



Notice of Public Meeting

The Board of Retirement

of the San Mateo County Employees' Retirement Association will meet on

Tuesday, June 4, 2019, at 10:00 A.M.

PUBLIC SESSION – The Board will meet in Public Session at 10:00 a.m.

- 1. Call to Order, Roll Call and Miscellaneous Business**
 - 1.1 Appointment by Chair of Ad Hoc Nominating Committee for Board Officers
- 2. Oral Communications**
 - 2.1 Oral Communications from the Board
 - 2.2 Oral Communications from the Public
- 3. Approval of the Minutes**
 - 3.1 Approval of Board Meeting Minutes from April 23, 2019
- 4. Approval of the Consent Agenda***

4.1 Disability Retirements (5) <ul style="list-style-type: none">• Samantha Fireman• Diana Herrera• Eddie McKague• Patrick Moran• Anna Stock	4.5 Deferred Retirements
4.2 Survivor Death Benefits	4.6 Member Account Refunds
4.3 Service Retirements	4.7 Member Account Rollovers
4.4 Continuances	4.8 Member Account Redeposits
	4.9 Acceptance of Trustees' Reports of Educational Activities
	4.10 Report on Gov Code Section 7514.7 Annual Disclosure for 2018
- 5. Benefit & Actuarial Services**
 - 5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda
 - 5.2 Discussion of Actuarial Assumptions for the June 30, 2019 Actuarial Valuation
- 6. Investment Services**
 - 6.1 Report on Preliminary Monthly Portfolio Performance for the Period Ended April 30, 2019
 - 6.2 Report on Quarterly Investment Performance for the Period Ended March 31, 2019
 - 6.3 Report on Real Estate Manager Annual Reviews
 - 6.4 Report on the Core Equity and Passive Manager Annual Reviews
 - 6.5 Presentation of Private Asset Semi-Annual Performance Reports as of December 31, 2018
 - 6.6 Approval of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code sections 54956.81 and 6254.26, see item C2)
 - 6.7 Approval of Potential Sale of Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code sections 54956.81 and 6254.26, see item C3)
- 7. Board & Management Support**
 - 7.1 Approval of SamCERA Fiscal Year 2019-20 Budget
 - 7.2 Approval to Reschedule the Regular July Meeting of the Board of Retirement
- 8. Management Reports**
 - 8.1 Chief Executive Officer's Report
 - 8.2 Assistant Executive Officer's Reports
 - 8.3 Chief Investment Officer's Report
 - 8.4 Chief Legal Counsel's Report

Notice of Public Meeting

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CLOSED SESSION – The Board may meet in closed session prior to adjournment

- C1 Consideration of Disability Items, if any, removed from the Consent Agenda
- C2 Approval of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code sections 54956.81 and 6254.26, see item 6.6)
- C3 Approval of Potential Sale of Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code sections 54956.81 and 6254.26, see item 6.7)

9. Report on Actions Taken in Closed Session

10. Adjournment in Memory of the Following Deceased Members:

Dunnick, Barbara	April 19, 2019	Aging & Adult Services
Gatchel, Barbara	May 8, 2019	Health Services
Longbehn, John	May 22, 2019	County Clerk
Maze, Joann	April 26, 2019	Sheriff's
McCormick, Michael	May 5, 2019	DPW
Mercado, Genoveva	April 1, 2019	Medical Center
Miraglia, James	May 12, 2019	Chope Hospital
Obayashi, Taihei	May 1, 2019	Assessor
Supplee, Alice	April 28, 2019	Chope
Walton, James	April 19, 2019	Sheriff's
Wright, Donnie	May 3, 2019	Sheriff's



Scott Hood, Chief Executive Officer

Posted: May 29, 2019

(* ALL ITEMS ON THE CONSENT AGENDA ARE APPROVED BY ONE ROLL CALL MOTION UNLESS A REQUEST IS MADE BY A BOARD MEMBER THAT AN ITEM BE WITHDRAWN OR TRANSFERRED TO THE REGULAR AGENDA. ANY ITEM ON THE REGULAR AGENDA MAY BE TRANSFERRED TO THE CONSENT AGENDA. ANY 4.1 ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER CLOSED SESSION; ALL OTHER ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER ITEM 5.1.)

THE BOARD MEETS AT 100 MARINE PARKWAY, SUITE 160, WHICH IS LOCATED ON THE SE CORNER OF TWIN DOLPHIN & MARINE PARKWAY IN REDWOOD CITY. Detailed directions are available on the "Contact Us" page of the website www.samcera.org. Free Parking is available in all lots in the vicinity of the building. A copy of the Board of Retirement's open session agenda packet is available for review at the SamCERA offices and on our website unless the writings are privileged or otherwise exempt from disclosure under the provisions of the California Public Records Act. Office hours are Monday through Thursday 7 a.m. – 6 p.m.


IN COMPLIANCE WITH THE CALIFORNIA GOVERNMENT CODE AND THE AMERICANS WITH DISABILITIES ACT: SamCERA's facilities and board and committee meetings are accessible to individuals with disabilities. Contact SamCERA at (650) 599-1234 at least three business days prior to the meeting if (1) you need special assistance or a disability-related modification or accommodation, including auxiliary aids or services, in order to participate in this meeting; or (2) you have a disability and wish to receive the agenda, meeting notice, agenda packet or other writings that may be distributed at the meeting in an alternative format. Notification in advance of the meeting will enable SamCERA to make reasonable arrangements to ensure full accessibility to this meeting and the materials related to it.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 1.1

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Appointment by Chair of Ad Hoc Nominating Committee for Board Officers

Recommendation

Accept the Chair's report on the appointment of an Ad Hoc Committee to nominate Board officers for the 2019-2020 fiscal year to be presented for election at the July meeting.

Background

In general, at or around the May meeting, the Chair appoints an Ad Hoc Committee to nominate Board officers for the next fiscal year. The election of Board officers takes place at the first meeting in July. Article 1 of the *Regulations of the Board of Retirement* provides for the election of three Board officers: Chair, Vice Chair and Secretary, as follows:

1.1. Election of Chair: At the first regular meeting in July, the Board of Retirement shall elect one of its members chair for a term of one year or until his or her successor is duly elected and qualified. The Chair shall preside at all meetings of the Board, shall appoint all committees and shall perform all duties incidental to that office.

1.2. Election of Vice Chair: At the first regular meeting in July, the Board of Retirement shall elect one of its members vice chair for a term of one year or until his or her successor is duly elected and qualified. In the Chair's absence or inability to act, the Vice Chair shall take the place and perform the duties of that office.

1.3. Election of Secretary: At the first regular meeting in July, the Board of Retirement shall elect one of its members secretary for a term of one year or until his or her successor is duly elected and qualified. The Secretary shall attest to Resolutions and other such documents for the Board. In the Chair's and Vice Chair's absence or inability to act, the Secretary shall take the place and perform the duties of the Chair.

Board officers traditionally serve one-year terms. Also, by tradition, the Board attempts to alternate between appointed and elected trustees in each officer position. In general, the officers tend to move up "through the steps" to eventually become Chair. Exceptions have occurred when a trustee does not serve a full term or does not continue on the Board for an additional term. (See the table below.)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

SamCERA Board Officer History

	<u>Chair</u>	<u>Vice-Chair</u>	<u>Secretary</u>
2001-02	Bill Cottle	Tom Bryan	Bette Stuart
2002-03	Tom Bryan	Donna Colson	Alma Salas
2003-04	Donna Colson	Alma Salas	Bette Stuart
2004-05	Alma Salas	Ken Lewis	Tom Bryan
2005-06	Ken Lewis	Tom Bryan	Emily Tashman
2006-07	Tom Bryan	Emily Tashman	Bette Stuart
2007-08	Tom Bryan	Emily Tashman	Jim Hooley
2008-09	Emily Tashman	David Wozniak	Sandie Arnott
2009-10	Margaret Jadallah	Al David	Sandie Arnott
2010-11*	Al David	Sandie Arnott	Natalie Kwan Lloyd
2011-12	Al David	Sandie Arnott	Natalie Kwan Lloyd
2012-13	Sandie Arnott	Natalie Kwan Lloyd	Lauryn Agnew
2013-14	Natalie Kwan Lloyd	Lauryn Agnew	Paul Hackleman
2014-15	Lauryn Agnew	Paul Hackleman	Michal Settles
2015-16	Paul Hackleman	Michael Settles	Natalie Kwan Lloyd
2016-17	Paul Hackleman	Mark Battey	Shirley Tourel
2017-18	Mark Battey	Shirley Tourel	David Spinello
2018-19	Sandie Arnott	Kurt Hofer	Al David

*beginning October 2010

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

APRIL 23, 2019 – REGULAR BOARD MEETING MINUTES

1904.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Ms. Sandie Arnott, Chair, called the Regular Meeting of the Board of Retirement to order at 8:30 a.m.

Roll Call:

Present: Sandie Arnott, Mark Battey, Al David, Paul Hackleman, Kurt Hoefer, Katherine O'Malley, Robert Raw, and Eric Tashman.

Absent: Ben Bowler.

Alternates present: Susan Lee and Alma Salas.

Staff: Scott Hood, Gladys Smith, Michael Coultrip, Elizabeth LeNguyen, Brenda Carlson, Lili Dames, Doris Ng and Anne Trujillo.

Consultants and speakers from Verus: Ian Toner, Margaret Jadallah, Jeff MacLean and Paul Kreiselmaier.

1904.2.1 Oral Communications from the Board: None.

1904.2.2 Oral Communications from the Public: None.

1904.2.3 Retreat Presentations and Discussions: Retreat presentations were heard after agenda item 9.0.

1904.3.1 Approval of the Minutes: Ms. Arnott asked if there were any changes or corrections, or objections, to the meeting minutes from the Board meeting held on March 26, 2019.

Action: Mr. David moved to approve the minutes from the Board Meeting on March 26, 2019. The motion was seconded by Mr. Battey and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hoefer, O'Malley, Raw, and Tashman all in favor; none opposed; and Mr. Hackleman abstained.

1904.4.0 Approval of the Consent Agenda: Ms. Arnott asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed.

Action: Mr. David moved to approve the Consent Agenda, and the motion was seconded by Mr. Raw. The motion carried with a vote of 8-0, with trustees Arnott, Battey, David, Hackleman, Hoefer, O'Malley, Raw, and Tashman all in favor; none opposed.

1904.4.1 Disability Retirements:

a) The Board found that Vilma Aguilar is (1) permanently incapacitated from the performance of her usual and customary duties as a Benefits Analyst II, (2) found that her disability was the result of an injury arising out of and in the course of her employment and (3) granted her application for a service-connected disability retirement.

b) The Board found that Jieselle Villagomez is (1) permanently incapacitated from the performance of her usual and customary duties as a Group Supervisor II, (2) found that her disability was not the result of an injury arising out of and in the course of her employment and (3) granted her application for a non-service-connected disability retirement.

1904.4.2 Survivor Death Benefits: None.

1904.4.3 **Service Retirements:**

Name	Effective Retirement Date	Department
Armstrong, Laurie	February 22, 2019	Public Safety Communications
Bloomquist, Cary	December 29, 2018	Def'd from Dept. of Public Works
deRosenhart, Suzanne	February 6, 2019	Sheriff's
Carman, Robert	December 29, 2018	Deferred from Sheriff's
Graif, Eyal	February 5, 2019	Information Services Dept.
Hartman, Celia	March 1, 2019	Human Services Agency
Hubbell, Philip	March 1, 2019	Probation
Korwald, Ronald	February 2, 2019	Health
Letteney, Kelly	February 9, 2019	Probation
Moore, Roderick	February 24, 2019	Probation
Parker, Brian	February 25, 2019	Deferred from Sheriff's
Potter, Gina	February 1, 2019	Courts
Rosas, Jacqueline	February 28, 2019	San Mateo Medical Center
Sassus, Paul	March 1, 2019	San Mateo Medical Center
Schwarzbeck, Kathleen	February 2, 2019	Tax Collector
Siragusa, Steven	February 9, 2019	Sheriff's
Stout, Gregory	December 31, 2018	Def'd from San Mateo Med. Cntr.
Usher, Chris	February 21, 2019	Probation
Vallejo, Sandra	February 27, 2019	Sheriff's
Velligan, Patricia	February 9, 2019	Dept. of Public Works
Williams, Joseph	February 20, 2019	Probation

1904.4.4 **Continuances:**

The Board ratified the granting of a continuance to the following individuals:

Survivor's Name	Beneficiary of:
DeKlerk, Kathleen	Berndtson, Ted
Johnson, Barbara	Duval, Kenneth
Loschiavo, Dana	O' Neill, Jeanne
Minielly, Collen	Domagalski, Sylvia
Pryor, Ralph	Pryor, Lee
Schweizer, Linda	Schweizer, Marc

1904.4.5 **Deferred Retirements:**

The Board ratified the actions as listed below for the following members regarding deferred retirements:

Member Name	Retirement Plan Type
Leon, Grisel	G4, Vested – Auto Defer- Code 31700
Ortiz, Celia	G4, Vested – Auto Defer- Code 31700
Tauilili, Lacey	G7, Vested – Auto Defer- Code 31700

1904.4.6 **Member Account Refunds:**

The Board ratified the actions as listed below for the following members regarding refunds:

Member Name	Retirement Plan Type
Centanni, Todd	G4, Vested
Dorman, Jefferson	G5, Non-vested
Haralson, Kevin	G7, Non-vested
Hardiman, Lenore (FBO: Robert Hardiman)	G4, Vested
Johnson, Renee (FBO: Gary Johnson)	G5, Vested
Kiliona, Robert (FBO: Robert A. Kiliona Estate)	G2, Vested
Latu, Lydia	G4, Non-vested
Miranda, Oscar	G4, Vested
Moreira-Orantes, Eduardo	G4, Vested
Zuzevich, Megan	G7, Non-Vested

1904.4.7 **Member Account Rollovers:**

The Board ratified the actions as listed below for the following members regarding rollovers:

Member Name	Retirement Plan Type
Zuzevich, Megan	G7, Non-vested

1904.4.8 **Member Account Redeposits:**

Member Name	Retirement Plan Type
Giguere, Gregory	P2
Zalmai, Megan	G4

1904.4.9 **Acceptance of Trustees' Reports of Educational Activities:** The Board accepted the submitted report for educational activities attended by Mr. Hoefer, Ms. Lee, Ms. O'Malley and Mr. Raw.

1904.4.10 **Approval to Renew Fiduciary Liability Insurance Policy:** The Board approved to renew fiduciary liability insurance coverage with RLI Insurance Services through May 27, 2020.

1904.4.11 **Approval of Resolutions Amending Definitions of Compensation Earnable and Pensionable Compensation:** The Board approved amended resolutions defining compensation earnable and pensionable compensation.

1904.5.1 **Consideration of Agenda Items, if any, removed from the Consent Agenda:** None.

1904.6.1 **Report on Preliminary Monthly Portfolio Performance for the Period Ended March 31, 2019:** Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported that SamCERA's net preliminary return for March 2019 was 0.9%, while the preliminary trailing twelve-month return ending February 2019 was 2.8% net. This item was informational and for discussion only, no action was taken.

1904.7.1 **Approval of Direction to SamCERA Voting Delegate and Alternate for SACRS Spring 2019 Business Meeting:** Mr. Hood discussed the upcoming SACRS Spring 2019 Conference. He mentioned the SamCERA voting delegate will serve, on behalf of the Board, at the upcoming SACRS business meeting and will vote on the slate of SACRS officers for 2019-20.

Action: Mr. Raw motioned to approve the direction to SamCERA Voting Delegate and Alternate for SACRS Spring 2019 Business Meeting. The motion was seconded by Mr. David and carried a vote of 8-0, with trustees Arnott, Battey, David, Hackleman, Hoefler, O'Malley, Raw and Tashman all in favor; none opposed.

1904.8.1 **Chief Executive Officer's Report:** Mr. Hood announced that SamCERA received the Certificate of Achievement for Excellence in Financial Report, from GFOA, for its CAFR and PAFR. He thanked staff who helped compile the report. Based on current survey results, Mr. Hood mentioned the July Board meeting may be scheduled for July 16th and that approval of the meeting date change will be placed on the next regular Board meeting agenda. Mr. Hood mentioned other agenda items for next month's Board meeting including the formation of the Ad Hoc Nominating Committee, a presentation regarding assumptions from Milliman, Inc. and next fiscal year's budget.

1904.8.2 **Assistant Executive Officer's Report:** Ms. Smith reminded the Board to submit their \$25 nonrecourse check for fiduciary liability insurance. She noted that the period to take out candidate papers has commenced for certain Board seats. Ms. Smith announced Janet Nishimura and Stacy Groza-Davis have been promoted to Retirement Analyst and that recruitment for two new Retirement Support Specialists will begin. Ms. Trujillo shared the upcoming educational events with the Board.

1904.8.3 **Chief Investment Officer's Report:** Mr. Coultrip informed the Board that on Thursday, May 2nd, Blackrock and QMA will be in the office for their annual manager review. He also noted that Verus will be presenting the Private Equity and Private Real Asset Performance Reports during the June Board meeting.

1904.8.4 **Chief Legal Counsel's Report:** None.

C1 **Consideration of Disability Items, if any, removed from the Consent Agenda:** None.

1904.2.3 **Board/Staff Retreat Presentations:**

High Level Look at the Global Economy

Ian Toner, Verus' Chief Investment Officer discussed the growth and thoughts of the U.S economy, emerging markets, yield curve inversion and equity markets.

The meeting was adjourned for break at 10:00 a.m. and reconvened at 10:15 a.m.

Deep Dive

Mr. Coultrip discussed longer-term drivers of fund returns and risks, longer-term manager performance and other characteristics vs. indexes and peer groups and reviewed risk dashboard.

The meeting was adjourned for lunch at 11:42 a.m. and reconvened at 11:49 p.m.

Ms. Carlson provided the Board with its Annual Ethics Training for one hour.

When a Plan Matures

Jeff Maclean, Chief Executive Officer of Verus, discussed how a plan matures, funding policy considerations, risks associated with mature plans as well as SamCERA portfolio observations.

Mr. Raw left the meeting at 1:52 p.m.

The meeting was adjourned for break at 2:10 p.m. and reconvened at 2:14 p.m.

Absolute Return

Paul Krieselmaier, Verus' Senior Associate Director Hedge Funds provided the Board with an overview of hedge funds and absolute returns, discussed absolute return client trends and provided an assessment of SamCERA's portfolio.

1904.10 **Adjournment:** Ms. Arnott adjourned the meeting at 3:26 p.m. in memory of the deceased members listed below.

Gaines, Robert	March 18, 2019	Public Works
McClanahan, Donald	March 16, 2019	General Services
O'Connor, Sandra	March 12, 2019	ISD
Hannig, Beatrice	March 22, 2019	Hospital - Surgery
Carnevale, Robert	March 31, 2019	Sheriff
Post, Gene	April 1, 2019	Probation
Holm, Frances	April 5, 2019	Hospital - Housekeeping
Page, Mark	April 2, 2019	General Services
Turner, Lorenda	March 20, 2019	Public Guardian
Austen, Valerie	April 5, 2019	Assessor's

Scott Hood
Chief Executive Officer

Anne Trujillo
Retirement Executive Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board (1) find that **Samantha Fireman** is permanently incapacitated from the performance of her usual and customary duties as a Deputy Probation Officer III, (2) find that her disability was not a result of an injury/illness arising out of and in the course of her employment, (3) deny her application for a service-connected disability and (4) grant her a non-service-connected disability retirement.
- b) The Board find that **Diana Herrera** is (1) permanently incapacitated from the performance of her usual and customary duties as a Patient Services Assistant II, (2) find that her disability was the result of an injury arising out of and in the course of her employment and (3) grant her application for a service-connected disability retirement.
- c) The Board find that **Eddie McKague** is (1) not permanently incapacitated from the performance of her usual and customary duties as a Correctional Officer and (2) deny her application for a service-connected disability retirement.
- d) The Board find that **Patrick Moran** is (1) permanently incapacitated from the performance of his usual and customary duties as a Sheriff Sergeant, (2) find that his disability was the result of an injury arising out of and in the course of his employment and (3) grant his application for a service-connected disability retirement.
- e) The Board find that **Anna Stock** is (1) is not permanently incapacitated from the performance of her usual and customary duties as a Clinical Lab Scientist II and (2) deny her application for a service-connected disability retirement.

4.2 Survivor Death Benefits

None.

4.3 Service Retirements

The Board ratifies the service retirement for the individuals listed below as follows:

Name	Effective Retirement Date	Department
Aguirre, Alfredo	March 29, 2019	Def'd from Human Services Agency
Alfajora, Francisco	March 31, 2019	Public Works
Bognanno, Antonette	March 30, 2019	Probation
Brasil, Roy	March 30, 2019	Probation
Brown, Marlin	March 28, 2019	Probation
Browne, Daryl	March 30, 2019	Behavioral Health
Burket, Randi	March 30, 2019	Def'd from Aging & Adult Services
Calhoun, Sheree	March 30, 2019	Probation
Carreira, Glynis	March 30, 2019	San Mateo Medical Center
Castle, Nancy Chiao	March 30, 2019	San Mateo Medical Center
Cayabab, Marcela	March 28, 2019	San Mateo Medical Center
Cherniss, David	March 30, 2019	Courts
Christensen, Patrice	March 30, 2019	San Mateo Medical Center
Cogliati, Jane	March 8, 2019	Superior Court
Cowan, Denise	March 29, 2019	Deferred from Sheriff's Office
Cuevas, Leticia	March 30, 2019	Human Services Agency
Echarte, John	March 29, 2019	Human Services Agency
Ednoff, Michael	March 23, 2019	Probation
Ehinger, Chris	March 30, 2019	Human Services Agency
Eppley, Michael	March 24, 2019	Library
Fennelly, Maria	March 29, 2019	Family Health
Fernandez, Federico	March 30, 2019	San Mateo Medical Center
Finck, Peter	March 30, 2019	County Counsel
Fleming, Jacqueline	March 23, 2019	Coroner
Foster, Janet	March 30, 2019	San Mateo Medical Center
Galatolo, Brenda	March 30, 2019	Probation
Garcia, Mark	March 24, 2019	Sheriff's Office

Gonzales, Ceferino	March 13, 2019	Sheriff's Office
Guevara, Maria Cecilia	March 5, 2019	San Mateo Medical Center
Hansell, Mary	March 29, 2019	Def'd from Family Health
Hite, Sharon	March 23, 2019	Probation
Holbrook, David	March 30, 2019	Planning & Building
Holman, Linda	March 30, 2019	Human Services Agency
Holowaty, Janelle	March 16, 2019	Probation
Janjua, Seema	March 30, 2019	Behavioral Health
Jaramillo, Eduardo	March 30, 2019	Superior Court
Jennings, Faye	March 30, 2019	Family Health Services
Jimenez, Martha	March 29, 2019	Human Services Agency
Jimenez-Huffman, Marta	March 29, 2019	Human Services Agency
Johnson, Dewayne	March 29, 2019	Dept. of Public Works
Johnson, William	March 31, 2019	Probation
Jukich, Douglas	March 30, 2019	Sheriff's Office
Kang, Tyrus	March 30, 2019	Parks
Kefu, Fusipala	March 30, 2019	San Mateo Medical Center
Kunst, Jennifer	March 29, 2019	Human Services Agency
Kuwahara, Leonard	March 23, 2019	Agriculture
Kwong, Eddy	March 30, 2019	Information Services
Lepe, Laura	March 30, 2019	Human Services Agency
Limaco, Flor	March 30, 2019	Revenue Services
Littlefield, Nancy	March 30, 2019	Behavioral Health
Magill, Tammy	March 30, 2019	Superior Court
Maher, Richard	April 1, 2019	District Attorney
McKay, Nicole	March 29, 2019	Human Resources
McLain, Virginia	March 30, 2019	Library
McLaughlin, Rita	March 30, 2019	Planning & Building
Melendez Turcios, Rosa	March 30, 2019	Human Services Agency
Membreno, Hugo	March 30, 2019	Human Services Agency
Mendoza, Rosaura	March 29, 2019	Housing Dept.

Meria, Marilou	March 30, 2019	Correctional Health
Montoya, Jorge	March 29, 2019	Behavioral Health
Moore, Roberta	March 29, 2019	Def'd from District Attorney
Mota, Thomas	March 22, 2019	Sheriff's Office
Nabong, Nicolas	March 29, 2019	San Mateo Medical Center
O'Donnell, Sean	March 30, 2019	Sheriff's Office
Patterson, Mary	March 30, 2019	Library
Pharo-Petiti, Marsha	April 1, 2019	Sheriff's Office
Ramirez, Rosa M	March 30, 2019	San Mateo Medical Center
Rothaus, Margaret	March 30, 2019	San Mateo Medical Center
Schumacher, Mary	March 30, 2019	San Mateo Medical Center
Sheets, Lorrie	March 30, 2019	Public Health
Simmons, Diane	March 30, 2019	Superior Court
Smith, Venita	March 9, 2019	District Attorney
Sutter, Henry	April 1, 2019	Sheriff's Office
Swanson, Bob	March 30, 2019	Agriculture
Tatola, Elenoa	March 30, 2019	Sheriff's Office
Taylor, William	March 30, 2019	Correctional Health
Thomas, Carolyn	March 30, 2019	Sheriff's Office
Tovstein, Charles	March 30, 2019	Treasurer
Valencia, Bianca	March 29, 2019	Sheriff's Office
Van Arkel, Julie	March 30, 2019	Information Services
Whitney, Carmen	March 30, 2019	Revenue Services
Wilkinson, Kathleen	March 27, 2019	QDRO of Sharon Henry

4.4 Continuances

None.

4.5 Deferred Retirements

The Board ratifies the deferred retirements as listed below for the following individuals:

Name	Retirement Plan Type
Adair, Tatiana	G4, Vested - Reciprocity
Bautista, Jessica M.	G3, Vested - Reciprocity
Blanc, Brian A.	S7, Vested - Reciprocity
Burns, Olga X.	G7, Non-vested- Reciprocity
Gomez, Francisco J.	G7, Non-vested- Reciprocity
Hosseini-Bidokhti, Eman D.	G7, Non-vested- Reciprocity
Howard, Trisha	G7, Non-vested- Reciprocity
Lambert, Kelly M.	G4, Vested - Reciprocity
Monheit, Juliette C.	G4, Vested - Reciprocity
Morales, Carmelisa J.	G7, Non-vested- Reciprocity
Peterson, Stacy M.	G4, Vested- Reciprocity
Young, David A.	G7, Non-vested- Reciprocity

4.6 Member Account Refunds

The Board ratifies the refunds as listed below for the following individuals:

Name	Retirement Plan Type
Brogden, Christina	G7, Non-vested
Fuentes, Stefany	G7, Non-vested
Kirkpatrick, Colton	S7, Non-vested
Saah, Rami	G7, Non-vested
Soto, Ana	G7, Vested
Thorpe, Kimberly	G7, Non-vested
Vaquerano, Rafael	G4, Vested

4.7 Member Account Rollovers

The Board ratifies the rollovers as listed below for the following individuals:

Name	Retirement Plan Type
Biear, Catrina	G5, Non-vested

4.8 Member Account Redeposites

The Board approves a five-year payment period for a redeposit of retirement funds by Roberto Manchia pursuant to Government Code Section 31685.2.

4.9 Acceptance of Trustees' Reports of Educational Activities Through Outside Provider


The Board accepts the educational reports submitted by trustees, Susan Lee and Robert Raw.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 4.8

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager 

SUBJECT: Approval of a five-year payment period for redeposit pursuant to Government Code Section 31685.2

Recommendation

Approve a five-year payment period for a redeposit of retirement funds by Roberto Manchia pursuant to Government Code Section 31685.2.

Background

Accounts of members who have a pre-retirement dissolution of marriage are divided pursuant to a model order. Certain service credit, contributions and interest are then transferred from the member's account and placed into the former spouse's account. Under Government Code Section 31685.2(h), should the former spouse withdraw the accumulated contributions and interest, the member may elect to redeposit the refunded amount and receive credit for the service time that had been transferred to into the nonmember's account.

Section 31685.2(h) further provides that the Board shall establish the manner of payment and the time period within which the redeposit of contributions may be made.

Discussion

Government Code 31652(a) provides that a repayment period for a redeposit that is greater than one year must be approved by the Board. Roberto Manchia is requesting a repayment period of five years to redeposit the contributions and interest refunded to his former spouse.

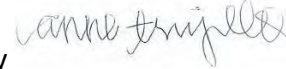
As the interest continues to accrue until the redeposit is complete, there is no cost to the system due to the five-year repayment period.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 4.9

TO: Board of Retirement
FROM: Anne Trujillo, Retirement Executive Secretary
SUBJECT: Trustee's Reports of Educational Activities



Recommendation

Accept the following reports from Board of Retirement trustees who have recently attended educational events.

Background

SamCERA's Education Policy Section 1D states "Prior to the next regularly scheduled meeting of the Board following the Board member's participation in an educational activity, the Board member shall submit for inclusion on the Consent Agenda, a summary written report on the content of educational activities. The report shall substantially reflect the information contained in the attached sample report."

Discussion

SamCERA Trustees attended the following educational events, and their reports are attached:

IFEBP Investments Institute

- Paul Hackleman

IFEBP Advanced Investments Management

- Robert Raw

SACRS Spring Conference

- Susan Lee

Attachments

Trustee's Education Proof of Participation Certificates and Summaries

SamCERA Board of Retirement Trustee Education
Proof of Participation Certificate and Summary



Trustee Name Paul Hackleman		Date(s) of Event 4/8/19-4/10/19
Education Event Name Investments Institute		
Event Provider IFEBP		
Type of Participation: Attended Event <input checked="" type="checkbox"/> Listened to Audio/Watched Video <input type="checkbox"/>		Eligible Credit: Total hours for sessions you participated in: <u>15 HOURS</u> (Staff may adjust hours if the provider issues an education certificate that reflects different hours.)

This event satisfies the following requirements of the Board of Retirement's Education Policy and Government Code section 31522.8:

Topic: (Check all that apply)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Fiduciary responsibilities | <input type="checkbox"/> Disability evaluation |
| <input type="checkbox"/> Ethics | <input type="checkbox"/> Fair hearings |
| <input type="checkbox"/> Benefits administration | <input checked="" type="checkbox"/> Pension fund governance |
| <input checked="" type="checkbox"/> Actuarial matters | <input type="checkbox"/> New board member orientation |
| <input checked="" type="checkbox"/> Pension funding | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Pension fund investments and investment program management | |

Summary Report

What concepts or information did you learn about?

COMPLEXITY OF ASSET ALLOCATION STRATEGIES, TOPICAL EQUITY INVESTING, FIXED INCOME AND REAL ESTATE, ALTERNATIVE AND INFRASTRUCTURE INVESTING, DC INVESTING AND CASE STUDY

Would you recommend this event to other trustees?

- Yes No Maybe

You may provide additional comments to SamCERA's CEO.

By signing below, I certify that I participated in the activities described above and am entitled to claim the indicated amount of education credit hour(s).

Trustee Signature (print this form and sign) 	Date 4/11/19
---	------------------------

NOTE: Please return this completed form to SamCERA's Executive Secretary prior to the mailing of the Board packet, so it can be included in that month's Consent Agenda.

SamCERA Board of Retirement Trustee Education
Proof of Participation Certificate and Summary



Trustee Name Robert Raw		Date(s) of Event APRIL 29 - MAY 2, 2019
Education Event Name ADVANCED INVESTMENT MANAGEMENT PROGRAM		
Event Provider IFEBP		
Type of Participation: Attended Event <input checked="" type="checkbox"/> Listened to Audio/Watched Video <input type="checkbox"/>		Eligible Credit: Total hours for sessions you participated in: <u>28.75</u> <i>(Staff may adjust hours if the provider issues an education certificate that reflects different hours.)</i>

This event satisfies the following requirements of the Board of Retirement's Education Policy and Government Code section 31522.8:

Topic: (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Fiduciary responsibilities | <input type="checkbox"/> Disability evaluation |
| <input type="checkbox"/> Ethics | <input type="checkbox"/> Fair hearings |
| <input type="checkbox"/> Benefits administration | <input type="checkbox"/> Pension fund governance |
| <input checked="" type="checkbox"/> Actuarial matters | <input type="checkbox"/> New board member orientation |
| <input checked="" type="checkbox"/> Pension funding | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Pension fund investments and investment program management | |

Summary Report

What concepts or information did you learn about?

PERFORMANCE ANALYSIS, BOND MANAGEMENT, MACRO ECONOMY, MANAGER EVALUATION, ASSET ALLOCATION, ALTERNATIVE INVESTMENTS, INTERNATIONAL INVESTING, RISK ENVIRONMENTS, HEDGE FUNDS AND INVESTMENT POLICY.

Would you recommend this event to other trustees?

- Yes No Maybe

You may provide additional comments to SamCERA's CEO.

By signing below, I certify that I participated in the activities described above and am entitled to claim the indicated amount of education credit hour(s).

Trustee Signature (print this form and sign) 	Date 5/3/19
---	-----------------------

NOTE: Please return this completed form to SamCERA's Executive Secretary prior to the mailing of the Board packet, so it can be included in that month's Consent Agenda.

SamCERA Board of Retirement Trustee Education
 Proof of Participation Certificate and Summary



Trustee Name Susan Lee		Date(s) of Event 5/7/19-5/10/19
Education Event Name Spring Conference		
Event Provider SACRS		
Type of Participation: Attended Event <input checked="" type="checkbox"/> Listened to Audio/Watched Video <input type="checkbox"/>		Eligible Credit: Total hours for sessions you participated in: <u>24</u> <i>(Staff may adjust hours if the provider issues an education certificate that reflects different hours.)</i>

This event satisfies the following requirements of the Board of Retirement's Education Policy and Government Code section 31522.8:

Topic: (Check all that apply)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Fiduciary responsibilities | <input checked="" type="checkbox"/> Disability evaluation |
| <input type="checkbox"/> Ethics | <input type="checkbox"/> Fair hearings |
| <input type="checkbox"/> Benefits administration | <input type="checkbox"/> Pension fund governance |
| <input checked="" type="checkbox"/> Actuarial matters | <input type="checkbox"/> New board member orientation |
| <input checked="" type="checkbox"/> Pension funding | <input checked="" type="checkbox"/> Other: <u>Safety Breakfast</u> |
| <input checked="" type="checkbox"/> Pension fund investments and investment program management | |

Summary Report

What concepts or information did you learn about?

neuropsychological testing
Great speakers especially Gabriel Wesley Clark
geopolitical trends - China, global economics
renewable energy

Would you recommend this event to other trustees?

- Yes No Maybe

You may provide additional comments to SamCERA's CEO.

By signing below, I certify that I participated in the activities described above and am entitled to claim the indicated amount of education credit hour(s).

Trustee Signature (print this form and sign) 	Date 5/13/19
---	------------------------


NOTE: Please return this completed form to SamCERA's Executive Secretary prior to the mailing of the Board packet, so it can be included in that month's Consent Agenda.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 4.10

TO: Board of Retirement

FROM: Lilibeth Dames, Investment Analyst 

SUBJECT: Report on California Government Code Section 7514.7 Annual Disclosure For 2018

Recommendation

Accept the Report on California Government Code Section 7514.7 Annual Disclosure for 2018.

Background

California Government Code Section 7514.7 became effective on January 1, 2017 and requires public pension funds in California to annually disclose certain information regarding its alternative investments. Staff has prepared SamCERA's required disclosure report which covers calendar year 2018.

Discussion

Since 2007, SamCERA has been required, if requested under the Public Records Act to provide to the requestor, the following information regarding its alternative investments:

1. The name, address, and vintage year of each alternative investment vehicle.
2. The dollar amount of the commitment made to each alternative investment vehicle by the public investment fund since inception.
3. The dollar amount of cash contributions made by the public investment fund to each alternative investment vehicle since inception.
4. The dollar amount, on a fiscal yearend basis, of cash distributions received by the public investment fund from each alternative investment vehicle.
5. The dollar amount, on a fiscal yearend basis, of cash distributions received by the public investment fund plus remaining value of partnership assets attributable to the public investment fund's investment in each alternative investment vehicle.
6. The net internal rate of return of each alternative investment vehicle since inception.
7. The investment multiple of each alternative investment vehicle since inception.
8. The dollar amount of the total management fees and costs paid on an annual fiscal yearend basis, by the public investment fund to each alternative investment vehicle.
9. The dollar amount of cash profit received by public investment funds from each alternative investment vehicle on a fiscal year-end basis.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Under section 7514.7, SamCERA is now required to disclose the above information annually to the Board at a public meeting. The first two pages of the report, which will be included in the Board's day-of folder, will reflect this data for all of our alternative investments.

In addition, we are now required to disclose the following information for the twelve alternative investment contracts we entered into on or after January 1, 2017. Although we are also required to make disclosures for existing alternative investments in which a new capital commitment was made, SamCERA made no such additional capital commitments in 2018. However, we undertook reasonable efforts to obtain the information listed below from all of our existing alternative investments to include in our disclosure.

The third page of the report will reflect the following data for the applicable alternative investments:

1. The fees and expenses that the public investment fund pays directly to the alternative investment vehicle, the fund manager, or related parties.
2. The public investment fund's pro rata share of fees and expenses not included in paragraph 1 that are paid from the alternative investment vehicle to the fund manager or related parties. The public investment fund may independently calculate this information based on information contractually required to be provided by the alternative investment vehicle to the public investment fund. If the public investment fund independently calculates this information, then the alternative investment vehicle shall not be required to provide the information identified in this paragraph.
3. The public investment fund's pro rata share of carried interest distributed to the fund manager or related parties.
4. The public investment fund's pro rata share of aggregate fees and expenses paid by all of the portfolio companies held within the alternative investment vehicle to the fund manager or related parties.
5. The gross and net rate of return of each alternative investment vehicle, since inception, in which the public investment fund participates.

Similar to last year, not all of our funds had data to report for each of the listed categories due to the maturity of the specific fund. For example, our new funds did not have any carried interest to report at this early stage. We anticipate that future annual reports for these funds will contain more information as the funds mature.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 5.2

TO: Board of Retirement
FROM: Scott Hood, Chief Executive Officer 
SUBJECT: Impact of Potential Assumption Changes for June 30, 2019 Actuarial Valuation

Recommendation

Discuss Impact of Potential Assumption Changes for June 30, 2019 Actuarial Valuation.
[Informational Only.]

Background

Every year the Board adopts demographic and economic assumptions to be used in the upcoming annual actuarial valuation. After the valuation is completed it will be presented to the Board along with the recommended employer and member contribution rates for the upcoming fiscal year.

Discussion

Nick Collier, of Milliman, Inc. has prepared the attached information sheet which provides information on the impact of lowering the assumed earning rate from 6.75% to 6.5%. Milliman addresses SamCERA's expected return over the next ten and 30 years and the estimated financial impact of lowering the assumed rate of return.

Mr. Collier cannot attend this meeting but will be present when these assumptions come before the Board for final adoption at the July Board meeting. Today's meeting is to give the Board an opportunity to review the information, to discuss it, and to provide an opportunity to request additional information and/or provide direction to Milliman in preparation for the July meeting.

Attachment

Milliman Information Sheet on the Impact of Assumption Changes

Milliman Comments on Potential Reduction in Investment Return Assumption to 6.50%

Expected Return	Estimated Financial Impact (6.5% return assumption compared to 6.75%)
<p><u>Commentary</u> Expected return of 6.4%* over next 10 years. Looking at capital market assumptions for other investment consultants results in a fairly wide range of expected returns, both higher and lower than Verus.</p> <p>For investment consultants projecting more than 10 years, expectations are generally higher. Milliman projects 0.2% higher over 30 years than 10 years.</p> <p><u>Conclusion</u> We believe either 6.50% or 6.75% is a reasonable investment return assumption.</p> <p><i>*Based on Verus' March 2019 presentation: 6.6% expected return using LT Policy, reduced by admin expenses.</i></p>	<p><u>Commentary</u> The investment return assumption does not directly affect the cost of benefits, but it does affect the timing of when contributions are made. All things being equal, a lower investment return assumption will allocate more employer contributions to the short-term and less to the future.</p> <p><u>Statutory Contribution Rate (Employers)</u> Increase of greater than 3.5% of pay</p> <p><u>Member Contribution Rates</u> Increases for most members (Plans 4, 5, 6 & 7) generally range from 0.3% of pay to 0.5% of pay, with General members being on the low end of the range and Safety and Probation members on the high end.</p>

Projected Impact on Statutory Employer Contribution Rate

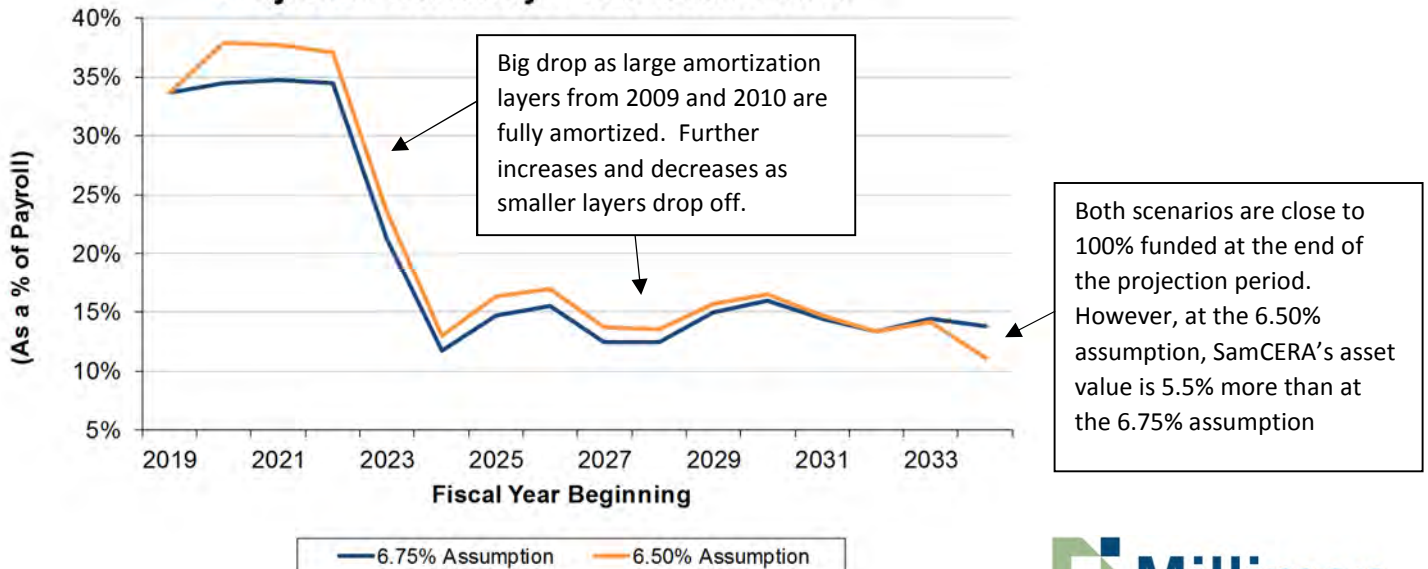
Commentary

The following projection shows a comparison of the statutory contribution rate under the current investment return assumption and if the return assumption was reduced to 6.50% for the June 30, 2019 valuation.

Assumptions used in Projection

1. 4% return for the fiscal year 2018-19.
2. 6.5% annual future returns in both scenarios.
3. 1% loss on retiree liabilities due to actual 2019 COLA being higher than assumed.
4. All other assumptions are the same as those used in the June 30, 2018 valuation. Please refer to that report for further details.
5. Actual results will vary from the projections shown.

Projected Statutory Contribution Rate




SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 6.1

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Preliminary Monthly Portfolio Performance Report for the Period Ended April 30, 2019

Recommendation

Accept the preliminary performance report dated April 30, 2019.

Background

This preliminary report is intended to provide a high-level view of the portfolio and its trends. It is not intended to provide short-term performance upon which the Board would act. As discussed previously, preliminary performance estimates are now included for AQR Risk Parity, AQR Delta, PanAgora Risk Parity, and Beach Point Select. The quarterly performance metrics are not yet available for our private equity, private credit, private real asset, and real estate portfolios. The performance for these portfolios will be reflected in the quarterly performance report generated by Verus.

The attached performance report shows both net and gross of fee returns for the total plan on page one, with net composite returns (pages 2-3) and net manager returns (pages 4-9) also shown.

Discussion

The fund's net preliminary return for April was 1.8%, bringing the preliminary trailing twelve-month return ending April 2019 to 4.0% net. The preliminary twelve-month net return is below both SamCERA's Plan Benchmark return of 4.9% and SamCERA's Actuarial Assumed Earnings Rate of 6.75%.

April was another positive month for global equities as positive earnings news in the U.S., China trade talks optimism, and the approved Brexit extension soothed global equity markets. In U.S. equity markets, the broad U.S. equity market (as measured by the Russell 3000 Index) was up 4.0%. International markets were also higher on the month, with developed international equity (as measured by MSCI EAFE) up 2.8%, while emerging markets were up 2.1%.

Economic data was mostly higher in April. First quarter real GDP grew at an estimated annual rate of 3.2%, which was higher than the expected 2.3% growth rate. Manufacturing activity slumped in April, while non-farm payrolls and consumer confidence both increased.

The general U.S. fixed income market was flat during the month, as lower credit spreads were offset by higher Treasury yields. The 10-year U.S. Treasury yield was higher during the month, with the yield increasing 10 basis points and ending at 2.5% by month-end.

Attachments

Verus Capital Markets Update

Northern Trust Performance Report



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

APRIL 2019
Capital Markets Update

Market commentary

U.S. ECONOMICS

- U.S. GDP expanded at an annualized quarterly rate of 3.2% (exp. 2.3%) in Q1 2019. Inventory builds and net exports, which are viewed as more volatile components to the GDP calculation, contributed 1.7% to the print, their highest addition since 2013.
- Nonfarm payrolls grew by 263k in April, beating expectations for a 190k increase. Hiring activity was strongest within business services (+76k), health care (+53k) and construction (+33k). Unemployment dipped to 3.6% (exp. 3.8%), a fresh 49-year low.
- Average hourly earnings missed expectations in April, rising at a year-over-year rate of 3.2% (exp. 3.3%). Some analysts pointed to mild inflation data and contained wage gains as evidence of a labor market with some room to run.

U.S. EQUITIES

- The S&P 500 advanced 4.0% in April and cyclical sectors led the way. The Financials (+9.0%), Telecom (+6.5%), and IT (+6.4%) sectors were the top performers for the month.
- With 89% of companies reporting, revenue and earnings growth for the S&P 500 have come in at 4.8% and 1.7%, respectively. Sales growth has been in line with expectations, while earnings growth has topped estimates by 6.5% in aggregate.
- Per FactSet, there are 11,045 ratings on stocks in the S&P 500 - 51.9% are buy ratings, 41.8% are hold ratings, and 6.3% are sell ratings. The Energy sector (63%) has the highest percentage of buy ratings, and the Consumer Staples sector (39%) has the lowest.

U.S. FIXED INCOME

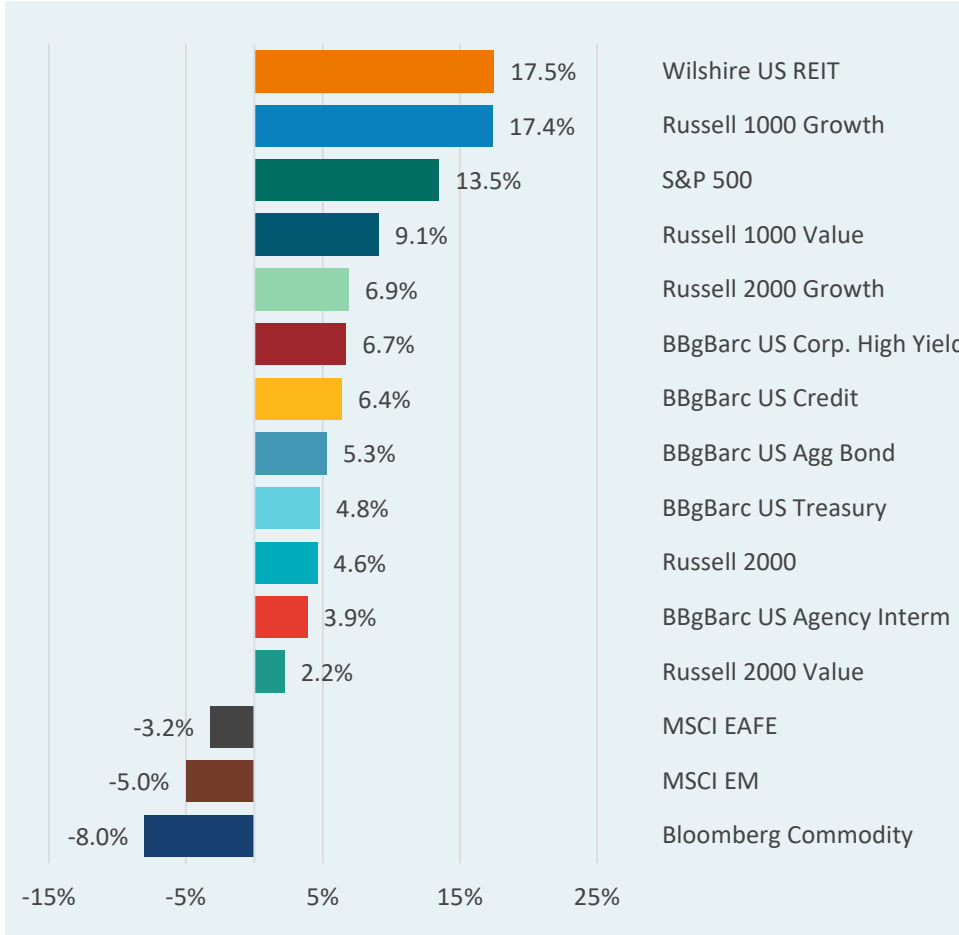
- The Federal Open Market Committee decided in its May meeting to leave its range for the benchmark interest rate unchanged at 2.25%-2.50%. The committee made a “mechanical” adjustment to the rate paid on excess reserves, cutting it 5 bps to 2.35%.
- Following the Federal Reserve’s meeting, Chairman Powell stated that the slowdown in core PCE inflation, the Fed’s preferred measure, was due to “transitory factors”. Over the first quarter of 2019, year-over-year core PCE growth fell from 1.95% to 1.55%.
- Credit spreads continued to edge lower in April. Investment-grade spreads compressed from 1.19% to 1.11%, and high-yield spreads ended the month 18 bps tighter, at 3.58%.

INTERNATIONAL MARKETS

- U.S. and Chinese officials met several times to discuss trade, and optimism built for a formal deal to be reached by May 10th. On May 5th, the Trump administration squashed this optimism, announcing that tariff rates on \$200 billion in Chinese imports would be raised from 10% to 25% on May 10th. President Trump cited progress that was too slow, and noted that 25% tariffs on an additional \$325 billion in Chinese imports could be levied soon.
- On April 10th, the British Prime Minister Theresa May reached an agreement with the European Council to extend the Brexit deadline from April 12th to October 31st.
- Italy emerged from recession, reporting (QoQ) GDP growth of 0.2% in Q1 following two consecutive quarters of contraction. Year-over-year, GDP growth remained anemic at 0.1%.

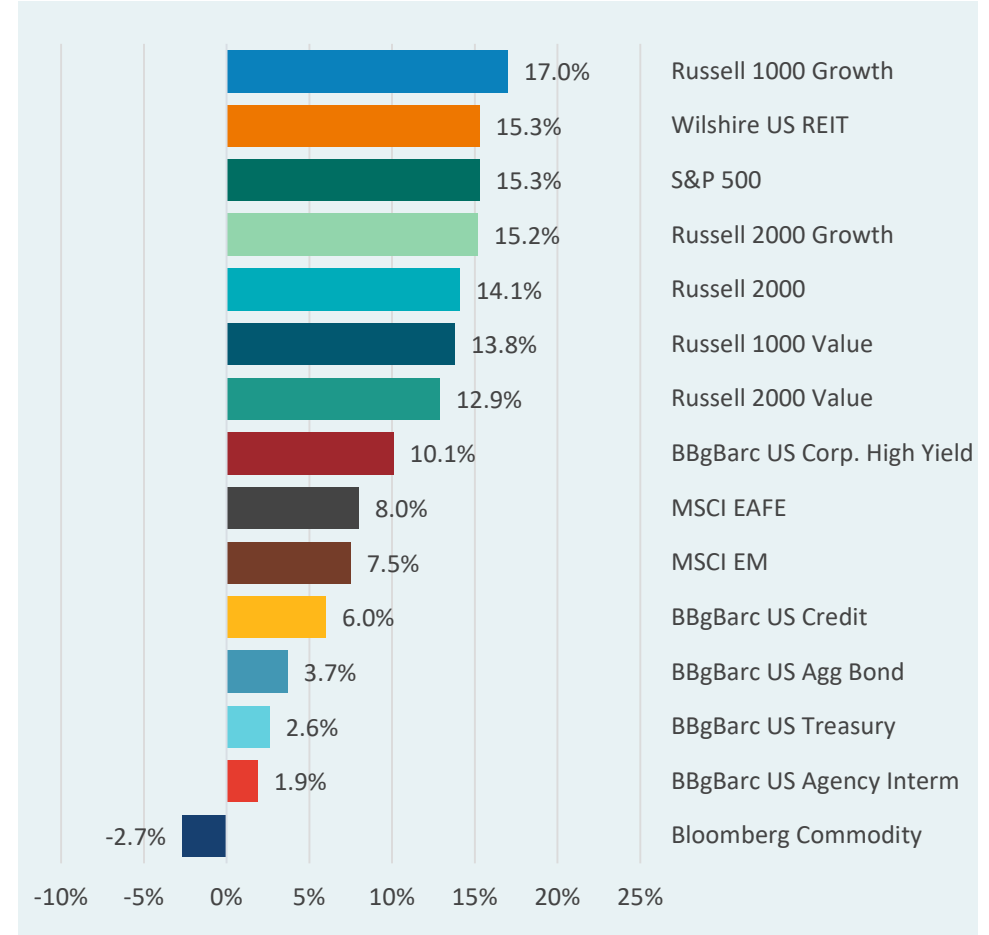
Major asset class returns

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/19

TEN YEARS ENDING APRIL



Source: Morningstar, as of 4/30/19

U.S. large cap equities

- The S&P 500 Index gained 4.0% in April, and all sectors except for Health Care (-2.6%) and Real Estate (-0.5%) posted positive performance for the month.
- The Health Care sector was the worst performer, falling 2.6% despite solid aggregate Q1 sales and earnings growth. Some analysts have contended that Bernie Sanders' introduction of Medicare for All legislation, which was co-signed by several Senate Democrats running for the presidency in 2020, has weighed on prices for health care stocks.
- Implied volatility on U.S. stocks remained subdued in April. The CBOE VIX Index traded in a narrow range between 12-14 for most of the month, materially below its long-term average of 18.
- At month-end, the forward one-year P/E ratio on the S&P 500 Index was 17.0, which exceeded both its 5- and 10-year averages of 16.4 and 14.7. Per FactSet, the Consumer Discretionary (21.4), and Financials (12.1) sectors held the highest and lowest one-year forward P/E multiples.

S&P 500 PRICE INDEX



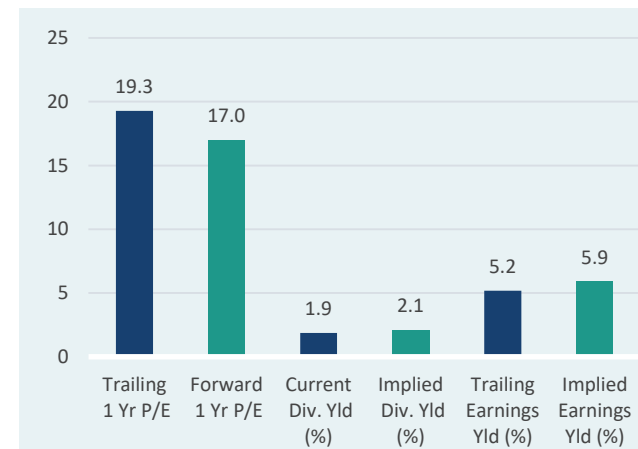
Source: Bloomberg, as of 4/30/19

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 4/30/19

S&P 500 VALUATION SNAPSHOT

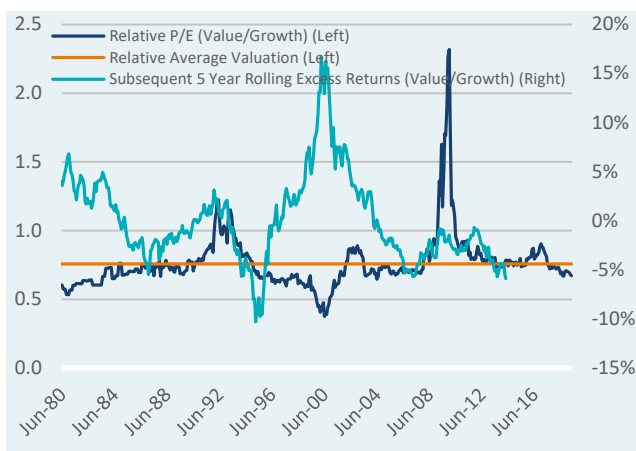


Source: Bloomberg, as of 4/30/19

Domestic equity size and style

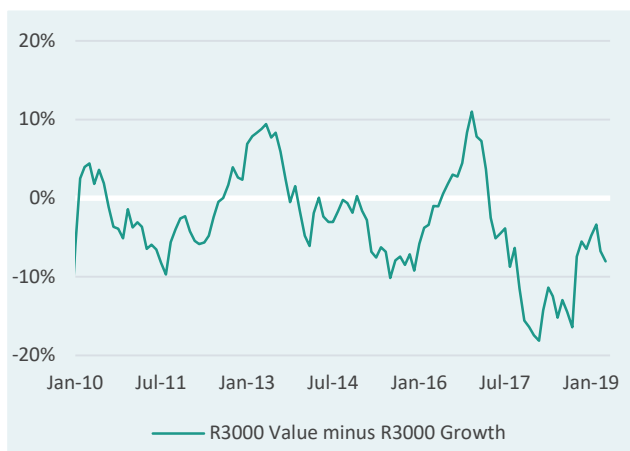
- Large-cap stocks picked up where they left off in March, and outperformed small-cap stocks. The Russell 1000 Index returned 4.0% while the Russell 2000 Index returned 3.4%.
- Large-cap stocks' outperformance of small-cap stocks was most evident within the Telecommunication Services sector. The Russell 1000 Telecom Sub-Index advanced 13.0%, significantly outpacing its small-cap counterpart, which registered a 7.3% advance.
- Growth stocks continued to outperform value stocks. The Russell 3000 Growth Index returned 4.4%, while the Russell 3000 Value Index returned 3.6%. The underperformance of the Russell 3000 Value Index was fueled by its lower relative weights to the IT and Consumer Discretionary sectors, as well as its higher relative weight to the Real Estate sector.
- The MSCI USA Cyclical-Defensives Return Spread Index delivered performance of 6.5% in April, its largest monthly return since January 2012.

VALUE VS. GROWTH RELATIVE VALUATIONS



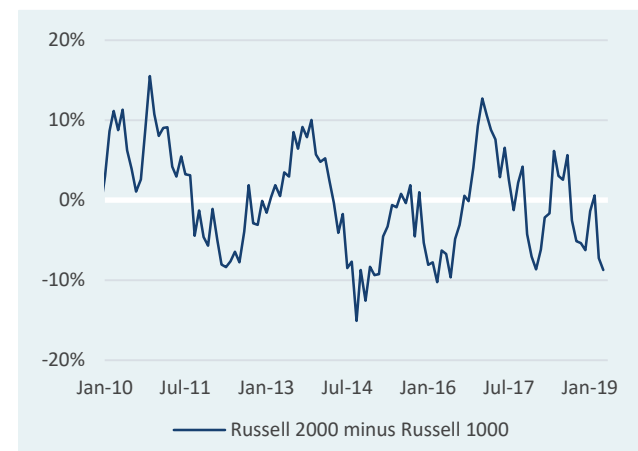
Source: Russell, Bloomberg, as of 4/30/19

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, as of 4/30/19

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

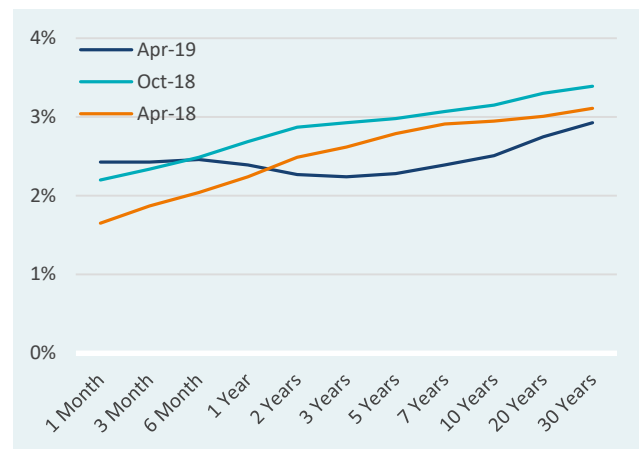


Source: FTSE, as of 4/30/19

Fixed income

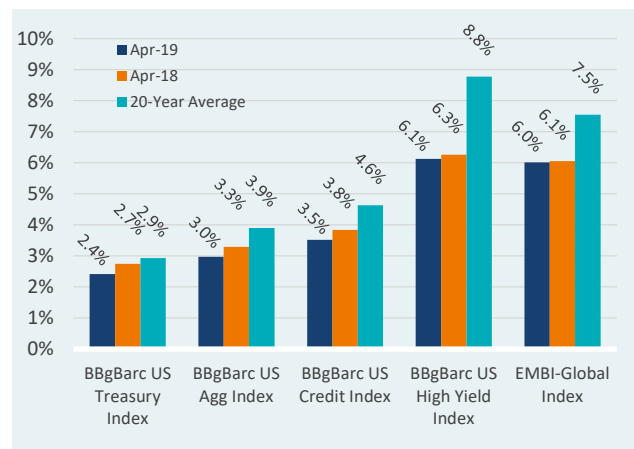
- Ten-year Treasury yields rose from 2.41% to 2.50%, while two-year Treasury yields moved from 2.26% to 2.27%. The spread between the 10- and 2-year yields steepened 8 bps to 23 bps.
- Fed funds futures pricing in April illuminated a market undecided on the future path of interest rates. At the beginning of the month, the futures-implied probability of a rate cut by the end of the year was 70%. Mid-month, that probability touched as low as 39%, and by the end of the month, the probability was up to 67%.
- The J.P. Morgan EMBI Global Diversified Index gained 0.2% in April, while the J.P. Morgan GBI-EM Global Diversified Index declined 0.2%, indicating that emerging market currency movements presented headwinds for unhedged U.S.-based investors in emerging market debt.
- U.S. core CPI rose 0.1% (exp. 0.2%) from the previous month in April. Over the last year, core CPI expanded 2.1%, in line with expectations, and in support of the Fed's stated patient approach on interest rate policy.

U.S. TREASURY YIELD CURVE



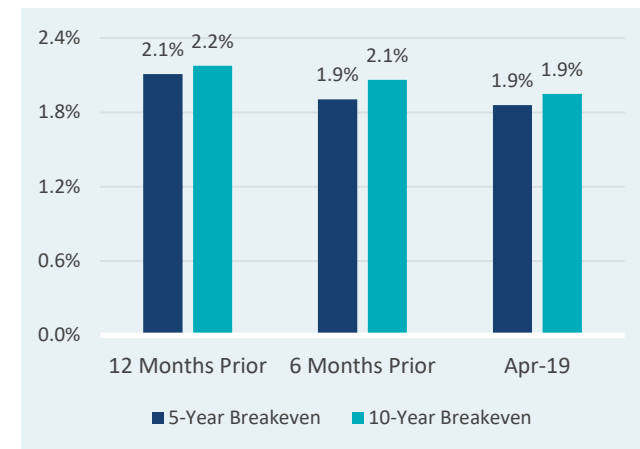
Source: Bloomberg, as of 4/30/19

NOMINAL YIELDS



Source: Morningstar, as of 4/30/19

BREAKEVEN INFLATION RATES

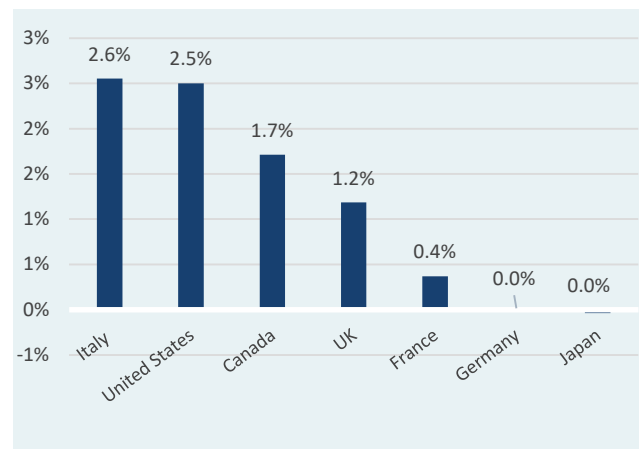


Source: Bloomberg, as of 4/30/19

Global markets

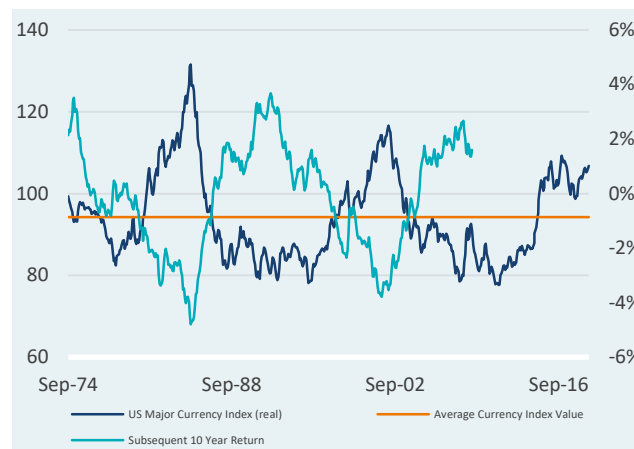
- Chinese GDP expanded at a rate of 6.4% year-over-year in Q1, beating expectations for 6.3% growth. In March, industrial production expanded 8.5% YoY (exp. 5.9%), and retail sales grew 8.7% YoY (exp. 8.4%), signaling a stronger-than-expected economic picture in China.
- Global sovereign yields mostly ticked higher in April. Yields on 10-year U.K. bonds rose from 0.99% to 1.18%, as the most recent extension of the Brexit deadline from April 12th to October 31st likely emboldened investors to lean in to riskier assets for the time being.
- Over the month, U.S. stocks outperformed international and emerging markets stocks. The S&P 500 Index gained 4.0%, ahead of the MSCI EAFE Index (2.8%) and the MSCI EM Index (2.1%).
- Since March, the 3-month average trailing P/FCF ratio of the MSCI U.S. Index rose from 18.9 to 20.4 while the equivalent MSCI EM Index ratio fell from 17.4 to 16.8. The widening in the P/FCF spread between the two indices indicates investors in U.S. stocks are paying more for free-cash-flow than investors in EM equities.

GLOBAL SOVEREIGN 10-YEAR YIELDS



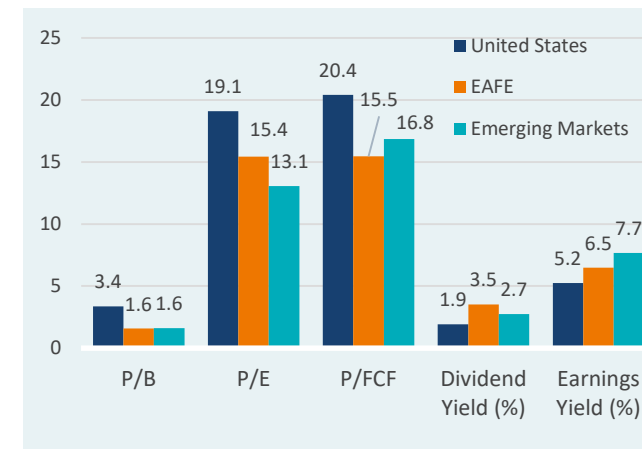
Source: Bloomberg, as of 4/30/19

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 4/30/19

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 4/30/19

Commodities

- The Bloomberg Commodity Index fell 0.4% over the month. The Petroleum (+7.1%) and Energy (+4.3%) Sub-Indexes significantly outperformed the overall index, while Grains (-3.9%) and Industrial Metals (-3.4%) underperformed.
- Crude oil continued its strong year-to-date advance, as WTI crude futures rose from \$60.28 to \$63.91. Expiring U.S. sanction waivers for Iranian crude oil imports, as well as speculation on a trade outcome between the U.S. and China were likely the largest factors moving oil markets.

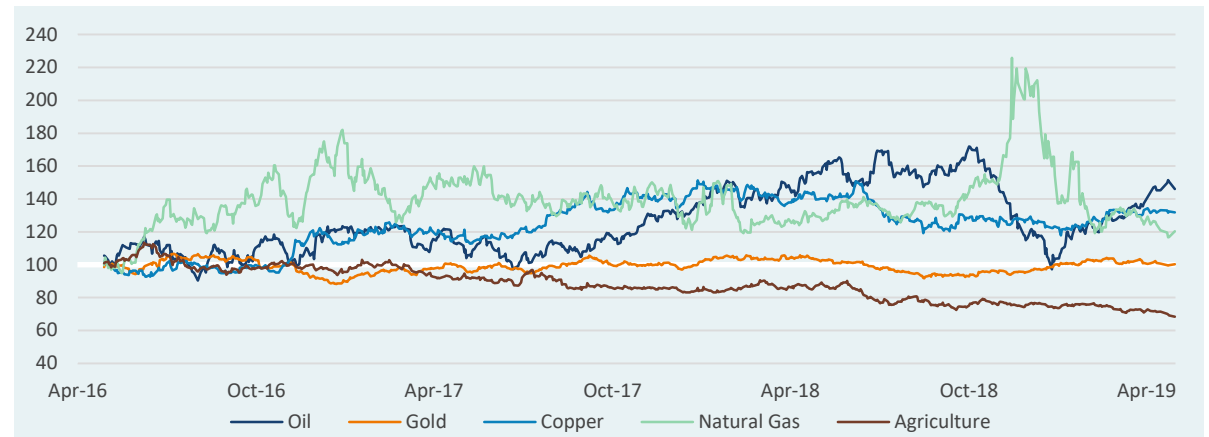
- The Grains Sub-Index, which represents 23% of the overall index, declined 3.9% in April. Concerns over Chinese demand for U.S. agricultural goods, as well as fears that retaliatory Chinese tariffs could be levied on U.S. agricultural exports contributed to the decline.
- The Industrial Metals Sub-Index declined 3.4% and nickel was the poorest performer. Several analysts attributed the recent weakness in nickel to slower manufacturing activity in China, as well as the introduction to the market of cheaper alternatives such as nickel pig iron.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(0.4)	(0.4)	5.9	(8.0)	(0.7)	(9.4)	(2.7)
Bloomberg Agriculture	(3.3)	(3.3)	(6.4)	(20.2)	(11.1)	(13.6)	(3.6)
Bloomberg Energy	4.3	4.3	20.9	(1.2)	4.5	(16.5)	(9.1)
Bloomberg Grains	(3.9)	(3.9)	(9.4)	(22.4)	(13.1)	(15.3)	(5.3)
Bloomberg Industrial Metals	(3.4)	(3.4)	9.0	(9.6)	7.5	(1.2)	1.1
Bloomberg Livestock	(2.3)	(2.3)	2.2	11.2	1.1	(4.4)	(1.4)
Bloomberg Petroleum	7.1	7.1	34.8	(2.8)	8.9	(13.8)	(2.8)
Bloomberg Precious Metals	(0.9)	(0.9)	(0.9)	(4.7)	(2.4)	(2.1)	2.8
Bloomberg Softs	(2.6)	(2.6)	(2.2)	(15.0)	(10.2)	(13.9)	(3.4)

Source: Morningstar, as of 4/30/19

COMMODITY PERFORMANCE



Source: Bloomberg, as of 4/30/19

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	20.7	14.5	17.0
Large Cap Growth	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	21.3	11.4	15.4
Small Cap Equity	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	18.5	10.2	15.2
Large Cap Equity	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	18.6	9.1	14.1
Small Cap Value	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	16.2	8.6	13.8
Large Cap Value	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	15.9	8.3	12.9
International Equity	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	13.1	6.9	8.5
Emerging Markets Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	12.2	4.6	8.0
60/40 Global Portfolio	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	10.2	4.0	8.0
Commodities	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	5.9	2.6	7.5
Hedge Funds of Funds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	5.3	2.6	3.7
US Bonds	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	3.0	2.5	3.5
Real Estate	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	1.8	0.8	0.4
Cash	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	0.8	-9.4	-2.7

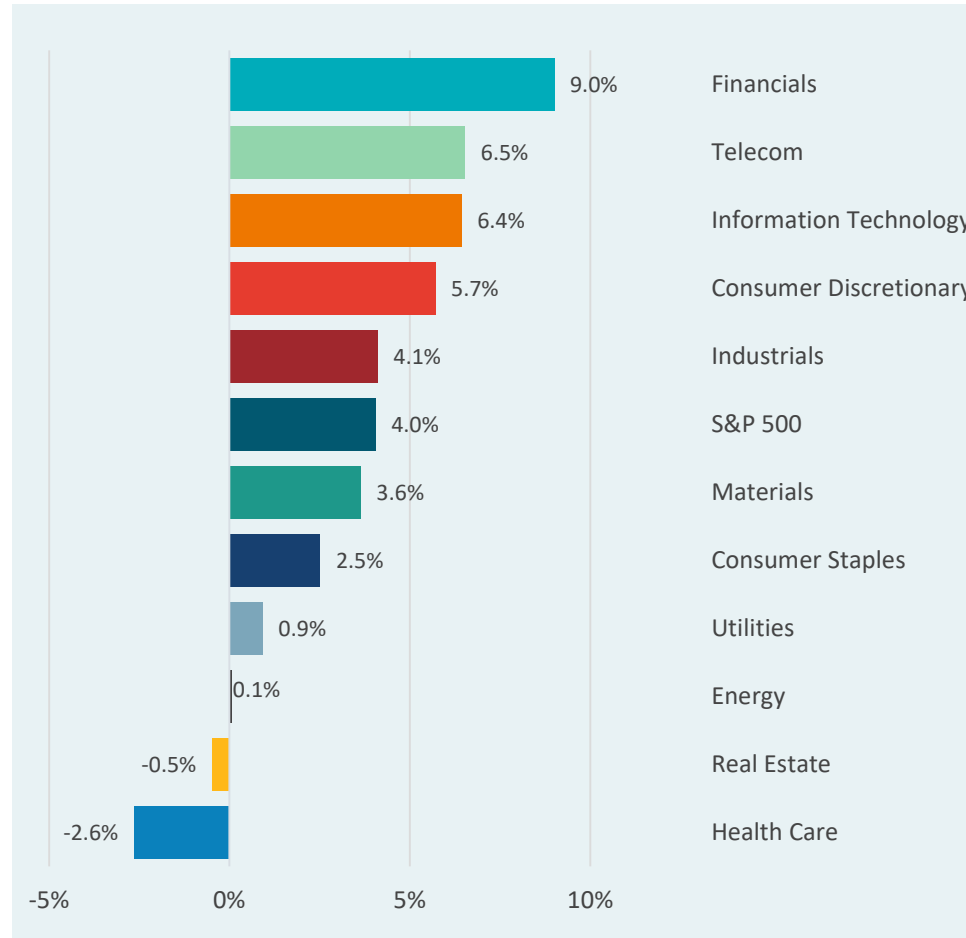
BEST
↑
↓
WORST



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 3/31/19.

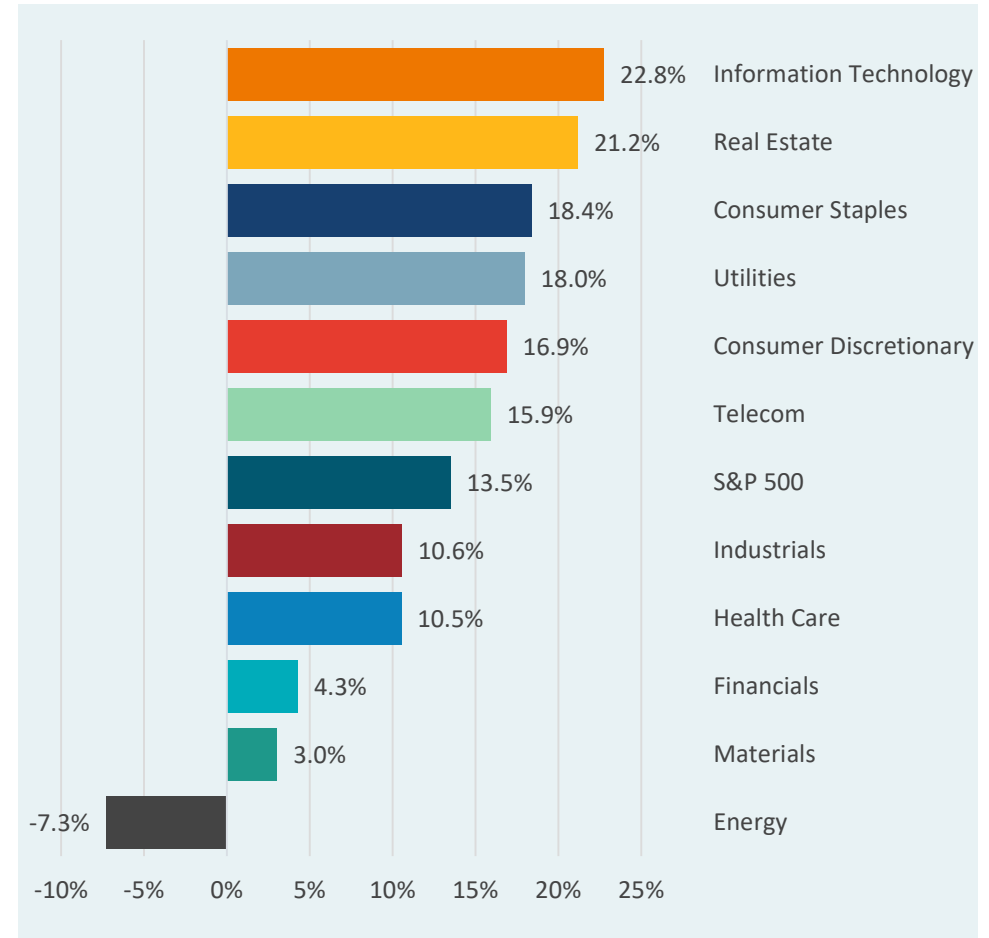
S&P 500 sector returns

QTD



Source: Morningstar, as of 4/30/19

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	4.0	4.0	18.2	13.5	14.9	11.6	15.3
S&P 500 Equal Weighted	3.6	3.6	19.0	10.6	12.9	10.2	16.2
DJ Industrial Average	2.7	2.7	14.8	12.6	17.2	12.6	15.4
Russell Top 200	4.1	4.1	17.7	14.4	15.6	12.1	15.3
Russell 1000	4.0	4.0	18.6	13.3	14.8	11.4	15.4
Russell 2000	3.4	3.4	18.5	4.6	13.6	8.6	14.1
Russell 3000	4.0	4.0	18.6	12.7	14.7	11.2	15.3
Russell Mid Cap	3.8	3.8	21.0	10.7	12.8	9.7	15.7
Style Index							
Russell 1000 Growth	4.5	4.5	21.3	17.4	18.6	14.5	17.0
Russell 1000 Value	3.5	3.5	15.9	9.1	11.0	8.3	13.8
Russell 2000 Growth	3.0	3.0	20.7	6.9	15.6	10.2	15.2
Russell 2000 Value	3.8	3.8	16.2	2.2	11.5	6.9	12.9

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	3.4	3.4	16.0	5.1	11.4	7.0	11.1
MSCI ACWI ex US	2.6	2.6	13.2	(3.2)	8.1	2.8	7.7
MSCI EAFE	2.8	2.8	13.1	(3.2)	7.2	2.6	8.0
MSCI EM	2.1	2.1	12.2	(5.0)	11.3	4.0	7.5
MSCI EAFE Small Cap	3.0	3.0	14.0	(7.9)	7.8	5.3	11.5
Style Index							
MSCI EAFE Growth	3.3	3.3	15.7	0.4	8.1	4.5	9.2
MSCI EAFE Value	2.3	2.3	10.4	(6.8)	6.3	0.7	6.7
Regional Index							
MSCI UK	2.3	2.3	14.4	(2.5)	5.9	0.2	8.2
MSCI Japan	1.4	1.4	8.1	(7.2)	6.9	6.5	7.1
MSCI Euro	5.1	5.1	15.4	(6.2)	7.7	1.2	6.5
MSCI EM Asia	1.8	1.8	13.1	(5.2)	12.9	6.6	9.3
MSCI EM Latin American	0.4	0.4	8.3	(5.1)	9.1	(0.7)	3.6

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	0.3	0.3	3.5	3.1	1.7	1.7	3.6
BBgBarc US Treasury Bills	0.2	0.2	0.8	2.2	1.2	0.8	0.5
BBgBarc US Agg Bond	0.0	0.0	3.0	5.3	1.9	2.6	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	0.2	0.2	1.2	3.1	1.0	1.0	1.1
BBgBarc US Treasury Long	(1.8)	(1.8)	2.8	6.4	1.0	4.6	5.5
BBgBarc US Treasury	(0.3)	(0.3)	1.8	4.8	1.0	2.0	2.6
Issuer							
BBgBarc US MBS	(0.1)	(0.1)	2.1	4.9	1.7	2.4	3.1
BBgBarc US Corp. High Yield	1.4	1.4	8.8	6.7	7.7	4.8	10.1
BBgBarc US Agency Interm	0.2	0.2	1.5	3.9	1.3	1.5	1.9
BBgBarc US Credit	0.5	0.5	5.4	6.4	3.2	3.5	6.0

OTHER

Index							
Bloomberg Commodity	(0.4)	(0.4)	5.9	(8.0)	(0.7)	(9.4)	(2.7)
Wilshire US REIT	(0.2)	(0.2)	15.8	17.5	6.4	8.2	15.3
CS Leveraged Loans	1.6	1.6	5.4	4.5	5.8	4.1	7.3
Alerian MLP	(1.2)	(1.2)	15.9	7.0	1.5	(5.1)	9.7
Regional Index							
JPM EMBI Global Div	0.2	0.2	7.2	6.0	5.3	5.2	8.0
JPM GBI-EM Global Div	(0.2)	(0.2)	2.7	(4.9)	2.3	(1.0)	3.5
Hedge Funds							
HFRI Composite	1.6	1.6	7.2	1.8	5.2	3.4	5.2
HFRI FOF Composite	0.6	0.6	5.3	0.6	4.0	2.5	3.5
Currency (Spot)							
Euro	(0.2)	(0.2)	(2.0)	(7.2)	(0.7)	(4.2)	(1.7)
Pound	0.0	0.0	2.4	(5.4)	(3.8)	(5.0)	(1.3)
Yen	(0.6)	(0.6)	(1.5)	(1.8)	(1.3)	(1.7)	(1.2)

Source: Morningstar, HFR, as of 4/30/19

Notices & disclosures

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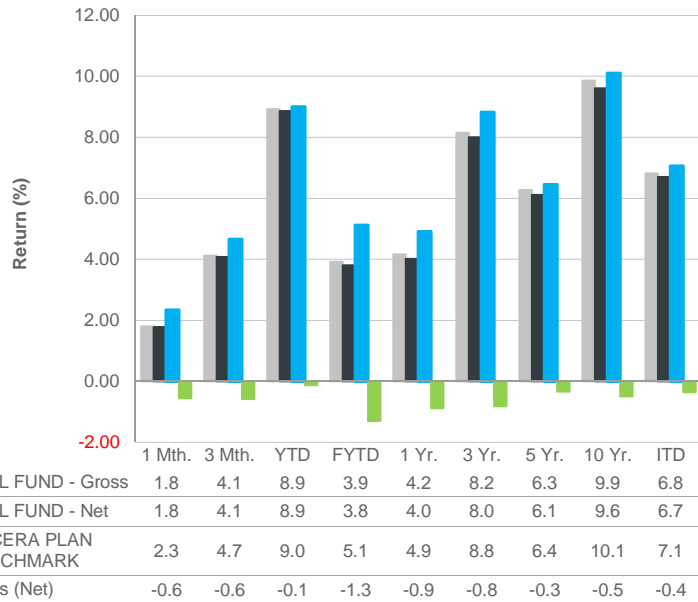
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San Mateo County Composite Return Summary

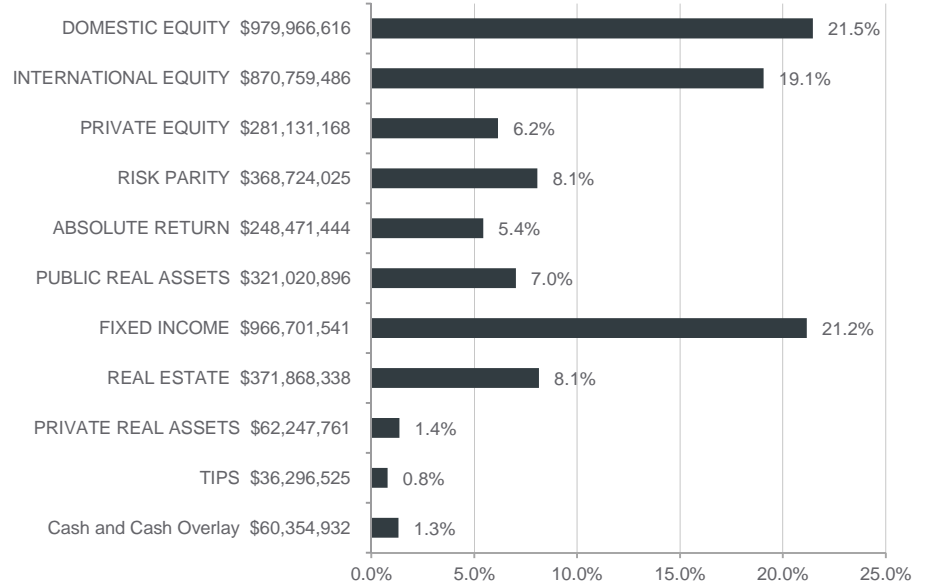
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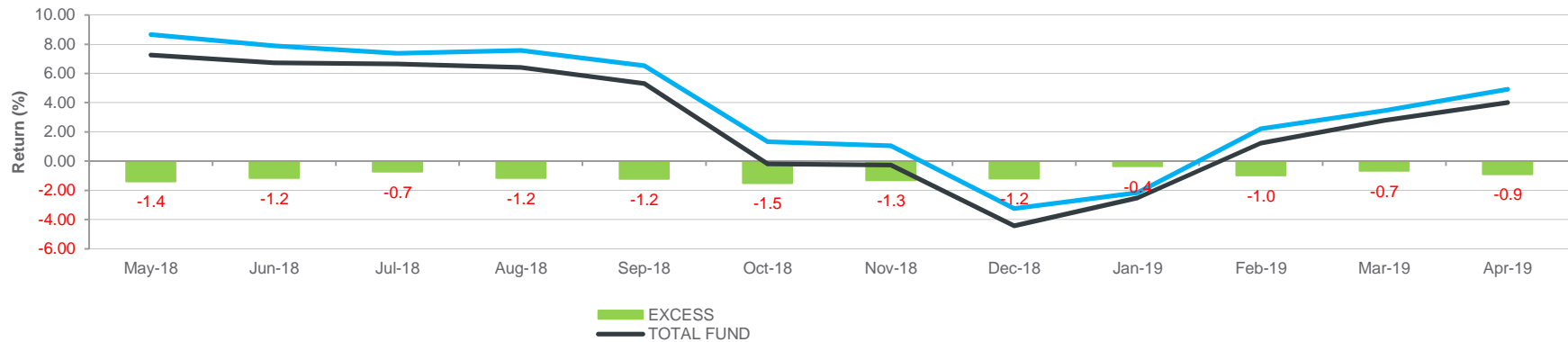
Total Fund Performance



Asset Allocation



Rolling Month End Annual Returns

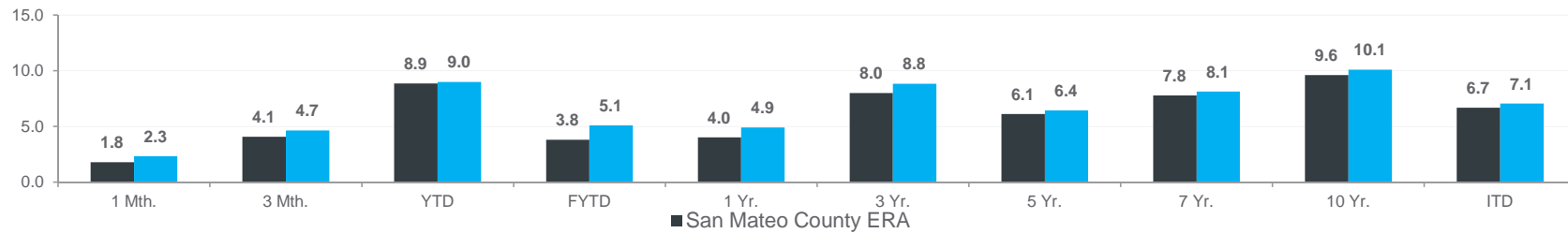


San Mateo County Composite Return Summary

April 30, 2019



Return Comparison

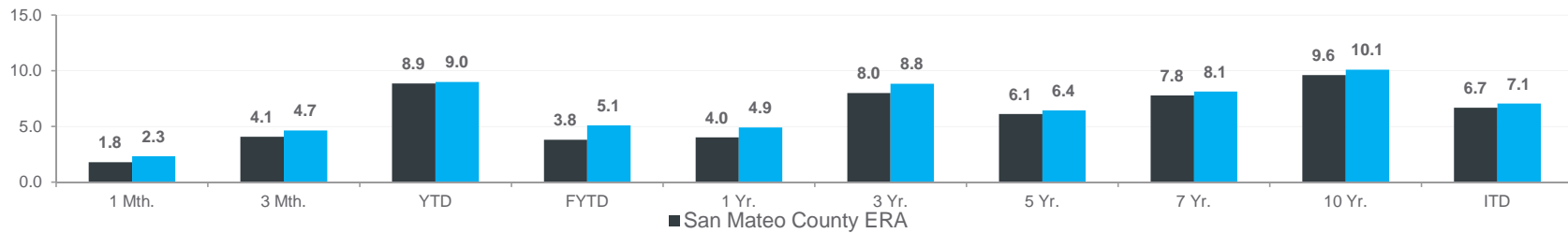


Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County ERA	4,567,542,731	1.8	4.1	8.9	3.8	4.0	8.0	6.1	7.8	9.6	6.7
Samcera Total Plan Benchmark		2.3	4.7	9.0	5.1	4.9	8.8	6.4	8.1	10.1	7.1
Excess		-0.6	-0.6	-0.1	-1.3	-0.9	-0.8	-0.3	-0.4	-0.5	-0.4
San Mateo Ex-Clifton Overlay	4,541,564,520	1.7	4.0	8.5	3.5	3.7	7.9	6.0	7.7	9.5	6.6
Samcera Total Plan Benchmark		2.3	4.7	9.0	5.1	4.9	8.8	6.4	8.1	10.1	7.1
Excess		-0.6	-0.7	-0.5	-1.6	-1.2	-0.9	-0.5	-0.4	-0.6	-0.4
Total Equity	1,850,726,102	3.3	7.6	15.6	4.6	4.9	11.5	7.7	10.1	12.1	7.8
Samcera Total Equity Benchmark		3.4	7.6	16.3	5.1	5.1	12.8	9.0	11.2	13.2	8.4
Excess		-0.1	-0.0	-0.7	-0.5	-0.3	-1.4	-1.3	-1.1	-1.1	-0.6
Fixed Income	966,701,541	0.3	1.8	3.1	4.3	4.5	4.6	3.7	4.1	6.4	5.5
Samcera Fixed Income Benchmark		0.4	2.5	4.7	5.7	6.0	3.1	3.0	2.7	4.1	5.0
Excess		-0.1	-0.7	-1.5	-1.3	-1.6	1.5	0.7	1.4	2.3	0.5
Risk Parity	368,724,025	1.6	4.5	10.6	5.0	4.6	7.2	5.2	5.7	--	6.1
Samcera Risk Parity Benchmark		2.0	5.0	10.5	4.6	4.5	8.8	7.4	8.7	--	8.4
Excess		-0.4	-0.4	0.1	0.4	0.1	-1.6	-2.1	-2.9	--	-2.3

San Mateo County
Composite Return Summary
 April 30, 2019



Return Comparison



Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Alternatives	529,602,612	1.0	1.1	1.1	3.1	2.4	6.2	5.0	4.9	-6.4	-2.1
Samcera Alternatives Benchmark		5.0	1.6	-2.0	6.0	3.5	10.5	6.6	8.3	10.6	7.6
Excess		-4.0	-0.5	3.2	-2.9	-1.1	-4.3	-1.6	-3.4	-17.0	-9.7
Inflation Hedge	791,433,520	0.6	0.6	5.3	1.2	2.0	6.3	--	--	--	7.3
SamCERA Inflation Hedge Index		0.6	2.3	4.7	3.2	3.4	6.3	--	--	--	6.8
Excess		0.1	-1.6	0.6	-2.1	-1.4	-0.0	--	--	--	0.4
Cash	34,376,720	0.1	0.3	0.4	0.9	1.0	0.9	0.7	0.7	0.8	1.9
Samcera Cash Benchmark		0.2	0.6	0.8	1.9	2.2	1.2	0.8	0.6	0.4	1.8
Excess		-0.0	-0.2	-0.4	-1.0	-1.2	-0.3	-0.1	0.1	0.3	0.1

San Mateo County Composite Return Summary

April 30, 2019



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	1,850,726,102	3.3	7.6	15.6	4.6	4.9	11.5	7.7	10.1	12.1	7.8
Samcera Total Equity Benchmark		3.4	7.6	16.3	5.1	5.1	12.8	9.0	11.2	13.2	8.4
Excess		-0.1	-0.0	-0.7	-0.5	-0.3	-1.4	-1.3	-1.1	-1.1	-0.6
Domestic Equity	979,966,616	3.1	7.9	16.6	6.7	10.8	14.1	10.6	12.5	14.6	8.7
Samcera Dom. Equity Benchmark		4.0	9.2	18.6	8.9	12.7	14.8	11.1	13.3	15.3	9.2
Excess		-0.9	-1.3	-2.0	-2.1	-1.9	-0.8	-0.5	-0.7	-0.7	-0.4
Large Cap Equity	893,137,496	3.1	8.3	16.7	8.1	11.8	14.7	11.5	13.2	14.8	9.5
Russell 1000		4.0	9.4	18.6	9.8	13.3	14.8	11.4	13.5	15.4	9.9
Excess		-1.0	-1.1	-1.9	-1.7	-1.5	-0.1	0.1	-0.3	-0.6	-0.3
Blackrock Russell 1000	470,664,825	4.0	9.4	18.6	9.8	13.3	--	--	--	--	14.3
Russell 1000		4.0	9.4	18.6	9.8	13.3	--	--	--	--	14.2
Excess		-0.0	-0.0	-0.0	-0.0	-0.0	--	--	--	--	0.1
DE Shaw Commingled Fund	141,456,533	1.0	4.8	12.6	3.6	7.8	14.3	--	--	--	10.9
Russell 1000		4.0	9.4	18.6	9.8	13.3	14.8	--	--	--	10.7
Excess		-3.0	-4.7	-6.0	-6.2	-5.5	-0.5	--	--	--	0.2
SAMCERA - Acadian US MGD V-SL	138,173,716	2.5	6.0	13.5	--	--	--	--	--	--	15.3
Russell 1000		4.0	9.4	18.6	--	--	--	--	--	--	19.6
Excess		-1.5	-3.4	-5.1	--	--	--	--	--	--	-4.2
SAMCERA - Panagora Defuseq -SL	142,842,422	2.6	10.7	18.0	--	--	--	--	--	--	20.0
Russell 1000		4.0	9.4	18.6	--	--	--	--	--	--	19.6
Excess		-1.4	1.3	-0.6	--	--	--	--	--	--	0.4
Small Cap Equity	86,829,120	2.7	3.9	15.3	-5.3	1.1	9.0	5.0	8.8	13.1	6.3
Russell 2000		3.4	6.5	18.5	-2.1	4.6	13.6	8.6	11.5	14.1	7.9
Excess		-0.7	-2.6	-3.2	-3.3	-3.5	-4.6	-3.6	-2.8	-1.0	-1.6
QMA US Small Cap	86,829,120	2.7	3.9	15.3	-5.3	1.1	--	--	--	--	9.5
Russell 2000		3.4	6.5	18.5	-2.1	4.6	--	--	--	--	11.3
Excess		-0.7	-2.6	-3.2	-3.3	-3.5	--	--	--	--	-1.8

San Mateo County Composite Return Summary

April 30, 2019



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
International Equity	870,759,486	3.6	7.2	14.4	1.9	-2.0	7.9	3.4	6.0	7.4	5.5
SamCERA Custom Hedge Intl		2.8	5.8	13.5	0.5	-3.6	8.1	3.0	5.6	8.1	5.0
Excess		0.8	1.5	0.9	1.3	1.6	-0.1	0.4	0.4	-0.7	0.5
Developed Markets Equity	780,107,454	3.9	8.0	15.1	1.8	-1.4	8.1	3.7	6.5	7.8	4.4
MS AC WldxUS IMI Nt		2.6	5.2	13.2	0.1	-4.0	7.9	3.0	5.5	8.1	4.8
Excess		1.3	2.9	1.9	1.7	2.5	0.1	0.7	1.0	-0.3	-0.4
Baillie Gifford	257,511,198	6.1	12.4	20.2	0.5	0.6	9.3	5.1	7.9	--	7.9
MSCI ACWI ex US Growth		3.2	7.8	16.1	1.7	-0.3	9.4	4.9	6.6	--	6.6
Excess		2.8	4.5	4.2	-1.2	0.9	-0.1	0.2	1.2	--	1.2
Blackrock EAFE Index Fund	243,114,331	2.9	6.3	13.3	0.4	-2.9	7.6	2.9	--	--	3.2
MSCI EAFE ND		2.8	6.1	13.1	0.2	-3.2	7.2	2.6	--	--	2.8
Excess		0.1	0.2	0.2	0.2	0.3	0.4	0.3	--	--	0.3
Mondrian Investment Partners	255,215,181	2.5	4.7	11.9	3.4	-3.0	7.0	2.3	5.5	7.5	5.4
MSCI ACWI ex US Value		2.2	3.1	10.8	0.9	-5.2	7.8	1.7	5.0	7.3	5.1
Excess		0.3	1.6	1.0	2.5	2.2	-0.7	0.6	0.4	0.2	0.3
Emerging Markets Equity	90,652,031	1.4	0.6	9.2	2.6	-6.2	6.9	1.4	2.2	--	2.0
MSCI Emerging Markets ND		2.1	3.2	12.2	2.7	-5.0	11.3	4.0	3.2	--	3.0
Excess		-0.7	-2.6	-3.1	-0.2	-1.1	-4.3	-2.7	-1.0	--	-1.0
EV Parametric EM	90,652,031	1.4	0.6	9.2	2.6	-6.2	6.9	--	--	--	5.3
MSCI Emerging Markets GD		2.1	3.2	12.3	3.0	-4.7	11.7	--	--	--	7.6
Excess		-0.7	-2.7	-3.1	-0.5	-1.5	-4.7	--	--	--	-2.4
Fixed Income	966,701,541	0.3	1.8	3.1	4.3	4.5	4.6	3.7	4.1	6.4	5.5
Samcera Fixed Income Benchmark		0.4	2.5	4.7	5.7	6.0	3.1	3.0	2.7	4.1	5.0
Excess		-0.1	-0.7	-1.5	-1.3	-1.6	1.5	0.7	1.4	2.3	0.5
Core Fixed Income	635,850,410	0.3	1.7	2.9	4.4	4.5	3.0	3.2	3.2	5.7	5.2
BB Barclays U.S. Aggregate		0.0	1.9	3.0	4.7	5.3	1.9	2.6	2.3	3.7	4.8
Excess		0.2	-0.2	-0.0	-0.2	-0.8	1.0	0.7	0.9	2.0	0.4

San Mateo County Composite Return Summary

April 30, 2019



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
FIAM Core Bond	273,198,560	0.3	2.3	3.7	4.9	5.6	2.6	3.0	3.0	5.2	4.6
BB Barclays U.S. Aggregate		0.0	1.9	3.0	4.7	5.3	1.9	2.6	2.3	3.7	4.1
Excess		0.2	0.4	0.7	0.2	0.3	0.7	0.5	0.7	1.5	0.5
Western Total Return	134,250,424	0.6	1.2	3.6	4.5	2.4	4.7	--	--	--	4.0
BB Barclays U.S. Aggregate		0.0	1.9	3.0	4.7	5.3	1.9	--	--	--	2.4
Excess		0.5	-0.7	0.6	-0.2	-2.9	2.8	--	--	--	1.6
Blackrock Inter Gov	228,401,427	0.0	1.2	1.7	3.9	4.6	--	--	--	--	1.9
BB Barclays U.S. Aggregate		0.0	1.9	3.0	4.7	5.3	--	--	--	--	2.9
Excess		0.0	-0.7	-1.3	-0.8	-0.7	--	--	--	--	-0.9
Opportunistic Credit	330,851,131	0.3	2.0	3.5	4.2	4.4	8.0	5.6	8.0	--	8.9
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	6.0	4.8	5.8	--	7.2
Excess		-0.7	-1.8	-4.6	-3.4	-3.1	2.0	0.8	2.1	--	1.7
SAMCERA -Pimco Private Income	3,740,000	0.0	--	--	--	--	--	--	--	--	0.0
BB Barc BA Intermediate HY Ind		1.0	--	--	--	--	--	--	--	--	1.0
Excess		-1.0	--	--	--	--	--	--	--	--	-1.0
AG Opportunistic Whole Loan	5,547,413	0.0	0.5	0.5	17.7	25.3	19.1	11.0	--	--	11.0
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	6.0	4.8	--	--	4.8
Excess		-1.0	-3.3	-7.6	10.1	17.8	13.1	6.2	--	--	6.2
Angelo Gordon	4,802,526	0.0	2.8	2.8	16.2	26.9	19.7	14.2	--	--	14.0
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	6.0	4.8	--	--	5.3
Excess		-1.0	-1.0	-5.3	8.6	19.4	13.8	9.4	--	--	8.7
Beach Point Select Fund	50,651,514	1.4	3.3	1.4	1.4	3.4	8.1	--	--	--	7.5
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	6.0	--	--	--	5.1
Excess		0.4	-0.5	-6.7	-6.2	-4.0	2.1	--	--	--	2.4
Brigade Cap Mngmt	77,848,583	0.3	2.3	4.3	0.7	2.2	7.8	3.7	5.5	--	6.3
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	6.0	4.8	5.8	--	6.6
Excess		-0.7	-1.5	-3.8	-6.9	-5.2	1.8	-1.0	-0.3	--	-0.3

San Mateo County Composite Return Summary

April 30, 2019



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
SAMCERA - White Oak Yield Spec	33,379,662	0.0	0.6	0.6	4.5	5.7	--	--	--	--	--
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	--	--	--	--	5.0
Excess		-1.0	-3.2	-7.5	-3.1	-1.7	--	--	--	--	--
SAMCERA-PIMCO Div. Income Fund	85,288,349	0.6	2.9	6.5	6.9	6.4	--	--	--	--	4.1
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	--	--	--	--	4.0
Excess		-0.4	-0.9	-1.6	-0.7	-1.1	--	--	--	--	0.1
TCP Direct Lending VIII	27,847,981	0.8	2.3	3.1	7.6	4.3	--	--	--	--	--
BB Barc BA Intermediate HY Ind		1.0	3.8	8.1	7.6	7.4	--	--	--	--	6.0
Excess		-0.2	-1.5	-5.0	0.0	-3.2	--	--	--	--	--
Franklin Templeton	41,745,102	-1.7	-0.9	1.7	4.2	-0.9	4.2	1.9	3.4	--	3.8
BB Barclays Multiverse Index		-0.2	0.4	2.1	2.4	1.0	1.3	0.9	1.2	--	1.9
Excess		-1.5	-1.4	-0.4	1.8	-1.9	2.9	0.9	2.2	--	1.9
Risk Parity	368,724,025	1.6	4.5	10.6	5.0	4.6	7.2	5.2	5.7	--	6.1
Samcera Risk Parity Benchmark		2.0	5.0	10.5	4.6	4.5	8.8	7.4	8.7	--	8.4
Excess		-0.4	-0.4	0.1	0.4	0.1	-1.6	-2.1	-2.9	--	-2.3
AQR Global Risk III	185,837,512	3.1	4.0	9.7	5.4	4.6	7.7	3.8	4.7	--	5.3
Samcera Risk Parity Benchmark		2.0	5.0	10.5	4.6	4.5	8.8	7.4	8.7	--	8.4
Excess		1.1	-0.9	-0.8	0.8	0.1	-1.1	-3.5	-4.0	--	-3.2
Panagora	182,886,513	0.1	5.0	11.6	4.7	4.7	6.9	--	--	--	6.0
Samcera Risk Parity Benchmark		2.0	5.0	10.5	4.6	4.5	8.8	--	--	--	6.9
Excess		-1.9	0.1	1.1	0.1	0.2	-1.9	--	--	--	-0.9
Alternatives	529,602,612	1.0	1.1	1.1	3.1	2.4	6.2	5.0	4.9	-6.4	-2.1
Samcera Alternatives Benchmark		5.0	1.6	-2.0	6.0	3.5	10.5	6.6	8.3	10.6	7.6
Excess		-4.0	-0.5	3.2	-2.9	-1.1	-4.3	-1.6	-3.4	-17.0	-9.7
Private Equity	281,131,168	1.6	2.0	1.6	9.4	12.8	13.2	13.5	13.1	--	-17.1
Samcera PE Benchmark		4.2	10.0	19.7	11.6	16.0	18.1	14.5	16.7	--	16.8
Excess		-2.7	-8.0	-18.2	-2.2	-3.2	-4.9	-1.0	-3.6	--	-33.9

San Mateo County Composite Return Summary

April 30, 2019



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Absolute Return	248,471,444	0.3	0.1	0.7	-3.7	-7.9	-0.9	3.0	3.3	--	2.8
Samcera LIBOR + 4%		0.5	1.6	2.2	5.3	6.3	5.4	4.9	4.7	--	4.7
Excess		-0.3	-1.5	-1.5	-9.0	-14.2	-6.3	-1.9	-1.4	--	-1.9
AQR Delta XN	147,103,722	0.2	-1.7	-2.1	-7.9	-13.3	-2.8	1.9	2.5	--	2.1
Samcera LIBOR + 4%		0.5	1.6	2.2	5.3	6.3	5.4	4.9	4.7	--	4.7
Excess		-0.3	-3.3	-4.3	-13.2	-19.6	-8.2	-3.0	-2.2	--	-2.6
SamCERA-Aberdeen Std GARS	101,367,722	0.3	2.8	5.0	3.2	1.3	1.3	--	--	--	0.1
Samcera LIBOR + 4%		0.5	1.6	2.2	5.3	6.3	5.4	--	--	--	5.2
Excess		-0.2	1.2	2.8	-2.1	-5.0	-4.1	--	--	--	-5.2
Inflation Hedge	791,433,520	0.6	0.6	5.3	1.2	2.0	6.3	--	--	--	7.3
SamCERA Inflation Hedge Index		0.6	2.3	4.7	3.2	3.4	6.3	--	--	--	6.8
Excess		0.1	-1.6	0.6	-2.1	-1.4	-0.0	--	--	--	0.4
TIPS	36,296,525	2.0	2.0	3.4	2.1	2.8	2.0	--	--	--	2.1
BBG Barclays US TIPS		0.3	2.2	3.5	2.3	3.1	1.7	--	--	--	1.8
Excess		1.7	-0.2	-0.1	-0.1	-0.3	0.4	--	--	--	0.3
Brown Brothers Harriman	5	--	--	--	--	--	--	--	--	--	--
BBG Barclays US TIPS		--	--	--	--	--	--	--	--	--	--
Excess		--	--	--	--	--	--	--	--	--	--
Real Estate	371,868,338	1.2	1.2	3.4	6.0	7.8	8.4	--	--	--	8.6
Samcera NCREIF ODCE EW (gross)		0.0	1.7	1.7	5.5	7.7	8.2	--	--	--	7.9
Excess		1.2	-0.4	1.7	0.5	0.0	0.2	--	--	--	0.7
Invesco Core Real Estate	268,611,338	1.0	1.0	3.1	5.7	7.6	8.5	10.5	10.6	7.6	7.9
Samcera NCREIF ODCE EW (gross)		0.0	1.7	1.7	5.5	7.7	8.2	10.4	10.8	8.5	7.8
Excess		1.0	-0.7	1.4	0.2	-0.2	0.3	0.1	-0.2	-0.9	0.1
Invesco US Val IV	21,453,414	4.4	4.4	8.6	13.2	15.9	10.9	--	--	--	12.9
Samcera NCREIF ODCE EW (gross)		0.0	1.7	1.7	5.5	7.7	8.2	--	--	--	9.0
Excess		4.4	2.7	6.9	7.7	8.1	2.8	--	--	--	3.9

San Mateo County Composite Return Summary

April 30, 2019

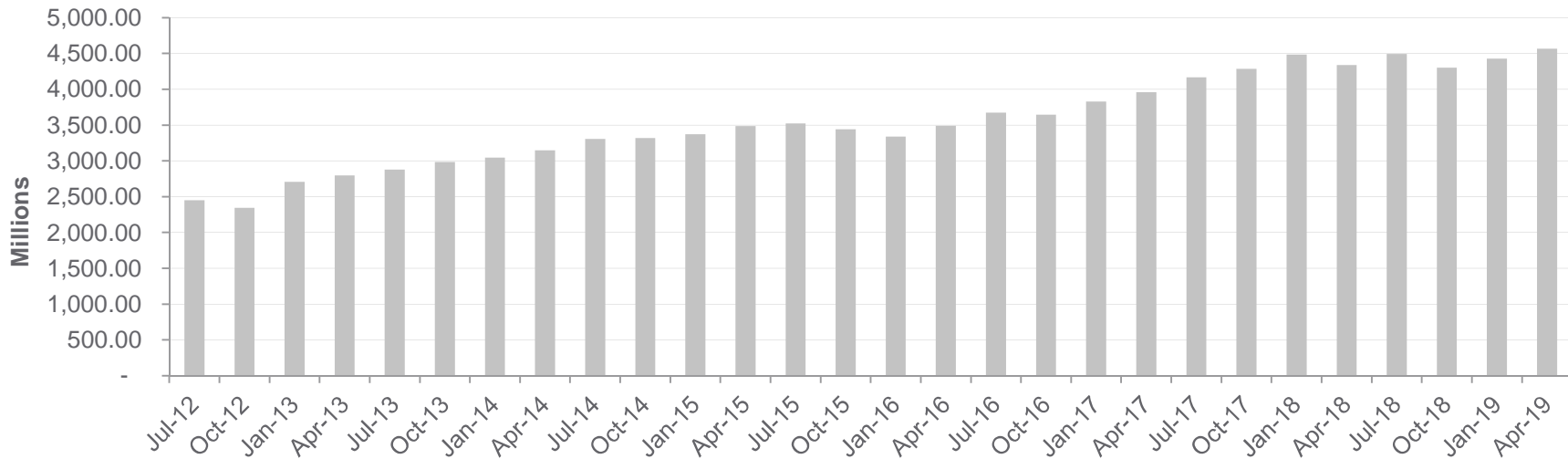


Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
PGIM Real Estate US Debt Fund	77,741,729	1.5	1.5	3.2	5.2	6.5	--	--	--	--	4.5
Samcera NCREIF ODCE EW (gross)		0.0	1.7	1.7	5.5	7.7	--	--	--	--	7.7
Excess		1.5	-0.2	1.5	-0.3	-1.2	--	--	--	--	-3.2
SAMCERA - Invesco US VAL V	4,061,858	-4.5	--	--	--	--	--	--	--	--	-4.5
Samcera NCREIF ODCE EW (gross)		0.0	--	--	--	--	--	--	--	--	--
Excess		-4.5	--	--	--	--	--	--	--	--	--
Public Real Assets	321,020,896	-0.4	2.4	11.8	-2.3	-2.8	--	--	--	--	--
SamCera Liquid Real Asset Inde		0.1	2.9	10.8	-0.3	-0.6	6.0	--	--	--	8.2
Excess		-0.5	-0.4	1.0	-2.1	-2.2	--	--	--	--	--
CUSHING MLP ALPHA TR	73,845,755	-2.0	1.0	15.4	-7.7	--	--	--	--	--	-7.7
50% BC US TIPS/50% SamCERA CRA		0.2	2.6	7.2	1.1	--	--	--	--	--	1.1
Excess		-2.3	-1.6	8.2	-8.8	--	--	--	--	--	-8.8
SSGA CST REAL ASSET NL	247,175,141	0.1	2.9	10.7	-0.6	-1.1	--	--	--	--	--
SamCera Liquid Real Asset Inde		0.1	2.9	10.8	-0.3	-0.6	--	--	--	--	6.4
Excess		0.0	-0.0	-0.0	-0.3	-0.5	--	--	--	--	--
Private Real Assets	62,247,761	1.2	-12.0	-11.3	-7.5	-6.0	5.2	--	--	--	9.8
SamCERA Private Real Asset Idx		4.3	2.8	-0.0	2.6	-1.0	8.1	--	--	--	7.3
Excess		-3.1	-14.8	-11.3	-10.1	-5.0	-2.9	--	--	--	2.5
Cash	34,376,720	0.1	0.3	0.4	0.9	1.0	0.9	0.7	0.7	0.8	1.9
Samcera Cash Benchmark		0.2	0.6	0.8	1.9	2.2	1.2	0.8	0.6	0.4	1.8
Excess		-0.0	-0.2	-0.4	-1.0	-1.2	-0.3	-0.1	0.1	0.3	0.1
SamCera General Account	16,995,641	0.2	0.6	0.8	2.0	2.3	1.5	1.0	0.7	0.6	2.0
SamCera Transition Account	133,268	--	--	--	--	--	--	--	--	--	--
County Treasury Pool	17,247,811	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	2.5
San Mateo County ERA	4,567,542,731	1.8	4.1	8.9	3.8	4.0	8.0	6.1	7.8	9.6	6.7
Samcera Total Plan Benchmark		2.3	4.7	9.0	5.1	4.9	8.8	6.4	8.1	10.1	7.1
Excess		-0.6	-0.6	-0.1	-1.3	-0.9	-0.8	-0.3	-0.4	-0.5	-0.4

Record of Asset Growth

	Three Months	One Year
TOTAL FUND		
Beginning Market Value	4,428,647,228	4,338,473,681
Contributions	15,520,093	520,772,953
Withdrawals	-58,677,408	-483,331,258
Income Received	14,183,657	47,164,648
Gain/Loss	167,824,285	138,666,407
Ending Market Value	4,567,542,731	4,567,542,731

Net Asset Values Over Time (\$'000)

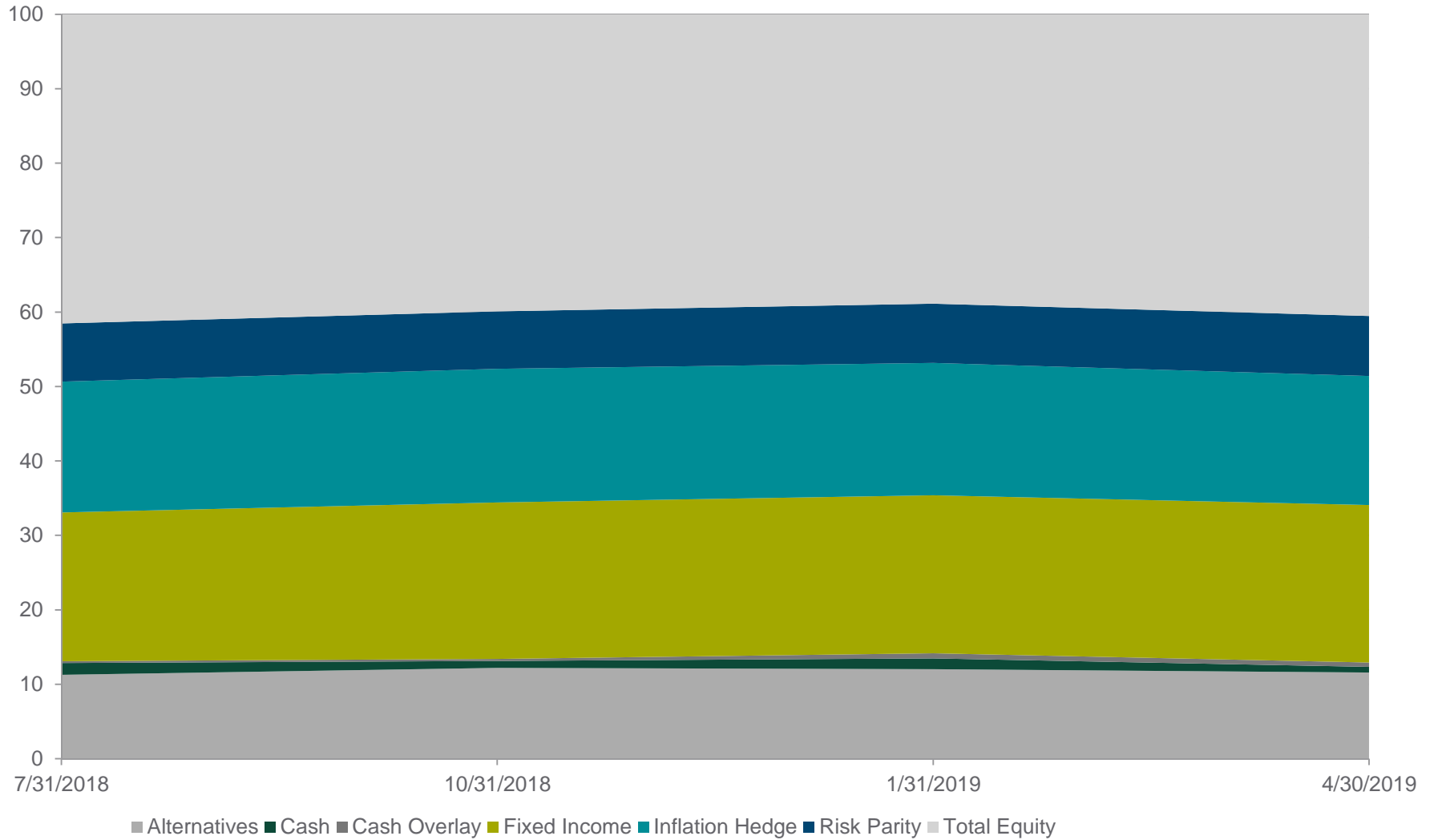


Actual vs Target Weights

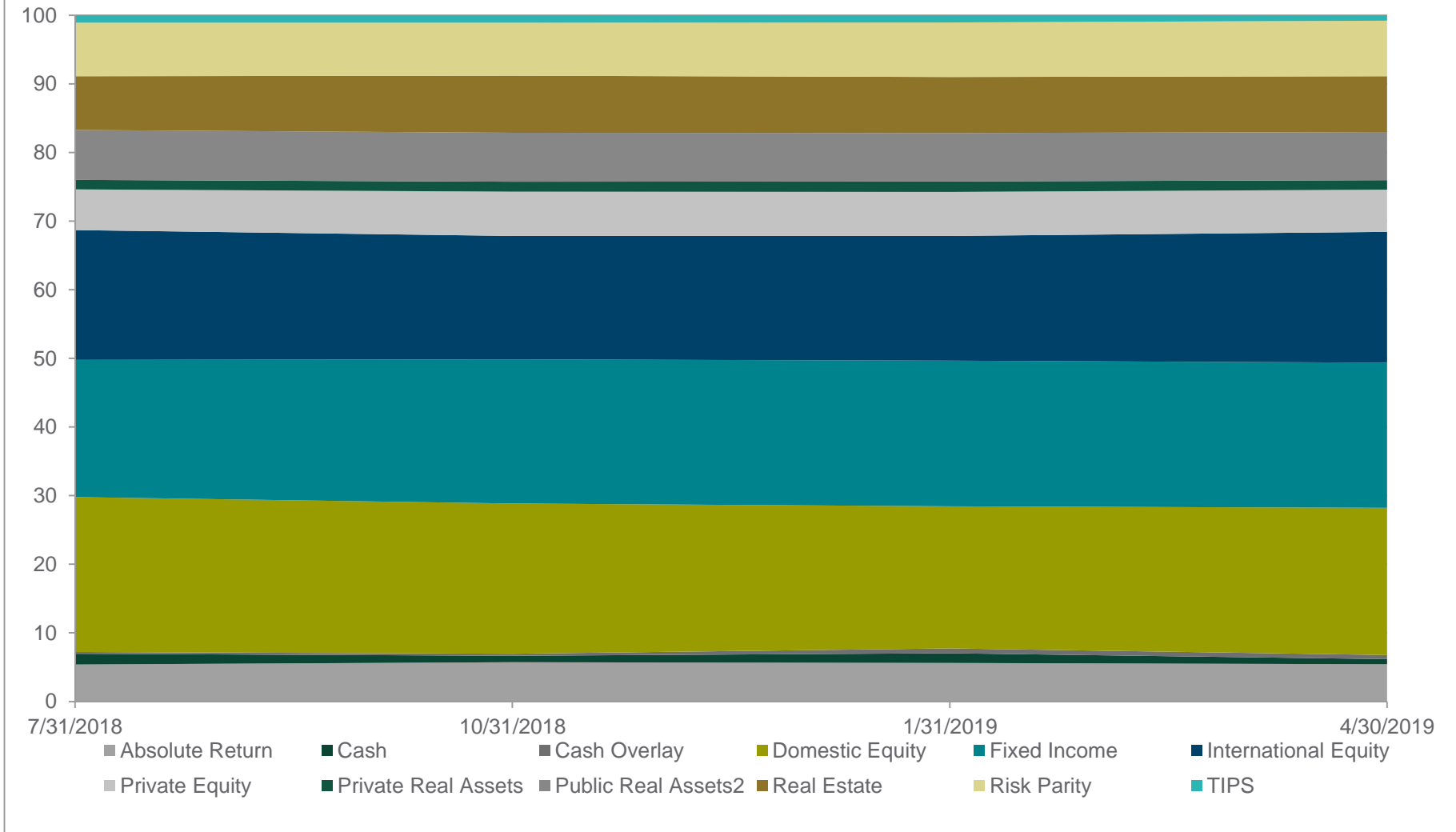


	Min	Actual	Target	Deviation	Max
Domestic Equity	20.0	21.5	22.0	-0.5	24.0
International Equity	17.0	19.1	19.0	0.1	21.0
Fixed Income	19.0	21.2	21.0	0.2	23.0
Private Equity	4.0	6.2	6.0	0.2	8.0
Risk Parity	6.0	8.1	8.0	0.1	10.0
Absolute Return	4.0	5.4	6.0	-0.6	8.0
TIPS	0.0	0.8	2.0	-1.2	4.0
Public Real Assets	4.0	7.0	6.0	1.0	8.0
Real Estate	6.0	8.1	8.0	0.1	10.0
Private Real Assets	0.0	1.4	2.0	-0.6	4.0

Asset Allocation over Time



Sub-Asset Class Allocation Over Time



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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 6.2

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Report on Quarterly Investment Performance Report for the Period Ended March 31, 2019

Recommendation

Accept Verus Advisory's quarterly performance report for the period ended March 31, 2019.

Discussion

The 1st quarter net total return for the SamCERA portfolio was 7.1%, which was 60 bps higher than the 6.5% policy benchmark return. As can be seen on Page 19 and 20, Alternatives was the main contributor of relative performance during the quarter, followed by Risk Parity and Inflation Hedge. Public Equity and Fixed Income were the primary detractors of relative performance.

Margaret Jadallah will present the report to the Board and will be available for questions.

Attachment

Verus Quarterly Performance Report for Period Ending March 31, 2019



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: MARCH 31, 2019

Investment Performance Review for

San Mateo County Employees' Retirement Association

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VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

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1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP growth continued at 3.0% YoY - on pace with the third quarter (2.2% quarterly annualized rate). Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year.
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a trade resolution being reached in the near-to-intermediate future. The two sides have yet to agree on a formal timeline.

PORTFOLIO IMPACTS

- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged, helping to push asset prices upward. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 to \$30 billion a month, and would end in September.
- Risk assets exhibited strong performance over the quarter. U.S. equities delivered the greatest gains (S&P 500 +13.6%, MSCI ACWI +12.2%), reversing U.S. underperformance in Q4 2018 (S&P 500 -13.5%, MSCI ACWI -12.8%). This was followed by riskier credit with high single-digit returns, and safer credit and government bonds with low single-digit returns.

THE INVESTMENT CLIMATE

- The first quarter was nearly a mirror image of 2018 Q4, as many assets retraced losses of the prior quarter.
- Declining long-term Treasury yields following the Fed meeting in March briefly caused the yield curve to invert, meaning that short-term yields (3-month) were higher than long-term yields (10-year). Investors have expressed concerns that this may signal a near term recession. We believe these concerns are overblown.
- The House of Commons in the British Parliament briefly took control of their government’s legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st.

ASSET ALLOCATION ISSUES

- All major asset classes delivered positive performance in Q1, a refreshing change of pace from broad-based losses experienced in 2018.
- Economic conditions around the world have exhibited a weakening trend, leading to the question of whether a turn in the economic cycle is near. The first quarter was more mixed with strength in places, easing some concern. We remain watchful of this weakening trend, but believe the economy and market may have more room to run.

A neutral risk stance may be appropriate in today’s environment

U.S. economics summary

- Real GDP growth continued at 3.0% YoY, on pace with the third quarter (2.2% on a quarterly annualized rate).
- Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year.
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a formal trade resolution being reached in the near future.
- U.S. inflation remained near the 2.0% Fed target. After dipping to 1.5% YoY in February, headline inflation recovered to 1.9% in March, resulting in no change over the quarter.
- Average hourly earnings grew 3.2% YoY in March, missing expectations of 3.3%. A slight tick up in the average non-farm private workweek from 34.4 to 34.5 hours likely contributed to the cooler wage data.
- The labor market remained strong in Q1. U-3 unemployment fell to 3.8% from 3.9% in December, though the labor force participation rate weakened from 63.1% to 63.0% during the period.
- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged. Expectations for 2019 GDP growth and rate hikes were cut, and markets rallied. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 billion per month to \$30 billion, and would end in September.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>12/31/18</i>	2.5% <i>12/31/17</i>
Inflation (CPI YoY, Core)	2.0% <i>3/31/19</i>	2.1% <i>3/31/18</i>
Expected Inflation (5yr-5yr forward)	2.0% <i>3/31/19</i>	2.2% <i>3/31/18</i>
Fed Funds Target Range	2.25 – 2.50% <i>3/31/19</i>	1.50 – 1.75% <i>3/31/18</i>
10 Year Rate	2.4% <i>3/31/19</i>	2.7% <i>3/31/18</i>
U-3 Unemployment	3.8% <i>3/31/19</i>	4.0% <i>3/31/18</i>
U-6 Unemployment	7.3% <i>3/31/19</i>	7.9% <i>3/31/18</i>

International economics summary

- Global growth expectations for the next two years were revised materially lower in Q1. The OECD’s global GDP growth forecast for 2019 and 2020 fell from 3.5% to 3.3%, and from 3.5% to 3.4%, respectively.
- In March, negotiations resumed between high-level U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for some sort of formal trade resolution being reached in the near-to-intermediate future, although the two sides have yet to agree on a formal timeline.
- The German Manufacturing PMI fell from 47.6 to 44.1 in March, falling further into the contractionary territory below 50. New orders and export sales data came in weaker than expected which contributed to a more pessimistic outlook for German manufacturing activity.
- The House of Commons in the British Parliament briefly took control of their government’s legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st.
- The spread between the JP Morgan Global Services and Manufacturing PMIs rose to 3.1 in March. Last March, the spread was at 0.0, indicating that over the past year the outlook for global manufacturing activity has weakened relative to the outlook for global services activity. Typically, services activity is more resilient to a worsening economic backdrop.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>3/31/19</i>
Eurozone	1.1% <i>12/31/18</i>	1.4% <i>3/31/19</i>	7.8% <i>2/28/19</i>
Japan	0.3% <i>12/31/18</i>	0.2% <i>2/28/19</i>	2.3% <i>2/28/19</i>
BRICS Nations	5.8% <i>12/31/18</i>	2.4% <i>3/31/19</i>	5.3% <i>12/31/18</i>
Brazil	1.1% <i>12/31/18</i>	3.9% <i>2/28/19</i>	12.2% <i>3/31/19</i>
Russia	2.7% <i>12/31/18</i>	5.3% <i>3/31/19</i>	4.9% <i>2/28/19</i>
India	7.2% <i>12/31/18</i>	2.6% <i>2/28/19</i>	8.5% <i>12/31/17</i>
China	6.4% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>12/31/18</i>

Equity environment

- U.S. equities experienced a 13.6% total return (S&P 500 Index) in Q1, nearly a mirror image of Q4 2018. The first quarter has indeed been one of the strongest quarters recently, but was simply a bounce back in lost performance from the prior quarter. At the end of March, the S&P 500 price index was just 3.2% below its high watermark that was reached in September.
- Currency movement had little impact on unhedged international equity over the quarter, though currencies on a 1-year basis have had a substantially negative effect. An unhedged investment in international developed equities (MSCI EAFE) lost 8.9% of portfolio value due to currency movement.
- First quarter earnings growth for S&P 500 companies is expected to be negative for the first time since Q2 2016. If corporate earnings

expectations continue to be downgraded, this will likely hold back markets around the world. The greatest determinant of medium and long-term equity performance is typically the underlying trend of corporate earnings.

- The risk-on quarter drove small cap equities forward. The Russell 2000 Index posted a 14.6% return, compared to the 13.8% return of the Russell 1000 Index.
- Value equities underperformed growth equities over the quarter (Russell 1000 Value +11.7%, Russell 1000 Growth +16.0%). Performance over the quarter reversed value's gains from Q4 2018.
- After spiking in the fourth quarter, U.S. equity volatility returned to muted levels.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	13.8%		8.7%	
US Small Cap (Russell 2000)	14.6%		2.1%	
US Large Value (Russell 1000 Value)	11.7%		4.9%	
US Large Growth (Russell 1000 Growth)	16.0%		12.3%	
International Large (MSCI EAFE)	10.0%	11.3%	(3.7%)	5.2%
Eurozone (Euro Stoxx 50)	10.6%	12.9%	(6.3%)	5.8%
U.K. (FTSE 100)	9.5%	10.1%	(0.2%)	9.6%
Japan (NIKKEI 225)	6.8%	7.6%	(3.4%)	2.9%
Emerging Markets (MSCI Emerging Markets)	9.9%	9.8%	(7.4%)	(2.1%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/19

Domestic equity

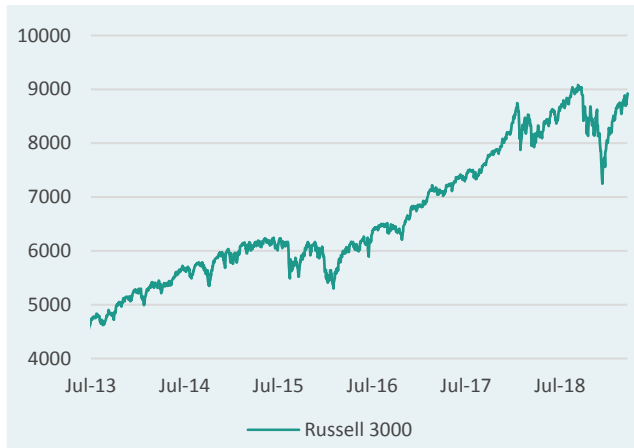
U.S. equities experienced a 13.6% total return (S&P 500 Index) in the first quarter, rebounding from the sharp sell-off in the prior quarter. At the end of March, the S&P 500 price index was just 3.2% below its high watermark that was reached in September. The bounce back in equity prices was driven by better than expected/feared Q1 corporate earnings, improving sentiment toward a U.S.-China trade deal, and the Fed's pivot to a more patient approach to monetary policy. The fall and subsequent rise in equities was primarily reflected in valuation changes. After dropping to a low of 13.6 in December, the forward 12-month P/E ratio on the S&P 500 finished the

quarter at 16.7, essentially unchanged over the past six months.

Now 10 years removed from the bottom of the financial crisis, it is worth noting that U.S. equities have experienced one of their best decades of performance ever. The S&P 500 had a compound price return of 14.2% per year, and over 75% of this was due to profit margin and valuation expansion. With both of these measures at above average levels, we do not think that it is reasonable to expect this level of performance to continue moving forward.

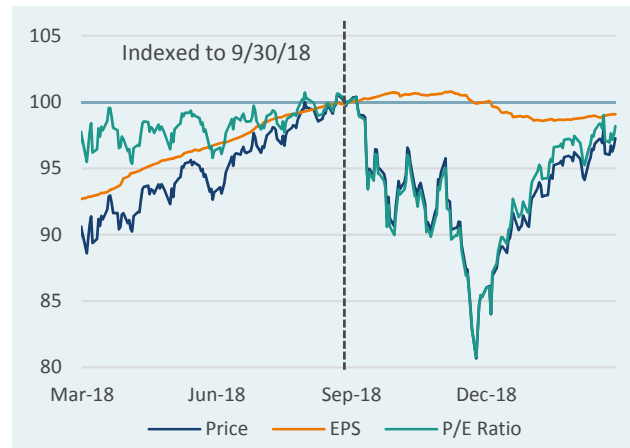
We maintain a neutral view on U.S. equities

U.S. EQUITIES



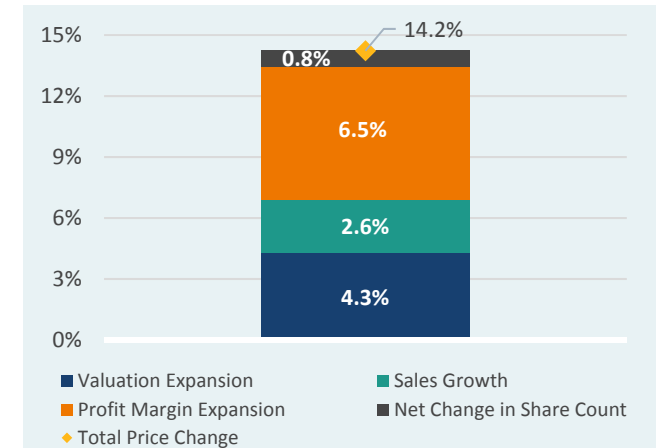
Source: Russell Investments, as of 3/31/19

S&P 500 PRICE MOVEMENT ATTRIBUTION



Source: Bloomberg, as of 3/31/19

S&P 500 10-YR PRICE RETURN ATTRIBUTION



Source: Verus, Bloomberg, as of 3/31/19

Domestic equity size & style

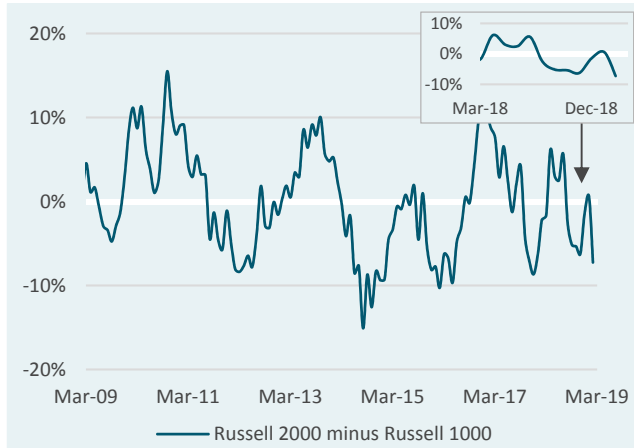
Small cap equities (Russell 2000 +14.6%) slightly outperformed large cap equities (Russell 1000 +14.0%) during the quarter. Meanwhile, growth stocks outperformed value stocks by a wide margin (Russell 1000 Growth +16.1% vs. Russell 1000 Value +11.9%).

The impact of sector performance on the value premium was more nuanced in Q1, as Materials (+10.3%) and Financials (+8.6%) underperformed the overall index (S&P 500 +13.6%), but Energy (+16.4%) outperformed. Information Technology,

the top performing sector, continued to deliver outsized returns (+19.9%).

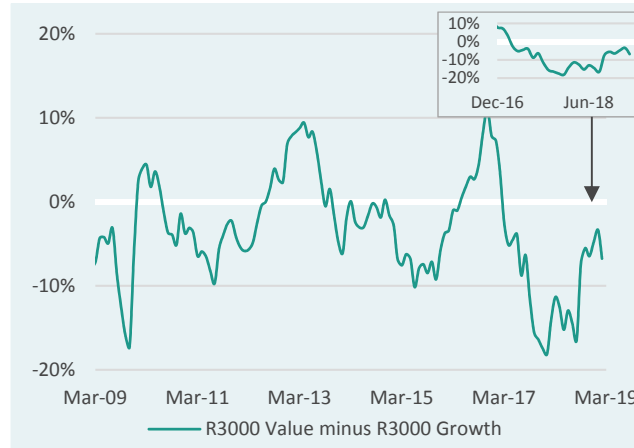
Both the small cap premium and value premium have struggled to deliver positive risk premiums over the past 10 years. It can be difficult to endure longer periods of factor underperformance, but similar to the equity premium in general, these periods do exist and investors should expect this on occasion.

SMALL CAP VS LARGE CAP (YOY)



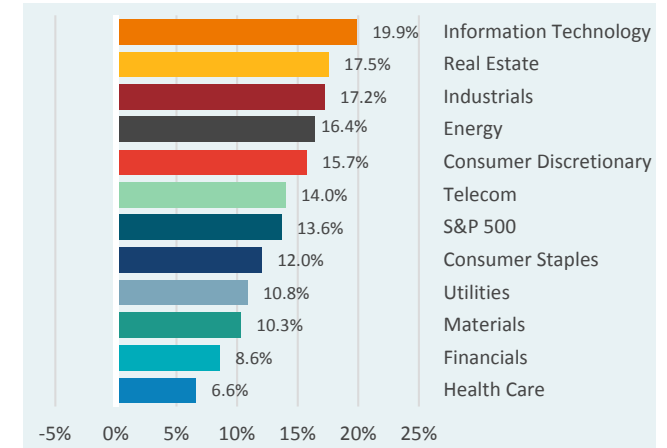
Source: FTSE, as of 3/31/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/19

Q1 S&P 500 SECTOR RETURNS



Source: Morningstar, as of 3/31/19

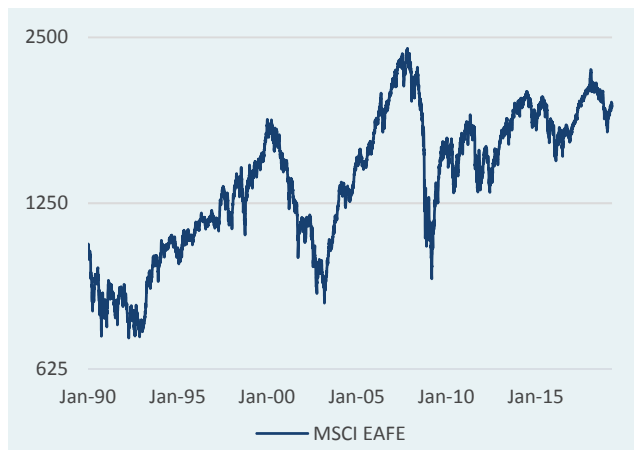
International developed equity

Like U.S. equities, international developed equities erased most of the losses they suffered in the prior quarter. After posting a return of -12.5% in Q4, the MSCI EAFE Index returned +10.2% in Q1. Currency losses were a mild detractor from unhedged U.S. dollar performance. On a currency hedged basis, EAFE equities returned 11.3%. From a country perspective, Swiss, French and UK equities outperformed, while Japanese and German equities lagged the overall index. While most markets are back near record highs, German equities (MSCI Germany) finished the quarter 17% below the previous high watermark. Underperformance in German equities has likely been influenced by a greater

sensitivity to global growth and trade as well as concerns over a slowing domestic economy.

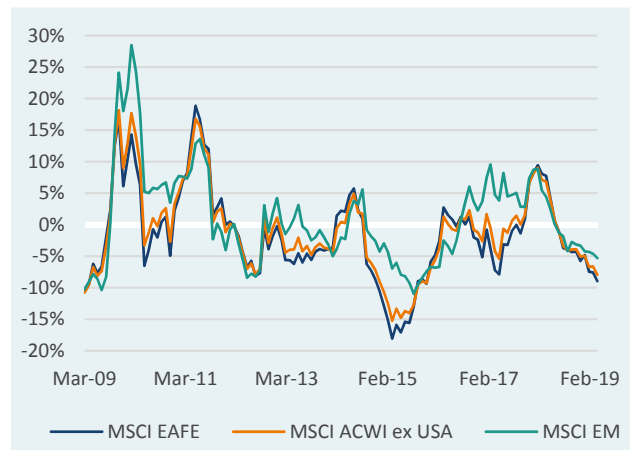
International developed equity markets are still cheap on both an absolute and relative basis at 13.3x forward earnings, but we believe there are good reasons for this pricing in certain markets. Within equity allocations, we are pessimistic on EAFE equities primarily due to a negative view on the Eurozone. We believe slowing economic growth, rising political risks, and the lacking ability of the ECB to meaningfully ease policy presents material headwinds to equity performance.

INTERNATIONAL DEVELOPED EQUITIES



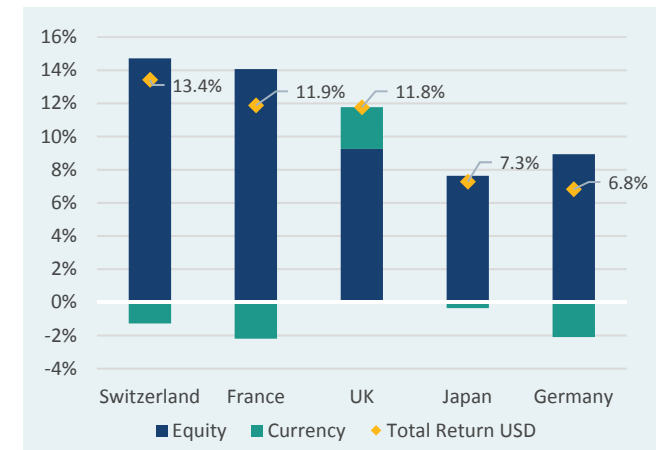
Source: MSCI, as of 3/31/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 3/31/19

Q1 COUNTRY PERFORMANCE



Source: MSCI, largest five country exposures shown above

Emerging market equity

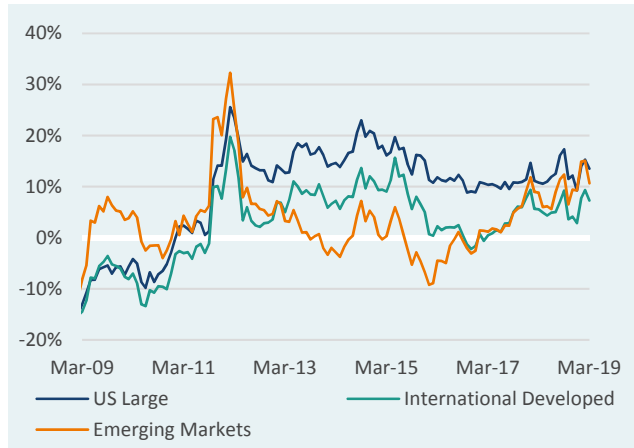
Emerging market equity performance was in-line with international developed markets in the first quarter, while U.S. equities outperformed. Currencies in these markets continued to show stability (MSCI EM +9.9%, MSCI EM Hedged +9.8%). Business sentiment across emerging market economies indicates expanding conditions, and fears of a sharp China slowdown have subsided. Moderating conditions may bolster emerging market returns throughout the year.

Equity multiples rebounded in the first quarter and are near

the long-term average. The divide between domestic and emerging equities remains wide.

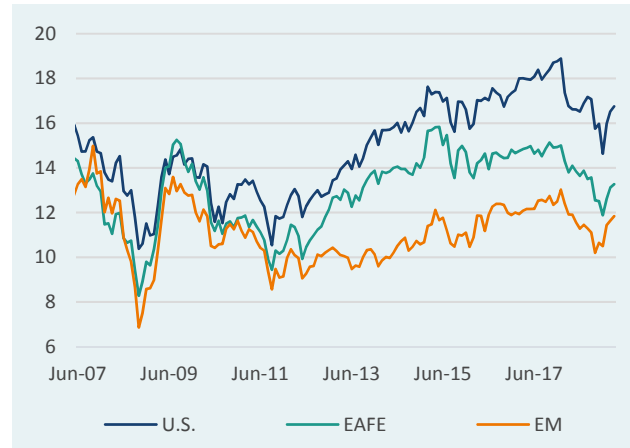
Decelerating global growth and rising probability of recession do present unique risks to emerging markets, as these markets typically exhibit a higher beta during market downside and upside moves. However, emerging markets can also deliver robust performance in times of moderate growth and easy monetary policy when investors seek growth and higher yields.

EQUITY PERFORMANCE (3-YR ROLLING)



Source: Standard & Poor's, MSCI, as of 3/31/19

FORWARD P/E



Source: MSCI, as of 3/31/19

PURCHASING MANAGERS' INDEX (PMI)

	18-Dec	19-Jan	19-Feb	19-Mar
Manufacturing				
Global	51.4	50.8	50.6	50.6
Developed	52.3	51.8	50.4	50.0
US	54.3	56.6	54.2	55.3
EM	50.3	49.5	50.6	51.0
Services				
Global	53.0	52.6	53.3	53.7
Developed	52.8	52.5	53.7	53.7
US	58.0	56.7	59.7	56.1
EM	53.6	52.9	52.1	53.6

Source: Markit, Institute for Supply Management (ISM)

Interest rate environment

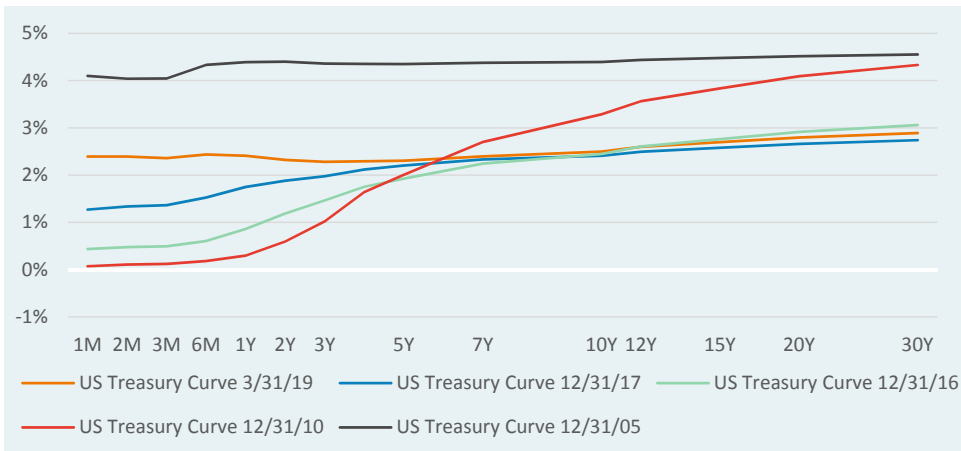
- The Federal Reserve held the fed funds rate unchanged over the quarter, and communicated a much more dovish stance on monetary policy amid slower growth expectations and stable inflation near 2%.
- Fed officials lowered their collective expectations for rate hikes in 2019 from two to zero, and announced that the balance sheet unwind would conclude in September, much earlier than previously anticipated.
- More dovish expectations for monetary policy and concerns over economic growth likely helped push long-term Treasury yields lower. The 10-year yield fell 28 bps to just above 2.4%.
- Falling long-term yields and stable short-term yields led to a brief inversion of the Treasury curve between the 10-year and 3-month yields.
- While widely considered a bearish signal for the economy and risk markets, the timing between curve inversion and bearish economic and market environments has varied widely. Additionally, Fed asset purchases of long-term Treasuries has artificially lowered yields and muddled the information conveyed by the yield curve.
- The ECB also pivoted to a more dovish stance as officials announced that deposit rates will be on hold through at least the end of the year.
- The 10-year German bund yield dipped back into negative territory for the first time since late 2016.
- Emerging market local bonds offer attractive yields relative to developed markets, even after adjusting for inflation. The JPM GBI-EM Index yielded 7% at the end of March.

Area	Short Term (3M)	10-Year
United States	2.39%	2.41%
Germany	(0.53%)	(0.07%)
France	(0.54%)	0.32%
Spain	(0.40%)	1.10%
Italy	(0.20%)	2.49%
Greece	0.87%	3.73%
U.K.	0.80%	1.00%
Japan	(0.17%)	0.08%
Australia	1.68%	1.77%
China	2.08%	3.07%
Brazil	6.31%	8.97%
Russia	7.35%	8.41%

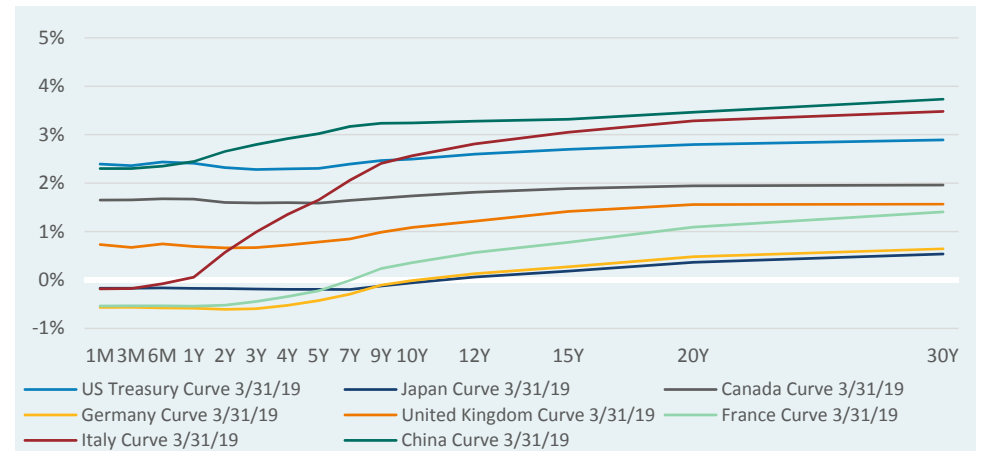
Source: Bloomberg, as of 3/31/19

Yield environment

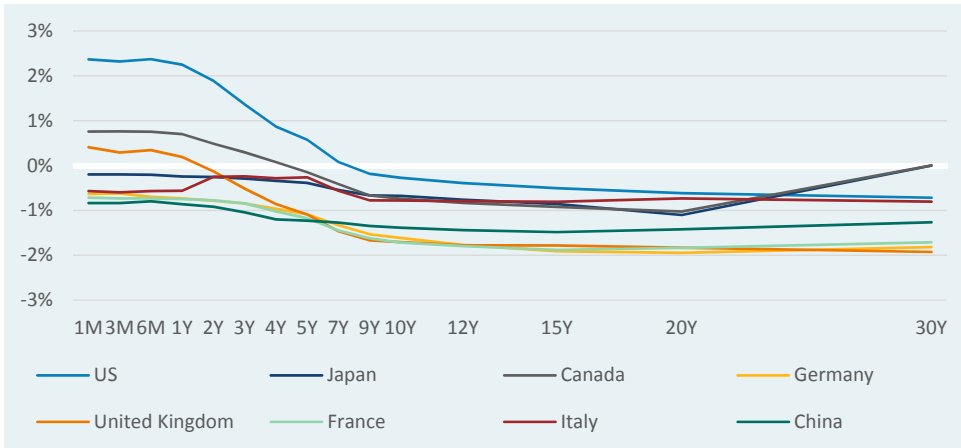
U.S. YIELD CURVE



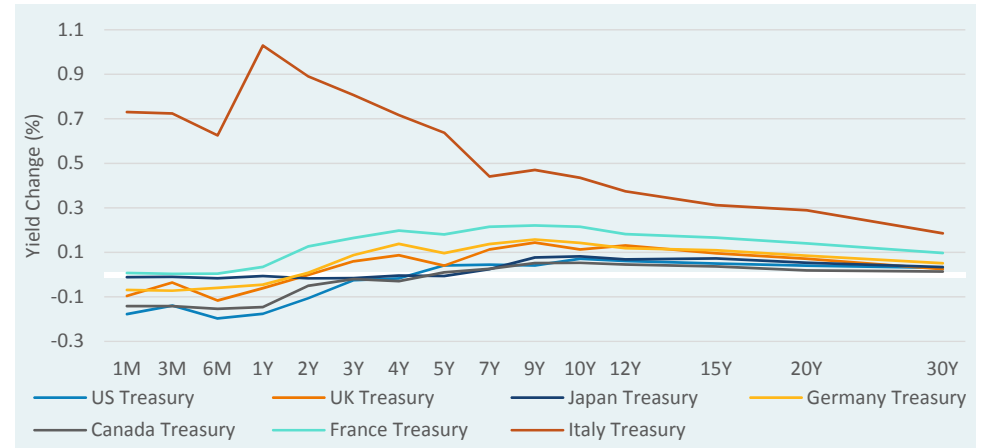
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/19

Currency

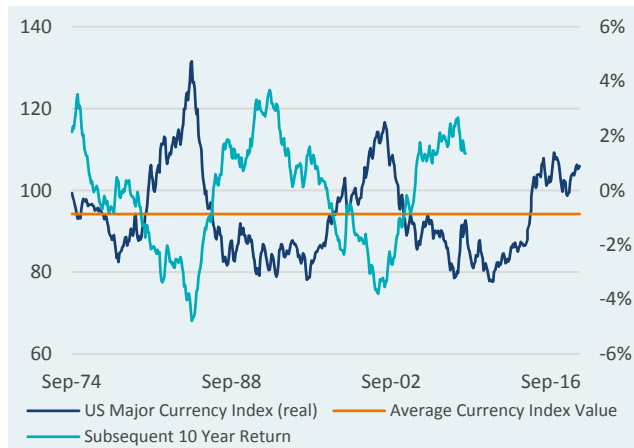
The U.S. dollar failed to gain traction in either direction during the first quarter, and remained near cycle highs. The Major Trade Weighted U.S. Dollar Index fell 0.3% over the period, but was 12.5% above its long-term average dating back to 1974 at the end of March. Expectations for a more accommodative Fed and weaker relative U.S. economic growth (from strong levels in 2018) has led many investors to call for U.S. dollar depreciation, but this has not occurred thus far. This may in part be because other developed central banks have followed the Fed's lead in moving away from monetary tightening.

Emerging market currencies were relatively stable versus the dollar for a second consecutive quarter. The JPMorgan Emerging Market Currency Index gained 0.4%. EM currencies have yet to stage a major comeback after falling more than 15% in the middle of last year.

The U.S. dollar remained near a cycle high

Despite some high-profile Brexit related volatility in the British pound, the global FX market has been relatively quiet. The trailing 1-year volatility of the Bloomberg Dollar Spot Index was 5.2% at the end of the quarter, the lowest level since 2014.

U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, Verus, as of 3/31/19

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 3/31/19

BLOOMBERG DOLLAR SPOT INDEX VOLATILITY



Source: Bloomberg, as of 3/31/19, trailing 12-month vol shown

- The Total Fund, net of manager fees, returned 7.1% in the first quarter of 2019 and ranked in the 66th percentile among other public plans greater than \$1 billion (median of 7.4%). It beat the policy index return of 6.5%. The Total Fund ex Overlay returned 6.8% for the quarter. The Total Fund one-year return of 3.0% lagged the policy index return of 3.4% and ranked in the 56th percentile of its peer universe. The three-year return of 7.8% (60th percentile) lagged the median large public plan (8.1%) and the policy index (8.4%).

- First quarter results were enhanced by the following factors:
 1. PanAgora Defensive Equity gained 15.0% beating the Russell 1000 (14.0%) and ranked in the top quartile of its peers. Compared to the Russell 1000, 138 bps of outperformance came from asset selection and -38 bps was attributed to sector allocation. When compared to the MSCI US Minimum Volatility Index the portfolio outperformed by 2.5% all of which was from asset selection.

- First quarter results were hindered by the following factors:
 1. Acadian gained 10.7% trailing the Russell 1000 which gained 14.0%. Most of the underperformance was due to stock selection and an underweight in information technology, primarily due to a lack of exposure to Apple.
 2. Brigade Capital gained 4.3% but trailed the Bloomberg Barclay Intermediate High Yield Index (7.0%.) The Fund's credit hedge on the iBoxx HY Index detracted from relative performance as the index was up 4.8% in January.
 3. QMA lagged the Russell 2000 (12.2% vs 14.6%.) The value factor continued to underperform during the quarter, which hurt relative performance.
 4. Parametric Core lagged the MSCI Emerging Markets index 7.7% vs 10.0%. The underweight to China contributed to the portfolio's relative underperformance.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	7.1	66	2.4	41	3.0	56	5.9	88	7.8	60	5.9	36	10.2	27
<i>Policy Index¹</i>	6.5	85	2.7	30	3.4	25	6.7	47	8.4	36	6.0	33	10.7	16
<i>InvestorForce Public DB > \$1B Net Median</i>	7.4		2.2		3.1		6.6		8.1		5.6		9.7	
Total Fund ex Overlay	6.8	76	2.2	51	2.7	60	5.7	92	7.7	75	5.8	40	10.1	28
<i>Policy Index¹</i>	6.5	85	2.7	30	3.4	25	6.7	47	8.4	36	6.0	33	10.7	16
<i>InvestorForce Public DB > \$1B Net Median</i>	7.4		2.2		3.1		6.6		8.1		5.6		9.7	
Public Equity	12.0	84	1.2	68	2.2	73	8.2	74	10.4	84	6.8	70	12.8	68
<i>Blended Public Equity Index¹</i>	12.4	70	1.5	53	2.4	71	8.8	47	11.3	40	7.2	63	13.5	46
<i>InvestorForce All DB Total Eq Net Median</i>	12.7		1.6		3.2		8.7		11.1		7.4		13.4	
US Equity	13.3	85	3.5	55	7.6	47	10.6	50	12.8	61	9.5	52	15.4	47
<i>Blended US Equity Index¹</i>	14.0	47	4.7	26	8.8	24	11.3	26	13.6	18	10.1	27	16.0	16
<i>Russell 3000</i>	14.0	47	4.7	26	8.8	24	11.3	26	13.5	26	10.4	14	16.0	17
<i>InvestorForce All DB US Eq Net Median</i>	14.0		3.7		7.5		10.6		13.0		9.6		15.4	
Large Cap Equity	13.4	44	5.5	36	9.4	35	11.9	35	14.0	26	11.0	27	15.7	35
<i>Russell 1000</i>	14.0	38	5.5	36	9.3	36	11.6	37	13.5	31	10.6	30	16.0	26
<i>eV US Large Cap Equity Net Median</i>	13.0		4.1		7.0		10.1		11.9		9.3		14.9	
<i>Acadian US MGD V***</i>	10.7	91	--	--	--	--	--	--	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	14.0	27	5.6	37	9.3	30	11.6	28	--	--	--	--	--	--
<i>DE Shaw</i>	12.6	60	3.6	57	7.8	40	11.9	23	14.9	6	11.9	6	--	--
<i>PanAgora Defuseq***</i>	15.0	12	--	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 1000</i>	14.0	27	5.5	37	9.3	30	11.6	29	13.5	20	10.6	20	16.0	14
<i>eV US Large Cap Core Equity Net Median</i>	13.1		4.1		6.9		10.3		12.1		9.4		14.8	

* Total Fund and asset class aggregates are ranked in InvestorForce universes. Managers are ranked in eVest (eA) manager universes.

** Includes Parametric Minneapolis manager funded in August 2013.

*** Funded December 2018.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	12.2	73	-7.8	70	-1.5	67	3.8	66	8.9	72	4.1	85	14.9	66
<i>Russell 2000</i>	14.6	42	-5.3	53	2.0	45	6.8	43	12.9	38	7.1	46	15.4	59
<i>eV US Small Cap Equity Net Median</i>	13.8		-5.0		1.1		5.8		11.4		6.8		15.9	
QMA US Small Cap	12.2	76	-7.8	72	-1.5	70	3.8	76	--	--	--	--	--	--
<i>Russell 2000</i>	14.6	36	-5.3	48	2.0	43	6.8	40	12.9	28	7.1	49	15.4	56
<i>eV US Small Cap Core Equity Net Median</i>	13.6		-5.6		1.0		6.1		11.7		6.9		15.6	
International Equity	10.5	56	-1.6	24	-3.9	18	5.4	43	7.4	64	2.9	38	8.1	79
<i>Blended International Equity Index¹</i>	10.4	56	-2.2	38	-4.7	28	5.8	35	8.3	33	3.0	32	9.4	36
<i>MSCI EAFE Gross</i>	10.1	72	-2.3	39	-3.2	14	5.6	37	7.8	54	2.8	42	9.5	34
<i>InvestorForce All DB ex-US Eq Net Median</i>	10.6		-2.7		-5.8		5.2		7.9		2.7		9.1	
Developed Markets	10.8	45	-2.3	46	-3.6	39	5.4	55	7.2	57	3.0	47	8.4	72
<i>MSCI ACWI ex USA Gross</i>	10.4	52	-1.4	29	-3.7	39	6.1	42	8.6	31	3.0	46	9.3	43
<i>InvestorForce All DB Dev Mkt ex-US Eq Net Median</i>	10.5		-2.4		-4.4		5.9		7.4		3.0		9.2	
Baillie Gifford	13.3	50	-5.2	58	-4.9	49	6.3	83	7.6	68	3.9	62	--	--
<i>MSCI ACWI ex US¹</i>	10.4	99	-1.4	21	-3.7	40	6.1	84	8.6	51	3.0	81	--	--
<i>MSCI ACWI ex US Growth¹</i>	12.4	68	-1.4	23	-2.7	34	8.2	52	8.8	49	4.4	57	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	13.3		-4.6		-5.1		8.4		8.6		4.7		11.4	
BlackRock EAFE Index	10.1	54	-2.4	29	-3.2	28	5.5	40	7.7	30	2.7	59	--	--
<i>MSCI EAFE</i>	10.0	57	-2.5	29	-3.7	31	5.1	46	7.3	39	2.3	71	9.0	74
<i>MSCI EAFE Gross</i>	10.1	52	-2.3	28	-3.2	28	5.6	38	7.8	29	2.8	54	9.5	62
<i>eV EAFE Core Equity Net Median</i>	10.1		-4.6		-5.8		4.9		6.8		3.0		9.9	
Mondrian	9.1	32	0.8	1	-2.7	1	4.4	17	6.8	44	2.2	34	8.3	51
<i>MSCI ACWI ex USA Value Gross</i>	8.5	49	-1.3	10	-4.8	13	4.1	23	8.4	25	1.7	48	8.8	47
<i>MSCI ACWI ex USA Gross</i>	10.4	18	-1.4	11	-3.7	5	6.1	8	8.6	24	3.0	22	9.3	44
<i>eV ACWI ex-US Value Equity Net Median</i>	8.4		-5.1		-8.0		2.0		6.1		1.4		8.4	

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets	7.7	83	1.1	37	-8.5	48	3.8	72	7.3	83	1.4	88	--	--
<i>MSCI Emerging Markets Gross</i>	10.0	41	0.9	38	-7.1	23	7.9	10	11.1	28	4.1	17	9.3	36
<i>InvestorForce All DB Emg Mkt Eq Net Median</i>	9.6		0.1		-9.0		5.1		8.9		3.1		9.1	
Parametric Core	7.7	84	1.1	32	-8.5	49	3.8	80	7.3	85	--	--	--	--
<i>MSCI Emerging Markets Gross</i>	10.0	55	0.9	35	-7.1	33	7.9	32	11.1	33	4.1	42	9.3	62
<i>eV Emg Mkts Equity Net Median</i>	10.3		-0.3		-8.6		6.0		9.9		3.7		9.8	
<i>Parametric Currency Overlay*</i>	14.0	--	--	--	--	--	--	--	--	--	--	--	--	--
Fixed Income	3.0	58	4.0	61	3.7	57	3.2	40	5.0	6	3.6	25	6.5	19
<i>Blended Fixed Income Index¹</i>	4.3	24	5.3	18	5.2	10	3.6	29	3.4	51	3.1	37	4.1	79
<i>InvestorForce All DB Total Fix Inc Net Median</i>	3.3		4.2		3.9		3.0		3.4		2.8		4.9	
Core Fixed	2.7	--	4.1	--	3.5	--	2.8	--	3.2	--	3.2	--	5.8	--
<i>BBgBarc US Aggregate TR</i>	2.9	--	4.6	--	4.5	--	2.8	--	2.0	--	2.7	--	3.8	--
BlackRock Intermediate Govt	1.6	74	3.8	46	3.9	48	2.0	58	--	--	--	--	--	--
<i>BBgBarc US Govt Int TR</i>	1.6	75	3.7	52	3.8	61	1.8	62	1.0	69	1.7	70	2.0	76
<i>eV US Government Fixed Inc Net Median</i>	2.0		3.8		3.9		2.3		1.3		2.1		2.6	
FIAM Bond	3.4	19	4.6	46	4.6	29	3.1	33	2.8	13	3.2	16	5.4	15
<i>BBgBarc US Aggregate TR</i>	2.9	72	4.6	44	4.5	42	2.8	54	2.0	64	2.7	58	3.8	80
Western TRU	2.9	76	3.7	95	0.5	99	3.1	26	4.8	1	--	--	--	--
<i>3-Month Libor Total Return USD</i>	0.7	99	2.0	99	2.6	99	2.0	97	1.7	89	1.1	99	0.7	99
<i>BBgBarc US Aggregate TR</i>	2.9	72	4.6	44	4.5	42	2.8	54	2.0	64	2.7	58	3.8	80
<i>eV US Core Fixed Inc Net Median</i>	3.2		4.6		4.4		2.9		2.2		2.8		4.3	
Opportunistic Credit	3.8	--	3.7	--	4.1	--	5.2	--	9.1	--	5.7	--	--	--
<i>BBgBarc BA Intermediate HY¹</i>	7.0	--	6.5	--	6.5	--	4.7	--	6.4	--	4.7	--	--	--
<i>Angelo Gordon Opportunistic**</i>	0.9	--	6.2	--	16.2	--	17.4	--	15.7	--	--	--	--	--
<i>Angelo Gordon STAR**</i>	5.4	--	15.1	--	20.5	--	20.8	--	18.2	--	13.2	--	--	--
<i>BBgBarc US Aggregate TR</i>	2.9	--	4.6	--	4.5	--	2.8	--	2.0	--	2.7	--	3.8	--

* Funded September 2018.

** Preliminary return as of 03/31/2019.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Beach Point Select	4.4	88	2.1	95	4.1	75	5.6	7	9.0	10	--	--	--	--
BBgBarc BA Intermediate HY ¹	7.0	41	6.5	1	6.5	4	4.7	30	6.4	75	4.7	21	--	--
eV US High Yield Fixed Inc Net Median	6.9		4.2		5.0		4.3		7.4		4.1		10.0	
Brigade Capital	4.3	89	0.7	98	2.2	97	3.5	85	9.8	5	3.6	74	--	--
BBgBarc BA Intermediate HY ¹	7.0	41	6.5	1	6.5	4	4.7	30	6.4	75	4.7	21	--	--
50% Barclays HY/ 50% Bank Loan	5.5	73	3.7	64	4.6	60	4.4	46	7.2	57	4.3	39	--	--
eV US High Yield Fixed Inc Net Median	6.9		4.2		5.0		4.3		7.4		4.1		10.0	
PIMCO Diversified	5.8	70	6.2	1	5.4	37	--	--	--	--	--	--	--	--
Blended PIMCO Diversified Index ¹	6.0	67	6.1	2	4.9	51	4.2	61	5.6	92	4.6	23	8.3	96
BBgBarc BA Intermediate HY	7.0	41	6.5	1	6.5	4	4.7	30	6.4	75	4.7	21	--	--
eV US High Yield Fixed Inc Net Median	6.9		4.2		5.0		4.3		7.4		4.1		10.0	
Franklin Templeton	1.7	91	4.2	27	-0.3	69	0.3	98	4.4	43	1.8	64	--	--
BBgBarc Multiverse TR	2.4	76	2.6	62	-0.3	69	3.3	54	1.8	77	1.2	73	3.3	86
eV All Global Fixed Inc Net Median	3.6		3.1		1.7		3.4		3.7		2.6		5.4	
Private Credit	1.1	--	4.7	--	7.0	--	6.8	--	--	--	--	--	--	--
Cliffwater Direct Lending Index*	0.8	--	4.1	--	6.6	--	7.5	--	9.1	--	8.2	--	10.6	--
TCP Direct Lending VIII ¹	2.4	99	6.6	1	8.8	1	7.4	1	--	--	--	--	--	--
White Oak Yield*	0.0	99	3.1	81	5.2	46	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	0.8	99	4.1	52	6.6	3	7.5	1	9.1	10	8.2	1	10.6	22
eV US High Yield Fixed Inc Net Median	6.9		4.2		5.0		4.3		7.4		4.1		10.0	
Risk Parity	11.3	--	5.0	--	4.7	--	6.6	--	7.6	--	5.6	--	--	--
Blended Risk Parity Index ¹	8.6	--	3.5	--	4.6	--	6.8	--	8.2	--	7.0	--	--	--
AQR GRP, 10% Volatility	11.1	--	5.4	--	4.9	--	7.3	--	8.3	--	4.3	--	--	--
PanAgora	11.4	--	4.6	--	4.6	--	6.0	--	7.0	--	--	--	--	--
Blended Risk Parity Index ¹	8.6	--	3.5	--	4.6	--	6.8	--	8.2	--	7.0	--	--	--
S&P Risk Parity 10% Target Volatility Index TR USD	8.0	--	3.8	--	6.0	--	5.1	--	5.8	--	3.2	--	6.8	--

* Preliminary return as of 03/31/2019.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alternatives	-0.4	--	2.5	--	1.3	--	3.5	--	6.8	--	6.2	--	--	--
<i>Blended Alternatives Index¹</i>	-5.9	--	1.4	--	2.3	--	6.8	--	9.1	--	5.6	--	--	--
Private Equity**	-1.3	76	8.5	31	10.9	46	11.1	68	14.9	17	15.6	10	--	--
<i>Blended Private Equity Index¹</i>	-13.2	99	-2.5	93	-2.2	96	6.9	87	11.4	52	10.4	55	17.4	1
<i>InvestorForce All DB Private Eq Net Median</i>	-0.1		6.3		10.6		13.0		11.6		10.6		10.6	
Hedge Fund/Absolute Return	0.6	79	-3.9	84	-8.3	95	-4.0	97	-1.5	98	2.8	42	--	--
<i>Libor 1 month +4%</i>	1.5	74	4.7	3	6.3	2	5.8	11	5.4	33	4.9	7	--	--
<i>InvestorForce All DB Hedge Funds Net Median</i>	3.1		-0.3		1.0		3.0		4.7		2.3		5.1	
AQR DELTA XN	-2.0	93	-8.0	90	-13.6	93	-7.0	94	-3.4	90	1.8	77	--	--
Aberdeen Standard GARS	4.6	35	2.8	36	0.6	54	0.9	69	1.2	75	--	--	--	--
<i>Libor 1 month +4%</i>	1.5	75	4.7	22	6.3	22	5.8	34	5.4	46	4.9	43	--	--
<i>eV Alt All Multi-Strategy Median</i>	3.2		0.9		1.4		3.3		4.9		4.1		7.2	
Inflation Hedge	4.3	--	1.3	--	3.2	--	4.2	--	5.9	--	--	--	--	--
<i>Blended Inflation Hedge Index¹</i>	3.3	--	1.6	--	3.0	--	4.6	--	5.8	--	--	--	--	--
Real Estate	1.2	76	5.8	21	7.6	32	7.8	22	8.5	2	10.4	4	7.6	44
NCREIF ODCE	1.4	62	5.4	34	7.5	34	7.8	21	8.0	15	10.2	7	8.7	7
<i>InvestorForce All DB Real Estate Pub Net Median</i>	1.6		5.1		7.0		7.0		6.6		8.7		7.5	
Invesco	1.0	--	5.6	--	7.5	--	7.7	--	8.5	--	10.3	--	7.5	--
NCREIF ODCE	1.4	--	5.4	--	7.5	--	7.8	--	8.0	--	10.2	--	8.7	--
Invesco US Val IV	4.0	--	11.1	--	13.0	--	12.3	--	11.4	--	--	--	--	--
NCREIF ODCE	1.4	--	5.4	--	7.5	--	7.8	--	8.0	--	10.2	--	8.7	--
NCREIF CEVA 1Q Lag - NET	3.0	--	9.1	--	11.4	--	11.1	--	10.7	--	13.5	--	--	--
Invesco US Val V***	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NCREIF ODCE	1.4	--	5.4	--	7.5	--	7.8	--	8.0	--	10.2	--	8.7	--
NCREIF CEVA 1Q Lag - NET	3.0	--	9.1	--	11.4	--	11.1	--	10.7	--	13.5	--	--	--

* Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

** Returns are one-quarter lag.

*** Funded February 2019.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
PGIM RE US Debt Fund	1.6	--	5.3	--	6.6	--	--	--	--	--	--	--	--	--
NCREIF ODCE	1.4	--	5.4	--	7.5	--	7.8	--	8.0	--	10.2	--	8.7	--
Private Real Asset**	-11.8	--	-7.6	--	-6.1	--	-8.2	--	-3.8	--	--	--	--	--
Blended Private Real Asset Index ¹	-8.7	--	-4.8	--	-8.7	--	-1.6	--	1.5	--	2.8	--	--	--
Blended Secondary CA Private RA Index ¹	-2.6	--	1.6	--	3.3	--	8.1	--	9.8	--	--	--	--	--
Public Real Assets	12.2	--	-1.9	--	0.8	--	4.1	--	--	--	--	--	--	--
Blended Public Real Asset Index ¹	10.1	--	-1.8	--	0.6	--	3.3	--	4.8	--	4.9	--	--	--
Cushing MLP Alpha TR***	17.7	--	--	--	--	--	--	--	--	--	--	--	--	--
50% BBgBarc US TIPS/ 50% Blended PRA Index	6.6	--	0.1	--	--	--	--	--	--	--	--	--	--	--
Alerian MLP TR USD	16.8	--	3.0	--	15.1	--	-4.1	--	5.7	--	-4.7	--	10.1	--
SSgA Custom Real Asset	10.6	--	-0.6	--	2.1	--	4.7	--	--	--	--	--	--	--
Blended Public Real Asset Index ¹	10.1	--	-1.8	--	0.6	--	3.3	--	4.8	--	4.9	--	--	--
TIPS	2.8	--	1.6	--	2.4	--	1.7	--	2.0	--	1.6	--	--	--
BBgBarc US TIPS TR	3.2	--	1.9	--	2.7	--	1.8	--	1.7	--	1.9	--	3.4	--
Brown Brothers Harriman	2.8	81	1.6	70	2.4	65	1.7	49	2.0	30	1.6	57	--	--
BBgBarc US TIPS TR	3.2	61	1.9	36	2.7	22	1.8	35	1.7	41	1.9	18	3.4	46
eV US TIPS / Inflation Fixed Inc Net Median	3.3	--	1.8	--	2.5	--	1.7	--	1.6	--	1.7	--	3.4	--
Cash	0.3	--	0.9	--	1.3	--	1.1	--	1.0	--	1.0	--	0.9	--
91 Day T-Bills	0.6	--	1.7	--	2.1	--	1.7	--	1.2	--	0.8	--	0.4	--
General Account	0.8	--	4.1	--	5.3	--	3.6	--	2.7	--	2.2	--	1.2	--
Treasury & LAIF	0.7	--	2.8	--	3.3	--	3.2	--	2.3	--	1.8	--	1.4	--
91 Day T-Bills	0.6	--	1.7	--	2.1	--	1.7	--	1.2	--	0.8	--	0.4	--

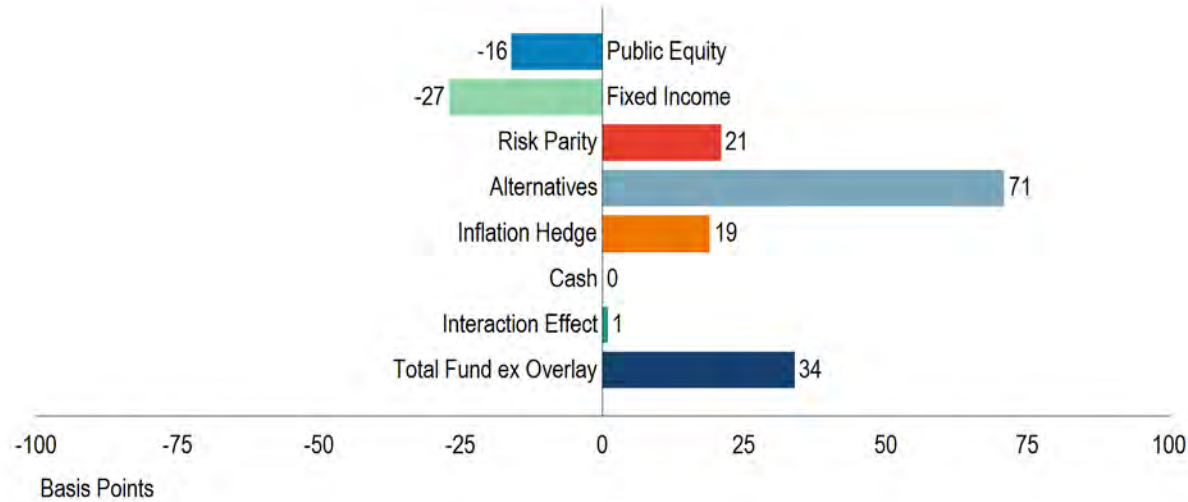
** Returns are one-quarter lag.

*** Funded July 2018

1. See Appendix for Benchmark History.

Total Fund ex Overlay
Performance Attribution

Period Ending: March 31, 2019

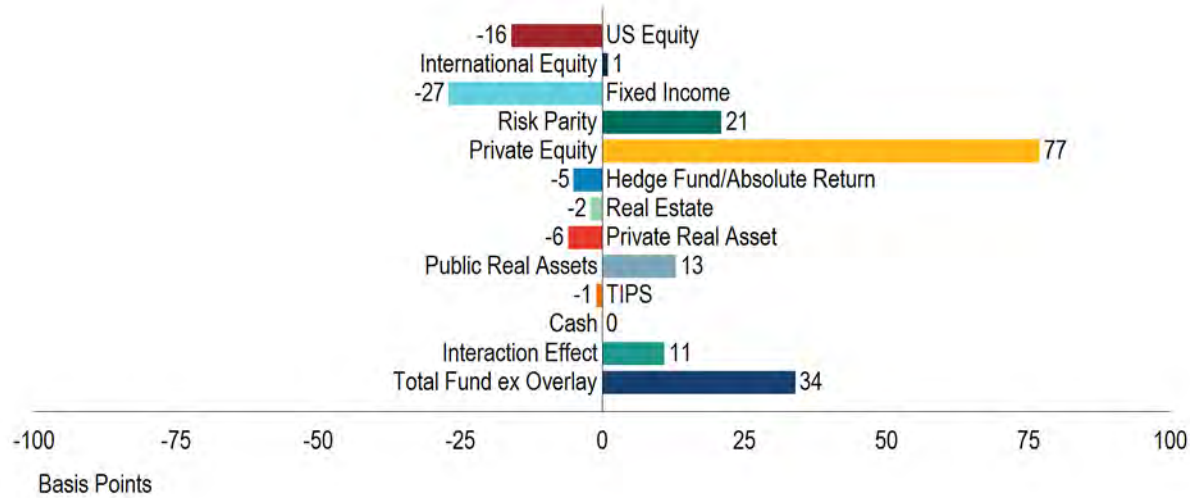


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
Public Equity	12.00%	12.37%	-0.37%	-0.16%	-0.17%	0.02%	-0.31%
Fixed Income	3.03%	4.29%	-1.26%	-0.27%	-0.02%	-0.01%	-0.29%
Risk Parity	11.28%	8.65%	2.63%	0.21%	0.00%	0.00%	0.21%
Alternatives	-0.39%	-5.95%	5.56%	0.71%	-0.05%	0.01%	0.67%
Inflation Hedge	4.33%	3.31%	1.02%	0.19%	0.01%	0.00%	0.19%
Cash	0.29%	0.59%	-0.30%	0.00%	-0.12%	-0.01%	-0.13%
Total	6.81%	6.47%	0.34%	0.68%	-0.35%	0.01%	0.34%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution

Period Ending: March 31, 2019

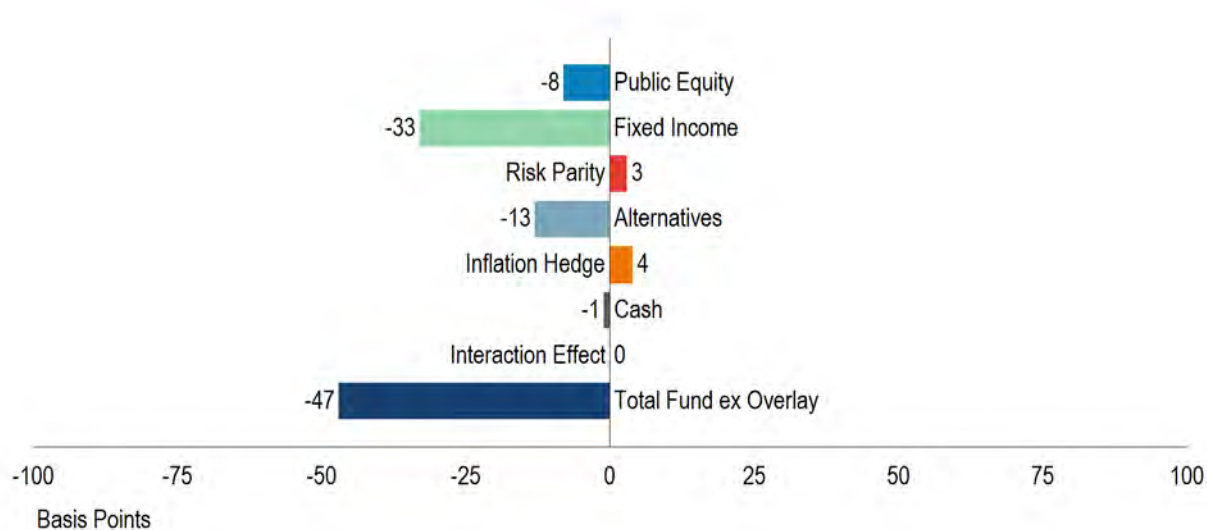


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	13.31%	14.04%	-0.74%	-0.16%	-0.12%	0.01%	-0.27%
International Equity	10.52%	10.45%	0.07%	0.01%	-0.05%	0.00%	-0.04%
Fixed Income	3.03%	4.29%	-1.26%	-0.27%	-0.02%	-0.01%	-0.29%
Risk Parity	11.28%	8.65%	2.63%	0.21%	0.00%	0.00%	0.21%
Private Equity	-1.26%	-13.20%	11.94%	0.77%	-0.13%	0.07%	0.71%
Hedge Fund/Absolute Return	0.63%	1.52%	-0.89%	-0.05%	0.01%	0.00%	-0.04%
Real Estate	1.24%	1.42%	-0.18%	-0.02%	-0.02%	0.00%	-0.04%
Private Real Asset	-11.79%	-8.74%	-3.05%	-0.06%	0.08%	0.00%	0.03%
Public Real Assets	12.18%	10.05%	2.13%	0.13%	0.03%	0.02%	0.17%
TIPS	2.79%	3.19%	-0.40%	-0.01%	0.03%	0.00%	0.03%
Cash	0.29%	0.59%	-0.30%	0.00%	-0.12%	-0.01%	-0.13%
Total	6.81%	6.47%	0.34%	0.55%	-0.31%	0.11%	0.34%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: March 31, 2019

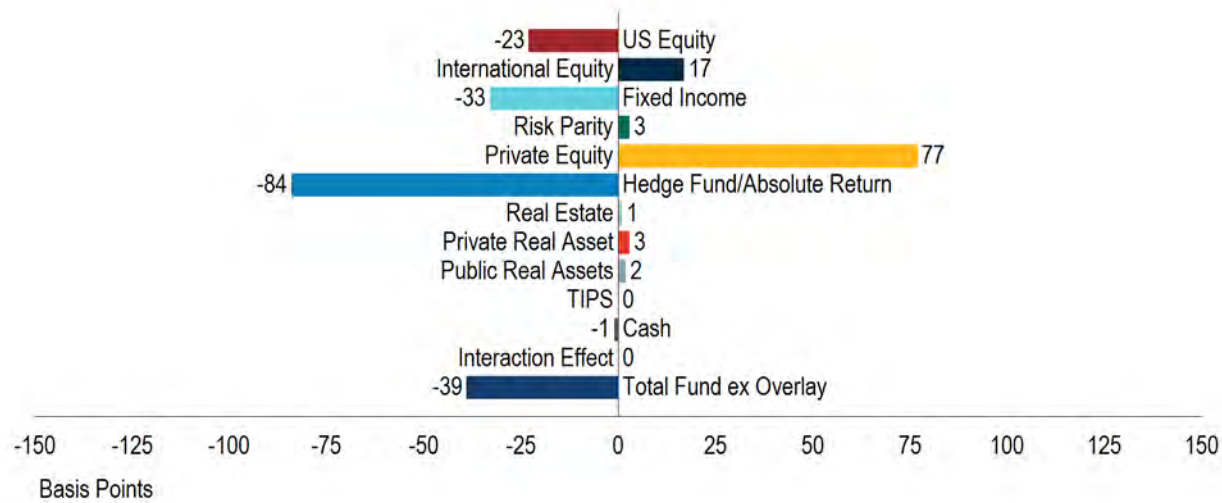


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Public Equity	2.22%	2.41%	-0.18%	-0.08%	0.00%	0.00%	-0.08%
Fixed Income	3.67%	5.19%	-1.52%	-0.33%	0.00%	0.00%	-0.33%
Risk Parity	4.75%	4.64%	0.11%	0.03%	0.00%	0.00%	0.03%
Alternatives	1.29%	2.27%	-0.97%	-0.13%	0.00%	0.00%	-0.13%
Inflation Hedge	3.20%	3.00%	0.20%	0.04%	0.00%	0.00%	0.04%
Cash	1.26%	2.15%	-0.89%	-0.01%	0.00%	0.00%	-0.01%
Total	2.72%	3.20%	-0.47%	-0.47%	0.00%	0.00%	-0.47%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: March 31, 2019



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction * Effects	Total Effects
US Equity	7.65%	8.77%	-1.12%	-0.23%	0.00%	0.00%	-0.23%
International Equity	-3.86%	-4.73%	0.87%	0.17%	0.00%	0.00%	0.17%
Fixed Income	3.67%	5.19%	-1.52%	-0.33%	0.00%	0.00%	-0.33%
Risk Parity	4.75%	4.64%	0.11%	0.03%	0.00%	0.00%	0.03%
Private Equity	10.87%	-2.24%	13.11%	0.77%	0.00%	0.00%	0.77%
Hedge Fund/Absolute Return	-8.32%	6.31%	-14.63%	-0.84%	0.00%	0.00%	-0.84%
Real Estate	7.60%	7.52%	0.08%	0.01%	0.00%	0.00%	0.01%
Private Real Asset	-6.06%	-8.65%	2.59%	0.03%	0.00%	0.00%	0.03%
Public Real Assets	0.77%	0.63%	0.14%	0.02%	0.00%	0.00%	0.02%
TIPS	2.38%	2.70%	-0.32%	0.00%	0.00%	0.00%	0.00%
Cash	1.26%	2.15%	-0.89%	-0.01%	0.00%	0.00%	-0.01%
Total	2.73%	3.12%	-0.39%	-0.39%	0.00%	0.00%	-0.39%

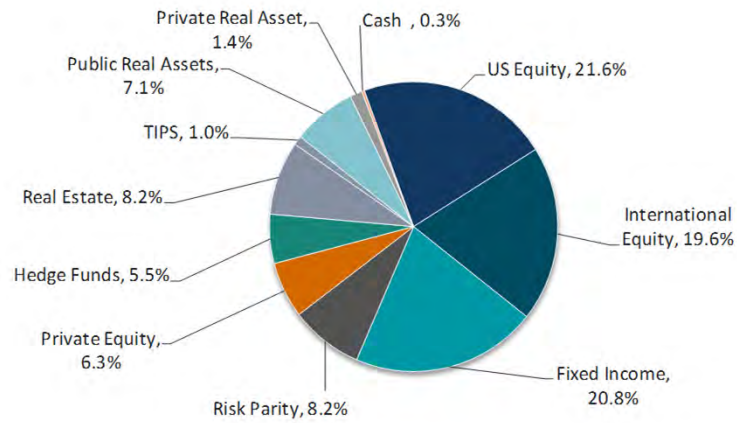
Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund

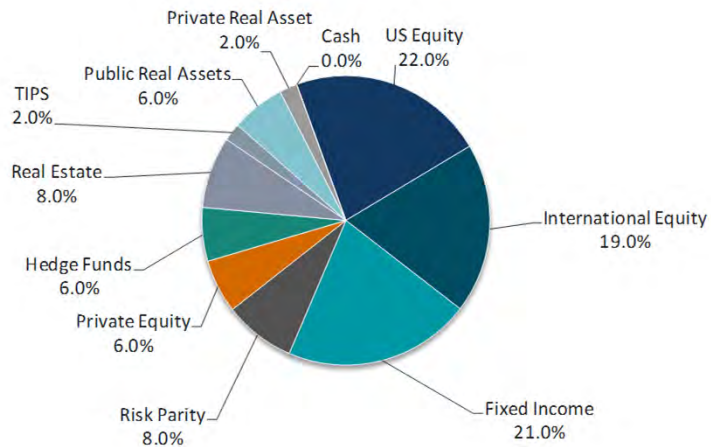
Asset Allocation Analysis

Period Ending: March 31, 2019

Current w/Overlay



Target

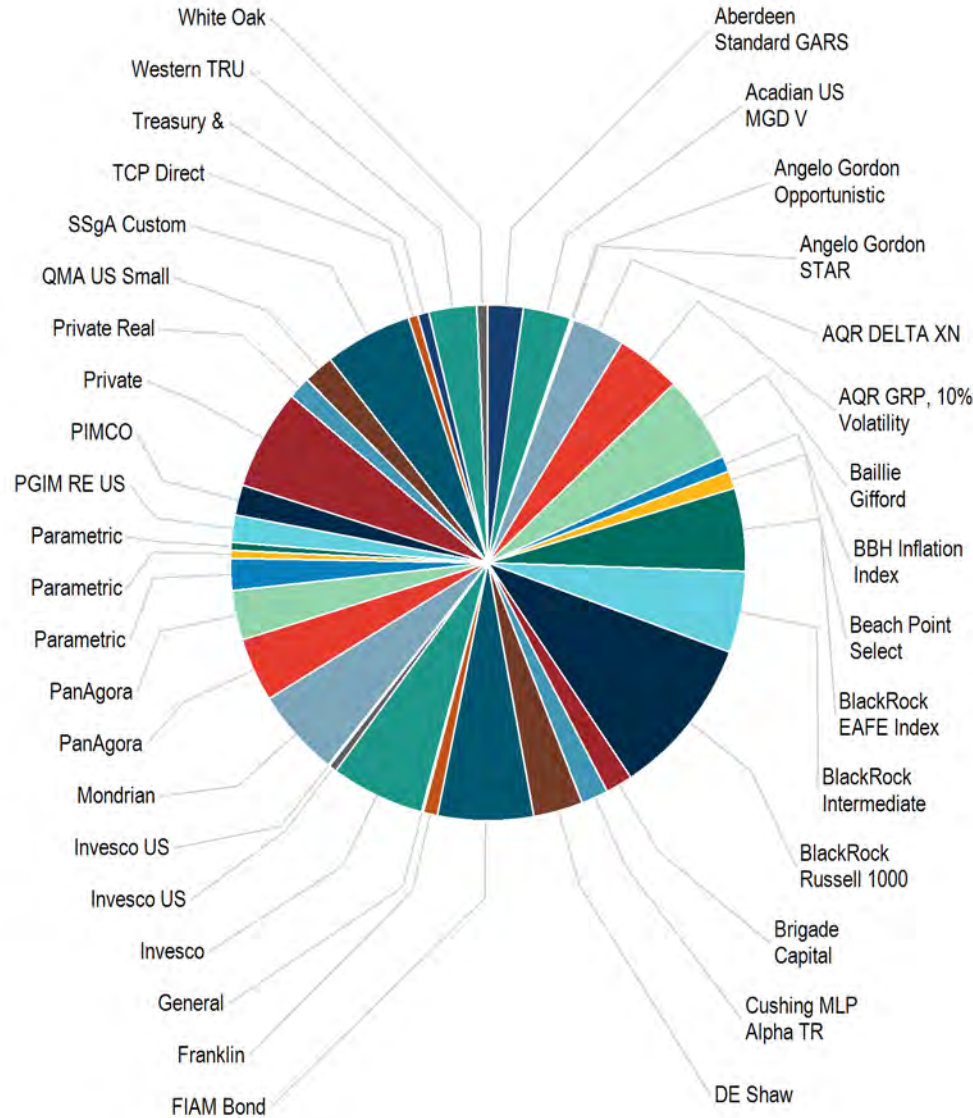


ASSET ALLOCATION	MARKET VALUE		
	W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	975,983,141	21.6%	21.1%
International Equity	884,904,557	19.6%	18.6%
Fixed Income	939,253,995	20.8%	21.3%
Risk Parity	368,516,246	8.2%	8.2%
Private Equity	283,156,707	6.3%	6.3%
Hedge Funds	248,130,331	5.5%	5.5%
Real Estate	371,868,311	8.2%	8.2%
TIPS	46,118,766	1.0%	1.0%
Public Real Assets	322,271,534	7.1%	7.1%
Private Real Asset	61,447,027	1.4%	1.4%
Cash	13,330,144	0.3%	1.4%
TOTAL	4,514,980,759	100.0%	100.0%

ASSET ALLOCATION	W/OVERLAY	TARGET	DIFF
US Equity	21.6%	22.0%	-0.4%
International Equity	19.6%	19.0%	0.6%
Fixed Income	20.8%	21.0%	-0.2%
Risk Parity	8.2%	8.0%	0.2%
Private Equity	6.3%	6.0%	0.3%
Hedge Funds	5.5%	6.0%	-0.5%
Real Estate	8.2%	8.0%	0.2%
TIPS	1.0%	2.0%	-1.0%
Public Real Assets	7.1%	6.0%	1.1%
Private Real Asset	1.4%	2.0%	-0.6%
Cash	0.3%	0.0%	0.3%
TOTAL	100.0%	100.0%	0.0%

Total Fund Manager Allocation Analysis

Period Ending: March 31, 2019



	Actual	Actual
Aberdeen Standard GARS	\$101,026,609	2%
Acadian US MGD V	\$134,803,109	3%
Angelo Gordon Opportunistic	\$6,208,000	0%
Angelo Gordon STAR	\$5,327,003	0%
AQR DELTA XN	\$147,103,722	3%
AQR GRP, 10% Volatility	\$185,837,512	4%
Baillie Gifford	\$242,545,323	5%
BBH Inflation Index	\$46,118,761	1%
Beach Point Select	\$50,994,654	1%
BlackRock EAFE Index	\$236,217,824	5%
BlackRock Intermediate Govt	\$228,280,195	5%
BlackRock Russell 1000	\$452,386,423	10%
Brigade Capital	\$77,848,583	2%
Brown Brothers Harriman	\$5	0%
Cushing MLP Alpha TR	\$75,375,330	2%
DE Shaw	\$141,456,533	3%
FIAM Bond	\$272,456,792	6%
Franklin Templeton	\$41,745,102	1%
General Account	\$6,244,054	0%
Invesco	\$268,611,602	6%
Invesco US Val IV	\$21,453,414	0%
Invesco US Val V	\$4,061,858	0%
Mondrian	\$248,674,284	6%
PanAgora	\$182,678,734	4%
PanAgora Defuseq	\$139,172,258	3%
Parametric Core	\$89,327,898	2%
Parametric Currency Overlay	\$23,138,601	1%
Parametric Minneapolis Overlay	\$23,405,455	1%
PGIM RE US Debt Fund	\$77,741,437	2%
PIMCO Diversified	\$84,744,527	2%
Private Equity	\$283,156,707	6%
Private Real Asset	\$61,447,027	1%
QMA US Small Cap	\$84,552,173	2%
SSgA Custom Real Asset	\$246,896,204	5%
TCP Direct Lending VIII	\$26,751,142	1%
Transition 3	\$154	0%
Treasury & LAIF	\$31,946,233	1%
Western TRU	\$133,494,553	3%
White Oak Yield	\$31,750,965	1%
Total	\$4,514,980,759	100%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.8%	60	5.2%	27	1.3	32	-0.5	81	1.0%	63
Policy Index	8.4%	36	5.3%	28	1.3	27	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	8.1%	--	5.7%	--	1.2	--	-0.2	--	1.0%	--

Statistics Summary

5 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	5.9%	36	6.1%	43	0.8	28	-0.2	39	1.0%	42
Policy Index	6.0%	33	6.5%	56	0.8	36	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	5.6%	--	6.3%	--	0.8	--	-0.3	--	1.1%	--

Statistics Summary

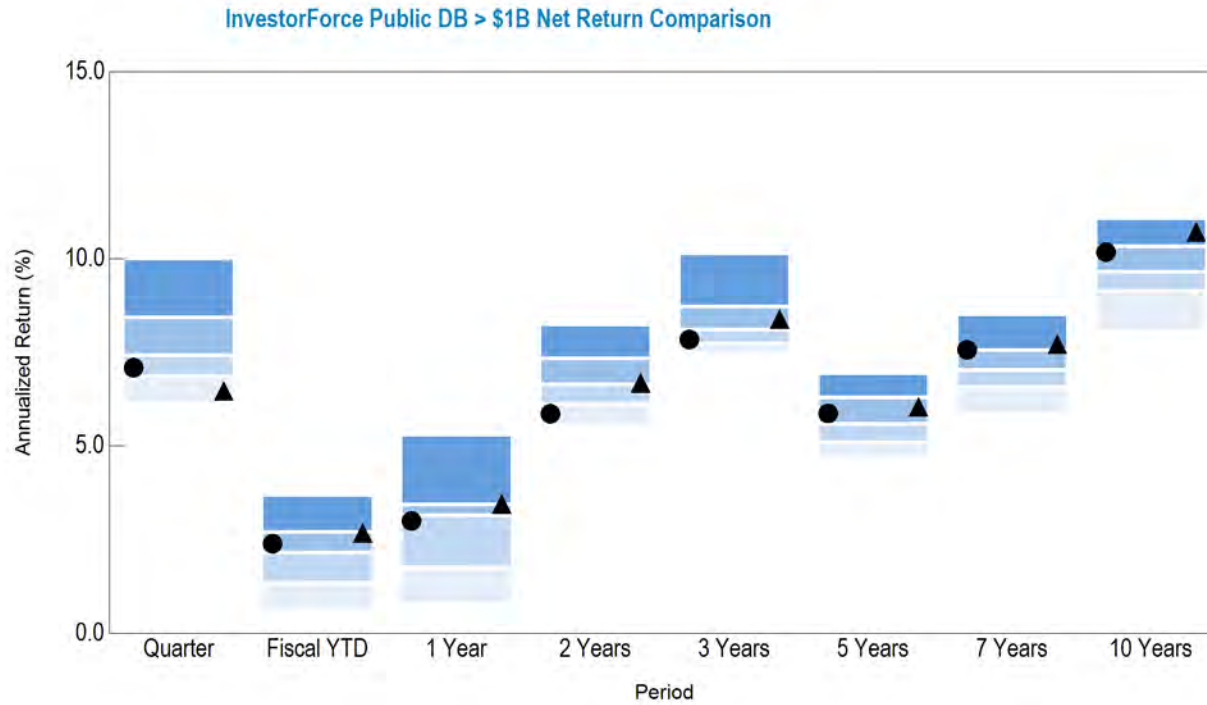
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	1.0%	0.2%	-1.5	-1.0	0.2%
91 Day T-Bills	1.2%	0.2%	0.0	--	0.0%
General Account	2.7%	1.0%	1.6	1.8	0.9%
91 Day T-Bills	1.2%	0.2%	0.0	--	0.0%
Treasury & LAIF	2.3%	1.0%	1.0	1.1	0.9%
91 Day T-Bills	1.2%	0.2%	0.0	--	0.0%

Statistics Summary

5 Years

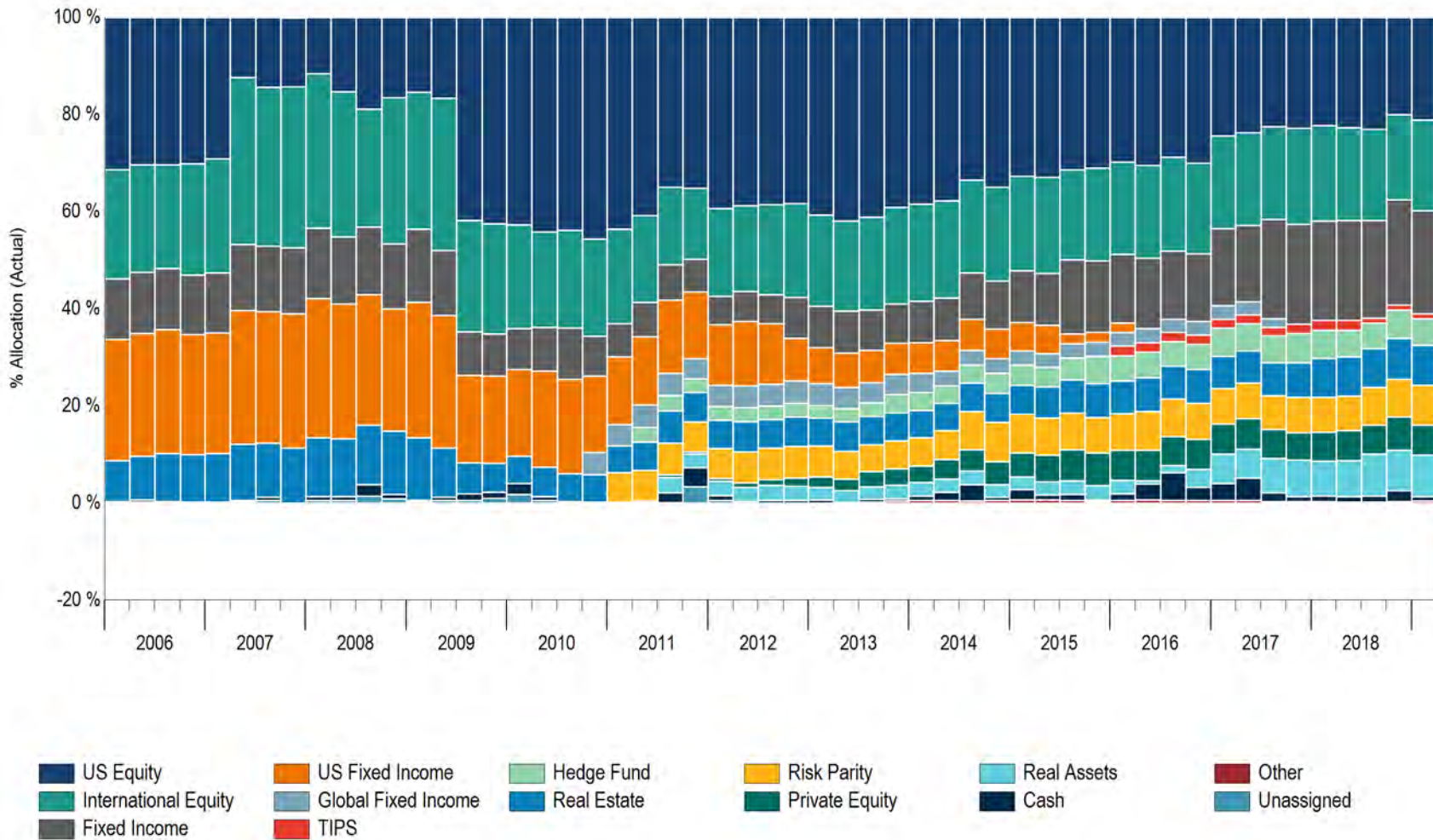
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	1.0%	0.3%	0.7	0.6	0.4%
91 Day T-Bills	0.8%	0.2%	0.0	--	0.0%
General Account	2.2%	0.9%	1.6	1.8	0.8%
91 Day T-Bills	0.8%	0.2%	0.0	--	0.0%
Treasury & LAIF	1.8%	0.9%	1.2	1.3	0.8%
91 Day T-Bills	0.8%	0.2%	0.0	--	0.0%

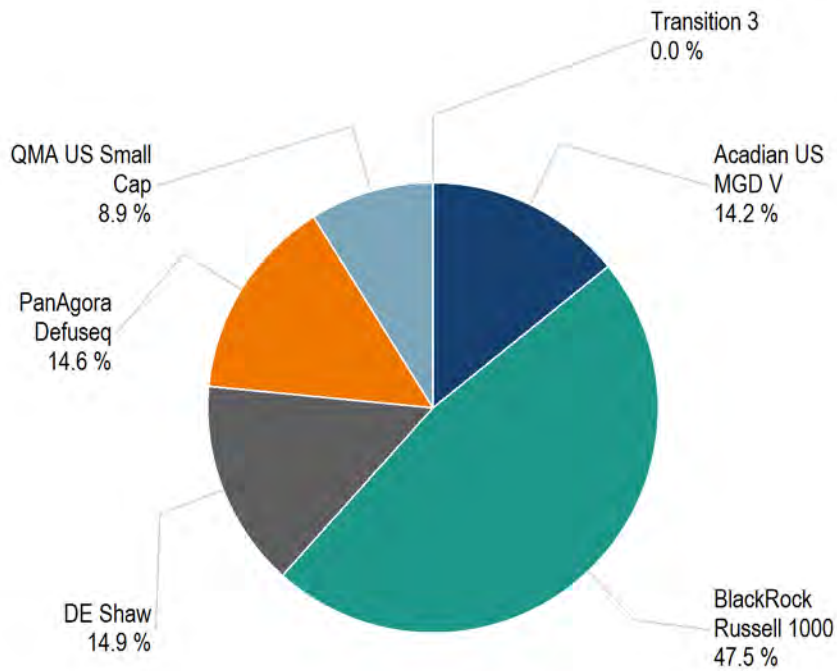


	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	10.0	3.7	5.3	8.2	10.1	6.9	8.5	11.1
25th Percentile	8.4	2.7	3.4	7.4	8.7	6.3	7.6	10.3
Median	7.4	2.2	3.1	6.6	8.1	5.6	7.0	9.7
75th Percentile	6.9	1.4	1.8	6.1	7.7	5.1	6.6	9.1
95th Percentile	6.1	0.7	0.8	5.6	7.5	4.7	5.8	8.1
# of Portfolios	37	36	36	36	36	35	34	33
● Total Fund	7.1 (66)	2.4 (41)	3.0 (56)	5.9 (88)	7.8 (60)	5.9 (36)	7.6 (29)	10.2 (27)
▲ Policy Index	6.5 (85)	2.7 (30)	3.4 (25)	6.7 (47)	8.4 (36)	6.0 (33)	7.7 (22)	10.7 (16)

Total Fund
Asset Allocation History

Period Ending: March 31, 2019





	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$134,803,109	14.2%	-0.5%
BlackRock Russell 1000	\$452,386,423	47.5%	0.0%
DE Shaw	\$141,456,533	14.9%	-0.2%
PanAgora Defuseq	\$139,172,258	14.6%	0.1%
QMA US Small Cap	\$84,552,173	8.9%	-0.2%
Transition Account	\$154	0.0%	0.0%
Actual vs. Policy Weight Difference			0.0%
Total	\$952,370,650	100.0%	-0.7%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	12.8%	10.9%	1.1	-1.1	0.8%
Blended US Equity Index	13.6%	11.1%	1.1	--	0.0%
Russell 3000	13.5%	11.1%	1.1	-1.1	0.1%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	14.0%	10.5%	1.2	0.4	1.3%
Russell 1000	13.5%	10.9%	1.1	--	0.0%
DE Shaw	14.9%	10.4%	1.3	0.6	2.3%
Russell 1000	13.5%	10.9%	1.1	--	0.0%
Small Cap Equity	8.9%	15.4%	0.5	-1.5	2.7%
Russell 2000	12.9%	15.9%	0.7	--	0.0%

Statistics Summary

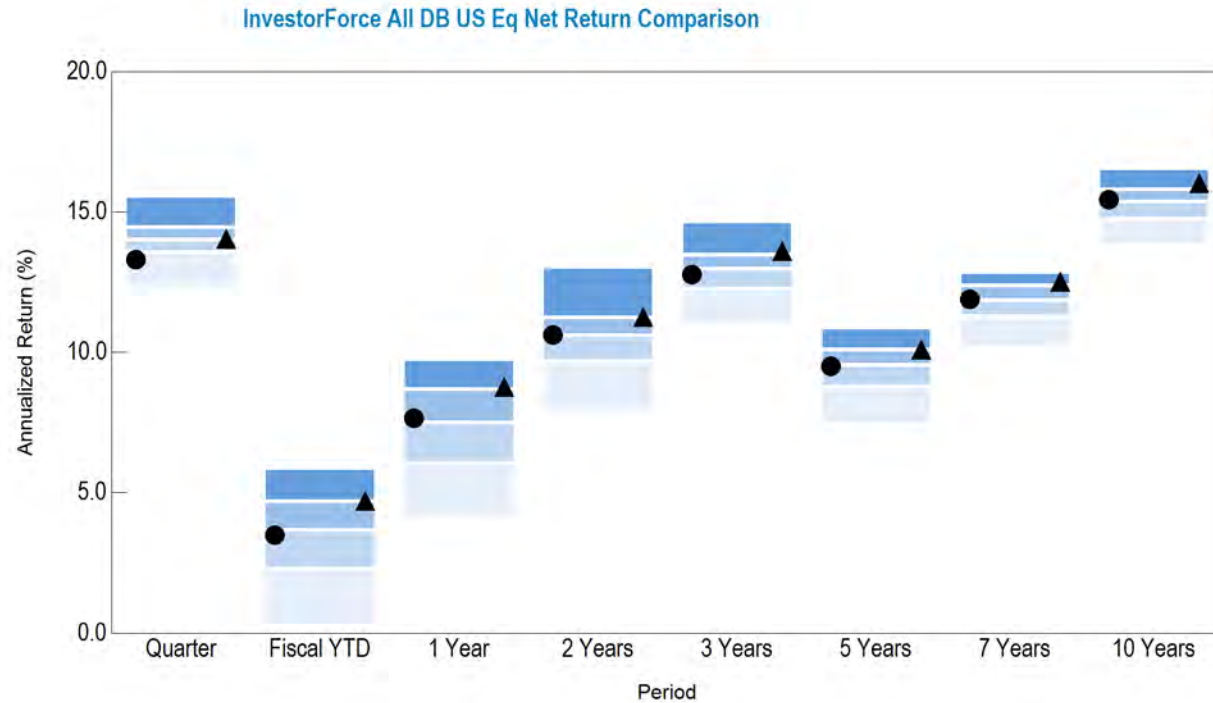
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	9.5%	11.4%	0.8	-0.8	0.8%
Blended US Equity Index	10.1%	11.6%	0.8	--	0.0%
Russell 3000	10.4%	11.5%	0.8	0.4	0.7%

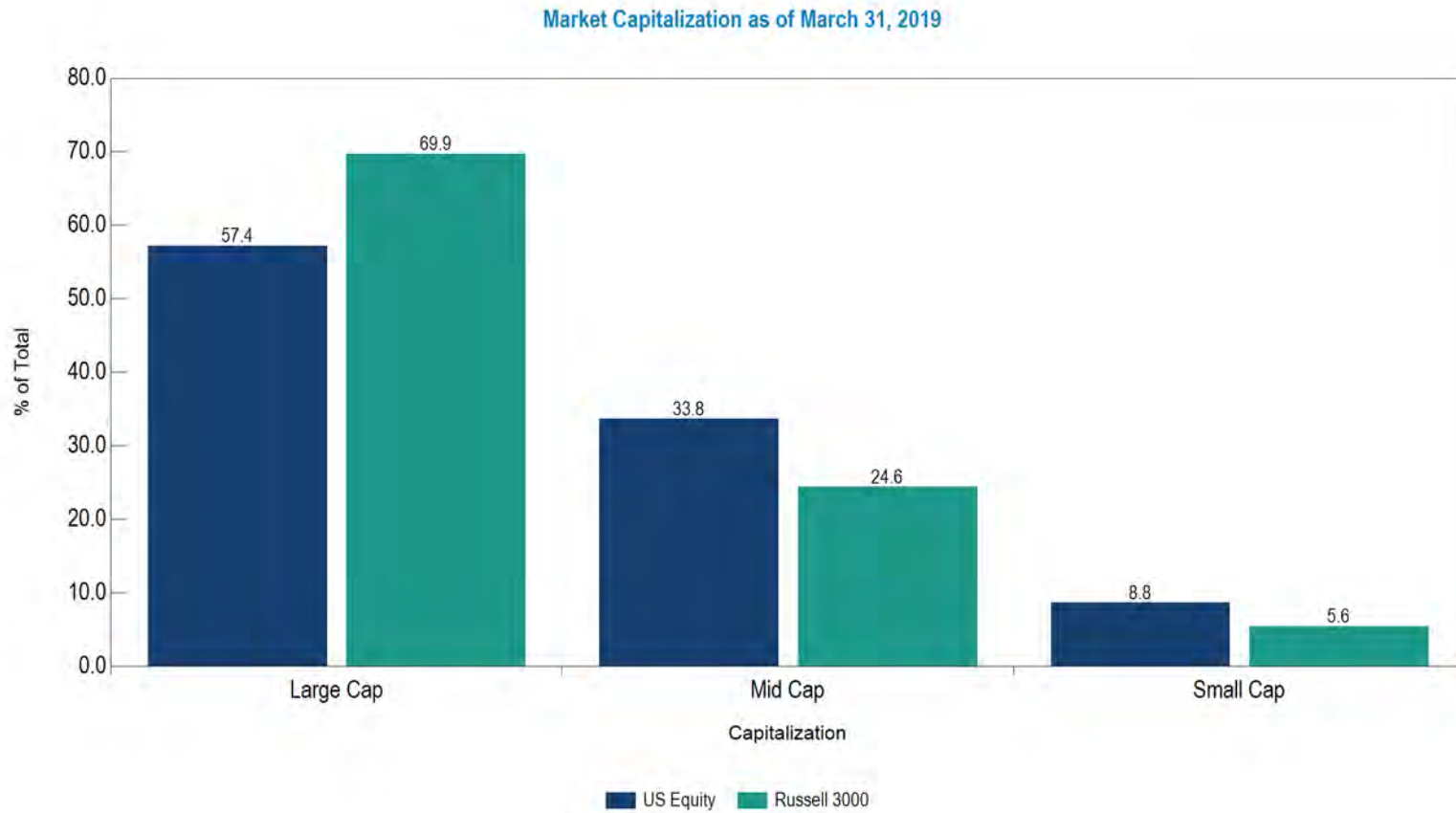
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	11.0%	11.1%	0.9	0.3	1.1%
Russell 1000	10.6%	11.3%	0.9	--	0.0%
DE Shaw	11.9%	11.3%	1.0	0.5	2.3%
Russell 1000	10.6%	11.3%	0.9	--	0.0%
Small Cap Equity	4.1%	15.5%	0.2	-1.1	2.6%
Russell 2000	7.1%	16.2%	0.4	--	0.0%



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	15.6	5.9	9.8	13.0	14.7	10.9	12.9	16.6
25th Percentile	14.5	4.7	8.7	11.3	13.5	10.1	12.4	15.8
Median	14.0	3.7	7.5	10.6	13.0	9.6	11.9	15.4
75th Percentile	13.6	2.3	6.1	9.7	12.3	8.8	11.3	14.8
95th Percentile	12.3	0.3	4.1	7.9	11.0	7.4	10.2	13.8
# of Portfolios	507	507	507	496	485	468	402	294
● US Equity	13.3 (85)	3.5 (55)	7.6 (47)	10.6 (50)	12.8 (61)	9.5 (52)	11.9 (49)	15.4 (47)
▲ Blended US Equity Index	14.0 (47)	4.7 (26)	8.8 (24)	11.3 (26)	13.6 (18)	10.1 (27)	12.5 (20)	16.0 (16)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,790	2,977
Weighted Avg. Market Cap. (\$B)	130.9	178.6
Median Market Cap. (\$B)	3.0	1.6
Price To Earnings	19.6	20.2
Price To Book	3.1	3.3
Price To Sales	1.7	1.9
Return on Equity (%)	22.4	21.8
Yield (%)	2.0	1.9
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	2.3%
MICROSOFT	2.0%
AMAZON.COM	1.6%
JOHNSON & JOHNSON	1.2%
ALPHABET A	1.0%
FACEBOOK CLASS A	0.9%
VERIZON COMMUNICATIONS	0.9%
VISA 'A'	0.8%
HOME DEPOT	0.8%
MERCK & COMPANY	0.7%

Best Performers

	Return %
CONFORMIS (CFMS)	704.5%
AXSOME THERAPEUTICS (AXSM)	404.6%
IMMUNE DESIGN (IMDZ)	350.0%
DIEBOLD NIXDORF (DBD)	344.6%
TREVENA (TRVN)	262.8%
FLOTEK INDUSTRIES (FTK)	197.2%
SUNESIS PHARMS. (SNSS)	192.3%
SPARK THERAPEUTICS (ONCE)	191.0%
CURIS (CRIS)	188.5%
ION GEOPHYSICAL (IO)	178.8%

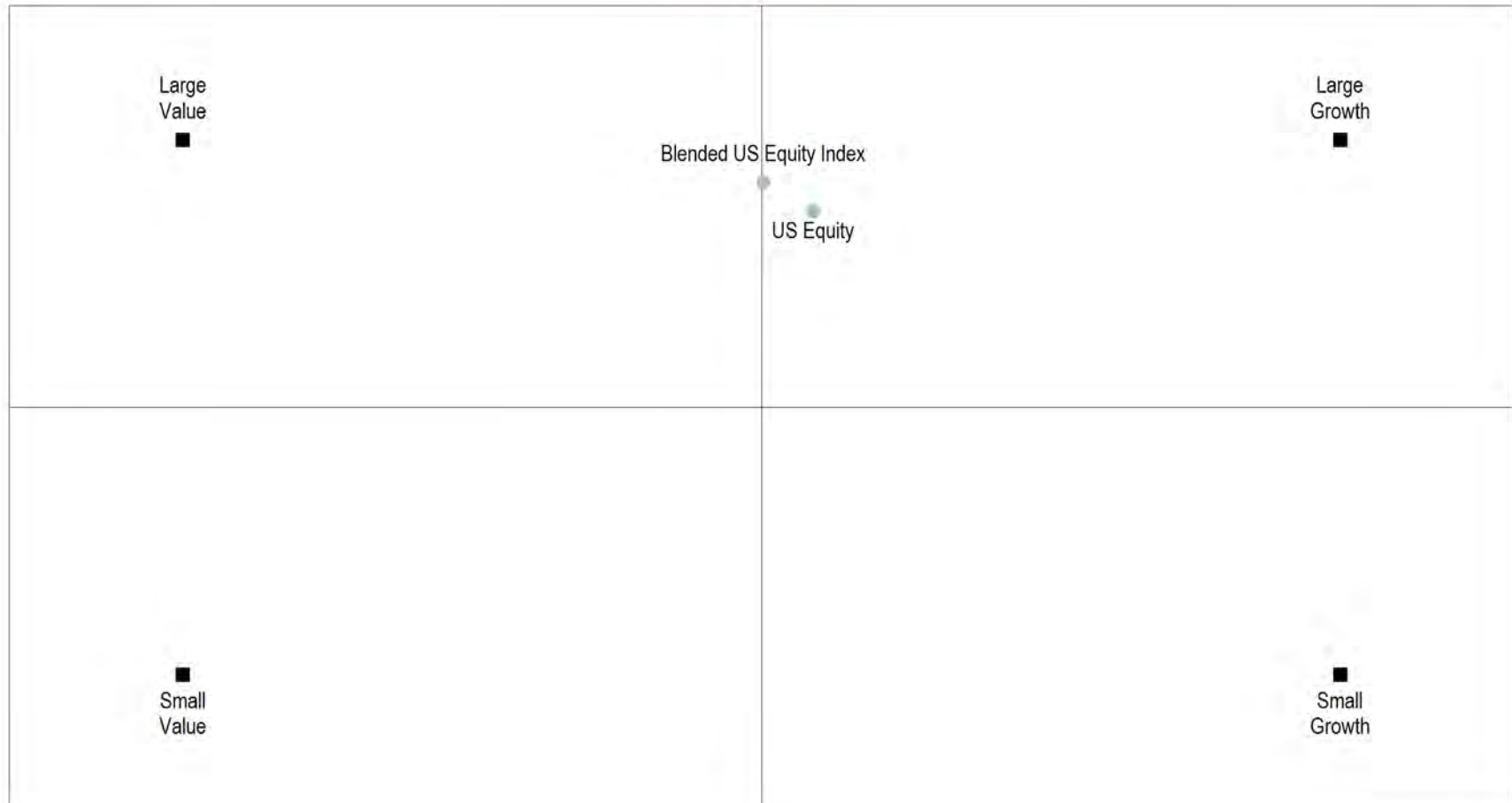
Worst Performers

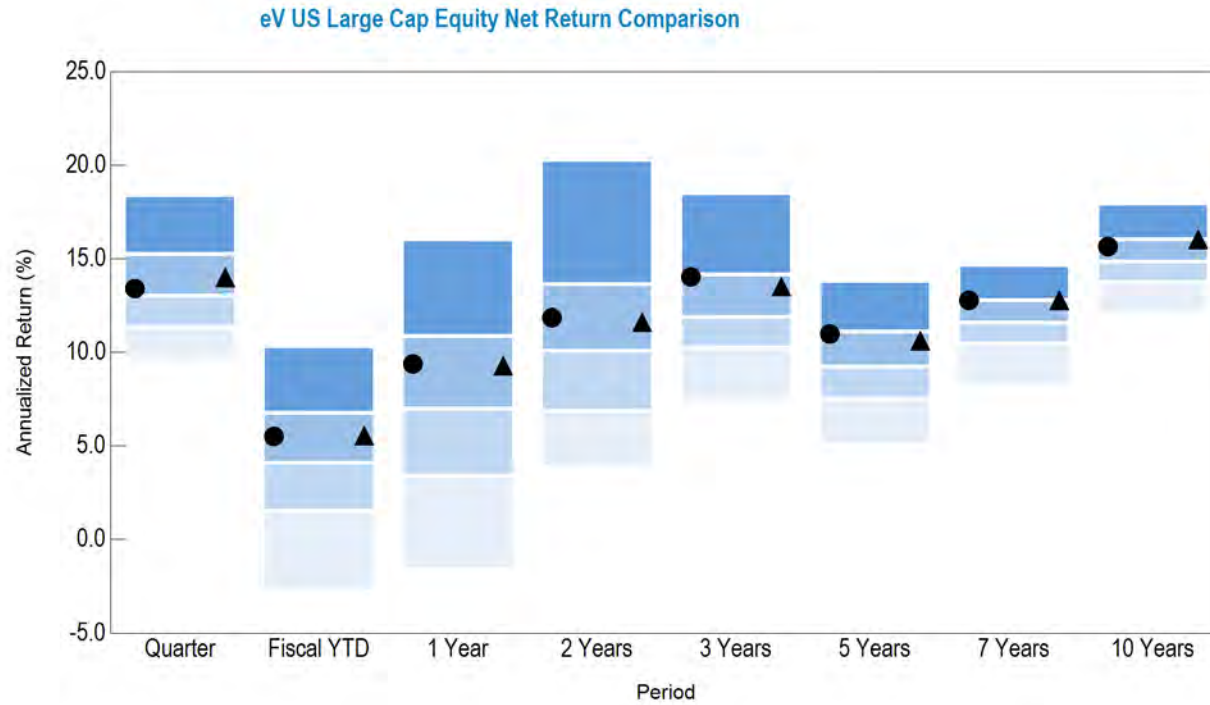
	Return %
WINDSTREAM HOLDINGS (WINMQ)	-85.6%
ACETO (ACETQ)	-79.3%
ALTA MESA RESOURCES A (AMR)	-73.5%
CLOUD PEAK ENERGY (XSC) (CLDP)	-71.3%
NOVAVAX (NVAX)	-70.1%
ATLAS FINANCIAL (NAS) HOLDINGS (AFH)	-69.6%
GLOBAL EAGLE ENTM. (ENT)	-68.2%
MAXAR TECHNOLOGIES (C:MAXR)	-66.1%
SOLID BIOSCIENCES (SLDB)	-65.7%
FTD COMPANIES (FTD)	-65.5%

US Equity Performance Attribution vs. Russell 3000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	-0.1%	0.0%	0.0%	15.6%	16.7%	4.2%	5.0%			
Materials	0.1%	0.1%	0.0%	0.0%	14.1%	11.4%	3.1%	2.7%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	16.0%	16.7%	9.4%	10.0%			
Consumer Discretionary	-0.1%	-0.1%	0.0%	0.0%	13.9%	14.7%	11.9%	10.4%			
Consumer Staples	-0.1%	-0.1%	0.0%	0.0%	10.8%	11.7%	7.9%	6.7%			
Health Care	0.3%	0.3%	0.0%	0.0%	9.9%	8.1%	15.3%	15.1%			
Financials	0.2%	0.2%	0.1%	0.0%	10.0%	8.8%	12.4%	13.9%			
Information Technology	-0.4%	-0.3%	-0.1%	0.0%	19.2%	20.8%	18.0%	20.0%			
Communication Services	-0.1%	-0.2%	0.0%	0.0%	12.4%	14.3%	7.5%	8.9%			
Utilities	-0.1%	0.0%	-0.1%	0.0%	11.6%	11.4%	6.0%	3.3%			
Real Estate	0.0%	0.0%	0.0%	0.0%	16.9%	17.3%	4.0%	3.9%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.2%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	13.5%	--	0.1%	0.0%			
Portfolio	-0.5%	=	-0.3%	+	-0.2%	+	0.1%	13.6%	14.1%	100.0%	100.0%

U.S. Effective Style Map





	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	18.4	10.3	16.0	20.3	18.5	13.8	14.7	17.9
25th Percentile	15.3	6.8	10.9	13.7	14.2	11.1	12.8	16.1
Median	13.0	4.1	7.0	10.1	11.9	9.3	11.6	14.9
75th Percentile	11.4	1.5	3.4	6.9	10.3	7.5	10.5	13.8
95th Percentile	9.6	-2.7	-1.5	3.9	7.4	5.1	8.3	12.1
# of Portfolios	626	613	613	603	594	569	507	458
● Large Cap Equity	13.4 (44)	5.5 (36)	9.4 (35)	11.9 (35)	14.0 (26)	11.0 (27)	12.8 (26)	15.7 (35)
▲ Russell 1000	14.0 (38)	5.5 (36)	9.3 (36)	11.6 (37)	13.5 (31)	10.6 (30)	12.8 (26)	16.0 (26)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	2,747	978
Weighted Avg. Market Cap. (\$B)	143.3	192.0
Median Market Cap. (\$B)	3.6	10.0
Price To Earnings	20.1	20.3
Price To Book	3.3	3.4
Price To Sales	1.9	2.0
Return on Equity (%)	23.3	24.9
Yield (%)	2.0	1.9
Beta (holdings; domestic)	0.9	1.0

Top Holdings

APPLE	2.5%
MICROSOFT	2.2%
AMAZON.COM	1.8%
JOHNSON & JOHNSON	1.3%
ALPHABET A	1.1%
FACEBOOK CLASS A	1.0%
VERIZON COMMUNICATIONS	1.0%
VISA 'A'	0.9%
HOME DEPOT	0.8%
MERCK & COMPANY	0.8%

Best Performers

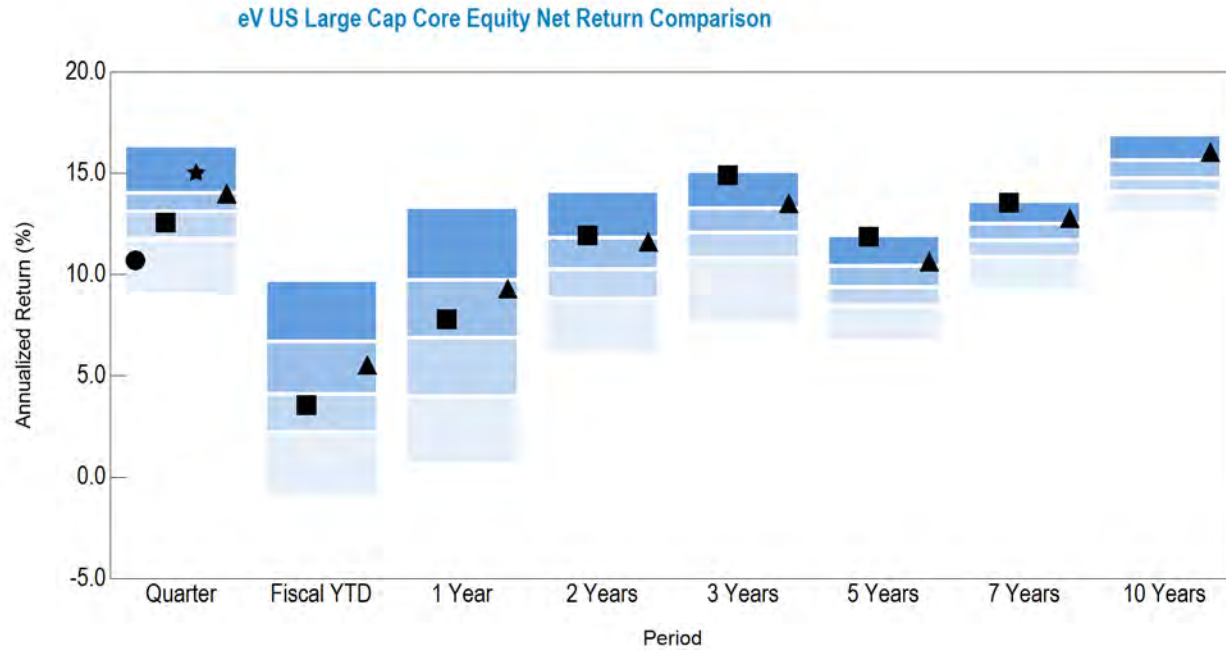
	Return %
CONFORMIS (CFMS)	704.5%
AXSOME THERAPEUTICS (AXSM)	404.6%
IMMUNE DESIGN (IMDZ)	350.0%
DIEBOLD NIXDORF (DBD)	344.6%
TREVENA (TRVN)	262.8%
FLOTEK INDUSTRIES (FTK)	197.2%
SUNESIS PHARMS. (SNSS)	192.3%
SPARK THERAPEUTICS (ONCE)	191.0%
CURIS (CRIS)	188.5%
ION GEOPHYSICAL (IO)	178.8%

Worst Performers

	Return %
WINDSTREAM HOLDINGS (WINMQ)	-85.6%
ACETO (ACETQ)	-79.3%
ALTA MESA RESOURCES A (AMR)	-73.5%
CLOUD PEAK ENERGY (XSC) (CLDP)	-71.3%
NOVAVAX (NVAX)	-70.1%
ATLAS FINANCIAL (NAS) HOLDINGS (AFH)	-69.6%
GLOBAL EAGLE ENTM. (ENT)	-68.2%
MAXAR TECHNOLOGIES (C:MAXR)	-66.1%
SOLID BIOSCIENCES (SLDB)	-65.7%
FTD COMPANIES (FTD)	-65.5%

Large Cap Equity Performance Attribution vs. Russell 1000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	0.0%	0.0%	0.0%	15.7%	16.5%	4.2%	5.1%			
Materials	0.1%	0.1%	0.0%	0.0%	14.1%	10.8%	3.0%	2.6%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	16.7%	17.2%	8.9%	9.6%			
Consumer Discretionary	0.0%	-0.1%	0.0%	0.0%	14.3%	14.8%	12.0%	10.2%			
Consumer Staples	-0.1%	0.0%	0.0%	0.0%	11.2%	11.8%	8.4%	7.0%			
Health Care	0.4%	0.4%	0.0%	0.0%	10.0%	7.5%	15.4%	15.1%			
Financials	0.2%	0.2%	0.1%	0.0%	10.1%	8.9%	11.9%	13.6%			
Information Technology	-0.4%	-0.3%	-0.2%	0.0%	19.1%	20.7%	18.2%	20.4%			
Communication Services	-0.1%	-0.2%	0.0%	0.0%	12.5%	14.3%	7.9%	9.3%			
Utilities	-0.1%	0.0%	-0.1%	0.0%	11.6%	11.5%	6.3%	3.2%			
Real Estate	0.0%	0.0%	0.0%	0.0%	16.9%	17.3%	3.7%	3.7%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.2%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	13.5%	--	0.1%	0.0%			
Portfolio	-0.3%	=	-0.1%	+	-0.3%	+	0.1%	13.8%	14.0%	100.0%	100.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	16.4	9.7	13.3	14.1	15.1	11.9	13.6	16.9
25th Percentile	14.1	6.7	9.7	11.8	13.3	10.5	12.5	15.6
Median	13.1	4.1	6.9	10.3	12.1	9.4	11.7	14.8
75th Percentile	11.8	2.3	4.0	8.8	10.9	8.5	10.9	14.1
95th Percentile	9.1	-0.9	0.6	6.2	7.6	6.7	9.3	13.1
# of Portfolios	197	192	192	188	185	176	152	131
● Acadian US MGD V	10.7 (91)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
■ DE Shaw	12.6 (60)	3.6 (57)	7.8 (40)	11.9 (23)	14.9 (6)	11.9 (6)	13.5 (6)	-- (--)
★ PanAgora Defuseq	15.0 (12)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 1000	14.0 (27)	5.5 (37)	9.3 (30)	11.6 (29)	13.5 (20)	10.6 (20)	12.8 (17)	16.0 (14)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	136	978
Weighted Avg. Market Cap. (\$B)	68.4	192.0
Median Market Cap. (\$B)	18.0	10.0
Price To Earnings	18.3	20.3
Price To Book	2.7	3.4
Price To Sales	1.8	2.0
Return on Equity (%)	20.3	24.9
Yield (%)	2.2	1.9
Beta (holdings; domestic)	0.8	1.0

Top Holdings

DANAHER	1.2%
ESTEE LAUDER COS.'A'	1.2%
CISCO SYSTEMS	1.1%
TJX	1.1%
COSTCO WHOLESALE	1.1%
ACCENTURE CLASS A	1.1%
ZOETIS	1.1%
MOTOROLA SOLUTIONS	1.1%
MONDELEZ INTERNATIONAL CL.A	1.1%
STERIS	1.1%

Best Performers

	Return %
SYNOPTSYS (SNPS)	36.7%
WATERS (WAT)	33.4%
GENPACT (G)	30.7%
TEGNA (TGNA)	30.3%
NORWEGIAN CRUISE LINE HDG. (NCLH)	29.7%
BRUKER (BRKR)	29.3%
LIVE NATION ENTM. (LYV)	29.0%
ROPER TECHNOLOGIES (ROP)	28.5%
DANAHER (DHR)	28.2%
METTLER TOLEDO INTL. (MTD)	27.8%

Worst Performers

	Return %
CIGNA (CI)	-15.3%
EMERGENT BIOSOLUTIONS (EBS)	-14.8%
LANCASTER COLONY (LANC)	-11.0%
HERBALIFE NUTRITION (HLF)	-10.1%
BRISTOL MYERS SQUIBB (BMY)	-7.4%
HUMANA (HUM)	-7.0%
WILEY JOHN & SONS 'A' (JW.A)	-5.9%
TELEPHONE & DATA SYS. (TDS)	-5.1%
ENCOMPASS HEALTH (EHC)	-4.9%
H&R BLOCK (HRB)	-4.7%

Acadian US MGD V Performance Attribution vs. Russell 1000

	Total Effects	Attribution Effects				Returns		Sector Weights			
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	0.0%	-0.1%	0.0%	16.2%	16.5%	2.9%	5.1%			
Materials	0.0%	-0.1%	0.0%	0.0%	7.2%	10.8%	1.8%	2.6%			
Industrials	-0.2%	0.1%	-0.2%	-0.1%	18.1%	17.2%	3.1%	9.6%			
Consumer Discretionary	-0.3%	-0.2%	0.0%	-0.1%	12.9%	14.8%	14.6%	10.2%			
Consumer Staples	-0.3%	-0.2%	-0.1%	-0.1%	9.6%	11.8%	10.9%	7.0%			
Health Care	0.4%	0.5%	-0.3%	0.2%	11.1%	7.5%	19.9%	15.1%			
Financials	0.0%	0.1%	0.0%	0.0%	9.2%	8.9%	13.8%	13.6%			
Information Technology	-1.5%	-1.7%	-0.8%	1.0%	12.3%	20.7%	8.5%	20.4%			
Communication Services	-0.6%	-0.6%	0.0%	0.0%	7.8%	14.3%	8.9%	9.3%			
Utilities	-0.1%	0.0%	-0.3%	0.1%	12.3%	11.5%	13.5%	3.2%			
Real Estate	-0.2%	-0.2%	-0.1%	0.1%	11.3%	17.3%	1.6%	3.7%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.6%	--	0.4%	0.0%			
Portfolio	-2.9%	=	-2.3%	+	-1.8%	+	1.2%	11.2%	14.0%	100.0%	100.0%

Characteristics

	Portfolio	Russell 1000
Number of Holdings	977	978
Weighted Avg. Market Cap. (\$B)	192.0	192.0
Median Market Cap. (\$B)	10.0	10.0
Price To Earnings	20.3	20.3
Price To Book	3.4	3.4
Price To Sales	2.0	2.0
Return on Equity (%)	24.9	24.9
Yield (%)	1.9	1.9
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	3.4%
MICROSOFT	3.4%
AMAZON.COM	2.8%
FACEBOOK CLASS A	1.5%
BERKSHIRE HATHAWAY 'B'	1.5%
JOHNSON & JOHNSON	1.4%
ALPHABET 'C'	1.4%
ALPHABET A	1.3%
EXXON MOBIL	1.3%
JP MORGAN CHASE & CO.	1.3%

Best Performers

	Return %
VERSUM MATERIALS (VSM)	81.9%
COTY CL.A (COTY)	77.3%
NABORS INDUSTRIES (NBR)	72.5%
SAGE THERAPEUTICS (SAGE)	66.0%
WAYFAIR CL.A (W)	64.8%
CHIPOTLE MEXN.GRILL (CMG)	64.5%
UNIVERSAL DISPLAY (OLED)	63.5%
XEROX (XRX)	63.1%
FLOOR & DECOR HOLDINGS 'A' (FND)	59.2%
BLUEBIRD BIO (BLUE)	58.6%

Worst Performers

	Return %
UNITI GROUP (UNIT)	-27.8%
PG&E (PCG)	-25.1%
KRAFT HEINZ (KHC)	-23.2%
REALOGY HOLDINGS (RLGY)	-21.8%
NU SKIN ENTERPRISES 'A' (NUS)	-21.5%
BIOGEN (BIIB)	-21.4%
CENTENNIAL RSO.DEV.CL.A (CDEV)	-20.2%
CENTURYLINK (CTL)	-19.3%
QURATE RETAIL SERIES A (QRTEA)	-18.1%
MACY'S (M)	-18.0%

Characteristics

	Portfolio	Russell 1000
Number of Holdings	104	978
Weighted Avg. Market Cap. (\$B)	45.3	192.0
Median Market Cap. (\$B)	13.9	10.0
Price To Earnings	23.2	20.3
Price To Book	3.5	3.4
Price To Sales	2.3	2.0
Return on Equity (%)	22.8	24.9
Yield (%)	2.4	1.9
Beta (holdings; domestic)	0.7	1.0

Top Holdings

CARTER'S	2.2%
APTARGROUP	2.2%
AIR PRDS.& CHEMS.	2.1%
ECOLAB	2.0%
VERIZON COMMUNICATIONS	2.0%
CHEVRON	1.9%

Best Performers

	Return %
SYNOPTSYS (SNPS)	36.7%
ERIE INDEMNITY 'A' (ERIE)	34.8%
GENERAL MILLS (GIS)	34.5%
WATERS (WAT)	33.4%
CONAGRA BRANDS (CAG)	31.2%

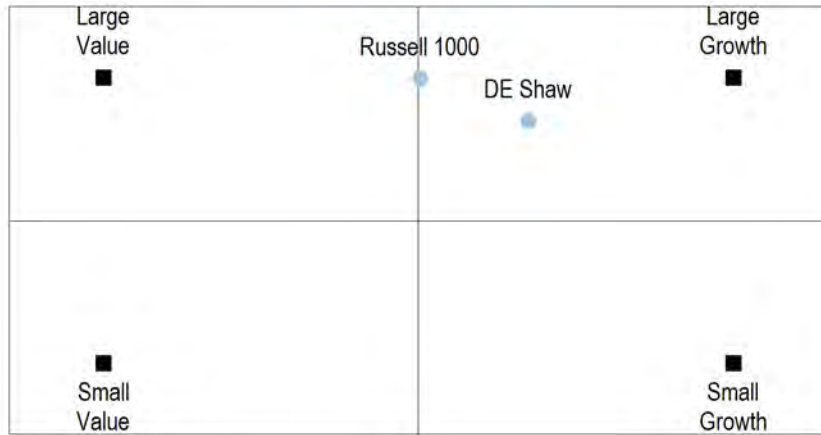
Worst Performers

	Return %
AMDOCS (DOX)	-7.1%
MARKEL (MKL)	-4.0%
COCA COLA (KO)	-0.2%
SERVICE CORP.INTL. (SCI)	0.2%
OMNICOM GROUP (OMC)	0.5%

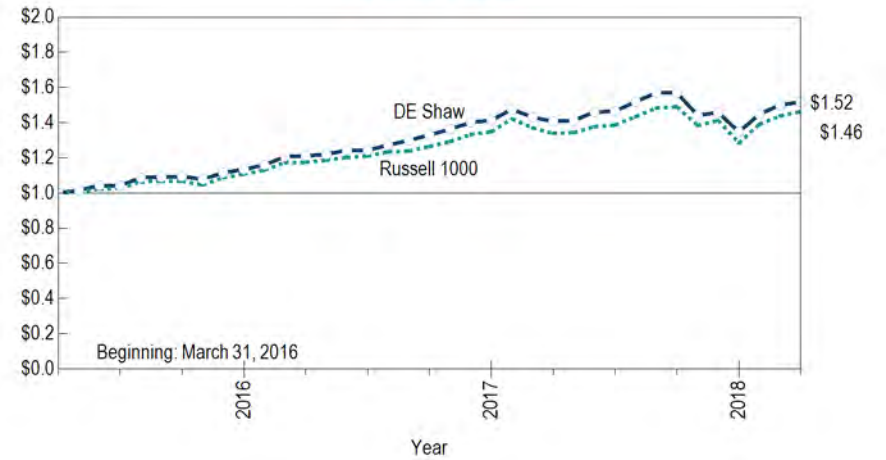
PanAgora Defuseq Performance Attribution vs. Russell 1000

	Total Effects	Attribution Effects				Returns		Sector Weights			
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	-0.1%	-0.1%	0.1%	14.4%	16.5%	1.9%	5.1%			
Materials	0.3%	0.2%	-0.1%	0.2%	17.7%	10.8%	6.1%	2.6%			
Industrials	-0.2%	-0.2%	0.1%	0.0%	15.2%	17.2%	11.6%	9.6%			
Consumer Discretionary	0.1%	0.1%	0.0%	0.0%	15.5%	14.8%	12.4%	10.2%			
Consumer Staples	0.1%	0.1%	-0.1%	0.1%	13.6%	11.8%	13.6%	7.0%			
Health Care	1.6%	1.9%	0.3%	-0.5%	19.8%	7.5%	10.8%	15.1%			
Financials	0.6%	0.4%	0.4%	-0.2%	12.1%	8.9%	6.2%	13.6%			
Information Technology	-0.8%	-0.3%	-0.7%	0.1%	19.4%	20.7%	10.3%	20.4%			
Communication Services	-0.5%	-1.0%	0.0%	0.5%	3.4%	14.3%	4.3%	9.3%			
Utilities	-0.2%	0.0%	-0.3%	0.1%	12.0%	11.5%	15.0%	3.2%			
Real Estate	0.1%	0.0%	0.1%	0.0%	17.7%	17.3%	7.4%	3.7%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.4%	0.0%			
Portfolio	1.0%	=	1.1%	+	-0.5%	+	0.4%	15.0%	14.0%	100.0%	100.0%

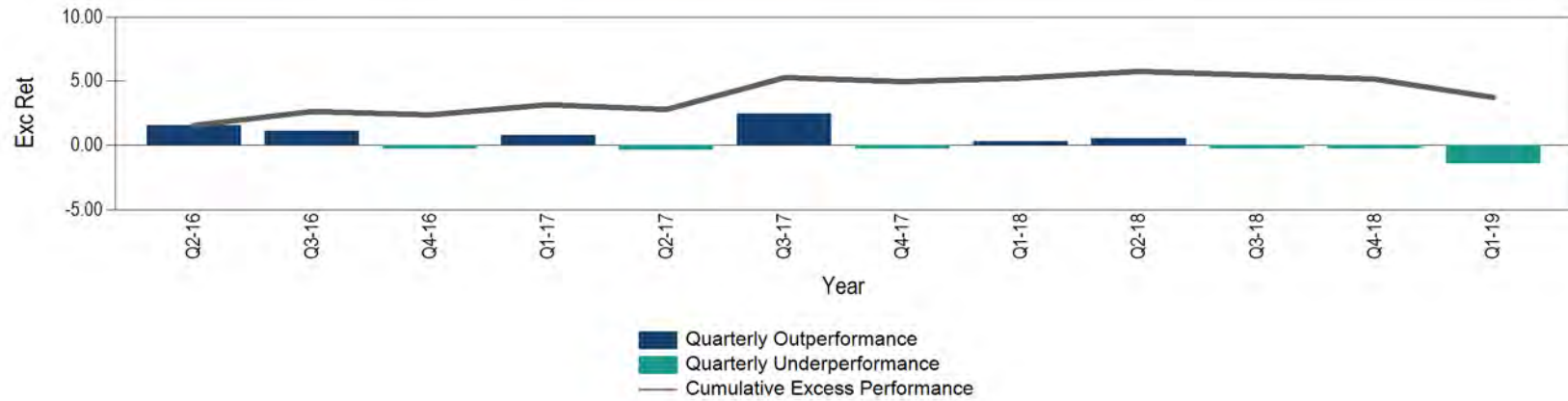
U.S. Effective Style Map

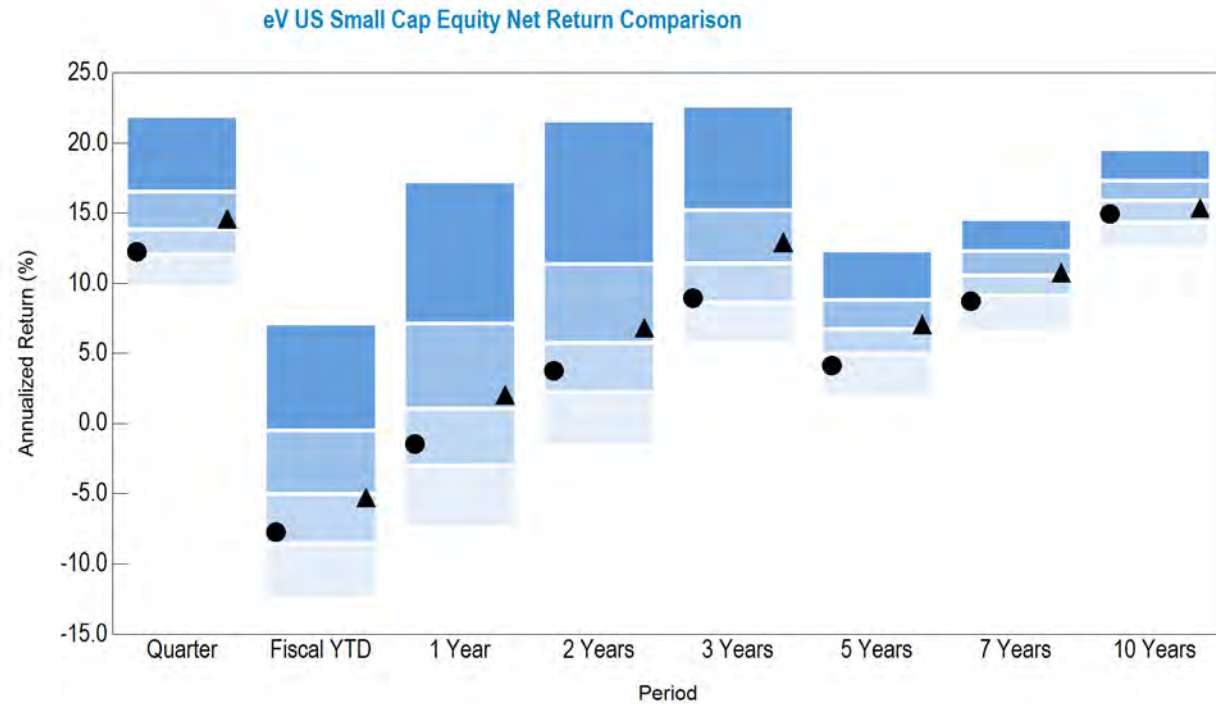


Growth of a Dollar



Quarterly and Cumulative Excess Performance





	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	21.9	7.1	17.3	21.6	22.6	12.3	14.5	19.6
25th Percentile	16.6	-0.5	7.2	11.4	15.3	8.8	12.3	17.3
Median	13.8	-5.0	1.1	5.8	11.4	6.8	10.6	15.9
75th Percentile	12.1	-8.5	-3.0	2.2	8.7	5.0	9.2	14.4
95th Percentile	9.7	-12.4	-7.4	-1.5	5.8	1.9	6.6	12.5
# of Portfolios	406	400	400	394	384	364	334	303
● Small Cap Equity	12.2 (73)	-7.8 (70)	-1.5 (67)	3.8 (66)	8.9 (72)	4.1 (85)	8.7 (82)	14.9 (66)
▲ Russell 2000	14.6 (42)	-5.3 (53)	2.0 (45)	6.8 (43)	12.9 (38)	7.1 (46)	10.7 (48)	15.4 (59)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	338	1,999
Weighted Avg. Market Cap. (\$B)	2.2	2.4
Median Market Cap. (\$B)	1.2	0.8
Price To Earnings	15.2	18.4
Price To Book	2.1	2.4
Price To Sales	0.7	1.2
Return on Equity (%)	14.0	3.4
Yield (%)	1.5	1.4
Beta (holdings; domestic)	1.2	1.2

Top Holdings

PORTLAND GEN.ELEC.	1.0%
INSPERITY	0.9%
VERINT SYSTEMS	0.9%
FIRST BANCORP PRICO.	0.9%
RADIAN GP.	0.9%
SPS COMMERCE	0.8%
TEGNA	0.8%
WORLD FUEL SVS.	0.8%
HAEMONETICS	0.8%
RYMAN HOSPITALITY PROPS.	0.8%

Best Performers

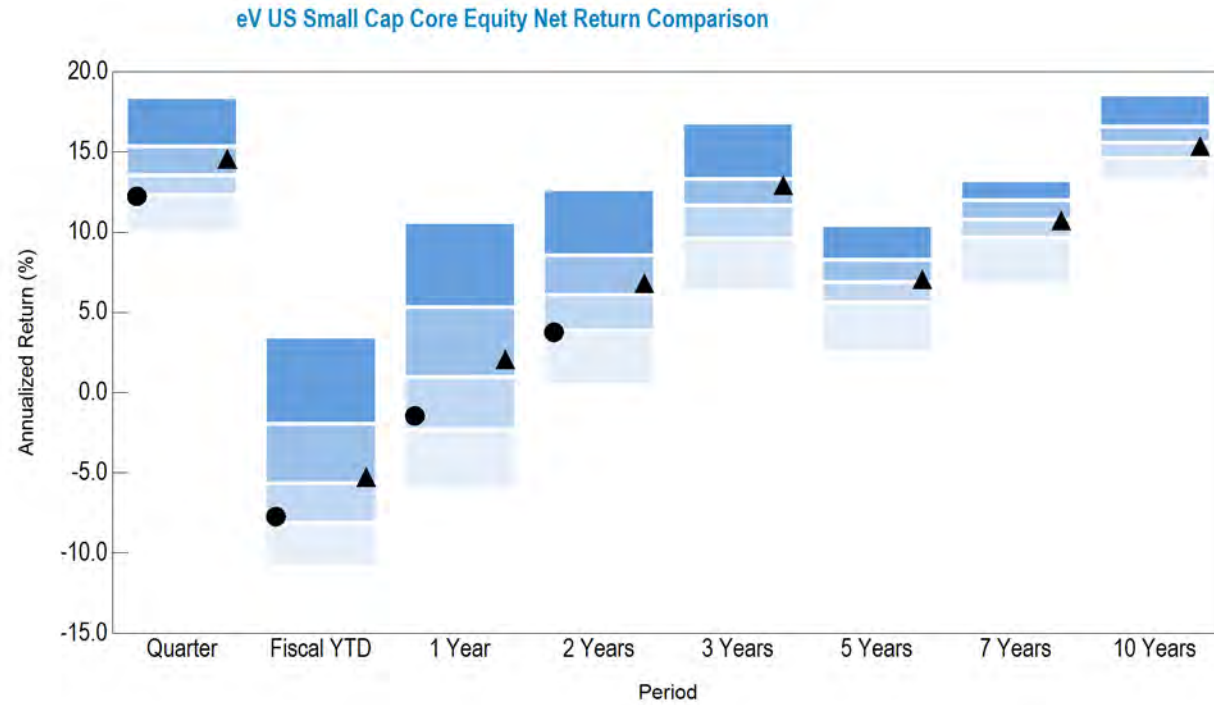
	Return %
DIEBOLD NIXDORF (DBD)	344.6%
CATALYST PHARMACEUTICAL PARTNERS (CPRX)	165.6%
VERACYTE (VCYT)	98.9%
AVON PRODUCTS (AVP)	93.4%
CONTAINER STORE GROUP (TCS)	84.5%
JOUNCE THERAPEUTICS (JNCE)	84.0%
VERSUM MATERIALS (VSM)	81.9%
TURNING POINT BRANDS (TPB)	69.5%
TENET HEALTHCARE (THC)	68.3%
ACADIA PHARMACEUTICALS (ACAD)	66.0%

Worst Performers

	Return %
KARYOPHARM THERAPEUTICS (KPTI)	-37.7%
SMART GLOBAL HOLDINGS (SGH)	-35.4%
VANDA PHARMACEUTICALS (VNDA)	-29.6%
VISTA OUTDOOR (VSTO)	-29.4%
USANA HEALTH SCIENCES (USNA)	-28.8%
CENTRAL GDN.& PET 'A' NV. (CENTA)	-25.6%
COOPER STANDARD HDG. (CPS)	-24.4%
GREEN DOT CLASS A (GDOT)	-23.7%
CHICO'S FAS (CHS)	-22.6%
CALIX NETWORKS (CALX)	-21.0%

Small Cap Equity Performance Attribution vs. Russell 2000

	Total Effects	Attribution Effects			Returns		Sector Weights				
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.2%	0.1%	-0.1%	13.8%	20.8%	4.2%	3.4%			
Materials	-0.1%	-0.1%	0.0%	0.0%	14.2%	17.3%	3.9%	3.7%			
Industrials	-0.2%	-0.1%	0.0%	0.0%	11.4%	12.4%	15.4%	14.9%			
Consumer Discretionary	-0.5%	-0.5%	0.0%	0.0%	9.2%	13.3%	11.7%	12.4%			
Consumer Staples	-0.2%	-0.4%	0.1%	0.1%	-4.7%	7.3%	2.2%	2.9%			
Health Care	-1.0%	-1.1%	0.0%	0.1%	9.0%	16.0%	14.7%	15.6%			
Financials	0.2%	0.1%	0.0%	0.0%	9.4%	8.6%	17.8%	18.1%			
Information Technology	-0.4%	-0.5%	0.1%	0.0%	20.1%	23.5%	15.5%	14.2%			
Communication Services	0.0%	0.0%	0.0%	0.0%	14.4%	15.4%	4.2%	3.3%			
Utilities	0.0%	0.0%	0.0%	0.0%	10.9%	10.5%	3.2%	3.9%			
Real Estate	-0.1%	0.0%	0.0%	0.0%	17.0%	17.7%	7.2%	7.4%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.1%	0.0%			
Portfolio	-2.5%	=	-2.9%	+	0.3%	+	0.1%	12.1%	14.7%	100.0%	100.0%



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	18.4	3.5	10.6	12.7	16.8	10.4	13.2	18.6
25th Percentile	15.4	-1.9	5.4	8.6	13.3	8.3	12.0	16.6
Median	13.6	-5.6	1.0	6.1	11.7	6.9	10.8	15.6
75th Percentile	12.3	-8.1	-2.3	3.9	9.6	5.7	9.7	14.7
95th Percentile	10.0	-10.8	-6.0	0.5	6.4	2.5	6.8	13.4
# of Portfolios	113	112	112	108	104	102	92	79
● QMA US Small Cap	12.2 (76)	-7.8 (72)	-1.5 (70)	3.8 (76)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 2000	14.6 (36)	-5.3 (48)	2.0 (43)	6.8 (40)	12.9 (28)	7.1 (49)	10.7 (53)	15.4 (56)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	338	1,999
Weighted Avg. Market Cap. (\$B)	2.2	2.4
Median Market Cap. (\$B)	1.2	0.8
Price To Earnings	15.2	18.4
Price To Book	2.1	2.4
Price To Sales	0.7	1.2
Return on Equity (%)	14.0	3.4
Yield (%)	1.5	1.4
Beta (holdings; domestic)	1.2	1.2

Top Holdings

PORTLAND GEN.ELEC.	1.0%
INSPERITY	0.9%
VERINT SYSTEMS	0.9%
FIRST BANCORP PRICO.	0.9%
RADIAN GP.	0.9%
SPS COMMERCE	0.8%
TEGNA	0.8%
WORLD FUEL SVS.	0.8%
HAEMONETICS	0.8%
RYMAN HOSPITALITY PROPS.	0.8%

Best Performers

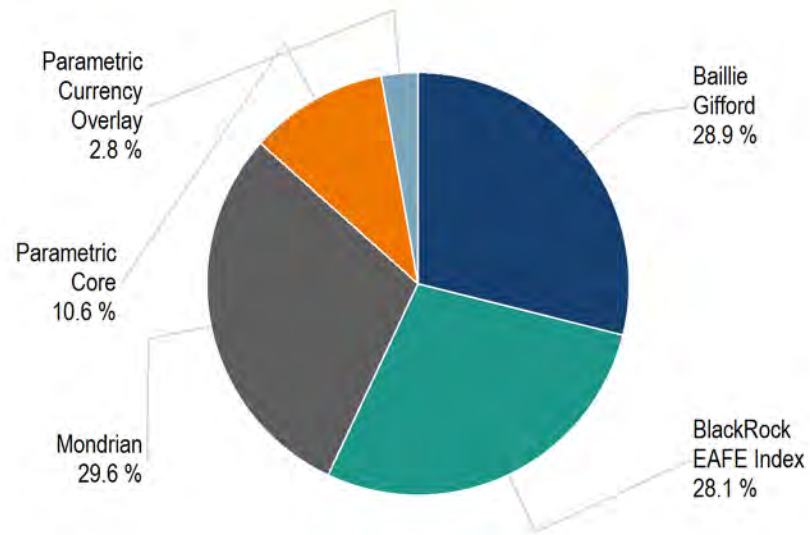
	Return %
DIEBOLD NIXDORF (DBD)	344.6%
CATALYST PHARMACEUTICAL PARTNERS (CPRX)	165.6%
VERACYTE (VCYT)	98.9%
AVON PRODUCTS (AVP)	93.4%
CONTAINER STORE GROUP (TCS)	84.5%
JOUNCE THERAPEUTICS (JNCE)	84.0%
VERSUM MATERIALS (VSM)	81.9%
TURNING POINT BRANDS (TPB)	69.5%
TENET HEALTHCARE (THC)	68.3%
ACADIA PHARMACEUTICALS (ACAD)	66.0%

Worst Performers

	Return %
KARYOPHARM THERAPEUTICS (KPTI)	-37.7%
SMART GLOBAL HOLDINGS (SGH)	-35.4%
VANDA PHARMACEUTICALS (VNDA)	-29.6%
VISTA OUTDOOR (VSTO)	-29.4%
USANA HEALTH SCIENCES (USNA)	-28.8%
CENTRAL GDN.& PET 'A' NV. (CENTA)	-25.6%
COOPER STANDARD HDG. (CPS)	-24.4%
GREEN DOT CLASS A (GDOT)	-23.7%
CHICO'S FAS (CHS)	-22.6%
CALIX NETWORKS (CALX)	-21.0%

QMA US Small Cap Performance Attribution vs. Russell 2000

	Total Effects	Attribution Effects				Returns		Sector Weights			
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.2%	0.1%	-0.1%	13.8%	20.8%	4.2%	3.4%			
Materials	-0.1%	-0.1%	0.0%	0.0%	14.2%	17.3%	3.9%	3.7%			
Industrials	-0.2%	-0.1%	0.0%	0.0%	11.4%	12.4%	15.4%	14.9%			
Consumer Discretionary	-0.5%	-0.5%	0.0%	0.0%	9.2%	13.3%	11.7%	12.4%			
Consumer Staples	-0.2%	-0.4%	0.1%	0.1%	-4.7%	7.3%	2.2%	2.9%			
Health Care	-1.0%	-1.1%	0.0%	0.1%	9.0%	16.0%	14.7%	15.6%			
Financials	0.2%	0.1%	0.0%	0.0%	9.4%	8.6%	17.8%	18.1%			
Information Technology	-0.4%	-0.5%	0.1%	0.0%	20.1%	23.5%	15.5%	14.2%			
Communication Services	0.0%	0.0%	0.0%	0.0%	14.4%	15.4%	4.2%	3.3%			
Utilities	0.0%	0.0%	0.0%	0.0%	10.9%	10.5%	3.2%	3.9%			
Real Estate	-0.1%	0.0%	0.0%	0.0%	17.0%	17.7%	7.2%	7.4%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.1%	0.0%			
Portfolio	-2.5%	=	-2.9%	+	0.3%	+	0.1%	12.1%	14.7%	100.0%	100.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$242,545,323	28.9%	0.8%
BlackRock EAFE Index	\$236,217,824	28.1%	0.0%
Mondrian	\$248,674,284	29.6%	0.2%
Parametric Core	\$89,327,898	10.6%	-0.3%
Parametric Currency Overlay	\$23,138,601	2.8%	0.0%
Actual vs. Policy Weight Difference			-0.7%
Total	\$839,903,930	100.0%	0.1%

Statistics Summary

3 Years

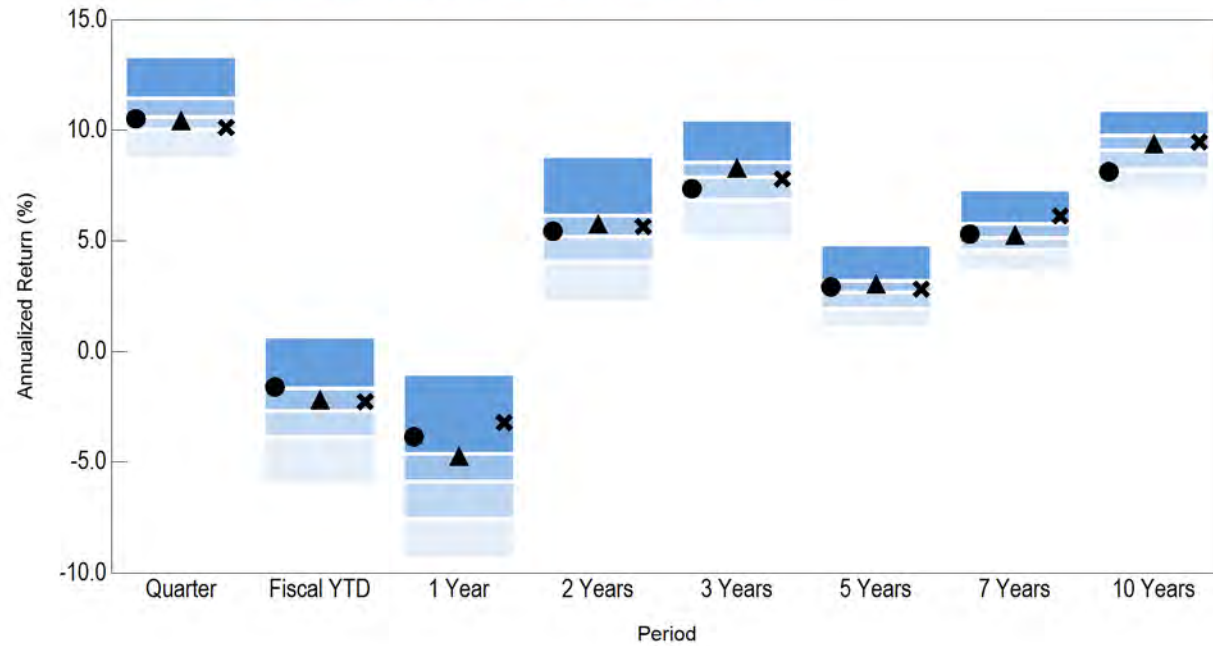
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	7.4%	10.4%	0.6	-0.6	1.6%
Blended International Equity Index	8.3%	10.6%	0.7	--	0.0%
Developed Markets	7.2%	10.6%	0.6	-0.7	2.0%
MSCI ACWI ex USA Gross	8.6%	10.6%	0.7	--	0.0%
Baillie Gifford	7.6%	12.5%	0.5	-0.2	4.9%
MSCI ACWI ex US	8.6%	10.6%	0.7	--	0.0%
BlackRock EAFE Index	7.7%	10.5%	0.6	1.9	0.2%
MSCI EAFE	7.3%	10.5%	0.6	--	0.0%
Mondrian	6.8%	10.0%	0.6	-0.4	4.2%
MSCI ACWI ex USA Value Gross	8.4%	10.9%	0.7	--	0.0%
Emerging Markets	7.3%	12.2%	0.5	-1.0	3.7%
MSCI Emerging Markets Gross	11.1%	13.0%	0.8	--	0.0%
Parametric Core	7.3%	12.2%	0.5	-1.0	3.7%
MSCI Emerging Markets Gross	11.1%	13.0%	0.8	--	0.0%

Statistics Summary

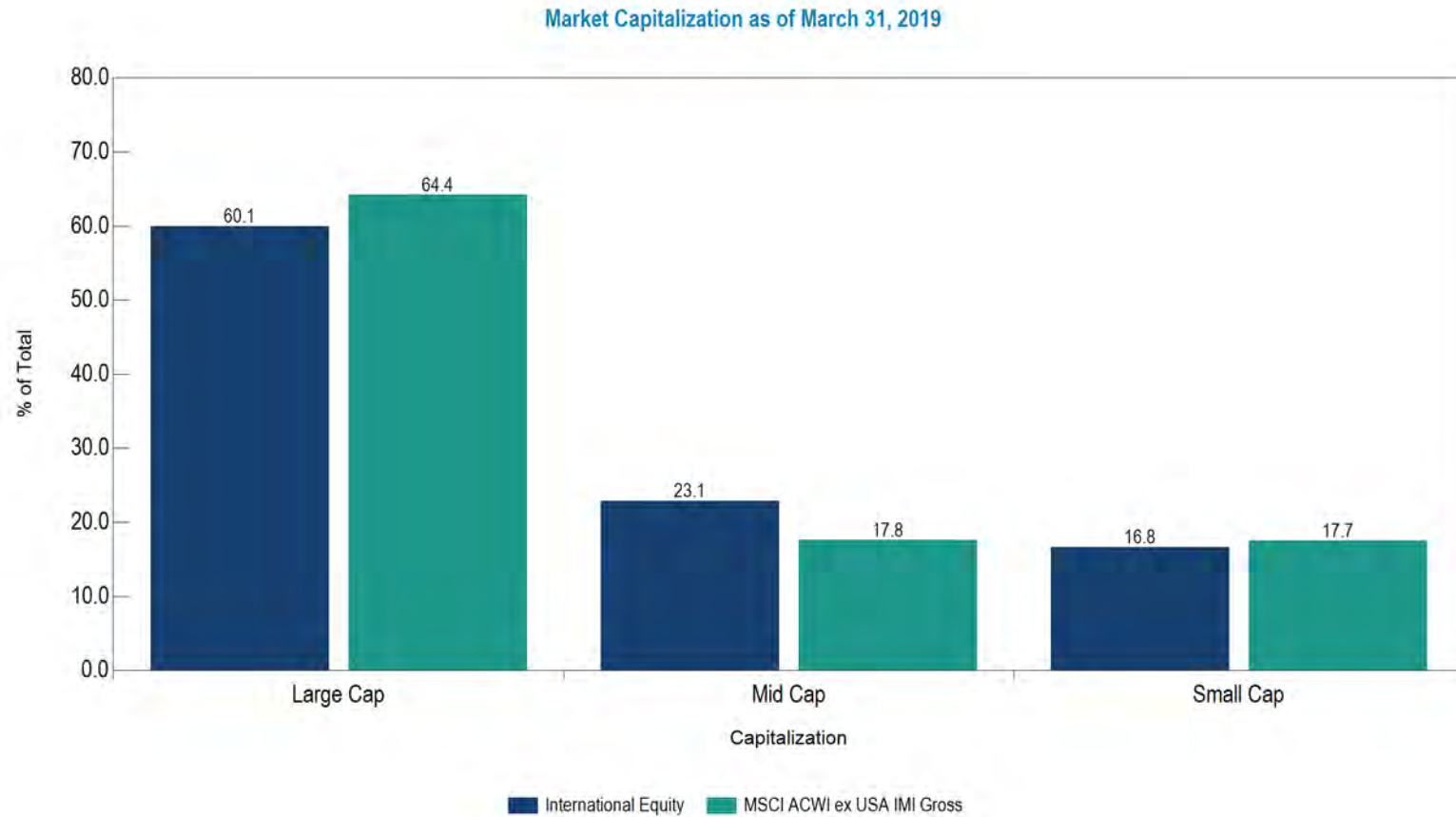
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	2.9%	11.7%	0.2	-0.1	1.6%
Blended International Equity Index	3.0%	11.9%	0.2	--	0.0%
Developed Markets	3.0%	11.7%	0.2	0.0	2.0%
MSCI ACWI ex USA Gross	3.0%	12.0%	0.2	--	0.0%
Baillie Gifford	3.9%	13.3%	0.2	0.2	4.5%
MSCI ACWI ex US	3.0%	12.0%	0.2	--	0.0%
BlackRock EAFE Index	2.7%	11.8%	0.2	1.9	0.2%
MSCI EAFE	2.3%	11.8%	0.1	--	0.0%
Mondrian	2.2%	11.3%	0.1	0.1	4.4%
MSCI ACWI ex USA Value Gross	1.7%	12.7%	0.1	--	0.0%
Emerging Markets	1.4%	13.9%	0.0	-0.7	4.0%
MSCI Emerging Markets Gross	4.1%	15.3%	0.2	--	0.0%

InvestorForce All DB ex-US Eq Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	13.3	0.6	-1.0	8.8	10.5	4.8	7.3	10.9
25th Percentile	11.5	-1.7	-4.6	6.2	8.6	3.2	5.8	9.8
Median	10.6	-2.7	-5.8	5.2	7.9	2.7	5.1	9.1
75th Percentile	10.0	-3.8	-7.5	4.1	6.9	2.0	4.6	8.2
95th Percentile	8.7	-6.0	-9.3	2.2	5.1	1.1	3.7	7.3
# of Portfolios	330	328	327	312	308	296	253	192
● International Equity	10.5 (56)	-1.6 (24)	-3.9 (18)	5.4 (43)	7.4 (64)	2.9 (38)	5.3 (44)	8.1 (79)
▲ Blended International Equity Index	10.4 (56)	-2.2 (38)	-4.7 (28)	5.8 (35)	8.3 (33)	3.0 (32)	5.3 (46)	9.4 (36)
✕ MSCI EAFE Gross	10.1 (72)	-2.3 (39)	-3.2 (14)	5.6 (37)	7.8 (54)	2.8 (42)	6.1 (18)	9.5 (34)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	2,151	6,248
Weighted Avg. Market Cap. (\$B)	48.2	56.1
Median Market Cap. (\$B)	6.6	1.6
Price To Earnings	15.5	14.5
Price To Book	2.3	2.2
Price To Sales	1.1	1.1
Return on Equity (%)	15.3	15.0
Yield (%)	3.1	3.2
Beta (holdings; global)	1.0	1.0

Top Holdings

UNITED OVERSEAS BANK	1.3%
ALIBABA GROUP HLDG.SPN. ADR 1:1	1.0%
NOVARTIS 'R'	1.0%
BP	1.0%
AIA GROUP	0.9%
ENEL	0.9%
GLAXOSMITHKLINE	0.9%
LLOYDS BANKING GROUP	0.9%
SANOFI	0.9%
TAKEDA PHARMACEUTICAL	0.8%

Best Performers

	Return %
VESTEL ELNK.SANVETC. (TK:VES)	118.7%
NAVIOS MARITIME ACQ. (NNA)	101.1%
LUXOFT HOLDING (LXFT)	93.0%
FORTESCUE METALS GP. (A:FMGX)	79.7%
WIJAYA KARYA BETON (ID:WJK)	66.5%
IMPALA PLATINUM (R:IMPJ)	65.9%
CORPORACION FINANCIERA COLOMBIANA (CB:VAL)	64.7%
NEW ORIENTAL ED.& TECH. GP.ADS 1:1 (EDU)	64.4%
CTRIP.COM INTL.ADR 8:1 (CTRP)	61.5%
VELESTO ENERGY (L:UMWO)	60.3%

Worst Performers

	Return %
EOH (R:EOHJ)	-66.3%
TONGAAT-HULETT (R:TONJ)	-61.5%
FULLSHARE HOLDINGS (K:WARD)	-41.8%
WAHA CAPITAL (AD:WAH)	-36.0%
ASPEN PHMCR.HDG. (R:APNJ)	-31.2%
BLUE LABEL TELECOMS (R:BLUJ)	-30.9%
SWEDBANK A (W:SWED)	-29.6%
ILIAD (F:ILD)	-28.3%
BEZEQ ISRAELI TELECOMMUNICATION (IS:BEZQ)	-28.0%
STAR BULK CARRIERS (SBLK)	-28.0%

International Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	0.0%	0.0%	10.1%	12.7%	4.9%	6.7%			
Materials	0.0%	0.0%	0.0%	0.0%	10.3%	10.9%	5.3%	8.0%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	9.0%	10.2%	11.9%	12.8%			
Consumer Discretionary	0.2%	0.3%	0.0%	0.0%	13.2%	11.0%	10.6%	11.3%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	11.1%	10.7%	8.6%	9.4%			
Health Care	0.1%	0.1%	0.0%	0.0%	12.6%	11.5%	7.7%	8.3%			
Financials	0.2%	0.1%	0.1%	-0.1%	7.8%	7.7%	16.1%	20.7%			
Information Technology	-0.1%	0.0%	-0.1%	0.0%	15.4%	15.1%	6.5%	8.3%			
Communication Services	0.1%	0.1%	0.0%	0.0%	8.4%	7.2%	7.6%	6.8%			
Utilities	0.0%	0.0%	0.0%	0.0%	9.6%	8.5%	3.7%	3.4%			
Real Estate	-0.1%	0.0%	-0.1%	0.0%	14.5%	14.0%	2.1%	4.4%			
Cash	-1.5%	0.0%	-1.5%	0.0%	0.6%	--	15.1%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	-1.4%	=	0.3%	+	-1.6%	+	-0.1%	9.1%	10.5%	100.0%	100.0%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

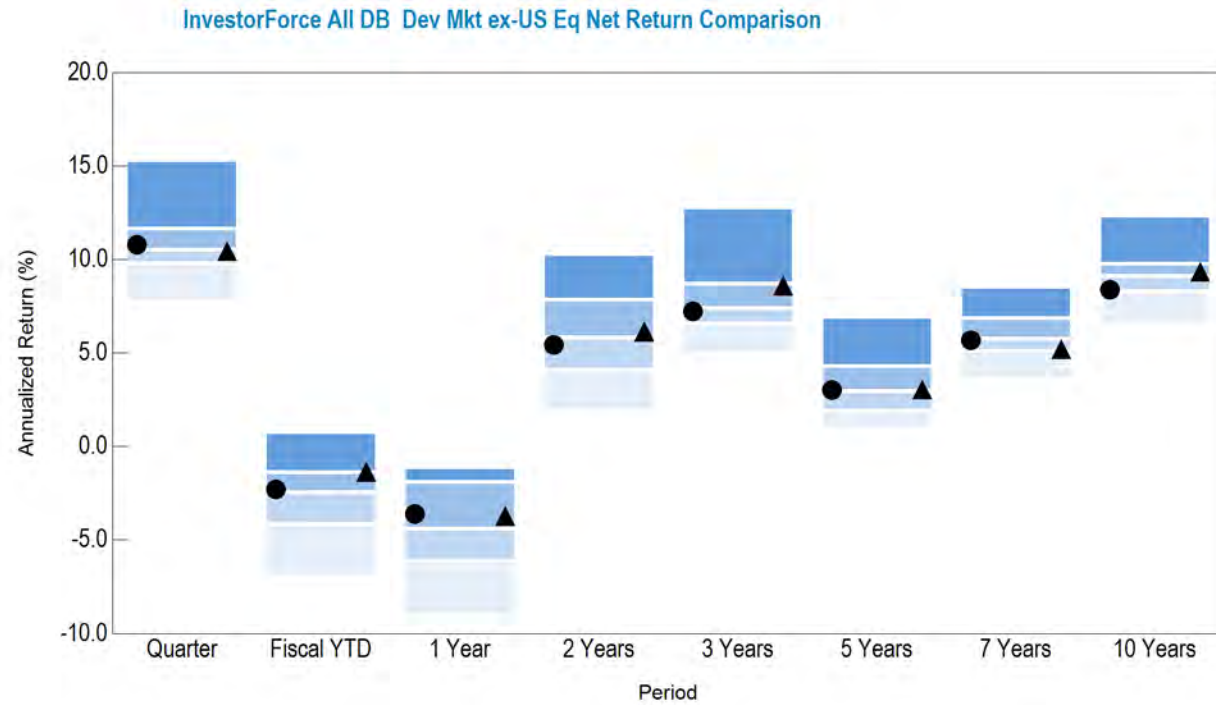
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	8.5%	8.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	16.2%	15.1%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	3.5%	4.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	10.2%	12.8%	1.6%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	9.3%	9.5%	0.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
France	9.4%	10.8%	4.3%	6.8%	-0.1%	-0.1%	0.1%	0.0%	-0.1%
Germany	12.0%	7.7%	5.6%	5.7%	0.3%	0.0%	0.0%	0.0%	0.2%
Greece*	15.0%	16.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	3.9%	5.7%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	8.8%	11.2%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	13.7%	14.4%	1.9%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	0.0%	10.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	11.5%	13.3%	2.2%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Norway	7.2%	8.7%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	3.4%	-0.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	23.3%	8.6%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	11.0%	12.3%	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	8.2%	6.9%	2.7%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Sweden	4.7%	8.2%	2.7%	2.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Switzerland	11.3%	13.3%	4.2%	5.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
United Kingdom	13.6%	12.4%	11.5%	11.7%	0.1%	0.0%	0.0%	0.0%	0.1%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	9.6%	11.8%	3.1%	4.8%	-0.1%	0.0%	0.0%	0.0%	-0.1%
China*	23.2%	17.9%	3.2%	7.1%	0.4%	-0.3%	0.0%	-0.2%	-0.1%
Hong Kong	14.7%	15.2%	3.8%	2.5%	0.0%	0.1%	0.0%	0.0%	0.0%
India*	0.8%	6.6%	3.1%	2.6%	-0.1%	0.0%	0.0%	0.0%	-0.2%
Indonesia*	7.7%	4.2%	0.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	9.7%	6.9%	14.6%	17.5%	0.5%	0.1%	0.0%	-0.1%	0.5%
Korea*	4.9%	4.5%	2.1%	3.6%	0.0%	0.1%	0.0%	0.0%	0.1%
Malaysia*	1.1%	2.0%	0.8%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	16.9%	14.3%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	3.6%	4.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	7.3%	8.1%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	6.2%	8.9%	2.6%	1.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
Taiwan*	8.7%	9.6%	2.1%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	6.0%	8.0%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	5.4%	8.1%	1.8%	1.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Canada	26.6%	15.4%	0.9%	6.5%	0.8%	-0.1%	-0.2%	-0.7%	-0.2%
Chile*	5.6%	4.6%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	20.7%	25.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	10.0%	6.3%	1.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	8.0%	10.5%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	23.8%	13.7%	1.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	16.0%	17.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	5.7%	12.1%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	8.7%	12.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-1.5%	-2.3%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	10.7%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	7.2%	4.2%	1.8%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	-3.1%	-2.6%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	8.8%	7.7%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	13.8%	13.0%	5.3%	9.6%	0.2%	0.0%	-0.1%	-0.1%	-0.1%
Europe	11.2%	11.1%	39.8%	43.2%	0.1%	0.0%	0.0%	0.0%	0.0%
Asia/Pacific	9.8%	9.6%	36.8%	44.5%	0.0%	0.1%	0.0%	0.0%	0.1%
Other	5.5%	4.9%	3.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.6%	--	15.1%	0.0%	0.0%	-1.5%	0.0%	0.0%	-1.5%
Total	9.1%	10.5%	100.0%	100.0%	0.4%	-1.5%	-0.1%	-0.1%	-1.4%
Totals									
Developed	11.3%	10.7%	64.5%	74.7%	0.6%	0.0%	-0.1%	-0.1%	0.4%
Emerging*	8.3%	9.7%	20.3%	25.3%	-0.4%	0.0%	0.0%	0.1%	-0.2%
Frontier**	9.1%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.6%	--	15.1%	0.0%	0.0%	-1.5%	0.0%	0.0%	-1.5%



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	15.3	0.8	-1.1	10.3	12.8	6.9	8.5	12.3
25th Percentile	11.7	-1.4	-1.9	7.9	8.7	4.3	6.9	9.8
Median	10.5	-2.4	-4.4	5.9	7.4	3.0	5.8	9.2
75th Percentile	9.8	-4.1	-6.1	4.1	6.6	1.9	5.2	8.3
95th Percentile	7.8	-6.9	-9.0	2.0	5.0	1.0	3.6	6.6
# of Portfolios	143	142	141	138	131	121	105	63
● Developed Markets	10.8 (45)	-2.3 (46)	-3.6 (39)	5.4 (55)	7.2 (57)	3.0 (47)	5.7 (53)	8.4 (72)
▲ MSCI ACWI ex USA Gross	10.4 (52)	-1.4 (29)	-3.7 (39)	6.1 (42)	8.6 (31)	3.0 (46)	5.2 (71)	9.3 (43)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	1,039	2,145
Weighted Avg. Market Cap. (\$B)	52.7	64.4
Median Market Cap. (\$B)	10.8	7.7
Price To Earnings	15.9	14.6
Price To Book	2.3	2.2
Price To Sales	1.1	1.2
Return on Equity (%)	15.1	15.5
Yield (%)	3.1	3.2
Beta (holdings; global)	1.0	1.0

Top Holdings

UNITED OVERSEAS BANK	1.4%
ALIBABA GROUP HLDG.SPN. ADR 1:1	1.2%
NOVARTIS 'R'	1.1%
BP	1.1%
AIA GROUP	1.0%
ENEL	1.0%
GLAXOSMITHKLINE	1.0%
LLOYDS BANKING GROUP	1.0%
SANOFI	1.0%
TAKEDA PHARMACEUTICAL	0.9%

Best Performers

	Return %
FORTESCUE METALS GP. (A:FMGX)	79.7%
CTRP.COM INTL.ADR 8:1 (CTRP)	61.5%
ZALANDO (D:ZAL)	52.4%
MICRO FOCUS INTL. (UKIR:MCRO)	51.3%
SHOPIFY 'A' (NYS) (SHOP)	49.2%
HITACHI CHEMICAL (J:LK@N)	48.2%
SHIMADZU (J:ZU@N)	46.5%
SOFTBANK GROUP (J:SFTB)	46.1%
DAICHI SANKYO (J:D@SA)	45.1%
ADYEN (H:ADYE)	44.3%

Worst Performers

	Return %
SWEDBANK A (W:SWED)	-29.6%
ILIAD (F:ILD)	-28.3%
BEZEQ ISRAELI TELECOMMUNICATION (IS:BEZQ)	-28.0%
EISAI (J:ES@N)	-26.6%
TUI (D:TUI1)	-25.7%
WELCIA HOLDINGS (J:WELH)	-24.6%
YAMAZAKI BAKING (J:BV@N)	-22.8%
SUMITOMO DAINIPPON PHA. (J:DPPH)	-22.1%
CHINA RESOURCES (SZS) POWER (K:CREPZ)	-20.8%
TELEFONICA DTL.HLDG. (D:O2D)	-19.5%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	0.0%	0.0%	10.3%	12.5%	5.2%	7.3%			
Materials	-0.1%	0.0%	0.0%	0.0%	10.7%	11.5%	5.6%	7.6%			
Industrials	-0.2%	-0.1%	0.0%	-0.1%	9.3%	10.3%	14.3%	11.7%			
Consumer Discretionary	0.3%	0.3%	0.0%	0.0%	13.6%	11.2%	12.9%	11.1%			
Consumer Staples	0.1%	0.1%	0.0%	0.0%	11.8%	11.2%	9.9%	9.8%			
Health Care	0.2%	0.2%	0.0%	0.0%	13.4%	11.4%	9.4%	8.4%			
Financials	0.1%	0.1%	0.1%	-0.1%	7.8%	7.8%	19.1%	22.1%			
Information Technology	0.1%	0.1%	0.0%	0.0%	15.4%	14.6%	7.9%	8.0%			
Communication Services	0.1%	0.1%	-0.1%	0.0%	8.7%	6.8%	8.6%	7.1%			
Utilities	0.1%	0.1%	0.0%	0.0%	10.9%	8.4%	4.0%	3.4%			
Real Estate	0.0%	0.0%	-0.1%	0.0%	16.0%	14.8%	2.0%	3.3%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.6%	--	1.1%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	0.4%	=	0.7%	+	-0.1%	+	-0.1%	10.9%	10.4%	100.0%	100.0%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

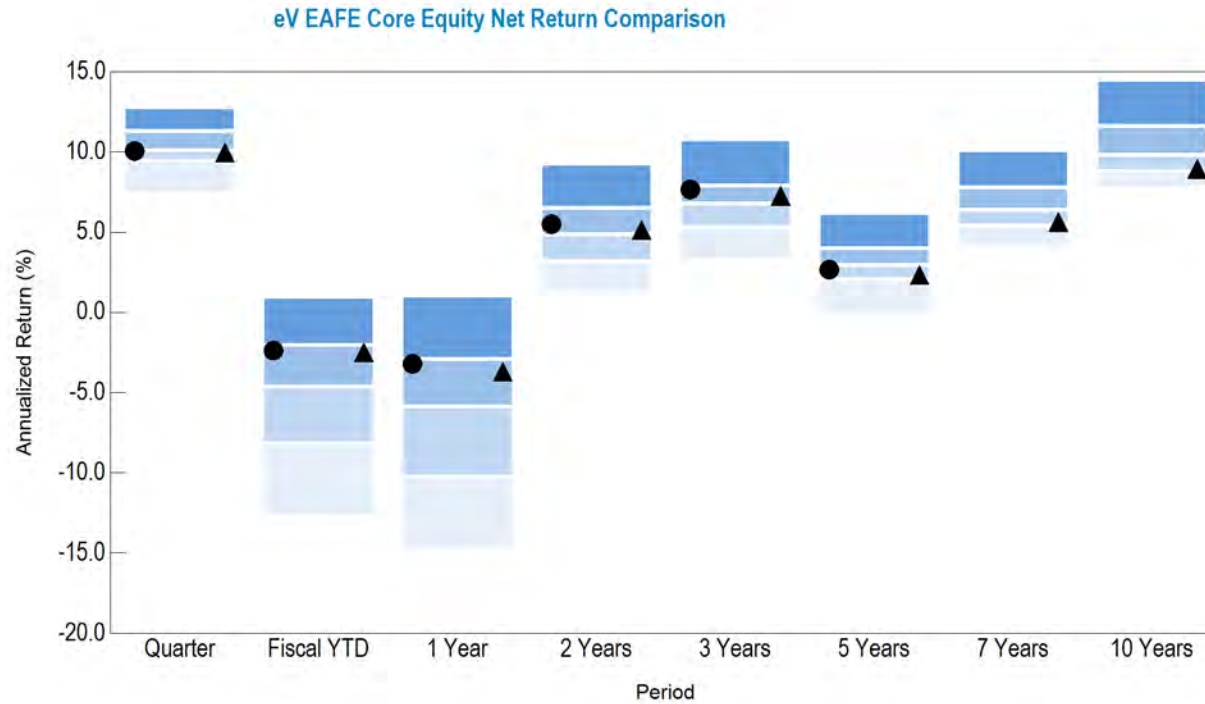
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	8.5%	8.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	16.2%	16.2%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	--	3.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	10.2%	13.2%	2.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	9.3%	8.4%	0.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	9.4%	10.8%	5.6%	7.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Germany	12.0%	7.1%	7.4%	5.9%	0.3%	0.0%	0.0%	0.1%	0.3%
Greece*	--	12.9%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	6.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	8.8%	11.6%	0.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	13.7%	14.7%	2.4%	1.5%	0.0%	0.1%	0.0%	0.0%	0.0%
Luxembourg	0.6%	10.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	11.6%	13.6%	2.8%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Norway	7.2%	7.2%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	--	-0.6%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	23.3%	10.2%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Russia*	10.6%	12.5%	0.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	8.2%	6.8%	3.5%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Sweden	4.7%	7.9%	3.5%	1.8%	-0.1%	0.0%	-0.1%	-0.1%	-0.2%
Switzerland	11.3%	13.6%	5.5%	5.9%	-0.1%	0.0%	0.0%	0.0%	-0.1%
United Kingdom	13.6%	11.9%	15.0%	11.5%	0.2%	0.0%	0.1%	0.1%	0.3%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	9.6%	11.5%	4.1%	4.7%	-0.1%	0.0%	0.0%	0.0%	-0.1%
China*	24.9%	18.0%	3.4%	7.9%	0.5%	-0.3%	0.0%	-0.3%	-0.1%
Hong Kong	14.6%	15.6%	4.3%	2.6%	0.0%	0.1%	0.0%	0.0%	0.0%
India*	-0.6%	7.1%	3.1%	2.4%	-0.2%	0.0%	0.0%	0.0%	-0.3%
Indonesia*	13.7%	4.3%	0.1%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Japan	9.7%	6.8%	19.1%	16.6%	0.5%	-0.1%	0.0%	0.1%	0.4%
Korea*	7.0%	4.8%	1.9%	3.6%	0.1%	0.1%	0.0%	0.0%	0.1%
Malaysia*	-0.1%	0.3%	0.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	16.9%	16.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	--	8.5%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	4.5%	7.9%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	6.0%	6.2%	3.3%	0.9%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Taiwan*	9.3%	9.0%	1.9%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	5.8%	7.5%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	4.5%	8.2%	1.5%	1.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Canada	26.6%	15.6%	1.1%	6.5%	0.8%	-0.1%	-0.1%	-0.6%	-0.1%
Chile*	--	4.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	24.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	14.0%	5.6%	0.5%	0.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Peru*	8.2%	11.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	23.4%	13.7%	1.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	16.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	5.7%	10.7%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-3.8%	-3.5%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	10.7%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	10.4%	4.5%	1.5%	1.6%	0.1%	0.0%	0.0%	0.0%	0.1%
Turkey*	-8.0%	-3.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	13.4%	8.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	16.5%	13.1%	4.4%	9.6%	0.5%	0.0%	-0.2%	-0.3%	0.0%
Europe	11.3%	10.9%	50.4%	43.6%	0.2%	0.1%	-0.1%	0.0%	0.2%
Asia/Pacific	10.1%	9.8%	42.2%	44.0%	0.1%	0.0%	0.0%	0.0%	0.1%
Other	8.7%	4.4%	2.0%	2.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Cash	0.6%	--	1.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	10.9%	10.4%	100.0%	100.0%	0.9%	0.0%	-0.2%	-0.3%	0.4%
Totals									
Developed	11.2%	10.6%	83.3%	74.0%	0.6%	0.0%	-0.2%	0.1%	0.5%
Emerging*	9.7%	10.0%	15.6%	26.0%	-0.1%	0.1%	0.0%	0.0%	0.0%
Frontier**	10.7%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.6%	--	1.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	12.8	0.9	1.0	9.3	10.8	6.2	10.1	14.5
25th Percentile	11.4	-2.0	-2.9	6.6	8.0	4.0	7.8	11.7
Median	10.1	-4.6	-5.8	4.9	6.8	3.0	6.4	9.9
75th Percentile	9.5	-8.1	-10.3	3.2	5.3	2.1	5.5	8.9
95th Percentile	7.4	-12.7	-14.8	1.2	3.4	-0.2	4.1	7.8
# of Portfolios	148	146	146	145	143	125	103	87
● BlackRock EAFE Index	10.1 (54)	-2.4 (29)	-3.2 (28)	5.5 (40)	7.7 (30)	2.7 (59)	-- (-)	-- (-)
▲ MSCI EAFE	10.0 (57)	-2.5 (29)	-3.7 (31)	5.1 (46)	7.3 (39)	2.3 (71)	5.6 (71)	9.0 (74)

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	924	920
Weighted Avg. Market Cap. (\$B)	58.8	58.8
Median Market Cap. (\$B)	10.1	10.1
Price To Earnings	15.1	15.1
Price To Book	2.2	2.2
Price To Sales	1.1	1.1
Return on Equity (%)	14.5	14.5
Yield (%)	3.4	3.4
Beta (holdings; global)	1.0	1.0

Top Holdings

NESTLE 'R'	2.1%
NOVARTIS 'R'	1.5%
ROCHE HOLDING	1.4%
HSBC HOLDINGS	1.2%
BP	1.1%
ROYAL DUTCH SHELL A	1.0%
TOTAL	1.0%
TOYOTA MOTOR	1.0%
AIA GROUP	0.9%
ROYAL DUTCH SHELL B	0.9%

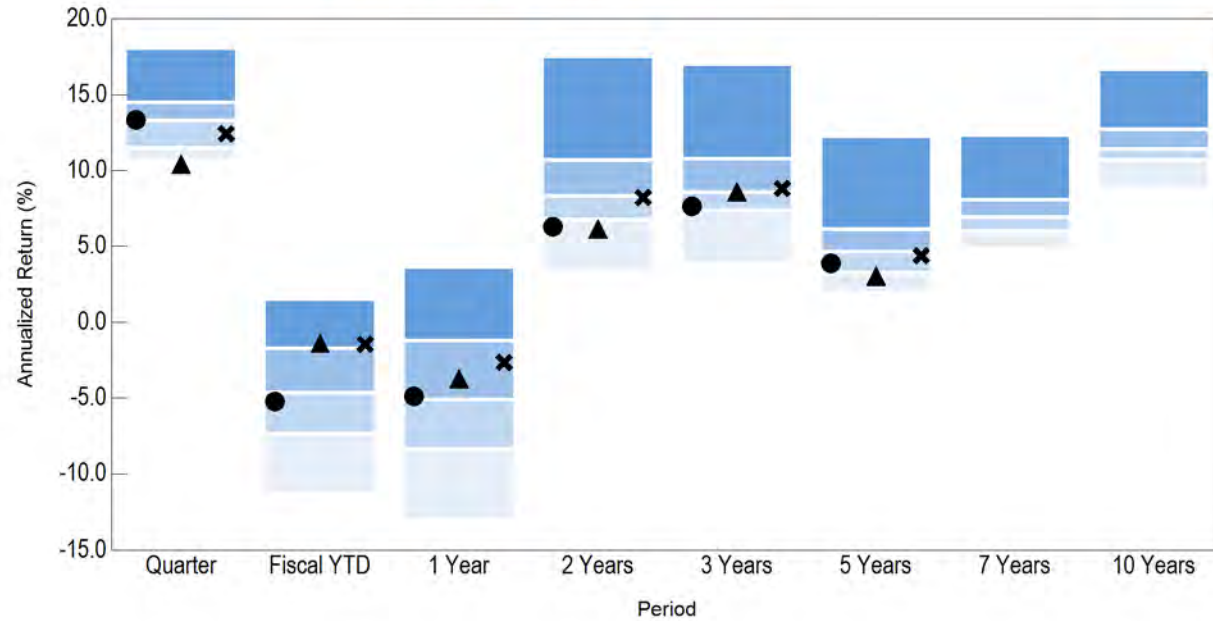
Best Performers

	Return %
FORTESCUE METALS GP. (A:FMGX)	79.7%
ZALANDO (D:ZAL)	52.4%
MICRO FOCUS INTL. (UKIR:MCRO)	51.3%
HITACHI CHEMICAL (J:LK@N)	48.2%
SHIMADZU (J:ZU@N)	46.5%
SOFTBANK GROUP (J:SFTB)	46.1%
DAIICHI SANKYO (J:D@SA)	45.1%
ADYEN (H:ADYE)	44.3%
AKER BP (N:AKEP)	44.0%
NEXT (UKIR:NXT)	43.0%

Worst Performers

	Return %
SWEDBANK A (W:SWED)	-29.6%
ILIAD (F:ILD)	-28.3%
BEZEQ ISRAELI TELECOMMUNICATION (IS:BEZQ)	-28.0%
EISAI (J:ES@N)	-26.6%
TUI (D:TUI1)	-25.7%
WELCIA HOLDINGS (J:WELH)	-24.6%
YAMAZAKI BAKING (J:BV@N)	-22.8%
SUMITOMO DAINIPPON PHA. (J:DPPH)	-22.1%
TELEFONICA DTL.HLDG. (D:O2D)	-19.5%
OSRAM LICHT (D:OSR)	-19.3%

eV ACWI ex-US Growth Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	18.1	1.5	3.6	17.5	17.0	12.2	12.3	16.7
25th Percentile	14.5	-1.7	-1.2	10.7	10.8	6.1	8.1	12.7
Median	13.3	-4.6	-5.1	8.4	8.6	4.7	7.0	11.4
75th Percentile	11.5	-7.3	-8.3	6.8	7.4	3.3	6.0	10.7
95th Percentile	10.7	-11.2	-12.9	3.4	3.9	2.0	4.8	8.9
# of Portfolios	68	68	68	68	67	58	51	43
● Baillie Gifford	13.3 (50)	-5.2 (58)	-4.9 (49)	6.3 (83)	7.6 (68)	3.9 (62)	-- (--)	-- (--)
▲ MSCI ACWI ex US	10.4 (99)	-1.4 (21)	-3.7 (40)	6.1 (84)	8.6 (51)	3.0 (81)	-- (--)	-- (--)
✕ MSCI ACWI ex US Growth	12.4 (68)	-1.4 (23)	-2.7 (34)	8.2 (52)	8.8 (49)	4.4 (57)	-- (--)	-- (--)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	84	2,145
Weighted Avg. Market Cap. (\$B)	44.3	64.4
Median Market Cap. (\$B)	15.4	7.7
Price To Earnings	22.9	14.6
Price To Book	3.8	2.2
Price To Sales	1.9	1.2
Return on Equity (%)	23.5	15.5
Yield (%)	1.7	3.2
Beta (holdings; global)	1.1	1.0

Top Holdings

ALIBABA GROUP HLDG.SPN. ADR 1:1	2.8%
NASPERS	2.8%
HARGREAVES LANSDOWN	2.7%
TAIWAN SEMICON.SPN.ADR 1:5	2.6%
SHISEIDO	2.4%
AIA GROUP	2.2%
RIGHTMOVE	2.1%
COCHLEAR	2.0%
ADIDAS	2.0%
MS&AD INSURANCE GP.HDG.	1.9%

Best Performers

	Return %
CTRP.COM INTL.ADR 8:1 (CTRP)	61.5%
ZALANDO (D:ZAL)	52.4%
SHOPIFY 'A' (NYS) (SHOP)	49.2%
SOFTBANK GROUP (J:SFTB)	46.1%
JD.COM 'A' ADR 1:2 (JD)	44.1%
ASOS (UKIR:ASC)	43.8%
OLYMPUS (J:OLYC)	42.1%
THAI BEVERAGE PUBLIC (T:THBE)	41.4%
SARTORIUS PREF. (D:SRT3)	36.9%
ALIBABA GROUP HLDG.SPN. ADR 1:1 (BABA)	33.1%

Worst Performers

	Return %
MAHINDRA & MAHINDRA GDR REG 'S' (UKIR:MHID)	-12.8%
UNITED SPIRITS (IN:MLC)	-12.2%
DENSO (J:DE@N)	-11.2%
JARDINE MATHESON HDG. (T:JMST)	-8.6%
U-BLOX HOLDING (S:BHOL)	-5.2%
PUBLIC BANK (L:PBOM)	-3.9%
PIGEON (J:PIGC)	-3.8%
CLICKS GROUP (R:CLSJ)	-2.6%
NAVER (KO:NHN)	-0.1%
SVENSKA HANDBKN.'A' (W:SVK)	0.7%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.8%	0.0%	0.7%	2.6%	12.5%	0.8%	7.3%			
Materials	-0.2%	-0.2%	0.0%	0.0%	9.1%	11.4%	5.0%	7.7%			
Industrials	0.1%	0.1%	0.0%	0.0%	11.1%	10.3%	15.5%	11.7%			
Consumer Discretionary	1.9%	1.2%	0.0%	0.6%	22.2%	11.2%	16.0%	10.6%			
Consumer Staples	-0.3%	-0.2%	0.0%	-0.1%	9.0%	11.2%	13.7%	9.8%			
Health Care	0.7%	0.8%	0.0%	-0.1%	21.2%	11.4%	7.4%	8.4%			
Financials	0.0%	-0.1%	0.2%	-0.1%	7.1%	7.8%	17.8%	22.2%			
Information Technology	0.4%	0.2%	0.2%	0.0%	16.5%	14.6%	11.4%	8.0%			
Communication Services	0.9%	0.6%	-0.2%	0.5%	16.5%	7.0%	11.5%	7.6%			
Utilities	0.1%	--	0.1%	--	--	8.4%	0.0%	3.4%			
Real Estate	-0.1%	--	-0.1%	--	--	14.8%	0.0%	3.3%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.6%	--	0.8%	0.0%			
Portfolio	3.2%	=	1.6%	+	0.0%	+	1.5%	13.6%	10.4%	100.0%	100.0%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

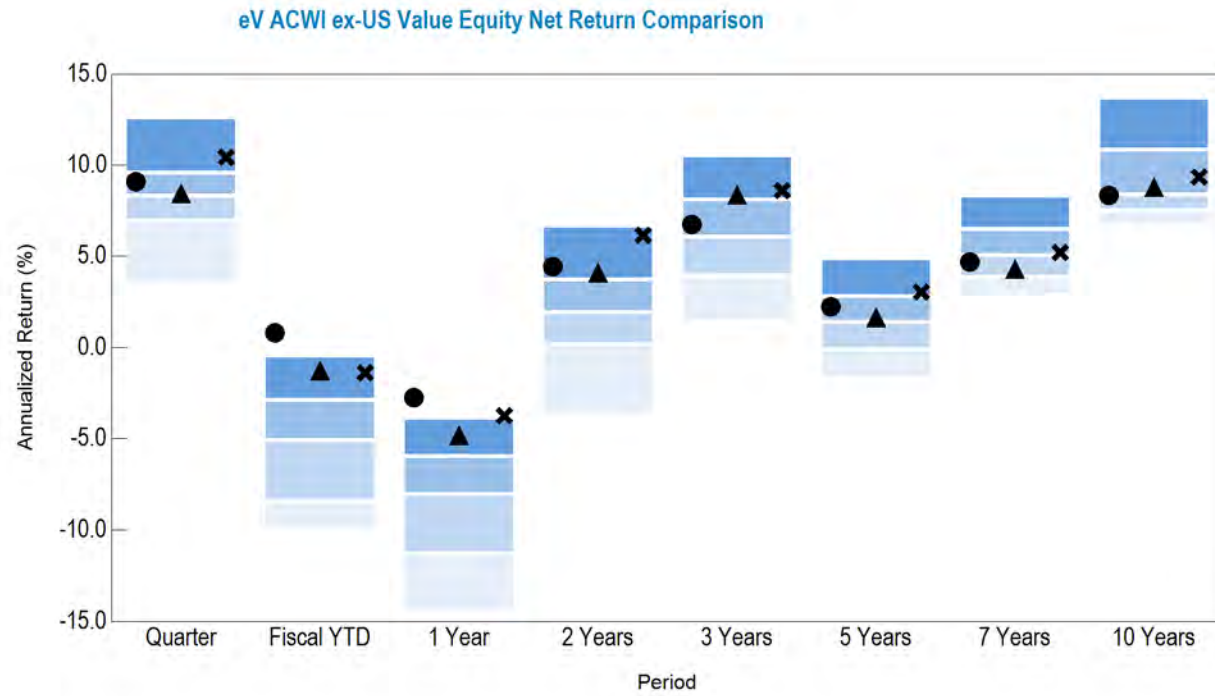
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	--	8.5%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Belgium	--	16.2%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	3.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	6.4%	13.2%	3.1%	1.2%	-0.1%	0.0%	0.0%	-0.1%	-0.2%
Finland	10.1%	8.4%	1.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	18.9%	10.8%	1.3%	7.5%	0.6%	-0.1%	0.1%	-0.5%	0.1%
Germany	23.8%	7.1%	6.7%	5.9%	1.0%	0.0%	0.0%	0.2%	1.1%
Greece*	--	13.3%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	6.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	9.2%	11.6%	1.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	--	14.8%	0.0%	1.5%	--	-0.1%	0.0%	--	-0.1%
Netherlands	19.7%	13.6%	1.5%	2.3%	0.1%	0.0%	0.0%	-0.1%	0.1%
Norway	--	7.2%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	-0.6%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	24.9%	10.2%	1.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.2%
Russia*	--	12.5%	0.0%	0.9%	--	0.0%	-0.1%	--	0.0%
Spain	15.1%	6.9%	1.8%	2.1%	0.2%	0.0%	0.0%	0.0%	0.2%
Sweden	7.3%	7.9%	5.5%	1.8%	0.0%	0.1%	-0.2%	0.0%	-0.1%
Switzerland	9.3%	13.6%	3.3%	5.9%	-0.2%	-0.1%	0.0%	0.1%	-0.2%
United Kingdom	14.1%	11.9%	13.3%	11.5%	0.2%	0.0%	0.0%	0.0%	0.3%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	3.0%	11.5%	4.5%	4.7%	-0.4%	0.0%	0.0%	0.0%	-0.4%
China*	28.7%	17.9%	6.8%	7.9%	0.8%	-0.1%	0.0%	-0.1%	0.7%
Hong Kong	19.9%	15.6%	2.1%	2.6%	0.1%	0.0%	0.0%	0.0%	0.1%
India*	-1.6%	7.1%	5.5%	2.4%	-0.2%	-0.2%	0.0%	-0.3%	-0.6%
Indonesia*	--	4.2%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Japan	14.6%	6.7%	17.8%	16.6%	1.3%	0.0%	0.0%	0.1%	1.4%
Korea*	7.3%	4.7%	2.1%	3.6%	0.1%	0.1%	0.0%	-0.1%	0.1%
Malaysia*	-3.9%	0.4%	1.3%	0.6%	0.0%	-0.1%	0.0%	0.0%	-0.1%
New Zealand	--	16.7%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	8.5%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	6.8%	7.9%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	6.9%	6.2%	4.1%	0.9%	0.0%	-0.2%	0.0%	0.0%	-0.1%
Taiwan*	9.5%	9.0%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	--	7.5%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Americas									
Brazil*	14.1%	8.0%	1.1%	2.0%	0.1%	0.0%	0.0%	-0.1%	0.1%
Canada	31.1%	15.6%	2.3%	6.5%	1.1%	-0.1%	-0.1%	-0.7%	0.2%
Chile*	--	4.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	24.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	6.1%	5.6%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	--	11.2%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
United States	23.7%	2.8%	3.2%	0.0%	0.0%	-0.2%	0.0%	0.7%	0.4%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	16.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	10.7%	0.0%	0.4%	--	0.0%	0.0%	--	0.0%
Qatar*	--	-3.6%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
South Africa*	11.2%	4.3%	4.3%	1.6%	0.1%	-0.2%	0.0%	0.2%	0.1%
Turkey*	--	-3.1%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
United Arab Emirates*	--	8.7%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Totals									
Americas	22.9%	13.1%	7.4%	9.7%	1.1%	0.0%	-0.2%	-0.2%	0.7%
Europe	14.2%	11.0%	40.0%	43.6%	1.6%	0.0%	-0.1%	-0.1%	1.3%
Asia/Pacific	12.1%	9.7%	47.5%	44.1%	1.0%	0.0%	0.0%	0.1%	1.1%
Other	11.2%	4.4%	4.3%	2.7%	0.2%	-0.1%	0.0%	0.1%	0.2%
Cash	0.6%	--	0.8%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	13.6%	10.4%	100.0%	100.0%	3.8%	-0.3%	-0.2%	-0.2%	3.2%
Totals									
Developed	14.4%	10.6%	74.0%	74.0%	3.0%	0.0%	-0.2%	0.0%	2.8%
Emerging*	11.8%	9.9%	25.1%	26.0%	0.5%	0.0%	0.0%	-0.1%	0.4%
Cash	0.6%	--	0.8%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	12.6	-0.4	-3.9	6.7	10.5	4.9	8.3	13.7
25th Percentile	9.6	-2.8	-5.9	3.8	8.2	2.8	6.5	10.9
Median	8.4	-5.1	-8.0	2.0	6.1	1.4	5.1	8.4
75th Percentile	7.0	-8.4	-11.3	0.2	4.0	-0.1	3.9	7.5
95th Percentile	3.5	-9.9	-14.4	-3.6	1.5	-1.7	2.9	6.7
# of Portfolios	38	37	37	36	36	33	25	18
● Mondrian	9.1 (32)	0.8 (1)	-2.7 (1)	4.4 (17)	6.8 (44)	2.2 (34)	4.7 (64)	8.3 (51)
▲ MSCI ACWI ex USA Value Gross	8.5 (49)	-1.3 (10)	-4.8 (13)	4.1 (23)	8.4 (25)	1.7 (48)	4.3 (69)	8.8 (47)
✕ MSCI ACWI ex USA Gross	10.4 (18)	-1.4 (11)	-3.7 (5)	6.1 (8)	8.6 (24)	3.0 (22)	5.2 (45)	9.3 (44)

Characteristics

	Portfolio	MSCI ACWI ex USA Value Gross
Number of Holdings	139	1,280
Weighted Avg. Market Cap. (\$B)	55.0	51.3
Median Market Cap. (\$B)	19.6	7.1
Price To Earnings	13.3	11.6
Price To Book	1.7	1.6
Price To Sales	0.8	0.9
Return on Equity (%)	11.5	11.7
Yield (%)	4.2	4.4
Beta (holdings: global)	0.9	0.9

Top Holdings

ENEL	2.6%
LLOYDS BANKING GROUP	2.5%
ENI	2.3%
TAKEDA PHARMACEUTICAL	2.3%
UNITED OVERSEAS BANK	2.2%
GLAXOSMITHKLINE	2.2%
TELIA COMPANY	2.2%
CK HUTCHISON HOLDINGS	2.2%
BP	2.1%
SANOFI	2.1%

Best Performers

	Return %
WH GROUP (SZS) (K:HHPLZ)	40.2%
MIDEA GROUP 'A' SUSP - SUSP.08/05/19 (CN:MGA)	35.1%
ALIBABA GROUP HLDG.SPN. ADR 1:1 (BABA)	33.1%
BRILLIANCE CHINA AUTOMOTIVE HOLDINGS (K:CBA)	33.1%
TRAVIS PERKINS (UKIR:TPK)	31.1%
FIBRA UNO ADMINISTRACION REIT (MX:FUN)	27.4%
PING AN INSURANCE (GROUP) OF CHINA 'H' (K:PING)	26.8%
QBE INSURANCE GROUP (A:QBEX)	25.7%
LUKOIL OAO SPN.ADR 1:1 (LUKOY)	25.3%
TESCO (UKIR:TSCO)	24.9%

Worst Performers

	Return %
CHINA RESOURCES (SZS) POWER (K:CREPZ)	-20.8%
COCA-COLA BOTTLERS JAPAN HOLDINGS (J:KITK)	-15.2%
HYPERMARCAS ON (BR:HYP)	-14.6%
TURKIYE HALK BANKASI (TK:HLB)	-14.4%
EMBRAER SPNS ADR 1:4 (ERJ)	-14.1%
LUPIN (IN:LUP)	-11.7%
SOCIETE GENERALE (F:SGE)	-9.0%
VEDANTA (IN:VED)	-7.1%
BMW PREF. (D:BMW3)	-6.7%
ISUZU MOTORS (J:IM@N)	-5.8%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	0.0%	-0.1%	-0.1%	10.7%	11.8%	8.7%	11.6%			
Materials	-0.3%	-0.3%	-0.1%	0.0%	8.3%	12.5%	4.5%	8.3%			
Industrials	-0.3%	-0.2%	0.0%	-0.1%	5.8%	8.3%	13.0%	8.0%			
Consumer Discretionary	0.3%	0.2%	-0.1%	0.1%	8.8%	5.4%	11.5%	7.9%			
Consumer Staples	0.3%	0.1%	0.1%	0.1%	17.8%	14.3%	5.1%	3.0%			
Health Care	0.0%	0.0%	0.0%	0.0%	9.0%	9.1%	9.8%	5.6%			
Financials	0.8%	0.9%	0.3%	-0.4%	9.0%	6.6%	20.3%	34.3%			
Information Technology	0.2%	0.1%	0.1%	0.0%	13.7%	12.0%	6.6%	4.0%			
Communication Services	-0.2%	0.0%	-0.1%	-0.1%	-0.1%	1.1%	8.7%	7.1%			
Utilities	0.3%	0.2%	0.0%	0.1%	11.6%	8.2%	8.1%	5.4%			
Real Estate	-0.1%	0.0%	-0.2%	0.0%	18.1%	15.1%	2.4%	4.8%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.6%	--	1.4%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	0.5%	=	1.0%	+	-0.1%	+	-0.3%	8.9%	8.4%	100.0%	100.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	--	9.3%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Belgium	--	8.3%	0.0%	0.4%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	2.1%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	9.2%	2.1%	1.4%	0.4%	0.0%	0.0%	0.0%	0.1%	0.0%
Finland	--	2.7%	0.0%	0.8%	--	0.0%	0.0%	--	0.0%
France	3.1%	6.6%	4.6%	7.0%	-0.3%	0.0%	0.1%	0.1%	-0.1%
Germany	7.2%	5.1%	6.9%	5.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Greece*	--	12.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	6.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	2.6%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Italy	13.4%	14.3%	5.0%	2.4%	0.0%	0.2%	-0.1%	0.0%	0.1%
Netherlands	7.3%	10.4%	2.7%	1.2%	0.0%	0.1%	0.0%	0.0%	-0.1%
Norway	--	7.6%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	-3.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	--	10.2%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Russia*	10.6%	15.2%	1.0%	1.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
Spain	6.6%	5.0%	5.4%	3.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Sweden	-4.5%	-1.5%	2.4%	1.5%	0.0%	-0.1%	0.0%	0.0%	-0.2%
Switzerland	8.9%	10.5%	4.7%	3.2%	-0.1%	0.0%	0.0%	0.0%	0.0%
United Kingdom	13.4%	12.4%	17.1%	15.3%	0.1%	0.0%	0.0%	0.0%	0.2%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	25.7%	9.6%	0.9%	4.8%	0.8%	0.0%	0.0%	-0.6%	0.1%
China*	17.9%	13.0%	3.4%	8.0%	0.3%	-0.2%	0.0%	-0.2%	0.0%
Hong Kong	14.4%	13.0%	5.8%	2.6%	0.0%	0.2%	0.0%	0.0%	0.2%
India*	0.8%	10.2%	3.8%	2.4%	-0.2%	0.0%	0.0%	-0.1%	-0.3%
Indonesia*	13.7%	4.9%	0.4%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%
Japan	8.5%	4.9%	15.1%	16.7%	0.6%	0.0%	0.0%	-0.1%	0.6%
Korea*	6.8%	3.6%	3.5%	3.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Malaysia*	5.3%	1.5%	0.8%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	--	9.8%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	12.7%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	2.4%	6.4%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	5.5%	5.9%	4.2%	0.9%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Taiwan*	8.9%	5.4%	2.2%	3.0%	0.1%	0.0%	0.0%	0.0%	0.1%
Thailand*	5.8%	7.7%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	1.3%	5.7%	3.2%	1.9%	-0.1%	0.0%	0.0%	-0.1%	-0.2%
Canada	17.7%	14.8%	1.1%	6.4%	0.2%	-0.2%	-0.1%	-0.2%	-0.3%
Chile*	--	3.2%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	26.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	21.3%	7.6%	0.7%	0.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Peru*	8.2%	8.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	12.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	4.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Qatar*	-3.8%	-3.3%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	10.7%	8.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	7.1%	-1.1%	0.4%	1.6%	0.1%	0.1%	0.0%	-0.1%	0.2%
Turkey*	-8.0%	2.2%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	13.4%	7.8%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	7.8%	12.2%	5.2%	9.6%	-0.3%	-0.1%	-0.1%	0.1%	-0.4%
Europe	9.2%	8.9%	51.2%	43.4%	0.2%	0.0%	-0.1%	0.0%	0.2%
Asia/Pacific	9.3%	7.6%	40.9%	44.3%	0.7%	0.0%	0.0%	-0.1%	0.7%
Other	2.9%	0.4%	1.2%	2.7%	0.1%	0.1%	0.0%	-0.1%	0.1%
Cash	0.6%	--	1.4%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	8.9%	8.4%	100.0%	100.0%	0.8%	0.0%	-0.3%	0.1%	0.5%
Totals									
Developed	9.5%	8.6%	77.3%	74.0%	0.9%	0.0%	-0.3%	0.0%	0.7%
Emerging*	7.4%	7.8%	21.2%	26.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Frontier**	10.7%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.6%	--	1.4%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	12.4	6.1	-4.0	8.3	11.9	4.6	3.6	11.3
25th Percentile	10.9	1.7	-7.4	6.2	11.4	3.6	2.8	11.3
Median	9.6	0.1	-9.0	5.1	8.9	3.1	2.4	9.1
75th Percentile	8.8	-1.5	-10.6	3.7	7.8	2.8	1.7	8.5
95th Percentile	7.1	-4.3	-13.3	1.1	6.0	1.2	0.9	7.6
# of Portfolios	64	64	63	61	59	50	40	13
● Emerging Markets	7.7 (83)	1.1 (37)	-8.5 (48)	3.8 (72)	7.3 (83)	1.4 (88)	1.9 (67)	-- (--)
▲ MSCI Emerging Markets Gross	10.0 (41)	0.9 (38)	-7.1 (23)	7.9 (10)	11.1 (28)	4.1 (17)	3.1 (16)	9.3 (36)



	Return (Rank)															
	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	14.8	5.0	-2.8	11.5	14.4	6.9	6.5	13.5								
25th Percentile	12.4	1.6	-6.2	8.6	11.8	4.7	4.7	11.0								
Median	10.3	-0.3	-8.6	6.0	9.9	3.7	3.3	9.8								
75th Percentile	8.6	-2.9	-11.4	4.1	8.0	2.7	2.4	8.9								
95th Percentile	6.1	-7.2	-15.7	1.4	5.3	0.9	1.2	7.7								
# of Portfolios	216	207	205	200	189	163	125	75								
● Parametric Core	7.7 (84)	1.1 (32)	-8.5 (49)	3.8 (80)	7.3 (85)	-- (--)	-- (--)	-- (--)								
▲ MSCI Emerging Markets Gross	10.0 (55)	0.9 (35)	-7.1 (33)	7.9 (32)	11.1 (33)	4.1 (42)	3.1 (58)	9.3 (62)								

Characteristics

	Portfolio	MSCI Emerging Markets Gross
Number of Holdings	1,175	1,133
Weighted Avg. Market Cap. (\$B)	8.1	84.9
Median Market Cap. (\$B)	3.3	5.8
Price To Earnings	12.5	13.3
Price To Book	2.1	2.4
Price To Sales	0.9	1.3
Return on Equity (%)	14.1	17.8
Yield (%)	3.2	2.7
Beta (holdings; global)	0.7	1.0

Top Holdings

TPI POLENE POWER FB	1.0%
MOTUS HOLD LTD ORD SHS	0.9%
GULF ENERGY DEVELOPMENT FB	0.9%
COMPAL ELECTRONICS	0.8%
ASSORE	0.7%
KOC HOLDING	0.6%
IMPALA PLATINUM	0.6%
MAILRU GROUP GDR (REG S)	0.6%
CHINA BIOLOGIC PRDS.HDG.	0.6%
INVENTEC	0.6%

Best Performers

	Return %
VESTEL ELNK.SANVETC. (TK:VES)	118.7%
NAVIOS MARITIME ACQ. (NNA)	101.1%
LUXOFT HOLDING (LXFT)	93.0%
WIJAYA KARYA BETON (ID:WJK)	66.5%
IMPALA PLATINUM (R:IMPJ)	65.9%
CORPORACION FINANCIERA COLOMBIANA (CB:VAL)	64.7%
NEW ORIENTAL ED.& TECH. GP.ADS 1:1 (EDU)	64.4%
CTRIP.COM INTL.ADR 8:1 (CTRP)	61.5%
VELESTO ENERGY (L:UMWO)	60.3%
CONTROLADORA VUELA COMPANIA DE AVIACION (MX:VOA)	59.9%

Worst Performers

	Return %
EOH (R:EOHJ)	-66.3%
TONGAAT-HULETT (R:TONJ)	-61.5%
FULLSHARE HOLDINGS (K:WARD)	-41.8%
WAHA CAPITAL (AD:WAH)	-36.0%
ASPEN PHMCR.HDG. (R:APNJ)	-31.2%
BLUE LABEL TELECOMS (R:BLUJ)	-30.9%
STAR BULK CARRIERS (SBLK)	-28.0%
MATAHARI DEPARTMENT SOE. (ID:MDS)	-26.2%
INDAH KIAT PULP & PAPER (ID:IKP)	-24.8%
TURK HAVA YOLLARI (TK:THY)	-24.4%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	0.0%	-0.1%	9.6%	12.3%	9.9%	8.0%			
Materials	0.1%	0.2%	-0.1%	0.0%	8.7%	6.8%	11.0%	7.6%			
Industrials	-0.3%	0.0%	-0.2%	0.0%	5.0%	5.2%	10.4%	5.7%			
Consumer Discretionary	-1.4%	-1.4%	-0.5%	0.5%	8.1%	19.9%	7.8%	12.4%			
Consumer Staples	-0.2%	0.0%	-0.2%	0.0%	5.6%	5.4%	10.5%	6.7%			
Health Care	-0.3%	-0.1%	-0.1%	-0.1%	1.4%	3.6%	5.2%	2.8%			
Financials	0.3%	0.0%	0.2%	0.0%	7.6%	7.3%	15.8%	24.7%			
Information Technology	-0.2%	0.2%	-0.3%	-0.1%	14.8%	12.6%	4.1%	14.3%			
Communication Services	-0.3%	-0.3%	0.0%	0.0%	6.0%	8.8%	11.3%	12.1%			
Utilities	-0.3%	0.0%	-0.3%	0.0%	3.5%	4.3%	7.0%	2.7%			
Real Estate	-0.1%	-0.1%	0.2%	-0.2%	10.7%	15.5%	6.6%	3.0%			
Cash	0.0%	0.0%	0.0%	0.0%	0.6%	--	0.3%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	-2.8%	=	-1.6%	+	-1.3%	+	0.1%	7.2%	10.0%	100.0%	100.0%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

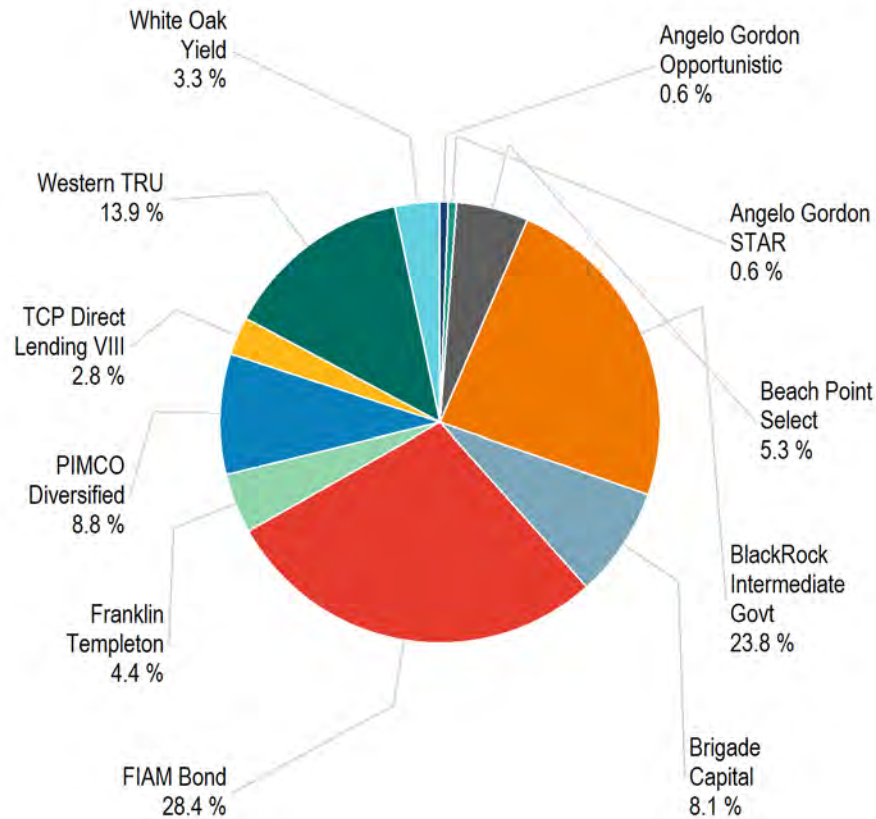
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Czech Republic*	3.5%	3.8%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	15.0%	12.9%	1.5%	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%
Hungary*	3.9%	6.0%	1.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-1.7%	10.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-4.3%	13.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	3.4%	-0.6%	3.6%	1.3%	0.1%	-0.2%	-0.1%	0.1%	-0.1%
Russia*	11.2%	12.5%	5.9%	3.6%	0.0%	-0.1%	0.0%	0.0%	0.0%
United Kingdom	13.7%	11.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AsiaPacific									
China*	15.5%	18.0%	6.7%	30.4%	-0.7%	-1.9%	0.0%	0.6%	-2.1%
Hong Kong	15.2%	15.6%	5.4%	0.0%	0.0%	0.3%	0.0%	0.0%	0.3%
India*	5.6%	7.1%	7.5%	9.4%	-0.1%	0.1%	0.0%	0.0%	-0.1%
Indonesia*	5.7%	4.3%	3.6%	2.3%	0.0%	-0.1%	0.0%	0.0%	0.0%
Korea*	0.1%	4.8%	7.1%	13.7%	-0.7%	0.2%	0.1%	0.3%	0.0%
Malaysia*	3.3%	0.3%	3.4%	2.4%	0.1%	-0.1%	0.0%	0.0%	0.0%
Pakistan*	3.6%	8.5%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
Philippines*	7.9%	7.9%	3.7%	1.1%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Singapore	33.8%	6.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	7.6%	9.0%	7.2%	11.5%	-0.2%	0.0%	0.0%	0.1%	-0.1%
Thailand*	6.1%	7.5%	3.1%	2.4%	0.0%	0.0%	0.0%	0.0%	-0.1%
Americas									
Brazil*	7.0%	8.2%	7.0%	7.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Chile*	5.6%	4.3%	3.5%	1.1%	0.0%	-0.2%	0.0%	0.0%	-0.1%
Colombia*	20.7%	24.8%	1.6%	0.4%	0.0%	0.1%	0.0%	0.0%	0.1%
Mexico*	7.5%	5.6%	6.6%	2.8%	0.1%	-0.2%	0.0%	0.1%	0.0%
Peru*	7.8%	11.1%	1.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	26.6%	13.7%	1.3%	0.0%	0.0%	0.1%	0.0%	0.2%	0.2%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	16.0%	16.6%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	8.7%	12.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-0.9%	-3.5%	1.8%	1.1%	0.0%	-0.1%	0.0%	0.0%	-0.1%
South Africa*	1.6%	4.5%	7.3%	6.3%	-0.2%	-0.1%	0.0%	0.0%	-0.3%
Turkey*	-1.7%	-3.0%	3.6%	0.6%	0.0%	-0.2%	-0.2%	0.0%	-0.3%
United Arab Emirates*	5.9%	8.6%	1.6%	0.8%	0.0%	0.0%	0.0%	0.0%	-0.1%
Totals									
Americas	9.2%	7.9%	21.5%	12.2%	0.1%	-0.2%	0.1%	0.1%	0.1%
Europe	8.4%	8.9%	13.3%	5.6%	0.1%	-0.3%	-0.1%	0.1%	-0.2%
Asia/Pacific	7.6%	11.2%	48.9%	73.3%	-2.8%	-0.3%	0.2%	0.9%	-2.0%
Other	2.2%	3.4%	16.0%	8.9%	0.0%	-0.4%	-0.2%	0.0%	-0.7%
Cash	0.6%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	7.2%	10.0%	100.0%	100.0%	-2.6%	-1.3%	0.0%	1.1%	-2.8%
Totals									
Developed	17.2%	--	7.4%	0.0%	0.0%	0.0%	0.0%	0.5%	0.5%
Emerging*	6.4%	10.0%	91.4%	100.0%	-3.6%	0.0%	0.0%	0.3%	-3.3%
Frontier**	8.7%	--	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.6%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Fixed Income
 Manager Allocation Analysis

Period Ending: March 31, 2019



	Actual \$	Actual %	Manager Contribution to Excess Return %
Angelo Gordon Opportunistic	\$6,208,000	0.6%	0.0%
Angelo Gordon STAR	\$5,327,003	0.6%	0.0%
Beach Point Select	\$50,994,654	5.3%	-0.1%
BlackRock Intermediate Govt	\$228,280,195	23.8%	0.0%
Brigade Capital	\$77,848,583	8.1%	-0.2%
FIAM Bond	\$272,456,792	28.4%	0.1%
Franklin Templeton	\$41,745,102	4.4%	0.0%
PIMCO Diversified	\$84,744,527	8.8%	0.0%
TCP Direct Lending VIII	\$26,751,142	2.8%	0.0%
Western TRU	\$133,494,553	13.9%	0.3%
White Oak Yield	\$31,750,965	3.3%	0.0%
Actual vs. Policy Weight Difference			-1.3%
Total	\$959,601,516	100.0%	-1.3%

Statistics Summary

3 Years

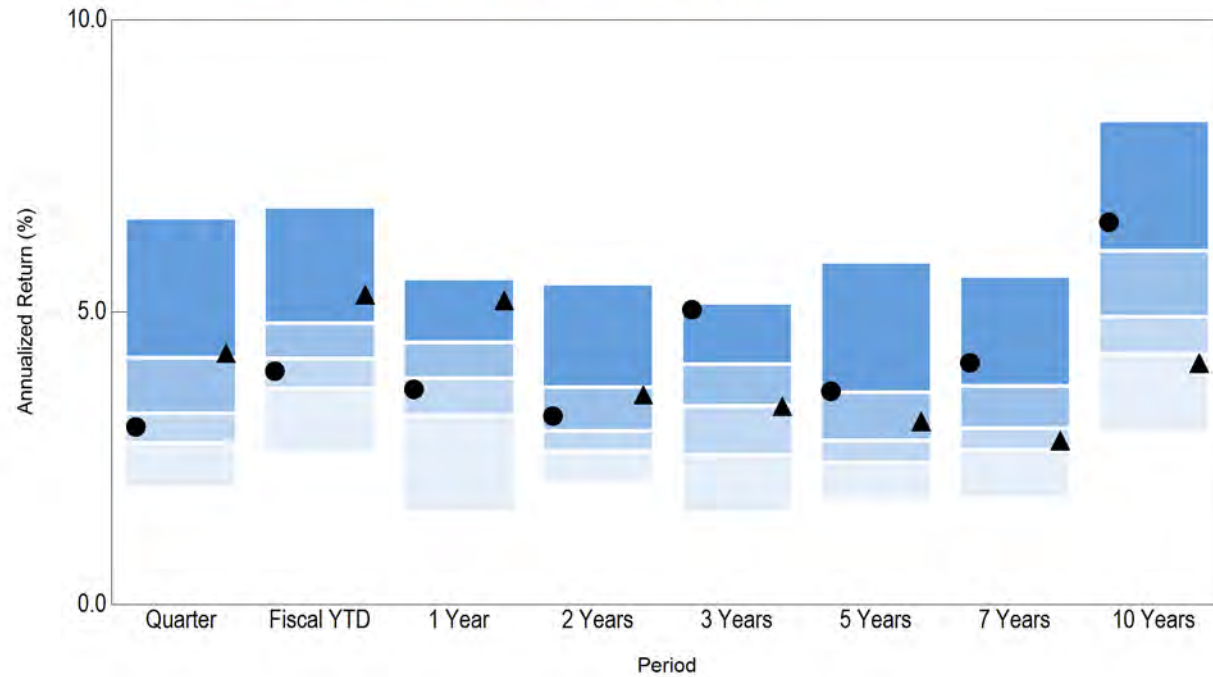
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.0%	2.1%	1.8	1.0	1.7%
Blended Fixed Income Index	3.4%	2.8%	0.8	--	0.0%
Core Fixed	3.2%	2.6%	0.8	1.0	1.1%
BBgBarc US Aggregate TR	2.0%	3.0%	0.3	--	0.0%
FIAM Bond	2.8%	3.0%	0.5	1.3	0.6%
BBgBarc US Aggregate TR	2.0%	3.0%	0.3	--	0.0%
Western TRU	4.8%	3.4%	1.0	0.9	3.5%
3-Month Libor Total Return USD	1.7%	0.2%	2.1	--	0.0%
Opportunistic Credit	9.1%	3.0%	2.6	1.0	2.6%
BBgBarc BA Intermediate HY	6.4%	3.6%	1.4	--	0.0%
Angelo Gordon Opportunistic	15.7%	8.8%	1.6	1.5	9.4%
BBgBarc US Aggregate TR	2.0%	3.0%	0.3	--	0.0%
Angelo Gordon STAR	18.2%	7.8%	2.2	2.0	8.0%
BBgBarc US Aggregate TR	2.0%	3.0%	0.3	--	0.0%
Beach Point Select	9.0%	3.1%	2.5	1.0	2.5%
BBgBarc BA Intermediate HY	6.4%	3.6%	1.4	--	0.0%
Brigade Capital	9.8%	5.1%	1.7	1.0	3.5%
BBgBarc BA Intermediate HY	6.4%	3.6%	1.4	--	0.0%
Franklin Templeton	4.4%	6.2%	0.5	0.3	8.1%
BBgBarc Multiverse TR	1.8%	4.6%	0.1	--	0.0%

Statistics Summary

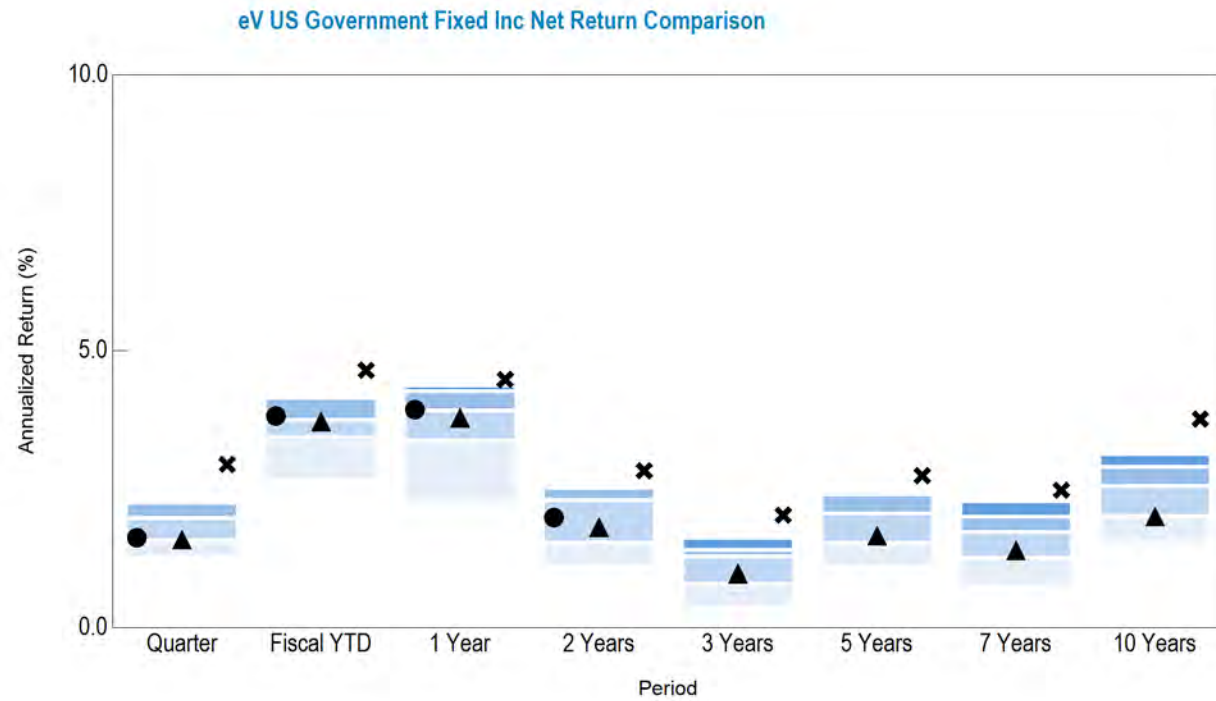
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	3.6%	2.6%	1.1	0.3	1.8%
Blended Fixed Income Index	3.1%	2.9%	0.8	--	0.0%
Core Fixed	3.2%	2.7%	0.9	0.3	1.5%
BBgBarc US Aggregate TR	2.7%	2.9%	0.7	--	0.0%
FIAM Bond	3.2%	2.9%	0.8	0.6	0.8%
BBgBarc US Aggregate TR	2.7%	2.9%	0.7	--	0.0%
Opportunistic Credit	5.7%	3.5%	1.4	0.3	3.3%
BBgBarc BA Intermediate HY	4.7%	4.4%	0.9	--	0.0%
Angelo Gordon STAR	13.2%	6.9%	1.8	1.4	7.5%
BBgBarc US Aggregate TR	2.7%	2.9%	0.7	--	0.0%
Brigade Capital	3.6%	6.3%	0.5	-0.3	4.1%
BBgBarc BA Intermediate HY	4.7%	4.4%	0.9	--	0.0%
Franklin Templeton	1.8%	6.4%	0.2	0.1	7.7%
BBgBarc Multiverse TR	1.2%	4.5%	0.1	--	0.0%

InvestorForce All DB Total Fix Inc Net Return Comparison



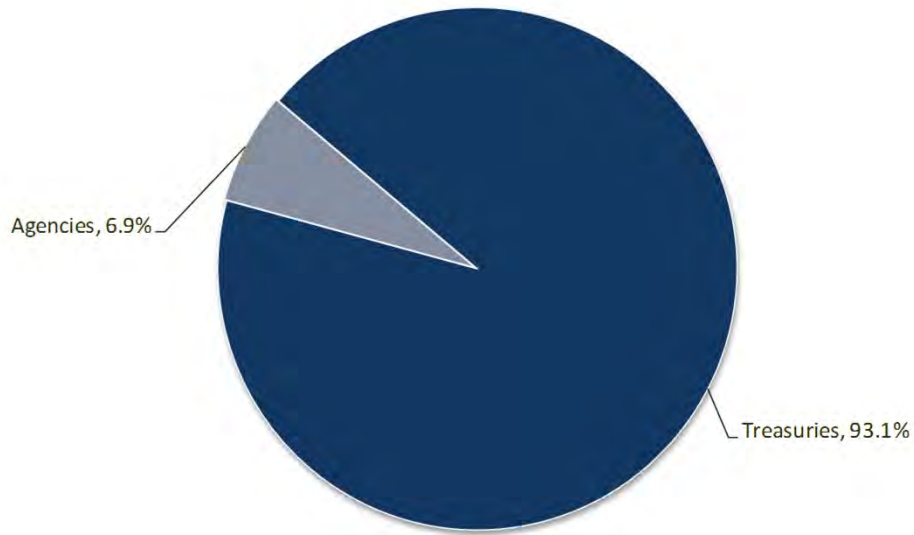
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	6.6	6.8	5.6	5.5	5.1	5.9	5.6	8.3
25th Percentile	4.2	4.8	4.5	3.7	4.1	3.6	3.7	6.0
Median	3.3	4.2	3.9	3.0	3.4	2.8	3.0	4.9
75th Percentile	2.8	3.7	3.2	2.6	2.5	2.4	2.6	4.3
95th Percentile	2.0	2.6	1.6	2.1	1.6	1.8	1.8	2.9
# of Portfolios	280	277	277	268	261	248	221	169
● Fixed Income	3.0 (58)	4.0 (61)	3.7 (57)	3.2 (40)	5.0 (6)	3.6 (25)	4.1 (19)	6.5 (19)
▲ Blended Fixed Income Index	4.3 (24)	5.3 (18)	5.2 (10)	3.6 (29)	3.4 (51)	3.1 (37)	2.8 (67)	4.1 (79)



	Return (Rank)															
5th Percentile	2.3	4.2	4.4	2.5	1.6	2.5	2.3	3.1								
25th Percentile	2.3	4.2	4.3	2.5	1.4	2.4	2.0	2.9								
Median	2.0	3.8	3.9	2.3	1.3	2.1	1.7	2.6								
75th Percentile	1.6	3.5	3.4	1.5	0.8	1.5	1.3	2.0								
95th Percentile	1.3	2.7	2.3	1.1	0.4	1.1	0.8	1.5								
# of Portfolios	13	13	13	13	12	12	12	12								
● BlackRock Intermediate Govt	1.6 (74)	3.8 (46)	3.9 (48)	2.0 (58)	-- (--)	-- (--)	-- (--)	-- (--)								
▲ BBgBarc US Govt Int TR	1.6 (75)	3.7 (52)	3.8 (61)	1.8 (62)	1.0 (69)	1.7 (70)	1.4 (71)	2.0 (76)								
✕ BBgBarc US Aggregate TR	2.9 (1)	4.6 (1)	4.5 (1)	2.8 (1)	2.0 (1)	2.7 (1)	2.5 (1)	3.8 (1)								

BlackRock Intermediate Govt Market Duration Pool
 Bond Sector Allocation

Period Ending: March 31, 2019



Sector	Account Weight	BBgBarc Intermediate	
		Govt Weight	Difference
Treasuries	93.1%	96.8%	-3.8%
Agencies	6.9%	3.2%	3.7%
Corporates	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	0.0%	0.0%	0.0%
CMO	0.0%	0.0%	0.0%
ABS	0.0%	0.0%	0.0%
Municipals	0.0%	0.0%	0.0%
Others/Cash	0.0%	0.0%	0.0%
TOTAL	100.0%	100.0%	0.0%

BlackRock Intermediate Govt Market Duration Pool

Bond Summary Statistics

Period Ending: March 31, 2019

Portfolio Characteristics		Portfolio
Total Number of Securities		284
Total Market Value	\$	228,280,195
Current Coupon		2.49
Yield to Maturity		2.32
Average Life		4.04
Duration		3.73
Quality		AA+

BBgBarc Intermediate Govt	
Current Coupon	2.25
Yield to Maturity	2.30
Average Life	4.06
Duration	3.76
Quality	AA+

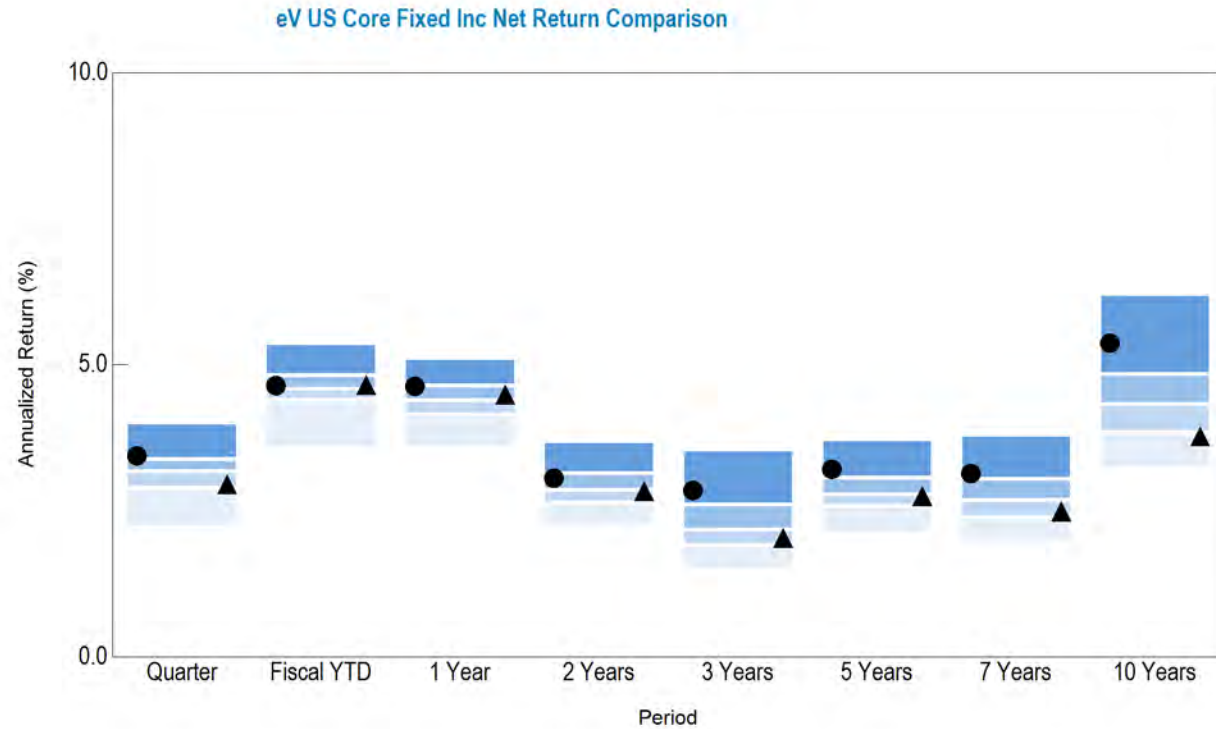
Yield to Maturity	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.0
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 1.0	4.6
1.0 - 3.0	36.8
3.0 - 5.0	26.2
5.0 - 10.0	32.3
10.0 - 20.0	0.1
20.0+	0.0
Unclassified	0.0

Duration	
Range	% Held
0.0 - 2.0	n/a
2.0 - 4.0	n/a
4.0 - 6.0	n/a
6.0 - 8.0	n/a
8.0+	n/a
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	0.0
Aaa (10)	97.9
Aa (9)	2.1
A (8)	0.0
Baa (7)	0.0
Below Baa (6-1)	0.0
Other	0.0

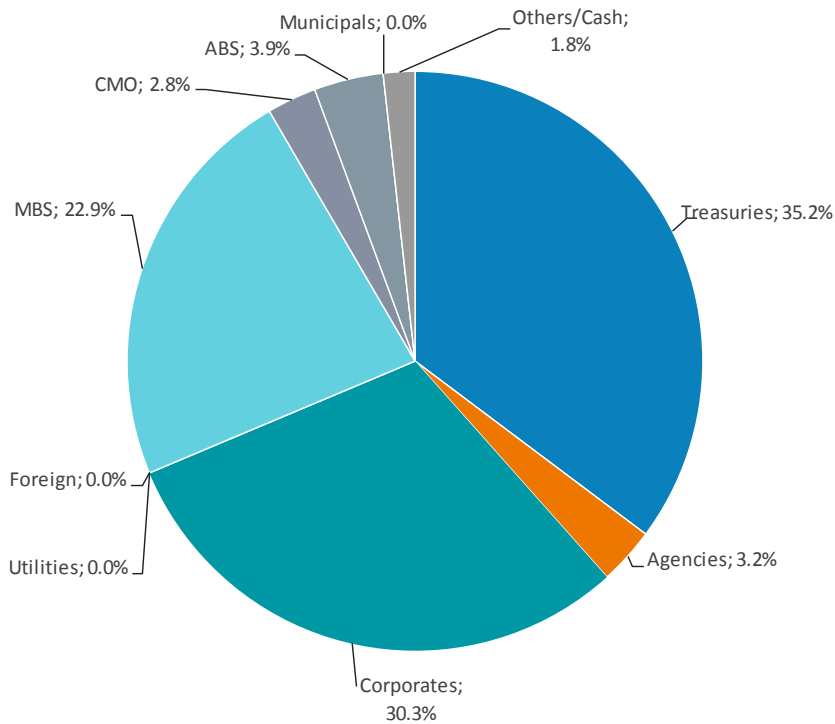
Coupon	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 10.0	0.0
10.0+	0.0
Unclassified	0.0



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.0	5.4	5.1	3.7	3.5	3.7	3.8	6.2
25th Percentile	3.4	4.8	4.7	3.1	2.6	3.1	3.0	4.8
Median	3.2	4.6	4.4	2.9	2.2	2.8	2.7	4.3
75th Percentile	2.9	4.4	4.2	2.6	1.9	2.6	2.4	3.9
95th Percentile	2.2	3.6	3.6	2.2	1.5	2.1	2.0	3.2
# of Portfolios	150	149	148	147	143	140	137	125
● FIAM Bond	3.4 (19)	4.6 (46)	4.6 (29)	3.1 (33)	2.8 (13)	3.2 (16)	3.1 (19)	5.4 (15)
▲ BBgBarc US Aggregate TR	2.9 (72)	4.6 (44)	4.5 (42)	2.8 (54)	2.0 (64)	2.7 (58)	2.5 (67)	3.8 (80)

FIAM Bond Market Duration Pool
Bond Sector Allocation

Period Ending: March 31, 2019



Sector	Account Weight	BBgBarc Aggregate Weight	Difference
Treasuries	35.2%	38.8%	-3.6%
Agencies	3.2%	6.1%	-2.9%
Corporates	30.3%	24.6%	5.7%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	22.9%	28.1%	-5.2%
CMO	2.8%	0.0%	2.8%
ABS	3.9%	2.5%	1.4%
Municipals	0.0%	0.0%	0.0%
Others/Cash	1.8%	0.0%	1.8%
TOTAL	100.0%	100.0%	0.0%

FIAM Bond Market Duration Pool
 Bond Summary Statistics

Period Ending: March 31, 2019

Portfolio Characteristics		Portfolio
Total Number of Securities		883
Total Market Value	\$	272,456,792
Current Coupon		3.39
Yield to Maturity		3.19
Average Life		8.21
Duration		5.47
Quality		AA

BBgBarc Aggregate	
Current Coupon	3.27
Yield to Maturity	2.92
Average Life	7.92
Duration	5.66
Quality	AA+

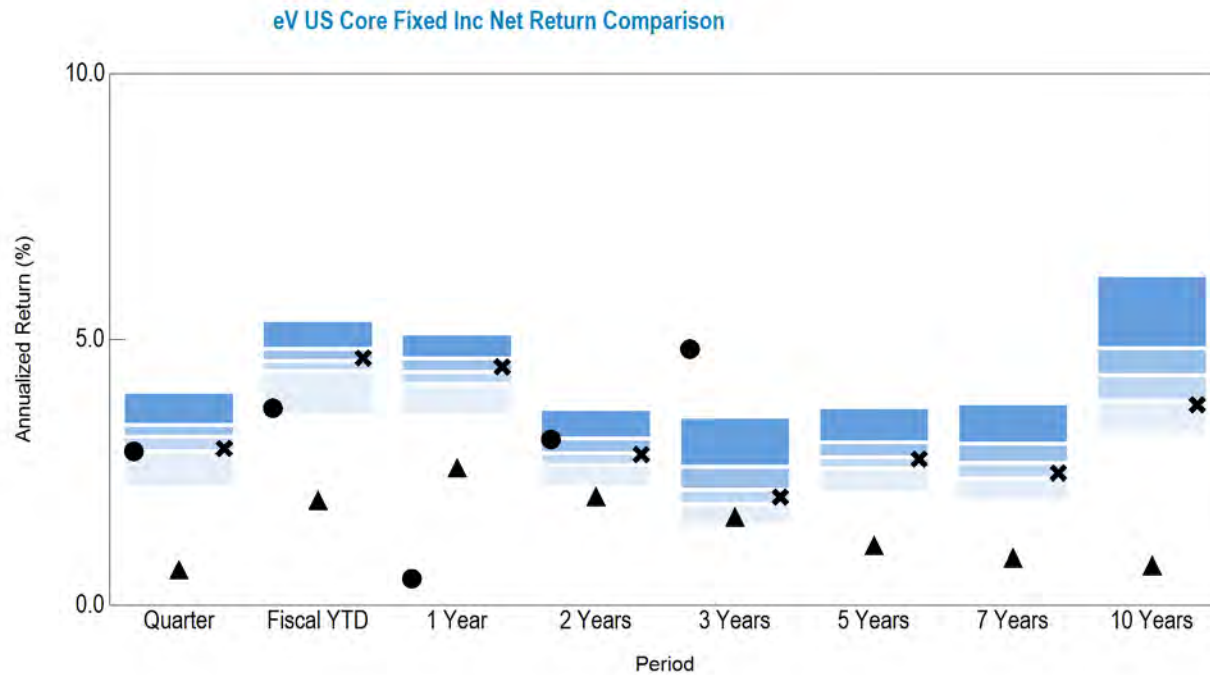
Yield to Maturity	
Range	% Held
0.0 - 5.0	93.1
5.0 - 7.0	5.6
7.0 - 9.0	1.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.2
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 1.0	0.9
1.0 - 3.0	16.7
3.0 - 5.0	25.9
5.0 - 10.0	38.4
10.0 - 20.0	4.1
20.0+	14.0
Unclassified	0.0

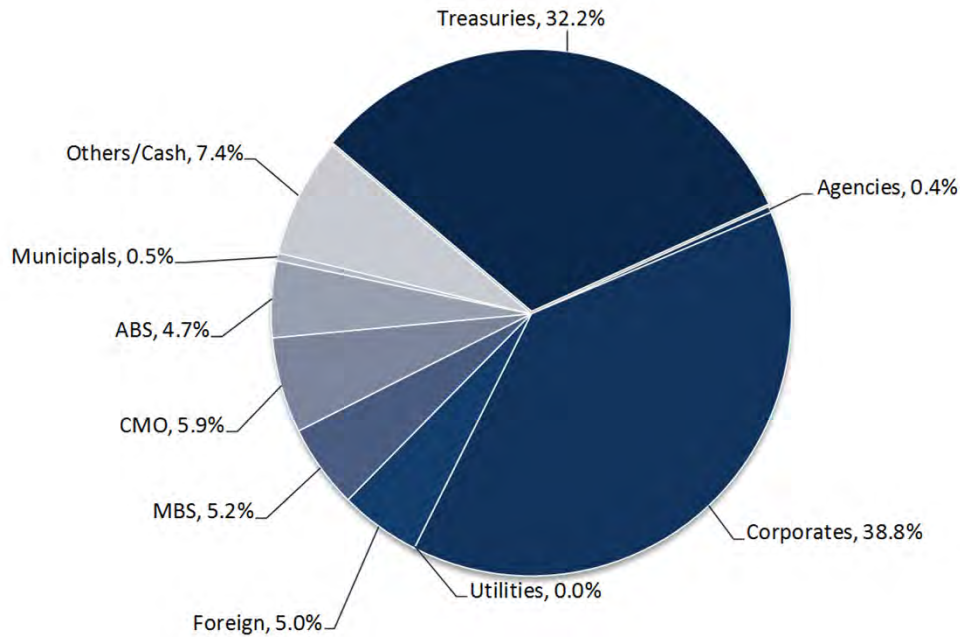
Duration	
Range	% Held
0.0 - 1.0	1.8
1.0 - 3.0	26.1
3.0 - 5.0	34.9
5.0 - 7.0	13.4
7.0 - 10.0	6.8
10.0+	17.0
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	34.3
Aaa (10)	2.4
Aa (9)	1.7
A (8)	15.1
Baa (7)	18.6
Below Baa (6-1)	0.7
Other	27.3

Coupon	
Range	% Held
0.0 - 5.0	86.7
5.0 - 7.0	10.0
7.0 - 9.0	1.4
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	2.0
Unclassified	0.0



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.0	5.4	5.1	3.7	3.5	3.7	3.8	6.2
25th Percentile	3.4	4.8	4.7	3.1	2.6	3.1	3.0	4.8
Median	3.2	4.6	4.4	2.9	2.2	2.8	2.7	4.3
75th Percentile	2.9	4.4	4.2	2.6	1.9	2.6	2.4	3.9
95th Percentile	2.2	3.6	3.6	2.2	1.5	2.1	2.0	3.2
# of Portfolios	150	149	148	147	143	140	137	125
● Western TRU	2.9 (76)	3.7 (95)	0.5 (99)	3.1 (26)	4.8 (1)	-- (--)	-- (--)	-- (--)
▲ 3-Month Libor Total Return USD	0.7 (99)	2.0 (99)	2.6 (99)	2.0 (97)	1.7 (89)	1.1 (99)	0.9 (99)	0.7 (99)
✕ BBgBarc US Aggregate TR	2.9 (72)	4.6 (44)	4.5 (42)	2.8 (54)	2.0 (64)	2.7 (58)	2.5 (67)	3.8 (80)



Sector	Account Weight	BBgBarc Aggregate	
		Weight	Difference
Treasuries	32.2%	38.8%	-6.6%
Agencies	0.4%	6.1%	-5.7%
Corporates	38.8%	24.6%	14.2%
Utilities	0.0%	0.0%	0.0%
Foreign	5.0%	0.0%	5.0%
MBS	5.2%	28.1%	-23.0%
CMO	5.9%	0.0%	5.9%
ABS	4.7%	2.5%	2.3%
Municipals	0.5%	0.0%	0.5%
Others/Cash	7.4%	0.0%	7.4%
TOTAL	100.0%	100.0%	-0.1%

Portfolio Characteristics		Portfolio
Total Number of Securities		5,059
Total Market Value	\$	133,494,553
Current Coupon		4.90
Yield to Maturity		5.30
Average Life		8.13
Duration		1.97
Quality		A-

BBgBarc Aggregate
3.27
2.92
7.92
5.66
AA+

Yield to Maturity	
Range	% Held
0.0 - 5.0	68.4
5.0 - 7.0	22.7
7.0 - 9.0	15.5
9.0 - 11.0	1.4
11.0 - 13.0	0.4
13.0+	2.5
Unclassified	-10.9

Average Life	
Range	% Held
0.0 - 1.0	13.4
1.0 - 3.0	14.6
3.0 - 5.0	18.9
5.0 - 10.0	15.8
10.0 - 20.0	15.1
20.0+	22.2
Unclassified	0.0

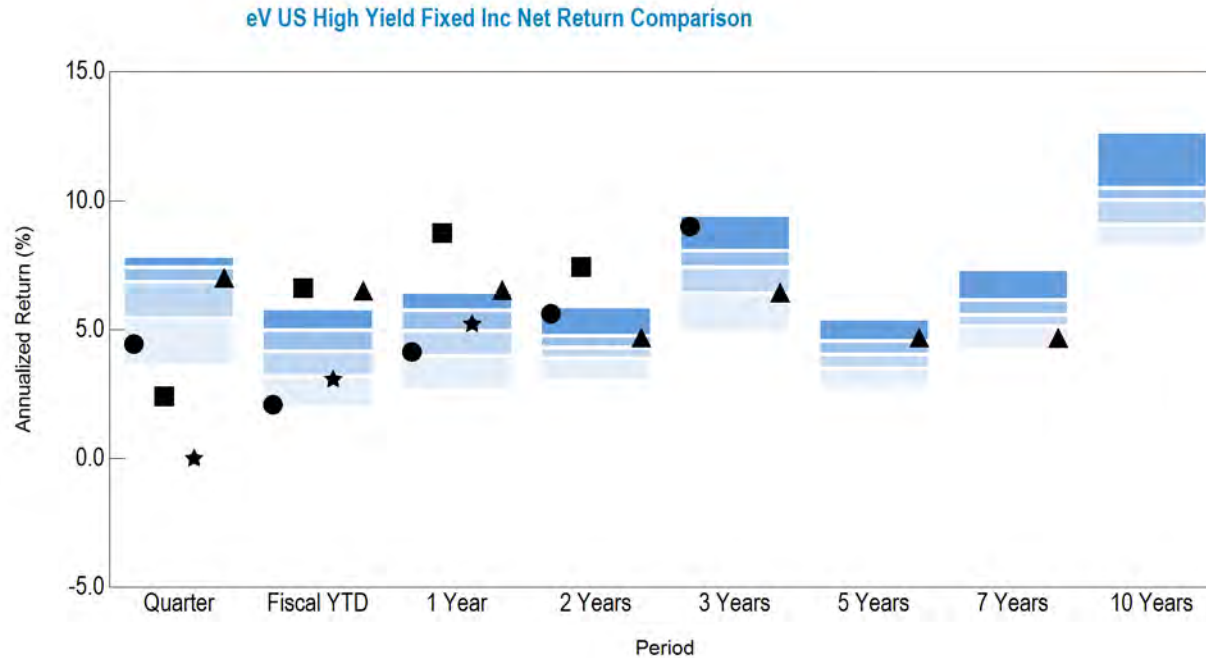
Duration	
Range	% Held
< 1.0	24.6
1.0 - 3.0	14.9
3.0 - 5.0	18.9
5.0 - 7.0	16.5
7.0 - 10.0	6.1
10.0+	19.0
Unclassified	0.0

*Unclassified includes negative YTM

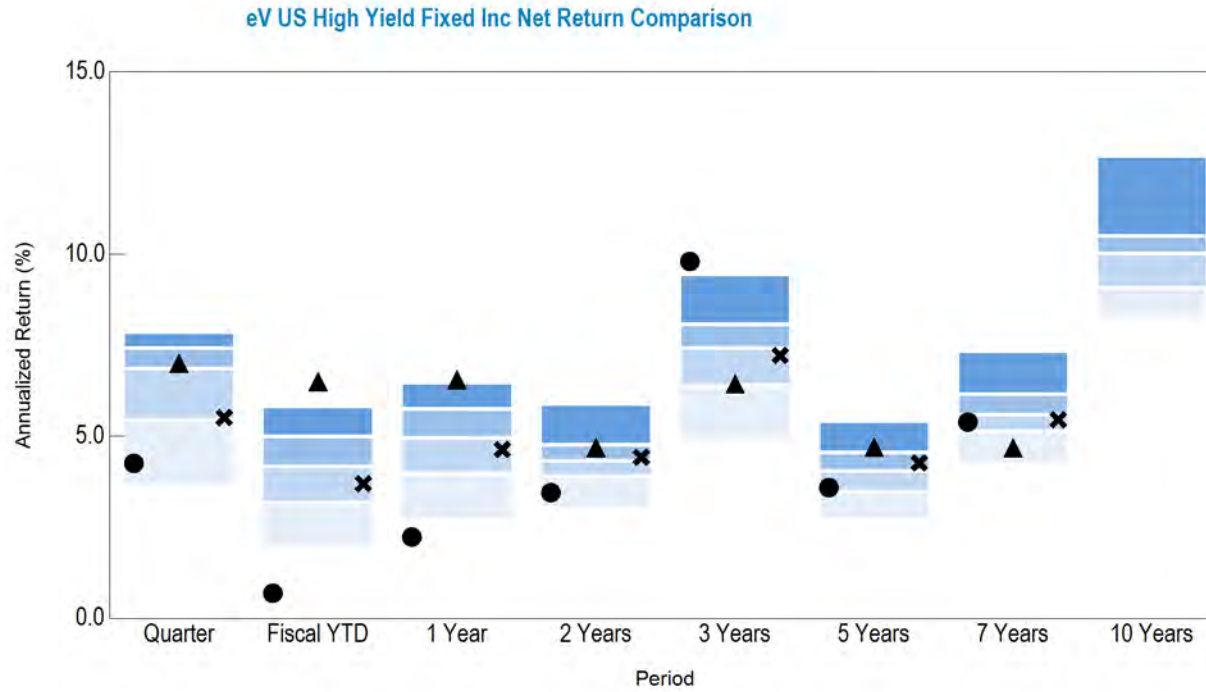
Quality	
Range	% Held
Govt* (10)	10.6
Aaa (10)	12.7
Aa (9)	2.0
A (8)	21.0
Baa (7)	27.5
Below Baa (6-1)	25.9
Other	0.3

Coupon	
Range	% Held
0.0 - 5.0	51.7
5.0 - 7.0	28.3
7.0 - 9.0	13.4
9.0 - 10.0	1.1
10.0+	5.5
Unclassified	0.0

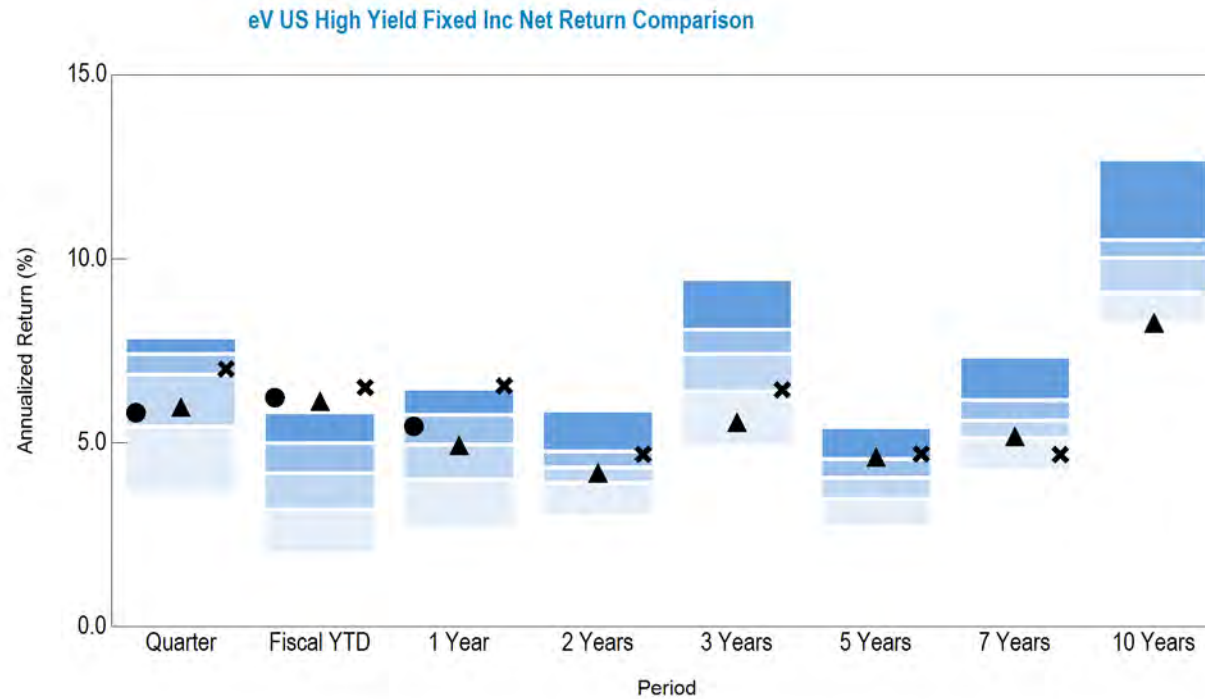
*Govt is specifically U.S Govt securities



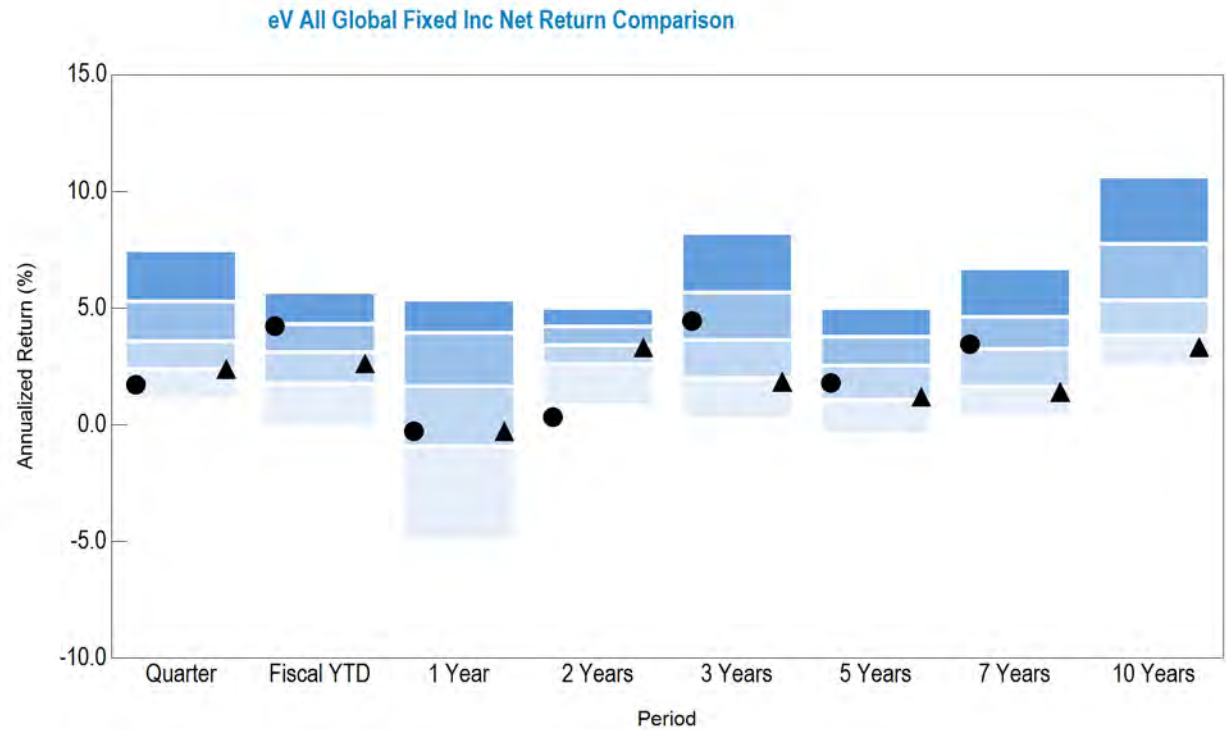
	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.9	5.8	6.5	5.9	9.4	5.4	7.3	12.7
25th Percentile	7.4	5.0	5.8	4.8	8.1	4.6	6.2	10.5
Median	6.9	4.2	5.0	4.3	7.4	4.1	5.6	10.0
75th Percentile	5.5	3.2	4.0	3.9	6.4	3.5	5.1	9.1
95th Percentile	3.6	2.0	2.7	3.0	4.9	2.7	4.3	8.3
# of Portfolios	138	138	138	135	129	114	96	72
● Beach Point Select	4.4 (88)	2.1 (95)	4.1 (75)	5.6 (7)	9.0 (10)	-- (--)	-- (--)	-- (--)
■ TCP Direct Lending VIII	2.4 (99)	6.6 (1)	8.8 (1)	7.4 (1)	-- (--)	-- (--)	-- (--)	-- (--)
★ White Oak Yield	0.0 (99)	3.1 (81)	5.2 (46)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ BBgBarc BA Intermediate HY	7.0 (41)	6.5 (1)	6.5 (4)	4.7 (30)	6.4 (75)	4.7 (21)	4.7 (92)	-- (--)



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.9	5.8	6.5	5.9	9.4	5.4	7.3	12.7
25th Percentile	7.4	5.0	5.8	4.8	8.1	4.6	6.2	10.5
Median	6.9	4.2	5.0	4.3	7.4	4.1	5.6	10.0
75th Percentile	5.5	3.2	4.0	3.9	6.4	3.5	5.1	9.1
95th Percentile	3.6	2.0	2.7	3.0	4.9	2.7	4.3	8.3
# of Portfolios	138	138	138	135	129	114	96	72
● Brigade Capital	4.3 (89)	0.7 (98)	2.2 (97)	3.5 (85)	9.8 (5)	3.6 (74)	5.4 (63)	-- (--)
▲ BBgBarc BA Intermediate HY	7.0 (41)	6.5 (1)	6.5 (4)	4.7 (30)	6.4 (75)	4.7 (21)	4.7 (92)	-- (--)
✕ 50% Barclays HY/ 50% Bank Loan	5.5 (73)	3.7 (64)	4.6 (60)	4.4 (46)	7.2 (57)	4.3 (39)	5.5 (60)	-- (--)



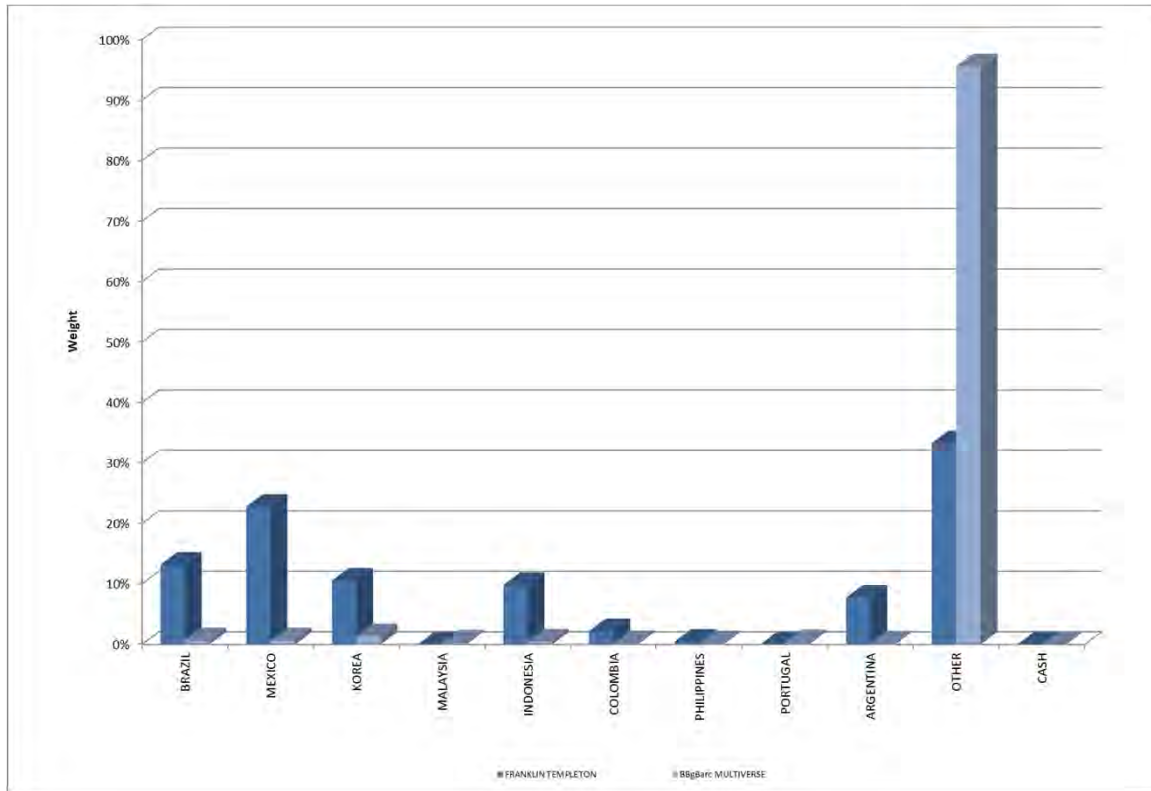
	Return (Rank)															
	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	7.9	5.8	6.5	5.9	9.4	5.4	7.3	12.7								
25th Percentile	7.4	5.0	5.8	4.8	8.1	4.6	6.2	10.5								
Median	6.9	4.2	5.0	4.3	7.4	4.1	5.6	10.0								
75th Percentile	5.5	3.2	4.0	3.9	6.4	3.5	5.1	9.1								
95th Percentile	3.6	2.0	2.7	3.0	4.9	2.7	4.3	8.3								
# of Portfolios	138	138	138	135	129	114	96	72								
● PIMCO Diversified	5.8 (70)	6.2 (1)	5.4 (37)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)								
▲ Blended PIMCO Diversified Index	6.0 (67)	6.1 (2)	4.9 (51)	4.2 (61)	5.6 (92)	4.6 (23)	5.2 (75)	8.3 (96)								
✕ BBgBarc BA Intermediate HY	7.0 (41)	6.5 (1)	6.5 (4)	4.7 (30)	6.4 (75)	4.7 (21)	4.7 (92)	-- (--)								



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.5	5.7	5.3	5.0	8.2	5.0	6.7	10.6
25th Percentile	5.3	4.3	4.0	4.2	5.7	3.8	4.6	7.8
Median	3.6	3.1	1.7	3.4	3.7	2.6	3.3	5.4
75th Percentile	2.4	1.8	-0.9	2.6	2.0	1.1	1.6	3.9
95th Percentile	1.1	0.0	-5.0	0.8	0.2	-0.4	0.4	2.5
# of Portfolios	235	224	222	218	211	186	159	107
● Franklin Templeton	1.7 (91)	4.2 (27)	-0.3 (69)	0.3 (98)	4.4 (43)	1.8 (64)	3.4 (44)	-- (--)
▲ BBgBarc Multiverse TR	2.4 (76)	2.6 (62)	-0.3 (69)	3.3 (54)	1.8 (77)	1.2 (73)	1.4 (80)	3.3 (86)

Franklin Templeton
Portfolio Country Weights

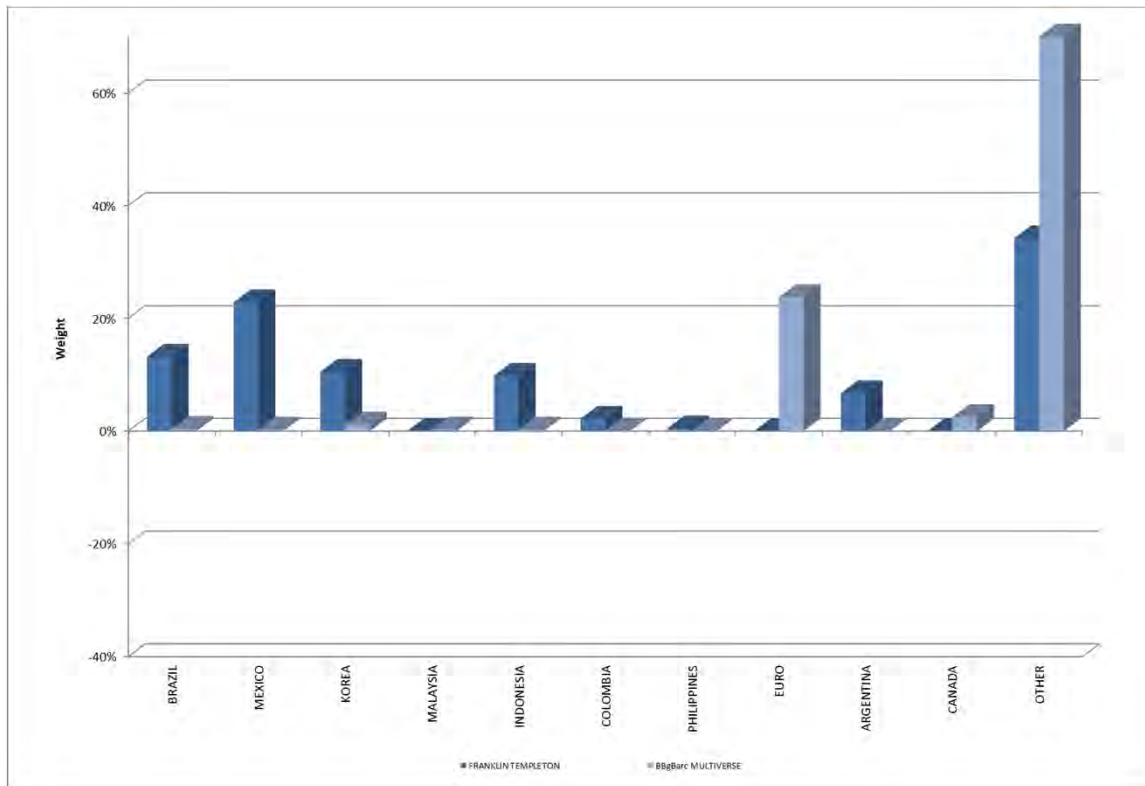
Period Ending: March 31, 2019



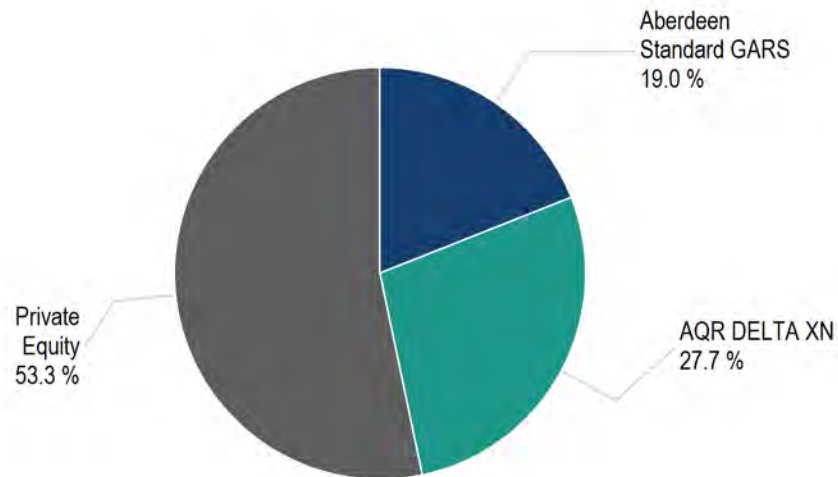
COUNTRY	MARKET VALUE	FRANKLIN TEMPLETON	BBgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,508	13.2%	0.7%	+12.5%
MEXICO	\$ 9,512	22.8%	0.7%	+22.1%
KOREA	\$ 4,396	10.5%	1.4%	+9.2%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,096	9.8%	0.5%	+9.3%
COLOMBIA	\$ 915	2.2%	0.2%	+2.0%
PHILIPPINES	\$ 199	0.5%	0.2%	+0.3%
PORTUGAL	\$ -	0.0%	0.4%	-0.4%
ARGENTINA	\$ 3,231	7.7%	0.2%	+7.6%
OTHER	\$ 13,888	33.3%	95.6%	-62.3%
CASH	\$ -	0.0%	0.0%	0.0%
	\$ 41,745	100.0%	100.0%	0.0%

Franklin Templeton
Portfolio Currency Exposures

Period Ending: March 31, 2019



CURRENCY	MARKET VALUE	FRANKLIN TEMPLETON	BbgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,508	13.2%	0.4%	+12.8%
MEXICO	\$ 9,537	22.8%	0.3%	+22.6%
KOREA	\$ 4,396	10.5%	1.2%	+9.3%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,096	9.8%	0.3%	+9.5%
COLOMBIA	\$ 915	2.2%	0.1%	+2.1%
PHILIPPINES	\$ 199	0.5%	0.1%	+0.4%
EURO	\$ 0	0.0%	23.8%	-23.7%
ARGENTINA	\$ 2,805	6.7%	0.0%	+6.7%
CANADA	\$ -	0.0%	2.5%	-2.5%
OTHER	\$ 14,289	34.2%	71.1%	-36.9%
	\$ 41,745	100.0%	100.0%	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$101,026,609	19.0%	0.6%
AQR DELTA XN	\$147,103,722	27.7%	-1.0%
Private Equity	\$283,156,707	53.3%	6.5%
Actual vs. Policy Weight Difference			-0.5%
Total	\$531,287,038	100.0%	5.6%

Statistics Summary

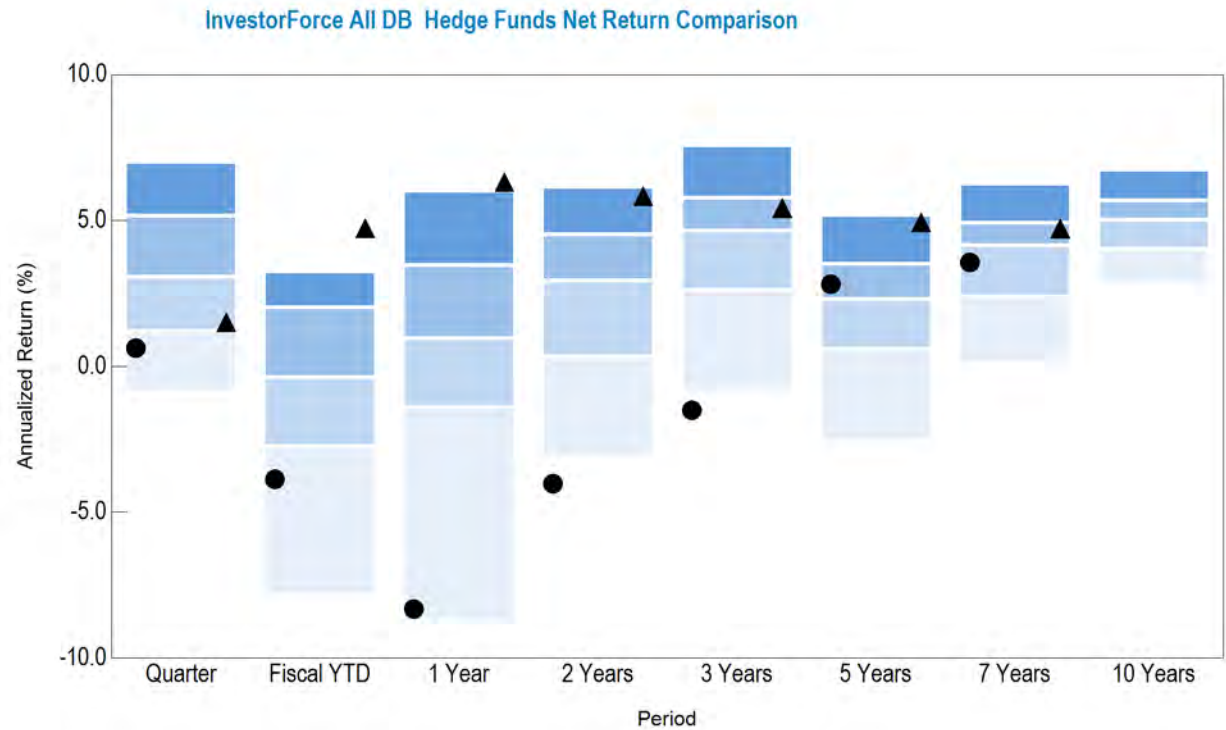
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	6.8%	5.3%	1.1	-0.4	6.3%
Blended Alternatives Index	9.1%	5.5%	1.4	--	0.0%
Private Equity	14.9%	8.8%	1.6	0.3	11.6%
Blended Private Equity Index	11.4%	10.5%	1.0	--	0.0%
Hedge Fund/Absolute Return	-1.5%	4.5%	-0.6	-1.5	4.5%
Libor 1 month +4%	5.4%	0.2%	20.3	--	0.0%
AQR DELTA XN	-3.4%	5.8%	-0.8	-1.5	5.9%
Libor 1 month +4%	5.4%	0.2%	20.3	--	0.0%
Aberdeen Standard GARS	1.2%	3.7%	0.0	-1.1	3.8%
Libor 1 month +4%	5.4%	0.2%	20.3	--	0.0%

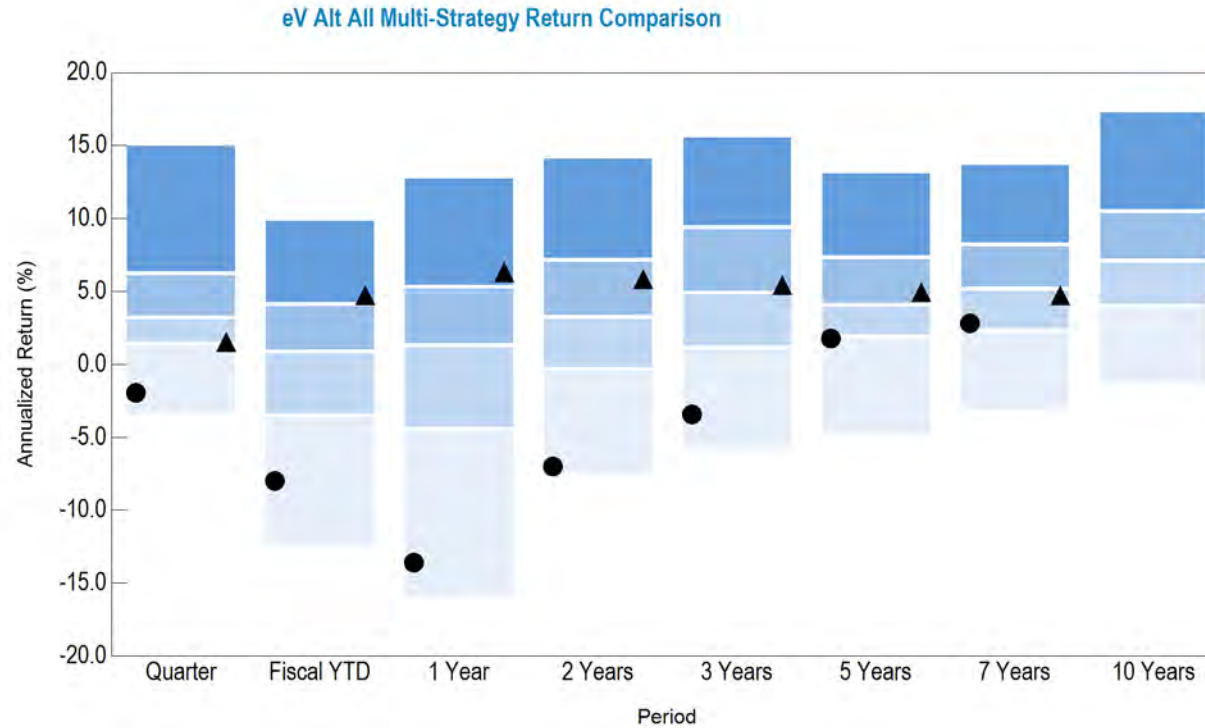
Statistics Summary

5 Years

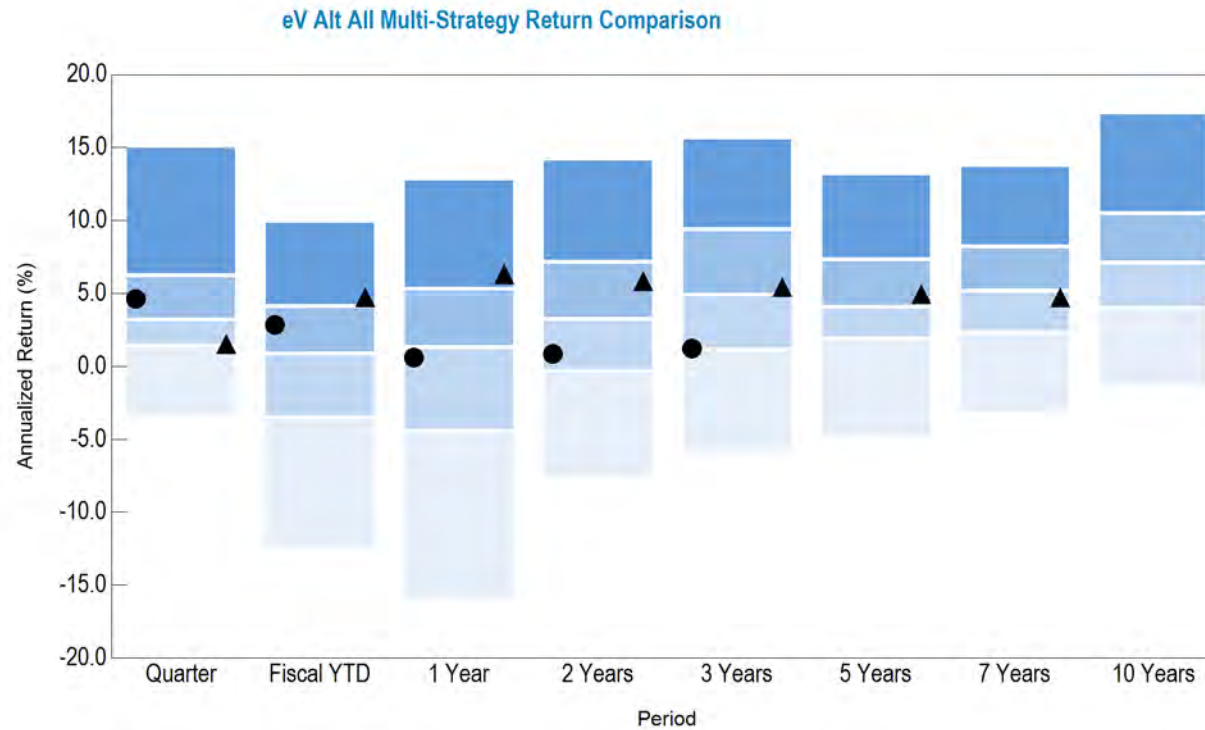
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	6.2%	4.8%	1.1	0.1	6.5%
Blended Alternatives Index	5.6%	5.9%	0.8	--	0.0%
Private Equity	15.6%	8.7%	1.7	0.4	13.0%
Blended Private Equity Index	10.4%	11.0%	0.9	--	0.0%
Hedge Fund/Absolute Return	2.8%	5.1%	0.4	-0.4	5.2%
Libor 1 month +4%	4.9%	0.2%	17.6	--	0.0%
AQR DELTA XN	1.8%	6.0%	0.2	-0.5	6.1%
Libor 1 month +4%	4.9%	0.2%	17.6	--	0.0%



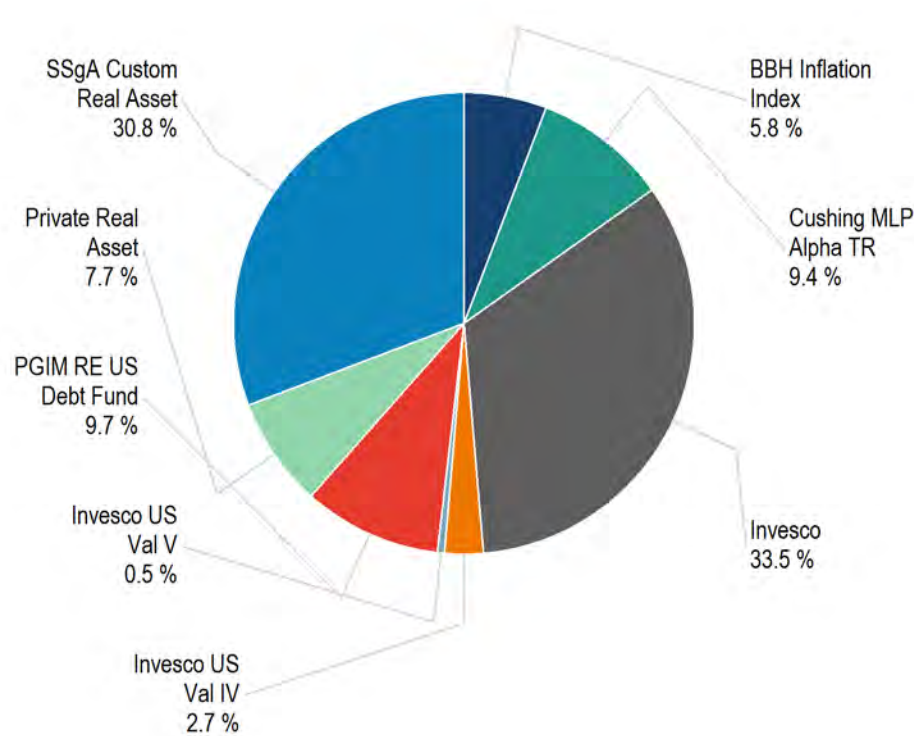
	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.0	3.2	6.0	6.1	7.6	5.2	6.3	6.7
25th Percentile	5.2	2.0	3.5	4.6	5.8	3.5	4.9	5.7
Median	3.1	-0.3	1.0	3.0	4.7	2.3	4.2	5.1
75th Percentile	1.2	-2.7	-1.4	0.3	2.6	0.6	2.4	4.0
95th Percentile	-0.9	-7.8	-8.7	-3.1	-0.8	-2.5	0.1	2.8
# of Portfolios	172	169	168	166	162	155	137	77
● Hedge Fund/Absolute Return	0.6 (79)	-3.9 (84)	-8.3 (95)	-4.0 (97)	-1.5 (98)	2.8 (42)	3.6 (62)	-- (--)
▲ Libor 1 month +4%	1.5 (74)	4.7 (3)	6.3 (2)	5.8 (11)	5.4 (33)	4.9 (7)	4.7 (32)	-- (--)



	Return (Rank)							
5th Percentile	15.1	10.0	12.9	14.2	15.7	13.2	13.8	17.4
25th Percentile	6.3	4.1	5.4	7.2	9.5	7.4	8.2	10.5
Median	3.2	0.9	1.4	3.3	4.9	4.1	5.2	7.2
75th Percentile	1.4	-3.5	-4.4	-0.3	1.2	2.0	2.4	4.0
95th Percentile	-3.4	-12.4	-15.9	-7.6	-5.8	-4.9	-3.2	-1.4
# of Portfolios	289	288	283	267	250	210	168	120
● AQR DELTA XN	-2.0 (93)	-8.0 (90)	-13.6 (93)	-7.0 (94)	-3.4 (90)	1.8 (77)	2.8 (71)	-- (--)
▲ Libor 1 month +4%	1.5 (75)	4.7 (22)	6.3 (22)	5.8 (34)	5.4 (46)	4.9 (43)	4.7 (55)	-- (--)



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	15.1	10.0	12.9	14.2	15.7	13.2	13.8	17.4
25th Percentile	6.3	4.1	5.4	7.2	9.5	7.4	8.2	10.5
Median	3.2	0.9	1.4	3.3	4.9	4.1	5.2	7.2
75th Percentile	1.4	-3.5	-4.4	-0.3	1.2	2.0	2.4	4.0
95th Percentile	-3.4	-12.4	-15.9	-7.6	-5.8	-4.9	-3.2	-1.4
# of Portfolios	289	288	283	267	250	210	168	120
● Aberdeen Standard GARS	4.6 (35)	2.8 (36)	0.6 (54)	0.9 (69)	1.2 (75)	-- (--)	-- (--)	-- (--)
▲ Libor 1 month +4%	1.5 (75)	4.7 (22)	6.3 (22)	5.8 (34)	5.4 (46)	4.9 (43)	4.7 (55)	-- (--)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Brown Brother Harriman	\$46,118,766	5.8%	0.0%
Cushing MLP Alpha TR	\$75,375,330	9.4%	0.9%
Invesco	\$268,611,602	33.5%	-0.1%
Invesco US Val IV	\$21,453,414	2.7%	0.1%
Invesco US Val V	\$4,061,858	0.5%	0.0%
PGIM RE US Debt Fund	\$77,741,437	9.7%	0.0%
Private Real Asset	\$61,447,027	7.7%	-0.3%
SSgA Custom Real Asset	\$246,896,204	30.8%	0.2%
Actual vs. Policy Weight Difference			0.3%
Total	\$801,705,638	100.0%	1.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Real Estate	8.51%	3.60%	2.02	0.53	1.01%
NCREIF ODCE	7.97%	3.24%	2.08	--	0.00%
Invesco	8.50%	3.64%	2.00	0.49	1.08%
NCREIF ODCE	7.97%	3.24%	2.08	--	0.00%
Private Real Asset	-3.78%	8.78%	-0.57	-0.56	9.49%
Blended Private Real Asset Index	1.51%	8.02%	0.04	--	0.00%
TIPS	2.00%	2.18%	0.35	0.25	1.18%
BBgBarc US TIPS TR	1.70%	3.04%	0.16	--	0.00%
Brown Brothers Harriman	2.00%	2.18%	0.35	0.25	1.18%
BBgBarc US TIPS TR	1.70%	3.04%	0.16	--	0.00%

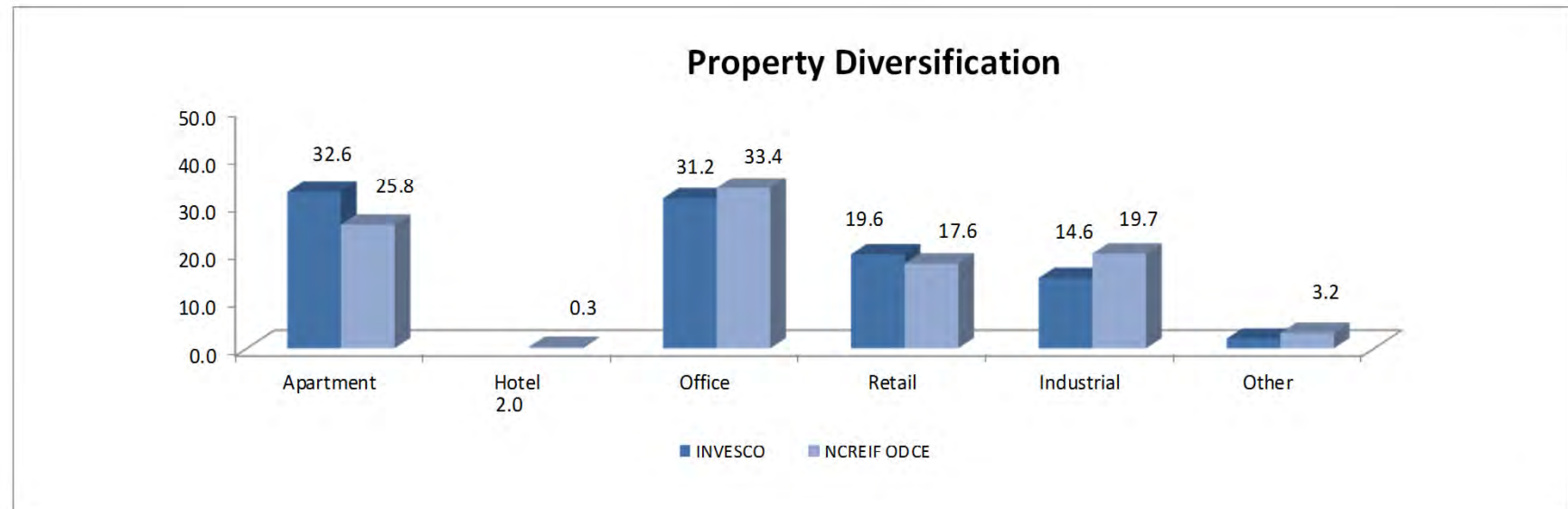
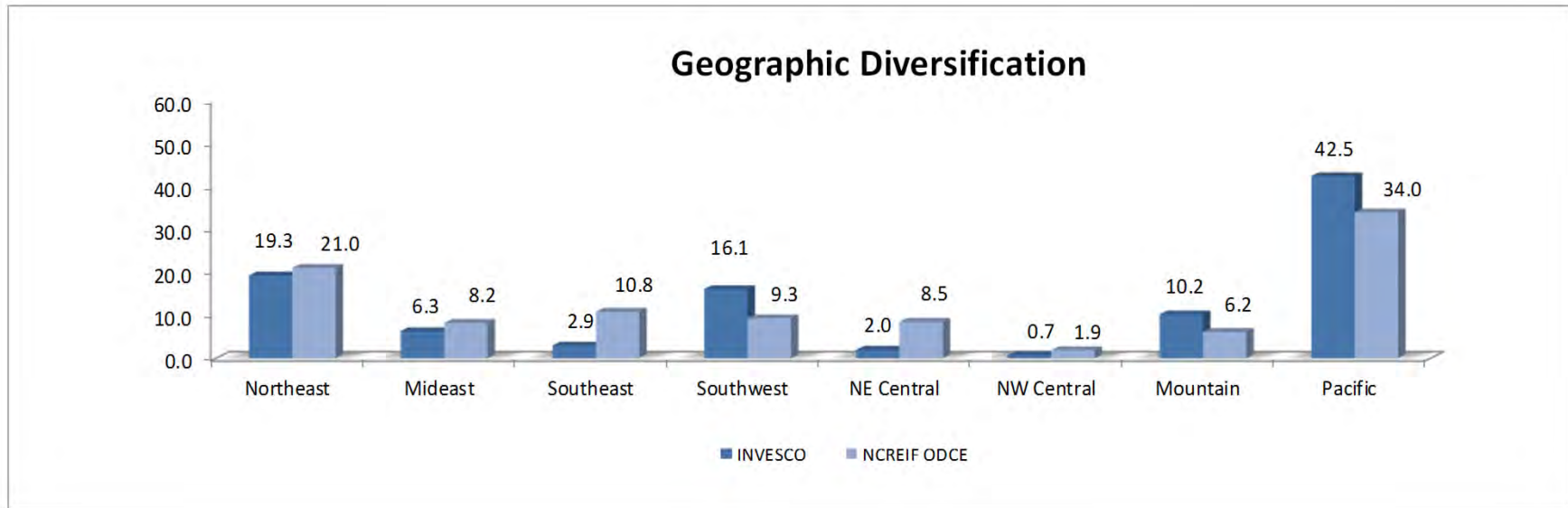
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	10.39%	4.54%	2.12	0.19	31
NCREIF ODCE	10.17%	4.30%	2.19	--	1
Invesco	10.30%	4.53%	2.11	0.11	--
NCREIF ODCE	10.17%	4.30%	2.19	--	--
TIPS	1.61%	2.69%	0.32	-0.25	--
BBgBarc US TIPS TR	1.94%	3.58%	0.33	--	--
Brown Brothers Harriman	1.61%	2.69%	0.32	-0.25	66
BBgBarc US TIPS TR	1.94%	3.58%	0.33	--	1



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	16.8	10.1	18.2	9.2	8.3	10.2	10.8	13.4
25th Percentile	1.8	5.5	7.8	7.5	7.6	9.4	9.8	8.0
Median	1.6	5.1	7.0	7.0	6.6	8.7	9.3	7.5
75th Percentile	1.2	4.7	6.5	6.2	5.7	8.4	8.7	7.0
95th Percentile	0.4	3.5	5.3	4.9	4.2	6.9	7.4	6.7
# of Portfolios	81	81	81	77	77	72	65	46
● Real Estate	1.2 (76)	5.8 (21)	7.6 (32)	7.8 (22)	8.5 (2)	10.4 (4)	10.5 (10)	7.6 (44)
▲ NCREIF ODCE	1.4 (62)	5.4 (34)	7.5 (34)	7.8 (21)	8.0 (15)	10.2 (7)	10.8 (5)	8.7 (7)



INVESCO Core Real Estate
Real Estate Valuation Analysis

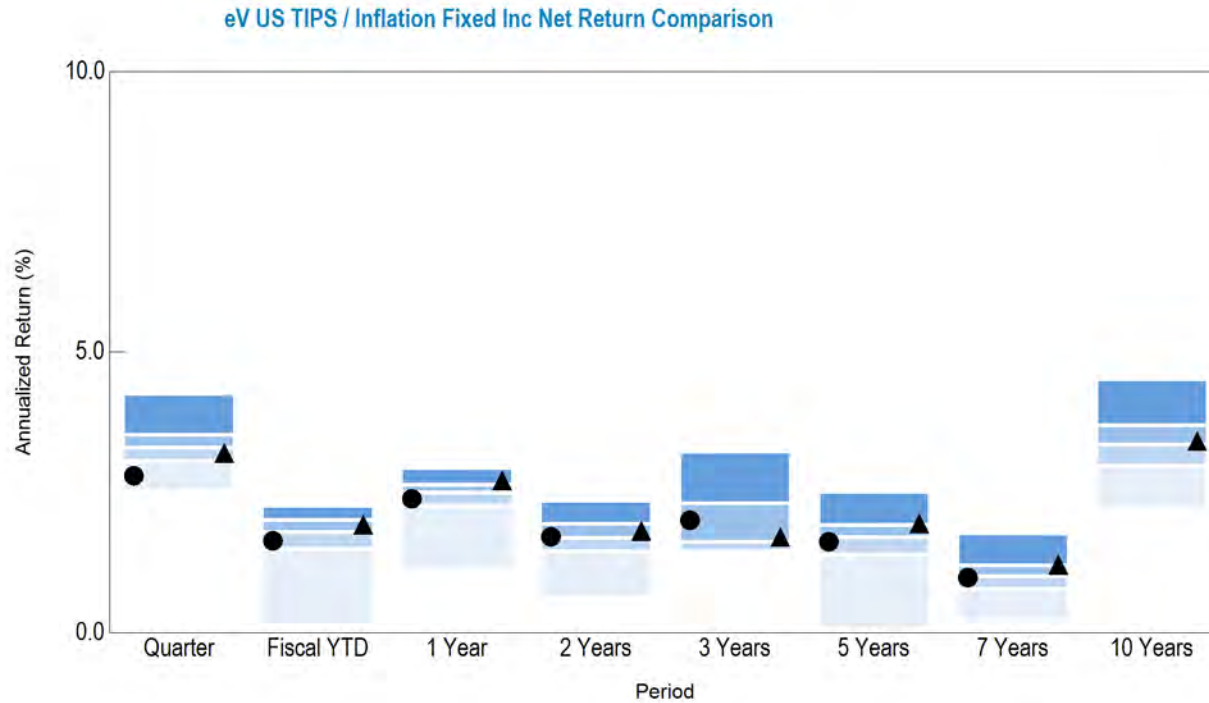
Period Ending: March 31, 2019

Property Name	MSA	Prior Quarter Carry Value	Current Quarter Carry Value	Net Market Value	Date Added to Fund	Last Valuation Date	SamCERA ownership as of 3/31/2019 2.62%
APARTMENTS							
Stoneridge Apartments	Pleasanton, CA	\$243,000,000	\$242,000,000	\$242,000,000	4Q06	March-19	\$6,331,216
Instrata Pentagon City	Arlington, VA	\$155,000,000	\$156,000,000	\$156,000,000	3Q10	March-19	\$4,081,279
Ladd Tower	Portland, OR	\$130,000,000	\$126,000,000	\$69,449,733	4Q10	March-19	\$1,816,947
Legacy Fountain Plaza	San Jose, CA	\$163,000,000	\$163,000,000	\$163,000,000	1Q11	March-19	\$4,264,414
Instrata Gramercy (fka The Elektra)	New York, NY	\$171,000,000	\$172,000,000	\$100,407,937	1Q11	March-19	\$2,626,877
Instrata Brooklyn Heights (fka 75 Clinton Street)	Brooklyn, NY	\$66,800,000	\$67,600,000	\$67,600,000	1Q12	March-19	\$1,768,554
The Artisan Laguna Beach	Orange County, CA	\$163,000,000	\$165,000,000	\$103,800,922	3Q12	March-19	\$2,715,645
The GoodWynn	Atlanta, GA	\$96,600,000	\$96,600,000	\$96,600,000	4Q12	March-19	\$2,527,254
Instrata Hell's Kitchen	New York, NY	\$184,000,000	\$185,000,000	\$185,000,000	1Q13	March-19	\$4,839,979
Sunset Vine Tower	Los Angeles, CA	\$103,000,000	\$103,000,000	\$103,000,000	2Q13	March-19	\$2,694,691
Instrata Ashton Uptown	Dallas, TX	\$121,000,000	\$121,000,000	\$64,150,292	4Q13	March-19	\$1,678,303
206 Bell	Seattle, WA	\$48,900,000	\$48,900,000	\$48,900,000	4Q13	March-19	\$1,279,324
Cadence Union Station	Denver, CO	\$94,400,000	\$94,500,000	\$57,590,544	1Q14	March-19	\$1,506,687
Joseph Arnold Lofts	Seattle, WA	\$71,700,000	\$70,800,000	\$36,754,641	2Q14	March-19	\$961,577
Verve	Denver, CO	\$108,000,000	\$108,000,000	\$108,000,000	3Q14	March-19	\$2,825,501
Broadstone Little Italy	San Diego CA	\$121,000,000	\$120,000,000	\$67,106,707	3Q14	March-19	\$1,755,649
33 Tehama	San Francisco, CA	\$300,708,571	\$301,886,940	\$175,060,249	3Q14	March-19	\$4,579,935
The Parker	Portland, OR	\$63,700,000	\$63,200,000	\$32,594,439	1Q15	March-19	\$852,737
Legacy West Apartments	Plano, TX	\$146,000,000	\$145,000,000	\$54,210,046	1Q15	March-19	\$1,418,246
The Royce	Irvine, CA	\$207,636,274	\$210,137,339	\$110,338,327	2Q15	March-19	\$2,886,677
Jefferson Marketplace	Washington, DC	\$159,000,000	\$159,000,000	\$88,796,693	4Q15	March-19	\$2,323,103
Retreat at Park Meadows	Littleton, CO	\$162,000,000	\$159,000,000	\$159,000,000	4Q15	March-19	\$4,159,766
North Water Apartments	Chicago, IL	\$266,000,000	\$256,000,000	\$256,000,000	1Q16	March-19	\$6,697,484
2270 Broadway	Oakland, CA	\$28,161,583	\$28,170,689	\$28,170,689	1Q16	March-19	\$737,003
Runway at Playa Vista Apartments	Playa Vista, CA	\$168,540,000	\$167,567,734	\$104,516,171	1Q16	March-19	\$2,734,357
Clayton Lane Apartments	Denver, CO	\$38,900,894	\$39,279,865	\$39,279,865	1Q16	March-19	\$1,027,642
Biscayne 27	Miami, FL	\$85,506,440	\$98,461,074	\$59,270,127	2Q16	March-19	\$1,550,628
Flats 8300	Washington DC	\$245,000,000	\$245,000,000	\$245,000,000	2Q16	March-19	\$6,409,702
407 1st Ave	New York, NY	\$200,000,000	\$201,700,000	\$201,700,000	4Q16	March-19	\$5,276,885
5250 Park	Miami, FL	\$38,919,500	\$42,175,876	\$27,903,173	2Q17	March-19	\$730,004
The Mason	Pleasanton, CA	\$103,000,000	\$103,000,000	\$103,000,000	3Q17	March-19	\$2,694,691
The Arnold	Austin, TX	\$102,499,500	\$103,000,000	\$103,000,000	4Q18	March-19	\$2,694,691
The Harlo	Boston, MA	\$0	\$150,383,594	\$150,383,594	1Q19	Acq 1Q19	\$3,934,343
		\$4,355,972,761	\$4,512,363,111	\$3,607,584,148			\$94,381,788
INDUSTRIAL							
Arjons Industrial Park	San Diego CA	\$46,500,000	\$47,100,000	\$47,100,000	2Q04	March-19	\$1,232,232
Gateway Business Park	Dallas TX	\$14,400,000	\$14,400,000	\$14,400,000	2Q04	March-19	\$376,733
Hayward Industrial	Oakland CA	\$216,900,000	\$217,900,000	\$217,900,000	3Q04-3Q07	March-19	\$5,700,710
Oakesdale Commerce Center	Seattle - Belle - Eve WA	\$65,700,000	\$67,200,000	\$67,200,000	1Q06	March-19	\$1,758,090
South Bay Industrial	Los Angeles, CA	\$60,700,000	\$61,600,000	\$61,600,000	4Q06	March-19	\$1,611,582
Steeplechase Portfolio	Capitol Heights, MD	\$107,700,000	\$108,900,000	\$108,900,000	1Q11	March-19	\$2,849,047
Airport Trade Center Portfolio	Dallas, TX	\$143,700,000	\$144,500,000	\$144,500,000	1Q11	March-19	\$3,780,416
IE Logistics	San Bernardino, CA	\$153,600,000	\$158,000,000	\$158,000,000	3Q11	March-19	\$4,133,604
Railhead Industrial	Dallas, TX	\$67,000,000	\$66,800,000	\$66,800,000	4Q11	March-19	\$1,747,625
Empire Gateway aka Chino South Logistics Center	Chino, CA	\$302,000,000	\$302,000,000	\$302,000,000	4Q12	March-19	\$7,900,938
SFO Logistics Center	San Francisco, CA	\$164,000,000	\$164,000,000	\$164,000,000	4Q13	March-19	\$4,290,576
Miami Industrial Portfolio	Various, FL	\$86,115,820	\$86,505,280	\$59,929,018	1Q16	March-19	\$1,567,866
Miami Industrial Portfolio - Fedex	Hollywood, FL	\$46,200,000	\$46,000,000	\$31,997,187	1Q16	March-19	\$837,112
OMP Burbank	Los Angeles, CA	\$102,487,311	\$103,148,873	\$103,148,873	2Q16	March-19	\$2,698,586
Pacific Commons	Freemont, CA	\$196,351,700	\$214,029,380	\$195,659,862	1Q17	March-19	\$5,118,863
Gateway 80 Business Park	Fairfield, CA	\$107,100,000	\$107,300,000	\$107,300,000	1Q18	March-19	\$2,807,188
Meridian Distribution Center II	Riverside, CA	\$52,600,000	\$58,500,000	\$58,500,000	3Q18	March-19	\$1,530,480
Bayport North Industrial Building II and III	Riverside, CA	\$58,689,024	\$60,000,000	\$60,000,000	4Q18	March-19	\$1,569,723
		\$1,991,743,855	\$2,027,883,533	\$1,968,934,940			\$51,511,370

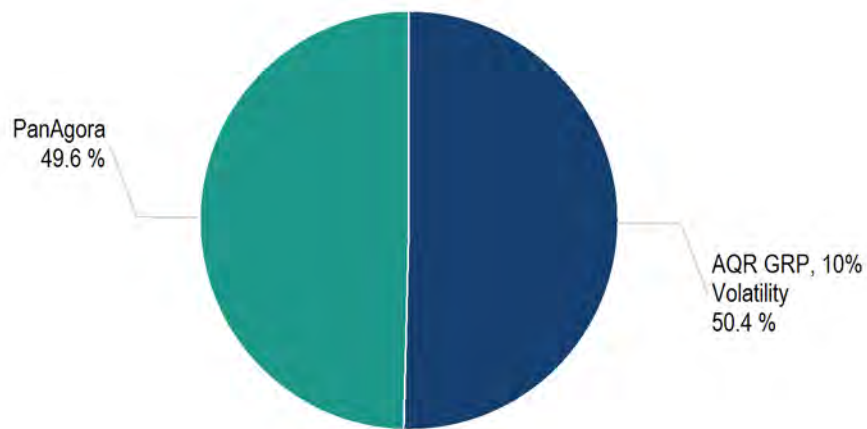
INVESCO Core Real Estate
Real Estate Valuation Analysis

Period Ending: March 31, 2019

OFFICE							
55 Cambridge Parkway	Boston MA - NH	\$356,000,000	\$362,000,000	\$362,000,000	4Q06	March-19	\$9,470,661
1800 Larimer	Denver, CO	\$337,000,000	\$339,000,000	\$339,000,000	1Q11	March-19	\$8,868,934
Hillview Office	San Jose, CA	\$73,900,000	\$74,000,000	\$74,000,000	3Q12	March-19	\$1,935,992
Williams Tower	Houston, TX	\$611,000,000	\$617,000,000	\$433,647,285	1Q13	March-19	\$11,345,101
Westlake Park Place	Westlake Village, CA	\$109,000,000	\$109,000,000	\$109,000,000	4Q13	March-19	\$2,851,663
101 Second	San Francisco, CA	\$464,000,000	\$464,000,000	\$464,000,000	1Q14	March-19	\$12,139,190
Energy Crossing II	Houston, TX	\$104,000,000	\$104,000,000	\$104,000,000	2Q14	March-19	\$2,720,853
1776 Wilson Blvd.	Arlington, VA	\$87,700,000	\$87,000,000	\$87,000,000	3Q14	March-19	\$2,276,098
631 Howard	San Francisco, CA	\$107,000,000	\$108,000,000	\$108,000,000	3Q14	March-19	\$2,825,501
Barton Oaks	Austin, TX	\$96,000,000	\$98,400,000	\$98,400,000	3Q14	March-19	\$2,574,345
Hercules East and South Campus	Los Angeles, CA	\$185,045,739	\$190,521,411	\$190,521,411	3Q14	March-19	\$4,984,430
The Reserve	Playa Vista, CA	\$392,257,407	\$396,044,682	\$396,044,682	1Q15	March-19	\$10,361,340
Fort Point Portfolio	Boston, MA	\$271,080,816	\$278,006,239	\$278,006,239	2Q15	March-19	\$7,273,212
Legacy West Office	Plano, TX	\$143,000,000	\$143,000,000	\$52,210,046	1Q15	March-19	\$1,365,922
1101 Westlake	Seattle, WA	\$145,000,000	\$146,000,000	\$146,000,000	3Q15	March-19	\$3,819,659
PearlWest	Boulder, CO	\$132,000,000	\$132,000,000	\$132,000,000	4Q16	March-19	\$3,453,390
The Mark 302	Santa Monica, CA	\$53,286,564	\$56,471,735	\$56,471,735	1Q18	March-19	\$1,477,416
430 West 15th Street	New York NY	\$162,000,000	\$164,000,000	\$164,000,000	2Q18	March-19	\$4,290,576
Ten Fawcett	Cambridge, MA	\$59,849,000	\$60,334,000	\$31,234,000	3Q18	March-19	\$817,145
Press Blocks	Portland, OR	\$10,824,106	\$14,311,531	\$14,311,531	3Q18	March-19	\$374,419
Union Tower West	Denver, CO	\$69,300,000	\$69,800,000	\$69,800,000	4Q18	March-19	\$1,826,111
Tryon South End	Denver, CO	\$0	\$24,434,141	\$24,434,141	1Q19	Acq 1Q19	\$639,247
22 Boston Wharf Rd	Boston, MA	\$0	\$176,172,841	\$176,172,841	1Q19	Acq 1Q19	\$4,609,042
		\$4,084,243,632	\$4,326,496,579	\$4,023,253,911			\$105,256,560
RETAIL							
Chandler Pavilion	Phoenix - Mesa AZ	\$26,400,000	\$22,500,000	\$22,500,000	2Q04	March-19	\$588,646
Cityline at Tenley	Washington, D.C.	\$63,400,000	\$65,000,000	\$65,000,000	4Q05	March-19	\$1,700,533
Ridgehaven Shopping Center	Minnetonka, MN	\$42,500,000	\$42,900,000	\$42,900,000	4Q05	March-19	\$1,122,352
The Beacon Garage (units)	San Francisco, CA	\$36,905,860	\$38,600,000	\$38,600,000	1Q06	March-19	\$1,009,855
The Beacon Office (210 King)	San Francisco, CA	\$29,200,000	\$29,400,000	\$29,400,000	1Q15	March-19	\$769,164
Hawthorne Plaza	Overland Park, KS	\$53,000,000	\$53,225,000	\$53,225,000	4Q07	March-19	\$1,392,475
The Loop	Boston MA - NH	\$78,500,000	\$76,200,000	\$76,200,000	1Q08	March-19	\$1,993,548
Westbank Market	Austin, TX	\$64,000,000	\$64,800,000	\$64,800,000	3Q10	March-19	\$1,695,301
910 Lincoln Road	Miami, FL	\$35,200,000	\$35,700,000	\$35,700,000	4Q10	March-19	\$1,695,301
Lake Pointe Village	Houston, TX	\$87,350,000	\$88,250,000	\$88,250,000	4Q11	March-19	\$933,985
Safeway Kapahulu	Hawaii	\$95,000,000	\$95,200,000	\$59,165,525	4Q11	March-19	\$1,547,891
Safeway Burlingame	San Francisco, CA	\$59,100,000	\$59,100,000	\$36,503,461	4Q11	March-19	\$955,005
Shamrock Plaza	Oakland, CA	\$40,800,000	\$40,800,000	\$24,624,203	4Q11	March-19	\$644,220
Pavilions Marketplace	West Hollywood, CA	\$70,800,000	\$71,100,000	\$46,539,598	1Q12	March-19	\$1,217,571
130 Prince	New York, NY	\$221,000,000	\$214,000,000	\$214,000,000	2Q12	March-19	\$5,598,678
Safeway Pleasanton	Pleasanton, CA	\$86,500,000	\$86,500,000	\$86,500,000	4Q12	March-19	\$2,263,017
Liberty Wharf	Boston, MA	\$96,900,000	\$91,400,000	\$91,400,000	4Q12	March-19	\$2,391,211
Shops at Legacy	Plano, TX	\$125,000,000	\$124,000,000	\$124,000,000	3Q13	March-19	\$3,244,094
Pasadena Commons	Pasadena, CA	\$63,200,000	\$63,400,000	\$63,400,000	4Q14	March-19	\$1,658,674
Rush Street Retail	Chicago, IL	\$16,900,000	\$16,900,000	\$16,900,000	4Q14	March-19	\$442,139
Legacy West Retail	Plano, TX	\$279,000,000	\$280,000,000	\$158,946,728	1Q15	March-19	\$4,158,372
131-137 Spring Street	New York, NY	\$208,000,000	\$263,000,000	\$163,000,000	3Q15	March-19	\$4,264,414
Runway at Playa Vista - Retail	Playa Vista, CA	\$127,730,000	\$128,327,189	\$66,328,679	1Q16	March-19	\$1,735,294
139 Spring	New York, NY	\$111,059,200	\$111,059,200	\$111,059,200	1Q16	March-19	\$2,905,536
Clayton Lane	Denver, CO	\$150,961,342	\$150,907,816	\$105,315,146	1Q16	March-19	\$2,755,260
4th & Colorado	Santa Monica, CA	\$13,280,000	\$13,280,000	\$13,280,000	1Q16	March-19	\$347,432
Legacy West - Block H	Plano, TX	\$11,230,095	\$11,939,122	\$11,939,122	4Q17	March-19	\$312,352
Shops at Crystals	Las Vegas, NV	\$300,500,000	\$302,000,000	\$165,682,155	2Q16	March-19	\$4,334,584
		\$2,663,410,636	\$2,708,488,327	\$2,144,158,817			\$55,482,085
Other							
Baranof - Walden Park	San Marcos, TX	\$9,446,179	\$9,260,960	\$9,260,960	1Q18	March-19	\$242,286
Baranof - Ranch Road 620	San Marcos, TX	\$8,890,521	\$8,705,302	\$8,705,302	1Q18	March-19	\$227,749
Baranof - Glenwood Avenue	Raleigh, NC	\$9,353,569	\$9,260,960	\$9,260,960	1Q18	March-19	\$242,286
Baranof - 1-84 & 60th	Vancouver, WA	\$22,133,694	\$22,276,304	\$22,276,304	1Q18	March-19	\$581,486
Baranof - Fishers Landing Vancouver	Vancouver, WA	\$16,021,461	\$16,299,289	\$16,299,289	1Q18	March-19	\$426,423
US Storage - Compton	Compton, CA	\$13,810,156	\$16,094,385	\$12,212,137	4Q17	March-19	\$319,495
The Quad	New York NY	\$76,284,911	\$82,905,795	\$49,376,109	2Q18	March-19	\$1,291,780
Baranof - 622 Capital	Raleigh, NC	\$18,799,749	\$18,892,358	\$18,892,358	3Q18	March-19	\$494,263
51st Street Self Storage	Austin, TX	\$12,000,000	\$12,100,000	\$12,100,000	3Q18	March-19	\$316,561
Campbell Self Storage	Campbell, CA	\$17,800,000	\$17,800,000	\$17,800,000	3Q18	March-19	\$465,684
Baranof - Belmont and 7th	Portland, OR	\$17,711,586	\$17,873,653	\$17,873,653	4Q18	March-19	\$467,611
Boston Lane Self Storage	Austin, TX	\$15,800,000	\$15,900,000	\$15,900,000	4Q18	March-19	\$415,977
US Storage - 4800 Valley	Los Angeles, CA	\$0	\$6,016,804	\$6,016,804	1Q19	Acq 1Q19	\$157,412
Newark Self Storage	Newark, CA	\$0	\$6,190,020	\$6,190,020	1Q19	Acq 1Q19	\$161,944
Norwood Extra Space	Norwood, MA	\$0	\$18,463,974	\$18,463,974	1Q19	Acq 1Q19	\$483,055
		\$238,051,825	\$277,989,804	\$240,577,871			\$6,294,010
Portfolio Total		\$13,333,422,710	\$13,853,221,354	\$11,984,509,687			\$312,925,813



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.2	2.2	2.9	2.3	3.2	2.5	1.8	4.5
25th Percentile	3.5	2.0	2.6	1.9	2.3	1.9	1.2	3.7
Median	3.3	1.8	2.5	1.7	1.6	1.7	1.0	3.4
75th Percentile	3.1	1.5	2.3	1.4	1.4	1.4	0.8	3.0
95th Percentile	2.5	0.2	1.1	0.6	1.4	0.1	0.2	2.2
# of Portfolios	23	22	22	22	22	20	18	15
● Brown Brothers Harriman	2.8 (81)	1.6 (70)	2.4 (65)	1.7 (49)	2.0 (30)	1.6 (57)	1.0 (54)	-- (--)
▲ BBgBarc US TIPS TR	3.2 (61)	1.9 (36)	2.7 (22)	1.8 (35)	1.7 (41)	1.9 (18)	1.2 (24)	3.4 (46)



	Actual \$	Actual %	Manager Contribution to Excess Return %
AQR GRP, 10% Volatility	\$185,837,512	50.4%	1.3%
PanAgora	\$182,678,734	49.6%	1.4%
Actual vs. Policy Weight Difference			0.0%
Total	\$368,516,246	100.0%	2.6%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	7.6%	7.7%	0.8	-0.1	5.7%
Blended Risk Parity Index	8.2%	6.1%	1.2	--	0.0%
AQR GRP, 10% Volatility	8.3%	7.3%	1.0	0.0	5.3%
Blended Risk Parity Index	8.2%	6.1%	1.2	--	0.0%
PanAgora	7.0%	8.3%	0.7	-0.2	6.6%
Blended Risk Parity Index	8.2%	6.1%	1.2	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	5.6%	8.2%	0.6	-0.2	6.0%
Blended Risk Parity Index	7.0%	6.6%	0.9	--	0.0%
AQR GRP, 10% Volatility	4.3%	8.2%	0.4	-0.5	5.9%
Blended Risk Parity Index	7.0%	6.6%	0.9	--	0.0%

Total Fund
Performance Summary (Gross of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	7.1	2.5	3.2	6.0	8.1	6.1	10.5
<i>Policy Index</i>	6.5	2.7	3.4	6.7	8.4	6.0	10.7
Total Fund ex Overlay	6.9	2.3	2.9	5.9	8.0	6.0	10.4
<i>Policy Index</i>	6.5	2.7	3.4	6.7	8.4	6.0	10.7
Public Equity	12.1	1.3	2.5	8.5	10.7	7.2	13.2
<i>Blended Public Equity Index</i>	12.4	1.5	2.4	8.8	11.3	7.2	13.5
US Equity	13.4	3.6	7.8	10.8	13.0	9.8	15.8
<i>Blended US Equity Index</i>	14.0	4.7	8.8	11.3	13.6	10.1	16.0
<i>Russell 3000</i>	14.0	4.7	8.8	11.3	13.5	10.4	16.0
Large Cap Equity	13.4	5.6	9.5	12.0	14.2	11.2	15.9
<i>Russell 1000</i>	14.0	5.5	9.3	11.6	13.5	10.6	16.0
Acadian US MGD V	10.7	--	--	--	--	--	--
BlackRock Russell 1000	14.0	5.6	9.4	11.7	--	--	--
DE Shaw	12.7	3.9	8.3	12.7	15.7	12.6	--
PanAgora Defuseq	15.0	--	--	--	--	--	--
<i>Russell 1000</i>	14.0	5.5	9.3	11.6	13.5	10.6	16.0
Small Cap Equity	12.6	-7.2	-0.7	4.4	9.7	4.9	15.8
<i>Russell 2000</i>	14.6	-5.3	2.0	6.8	12.9	7.1	15.4
QMA US Small Cap	12.6	-7.2	-0.7	4.4	--	--	--
<i>Russell 2000</i>	14.6	-5.3	2.0	6.8	12.9	7.1	15.4
International Equity	10.6	-1.4	-3.6	5.8	7.7	3.3	8.5
<i>Blended International Equity Index</i>	10.4	-2.2	-4.7	5.8	8.3	3.0	9.4
<i>MSCI EAFE Gross</i>	10.1	-2.3	-3.2	5.6	7.8	2.8	9.5
Developed Markets	10.9	-2.1	-3.3	5.8	7.6	3.4	8.8
<i>MSCI ACWI ex USA Gross</i>	10.4	-1.4	-3.7	6.1	8.6	3.0	9.3
Baillie Gifford	13.5	-4.9	-4.4	6.8	8.1	4.3	--
<i>MSCI ACWI ex US</i>	10.4	-1.4	-3.7	6.1	8.6	3.0	--
<i>MSCI ACWI ex US Growth</i>	12.4	-1.4	-2.7	8.2	8.8	4.4	--
BlackRock EAFE Index	10.1	-2.4	-3.2	5.5	7.7	2.7	--
<i>MSCI EAFE</i>	10.0	-2.5	-3.7	5.1	7.3	2.3	9.0
<i>MSCI EAFE Gross</i>	10.1	-2.3	-3.2	5.6	7.8	2.8	9.5

Total Fund
Performance Summary (Gross of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mondrian	9.2	1.1	-2.4	4.8	7.2	2.6	8.6
<i>MSCI ACWI ex USA Value Gross</i>	8.5	-1.3	-4.8	4.1	8.4	1.7	8.8
<i>MSCI ACWI ex USA Gross</i>	10.4	-1.4	-3.7	6.1	8.6	3.0	9.3
Emerging Markets	7.7	1.4	-8.2	4.1	7.6	1.9	--
<i>MSCI Emerging Markets Gross</i>	10.0	0.9	-7.1	7.9	11.1	4.1	9.3
Parametric Core	7.7	1.4	-8.2	4.1	7.6	--	--
<i>MSCI Emerging Markets Gross</i>	10.0	0.9	-7.1	7.9	11.1	4.1	9.3
Parametric Currency Overlay	14.1	--	--	--	--	--	--
Fixed Income	3.1	4.0	3.8	3.3	5.2	3.9	6.8
<i>Blended Fixed Income Index</i>	4.3	5.3	5.2	3.6	3.4	3.1	4.1
Core Fixed	2.7	4.2	3.6	3.0	3.4	3.4	6.0
<i>BBgBarc US Aggregate TR</i>	2.9	4.6	4.5	2.8	2.0	2.7	3.8
BlackRock Intermediate Govt	1.6	3.8	4.0	2.0	--	--	--
<i>BBgBarc US Govt Int TR</i>	1.6	3.7	3.8	1.8	1.0	1.7	2.0
FIAM Bond	3.5	4.7	4.8	3.2	3.0	3.3	5.5
<i>BBgBarc US Aggregate TR</i>	2.9	4.6	4.5	2.8	2.0	2.7	3.8
Western TRU	2.9	3.9	0.9	3.7	5.4	--	--
<i>3-Month Libor Total Return USD</i>	0.7	2.0	2.6	2.0	1.7	1.1	0.7
<i>BBgBarc US Aggregate TR</i>	2.9	4.6	4.5	2.8	2.0	2.7	3.8
Opportunistic Credit	3.8	3.7	4.1	5.2	9.3	6.2	--
<i>BBgBarc BA Intermediate HY</i>	7.0	6.5	6.5	4.7	6.4	4.7	--
Angelo Gordon Opportunistic	0.9	6.2	16.2	17.4	16.0	--	--
Angelo Gordon STAR	5.4	15.1	20.5	20.8	18.7	14.1	--
<i>BBgBarc US Aggregate TR</i>	2.9	4.6	4.5	2.8	2.0	2.7	3.8
Beach Point Select	4.4	2.1	4.1	5.6	9.3	--	--
<i>BBgBarc BA Intermediate HY</i>	7.0	6.5	6.5	4.7	6.4	4.7	--
Brigade Capital	4.3	0.7	2.2	3.5	10.0	4.0	--
<i>BBgBarc BA Intermediate HY</i>	7.0	6.5	6.5	4.7	6.4	4.7	--
<i>50% Barclays HY/ 50% Bank Loan</i>	5.5	3.7	4.6	4.4	7.2	4.3	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PIMCO Diversified	5.8	6.2	5.4	--	--	--	--
<i>Blended PIMCO Diversified Index</i>	6.0	6.1	4.9	4.2	5.6	4.6	8.3
<i>BBgBarc BA Intermediate HY</i>	7.0	6.5	6.5	4.7	6.4	4.7	--
Franklin Templeton	1.7	4.2	-0.3	0.3	4.4	1.8	--
<i>BBgBarc Multiverse TR</i>	2.4	2.6	-0.3	3.3	1.8	1.2	3.3
Private Credit	1.1	4.7	7.0	6.8	--	--	--
<i>Cliffwater Direct Lending Index</i>	0.8	4.1	6.6	7.5	9.1	8.2	10.6
TCP Direct Lending VIII	2.4	6.6	8.8	7.4	--	--	--
White Oak Yield	0.0	3.1	5.2	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	0.8	4.1	6.6	7.5	9.1	8.2	10.6
Risk Parity	11.3	5.0	4.7	6.6	7.6	5.6	--
<i>Blended Risk Parity Index</i>	8.6	3.5	4.6	6.8	8.2	7.0	--
AQR GRP, 10% Volatility	11.1	5.4	4.9	7.3	8.3	4.3	--
PanAgora	11.4	4.6	4.6	6.0	7.0	--	--
<i>Blended Risk Parity Index</i>	8.6	3.5	4.6	6.8	8.2	7.0	--
<i>S&P Risk Parity 10% Target Volatility Index TR USD</i>	8.0	3.8	6.0	5.1	5.8	3.2	6.8
Alternatives	-0.4	2.5	1.3	3.5	6.8	6.2	--
<i>Blended Alternatives Index</i>	-5.9	1.4	2.3	6.8	9.1	5.6	--
Private Equity	-1.3	8.5	10.9	11.1	14.9	15.6	--
<i>Blended Private Equity Index</i>	-13.2	-2.5	-2.2	6.9	11.4	10.4	17.4
Hedge Fund/Absolute Return	0.6	-3.9	-8.3	-4.0	-1.5	2.8	--
<i>Libor 1 month +4%</i>	1.5	4.7	6.3	5.8	5.4	4.9	--
AQR DELTA XN	-2.0	-8.0	-13.6	-7.0	-3.4	1.8	--
Aberdeen Standard GARS	4.6	2.8	0.6	0.9	1.2	--	--
<i>Libor 1 month +4%</i>	1.5	4.7	6.3	5.8	5.4	4.9	--
Inflation Hedge	4.4	1.5	3.5	4.5	6.2	--	--
<i>Blended Inflation Hedge Index</i>	3.3	1.6	3.0	4.6	5.8	--	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: March 31, 2019

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Real Estate	1.3	6.2	8.1	8.2	8.9	10.8	8.0
<i>NCREIF ODCE</i>	1.4	5.4	7.5	7.8	8.0	10.2	8.7
<i>Invesco</i>	1.1	5.9	7.9	8.1	8.9	10.7	8.0
<i>NCREIF ODCE</i>	1.4	5.4	7.5	7.8	8.0	10.2	8.7
<i>Invesco US Val IV</i>	4.2	11.8	14.0	13.4	12.5	--	--
<i>NCREIF ODCE</i>	1.4	5.4	7.5	7.8	8.0	10.2	8.7
<i>NCREIF CEVA 1Q Lag - NET</i>	3.0	9.1	11.4	11.1	10.7	13.5	--
<i>Invesco US Val V</i>	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	1.4	5.4	7.5	7.8	8.0	10.2	8.7
<i>NCREIF CEVA 1Q Lag - NET</i>	3.0	9.1	11.4	11.1	10.7	13.5	--
<i>PGIM RE US Debt Fund</i>	1.8	5.8	7.3	--	--	--	--
<i>NCREIF ODCE</i>	1.4	5.4	7.5	7.8	8.0	10.2	8.7
Private Real Asset	-11.8	-7.6	-6.1	-8.2	-3.8	--	--
<i>Blended Private Real Asset Index</i>	-8.7	-4.8	-8.7	-1.6	1.5	2.8	--
<i>Blended Secondary CA Private RA Index</i>	-2.6	1.6	3.3	8.1	9.8	--	--
Public Real Assets	12.3	-1.7	1.0	4.3	--	--	--
<i>Blended Public Real Asset Index</i>	10.1	-1.8	0.6	3.3	4.8	4.9	--
<i>Cushing MLP Alpha TR</i>	17.9	--	--	--	--	--	--
<i>50% BBgBarc US TIPS/ 50% Blended PRA Index</i>	6.6	0.1	--	--	--	--	--
<i>Alerian MLP TR USD</i>	16.8	3.0	15.1	-4.1	5.7	-4.7	10.1
<i>SSgA Custom Real Asset</i>	10.6	-0.5	2.3	4.9	--	--	--
<i>Blended Public Real Asset Index</i>	10.1	-1.8	0.6	3.3	4.8	4.9	--
TIPS	2.9	1.8	2.6	1.9	2.2	1.8	--
<i>BBgBarc US TIPS TR</i>	3.2	1.9	2.7	1.8	1.7	1.9	3.4
<i>Brown Brothers Harriman</i>	2.9	1.8	2.6	1.9	2.2	1.8	--
<i>BBgBarc US TIPS TR</i>	3.2	1.9	2.7	1.8	1.7	1.9	3.4
Cash	0.3	0.9	1.3	1.1	1.0	1.0	0.9
<i>91 Day T-Bills</i>	0.6	1.7	2.1	1.7	1.2	0.8	0.4
<i>General Account</i>	0.8	4.1	5.3	3.6	2.7	2.2	1.2

Acadian Asset Management – Acadian U.S. Managed Volatility

Acadian attempts to take advantage of the mispricing of risk by building low-risk equity portfolios that hold predominantly low-risk stocks, and then also adding information on the correlation structure of equities to help further reduce risk through diversification.

Angelo, Gordon & Co. – AG STAR Fund

The STAR Fund will focus on CMBS and non-Agency RMBS priced between 25-75% of par, which AG believes are even today mispriced due to their complex nature and a dearth of natural buyers capable of accurately valuing these assets. In addition, AG will target securities that are well-positioned to benefit from home and commercial property price stabilization and recovery, and/or borrower credit quality improvement. In this regard the STAR Fund will be more aggressive than the PPIP Fund since it will target securities that are more geared to a recovery of the commercial and residential real estate markets. The Fund will utilize a moderate amount of leverage (1x to 1.5x) and is targeting a base-case 15% net IRR with a downside return in the mid/high single digits and an upside projection of 25%+ returns.

Angelo, Gordon & Co. – AG Opportunistic Whole Loan Fund

As bank balance sheets have strengthened since the crisis, Angelo Gordon expects approximately \$40 billion of re-performing loans and non-performing loans will trade hands each year in the near term. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, Angelo Gordon believes it can improve operational efficiency and generate attractive returns. To take advantage of this opportunity, Angelo Gordon established this Opportunistic Whole Loan Fund to make investments primarily in a portfolio of non-performing loans and re-performing, but will also include investments in new residential mortgage loans and excess mortgage servicing rights. Opportunistic investments in commercial mortgage loans and other mortgage related investments may also be included in the Fund's portfolio. Angelo Gordon has been an active participant in the residential and consumer debt market since 2008. The Partnership's investment approach to residential mortgage loans and securities is guided by an analytically based investment process anchored by distressed asset valuation and cash flow modeling. Angelo Gordon's analysis of re-performing and non-performing loans begins with its loan due diligence process. This process will include a review of substantially all of the properties in the pool, as well as a review of the loan files backing the loan pool. In addition, a macro overlay is embedded in the investment process which incorporates general economic trends, along with specific views on interest rates, unemployment, collateral appreciation or depreciation, governmental intervention in creditors' rights and liquidation timelines.

AQR Capital Management - AQR Delta

The AQR DELTA Fund aims to deliver efficient exposure to a well-diversified portfolio of hedge fund strategies, including Convertible Arbitrage, Event Driven, Fixed Income Relative Value, Equity Market Neutral, Long/Short Equity, Dedicated Short Bias, Global Macro, Managed Futures, and Emerging Markets. The Delta Fund's approach is to capture and deliver the "hedge fund risk premiums" that explain much of the returns of each of these strategies by building bottom-up positions in each strategy. AQR's research has demonstrated that many hedge funds use similar strategies to generate returns. These strategies are often well-known, widely understood and share common exposures. AQR's experience and research suggests much of the insight underlying these strategies - as well as a meaningful portion of their returns - can be captured using a dynamic, disciplined investment approach. Just as the equity risk premium can explain a large portion of the returns from equity investing, hedge fund risk premiums can explain the returns from hedge fund investing. Importantly, while compensation for equity risk is dependent on economic growth, hedge fund risk premiums are largely unrelated to economic activity, and thus provide attractive diversification properties.

AQR – Risk Parity

The objective of Global Risk Parity (GRP) is to generate excess returns from a risk diversified portfolio of asset exposures. AQR believes that its approach maximizes the diversification benefit across a broad range of economic environments. For many institutional portfolios, equity risk has historically been the predominant risk and the source of most return expectations since equities offer higher expected returns to compensate for their high risk. Investor preference for and concentration in equities has been driven by their expected return needs, which cannot be satisfied in a well-diversified un-levered portfolio. GRP is a diversified portfolio that can be scaled to similar levels of risk as a portfolio concentrated in equities, but with a higher expected return resulting from diversification across asset class risk. The approach helps do away with the compromise of concentrating in high risk assets to meet high return needs. Consistent with portfolio theory, the GRP strategy is designed to maximize diversification across a broad spectrum of liquid global risk premia to create a portfolio with higher expected risk-adjusted returns. Research shows that risk-adjusted returns across asset classes are similar over the long-term. Since realized risk-adjusted returns across asset classes are similar, AQR expects a portfolio that is diversified equally by risk to perform better. The Global Risk Premium strategy aims to deliver efficient market exposure across four broad asset classes in a risk balanced fashion.

Baillie Gifford – ACWI ex US Focus Equities

ACWI ex US Focus is a fundamental growth strategy. Research is organized primarily by regional teams, with each member of the ACWI ex US Focus Portfolio Construction Group representing a regional team. Four global sector groups also contribute research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compound growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 80-120 stocks, with country and sector weights +/-6% relative to the index and industry weights +/- 5% relative to the index.

Beach Point Capital Management, L.P. - Beach Point Select Fund

Beach Point Select Fund is a commingled fund vehicle within the firm's Opportunistic Credit strategy. This fund focuses on off-the-run, complex, and less-liquid securities. It is a best ideas portfolio of distressed debt, special situations, private/direct loans, catalyst-driven high yield bonds and bank loans, and credit-informed equities with a North American and European focus. The Select Fund differs from other funds and accounts in the Opportunistic Credit strategy by pursuing a more concentrated portfolio and emphasizing a higher percentage of less-liquid/private investments. Beach Point invests up and down the entire capital structure and it constructs portfolios with a bottom-up, research-driven approach that also takes into account top-down macro considerations. Its investment process includes idea generation, detailed credit analysis, relative value decision making and investment selection, portfolio construction and on-going monitoring. The ultimate goal of its investment process is to produce a well-diversified investment portfolio with limited downside risk and substantial upside potential.

BlackRock – EAFE Index

The EAFE Index Fund seeks to replicate the return of the MSCI EAFE Index. This index represents the developed equity markets outside of North America: Europe, Austral, Asia and the Far East.

BlackRock – Intermediate Government Index

The Intermediate Government Index Fund seeks to track the results of an index composed of U.S. dollar-denominated government, government related, and investment grade U.S. corporate bonds with maturities between 1 and 10 years.

BlackRock – Russell 1000 Index

The Russell 1000 Index Fund tracks large U.S. companies and achieve broad diversification with low costs by fully replicating the Russell 1000 Index.

Brigade – Opportunistic Credit

Opportunistic Credit is a fundamental, bottom-up strategy focused on high yield corporate bonds and bank loans with tactical allocations to structured securities, convertibles and other sectors of the bond markets as they become attractive on a relative value basis. While performing credits represent the majority, Brigade will invest up to 35% of the portfolio in distressed securities and restructuring situations if these types of opportunities are attractive on a risk-adjusted basis and the timing is right with respect to the credit cycle. The portfolio is comprised of mostly North American issuers, but they are not restricted geographically and expect to have a moderate allocation to Europe over time. Although the portfolio is generally long-only, Brigade has the ability to implement a limited amount of tactical macro hedges.

Brown Brothers Harriman – Inflation Indexed Securities

BBH manages TIPS using three main types of strategies: Fundamental, Technical and Opportunistic. The Fundamental bucket has two sub-strategies, real yield duration and real yield curve slope vs. nominal yield curve slope. The Technical strategies consist of yield curve roll-down, auction cycle trading, seasonal vs. non-seasonal CPI and security selection/option value analysis. Finally, nominal Treasuries vs. TIPS, sector relative value (i.e., corporate or Agency inflation-linked bonds) and non-Dollar inflation-linked bonds make up the Opportunistic group. Real yield duration is held to +/- 1 year vs. the benchmark and the portfolio has a limited allocation to non-index securities, typically 5-10% with a maximum of 20% (including nominal Treasuries).

Cushing MLP Alpha TR

A strategy focusing on bottom-up research of company and sectors that will allow them to identify superior distribution growth opportunities in public MLPs.

DE Shaw – DE Shaw US Broad Market Core Alpha Extension Fund

The D. E. Shaw group believes that there exist some market inefficiencies that may be identified through quantitative analysis, advanced technology, and the insight of practitioners. Identifying these inefficiencies involves a process of hypothesis formulation, testing, and validation. Importantly, to avoid data-mining, the hypothesis formulation precedes the analysis of the historical data. D.E. Shaw's Structured Equity strategies rely largely on quantitative and computational investment techniques developed by the D. E. Shaw over the last 19 years in the course of research conducted for purposes of managing the firm's hedge funds. In addition to its beta one strategies, D.E. Shaw manages substantial assets in its hedge fund strategies. D.E. Shaw's investment process involves a suite of quantitative models, each designed to capitalize on a distinct and uncorrelated set of market inefficiencies. Some of these models are technical in nature and involve price and volume inputs. Other models rely on fundamental data, such as figures gleaned from corporate balance sheets or income statements. Still others, again quantitative, anticipate or react to a particular corporate event or set of events. These models typically operate with forecast horizons of a few weeks to many months. The ability to trade on shorter-term signals distinguishes D.E. Shaw from many of its long only and 130/30 peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. The portfolio is broadly diversified with several hundred long and short positions. Over- and under-weighting of sectors and industries relative to the benchmark will be quite modest, with the intention that most of the alpha be generated by security selection. The US Broad Market Core Alpha Extension Fund is a 130/30 strategy which maintains a beta that is approximately neutral to the Russell 1000 Index.

Eaton Vance/Parametric – Structured Emerging Markets Core Equity

Parametric utilizes a structured, rules-based approach, which they believe is capable of generating enhanced returns with lower volatility compared to both traditional active management and passive capitalization weighted indices. The basic idea is to structure the portfolio with more balanced country weights than the market cap weighted indices, and also to capture a rebalancing premium. This provides more diversification and greater exposure to smaller countries than is provided by the market cap weighted indices. The approach is to divide emerging markets countries into three tiers, and to equally weight the countries within each tier. Tier 1 countries are the largest eight countries that dominate the cap weighted index. Each successive tier is comprised of smaller countries, each of which is given a smaller target weighting in the model portfolio. In aggregate, the eight Tier 1 countries are given a much lower weighting than in the capitalization weighted index, but they nevertheless comprise more than 50% of the portfolio. The Core SEM strategy targets excess return of 3% over a market cycle with 2.5%-4.5% tracking error. It is designed to generate a level of volatility 90%-100% of the MSCI EM index. The strategy invests in 44 countries and will typically hold 700-1,000 securities. Turnover is expected to be in the range of 5%-15%.

Franklin Templeton Investments – Global Fixed Income

Franklin Templeton manages the global bond mandate in an unconstrained fashion using a top-down, fundamental framework. In the short term and on a country-by-country basis there are often inefficiencies in global bond and currency markets, however, over the longer term the market will generally price to fundamentals. Thus, FT focuses on fundamental research to identify long-term opportunities and uses short-term market inefficiencies to build positions in such investments. The investment and portfolio construction process begins with the determination of the Fund's or institutional client's investment objectives, resulting in a set of risk-return parameters and exposure limits within which the portfolio is managed. Next the firm's global economic outlook for the industrialized countries is developed, with a focus on interest rate and exchange rate forecasts. The portfolio's interest rate outlook is a function of global general equilibrium macroeconomic analysis as well as country-specific research. Macroeconomic conditions in the G-3 economies are analyzed first, primarily with respect to how current and projected growth and inflation dynamics are expected to influence monetary policy. This analysis is then extended out to the rest of the industrialized countries (G-13) as well as emerging markets, which results in broad targets for cash, duration, currencies and the developed/emerging market mix. Using the firm's interest rate and exchange rate outlook, probability-weighted horizon returns for bonds of various countries are then calculated. This analysis is used to establish specific country weights and duration targets based on risk-adjusted expected total return measured in the portfolio's base currency. Analysis of emerging markets includes sovereign credit analysis along with greater emphasis on capital flows, inter-market dynamics and trends in the level of risk aversion in the market.

INVESCO Realty Advisors – INVESCO Core Equity, LLC

SamCERA is a founding member of INVESCO's open-end Core Equity real estate fund and rolled its separate account properties into the fund. INVESCO Core Equity, LLC (the "Fund") is a perpetual life, open-end vehicle which invests in a diversified portfolio of institutional quality office, retail, industrial and multifamily residential real estate assets. The Fund buys core properties that are located within the United States, typically requiring an investment of \$10 million or more. The portfolio cannot be more than 30% leveraged.

INVESCO Realty Advisors – INVESCO US Val IV

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund IV will look to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments will be limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's). Invesco Value Fund IV will provide a nice compliment to the more conservative Invesco Core Fund and offer the potential of enhanced returns to the SamCERA Real Estate portfolio.

INVESCO Realty Advisors – INVESCO US Val V

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund and through the Invesco US Value IV Fund since December 2015. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund V will be similar to the Value Add IV and look to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments will be limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's).

Mondrian Investment Partners – International Equity

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give an accurate currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer-based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

PanAgora Asset Management – Defensive U.S. Equity Low Volatility

PanAgora's Defensive Equity strategy seeks to balance risk exposures within the portfolio across multiple dimensions to achieve true diversification. The Defensive Equity approach is used to construct equity portfolios designed to achieve tailored exposure to certain factors, including low volatility, multi-factor (value, quality, and momentum), and high dividend yield while maintaining less risk concentration throughout the portfolio.

Panagora – Diversified Risk Multi Asset Fund

The Multi Asset team is headed up by Edward Qian, CIO of the group, and the founder of Panagora’s risk parity strategy. A staff of approximately thirteen works in this group on research and portfolio construction, with some people spending more time on the former and some more on the latter. Panagora implements risk parity by distinguishing between three categories of assets: equities, nominal fixed income, and inflation protection. Each of these categories corresponds to a respective economic environment: economic growth, economic contraction and inflation. Panagora’s risk allocation targets 40% each from equities and nominal fixed income, and 20% from inflation protection. In addition to applying concept of risk parity between asset classes, Panagora also applies it within each asset class. The 40/40/20 allocation to equities/nominal fixed income/inflation protection is a long term strategic allocation. In 2009 Panagora introduced what they refer to as “Dynamic Risk Allocation” or “DRA,” which involves tactically tilting the risk allocations away from the neutral targets in order to enhance returns and reduce risk.

Parametric Currency Overlay – Currency Hedge

An overlay hedge placed on half of the notional value of international equities. The portfolio uses Parametric for this overlay.

PIMCO Diversified

PIMCO Diversified Income Fund offers a broad and flexible multi-credit approach in a liquid and cost-effective format. The Diversified Income Fund seeks to produce consistent above benchmark performance using diversified sources of alpha from a universe that includes global credit as well as “non-core” credit sectors (ex., securitized, emerging markets).

PGIM RE Debt

PGIM Real Estate US Debt Fund focuses on a loan origination strategy with a mix of 20% senior long duration loans on stable assets, 60% senior short/medium duration loans on stable and transitional assets, and 20% mezzanine mid/long duration debt.

Pyramis Global Advisors – Broad Market Duration Commingled Pool

Pyramis’ Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in US Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all US dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Pyramis uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 40 and 60 basis points per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

Quantitative Management Associates – QMA Small-Cap Core

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities to consistently add value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

Standard Life Aberdeen Global Absolute Return Strategy (GARS)

The Standard Life Aberdeen Global Absolute Return Strategy (GARS) was initially launched in 2005 to help address Standard Life's own pension plan's deficit problem. GARS' primary investment objective is to deliver a positive absolute return over the medium to long term with lower volatility than equities, irrespective of market conditions. It seeks returns through dynamic allocation to investment opportunities in traditional and advanced asset classes, and also separately exploits the team's security selection expertise. In the search for attractive investment positions, the team follows a rigorous research process. This includes a variety of research techniques, including broad global macro-economic, fundamental analysis, quantitative research and valuation modeling. The GARS investment process is designed to capitalize on an array of research and investment techniques and draws together the team's three-year investment insights. The team then rigorously examines and review position proposals to approve a high conviction, short list of positions that work well together. Having a cash benchmark means that GARS has a potentially unrestricted investment universe and all portfolio holdings are at the Portfolio Manager's discretion. The GARS portfolio also routinely uses a variety of conventional derivatives for investment, liquidity, efficiency and hedging purposes. The GARS strategy has experienced significant growth in its asset under management since it becomes available to external investors in 2006.

State Street Global Advisors (SSgA) Custom Real Asset

SSgA Custom Real Asset portfolio uses a portfolio of liquid real assets to proxy private real assets. The portfolio is comprised of equal weightings of the Bloomberg Commodity Index, S&P Global Natural Resources Index, and S&P Global Infrastructure Index. The portfolio is used to fund upcoming private real asset mandates.

Tennenbaum Capital Partners - TCP Direct Lending Fund VIII

TCP Direct Lending Fund VIII is a private investment fund managed by Tennenbaum Capital Partners ("TCP"). The Fund is designed to continue TCP's successful strategy of investing in privately-originated, performing senior secured debt primarily in North America-based companies with target enterprise values between \$100 million and \$1.5 billion. The Fund will include positions in 1st lien, 2nd lien and unitranche debt, with a preference for floating-rate debt, which TCP believes provides better flexibility to adapt to market conditions. TCP's direct lending strategy has generated attractive investment opportunities across market cycles, as evidenced by the Firm's prior direct lending track record. Fund VIII targets an unlevered annual yield of approximately 9-12%, with its return primarily driven by current income.

Western Asset Management – Total Return Unconstrained (TRU)

Western Asset's Total Return Unconstrained strategy (TRU) seeks to provide bond-like risk and return over the long term but does not have a benchmark. This allows for asset allocation based on value rather than using the construction of a benchmark as baseline positioning. The investment approach is active with very broad latitude on duration (-3 to +8 years) and on asset allocation across all of the eligible sectors in a core plus mandate. The portfolio must have at least 50% of its holdings in investment-grade securities. The flexibility offered by this strategy allows for defensive positioning in rising rate environments and opportunistic deployment of capital when value opportunities arise. It also allows the portfolio managers to emphasize (or deemphasize) either credit or rates when one or the other appears to offer greater (or lesser) value. um non-US exposure.

White Oak - White Oak Yield Spectrum Fund

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

Policy Index and Benchmark History

Period Ending: March 31, 2019

Total Plan Policy Index	As of																				
	1/1/19	10/1/18	4/1/18	10/1/17	2/1/17	1/1/17	10/1/16	9/1/16	1/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	1/1/09	5/1/07	6/1/00	3/1/99	9/1/98	7/1/96	
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	10.0%	10.0%
60/40 MSCI World/BBgBarc Global Aggregate (RP)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 Russell 3000/BBgBarc US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.0%	8.0%	8.0%	8.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Aggregate	14.0%	14.0%	14.0%	14.0%	12.0%	10.0%	10.0%	10.0%	10.0%	10.0%	9.3%	11.0%	11.0%	12.9%	27.0%	27.0%	29.0%	25.0%	21.0%	21.0%	21.0%
BBgBarc BA Intermediate HY	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Multiverse	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.8%	4.4%	4.4%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc TIPS	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	3.1%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	9.0%	9.0%	9.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Liquid Real Asset	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	2.0%	2.0%	2.0%	8.0%	7.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Libor +4% (HF)	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.0%	18.0%	21.0%	21.0%	15.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	3.8%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	19.0%	19.0%	19.0%	20.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	15.2%	17.1%	19.0%	19.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%	20.0%
NCREIF ODCE	8.0%	8.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%	5.0%	5.0%	5.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.0%	24.0%	24.0%	28.0%	28.0%	28.0%	37.0%	37.0%	40.0%	22.0%	20.0%	20.0%	20.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	5.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	6.0%	6.0%	7.0%	7.0%	7.0%	9.0%	9.0%	10.0%	15.0%	15.0%	15.0%	15.0%
Russell 3000	22.0%	22.0%	21.0%	21.0%	23.0%	28.0%	28.0%	28.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% 1Q Lag (PE)	6.0%	6.0%	7.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Public Equity Benchmark	As of:													
	1/1/19	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI 100% Hedged (Net)	9.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	37.0%	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	53.7%	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Equity Benchmark	As of:						
	9/1/16	1/1/16	6/1/00	3/1/99	9/1/98	7/1/96	1/1/95
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%	69.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%	14.0%
Russell 3000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S & P 500	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark	As of:					
	1/1/19	10/1/18	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex-US IMI 100% Hedged (Net)	20.0%	10.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	80.0%	90.0%	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fixed Income Benchmark	As of:											
	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96
BBgBarc Aggregate	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%
BBgBarc BA Intermediate HY	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%
BBgBarc Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Multiverse	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.0%	20.5%	0.0%	0.0%	0.0%
BBgBarc TIPS	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Opportunistic Credit Benchmark	As of:	
	1/1/14	12/1/09
BBgBarc BA Intermediate HY	100.0%	0.0%
BBgBarc Credit BAA	0.0%	100.0%
	100.0%	100.0%

Risk Parity Benchmark	As of:	
	1/1/17	10/1/10
BBgBarc Aggregate	0.0%	40.0%
BBgBarc Global Aggregate	40.0%	0.0%
MSCI World	60.0%	0.0%
Russell 3000	0.0%	60.0%
	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: March 31, 2019

Alternatives Benchmark	As of:						
	10/1/18	4/1/18	2/1/17	4/1/16	1/1/16	1/1/14	1/1/11
60/40 Russell 3000/BBgBarc US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
Russell 3000 +3% (PE)	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	50.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Private Equity Benchmark	As of:	
	4/1/18	10/1/10
Russell 3000 +3% 1Q Lag	100.0%	0.0%
Russell 3000 +3%	0.0%	100.0%
	100.0%	100.0%

Hedge Fund Benchmark	As of:
	10/1/10
Libor +4%	100.0%
	100.0%

Inflation Hedge	As of:			
	4/1/18	2/1/17	10/1/16	4/1/16
BBgBarc TIPS	11.11%	12.50%	14.3%	14.3%
Bloomberg Commodity	0.00%	0.00%	0.0%	21.4%
CPI + 5% (RA)	0.00%	0.00%	0.0%	14.3%
Blended Liquid Real Asset	33.34%	0.00%	0.0%	0.0%
Blended Private Real Asset	11.11%	43.75%	35.7%	0.0%
NCREIF ODCE	44.44%	43.75%	50.0%	50.0%
	100.0%	100.0%	100.0%	100.0%

Public Real Asset Benchmark	As of:	
	10/1/16	1/1/14
Bloomberg Roll Select Commodity	34.00%	0.00%
S&P Global Large-MidCap Commodity and Resources	33.00%	0.00%
S&P Global Infrastructure	33.00%	0.00%
CPI + 5%	0.00%	100.00%
	100.0%	100.0%

Private Real Asset Benchmark	As of:		
	4/1/18	10/1/16	1/1/14
Bloomberg Roll Select Commodity	0.00%	34.00%	0.0%
S&P Global Large-MidCap Commodity and Resources	0.00%	33.00%	0.0%
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.00%	0.00%	0.0%
S&P Global Infrastructure	0.00%	33.00%	0.0%
CPI + 5%	0.00%	0.00%	100.0%
	100.0%	100.0%	100.0%

Private RA Secondary Benchmark	As of:
	9/1/14
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%
	100.0%

Real Estate Benchmark	As of:		
	1/1/09	6/1/00	7/1/96
10 Year Treasury +2%	0.0%	0.0%	100.0%
NCREIF ODCE	100.0%	0.0%	0.0%
NCREIF Property	0.0%	100.0%	0.0%
	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: March 31, 2019

Baillie Gifford Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US	100.0%	0.0%
MSCI EAFE	0.0%	100.0%
	100.0%	100.0%

Baillie Gifford Secondary Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US Growth	100.0%	0.0%
MSCI EAFE Growth	0.0%	100.0%
	100.0%	100.0%

Brigade Secondary Benchmark	As of:	
	8/1/10	
BBgBarc High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	100.0%	

AQR GRP, 10% Volatility	As of:	
	1/1/17	3/1/11
BBgBarc Aggregate	0.0%	40.0%
BBgBarc Global Aggregate	40.0%	0.0%
MSCI World	60.0%	0.0%
Russell 3000	0.0%	60.0%
	100.0%	100.0%

PanAgora	As of:	
	1/1/17	8/1/14
BBgBarc Aggregate	0.0%	40.0%
BBgBarc Global Aggregate	40.0%	0.0%
MSCI World	60.0%	0.0%
Russell 3000	0.0%	60.0%
	100.0%	100.0%

PIMCO Diversified	As of:	
	9/1/17	
JPMorgan EMBI Global	33.3%	
ICE BofAMLBB-BRatedDvlpdMktsHYHgdUSD	33.3%	
Global Agg Credit Ex EM USD hedged	33.4%	
	100.0%	

Baillie Gifford

First \$25 million:	0.60% per annum
Next \$75 million:	0.50% per annum
Next \$300 million:	0.40% per annum
Thereafter:	0.30% per annum

BlackRock-EAFE Equity Index Fund

On All Assets:	0.05% per annum
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BlackRock-Russell 1000 Index Fund

First \$250 million:	0.02% per annum
Thereafter:	0.015% per annum

BlackRock-Intermediate Govt Bond Index Fund

On All Assets:	0.04% per annum
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Brown Brothers Harriman

On All Assets:	0.15% per annum
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Parametric

On All Assets:	0.30% per annum
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Acadian Asset Management

First \$50 million:	0.27% per annum
Next \$50 million:	0.225% per annum
Thereafter:	0.18% per annum

Parametric Overlay

First \$50 million:	0.12% per annum
Next \$100 million:	0.10% per annum
Thereafter:	0.05% per annum
Plus monthly reporting fee of \$1500	

Parametric Currency Overlay

First \$250 million:	0.05% per annum
Thereafter:	0.03% per annum

Cushing Asset Management

First \$50 million:	0.70% per annum
Next \$50 million:	0.60% per annum
Thereafter:	0.55% per annum

Franklin Templeton Investment

First \$50 million:	0.40% per annum
Next \$50 million:	0.30% per annum
Thereafter:	0.25% per annum

FIAM Bond

First \$50 million:	0.20% per annum
Next \$50 million:	0.175% per annum
Next \$100 million:	0.10% per annum
Thereafter:	0.085% per annum

PanAgora Asset Management

First \$50 million:	0.25% per annum
Next \$50 million:	0.15% per annum
Thereafter:	0.10% per annum

PIMCO Diversified

On All Assets:	0.75% per annum
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QMA

First \$50 million:	0.55% per annum
Thereafter:	0.50% per annum

Western Asset Management

On All Assets:	0.25% per annum
Performance Fee:	20.00%

Mondrian Investment Partners

Assets Below \$190 million

First \$20 million:	1.00% per annum
Thereafter:	0.33% per annum

Assets Above \$190 million

First \$50 million:	1.00% per annum
Next \$150 million:	0.19% per annum
Thereafter:	0.33% per annum

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	✓	✓	✓
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	✓	✗	✓
Mondrian	MSCI ACWI ex USA Value Gross	✓	✓	✓
Parametric Core	MSCI Emerging Markets Gross	--	--	--
FIAM Bond	BBgBarc US Aggregate TR	✓	✓	✓
Western TRU	3-Month Libor Total Return USD	--	--	--
Angelo Gordon Opportunistic	BBgBarc US Aggregate TR	--	--	--
Angelo Gordon STAR	BBgBarc US Aggregate TR	✓	--	✓
Beach Point Select	BBgBarc BA Intermediate HY	--	--	--
Brigade Capital	BBgBarc BA Intermediate HY	✗	✗	✗
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	--	--	--
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
AQR DELTA XN	Libor 1 month +4%	✗	✗	✗
Aberdeen Standard GARS	Libor 1 month +4%	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	✓	✓	✓
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	✓	R	✓
Mondrian	MSCI ACWI ex USA Value Gross	✓	✓	✓
Parametric Core	MSCI Emerging Markets Gross	--	--	--
FIAM Bond	BBgBarc US Aggregate TR	✓	✓	✓
Western TRU	3-Month Libor Total Return USD	--	--	--
Angelo Gordon Opportunistic	BBgBarc US Aggregate TR	--	--	--
Angelo Gordon STAR	BBgBarc US Aggregate TR	✓	--	✓
Beach Point Select	BBgBarc BA Intermediate HY	--	--	--
Brigade Capital	BBgBarc BA Intermediate HY	R	R	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	--	--	--
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
AQR DELTA XN	Libor 1 month +4%	R	R	R
Aberdeen Standard GARS	Libor 1 month +4%	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

Manager Performance Comparison (Gross of Fees)

Period Ending: March 31, 2019

	Jan	Feb	Mar	1st Qtr. 2019	Difference	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference
Verus	7.02%	3.31%	0.13%	10.70%		-13.79%		7.41%		3.59%		-0.69%	
Acadian US MGD V	7.01%	3.30%	0.13%	10.69%	0.01%	-13.79%	0.00%	7.41%	0.00%	3.59%	0.00%	-0.69%	0.00%
Russell 1000 Index	8.38%	3.39%	1.74%	14.00%		-13.82%		7.42%		3.57%		-1.19%	
Verus	8.38%	3.39%	1.75%	14.02%		-13.79%		7.41%		3.59%		-0.69%	
BlackRock Russell 1000	8.38%	3.39%	1.75%	14.02%	0.00%	-13.79%	0.00%	7.41%	0.00%	3.59%	0.00%	-0.69%	0.00%
Russell 1000 Index	8.38%	3.39%	1.74%	14.00%		-13.82%		7.42%		3.57%		-1.19%	
Verus	7.47%	3.73%	1.07%	12.68%		-14.04%		7.23%		4.31%		-0.32%	
D.E. Shaw	7.48%	3.74%	1.07%	12.69%	-0.01%	-14.04%	0.00%	7.24%	-0.01%	4.32%	-0.01%	-0.31%	-0.01%
Russell 1000 Index	8.38%	3.39%	1.74%	14.00%		-13.82%		7.42%		3.57%		-1.19%	
Verus	6.60%	4.51%	3.23%	15.01%		-14.04%		7.23%		4.31%		-0.32%	
PanAgora Defuseq	6.60%	4.51%	3.23%	15.01%	0.00%	-14.04%	0.00%	7.24%	-0.01%	4.32%	-0.01%	-0.31%	-0.01%
Russell 1000 Index	8.38%	3.39%	1.74%	14.00%		-13.82%		7.42%		3.57%		-1.19%	
Verus	10.98%	4.71%	-3.12%	12.59%		-20.52%		3.70%		6.98%		-0.51%	
QMA US Small Cap	10.98%	4.71%	-3.12%	12.59%	0.00%	-20.52%	0.00%	3.70%	0.00%	6.98%	0.00%	-0.51%	0.00%
Russell 2000 Index	11.25%	5.20%	-2.09%	14.58%		-20.20%		3.58%		7.75%		-0.08%	
Verus	6.98%	4.18%	1.81%	13.47%		-15.28%		-1.31%		0.36%		-0.75%	
Baillie Gifford	6.94%	4.15%	1.82%	13.41%	0.06%	-15.28%	0.00%	-1.29%	-0.01%	0.35%	0.00%	-0.74%	-0.01%
MSCI ACWI ex US	7.58%	1.97%	0.68%	10.44%		-11.41%		0.80%		-2.39%		-1.08%	
MSCI ACWI ex US Growth	7.63%	2.71%	1.70%	12.42%		-12.16%		-0.20%		-1.23%		-0.80%	
Verus	6.57%	2.56%	0.72%	10.08%		-12.52%		1.40%		-0.83%		-1.59%	
BlackRock EAFE Equity	6.57%	2.56%	0.72%	10.08%	0.00%	-12.52%	0.00%	1.40%	0.00%	-0.83%	0.00%	-1.59%	0.00%
MSCI EAFE (Net)	6.57%	2.55%	0.63%	9.98%		-12.54%		1.35%		-1.24%		-1.53%	
MSCI EAFE (Gross)	6.59%	2.56%	0.74%	10.13%		-12.50%		1.42%		-0.97%		-1.41%	
Verus	6.84%	1.76%	0.44%	9.19%		-8.82%		1.54%		-3.43%		-1.24%	
Mondrian	6.84%	1.75%	0.44%	9.18%	0.01%	-8.79%	-0.03%	1.55%	-0.01%	-3.43%	0.00%	-1.22%	-0.02%
MSCI ACWI -ex US Value Index	7.53%	1.23%	-0.35%	8.46%		-10.63%		1.85%		-3.59%		-1.36%	
MSCI ACWI -ex US	7.58%	1.97%	0.68%	10.44%		-11.41%		0.80%		-2.39%		-1.08%	
Verus	8.54%	-0.76%	0.01%	7.73%		-5.81%		-0.11%		-9.47%		1.51%	
Parametric Core	8.56%	-0.74%	0.03%	7.80%	-0.07%	-5.77%	-0.04%	-0.06%	-0.05%	-9.42%	-0.05%	1.56%	-0.05%
MSCI EM Market Index	8.78%	0.23%	0.86%	9.97%		-7.40%		-0.95%		-7.86%		1.47%	

Manager Performance Comparison (Gross of Fees)

Period Ending: March 31, 2019

	Jan	Feb	Mar	1st Qtr. 2019	Difference	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference
Verus	0.44%	-0.05%	1.23%	1.63%		2.24%		-0.07%		0.12%		-0.67%	
BlackRock Intermediate Govt	0.44%	-0.05%	1.23%	1.63%	0.00%	2.24%	0.00%	-0.07%	0.00%	0.12%	0.00%	-0.67%	0.00%
BBgBarc US Govt Int Index	0.43%	-0.07%	1.22%	1.58%		2.22%		-0.11%		0.06%		-0.73%	
Verus	1.39%	0.02%	2.03%	3.47%		1.07%		0.15%		0.02%		-1.31%	
FIAM Bond	1.39%	0.02%	2.03%	3.47%	0.00%	1.07%	0.00%	0.15%	0.00%	0.02%	0.00%	-1.31%	0.00%
BBgBarc US Aggregate Index	1.06%	-0.06%	1.92%	2.94%		1.64%		0.02%		-0.16%		-1.46%	
Verus	2.30%	0.16%	0.47%	2.95%		0.74%		0.17%		-2.90%		-0.69%	
Western TRU	2.30%	0.16%	0.47%	2.95%	0.00%	0.74%	0.00%	0.17%	0.00%	-2.90%	0.00%	-0.69%	0.00%
3-Month Libor Total Return USD Index	0.24%	0.22%	0.22%	0.67%		0.68%		0.60%		0.59%		0.46%	
BBgBarc US Aggregate Index	1.06%	-0.06%	1.92%	2.94%		1.64%		0.02%		-0.16%		-1.46%	
Verus (Net)				0.89%		0.45%		5.35%		9.49%		5.70%	
Angelo Gordon Opportunistic				0.89%	0.00%	0.45%	0.00%	5.35%	0.00%	9.49%	0.00%	5.70%	0.00%
BBgBarc US Aggregate Index				2.94%		1.64%		0.02%		-0.16%		-1.46%	
Verus (Net)				5.44%		2.51%		6.59%		4.83%		7.54%	
Angelo Gordon STAR Fund (Net)				5.44%	0.00%	2.51%	0.00%	6.59%	0.00%	4.83%	0.00%	7.54%	0.00%
BBgBarc US Aggregate Index				2.94%		1.64%		0.02%		-0.16%		-1.46%	
Verus	2.29%	1.42%	0.68%	4.44%		-3.98%		1.80%		2.01%		1.14%	
Beach Point Select (Net)	2.29%	1.42%	0.68%	4.44%	0.00%	-3.98%	0.00%	1.80%	0.00%	2.01%	0.00%	1.14%	0.00%
BBgBarc BA Intermediate HY	4.16%	1.52%	1.20%	7.00%		-2.67%		2.27%		0.04%		-1.49%	
Verus	1.92%	1.89%	0.40%	4.26%		-5.56%		2.28%		1.53%		1.05%	
Brigade Capital (Net)	1.92%	1.90%	0.31%	4.18%	0.08%	-5.55%	-0.01%	2.21%	0.07%	1.56%	-0.03%	1.03%	0.02%
BBgBarc BA Intermediate HY	4.16%	1.52%	1.20%	7.00%		-2.67%		2.27%		0.04%		-1.49%	
50% BBgBarc HY/ 50% Bank Loan	3.41%	1.62%	0.41%	5.51%		-3.81%		2.17%		0.91%		0.36%	
Verus	3.48%	0.75%	1.50%	5.82%		-1.26%		1.66%		-0.73%		-0.64%	
PIMCO Diversified	3.47%	0.75%	1.50%	5.81%	0.01%	-1.26%	0.00%	1.66%	0.00%	-0.73%	0.00%	-0.64%	0.00%
Blended PIMCO Diversified Index	3.38%	0.91%	1.59%	5.97%		-1.47%		1.65%		-1.13%		-1.26%	
BBgBarc BA Intermediate HY	4.16%	1.52%	1.20%	7.00%		-2.67%		2.27%		0.04%		-1.49%	
Verus	2.66%	0.81%	-1.71%	1.72%		2.14%		0.32%		-4.32%		2.01%	
Franklin Templeton Investments	2.66%	0.81%	-1.71%	1.72%	0.00%	2.14%	0.00%	0.32%	0.00%	-4.32%	0.00%	2.01%	0.00%
BBgBarc Multiverse Index	1.69%	-0.49%	1.20%	2.40%		1.02%		0.00%		-2.83%		1.29%	
Verus				2.41%		1.75%		3.41%		2.15%		1.46%	
TCP Direct Lending VIII				2.41%	0.00%	1.75%	0.00%	3.41%	0.00%	2.15%	0.00%	1.46%	0.00%
Cliffwater Direct Lending Index				0.84%		2.38%		2.44%		2.18%		2.02%	

Manager Performance Comparison (Gross of Fees)

Period Ending: March 31, 2019

	Jan	Feb	Mar	1st Qtr. 2019	Difference	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference
Verus				0.00%		2.03%		0.00%		0.00%		2.17%	
White Oak Yield				0.00%	0.00%	2.03%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	0.00%
Cliffwater Direct Lending Index				0.84%		2.38%		2.44%		2.18%		2.02%	
Verus	6.83%	0.88%	3.13%	11.14%		-5.44%		0.30%		-0.45%		-1.21%	
AQR GRP, 10% Volatility (Net)	6.83%	0.88%	3.13%	11.14%	0.00%	-5.44%	0.00%	0.30%	0.00%	-0.45%	0.00%	-1.21%	0.00%
60% R3000/ 40% BBgBarc Agg	5.09%	1.85%	1.50%	8.65%		-7.49%		2.95%		1.12%		-0.67%	
S&P Risk Parity 10% Target Volatility TR	4.34%	1.13%	2.33%	7.98%									
Verus	6.20%	0.99%	3.89%	11.43%		-4.10%		-2.11%		0.02%		-1.58%	
PanAgora (Net)	6.20%	0.99%	3.89%	11.43%	0.00%	-4.10%	0.00%	-2.11%	0.00%	0.02%	0.00%	-1.58%	0.00%
60% R3000/ 40% BBgBarc Agg	5.09%	1.85%	1.50%	8.65%		-7.49%		2.95%		1.12%		-0.67%	
S&P Risk Parity 10% Target Volatility TR	4.34%	1.13%	2.33%	7.98%									
Verus	-0.30%	-1.74%	0.08%	-1.95%		-4.31%		-1.94%		-6.09%		-3.86%	
AQR DELTA XN (Net)	-0.30%	-1.74%	0.08%	-1.97%	0.02%	-4.31%	0.00%	-1.94%	0.00%	-6.09%	0.00%	-3.86%	0.00%
Libor + 4%	0.46%	0.52%	0.54%	1.52%		1.59%		1.55%		1.51%		1.29%	
Verus	2.14%	0.51%	1.92%	4.63%		-2.24%		0.54%		-2.18%		-1.88%	
Aberdeen Standard GARS (Net)	2.14%	0.51%	1.92%	4.63%	0.00%	-2.25%	0.01%	0.54%	0.00%	-2.18%	0.00%	-1.88%	0.00%
Libor + 4%	0.46%	0.52%	0.54%	1.52%		1.59%		1.55%		1.51%		1.29%	
Verus				1.09%		2.16%		2.56%		1.86%		2.42%	
INVESCO Real Estate				1.11%	-0.02%	2.16%	0.00%	2.57%	-0.01%	1.85%	0.01%	2.46%	-0.04%
NCREIF NFI ODCE Index				1.42%		1.76%		2.09%		2.05%		2.20%	
Verus				4.17%		4.25%		2.98%		1.97%		2.67%	
Invesco US Val IV				4.17%	0.00%	4.25%	0.00%	2.98%	0.00%	1.97%	0.00%	2.67%	0.00%
NCREIF NFI ODCE Index				1.42%		1.76%		2.09%		2.05%		2.20%	
NCREIF CEVA 1Q Lag - NET				2.95%		2.95%		2.95%		2.13%		3.41%	
Verus (net)				1.61%		1.64%		2.12%		1.25%		1.09%	
PGIM RE US Debt Fund (net)				1.61%	0.00%	1.64%	0.00%	1.95%	0.17%	1.25%	0.00%	1.09%	0.00%
NCREIF NFI ODCE Index				1.42%		1.76%		2.09%		2.05%		2.20%	
Verus	13.81%	-0.34%	3.94%	17.88%		-17.65%							
Cushing MLP Alpha TR (Net)	13.81%	-0.34%	3.94%	17.88%	0.00%	-17.65%							
50% BBgBarc US TIPS/ 50% Blended PRA	4.45%	0.79%	1.28%	6.62%		-4.98%							
Alerian MLP TR USD	12.64%	0.27%	3.43%	16.82%		-17.30%							
Verus	1.38%	0.08%	1.38%	2.86%		-0.69%		-0.33%		0.78%		-0.25%	
Brown Brothers Harriman	1.37%	0.08%	1.38%	2.85%	0.01%	-0.67%	-0.02%	-0.33%	0.00%	0.78%	0.00%	-0.27%	0.02%
BBgBarc U.S Tips	1.35%	-0.01%	1.84%	3.19%		-0.42%		-0.82%		0.77%		-0.79%	

1 MSCI

1.1 MSCI US MARKET BREAKPOINTS

Break Point*	Companies included
Large Cap	1-200
Medium-Large Cap	201-550
Medium Cap	551-750
Medium-Small Cap	751-2500
Small Cap	2501+

*MSCI only categorizes equities per size into large, mid and small cap. For InvestorForce Report analytics coherence regarding domestic benchmarks the buffer zones of the mid-cap category are used to determine Medium-Large and Medium-Small Cap categories.

As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
3/31/2019	17.991	11.416	5.265	3.039	0
12/31/2018	18.559	11.536	5.547	3.012	0
09/30/2018	18.559	11.536	5.547	3.012	0
06/30/2018	17.921	10.888	5.334	3.023	0
03/31/2018	17.921	10.888	5.334	3.023	0
12/31/2017	17.679	9.979	5.011	2.793	0
9/30/2017	17.696	9.979	5.011	2.793	0
6/30/2017	15.834	9.267	4.517	2.573	0
3/31/2017	15.834	9.267	4.517	2.573	0
12/31/2016	15.239	9.375	4.416	2.520	0
9/30/2016	15.239	9.375	4.416	2.520	0
6/30/2016	15.358	9.43	4.548	2.591	0
3/31/2016	15.358	9.43	4.548	2.591	0
12/31/2015	16.507	9.968	5.069	2.917	0
9/30/2015	16.507	9.968	5.069	2.917	0
6/30/2015	15.288	9.09	4.506	2.596	0
3/31/2015	15.356	9.083	4.491	2.577	0
12/31/2014	15.356	9.083	4.491	2.577	0

Number in billion USD

InvestorForce Report reflects changes in the MSCI breakpoints once MSCI publishes new breakpoints. For months when no new breakpoints are published always the last breakpoints are applied. Changes usually but always happen around re-balancing of the indexes. Some index reviews do not contain changes to the market-cap breakpoints.

1.2 MSCI DEVELOPED AND EMERGING MARKET BREAKPOINTS

In case of MSCI Indexes to define the Size - Segment Indexes for a market, the following free float - adjusted market capitalization Market Coverage Target Ranges are applied to the Market Investable Equity Universe:

Break Point	Companies included
Large Cap Index	70% ±5%
Standard Index*	85% ±5%
Investable Market Index**	99%+1% or -0.5%

* Standard Index (Large+Mid)

**Investable Market Index (Large+Mid+Small)

MSCI Country Classification can be found here: <https://www.msci.com/market-classification>

For Emerging Markets, the Global Minimum Size Reference is set at *one-half* the corresponding level of full market capitalization used for the Developed Markets for each size-segment.

As Of	Large Cap DM	Large Cap EM	Medium Cap DM	Medium Cap EM	Small Cap
3/31/2019	16.204	8.102	5.928	2.964	0
12/31/2018	16.204	8.102	5.928	2.964	0
9/30/2018	17.201	8.6005	6.374	3.187	0
6/30/2018	17.201	8.6005	6.374	3.187	0
3/31/2018	16.392	8.196	6.106	3.053	0
12/31/2017	16.392	8.196	6.106	3.053	0
9/30/2017	15.008	7.504	5.500	2.750	0
6/30/2017	15.008	7.504	5.500	2.750	0
3/31/2017	14.361	7.180	5.077	2.538	0
12/31/2016	14.361	7.180	5.077	2.538	0
9/30/2016	14.180	7.090	5.076	2.538	0
6/30/2016	14.180	7.090	5.076	2.538	0
3/31/2016	14.077	7.0385	5.046	2.523	0
12/31/2015	14.077	7.0385	5.046	2.5230	0
9/30/2015	14.883	7.4415	5.359	2.6795	0
6/30/2015	14.883	7.4415	5.359	2.6795	0
3/31/2015	13.368	6.684	4.781	2.3905	0
12/31/2014	13.368	6.684	4.781	2.3905	0

Number in billion USD

InvestorForce Report shows changes in the MSCI breakpoints once MSCI publishes a new one. For months when no new breakpoints are published always the last breakpoint is applied. Changes usually happen around re-balancing of the indexes.

2 RUSSELL US BREAKPOINTS

The market capitalization breakpoints that appear in the Market Capitalization Chart are defined by the Russell 3000 Index and change for each period end. Russell calculated the total market capitalization of each security for the end of the period, based on the total shares and price, to determine whether it is large enough for inclusion in one or more of the Russell Breakpoints.

Once the market capitalization for each security is determined, each security is then placed in the appropriate market capitalization breakpoint. A market capitalization breakpoint is determined by the break between the companies below.

Break Point	Companies included
Large Cap	50 Largest US Companies
Medium Large Cap	Next largest 150 US Companies
Medium Cap	Next largest 300 US Companies
Medium Small Cap	Next largest 500 US Companies
Small Cap	All US Companies below 1,000 largest

After the breakpoints are determined by the ranges above, new members are assigned on the basis of the breakpoints and existing members are reviewed to determine if they fall within a cumulative 5% market cap range around the new market capitalization breakpoints. If an existing securities market cap falls within this 5%, it will remain in its current index rather than move into a new market capitalization based index.

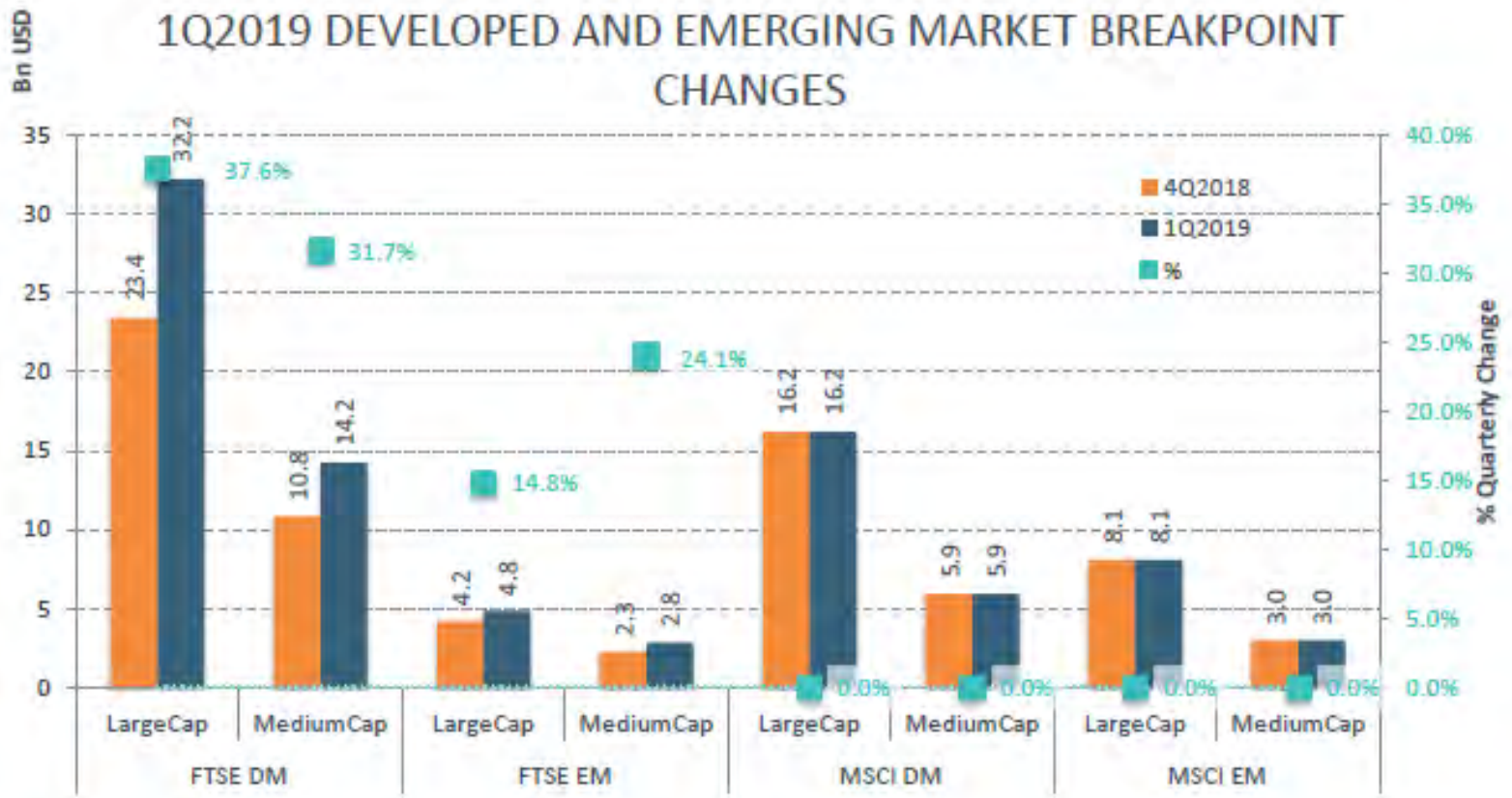
Market Capitalization Breakpoints

Period Ending: March 31, 2019

As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
3/31/2019	113.008	26.539	8.787	2.951	0
12/31/2018	93.377	23.285	7.693	2.595	0
9/30/2018	106.633	28.088	9.457	3.273	0
6/30/2018	104.455	26.511	9.202	3.171	0
3/31/2018	101.922	26.399	8.890	2.958	0
12/31/2017	95.036	26.237	8.819	3.021	0
9/30/2017	93.539	24.882	8.344	2.935	0
6/30/2017	87.845	25.481	8.204	2.859	0
3/31/2017	89.968	25.293	8.241	2.737	0
12/31/2016	84.960	23.168	7.890	2.702	0
9/30/2016	78.745	23.385	7.394	2.533	0
6/30/2016	77.349	22.250	7.1432	2.444	0
3/31/2016	83.360	22.414	7.435	2.395	0
12/31/2015	90.075	24.308	8.141	2.936	0
9/30/2015	88.944	23.139	7.993	2.946	0
6/30/2015	92.87	25.07	8.797	3.352	0
3/31/2015	93.082	25.494	8.794	3.384	0
12/31/2014	89.92	25.19	8.51	3.29	0
9/30/2014	84.51	24.44	7.97	3.04	0
6/30/2014	80.39	23.62	8.07	3.24	0
3/31/2014	76.77	23.15	7.83	3.06	0
12/31/2013	77.11	22.27	7.65	3.03	0
9/30/2013	72.4	19.93	7.15	2.71	0
6/30/2013	68.47	19.36	6.48	2.46	0
3/31/2013	64.31	18.64	6.39	2.39	0
12/31/2012	58.45	16.8	5.75	2.13	0
9/30/2012	57.06	16.48	5.49	2.08	0
6/30/2012	55.65	16.13	5.14	1.99	0
3/31/2012	57.58	16.43	5.55	2.13	0
12/31/2011	51.97	14.66	4.93	1.93	0
9/30/2011	45.35	13.88	4.38	1.66	0
6/30/2011	54.25	15.95	5.66	2.16	0
3/31/2011	52.22	15.69	5.7	2.16	0
12/31/2010	49.54	14.8	5.16	2.04	0
9/30/2010	42.83	13.13	4.64	1.8	0
6/30/2010	39.95	11.58	4.1	1.59	0

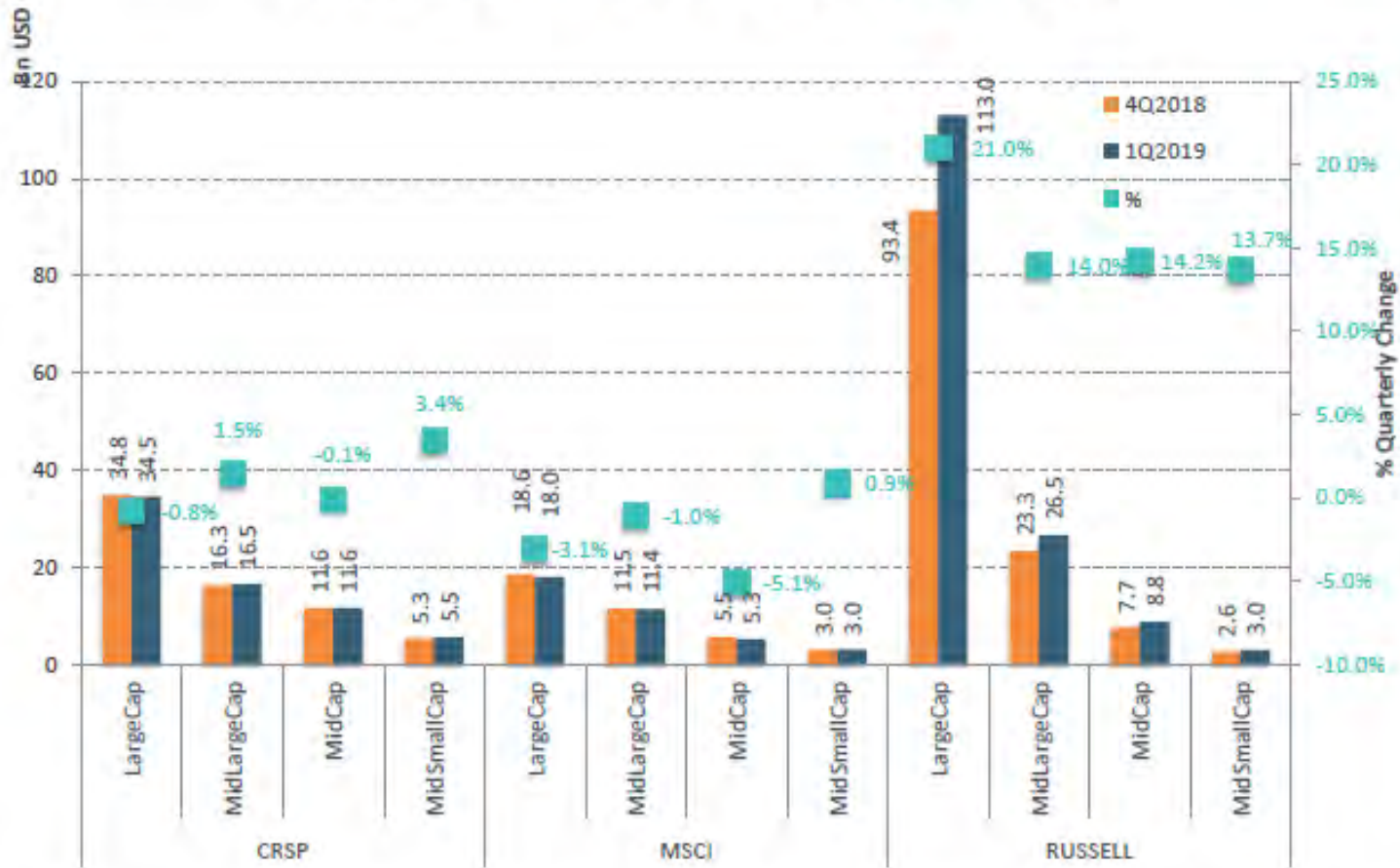
Numbers are billions USD

BREAKPOINT TRENDS



MSCI is releasing market capitalization breakpoints less frequently than FTSE, hence the market capitalization breakpoints are longer in effect. This could result in no change.

1Q2019 US MARKET BREAKPOINT CHANGES



MSCI is releasing market capitalization breakpoints less frequently than others, hence the market capitalization breakpoints are longer in effect. This could result in no change.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

2ND QUARTER 2019
Investment Landscape

Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

Sound thinking

FOUR RULES OF OUTSOURCING

The choice to use the services of an Outsourced Chief Investment Officer (OCIO) provider is one of the most significant decisions that a board is likely to make. This piece is focused on the four most important rules that Verus believes investors should understand, and OCIO providers should deliver upon.

Annual outlooks

CAPITAL MARKET ASSUMPTIONS

Verus held the first Capital Market Assumptions Webinar. On the call, we discussed:

- How market shifts of 2018 have affected our long-term outlook
- Why the current environment continues to indicate modest long-term performance across most asset classes
- The important differences between shorter-term and longer-term forecasting exercises

ACTIVE MANAGEMENT ENVIRONMENT

Our work on active management addresses some shortfalls of the traditional analysis, which uses the median product to describe the active management universe as a whole. These improvements and insights have allowed us to better understand product behavior and may allow for more informed selection in the future.

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VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

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1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP growth continued at 3.0% YoY - on pace with the third quarter (2.2% quarterly annualized rate). Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year. [p. 8](#)
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a trade resolution being reached in the near-to-intermediate future. The two sides have yet to agree on a formal timeline. [p. 16](#)

PORTFOLIO IMPACTS

- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged, helping to push asset prices upward. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 to \$30 billion a month, and would end in September. [p. 19](#)
- Risk assets exhibited strong performance over the quarter. U.S. equities delivered the greatest gains (S&P 500 +13.6%, MSCI ACWI +12.2%), reversing U.S. underperformance in Q4 2018 (S&P 500 -13.5%, MSCI ACWI -12.8%). This was followed by riskier credit with high single-digit returns, and safer credit and government bonds with low single-digit returns. [p. 46](#)

THE INVESTMENT CLIMATE

- The first quarter was nearly a mirror image of 2018 Q4, as many assets retraced losses of the prior quarter. [p. 38](#)
- Declining long-term Treasury yields following the Fed meeting in March briefly caused the yield curve to invert, meaning that short-term yields (3-month) were higher than long-term yields (10-year). Investors have expressed concerns that this may signal a near term recession. We believe these concerns are overblown. [p. 21](#)
- The House of Commons in the British Parliament briefly took control of their government’s legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st. [p. 17](#)

ASSET ALLOCATION ISSUES

- All major asset classes delivered positive performance in Q1, a refreshing change of pace from broad-based losses experienced in 2018. [p. 46](#)
- Economic conditions around the world have exhibited a weakening trend, leading to the question of whether a turn in the economic cycle is near. The first quarter was more mixed with strength in places, easing some concern. We remain watchful of this weakening trend, but believe the economy and market may have more room to run. [p. 17](#)

A neutral risk stance may be appropriate in today’s environment

What drove the market in Q1?

“Central banks take to stage as dovish outlooks spread”

MARKET EXPECTATIONS FOR 1-YEAR CHANGE IN FED FUNDS RATE (BPS)

Oct	Nov	Dec	Jan	Feb	Mar
62	48	10	-10	-5	-31

Article Source: Bloomberg, February 16th, 2019

“Slowing earnings growth, gloomy forecasts add to stock market’s woes”

S&P 500 INDEX 12-MONTH FORWARD EPS ESTIMATE (\$)

Oct	Nov	Dec	Jan	Feb	Mar
175	175	174	171	171	172

Article Source: Wall Street Journal, January 13th, 2019

“Part of the yield curve inverts as 3-month yield tops 10-year rate”

10-YEAR MINUS 3-MONTH TREASURY YIELD SPREAD (BPS)

Oct	Nov	Dec	Jan	Feb	Mar
82	65	33	25	28	2

Article Source: CNBC, March 22nd, 2019

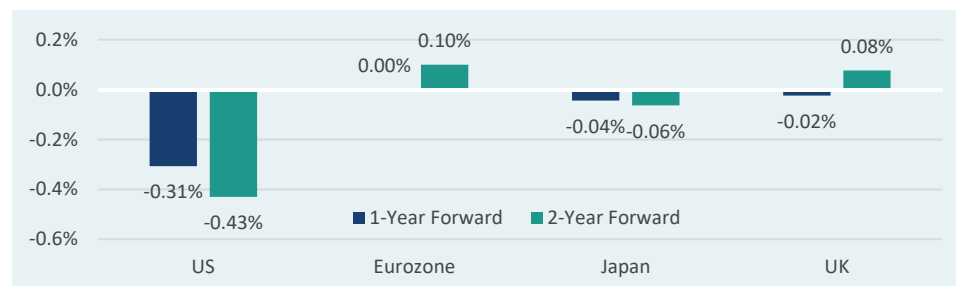
“World markets hit 2019 high amid trade war optimism”

NUMBER OF GOOGLE NEWS ARTICLES WITH ‘TRADE OPTIMISM’ IN TITLE

Oct	Nov	Dec	Jan	Feb	Mar
5	24	31	92	116	96

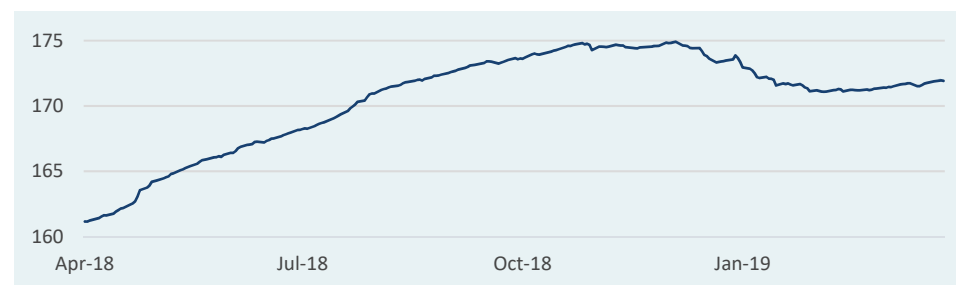
Article Source: The Guardian, February 18th, 2019

MARKET EXPECTATIONS FOR CHANGES IN SHORT-TERM RATES



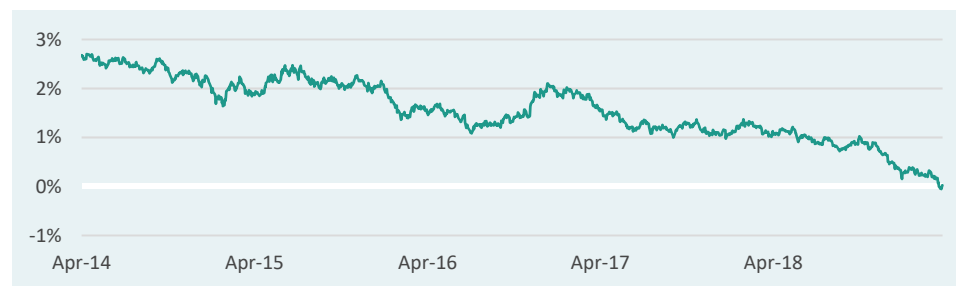
Source: Bloomberg, as of 4/2/19

S&P 500 INDEX 12-MONTH FORWARD EPS ESTIMATE



Source: Bloomberg, as of 3/31/19

10-YEAR MINUS 3-MONTH TREASURY YIELD SPREAD



Source: Bloomberg, as of 3/31/19

Economic environment

U.S. economics summary

- Real GDP growth continued at 3.0% YoY, on pace with the third quarter (2.2% on a quarterly annualized rate).
- Forecasts for 2019 U.S. growth have weakened. The U.S. economy is expected to grow at a 2.4% pace in 2019, according to the Survey of Professional Forecasters, while the Federal Reserve expects 2.1% growth this year.
- In March, negotiations resumed between U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for a formal trade resolution being reached in the near future.
- U.S. inflation remained near the 2.0% Fed target. After dipping to 1.5% YoY in February, headline inflation recovered to 1.9% in March, resulting in no change over the quarter.
- Average hourly earnings grew 3.2% YoY in March, missing expectations of 3.3%. A slight tick up in the average non-farm private workweek from 34.4 to 34.5 hours likely contributed to the cooler wage data.
- The labor market remained strong in Q1. U-3 unemployment fell to 3.8% from 3.9% in December, though the labor force participation rate weakened from 63.1% to 63.0% during the period.
- The Federal Open Market Committee reiterated its “patient” approach to policy, leaving rates unchanged. Expectations for 2019 GDP growth and rate hikes were cut, and markets rallied. Chairman Powell announced that starting in May the balance sheet runoff would slow from \$50 billion per month to \$30 billion, and would end in September.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>12/31/18</i>	2.5% <i>12/31/17</i>
Inflation (CPI YoY, Core)	2.0% <i>3/31/19</i>	2.1% <i>3/31/18</i>
Expected Inflation (5yr-5yr forward)	2.0% <i>3/31/19</i>	2.2% <i>3/31/18</i>
Fed Funds Target Range	2.25 – 2.50% <i>3/31/19</i>	1.50 – 1.75% <i>3/31/18</i>
10 Year Rate	2.4% <i>3/31/19</i>	2.7% <i>3/31/18</i>
U-3 Unemployment	3.8% <i>3/31/19</i>	4.0% <i>3/31/18</i>
U-6 Unemployment	7.3% <i>3/31/19</i>	7.9% <i>3/31/18</i>

GDP growth

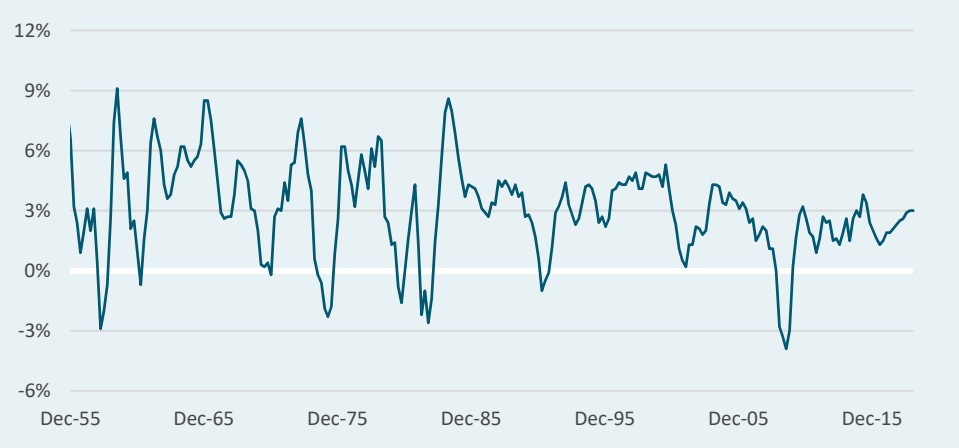
Real GDP growth continued at 3.0% YoY, on pace with growth in the third quarter (2.2% on a quarterly annualized rate). Consumption was the greatest contributor to real GDP growth.

The U.S. economy faces multiple headwinds, including the broad impacts of slowing global growth, fading of 2018 fiscal stimulus, and a tight labor market which constrains further upside from employment gains. While the U.S. is in a strong position relative to other developed nations, the economy is expected to grow at a 2.4% pace in 2019 according to a

survey of professional forecasters. The Federal Reserve expects 2.1% growth this year.

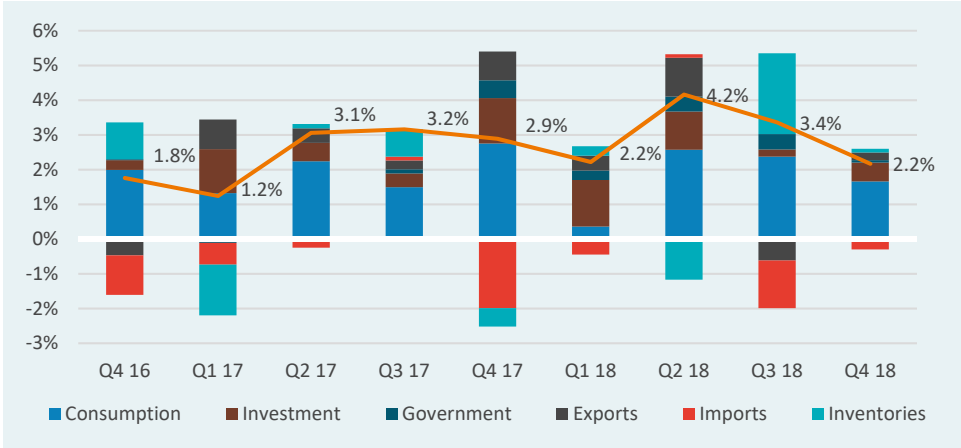
The Trump administration appears to have succeeded in reaching its 3% U.S. growth target during 2018. The Tax Cuts & Jobs Act helped stimulate the economy in the form of reduced taxes for individuals, which increased after-tax incomes and greatly reduced corporate tax burdens. These changes likely had positive impacts on worker wages and spurred recent capital investment.

U.S. REAL GDP GROWTH (YOY)



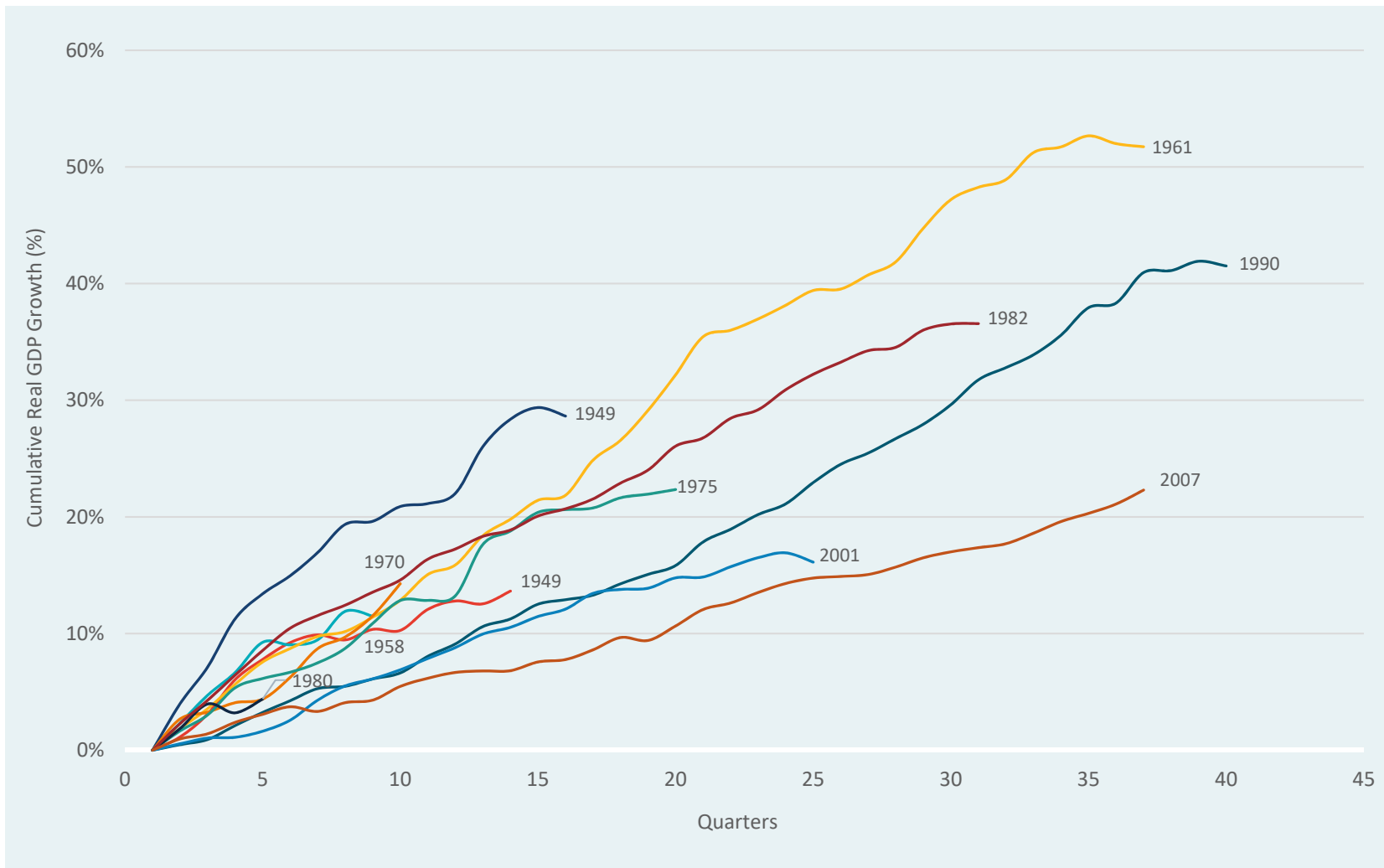
Source: Bloomberg, as of 12/31/18

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 12/31/18

A long but moderate expansion



The current economic cycle is just three quarters shy of matching the longest expansion on record

Source: FRED, Verus, as of 12/31/18 – each expansion is labeled with the starting year of expansion

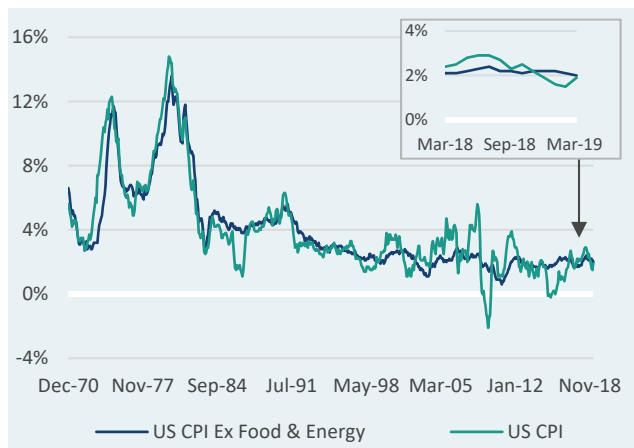
Inflation

U.S. inflation remained near the Federal Reserve’s 2.0% target. After dipping to 1.5% YoY in February, headline CPI recovered to 1.9% in March, unchanged over the quarter. Core CPI, which removes the impact of energy and food prices, continued to ease, falling to 2.0% YoY at quarter-end. Moderate inflation around 2% has helped justify the Fed’s recent pause in monetary tightening and has allowed for a patient approach. A material shift in either direction might place Fed officials in a difficult position, and should be watched closely.

Inflation in services was the sole contributor to the year-over-year growth in CPI as goods prices were unchanged during the period. Within services, shelter prices (+3.4% YoY) continued to be the main driver of inflation.

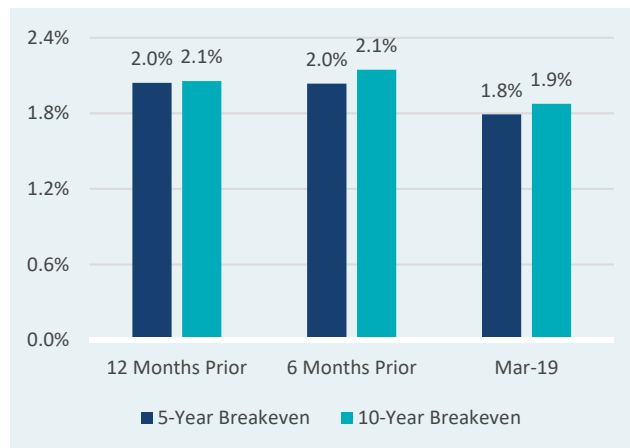
Market participants’ expectations for future inflation recovered from depressed levels after falling sharply last quarter. The 10-year TIPS breakeven inflation rate rose 22 bps to 1.93%. Meanwhile, consumers’ view of future inflation moderated from 2.7% to 2.5% as indicated by the University of Michigan survey.

U.S. CPI (YOY)



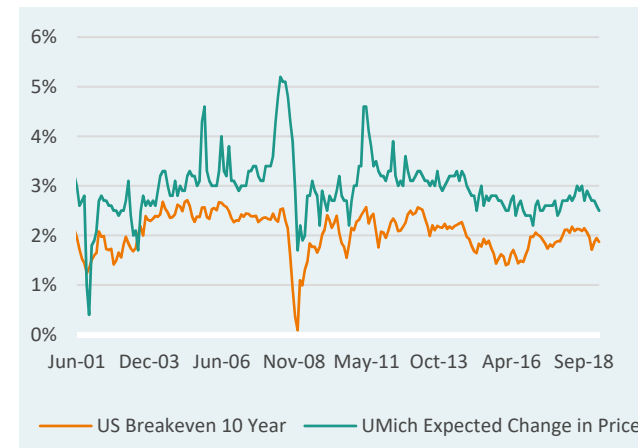
Source: Bloomberg, as of 3/31/19

BREAKEVEN INFLATION RATES



Source: FRED, as of 3/31/19

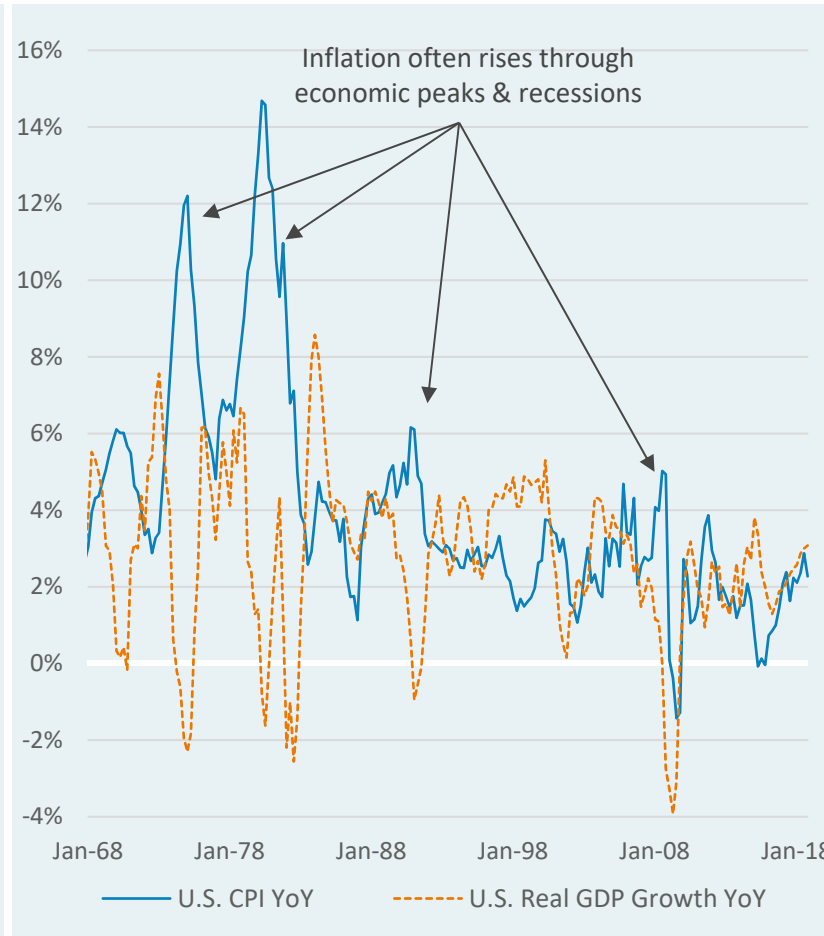
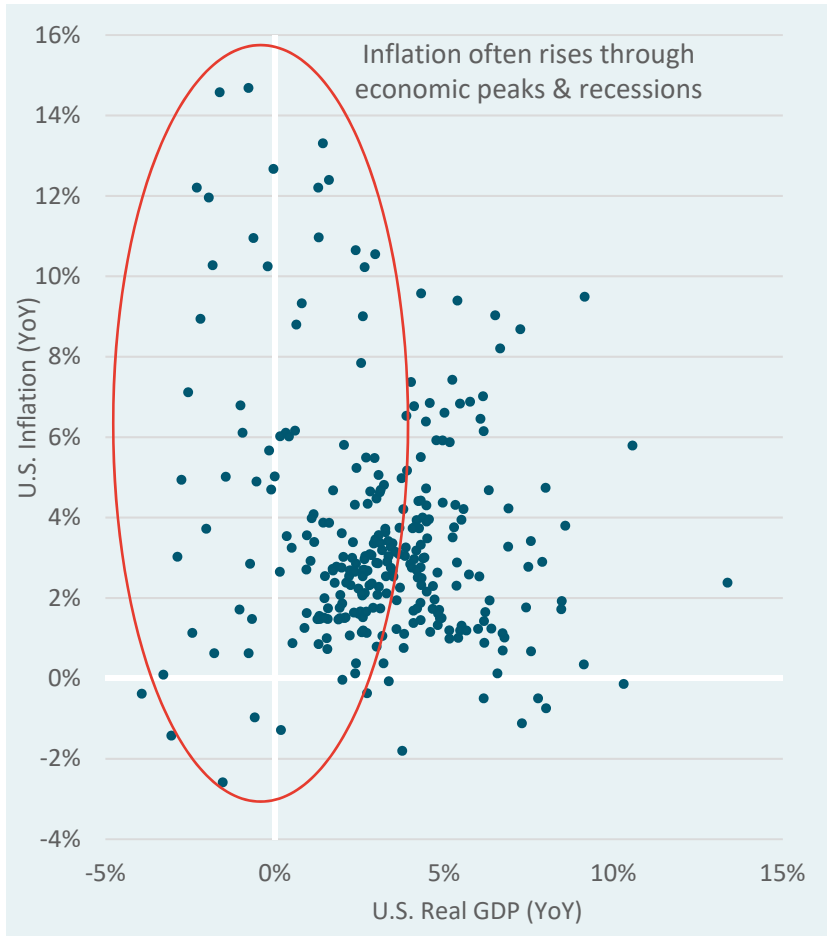
INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/19

Relationship – inflation & growth

Inflation risk has been more acute during late cycle & recession



History suggests inflation risks are still present at the later stage of the economic cycle

Source: FRED, Verus

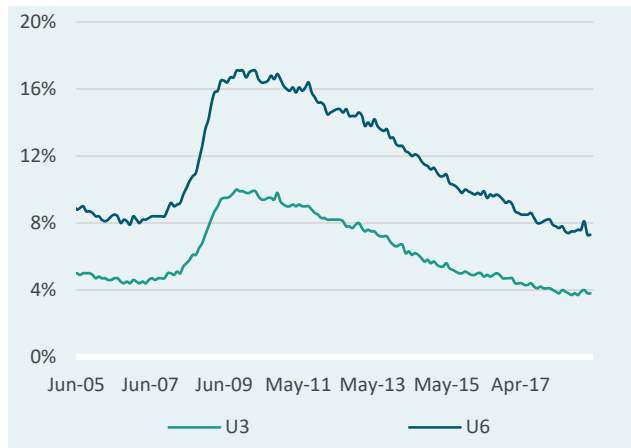
Labor market

Although there was some month-to-month volatility in job growth during the quarter, net additions to non-farm payrolls averaged 180,000 per month. Meanwhile, the U-3 unemployment rate fell slightly from 3.9% to 3.8%, just above the cycle low of 3.7%. The U-6 unemployment rate, which includes underemployed and discouraged workers, fell to a cycle low of 7.3%. The spread between the U-6 and U-3 unemployment rates compressed from 3.7% to 3.5%, the smallest difference since 2006. The decline in underemployed and discouraged workers indicates a further tightening of the labor market.

Wages continued to grow at a modest pace, but not fast enough to warrant concern over corporate margin deterioration or a flow through to general price inflation. In March, average hourly earnings rose 3.2% from 12 months ago.

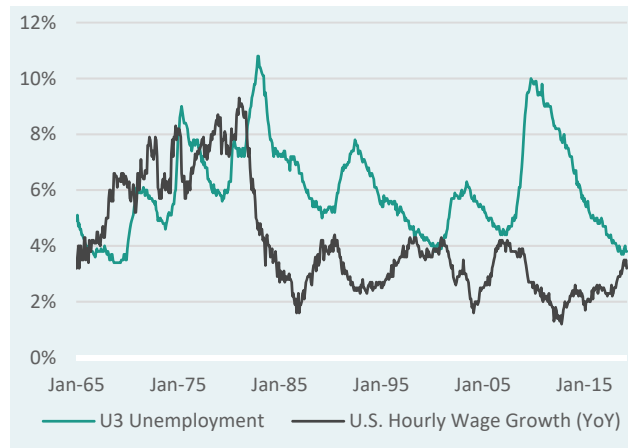
Given the relatively few number of unemployed persons and high percentage of companies reporting that jobs are hard to fill, we believe it may be difficult for job growth to continue at its recent strong rate.

UNEMPLOYMENT RATE



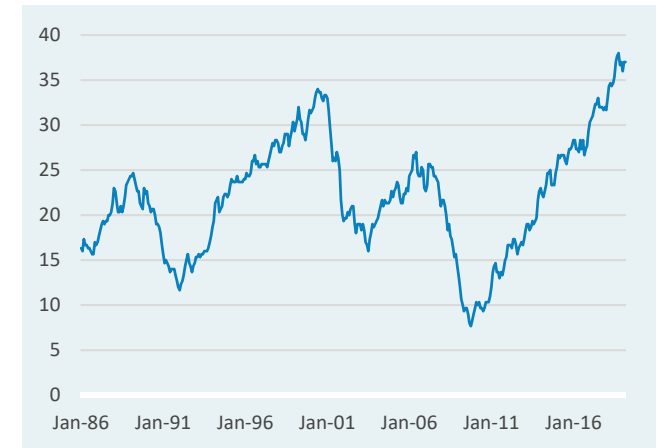
Source: FRED, as of 3/31/19

LONG-TERM EMPLOYMENT & WAGE GROWTH



Source: Bloomberg, as 3/31/19

NFIB: JOBS HARD TO FILL (3-MONTH AVG)



Source: NFIB, as of 3/31/19, net % of small businesses reporting that open positions are hard to fill

The consumer

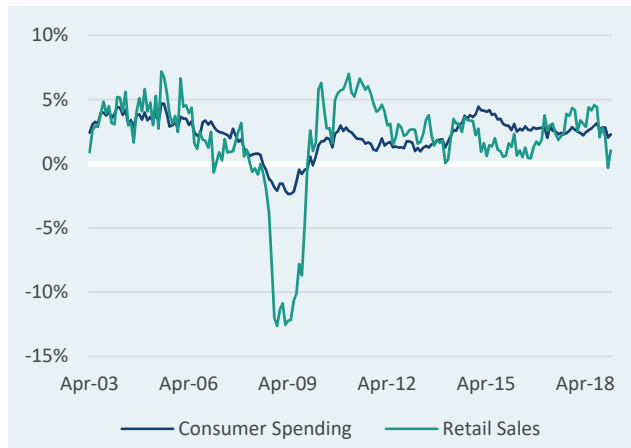
February retail sales grew 2.2% year-over-year, rebounding from a sharp slowdown in the fourth quarter. Real consumer spending continued along at a modest 1.8% pace from the previous year.

Further labor market strength, wage gains, and low interest rates would likely provide support for spending. Consumer behavior remains conservative relative to past cycles, as indicated by broad spending and borrowing patterns. While consumer credit growth has been fairly muted, other specific spending areas such as auto sales were very strong in recent

years – perhaps as consumers played catch-up from restrained purchases during the global financial crisis.

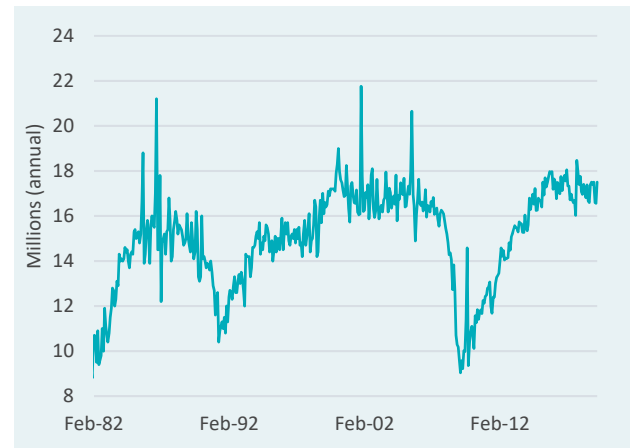
In 2018, there were rising concerns that higher interest rates would squeeze budgets and lead to a slowdown in spending and business activity. These fears have subsided as interest rates have fallen back to previous levels and the Federal Reserve is not expected to raise rates in the near future.

REAL CONSUMER SPENDING & RETAIL SALES GROWTH (YOY)



Source: Bloomberg, as of 1/31/19

AUTO SALES



Source: FRED, as of 3/31/19

CONSUMER CREDIT OUTSTANDING (YOY)



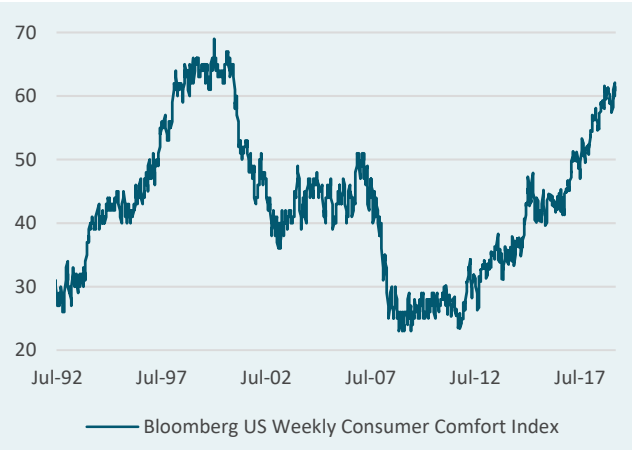
Source: Federal Reserve, as of 2/28/19

Sentiment

Consumer sentiment indicators fell sharply in January before rebounding in February and March. The fall in sentiment early in the year was driven by more muted consumer expectations of future growth, influenced by the sell-off in global equity markets and the extended U.S. government shutdown. However, the University of Michigan Consumer Sentiment Index finished the quarter at 98.4, slightly above its December reading and the Bloomberg Consumer Comfort Index was at a cycle high.

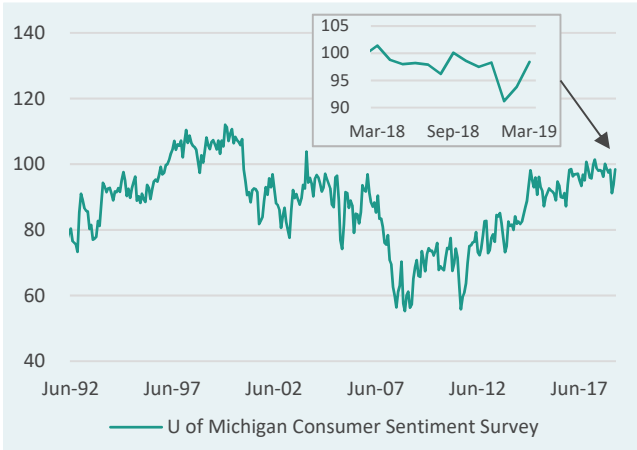
Small business sentiment continued to trend lower from historically strong levels. The NFIB Small Business Optimism Index dipped from 104.4 in December to 101.8 in March. The March reading of 101.8 ranked in the 79th percentile based on 45 years of history. Small business owners' expectations of future economic conditions moderated further in the first quarter. A net 11% of small businesses expected the economy to improve, down from 16% at the end of last year and 50% at the end of 2016.

CONSUMER COMFORT INDEX



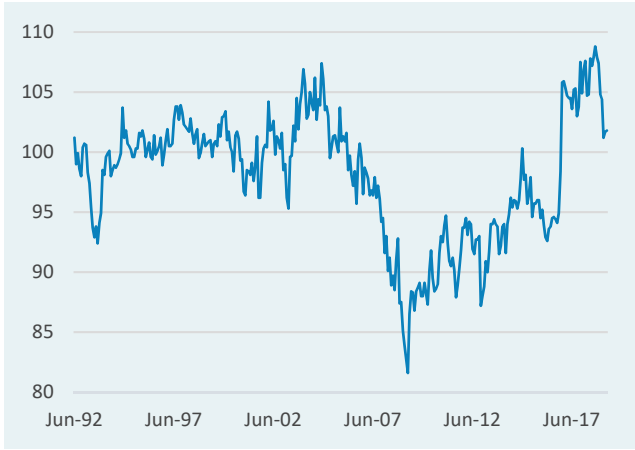
Source: Bloomberg, as of 3/24/19 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/19 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 3/31/19 (see Appendix)

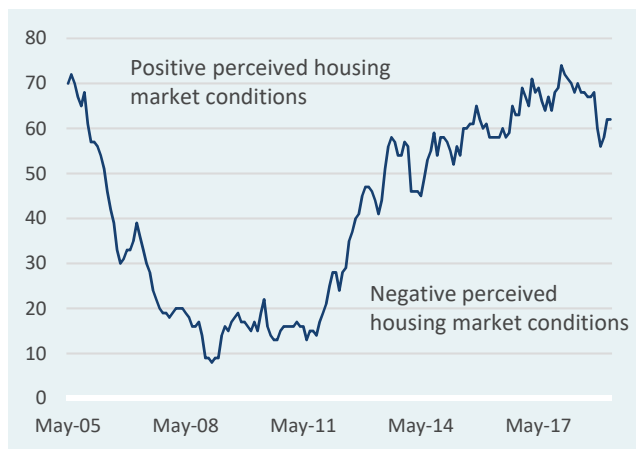
Housing

The U.S. housing market remains strong, though higher prices have dampened affordability and led to less demand. Rising interest rates in the fourth quarter generated fear of a housing slowdown, as borrowing costs have a large impact on home purchase activity. However, a reversal of monetary policy from expected tightening to expected neutrality (or easing) has placed downward pressure on the 30-year fixed mortgage rate. Given the importance of borrowing costs on housing demand, the move from 4.95% borrowing rates (peak reached in Q4) to 4.05% at the end of Q1 should ease concerns of a slowdown and bolster buying activity.

The National Association of Homebuilders (NAHB) Housing Market Index, based on a monthly survey of NAHB members designed to take the pulse of the single-family housing market, improved from 56 to 62 – above the neutral level of 50.

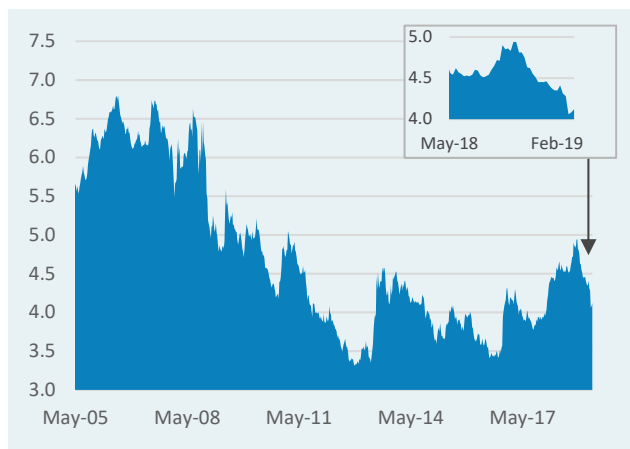
Home prices have faltered a bit, with the median U.S. home sales price falling -6.1% year-over-year in Q4. As is often the case, home price trends can vary significantly from city to city, which makes annual summary statistics difficult to interpret on a local level.

NAHB HOUSING MARKET INDEX



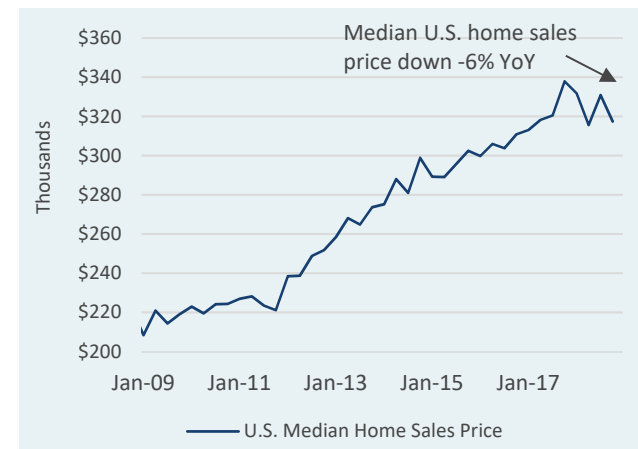
Source: Bloomberg, NAHB, as of 3/31/19 (see appendix)

30-YEAR FIXED MORTGAGE RATE



Source: FRED, as of 3/31/19

MEDIAN U.S. HOME SALES PRICE



Source: FRED, as of 12/31/18

International economics summary

- Global growth expectations for the next two years were revised materially lower in Q1. The OECD's global GDP growth forecast for 2019 and 2020 fell from 3.5% to 3.3%, and from 3.5% to 3.4%, respectively.
- In March, negotiations resumed between high-level U.S. and Chinese trade delegations. The dialogue was viewed as constructive, and optimism picked up for some sort of formal trade resolution being reached in the near-to-intermediate future, although the two sides have yet to agree on a formal timeline.
- The German Manufacturing PMI fell from 47.6 to 44.1 in March, falling further into the contractionary territory below 50. New orders and export sales data came in weaker than expected which contributed to a more pessimistic outlook for German manufacturing activity.
- The House of Commons in the British Parliament briefly took control of their government's legislative agenda, but failed to reach a majority vote on a path forward. On April 10th, British Prime Minister Theresa May and the European Council agreed to extend the Brexit deadline from April 12th to October 31st.
- The spread between the JP Morgan Global Services and Manufacturing PMIs rose to 3.1 in March. Last March, the spread was at 0.0, indicating that over the past year the outlook for global manufacturing activity has weakened relative to the outlook for global services activity. Typically, services activity is more resilient to a worsening economic backdrop.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>3/31/19</i>
Eurozone	1.1% <i>12/31/18</i>	1.4% <i>3/31/19</i>	7.8% <i>2/28/19</i>
Japan	0.3% <i>12/31/18</i>	0.2% <i>2/28/19</i>	2.3% <i>2/28/19</i>
BRICS Nations	5.8% <i>12/31/18</i>	2.4% <i>3/31/19</i>	5.3% <i>12/31/18</i>
Brazil	1.1% <i>12/31/18</i>	3.9% <i>2/28/19</i>	12.2% <i>3/31/19</i>
Russia	2.7% <i>12/31/18</i>	5.3% <i>3/31/19</i>	4.9% <i>2/28/19</i>
India	7.2% <i>12/31/18</i>	2.6% <i>2/28/19</i>	8.5% <i>12/31/17</i>
China	6.4% <i>12/31/18</i>	1.5% <i>2/28/19</i>	3.8% <i>12/31/18</i>

International economics

Global economic growth trended lower over the past quarter. Most of the world experienced a deceleration in inflation, while labor markets showed moderate improvement. Global central banks took a more dovish stance in response to these conditions, which contributed to a sharp decline in global sovereign yields in March.

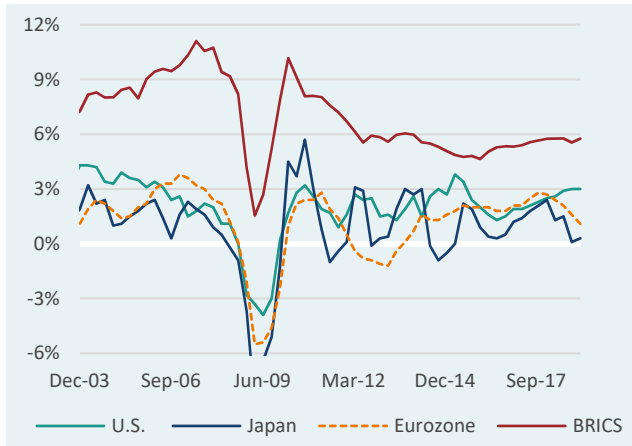
Real GDP in the Eurozone decelerated in Q4 from 1.6% to 1.1% YoY as the region continued to show weakness. Uncertainty surrounding Brexit, and the dependence of European economies on China likely factored into the regional outlook. Additionally, Europe faces significant

structural issues which are important to monitor, though perhaps not immediate in nature. As the ECB begins to discuss a tiered, sub-zero interest rate regime, the inability of EU members to pursue their own fiscal and monetary policies could prolong economic slowdowns and undermine subsequent recoveries.

Global growth forecasts were revised lower

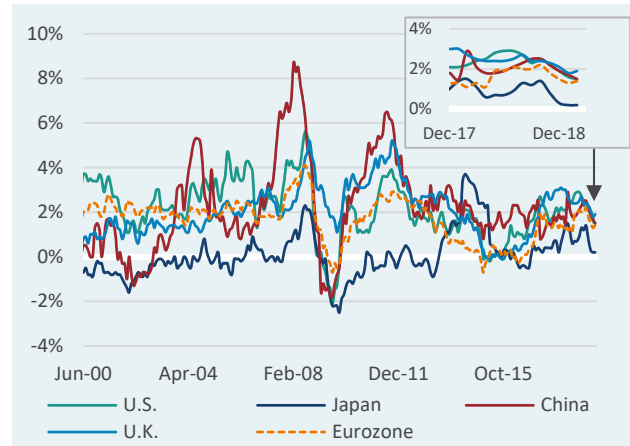
Following the failure of the House of Commons in British Parliament to agree on a Brexit strategy through “indicative votes”, Prime Minister Theresa May negotiated an extension of the Brexit deadline from April 12th to October 31st.

REAL GDP GROWTH (YOY)



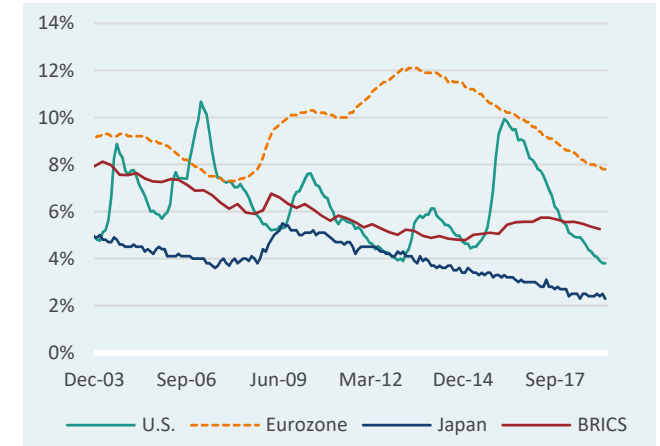
Source: Bloomberg, as of 12/31/18

INFLATION (CPI YOY)



Source: Bloomberg, as of 2/28/19

UNEMPLOYMENT RATE



Source: Bloomberg, as of 2/28/19 or most recent release

Fixed income rates & credit

Interest rate environment

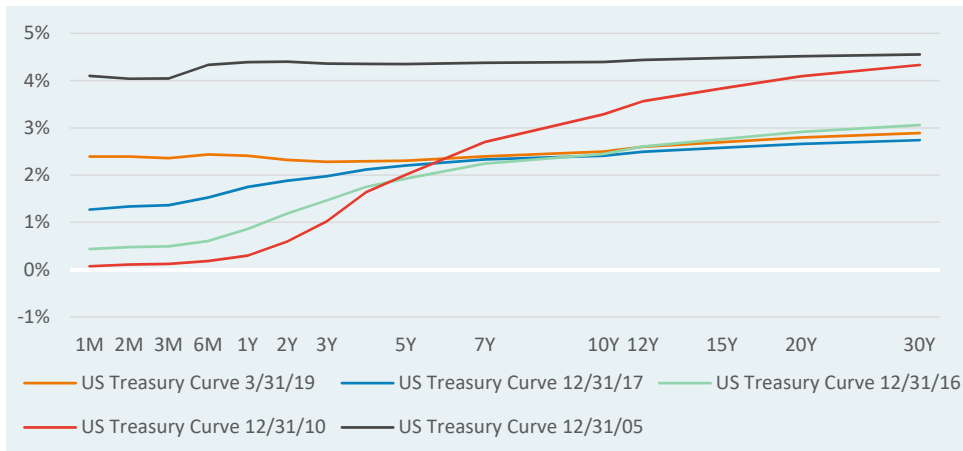
- The Federal Reserve held the fed funds rate unchanged over the quarter, and communicated a much more dovish stance on monetary policy amid slower growth expectations and stable inflation near 2%.
- Fed officials lowered their collective expectations for rate hikes in 2019 from two to zero, and announced that the balance sheet unwind would conclude in September, much earlier than previously anticipated.
- More dovish expectations for monetary policy and concerns over economic growth likely helped push long-term Treasury yields lower. The 10-year yield fell 28 bps to just above 2.4%.
- Falling long-term yields and stable short-term yields led to a brief inversion of the Treasury curve between the 10-year and 3-month yields.
- While widely considered a bearish signal for the economy and risk markets, the timing between curve inversion and bearish economic and market environments has varied widely. Additionally, Fed asset purchases of long-term Treasuries has artificially lowered yields and muddied the information conveyed by the yield curve.
- The ECB also pivoted to a more dovish stance as officials announced that deposit rates will be on hold through at least the end of the year.
- The 10-year German bund yield dipped back into negative territory for the first time since late 2016.
- Emerging market local bonds offer attractive yields relative to developed markets, even after adjusting for inflation. The JPM GBI-EM Index yielded 7% at the end of March.

Area	Short Term (3M)	10-Year
United States	2.39%	2.41%
Germany	(0.53%)	(0.07%)
France	(0.54%)	0.32%
Spain	(0.40%)	1.10%
Italy	(0.20%)	2.49%
Greece	0.87%	3.73%
U.K.	0.80%	1.00%
Japan	(0.17%)	0.08%
Australia	1.68%	1.77%
China	2.08%	3.07%
Brazil	6.31%	8.97%
Russia	7.35%	8.41%

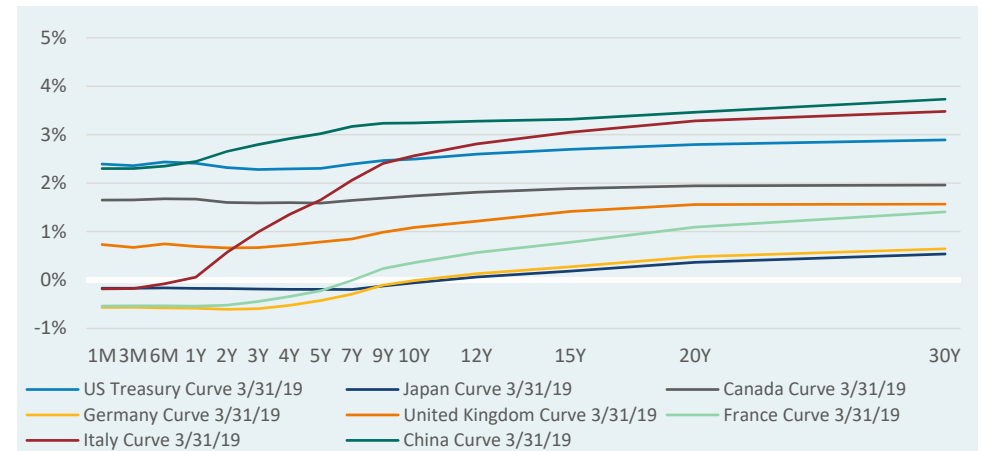
Source: Bloomberg, as of 3/31/19

Yield environment

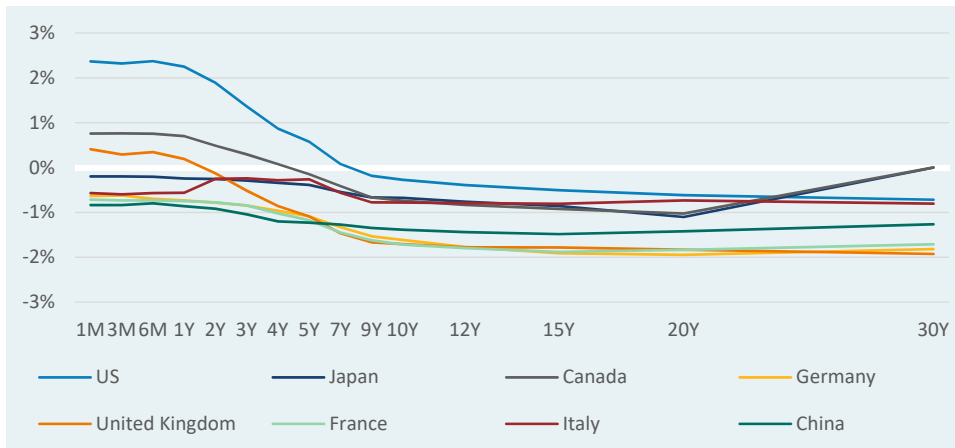
U.S. YIELD CURVE



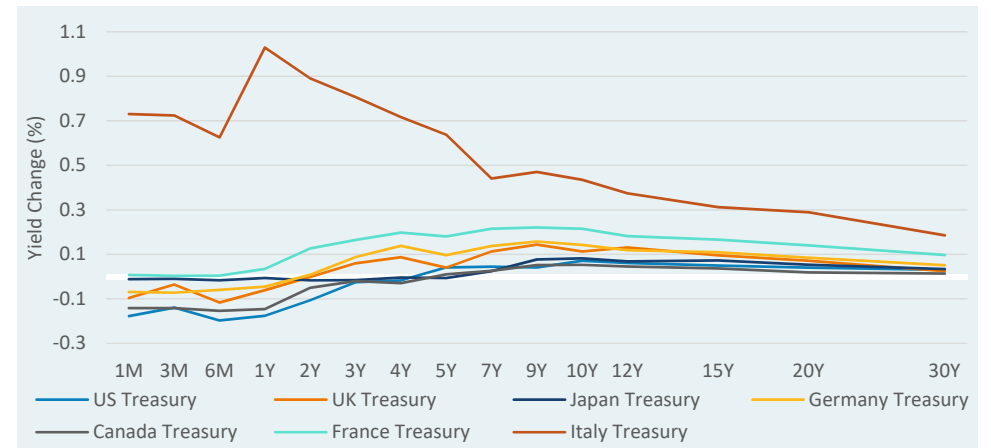
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/19

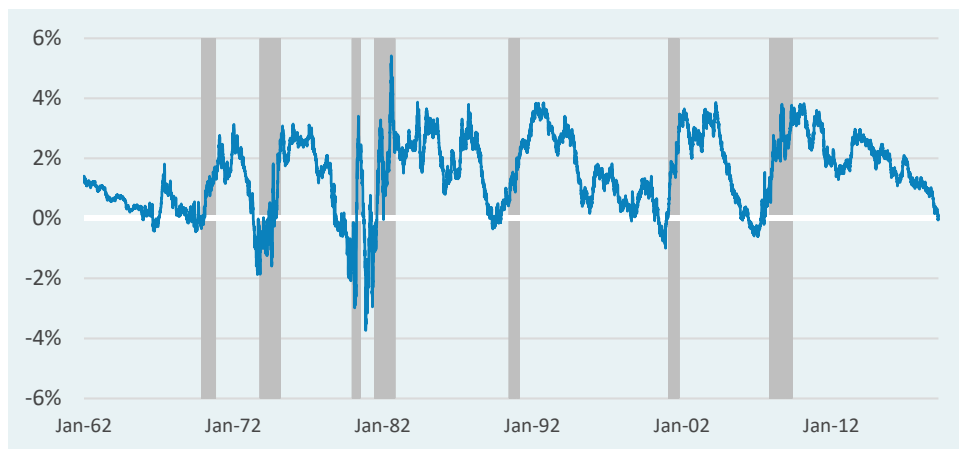
Yield curve inversion

The drop in long-term Treasury yields following the Fed meeting in March briefly caused the yield curve to invert, meaning that short-term yields (3-month) were higher than long-term yields (10-year). Investors have widely considered yield curve inversion as a sign that the economic cycle is coming to an end. At a high level, the shape of the yield curve tells investors something about what the market is expecting. All else equal, when the curve is steep, markets are expecting a positive growth environment and when the curve is flat or inverted, markets are expecting a negative growth environment.

While we have previously noted that the wide range of timing between curve inversion and recession has made the signal less useful, it is also important to note that the Fed's purchases of Treasuries has artificially lowered long-term yields. Therefore, Fed policy has obscured the market's expectation of future growth that is embedded in the shape of the yield curve. Although we are always wary of "this time is different" arguments, we believe that the recent yield curve inversion is not signaling an imminent recession.

The information conveyed by the shape of the yield curve has been obscured by Fed asset purchases

10-YEAR MINUS 3-MONTH TREASURY YIELD CURVE



Source: Bloomberg, as of 3/31/19, recessions are shaded with the dates defined by NBER

TIME FROM CURVE INVERSION TO THE NEXT RECESSION

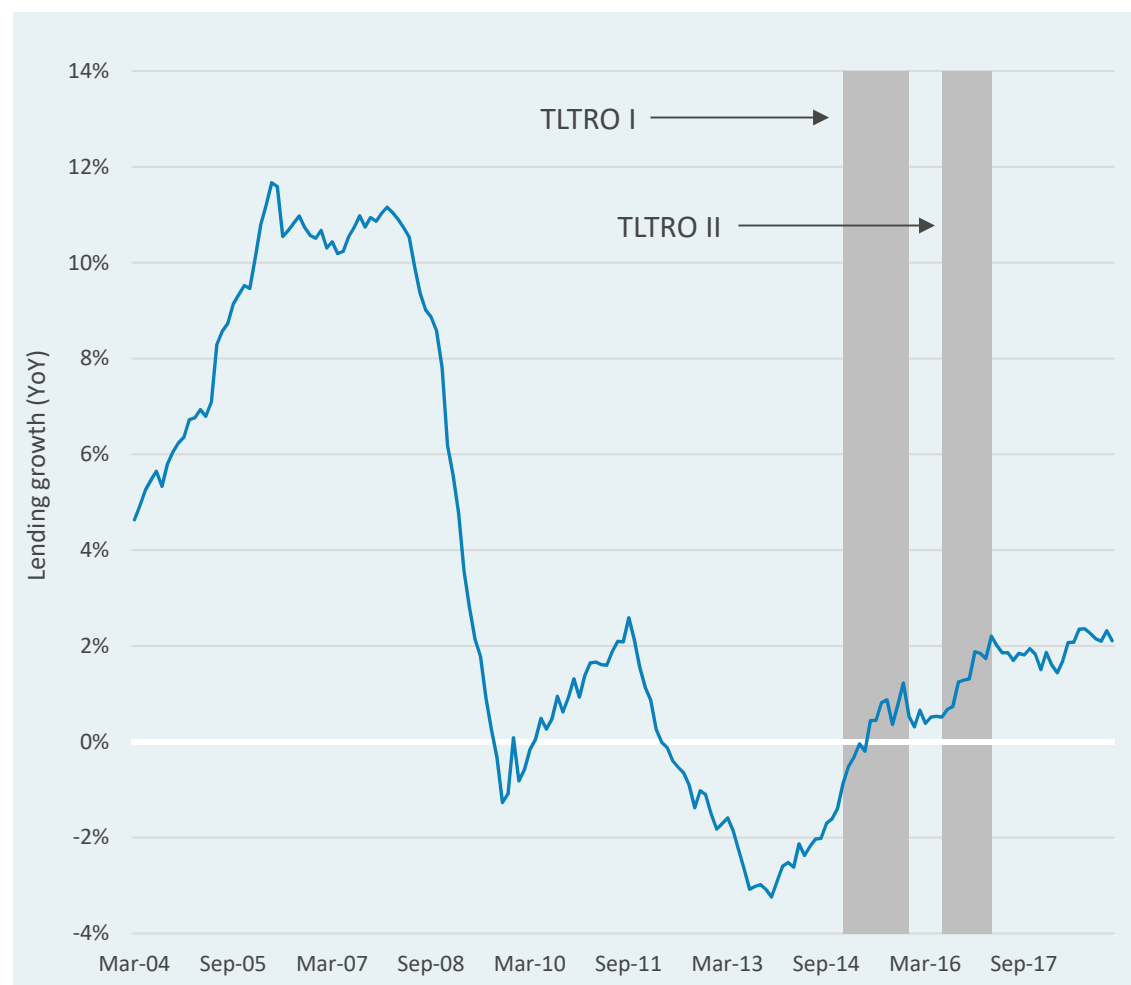
Start of Curve Inversion	Beginning of Next Recession	Months From Inversion to Recession
Jan-66	Dec-69	23
Dec-68	Dec-69	12
Jun-73	Nov-73	5
Nov-78	Jan-80	14
Oct-80	Jul-81	9
Mar-89	Jul-90	15
Jul-00	Mar-01	8
Jan-06	Dec-07	23
Average		13.6

Source: Bloomberg, recession dates defined by NBER

Eurozone monetary policy

- The European Central Bank (ECB) followed the Fed by pivoting to a more dovish monetary policy stance amid expectations of slower economic growth and muted inflation. ECB officials' latest growth forecasts show they expect only 1.1% real GDP growth in 2019.
- To counteract a potential growth slowdown, the ECB announced a third round of targeted long-term refinancing operations (TLTRO) and that it will keep deposit rates on hold through at least the end of the year. In the TLTRO program, the ECB gives out cheap short-term financing to banks with incentives for them to lend this money out to corporations and households.
- A total of €739 billion were lent out in the first two rounds of TLTROs, which helped lead to a modest pick up in bank lending growth. While this round of TLTROs may lead to banks rolling over previous loans, it is not likely to result in a significant increase in lending as the Eurozone already has ample liquidity and credit demand remains weak.
- Despite these recent steps, the ECB has limited ability to effectively ease. This puts the region at risk of a self-reinforcing downturn if conditions were to worsen, particularly since countries also have little room to provide fiscal stimulus.

EUROZONE BANK LENDING TO HOUSEHOLDS & CORPORATES



Source: Bloomberg, as of 1/31/19

Credit environment

High yield bond yields fell in March, impacted by the Fed's pause in the hiking cycle. Anticipation of an easier policy, which could potentially lengthen the credit cycle, has strengthened sentiment for risk assets. BB-rated bonds outperformed both CCC- and B-rated bonds in March. High yield bonds returned 7.3% YTD which is the strongest start to a calendar year on record for the asset class since 2003.

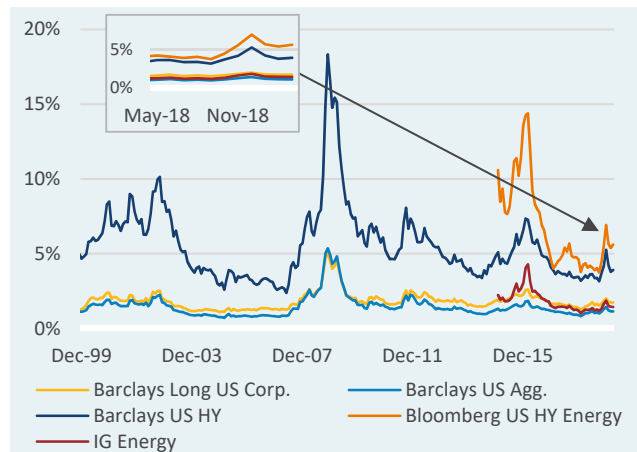
Leveraged loan prices declined during March as the asset class deals with outflows and a pause in the Fed's hiking cycle. The outflows have exceeded \$30 billion over the past two quarters

which represents 20% of assets under management, according to J.P. Morgan. Leveraged loans have returned 3.8% YTD, underperforming both high yield and investment grade bonds.

Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with a jump in credit spreads and steep credit losses. An underweight to U.S. investment grade, high yield credit, and bank loans may be warranted. Within credit, higher quality and more liquid assets appear most attractive.

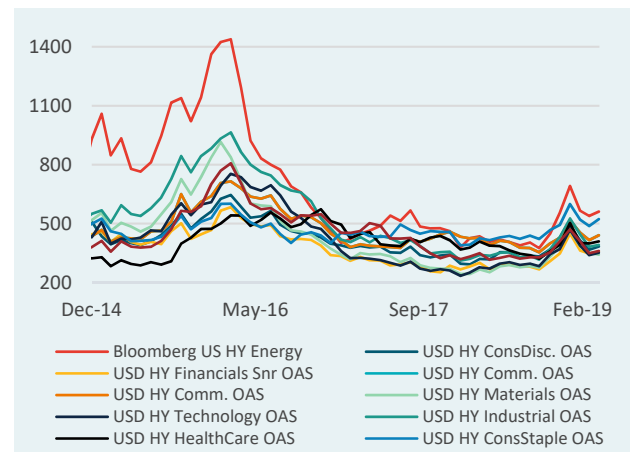
Credit spreads widened due to concerns over slowing global growth and broader risk-off behavior

SPREADS



Source: Barclays, Bloomberg, as of 3/31/19

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/19

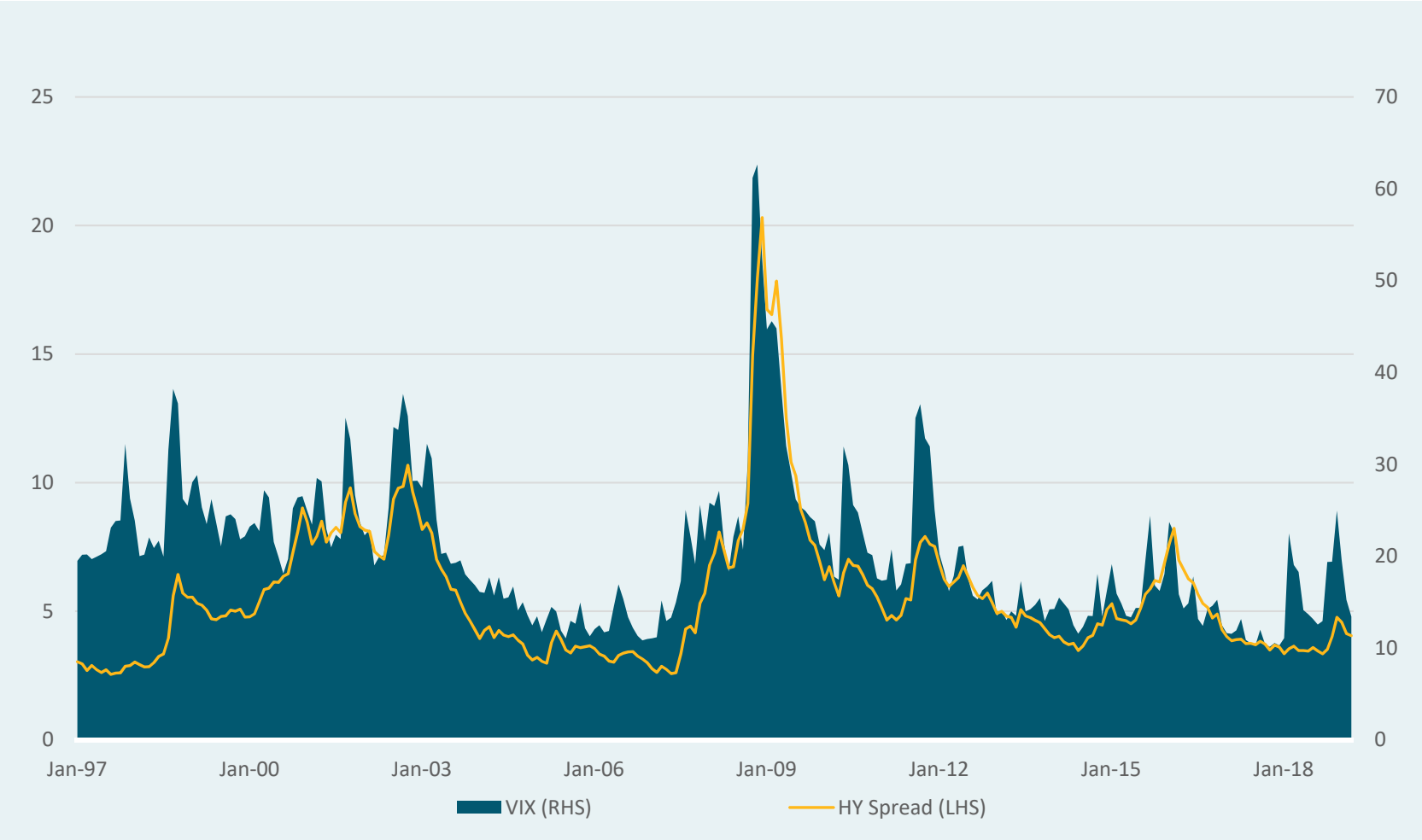
Market	Credit Spread (OAS)	
	3/31/19	3/31/18
Long U.S. Corp	1.7%	1.5%
U.S. Agg Corp	1.2%	1.1%
U.S. High Yield	3.9%	3.5%
U.S. Bank Loans*	4.4%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/19

*Discount margin (4-year life)

Credit is sensitive to equity volatility

HIGH YIELD BOND SPREADS & VOLATILITY



When volatility rises, higher risk credit typically experiences losses

Source: Cboe, FRED, as of 3/31/19

Default & issuance

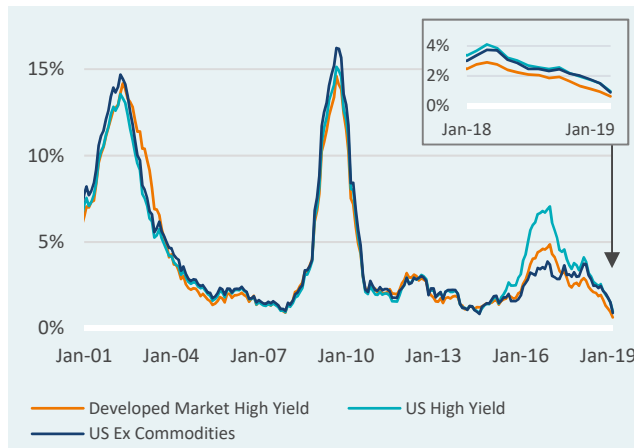
Default activity has been low and stable in the U.S. credit market, despite volatility in spreads. The par-weighted default rate declined to 0.9% and remains below its long-term average range of 3.0-3.5%. For loans, the par-weighted default rate at the end of March was 1.0%, its lowest level since April 2012 (0.8%), according to data from JPMorgan. Sectors that have been more prone to defaults include: consumer, retail, telecom, and automotive. The 2018 loan par-weighted default rate was 1.6%.

recovered from a wave of defaults seen in 2015-2016 that were generated from the energy and metals/mining sectors. High yield bond recovery rates have improved significantly since that time.

Gross high yield issue activity increased in March to the highest level seen since March of 2018. Loan market issuance is significantly behind last year's pace, likely influenced by a lower demand for floating rate securities now that the Fed has paused monetary tightening.

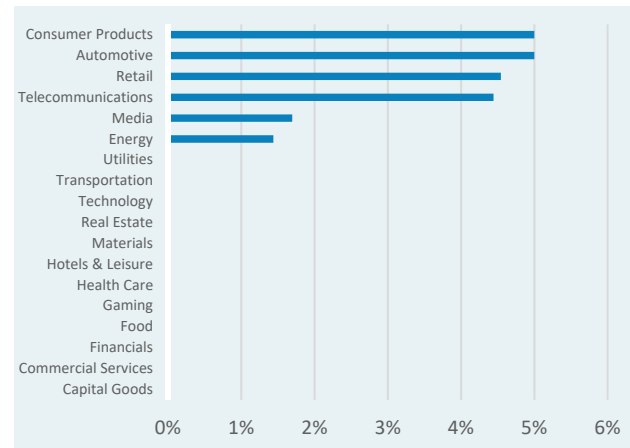
Senior loan and high yield markets have essentially

HY DEFAULT RATE (ROLLING 1-YEAR)



Source: BofA Merrill Lynch, as of 3/31/19

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 3/31/19 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/19

Private credit

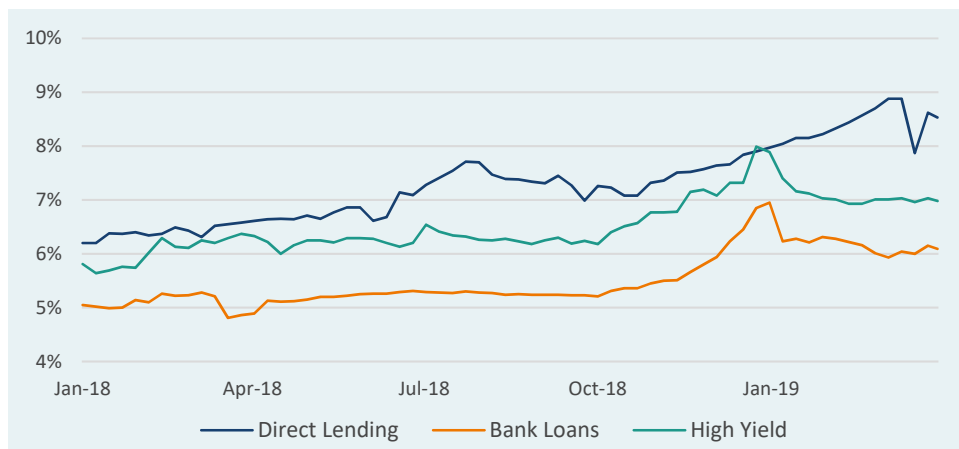
Fundraising in the private credit market slowed through year-end 2018. A total of 163 funds closed on \$110 billion during the year, which was down from 189 funds and \$129 billion in 2017. Direct lending, mezzanine, and distressed debt were the most active strategies, raising \$45 billion, \$31 billion, and \$21 billion, respectively. Even with slower fundraising, dry powder in private credit is at record levels. Private debt dry powder at the end of 2018 was \$280 billion, which beat the 2017 record of \$246 billion.

Yields for loans made by direct lending funds finished March at 8.5%. While yields have been aided by slightly higher LIBOR rates, which grew from 2.3% to 2.6% year-to-date, spreads increased from 4.3% to 5.9% year-to-date.

Fundraising slowed in private credit last year

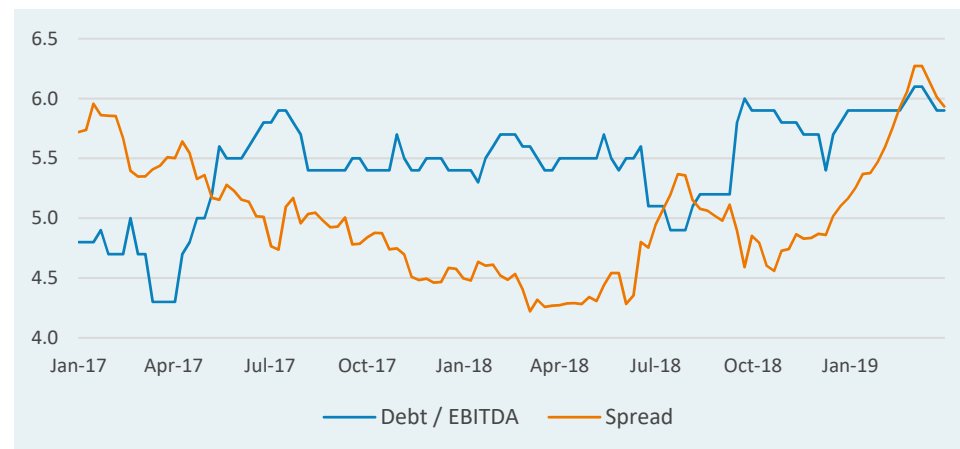
Credit spreads expanded in the first quarter, along with the debt multiples for borrowers. Borrowers now average debt totaling 5.9x EBITDA at the end of March, a 0.4x increase from one year prior.

YIELDS FOR DIRECT LENDING, BANK LOANS & HIGH YIELD



Source: The Lead Left, Middle Market, EBITDA < \$50MM; S&P LSTA US Leveraged Loan Index; ICE BofAML US High Yield Master II, as of 3/31/19

DIRECT LENDING LEVERAGE MULTIPLES (DEBT / EBITDA) & SPREAD



Source: The Lead Left, Middle Market Credit Stats, as of 3/31/19

Equity

Equity environment

- U.S. equities experienced a 13.6% total return (S&P 500 Index) in Q1, nearly a mirror image of Q4 2018. The first quarter has indeed been one of the strongest quarters recently, but was simply a bounce back in lost performance from the prior quarter. At the end of March, the S&P 500 price index was just 3.2% below its high watermark that was reached in September.
- Currency movement had little impact on unhedged international equity over the quarter, though currencies on a 1-year basis have had a substantially negative effect. An unhedged investment in international developed equities (MSCI EAFE) lost 8.9% of portfolio value due to currency movement.
- First quarter earnings growth for S&P 500 companies is expected to be negative for the first time since Q2 2016. If corporate earnings

expectations continue to be downgraded, this will likely hold back markets around the world. The greatest determinant of medium and long-term equity performance is typically the underlying trend of corporate earnings.

- The risk-on quarter drove small cap equities forward. The Russell 2000 Index posted a 14.6% return, compared to the 13.8% return of the Russell 1000 Index.
- Value equities underperformed growth equities over the quarter (Russell 1000 Value +11.7%, Russell 1000 Growth +16.0%). Performance over the quarter reversed value's gains from Q4 2018.
- After spiking in the fourth quarter, U.S. equity volatility returned to muted levels.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	13.8%		8.7%	
US Small Cap (Russell 2000)	14.6%		2.1%	
US Large Value (Russell 1000 Value)	11.7%		4.9%	
US Large Growth (Russell 1000 Growth)	16.0%		12.3%	
International Large (MSCI EAFE)	10.0%	11.3%	(3.7%)	5.2%
Eurozone (Euro Stoxx 50)	10.6%	12.9%	(6.3%)	5.8%
U.K. (FTSE 100)	9.5%	10.1%	(0.2%)	9.6%
Japan (NIKKEI 225)	6.8%	7.6%	(3.4%)	2.9%
Emerging Markets (MSCI Emerging Markets)	9.9%	9.8%	(7.4%)	(2.1%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/19

Domestic equity

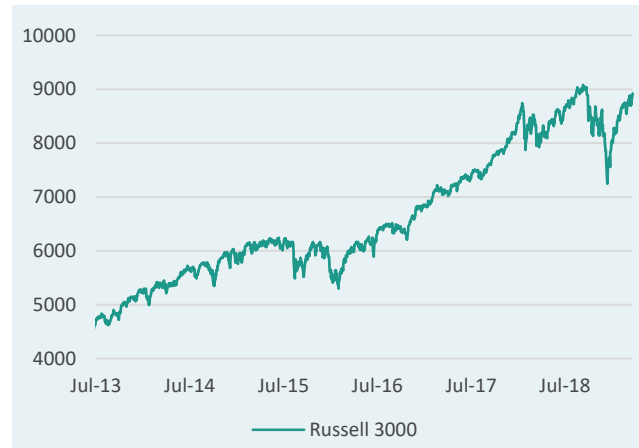
U.S. equities experienced a 13.6% total return (S&P 500 Index) in the first quarter, rebounding from the sharp sell-off in the prior quarter. At the end of March, the S&P 500 price index was just 3.2% below its high watermark that was reached in September. The bounce back in equity prices was driven by better than expected/feared Q1 corporate earnings, improving sentiment toward a U.S.-China trade deal, and the Fed's pivot to a more patient approach to monetary policy. The fall and subsequent rise in equities was primarily reflected in valuation changes. After dropping to a low of 13.6 in December, the forward 12-month P/E ratio on the S&P 500 finished the

quarter at 16.7, essentially unchanged over the past six months.

Now 10 years removed from the bottom of the financial crisis, it is worth noting that U.S. equities have experienced one of their best decades of performance ever. The S&P 500 had a compound price return of 14.2% per year, and over 75% of this was due to profit margin and valuation expansion. With both of these measures at above average levels, we do not think that it is reasonable to expect this level of performance to continue moving forward.

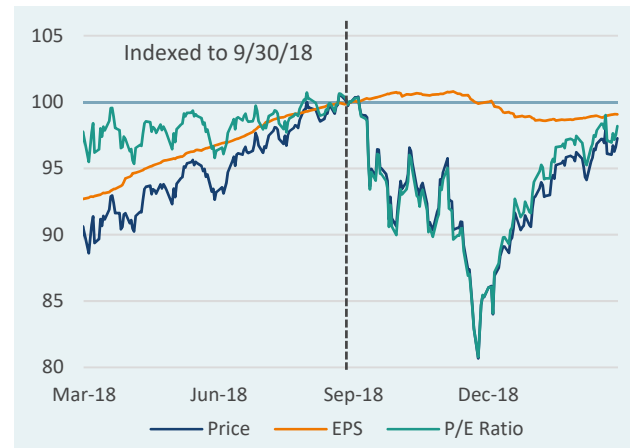
We maintain a neutral view on U.S. equities

U.S. EQUITIES



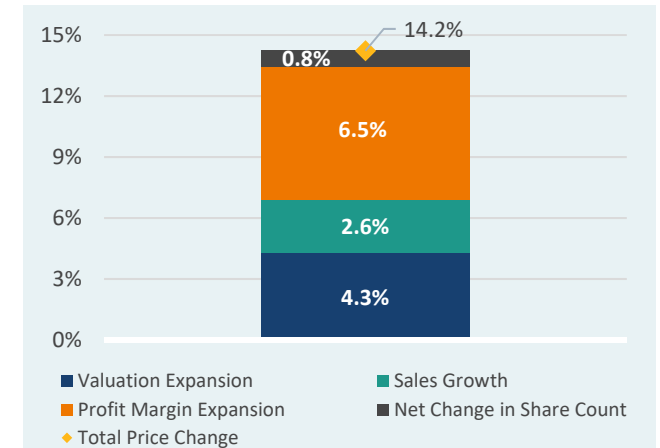
Source: Russell Investments, as of 3/31/19

S&P 500 PRICE MOVEMENT ATTRIBUTION



Source: Bloomberg, as of 3/31/19

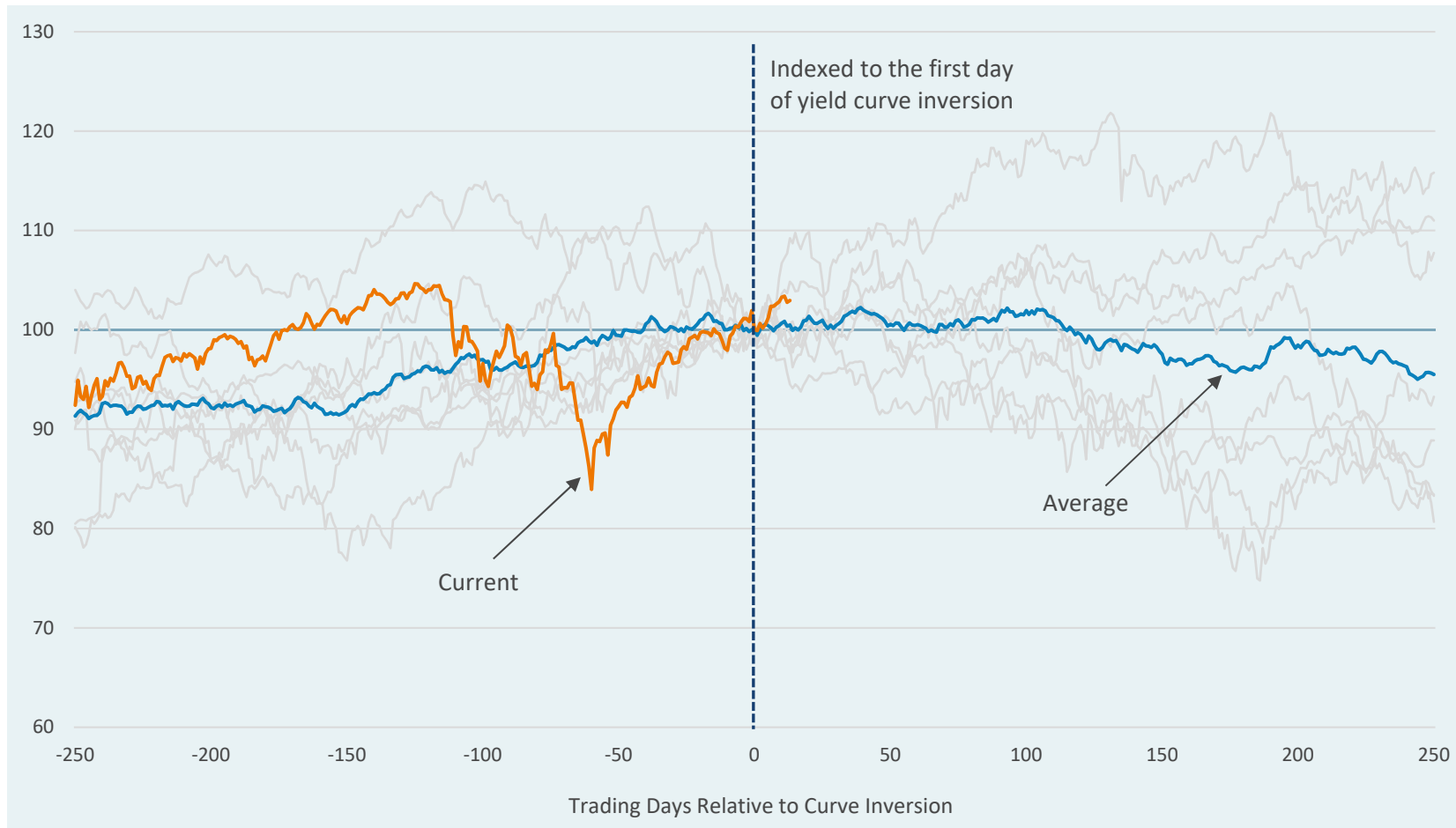
S&P 500 10-YR PRICE RETURN ATTRIBUTION



Source: Verus, Bloomberg, as of 3/31/19

Equity markets and yield curve inversions

EQUITY PERFORMANCE AROUND CURVE INVERSIONS



Equity performance has varied widely following yield curve inversion

Source: Bloomberg, Verus, as of 3/31/19 – equities are represented by the S&P 500 Index and the yield curve is defined as the difference between the 10-year and 3-month Treasury yield; see page 23 for the dates of yield curve inversion

U.S. equity & the economic cycle



A material short-term relationship exists between equity performance and economic growth

An investor's views on the economy cycle should therefore impact equity positioning

Source: Standard & Poor's, data since 1948

Domestic equity size & style

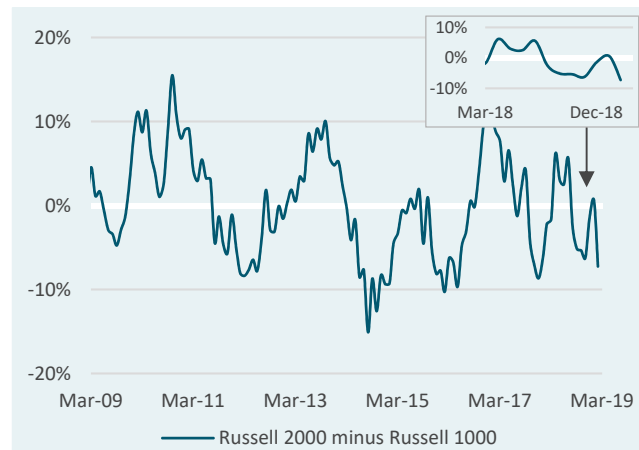
Small cap equities (Russell 2000 +14.6%) slightly outperformed large cap equities (Russell 1000 +14.0%) during the quarter. Meanwhile, growth stocks outperformed value stocks by a wide margin (Russell 1000 Growth +16.1% vs. Russell 1000 Value +11.9%).

The impact of sector performance on the value premium was more nuanced in Q1, as Materials (+10.3%) and Financials (+8.6%) underperformed the overall index (S&P 500 +13.6%), but Energy (+16.4%) outperformed. Information Technology,

the top performing sector, continued to deliver outsized returns (+19.9%).

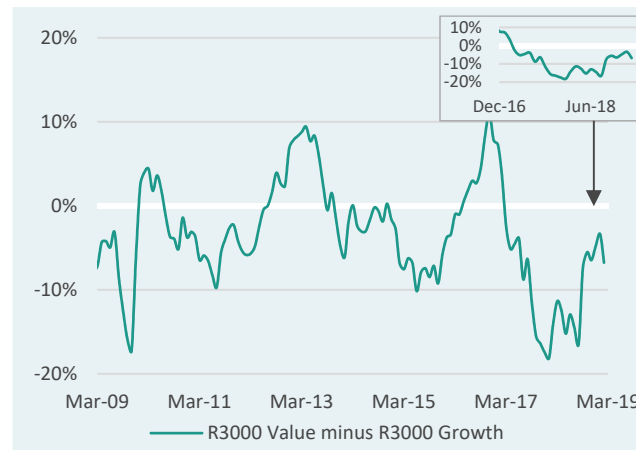
Both the small cap premium and value premium have struggled to deliver positive risk premiums over the past 10 years. It can be difficult to endure longer periods of factor underperformance, but similar to the equity premium in general, these periods do exist and investors should expect this on occasion.

SMALL CAP VS LARGE CAP (YOY)



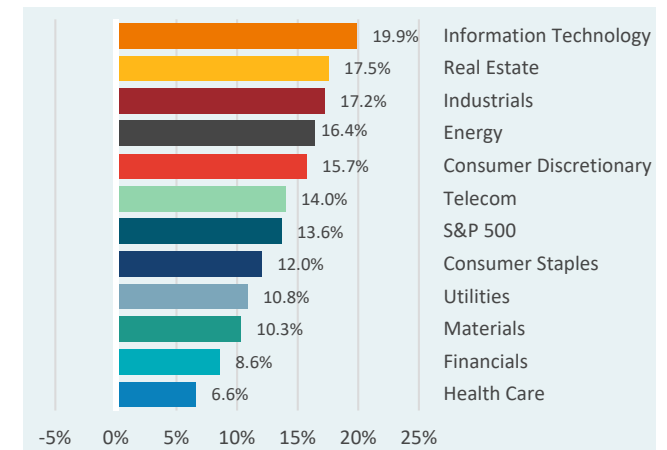
Source: FTSE, as of 3/31/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/19

Q1 S&P 500 SECTOR RETURNS



Source: Morningstar, as of 3/31/19

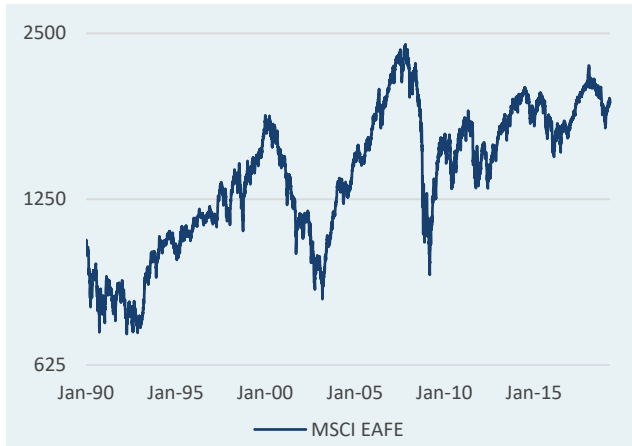
International developed equity

Like U.S. equities, international developed equities erased most of the losses they suffered in the prior quarter. After posting a return of -12.5% in Q4, the MSCI EAFE Index returned +10.2% in Q1. Currency losses were a mild detractor from unhedged U.S. dollar performance. On a currency hedged basis, EAFE equities returned 11.3%. From a country perspective, Swiss, French and UK equities outperformed, while Japanese and German equities lagged the overall index. While most markets are back near record highs, German equities (MSCI Germany) finished the quarter 17% below the previous high watermark. Underperformance in German equities has likely been influenced by a greater

sensitivity to global growth and trade as well as concerns over a slowing domestic economy.

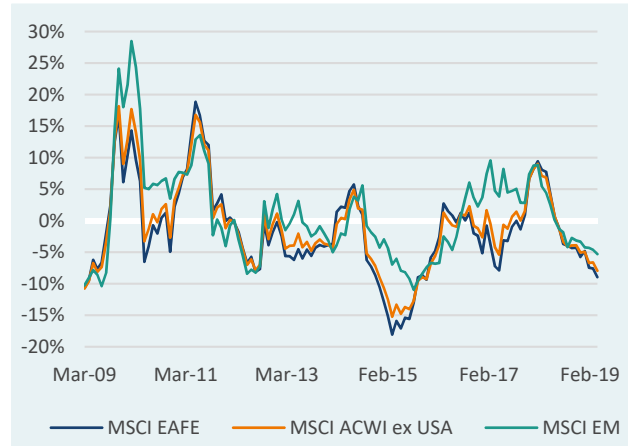
International developed equity markets are still cheap on both an absolute and relative basis at 13.3x forward earnings, but we believe there are good reasons for this pricing in certain markets. Within equity allocations, we are pessimistic on EAFE equities primarily due to a negative view on the Eurozone. We believe slowing economic growth, rising political risks, and the lacking ability of the ECB to meaningfully ease policy presents material headwinds to equity performance.

INTERNATIONAL DEVELOPED EQUITIES



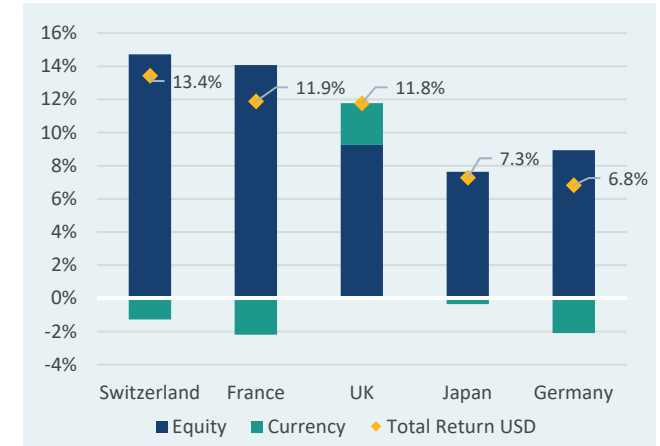
Source: MSCI, as of 3/31/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 3/31/19

Q1 COUNTRY PERFORMANCE



Source: MSCI, largest five country exposures shown above

Emerging market equity

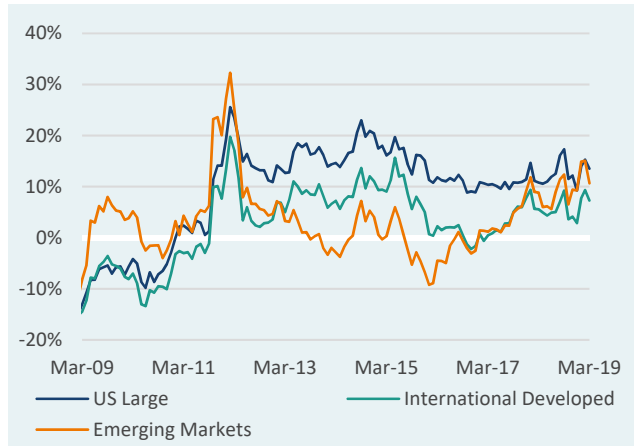
Emerging market equity performance was in-line with international developed markets in the first quarter, while U.S. equities outperformed. Currencies in these markets continued to show stability (MSCI EM +9.9%, MSCI EM Hedged +9.8%). Business sentiment across emerging market economies indicates expanding conditions, and fears of a sharp China slowdown have subsided. Moderating conditions may bolster emerging market returns throughout the year.

Equity multiples rebounded in the first quarter and are near

the long-term average. The divide between domestic and emerging equities remains wide.

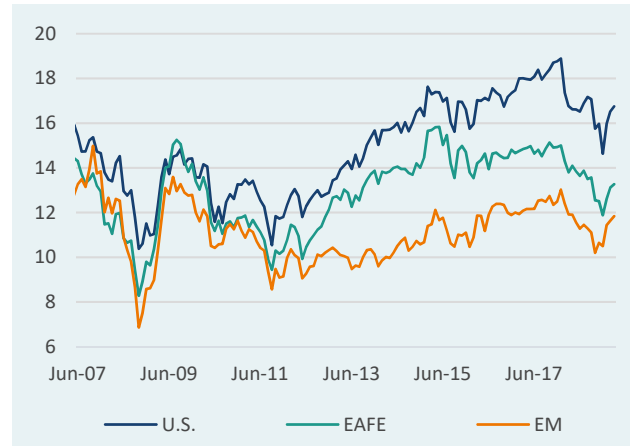
Decelerating global growth and rising probability of recession do present unique risks to emerging markets, as these markets typically exhibit a higher beta during market downside and upside moves. However, emerging markets can also deliver robust performance in times of moderate growth and easy monetary policy when investors seek growth and higher yields.

EQUITY PERFORMANCE (3-YR ROLLING)



Source: Standard & Poor's, MSCI, as of 3/31/19

FORWARD P/E



Source: MSCI, as of 3/31/19

PURCHASING MANAGERS' INDEX (PMI)

	18-Dec	19-Jan	19-Feb	19-Mar
Manufacturing				
Global	51.4	50.8	50.6	50.6
Developed	52.3	51.8	50.4	50.0
US	54.3	56.6	54.2	55.3
EM	50.3	49.5	50.6	51.0
Services				
Global	53.0	52.6	53.3	53.7
Developed	52.8	52.5	53.7	53.7
US	58.0	56.7	59.7	56.1
EM	53.6	52.9	52.1	53.6

Source: Markit, Institute for Supply Management (ISM)

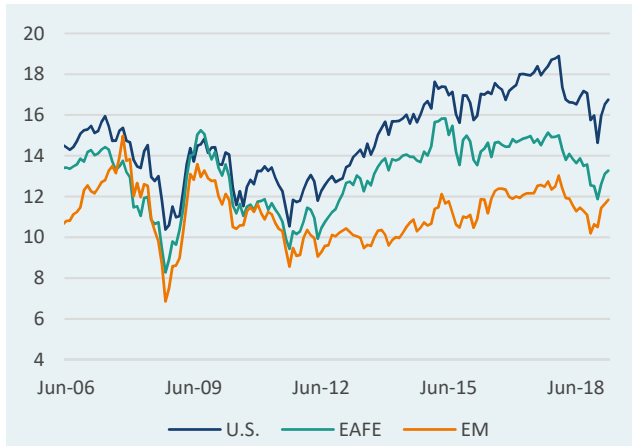
Equity valuations

The fall and subsequent rise in global equity prices was primarily driven by changes in valuations. The recovery in Q1 brought most broad equity market valuations back to September 2018 levels, but below recent cycle highs. In the U.S., equities commanded a forward P/E multiple of 16.7x after hitting a multi-year low in December at 14.6x. International equity valuations also recovered, but are still cheap on a relative basis, particularly when compared to the U.S. At the end of March, the MSCI EAFE and EM Indexes had forward P/E multiples of 13.3x and 11.8x, respectively. U.S. equities currently trade at a 25% forward premium to EAFE

equities, which is the largest gap over the past 15 years. While we believe there are reasons that EAFE equity markets command cheap valuations, particularly in Europe, it is worth noting that barring a significant change in the earnings environment, these markets should have a strong valuation support.

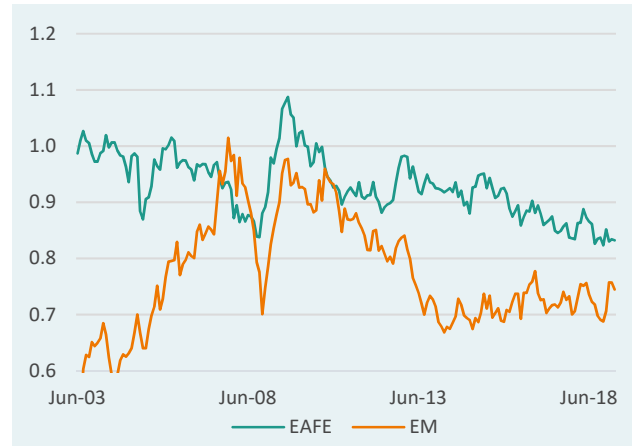
Over the long-term, valuations have had a material relationship with forward equity returns. Given this relationship, we are wary of extrapolating out the recent strong outperformance in U.S. equities.

FORWARD P/E RATIOS



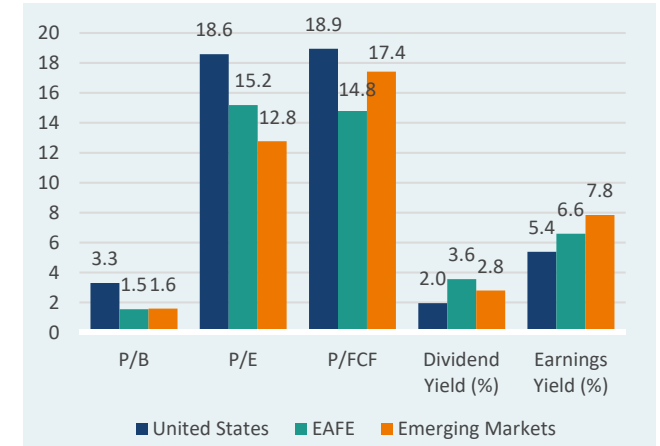
Source: MSCI, as of 3/31/19

P/E MULTIPLES RELATIVE TO U.S. EQUITIES



Source: Verus, MSCI, as of 3/31/19

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 3/31/19 - trailing P/E

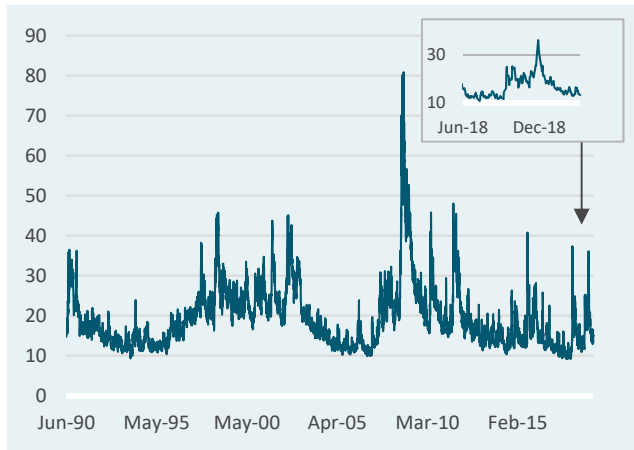
Equity volatility

Equity volatility spiked in the fourth quarter of 2018 but returned to low levels in Q1. The VIX Index ended March at 13.7, which ranked in the 26th percentile dating back to 1990 (volatility was this low 26% of the time). Low volatility is somewhat normal during later stages of the market cycle as the economy expands and business conditions hold steady. However, some investors have questioned the lack of price movement, given seemingly heightened geopolitical and economic risks present around the world today.

One-year volatility picked up after a tumultuous fourth quarter. U.S. markets have shown higher volatility than international markets for the first time since 2008, with a trailing 1 year volatility of 16%.

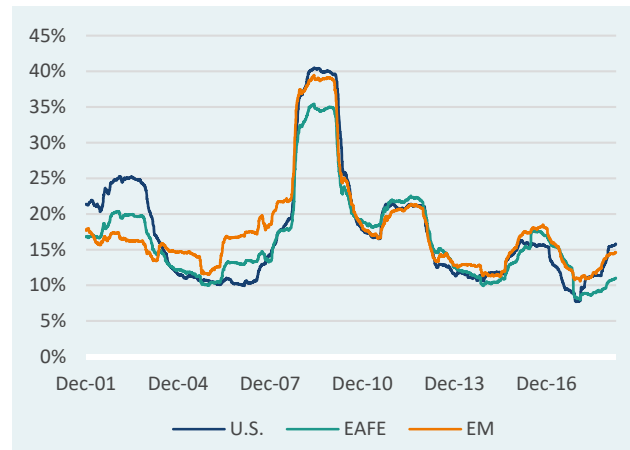
Equity performance around the world in Q1 was nearly a mirror image of 2018 Q4. The first quarter has indeed been one of the strongest quarters of recent decades, but this was mostly a bounceback in lost performance from the prior quarter.

U.S. IMPLIED VOLATILITY (VIX)



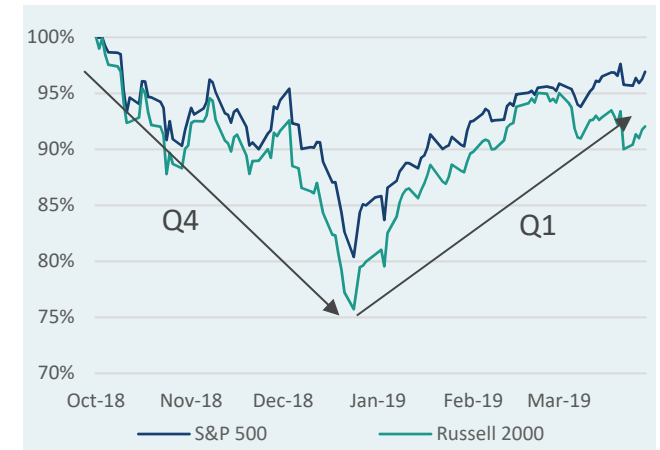
Source: CBOE, as of 3/31/19

REALIZED 1-YEAR ROLLING VOLATILITY



Source: Bloomberg, as of 3/31/19

2019 Q1 PERFORMANCE BOUNCE BACK



Source: Bloomberg, as of 3/31/19

Private equity

Venture capital fundraising and deal volumes continued to set records. \$55 billion of venture capital was raised in the U.S. in 2018, an increase of 63% over the previous year. Similarly, the amount of venture deals were up 58%. Venture deal volume in 2018 of \$131 billion exceeded the record of \$82 billion that was set in 2017.

Buyout activity continued to increase in 2018. Through the fourth quarter, buyouts were up 29% and 5% when measured by dollar value and number of transactions, respectively. The size of the average buyout, \$155 million, increased from \$133 million in 2017. Unlike deal flow, fund capital raising has slowed from the peaks of 2017. Only 186

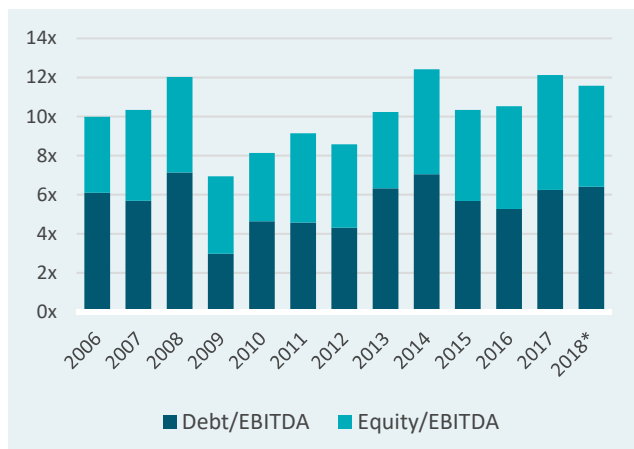
buyout funds representing \$166 billion closed in 2018, down from 235 funds representing a record \$225 billion in 2017.

Buyout multiples decreased slightly from 2017. Average EV/EBITDA was 11.6x through December 31, 2018 (down from 11.9x in 2017) with debt multiples averaging 6.2x through the fourth quarter. Debt as a percentage of transaction value hovered around 54%.

Balancing high deal multiples and a growing number of deals against a slowdown in fundraising, we advocate selectivity in fund investments.

Deals increased in buyouts and venture; multiples are steady; buyout fundraising has slowed

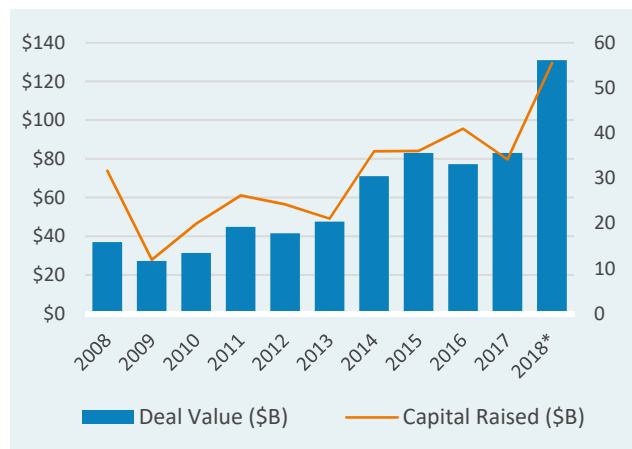
TRANSACTION MULTIPLES



Source: PitchBook, as of 12/31/18

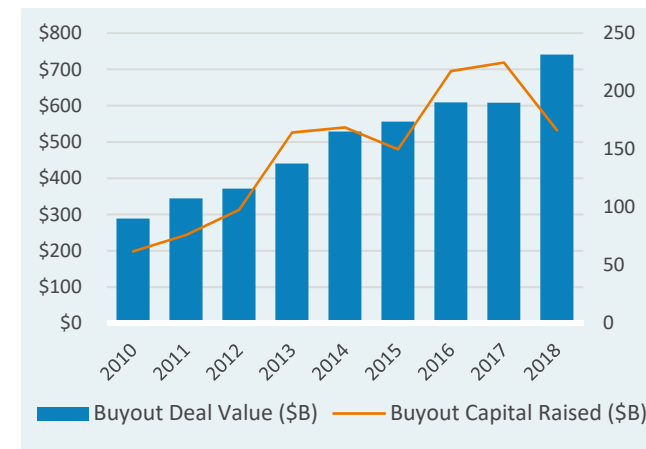
*2018 figures are estimates and are subject to change

VENTURE DEAL VOLUME & FUNDRAISING



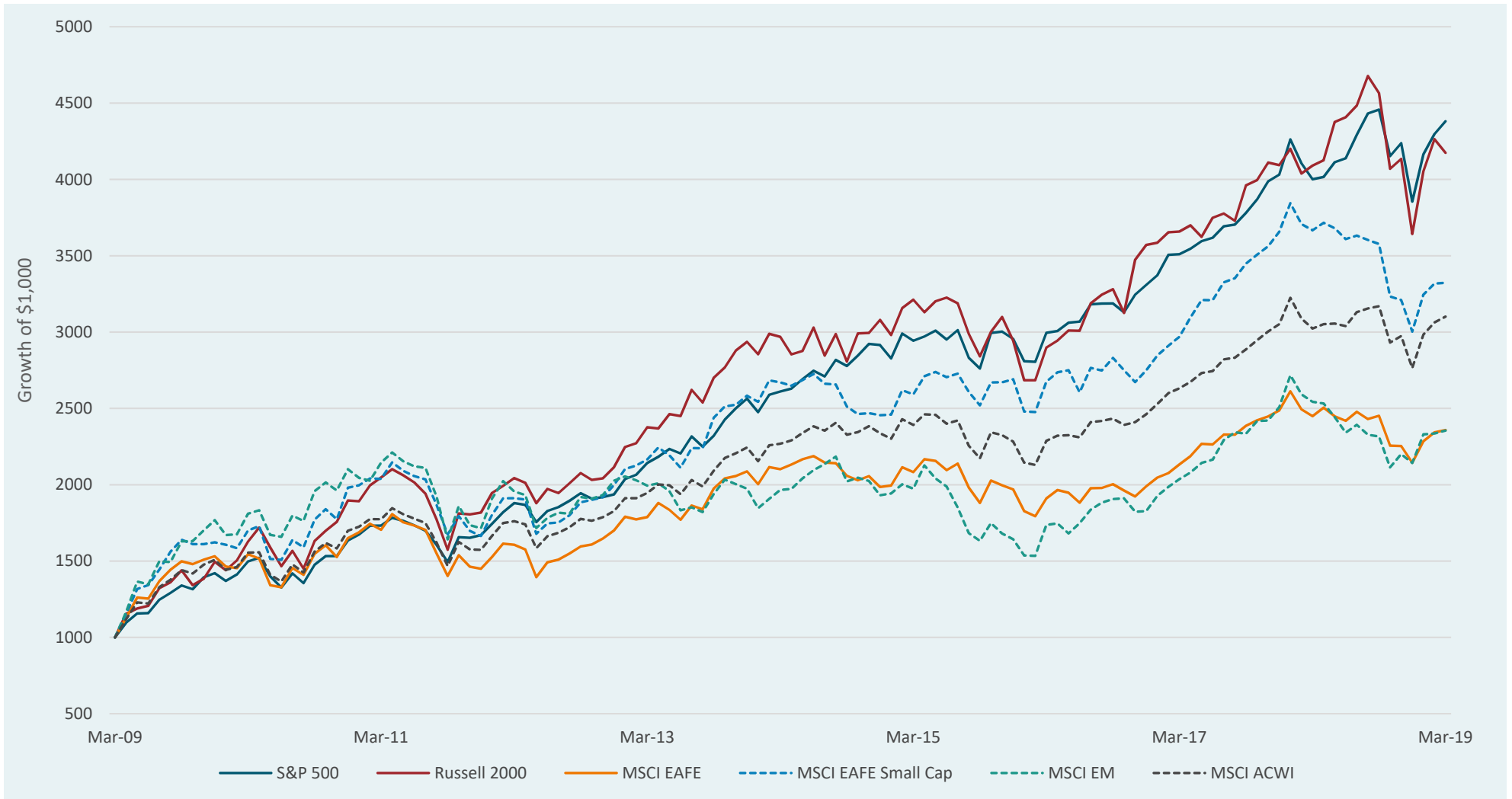
Source: PitchBook, as of 12/31/18

BUYOUTS DEAL VOLUME & CAPITAL RAISED



Source: PitchBook, as of 12/31/18

Long-term equity performance



Source: Morningstar, as of 3/31/19

Other assets

Currency

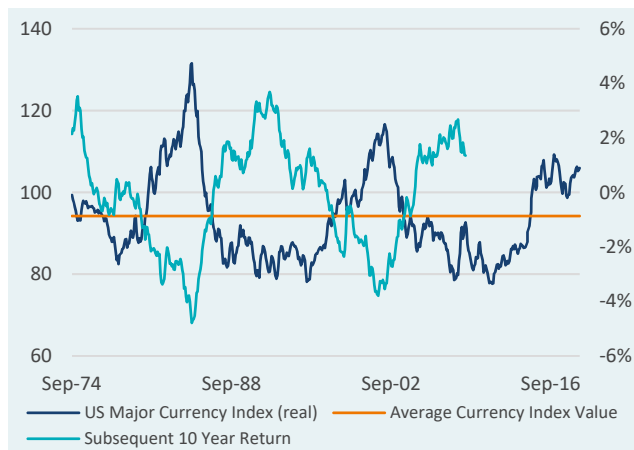
The U.S. dollar failed to gain traction in either direction during the first quarter, and remained near cycle highs. The Major Trade Weighted U.S. Dollar Index fell 0.3% over the period, but was 12.5% above its long-term average dating back to 1974 at the end of March. Expectations for a more accommodative Fed and weaker relative U.S. economic growth (from strong levels in 2018) has led many investors to call for U.S. dollar depreciation, but this has not occurred thus far. This may in part be because other developed central banks have followed the Fed's lead in moving away from monetary tightening.

Emerging market currencies were relatively stable versus the dollar for a second consecutive quarter. The JPMorgan Emerging Market Currency Index gained 0.4%. EM currencies have yet to stage a major comeback after falling more than 15% in the middle of last year.

The U.S. dollar remained near a cycle high

Despite some high-profile Brexit related volatility in the British pound, the global FX market has been relatively quiet. The trailing 1-year volatility of the Bloomberg Dollar Spot Index was 5.2% at the end of the quarter, the lowest level since 2014.

U.S. DOLLAR TRADE WEIGHTED INDEX



Source: Federal Reserve, Verus, as of 3/31/19

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 3/31/19

BLOOMBERG DOLLAR SPOT INDEX VOLATILITY



Source: Bloomberg, as of 3/31/19, trailing 12-month vol shown

Hedge funds

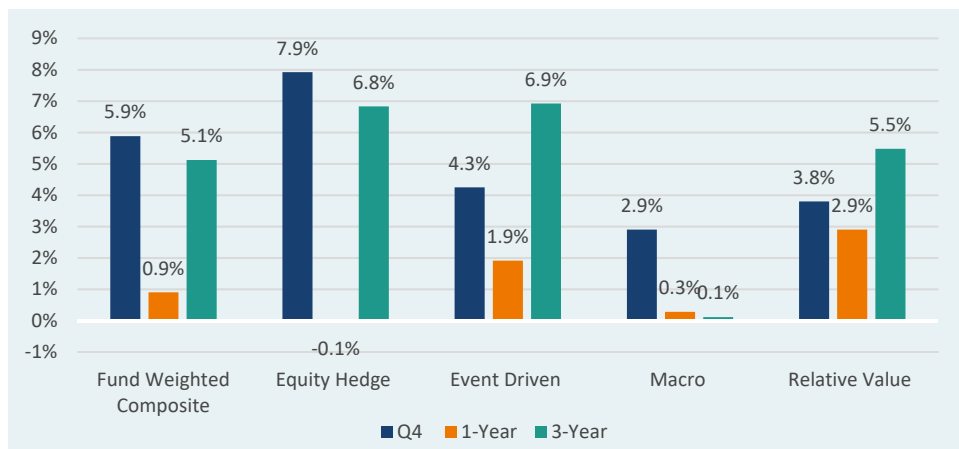
Hedge funds consistently advanced alongside the broad markets and enjoyed the best first calendar quarter result since 2006 (Hedge Fund Weighted Composite (FWC) +5.9% in 2019Q1; +0.9% trailing 12-months). While gains were broad based across strategy types, funds with greater equity market sensitivity earned the highest results. Within the equity hedge strategy set, funds with higher beta exposure rallied strongly.

According to Hedge Fund Research, growth-oriented managers (+9.3%) narrowly outperformed value-oriented (9%) peers. Healthcare focused funds (+13.2%) also stood out as winners. Activists (+8.3%) largely rebounded from a dismal Q4 last year.

For managers trading fixed income securities, funds focused on convertible arbitrage (+5.5%) and credit arbitrage (+5.1%) fared well as those markets bounced back this quarter. Asset backed (+1.7%) and fixed income multi-strategy managers (+2%) posted more muted gains.

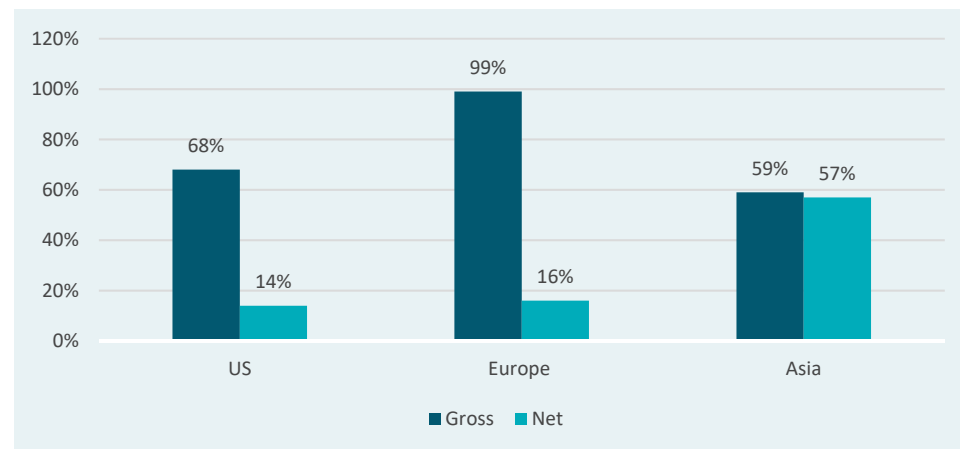
Hedge funds responded to the Q4 sell-off last year by cutting gross and net exposure levels to relatively low levels by year end. Gross leverage has since largely rebounded while net exposure, with the exception of Asia, remains below pre-sell off levels.

HFRI HEDGE FUND STYLE PERFORMANCE



Source: HFRI, as of 3/31/19

HEDGE FUND LEVERAGE LEVELS BY REGION



Source: Morgan Stanley, as of 3/31/19

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	17.1	13.5	17.5
Large Cap Growth	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	16.1	10.6	16.5
Small Cap Equity	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	14.6	8.7	16.0
Large Cap Equity	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	14.0	8.4	15.4
Large Cap Value	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	11.9	7.7	14.5
Small Cap Value	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	11.9	7.1	14.1
International Equity	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	10.0	5.6	9.0
Emerging Markets Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	9.9	4.4	8.9
60/40 Global Portfolio	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	8.1	3.7	8.5
Commodities	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	6.3	2.7	8.3
Hedge Funds of Funds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	5.0	2.3	3.8
US Bonds	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	2.9	2.3	3.6
Cash	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	0.6	0.8	0.4
Real Estate	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	0.0	-8.9	-2.6

BEST



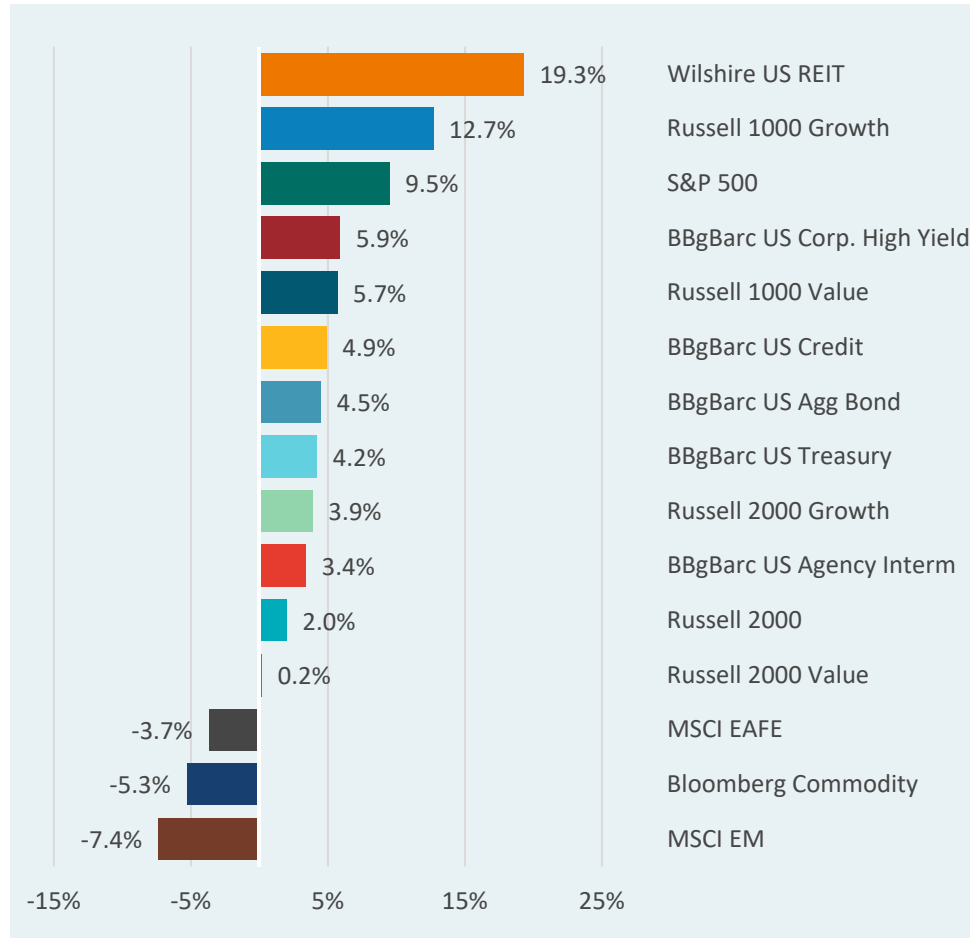
WORST

- Large Cap Equity
- Small Cap Growth
- Commodities
- Large Cap Value
- International Equity
- Real Estate
- Emerging Markets Equity
- Hedge Funds of Funds
- US Bonds
- 60% MSCI ACWI/40% BBgBarc Global Bond
- Cash

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/18.

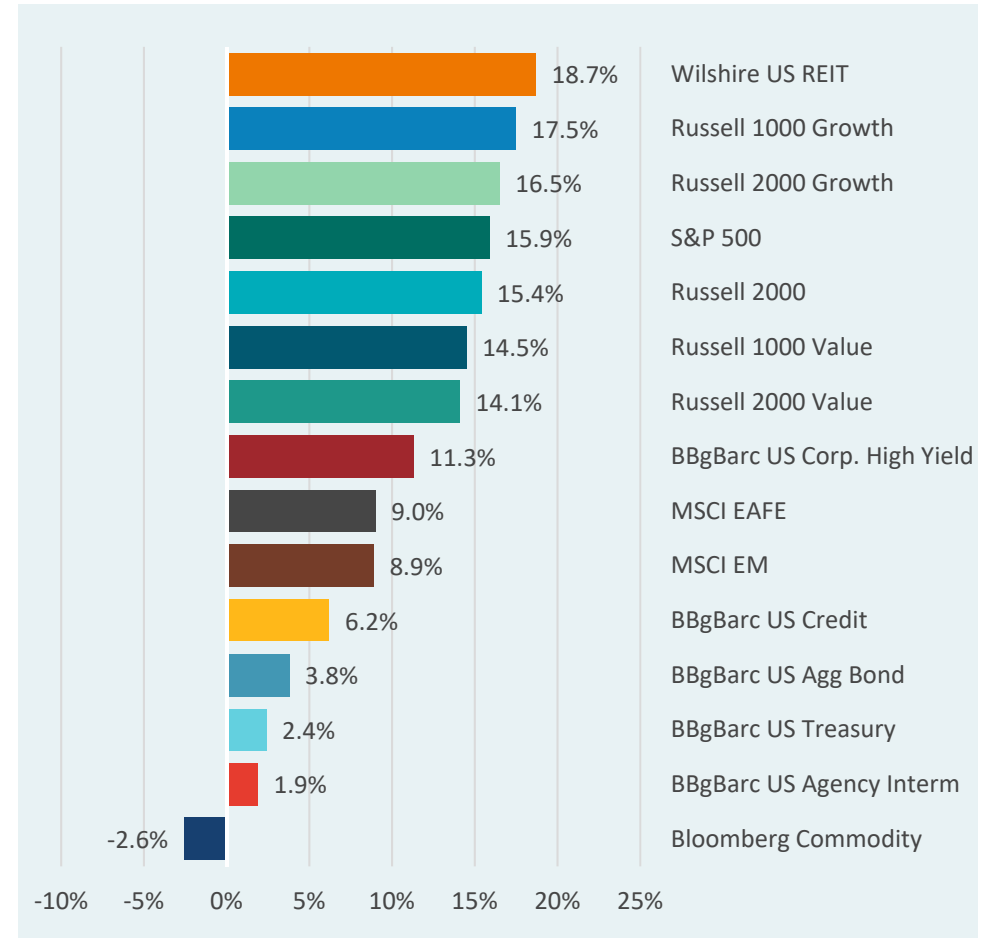
Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/19

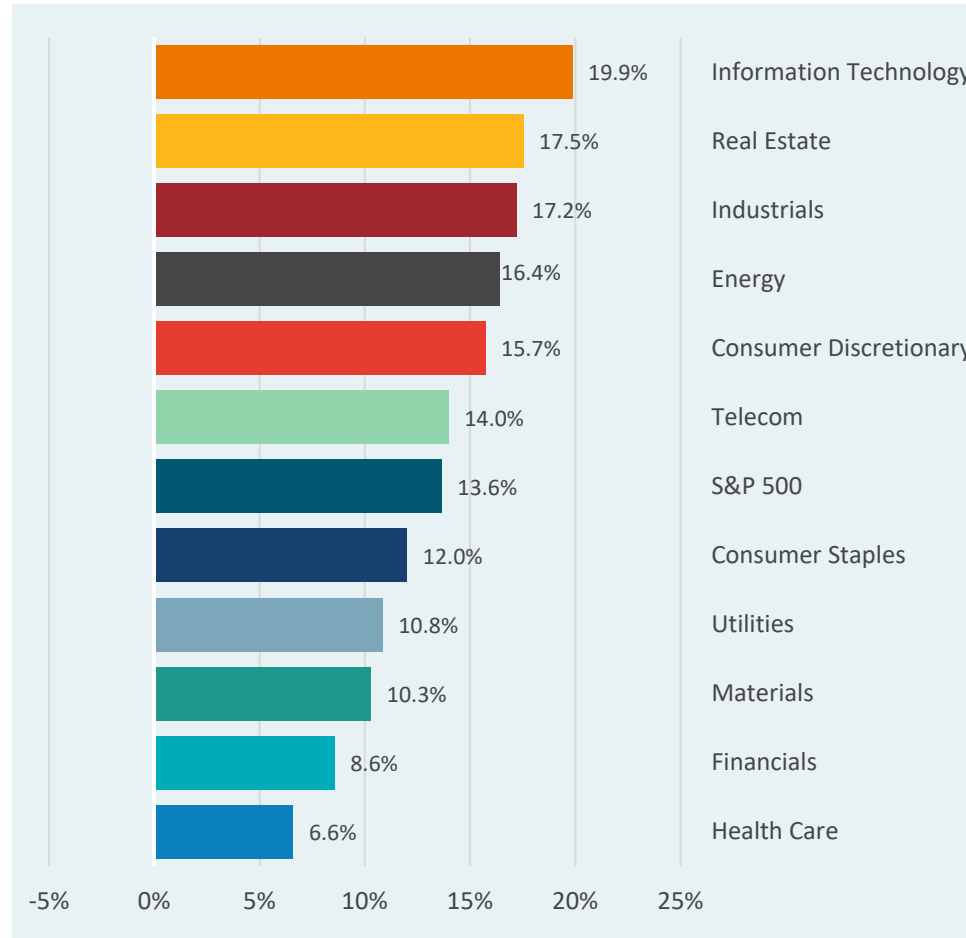
TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/19

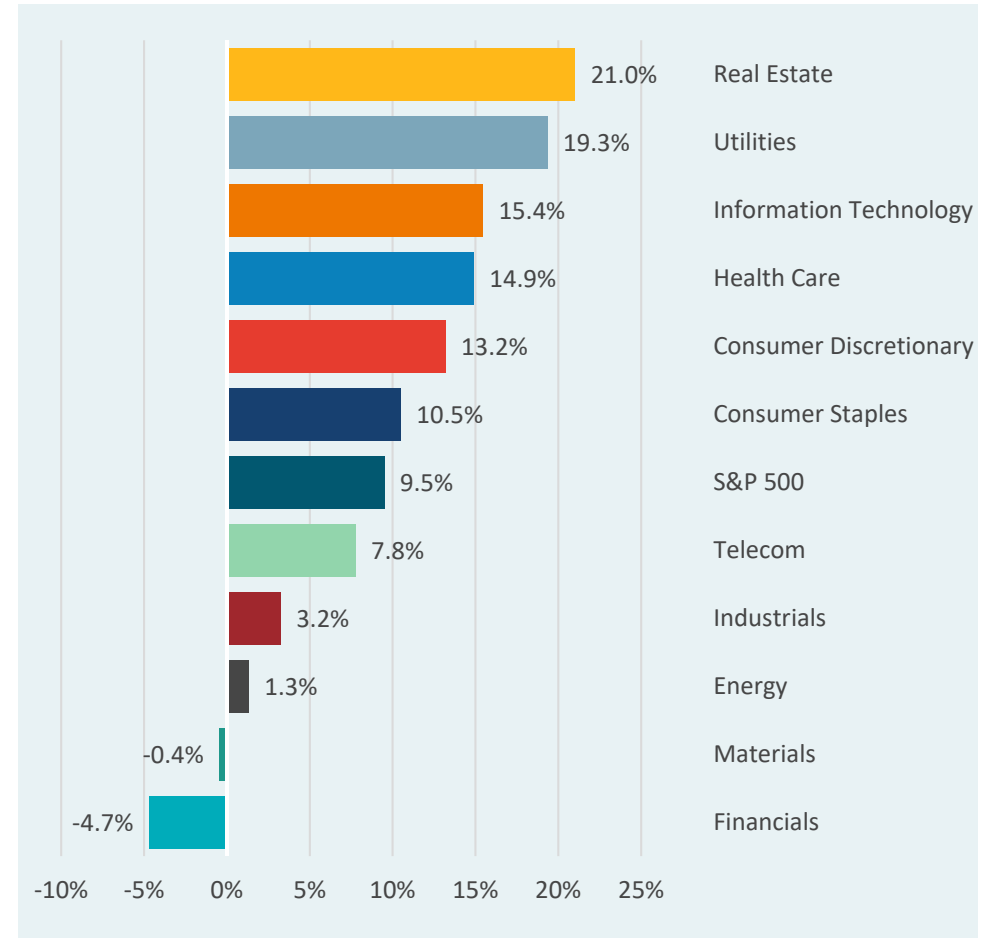
S&P 500 sector returns

QTD



Source: Morningstar, as of 3/31/19

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	1.9	13.6	13.6	9.5	13.5	10.9	15.9
S&P 500 Equal Weighted	0.9	14.9	14.9	7.2	12.0	9.5	17.8
DJ Industrial Average	0.2	11.8	11.8	10.1	16.4	12.2	16.0
Russell Top 200	2.1	13.1	13.1	10.4	14.2	11.4	15.7
Russell 1000	1.7	14.0	14.0	9.3	13.5	10.6	16.0
Russell 2000	(2.1)	14.6	14.6	2.0	12.9	7.1	15.4
Russell 3000	1.5	14.0	14.0	8.8	13.5	10.4	16.0
Russell Mid Cap	0.9	16.5	16.5	6.5	11.8	8.8	16.9
Style Index							
Russell 1000 Growth	2.8	16.1	16.1	12.7	16.5	13.5	17.5
Russell 1000 Value	0.6	11.9	11.9	5.7	10.5	7.7	14.5
Russell 2000 Growth	(1.4)	17.1	17.1	3.9	14.9	8.4	16.5
Russell 2000 Value	(2.9)	11.9	11.9	0.2	10.9	5.6	14.1

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	1.3	12.2	12.2	2.6	10.7	6.5	12.0
MSCI ACWI ex US	0.6	10.3	10.3	(4.2)	8.1	2.6	8.8
MSCI EAFE	0.6	10.0	10.0	(3.7)	7.3	2.3	9.0
MSCI EM	0.8	9.9	9.9	(7.4)	10.7	3.7	8.9
MSCI EAFE Small Cap	0.2	10.7	10.7	(9.4)	7.5	4.5	12.8
Style Index							
MSCI EAFE Growth	1.8	12.0	12.0	(1.3)	7.6	3.9	9.7
MSCI EAFE Value	(0.5)	7.9	7.9	(6.1)	6.9	0.7	8.1
Regional Index							
MSCI UK	1.1	11.9	11.9	(0.1)	6.3	0.7	9.3
MSCI Japan	0.6	6.7	6.7	(7.8)	8.1	5.6	8.0
MSCI Euro	0.0	9.8	9.8	(7.8)	6.5	0.6	7.5
MSCI EM Asia	1.8	11.1	11.1	(6.8)	11.8	6.2	10.8
MSCI EM Latin American	(2.5)	7.9	7.9	(6.7)	11.1	(0.3)	5.3

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.8	3.2	3.2	2.7	1.7	1.9	3.4
BBgBarc US Treasury Bills	0.2	0.6	0.6	2.2	1.2	0.8	0.5
BBgBarc US Agg Bond	1.9	2.9	2.9	4.5	2.0	2.7	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	0.6	1.0	1.0	2.7	1.0	1.0	1.0
BBgBarc US Treasury Long	5.3	4.7	4.7	6.2	1.5	5.4	5.1
BBgBarc US Treasury	1.9	2.1	2.1	4.2	1.0	2.2	2.4
Issuer							
BBgBarc US MBS	1.5	2.2	2.2	4.4	1.8	2.6	3.1
BBgBarc US Corp. High Yield	0.9	7.3	7.3	5.9	8.6	4.7	11.3
BBgBarc US Agency Interim	0.9	1.4	1.4	3.4	1.2	1.6	1.9
BBgBarc US Credit	2.4	4.9	4.9	4.9	3.5	3.6	6.2

OTHER

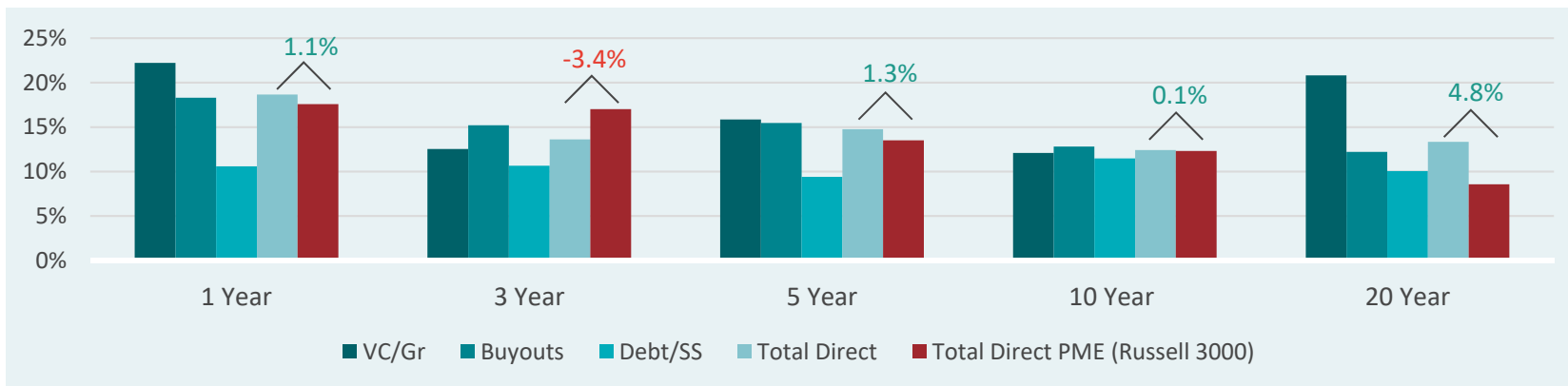
Index							
Bloomberg Commodity	(0.2)	6.3	6.3	(5.3)	2.2	(8.9)	(2.6)
Wilshire US REIT	3.2	16.0	16.0	19.3	5.5	9.0	18.7
CS Leveraged Loans	(0.1)	3.8	3.8	3.3	5.9	3.8	8.0
Alerian MLP	3.8	17.4	17.4	16.8	5.9	(4.2)	11.1
Regional Index							
JPM EMBI Global Div	1.4	7.0	7.0	4.2	5.8	5.4	8.5
JPM GBI-EM Global Div	(1.3)	2.9	2.9	(7.6)	3.3	(0.8)	4.4
Hedge Funds							
HFRI Composite	1.0	5.9	5.9	0.9	5.1	3.1	5.5
HFRI FOF Composite	1.3	5.0	5.0	0.5	4.1	2.3	3.6
Currency (Spot)							
Euro	(1.4)	(1.8)	(1.8)	(8.7)	(0.5)	(4.0)	(1.7)
Pound	(2.0)	2.3	2.3	(7.1)	(3.2)	(4.8)	(0.9)
Yen	0.6	(0.9)	(0.9)	(3.9)	0.5	(1.4)	(1.1)

Source: Morningstar, HFR, as of 3/31/19

Private equity vs. public performance

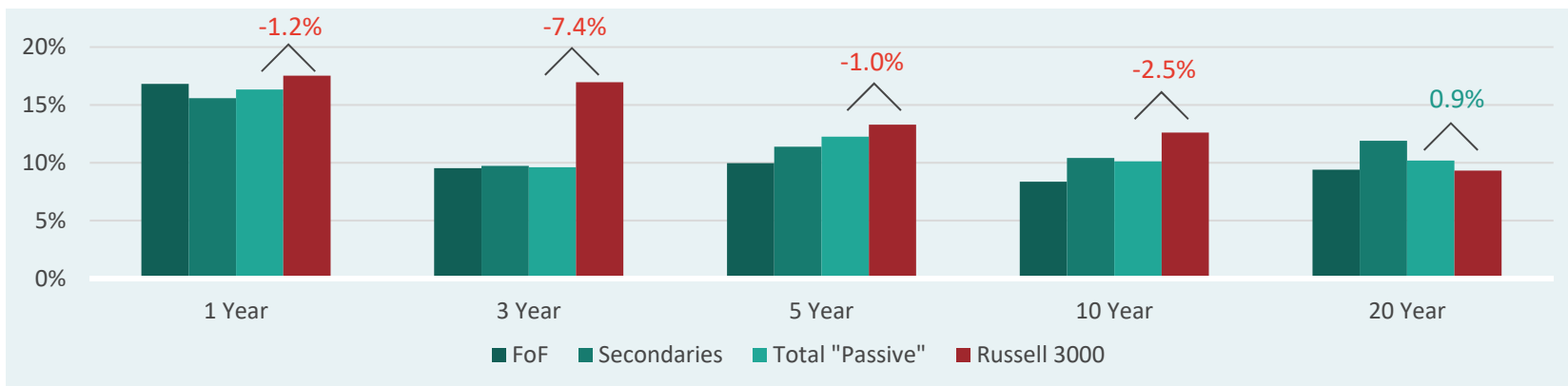
As of 9/30/2018

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - DIRECT PRIVATE EQUITY



Public market equivalent (PME) analysis shows that direct private equity has outperformed public equity over most periods

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - "PASSIVE" PRIVATE EQUITY



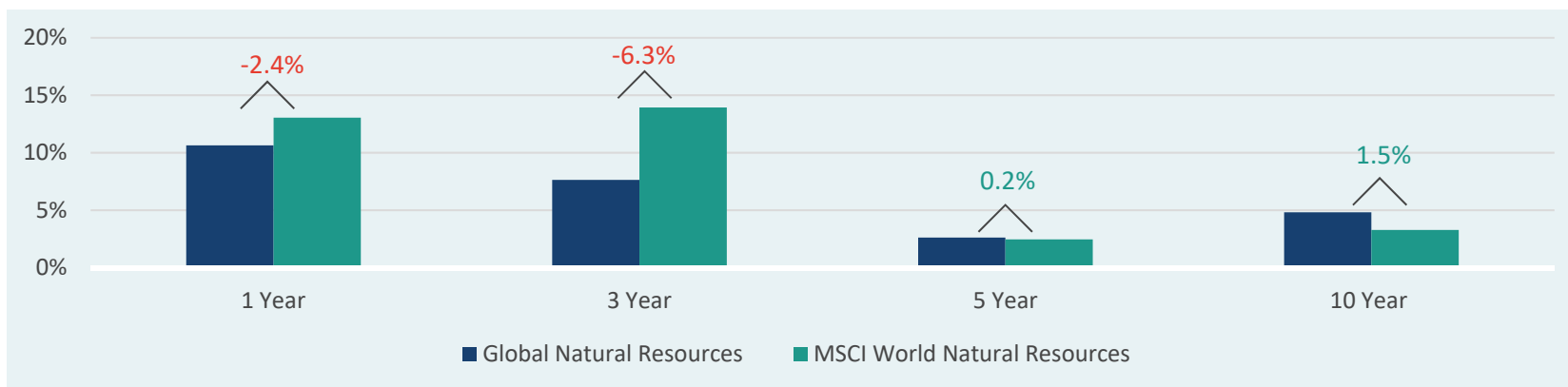
Fund-of-fund & secondary private equity investments have lagged public equities

Sources: Thomson Reuters Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2018. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

Private vs. liquid real assets performance

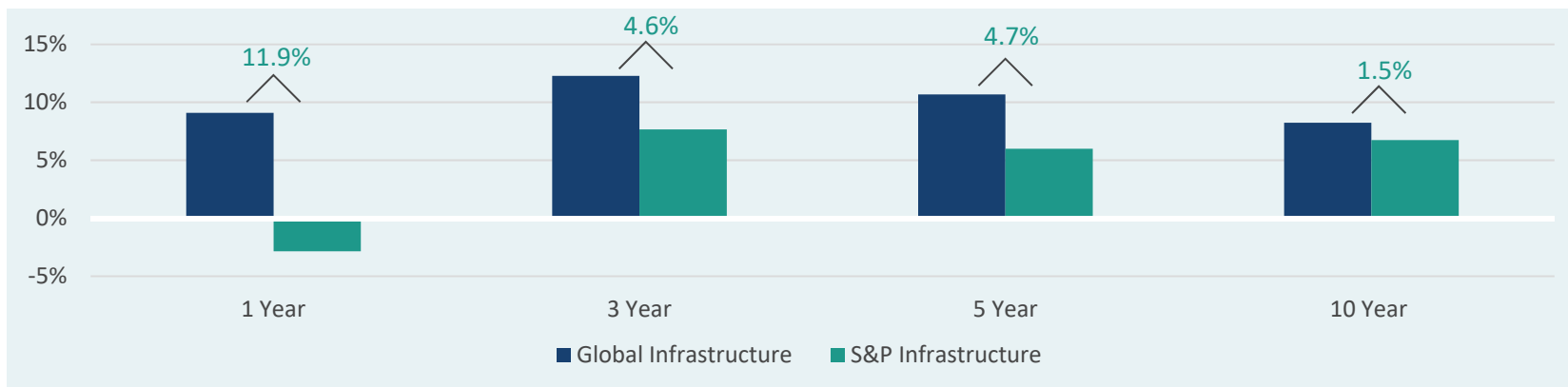
As of 9/30/2018

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - GLOBAL NATURAL RESOURCES FUNDS



Public market equivalent (PME) analysis shows that private infrastructure has recently underperformed publicly listed infrastructure

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - GLOBAL INFRASTRUCTURE FUNDS



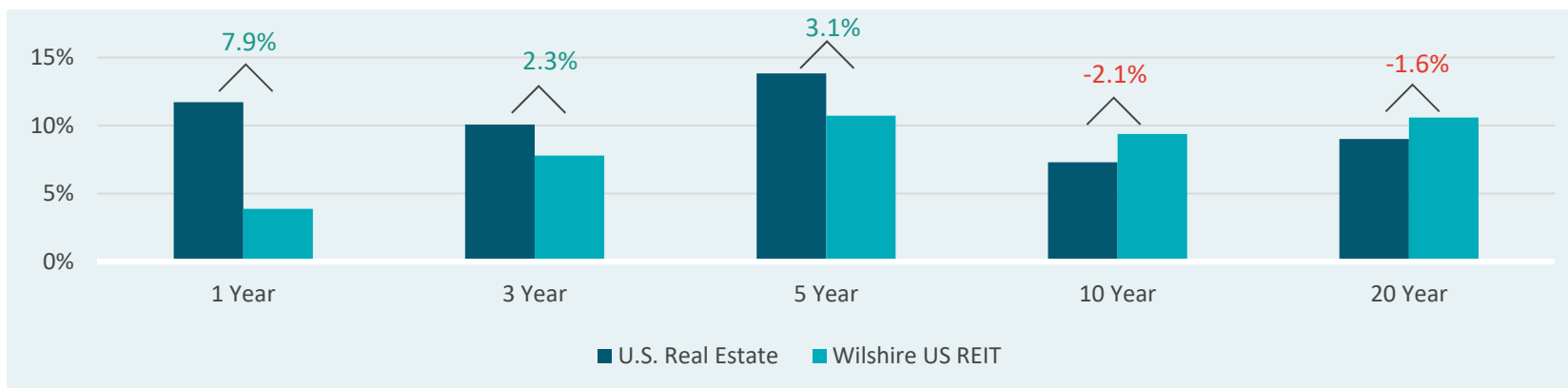
Private infrastructure has materially outperformed publicly listed infrastructure

Sources: Thomson Reuters CJA PME: Global Natural Resources (vintage 1996 and later, inception of MSCI ACWI Energy benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2018. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

Private vs. liquid & core real estate performance

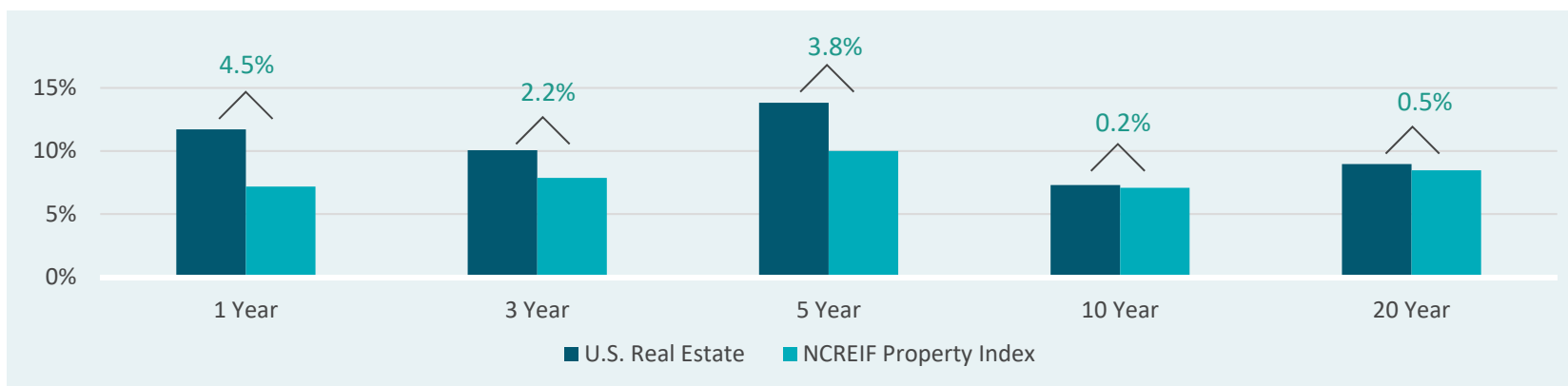
As of 9/30/2018

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - U.S. PRIVATE REAL ESTATE VS. LIQUID UNIVERSE



Public market equivalent (PME) analysis shows that U.S. private R.E. has underperformed liquid real estate over the long-term

PUBLIC MARKET EQUIVALENT (PME) ANALYSIS - U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. private R.E. has outperformed the NCREIF Property Index over each time period

Sources: Thomson Reuters C|A PME: Global and U.S. Real Estate universes as of September 30, 2018. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

Definitions

Bloomberg US Weekly Consumer Comfort Index - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.lanqerresearch.com)

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)

NFIB Small Business Outlook - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

NAHB Housing Market Index – the housing market index is a weighted average of separate diffusion indices for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula $(\text{Good-Poor} + 100)/2$ to the present and future sales series and $(\text{High/Very High-Low/Very Low} + 100)/2$ to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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Verus receives universe data from InvestorForce, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 6.3

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Report on Real Estate Annual Manager Reviews

Recommendation

Accept and review the report on the annual reviews of SamCERA's real estate managers, INVESCO and PGIM.

Background

On April 4, SamCERA staff and consultant held the annual review meeting in SamCERA's office for our real estate managers, INVESCO and PGIM.

Each meeting lasted approximately 1.5 - 2 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook.

Discussion

INVESCO's Core Real Estate fund, an open-ended commingled pool which invests in institutional quality office, retail, industrial and multi-family residential real estate assets, was reviewed. INVESCO's U.S. Value-Add Fund IV and V, both closed-end funds which acquire and reposition fundamentally sound, but "broken core" real estate into institutional-quality assets across the same sectors, were also reviewed.

PGIM's Real Estate U.S. Debt fund, an open-ended commingled fund that invests primarily in senior loans secured by U.S. commercial real estate, was reviewed next.

There were no significant concerns identified during the portfolio reviews. Attached you will find meeting notes summarizing the findings from the annual reviews.

Attachments

INVESCO Core Real Estate Annual Review Meeting Notes
INVESCO Value-Add IV & V Real Estate Annual Review Meeting Notes (confidential)
PGIM Real Estate U.S. Debt Fund Annual Review Meeting Notes (confidential)

Research Meeting Notes

Investment Organization	Invesco
Business Type	Publicly Traded
Firm Inception Date	1935
Firm \$AUM	\$888.2B
Investment Org Attendees	Michelle Foss, Brooks Monroe, David Chen
Verus Attendees	John Nicolini, Margaret Jadallah
SamCERA Attendees	Scott Hood, Michael Coultrip, Lilibeth Dames, Doris Ng
Interview Date(s)	4/4/19
Meeting Type	In office
Meeting Purpose	Update
Strategy Name	Invesco Core Real Estate
Strategy Inception Date	2004
Asset Class (Style)	Real Estate
If other, please name	
Sub-Style	Equity
Strategy \$AUM	\$13.7B (Core)
AIC Approved (Yes or No)	Yes

Notes and Analysis

Firm:

Invesco is a large investment management firm with assets under management of \$888 billion and more than 7,000 employees worldwide. Of this number, more than 750 are investment professionals. The product mix within Invesco is broad with both public and private market strategies and a mix of retail and institutional clients. Growth within the platform has come from acquisitions in the ETF market and from a growing alternatives asset class platform. Most recently, Invesco announced the acquisition of Oppenheimer Funds from MassMutual which will add an additional \$250 million in AUM once the deal is closed.

As of the December 31, 2018, the real estate platform had assets of \$65.6 billion. It has also become increasingly global both in terms of offices and product offerings. Invesco manages core open end funds in all three developed market regions, North America, Europe and Asia. In addition to direct real estate Investments, Invesco also offers U.S. and Global real estate securities (REIT) offerings and has approximately \$13.7 billion in these vehicles. The Core Fund grew from \$12.3 billion in 2017 to \$13.7 billion at the end of 2018. The Core Fund has no outstanding redemptions and approximately \$500 million in commitments that are signed or in documentation.

Team/People:

The structure of Invesco's real estate team emphasizes specialization and a focus on accountability. The Invesco Core Real Estate fund is overseen by three committees composed of senior professionals. The Investment Committee is responsible for approving acquisitions and sales. The Steering Committee governs the Fund's investment and governance policy. And the North American Direct Investment Strategy Group oversees execution, including market selection and sector allocation. In addition to the Portfolio Management Team, INVESCO employs professionals dedicated to a range of real estate specializations including research, acquisitions, financing, underwriting, closing and due diligence, asset management, and accounting and reporting.

Bill Grubbs serves as lead portfolio for the Core Fund and has been with Invesco for 14 years. Michelle Foss is co-portfolio manager on the Core Fund and joined Invesco in 2014. Michelle was most recently with Bailard where she was a core, open end real estate fund manager. She had worked with Bill previously at Prudential 21 years ago. The broader North American real estate team consists of 215 employees located in five regional offices. Bill Grubbs and Michelle Foss are based in San Francisco, with Dallas being the real estate team's headquarters.

Process/Philosophy

SamCERA is one of the founding investors in the Invesco Core Real Estate fund in 2004. As a founding investor, SamCERA has benefited from lower fees than those paid by more recent investors. This fund is Invesco's largest and flagship real estate fund and has assets of \$13.7 billion. Invesco's Core Fund invests in high quality office, apartment, industrial and retail properties in major markets while utilizing a conservative balance sheet. The Fund's performance target is to outperform the NCREIF ODCE Index over longer time periods.

Four broad principles underlie Invesco's approach to core real estate investing. They seek to manage a diversified portfolio, both geographically and by property type. The portfolio holds office, industrial, retail and apartment properties. The portfolio maintains an income-oriented investment approach. Attractive markets and properties must offer investments that are "durable" with barriers to entry, in growing areas and liquid, meaning that it's possible to redeem if desired. They strive to have a conservative risk profile, with strong balance sheets, limited leverage and selective exposure to value add type investments. Invesco also strives to be transparent and efficient in client communication and reporting.

The investment process has both top down and bottom up elements. Invesco has long term strategic ranges for each property type with an overweight to apartments. They develop a view about different regions and cities and focus on specific target markets. Invesco is looking primarily at gateway cities and up-and-coming markets. They are most selective in office and industrial properties, where they believe a market needs to have high value jobs and high barriers to entry to be attractive. Invesco also seeks to generate returns on a bottom up basis with property specific selection within their target property type ranges and preferred regions.

The Core Fund will selectively make value add investments (up to 15% allowed). But they do so only in cases where replacement cost is lower than purchasing an existing property. Value add investments are not made with the expectation of a quick sale, but of holding the property in the portfolio for purposes of generating income. While there are some value-add investments in the Core Fund, there isn't overlap in exposure with the Value Add Fund. The Value Add Fund has higher return/risk expectations of 12-15%, so most transactions that fit that mandate would fall outside the risk parameters of the Core Fund.

Performance

Michelle Foss discussed Invesco's outlook and positioning within the Core Fund. The most notable sector over/underweight within the Core Fund is the overweight to multifamily and underweight to office, relative to the ODCE Index. Invesco has been overweight to multifamily for many years but continue to believe that the sector will outperform relative to office in an economic slowdown. Though the team has been growing their exposure to industrial assets, they have been relatively late to the sector which has been a performance headwind given the strength in the sector. Invesco has utilized their build-to-core portfolio to grow exposure in the industrial sector as they look to add modern buildings near key submarkets. The apartment overweight has also been a headwind recently as pricing was soft in several markets where new supply has put downward pressure on pricing. The retail segment shifted towards what Invesco calls "experiential", meaning that the property offers a unique experience that can't be replicated easily. They also look for retail centers anchored by grocers in high-barrier to entry locations. From a geographic perspective, the Fund's overweight to the San Francisco Bay Area has been a tailwind.

The manage to core portfolio (i.e. value-add) will be providing material appreciation and growth in the Fund's income as projects in the industrial and apartment portfolio generate rental income. Current projections show that the value-add portfolio will add about 135bps in net value gain for the fund as projects are completed.


The Core Fund outperformed the ODCE index over the trailing 1, 3 and 5 years and slightly underperformed over the trailing 10 years. Outperformance was attributed to strong appreciation in Los Angeles and Bay Area properties, as well as the Industrial portfolio. The Core Fund also increased its leverage to be more in-line with the Index which has helped relative performance. As of year-end 2018, debt to total assets was 23.9% which is still a conservative level relative to the asset classes history. Invesco has maintained a longer duration than most peers as they lock-in low fixed rates. The weighted average remaining term on their debt was 8.0 years with an average contract interest rate of 4.0% at year-end. The leverage levels were down slightly from 2017 when fund leverage reached 25.2%.

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement**

June 4, 2019

Agenda Item 6.4

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Report on Core Equity and Passive Manager Annual Reviews

Recommendation

Review and accept the report on the annual reviews of SamCERA's Core Equity and Passive strategies.

Background

On May 2nd, SamCERA staff held annual review meetings in SamCERA's office for our small-cap core equity manager, Quantitative Management Associates – QMA, and our passive index strategies with Blackrock. Each meeting lasted approximately 1.5 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook. The annual review for our other core equity manager, D.E. Shaw, took place on May 16th and will be reported at the next scheduled board meeting.

Discussion

The Blackrock Russell 1000, EAFE and Intermediate Government Bond Index Funds were reviewed first. Over the past year, the firm has made rotations across its senior leadership, but no leadership changes within the index portfolio management teams.

Next, the QMA U.S. Small Cap Core Equity Fund, which is a fundamental, bottom-up, quantitative small-cap core strategy that uses an adaptive and systematic approach to stock selection, was reviewed. In January 2019, the firm completed its acquisition of Wadhvani Asset Management, LLP, a London-based quantitative macro-focused investment firm.

There were no major concerns identified during the reviews. Meeting notes are attached to this memo summarizing the findings from these annual reviews.

Attachments

- A. BlackRock Passive Index Annual Review Meeting Notes
- B. QMA Annual Review Meeting Notes

Date of meeting: 5/2/2019

Location: SamCERA Office

Manager Representative(s)

Scott Dohemann (Head of US Product Strategy),
Cary Kriegsman (Associate, Institutional),
Valerie Wong (Product Strategist),
Gordon Readey (Director, Global Fixed Income)

Verus Representative(s)

Margaret Jadallah
Joseph Abdou

Client Representative(s)

Mike Coultrip (CIO), Lilibeth Dames (Analyst), Doris Ng
(Analyst)

Account AUM (Q1-2019)

Russell 1000 \$452 mm
Intermediate Govt. Bond \$228 mm
EAFE \$236 mm

Product Description

BlackRock uses a full replication approach. They hold each stock in the same proportion in which they are represented in the S&P 500 Index and the MSCI EAFE Index, respectively. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

Organization

BlackRock, founded in 1988, has risen to become the largest asset manager in the world through the growth of its legacy products as well as a series of strategic acquisitions. The two most significant deals were the mergers with Merrill Lynch Investment Managers (MLIM) in 2006 and Barclays Global Investors (BGI) in 2009. MLIM began managing assets in the UK in 1946 as part of S.G. Warburg & Co. (later known as Mercury Asset Management), and in the US in 1976 under the Merrill Lynch name. BGI traces its roots back to 1922, when its predecessor organizations, Wells Fargo Investment Advisors and Wells Fargo Bank, began managing US institutional assets. BGI was formed in 1995 from the merger of Barclays de Zoete Wedd Investment Management and Wells Fargo Nikko Investment Advisors. Other notable acquisitions include State Street Research & Management (2005), Quellos Group (2007) and R3 Capital Partners (2009). In addition to its asset management business, BlackRock provides risk management and advisory services through its BlackRock Solutions arm. BlackRock acquired Tenenbaum in 2018 (another SamCERA manager) to enhance its credit research. In 2018 BlackRock also acquired eFront with the focus on adding some of its features to Aladdin.

Total firm assets at 3/31/19 were \$6.5 trillion with \$3.3 trillion in equities and \$2.0 trillion in Fixed Income. During 2018, BlackRock saw \$124 billion in net inflows. The firm's iShares (ETFs) business was a significant driver of growth.

BlackRock is opening a new office in Atlanta which will focus on technological innovation. The firm's business continuity plan is to add additional staff from other business areas in case of emergency. They expect to move/hire 10-15 people in index management in the Atlanta office in the coming year.

Investment Team

BlackRock employs a large team of portfolio managers, research professionals, strategists and traders on its index team, which manages both institutional (index fund) and iShares applications. Most of these employees are located in San Francisco.

There has been a rotation of multiple team leads throughout the organization over the last year as has been reported in the press. BlackRock senior management believes that this brings the firm closer together across its business lines and introduces fresh, innovative thinking which will help both the business and, ultimately, clients. The index portfolio management leads did not change since the last SamCERA review

2018 - 2019

Portfolio Management					
Developed Markets	Emerging	U.S. & Canada ETF	Index Asset Allocation	Index Plus	Index Research
Rachel Aguirre Head of Developed Markets Portfolio Management	Jennifer Hsui, CFA Head of Emerging Markets Portfolio Management	Amy Whitelaw Head of U.S. & Canada ETF Portfolio Management	Greg Savage, CFA Head of Index Asset Allocation	Creighton Jue, CFA Global Head of Index Plus Portfolio Management	Stephanie Allen Global Head of Index Research

Investment Strategy

BlackRock focuses on three objectives in the management of its index funds: minimizing tracking error, minimizing transaction costs, and minimizing investment and operational risks. BlackRock believe that superior investment outcomes can most reliably be achieved through Total Performance Management – the management of return, risk, and cost. Blackrock employs quantitative management techniques through the use of sophisticated computer-driven models to ensure all ideas are theoretically sound and empirically valid.

There are multiple, small sources of tracking to the benchmark in index management. Commissions, taxes, market impact and cash drag are small detractors from performance. Securities lending and a tax advantage specific to international portfolios are persistent tailwinds.

While the equity index funds are fully replicated, fixed income index funds utilize stratified sampling. Treasuries, which comprise the 95% of the market value for the Bloomberg Barclays U.S. Intermediate Government Index, are largely replicated while Agency exposure, which comprises a small percentage of the index yet has a large number of issues, utilizes more sampling. The fixed income funds can also invest in “off the run” Treasuries, purchased after auctions, when they are cheaper.

Performance & Positioning

For the past year ended 3/31/19, the three funds have met expectations from a performance and tracking standpoint. Annual expected tracking errors for the funds are as follows: Russell 1000 Fund (0-5 bps), EAFE Index (0-30 bps), and Intermediate Government Bond Index Fund (0-5 bps). BlackRock’s passive size and scale is a differentiator, and the ability to cross trade is an important means of cost reduction. For the BlackRock Equity Index funds they received approximately 3 bps from securities lending and 1 bps from security litigation, while cash drag costs and transaction costs gave back 1 bps each for the year. The EAFE index gained 39 bps from a tax advantage, 4 bps from securities lending and 14 bps outperformance for the

“Good Friday” effect where markets were closed March 31, 2018 for Good Friday (this was a reversal of the 14 bps underperformance the prior year).

BlackRock changed its primary custodian JP Morgan since the last review. This was a large project for the firm and should reduce custodial costs.

BlackRock is lowering its fees on all products for SamCERA due to the size and relationship with the Fund.

Conclusion

BlackRock’s mandates for SamCERA successfully replicate the returns of their underlying benchmarks with tight tracking. We consider BlackRock to be a top tier passive manager.

Date of meeting: 5/2/2019

Location: SamCERA Office

Manager Representative(s)

Gavin Smith (Portfolio Manager) and Brad Zenz (Client Relations)

Verus Representative(s)

Margaret Jadallah
Joseph Abdou

Client Representative(s)

Mike Coultrip (CIO), Lilibeth Dames (Analyst), Doris Ng (Analyst)

Product Description

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order to provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities with the goal of consistently adding value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

QMA was added to the SamCERA portfolio in August 2016. QMA managed \$84 million for SamCERA as of 3/31/19.

Organization

QMA is an SEC-registered investment adviser, organized as a Limited Liability Company in the state of New Jersey. Founded in 1975, QMA manages portfolios for a worldwide institutional client base, including corporate and public pension plans, endowments and foundations, multi-employer pension plans, and sub-advisory accounts for other financial services companies.

QMA began managing US equity accounts for institutional clients in January 1975. After operating for many years as a division within Prudential Financial, Inc., known today as PGIM, Inc. (formerly known as Prudential Investment Management), QMA became a wholly owned subsidiary of PGIM in 2004.

QMA's primary office is located in Newark, NJ, where the team responsible for the US Small Cap Core Equity strategy is based. QMA's portfolio management, research, and trading are performed in the Newark office. The firm has a secondary office in San Francisco where portfolio management and research are also performed, and more recently opened an office in London. In 2018, QMA acquired Wadhvani Asset Management (WAM), a team of 30 investment professionals in London. They joined offices with a smaller QMA London office. WAM uses high frequency trading and different signals/timing than QMA. There is not expected to be any integration of signals between WAM and QMA.

Investment Team

QMA's investment team includes 19 PhDs, many of whom have spent all or most of their careers at the firm. The US Core Equity team has worked together for an average of 14 years and has an average of 18 years of investment experience. All US Small Cap Core Equity portfolios are team managed.

Peter Xu, PhD and George Patterson co-head the team. George Patterson, PhD joined QMA in October 2017 as Co-Head of the Quantitative Equity platform, partnering with Peter Xu, PhD. Peter now focuses primarily on research, whereas George manages the team. SamCERA's portfolio manager Stacie Mintz, CFA has worked on the small cap portfolio since its inception in 1997. The San Francisco office has grown from 4 to 12 professionals in recent years with a subset of the team joining from GMO.

Investment Strategy

QMA's stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates. Stocks are categorized along a continuum of slow growth to fast growth with optimal adaptive factor weights to valuation, earnings expectations and quality. Stocks with the highest rankings are purchase candidates. Consistency of alphas are emphasized in their approach, and industry adjustments are utilized for multiple industries.

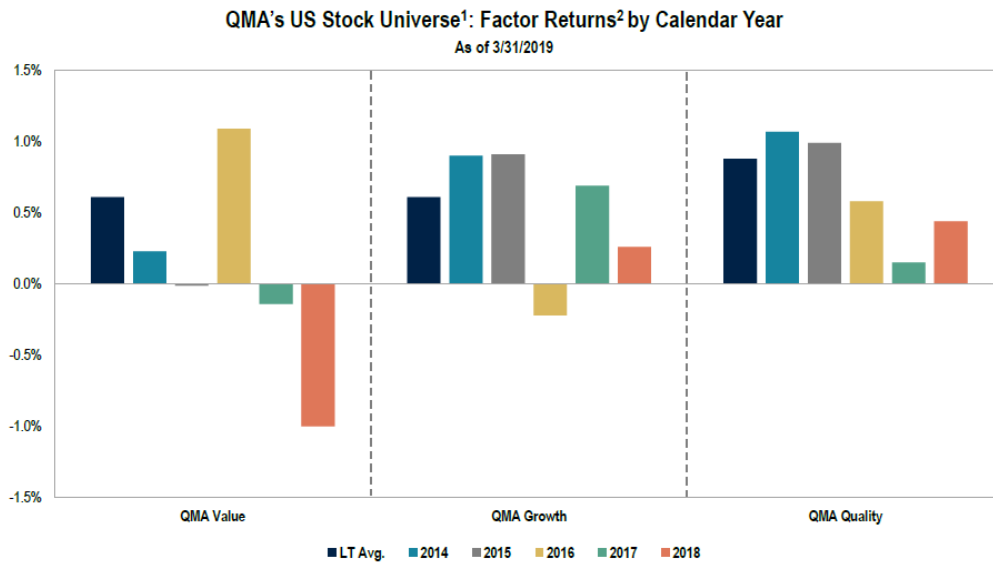
QMA will also tilt the portfolio based on shorter term signals and currently has a larger than average weighting to valuation based on its assessment that valuations are cheap compared to historical ranges. QMA has incorporated some new shorter-term growth signals into its approach, including machine learning-based inputs, while maintaining longer-term fundamental earnings insights.

QMA does not use a traditional risk model, but instead uses fundamental risk limits/deviations to the Russell 2000 specific to industry and sector (+/-0.75%), size (+/-3%) and style (+/-2%). Position weights are also benchmark relative (+/-0.75%). An example of how they are different from other quant managers is that they may buy less of two stocks that rank equally as opposed to choosing only one. Initial position size is 50 bps which then can drift within portfolio construction guidelines. Portfolio tilts (ex. Value overweight) are discussed and deliberated by the portfolio management team prior to implementation.

Performance & Positioning

Since SamCERA's portfolio inception in August 2016, the QMA small cap portfolio underperformed by 111 bps at 3/31/19 (9.3% vs. 10.4% for the Russell 2000 Index). The value factor continues to hurt performance, starting in 2017 through most of 2018 (see chart below).

Factor diversification contributes to performance consistency over time.



Conclusion

The value factor has hurt QMA performance and led to both short-term and since inception underperformance for this relatively new SamCERA manager. Given the general value headwinds, we understand why the strategy underperformed, and we believe that QMA should remain in the SamCERA portfolio.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 6.5

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer *Michael R. Coultrip*

SUBJECT: Presentation of Private Asset Semi-Annual Performance Reports as of December 31, 2018

Recommendation

Accept and review Verus' semi-annual private equity and private real assets performance reports as of December 31, 2018.

Background

The Board of Retirement approved the implementation of SamCERA's private equity program in August 2010. The Board subsequently approved the implementation of SamCERA's private real asset program in October 2013. Verus provides a semi-annual private equity and private real asset performance report as of June 30th and December 31st each year.

Discussion

As of December 31, 2018, SamCERA's private equity portfolio had a total market value of \$287.1 million (6.7% of SamCERA's total fund). SamCERA's target allocation for Private Equity is 6.0%.

The private equity portfolio has a 16.1% net IRR since inception. For the six-month period from July 1, 2018 through December 31, 2018, SamCERA committed to one new fund for a total of \$20 million. This brought the sum of private equity funds in the portfolio to twenty-five with \$428.8 million in committed capital across sixteen private equity managers.

As of December 31, 2018, SamCERA's private real assets portfolio had a total market value of \$58.4 million (1.4% of SamCERA's total fund). SamCERA's current target asset allocation to private real assets is 2.0%. Our new long-term target allocation is 4.0%.

The private real assets portfolio has a -1.9% net IRR since inception. For the six-month period from July 1, 2018 through December 31, 2018, SamCERA committed to one new fund for a total of \$30 million. As of December 31, 2018, there were eleven private asset funds in the portfolio with \$179.8 million in committed capital across nine private real asset managers.

Faraz Shooshani will review the performance reports with the Board and be available for questions.

Attachments

- A. Verus Semi-Annual Private Equity Performance Report for Period Ending 12/31/2018
- B. Verus Semi-Annual Private Real Assets Performance Report for Period Ending 12/31/2018



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PERIOD ENDING: DECEMBER 31, 2018

Private Equity Review

San Mateo County Employees' Retirement Association

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DEBT RELATED

- **HY and leveraged/syndicated loan issuance were down.** In 2018, US high yield issuance of \$168 billion¹, the lowest issuance total since 2009, was down 40.2% versus 2017. The institutional issuance of \$730 billion¹, 21% off 2017's record level.
- **Spreads loosened across the board except for CCC index.** US HY Credit Index loosened by 166 bps or 44.5%² versus the same period last year. Except for CCC index tightened by 44bps, a 3.6%² decrease versus 2H 2017, BB, B loosened by 146 bps and 140 bps respectively, a 54.5%² and 32.7%² increase versus the same period last year.
- **Slight increase in LBO debt, but improvement in interest coverage.** US total leverage (Debt / EBITDA) for 2018 at 5.8x³ up 1.4% from the same time last year. Interest coverage ratio (EBITDA / Cash Interest) ended Q4'18 at 2.7x³, down 6.2% from 3.1x³ at the end of 2017.

GLOBAL

- **Investment activity up.** During 2018, PE firms globally invested in \$729.6 billion^{6&13} worth of deals, 5.9% from the same time prior year and closed on 19,995 transactions^{6&13}, up 6.5% from 2017.
- **Mixed movement of purchase price multiples by region.** As of December 31, 2018, global median purchase price multiples (Enterprise Value / EBITDA) was 10.8x¹, a 1.8% decrease from the same time last year. This was driven by a 0.1% decrease in US purchase multiples at 10.6x⁷, a 15.8% increase in purchase price multiples in Europe at 11.5x¹¹, and a 17.5% decrease in the rest of the world at 9.2x¹¹.
- **Increase in dry powder in all regions, slightly down in the rest of world.** For 2018, global total PE dry powder was at \$1.36 trillion⁴, up (14.9%) from end of 2017. Total PE dry powder was: up in the US 14.4% to \$735.9 billion⁴; up in Europe by 15.7% to \$281.3 billion⁴; up in Asia by 18.1% to \$302.2 billion⁴; and down the rest of world by 1.8% to \$43.2 billion⁴.

US BUYOUTS

- **Fundraising down significantly.** In 2018, US buyout firms raised \$123.2 billion⁵, down by 30.2% from same time prior year. Both the number of funds closed and average fund size decreased from 1H 2017 to 1H 2018, 117⁵ to 112⁵ and \$1.51 billion⁵ to \$1.1 billion⁵, respectively.
- **Slight decline in LBO price multiples.** As of December 31, 2018, US LBO purchase price multiples (Enterprise Value / EBITDA) were at 10.6x⁷, a -0.1% decrease from 2017.

- **Investment activity up.** During 2018, US buyout firms invested in \$264.0 billion⁶ worth of deals, up 50.9% from the same time last year and closed on 2,787 transactions⁶, up 22.0% versus the same time in 2017. Keurig Dr Pepper, Inc. (\$21.0 billion⁶), Refinitiv (\$17.0 billion⁶), and Johnson Controls' Power Solutions business (\$13.2 billion⁶) contributed to the increase in capital deployed.
- **Dry powder up.** For 2018, US buyout dry powder was \$402.4 billion⁴, up by 12.2% from the same time in 2017.
- **Exits activity strong.** In 2018, US buyout firms exited 928 companies⁶, representing \$178.4 billion⁶ in total transaction value. This represented a 19.3% increase in the number of exits and a 26.1% increase in total transaction value compared to the same time last year.

US VENTURE CAPITAL

- **Fundraising increased.** US VC firms raised \$41.5 billion⁵ during 2018, a 37.6% increase from the same period last year. 342 funds⁵ closed in 2018, a 54.1% increase from the same period last year. The average US VC fund size decreased by 10.7% at \$121.4 million⁵ versus the same period last year.
- **Dry powder up.** As of Q4 2018, US VC dry powder was at \$110.8 billion⁴, up 10.7% from the last year.
- **Investment activity up sharply from last year.** US VC firms deployed \$113.0 billion¹² in capital during 2018, a 47.2% increase from 2017. The number of rounds closed at 5,510¹², a 28.1% increase from the same time last year. The average investment per deal increased 15% from last year, to \$20.6 million¹².
- **All stages valuations were up.** Compared to 2017, the average pre-money valuations increased across all stages in 2018: up 16.7% at \$7.0 million⁸ for Seed stage, 29.0% at \$20.0 million⁸ for Series A, 37.9% at \$55.5 million for Series B, 36.9% at \$115.0 million⁸ for Series C, and 45.4% at \$325.0 million⁸ for Series D. Over the past 3 years, the average pre-money valuations of Seed stage, Series A, Series B, Series C and Series D investments were up 40.0%, 56.6%, 44.9%, 64.3% and 95.6%, respectively⁹.
- **Exit activity up.** US VC firms exited 662 companies¹² in 2018, down by 2.1% from the same period last year, representing \$87.6 billion¹² in transaction value, up 69.4% from the same period 2017.

EX-US

- **Fundraising up in Asia and ROW, down in Europe.** For 2018, Ex-US fundraising was up 2.3% to \$185.5 billion⁵ compared to same time prior year. The increase was led by Asian funds which raised \$80.0 billion⁵, up 25.1% from same time last year. The increase was offset by a decrease in funds in Europe which raised \$89.5 billion⁵, down 17.3% from 2017. Fundraising in the rest of the world was up 74.0% to \$16.0 billion⁵ compared to 2017.
- **Ex-US dry powder grew, but less than dry powder in the US.** PE dry powder outside the US grew to \$626.7 billion⁴ for Q4 2018, a 15.4% increase versus last year. However, dry powder outside the US was still slightly less than dry powder in the US (\$735.9 billion⁴) by 14.8%.
 - **Dry powder of buyout, VC and growth equity in Asia increased.** At the end of 2018, Asia buyout dry power was \$85.6 billion⁴, up by 35.7% from last year. VC dry powder in Asia increased to \$81.1 billion⁴, up by 13.1% from prior year. Growth equity dry powder grew to \$113.6 billion⁴, a 13.8% increase from 2017.
 - **Europe buyout and VC dry powders up.** For 2018, Europe buyout dry power was \$189.3 billion⁴, up by 15.7% from last year. Same time, VC dry powder in Europe grew to \$26.4 billion⁴, a 15.8% increase from prior year. Growth equity dry powder grew to \$20.4 billion⁴, a 36.9% increase from 2017.
- **Investments up in all key sectors and geographies, except for Asia buyout.** Number of deals increased in both Europe and Asia buyout and venture capital. Aggregate deal volume increased in 2018 in European buyout and venture capital and Asia venture capital.
 - **Europe buyout and VC investments increased.** In 2018, Europe buyout firms transacted on \$136.7 billion⁶ in aggregate value, up by 39.4% from 2017. VC investment activity was up from \$17.7 billion in 2017 to \$22.4 billion¹² during 2018, an increase of 26.7%.
 - **Asia average buyout deal value was down, while VC investment activities was up.** During 2018, Asia VC investment activity was \$115.9 billion¹², up from \$75.2 billion in 2017, an increase of 54.1%. Buyout firms closed on \$39.1 billion⁶ in aggregate value, down by 37.5% from the same time of last year's \$62.5 billion⁶.
- **Leverage multiples in Europe moved up, loan volume slightly down.** European LBO leverage multiples (Debt / EBITDA) have averaged 5.7x¹⁰ during 2018, an increase of 6.5% from the same time last year and a 7.7% decrease from the peak (6.1x¹¹) in 2007. European LBO Loan volume at \$76.4 billion¹¹ is down 2.8% versus 2017, an decrease of 44.5% versus the peak of \$137.7 billion¹¹ in of 2007.
- **Exit activity stronger in Europe and Asia.** In 2018, Europe PE firms aggregate exit value amounted to \$122.3 billion^{6&12}, a 48.0% increase from the same time last year, while Asia PE firms' exits were up 174.4% from 2017 to \$84.3^{6&12} billion in the same time.

Outlook

- **Momentum of increase in PE allocations plateaus.** A recent survey of institutional investors conducted on December 31, 2018 indicated that 46%¹³ intend to increase their allocation for private equity compared to 53%¹³ during the same period last year. 49%¹³ intend to maintain their allocation for private equity compared to 43%¹³ during the same period last year.
- **Institutional investors most interested in investing in North America and like small- to mid-market buyouts.** Based on the survey conducted on December 31, 2018, Institutional investors view US as the most attractive location to invest in the current economic climate with 67%¹³ (versus Western Europe 49%¹³) choosing it as their preferred developed markets investment destination, and with 49%¹³ choosing China (versus India 30%¹³) as their preferred emerging markets investment destination. In the same survey, 54%¹³ of institutional investors also cited the small to mid-market buyout strategy as presenting the best opportunities in the current financial climate. venture capital strategy was mentioned next with 46%¹³ of institutional investors believing it presented the best opportunities.

Notes

1. *Leveraged Loan Monthly Refinitiv LPC*
2. *Guggenheim High-Yield Bank Loan Outlook*
3. *LCD's Leveraged Buyout Review*
4. *Preqin Dry powder by Geography (Preqin Website) Dry powder includes Buyout, Distressed PE, Growth, Mezzanine, Co-investments, Balanced, and Venture Strategies.*
5. *Preqin Private Equity Fundraising*
6. *Preqin Private Equity-Backed Buyout Deals and Exits*
7. *US LBO Review*
8. *PitchBook-NVCA Venture Monitor*
9. *PitchBook's VC Valuations*
10. *LCD European Leveraged Buyout Review*
11. *European Leveraged Lending Review*
 - a. *Ex US Multiples were estimated utilizing a number of sources including Preqin Private Equity-Backed Buyout Deals and Exits Factsheet, LCD's Leveraged*
 - b. *Buyout Review, Europe Leverage Lending Review and Leveraged Loan Monthly Refinitiv LPC.*
12. *Preqin Venture Capital Deals and Exits*
13. *Preqin Investor Outlook: Alternative Assets*

Investment Type	Policy Target	Policy Range	Market Value %	Market Value \$(000)	Unfunded Commitment \$(000)	Market Value + Unfunded \$(000)
SamCERA - Total Plan			100.0%	4,254,296		
Buyout (60% +/- 20%)	3.6%	2.4%-4.8%	4.2%	180,579	97,810	278,389
Venture Capital (20%, 0%-30%)	1.2%	0.0%-1.8%	2.0%	83,213	7,625	90,838
Debt-Related/Special Situations (20% +/- 10%)	1.2%	0.6%-1.8%	0.5%	23,313	71,350	94,663
Total Private Equity*	6.0%	4%-8%	6.7%	287,106	176,785	463,890

* The Private Equity Policy Target of 7.0% was reduced to 6.0% effective 10/1/2018.

Portfolio Summary

- As of December 31, 2018, the Private Equity Portfolio had a total market value of \$287.1 million, with \$180.6 million in Buyout, \$83.2 million in Venture Capital, and \$23.3 million in Debt-Related/Special Situations. Total market value is the current reported value of investments, excluding the remaining amount of unfunded commitments.
- SamCERA has contributed \$287.5 million toward its Private Equity commitments. Unfunded commitments total \$176.4 million.
- The portfolio exposure at 6.7% is above the new 6% policy target, but within range. All sub-asset classes, except Debt-Related/Special Situations which is below its target range, are within the policy range while commitments continue to be made to new managers at a slower pace.

Portfolio Activity

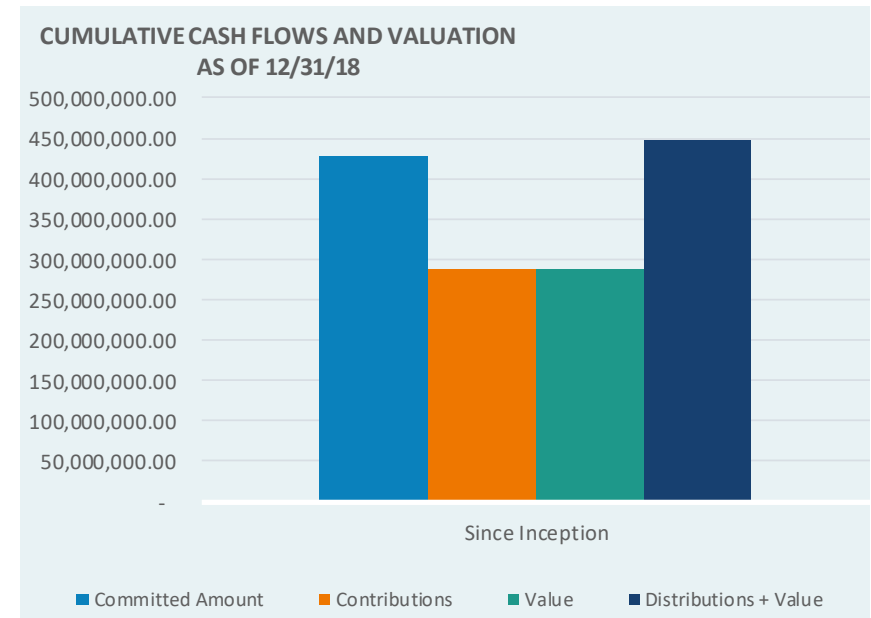
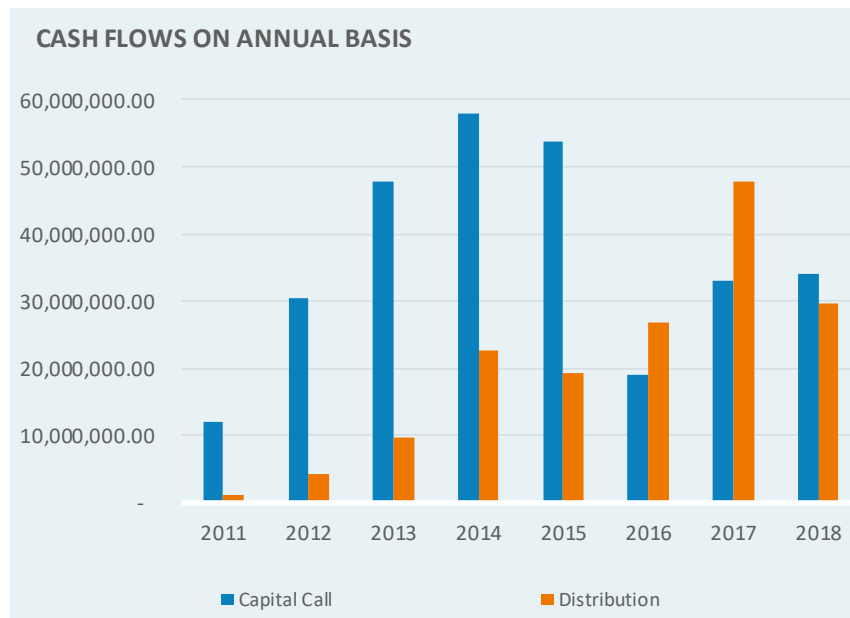
- SamCERA committed \$20.0 million to ABRY Advanced Securities Fund IV in the second half of 2018.

Performance

- The Private Equity portfolio’s performance, as measured by net IRR, is 16.12%, 591 bps above the same cash flow invested in Russell 3000 TR index of 10.21% and 291 bps above Russell 3000 + 3% SamCERA PE benchmark. Capital weighted average investment age of the portfolio is 3.8 years.
- The portfolio is currently valued at \$287.1 million. Together with \$161.2 million in realized distributions, the Total Value at \$448.3 million is approximately \$160.7 million above \$287.5 million total capital contributions, resulting in a total value multiple of 1.56x and a distribution multiple of 0.56x.
- Distributions surpassed contributions in 2016 and 2017 by a ratio of (1.4:1.0) in aggregate, but lagged with a ratio of (0.9:1.0) in 2018.

Attribution of returns:

- Buyouts up \$87.31 million / +48.2% versus cost (Sycamore, Great Hill V & VI, and ABRY VII leading), with 48.5% of called capital realized and distributed;
 - Venture Capital up \$58.36 million / +113.4% versus cost (General Catalyst VI, Emergence Capital III, NEA 14, and Third Rock III leading), with 51.7% of called capital realized and distributed; and
 - Debt-related/Special Situations up \$15.05 million / +27.3% versus cost (ABRY Advanced Securities II and III leading), with 85.0% of called capital realized and distributed.
- Within Private Equity, the current allocation of invested capital is 62.9% to Buyout, 29.0% to Venture Capital, and 8.1% to Debt-Related/Special Situations.

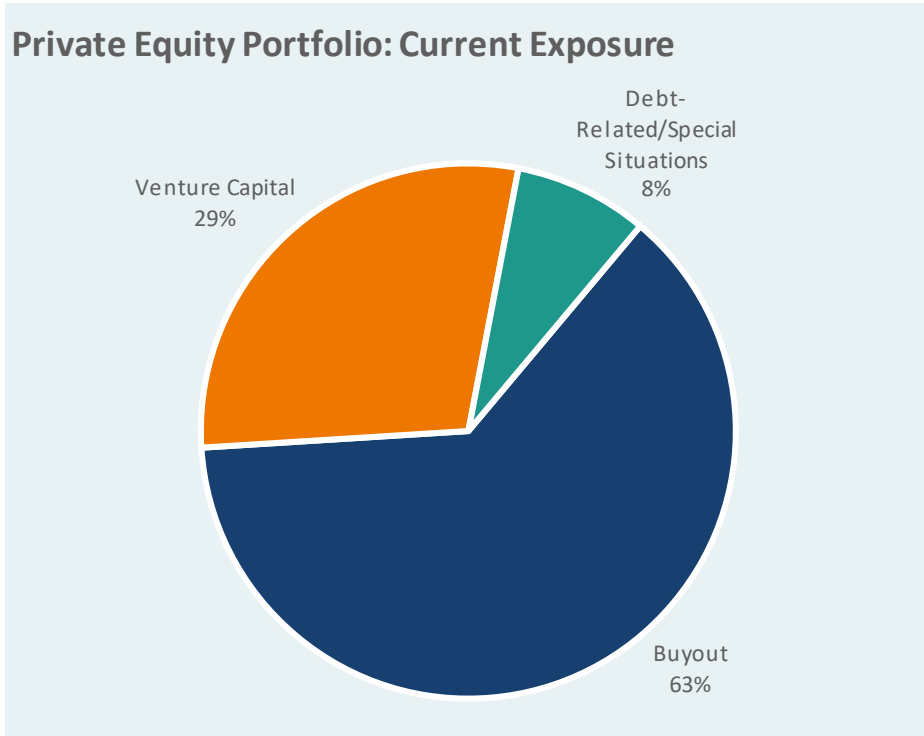


Strategy

Portfolio Diversification

Period Ending: December 31, 2018

Investment Type	Commitment	Reported Value	Current Exposure as % of Private Equity
Buyout	254,887,680	180,579,085	62.9%
Venture Capital	59,000,000	83,213,202	29.0%
Debt-Related/Special Situations	114,500,000	23,313,239	8.1%
Total Private Equity	428,387,680	287,105,526	100.0%

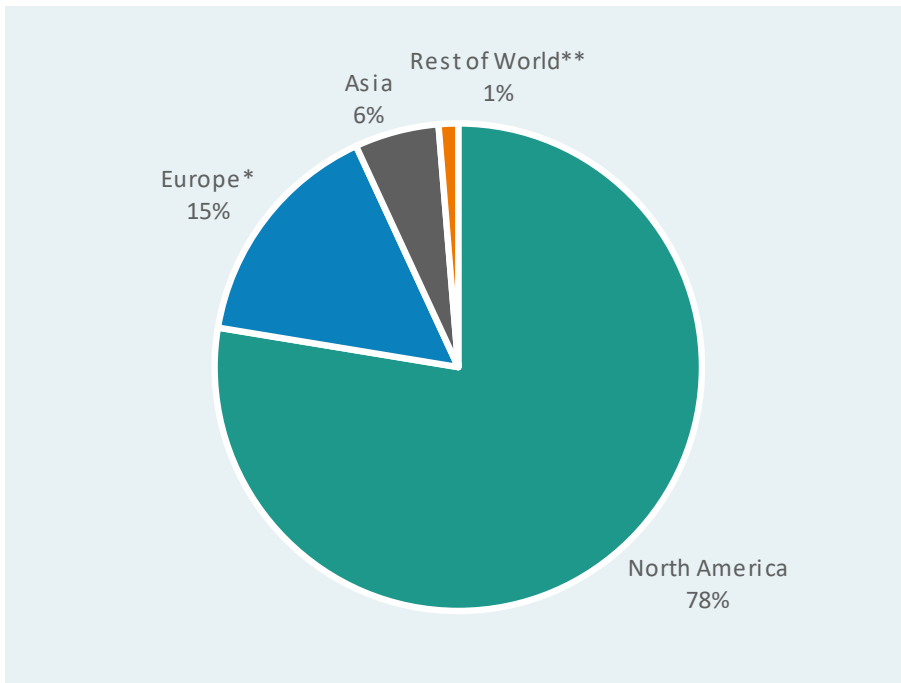


Geography

Portfolio Diversification

Period Ending: December 31, 2018

Geography	Current Exposure
North America	209,767,129
Europe*	41,929,134
Asia	15,179,385
Rest of World**	3,531,878
Total Private Equity	270,407,526



Based on the value of portfolio companies as of December 31, 2018, if provided by the partnerships. Differences between reported value and the total portfolio valuation is due to temporary cash funds, fees, other expenses, and holdings with undisclosed geography breakdown.

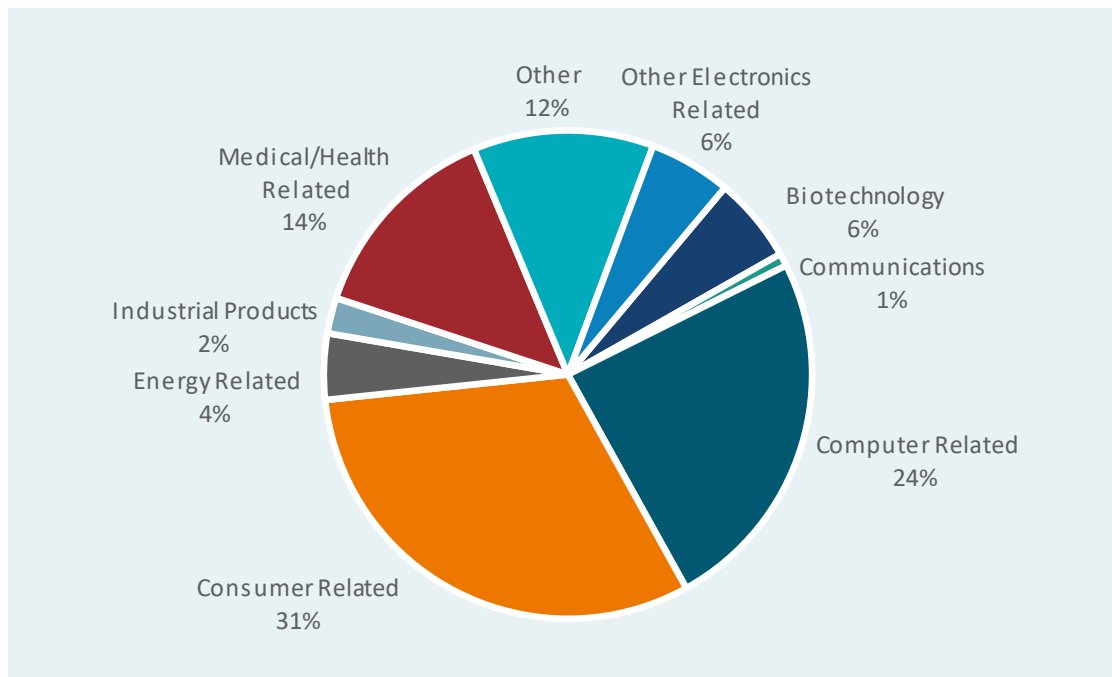
* Europe includes 100% market value from Cevian II.

** Rest of World includes Kenya, United Arab Emirates, Turkey, and Brazil.

Industry Portfolio Diversification

Period Ending: December 31, 2018

Industry	Current Exposure
Biotechnology	13,442,821
Communications	1,974,942
Computer Related	57,624,844
Consumer Related	74,362,935
Energy Related	10,354,297
Industrial Products	5,618,454
Medical/Health Related	32,267,187
Other	28,349,631
Other Electronics Related	12,875,539
Total Private Equity	236,870,650

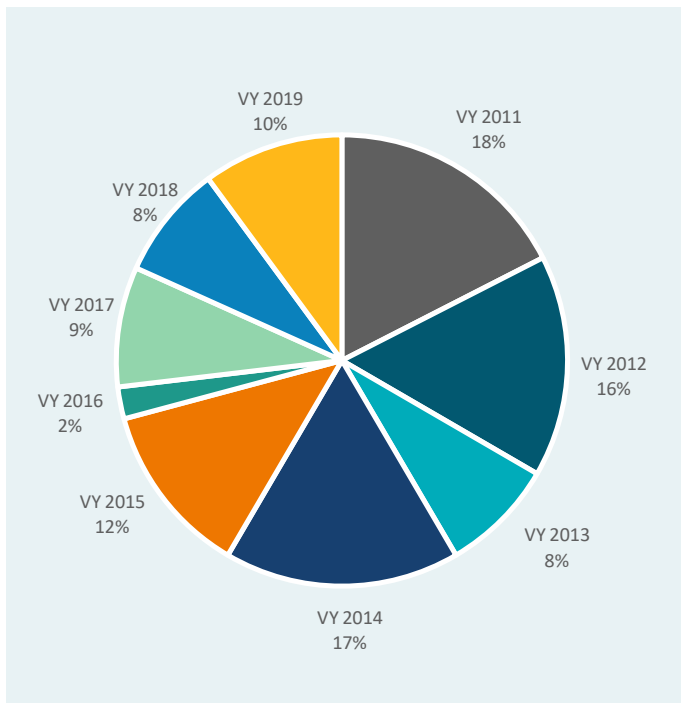


Based on the value of portfolio companies as of December 31, 2018, if provided by the partnerships. Differences between reported value and the total portfolio valuation is due to temporary cash funds, fees, other expenses, and holdings with undisclosed geography breakdown.

Vintage Year Portfolio Diversification

Period Ending: December 31, 2018

Vintage Year	Commitment as of 12/31/18	% of Portfolio Commitment	Reported Value as of 12/31/18
2011	75,000,000	17.5%	29,315,577
2012	68,000,000	15.9%	93,062,394
2013	35,000,000	8.2%	44,429,985
2014	72,500,000	16.9%	68,942,539
2015	53,000,000	12.4%	34,224,785
2016	10,000,000	2.3%	1,404,883
2017	37,000,000	8.6%	13,728,431
2018	35,000,000	8.2%	1,996,932
2019	43,298,000	10.1%	0
Total Private Equity	428,798,000	100%	287,105,526



- As of December 31, 2018, the Private Equity Portfolio is above the new 6% policy target, but within range, with exposures within target diversification bands.
- The Private Equity policy target was reduced from 7.0% to 6.0% effective October 1, 2018.



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PERIOD ENDING: DECEMBER 31, 2018

Real Assets Review

San Mateo County Employees' Retirement Association

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Observations driving our outlook

Deflation concerns weigh more on the minds of investors than inflation

Inflation fears have been subdued in the market over the past year. Both core CPI and headline CPI have been declining over the past nine months and came in at 2.0% and 1.9% respectively in March. Over the past twelve months, core CPI has ranged between 2.0 and 2.3%, near the Fed's inflation target. At this stage of the market cycle, we view the risk of deflation from an economic slowdown to be of greater concern than unanticipated inflation.

Commodity price volatility testing the patience of many investors

Commodity futures likely hold the title for the worst performing asset class over the last 5, 7 and 10-year periods. The Bloomberg Commodity Index has returned a negative 3.8% annually over the trailing 10 years. While it is tempting to conclude that commodities present an opportunity, given the significant underperformance of the asset class, it is difficult to determine whether commodities offer value in the current environment. Our inability to estimate a fair value or confidently project future price movements has led us to a bearish stance in this year's outlook. For investors who are able and willing to take on additional equity risk, we believe investing in commodity producers may be a preferred approach for gaining commodity exposure in the current environment.

We remain conservatively positioned in real estate

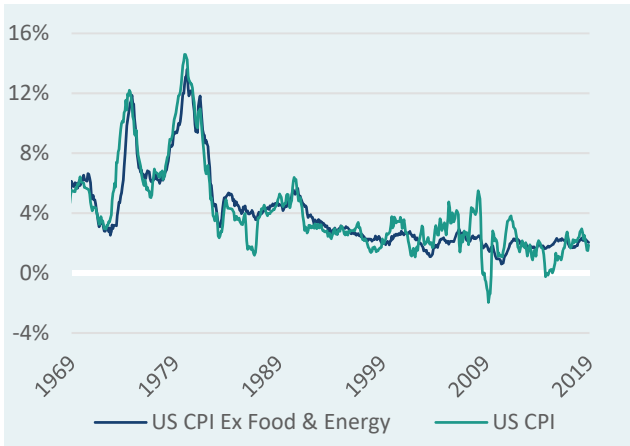
Real estate fundamentals have remained fairly stable with overall declining vacancies and increasing NOI. Valuations continue to climb, and cap rate spreads have returned to average levels. New supply has been moderate with some pockets of excess. Our outlook has changed to neutral as returns have continued to moderate to "normal" levels. Appreciation continues to slow with income becoming a larger portion of overall returns. We favor more conservative strategies with strong cash flows and hands-on asset management. We remain cautious with leverage, illiquidity, quality and long duration value creation strategies.

Oil/Gas industry investment conundrum

It is fair to say that the least popular industry, at the moment, is the oil/gas industry. Listed Exploration & Production (E&P) companies appear quite cheap, despite improved balance sheets, greater capital discipline and higher oil prices. Fundraising within private energy is as challenging as we've seen in many years. Many institutions from endowments to public pensions are slowing or halting new commitments to upstream energy funds. M&A activity in the upstream market has stalled. In most other industries this would create an attractive investment opportunity, but we would practice restraint.

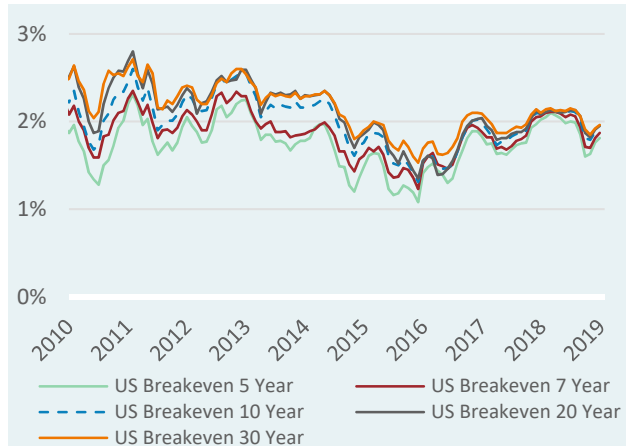
- Core CPI has remained in a tight range between 2.0% and 2.3% for each of the last 12 months, most recently coming in at 2.0% in March.
- Headline CPI moved up to between 2.5% and 2.9% in mid 2018 but has since fallen to a range of 1.5% to 2.5% since. In March, headline CPI was 1.9%, still at levels below that seen in typical late-cycle periods. The Fed appears hesitant to hike interest rates, and has indicated a willingness to let inflation drift slightly higher than the stated 2% inflation target. However, we believe weaker inflation is more likely to materialize.
- In most late-stage business cycles, real assets are often the best performing asset classes due to rising inflation. This cycle appears unique for a number of secular reasons (globalization, automation, low GDP growth, etc.) but there is always some probability that we are wrong, and history repeats itself, in which case it will be advantageous to have exposure to assets which perform well when inflation exceeds expectations.

U.S. CPI (YOY)



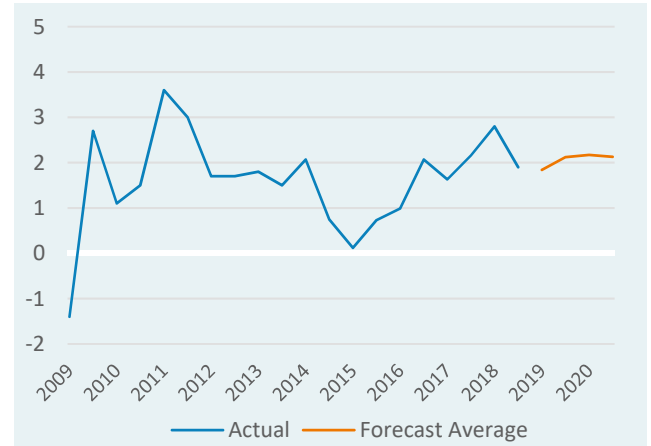
Source: FRED, as of 3/31/19

U.S. TIPS BREAKEVEN RATES



Source: FRED, as of 3/31/19

INFLATION EXPECTATIONS



Source: Wall Street Journal, 3/31/19

Outlook Summary Across Real Assets

Period Ending: December 31, 2018

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Private Real Estate	Real estate fundamentals have remained fairly stable with overall declining vacancies and increasing NOI. Valuations continue to climb, and cap rate spreads have returned to average levels. New supply has been moderate with some pockets of excess.	<ul style="list-style-type: none"> — A general economic slowdown may drastically impact demand for real estate. — New supply could increase ahead of current projections and outpace demand. — A sharp rise in interest rates could lead to increased cap rates, hurting values. 	Our outlook has changed to neutral as returns have continued to moderate to “normal” levels. Appreciation continues to slow and income is a larger portion of overall returns. We favor more conservative strategies with strong cash flows and hands on asset management. We remain cautious with leverage, illiquidity, quality and long duration value creation strategies.	Neutral
REITs	REITs started the year as the top performing major asset class in 1Q'19. This is following several years of underperforming the equity markets. REITs have benefitted from the overall strength of the real estate market but were depressed by concerns over rising interest rates and a rotation away from yield-oriented assets. REITs now appear to be fairly valued-to-slightly overvalued.	<ul style="list-style-type: none"> — Rising interest rates can have a negative effect on REITs and all yield-sensitive assets over short time periods. — REITs are sensitive to economic decline and general equity market volatility. 	We remain neutral on REITs given current valuations appear fair-to-slightly overvalued. REITs can provide liquid exposure to real estate with the following caveats: high sensitivity to equity market volatility over shorter holding periods, higher leverage and higher exposures to non-core sectors such as hotels, self-storage, for-rent residential, etc.	Neutral
Commodities	Commodities futures have had lackluster performance over the last decade. An upward sloping futures curve for most of the last decade has created a headwind for the asset class. In most commodities, contango continues to create a drag on performance.	<ul style="list-style-type: none"> — Supply responses surprising the market to the upside. — Global growth slowing down, reducing demand for energy and industrial metals. 	Commodity futures continue to face headwinds as futures trade in contango across most commodities. The uptick in interest rates has helped margin returns and prices have stabilized across metals and energy but we expect the asset class to generate low returns going forward.	Negative
TIPS	Low nominal interest rates combined with low to moderate inflation has led to a depressed return environment for TIPS.	<ul style="list-style-type: none"> — Decreasing inflation expectations or rising nominal interest rates would be a headwind to TIPS. Continued low rates create a high cost of carry. 	Low current yields and modest inflation expectations has led to other real assets offering higher total return potential than TIPS.	Negative

Outlook Summary (continued)

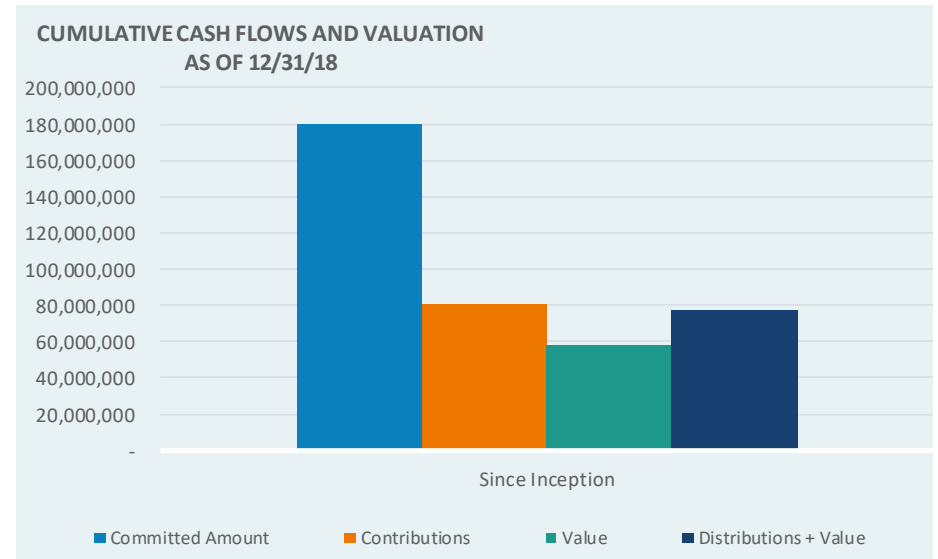
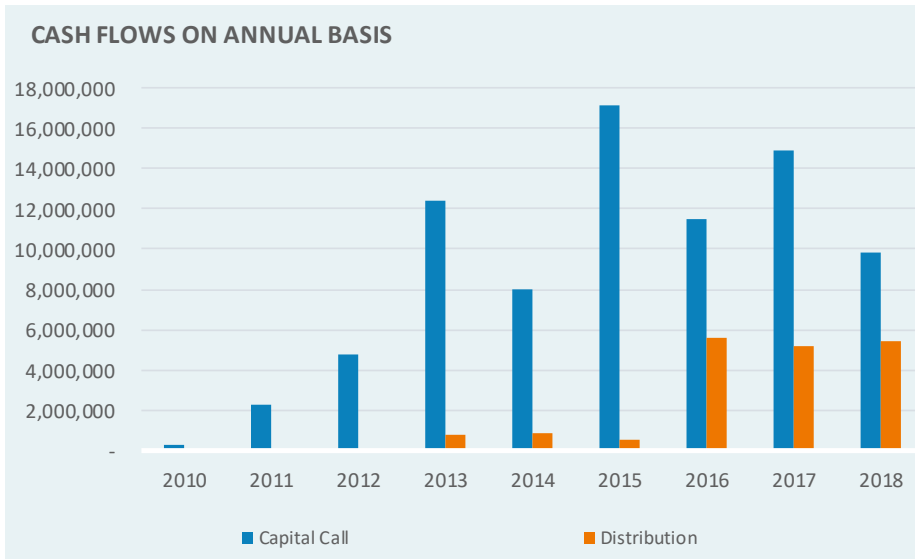
Period Ending: December 31, 2018

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Infrastructure	The early sell-off in listed infrastructure equities during 2018 appeared to signal a welcomed revaluation in the industry but public equities have largely recovered since. Meanwhile, valuations stayed elevated within private markets throughout the volatility. Large sums of capital continue to pour into the private infrastructure market intensifying an already competitive market.	<ul style="list-style-type: none"> — Last year we highlighted rising rates as a headwind to yield-oriented investments. That appears to have dissipated as central banks focus more on slowing economic growth — Assets that are sensitive to growth in GDP carry greater risk today. We would be cautious about deals in transportation where valuations remain rich despite heightened risk of an economic slowdown. 	The asset class offers a compelling return profile that aligns well with long duration pools of capital. We favor private infrastructure funds that have capabilities to improve operations and manage complex deal structures. We would avoid heavy exposure to GDP sensitive assets where volume and pricing risk are present.	Neutral
Oil & Gas	Oil prices have rebounded nicely in 2019, most recently trading around \$65/bbl for WTI. Gas prices have reversed course after reaching seasonal highs and are now trading around \$2.3/Mbtu. Up till now, the energy upstream industry has faced a hostile public and private market as fund flows into the sector have trended away. Whether capital returns in 2019 and company valuations re-rate higher is an open question. Until then, it is likely that private energy funds will struggle to find liquidity for their holdings.	<ul style="list-style-type: none"> — Last year we highlighted the significant volume of dry powder that was waiting to be invested. Given the challenging fundraising environment in 2018, dry powder is less of a concern. However, transactions in the industry have collapsed leading to a scarcity of exit options for private funds. — Future demand growth is a key risk that is incredibly difficult to project. The impact of shifts in oil consumption could lead to significant terminal value risk. 	Given valuations and a lack of access to capital, there will be interesting investment opportunities within the upstream energy market. Given our concerns around terminal value risk, we would look for shorter duration investment opportunities. Investments where the bulk of your capital can be returned within 3-5 years represents a more attractive risk/return.	Neutral
Mining	Despite some fits and starts in the last 3 years, mining has been a challenged sector since 2013. Excess supply in several metals has contributed to low prices, low capital expenditure and weak capital flows. A slowdown in global GDP could present a headwind to the industry but the supply/demand dynamics look favorable for several industrial metals longer term.	<ul style="list-style-type: none"> — Global GDP growth and the economy in China are the two biggest risks in the sector. China represents a disproportionately large buyer of industrial metals, so its economy has a large impact on metal prices. 	Longer-term, we think the supply picture looks favorable for several industrial metals. Investing in mining private equity is challenging, not only because the sector is especially volatile, but the pool of attractive GPs is quite small. Our primary exposure to the sector is to invest through the debt side of a mining project. Mining project finance offers an attractive mid-teen return with high income and an equity kicker.	Positive

Strategy	Current Environment	Potential Risks	Outlook/Implementation	View
Midstream Energy / MLPs	We highlighted a tactical opportunity in MLPs in April of last year. The sector moved higher during the summer but sold-off again in Q418. We still believe there is a compelling opportunity within the asset class, especially relative to private midstream where transactions are priced well above public market comps.	<ul style="list-style-type: none"> — Falling oil/gas prices could curtail drilling programs and reduce production volumes which would hurt MLP cash flows. — Regulatory risk is low and though recent headlines around the Federal Energy Regulatory Commission (FERC) rules changing cost pass-throughs created selling pressure the end result was de minimis for most MLPs. 	MLPs are currently providing a healthy 7+% dividend yield and distribution growth has recovered to a range of 4-6%. In addition, nearly 90% of the MLP sector has eliminated their IDRs and simplified their ownership structure. The sector has made impressive changes in a short time period by improving financial strength, growing cash flow and creating better alignment of interests.	Positive
Timberland	Timber markets in North America continue to face challenges from excess inventory, low interest rates and unfavorable transaction market. Trade wars have impacted timber prices in regions that export trees while somewhat benefiting growers that sell into the U.S. market. Our outlook on timber has been negative for several years due to the headwinds the asset class has faced. Despite broadly negative sentiment towards the timber industry, we struggle to make a case for returns to reach higher than mid-single digits.	<ul style="list-style-type: none"> — Trade wars have both helped and hurt domestic timber markets depending on whether you export or sell into the U.S. market. Investors should be more concerned with homebuilding trends which will have a greater impact on most timber holdings in the U.S. — Timber markets outside the U.S. face varying degrees of currency and political risk which in many cases has resulted in disappointing returns for investors. With few exceptions, returns do not justify the additional risk. 	For most investors, high single-digit expected returns for timberland in the U.S. is too low for the illiquidity and risk assumed within the asset class. However, the unique return drivers and potential for higher than expected prices in softwood lumber may be attractive for some investors with sufficient liquidity and a low cost of capital.	Negative
Agriculture	Farmland prices in the Midwest leveled off after 2014 but remain too expensive for the income and return potential. We are interested in opportunities where we can control more of the value-chain associated with food production.	<ul style="list-style-type: none"> — Similar to timber markets, we have concerns around valuations and the risk/return proposition for farmland investments. — The income potential within farmland is more attractive than timber and the global growth in food is a more compelling macro trend than pulp and paper but we remain bearish on the sector, in general. 	Currently we find the asset class to be broadly expensive. Selectively looking at agriculture business investments where crop and land are a component of a broader value-add investment strategy.	Negative

Performance

- The portfolio is currently valued at \$58.4 million. Together with \$18.4 million in realized distributions, the Total Value at \$76.8 million is approximately \$4.1 million below \$81.0 million total capital contributions, resulting in a total value multiple of 0.95x and a net IRR of -1.85%. Capital weighted average investment age of the portfolio is 3.31 years.
- SamCERA funded a liquid real asset pool in 2016 that seeks to proxy many of the risk exposures targeted in private real assets. SSgA is managing the pool in a mix of passive exposures to infrastructure, natural resource equities and commodities.
- Within Private Real Assets, the current allocation of invested capital is 14.8% to Agriculture, 26.9% to Energy, 21.6% to Mining, and 36.7% to Infrastructure. The Portfolio is expected to be diversified over a period of 3 to 5 years.

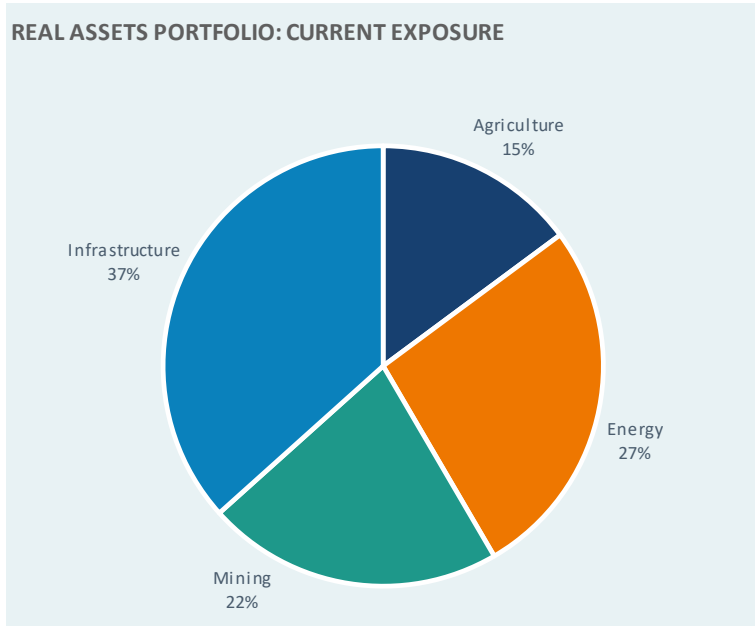


Strategy

Portfolio Diversification

Period Ending: December 31, 2018

Investment Type	Commitment	Current Exposure	Current Exposure as % of Portfolio
Agriculture	15,000,000	8,669,911	14.8%
Energy	49,800,000	15,722,928	26.9%
Mining	30,000,000	12,616,870	21.6%
Infrastructure	85,000,000	21,435,681	36.7%
Total Portfolio	179,800,000	58,445,390	100.0%

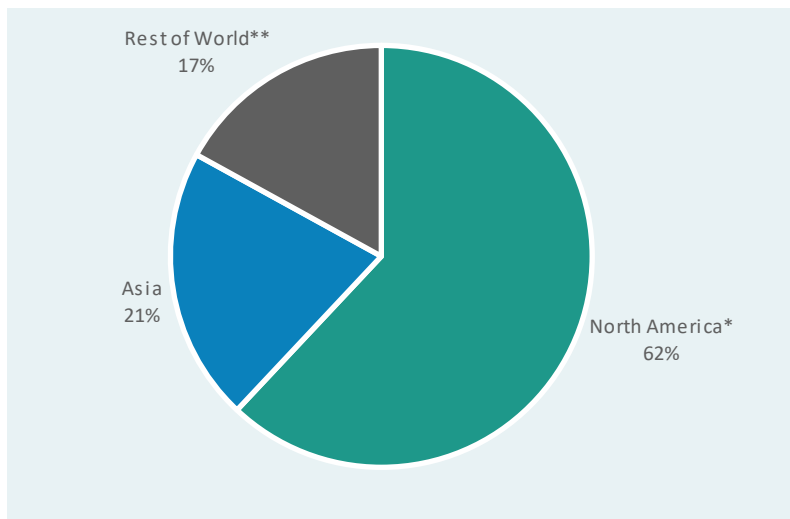


Geography

Portfolio Diversification

Period Ending: December 31, 2018

Geography	Reported Fair Value
North America*	36,211,171
Asia	12,100,688
Rest of World**	10,133,532
Total Portfolio	58,445,391



Based on invested capital as of December 31, 2018, if provided by the partnerships. The portfolio is expected to be US-biased given the mandate to hedge domestic inflation.

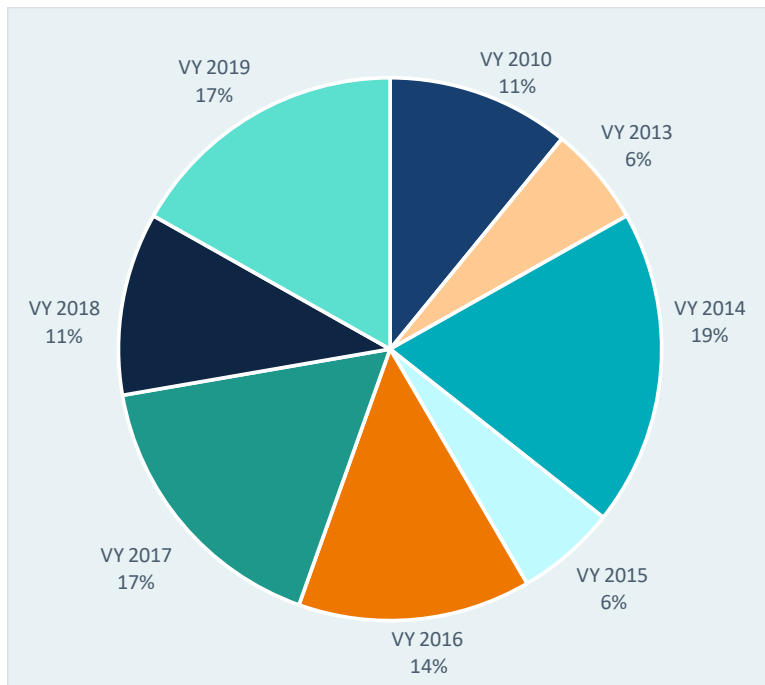
* North America includes 100% market value from Sheridan II-B.

** Rest of World includes Australia, Chile, and Senegal.

Vintage Year Portfolio Diversification

Period Ending: December 31, 2018

Vintage Year	Commitment as of 12/31/18	% of Portfolio Commitment	Reported Value as of 12/31/18
2010	20,000,000	11.1%	1,312,000
2013	10,000,000	5.6%	6,925,659
2014	35,000,000	19.5%	18,090,254
2015	10,000,000	5.6%	13,828,253
2016	25,000,000	13.9%	7,746,976
2017	29,800,000	16.6%	10,681,796
2018	20,000,000	11.1%	-139,548
2019	30,000,000	16.7%	0
Total Portfolio	179,800,000	100%	58,445,390



The portfolio is increasingly diversified by vintage year with larger capital commitments expected over the next 2-3 years.

- SamCERA committed \$25.0 million to Taurus Mining Finance II, a re-up with an existing manager in Natural Resources.
- Verus and Staff are actively looking at an opportunity in Core Infrastructure which we may bring to SamCERA's Board in late Summer.
- Valuations across most asset classes has made it challenging to find attractive opportunities. There has been a slowing of capital deployed among private market funds, generally, reflecting a highly competitive market that is valued richly. For now, we are being patient which could result in a reduced level of commitments.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 7.1

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer 
Tariq Ali, Chief Technology Officer 
Lilibeth Dames, Investment Analyst 

SUBJECT: SamCERA's Fiscal Year 2019-20 Budget

Recommendation

Approve SamCERA's Fiscal Year (FY) 2019-20 Budget totaling \$37 million.

<u>SamCERA Budget</u>	<u>FY 2019-20 Proposed</u>	<u>FY 2018-19 Adopted</u>	<u>Increase (Decrease)</u>	<u>% of Change</u>
Professional Services	\$ 27,838,320	\$ 25,900,207	\$ 1,938,113	7%
Administrative	7,016,018	7,025,095	(9,077)	0%
Information Technology	1,962,840	2,138,340	(175,500)	-8%
Total Budget - SamCERA	<u>\$ 36,817,178</u>	<u>\$ 35,063,642</u>	<u>\$ 1,753,536</u>	5%

Background

SamCERA's budget consists of three budget units: professional services, administrative, and information technology.

Professional Services Budget – includes professional fees that are authorized by Government Code §31596.1. This Code authorizes the Board of Retirement (the Board) to expend funds from investment earnings of SamCERA's pension trust for specific professional services. These professional services cover the following: actuarial consulting, custodial, investment management, investment consulting, and outside legal services.

SamCERA employs professional investment managers to manage its portfolio. Investment management fees are performance driven, primarily dependent upon the market value of the assets under management and the negotiated fee schedules. As market values of the assets increase, so do management fees. Other professional service fees related to investments are driven by contractual agreements. Fees for the actuarial consulting, investment consulting, and global custodian services are either on per-service or per-retainer basis.

The Chief Investment Officer and the investment consultant periodically review the portfolio's performance and report the results to the Board. Staff reviews other professional service expenses quarterly to ensure fees charged to SamCERA are following respective contractual agreements.

The professional services budget for FY 2019-20 is projected to be \$28 million, 7% higher than the prior year adopted budget.

<u>Professional Services Budget</u>	FY 2019-20	FY 2018-19	<u>Increase</u>	<u>% of Change</u>
	<u>Proposed</u>	<u>Adopted</u>		
Investment Management	\$ 26,878,320	\$ 24,958,707	\$ 1,919,613	8%
Other Professional Service Fees	960,000	941,500	18,500	2%
Total - Professional Services Budget	<u>\$ 27,838,320</u>	<u>\$ 25,900,207</u>	<u>\$ 1,938,113</u>	7%

- Investment management fees are expected to increase by 8%. Most of the increase are seen in fixed income and inflation hedge funds, due primarily to growth in assets under management and new investment mandates.

Investment Management Fees						
	FY 19-20				FY 18-19	
	Fee (bps)	Projected Annual Fee	Projected Performance Fee	Total Projected Fee	Total Authorized Fee	% of Change
Investment Manager						
Total Public Equity	28.0	\$ 4,519,846	\$ 689,243	\$ 5,209,089	\$ 5,304,986	-2%
Total Fixed Income	44.7	4,147,762	378,884	4,526,646	3,596,932	26%
Total Risk Parity	40.3	1,436,836	-	1,436,836	1,370,182	5%
Total Alternative Assets	N/A	9,834,505	939,192	10,773,697	10,465,182	3%
Total Inflation Hedge	N/A	4,347,820	399,232	4,747,052	4,036,425	18%
Total Cash Overlay	N/A	185,000	-	185,000	185,000	0%
TOTAL	57.4	<u>\$24,471,769</u>	<u>\$ 2,406,551</u>	<u>\$ 26,878,320</u>	<u>\$ 24,958,707</u>	8%

- Other professional fees are mostly on per-service basis with an estimated increase of 2%, after inflation is factored into the cost of obtaining actuarial and investment consulting services.

Other Professional Fees					
Contractor	Service	FY 19-20		FY 18-19	
		Fee (bps)	Projected Fee	Authorized Fee	% of Change
Milliman	Actuarial Consulting	0.2	\$ 100,000	\$ 91,500	9%
Verus Investments	Investment Consulting	1.1	510,000	500,000	2%
Northern Trust	Custodian	0.8	350,000	350,000	0%
TOTAL		2.2	<u>\$ 960,000</u>	<u>\$ 941,500</u>	2%

Administrative Budget – accounts for projected administrative expenses such as salaries and benefits. Government Code §31580.2(a) of the County Employees Retirement Law of 1937 limits SamCERA’s administrative budget to twenty-one hundredths of one percent (0.21%) of the accrued actuarial liability of the retirement system.

<u>Administrative Budget</u>	FY 2019-20 Proposed	FY 2018-19 Adopted	Increase (Decrease)	% of Change
Salaries and Benefits				
Salaries	\$3,569,155	\$3,516,800	\$ 52,355	1%
Benefits	1,702,352	1,871,900	(169,548)	-9%
Total Salaries and Benefits	5,271,507	5,388,700	(117,193)	-2%
Services and Supplies				
Board Expense	10,000	10,000	-	0%
Insurance	80,000	80,000	-	0%
Medical Record and Appeal Hearing	75,000	75,000	-	0%
Member Education	63,750	63,800	(50)	0%
Education and Conference	148,320	143,115	5,205	4%
Transportation and Lodging	117,350	160,230	(42,880)	-27%
Property and Equipment	33,000	36,000	(3,000)	-8%
General Office Supplies	34,000	49,000	(15,000)	-31%
Postage and Printing	28,000	40,000	(12,000)	-30%
Leased Facilities	583,728	533,000	50,728	10%
County Services	393,363	378,750	14,613	4%
Audit Services	58,000	52,500	5,500	10%
Other Professional Services	120,000	15,000	105,000	700%
Total Services and Supplies	1,744,511	1,636,395	108,116	7%
Total Administrative Budget	<u>\$7,016,018</u>	<u>\$7,025,095</u>	<u>\$ (9,077)</u>	0%

The proposed administrative budget for FY 2019-20 is about \$7 million, about the same as the prior year adopted budget. This amount approximates to 0.14% of the total accrued actuarial liability of \$5 billion at June 30, 2018 (determined by SamCERA's actuary).

Salaries and benefits is slightly lower than the prior year budget by 2%. SamCERA has two authorized Assistant Executive Officer positions, one is filled and another vacant. The vacant position is eliminated based on an internal reorganization. The resulting savings in payroll are completely offset by negotiated increases in salaries for all staff. The resulting reduction in benefits, however, is augmented by a moderate decline in employer's contributions towards employees' pension and health benefits.

Services and supplies overall is 7% higher than the prior year budget. Major changes include the following:

- Transportation and lodging are expected to decline by 27% as a majority of approved educational conferences are being held within the State of California.
- General office supplies, postage and printing expenses are expected to drop by about 30% as SamCERA continues its dedicated efforts to foster a "paperless" working environment whenever opportunities arise.

- Lease payments for the office space are adjusted upward by 10% to finance potential rent increases that are expected to take place in January 2020. The existing rental agreement is expiring in December 2019, and the negotiation for lease renewal is underway.
- Audit fee is up by 10%. SamCERA recently entered a five-year contract with Brown Armstrong Accounting Corporation for its financial audit. The audit fee is set at a fixed price of \$58,000 annually throughout the entire contract term.
- Other professional services budget is projected to increase by \$105,000, mainly for legal services. Traditionally, SamCERA relied on County Counsel’s Office to provide legal services for disability retirement cases, and related charges were budgeted under County Services. In January 2019, with the Board’s approval, SamCERA switched to private counsel for legal support, which is now tracked under Other Professional Services.

Information Technology Budget – covers projected information technology expenses that are authorized by Government Code §31580.2(b). The Code states that “Expenditures for computer software, computer hardware, and computer technology consulting services in support of these computer products shall not be considered a cost of administration of the retirement system.”

	FY 2019-20 <u>Proposed</u>	FY 2018-19 <u>Adopted</u>	Increase (Decrease)	% of Change
<u>Information Technology Budget</u>				
Computer Equipment and Software	100,000	85,000	\$ 15,000	18%
Software License Maintenance - IT Infrastructure	1,307,340	1,736,340	(429,000)	-25%
Server - IT Infrastructure	100,000	100,000	-	0%
Contract IT Services - IT Infrastructure	405,500	53,000	352,500	665%
ISD Budget	-	150,000	(150,000)	-100%
Technology Research and Development	50,000	14,000	36,000	257%
Total - Information Technology Budget	<u>\$ 1,962,840</u>	<u>\$ 2,138,340</u>	<u>\$(175,500)</u>	-8%

The information technology budget for FY 2019-20 is estimated to be \$2 million, 8% below the prior year budget. Areas with significant changes include the following:

- Computer equipment and software budget is expected to rise by 18% in light of anticipated purchases of hardware and software.
- Software license maintenance is projected to shrink by 25%. The scheduled upgrade to the pension administration system is expected to be completed in June 2019. Thus, projected maintenance expenses become relatively smaller in the year to come.
- Contract IT services are anticipated to expand by \$350,000. SamCERA will collaborate with its software vendor to develop a new, user friendly pension application at an estimated cost of \$250,000. This application will include enhanced functionalities to assist members in obtaining useful information online. In addition, SamCERA will seek help from outside IT professional to implement adequate cyber security measures, at an estimated cost of \$100,00, to ensure sensitive information is well protected.


- County's Information Service Department (ISD) budget is removed from the Information Technology Budget as nearly all of the ISD expenses are being covered under the Administrative Budget.
- Technology research and development spending is expected to grow by \$36,000 as staff continues to explore new ideas and technologies that may benefit SamCERA and its members in the long-run.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 4, 2019

Agenda Item 7.2

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Approval to Change the Date of the July 23, 2019 Meeting

Recommendation

Approve a change to the date of the July 23, 2019 meeting to July 16, 2019.

Background

The Board's regular meetings are scheduled on the fourth Tuesday of each month at 10:00 a.m. The Board is authorized by Article III, Section 3.4 of the Board's Regulations to change its meeting times and dates.

“Regular Meetings: Regular meetings of the Board shall be held on the Fourth Tuesday of each month. Meetings shall begin at 10:00 a.m. Meetings shall be held in SamCERA's offices. The Board may cancel and or approve a change in the date, time and/or location of meetings within the County, if the proposed change is included on the agenda of a regular meeting.”

Discussion

In October 2018, the Board approved the regular meeting schedule for 2019. That schedule provides that the Board would meet on July 23, 2019, the fourth Tuesday of the month. Subsequent to the approval of the meeting schedule, both SACRS and IFEBP scheduled training conferences that occur on the same date of the July Board meeting. Both of these courses are on the Board's pre-approved list of educational activities and some trustees have expressed interest in attending one of the courses.

Staff surveyed the Board members and found that rescheduling the Board meeting to July 16 would allow for more Board members to attend the July meeting and allow trustees to attend either course.

Staff recommends that Board formally change the date of the meeting so that staff can publish the meeting notice and reflect the new information on SamCERA's website.