | -1.9                              | -1.9        | 0.3          | -0.3         | 0.2           |
| <b>Growth (Net)</b>  | <b>31,256,657,423</b> | <b>53.5</b>       | <b>5.0</b>  | <b>3.6</b> | --                                | --          | --           | --           | --            |
| <i>Growth Custom Blended Benchmark</i>                           |                       |                   | <u>4.1</u>  | <u>4.6</u> | --                                | --          | --           | --           | --            |
| Excess Return  |                       |                   | 0.9         | -1.0       |                                   |             |              |              |               |
| <b>Credit (Net)</b>  | <b>5,089,506,462</b>  | <b>8.7</b>        | <b>1.3</b>  | <b>2.3</b> | --                                | --          | --           | --           | --            |
| <i>Credit Custom Blended Benchmark</i>                           |                       |                   | <u>1.9</u>  | <u>3.0</u> | --                                | --          | --           | --           | --            |
| Excess Return  |                       |                   | -0.6        | -0.7       |                                   |             |              |              |               |
| <b>Real Assets and Inflation Hedges (Net)</b>                    | <b>8,422,733,246</b>  | <b>14.4</b>       | <b>2.2</b>  | <b>1.4</b> | --                                | --          | --           | --           | --            |
| <i>Real Assets and Inflation Hedges Custom Blended Benchmark</i> |                       |                   | <u>2.1</u>  | <u>1.8</u> | --                                | --          | --           | --           | --            |
| Excess Return  |                       |                   | 0.1         | -0.4       |                                   |             |              |              |               |
| <b>Risk Reduction and Mitigation (Net)</b>                       | <b>13,672,574,825</b> | <b>23.4</b>       | <b>1.1</b>  | <b>2.8</b> | --                                | --          | --           | --           | --            |
| <i>Risk Reduction and Mitigation Custom Blended Benchmark</i>    |                       |                   | <u>1.1</u>  | <u>2.7</u> | --                                | --          | --           | --           | --            |
| Excess Return  |                       |                   | 0.0         | 0.1        |                                   |             |              |              |               |

<sup>1</sup> Fiscal Year begins July 1.

As of June 30, 2019

## Asset Class Performance Summary - Classical (Net)

|   | Market Value<br>(\$)  | % of Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---|-----------------------|----------------|-------------|-------------|-------------|--------------|--------------|---------------|
| <b>Total Fund<sup>1</sup></b>             | <b>58,441,471,956</b> | <b>100.0</b>   | <b>3.4</b>  | <b>3.0</b>  | <b>6.4</b>  | <b>9.4</b>   | <b>6.5</b>   | <b>9.1</b>    |
| <i>Total Fund Policy Benchmark</i>        |                       |                | 3.3         | 3.7         | 8.3         | 9.1          | 6.8          | 8.9           |
| <b>U.S. Equity</b>                        | <b>13,339,139,153</b> | <b>26.1</b>    | <b>7.1</b>  | <b>4.0</b>  | <b>7.3</b>  | <b>13.2</b>  | <b>9.6</b>   | <b>14.4</b>   |
| <i>Russell 3000</i>                       |                       |                | 7.0         | 4.1         | 9.0         | 14.0         | 10.2         | 14.7          |
| <b>Non-U.S. Equity</b>                    | <b>11,370,834,964</b> | <b>22.2</b>    | <b>5.2</b>  | <b>2.9</b>  | <b>2.1</b>  | <b>10.9</b>  | <b>4.6</b>   | <b>8.1</b>    |
| <i>Custom MSCI ACWI IMI Net 50% Hedge</i> |                       |                | 5.2         | 2.6         | 1.6         | 10.2         | 4.1          | 7.7           |
| <b>Fixed Income</b>                       | <b>15,872,640,586</b> | <b>31.0</b>    | <b>1.4</b>  | <b>2.9</b>  | <b>7.5</b>  | <b>4.1</b>   | <b>3.6</b>   | <b>5.5</b>    |
| <i>FI Custom Index</i>                    |                       |                | 1.4         | 3.1         | 8.1         | 2.8          | 3.2          | 4.4           |
| <i>BBgBarc US Universal TR</i>            |                       |                | 1.4         | 3.1         | 8.1         | 2.8          | 3.2          | 4.4           |
| <b>Real Estate</b>                        | <b>6,578,330,219</b>  | <b>11.5</b>    | <b>1.9</b>  | <b>1.7</b>  | <b>8.9</b>  | <b>8.2</b>   | <b>9.7</b>   | <b>6.3</b>    |
| <i>Real Estate Custom Benchmark</i>       |                       |                | 0.5         | 1.4         | 7.1         | 7.5          | 9.6          | 8.7           |
| <b>Private Equity</b>                     | <b>5,889,790,600</b>  | <b>11.5</b>    | <b>0.5</b>  | <b>4.7</b>  | <b>13.5</b> | <b>15.7</b>  | <b>13.3</b>  | <b>15.8</b>   |
| <i>Private Equity Custom Benchmark</i>    |                       |                | 1.2         | 12.6        | 26.7        | 17.5         | 15.9         | 12.5          |
| <b>Commodities</b>                        | <b>1,310,861,834</b>  | <b>2.6</b>     | <b>2.9</b>  | <b>-1.6</b> | <b>-7.1</b> | <b>-0.6</b>  | <b>-8.1</b>  | <b>-2.1</b>   |
| <i>Bloomberg Commodity Index TR USD</i>   |                       |                | 2.7         | -1.2        | -6.8        | -2.2         | -9.1         | -3.7          |
| <b>Hedge Funds</b>                        | <b>1,905,791,823</b>  | <b>3.7</b>     | <b>-0.2</b> | <b>1.0</b>  | <b>0.5</b>  | <b>4.3</b>   | <b>2.3</b>   | <b>--</b>     |
| <i>Hedge Fund Custom Index</i>            |                       |                | 0.4         | 1.2         | 6.7         | 6.1          | 5.7          | --            |
| <b>Cash</b>                               | <b>529,524,355</b>    | <b>1.0</b>     | <b>0.2</b>  | <b>0.7</b>  | <b>2.7</b>  | <b>1.7</b>   | <b>1.2</b>   | <b>1.3</b>    |
| <i>FTSE 6 Month T-Bill</i>                |                       |                | 0.2         | 0.6         | 2.4         | 1.4          | 0.9          | 0.5           |

<sup>1</sup> DWS Infrastructure, DWS Natural Resources, and BlackRock TIPS included at the Total fund level; Total fund includes lagged accounts.



As of June 30, 2019

## Trailing Performance

|  | Market Value<br>(\$)  | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|-----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| <b>Total Fund (Net)</b>                | <b>58,441,471,956</b> | <b>100.0</b>      | <b>3.4</b>  | <b>3.0</b> | <b>6.4</b>           | <b>6.4</b>  | <b>9.4</b>   | <b>6.5</b>   | <b>9.1</b>    |
| <b>Total Fund (Gross)</b>              |                       |                   | <b>3.4</b>  | <b>3.0</b> | <b>6.7</b>           | <b>6.7</b>  | <b>9.6</b>   | <b>6.8</b>   | <b>9.4</b>    |
| <i>Total Fund Policy Benchmark</i>     |                       |                   | <u>2.9</u>  | <u>3.7</u> | <u>8.3</u>           | <u>8.3</u>  | <u>9.1</u>   | <u>6.8</u>   | <u>8.9</u>    |
| Excess Return (vs. Net)                |                       |                   | 0.5         | -0.7       | -1.9                 | -1.9        | 0.3          | -0.3         | 0.2           |
| <b>Growth (Net)<sup>1</sup></b>        | <b>31,256,657,423</b> | <b>53.5</b>       | <b>5.0</b>  | <b>3.6</b> | --                   | --          | --           | --           | --            |
| <b>Growth (Gross)</b>                  |                       |                   | <b>5.1</b>  | <b>3.6</b> | --                   | --          | --           | --           | --            |
| <i>Growth Custom Blended Benchmark</i> |                       |                   | <u>4.1</u>  | <u>4.6</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                |                       |                   | 0.9         | -1.0       |                      |             |              |              |               |
| <b>Global Equity (Net)</b>             | <b>24,709,974,117</b> | <b>42.3</b>       | <b>6.2</b>  | <b>3.4</b> | --                   | --          | --           | --           | --            |
| <b>Global Equity (Gross)</b>           |                       |                   | <b>6.2</b>  | <b>3.5</b> | --                   | --          | --           | --           | --            |
| <i>Global Equity Custom BM</i>         |                       |                   | <u>4.8</u>  | <u>2.7</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                |                       |                   | 1.4         | 0.7        |                      |             |              |              |               |
| BTC Russell 3000 (Net)                 | 11,666,659,375        | 20.0              | 7.0         | 4.1        | 9.0                  | 9.0         | --           | --           | --            |
| BTC Russell 3000 (Gross)               |                       |                   | 7.0         | 4.1        | 9.0                  | 9.0         | --           | --           | --            |
| <i>Russell 3000</i>                    |                       |                   | <u>7.0</u>  | <u>4.1</u> | <u>9.0</u>           | <u>9.0</u>  | --           | --           | --            |
| Excess Return (vs. Net)                |                       |                   | 0.0         | 0.0        | 0.0                  | 0.0         |              |              |               |

<sup>1</sup> Includes accounts that are lagged by 3-months and latest available adjusted for cash flows.



As of June 30, 2019

|                                   | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|-----------------------------------|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| BTC EAFE IMI (Net) <sup>1</sup>   | 4,521,298,880        | 7.7               | 5.7         | 3.6        | 0.3                  | 0.3         | 9.5          | 2.9          | 7.6           |
| BTC EAFE IMI (Gross)              |                      |                   | 5.7         | 3.6        | 0.4                  | 0.4         | 9.6          | 2.9          | 7.6           |
| <i>MSCI EAFE IMI Custom Index</i> |                      |                   | <u>5.7</u>  | <u>3.4</u> | <u>0.0</u>           | <u>0.0</u>  | <u>9.1</u>   | <u>2.5</u>   | <u>7.2</u>    |
| Excess Return (vs. Net)           |                      |                   | 0.0         | 0.2        | 0.3                  | 0.3         | 0.4          | 0.4          | 0.4           |
| BTC Emerging Markets (Net)        | 1,200,898,248        | 2.1               | 6.2         | 0.6        | 1.0                  | 1.0         | 10.5         | 2.3          | 5.5           |
| BTC Emerging Markets (Gross)      |                      |                   | 6.3         | 0.6        | 1.1                  | 1.1         | 10.6         | 2.4          | 5.7           |
| <i>MSCI Emerging Markets</i>      |                      |                   | <u>6.2</u>  | <u>0.6</u> | <u>1.2</u>           | <u>1.2</u>  | <u>10.7</u>  | <u>2.5</u>   | <u>5.8</u>    |
| Excess Return (vs. Net)           |                      |                   | 0.0         | 0.0        | -0.2                 | -0.2        | -0.2         | -0.2         | -0.3          |
| BTC Euro Tilts (Net)              | 988,678,016          | 1.7               | 6.4         | 4.5        | 1.2                  | 1.2         | 8.9          | 2.7          | 8.3           |
| BTC Euro Tilts (Gross)            |                      |                   | 6.4         | 4.6        | 1.6                  | 1.6         | 9.3          | 3.1          | 8.7           |
| <i>MSCI Europe</i>                |                      |                   | <u>6.7</u>  | <u>4.5</u> | <u>1.9</u>           | <u>1.9</u>  | <u>9.1</u>   | <u>1.3</u>   | <u>7.0</u>    |
| Excess Return (vs. Net)           |                      |                   | -0.3        | 0.0        | -0.7                 | -0.7        | -0.2         | 1.4          | 1.3           |
| Acadian Developed Markets (Net)   | 768,058,473          | 1.3               | 4.9         | 1.7        | -2.0                 | -2.0        | 11.7         | 4.9          | 9.4           |
| Acadian Developed Markets (Gross) |                      |                   | 4.9         | 1.8        | -1.7                 | -1.7        | 12.1         | 5.3          | 9.8           |
| <i>EAFE Custom Benchmark</i>      |                      |                   | <u>5.9</u>  | <u>3.8</u> | <u>1.3</u>           | <u>1.3</u>  | <u>9.0</u>   | <u>2.0</u>   | <u>6.7</u>    |
| Excess Return (vs. Net)           |                      |                   | -1.0        | -2.1       | -3.3                 | -3.3        | 2.7          | 2.9          | 2.7           |

<sup>1</sup> BTC EAFE & Canada Funds from 11/1999 - 8/2008; and BTC EAFE & Canada IMI Funds from 8/2008 - Present.



As of June 30, 2019

|                                     | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|-------------------------------------|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| BTC Canada IMI (Net) <sup>1</sup>   | 738,832,665          | 1.3               | 6.4         | 4.8        | 3.1                  | 3.1         | 7.9          | 0.0          | 6.0           |
| BTC Canada IMI (Gross)              |                      |                   | 6.4         | 4.8        | 3.1                  | 3.1         | 7.9          | 0.0          | 6.1           |
| <i>MSCI Canada IMI Custom Index</i> |                      |                   | <u>6.3</u>  | <u>4.5</u> | <u>2.2</u>           | <u>2.2</u>  | <u>7.1</u>   | <u>-0.8</u>  | <u>5.3</u>    |
| Excess Return (vs. Net)             |                      |                   | 0.1         | 0.3        | 0.9                  | 0.9         | 0.8          | 0.8          | 0.7           |
| Genesis (Net)                       | 712,438,007          | 1.2               | 6.7         | 2.4        | 5.3                  | 5.3         | 10.6         | 2.8          | 8.2           |
| Genesis (Gross)                     |                      |                   | 6.8         | 2.6        | 6.1                  | 6.1         | 11.4         | 3.6          | 9.0           |
| <i>MSCI EM IMI Custom Index</i>     |                      |                   | <u>6.0</u>  | <u>0.4</u> | <u>0.5</u>           | <u>0.5</u>  | <u>10.0</u>  | <u>2.3</u>   | <u>5.8</u>    |
| Excess Return (vs. Net)             |                      |                   | 0.7         | 2.0        | 4.8                  | 4.8         | 0.6          | 0.5          | 2.4           |
| Frontier Capital Management (Net)   | 603,083,719          | 1.0               | 8.6         | 2.5        | 0.2                  | 0.2         | 12.5         | 7.0          | 14.0          |
| Frontier Capital Management (Gross) |                      |                   | 8.7         | 2.7        | 1.0                  | 1.0         | 13.4         | 7.8          | 14.9          |
| <i>Russell 2500</i>                 |                      |                   | <u>7.1</u>  | <u>3.0</u> | <u>1.8</u>           | <u>1.8</u>  | <u>12.3</u>  | <u>7.7</u>   | <u>14.4</u>   |
| Excess Return (vs. Net)             |                      |                   | 1.5         | -0.5       | -1.6                 | -1.6        | 0.2          | -0.7         | -0.4          |
| Capital Guardian (Net)              | 406,940,736          | 0.7               | 6.4         | 3.8        | 4.8                  | 4.8         | 13.9         | 5.0          | 8.7           |
| Capital Guardian (Gross)            |                      |                   | 6.4         | 3.9        | 5.1                  | 5.1         | 14.3         | 5.4          | 9.1           |
| <i>EAFE Custom Benchmark</i>        |                      |                   | <u>5.9</u>  | <u>3.8</u> | <u>1.3</u>           | <u>1.3</u>  | <u>9.0</u>   | <u>2.0</u>   | <u>6.7</u>    |
| Excess Return (vs. Net)             |                      |                   | 0.5         | 0.0        | 3.5                  | 3.5         | 4.9          | 3.0          | 2.0           |
| Lazard Emerging Markets (Net)       | 360,666,825          | 0.6               | 7.1         | 2.5        | 3.7                  | 3.7         | 10.9         | 3.5          | --            |
| Lazard Emerging Markets (Gross)     |                      |                   | 7.2         | 2.7        | 4.5                  | 4.5         | 11.8         | 4.3          | --            |
| <i>MSCI Emerging Markets</i>        |                      |                   | <u>6.2</u>  | <u>0.6</u> | <u>1.2</u>           | <u>1.2</u>  | <u>10.7</u>  | <u>2.5</u>   | --            |
| Excess Return (vs. Net)             |                      |                   | 0.9         | 1.9        | 2.5                  | 2.5         | 0.2          | 1.0          |               |

<sup>1</sup> BTC EAFE & Canada Funds from 11/1999 - 8/2008: and BTC EAFE & Canada IMI Funds from 8/2008 - Present.



As of June 30, 2019

|  | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| BTC Europe Index (Net)                     | 306,529,414          | 0.5               | 6.8         | 4.8        | 2.3                  | 2.3         | 9.6          | 1.7          | 7.5           |
| BTC Europe Index (Gross)                   |                      |                   | 6.8         | 4.8        | 2.3                  | 2.3         | 9.6          | 1.8          | 7.5           |
| <i>MSCI Europe</i>                         |                      |                   | <u>6.7</u>  | <u>4.5</u> | <u>1.9</u>           | <u>1.9</u>  | <u>9.1</u>   | <u>1.3</u>   | <u>7.0</u>    |
| Excess Return (vs. Net)                    |                      |                   | 0.1         | -0.8       | -0.7                 | -0.7        | 0.1          | 0.2          | 0.4           |
| Acadian Emerging Markets (Net)             | 306,247,206          | 0.5               | 6.5         | 0.6        | -1.9                 | -1.9        | 9.4          | 1.4          | --            |
| Acadian Emerging Markets (Gross)           |                      |                   | 6.5         | 0.8        | -1.4                 | -1.4        | 9.9          | 1.9          | --            |
| <i>MSCI Emerging Markets</i>               |                      |                   | <u>6.2</u>  | <u>0.6</u> | <u>1.2</u>           | <u>1.2</u>  | <u>10.7</u>  | <u>2.5</u>   | --            |
| Excess Return (vs. Net)                    |                      |                   | 0.3         | 0.0        | -3.1                 | -3.1        | -1.3         | -1.1         |               |
| Cevian Capital (Net)                       | 293,505,854          | 0.5               | 4.3         | 3.1        | -2.5                 | -2.5        | --           | --           | --            |
| Cevian Capital (Gross)                     |                      |                   | 4.4         | 3.5        | -1.0                 | -1.0        | --           | --           | --            |
| <i>MSCI Europe</i>                         |                      |                   | <u>6.7</u>  | <u>4.5</u> | <u>1.9</u>           | <u>1.9</u>  | --           | --           | --            |
| Excess Return (vs. Net)                    |                      |                   | -2.4        | -1.3       | -4.4                 | -4.4        |              |              |               |
| Eagle Asset Management (Net)               | 292,256,288          | 0.5               | 7.8         | 3.5        | -1.6                 | -1.6        | 12.1         | 8.4          | 13.8          |
| Eagle Asset Management (Gross)             |                      |                   | 7.9         | 3.6        | -1.1                 | -1.1        | 12.7         | 9.0          | 14.4          |
| <i>Russell 2500</i>                        |                      |                   | <u>7.1</u>  | <u>3.0</u> | <u>1.8</u>           | <u>1.8</u>  | <u>12.3</u>  | <u>7.7</u>   | <u>14.4</u>   |
| Excess Return (vs. Net)                    |                      |                   | 0.7         | 0.5        | -3.4                 | -3.4        | -0.2         | 0.7          | -0.6          |
| Quantitative Management Associates (Net)   | 268,522,997          | 0.5               | 7.9         | -0.3       | -8.8                 | -8.8        | --           | --           | --            |
| Quantitative Management Associates (Gross) |                      |                   | 8.0         | -0.2       | -8.3                 | -8.3        | --           | --           | --            |
| <i>Russell 2000</i>                        |                      |                   | <u>7.1</u>  | <u>2.1</u> | <u>-3.3</u>          | <u>-3.3</u> | --           | --           | --            |
| Excess Return (vs. Net)                    |                      |                   | 0.8         | -2.4       | -5.5                 | -5.5        |              |              |               |

As of June 30, 2019

|   | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---|----------------------|-------------------|-------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| AQR Emerging Markets (Net)              | 243,220,498          | 0.4               | 5.9         | 0.4         | -2.7                 | -2.7        | 9.6          | 1.7          | --            |
| AQR Emerging Markets (Gross)            |                      |                   | 6.0         | 0.6         | -2.0                 | -2.0        | 10.3         | 2.4          | --            |
| <i>MSCI Emerging Markets</i>            |                      |                   | <u>6.2</u>  | <u>0.6</u>  | <u>1.2</u>           | <u>1.2</u>  | <u>10.7</u>  | <u>2.5</u>   | --            |
| Excess Return (vs. Net)                 |                      |                   | -0.3        | -0.2        | -3.9                 | -3.9        | -1.1         | -0.8         |               |
| Systematic Financial Management (Net)   | 232,789,553          | 0.4               | 8.1         | 3.6         | -5.1                 | -5.1        | --           | --           | --            |
| Systematic Financial Management (Gross) |                      |                   | 8.1         | 3.7         | -4.5                 | -4.5        | --           | --           | --            |
| <i>Russell 2000</i>                     |                      |                   | <u>7.1</u>  | <u>2.1</u>  | <u>-3.3</u>          | <u>-3.3</u> | --           | --           | --            |
| Excess Return (vs. Net)                 |                      |                   | 1.0         | 1.5         | -1.8                 | -1.8        |              |              |               |
| Global Alpha IE EMP (Net)               | 173,271,980          | 0.3               | 4.7         | 3.2         | --                   | --          | --           | --           | --            |
| Global Alpha IE EMP (Gross)             |                      |                   | 4.8         | 3.4         | --                   | --          | --           | --           | --            |
| <i>MSCI EAFE Small Cap</i>              |                      |                   | <u>4.2</u>  | <u>1.7</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                 |                      |                   | 0.5         | 1.5         |                      |             |              |              |               |
| Symphony Financial Partners (Net)       | 161,784,483          | 0.3               | -1.8        | 4.3         | 6.9                  | 6.9         | --           | --           | --            |
| Symphony Financial Partners (Gross)     |                      |                   | -1.7        | 4.5         | 7.6                  | 7.6         | --           | --           | --            |
| <i>MSCI Japan Small Cap NR USD</i>      |                      |                   | <u>2.4</u>  | <u>-0.9</u> | <u>-9.8</u>          | <u>-9.8</u> | --           | --           | --            |
| Excess Return (vs. Net)                 |                      |                   | -4.2        | 5.2         | 16.7                 | 16.7        |              |              |               |
| BTC EAFE Small Cap (Net)                | 134,853,430          | 0.2               | 4.3         | 1.9         | -5.9                 | -5.9        | --           | --           | --            |
| BTC EAFE Small Cap (Gross)              |                      |                   | 4.3         | 1.9         | -5.9                 | -5.9        | --           | --           | --            |
| <i>MSCI EAFE Small Cap</i>              |                      |                   | <u>4.2</u>  | <u>1.7</u>  | <u>-6.3</u>          | <u>-6.3</u> | --           | --           | --            |
| Excess Return (vs. Net)                 |                      |                   | 0.1         | 0.2         | 0.4                  | 0.4         |              |              |               |

As of June 30, 2019

|   | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---|----------------------|-------------------|-------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| Matarin (Net)                                 | 109,645,824          | 0.2               | 7.9         | 0.6         | --                   | --          | --           | --           | --            |
| Matarin (Gross)                               |                      |                   | 8.0         | 0.8         | --                   | --          | --           | --           | --            |
| <i>Russell 2000</i>                           |                      |                   | <u>7.1</u>  | <u>2.1</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                       |                      |                   | 0.8         | -1.5        |                      |             |              |              |               |
| Jana Partners (Net)                           | 106,186,050          | 0.2               | 3.7         | 1.6         | -3.2                 | -3.2        | --           | --           | --            |
| Jana Partners (Gross)                         |                      |                   | 4.3         | 2.3         | -0.2                 | -0.2        | --           | --           | --            |
| <i>S&amp;P 500</i>                            |                      |                   | <u>7.0</u>  | <u>4.3</u>  | <u>10.4</u>          | <u>10.4</u> | --           | --           | --            |
| Excess Return (vs. Net)                       |                      |                   | -3.3        | -2.7        | -13.6                | -13.6       |              |              |               |
| BTC Emerging Markets Small Cap (Net)          | 88,675,190           | 0.2               | 4.0         | -1.1        | -5.1                 | -5.1        | 5.4          | 0.4          | --            |
| BTC Emerging Markets Small Cap (Gross)        |                      |                   | 4.0         | -1.0        | -5.0                 | -5.0        | 5.6          | 0.6          | --            |
| <i>MSCI Emerging Markets Small Cap</i>        |                      |                   | <u>3.9</u>  | <u>-1.0</u> | <u>-5.1</u>          | <u>-5.1</u> | <u>5.5</u>   | <u>0.5</u>   | --            |
| Excess Return (vs. Net)                       |                      |                   | 0.1         | -0.1        | 0.0                  | 0.0         | -0.1         | -0.1         |               |
| CornerCap (Net)                               | 57,636,467           | 0.1               | 7.7         | 4.5         | --                   | --          | --           | --           | --            |
| CornerCap (Gross)                             |                      |                   | 7.8         | 4.6         | --                   | --          | --           | --           | --            |
| <i>Russell 2000</i>                           |                      |                   | <u>7.1</u>  | <u>2.1</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                       |                      |                   | 0.6         | 2.4         |                      |             |              |              |               |
| DE Transition Account (Net)                   | 568,401              | 0.0               |             |             |                      |             |              |              |               |
| International Equity Transition Account (Net) | 321                  | 0.0               |             |             |                      |             |              |              |               |

As of June 30, 2019

|  | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|----------------------|-------------------|-------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| BTC Passive Currency Hedge (Net)           | -35,085,257          | -0.1              | -0.8        | -0.2        | 1.5                  | 1.5         | 1.0          | 2.1          | --            |
| BTC Passive Currency Hedge (Gross)         |                      |                   | -0.8        | -0.2        | 1.5                  | 1.5         | 1.0          | 2.1          | --            |
| <i>50% FX Hedge Index</i>                  |                      |                   | <u>-0.8</u> | <u>-0.2</u> | <u>1.6</u>           | <u>1.6</u>  | <u>1.1</u>   | <u>2.1</u>   | --            |
| Excess Return (vs. Net)                    |                      |                   | 0.0         | 0.0         | -0.1                 | -0.1        | -0.1         | 0.0          |               |
| <b>Private Equity - Growth (Net)</b>       | <b>5,625,087,998</b> | <b>9.6</b>        | <b>0.5</b>  | <b>4.7</b>  | --                   | --          | --           | --           | --            |
| <b>Private Equity - Growth (Gross)</b>     |                      |                   | <b>0.5</b>  | <b>4.8</b>  | --                   | --          | --           | --           | --            |
| <i>Private Equity - Growth Custom BM</i>   |                      |                   | <u>1.2</u>  | <u>12.8</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                    |                      |                   | -0.7        | -8.1        |                      |             |              |              |               |
| <b>Opportunistic Real Estate (Net)</b>     | <b>921,595,308</b>   | <b>1.6</b>        | <b>1.7</b>  | <b>1.7</b>  | <b>8.1</b>           | <b>8.1</b>  | <b>11.2</b>  | <b>13.6</b>  | <b>1.8</b>    |
| <b>Opportunistic Real Estate (Gross)</b>   |                      |                   | <b>2.1</b>  | <b>2.1</b>  | <b>9.9</b>           | <b>9.9</b>  | <b>13.3</b>  | <b>16.1</b>  | <b>4.8</b>    |
| <i>Opportunistic Real Estate Custom BM</i> |                      |                   | <u>0.6</u>  | <u>1.9</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                    |                      |                   | 1.1         | -0.3        |                      |             |              |              |               |
| <b>Credit (Net)<sup>1</sup></b>            | <b>5,089,506,462</b> | <b>8.7</b>        | <b>1.3</b>  | <b>2.3</b>  | --                   | --          | --           | --           | --            |
| <b>Credit (Gross)</b>                      |                      |                   | <b>1.4</b>  | <b>2.5</b>  | --                   | --          | --           | --           | --            |
| <i>Credit Custom Blended Benchmark</i>     |                      |                   | <u>1.9</u>  | <u>3.0</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                    |                      |                   | -0.6        | -0.7        |                      |             |              |              |               |
| Credit Transition Account (Net)            | 1,050,688            | 0.0               |             |             |                      |             |              |              |               |

<sup>1</sup> Includes accounts that are lagged by 1-month, 3-months, and latest available adjusted for cash flows.

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|   | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| <b>High Yield (Net)</b>                   | <b>2,334,528,336</b> | <b>4.0</b>        | <b>1.1</b>  | <b>2.1</b> | --                   | --          | --           | --           | --            |
| <b>High Yield (Gross)</b>                 |                      |                   | <b>1.1</b>  | <b>2.3</b> | --                   | --          | --           | --           | --            |
| <i>Bloomberg Barclays U.S. High Yield</i> |                      |                   | <u>2.7</u>  | <u>3.1</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                   |                      |                   | -1.6        | -1.0       |                      |             |              |              |               |
| Brigade Capital Management (Net)          | 587,019,890          | 1.0               | 0.6         | 1.7        | 2.5                  | 2.5         | 7.0          | 3.6          | --            |
| Brigade Capital Management (Gross)        |                      |                   | 0.6         | 1.9        | 3.3                  | 3.3         | 7.8          | 4.4          | --            |
| <i>Brigade Custom Index</i>               |                      |                   | <u>1.4</u>  | <u>2.2</u> | <u>6.5</u>           | <u>6.5</u>  | <u>6.3</u>   | <u>4.3</u>   | --            |
| Excess Return (vs. Net)                   |                      |                   | -0.8        | -0.5       | -4.0                 | -4.0        | 0.7          | -0.7         |               |
| Oaktree Capital Management (Net)          | 436,977,989          | 0.7               | 2.3         | 2.4        | 7.7                  | 7.7         | 6.0          | 3.9          | 8.0           |
| Oaktree Capital Management (Gross)        |                      |                   | 2.4         | 2.6        | 8.2                  | 8.2         | 6.5          | 4.3          | 8.5           |
| <i>BBG BARC Ba to B US HY</i>             |                      |                   | <u>2.5</u>  | <u>2.9</u> | <u>8.8</u>           | <u>8.8</u>  | <u>7.1</u>   | <u>4.7</u>   | <u>8.6</u>    |
| Excess Return (vs. Net)                   |                      |                   | -0.2        | -0.5       | -1.1                 | -1.1        | -1.1         | -0.8         | -0.6          |
| Bain Capital (Net)                        | 370,721,370          | 0.6               | 0.7         | 1.6        | 5.0                  | 5.0         | 6.4          | 3.5          | --            |
| Bain Capital (Gross)                      |                      |                   | 0.7         | 1.8        | 5.7                  | 5.7         | 7.3          | 4.3          | --            |
| <i>HY/BL Custom Benchmark</i>             |                      |                   | <u>1.2</u>  | <u>2.0</u> | <u>5.8</u>           | <u>5.8</u>  | <u>6.5</u>   | <u>4.3</u>   | --            |
| Excess Return (vs. Net)                   |                      |                   | -0.5        | -0.4       | -0.8                 | -0.8        | -0.1         | -0.8         |               |
| TCW (Net)                                 | 339,429,681          | 0.6               | 0.5         | 2.1        | 5.1                  | 5.1         | 4.8          | --           | --            |
| TCW (Gross)                               |                      |                   | 0.6         | 2.2        | 5.7                  | 5.7         | 5.4          | --           | --            |
| <i>Securitized Custom Index</i>           |                      |                   | <u>1.1</u>  | <u>3.0</u> | <u>10.6</u>          | <u>10.6</u> | <u>6.2</u>   | --           | --            |
| Excess Return (vs. Net)                   |                      |                   | -0.6        | -0.9       | -5.5                 | -5.5        | -1.4         |              |               |

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|  | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| Doubleline Capital (Net)                             | 339,280,374          | 0.6               | 0.7         | 3.1        | 7.1                  | 7.1         | 4.7          | --           | --            |
| Doubleline Capital (Gross)                           |                      |                   | 0.8         | 3.3        | 7.9                  | 7.9         | 5.5          | --           | --            |
| <i>Securitized Custom Index</i>                      |                      |                   | <u>1.1</u>  | <u>3.0</u> | <u>10.6</u>          | <u>10.6</u> | <u>6.2</u>   | --           | --            |
| Excess Return (vs. Net)                              |                      |                   | -0.4        | 0.1        | -3.5                 | -3.5        | -1.5         |              |               |
| Beach Point (Net)                                    | 260,520,748          | 0.4               | 1.7         | 2.7        | 7.9                  | 7.9         | 7.7          | 5.9          | --            |
| Beach Point (Gross)                                  |                      |                   | 1.8         | 2.8        | 8.6                  | 8.6         | 8.4          | 6.6          | --            |
| <i>HY/BL Custom Benchmark</i>                        |                      |                   | <u>1.2</u>  | <u>2.0</u> | <u>5.8</u>           | <u>5.8</u>  | <u>6.5</u>   | <u>4.3</u>   | --            |
| Excess Return (vs. Net)                              |                      |                   | 0.5         | 0.7        | 2.1                  | 2.1         | 1.2          | 1.6          |               |
| <b>Bank Loans (Net)</b>                              | <b>874,879,496</b>   | <b>1.5</b>        | <b>0.8</b>  | <b>1.9</b> | --                   | --          | --           | --           | --            |
| <b>Bank Loans (Gross)</b>                            |                      |                   | <b>0.8</b>  | <b>2.1</b> | --                   | --          | --           | --           | --            |
| <i>Credit Suisse Leveraged Loans</i>                 |                      |                   | <u>0.2</u>  | <u>1.6</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                              |                      |                   | 0.6         | 0.3        |                      |             |              |              |               |
| Crescent Capital Group (Net)                         | 440,536,297          | 0.8               | 0.9         | 1.8        | 4.5                  | 4.5         | 6.5          | 3.0          | --            |
| Crescent Capital Group (Gross)                       |                      |                   | 1.0         | 1.9        | 5.1                  | 5.1         | 7.1          | 3.6          | --            |
| <i>HY/BL Custom Benchmark</i>                        |                      |                   | <u>1.2</u>  | <u>2.0</u> | <u>5.8</u>           | <u>5.8</u>  | <u>6.5</u>   | <u>4.3</u>   | --            |
| Excess Return (vs. Net)                              |                      |                   | -0.3        | -0.2       | -1.3                 | -1.3        | 0.0          | -1.3         |               |
| Tennenbaum Capital (Net)                             | 434,343,199          | 0.7               | 0.6         | 2.1        | 8.0                  | 8.0         | 9.1          | --           | --            |
| Tennenbaum Capital (Gross)                           |                      |                   | 0.7         | 2.3        | 8.8                  | 8.8         | 10.0         | --           | --            |
| <i>Credit Suisse Leveraged Loan (1 month lagged)</i> |                      |                   | <u>-0.2</u> | <u>1.2</u> | <u>4.0</u>           | <u>4.0</u>  | <u>5.5</u>   | --           | --            |
| Excess Return (vs. Net)                              |                      |                   | 0.8         | 0.9        | 4.0                  | 4.0         | 3.6          |              |               |



As of June 30, 2019

|                                       | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---------------------------------------|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| <b>EM Debt (Net)</b>                  | <b>852,921,407</b>   | <b>1.5</b>        | <b>3.9</b>  | <b>4.2</b> | <b>11.4</b>          | <b>11.4</b> | --           | --           | --            |
| <b>EM Debt (Gross)</b>                |                      |                   | <b>3.9</b>  | <b>4.3</b> | <b>11.9</b>          | <b>11.9</b> | --           | --           | --            |
| <i>EMD Custom</i>                     |                      |                   | <u>3.6</u>  | <u>4.3</u> | <u>11.1</u>          | <u>11.1</u> | --           | --           | --            |
| Excess Return (vs. Net)               |                      |                   | 0.3         | -0.1       | 0.3                  | 0.3         |              |              |               |
| Ashmore Investment Management (Net)   | 429,406,795          | 0.7               | 4.1         | 4.5        | 11.7                 | 11.7        | --           | --           | --            |
| Ashmore Investment Management (Gross) |                      |                   | 4.2         | 4.7        | 12.4                 | 12.4        | --           | --           | --            |
| <i>EMD Custom</i>                     |                      |                   | <u>3.6</u>  | <u>4.3</u> | <u>11.1</u>          | <u>11.1</u> | --           | --           | --            |
| Excess Return (vs. Net)               |                      |                   | 0.5         | 0.2        | 0.6                  | 0.6         |              |              |               |
| Aberdeen Asset Management (Net)       | 423,514,612          | 0.7               | 3.6         | 3.9        | 11.1                 | 11.1        | --           | --           | --            |
| Aberdeen Asset Management (Gross)     |                      |                   | 3.7         | 4.0        | 11.5                 | 11.5        | --           | --           | --            |
| <i>EMD Custom</i>                     |                      |                   | <u>3.6</u>  | <u>4.3</u> | <u>11.1</u>          | <u>11.1</u> | --           | --           | --            |
| Excess Return (vs. Net)               |                      |                   | 0.0         | -0.4       | 0.0                  | 0.0         |              |              |               |
| <b>Illiquid Credit (Net)</b>          | <b>1,026,126,536</b> | <b>1.8</b>        | <b>0.4</b>  | <b>1.5</b> | --                   | --          | --           | --           | --            |
| <b>Illiquid Credit (Gross)</b>        |                      |                   | <b>0.5</b>  | <b>2.0</b> | --                   | --          | --           | --           | --            |
| <i>Illiquid Credit Custom BM</i>      |                      |                   | <u>2.0</u>  | <u>4.4</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)               |                      |                   | -1.6        | -2.9       |                      |             |              |              |               |
| Grosvenor OPCRD 2 HFOF (Net)          | 360,413,400          | 0.6               | 0.1         | 0.7        | 0.3                  | 0.3         | 7.1          | --           | --            |
| Grosvenor OPCRD 2 HFOF (Gross)        |                      |                   | 0.1         | 0.7        | 0.3                  | 0.3         | 7.1          | --           | --            |
| <i>Grosvenor Custom Benchmark</i>     |                      |                   | <u>2.0</u>  | <u>4.4</u> | <u>10.0</u>          | <u>10.0</u> | <u>7.2</u>   | --           | --            |
| Excess Return (vs. Net)               |                      |                   | -1.9        | -3.7       | -9.7                 | -9.7        | -0.1         |              |               |

As of June 30, 2019

|  | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| Real Estate - Credit (Net)                                       | 301,250,879          | 0.5               | 1.1         | 1.1        | 8.4                  | 8.4         | 8.7          | 7.9          | --            |
| Real Estate - Credit (Gross)                                     |                      |                   | 1.2         | 1.2        | 9.3                  | 9.3         | 9.8          | 9.0          | --            |
| <i>NPI Income Lagged</i>   |                      |                   | <u>0.4</u>  | <u>1.1</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                      |                   | 0.7         | 0.0        |                      |             |              |              |               |
| Beach Point Opportunities III (Net)                              | 170,040,257          | 0.3               | 0.1         | 0.3        | 7.6                  | 7.6         | --           | --           | --            |
| Beach Point Opportunities III (Gross)                            |                      |                   | 0.1         | 3.2        | 11.2                 | 11.2        | --           | --           | --            |
| <i>Opportunistic Custom Index 1 Month Lag</i>                    |                      |                   | <u>-0.7</u> | <u>1.2</u> | <u>4.8</u>           | <u>4.8</u>  | --           | --           | --            |
| Excess Return (vs. Net)  |                      |                   | 0.8         | -0.9       | 2.8                  | 2.8         |              |              |               |
| Private Equity - Credit (Net)                                    | 152,873,645          | 0.3               | 0.0         | 4.7        | --                   | --          | --           | --           | --            |
| Private Equity - Credit (Gross)                                  |                      |                   | 0.0         | 4.7        | --                   | --          | --           | --           | --            |
| <i>PE - Credit Custom BM</i>                                     |                      |                   | <u>2.1</u>  | <u>3.6</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                      |                   | -2.1        | 1.1        |                      |             |              |              |               |
| Beach Point Opportunities II (Net)                               | 41,548,355           | 0.1               | 1.5         | 4.4        | 10.5                 | 10.5        | 7.9          | 8.1          | --            |
| Beach Point Opportunities II (Gross)                             |                      |                   | 1.5         | 4.2        | 4.7                  | 4.7         | 8.3          | 8.9          | --            |
| <i>Opportunistic Custom Index 1 Month Lag</i>                    |                      |                   | <u>-0.7</u> | <u>1.2</u> | <u>4.8</u>           | <u>4.8</u>  | <u>6.2</u>   | <u>4.2</u>   | --            |
| Excess Return (vs. Net)  |                      |                   | 2.2         | 3.2        | 5.7                  | 5.7         | 1.7          | 3.9          |               |
| <b>Real Assets and Inflation Hedges (Net)<sup>1</sup></b>        | <b>8,422,733,246</b> | <b>14.4</b>       | <b>2.2</b>  | <b>1.4</b> | --                   | --          | --           | --           | --            |
| <b>Real Assets and Inflation Hedges (Gross)</b>                  |                      |                   | <b>2.3</b>  | <b>1.5</b> | --                   | --          | --           | --           | --            |
| <i>Real Assets and Inflation Hedges Custom Blended Benchmark</i> |                      |                   | <u>2.1</u>  | <u>1.8</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                      |                   | 0.1         | -0.4       |                      |             |              |              |               |

<sup>1</sup> Includes accounts that are lagged by 1-month, 3-months, and latest available adjusted for cash flows.



As of June 30, 2019

|  | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|----------------------|-------------------|-------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| <b>Core and Value-Added Real Estate (Net)</b>        | <b>5,355,484,032</b> | <b>9.2</b>        | <b>1.8</b>  | <b>1.8</b>  | <b>9.0</b>           | <b>9.0</b>  | <b>7.7</b>   | <b>9.1</b>   | <b>6.6</b>    |
| <b>Core and Value-Added Real Estate (Gross)</b>      |                      |                   | <b>1.9</b>  | <b>1.9</b>  | <b>9.6</b>           | <b>9.6</b>  | <b>8.3</b>   | <b>9.8</b>   | <b>7.2</b>    |
| <i>Core &amp; Value-Added Real Estate Custom BM</i>  |                      |                   | <u>0.4</u>  | <u>1.3</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                              |                      |                   | 1.4         | 0.5         |                      |             |              |              |               |
| <b>Natural Resources and Commodities (Net)</b>       | <b>1,740,726,135</b> | <b>3.0</b>        | <b>3.3</b>  | <b>-0.7</b> | <b>-6.3</b>          | <b>-6.3</b> | <b>-0.3</b>  | <b>-8.0</b>  | <b>-2.0</b>   |
| <b>Natural Resources and Commodities (Gross)</b>     |                      |                   | <b>3.4</b>  | <b>-0.6</b> | <b>-5.9</b>          | <b>-5.9</b> | <b>0.0</b>   | <b>-7.6</b>  | <b>-1.6</b>   |
| <i>Natural Resources &amp; Commodities Custom BM</i> |                      |                   | <u>6.3</u>  | <u>0.4</u>  | <u>-5.2</u>          | <u>-5.2</u> | <u>-1.7</u>  | <u>-9.0</u>  | <u>-3.6</u>   |
| Excess Return (vs. Net)                              |                      |                   | -3.0        | -1.1        | -1.0                 | -1.0        | 1.3          | 0.9          | 1.6           |
| Neuberger Berman/ Gresham (Net)                      | 445,441,422          | 0.8               | 3.5         | -1.8        | -7.6                 | -7.6        | 0.1          | -8.3         | -1.7          |
| Neuberger Berman/ Gresham (Gross)                    |                      |                   | 3.5         | -1.8        | -7.3                 | -7.3        | 0.5          | -7.9         | -1.4          |
| <i>Bloomberg Commodity Index TR USD</i>              |                      |                   | <u>2.7</u>  | <u>-1.2</u> | <u>-6.8</u>          | <u>-6.8</u> | <u>-2.2</u>  | <u>-9.1</u>  | <u>-3.7</u>   |
| Excess Return (vs. Net)                              |                      |                   | 0.8         | -0.6        | -0.8                 | -0.8        | 2.3          | 0.8          | 2.0           |
| PIMCO Commodities (Net)                              | 442,296,448          | 0.8               | 2.4         | -1.8        | -6.4                 | -6.4        | 0.0          | -7.4         | -2.0          |
| PIMCO Commodities (Gross)                            |                      |                   | 2.4         | -1.7        | -6.1                 | -6.1        | 0.4          | -7.0         | -1.4          |
| <i>Bloomberg Commodity Index TR USD</i>              |                      |                   | <u>2.7</u>  | <u>-1.2</u> | <u>-6.8</u>          | <u>-6.8</u> | <u>-2.2</u>  | <u>-9.1</u>  | <u>-3.7</u>   |
| Excess Return (vs. Net)                              |                      |                   | -0.3        | -0.6        | 0.4                  | 0.4         | 2.2          | 1.7          | 1.7           |
| Credit Suisse (Net)                                  | 423,123,964          | 0.7               | 2.7         | -1.1        | -7.1                 | -7.1        | -2.2         | -8.8         | --            |
| Credit Suisse (Gross)                                |                      |                   | 2.8         | -1.0        | -6.8                 | -6.8        | -1.9         | -8.6         | --            |
| <i>Bloomberg Commodity Index TR USD</i>              |                      |                   | <u>2.7</u>  | <u>-1.2</u> | <u>-6.8</u>          | <u>-6.8</u> | <u>-2.2</u>  | <u>-9.1</u>  | --            |
| Excess Return (vs. Net)                              |                      |                   | 0.0         | 0.1         | -0.3                 | -0.3        | 0.0          | 0.3          |               |

As of June 30, 2019

|  | Market Value<br>(\$)  | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|--|-----------------------|-------------------|-------------|-------------|----------------------|-------------|--------------|--------------|---------------|
| DWS Natural Resources (Net)                                    | 318,035,344           | 0.5               | 8.8         | --          | --                   | --          | --           | --           | --            |
| DWS Natural Resources (Gross)                                  |                       |                   | 8.9         | --          | --                   | --          | --           | --           | --            |
| <i>S&amp;P Global Large/MidCap Commodities &amp; Resources</i> |                       |                   | <u>9.8</u>  | --          | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                       |                   | -1.0        |             |                      |             |              |              |               |
| PE - Real Assets & Inflation Hedges (Net)                      | 111,828,957           | 0.2               | 0.0         | 1.3         | --                   | --          | --           | --           | --            |
| PE - Real Assets & Inflation Hedges (Gross)                    |                       |                   | 0.0         | 1.2         | --                   | --          | --           | --           | --            |
| <i>PE - Real Assets Custom BM</i>                              |                       |                   | <u>1.0</u>  | <u>12.4</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                       |                   | -1.0        | -11.1       |                      |             |              |              |               |
| <b>Infrastructure (Net)</b>                                    | <b>814,440,949</b>    | <b>1.4</b>        | <b>4.4</b>  | --          | --                   | --          | --           | --           | --            |
| <b>Infrastructure (Gross)</b>                                  |                       |                   | <b>4.4</b>  | --          | --                   | --          | --           | --           | --            |
| <i>Dow Jones Brookfield Global Infrastructure Index</i>        |                       |                   | <u>3.9</u>  | --          | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                       |                   | 0.5         |             |                      |             |              |              |               |
| <b>TIPS (Net)</b>  | <b>512,082,130</b>    | <b>0.9</b>        | <b>1.3</b>  | --          | --                   | --          | --           | --           | --            |
| <b>TIPS (Gross)</b>  |                       |                   | <b>1.3</b>  | --          | --                   | --          | --           | --           | --            |
| <i>Bloomberg Barclays U.S. TIPS Index</i>                      |                       |                   | <u>0.9</u>  | --          | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                       |                   | 0.4         |             |                      |             |              |              |               |
| <b>Risk Reduction and Mitigation (Net)<sup>1</sup></b>         | <b>13,672,574,825</b> | <b>23.4</b>       | <b>1.1</b>  | <b>2.8</b>  | --                   | --          | --           | --           | --            |
| <b>Risk Reduction and Mitigation (Gross)</b>                   |                       |                   | <b>1.1</b>  | <b>2.8</b>  | --                   | --          | --           | --           | --            |
| <i>Risk Reduction and Mitigation Custom Blended Benchmark</i>  |                       |                   | <u>1.1</u>  | <u>2.7</u>  | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)  |                       |                   | 0.0         | 0.1         |                      |             |              |              |               |

As of June 30, 2019

|                                       | Market Value<br>(\$)  | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---------------------------------------|-----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| <b>Investment Grade Bonds (Net)</b>   | <b>11,593,692,274</b> | <b>19.8</b>       | <b>1.3</b>  | <b>3.1</b> | <b>7.9</b>           | <b>7.9</b>  | <b>3.2</b>   | <b>3.4</b>   | <b>5.0</b>    |
| <b>Investment Grade Bonds (Gross)</b> |                       |                   | <b>1.3</b>  | <b>3.1</b> | <b>8.0</b>           | <b>8.0</b>  | <b>3.3</b>   | <b>3.5</b>   | <b>5.2</b>    |
| <i>BBgBarc US Aggregate TR</i>        |                       |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)               |                       |                   | 0.0         | 0.0        | 0.0                  | 0.0         | 0.9          | 0.5          | 1.1           |
| BTC US Debt Index (Net)               | 6,536,086,119         | 11.2              | 1.3         | 3.1        | 7.9                  | 7.9         | 2.4          | 3.0          | 4.0           |
| BTC US Debt Index (Gross)             |                       |                   | 1.3         | 3.1        | 7.9                  | 7.9         | 2.4          | 3.1          | 4.0           |
| <i>BBgBarc US Aggregate TR</i>        |                       |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)               |                       |                   | 0.0         | 0.0        | 0.0                  | 0.0         | 0.1          | 0.1          | 0.1           |
| Wells Capital Management (Net)        | 1,544,379,845         | 2.6               | 1.3         | 3.1        | 7.9                  | 7.9         | 2.6          | 3.2          | 4.8           |
| Wells Capital Management (Gross)      |                       |                   | 1.3         | 3.1        | 8.0                  | 8.0         | 2.7          | 3.3          | 4.9           |
| <i>BBgBarc US Aggregate TR</i>        |                       |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)               |                       |                   | 0.0         | 0.0        | 0.0                  | 0.0         | 0.3          | 0.3          | 0.9           |
| Dodge & Cox (Net)                     | 1,182,330,561         | 2.0               | 1.5         | 3.0        | 7.9                  | 7.9         | 3.8          | 3.6          | 5.3           |
| Dodge & Cox (Gross)                   |                       |                   | 1.5         | 3.0        | 8.0                  | 8.0         | 3.9          | 3.7          | 5.4           |
| <i>BBgBarc US Aggregate TR</i>        |                       |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)               |                       |                   | 0.2         | -0.1       | 0.0                  | 0.0         | 1.5          | 0.7          | 1.4           |
| Western Asset Management (Net)        | 1,018,959,139         | 1.7               | 1.9         | 3.6        | 9.1                  | 9.1         | 3.5          | 3.8          | 6.4           |
| Western Asset Management (Gross)      |                       |                   | 1.9         | 3.7        | 9.3                  | 9.3         | 3.6          | 3.9          | 6.5           |
| <i>BBgBarc US Aggregate TR</i>        |                       |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)               |                       |                   | 0.6         | 0.5        | 1.2                  | 1.2         | 1.2          | 0.9          | 2.5           |

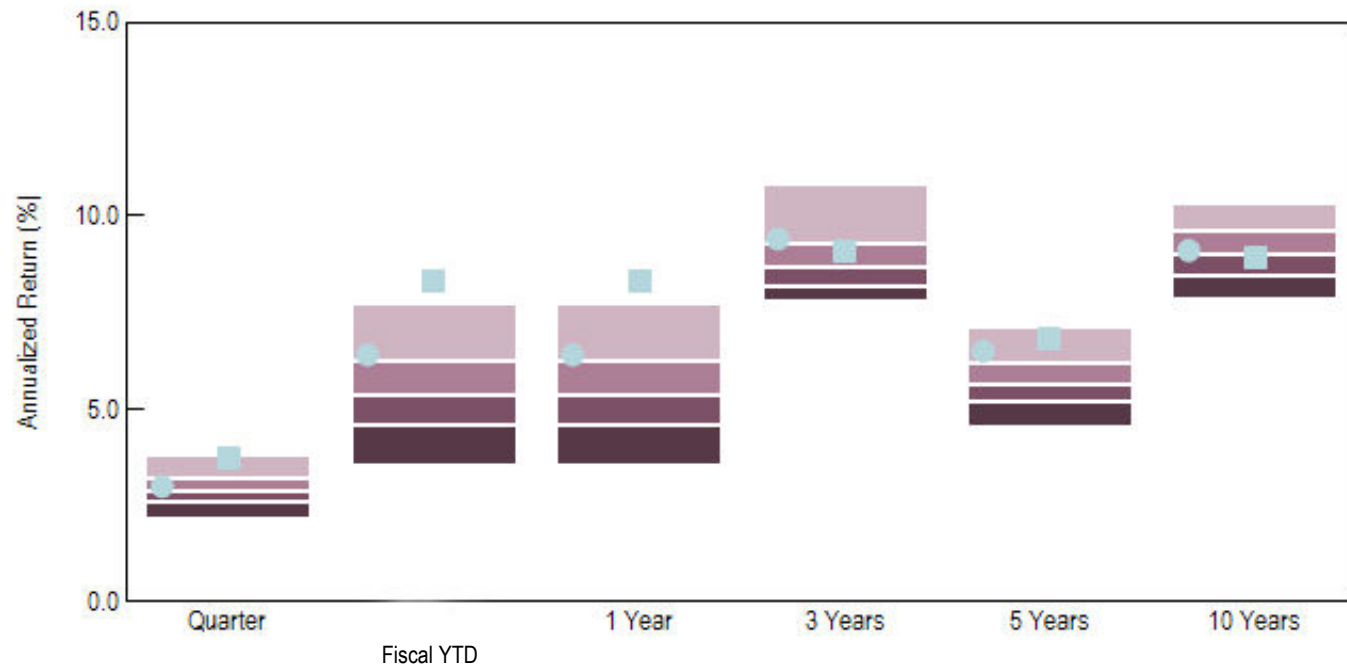
As of June 30, 2019

|   | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|---|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| PIMCO (Net)                                     | 929,292,514          | 1.6               | 0.9         | 2.6        | 7.3                  | 7.3         | 3.9          | 3.7          | 4.9           |
| PIMCO (Gross)                                   |                      |                   | 0.9         | 2.6        | 7.6                  | 7.6         | 4.1          | 3.9          | 5.1           |
| <i>BBgBarc US Aggregate TR</i>                  |                      |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)                         |                      |                   | -0.4        | -0.5       | -0.6                 | -0.6        | 1.6          | 0.8          | 1.0           |
| Pugh Capital Management (Net)                   | 355,732,181          | 0.6               | 1.3         | 3.1        | 7.9                  | 7.9         | 2.3          | 2.9          | 4.2           |
| Pugh Capital Management (Gross)                 |                      |                   | 1.3         | 3.1        | 8.1                  | 8.1         | 2.5          | 3.1          | 4.5           |
| <i>BBgBarc US Aggregate TR</i>                  |                      |                   | <u>1.3</u>  | <u>3.1</u> | <u>7.9</u>           | <u>7.9</u>  | <u>2.3</u>   | <u>2.9</u>   | <u>3.9</u>    |
| Excess Return (vs. Net)                         |                      |                   | 0.0         | 0.0        | 0.0                  | 0.0         | 0.0          | 0.0          | 0.3           |
| Member Home Loan Program (MHLP) (Net)           | 26,911,819           | 0.0               | 0.4         | 1.2        | 5.1                  | 5.1         | 8.0          | 5.9          | 5.4           |
| Member Home Loan Program (MHLP) (Gross)         |                      |                   | 0.4         | 1.3        | 5.4                  | 5.4         | 8.2          | 6.2          | 5.7           |
| Investment Grade Transition Account (Net)       | 3,979,773            | 0.0               |             |            |                      |             |              |              |               |
| <b>Diversified Hedge Fund Portfolio (Net)</b>   | <b>1,545,378,423</b> | <b>2.6</b>        | <b>-0.3</b> | <b>1.1</b> | <b>--</b>            | <b>--</b>   | <b>--</b>    | <b>--</b>    | <b>--</b>     |
| <b>Diversified Hedge Fund Portfolio (Gross)</b> |                      |                   | <b>-0.3</b> | <b>1.2</b> | <b>--</b>            | <b>--</b>   | <b>--</b>    | <b>--</b>    | <b>--</b>     |
| <i>Diversified Hedge Funds Custom BM</i>        |                      |                   | <u>0.4</u>  | <u>1.2</u> | --                   | --          | --           | --           | --            |
| Excess Return (vs. Net)                         |                      |                   | -0.7        | -0.1       |                      |             |              |              |               |
| LACERA HF Direct (Net)                          | 574,838,486          | 1.0               | 0.0         | 1.1        | 2.4                  | 2.4         | --           | --           | --            |
| LACERA HF Direct (Gross)                        |                      |                   | 0.0         | 1.1        | 2.4                  | 2.4         | --           | --           | --            |
| <i>Hedge Fund Custom BM</i>                     |                      |                   | <u>0.4</u>  | <u>1.2</u> | <u>6.7</u>           | <u>6.7</u>  | --           | --           | --            |
| Excess Return (vs. Net)                         |                      |                   | -0.4        | -0.1       | -4.3                 | -4.3        |              |              |               |

As of June 30, 2019

|                             | Market Value<br>(\$) | % of<br>Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal<br>YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) | 10 Yrs<br>(%) |
|-----------------------------|----------------------|-------------------|-------------|------------|----------------------|-------------|--------------|--------------|---------------|
| GSAM HFOF (Net)             | 487,613,808          | 0.8               | -0.7        | 1.5        | 0.5                  | 0.5         | 2.9          | --           | --            |
| GSAM HFOF (Gross)           |                      |                   | -0.7        | 1.6        | 0.9                  | 0.9         | 3.4          | --           | --            |
| <i>Hedge Fund Custom BM</i> |                      |                   | <u>0.4</u>  | <u>1.2</u> | <u>6.7</u>           | <u>6.7</u>  | <u>6.1</u>   | --           | --            |
| Excess Return (vs. Net)     |                      |                   | -1.1        | 0.3        | -6.2                 | -6.2        | -3.2         |              |               |
| Grosvenor HFOF (Net)        | 482,926,130          | 0.8               | -0.2        | 0.7        | -1.3                 | -1.3        | 3.5          | 1.4          | --            |
| Grosvenor HFOF (Gross)      |                      |                   | -0.2        | 0.7        | -1.3                 | -1.3        | 3.5          | 1.4          | --            |
| <i>Hedge Fund Custom BM</i> |                      |                   | <u>0.4</u>  | <u>1.2</u> | <u>6.7</u>           | <u>6.7</u>  | <u>6.1</u>   | <u>5.7</u>   | --            |
| Excess Return (vs. Net)     |                      |                   | -0.6        | -0.5       | -8.0                 | -8.0        | -2.6         | -4.3         |               |
| <b>Cash (Net)</b>           | <b>529,524,355</b>   | <b>0.9</b>        | <b>0.2</b>  | <b>0.7</b> | <b>2.7</b>           | <b>2.7</b>  | <b>1.7</b>   | <b>1.2</b>   | <b>1.3</b>    |
| <b>Cash (Gross)</b>         |                      |                   | <b>0.2</b>  | <b>0.7</b> | <b>2.7</b>           | <b>2.7</b>  | <b>1.7</b>   | <b>1.2</b>   | <b>1.3</b>    |
| <i>Cash Custom BM</i>       |                      |                   | <u>0.2</u>  | <u>0.6</u> | <u>2.3</u>           | <u>2.3</u>  | <u>1.4</u>   | <u>0.9</u>   | <u>0.5</u>    |
| Excess Return (vs. Net)     |                      |                   | 0.0         | 0.1        | 0.4                  | 0.4         | 0.3          | 0.3          | 0.8           |

**InvMetrics Public DB > \$1B Net Return Comparison  
Ending June 30, 2019**



|                               | Period        |            |               |          |               |          |               |            |               |          |               |          |
|-------------------------------|---------------|------------|---------------|----------|---------------|----------|---------------|------------|---------------|----------|---------------|----------|
|                               | Return (Rank) |            | Return (Rank) |          | Return (Rank) |          | Return (Rank) |            | Return (Rank) |          | Return (Rank) |          |
|                               | Quarter       | Fiscal YTD | 1 Year        | 3 Years  | 5 Years       | 10 Years | Quarter       | Fiscal YTD | 1 Year        | 3 Years  | 5 Years       | 10 Years |
| 5th Percentile                | 3.8           | 7.7        | 7.7           | 10.8     | 7.1           | 10.3     | 3.8           | 7.7        | 7.7           | 10.8     | 7.1           | 10.3     |
| 25th Percentile               | 3.2           | 6.3        | 6.3           | 9.3      | 6.2           | 9.6      | 3.2           | 6.3        | 6.3           | 9.3      | 6.2           | 9.6      |
| Median                        | 2.9           | 5.4        | 5.4           | 8.7      | 5.6           | 9.0      | 2.9           | 5.4        | 5.4           | 8.7      | 5.6           | 9.0      |
| 75th Percentile               | 2.6           | 4.6        | 4.6           | 8.2      | 5.2           | 8.5      | 2.6           | 4.6        | 4.6           | 8.2      | 5.2           | 8.5      |
| 95th Percentile               | 2.2           | 3.5        | 3.5           | 7.8      | 4.5           | 7.9      | 2.2           | 3.5        | 3.5           | 7.8      | 4.5           | 7.9      |
| # of Portfolios               | 78            | 77         | 77            | 77       | 73            | 65       | 78            | 77         | 77            | 77       | 73            | 65       |
| ● Total Fund                  | 3.0 (44)      | 6.4 (24)   | 6.4 (24)      | 9.4 (22) | 6.5 (15)      | 9.1 (46) | 3.0 (44)      | 6.4 (24)   | 6.4 (24)      | 9.4 (22) | 6.5 (15)      | 9.1 (46) |
| ■ Total Fund Policy Benchmark | 3.7 (6)       | 8.3 (1)    | 8.3 (1)       | 9.1 (35) | 6.8 (9)       | 8.9 (59) | 3.7 (6)       | 8.3 (1)    | 8.3 (1)       | 9.1 (35) | 6.8 (9)       | 8.9 (59) |





**Benchmark History**

As of June 30, 2019

| Total Fund |            |  |
|------------|------------|--|
|            |            | 41% Global Equity Custom BM / 10% PE - Growth Custom BM / 1% Opportunistic Real Estate Custom BM / 4% Bloomberg Barclays U.S. High Yield / 3% Credit Suisse Leveraged Loans / 1% EMD Custom / 2% Illiquid Credit Custom BM / 8% Core & Value-Added Real Estate Custom BM / 3% Natural Resources & Commodities Custom BM / 2% Dow Jones Brookfield Global Infrastructure Index / 2% Bloomberg Barclays U.S. TIPS Index / 19% BBgBarc US Aggregate TR / 3% Diversified Hedge Funds Custom BM / 1% Citigroup 3-Month U.S. Treasury Bill Index |
| 1/1/2019   | Present    |  |
| 10/1/2018  | 12/31/2018 | 22.7% Russell 3000 / 18.7% Custom MSCI ACWI IMI Net 50% Hedge / 27.8% BBgBarc US Universal TR / 10% Private Equity Target / 11% Real Estate Target / 5.0% Hedge Fund Custom Index / 2.8% Bloomberg Commodity Index TR USD / 2% FTSE T-Bill 6 Months TR   |
| 7/1/2018   | 9/30/2018  | 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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% Real Estate Target / 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)   |



As of June 30, 2019

|           |            |  |
|-----------|------------|--|
| 10/1/2013 | 12/31/2013 | 3% Bloomberg Commodity Index TR USD / 24% Russell 3000 / 10% Real Estate Target / 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   |

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

August 27, 2019

TO: Each Member  
Board of Investments

FROM: Esmeralda V. del Bosque   
Senior Investment Officer

FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **Yield Curve Education**

In mid-August of this year, the key Treasury yield curve rate inverted, with the two-year rate surpassing the 10-year Treasury yield. The event has spurred much discussion in the news as to what inversion means to investors, the capital markets, and the economy.

Attached is a presentation by Meketa on the topic. The presentation begins with the definition of the yield curve and why yield curve inversion matters. Meketa then discusses curve inversion in the context of the current economic environment and what it means for institutional investors like LACERA.

Noted and Reviewed:



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Jonathan Grabel  
Chief Investment Officer

Attachment

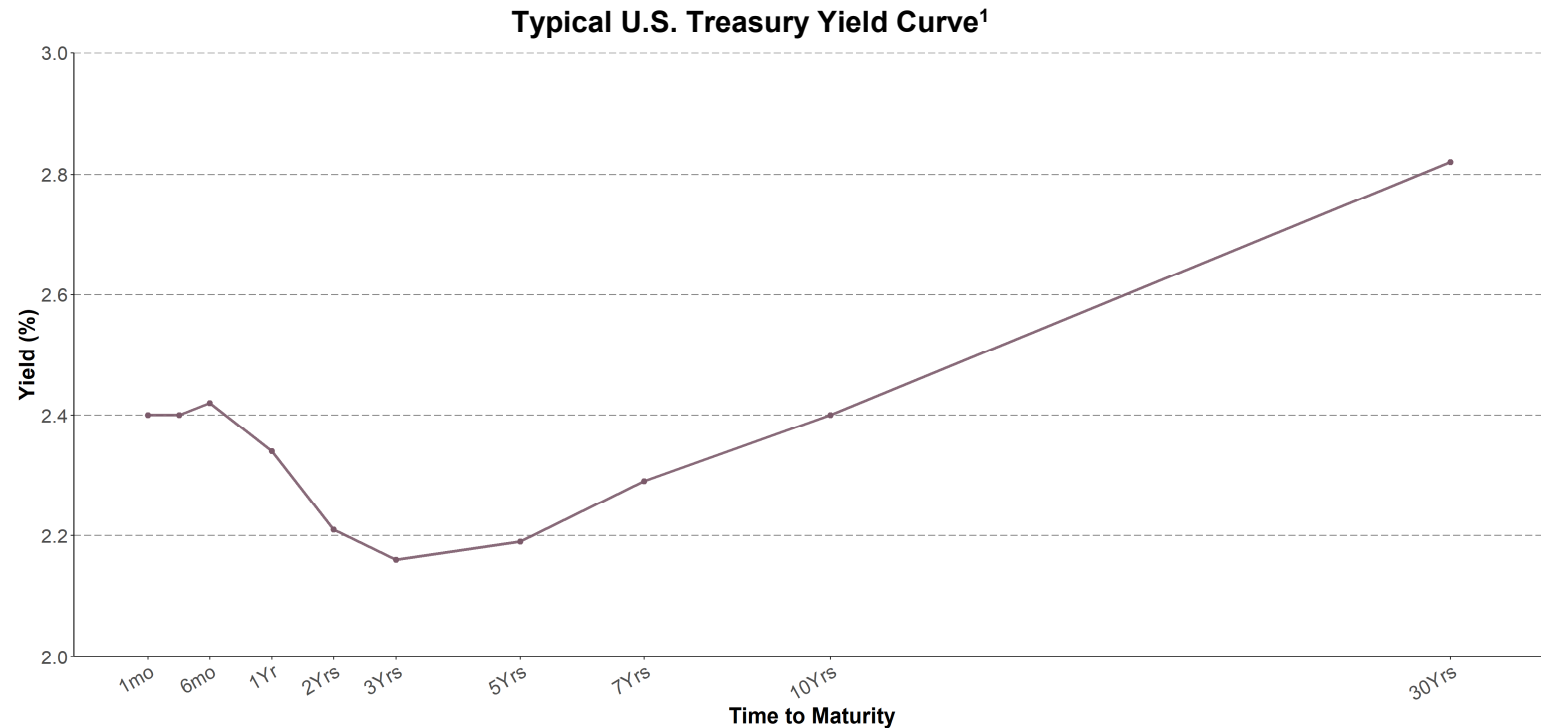


# **Los Angeles County Employees Retirement Association**

Yield Curve Discussion  
September 11, 2019

## What is the Yield Curve?<sup>1</sup>

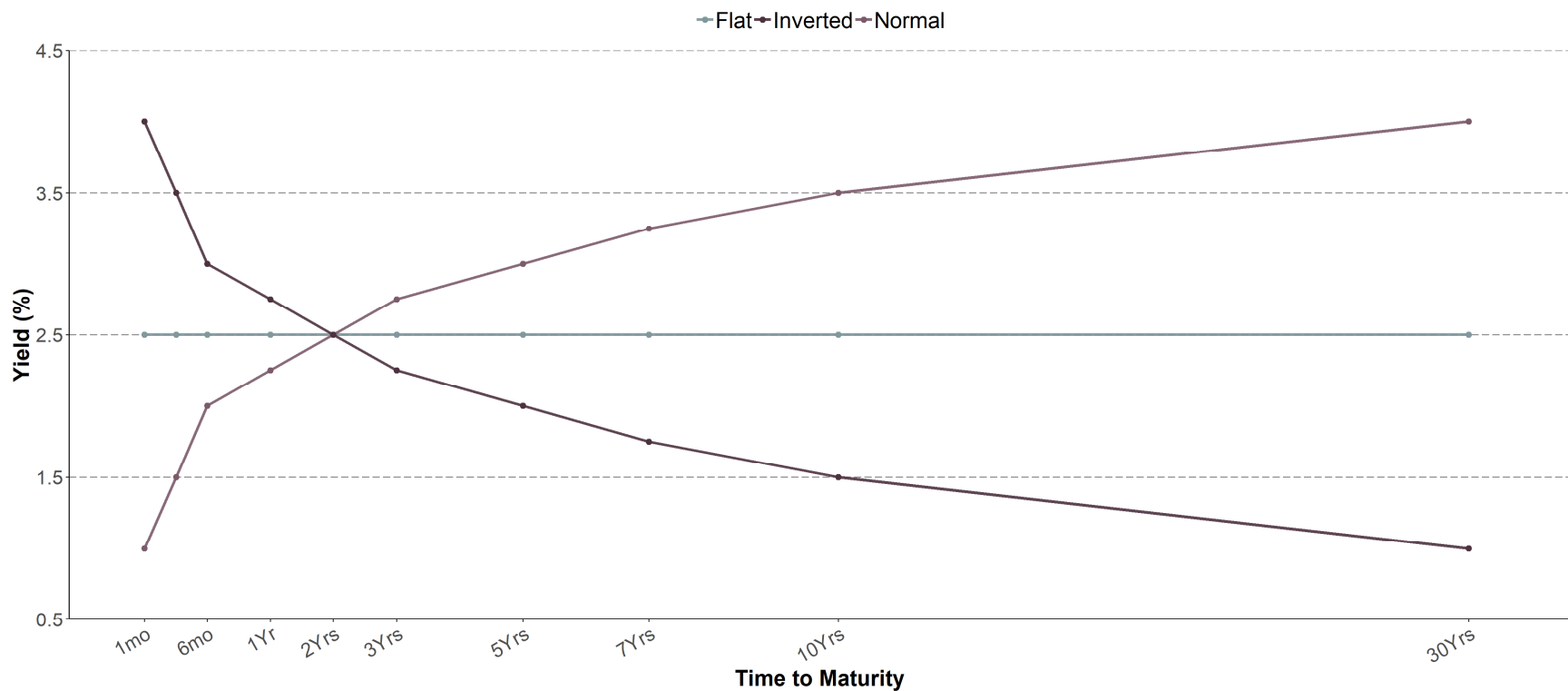
- A yield curve is a line which connects yields of different maturities.
- The U.S. Treasury yield curve plots U.S. Government issued notes and bonds with maturities ranging from 1 month to 30 years.
- The yield curve typically has an upward slope because investors usually require extra compensation to hold an investment for a longer time period.



<sup>1</sup> Source: FRED, MIG as of May 31, 2019.

### What is the Yield Curve? (Continued)

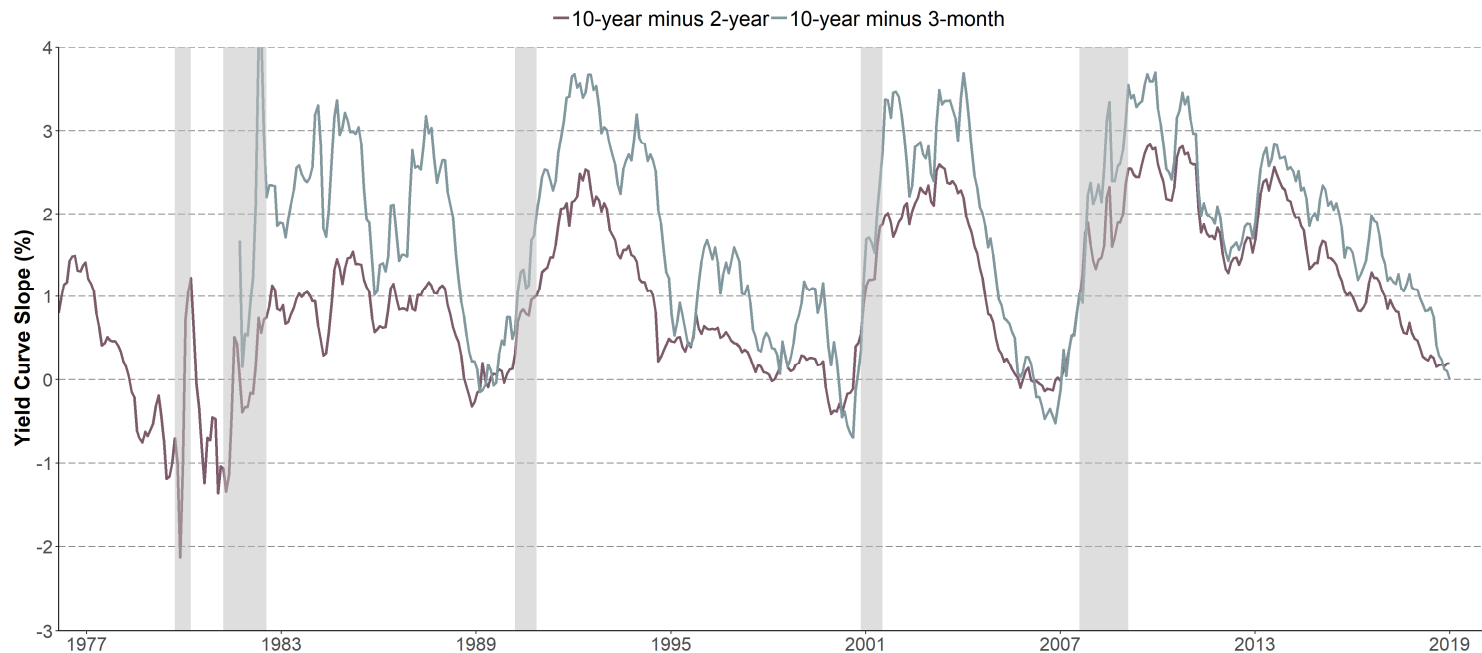
- At a high level, the slope of the yield curve has historically been a good leading indicator of economic activity.
  - Upward-Sloping or “Normal” Curve: signals a normal economic environment with growth performing near expectations
  - Flat Curve: signals an economic slowdown or inflection period
  - Inverted Curve: reflects market expectations of rates dropping in the future consistent with an economic slowdown



## Why Does it Matter? (Continued)<sup>1</sup>

- Throughout the past fifty years, the difference between the yield of a ten-year Treasury bond and a two-year Treasury note, the “Ten minus Two” measure, has turned negative preceding all recessions in the U.S.
- Going even further back, a “Ten minus Two” inversion has preceded 9 of the past 12 recessions.
- Of the previous 10 inversions the S&P 500 has topped out within three months of the inversion six times.
- The other four times ranged between 11 and 22 months for the S&P 500 to peak.

### US Treasury Yield Curve<sup>1</sup>

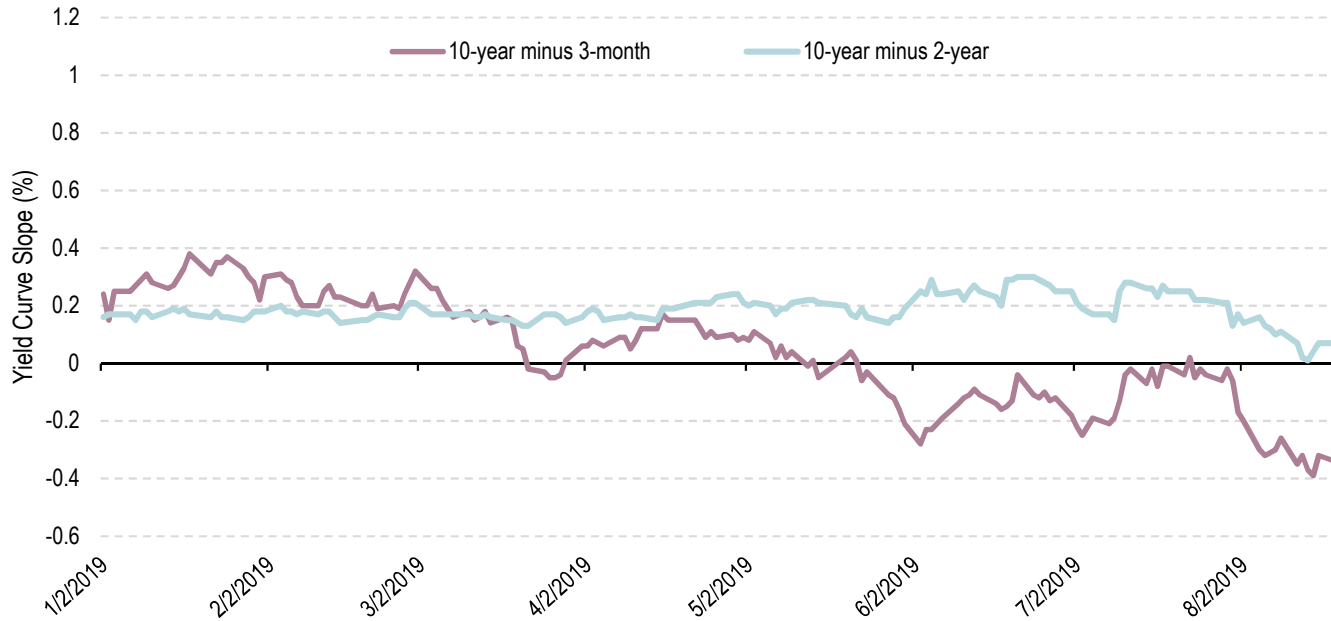


<sup>1</sup> Source: FRED, MIG as of June 1, 2019.



### 2019 Inversion

Yield Curve Slope Daily: Jan 1, 2019- Aug 19, 2019<sup>1</sup>



### What Inverted and When

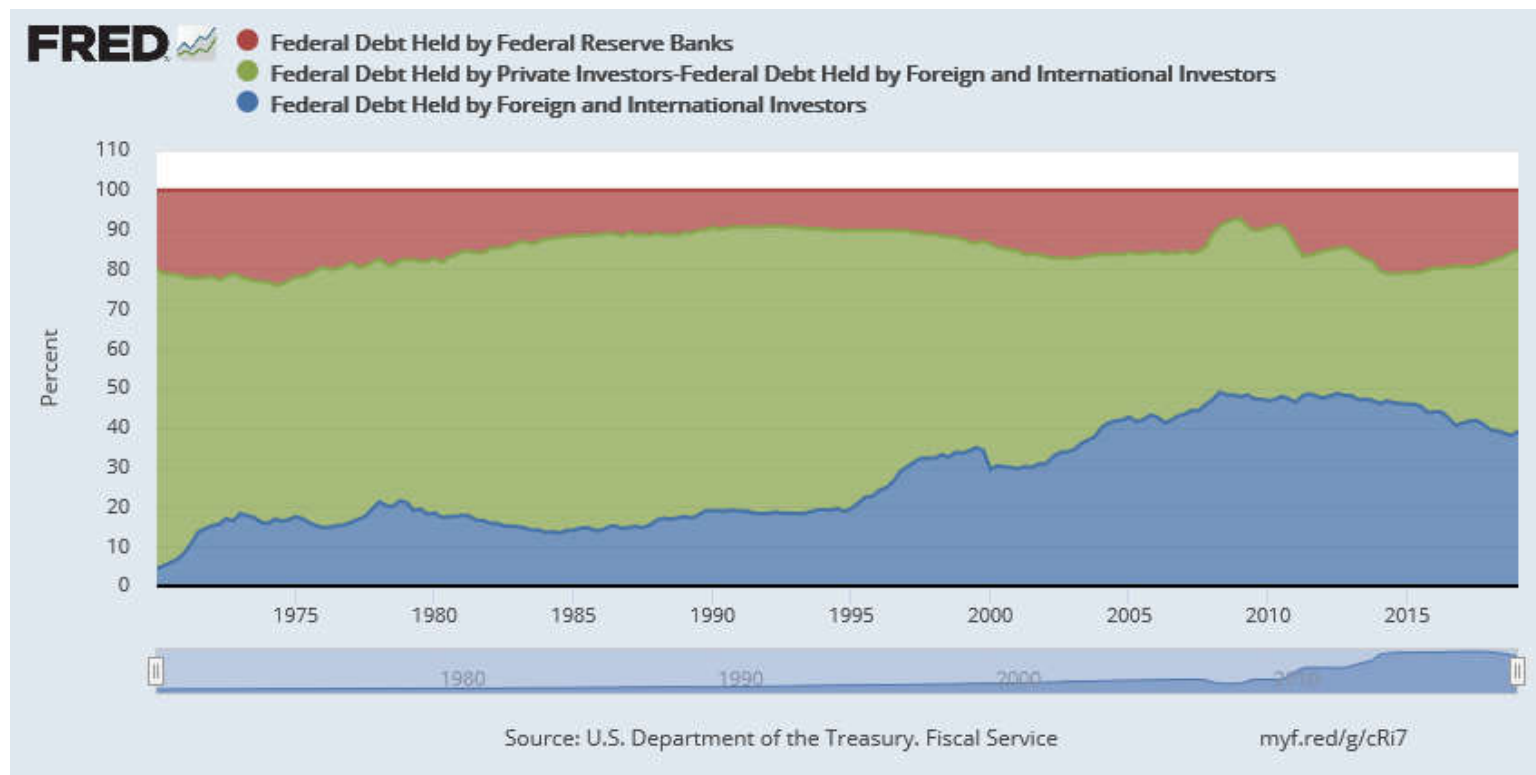
| 10-year minus 2-year  | 10-year minus 3-month   |
|---|---|
| <ul style="list-style-type: none"> <li>- August 14th</li> <li>- August 23rd to</li> </ul> | <ul style="list-style-type: none"> <li>- March 22nd to 28th</li> <li>- May 13th</li> <li>- May 15th</li> <li>- May 23rd to Present</li> </ul> |

<sup>1</sup> Source: FRED, MIG as of August, 2019.



## What is Different This Time?

- Rapid Pivot: After 8 successive rate hikes the Federal Reserve reversed course and cut rates preemptively without much evidence of economic activity slowing.
- U.S. interest rates are near all-time lows.
- Global Negative Rate Environment: Approximately 40% of the Global Investment Grade Bond universe (ex-U.S.) is trading at negative yields.
- Global ownership of U.S. Debt is at much higher levels than previous recessions.



### Recap: Key Considerations

- For institutional investors, while it is important to pay attention to economic signals, including the shape of the yield curve, economic variables are usually slow-moving and prone to corrections. Brief yield curve inversions should not warrant changes to an asset allocation.
- Temporary inversions can be caused by spurious market dynamics, especially in the current environment of low interest rates.
- Yield curve inversions have generally (but not always) predicted recessions, but without a consistent leading period.
- Curve inversions signal economic slowdowns and recessions, yet in the case of the U.S., it is well established that the economy is experiencing “late cycle” dynamics, including flat yield curves and lowering growth prospects.
- The playbook in the current environment may be quite different from past recessions as global ownership of U.S. treasuries is near all-time highs, while interest rates globally remain near all-time lows.
- The yield curve is a useful indicator, but it is just one of many measures that should be considered when evaluating market conditions and risks.

August 30, 2019

TO: Each Member  
Board of Investments

FROM: Christopher J. Wagner *CJW*  
Principal Investment Officer

David Chu *DC*  
Senior Investment Officer

FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **PRIVATE EQUITY IN-HOUSE CO-INVESTMENT PROGRAM UPDATE**

### **BACKGROUND**

At the December 12, 2018 Board of Investments (“BOI”) meeting, the Board approved the establishment of an internal private equity co-investment program and delegated staff the authority to make private equity co-investments subject to certain investment guidelines. As part of the program’s monitoring policy, staff agreed to provide the Board periodic updates. Attached for your review is a short presentation (**Attachment 1**) regarding the in-house co-investment program’s progress that staff will provide at the September 11<sup>th</sup> meeting.

Attachment

Noted and Reviewed:



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Jonathan Grabel  
Chief Investment Officer

CJW:DC:mm

# LACERA Private Equity In-House Co-Investment Program Update

Board of Investments  
September 11, 2019



# LACERA Private Equity Co-Investment Parameters

Since co-investment opportunities require prompt action, the Board delegated investment staff co-investment authority at the December 2018 BOI meeting for private equity co-investments when certain conditions are met

## LACERA In-House Co-Investment Guidelines

|  |   |
|--|---|
| <b>Sourcing:</b> BOI-approved funds (including those that are CIO-approved via re-up procedures) | ✓ |
| <b>Investment Size:</b> less than \$40 million in a single opportunity                           | ✓ |
| <b>U.S. Headquartered:</b>   | ✓ |
| <b>Deal Type:</b> Buyout or growth equity  | ✓ |
| <b>Annual Deployment:</b> up to \$100 million in CY 2019, up to \$150 million in CY 2020         | ✓ |

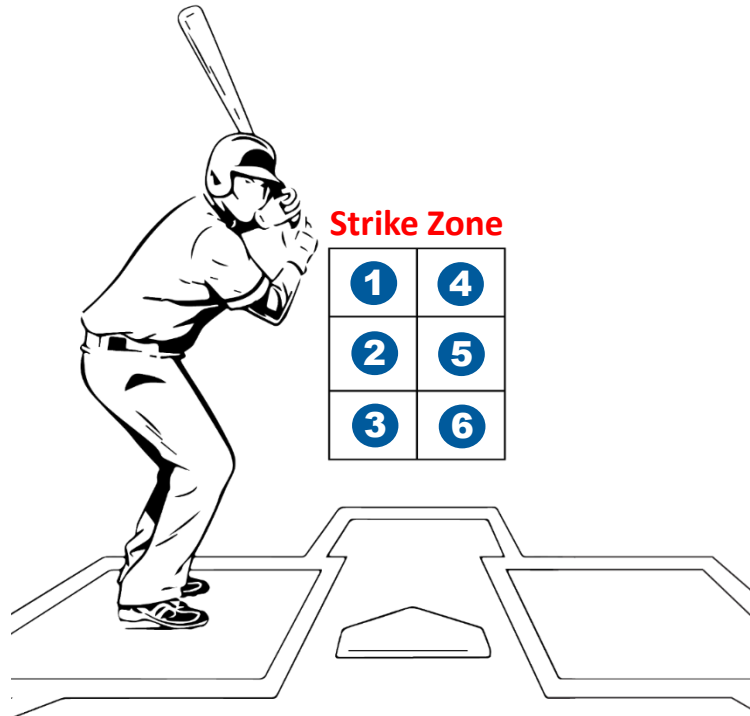
# Co-investment Evaluation Criteria - Illustrative

At the December 2018 BOI meeting, staff communicated that thorough co-investment guidelines will be developed to mitigate risks and ensure consistent decision making; moreover, 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

# In-House Co-Investment Program Launch Timeline

Staff spent the first three months of 2019 laying a strong foundation for the in-house co-investment program through the development of various processes and procedures

|  | January 2019 |        |        |        | February 2019 |        |        |        | March 2019 |        |        |        |  |
|--|--------------|--------|--------|--------|---------------|--------|--------|--------|------------|--------|--------|--------|--|
|  | Week 1       | Week 2 | Week 3 | Week 4 | Week 1        | Week 2 | Week 3 | Week 4 | Week 1     | Week 2 | Week 3 | Week 4 |  |
| <b>Strategy Development</b>  |              |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Developed portfolio management strategy  | █            |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Developed sourcing strategy and manager coverage assignments                     | █            |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Developed due diligence process and timeline                                     | █            |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Discussed best practices with various consultants, managers, and LPs             |              | █      |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Discussed co-investment terms with StepStone and Morgan Stanley                  |              |        |        |        |               | █      |        |        |            |        |        |        |  |
| <b>Due Diligence</b>   |              |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Developed due diligence checklist  |              |        |        |        | █             |        |        |        |            |        |        |        |  |
| ▪ Developed co-investment deal scoring sheet                                       |              |        |        |        |               | █      |        |        |            |        |        |        |  |
| ▪ Compiled information request list  |              |        |        |        |               |        |        |        |            | █      |        |        |  |
| ▪ Developed preliminary and final investment committee memos                       |              |        |        |        |               |        |        |        | █          |        |        |        |  |
| ▪ Developed valuation, scenario, and sensitivity analyses templates                |              |        |        |        |               |        |        |        | █          |        |        |        |  |
| ▪ Developed ESG questionnaire  |              |        |        |        |               |        |        |        |            |        | █      |        |  |
| <b>Monitoring</b>  |              |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Developed quarterly monitoring protocol  |              |        |        |        |               |        |        |        | █          |        |        |        |  |
| ▪ Developed 1-page co-investment monitoring template                               |              |        |        |        |               |        |        |        |            |        | █      |        |  |
| ▪ Developed annual post-mortem analysis framework                                  |              |        |        |        |               |        |        |        |            |        | █      |        |  |
| <b>Infrastructure</b>  |              |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Finalized and obtained budget approval   | █            |        |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Contracted and onboarded research and analytics vendors                          |              | █      |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Discussed co-investment funding requirements with accounting                     |              |        |        |        |               |        |        | █      |            |        |        |        |  |
| ▪ Evaluated legal structures and terms with internal and external counsel          |              | █      |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Finalized Form of Process Due Diligence Letter with Morgan Stanley and StepStone |              | █      |        |        |               |        |        |        |            |        |        |        |  |
| ▪ Program launch   |              |        |        |        |               |        |        |        |            |        |        | █      |  |



# Sample Co-Investment Due Diligence Process Checklist

The private equity co-investment due diligence process evaluates a range of criteria while utilizing the same two-stage team investment committee format used to assess funds

## LACERA Co-Investment Due Diligence Process Checklist

Co-investment Name: \_\_\_\_\_

Checklist Completion Date: \_\_\_\_\_

GP Sponsor: \_\_\_\_\_

### Portfolio Fit

- Assessed portfolio fit within total fund and PE sub-asset class
- Assessed ESG considerations

### Sponsor Fit

- Assessed sponsor fit and conducted track record attribution analysis

### Company

- Assessed company's product and/or services
- Assessed management team and board/advisors
- Analyzed value creation plan
- Conducted historical financial statement analysis and reviewed forward projections model

### Macro / Industry

- Identified potential macro tailwinds and headwinds
- Analyzed competitive landscape
- Considered regulatory risks

### Deal

- Assessed alignment with co-investors and company management team
- Assessed entry/exit valuation, transaction structure, sources and uses, and exit strategy

### Process


- Completed initial investment committee memo
- Passed initial team investment committee vote
- Reviewed accounting / financial / quality of earnings / and consultant reports
- Completed final investment committee memo
- Completed reference calls and background checks
- Passed final team investment committee vote
- Obtained Form of Process Letter from Morgan Stanley or StepStone



**FOR INFORMATION ONLY**

September 4, 2019

TO: Each Member  
Board of Investments

FROM: Jude Perez   
Principal Investment Officer

FOR: September 11, 2019 BOARD OF INVESTMENTS MEETING

SUBJECT: **LACERA QUARTERLY PERFORMANCE BOOK**

Attached is the OPEB Master Trust quarterly performance book as of June 30, 2019.

Noted and Reviewed



---

Jonathan Grabel  
Chief Investment Officer

Attachments  
EdB:JP

# PERFORMANCE REVIEW



## OPEB Master Trust

AS OF JUNE 30, 2019



# OPEB MASTER TRUST

for the quarter ended June 30, 2019

## 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 the second quarter was 2.7% for the County and Superior Court, and 2.6% for LACERA. For the fiscal year, LACERA and the County gained 5.5%, and the Superior Court returned 5.4%. As a reminder, return differences between the trusts are due to distinct contribution and rebalancing activity within each plan.

The OPEB Master Trust consists of four functional categories: Growth, Credit, Risk Reduction and Mitigation, and Inflation Hedges. The balance of this report will review the net-of-fee second quarter performance of these categories. All accounts within the OPEB Trust posted positive absolute returns in the second quarter.

The OPEB Growth component is comprised of a global equity MSCI All Country World IMI fund. Growth was once again, the strongest returning category, increasing 3.5% for the quarter.

The OPEB Credit allocation consists of three funds: Emerging markets debt (local currency), high yield bonds, and bank loans. All categories generated positive absolute returns for the quarter: 5.6%, 2.6%, and 1.5%, respectively. As a group, Credit returned 2.6%.

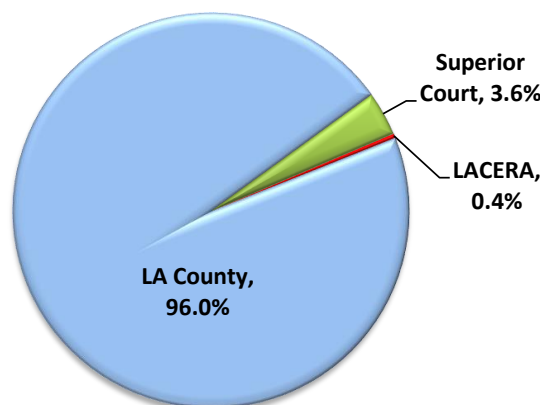
The OPEB Risk Reduction and Mitigation composite returned 2.6% for the quarter. The investment grade bond fund rose 3.1%, and the J.P. Morgan separately managed enhanced cash account generated 0.8%.

The OPEB Inflation Hedges category returned 1.0%, with two of three components posting positive absolute returns. Treasury inflation protected securities (TIPS) returned 2.9%, real estate investment trusts (REITs) rose 0.8%, and commodities fell 1.2%.

| Fund Name                     | Inception Date | Market Value (millions) | Trust Ownership | Qtr | FYTD | 1 Yr | 3 Yrs | 5 Yrs | 10 Yrs |
|-------------------------------|----------------|-------------------------|-----------------|-----|------|------|-------|-------|--------|
| <b>Los Angeles County:</b>    | Feb-2013       | \$1,189.4               | 96.0%           |     |      |      |       |       |        |
| Gross                         |                |                         |                 | 2.7 | 5.6  | 5.6  | 10.6  | 5.9   | ----   |
| Net                           |                |                         |                 | 2.7 | 5.5  | 5.5  | 10.5  | 5.9   | ----   |
| Net All <sup>1</sup>          |                |                         |                 | 2.6 | 5.5  | 5.5  | 10.5  | 5.8   | ----   |
| <b>LACERA:</b>                | Feb-2013       | \$4.6                   | 0.4%            |     |      |      |       |       |        |
| Gross                         |                |                         |                 | 2.7 | 5.6  | 5.6  | 10.6  | 6.0   | ----   |
| Net                           |                |                         |                 | 2.6 | 5.5  | 5.5  | 10.6  | 5.9   | ----   |
| Net All <sup>1</sup>          |                |                         |                 | 2.6 | 5.2  | 5.2  | 9.8   | 5.4   | ----   |
| <b>Superior Court:</b>        | Jul-2016       | \$44.5                  | 3.6%            |     |      |      |       |       |        |
| Gross                         |                |                         |                 | 2.7 | 5.4  | 5.4  | 8.8   | ----  | ----   |
| Net                           |                |                         |                 | 2.7 | 5.4  | 5.4  | 8.8   | ----  | ----   |
| Net All <sup>1</sup>          |                |                         |                 | 2.7 | 5.2  | 5.2  | 8.2   | ----  | ----   |
| <b>TRUST OWNERSHIP TOTAL:</b> |                | <b>\$1,238.5</b>        | <b>100.0%</b>   |     |      |      |       |       |        |

<sup>1</sup> Includes Custody & LACERA's Administrative Fees.

Trust Ownership



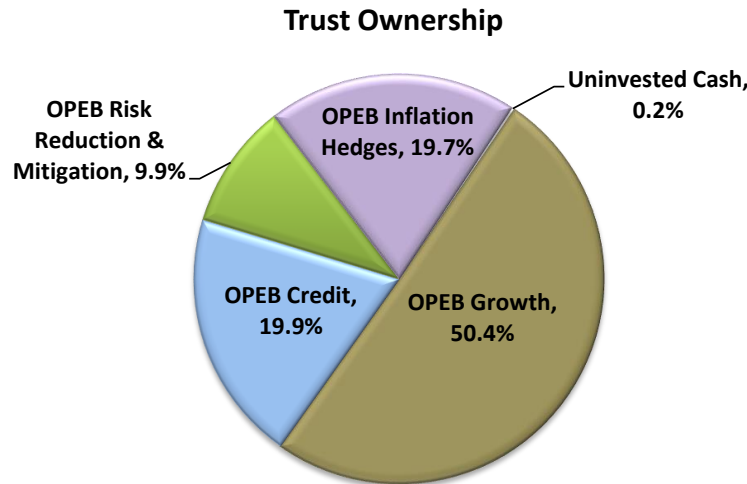


# OPEB MASTER TRUST

for the quarter ended June 30, 2019

| Fund Name                                   | Inception Date | Market Value (millions) | Trust Ownership | Qtr  | FYTD | 1 Yr | 3 Yrs | 5 Yrs | 10 Yrs |
|---|----------------|-------------------------|-----------------|------|------|------|-------|-------|--------|
| <b>OPEB Growth</b>                          | Jul-2016       | \$623.9                 | 50.4%           |      |      |      |       |       |        |
| Gross                                       |                |                         |                 | 3.5  | 4.9  | 4.9  | 11.8  | ----  | ----   |
| Net   |                |                         |                 | 3.5  | 4.9  | 4.9  | 11.7  | ----  | ----   |
| Net All                                     |                |                         |                 | 3.5  | 4.9  | 4.9  | 11.7  | ----  | ----   |
| <b>OPEB Credit</b>                          | Jul-2018       | \$245.9                 | 19.9%           |      |      |      |       |       |        |
| Gross                                       |                |                         |                 | 2.6  | 5.7  | 5.7  | ----  | ----  | ----   |
| Net   |                |                         |                 | 2.6  | 5.7  | 5.7  | ----  | ----  | ----   |
| Net All                                     |                |                         |                 | 2.6  | 5.7  | 5.7  | ----  | ----  | ----   |
| <b>OPEB Risk Reduction &amp; Mitigation</b> | Jul-2016       | \$122.8                 | 9.9%            |      |      |      |       |       |        |
| Gross                                       |                |                         |                 | 2.6  | 6.9  | 6.9  | 3.2   | ----  | ----   |
| Net   |                |                         |                 | 2.6  | 6.9  | 6.9  | 3.2   | ----  | ----   |
| Net All                                     |                |                         |                 | 2.6  | 6.9  | 6.9  | 3.1   | ----  | ----   |
| <b>OPEB Inflation Hedges</b>                | Jul-2018       | \$243.6                 | 19.7%           |      |      |      |       |       |        |
| Gross                                       |                |                         |                 | 1.0  | 5.1  | 5.1  | ----  | ----  | ----   |
| Net   |                |                         |                 | 1.0  | 5.0  | 5.0  | ----  | ----  | ----   |
| Net All                                     |                |                         |                 | 1.0  | 5.0  | 5.0  | ----  | ----  | ----   |
| <b>Uninvested Cash</b>                      |                | \$2.3                   | 0.2%            | ---- | ---- | ---- | ----  | ----  | ----   |
| <b>TRUST OWNERSHIP TOTAL:</b>               |                | <b>\$1,238.5</b>        | <b>100.0%</b>   |      |      |      |       |       |        |

Differences in MV between the Sub-Trusts and Functional composites is due to operational cash





# OPEB MASTER TRUST

for the quarter ended June 30, 2019

| Allocation  | Inception Date | Market Value (millions) | Allocation % | Qtr  | FYTD | 1 Yr | 3 Yrs | 5 Yrs | 10 Yrs |
|---|----------------|-------------------------|--------------|------|------|------|-------|-------|--------|
| <b>OPEB Global Equity:</b>                          | Mar-2014       | \$623.9                 | 50.4%        |      |      |      |       |       |        |
| Gross   |                |                         |              | 3.5  | 4.9  | 4.9  | 11.8  | 6.4   | ----   |
| Net   |                |                         |              | 3.5  | 4.9  | 4.9  | 11.7  | 6.4   | ----   |
| Benchmark: MSCI ACWI IMI Net                        |                |                         |              | 3.4  | 4.6  | 4.6  | 11.4  | 6.0   | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.1  | 0.3  | 0.3  | 0.3   | 0.3   | ----   |
| <b>OPEB BTC High Yield Bonds</b>                    | Jul-2018       | \$74.0                  | 6.0%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 2.7  | 7.7  | 7.7  | ----  | ----  | ----   |
| Net   |                |                         |              | 2.6  | 7.6  | 7.6  | ----  | ----  | ----   |
| Benchmark: BC High Yield Index                      |                |                         |              | 2.5  | 7.5  | 7.5  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.1  | 0.1  | 0.1  | ----  | ----  | ----   |
| <b>OPEB BTC EM Debt LC</b>                          | Jul-2018       | \$49.7                  | 4.0%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 5.6  | 8.5  | 8.5  | ----  | ----  | ----   |
| Net   |                |                         |              | 5.6  | 8.4  | 8.4  | ----  | ----  | ----   |
| Benchmark: JPM GBI-EM Global Diversified Index      |                |                         |              | 5.6  | 9.0  | 9.0  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | -0.1 | -0.6 | -0.6 | ----  | ----  | ----   |
| <b>OPEB BTC Inv. Grade Bonds</b>                    | Jul-2018       | \$98.7                  | 8.0%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 3.1  | 8.0  | 8.0  | ----  | ----  | ----   |
| Net   |                |                         |              | 3.1  | 7.9  | 7.9  | ----  | ----  | ----   |
| Benchmark: BBG BARC US Aggregate Index              |                |                         |              | 3.1  | 7.9  | 7.9  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.0  | 0.1  | 0.1  | ----  | ----  | ----   |
| <b>OPEB BTC TIPS</b>                                | Jul-2018       | \$74.1                  | 6.0%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 2.9  | 4.9  | 4.9  | ----  | ----  | ----   |
| Net   |                |                         |              | 2.9  | 4.9  | 4.9  | ----  | ----  | ----   |
| Benchmark: BBG US TIPS Index                        |                |                         |              | 2.9  | 4.8  | 4.8  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.0  | 0.1  | 0.1  | ----  | ----  | ----   |
| <b>OPEB BTC REITs</b>                               | Jul-2018       | \$120.2                 | 9.7%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 0.8  | 9.8  | 9.8  | ----  | ----  | ----   |
| Net   |                |                         |              | 0.8  | 9.7  | 9.7  | ----  | ----  | ----   |
| Benchmark: DJ US Select Real Estate Sec Index       |                |                         |              | 0.8  | 9.8  | 9.8  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.0  | 0.0  | 0.0  | ----  | ----  | ----   |
| <b>OPEB BTC Commodities</b>                         | Jul-2018       | \$49.3                  | 4.0%         |      |      |      |       |       |        |
| Gross   |                |                         |              | -1.2 | -6.6 | -6.6 | ----  | ----  | ----   |
| Net   |                |                         |              | -1.2 | -6.7 | -6.7 | ----  | ----  | ----   |
| Benchmark: Bloomberg Commodity Index (Total Return) |                |                         |              | -1.2 | -6.8 | -6.8 | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.0  | 0.0  | 0.0  | ----  | ----  | ----   |
| <b>OPEB BTC Bank Loans</b>                          | Jul-2018       | \$122.2                 | 9.9%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 1.5  | 3.6  | 3.6  | ----  | ----  | ----   |
| Net   |                |                         |              | 1.5  | 3.6  | 3.6  | ----  | ----  | ----   |
| Benchmark: S&P/LSTA Leveraged Loan Index            |                |                         |              | 1.7  | 4.0  | 4.0  | ----  | ----  | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | -0.2 | -0.4 | -0.4 | ----  | ----  | ----   |
| <b>OPEB Enhanced Cash:</b>                          | Feb-2013       | \$24.1                  | 1.9%         |      |      |      |       |       |        |
| Gross   |                |                         |              | 0.8  | 3.3  | 3.3  | 1.9   | 1.4   | ----   |
| Net   |                |                         |              | 0.8  | 3.2  | 3.2  | 1.9   | 1.3   | ----   |
| Benchmark: FTSE 6 M T-Bill Index                    |                |                         |              | 0.6  | 2.4  | 2.4  | 1.4   | 0.9   | ----   |
| Excess Return (Net - Benchmark)                     |                |                         |              | 0.2  | 0.9  | 0.9  | 0.5   | 0.4   | ----   |

#### 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.

# Master Trust OPEB Analytics Report

Prepared for LACERA

30 June 2019

## Master Trust OPEB Asset Allocation &amp; Analytics

LACERA

30-Jun-2019

Reporting Currency: USD

## Master Trust OPEB Allocation vs Policy Benchmark

|                               | Market Value<br>(Millions) <sup>1</sup> | Allocation (%) | Policy Benchmark (%) | Benchmark             | Relative (%) |
|-------------------------------|---|----------------|----------------------|-----------------------|--------------|
| Growth                        | 623.95                                  | 50.5%          | 50.0%                | OPEB Growth Blend     | 0.5%         |
| Credit                        | 245.89                                  | 19.9%          | 20.0%                | OPEB Credit Blend     | -0.1%        |
| Inflation Hedges              | 243.60                                  | 19.7%          | 20.0%                | OPEB Inflation Blend  | -0.3%        |
| Risk Reduction and Mitigation | 122.65                                  | 9.9%           | 10.0%                | OPEB Risk Reduc Blend | -0.1%        |
| <b>TOTAL</b>                  | <b>1,236.08</b>                         | <b>100.0%</b>  | <b>100.0%</b>        |                       | <b>0.0%</b>  |

1: Total market value does not include all cash at participant level



## OPEB Asset Allocation &amp; Analytics

LACERA

30-Jun-2019

Reporting Currency: USD

## OPEB Allocation vs Policy Benchmark

|                               | Market Value<br>(Millions) | Allocation (%) | Policy Benchmark (%) | Benchmark             | Relative (%) |
|-------------------------------|----------------------------|----------------|----------------------|-----------------------|--------------|
| <b>LA County</b>              |                            |                |                      |                       |              |
| Growth                        | 600.21                     | 50.5%          | 50.0%                | OPEB Growth Blend     | 0.5%         |
| Credit                        | 236.64                     | 19.9%          | 20.0%                | OPEB Credit Blend     | -0.1%        |
| Inflation Hedges              | 234.36                     | 19.7%          | 20.0%                | OPEB Inflation Blend  | -0.3%        |
| Risk Reduction and Mitigation | 118.19                     | 9.9%           | 10.0%                | OPEB Risk Reduc Blend | -0.1%        |
| <b>TOTAL</b>                  | <b>1,189.40</b>            | <b>100.0%</b>  | <b>100.0%</b>        |                       | <b>0.0%</b>  |
| <b>LACERA OPEB</b>            |                            |                |                      |                       |              |
| Growth                        | 2.31                       | 50.2%          | 50.0%                | OPEB Growth Blend     | 0.2%         |
| Credit                        | 0.91                       | 19.7%          | 20.0%                | OPEB Credit Blend     | -0.3%        |
| Inflation Hedges              | 0.90                       | 19.6%          | 20.0%                | OPEB Inflation Blend  | -0.4%        |
| Risk Reduction and Mitigation | 0.48                       | 10.5%          | 10.0%                | OPEB Risk Reduc Blend | 0.5%         |
| <b>TOTAL</b>                  | <b>4.61</b>                | <b>0.4%</b>    | <b>100.0%</b>        |                       | <b>0.0%</b>  |
| <b>Superior Court</b>         |                            |                |                      |                       |              |
| Growth                        | 21.42                      | 48.2%          | 50.0%                | OPEB Growth Blend     | -1.8%        |
| Credit                        | 8.34                       | 18.8%          | 20.0%                | OPEB Credit Blend     | -1.2%        |
| Inflation Hedges              | 8.34                       | 18.7%          | 20.0%                | OPEB Inflation Blend  | -1.3%        |
| Risk Reduction and Mitigation | 6.37                       | 14.3%          | 10.0%                | OPEB Risk Reduc Blend | 4.3%         |
| <b>TOTAL</b>                  | <b>44.47</b>               | <b>3.7%</b>    | <b>100.0%</b>        |                       | <b>0.0%</b>  |

## OPEB Analytics, Volatility &amp; Tracking Error

LACERA

30-Jun-2019

Reporting Currency: USD

## OPEB Analytics

|                          | Benchmark                     | Market Value<br>(Millions)                    | Allocation (%) | Volatility<br>(% per annum) <sup>1</sup> | Standalone VaR<br>(% of MV) <sup>2</sup>               | Total VaR<br>Contribution<br>(% of Total MV) <sup>3</sup> | Tracking Error<br>Contribution<br>(% of Total MV) <sup>4</sup> |       |
|--------------------------|-------------------------------|---|----------------|--|--|---|--|-------|
| <b>LA County</b>         |                               |   |                |  |  |   |  |       |
|                          | Growth                        | OPEB Growth Blend                             | 600.21         | 50.5%                                    | 11.66%   | 19.47%  | 9.47%  | 0.01% |
|                          | Credit                        | OPEB Credit Blend                             | 236.64         | 19.9%                                    | 5.25%  | 8.89%   | 1.33%  | 0.00% |
|                          | Inflation Hedges              | OPEB Inflation Blend                          | 234.36         | 19.7%                                    | 7.77%  | 11.94%  | 2.15%  | 0.00% |
|                          | Risk Reduction and Mitigation | OPEB Risk Reduc Blend                         | 118.19         | 9.9%                                     | 3.00%  | 4.89%   | 0.04%  | 0.00% |
| <b>TOTAL</b>             |                               | <b>1,189.40</b>                               | <b>100.0%</b>  | <b>7.77%</b>                             | <b>13.00%</b>  | <b>13.00%</b>   | <b>0.01%</b>   |       |
|                          |                               | <i>Weighted Average Benchmark<sup>5</sup></i> |                | 7.77%                                    | 13.00%   | 13.00%  |  |       |
| <b>Benchmark</b>         | <b>Policy Benchmark</b>       |   |                | <b>7.77%</b>                             | <b>13.00%</b>  | <b>13.00%</b>   | <b>0.01%</b>   |       |
|                          |                               |   |                |  | <i>Aggregate Benchmark Structural Risk<sup>6</sup></i> |   | <b>0.00%</b>   |       |
| <b>LACERA</b>            |                               |   |                |  |  |   |  |       |
|                          | Growth                        | OPEB Growth Blend                             | 2.31           | 50.2%                                    | 11.66%   | 19.47%  | 9.42%  | 0.01% |
|                          | Credit                        | OPEB Credit Blend                             | 0.91           | 19.7%                                    | 5.25%  | 8.89%   | 1.32%  | 0.00% |
|                          | Inflation Hedges              | OPEB Inflation Blend                          | 0.90           | 19.6%                                    | 7.77%  | 11.94%  | 2.14%  | 0.00% |
|                          | Risk Reduction and Mitigation | OPEB Risk Reduc Blend                         | 0.48           | 10.5%                                    | 2.82%  | 4.60%   | 0.04%  | 0.00% |
| <b>TOTAL</b>             |                               | <b>4.61</b>                                   | <b>100.0%</b>  | <b>7.72%</b>                             | <b>12.92%</b>  | <b>12.92%</b>   | <b>0.01%</b>   |       |
|                          |                               | <i>Weighted Average Benchmark<sup>5</sup></i> |                | 7.72%                                    | 12.92%   | 12.92%  |  |       |
| <b>Benchmark</b>         | <b>Policy Benchmark</b>       |   |                | <b>7.72%</b>                             | <b>12.92%</b>  | <b>12.92%</b>   | <b>0.01%</b>   |       |
|                          |                               |   |                |  | <i>Aggregate Benchmark Structural Risk<sup>6</sup></i> |   | <b>0.00%</b>   |       |
| <b>Superior Court</b>    |                               |   |                |  |  |   |  |       |
|                          | Growth                        | OPEB Growth Blend                             | 21.42          | 48.2%                                    | 11.66%   | 19.47%  | 9.04%  | 0.01% |
|                          | Credit                        | OPEB Credit Blend                             | 8.34           | 18.8%                                    | 5.25%  | 8.89%   | 1.25%  | 0.00% |
|                          | Inflation Hedges              | OPEB Inflation Blend                          | 8.34           | 18.7%                                    | 7.77%  | 11.94%  | 2.05%  | 0.00% |
|                          | Risk Reduction and Mitigation | OPEB Risk Reduc Blend                         | 6.37           | 14.3%                                    | 2.06%  | 3.38%   | 0.05%  | 0.01% |
| <b>TOTAL</b>             |                               | <b>44.47</b>                                  | <b>100.0%</b>  | <b>7.40%</b>                             | <b>12.39%</b>  | <b>12.39%</b>   | <b>0.02%</b>   |       |
|                          |                               | <i>Weighted Average Benchmark<sup>5</sup></i> |                | 7.40%                                    | 12.38%   | 12.38%  |  |       |
| <b>Benchmark</b>         | <b>Policy Benchmark</b>       |   |                | <b>7.40%</b>                             | <b>12.38%</b>  | <b>12.38%</b>   | <b>0.02%</b>   |       |
|                          |                               |   |                |  | <i>Aggregate Benchmark Structural Risk<sup>6</sup></i> |   | <b>0.00%</b>   |       |
| <b>Master Trust OPEB</b> |                               |   |                |  |  |   |  |       |
| <b>TOTAL</b>             |                               | <b>1,238.48</b>                               | <b>100.0%</b>  | <b>7.76%</b>                             | <b>12.99%</b>  | <b>12.99%</b>   | <b>0.01%</b>   |       |
| <b>Benchmark</b>         | <b>Policy Benchmark</b>       |   |                | <b>7.76%</b>                             | <b>12.98%</b>  | <b>12.98%</b>   |  |       |

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

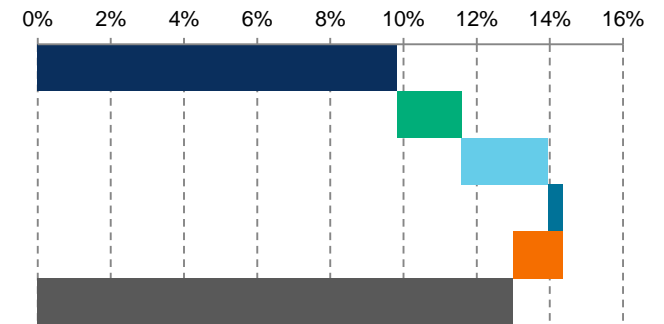
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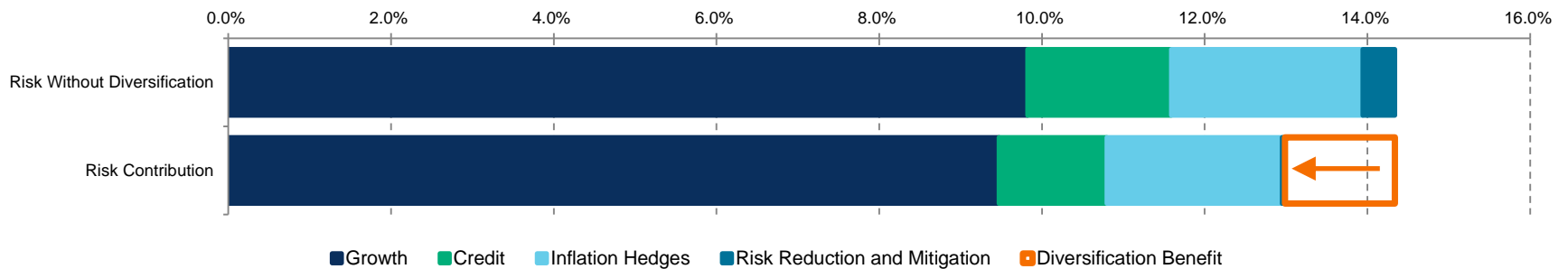
Reporting Currency: USD

Master Trust OPEB Risk & Diversification

|                                      | Allocation (%) | Weighted Standalone VaR<br>(% of Total MV) <sup>1</sup> |              |
|--------------------------------------|----------------|---|--------------|
|                                      |                | Monthly   | Annual       |
| Growth                               | 50.5%          | 2.8%  | 9.8%         |
| Credit                               | 19.9%          | 0.5%  | 1.8%         |
| Inflation Hedges                     | 19.7%          | 0.7%  | 2.4%         |
| Risk Reduction and Mitigation        | 10.0%          | 0.1%  | 0.4%         |
| Diversification Benefit <sup>2</sup> | -              | -0.4%   | -1.3%        |
| <b>TOTAL</b>                         | <b>100.0%</b>  | <b>3.7%</b>   | <b>13.0%</b> |



Risk Contribution and Diversification



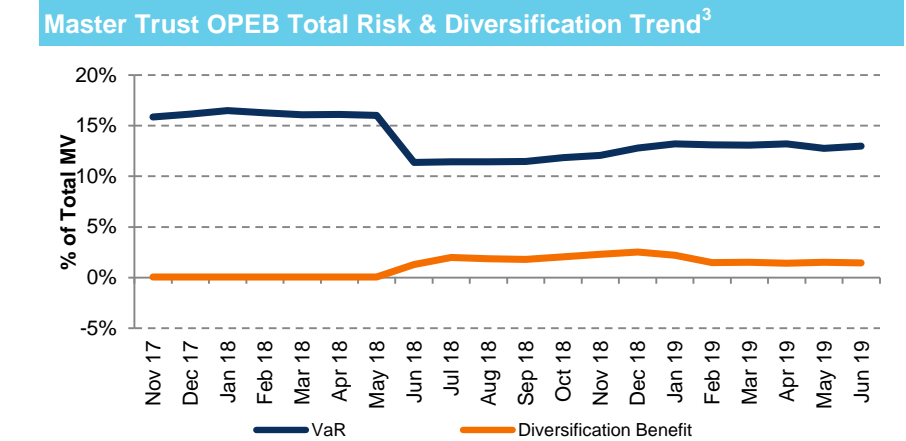
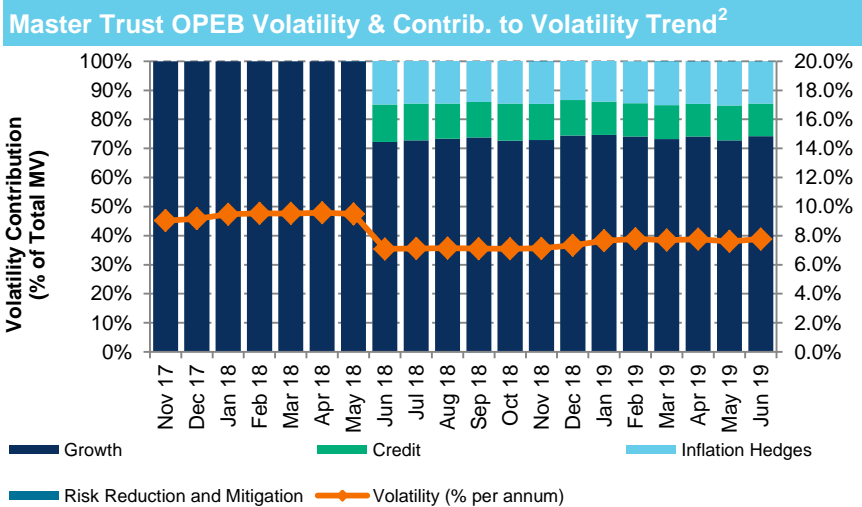
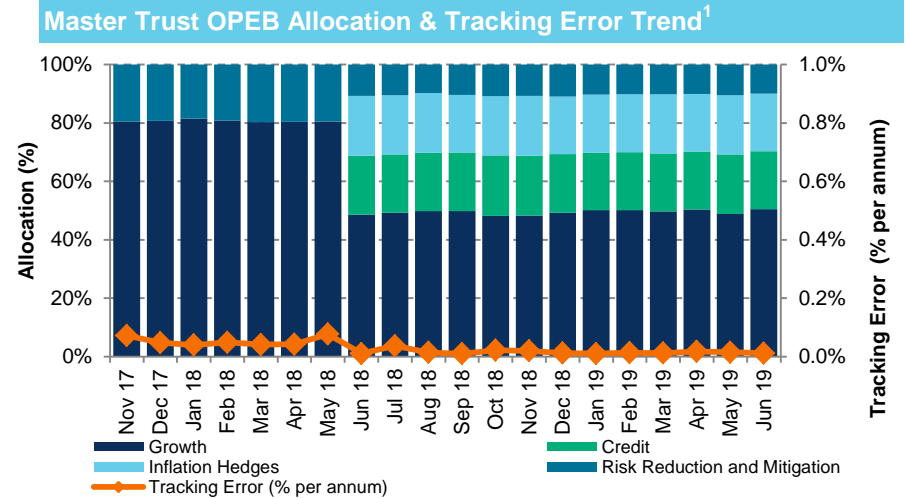
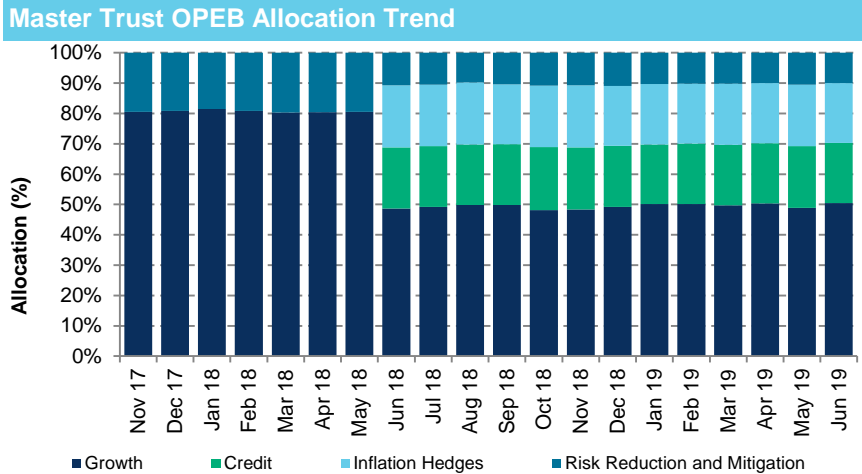
1: Standalone risk (historical VaR 95) of each asset class is weighted and expressed as a percent of total plan assets, i.e. contribution to risk without diversification benefit.

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

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Reporting Currency: USD



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.

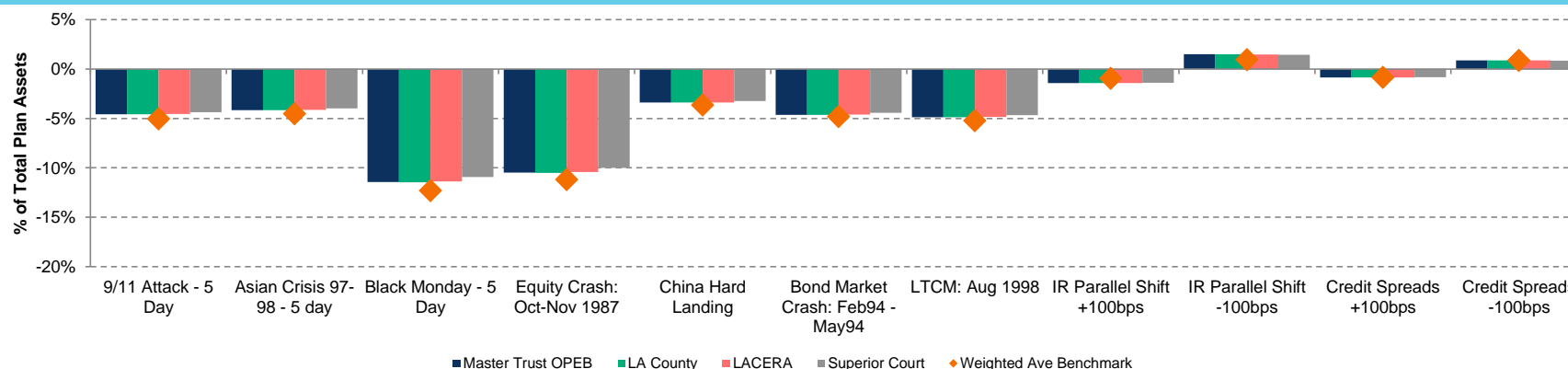
Master Trust OPEB Stress Testing  
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30-Jun-2019  
Reporting Currency: USD

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                        | 50.5%          | -4.5%               | -4.0%                      | -10.4%               | -9.0%                      | -3.1%              | -3.4%                            | -4.2%          | 0.0%                      | -0.0%                     | 0.0%                   | 0.0%                   |
| Credit                        | 19.9%          | 0.2%                | 0.2%                       | 0.2%                 | -0.3%                      | -0.1%              | -0.6%                            | -0.2%          | -0.4%                     | 0.4%                      | -0.6%                  | 0.6%                   |
| Inflation Hedges              | 19.7%          | -0.5%               | -0.4%                      | -1.3%                | -1.1%                      | -0.2%              | -0.5%                            | -0.4%          | -0.4%                     | 0.5%                      | -0.0%                  | 0.0%                   |
| Risk Reduction and Mitigation | 9.9%           | 0.1%                | 0.1%                       | 0.1%                 | -0.0%                      | 0.0%               | -0.2%                            | -0.1%          | -0.6%                     | 0.6%                      | -0.2%                  | 0.2%                   |
| <b>Master Trust OPEB</b>      | <b>100.0%</b>  | <b>-4.6%</b>        | <b>-4.2%</b>               | <b>-11.4%</b>        | <b>-10.5%</b>              | <b>-3.4%</b>       | <b>-4.6%</b>                     | <b>-4.9%</b>   | <b>-1.4%</b>              | <b>1.5%</b>               | <b>-0.9%</b>           | <b>0.9%</b>            |
| <i>Benchmark</i>              |                | -5.0%               | -4.5%                      | -12.3%               | -11.2%                     | -3.6%              | -4.8%                            | -5.2%          | -1.0%                     | 0.9%                      | -0.8%                  | 0.9%                   |
| <b>LA County</b>              |                | <b>-4.6%</b>        | <b>-4.2%</b>               | <b>-11.5%</b>        | <b>-10.5%</b>              | <b>-3.4%</b>       | <b>-4.7%</b>                     | <b>-4.9%</b>   | <b>-1.4%</b>              | <b>1.5%</b>               | <b>-0.9%</b>           | <b>0.9%</b>            |
| <i>Benchmark</i>              |                | -5.0%               | -4.5%                      | -12.3%               | -11.2%                     | -3.6%              | -4.8%                            | -5.2%          | -1.1%                     | 1.1%                      | -0.9%                  | 0.9%                   |
| <b>LACERA</b>                 |                | <b>-4.6%</b>        | <b>-4.1%</b>               | <b>-11.4%</b>        | <b>-10.4%</b>              | <b>-3.4%</b>       | <b>-4.6%</b>                     | <b>-4.9%</b>   | <b>-1.4%</b>              | <b>1.5%</b>               | <b>-0.8%</b>           | <b>0.9%</b>            |
| <i>Benchmark</i>              |                | -5.0%               | -4.5%                      | -12.2%               | -11.2%                     | -3.6%              | -4.8%                            | -5.2%          | -1.1%                     | 1.1%                      | -0.9%                  | 0.9%                   |
| <b>Superior Court</b>         |                | <b>-4.4%</b>        | <b>-4.0%</b>               | <b>-10.9%</b>        | <b>-10.0%</b>              | <b>-3.2%</b>       | <b>-4.4%</b>                     | <b>-4.7%</b>   | <b>-1.4%</b>              | <b>1.4%</b>               | <b>-0.8%</b>           | <b>0.9%</b>            |
| <i>Benchmark</i>              |                | -5.0%               | -4.5%                      | -12.3%               | -11.2%                     | -3.6%              | -4.8%                            | -5.2%          | -1.1%                     | 1.1%                      | -0.9%                  | 0.9%                   |

Stress Test Chart



# Glossary

## Appendix - Glossary

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30-Jun-2019

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 <sup>SM</sup> 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.   |

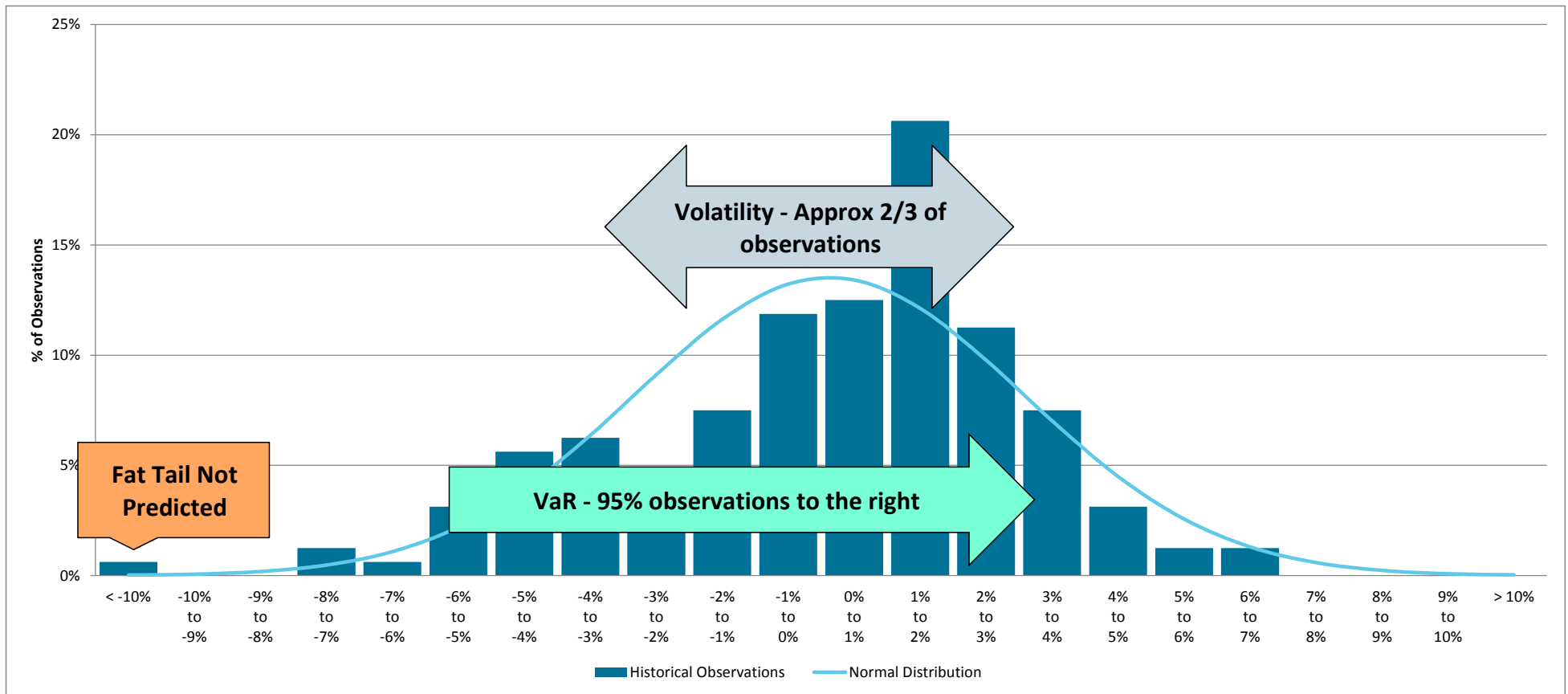
VaR and Volatility

Example Illustration of VaR and Volatility

VaR = 5.6%

Volatility = 2.9%

Mean = 0.1%





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# FUND EVALUATION REPORT

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## Los Angeles County OPEB Master Trust

June 30, 2019



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M E K E T A I N V E S T M E N T G R O U P

BOSTON  
MASSACHUSETTS

CHICAGO  
ILLINOIS

MIAMI  
FLORIDA

NEW YORK  
NEW YORK

PORTLAND  
OREGON

SAN DIEGO  
CALIFORNIA

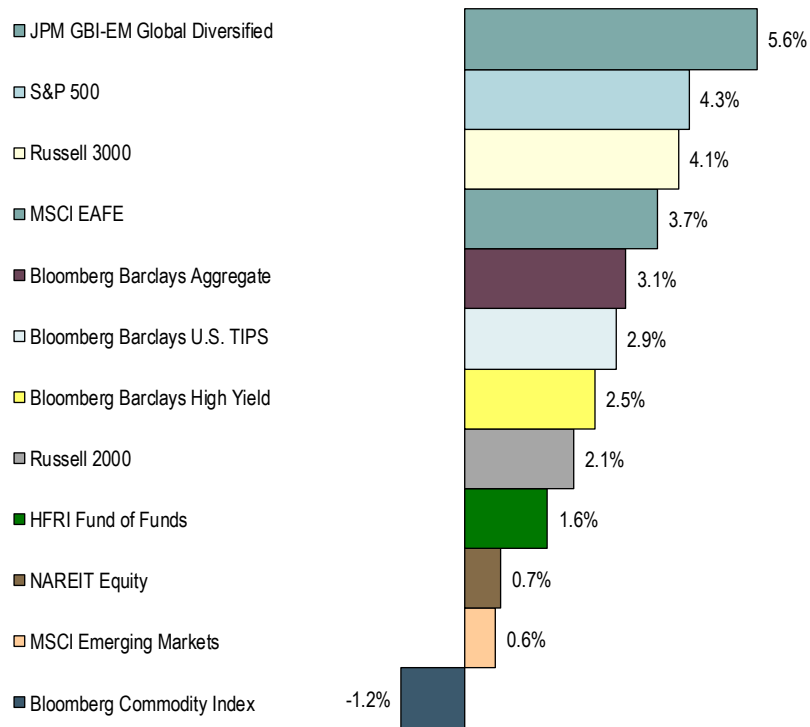
LONDON  
UNITED KINGDOM

[www.meketagroup.com](http://www.meketagroup.com)

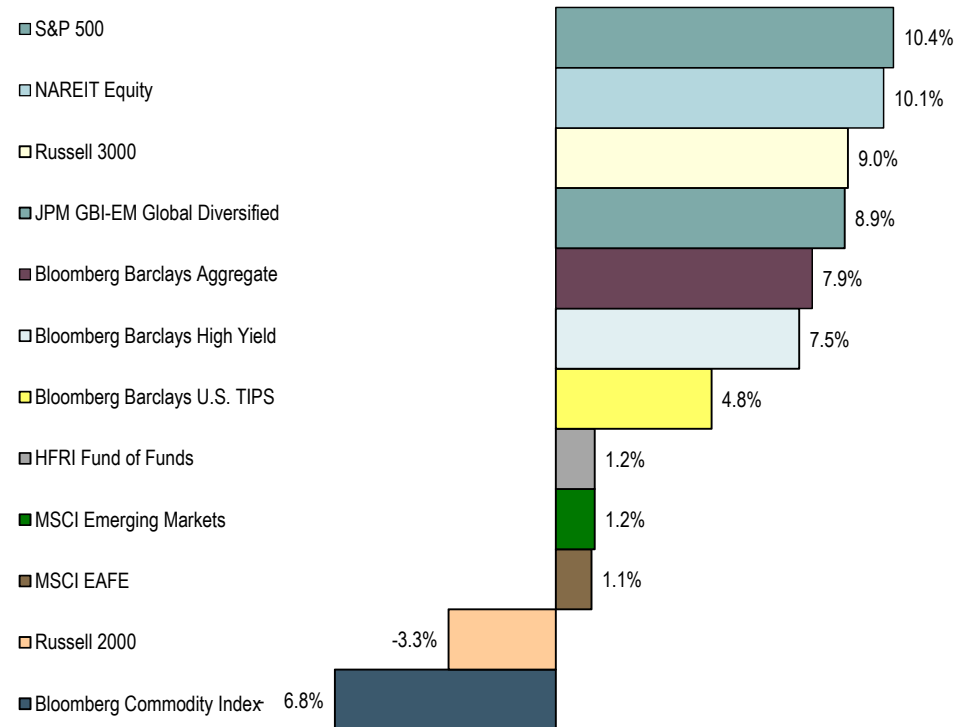
# Market Commentary

## The World Markets<sup>1</sup>

### Second Quarter of 2019



### One-Year as of Second Quarter of 2019



<sup>1</sup> Source: InvestorForce.



Index Returns<sup>1</sup>

|  | 2Q19<br>(%) | 1 YR<br>(%) | 3 YR<br>(%) | 5 YR<br>(%) | 10 YR<br>(%) |
|--|-------------|-------------|-------------|-------------|--------------|
| <b>Domestic Equity</b>                 |             |             |             |             |              |
| S&P 500                                | 4.3         | 10.4        | 14.2        | 10.7        | 14.7         |
| Russell 3000                           | 4.1         | 9.0         | 14.0        | 10.2        | 14.7         |
| Russell 1000                           | 4.2         | 10.0        | 14.1        | 10.5        | 14.8         |
| Russell 1000 Growth                    | 4.6         | 11.6        | 18.1        | 13.4        | 16.3         |
| Russell 1000 Value                     | 3.8         | 8.5         | 10.2        | 7.5         | 13.2         |
| Russell MidCap                         | 4.1         | 7.8         | 12.2        | 8.6         | 15.2         |
| Russell MidCap Growth                  | 5.4         | 13.9        | 16.5        | 11.1        | 16.0         |
| Russell MidCap Value                   | 3.2         | 3.7         | 8.9         | 6.7         | 14.6         |
| Russell 2000                           | 2.1         | -3.3        | 12.3        | 7.1         | 13.4         |
| Russell 2000 Growth                    | 2.7         | -0.5        | 14.7        | 8.6         | 14.4         |
| Russell 2000 Value                     | 1.4         | -6.2        | 9.8         | 5.4         | 12.4         |
| <b>Foreign Equity</b>                  |             |             |             |             |              |
| MSCI ACWI (ex. U.S.)                   | 3.0         | 1.3         | 9.4         | 2.2         | 6.5          |
| MSCI EAFE                              | 3.7         | 1.1         | 9.1         | 2.2         | 6.9          |
| MSCI EAFE (Local Currency)             | 2.8         | 2.2         | 9.8         | 5.9         | 8.3          |
| MSCI EAFE Small Cap                    | 1.7         | -6.3        | 9.1         | 4.4         | 9.7          |
| MSCI Emerging Markets                  | 0.6         | 1.2         | 10.7        | 2.5         | 5.8          |
| MSCI Emerging Markets (Local Currency) | 7.4         | 9.4         | 13.8        | 7.6         | 8.6          |
| <b>Fixed Income</b>                    |             |             |             |             |              |
| Bloomberg Barclays Universal           | 3.1         | 8.1         | 2.8         | 3.2         | 4.4          |
| Bloomberg Barclays Aggregate           | 3.1         | 7.9         | 2.3         | 2.9         | 3.9          |
| Bloomberg Barclays U.S. TIPS           | 2.9         | 4.8         | 2.1         | 1.8         | 3.6          |
| Bloomberg Barclays High Yield          | 2.5         | 7.5         | 7.5         | 4.7         | 9.2          |
| JPM GBI-EM Global Diversified          | 5.6         | 9.0         | 4.2         | -0.5        | 3.4          |
| <b>Other</b>                           |             |             |             |             |              |
| NAREIT Equity                          | 0.7         | 10.1        | 3.8         | 7.7         | 15.3         |
| Bloomberg Commodity Index              | -1.2        | -6.8        | -2.2        | -9.1        | -3.7         |
| HFRI Fund of Funds                     | 1.6         | 1.3         | 4.3         | 2.2         | 3.2          |

<sup>1</sup> Source: InvestorForce.

## Global Economic Outlook

**The IMF continues to reduce their growth projections as the global economic expansion slows, trade tensions escalate, and uncertainty related to Brexit continues.**

- The IMF now forecasts global growth to be 3.2% in 2019 and 3.5% in 2020 (both revised down by 0.1%).
- In advanced economies, growth is projected to slow from the 2.2% 2018 level to 1.9% in 2019 and 1.7% in 2020. While the forecast for growth in the U.S. was revised up in 2019 (2.6% versus 2.3%) given strong exports and an increase in inventories, expectations for a slowdown to 1.9% in 2020 remains due to the reduction in fiscal stimulus. Growth in the euro area and Japan are both projected to be lower than the U.S. this year and next.
- In emerging and developing economies, growth is forecasted to be 4.1% in 2019 and 4.7% in 2020, but both estimates were revised down as tariffs continue to impact investment and trade. China's growth is expected to slow even further given the escalation in trade tensions with the U.S. and overall slower growth globally. Fiscal stimulus will likely offset only part of the impact of the trade dispute.
- Overall, inflation is projected to remain level over the coming years, close to long-term averages.

|                              | Real GDP (%) <sup>1</sup> |                      |                      |                           | Inflation (%) <sup>1</sup> |                      |                      |                           |
|------------------------------|---------------------------|----------------------|----------------------|---------------------------|----------------------------|----------------------|----------------------|---------------------------|
|                              | IMF<br>2018 Actual        | IMF<br>2019 Forecast | IMF<br>2020 Forecast | Actual<br>10 Year Average | IMF<br>2018 Actual         | IMF<br>2019 Forecast | IMF<br>2020 Forecast | Actual<br>10 Year Average |
| World                        | 3.6                       | 3.2                  | 3.5                  | 3.4                       | 3.6                        | 3.6                  | 3.6                  | 3.5                       |
| U.S.                         | 2.9                       | 2.6                  | 1.9                  | 1.7                       | 2.4                        | 2.0                  | 2.7                  | 1.6                       |
| Euro Area                    | 1.9                       | 1.3                  | 1.6                  | 0.8                       | 1.8                        | 1.3                  | 1.6                  | 1.3                       |
| Japan                        | 0.8                       | 0.9                  | 0.4                  | 0.7                       | 1.0                        | 1.1                  | 1.5                  | 0.3                       |
| China                        | 6.6                       | 6.2                  | 6.0                  | 7.9                       | 2.1                        | 2.3                  | 2.5                  | 2.2                       |
| Emerging Markets (ex. China) | 3.5                       | 3.7                  | 4.1                  | 3.7                       | 6.4                        | 6.6                  | 6.2                  | 6.5                       |

<sup>1</sup> Source: IMF. World Economic Outlook. Real GDP: July 2019 Update. Inflation: April 2019 Update. "Actual 10 Year Average" represents data from 2009 to 2018.

## Global Economic Outlook (continued)

**With global growth slowing, compounded by trade tensions, major central banks are pivoting toward more accommodative policies.**

- The Federal Reserve held the federal funds rate at 2.25%-2.50% at their June meeting, but we expect they will start cutting rates. Questions remain regarding how long the rally in risk assets can last and how this easing cycle will look given the already low interest rate levels.
- The Bank of Japan (BOJ) is showing no signs of pulling back from its unprecedented monetary stimulus, as inflation remains well below target, growth is slowing globally, and the consumption tax increase planned for later this year may further dampen growth. At their June meeting the BOJ made no changes to their stimulative efforts, keeping bank deposit rates negative (-0.1%), and continuing to target a 0% yield on the 10-year government bond.
- The European Central Bank held low rates steady at their June meeting and signaled that they could restart quantitative easing and rate cuts given slowing economic conditions. Later this year former head of the IMF, Christine Lagarde, will take over the helm of the ECB from Mario Draghi with expectations for her to continue to do “whatever it takes” to support the economic region.
- The People’s Bank of China (PBOC) continues to cut bank reserve requirements in an effort to stimulate growth as the trade war with the U.S. weighs on the slowing economy. Recently, fiscal stimulus was added as a further step to support the economy, but additional stimulus increases concerns given the already high debt levels.

**Several issues are of primary concern: 1) uncertainty related to the U.S. economy and policies; 2) declining growth in China, along with uncertain fiscal and monetary policies; and 3) political uncertainty in Europe and risks related to the U.K.’s exit from the European Union.**

## Capital Markets Outlook

### Takeaways

- While not as strong as June, July was another profitable month for U.S. Equity markets whereas Non-U.S. Equity markets experienced marginal declines. YTD returns across Global Equity markets are in the double-digits, with several segments of the U.S. Equity market leading the pack at 20%+. Additionally, interest rates in the middle and long-end of the curve have continued to decline, with U.S. Long Bonds producing YTD returns of over 11%.
- In an effort to combat global growth uncertainty and persistently low inflation, the Federal Reserve elected to cut rates for the first time in a decade. The full impact of this decision on economic data and the capital markets is likely to remain uncertain over the near term.
- Geopolitical events, especially trade wars between the U.S. and China, are expected to provide variable shocks to the global economy and capital markets for the foreseeable future.
- U.S. Equity markets remain expensive whereas Non-U.S. Equity markets remain reasonably valued relative to their history.
- Implied equity market volatility<sup>1</sup> remained well-below its historical average (~19) throughout July while ticking up to 16 at month-end.
- The Market Sentiment Indicator<sup>2</sup> returned to neutral at month end.
- Market uncertainty as measured by Systemic Risk remains low, but there is potential for negative surprises, as global economies navigate their respective “late-cycle” dynamics and geopolitical events continue to unfold, as evidenced by early market movements in August.

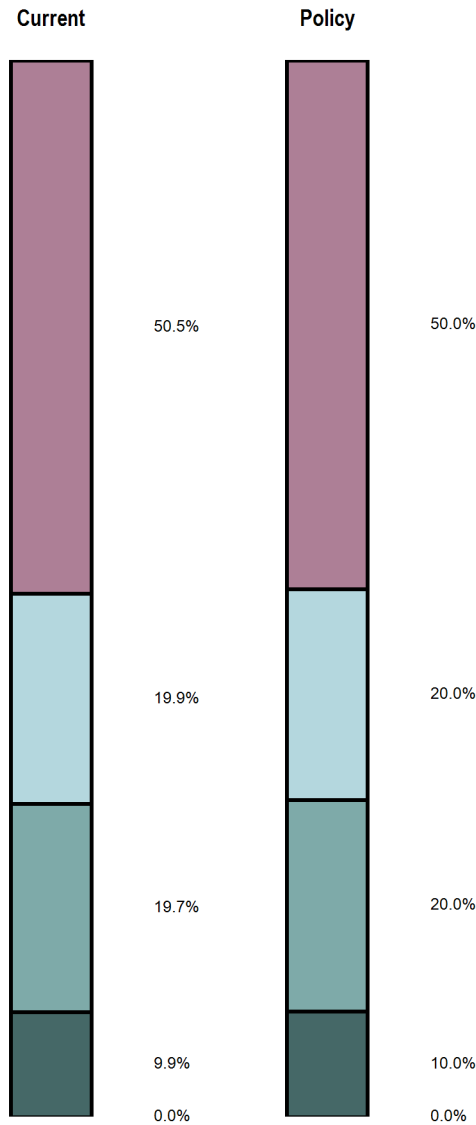
<sup>1</sup> As measured by VIX Index.

<sup>2</sup> See Appendix for the rationale for selection and calculation methodology used for the risk metrics.





## **2Q2019 Review**

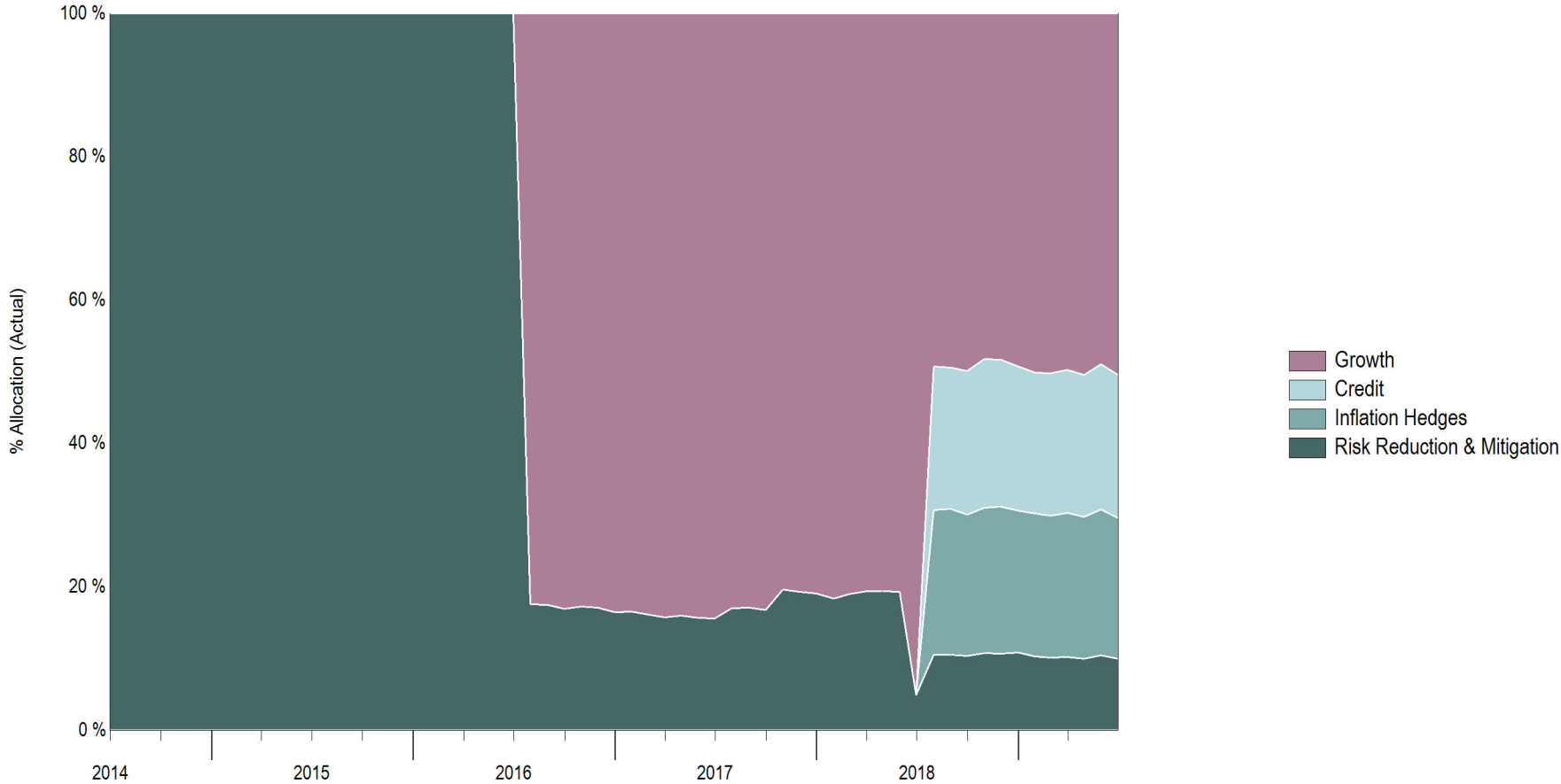


| Allocation vs. Target                  |                        |                    |               |                      |                   |
|--|------------------------|--------------------|---------------|----------------------|-------------------|
|  | Current Balance        | Current Allocation | Policy        | Policy Range         | Within IPS Range? |
| <b>Growth</b>                          | <b>\$623,946,510</b>   | <b>50.5%</b>       | <b>50.0%</b>  | <b>40.0% - 60.0%</b> | <b>Yes</b>        |
| Global Equity                          | \$623,946,510          | 50.5%              | 50.0%         |                      |                   |
| <b>Credit</b>                          | <b>\$245,887,671</b>   | <b>19.9%</b>       | <b>20.0%</b>  | <b>15.0% - 25.0%</b> | <b>Yes</b>        |
| High Yield Bonds                       | \$74,020,853           | 6.0%               | 6.0%          |                      |                   |
| Bank Loans                             | \$122,193,626          | 9.9%               | 10.0%         |                      |                   |
| Emerging Market Debt                   | \$49,673,193           | 4.0%               | 4.0%          |                      |                   |
| <b>Inflation Hedges</b>                | <b>\$243,601,351</b>   | <b>19.7%</b>       | <b>20.0%</b>  | <b>15.0% - 25.0%</b> | <b>Yes</b>        |
| REITs                                  | \$120,213,978          | 9.7%               | 10.0%         |                      |                   |
| Commodities                            | \$49,262,050           | 4.0%               | 4.0%          |                      |                   |
| TIPS                                   | \$74,125,323           | 6.0%               | 6.0%          |                      |                   |
| <b>Risk Reduction &amp; Mitigation</b> | <b>\$122,792,308</b>   | <b>9.9%</b>        | <b>10.0%</b>  | <b>5.0% - 15.0%</b>  | <b>Yes</b>        |
| Investment Grade Bonds                 | \$98,731,235           | 8.0%               | 8.0%          |                      |                   |
| Cash Equivalents                       | \$24,061,073           | 1.9%               | 2.0%          |                      |                   |
| <b>Uninvested Cash</b>                 | <b>\$2,300,000</b>     | <b>0.0%</b>        |               |                      |                   |
| <b>Total<sup>1</sup></b>               | <b>\$1,238,485,864</b> | <b>100.0%</b>      | <b>100.0%</b> |                      |                   |

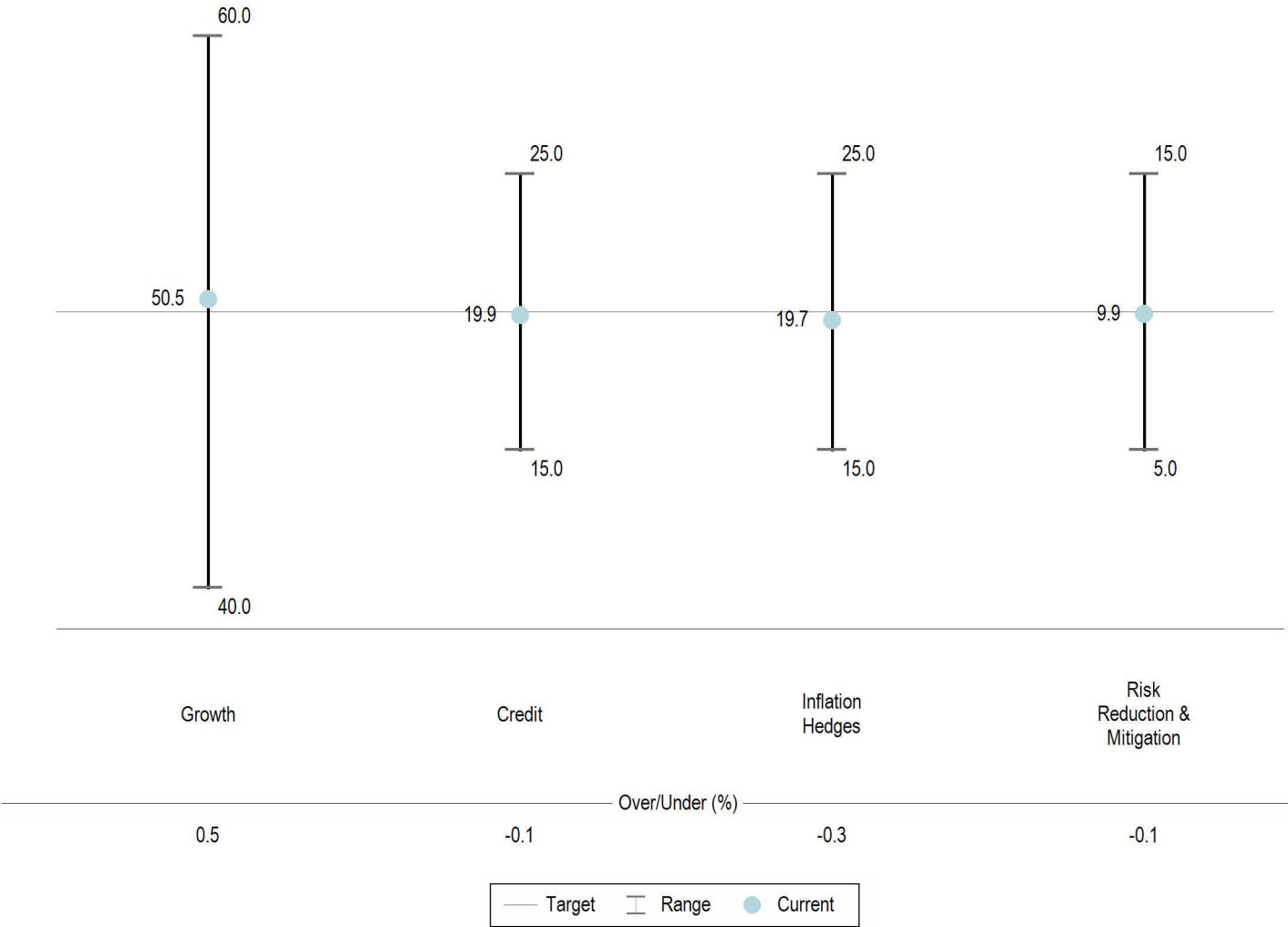
<sup>1</sup> Total market value does not include all cash at the participant level.



Asset Allocation History  
5 Years Ending June 30, 2019



Actual vs. Target



As of June 30, 2019

## Trailing Net Performance

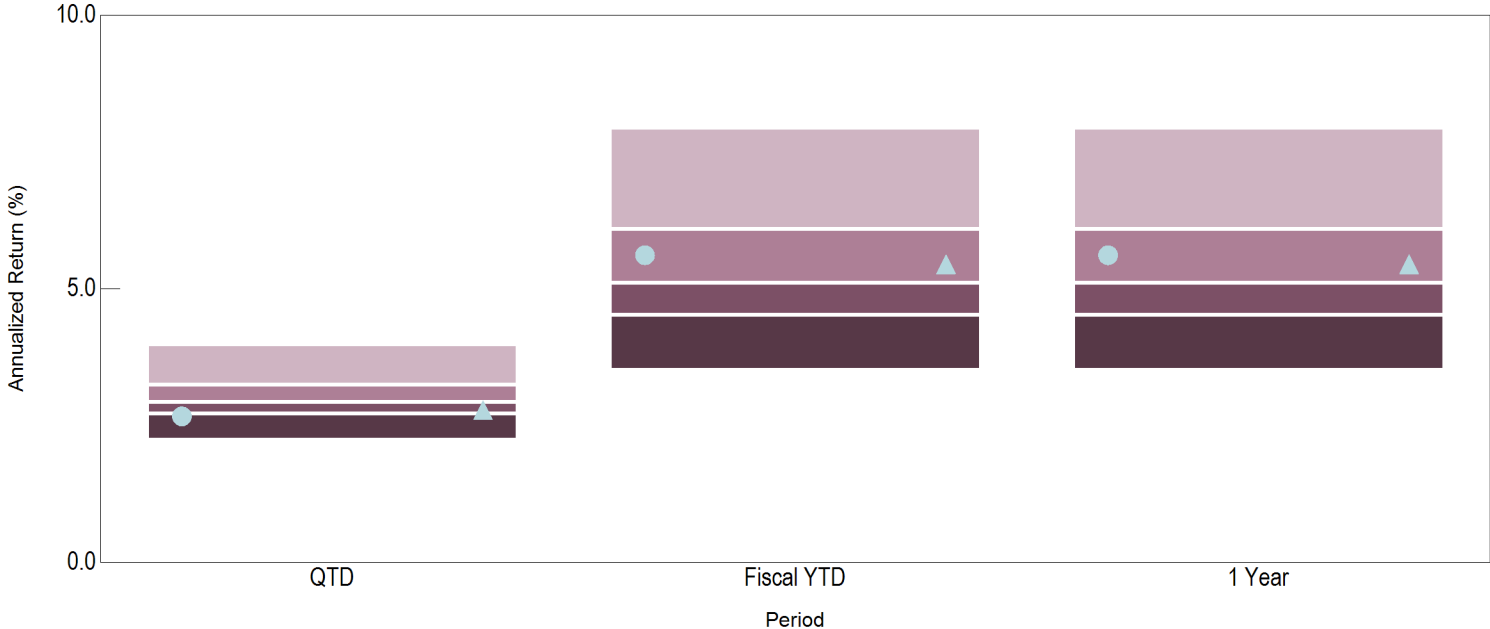
|   | Market Value <sup>1</sup><br>(\$) | % of Portfolio | 1 Mo<br>(%) | QTD<br>(%) | Fiscal YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) |
|---|-----------------------------------|----------------|-------------|------------|-------------------|-------------|--------------|--------------|
| <b>Total Fund (Net)</b>                           | <b>1,238,485,864</b>              | <b>100.0</b>   | <b>3.9</b>  | <b>2.7</b> | <b>5.5</b>        | <b>5.5</b>  | <b>12.3</b>  | <b>6.9</b>   |
| <b>Total Fund (Gross)</b>                         |                                   |                | <b>3.9</b>  | <b>2.7</b> | <b>5.6</b>        | <b>5.6</b>  | <b>12.3</b>  | <b>6.9</b>   |
| <i>Custom OPEB Total Fund</i>                     |                                   |                | <u>4.0</u>  | <u>2.8</u> | <u>5.4</u>        | <u>5.4</u>  | --           | --           |
| Excess Return (vs. Net)                           |                                   |                | -0.1        | -0.1       | 0.1               | 0.1         |              |              |
| <b>Growth (Net)</b>                               | <b>623,946,510</b>                | <b>50.4</b>    | <b>6.4</b>  | <b>3.5</b> | <b>4.9</b>        | <b>4.9</b>  | <b>11.7</b>  | <b>--</b>    |
| <b>Growth (Gross)</b>                             |                                   |                | <b>6.5</b>  | <b>3.5</b> | <b>4.9</b>        | <b>4.9</b>  | <b>11.8</b>  | <b>--</b>    |
| OPEB Global Equity (Net)                          | 623,946,510                       | 50.4           | 6.4         | 3.5        | 4.9               | 4.9         | 11.7         | 6.4          |
| OPEB Global Equity (Gross)                        |                                   |                | 6.5         | 3.5        | 4.9               | 4.9         | 11.8         | 6.4          |
| <i>MSCI ACWI IMI Net USD</i>                      |                                   |                | <u>6.4</u>  | <u>3.4</u> | <u>4.6</u>        | <u>4.6</u>  | <u>11.4</u>  | <u>6.0</u>   |
| Excess Return (vs. Net)                           |                                   |                | 0.0         | 0.1        | 0.3               | 0.3         | 0.3          | 0.3          |
| <b>Credit (Net)</b>                               | <b>245,887,671</b>                | <b>19.9</b>    | <b>2.0</b>  | <b>2.6</b> | <b>5.7</b>        | <b>5.7</b>  | <b>--</b>    | <b>--</b>    |
| <b>Credit (Gross)</b>                             |                                   |                | <b>2.0</b>  | <b>2.6</b> | <b>5.7</b>        | <b>5.7</b>  | <b>--</b>    | <b>--</b>    |
| OPEB BTC High Yield Bonds (Net)                   | 74,020,853                        | 6.0            | 2.5         | 2.6        | 7.6               | 7.6         | --           | --           |
| OPEB BTC High Yield Bonds (Gross)                 |                                   |                | 2.5         | 2.7        | 7.7               | 7.7         | --           | --           |
| <i>BBgBarc US High Yield TR</i>                   |                                   |                | <u>2.3</u>  | <u>2.5</u> | <u>7.5</u>        | <u>7.5</u>  | --           | --           |
| Excess Return (vs. Net)                           |                                   |                | 0.2         | 0.1        | 0.1               | 0.1         |              |              |
| OPEB BTC Bank Loans (Net)                         | 122,193,626                       | 9.9            | 0.4         | 1.5        | 3.6               | 3.6         | --           | --           |
| OPEB BTC Bank Loans (Gross)                       |                                   |                | 0.4         | 1.5        | 3.6               | 3.6         | --           | --           |
| <i>S&amp;P/LSTA Leveraged Loan TR</i>             |                                   |                | <u>0.2</u>  | <u>1.7</u> | <u>4.0</u>        | <u>4.0</u>  | --           | --           |
| Excess Return (vs. Net)                           |                                   |                | 0.2         | -0.2       | -0.4              | -0.4        |              |              |
| OPEB BTC EM Debt LC (Net)                         | 49,673,193                        | 4.0            | 5.6         | 5.6        | 8.4               | 8.4         | --           | --           |
| OPEB BTC EM Debt LC (Gross)                       |                                   |                | 5.6         | 5.6        | 8.5               | 8.5         | --           | --           |
| <i>JP Morgan GBI EM Global Diversified TR USD</i> |                                   |                | <u>5.5</u>  | <u>5.6</u> | <u>9.0</u>        | <u>9.0</u>  | --           | --           |
| Excess Return (vs. Net)                           |                                   |                | 0.1         | 0.0        | -0.6              | -0.6        |              |              |

<sup>1</sup> Total market value does not include all cash at the participant level.

As of June 30, 2019

|  | Market Value<br>(\$) | % of Portfolio | 1 Mo<br>(%) | QTD<br>(%)  | Fiscal YTD<br>(%) | 1 Yr<br>(%) | 3 Yrs<br>(%) | 5 Yrs<br>(%) |
|--|----------------------|----------------|-------------|-------------|-------------------|-------------|--------------|--------------|
| <b>Inflation Hedges (Net)</b>                  | <b>243,601,351</b>   | <b>19.7</b>    | <b>1.4</b>  | <b>1.0</b>  | <b>5.0</b>        | <b>5.0</b>  | --           | --           |
| <b>Inflation Hedges (Gross)</b>                |                      |                | <b>1.4</b>  | <b>1.0</b>  | <b>5.1</b>        | <b>5.1</b>  | --           | --           |
| OPEB BTC REITs (Net)                           | 120,213,978          | 9.7            | 1.4         | 0.8         | 9.7               | 9.7         | --           | --           |
| OPEB BTC REITs (Gross)                         |                      |                | 1.4         | 0.8         | 9.8               | 9.8         | --           | --           |
| <i>DJ US Select REIT TR USD</i>                |                      |                | <u>1.4</u>  | <u>0.8</u>  | <u>9.8</u>        | <u>9.8</u>  | --           | --           |
| Excess Return (vs. Net)                        |                      |                | 0.0         | 0.0         | -0.1              | -0.1        |              |              |
| OPEB BTC Commodities (Net)                     | 49,262,050           | 4.0            | 2.7         | -1.2        | -6.7              | -6.7        | --           | --           |
| OPEB BTC Commodities (Gross)                   |                      |                | 2.7         | -1.2        | -6.6              | -6.6        | --           | --           |
| <i>Bloomberg Commodity Index TR USD</i>        |                      |                | <u>2.7</u>  | <u>-1.2</u> | <u>-6.8</u>       | <u>-6.8</u> | --           | --           |
| Excess Return (vs. Net)                        |                      |                | 0.0         | 0.0         | 0.1               | 0.1         |              |              |
| OPEB BTC TIPS (Net)                            | 74,125,323           | 6.0            | 0.9         | 2.9         | 4.9               | 4.9         | --           | --           |
| OPEB BTC TIPS (Gross)                          |                      |                | 0.9         | 2.9         | 4.9               | 4.9         | --           | --           |
| <i>BBgBarc US TIPS TR</i>                      |                      |                | <u>0.9</u>  | <u>2.9</u>  | <u>4.8</u>        | <u>4.8</u>  | --           | --           |
| Excess Return (vs. Net)                        |                      |                | 0.0         | 0.0         | 0.1               | 0.1         |              |              |
| <b>Risk Reduction &amp; Mitigation (Net)</b>   | <b>122,792,308</b>   | <b>9.9</b>     | <b>1.1</b>  | <b>2.6</b>  | <b>6.9</b>        | <b>6.9</b>  | <b>3.2</b>   | --           |
| <b>Risk Reduction &amp; Mitigation (Gross)</b> |                      |                | <b>1.1</b>  | <b>2.6</b>  | <b>7.0</b>        | <b>7.0</b>  | <b>3.2</b>   | --           |
| OPEB BTC Investment Grade Bonds (Net)          | 98,731,235           | 8.0            | 1.3         | 3.1         | 7.9               | 7.9         | --           | --           |
| OPEB BTC Investment Grade Bonds (Gross)        |                      |                | 1.3         | 3.1         | 8.0               | 8.0         | --           | --           |
| <i>BBgBarc US Aggregate TR</i>                 |                      |                | <u>1.3</u>  | <u>3.1</u>  | <u>7.9</u>        | <u>7.9</u>  | --           | --           |
| Excess Return (vs. Net)                        |                      |                | 0.0         | 0.0         | 0.0               | 0.0         |              |              |
| OPEB Enhanced Cash (Net)                       | 24,061,073           | 1.9            | 0.3         | 0.8         | 3.2               | 3.2         | 1.9          | 1.3          |
| OPEB Enhanced Cash (Gross)                     |                      |                | 0.3         | 0.8         | 3.3               | 3.3         | 1.9          | 1.4          |
| <i>FTSE T-Bill 6 Months TR</i>                 |                      |                | <u>0.2</u>  | <u>0.6</u>  | <u>2.4</u>        | <u>2.4</u>  | <u>1.4</u>   | <u>0.9</u>   |
| Excess Return (vs. Net)                        |                      |                | 0.1         | 0.2         | 0.8               | 0.8         | 0.5          | 0.4          |
| <b>Uninvested Cash (Net)<sup>1</sup></b>       | <b>2,300,000</b>     | <b>0.2</b>     |             |             |                   |             |              |              |
| <b>Uninvested Cash (Gross)</b>                 |                      |                |             |             |                   |             |              |              |

InvMetrics Public DB \$1B - \$5B Gross Return Comparison



|                          | QTD |      | Fiscal YTD |      | 1 Year |      |
|--------------------------|-----|------|------------|------|--------|------|
| <b>Return (Rank)</b>     |     |      |            |      |        |      |
| 5th Percentile           | 4.0 |      | 7.9        |      | 7.9    |      |
| 25th Percentile          | 3.3 |      | 6.1        |      | 6.1    |      |
| Median                   | 2.9 |      | 5.1        |      | 5.1    |      |
| 75th Percentile          | 2.7 |      | 4.5        |      | 4.5    |      |
| 95th Percentile          | 2.2 |      | 3.5        |      | 3.5    |      |
| # of Portfolios          | 52  |      | 52         |      | 52     |      |
| ● Total Fund             | 2.7 | (80) | 5.6        | (40) | 5.6    | (40) |
| ▲ Custom OPEB Total Fund | 2.8 | (72) | 5.4        | (45) | 5.4    | (45) |



Benchmark History  
As of June 30, 2019

Total Fund

2/1/2013 Present Custom OPEB Total Fund

**Custom OPEB Total Fund:** 50% MSCI ACWI IMI Net/ 6% BBgBarc High Yield/ 10% S&P/ LSTA Leveraged Loan/ 4% JPM GBI-Em/ 2% FTSE 6-Month Treasury Bill/ 8% BBgBarc US Agg / 6% BBgBarc US Tsy TIPS/ 10% DJ US Select Real Estate/ 4% Bloomberg Commodity Total Return





WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE"RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**FOR INFORMATION ONLY**

August 20, 2019

TO: Each Member  
Board of Investments

FROM: John McClelland   
Principal Investment Officer

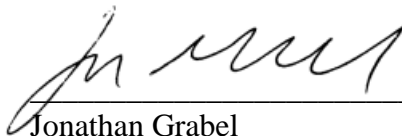
FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **PERFORMANCE REVIEW OF REAL ESTATE CONSULTANT  
THE TOWNSEND GROUP**

Pursuant to the Board's direction that each Consultant be reviewed and evaluated on an annual basis, LACERA requested the Real Estate Consultant, The Townsend Group, complete a self-assessment. Attached is the self-assessment submitted by the Consultant.

Attachment

Noted and Reviewed:

  
\_\_\_\_\_  
Jonathan Grabel  
Chief Investment Officer

JM/dr



**TO:** LACERA Board of Investments  
**FROM:** The Townsend Group *Jennifer D. Stevens*  
**SUBJECT:** Townsend Real Estate Consulting Services Agreement  
**DATE** September 11, 2019

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Pursuant to the Statement of Work incorporated in the Real Estate Consulting Services Agreement between LACERA and Townsend Holdings LLC, Townsend has prepared the attached Self Assessment Questionnaire for the Board's review. The attachment provides a list of projects over the last twelve month period and the status of completion.

**Statement of Work:**

*"The Consultant will provide the Board with the necessary information to conduct an annual assessment, including but not limited to, a completed self assessment questionnaire, a list of projects and status of completion, and changes recommend by the Board at the prior evaluation, and the status of implementing those specific changes."*

LACERA remains an important client of the firm. We thank you for the opportunity to serve LACERA and its constituents and look forward to the Board's feedback on how Townsend can continue to improve the services provided.

## Attachment 1

**Client Name:** Los Angeles County Employees' Retirement Association (LACERA)  
**Consultant Name:** Townsend Group, an Aon Company  
**Asset Class(es):** Real Estate  
**Contract Inception Date:** 7/1/2016  
**Contract Expiration Date:** 7/1/2021  
**Extension Options:** Yes; Successive One-Year Extension Options Available  
  
**Primary Consultant:** Jennifer Stevens, Partner  
**Associate:** Felix Fels  
**Analyst:** Storm Klyve-Underkofler  
Haya Daawi

| Status/Self Assessment       | LACERA Statement of Work  | Presented to LACERA Real Estate Committee/Board | Examples/Notes   |
|------------------------------|---|---|--|
| Complete                     | Work jointly with LACERA staff in reviewing the Real Estate Objectives, Policies and Procedures on an annual basis. Consultant shall recommend any changes or modifications as may be appropriate in light of changes in the real estate portfolio, the real estate markets, or the capital markets.  | Yes   | Townsend conducted a formal review of the OPP in April 2019.   |
| Complete                     | Review the Annual Investment Plan prepared by LACERA staff and recommend any changes or modifications as may be appropriate in light of changes in the Real Estate Objectives, Policies and Procedures, the existing real estate portfolio, the real estate markets, and the capital markets. The Consultant will provide an opinion to the Board on the Investment Plan outlining any concerns or concurrence. | Yes   | Townsend reviewed the LACERA Staff's Annual Investment Plan in April 2019.   |
| Ongoing/Fulfilled Obligation | Assist LACERA staff and/or the Board in conducting searches for real estate investment managers.  | Yes   | There were no separate account searches for real estate investment managers over the last twelve months. Regarding fund level searches (also detailed below), Townsend provides LACERA Staff with its monthly fund underwriting pipeline report. Townsend also assisted LACERA Staff with planning site visits in Europe and Asia in 2018/2019. Townsend provides a list of "Alternatives Considered" in all client-specific investment recommendations. |
| Ongoing                      | Provide research support related to specific investment opportunities as may be requested by LACERA staff and/or the Board.   | Ad Hoc/As Requested                             | Townsend provides LACERA Staff with the following information, which can be available to the Board upon request: Townsend Monthly Pipeline Report, Townsend Quarterly Open-End Fund Report and Bi-Annual Core Market Review, Bi-Annual View of the World Publication, All "Firm-Wide" Investment Recommendations, Quarterly Market Overviews and ad hoc research publications. Searches are underway for US and ex-US investment opportunities.          |

|                              |   |                     |   |
|------------------------------|---|---------------------|---|
| Ongoing/Fulfilled Obligation | Provide information and research on real estate investment subjects which may affect LACERA's portfolio, including a review of real estate investment materials forwarded to Consultant by LACERA staff.  | Ad Hoc/As Requested | <p>Townsend representatives attend GP annual meetings / advisory board meetings throughout the year and provide notes to LACERA Staff for overlapping exposures. Townsend also meets with managers frequently across its various offices and provides LACERA Staff with meeting notes and/or formal reviews.</p> <p>Recent examples include Townsend's participation in the AEW, Angelo Gordon, Clarion, Heitman Asia, TPG and Starwood conferences in 2019.</p> <p>Additionally, Townsend conducted an Appraisal Best Practices analysis and created a detailed memorandum outlining possible changes to the LACERA Separate Account Portfolio appraisal process.</p>  |
| Ongoing/Fulfilled Obligation | Provide information and research regarding significant changes in the real estate investment management industry, including trends and major events.  | Yes                 | <p>The LACERA Staff (and Board, as requested) is provided with Townsend's Bi-Annual View of the World, which provides an overview of Townsend's research on the global investment markets, including trends and major events. The 2H2018 View of the World was circulated to LACERA Staff in Second Quarter 2019. A View of the World webinar was also conducted on May 30, 2019 (a replay of which is available for interested LACERA representatives). Townsend's shorter Quarterly Market Overview is also prepared and provided in conjunction with LACERA Performance Measurement Reports and included in Board materials. Finally, Townsend participated in the Real Assets Terms &amp; Conditions in 2019.</p> |
| Ongoing/In Process           | Report to the Board and LACERA staff with changes with existing investment managers that could affect the performance of the portfolio. The changes could include organizational and structural changes, key personnel changes, and client turnover.  | Yes                 | <p>Townsend believes that LACERA Staff has an efficient process for reviewing and reporting this information. The Consultant will report turnover or significant events to Staff as received and/or in the context of the quarterly report. A formal request for information related to "Organizational Updates" was circulated to each LACERA managers in August 2019 and will be provided to LACERA Staff upon completion (end of August 2019).</p>   |
| Ongoing/Fulfilled Obligation | Conduct independent evaluations and provide recommendations on commingled fund opportunities as requested by LACERA staff and/or the Board. Recommendations will include a detailed memorandum outlining the results of the due diligence, strategic considerations, and fit within the LAC ERA portfolio, as well as merits and concerns of the investment.  | Yes                 | <p>Townsend completed fund level due diligence on the following investment recommendations for LACERA over the last twelve months. The following were presented to the LACERA Board for approval: (1) IDR Core Property Index Fund in February 2019 (2) Angelo Gordon Asia in December 2018 (3) TPG Real Estate Partners III in September 2018. Additional and/or ongoing due diligence is ongoing and not named here. LACERA Staff also receives copies of all firm-wide Buy recommendations that are considered Townsend Best Ideas, regardless of whether LACERA Staff chooses to pursue the investment.</p>   |
| Complete                     | Provide quarterly performance reports on the total portfolio as well as each manager's sub-portfolio. Each manager's performance is to be compared to the returns of the other managers and the total portfolio. The portfolio returns are to be compared to the real estate benchmark. Calculate performance metrics including internal rate of return, time weighted returns, and multiple calculations. The quarterly report should include an outline of significant events and market overview. On an annual basis, the Consultant will present and provide a full review of the real estate portfolio to the Board. | Yes                 | <p>Townsend presented the performance report to the BOI in June 2019.</p>   |

|                               |  |     |   |
|-------------------------------|--|-----|---|
| Completed/Ongoing             | Assist LACERA staff in providing detailed attribution analysis on the real estate portfolio, including reasons for over/under performance compared to the benchmark.   | Yes | Between June 2017 and June 2018, Townsend conducted a three-phase attribution project related to the performance of the Separate Account Portfolio. This results and key findings of this project were reported to both the LACERA REC and the BOI and resulted in considerable changes to the structure of the Real Estate program, which are now reflected in the OPP and Investment Plan. Manager meetings with each of the Separate Account managers took place over the last twelve months and resulted in considerable changes to the LACERA Structure in 2019. Additionally, Townsend conducted a detailed performance and quartile analysis on one of LACERA's current separate account managers that is being considered for investment. |
| Ongoing/Fulfilled Obligations | Attend Board meetings, annual off-site meeting and Real Estate Subcommittee meetings as required.  | Yes | Townsend personnel were present at all required meetings over the last 12-month period. Townsend presented about Key Terms & Conditions in Real Estate at the July 2019 Off-Site.   |
| Ongoing/Fulfilled Obligations | Notify the Board of any identified material issues that may impact investment performance and recommend a course of action to enhance returns or mitigate risk.  | Yes | Performance Considerations – Examples of notification to the REC/BOI include the continued reporting stemming from the Portfolio Attribution Project and commentary provided in the Townsend memos with respect to the OPP / Annual Investment Plan. Townsend's client-specific investment recommendations also accompany all Staff reports for commingled funds and provide a comprehensive overview of key risks associated with investments under consideration.<br><br>Portfolio Compliance – Report on progress of DWS Manager Concentration and steps taken by Staff to adhere to the new asset allocation framework.   |
| Ongoing/Fulfilled Obligations | The Board will review and evaluate the Consultant annually to ensure that services and communications provided by the Consultant are clear, effective, and meaningfully aligned with the Board's overall policy objectives, and that the Board is receiving the quality services envisioned at the time of the consultant's engagement. The Consultant will provide the Board with the necessary information to conduct an annual assessment, including but not limited to, a completed self assessment questionnaire, a list of projects and status of completion, and changes recommended by the Board at the prior evaluation, and the status of implementing those specific changes. | Yes | A self-assessment report was filed in 2018. This report assists the Board with the completion of this task for 2019.  |
| Complete                      | Maintain historical information, including all cash flow, net asset values, commitments (total, funded, and unfunded), fee payments, cost basis, and leverage by separate account and fund.  | Yes | Historical information is always available to the LACERA Staff and Board upon request. LACERA Staff and Townsend are in frequent communication on this topic, specifically with respect to the quarterly performance measurement reports.<br><br>Note in August 2019, Townsend provided Albourne with historical performance for the Real Estate Debt IMAs for inclusion in the Credit category going forward.  |

**Examples of Other Consultant Activities in 2017/2018**

- Real Assets Terms & Conditions Discussion - Materials presented to LACERA BOI at July Off-Site
- LACERA Staff On-Site Visits in Townsend's Cleveland, Hong Kong and London Offices
- Continuation/Implementation of 2018 Performance Attribution Project resulting in Structural Review and Changes to OPP
- Provided meeting notes, commentary and due diligence reports (if available) for funds LACERA met with throughout the year
- Continued review of Latin America, Asia and European opportunities - continued discussions regarding markets and strategies under consideration
- Townsend fund pipeline report provided to LACERA Staff monthly
- Townsend US Open-End Fund Data Appendix (produced quarterly) provided to LACERA Staff alongside US OECF Rankings (produced annually)
- Townsend summarized key information on all investment opportunities presented to LACERA throughout the year
- In addition to LACERA Staff, Townsend representatives attended/participated in annual meetings for several LACERA managers over the last twelve months

**Attachment 2 - List of LACERA Meetings Attended by Townsend\***

| LACERA Meetings | Primary Consultant<br>in Attendance | Description                       |
|-----------------|-------------------------------------|-----------------------------------|
| 10/10/2018      | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 11/8/2018       | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 12/17/2018      | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 12/1/2018       | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 1/8/2019        | Jennifer Stevens                    | Due Diligence in Cleveland Office |
| 1/9/2019        | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 2/13/2019       | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 4/10/2019       | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 6/13/2019       | Jennifer Stevens                    | Board, REC or RAC Meeting         |
| 7/2/2019        | Jennifer Stevens                    | Board, REC or RAC Meeting         |

*\*Additional Townsend representatives often present at meetings, but not listed above.  
List does not include LACERA Staff Meetings with Townsend's London or Hong Kong offices, or other ad hoc meetings with Staff.*







## FOR INFORMATION ONLY

August 26, 2019

TO: Each Member  
Board of Investments

FROM: James Rice, CFA   
Principal Investment Officer

Quoc Nguyen, CFA   
Senior Investment Analyst

FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **2019 SECOND QUARTER  
HEDGE FUND PERFORMANCE REPORT**

Attached is the Hedge Fund Performance Report for the second quarter of 2019. The performance report provides a summary of the hedge fund program's ("Program") second quarter performance, Program objectives, and key portfolio return and allocation statistics. During the quarter, the Program<sup>1</sup> returned 1.6%, which outperformed the 1.2% return of LACERA's primary hedge fund benchmark<sup>2</sup> and performed in line with the 1.6% return of LACERA's secondary hedge fund benchmark, the HFRX Global Hedge Fund Index, which is comprised of hedge funds across broad strategy categories.

This is the first report that includes the performance of the new Diversified Hedge Funds Composite ("Composite") which has an inception date of March 1, 2019. Since the Composite has been newly formed to remove the credit fund of funds which were moved to the credit asset category, it does not have performance history prior to March 1, 2019. The Composite's constituent portfolios (Grosvenor Diversified Portfolio, Goldman Sachs Diversified Portfolio, and Direct Portfolio) individually have a full return history as of each portfolio's inception date.

During the quarter, the Grosvenor and Goldman Sachs Portfolios outperformed the primary hedge fund benchmark by 0.3% and 0.8%, respectively, while the Direct Portfolio performed in line with the benchmark. Over the last year, the Grosvenor, Goldman Sachs, and Direct Portfolios have underperformed the primary hedge fund benchmark by 6.3%, 5.0%, and 3.2%, respectively.

Since inception, the Program has met its objective to positively impact the risk-adjusted returns of the Total Fund, as measured by the Sharpe ratio. The Program's 1.5 Sharpe ratio since inception compares favorably to a 1.0 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.

<sup>1</sup> Program no longer includes credit hedge fund of funds. These funds have been moved to the Credit allocation effective March 1, 2019 as part of LACERA's new asset allocation framework.

<sup>2</sup> Reflects LACERA's hedge funds benchmark which is 90-Day U.S. T-Bills plus 250 basis points annually beginning March 1, 2019 and 90-Day U.S. T-Bills plus 500 basis points annually for periods prior to March 1, 2019.

Each Member, Board of Investments

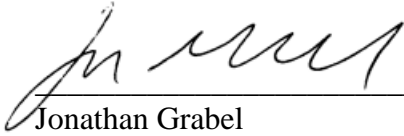
August 26, 2019

Page 2 of 2

As of June 30, 2019, 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 these guideline compliance matters.

Attachment

Noted and Reviewed:

A handwritten signature in black ink, appearing to read 'Jonathan Grabel', is written over a horizontal line.

Jonathan Grabel

Chief Investment Officer

JR:QN:ct:mm



**LOS ANGELES COUNTY EMPLOYEES  
RETIREMENT ASSOCIATION**

**LACERA HEDGE FUND  
PERFORMANCE REVIEW**

**2019 Second Quarter**

**September 11, 2019**

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# Plan Allocation Status

As of June 30, 2019

|   |                     |
|---|---------------------|
| LACERA Assets   | \$58,441.5 mm       |
| Diversified Hedge Funds Program Target Allocation at 4% of Total Fund | \$2,337.7 mm        |
| <hr/>   |                     |
| Grosvenor Diversified (San Gabriel) Portfolio Market Value            | \$489.3 mm          |
| <b>Total GCM Grosvenor Hedge Fund Program Market Value</b>            | <b>\$489.3 mm</b>   |
| <hr/>   |                     |
| Goldman Diversified Hedge Fund Portfolio Market Value                 | \$493.5 mm          |
| <b>Total GSAM Goldman Sachs Hedge Fund Program Market Value</b>       | <b>\$493.5 mm</b>   |
| <hr/>   |                     |
| Direct Hedge Fund Portfolio Market Value <sup>1</sup>                 | \$588.6 mm          |
| <b>Total Direct Hedge Fund Portfolio Market Value</b>                 | <b>\$588.6 mm</b>   |
| <hr/>   |                     |
| <b>Total Hedge Fund Program Market Value</b>                          | <b>\$1,571.4 mm</b> |

<sup>1</sup> This market value includes \$10 million for a fund contribution made in June 2019 for a July 1, 2019 effective date

# Portfolio Returns

As of June 30, 2019

## Diversified Hedge Funds Composite

|  | 2Q19  | YTD | 1 Year | 3 Year | 5 Year | ITD <sup>3</sup> |
|--|-------|-----|--------|--------|--------|------------------|
| Diversified Hedge Funds Aggregate Portfolio <sup>1,2</sup> | 1.60% | n/a | n/a    | n/a    | n/a    | 2.16%            |
| Diversified Hedge Funds Benchmark <sup>4</sup>             | 1.24% | n/a | n/a    | n/a    | n/a    | 1.65%            |
| HFRX Global Hedge Fund Index                               | 1.58% | n/a | n/a    | n/a    | n/a    | 1.41%            |

## Grosvenor Diversified Portfolio

|   | 2Q19  | YTD   | 1 Year | 3 Year | 5 Year | ITD <sup>5</sup> |
|---|-------|-------|--------|--------|--------|------------------|
| San Gabriel Fund, L.P. <sup>1</sup> (Diversified) | 1.58% | 4.63% | 0.25%  | 4.11%  | 1.56%  | 3.45%            |
| Diversified Hedge Funds Benchmark <sup>4</sup>    | 1.24% | 2.88% | 6.54%  | 6.13%  | 5.71%  | 5.48%            |
| HFRX Global Hedge Fund Index                      | 1.58% | 4.22% | -1.95% | 2.12%  | -0.11% | 1.38%            |

## Goldman Sachs Diversified Portfolio

|  | 2Q19  | YTD   | 1 Year | 3 Year | 5 Year | ITD <sup>6</sup> |
|--|-------|-------|--------|--------|--------|------------------|
| Goldman Sachs Hedge Fund of Fund <sup>1</sup>  | 2.00% | 5.10% | 1.56%  | 3.61%  | n/a    | 2.25%            |
| Diversified Hedge Funds Benchmark <sup>4</sup> | 1.24% | 2.88% | 6.54%  | 6.13%  | n/a    | 5.85%            |
| HFRX Global Hedge Fund Index                   | 1.58% | 4.22% | -1.95% | 2.12%  | n/a    | -0.12%           |

## Direct Hedge Fund Portfolio

|  | 2Q19  | YTD   | 1 Year | 3 Year | 5 Year | ITD <sup>7</sup> |
|--|-------|-------|--------|--------|--------|------------------|
| Direct Hedge Fund Portfolio <sup>1</sup>       | 1.28% | 3.39% | 3.30%  | n/a    | n/a    | 0.59%            |
| Diversified Hedge Funds Benchmark <sup>4</sup> | 1.24% | 2.88% | 6.54%  | n/a    | n/a    | 6.60%            |
| HFRX Global Hedge Fund Index                   | 1.58% | 4.22% | -1.95% | n/a    | n/a    | -1.78%           |

1 Portfolio returns are net of all fees and expenses.

2 Returns prior to 5/1/2015 are that of San Gabriel Fund, L.P. (Grosvenor Diversified Portfolio) only.

3 ITD returns for the Diversified Hedge Funds Composite and benchmarks commence on 3/1/2019 (the inception date of the Composite).

4 Reflects hedge funds benchmark which is 90-Day U.S. T-Bills plus 250 basis points annually beginning 3/1/2019 and 90-Day U.S. T-Bills plus 500 basis points annually for periods prior to 3/1/2019.

5 ITD returns for San Gabriel Fund, L.P. and benchmarks commence on 10/1/2011 (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 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

Program Inception Through June 30, 2019

## LACERA Hedge Fund Portfolios

|  | Return <sup>1</sup> | Standard Deviation | Sharpe Ratio | Beta to MSCI ACWI | Inception |
|--|---------------------|--------------------|--------------|-------------------|-----------|
| <b>Total Diversified Hedge Funds Program<sup>2</sup></b> | 4.46%               | 2.65%              | 1.47         | 0.14              | 10/1/2011 |
| <b>Grosvenor Diversified (San Gabriel)</b>               | 3.45%               | 2.83%              | 1.02         | 0.15              | 10/1/2011 |
| <b>Goldman Sachs Diversified</b>                         | 2.25%               | 3.11%              | 0.40         | 0.14              | 5/1/2015  |
| <b>Direct Portfolio</b>                                  | 0.59%               | 2.40%              | -0.67        | 0.06              | 4/1/2018  |

## LACERA's Public Market Assets Composite

|  | Return <sup>1</sup> | Standard Deviation | Sharpe Ratio | Beta to MSCI ACWI | Inception |
|--|---------------------|--------------------|--------------|-------------------|-----------|
| <b>Total Public Equities, Fixed Income, Commodities and Cash</b> | 8.62%               | 7.79%              | 1.03         | 0.64              | 10/1/2011 |

The Hedge Fund Program's 1.47 Sharpe ratio since inception compares favorably to a 1.03 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.

2 The Diversified Hedge Funds composite began on 3/1/2019. For the purposes of calculating hedge fund portfolio risk and return statistics, the Hedge Fund Program's returns prior to 3/1/2019, which includes the Grosvenor Credit Fund of Fund portfolio returns, were linked the Diversified Hedge Funds Composite returns.

# Portfolio Upside and Downside Capture

Program Inception Through June 30, 2019

|   | Upside<br>Capture | Downside<br>Capture | Up /<br>Down<br>Spread |
|---|-------------------|---------------------|------------------------|
| <b>Total Diversified Hedge Fund Program<sup>1</sup></b> | 22.0%             | 10.9%               | 11.1%                  |

## 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 22% upside capture, on average, the hedge fund program earns 0.22% 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 10.9% downside capture, on average, the hedge fund program loses 0.109% 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 losses.

<sup>1</sup> The Diversified Hedge Funds composite began on 3/1/2019. For the purposes of calculating upside and downside capture, the Hedge Fund Program's returns from 10/1/2011 (inception) to 3/1/2019, which includes the Grosvenor Credit Fund of Fund portfolio returns, were linked the Diversified Hedge Funds Composite returns.

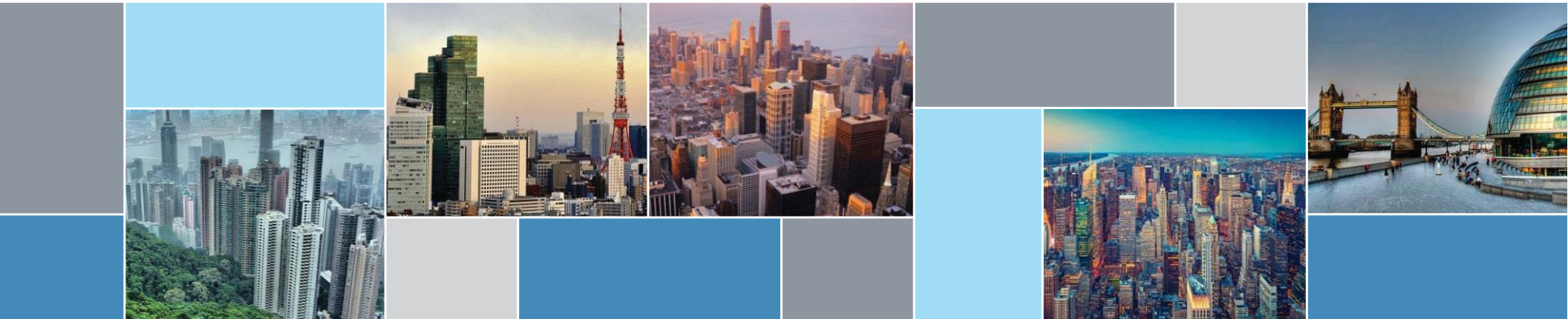


# Grosvenor Capital Management Portfolio Fund Summary

# Los Angeles County Employees Retirement Association

August 2019

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**The Notes and Disclosures following this presentation are an integral part of this presentation and must be read in connection with your review of this presentation.**  
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# Portfolio Returns

Los Angeles County Employees Retirement Association – San Gabriel Fund, L.P. (June 30, 2019)

---

|   | 2Q19  | YTD   | 1 Year | Annualized |        |                  |
|---|-------|-------|--------|------------|--------|------------------|
|   |       |       |        | 3 Year     | 5 Year | ITD <sup>3</sup> |
| San Gabriel Fund, L.P. <sup>1</sup> (Diversified) | 1.58% | 4.63% | 0.25%  | 4.11%      | 1.56%  | 3.45%            |
| Diversified Hedge Funds Benchmark <sup>2</sup>    | 1.24% | 2.88% | 6.54%  | 6.13%      | 5.71%  | 5.48%            |
| HFRX Global Hedge Fund Index                      | 1.58% | 4.22% | -1.95% | 2.12%      | -0.11% | 1.38%            |

1 Portfolio returns are net of fees and expenses.

2 Reflects hedge funds benchmark which is 90-Day U.S. T-Bills plus 250 basis points annually beginning March 1, 2019 and 90-Day U.S. T-Bills plus 500 basis points annually for periods prior to March 1, 2019.

3 ITD returns for San Gabriel Fund, L.P. and benchmarks commence on 10/1/2011 (the inception date of the Fund).

# Hedge Fund Categories

Los Angeles County Employees Retirement Association – San Gabriel Fund, L.P. (June 30, 2019)

| Hedge fund category     | QTD opening balance  | QTD subscriptions/<br>(redemptions) | QTD gain (loss)    | QTD ending balance   | % of NAV<br>(As of 6/30/19) | Cumulative returns |              |              | Annualized returns |              |                  |
|-------------------------|----------------------|-------------------------------------|--------------------|----------------------|-----------------------------|--------------------|--------------|--------------|--------------------|--------------|------------------|
|                         |                      |                                     |                    |                      |                             | 2Q19               | YTD          | 1 Year       | 3 Year             | 5 Year       | ITD <sup>1</sup> |
| Credit                  | \$139,682,826        | \$10,999,544                        | \$2,196,401        | \$152,878,771        | 31.24%                      | 1.54%              | 3.80%        | 1.68%        | 6.16%              | 3.27%        | 6.88%            |
| Equities                | \$99,343,093         | (\$25,472,054)                      | \$564,364          | \$74,435,403         | 15.21%                      | 0.76%              | 8.56%        | -1.80%       | 4.38%              | 0.74%        | 2.64%            |
| Quantitative            | \$25,823,050         | \$14,400,000                        | \$14,703           | \$40,237,753         | 8.22%                       | -0.64%             | 0.71%        | 0.50%        | -0.36%             | -            | -5.04%           |
| Macro                   | \$64,389,752         | -                                   | \$2,224,242        | \$66,613,994         | 13.61%                      | 3.45%              | 6.46%        | 2.48%        | 5.20%              | 5.81%        | 4.78%            |
| Relative Value          | \$67,691,203         | (\$8,255,038)                       | \$2,388,269        | \$61,824,435         | 12.63%                      | 3.62%              | 3.86%        | 4.58%        | 6.68%              | 4.61%        | 7.19%            |
| Multi-Strategy          | \$75,372,302         | -                                   | \$873,027          | \$76,245,329         | 15.58%                      | 1.16%              | 4.62%        | 0.07%        | 6.88%              | 3.72%        | 6.69%            |
| Commodities             | -                    | -                                   | -                  | -                    | -                           | -                  | -            | -            | -                  | -            | -8.14%           |
| Portfolio Hedges        | -                    | -                                   | -                  | -                    | -                           | -                  | -            | -            | -                  | -            | -13.68%          |
| APPA <sup>2</sup>       | (\$180,229)          | -                                   | \$123,926          | (\$56,303)           | -0.01%                      | -                  | -            | -            | -                  | -            | -                |
| Other <sup>3</sup>      | \$2,816,527          | \$3,825,065                         | \$82,752           | \$6,724,345          | 1.37%                       | 2.22%              | 6.79%        | -            | -                  | -            | -                |
| Uninvested <sup>4</sup> | \$6,753,906          | \$4,502,482                         | (\$842,153)        | \$10,414,235         | 2.13%                       | -                  | -            | -            | -                  | -            | -                |
| <b>Net asset value</b>  | <b>\$481,692,431</b> | <b>-</b>                            | <b>\$7,625,531</b> | <b>\$489,317,962</b> | <b>100.00%</b>              | <b>1.58%</b>       | <b>4.63%</b> | <b>0.25%</b> | <b>4.11%</b>       | <b>1.56%</b> | <b>3.45%</b>     |

1 ITD returns for San Gabriel Fund, L.P. commence on 10/1/2011 (the inception date of the Fund).

2 Aggregated Prior Period Adjustment.

3 "Other" may include: residual positions with underlying funds from which the Fund has redeemed and general trades.

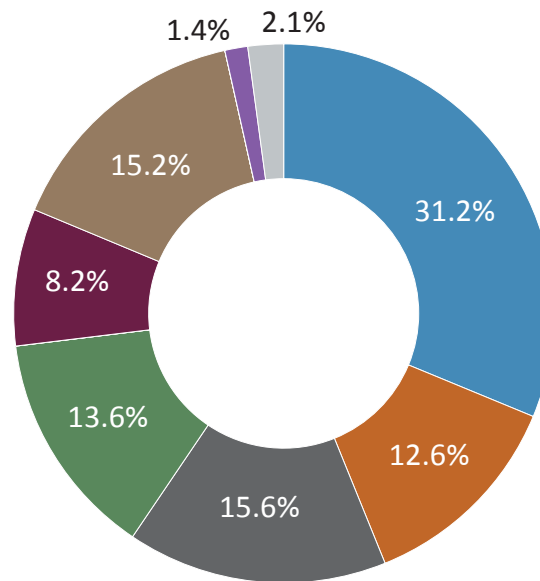
4 "Uninvested" may include: cash, expenses, management fees, and net receivables/payables.

**Past performance is not necessarily indicative of future results.**

# Hedge Fund Categories

Los Angeles County Employees Retirement Association – San Gabriel Fund, L.P. (June 30, 2019)

Asset allocation by strategy<sup>1,2</sup>  
Percent of fund's net asset value



Credit



Relative Value



Multi Strategy



Macro



Quantitative



Equities



Other



Uninvested

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 – San Gabriel Fund, L.P. (June 30, 2019)

| Fund Name              | Fund Category           | QTD ending balance   | % of NAV (as of 6/30/19) | Start date of investment | End date of investment | Cumulative returns |              |              | Annualized returns |              |                  |
|------------------------|-------------------------|----------------------|--------------------------|--------------------------|------------------------|--------------------|--------------|--------------|--------------------|--------------|------------------|
|                        |                         |                      |                          |                          |                        | 2Q19               | YTD          | 1 Year       | 3 Year             | 5 Year       | ITD <sup>1</sup> |
| Fund 1                 | Credit                  | \$19,609,381         | 4.01%                    | 04/01/2013               | Present                | 3.07%              | 9.83%        | 6.29%        | 10.79%             | 5.28%        | 6.99%            |
| Fund 2                 | Credit                  | \$30,555,880         | 6.24%                    | 02/01/2014               | Present                | 2.61%              | 6.45%        | 4.79%        | 7.94%              | 5.48%        | 6.35%            |
| Fund 3                 | Credit                  | \$14,786,987         | 3.02%                    | 06/01/2019               | Present                | 0.59%              | 0.59%        | -            | -                  | -            | 0.59%            |
| Fund 4                 | Credit                  | \$26,346,646         | 5.38%                    | 10/01/2011               | Present                | 1.47%              | 4.29%        | 4.74%        | 7.07%              | 5.13%        | 8.36%            |
| Fund 5                 | Credit                  | \$23,962,537         | 4.90%                    | 10/01/2011               | Present                | 2.81%              | 2.45%        | 1.59%        | 4.56%              | 2.61%        | 6.97%            |
| Fund 6                 | Credit                  | \$15,491,903         | 3.17%                    | 11/01/2017               | Present                | -4.05%             | -5.80%       | -9.18%       | -                  | -            | -2.65%           |
| Fund 7                 | Credit                  | \$2,522,305          | 0.52%                    | 10/01/2018               | Present                | 4.01%              | 7.56%        | -            | -                  | -            | 5.10%            |
| Fund 8                 | Credit                  | \$19,603,132         | 4.01%                    | 12/01/2018               | Present                | 1.39%              | 2.61%        | -            | -                  | -            | 2.90%            |
| Fund 9                 | Equities                | \$3,430,109          | 0.70%                    | 08/01/2016               | Present                | 3.64%              | 8.34%        | 3.83%        | -                  | -            | 4.02%            |
| Fund 10                | Equities                | \$11,691,190         | 2.39%                    | 07/01/2014               | Present                | 1.97%              | 7.63%        | -3.20%       | 1.08%              | -3.29%       | -3.29%           |
| Fund 11                | Equities                | \$18,021,795         | 3.68%                    | 11/01/2017               | Present                | -4.78%             | 8.56%        | -9.38%       | -                  | -            | -2.14%           |
| Fund 12                | Equities                | \$29,029,259         | 5.93%                    | 11/01/2015               | Present                | 3.28%              | 15.36%       | 5.47%        | 22.29%             | -            | 13.77%           |
| Fund 13                | Quantitative            | \$25,473,410         | 5.21%                    | 08/01/2017               | Present                | -1.35%             | -0.01%       | -0.22%       | -                  | -            | 3.75%            |
| Fund 14                | Quantitative            | \$11,081,335         | 2.26%                    | 05/01/2019               | Present                | 2.60%              | 2.60%        | -            | -                  | -            | 2.60%            |
| Fund 15                | Quantitative            | \$3,683,007          | 0.75%                    | 05/01/2019               | Present                | 2.31%              | 2.31%        | -            | -                  | -            | 2.31%            |
| Fund 16                | Macro                   | \$30,935,107         | 6.32%                    | 04/01/2012               | Present                | 0.68%              | 5.72%        | 4.35%        | 12.29%             | 13.85%       | 12.52%           |
| Fund 17                | Macro                   | \$17,928,479         | 3.66%                    | 10/01/2013               | Present                | 1.10%              | 3.23%        | -3.77%       | 2.92%              | 3.16%        | 2.56%            |
| Fund 18                | Relative Value          | \$30,503,202         | 6.23%                    | 03/01/2013               | Present                | 6.82%              | 13.71%       | 14.12%       | 15.75%             | 13.55%       | 14.39%           |
| Fund 19                | Relative Value          | \$11,217,052         | 2.29%                    | 06/01/2018               | Present                | 1.41%              | 3.22%        | 3.45%        | -                  | -            | 3.56%            |
| Fund 20                | Relative Value          | \$20,104,181         | 4.11%                    | 05/01/2015               | Present                | 3.05%              | 3.86%        | 5.47%        | 9.56%              | -            | 4.84%            |
| Fund 21                | Multi-Strategy          | \$25,729,107         | 5.26%                    | 11/01/2011               | Present                | 2.91%              | 4.33%        | 3.58%        | 7.59%              | 6.55%        | 7.81%            |
| Fund 22                | Multi-Strategy          | \$29,267,505         | 5.98%                    | 04/01/2017               | Present                | 2.03%              | 7.26%        | 0.87%        | -                  | -            | 2.49%            |
| Fund 23                | Multi-Strategy          | \$21,248,717         | 4.34%                    | 02/01/2017               | Present                | -2.01%             | 1.53%        | -5.39%       | -                  | -            | 1.30%            |
| Terminated Fund 54     | Relative Value          | -                    | -                        | 08/01/2015               | 06/01/2019             | -4.76%             | -16.01%      | -14.08%      | -                  | -            | -6.28%           |
| Terminated Fund 55     | Relative Value          | -                    | -                        | 11/01/2015               | 06/01/2019             | -3.05%             | -24.41%      | -24.78%      | -                  | -            | -17.05%          |
| Terminated Fund 56     | Equities                | \$12,263,050         | 2.51%                    | 11/01/2015               | 07/01/2019             | 1.67%              | 5.28%        | 3.42%        | 8.26%              | -            | 5.31%            |
| Terminated Fund 57     | Macro                   | \$17,750,409         | 3.63%                    | 05/01/2017               | 07/01/2019             | 11.42%             | 11.34%       | 6.12%        | -                  | -            | 0.89%            |
| APPA                   | APPA <sup>2</sup>       | (\$56,303)           | -0.01%                   | -                        | -                      | -                  | -            | -            | -                  | -            | -                |
| Other                  | Other <sup>3</sup>      | \$6,724,345          | 1.37%                    | -                        | -                      | 2.22%              | 6.79%        | -            | -                  | -            | -                |
| Total Uninvested       | Uninvested <sup>4</sup> | \$10,414,235         | 2.13%                    | -                        | -                      | -                  | -            | -            | -                  | -            | -                |
| <b>Net asset value</b> | <b>Totals</b>           | <b>\$489,317,962</b> | <b>100.00%</b>           |                          |                        | <b>1.58%</b>       | <b>4.63%</b> | <b>0.25%</b> | <b>4.11%</b>       | <b>1.56%</b> | <b>3.45%</b>     |

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.

**Past performance is not necessarily indicative of future results.**

# Portfolio Characteristics

Los Angeles County Employees Retirement Association – San Gabriel Fund, L.P. (Allocation Period: July 1, 2019)

## San Gabriel Fund, L.P.<sup>1,2,3</sup>

| Volatility                    | Guideline | Forward looking estimate | Realized since inception |
|-------------------------------|-----------|--------------------------|--------------------------|
| Standard deviation of returns | 5-7%      | 3.9%                     | 2.8%                     |
| Sharpe Ratio                  | ≥1.0      | 1.31                     | 1.02                     |

| Diversification              | Guideline | 10-year historical simulation | Forward looking estimate <sup>4</sup> | Realized since inception |
|------------------------------|-----------|-------------------------------|---------------------------------------|--------------------------|
| Portfolio beta to MSCI World | ≤0.20     | 0.19                          | 0.20                                  | 0.16                     |

| Manager Allocation            | Guideline | Actual |
|-------------------------------|-----------|--------|
| Number of investment managers | 20-40     | 19     |

| Portfolio category | Compliance range | Target allocation | Capital allocation |
|--------------------|------------------|-------------------|--------------------|
| Credit             | 10%-40%          | 30%               | 30.1%              |
| Equities           | 5%-40%           | 20%               | 12.4%              |
| Multi-Strategy     | 0%-30%           | 15%               | 15.6%              |
| Relative Value     | 0%-30%           | 14%               | 12.6%              |
| Macro              | 0%-20%           | 13%               | 9.1%               |
| Commodities        | 0%-15%           | 2%                | 0.0%               |
| Quantitative       | 0%-15%           | 5%                | 8.2%               |
| Portfolio Hedges   | 0%-10%           | 1%                | 0.0%               |

| Look-through exposure category        |
|---------------------------------------|
| Corporate Credit                      |
| Mortgage Credit                       |
| Structured Credit                     |
| Relative Value                        |
| Other (Event Driven, Macro, Equities) |

- 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 Forward Looking Estimate Sharpe Ratio is calculated using the Risk-based Allocation Report as follows: Portfolio ROR less Risk-free Rate (assumed to be 2.25% for this purpose) divided by Portfolio Standard Deviation at the 0.3 correlation level.
- 4 Forward Looking Estimate Beta statistic is presented for informational purposes only.

**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 – San Gabriel Fund, L.P. (Allocation Period: July 1, 2019)

## San Gabriel Fund, L.P.

| Leverage within hedge funds | Guideline maximum | Leverage |
|-----------------------------|-------------------|----------|
| <b>Hedge fund category</b>  |                   |          |
| Credit                      | 4.0x              | 1.6x     |
| Relative Value              | 8.0x              | 5.2x     |
| Event Driven                | 4.0x              | 1.7x     |
| Equities                    | 4.0x              | 1.4x     |
| Macro                       | 20.0x             | 9.0x     |
| Other                       | 5.0x              | 4.6x     |

| Downside loss   | Guideline   | Current portfolio  |
|---|-------------|--------------------|
| Actual allocation to single fund, % of capital (at market)            | 10% maximum | 6.5%               |
| % ROR impact of Severe Case Loss in a single fund (at market)         | ≥ -4%       | -2.2%              |
| Impact of Severe Case Loss in a single sub-strategy (at market)       | ≥ -7%       | -2.5%              |
| Fund-Level ROR Impact of Severe Case Loss (at market)                 | ≥ -10%      | -7.2% <sup>1</sup> |
| Actual allocation to GCM Special Opportunities Fund (at market)       | 10% maximum | 6.0%               |
| 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 | 6.0%               |

| Liquidity excluding fund level and discretionary gates, notice periods, and side pocket investments <sup>2</sup>     | Guideline | Actual |
|--|-----------|--------|
| Fund capital with lockups greater than 1 year but less than 2 years  | <35%      | 8.9%   |
| Fund capital with lockups greater than 2 years   | 0.0%      | 0.0%   |
| Fund capital available within one year, after lockups expire, including the effect of mandatory investor-level gates | >65%      | 78.0%  |

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.

**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.**



# Compliance Summary

Los Angeles County Employees Retirement Association – San Gabriel Fund, L.P. (Allocation Period: July 1, 2019)

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## 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           | -          |

# Allocation Report – San Gabriel Fund, L.P.

**GABRIEL - San Gabriel Fund, L.P. (the "Fund")**

| Portfolio Fund Name                                       | Ending Balance as of 30 June 2019 Before EOM Activity |                                     |                             |                              |                        | Allocation as of 01 July 2019 |                    |                                     |                             |                              |                        |
|---|---|-------------------------------------|-----------------------------|------------------------------|------------------------|-------------------------------|--------------------|-------------------------------------|-----------------------------|------------------------------|------------------------|
|   | 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 |
| <b>Credit</b>   |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| <b>Fundamental Credit</b>                                 |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 1  | 19,609,381  | 30.19%                              | 12.83%                      | 4.09%                        | 4.01%                  | -                             | 19,609,381         | 30.19%                              | 13.29%                      | 4.50%                        | 4.01%                  |
| Fund 2  | 30,555,880  | 47.04%                              | 19.99%                      | 6.38%                        | 6.24%                  | -                             | 30,555,880         | 47.04%                              | 20.71%                      | 7.02%                        | 6.24%                  |
| Fund 3  | 14,786,987  | 22.77%                              | 9.67%                       | 3.09%                        | 3.02%                  | -                             | 14,786,987         | 22.77%                              | 10.02%                      | 3.39%                        | 3.02%                  |
| <b>Total - Fundamental Credit</b>                         | <b>64,952,248</b>                                     | <b>100.00%</b>                      | <b>42.49%</b>               | <b>13.56%</b>                | <b>13.27%</b>          | <b>-</b>                      | <b>64,952,248</b>  | <b>100.00%</b>                      | <b>44.03%</b>               | <b>14.91%</b>                | <b>13.27%</b>          |
| <b>Structured Credit</b>                                  |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 4  | 26,346,646  | 100.00%                             | 17.23%                      | 5.50%                        | 5.38%                  | -                             | 26,346,646         | 100.00%                             | 17.86%                      | 6.05%                        | 5.38%                  |
| <b>Total - Structured Credit</b>                          | <b>26,346,646</b>                                     | <b>100.00%</b>                      | <b>17.23%</b>               | <b>5.50%</b>                 | <b>5.38%</b>           | <b>-</b>                      | <b>26,346,646</b>  | <b>100.00%</b>                      | <b>17.86%</b>               | <b>6.05%</b>                 | <b>5.38%</b>           |
| <b>Long/Short Credit</b>                                  |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 5  | 23,962,537  | 60.73%                              | 15.67%                      | 5.00%                        | 4.90%                  | -                             | 23,962,537         | 75.57%                              | 16.24%                      | 5.50%                        | 4.90%                  |
| Fund 6  | 15,491,903  | 39.27%                              | 10.13%                      | 3.23%                        | 3.17%                  | (7,745,951)                   | 7,745,951          | 24.43%                              | 5.25%                       | 1.78%                        | 1.58%                  |
| <b>Total - Long/Short Credit</b>                          | <b>39,454,440</b>                                     | <b>100.00%</b>                      | <b>25.81%</b>               | <b>8.24%</b>                 | <b>8.06%</b>           | <b>(7,745,951)</b>            | <b>31,708,488</b>  | <b>100.00%</b>                      | <b>21.50%</b>               | <b>7.28%</b>                 | <b>6.48%</b>           |
| <b>Emerging Market Credit</b>                             |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 7  | 2,522,305   | 100.00%                             | 1.65%                       | 0.53%                        | 0.52%                  | -                             | 2,522,305          | 100.00%                             | 1.71%                       | 0.58%                        | 0.52%                  |
| <b>Total - Emerging Market Credit</b>                     | <b>2,522,305</b>                                      | <b>100.00%</b>                      | <b>1.65%</b>                | <b>0.53%</b>                 | <b>0.52%</b>           | <b>-</b>                      | <b>2,522,305</b>   | <b>100.00%</b>                      | <b>1.71%</b>                | <b>0.58%</b>                 | <b>0.52%</b>           |
| <b>Specialist Credit</b>                                  |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 8  | 19,603,132  | 100.00%                             | 12.82%                      | 4.09%                        | 4.01%                  | 2,375,000                     | 21,978,132         | 100.00%                             | 14.90%                      | 5.05%                        | 4.49%                  |
| <b>Total - Specialist Credit</b>                          | <b>19,603,132</b>                                     | <b>100.00%</b>                      | <b>12.82%</b>               | <b>4.09%</b>                 | <b>4.01%</b>           | <b>2,375,000</b>              | <b>21,978,132</b>  | <b>100.00%</b>                      | <b>14.90%</b>               | <b>5.05%</b>                 | <b>4.49%</b>           |
| <b>Total Credit</b>                                       | <b>152,878,771</b>                                    |                                     | <b>100.00%</b>              | <b>31.92%</b>                | <b>31.24%</b>          | <b>(5,370,951)</b>            | <b>147,507,819</b> |                                     | <b>100.00%</b>              | <b>33.87%</b>                | <b>30.15%</b>          |
| <b>Equities</b>   |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| <b>Directional Equity / U.S./Canada</b>                   |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Terminated Fund 56  | 12,263,050  | 100.00%                             | 16.47%                      | 2.56%                        | 2.51%                  | (12,263,050)                  | -                  | -                                   | -                           | -                            | -                      |
| <b>Total - Directional Equity / U.S./Canada</b>           | <b>12,263,050</b>                                     | <b>100.00%</b>                      | <b>16.47%</b>               | <b>2.56%</b>                 | <b>2.51%</b>           | <b>(12,263,050)</b>           | <b>-</b>           | <b>-</b>                            | <b>-</b>                    | <b>-</b>                     | <b>-</b>               |
| <b>Fundamental Market Neutral Equity / Global</b>         |   |                                     |                             |                              |                        |                               |                    |                                     |                             |                              |                        |
| Fund 9  | 3,430,109   | 100.00%                             | 4.61%                       | 0.72%                        | 0.70%                  | (1,715,054)                   | 1,715,054          | 100.00%                             | 2.84%                       | 0.39%                        | 0.35%                  |
| <b>Total - Fundamental Market Neutral Equity / Global</b> | <b>3,430,109</b>                                      | <b>100.00%</b>                      | <b>4.61%</b>                | <b>0.72%</b>                 | <b>0.70%</b>           | <b>(1,715,054)</b>            | <b>1,715,054</b>   | <b>100.00%</b>                      | <b>2.84%</b>                | <b>0.39%</b>                 | <b>0.35%</b>           |

| Portfolio Fund Name                         | Ending Balance as of 30 June 2019 Before EOM Activity |                                      |                             |                              |                        | Allocation as of 01 July 2019 |                   |                                      |                             |                              |                        |
|---|---|--------------------------------------|-----------------------------|------------------------------|------------------------|-------------------------------|-------------------|--------------------------------------|-----------------------------|------------------------------|------------------------|
|   | 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 |
| <b>Event Driven</b>                         |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 10                                     | 11,691,190  | 100.00%                              | 15.71%                      | 2.44%                        | 2.39%                  | -                             | 11,691,190        | 100.00%                              | 19.34%                      | 2.68%                        | 2.39%                  |
| <b>Total - Event Driven</b>                 | <b>11,691,190</b>                                     | <b>100.00%</b>                       | <b>15.71%</b>               | <b>2.44%</b>                 | <b>2.39%</b>           | <b>-</b>                      | <b>11,691,190</b> | <b>100.00%</b>                       | <b>19.34%</b>               | <b>2.68%</b>                 | <b>2.39%</b>           |
| <b>Specialist Equity / Asia</b>             |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 11                                     | 18,021,795  | 100.00%                              | 24.21%                      | 3.76%                        | 3.68%                  | -                             | 18,021,795        | 100.00%                              | 29.81%                      | 4.14%                        | 3.68%                  |
| <b>Total - Specialist Equity / Asia</b>     | <b>18,021,795</b>                                     | <b>100.00%</b>                       | <b>24.21%</b>               | <b>3.76%</b>                 | <b>3.68%</b>           | <b>-</b>                      | <b>18,021,795</b> | <b>100.00%</b>                       | <b>29.81%</b>               | <b>4.14%</b>                 | <b>3.68%</b>           |
| <b>Specialist Equity / Global</b>           |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 12                                     | 29,029,259  | 100.00%                              | 39.00%                      | 6.06%                        | 5.93%                  | -                             | 29,029,259        | 100.00%                              | 48.02%                      | 6.66%                        | 5.93%                  |
| <b>Total - Specialist Equity / Global</b>   | <b>29,029,259</b>                                     | <b>100.00%</b>                       | <b>39.00%</b>               | <b>6.06%</b>                 | <b>5.93%</b>           | <b>-</b>                      | <b>29,029,259</b> | <b>100.00%</b>                       | <b>48.02%</b>               | <b>6.66%</b>                 | <b>5.93%</b>           |
| <b>Total Equities</b>                       | <b>74,435,403</b>                                     |                                      | <b>100.00%</b>              | <b>15.54%</b>                | <b>15.21%</b>          | <b>(13,978,105)</b>           | <b>60,457,299</b> |                                      | <b>100.00%</b>              | <b>13.88%</b>                | <b>12.36%</b>          |
| <u>Quantitative</u>                         |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| <b>Non-Directional Quantitative</b>         |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 13                                     | 25,473,410  | 63.31%                               | 63.31%                      | 5.32%                        | 5.21%                  | -                             | 25,473,410        | 63.31%                               | 63.31%                      | 5.85%                        | 5.21%                  |
| Fund 14                                     | 11,081,335  | 27.54%                               | 27.54%                      | 2.31%                        | 2.26%                  | -                             | 11,081,335        | 27.54%                               | 27.54%                      | 2.54%                        | 2.26%                  |
| Fund 15                                     | 3,683,007   | 9.15%                                | 9.15%                       | 0.77%                        | 0.75%                  | -                             | 3,683,007         | 9.15%                                | 9.15%                       | 0.85%                        | 0.75%                  |
| <b>Total - Non-Directional Quantitative</b> | <b>40,237,753</b>                                     | <b>100.00%</b>                       | <b>100.00%</b>              | <b>8.40%</b>                 | <b>8.22%</b>           | <b>-</b>                      | <b>40,237,753</b> | <b>100.00%</b>                       | <b>100.00%</b>              | <b>9.24%</b>                 | <b>8.22%</b>           |
| <b>Total Quantitative</b>                   | <b>40,237,753</b>                                     |                                      | <b>100.00%</b>              | <b>8.40%</b>                 | <b>8.22%</b>           | <b>-</b>                      | <b>40,237,753</b> |                                      | <b>100.00%</b>              | <b>9.24%</b>                 | <b>8.22%</b>           |
| <u>Macro</u>                                |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| <b>Diversified Macro</b>                    |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 16                                     | 30,935,107  | 63.54%                               | 46.44%                      | 6.46%                        | 6.32%                  | 825,000                       | 31,760,107        | 100.00%                              | 71.55%                      | 7.29%                        | 6.49%                  |
| Terminated Fund 57                          | 17,750,409  | 36.46%                               | 26.65%                      | 3.71%                        | 3.63%                  | (17,750,409)                  | -                 | -                                    | -                           | -                            | -                      |
| <b>Total - Diversified Macro</b>            | <b>48,685,516</b>                                     | <b>100.00%</b>                       | <b>73.09%</b>               | <b>10.17%</b>                | <b>9.95%</b>           | <b>(16,925,409)</b>           | <b>31,760,107</b> | <b>100.00%</b>                       | <b>71.55%</b>               | <b>7.29%</b>                 | <b>6.49%</b>           |
| <b>Specialist Macro</b>                     |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 17                                     | 17,928,479  | 100.00%                              | 26.91%                      | 3.74%                        | 3.66%                  | (5,300,000)                   | 12,628,479        | 100.00%                              | 28.45%                      | 2.90%                        | 2.58%                  |
| <b>Total - Specialist Macro</b>             | <b>17,928,479</b>                                     | <b>100.00%</b>                       | <b>26.91%</b>               | <b>3.74%</b>                 | <b>3.66%</b>           | <b>(5,300,000)</b>            | <b>12,628,479</b> | <b>100.00%</b>                       | <b>28.45%</b>               | <b>2.90%</b>                 | <b>2.58%</b>           |
| <b>Total Macro</b>                          | <b>66,613,994</b>                                     |                                      | <b>100.00%</b>              | <b>13.91%</b>                | <b>13.61%</b>          | <b>(22,225,409)</b>           | <b>44,388,585</b> |                                      | <b>100.00%</b>              | <b>10.19%</b>                | <b>9.07%</b>           |
| <u>Relative Value</u>                       |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| <b>Diversified Relative Value</b>           |   |                                      |                             |                              |                        |                               |                   |                                      |                             |                              |                        |
| Fund 18                                     | 30,503,202  | 49.34%                               | 49.34%                      | 6.37%                        | 6.23%                  | -                             | 30,503,202        | 49.34%                               | 49.34%                      | 7.00%                        | 6.23%                  |
| Fund 19                                     | 11,217,052  | 18.14%                               | 18.14%                      | 2.34%                        | 2.29%                  | -                             | 11,217,052        | 18.14%                               | 18.14%                      | 2.58%                        | 2.29%                  |
| Fund 20                                     | 20,104,181  | 32.52%                               | 32.52%                      | 4.20%                        | 4.11%                  | -                             | 20,104,181        | 32.52%                               | 32.52%                      | 4.62%                        | 4.11%                  |
| <b>Total - Diversified Relative Value</b>   | <b>61,824,435</b>                                     | <b>100.00%</b>                       | <b>100.00%</b>              | <b>12.91%</b>                | <b>12.63%</b>          | <b>-</b>                      | <b>61,824,435</b> | <b>100.00%</b>                       | <b>100.00%</b>              | <b>14.19%</b>                | <b>12.63%</b>          |
| <b>Total Relative Value</b>                 | <b>61,824,435</b>                                     |                                      | <b>100.00%</b>              | <b>12.91%</b>                | <b>12.63%</b>          | <b>-</b>                      | <b>61,824,435</b> |                                      | <b>100.00%</b>              | <b>14.19%</b>                | <b>12.63%</b>          |

| Portfolio Fund Name                       | Ending Balance as of 30 June 2019 Before EOM Activity |                                      |                             |                              |                        | Allocation as of 01 July 2019 |                    |                                      |                             |                              |                        |
|---|---|--------------------------------------|-----------------------------|------------------------------|------------------------|-------------------------------|--------------------|--------------------------------------|-----------------------------|------------------------------|------------------------|
|   | 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 |
| <u>Multi-Strategy</u>                     |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| Diversified Multi-Strategy                |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| Fund 21                                   | 25,729,107  | 33.75%                               | 33.75%                      | 5.37%                        | 5.26%                  | -                             | 25,729,107         | 33.75%                               | 33.75%                      | 5.91%                        | 5.26%                  |
| Fund 22                                   | 29,267,505  | 38.39%                               | 38.39%                      | 6.11%                        | 5.98%                  | -                             | 29,267,505         | 38.39%                               | 38.39%                      | 6.72%                        | 5.98%                  |
| Fund 23                                   | 21,248,717  | 27.87%                               | 27.87%                      | 4.44%                        | 4.34%                  | -                             | 21,248,717         | 27.87%                               | 27.87%                      | 4.88%                        | 4.34%                  |
| Total - Diversified Multi-Strategy        | 76,245,329  | 100.00%                              | 100.00%                     | 15.92%                       | 15.58%                 | -                             | 76,245,329         | 100.00%                              | 100.00%                     | 17.51%                       | 15.58%                 |
| Total Multi-Strategy                      | 76,245,329  |                                      | 100.00%                     | 15.92%                       | 15.58%                 | -                             | 76,245,329         |                                      | 100.00%                     | 17.51%                       | 15.58%                 |
| <u>Aggregated Prior Period Adjustment</u> |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| Multi-Manager                             |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| APPA USD                                  | (56,303)  | 100.00%                              | 100.00%                     | -0.01%                       | -0.01%                 | -                             | (56,303)           | 100.00%                              | 100.00%                     | -0.01%                       | -0.01%                 |
| Total - Multi-Manager                     | (56,303)  | 100.00%                              | 100.00%                     | -0.01%                       | -0.01%                 | -                             | (56,303)           | 100.00%                              | 100.00%                     | -0.01%                       | -0.01%                 |
| Total Aggregated Prior Period Adjustment  | (56,303)  |                                      | 100.00%                     | -0.01%                       | -0.01%                 | -                             | (56,303)           |                                      | 100.00%                     | -0.01%                       | -0.01%                 |
| <u>Other</u>                              |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| Other Investments                         |   |                                      |                             |                              |                        |                               |                    |                                      |                             |                              |                        |
| Terminated Fund 54                        | 2,366,433   | 35.19%                               | 35.19%                      | 0.49%                        | 0.48%                  | (1,301,538)                   | 1,064,895          | 21.52%                               | 21.52%                      | 0.24%                        | 0.22%                  |
| Terminated Fund 51                        | 1,588,946   | 23.63%                               | 23.63%                      | 0.33%                        | 0.32%                  | (320,742)                     | 1,268,204          | 25.62%                               | 25.62%                      | 0.29%                        | 0.26%                  |
| Terminated Fund 25                        | 1,650   | 0.02%                                | 0.02%                       | 0.00%                        | 0.00%                  | -                             | 1,650              | 0.03%                                | 0.03%                       | 0.00%                        | 0.00%                  |
| Terminated Fund 50                        | 1,649,422   | 24.53%                               | 24.53%                      | 0.34%                        | 0.34%                  | -                             | 1,649,422          | 33.32%                               | 33.32%                      | 0.38%                        | 0.34%                  |
| Terminated Fund 32                        | 194,281   | 2.89%                                | 2.89%                       | 0.04%                        | 0.04%                  | (45,353)                      | 148,928            | 3.01%                                | 3.01%                       | 0.03%                        | 0.03%                  |
| Terminated Fund 46                        | 841,253   | 12.51%                               | 12.51%                      | 0.18%                        | 0.17%                  | (107,173)                     | 734,080            | 14.83%                               | 14.83%                      | 0.17%                        | 0.15%                  |
| Terminated Fund 4                         | 82,359  | 1.22%                                | 1.22%                       | 0.02%                        | 0.02%                  | -                             | 82,359             | 1.66%                                | 1.66%                       | 0.02%                        | 0.02%                  |
| Total - Other Investments                 | 6,724,345   | 100.00%                              | 100.00%                     | 1.40%                        | 1.37%                  | (1,774,806)                   | 4,949,539          | 100.00%                              | 100.00%                     | 1.14%                        | 1.01%                  |
| Total Other                               | 6,724,345   |                                      | 100.00%                     | 1.40%                        | 1.37%                  | (1,774,806)                   | 4,949,539          |                                      | 100.00%                     | 1.14%                        | 1.01%                  |
| <b>Total ALLOCATED</b>                    | <b>478,903,727</b>                                    |                                      |                             | <b>100.00%</b>               | <b>97.87%</b>          | <b>(43,349,271)</b>           | <b>435,554,456</b> |                                      |                             | <b>100.00%</b>               | <b>89.01%</b>          |
| Cash                                      | 7,270,977   |                                      |                             |                              | 1.49%                  | 21,719,186                    | 28,990,163         |                                      |                             |                              | 5.92%                  |
| Expenses                                  | (176,380)   |                                      |                             |                              | -0.04%                 | 37,203                        | (139,176)          |                                      |                             |                              | -0.03%                 |
| Management Fees                           | (99)  |                                      |                             |                              | -                      | 834,538                       | 834,439            |                                      |                             |                              | 0.17%                  |
| Net Rec/(Pay)                             | 3,319,736   |                                      |                             |                              | 0.68%                  | 20,758,344                    | 24,078,081         |                                      |                             |                              | 4.92%                  |
| <b>Total UNALLOCATED</b>                  | <b>10,414,235</b>                                     |                                      |                             |                              | <b>2.13%</b>           | <b>43,349,271</b>             | <b>53,763,506</b>  |                                      |                             |                              | <b>10.99%</b>          |
| <b>NET ASSET VALUE</b>                    | <b>489,317,962</b>                                    |                                      |                             |                              | <b>100.00%</b>         | <b>-</b>                      | <b>489,317,962</b> |                                      |                             |                              | <b>100.00%</b>         |

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**Asset  
Management**

# Goldman Sachs Asset Management

## Portfolio Fund Summary

## Hedge Fund Categories

Los Angeles County Employees Retirement Association (June 30, 2019)

| Hedge Fund Category   | Inception Date | End Date  | QTD Opening Balance<br>(as of 3/31/2019) | QTD Subscriptions/<br>(Redemptions) | QTD Gain/(Loss) | QTD Ending Balance<br>(as of 6/30/2019) | % of Nav (as of<br>06/30/2019) <sup>2</sup> | Cumulative Returns  |         |         | Annualized Returns |                 |
|---|----------------|-----------|--|-------------------------------------|-----------------|---|---|---------------------|---------|---------|--------------------|-----------------|
|   |                |           |  |                                     |                 |   |   | 2Q2019 <sup>1</sup> | YTD     | 1 Year  | 3 Year             | 1Y <sup>1</sup> |
| Deep Basin Long-Short Fund LP Founder Shares  | 2/1/2019       | -         | 10,036,827.00                            | -                                   | 518,473.00      | 10,555,300.00                           | 2.14%                                       | 5.17%               | 5.55%   | 5.55%   | -                  | 5.55%           |
| Deep Basin Long-Short Fund LP Strategic Shares  | 11/1/2017      | -         | 9,624,942.00                             | -                                   | 597,084.00      | 10,222,026.00                           | 2.07%                                       | 6.20%               | -0.20%  | 5.05%   | -                  | 7.94%           |
| Kintbury Equity Fund LP Class F (NIE)   | 5/1/2015       | -         | 24,254,965.52                            | -                                   | (1,050,174.84)  | 23,204,790.68                           | 4.70%                                       | -4.33%              | -0.66%  | -1.99%  | -0.43%             | 1.63%           |
| Lakewood Capital Partners LP (NIE)  | 5/1/2015       | -         | 21,190,040.42                            | -                                   | 335,085.48      | 21,525,125.90                           | 4.36%                                       | 1.58%               | 14.81%  | 3.12%   | 5.71%              | 4.61%           |
| Palestra Capital Part LP (Ser 3 Int 1.5/20)(NIE)  | 6/1/2015       | -         | 29,547,385.21                            | -                                   | 2,119,893.74    | 31,667,278.95                           | 6.42%                                       | 7.17%               | 17.80%  | 9.29%   | 13.50%             | 11.35%          |
| PFM Therapeutics Fund, L.P. Class B (NIE)   | 7/1/2018       | -         | 9,175,371.25                             | -                                   | 171,712.28      | 9,347,083.53                            | 1.89%                                       | 1.87%               | 13.14%  | -18.95% | -                  | -18.95%         |
| Rubric Capital Partners LP Series F1 Interests NIE  | 3/1/2017       | -         | 25,663,837.09                            | -                                   | 2,106,526.01    | 27,770,363.10                           | 5.63%                                       | 8.21%               | 22.70%  | 2.70%   | -                  | 8.41%           |
| The BosValen US Feeder Fund Class F (NIE)   | 8/1/2018       | -         | 18,220,730.38                            | -                                   | (385,176.74)    | 17,835,553.64                           | 3.61%                                       | -2.11%              | -0.96%  | -9.80%  | -                  | -9.80%          |
| Equity Long/Short   |                |           | 147,714,098.87                           | -                                   | 4,413,422.93    | 152,127,521.80                          | 30.82%                                      | 2.99%               | 10.47%  | 0.17%   | 5.53%              | 4.38%           |
| Empyrean Capital Fund LP (Class 2 Ser N - NIE)  | 7/1/2015       | -         | 26,529,196.00                            | -                                   | 599,628.00      | 27,128,824.00                           | 5.50%                                       | 2.26%               | 3.97%   | 0.23%   | 7.61%              | 4.94%           |
| HG Vora Special Opportunities Fd LP Series 1 (NIE)  | 10/1/2017      | -         | 27,448,433.00                            | -                                   | 641,086.00      | 28,089,519.00                           | 5.69%                                       | 2.34%               | 7.80%   | 3.27%   | -                  | 6.88%           |
| Manikay Onshore Fund LP Class A3 NIE  | 6/1/2018       | -         | 27,671,517.19                            | -                                   | 953,776.35      | 28,625,293.54                           | 5.80%                                       | 3.45%               | 14.90%  | 8.84%   | -                  | 8.66%           |
| Palmetto Catastrophe Fd LP Q4 2018 Dev CI H-SP  | 1/1/2019       | -         | 4,653,861.00                             | (1,087,683.22)                      | 27,311.22       | 3,593,489.00                            | 0.73%                                       | 0.77%               | 0.89%   | 0.89%   | -                  | 0.89%           |
| Palmetto Catastrophe Fund L.P. Class H - NV   | 6/1/2018       | -         | 9,681,834.00                             | 1,087,683.22                        | 175,682.78      | 10,945,200.00                           | 2.22%                                       | 1.63%               | 2.52%   | -3.04%  | -                  | -2.43%          |
| Taconic Opportunity Fund LP (CL AA, Non Lockup)   | 3/1/2018       | -         | 24,540,976.96                            | 7,000,000.00                        | 498,898.46      | 32,039,875.42                           | 6.49%                                       | 1.84%               | 3.91%   | 5.21%   | -                  | 6.43%           |
| Warlander Partners, LP Class W (NIE)  | 2/1/2016       | 3/31/2019 | 1,603,026.56                             | (1,603,026.56)                      | -               | -                                       | -   | -                   | -6.63%  | 9.00%   | -1.88%             | -2.73%          |
| Event Driven  |                |           | 122,128,844.71                           | 5,396,973.44                        | 2,896,382.81    | 130,422,200.96                          | 26.42%                                      | 2.39%               | 6.81%   | 3.71%   | 7.25%              | 3.15%           |
| D.E. Shaw Valence Fund, LLC (NIE)   | 2/1/2016       | -         | 28,056,466.00                            | -                                   | 406,088.00      | 28,462,554.00                           | 5.77%                                       | 1.45%               | 2.64%   | 4.99%   | 10.80%             | 10.88%          |
| ExodusPoint Partners Fund LP Class C (NIE)  | 8/1/2018       | -         | 18,560,853.00                            | -                                   | 261,682.00      | 18,822,535.00                           | 3.81%                                       | 1.41%               | 3.22%   | 3.34%   | -                  | 3.34%           |
| Holocene Advisors Fund LP Class AI-A LP Int (NIE)   | 5/1/2017       | -         | 29,037,727.76                            | -                                   | 1,922,170.84    | 30,959,898.60                           | 6.27%                                       | 6.62%               | 8.92%   | 9.21%   | -                  | 10.37%          |
| Relative Value  |                |           | 75,655,046.76                            | -                                   | 2,589,940.84    | 78,244,987.60                           | 15.85%                                      | 3.42%               | 5.18%   | 5.36%   | 7.31%              | 3.73%           |
| Atreaus Fund, LP Class F  | 6/1/2017       | 2/28/2019 | -  | -                                   | -               | -                                       | -   | -                   | 1.49%   | -2.06%  | -                  | -2.96%          |
| Bridgewater Pure Alpha Major Markets II, LLC  | 5/1/2015       | -         | 19,200,694.10                            | -                                   | (844,695.05)    | 18,355,999.05                           | 3.72%                                       | -4.40%              | -14.46% | -7.01%  | 3.24%              | -1.58%          |
| Crabel Fund, L.P. (Class A, Fee Option 1 GS, 2/20)  | 7/1/2015       | -         | 10,491,607.22                            | 4,000,000.00                        | 236,544.06      | 14,728,151.28                           | 2.98%                                       | 1.44%               | 1.68%   | 2.84%   | 0.86%              | 4.02%           |
| Dymon Asia Macro (US) Fund Class P (NIE)  | 6/1/2015       | 3/31/2019 | 13,971,992.68                            | (13,971,992.68)                     | -               | -                                       | -   | -                   | -2.51%  | -4.10%  | 0.41%              | -1.41%          |
| Edgestream Sumatra Fund LP  | 7/1/2015       | -         | 9,822,807.56                             | -                                   | 19,721.25       | 9,842,528.81                            | 1.99%                                       | 0.20%               | 4.07%   | 6.92%   | 0.56%              | 5.02%           |
| EMSO Saguaro Ltd Class A-NV   | 2/1/2018       | -         | 13,090,750.93                            | -                                   | 305,309.01      | 13,396,059.94                           | 2.71%                                       | 2.33%               | 5.20%   | 3.03%   | -                  | -0.54%          |
| Glen Point Macro Fund LP CI A NV USD Shares (NIE)   | 10/1/2017      | -         | 13,349,946.05                            | 3,000,000.00                        | (28,387.80)     | 16,321,558.25                           | 3.31%                                       | -1.66%              | 2.37%   | 3.41%   | -                  | -1.58%          |
| Stone Milliner Macro Fd Delaware LP CI N (NIE)  | 1/1/2018       | -         | 17,717,422.86                            | -                                   | 320,388.08      | 18,037,810.94                           | 3.65%                                       | 1.81%               | 0.62%   | 0.11%   | -                  | 1.59%           |
| The Winton Fund (US) LP   | 9/1/2016       | -         | 10,141,103.78                            | -                                   | (12,206.34)     | 10,128,897.44                           | 2.05%                                       | -0.12%              | 0.21%   | -0.47%  | -                  | 2.22%           |
| Tactical Trading  |                |           | 107,786,325.18                           | (6,971,992.68)                      | (3,326.79)      | 100,811,005.71                          | 20.43%                                      | -0.06%              | -1.18%  | -0.07%  | -0.59%             | -0.32%          |
| <b>Total Assets and Liabilities not Allocated to Underlying Managers of Los Angeles County Employees Retirement Association</b> |                |           |  |                                     |                 | 31,955,333.68                           | 6.47%                                       |                     |         |         |                    |                 |
| <b>Net Asset Value</b>  |                |           |  |                                     |                 | 493,561,049.75                          | 100.00%                                     |                     |         |         |                    |                 |

<sup>1</sup>The LACERA Portfolio inception on May 1, 2015. Returns less than 12 months are cumulative, not annualized. Past performance does not guarantee future results, which may vary.

<sup>2</sup>Based on the end equity value of the Fund.

Managers terminated prior to the current year are excluded. For ease of presentation, active and terminated managers are shown for the current year only.



## Overview

Global equities were positive in June, with all major markets higher for the month, led by North America. Equities moved higher as the US Federal Reserve and the ECB signaled they could move to ease policy to support growth and inflation should conditions warrant it. The US government bond yield curve steepened during the month, with yields sharply lower at the front-end of the curve. The European yield curve flattened. The USD had negative performance against most major currencies, depreciating versus CAD, BRL, NZD, CHF, MXN, and EUR. Both WTI and Brent crude rose during the month, driven in part by rising tensions between the US and Iran, while natural gas moved lower.

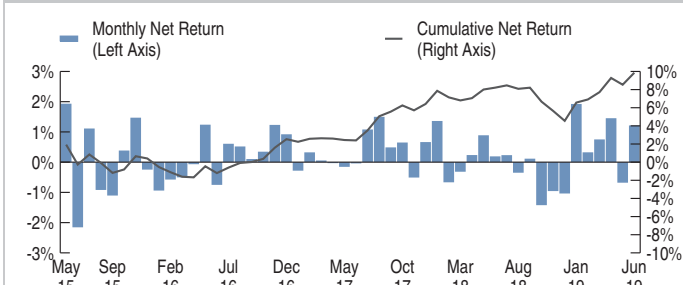
Global equities rallied in June after the Federal Reserve shifted towards a more dovish outlook, with other major central banks also holding interest rates at current levels. Major global equity benchmarks traded at or near all-time highs, marking the best June in recent decades after a rough May. AIMS' equity long/short managers generated gains in June, performing largely in-line with the market on an exposure-adjusted basis. In June, small positive excess returns from the short book were largely offset by slightly negative exposure-adjusted excess returns from the long book. Long positions in health care, particularly in the pharmaceutical and biotechnology industries, were the best performers. Information technology was the leading detractor driven by general weakness across long positions in the software and services industry.

AIMS' event driven managers generated positive performance in June. Equity sub-strategies contributed amidst a supportive global equity market backdrop, despite slightly negative security selection. The consumer discretionary and materials sectors were the largest contributors to performance. In contrast, the industrials sector was the largest detractor from platform performance. Merger arbitrage spreads for the platform tightened in aggregate, but underperformed spreads for the broader universe, which tightened more significantly in June. Within credit, an exposure to the bonds of Intelsat was additive over the month as the Federal Communications Commission continued to receive corporate pressure to auction additional 5G spectrum. More broadly, lower rated corporate credit outperformed overall credit markets this month, which aided relative performance.

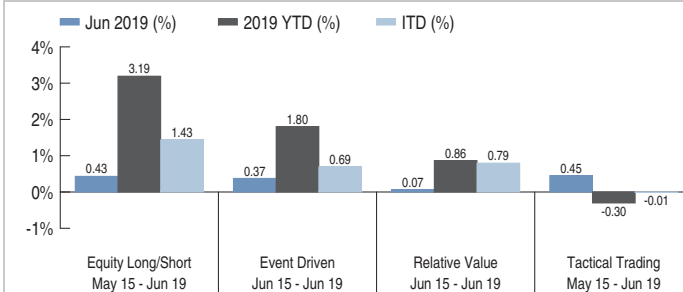
Macro managers generated gains in June driven by trading in equities, commodities, and fixed income, offsetting losses from currencies. There was varied positioning in fixed income but gains were achieved in aggregate from long exposure to U.S. rates, although there were losses from short exposure to European rates. Within currencies, mixed exposure to USD and active trading in other currencies detracted from performance in aggregate. Emerging market managers generated strong gains from long exposure to Argentine sovereign credit and long exposure to Brazilian front-end rates. Volatility trading managers generated negative performance for the month, driven by falling implied volatility in the U.S. and European equity markets. Fixed income relative value managers were mixed but positive overall in June.

CTAs were up in June. Gains this month were driven by trading in equities and fixed income while trading in currencies and commodities generated somewhat offsetting losses.

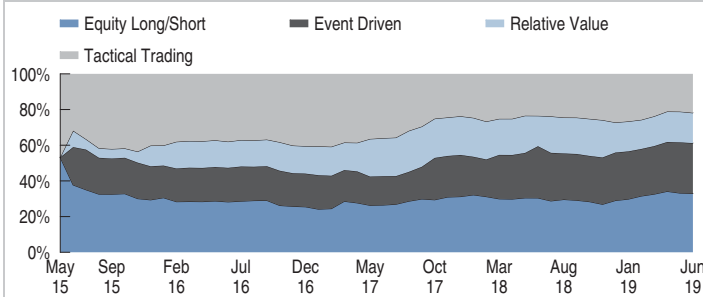
## Monthly & Cumulative Net Returns<sup>1</sup>



## Contribution to Return by Sector<sup>2</sup>



## Historical Sector Allocations<sup>3</sup>



## Performance & Characteristics<sup>1</sup>

|   | Cumulative (%) |      |       | Annualized (%) |       |       |                  | Max. Drawdown (%) | -MSCI World USD- Correlation (%) | Beta  | Barclays Agg |       | Sharpe Ratio <sup>5</sup> | Inception Date |        |
|---|----------------|------|-------|----------------|-------|-------|------------------|-------------------|----------------------------------|-------|--------------|-------|---------------------------|----------------|--------|
|   | MTD            | QTD  | YTD   | 1Y             | 3Y    | 5Y    | ITD <sup>4</sup> |                   |                                  |       | Correlation  | Beta  |                           |                |        |
| LACERA (A1)                             | 1.21           | 1.99 | 5.07  | 1.52           | 3.60  | N/A   | 2.28             | 3.12              | -3.61                            | 0.66  | 0.18         | -0.09 | -0.09                     | 0.30           | May 15 |
| HFRX Global Hedge Fund Index            | 1.61           | 1.58 | 4.22  | -1.95          | 2.12  | -0.11 | 4.08             | 5.93              | -25.21                           | 0.63  | 0.27         | 0.07  | 0.13                      | 0.28           | Jan 98 |
| MSCI World Index Hedged USD             | 5.87           | 3.23 | 15.89 | 5.62           | 10.64 | N/A   | 5.82             | 11.70             | -13.24                           | 1.00  | 1.00         | -0.08 | -0.32                     | 0.38           | May 15 |
| Bloomberg Barclays Aggregate Bond Index | 1.26           | 3.09 | 6.12  | 7.88           | 2.32  | N/A   | 2.77             | 2.91              | -3.28                            | -0.08 | -0.02        | 1.00  | 1.00                      | 0.49           | May 15 |
| 3 Month Libor                           | 0.21           | 0.64 | 1.33  | 2.53           | 1.70  | N/A   | 1.34             | 0.24              | 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:  $(1+r_1) \cdot (1+r_2) \cdot \dots \cdot (1+r_n) - 1$ . Annualized geometric returns for returns greater than 12 months are calculated as follows:  $[(1+r_1) \cdot (1+r_2) \cdot \dots \cdot (1+r_n)]^{1/n} - 1$ .

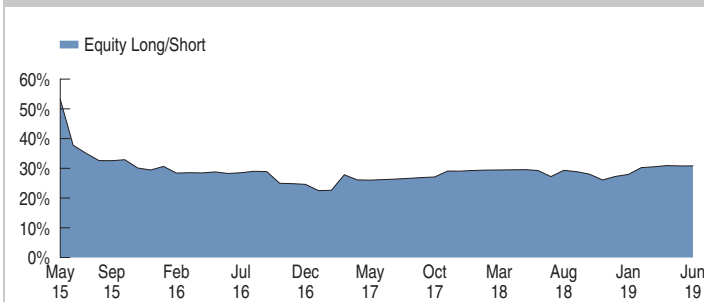
[3] Based on invested assets. The investment manager may change the allocations over time. The allocations noted should not be deemed representative of allocations in the future. All the allocations were done using the portfolio's valuations at month-end.

[4] Returns less than 12 months are cumulative, not annualized.

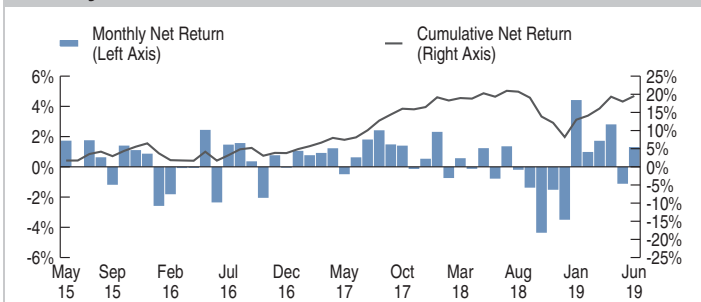
[5] The 3 Month Libor (USD) rate is used for this calculation.

### Sector Level Returns — Equity Long/Short

#### Historical Sector Allocations<sup>1</sup>



#### Monthly & Cumulative Net Returns<sup>2</sup>

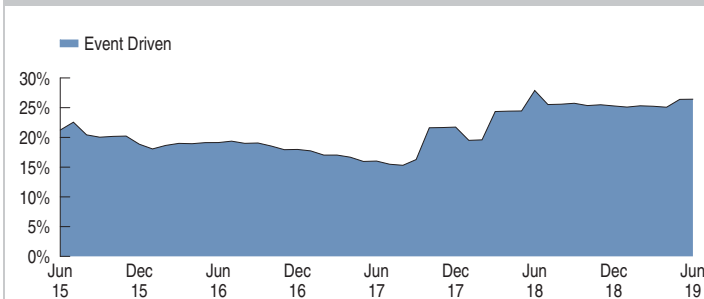


#### Performance & Characteristics<sup>2,3</sup>

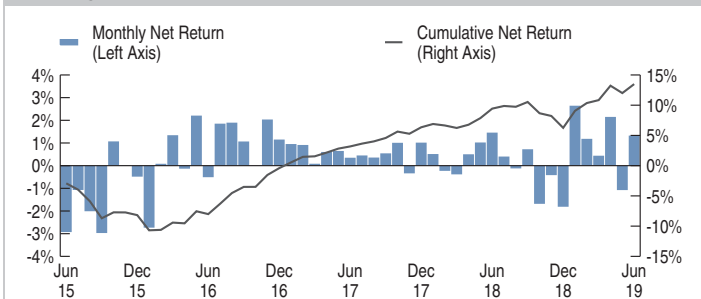
|              | Weight <sup>1</sup> (%) | Cumulative (%) |      |       | Annualized (%) |      |     |                  | Max. Drawdown (%) | - MSCI World USD- Correlation | Beta | - Barclays Agg- Correlation | Beta  | Sharpe Ratio <sup>5</sup> | Inception Date | End Date |         |
|--------------|-------------------------|----------------|------|-------|----------------|------|-----|------------------|-------------------|-------------------------------|------|-----------------------------|-------|---------------------------|----------------|----------|---------|
|              |                         | MTD            | QTD  | YTD   | 1Y             | 3Y   | 5Y  | ITD <sup>4</sup> |                   |                               |      |                             |       |                           |                |          | Vol ITD |
| Performance  | 30.82                   | 1.31           | 2.99 | 10.47 | 0.17           | 5.53 | N/A | 4.38             | 5.74              | -10.53                        | 0.68 | 0.33                        | -0.08 | -0.17                     | 0.53           | May 15   | Jun 19  |
| Contribution | N/A                     | 0.43           | 1.01 | 3.19  | 0.32           | 1.65 | N/A | 1.43             | 1.74              | N/A                           | N/A  | N/A                         | N/A   | N/A                       | N/A            | May 15   | Jun 19  |

### Sector Level Returns — Event Driven

#### Historical Sector Allocations<sup>1</sup>



#### Monthly & Cumulative Net Returns<sup>2</sup>



#### Performance & Characteristics<sup>2,3</sup>

|              | Weight <sup>1</sup> (%) | Cumulative (%) |      |      | Annualized (%) |      |     |                  | Max. Drawdown (%) | - MSCI World USD- Correlation | Beta | - Barclays Agg- Correlation | Beta  | Sharpe Ratio <sup>5</sup> | Inception Date | End Date |         |
|--------------|-------------------------|----------------|------|------|----------------|------|-----|------------------|-------------------|-------------------------------|------|-----------------------------|-------|---------------------------|----------------|----------|---------|
|              |                         | MTD            | QTD  | YTD  | 1Y             | 3Y   | 5Y  | ITD <sup>4</sup> |                   |                               |      |                             |       |                           |                |          | Vol ITD |
| Performance  | 26.42                   | 1.33           | 2.39 | 6.81 | 3.71           | 7.25 | N/A | 3.15             | 4.50              | -10.69                        | 0.77 | 0.29                        | -0.13 | -0.20                     | 0.40           | Jun 15   | Jun 19  |
| Contribution | N/A                     | 0.37           | 0.66 | 1.80 | 1.02           | 1.52 | N/A | 0.69             | 1.01              | N/A                           | N/A  | N/A                         | N/A   | N/A                       | N/A            | Jun 15   | Jun 19  |

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[1] Based on the end equity value of the Fund. Allocations as of June 2019. 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:  $(1+r_1)(1+r_2)\dots(1+r_n)-1$ . Annualized geometric returns for returns greater than 12 months are calculated as follows:

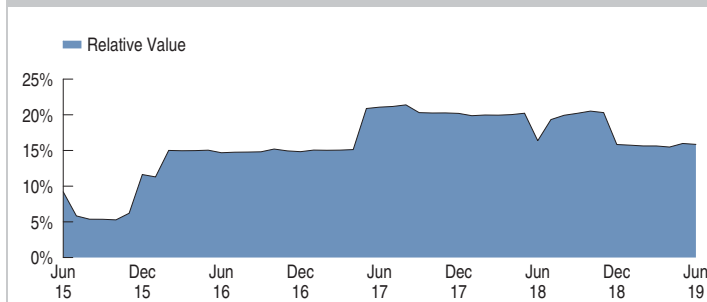
$[(1+r_1)(1+r_2)\dots(1+r_n)]^{1/12m}-1$ .

[4] Returns less than 12 months are cumulative, not annualized.

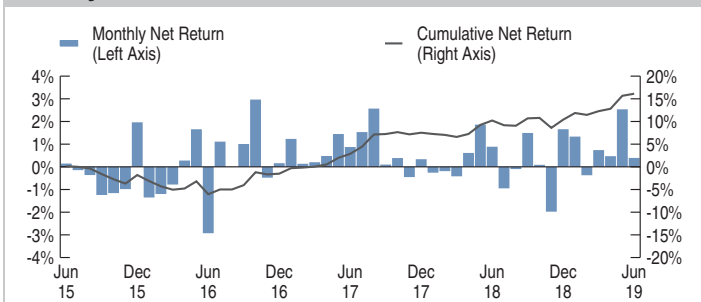
[5] The 3 Month Libor (USD) rate is used for this calculation.

### Sector Level Returns — Relative Value

#### Historical Sector Allocations<sup>1</sup>



#### Monthly & Cumulative Net Returns<sup>2</sup>

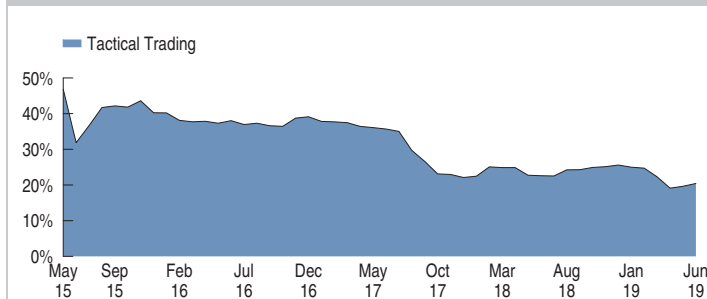


#### Performance & Characteristics<sup>2,3</sup>

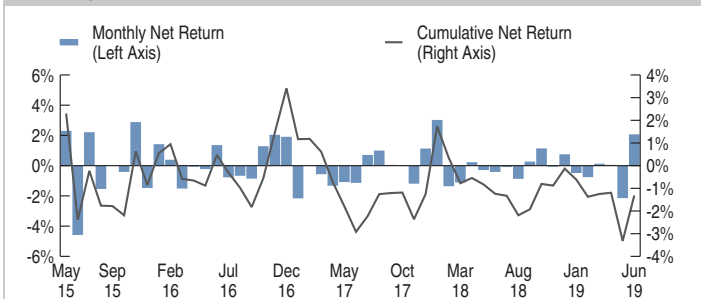
|              | Weight <sup>1</sup> (%) | Cumulative (%) |      |      | Annualized (%) |      |     |                  | Max. Drawdown (%) | - MSCI World USD- Correlation | Beta  | - Barclays Agg- Correlation | Beta | Sharpe Ratio <sup>5</sup> | Inception Date | End Date |         |
|--------------|-------------------------|----------------|------|------|----------------|------|-----|------------------|-------------------|-------------------------------|-------|-----------------------------|------|---------------------------|----------------|----------|---------|
|              |                         | MTD            | QTD  | YTD  | 1Y             | 3Y   | 5Y  | ITD <sup>4</sup> |                   |                               |       |                             |      |                           |                |          | Vol ITD |
| Performance  | 15.85                   | 0.39           | 3.42 | 5.18 | 5.36           | 7.31 | N/A | 3.73             | 4.12              | -6.17                         | -0.05 | -0.02                       | 0.01 | 0.01                      | 0.57           | Jun 15   | Jun 19  |
| Contribution | N/A                     | 0.07           | 0.57 | 0.86 | 0.82           | 1.28 | N/A | 0.79             | 0.69              | N/A                           | N/A   | N/A                         | N/A  | N/A                       | N/A            | Jun 15   | Jun 19  |

### Sector Level Returns — Tactical Trading

#### Historical Sector Allocations<sup>1</sup>



#### Monthly & Cumulative Net Returns<sup>2</sup>



#### Performance & Characteristics<sup>2,3</sup>

|              | Weight <sup>1</sup> (%) | Cumulative (%) |       |       | Annualized (%) |       |     |                  | Max. Drawdown (%) | - MSCI World USD- Correlation | Beta | - Barclays Agg- Correlation | Beta  | Sharpe Ratio <sup>5</sup> | Inception Date | End Date |         |
|--------------|-------------------------|----------------|-------|-------|----------------|-------|-----|------------------|-------------------|-------------------------------|------|-----------------------------|-------|---------------------------|----------------|----------|---------|
|              |                         | MTD            | QTD   | YTD   | 1Y             | 3Y    | 5Y  | ITD <sup>4</sup> |                   |                               |      |                             |       |                           |                |          | Vol ITD |
| Performance  | 20.43                   | 2.07           | -0.06 | -1.18 | -0.07          | -0.59 | N/A | -0.32            | 4.96              | -6.50                         | 0.17 | 0.07                        | -0.03 | -0.05                     | -0.33          | May 15   | Jun 19  |
| Contribution | N/A                     | 0.45           | -0.00 | -0.30 | -0.01          | -0.24 | N/A | -0.01            | 1.73              | N/A                           | N/A  | N/A                         | N/A   | N/A                       | N/A            | May 15   | Jun 19  |

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[1] Based on the end equity value of the Fund. Allocations as of June 2019. 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:  $(1+r_1)(1+r_2)\dots(1+r_n)-1$ . Annualized geometric returns for returns greater than 12 months are calculated as follows:

$[(1+r_1)(1+r_2)\dots(1+r_n)]^{12/m}-1$ .

[4] Returns less than 12 months are cumulative, not annualized.

[5] The 3 Month Libor (USD) rate is used for this calculation.

Manager Level — Cumulative Manager Performance<sup>1,2</sup> (%)

| Manager                                  | Classification        | Weight <sup>3</sup> | MTD         |             | QTD          |              | YTD          |              | Inception Date | End Date      |
|--|-----------------------|---------------------|-------------|-------------|--------------|--------------|--------------|--------------|----------------|---------------|
|  |                       |                     | Return      | Contrib.    | Return       | Contrib.     | Return       | Contrib.     |                |               |
| <b>Equity Long/Short</b>                 |                       |                     |             |             |              |              |              |              |                |               |
| Palestra Capital                         | United States         | 6.42                | 1.76        | 0.36        | 7.17         | 1.43         | 17.80        | 3.45         | Jun 15         | Jun 19        |
| Rubric Capital                           | Global                | 5.63                | 2.41        | 0.43        | 8.21         | 1.42         | 22.70        | 3.73         | Mar 17         | Jun 19        |
| Kintbury                                 | Europe                | 4.70                | -1.02       | -0.16       | -4.33        | -0.71        | -0.66        | -0.03        | May 15         | Jun 19        |
| Lakewood                                 | Global                | 4.36                | 2.70        | 0.38        | 1.58         | 0.24         | 14.81        | 2.11         | May 15         | Jun 19        |
| BosValen                                 | Asia                  | 3.61                | -1.18       | -0.14       | -2.11        | -0.25        | -0.96        | -0.11        | Aug 18         | Jun 19        |
| Deep Basin Long-Short Fund               | United States         | 2.14                | -0.54       | -0.04       | 5.17         | 0.35         | 5.55         | 0.37         | Feb 19         | Jun 19        |
| Deep Basin Long-Short Fund               | United States         | 2.07                | -0.54       | -0.04       | 6.20         | 0.40         | -0.20        | -0.09        | Nov 17         | Jun 19        |
| PFM Therapeutics                         | Global                | 1.89                | 8.89        | 0.51        | 1.87         | 0.11         | 13.14        | 0.77         | Jul 18         | Jun 19        |
| <b>Overall</b>                           |                       | <b>30.82</b>        | <b>1.31</b> | <b>0.43</b> | <b>2.99</b>  | <b>1.01</b>  | <b>10.47</b> | <b>3.19</b>  | <b>May 15</b>  | <b>Jun 19</b> |
| <b>Event Driven</b>                      |                       |                     |             |             |              |              |              |              |                |               |
| Taconic Opportunity                      | Multi-Strategy        | 6.49                | 0.49        | 0.12        | 1.84         | 0.40         | 3.91         | 0.81         | Mar 18         | Jun 19        |
| Manikay Class A3                         | Multi-Strategy        | 5.80                | 3.15        | 0.68        | 3.45         | 0.81         | 14.90        | 3.18         | Jun 18         | Jun 19        |
| HG Vora                                  | Multi-Strategy        | 5.69                | 1.45        | 0.31        | 2.34         | 0.52         | 7.80         | 1.71         | Oct 17         | Jun 19        |
| Empyrean Capital Partners                | Multi-Strategy        | 5.50                | 0.77        | 0.16        | 2.26         | 0.49         | 3.97         | 0.86         | Jul 15         | Jun 19        |
| Palmetto Catastrophe Fund (Class H -NV)  | Credit Opps - Dist    | 2.22                | 0.51        | 0.04        | 1.63         | 0.14         | 2.52         | 0.21         | Jun 18         | Jun 19        |
| Palmetto Catastrophe Fund (Class H - SP) | Credit Opps - Dist    | 0.73                | 0.28        | 0.01        | 0.77         | 0.02         | 0.89         | 0.03         | Jan 19         | Jun 19        |
| Warlander                                | Credit Opps - Dist    | N/A                 | N/A         | N/A         | N/A          | N/A          | -6.63        | -0.10        | Feb 16         | Mar 19        |
| <b>Overall</b>                           |                       | <b>26.42</b>        | <b>1.33</b> | <b>0.37</b> | <b>2.39</b>  | <b>0.66</b>  | <b>6.81</b>  | <b>1.80</b>  | <b>Jun 15</b>  | <b>Jun 19</b> |
| <b>Relative Value</b>                    |                       |                     |             |             |              |              |              |              |                |               |
| Holocene                                 | Equity Market Neutral | 6.27                | 0.46        | 0.18        | 6.62         | 2.54         | 8.92         | 3.39         | May 17         | Jun 19        |
| D.E. Shaw Valence Fund                   | Equity Market Neutral | 5.77                | 0.38        | 0.14        | 1.45         | 0.53         | 2.64         | 0.97         | Feb 16         | Jun 19        |
| ExodusPoint                              | Multi-Strategy        | 3.81                | 0.30        | 0.07        | 1.41         | 0.34         | 3.22         | 0.78         | Aug 18         | Jun 19        |
| <b>Overall</b>                           |                       | <b>15.85</b>        | <b>0.39</b> | <b>0.07</b> | <b>3.42</b>  | <b>0.57</b>  | <b>5.18</b>  | <b>0.86</b>  | <b>Jun 15</b>  | <b>Jun 19</b> |
| <b>Tactical Trading</b>                  |                       |                     |             |             |              |              |              |              |                |               |
| Bridgewater Pure Alpha Major Markets II  | Macro                 | 3.72                | -1.64       | -0.31       | -4.40        | -0.84        | -14.46       | -2.73        | May 15         | Jun 19        |
| Stone Milliner Macro                     | Macro                 | 3.65                | 1.88        | 0.34        | 1.81         | 0.32         | 0.62         | 0.13         | Jan 18         | Jun 19        |
| Glen Point Global Macro                  | Macro                 | 3.31                | 6.44        | 1.00        | -1.66        | -0.06        | 2.37         | 0.38         | Oct 17         | Jun 19        |
| Crabel                                   | Managed Futures       | 2.98                | 3.97        | 0.57        | 1.44         | 0.23         | 1.68         | 0.29         | Jul 15         | Jun 19        |
| Emso Saguaro                             | Macro                 | 2.71                | 2.40        | 0.32        | 2.33         | 0.31         | 5.20         | 0.60         | Feb 18         | Jun 19        |
| Winton Diversified Futures Fund (US) L.P | Managed Futures       | 2.05                | -0.64       | -0.07       | -0.12        | -0.01        | 0.21         | 0.04         | Sep 16         | Jun 19        |
| Edgestream (Sumatra/Nias)                | Managed Futures       | 1.99                | 2.31        | 0.23        | 0.20         | 0.02         | 4.07         | 0.34         | Jul 15         | Jun 19        |
| Dymon Asia Macro Fund                    | Macro                 | N/A                 | N/A         | N/A         | N/A          | N/A          | -2.51        | -0.31        | Jun 15         | Mar 19        |
| Atreus (Class F)                         | Macro                 | N/A                 | N/A         | N/A         | N/A          | N/A          | 1.49         | 0.14         | Jun 17         | Feb 19        |
| <b>Overall</b>                           |                       | <b>20.43</b>        | <b>2.07</b> | <b>0.45</b> | <b>-0.06</b> | <b>-0.00</b> | <b>-1.18</b> | <b>-0.30</b> | <b>May 15</b>  | <b>Jun 19</b> |

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[1] 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] 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:  $(1+r_1)^1(1+r_2)^2 \dots (1+r_n)^n - 1$ . Annualized geometric returns for returns greater than 12 months are calculated as follows:

$[(1+r_1)^1(1+r_2)^2 \dots (1+r_n)^n]^{1/n} - 1$ . Manager contributions are made to the Sector level while Sector contributions are made to the fund level.

[3] Based on the end equity value of the Fund. Allocations as of June 2019. 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, 26 of 47 terminated managers are shown for the current year only.

Manager Level — Annualized Manager Performance<sup>1,2</sup> (%)

| Manager                                  | Classification        | Weight <sup>3</sup> | 1 Year       |              | 3 Year       |              | 5 Year     |            | ITD <sup>4</sup> |              | Vol ITD     | Inception Date | End Date      |
|--|-----------------------|---------------------|--------------|--------------|--------------|--------------|------------|------------|------------------|--------------|-------------|----------------|---------------|
|  |                       |                     | Return       | Contrib.     | Return       | Contrib.     | Return     | Contrib.   | Return           | Contrib.     |             |                |               |
| <b>Equity Long/Short</b>                 |                       |                     |              |              |              |              |            |            |                  |              |             |                |               |
| Palestra Capital                         | United States         | 6.42                | 9.29         | 1.89         | 13.50        | 2.61         | N/A        | N/A        | 11.35            | 2.16         | 8.43        | Jun 15         | Jun 19        |
| Rubric Capital                           | Global                | 5.63                | 2.70         | 0.43         | N/A          | N/A          | N/A        | N/A        | 8.41             | 1.59         | 10.98       | Mar 17         | Jun 19        |
| Kintbury                                 | Europe                | 4.70                | -1.99        | -0.29        | -0.43        | -0.16        | N/A        | N/A        | 1.63             | 0.30         | 10.28       | May 15         | Jun 19        |
| Lakewood                                 | Global                | 4.36                | 3.12         | 0.56         | 5.71         | 1.00         | N/A        | N/A        | 4.61             | 0.89         | 10.77       | May 15         | Jun 19        |
| BosValen                                 | Asia                  | 3.61                | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | -9.80            | -0.85        | N/A         | Aug 18         | Jun 19        |
| Deep Basin Long-Short Fund               | United States         | 2.14                | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | 5.55             | 0.37         | N/A         | Feb 19         | Jun 19        |
| Deep Basin Long-Short Fund               | United States         | 2.07                | 5.05         | 0.29         | N/A          | N/A          | N/A        | N/A        | 7.94             | 0.49         | 10.44       | Nov 17         | Jun 19        |
| PFM Therapeutics                         | Global                | 1.89                | -18.95       | -1.65        | N/A          | N/A          | N/A        | N/A        | -18.95           | -1.65        | 22.51       | Jul 18         | Jun 19        |
| <b>Overall</b>                           |                       | <b>30.82</b>        | <b>0.17</b>  | <b>0.32</b>  | <b>5.53</b>  | <b>1.65</b>  | <b>N/A</b> | <b>N/A</b> | <b>4.38</b>      | <b>1.43</b>  | <b>5.74</b> | <b>May 15</b>  | <b>Jun 19</b> |
| <b>Event Driven</b>                      |                       |                     |              |              |              |              |            |            |                  |              |             |                |               |
| Taconic Opportunity                      | Multi-Strategy        | 6.49                | 5.21         | 1.05         | N/A          | N/A          | N/A        | N/A        | 6.43             | 1.24         | 2.06        | Mar 18         | Jun 19        |
| Manikay Class A3                         | Multi-Strategy        | 5.80                | 8.84         | 2.17         | N/A          | N/A          | N/A        | N/A        | 8.66             | 2.06         | 12.10       | Jun 18         | Jun 19        |
| HG Vora                                  | Multi-Strategy        | 5.69                | 3.27         | 0.76         | N/A          | N/A          | N/A        | N/A        | 6.88             | 1.53         | 5.19        | Oct 17         | Jun 19        |
| Empyrean Capital Partners                | Multi-Strategy        | 5.50                | 0.23         | 0.06         | 7.61         | 1.83         | N/A        | N/A        | 4.94             | 1.23         | 4.16        | Jul 15         | Jun 19        |
| Palmetto Catastrophe Fund (Class H - NV) | Credit Opps - Dist    | 2.22                | -3.04        | -0.46        | N/A          | N/A          | N/A        | N/A        | -2.43            | -0.38        | 5.11        | Jun 18         | Jun 19        |
| Palmetto Catastrophe Fund (Class H - SP) | Credit Opps - Dist    | 0.73                | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | 0.89             | 0.03         | N/A         | Jan 19         | Jun 19        |
| Warlander                                | Credit Opps - Dist    | N/A                 | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | -2.73            | -0.34        | 8.48        | Feb 16         | Mar 19        |
| <b>Overall</b>                           |                       | <b>26.42</b>        | <b>3.71</b>  | <b>1.02</b>  | <b>7.25</b>  | <b>1.52</b>  | <b>N/A</b> | <b>N/A</b> | <b>3.15</b>      | <b>0.69</b>  | <b>4.50</b> | <b>Jun 15</b>  | <b>Jun 19</b> |
| <b>Relative Value</b>                    |                       |                     |              |              |              |              |            |            |                  |              |             |                |               |
| Holocene                                 | Equity Market Neutral | 6.27                | 9.21         | 3.74         | N/A          | N/A          | N/A        | N/A        | 10.37            | 3.34         | 5.24        | May 17         | Jun 19        |
| D.E. Shaw Valence Fund                   | Equity Market Neutral | 5.77                | 4.99         | 1.80         | 10.80        | 3.14         | N/A        | N/A        | 10.88            | 3.18         | 4.89        | Feb 16         | Jun 19        |
| ExodusPoint                              | Multi-Strategy        | 3.81                | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | 3.34             | 0.78         | N/A         | Aug 18         | Jun 19        |
| <b>Overall</b>                           |                       | <b>15.85</b>        | <b>5.36</b>  | <b>0.82</b>  | <b>7.31</b>  | <b>1.28</b>  | <b>N/A</b> | <b>N/A</b> | <b>3.73</b>      | <b>0.79</b>  | <b>4.12</b> | <b>Jun 15</b>  | <b>Jun 19</b> |
| <b>Tactical Trading</b>                  |                       |                     |              |              |              |              |            |            |                  |              |             |                |               |
| Bridgewater Pure Alpha Major Markets II  | Macro                 | 3.72                | -7.01        | -1.32        | 3.24         | 0.32         | N/A        | N/A        | -1.58            | -0.14        | 13.62       | May 15         | Jun 19        |
| Stone Milliner Macro                     | Macro                 | 3.65                | 0.11         | 0.06         | N/A          | N/A          | N/A        | N/A        | 1.59             | 0.30         | 3.49        | Jan 18         | Jun 19        |
| Glen Point Global Macro                  | Macro                 | 3.31                | 3.41         | 0.48         | N/A          | N/A          | N/A        | N/A        | -1.58            | -0.09        | 13.44       | Oct 17         | Jun 19        |
| Crabel                                   | Managed Futures       | 2.98                | 2.84         | 0.44         | 0.86         | 0.19         | N/A        | N/A        | 4.02             | 0.46         | 8.69        | Jul 15         | Jun 19        |
| Emso Saguaro                             | Macro                 | 2.71                | 3.03         | 0.38         | N/A          | N/A          | N/A        | N/A        | -0.54            | -0.05        | 4.48        | Feb 18         | Jun 19        |
| Winton Diversified Futures Fund (US) L.P | Managed Futures       | 2.05                | -0.47        | -0.02        | N/A          | N/A          | N/A        | N/A        | 2.22             | 0.22         | 8.24        | Sep 16         | Jun 19        |
| Edgestream (Sumatra/Nias)                | Managed Futures       | 1.99                | 6.92         | 0.56         | 0.56         | 0.08         | N/A        | N/A        | 5.02             | 0.34         | 6.61        | Jul 15         | Jun 19        |
| Dymon Asia Macro Fund                    | Macro                 | N/A                 | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | -1.41            | -0.26        | 6.80        | Jun 15         | Mar 19        |
| Atreaus (Class F)                        | Macro                 | N/A                 | N/A          | N/A          | N/A          | N/A          | N/A        | N/A        | -2.96            | -0.27        | 5.26        | Jun 17         | Feb 19        |
| <b>Overall</b>                           |                       | <b>20.43</b>        | <b>-0.07</b> | <b>-0.01</b> | <b>-0.59</b> | <b>-0.24</b> | <b>N/A</b> | <b>N/A</b> | <b>-0.32</b>     | <b>-0.01</b> | <b>4.96</b> | <b>May 15</b>  | <b>Jun 19</b> |

For Existing Investors Only. Past performance does not guarantee future results, which may vary. Please refer to the Disclosures page for important information.

[1] 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] 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:  $(1+r_1)(1+r_2) \dots (1+r_n)-1$ . Annualized geometric returns for returns greater than 12 months are calculated as follows:

$[(1+r_1)(1+r_2) \dots (1+r_n)]^{1/12m}-1$ . Manager contributions are made to the Sector level while Sector contributions are made to the fund level.

[3] Based on the end equity value of the Fund. Allocations as of June 2019. 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.

[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 from SI to 2/28/2019 & +250 bps onward | 6.2%                                   | 3.6%              | 3 year rolling     | No             | 6/30/2019             |
| –Relative: HFRX Global Hedge Fund Index                                     | 2.1%                                   | 3.6%              | 3 year rolling     | Yes            | 6/30/2019             |
| •Target range of annualized volatility                                      | 3.0% – 8.0%                            | 2.7%              | 3 year rolling     | No             | 6/30/2019             |
| •Sharpe ratio   | 0.4-0.8                                | 0.8               | 3 year rolling     | Yes            | 6/30/2019             |
| •Beta to equity markets   | 0.2                                    | 0.2 <sup>1</sup>  | 3 year rolling     | Yes            | 6/30/2019             |
| •Beta to fixed income markets   | 0.2                                    | -0.1 <sup>2</sup> | 3 year rolling     | Yes            | 6/30/2019             |
| <b>Capital Allocation Constraints</b>                                       |  |                   |                    |                |                       |
| •Number of investment managers  | 15-35                                  | 22                | Monthly            | Yes            | 6/30/2019             |
|   | Equity Hedge: 10-50%                   | 30.8%             | Monthly            | Yes            | 6/30/2019             |
|   | Event Driven: 10-50%                   | 26.4%             | Monthly            | Yes            | 6/30/2019             |
| •Target/compliance range of allocation to strategies (at market)            | Directional/Tactical: 10-50%           | 20.4%             | Monthly            | Yes            | 6/30/2019             |
|   | Relative Value: 0-40%                  | 15.9%             | Monthly            | Yes            | 6/30/2019             |
|   | Other Assets / Liabilities (cash): <5% | 6.5%              | Monthly            | No             | 6/30/2019             |
| •Maximum allocation to a single fund (at market)                            | 10%                                    | 6.5%              | Monthly            | Yes            | 6/30/2019             |
| •Maximum allocation to a single advisor (at market)                         | 15%                                    | 6.5%              | Monthly            | Yes            | 6/30/2019             |
| •Maximum percentage ownership of a single fund                              | 30%                                    | 8.7%              | Quarterly          | Yes            | 6/30/2019             |
| <b>Downside Risk Case (See risk report)</b>                                 |  |                   |                    |                |                       |
| •Portfolio-level RoR Impact of Severe Case Loss (at market)                 | 25%                                    | 19.8%             | Monthly            | Yes            | 6/30/2019             |
| •Severe Case Loss in a single fund (at market)                              | <3% Capital at Risk                    | 1.5%              | Monthly            | Yes            | 6/30/2019             |
| •Severe Case Loss in a single advisor (at market)                           | <6% Capital at Risk                    | 1.5%              | Monthly            | Yes            | 6/30/2019             |
| <b>Liquidity</b>  |  |                   |                    |                |                       |
| •Hard lockup period of 1 year or greater                                    | <20%                                   | 1.9%              | Monthly            | Yes            | 6/30/2019             |
| •Quarterly liquidity or better (excluding locks)                            | >75%                                   | 81.7%             | Monthly            | Yes            | 6/30/2019             |
| •Percent of portfolio available within 1 year (excluding locks)             | >65%                                   | 82.5%             | Monthly            | Yes            | 6/30/2019             |
| •Hard lockup more than 2 years (not to exceed three years)                  | <10%                                   | 0.0%              | Monthly            | Yes            | 6/30/2019             |
| <b>Leverage</b>   |  |                   |                    |                |                       |
|   | Tactical Trading: 20x                  | 7.6               | Quarterly          | Yes            | 6/30/2019             |
|   | Event Driven: 4x                       | 1.5               | Quarterly          | Yes            | 6/30/2019             |
| •Strategy level leverage  | Equity Long / Short: 4x                | 1.0               | Quarterly          | Yes            | 6/30/2019             |
|   | Relative Value: 8x                     | 10.3              | Quarterly          | No             | 6/30/2019             |

As of June 2019. 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. 2019 www.hedgefundresearch.com. Pertrac Indices 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

The 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.msldata.com](http://www.msldata.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](http://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](http://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.

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# LACERA Direct Portfolio

## Portfolio Fund Summary

**LACERA Direct Portfolio Summary (June 30, 2019)**

| Investment Manager and Fund                       | Inception Date | QTD<br>Opening<br>Balance | QTD<br>Subscriptions /<br>(Redemptions) | QTD<br>Gain /<br>(Loss) | QTD<br>Ending<br>Balance | % of<br>Direct HF<br>Program<br>(6/30/2019) | Direct Portfolio Returns <sup>1</sup> |              |              |        |                  |
|---|----------------|---------------------------|---|-------------------------|--------------------------|---|---------------------------------------|--------------|--------------|--------|------------------|
|   |                |                           |   |                         |                          |   | 2Q<br>2019                            | YTD          | 1 Year       | 3 Year | ITD <sup>2</sup> |
| <b>Multi-Strategy</b>                             |                |                           |   |                         |                          |   |                                       |              |              |        |                  |
| AQR Liquid Enhanced Alternative Premia Fund, L.P. | 4/1/2018       | 67,820,560                |   | (1,163,472)             | 66,657,088               | 11.5%                                       | -1.72%                                | 0.56%        | -1.45%       | -      | -9.00%           |
| Davidson Kempner Institutional Partners, L.P.     | 4/1/2018       | 107,403,978               | 5,000,000                               | 2,139,352               | 114,543,330              | 19.8%                                       | 1.96%                                 | 4.31%        | 4.27%        | -      | 4.00%            |
| HBK Multi-Strategy Fund L.P.                      | 5/1/2018       | 129,640,036               |   | 2,172,203               | 131,812,239              | 22.8%                                       | 1.68%                                 | 3.12%        | 3.83%        | -      | 4.65%            |
| <b>Multi-Strategy Total</b>                       |                | <b>304,864,574</b>        | <b>5,000,000</b>                        | <b>3,148,083</b>        | <b>313,012,657</b>       | <b>54.1%</b>                                | <b>1.02%</b>                          | <b>2.97%</b> | <b>2.61%</b> |        | <b>0.08%</b>     |
| <b>Relative Value</b>                             |                |                           |   |                         |                          |   |                                       |              |              |        |                  |
| PIMCO Tactical Opportunities Fund L.P.            | 11/1/2018      | 127,478,072               | 31,500,000                              | 2,594,182               | 161,572,254              | 27.9%                                       | 1.81%                                 | 4.25%        | -            | -      | 3.19%            |
| Capula Global Relative Value Fund L.P.            | 12/1/2018      | 102,374,091               |   | 1,638,559               | 104,012,650              | 18.0%                                       | 1.60%                                 | 3.86%        | -            | -      | 4.01%            |
| <b>Relative Value Total</b>                       |                | <b>229,852,163</b>        | <b>31,500,000</b>                       | <b>4,232,741</b>        | <b>265,584,905</b>       | <b>45.9%</b>                                | <b>1.72%</b>                          | <b>4.08%</b> | -            | -      | <b>3.69%</b>     |
| <b>Total Direct Portfolio</b>                     |                | <b>534,716,737</b>        | <b>36,500,000</b>                       | <b>7,380,824</b>        | <b>578,597,562</b>       | <b>100.0%</b>                               | <b>1.33%</b>                          | <b>3.46%</b> | <b>3.11%</b> | -      | <b>0.45%</b>     |

<sup>1</sup> Does not include the impact of cash movements (subscriptions and redemptions) on portfolio returns. State Street Bank, LACERA's official book of record, calculated a one-year return of the direct portfolio of 3.3%. State Street Bank includes the impact of cash movements in their performance calculation each month, in which the fund returns are lagged by one month, which accounts for the difference in performance.

<sup>2</sup> Funds with an inception date prior to July 1, 2018 have ITD returns that are annualized. Funds with an inception date after July 1, 2018 have ITD returns that are cumulative

# LACERA - DIRECT PORTFOLIO

## Investment Guidelines Summary (as of June 30, 2019)

| Performance Objectives  | Investment Guidelines                       | LACERA Direct Portfolio | Measurement Period | In Compliance? |
|---|---|-------------------------|--------------------|----------------|
| •Target annualized return   |   |                         |                    |                |
| –Absolute: 3-month T-Bills + 250 bps <sup>1</sup>   | 6.60%                                       | 0.5%                    | ITD                | n/a            |
| –Relative: HFRX Global Hedge Fund Index   | -1.78%                                      | 0.5%                    | 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            |
| <b>Capital Allocation Constraints</b>   |   |                         |                    |                |
| •Number of investment managers  | 8 to 20                                     | 5                       | Quarterly          | n/a            |
| •Minimum allocation to a single fund (at market)  | \$5 million                                 | \$75 million            | Quarterly          | Yes            |
| •Maximum percentage ownership of a single fund  | 35%   | 17%                     | Quarterly          | Yes            |
| •Maximum exposure to an investment manager across multiple funds  | 20% of Direct HF Portfolio (fully invested) | n/a                     | Quarterly          | n/a            |
| <b>Downside Risk Case</b>   |   |                         |                    |                |
| •Portfolio-level RoR Impact of Severe Case Loss (at market)   | > -10%                                      | n/a                     | Quarterly          | n/a            |
| <b>Liquidity</b>  |   |                         |                    |                |
| •Remaining lock up period of 1 year or greater  | < 40%                                       | 16.8%                   | Quarterly          | Yes            |
| •Remaining lock up period of 2 year or greater  | < 25%                                       | 5.6%                    | 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%                                       | 72.1%                   | Quarterly          | Yes            |
| •Minimum invested in funds liquid within 1 year (excluding notification periods and after lock-up expires)  | > 65%                                       | 83.2%                   | Quarterly          | Yes            |
| <b>Leverage</b>   |   |                         |                    |                |
|   | Macro / Tactical Trading: 20x               | n/a                     | Quarterly          | n/a            |
|   | Event Driven: 4x                            | n/a                     | Quarterly          | n/a            |
| •Strategy level leverage  | Equity Hedge: 4x                            | n/a                     | Quarterly          | n/a            |
|   | Relative Value: 8x                          | 12.2                    | Quarterly          | n/a            |
|   | Multi-Strategy: 5x                          | 5.1                     | Quarterly          | n/a            |

1 Reflects hedge funds benchmark which is 90-Day U.S. T-Bills plus 250 basis points annually beginning March 1, 2019 and 90-Day U.S. T-Bills plus 500 basis points annually for periods prior to March 1, 2019.

# 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

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- **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
- **Quantitative strategies**
  - › Utilizes a combination of researcher insights, statistical analysis and technology in seeking to parse data, identify alpha signals, construct efficient portfolios and execute with minimal transaction costs
  - › Invests across liquid asset classes and instruments and seeks to generate an uncorrelated return stream
  - › Directional quantitative strategies take directional positions in themes and across instruments
  - › Non-directional quantitative strategies implement a beta neutral or low-net approach; may limit risk premia factor exposure

There can be no assurance that any fund will achieve its objectives or avoid losses.

# Hedge Fund Strategies

## Overview (continued)

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### ■ 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  | Credit   | Relative value  | Tactical trading  | Hedging strategies   |
|---|--|---|---|--|
| <ul style="list-style-type: none"><li>▪ Fundamental long/short<ul style="list-style-type: none"><li>› Long-biased</li><li>› Neutral</li><li>› Short-biased</li><li>› Variable</li></ul></li><li>▪ Activist</li><li>▪ Trading-oriented long/short</li><li>▪ Event driven<ul style="list-style-type: none"><li>› Merger arbitrage</li><li>› Spin-offs</li><li>› Recapitalizations</li><li>› Special situations</li></ul></li><li>▪ Regional focus</li><li>▪ Sector specialist</li></ul> | <ul style="list-style-type: none"><li>▪ Long/short</li><li>▪ Directional credit<ul style="list-style-type: none"><li>› Bank debt</li><li>› Distressed securities</li><li>› Mezzanine debt</li><li>› Direct lending</li></ul></li><li>▪ Structured credit<ul style="list-style-type: none"><li>› Residential mortgages (RMBS)</li><li>› Commercial mortgages (CMBS)</li><li>› Other Asset-Backed Securities (ABS)</li></ul></li></ul> | <ul style="list-style-type: none"><li>▪ Convertible bond arbitrage</li><li>▪ Fixed income arbitrage</li><li>▪ Option volatility arbitrage</li><li>▪ Statistical arbitrage</li></ul> | <ul style="list-style-type: none"><li>▪ Global macro<ul style="list-style-type: none"><li>› Discretionary</li><li>› Systematic</li></ul></li><li>▪ Commodities<ul style="list-style-type: none"><li>› Relative value</li><li>› Directional</li><li>› Systematic</li></ul></li><li>▪ Quantitative<ul style="list-style-type: none"><li>› Non-Directional</li><li>› Directional</li></ul></li></ul> | <ul style="list-style-type: none"><li>▪ Short equity</li><li>▪ Short credit</li><li>▪ Synthetic put convertible bond arbitrage</li><li>▪ Tail risk “protection” strategies</li></ul> |



# 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 =  $\$100\text{mm} / (\$1.15\text{mm} * 5) = 17x$
- 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

$$\text{Leverage} = \frac{\text{Notional Exposure}}{\text{Capital Exposure}}$$

### 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

FOR ILLUSTRATIVE PURPOSES ONLY. NOT INTENDED TO PRESENT DATA RELATED TO ANY FUND.

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    | <ul style="list-style-type: none"><li>▪ Varies from monthly liquidity to multi-year lockups</li><li>▪ Quarterly or semi-annual liquidity is common</li></ul> |
| 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     | <ul style="list-style-type: none"><li>▪ Liquidity typically “dries up” during financial crises</li><li>▪ Less liquid investments<ul style="list-style-type: none"><li>› May be more volatile than their return streams indicate</li><li>› Have higher expected returns</li></ul></li></ul> |
| Usefulness  | <ul style="list-style-type: none"><li>▪ Liquidity indicates how quickly cash may be raised</li><li>▪ Liquidity informs the reliability of certain risk statistics when evaluating an investment</li></ul>  |
| Limitations | Assessment influenced by the chosen representative market environment  |

# The Gabriel Funds

## Notes and Disclosures

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In reviewing this presentation relating to San Gabriel Fund, L.P. (the “Gabriel”) or San Gabriel Fund 3, L.P. (“Gabriel 3” together with Gabriel, the “Gabriel Funds”), you should consider the following:

Gabriel commenced operations on October 1, 2011.

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

## Notes and Disclosures

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**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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The information contained in this presentation (“GCM Information”) relates to GCM Grosvenor, to one or more investment vehicles/accounts managed or advised by GCM Grosvenor (the “GCM Funds”) and/or to one or more investment vehicles/accounts (“Underlying Funds”) managed or advised by third-party investment management firms (“Investment Managers”). **GCM Information is general in nature and does not take into account any investor’s particular circumstances. GCM Information is neither an offer to sell, nor a solicitation of an offer to buy, an interest in any GCM Fund. Any offer to sell or solicitation of an offer to buy an interest in a GCM Fund must be accompanied by such GCM Fund’s current confidential offering or risk disclosure document (“Fund Document”).** All GCM Information is subject in its entirety to information in the applicable Fund Document. Please read the applicable Fund Document carefully before investing. **Except as specifically agreed, GCM Grosvenor does not act as agent/broker for prospective investors. An investor must rely on its own examination in identifying and assessing the merits and risks of investing in a GCM Fund or Underlying Fund (together, “Investment Products”).**

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**FOR INFORMATION ONLY**

August 30, 2019

TO: Each Member  
Board of Investments

FROM: Jonathan Grabel   
Chief Investment Officer

FOR: September 11, 2019 Board of Investments Meeting

SUBJECT: **THE TOIGO FOUNDATION - 30<sup>th</sup> ANNIVERSARY CELEBRATION  
November 19, 2019 in Los Angeles, California**

The Toigo Foundation (“Toigo”) will celebrate its 30<sup>th</sup> anniversary (the “Event”) on November 19, 2019 at the UCLA Meyer & Renee Luskin Conference Center in Los Angeles, California. As part of the celebration, Toigo will recognize LACERA with its 2019 *Institutional Trailblazer – Organization* award. This award goes to organizations that are leading the critical passion, innovation, and change in the work of their funds to influence the principles of diversity and inclusion. The Event will begin with a networking reception at 6:00 p.m., followed by dinner and program at 7:30 p.m.

**The Event meets pre-approval criteria outlined in Section 705.00.A.2 of the LACERA Education and Travel Policy**, whereby:

“Educational Conferences and Administrative Meetings in California where the total cost of attendance is no more than \$2,000 are pre-approved for attendance and reimbursement, provided that a Board Member may not incur over \$10,000 for all expenses of attending all such Educational Conferences and Administrative Meetings in a fiscal year without Board approval.” Please note the Event falls under the policy’s definition of Administrative Meetings.<sup>1</sup>

Registration for the event is \$100 plus the cost of incidentals.

**BACKGROUND**

LACERA believes that Toigo’s mission to increase diversity and inclusion in the finance industry is consistent with LACERA’s Investment Policy Statement (“IPS”) on Diversity and Inclusion (“D&I”). The IPS states “LACERA values diversity and inclusion, and believes that effectively accessing and managing diverse talent – inclusive of varied backgrounds, age, experience, race, sexual orientation, gender, ethnicity, and culture – leads to improved outcomes. LACERA expects external asset managers and other third party providers to respect and reflect LACERA’s value of diversity and inclusion. LACERA’s ongoing monitoring of third party service providers incorporates an assessment of vendor’s commitment to, adherence with, and track record of accessing and retaining diverse and inclusive workforces.”<sup>2</sup>

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<sup>1</sup> LACERA Education and Travel Policy (Approved by Board of Investments on August 14, 2019 and Board of Retirement on August 7, 2019), page 2.

<sup>2</sup> LACERA Investment Policy Statement (Restated November 8, 2018), page 9.

Each Member, Board of Investments

August 30, 2019

Page 2 of 2

Since 1989, Toigo has been dedicated to providing unique perspectives and insights into the importance of D&I, specifically within the finance industry. Toigo has been a thought leader with respect to D&I and has expressed its views through articles, white papers, conference presentations, and other events, advocating for D&I in the workplace. Additionally, Toigo has created several programs to increase D&I including MBA fellowships, weeklong D&I workshops, women in leadership programs, board diversity programs, and entrepreneurial opportunities. Two Toigo Alumni work in LACERA's investment office, Cindy Rivera and Didier Acevedo.

DA: CR: mm



**FOR INFORMATION ONLY**

August 28, 2019

TO: Each Member  
Board of Investments

FROM: Christine Roseland *CR*  
Senior Staff Counsel

FOR: Board of Investments Meeting of September 11, 2019

**SUBJECT: Selection and Hiring of Real Estate Legal Counsel**

In April, the Legal Office issued a request for proposals for real estate counsel (the "RFP") in order to refresh its existing pool of approved law firms. The RFP was divided into three separate panels: 1) equity real estate, 2) debt investments, and 3) real estate commingled funds. Staff's goal was to identify firms providing the best combination of expertise, experience, and a willingness to engage in a long-term partnership with LACERA at a fair price.

LACERA posted the RFP on its website and simultaneously invited about 40 law firms to bid. Invitations were based on recommendations by staff, advisors, attorneys from other public pension systems, and firms who previously requested to be included. In response, 12 firms submitted proposals, with most of them requesting to be considered for more than one panel. Staff reviewed each proposal and invited six firms to interview in front of an evaluation committee consisting of two legal and one investment staff (six firms interviewed for the equity real estate panel, five for the debt investments panel and four for the commingled fund panel). Staff's primary considerations during the evaluation process were the following factors:

- Experience of the attorney primarily responsible for reviewing and negotiating the investment documents ("Lead Attorney"), including experience working with public pension plans and institutional investors;
- Breadth of the real estate practice at the firm and availability of resources, both in terms of staffing and expertise, whether in real estate or in subjects that commonly arise in real estate transactions, such as tax, ERISA, etc.;
- Expertise of the Lead Attorney in handling transactions related to equity real estate, debt investments, or commingled funds, as applicable;
- Fees, including the firm's ability or willingness to offer alternative fee arrangements, and the reasonableness of hourly fees; and
- References from other public pension plans, advisors, and real estate investment companies.

After careful consideration, the evaluation committee selected the following four firms for each panel:

### **Equity Real Estate**

1. Cox, Castle, & Nicholson LLP\*
2. DLA Piper
3. Seyfarth Shaw LLP\*
4. Sheppard Mullin

### **Debt Investments**

1. Cox, Castle, & Nicholson LLP\*
2. DLA Piper\*
3. Seyfarth Shaw LLP\*
4. Sheppard Mullin

### **Real Estate Commingled Funds**

1. Cox, Castle, & Nicholson LLP
2. DLA Piper\*
3. Nossaman LLP\*
4. Seyfarth Shaw LLP

Staff expects that the selected law firms will provide LACERA with the legal expertise necessary in an increasingly complex legal and investment landscape, the capacity to handle a large volume of legal work should the need arise, the ability to leverage that volume of work to obtain better pricing and access to partners who understand LACERA's business and pain points to provide meaningful and practical advice in connection with its real estate transactions.

Reviewed and Approved



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Steven P. Rice  
Chief Counsel

\* Denotes existing firms that are being rehired.

**FOR INFORMATION ONLY**

August 26, 2019

TO: Each Member  
Board of Retirement  
Board of Investments

FROM: Barry W. Lew  
Legislative Affairs Officer

FOR: September 4, 2019 Board of Retirement Meeting  
September 11, 2019 Board of Investments Meeting

SUBJECT: **Monthly Status Report on Legislation**

Attached is the monthly report on the status of legislation that staff is monitoring or on which LACERA has adopted a position.

**Reviewed and Approved:**



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**Steven P. Rice, Chief Counsel**

**Attachments**

LACERA Legislative Report

cc: Steven P. Rice  
John Popowich  
Jon Gabel  
Anthony J. Roda, Williams & Jensen  
Joe Ackler, Ackler & Associates

LACERA Legislative Report  
2019-2020 Legislative Session  
Status as of August 26, 2019

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File name: CERL-PEPRA-2019

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|            |   |  |
|------------|---|--|
| CA AB 472  | <b>AUTHOR:</b><br><b>TITLE:</b><br><b>INTRODUCED:</b><br><b>SUMMARY:</b>  | Voepel [R]<br>Public Employees' Retirement<br>02/11/2019<br>Makes nonsubstantive changes to existing law which prescribes limits on service after retirement without reinstatement into the applicable retirement system.  |
|            | <b>STATUS:</b><br>02/11/2019<br><b>Staff_Action:</b>  | INTRODUCED.<br>Monitoring  |
| CA AB 664  | <b>AUTHOR:</b><br><b>TITLE:</b><br><b>INTRODUCED:</b><br><b>LAST AMEND:</b><br><b>SUMMARY:</b>  | Cooper [D]<br>County Employees' Retirement: Permanent Incapacity<br>02/15/2019<br>03/13/2019<br>Requires, for purposes of determining permanent incapacity of certain members employed as peace officers in Sacramento County, that those members be evaluated by the retirement system to determine if they can perform all of the usual and customary duties of a peace officer. Requires the Board of Retirement to develop a method of tracking the costs of providing permanent disability retirement to the members who become eligible for disability retirement. |
|            | <b>STATUS:</b><br>06/26/2019<br><b>Comments:</b>  | In SENATE Committee on LABOR, PUBLIC EMPLOYMENT AND RETIREMENT: Not heard.   |
|            | <b>Comments:</b><br>In 2017, the Board of Retirement adopted a Neutral position on AB 283 (Cooper), a similar bill by the same author.<br><b>BOR_Position:</b><br><b>IBLC_Recommendation:</b><br><b>Staff_Recommendation:</b>         | Oppose 06/05/2019, Support 05/01/2019<br>Support 04/11/2019<br>Watch   |
| CA AB 979  | <b>AUTHOR:</b><br><b>TITLE:</b><br><b>INTRODUCED:</b><br><b>SUMMARY:</b>  | Reyes [D]<br>Judge's Retirement System II: Deferred Retirement<br>02/21/2019<br>Authorizes a judge who is a member of the Judge's Retirement system to retire upon attaining both 63 years of age and 15 or more years of service, or when a judge who has accrued at least 5 years of service and who has not received specified discipline is defeated for reelection.   |
|            | <b>STATUS:</b><br>04/24/2019<br><b>Comments:</b>  | In ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT: Not heard.  |
|            | <b>Comments:</b><br>AB 979 proposes structural changes to the retirement eligibility provisions for judges and a different employee contribution percentage than that which is currently prescribed in PEPRA.<br><b>Staff_Action:</b> | Monitoring   |
| CA AB 1198 | <b>AUTHOR:</b><br><b>TITLE:</b>   | Stone [D]<br>Public Employees' Retirement: Pension Reform  |

**INTRODUCED:** 02/21/2019  
**LAST AMEND:** 03/21/2019  
**SUMMARY:**

Excepts transit workers hired before a specified date, from the Public Employees' Pension Reform Act, or PEPRA, by removing the federal district court contingency language from the provision excepting certain transit workers from PEPRA.

**STATUS:**

04/24/2019 In ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT: Not heard.

**Comments:**

The bill affects those retirement systems whose members include transit workers and whether they are subject to PEPRA.

**Staff\_Action:** Monitoring

CA SB 430

**AUTHOR:** Wieckowski [D]  
**TITLE:** Public Employees Retirement Benefits: Judges  
**INTRODUCED:** 02/21/2019  
**LAST AMEND:** 05/17/2019  
**SUMMARY:**

Relates to the State Public Employees' Pension Reform Act of 2013. Grants a judge who was elected to office in a specific year the option of making a one-time, irrevocable election to have a membership status prior to a certain date in the Judges' Retirement System II for service accrued after a certain date.

**STATUS:**

06/26/2019 In ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT: Not heard.

**Staff\_Action:** Monitoring

CA SB 783

**AUTHOR:** Labor, Public Employment & Retirement Cmt  
**TITLE:** County Employees Retirement Law of 1937  
**INTRODUCED:** 03/07/2019  
**SUMMARY:**

Corrects several erroneous and obsolete cross references within the County Employees Retirement Law of 1937.

**STATUS:**

05/16/2019 To ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT.

**Comments:**

The SACRS Legislative Committee is in the process of considering other housekeeping proposals that may be included in this clean-up bill.

**Staff\_Action:** Monitoring

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File name: Federal-2019

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US HR 141

**SPONSOR:** Davis R [R]  
**TITLE:** Government Pension Offset Repeal  
**INTRODUCED:** 01/03/2019  
**SUMMARY:**

Amends Title II of the Social Security Act; repeals the Government pension offset and windfall elimination provisions.

**STATUS:**

01/31/2019 In HOUSE Committee on WAYS AND MEANS: Referred to

**BOR\_Position:** Subcommittee on SOCIAL SECURITY.  
**Support** 04/11/2019  
**IBLC\_Recommendation:** Support 03/14/2019  
**Staff\_Recommendation:** Support

US HR 1994

**SPONSOR:** Neal [D]  
**TITLE:** Retirement Savings  
**INTRODUCED:** 03/29/2019  
**SUMMARY:**

Amends the Internal Revenue Code; encourages retirement savings.

**STATUS:**

05/23/2019 In HOUSE. Considered under the provisions of Rules Committee Resolution H. Res. 389.

05/23/2019 In HOUSE. Passed HOUSE. \*\*\*\*\*To SENATE. (417-3)

**Comments:**

Also known as the SECURE Act, the bill would increase the age for required minimum distributions from 70 1/2 to 72, which would require conforming amendments to CERL.

**Staff\_Action:** Monitoring

US HR 3934

**SPONSOR:** Brady K [R]  
**TITLE:** Windfall Elimination Provision Replacement  
**INTRODUCED:** 07/24/2019  
**SUMMARY:**

Amends Title II of the Social Security Act; replaces the windfall elimination provision with a formula equalizing benefits for certain individuals with non-covered employment.

**STATUS:**

07/24/2019 INTRODUCED.

07/24/2019 To HOUSE Committee on WAYS AND MEANS.

**Staff\_Action:** Monitoring

US S 521

**SPONSOR:** Brown S [D]  
**TITLE:** Government Pension Offset Repeal  
**INTRODUCED:** 02/14/2019  
**SUMMARY:**

Amends Title II of the Social Security Act; repeals the Government pension offset and windfall elimination provisions.

**STATUS:**

02/14/2019 INTRODUCED.

02/14/2019 In SENATE. Read second time.

02/14/2019 To SENATE Committee on FINANCE.

**BOR\_Position:** Support 04/11/2019

**IBLC\_Recommendation:** Support 03/14/2019

**Staff\_Recommendation:** Support

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File name: Other-2019

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CA AB 199

**AUTHOR:** Calderon I [D]  
**TITLE:** California Online Notary Act of 2019  
**INTRODUCED:** 01/10/2019  
**SUMMARY:**

Allows a notary public or an applicant for appointment as a notary public to register with the Secretary of State to be an online notary public by submitting

an application for registration that meets certain requirements. Authorizes an online notary public to perform notarial acts, and online notarizations by means of audio-video communication. Establishes various requirements applicable to an online notary public.

**STATUS:**

04/23/2019 In ASSEMBLY Committee on JUDICIARY: Not heard.  
**BOR\_Position:** Oppose 08/07/2019  
**IBLC\_Recommendation:** Support 07/11/2019  
**Staff\_Recommendation:** Support

CA AB 287

**AUTHOR:** Voepel [R]  
**TITLE:** Public Employees' Retirement: Annual Audits  
**INTRODUCED:** 01/28/2019  
**SUMMARY:**

Requires each state and local pension or retirement system to post a concise annual audit of the investments and earnings of the system on that system's internet website no later than the ninetieth day following the audit's completion.

**STATUS:**

02/07/2019 To ASSEMBLY Committee on PUBLIC EMPLOYMENT AND RETIREMENT.  
**BOR\_Position:** Support 05/01/2019  
**IBLC\_Recommendation:** Support 04/11/2019  
**Staff\_Recommendation:** Neutral

CA AB 1212

**AUTHOR:** Levine [D]  
**TITLE:** Public Employees' Retirement: Pension Fund  
**INTRODUCED:** 02/21/2019  
**LAST AMEND:** 08/12/2019  
**SUMMARY:**

Requires a state agency that is responsible for infrastructure projects to produce a list of priority infrastructure projects for funding consideration by the retirement boards, as described, and to provide it to them. Requires a state agency also to provide further project information to a board upon request. Defines a state agency for these purposes as the Department of Transportation and the Department of Water Resources.

**STATUS:**

08/20/2019 In SENATE. Read second time. To third reading.  
**Staff\_Action:** Monitoring

CA AB 1332

**AUTHOR:** Bonta [D]  
**TITLE:** Sanctuary State Contracting and Investment Act  
**INTRODUCED:** 02/22/2019  
**LAST AMEND:** 04/29/2019  
**SUMMARY:**

Provides for the Sanctuary State Contracting and Investment Act. Requires the Department of Justice to publish a list on its internet website, based on specified criteria, of each person or entity that, in the opinion of the Department of Justice, is providing data broker, extreme vetting, or detention facilities support to any federal immigration agency. Prohibits an agency from entering into a contract with an entity that appears on the list except under certain circumstances.

**STATUS:**

05/16/2019 In ASSEMBLY Committee on APPROPRIATIONS: Held in

committee.

**Comments:**  
As amended on 4/10/2019, the bill exempts contracts and agreements related to administration and investments of retirement benefits.

**Staff\_Action:** Monitoring

CA AB 1400      **AUTHOR:** Kamlager-Dove [D]  
**TITLE:** Employment Safety: Firefighting Equipment: Mechanics  
**INTRODUCED:** 02/22/2019  
**LAST AMEND:** 07/02/2019  
**SUMMARY:**  
Requires the Commission on Health and Safety and Workers' Compensation, in partnership with the County of Los Angeles and relevant labor organizations, to submit a study on the risk of exposure to carcinogenic materials and incidence of occupational cancer in mechanics who repair and clean firefighting vehicles in the County of Los Angeles.  
**STATUS:**  
08/12/2019      In SENATE Committee on APPROPRIATIONS: To Suspense File.  
**Comments:**  
As amended on 7/2/2019, the bill no longer relates to a cancer presumption but would require a study on exposure to carcinogens and incidence of occupational cancer as well as adoption of related regulations. The LA County Board of Supervisors removed its support of the bill and has taken no position.  
**BOR\_Position:** No\_Position 08/07/2019  
**IBLC\_Recommendation:** Watch, Watch 07/11/2019  
**Staff\_Recommendation:** Watch

CA SB 343      **AUTHOR:** Pan [D]  
**TITLE:** Healthcare Data Disclosure  
**INTRODUCED:** 02/19/2019  
**LAST AMEND:** 08/12/2019  
**SUMMARY:**  
Eliminates alternative reporting requirements for certain plans or insurers. Requires instead that those entities report information consistent with any other health care service plan, health insurer, or health facility, as appropriate. Eliminates the authorization for hospitals to report specified financial and utilization data to the Office of Statewide Health Planning and Development.  
**STATUS:**  
08/26/2019      In SENATE. SENATE concurred in ASSEMBLY amendments. To enrollment.  
**BOR\_Position:** Watch 08/07/2019  
**IBLC\_Recommendation:** No\_Position 07/11/2019  
**Staff\_Recommendation:** No\_Position

CA SJR 3      **AUTHOR:** Wilk [R]  
**TITLE:** Social Security Act  
**INTRODUCED:** 03/04/2019  
**SUMMARY:**  
Requests the Congress of the United States to enact, and the President to sign, legislation that would repeal the Government Pension Offset and the Windfall Elimination Provision from the Social Security Act.  
**STATUS:**



08/19/2019 Chaptered by Secretary of State.  
08/19/2019 Resolution Chapter No. 2019-129  
BOR\_Position: Support 05/01/2019  
Staff\_Recommendation: Support

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**FOR INFORMATION ONLY**

August 28, 2019

TO: Each Member  
Board of Retirement  
Board of Investments

FROM: Beulah Auten, CPA, CGFM, CGMA  
Chief Financial Officer

*JA*  
*For*

**SUBJECT: MONTHLY EDUCATION & TRAVEL REPORT – JULY 2019**

Attached, for your review, are the Board and Staff Education & Travel Reports as of July 2019. These reports include travel (i.e., completed and canceled) during Fiscal Year 2019-2020.

REVIEWED AND APPROVED:

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Steven P. Rice  
Chief Counsel

BA/IS/krh

Attachment

c: J. Popowich  
K. Hines



**BOARD EDUCATION AND TRAVEL REPORT  
FOR FISCAL YEAR 2019 - 2020  
JULY 2019**

| <b>Attendee</b>            | <b>Purpose of Travel - Location</b>  | <b>Event Dates</b>      | <b>Travel Status</b> |
|----------------------------|--|-------------------------|----------------------|
| <b>Alan Bernstein</b>      |  |                         |                      |
| A 1                        | Edu - PPI 2019 Summer Roundtable - Chicago IL  | 07/10/2019 - 07/12/2019 | Attended             |
| <b>Vivian Gray</b>         |  |                         |                      |
| A 1                        | Edu - SACRS Public Pension Investment Management Program - Berkeley CA               | 07/22/2019 - 07/24/2019 | Attended             |
| B -                        | Admin - SACRS Program Committee and SACRS Board of Directors Meeting - Sacramento CA | 07/15/2019 - 07/16/2019 | Attended             |
| -                          | Admin - SACRS Legislative Committee - Sacramento CA                                  | 07/19/2019 - 07/19/2019 | Attended             |
| <b>Wayne Moore</b>         |  |                         |                      |
| A 1                        | Edu - PPI 2019 Summer Roundtable - Chicago IL  | 07/10/2019 - 07/12/2019 | Attended             |
| <b>Gina Sanchez</b>        |  |                         |                      |
| A 1                        | Edu - Oxford Impact Measurement Program - Oxford, United Kingdom                     | 07/15/2019 - 07/19/2019 | Attended             |
| <b>Gina Zapanta-Murphy</b> |  |                         |                      |
| A 1                        | Edu - SACRS Public Pension Investment Management Program - Berkeley CA               | 07/22/2019 - 07/24/2019 | Attended             |

Category Legend:

- A - Pre-Approved/Board Approved
- B - Educational conferences/administrative meetings in CA where total cost is no more than \$2,000 or Board approved not to count against authorized limit
- C - Second of two conferences and/or meetings counted as one conference per Section 705.00 A.1. of the Travel Policy
- X - Canceled events for which expenses have been incurred.

**STAFF EDUCATION AND TRAVEL REPORT  
FOR FISCAL YEAR 2019 - 2020  
JULY 2019**

| <b>Attendee</b>                            |   | <b>Purpose of Travel - Location</b>  | <b>Event Dates</b>      | <b>Travel Status</b> |
|--|---|--|-------------------------|----------------------|
| <b>Benefits</b>                            |   |  |                         |                      |
| Sylvia Botros                              | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| <b>Financial &amp; Accounting Services</b> |   |  |                         |                      |
| Ana Chang                                  | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Esther Chang                               | 1 | Edu - Association of Government Accountants (AGA) 2019 Professional Development Training (PDT) - New Orleans LA            | 07/21/2019 - 07/24/2019 | Attended             |
| Chona Labtic-Austin                        | 1 | Edu - Association of Government Accountants (AGA) 2019 Professional Development Training (PDT) - New Orleans LA            | 07/21/2019 - 07/24/2019 | Attended             |
| Felisa Valdepenas                          | 1 | Edu - Association of Government Accountants (AGA) 2019 Professional Development Training (PDT) - New Orleans LA            | 07/21/2019 - 07/24/2019 | Attended             |
| Edward Wong                                | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| <b>Internal Audit</b>                      |   |  |                         |                      |
| Nathan Amick                               | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Richard Bendall                            | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Leisha Collins                             | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Kristina Sun                               | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Gabriel Tafoya                             | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Summy Voong                                | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| <b>Investments</b>                         |   |  |                         |                      |
| David Chu                                  | 1 | Admin - GGV Capital Limited Partner Advisory Committee Roundtable and Private Limited Partner Reception - San Francisco CA | 07/25/2019 - 07/25/2019 | Attended             |
| <b>QA &amp; Metrics</b>                    |   |  |                         |                      |
| Derwin Brown                               | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |
| Flora Zhu                                  | 1 | Edu - ATD Certificate Program - Train the Trainer - Orlando FL   | 07/08/2019 - 07/10/2019 | Attended             |
| <b>Retiree Healthcare</b>                  |   |  |                         |                      |
| Tionna Fredericks                          | 1 | Edu - IIA Institute of Internal Auditors 2019 International Conference - Anaheim CA  | 07/07/2019 - 07/10/2019 | Attended             |



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**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**

**FOR INFORMATION ONLY**

September 3, 2019

TO: Each Member  
Board of Investments

FROM: Steven P. Rice *SPR*  
Chief Counsel

FOR: September 11, 2019 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 September 1, 2019.

Attachment

c: JJ Popowich  
Jonathan Grabel  
Vache Mahseredjian  
John McClelland  
Christopher Wagner  
Ted Wright  
Jim Rice  
Jude Perez  
Christine Roseland  
John Harrington  
Cheryl Lu  
Margo McCabe  
Lisa Garcia



LACERA Legal Division  
 Board of Investments Projects  
 Monthly Status Report - Pending as of September 1, 2019



| Project/<br>Investment                           | Description                           | Amount              | Board<br>Approval<br>Date | Completion<br>Status | % Complete | Notes                          |
|--|---------------------------------------|---------------------|---------------------------|----------------------|------------|--------------------------------|
| MSCI ACWI IMI<br>Index Manger<br>(State Street)  | Investment<br>Management<br>Agreement | \$14,800,000,000.00 | August 14, 2019           | In Progress          | 25%        | Legal review in process.       |
| Atlantic Street<br>Capital IV, L.P.              | Subscription                          | \$50,000,000.00     | August 14, 2019           | Completed            | 100%       | Completed.                     |
| RedBird Capital<br>Partners Series 2019,<br>L.P. | Subscription                          | \$150,000,000.00    | August 14, 2019           | In Progress          | 50%        | Legal negotiations in process. |

EQUITIES

PRIVATE EQUITY



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