SamCERA
SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Notice of Public Meeting

The Board of Retirement

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

Tuesday, June 6, 2017, 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 25 and 26, 2017
4. **Approval of the Consent Agenda***
   4.1 Disability Retirements (6)
   - Jeffrey Edralin
   - Roy Galleguillos
   - Marc Mullaney
   - Leisa Quadt
   - Veronica Rosaia-Calabrese
   - Debra Tucker

   4.2 Survivor Death Benefits
   - Bradford Lew

   4.3 Service Retirements
   4.4 Continuances
   4.5 Deferred Retirements
   4.6 Member Account Refunds
   4.7 Member Account Rollovers
   4.8 Member Account Redeposits
   4.9 Acceptance of Trustees' Reports of Educational Activities
   4.10 Report on Prepayment of Employer Contributions
5. **Benefit & Actuarial Services**
   5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda
   5.2 Approval of Actuarial Assumptions for the June 30, 2017 Actuarial Valuation
6. **Investment Services**
   6.1 Report on Preliminary Monthly Portfolio Performance for the Period Ended April 30, 2017
   6.2 Report on Quarterly Investment Performance for the Period Ended March 31, 2017
   6.3 Report on Real Estate Annual Reviews
   6.4 Report on Core Equity Annual Reviews
   6.5 Report on Securities Lending Program
   6.6 Report on Private Asset Semi-Annual Performance as of December 31, 2016
   6.7 Approval of International Equity Manager Structure
   6.8 Approval of Real Estate Debt Investment Opportunity
7. **Board & Management Support**
   7.1 Approval of SamCERA Fiscal Year 2017-18 Budget
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

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

C1 Consideration of Disability Items, if any, removed from the Consent Agenda

9. Report on Actions Taken in Closed Session

10. Adjournment in Memory of the Following Deceased Members:

Dupree-Reagan, Charlotte	April 16, 2017	Medical Center
Brown, Gene	April 19, 2017	Rehab Center
Clark, Robert	April 27, 2017	Assessor
O'Meara, Stephen	May 3, 2017	Hospital
Pardini, Eugene	May 7, 2017	Public Works
Furnanz, Marie	May 8, 2017	Library
Orbeta, Jorge	May 8, 2017	Human Services Agency

Scott Hood, Chief Executive Officer   Posted: May 31, 2017

(* 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.*

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 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

Staff Recommendation

Appointment by the Chair of an Ad Hoc Committee to nominate Board officers for the 2017-2018 fiscal year to be presented for election at the July meeting.

Background

At the June 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.)

SamCERA Board Officer History

	Chair	Vice-Chair	Secretary
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

*beginning October 2010

San Mateo County Employees' Retirement Association
April 25, 2017 – Special Board Meeting Minutes

1704.1 **Call to Order, Roll Call and Miscellaneous Business**
Call to Order: Mr. Mark Battey, Vice Chair, called the Special Meeting of the Board of Retirement to order at 9:00 a.m.

Roll Call:
Present: Sandie Arnott, Mark Battey, Albert David, Kurt Hoefer, Alma Salas (for Paul Hackleman), David Spinello, and Shirley Tourel.
Excused: Paul Hackleman, Eric Tashman, and Ben Bowler.
Alternates present: Susan Lee.
Staff: Scott Hood, Michael Coultrip, Brenda Carlson, Doris Ng, Lili Dames, Elizabeth LeNguyen, Barbara Edwards and Kristina Perez.

1704.2.1 **Oral Communications from the Board:** None.

1704.2.2 **Oral Communications from the Public:** None.

1704.2.3 **Retreat Presentations:**

High Level Look at the Global Economy – Ian Toner, Managing Director of Verus Investments, presented and discussed the following topics with the Board: the U.S. domestic economy including jobs, housing and trade; rate hike scenarios; commodity investments; currency impacts; and global issues related to the market.

The meeting was adjourned for a 15-minute break from 10:15 a.m. – 10:30 a.m.

Team Building – JulieAnne Nagal led the members of the Board in a team building exercise.

Assumed Rate of Interest, Assumptions – Nick Collier, of Milliman, Inc., discussed economic assumptions, generational mortality and financial impacts of assumptions with the Board, focusing on the effects to '37 Act funds.

The Board adjourned for lunch at 12:05 p.m. and reconvened at 12:45 p.m.

Deep Dive - Michael Coultrip, SamCERA CIO, along with Margaret Jadallah from Verus, provided the Board information in regard to the fund's historical portfolio performance and trends; individual manager performance; the fund's risk dashboards; rebalancing activities; and liquidity analysis.

All the retreat items presented were for discussion and information only, and no action by the Board was taken. The retreat presentations were concluded at 2:15 p.m., and after a short break, the following agenda items were heard in the order listed below beginning at 2:30 p.m.

1704.3.1 **Approval of Regular Board Meeting Minutes from March 28, 2017**: Mr. Battey asked if there were any changes or corrections to the Regular Board Meeting minutes from March 28, 2017, and none were noted.
Action: Mr. David moved to approve the minutes from the Regular Meeting of March 28, 2017, and the motion was seconded by Ms. Salas. The motion carried with a vote of 7-0; with trustees Arnott, Battey, David, Hoefer, Salas (for Hackleman), Spinello, and Tourel all in favor; none opposed.

1704.4.0 **Approval of the Consent Agenda:** Mr. Battey asked if there were any items to be removed from the Consent Agenda. None were removed.
Action: Mr. Hoefer moved to approve the Consent Agenda, and the motion was seconded by Mr. Spinello. The motion carried with a vote of 7-0; with trustees Arnott, Battey, David, Hoefer, Salas (for Hackleman), Spinello, and Tourel all in favor; none opposed.

1704.4.1 **Disability Retirements**:

1) The Board found that Alma Carranza-Reyes is (1) permanently incapacitated for the performance of her usual and customary duties as a Community Worker 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.
2) The Board (1) accepted the proposed findings and recommendations of the Hearing Officer, George Camerlengo, (2) finding that JoAnn Demattei is able to perform her duties as a Legal Office Specialist and (3) denied her application for a service-connected disability retirement.
3) The Board (1) accepted the proposed findings and recommendations of the Hearing Officer, John Shupe, (2) finding that Lydia Guzman is able to perform her duties as a Dietitian and (3) denied her application for a service-connected disability retirement

1704.4.2 **Survivor Death Benefits**: None.

1704.4.3 **Service Retirements:**
The Board ratified the actions as listed below for the following members regarding service retirements:

Member Name	**Effective Retirement Date**	**Department**
Atkinson, Audrey	February 13, 2017	Medical Center
Cairns, David	February 4, 2017	Superior Court
Camacho, Gloria	March 1, 2017	Food Services
Chand, Sunil	February 7, 2017	Food Services
Donigan, Mark	February 26, 2017	Deferred from Parks
Fernandez, Manolo	March 1, 2017	Deferred from Medical Center
Flood, David	December 31, 2016	Deferred from Sheriff's
Flores, John	February 27, 2017	Deferred from Sheriff's
Galleguillos, Roy	February 7, 2017	Sheriff's
Garner, Mary	February 25, 2017	Human Services Agency
Gray, Nancy	March 31, 2015	Deferred from Mental Health
Guintu, Cynthia	March 1, 2017	Medical Center
Harris, Kimberly	February 27, 2017	Deferred from Mental Health
Huynh, Kim	February 25, 2017	Medical Center
Jones, Lenora	February 4, 2017	Human Services Agency
Kwong, William	March 1, 2017	Human Services Agency
Mochel, Kathy	February 15, 2017	Courts
Nevarez, Donald	February 17, 2017	Public Works
Plaisted, Jalene	February 25, 2017	Sheriff's
Schwab, Robert	March 1, 2017	Deferred from Human Services
Spiller, Maurice	February 24, 2017	Sheriff's
Steck, Christopher	February 3, 2017	Deferred from Agriculture
Tauaefa, Rosemarie	February 11, 2017	Controller's
Vassallo, Josephine	March 1, 2017	Medical Center

1704.4.4 **Continuances**:

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

Survivor's Name	Beneficiary of:
Calderon, Lucelyn	Calderon, Cesar
Jensen, Gary	Jensen, Anne
Kendrick, Patricia	Kendrick, George
Perry, Susan	Perry, Robert
Ruble, Judith M	Ruble, Richard
Whitehead, Elizabeth A	Whitehead, James

1704.4.5 **Deferred Retirements:**

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

Member Name	Retirement Plan Type
Reyna, Renee	G4, Vested - Reciprocity
Valido, Frances	G4, Vested - Reciprocity
Roman, Erika	G4, Vested - Reciprocity
Qian, Rong	G7, Non-Vested - Reciprocity
Tam, Carrie	G4, Vested - Reciprocity
Amansec, Anne	G5, Vested
Mason, Katherine	G7, Non-Vested - Reciprocity
Triolo, Ashnita	G4, Vested

1704.4.6 **Member Account Refunds:**

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

Member Name	Retirement Plan Type
De La Herran, Esmeralda	G7, Non-vested
Delgadillo, Lizbeth	G7, Non-vested
Hinds, Sean	G5, Non-vested
Mbong, Valentin	G4, Non-vested
Paredes, Raul	P5, Non-vested
Sandoval, Diane	G7, Non-vested

1704.4.7 **Member Account Rollovers:**

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

Member Name	Retirement Plan Type
Alkire, Anita	G7, Non-vested
Fuentes, Charlene	G7, Non-vested
Ortiz, Michelle	G4, Non-vested

1704.4.8 **Member Account Redeposits:** None.

1704.4.9 **Acceptance of Trustees' Reports of Educational Activities:** The Board accepted the submitted reports for educational activities attended by trustees Battey, Hackleman, Lee, and Spinello.

1704.4.10 **Approval to Renew Fiduciary Liability Insurance Policy:** The Board authorized staff to work with the County's Risk Manager to renew fiduciary liability insurance coverage with American International Group (AIG) through May 2018.

1704.4.11 **Approval of Resolution Authorizing Agreement with Financial Knowledge Network, LLC:**

The Board adopted a resolution authorizing the Chief Executive Officer to execute an agreement with Financial Knowledge Network, LLC for member financial education services.

1704.4.12 **Approval of Actuarial Valuation Addendum and Resolution:** The Board accepted the addendum to the 2016 Actuarial Valuation; and adopted a resolution accepting the contribution rates contained in the April 13, 2017 addendum to the 2016 Actuarial Valuation, which will be recommended to the Board of Supervisors for the 2017-18 fiscal year.

1704.6.1 **Preliminary Monthly Portfolio Performance Report for the Period Ending March 31, 2017:** Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported the fund's net preliminary return for March was 1.1%, while the preliminary trailing twelve-month return ending March 2017 was 12.1% net. This report was informational and for discussion only; no action was taken.

1704.7.1 **Directions for Voting by SamCERA Delegates at the SACRS Spring Business Meeting:** Mr. Hood reviewed the items being considered at the SACRS business meeting with the Board. This included the slate of SACRS officers for 2017-18 and changes in the by-laws related to the SACRS Code of Conduct.
Action: Ms. Salas moved to direct SamCERA's voting delegates to vote affirmatively for the proposed slate of SACRS officers as presented, and the motion was seconded by Ms. Arnott. The motion carried with a vote of 6-1; with trustees Arnott, Battey, David, Hoefer, Salas (for Hackleman), and Tourel all in favor; Spinello opposed.
Action: Mr. David moved to direct SamCERA's voting delegates to vote affirmatively for the proposed changes in the SACRS by-laws as presented, and the motion was seconded by Mr. Hoefer. The motion carried with a vote of 7-0; with trustees Arnott, Battey, David, Hoefer, Salas (for Hackleman), Spinello, and Tourel all in favor; none opposed.

1704.8.1 **Chief Executive Officer's Report:** Mr. Hood notified the Board that the contribution rates approved by the Board on March 28, will be on the Board of Supervisors consent agenda on May 16. He also said that the Ad-Hoc Nominating committee would be appointed by the Chair at the June 6 meeting. Furthermore, Mr. Hood stated the triennial experience study begins next week, and that the strategic plan and budget for FY 2017-18 will be presented to the Board at the June meeting.

1704.8.2 **Assistant Executive Officer's Report:** None.

1704.8.3 **Chief Investment Officer's Report:** Mr. Coultrip reported that he had concluded the final on–site due diligence visits with prospective investment consultant firms, and that he will coordinate with the Ad-Hoc committee to schedule a meeting to discuss the observations.

1704.8.4 **Chief Legal Counsel's Report: Chief Legal Counsel's Report:** Ms. Carlson reported that SamCERA will receive $79,000 from its involvement in a lawsuit filed against the Royal Bank of Scotland, which was recently settled. She reviewed two PEPRA related appellate decisions addressing vested rights. Ms. Carlson also went over the key points of 5 separate legislative bills, all related to county pension systems, with the Board.

CLOSED SESSION

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

1704.9 **Report on Actions Taken in Closed Session:** None.

1704.10 **Adjournment:** Mr. Battey adjourned the meeting at 3:13 p.m.

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Scott Hood	Kristina Perez
Chief Executive Officer	Retirement Executive Secretary

San Mateo County Employees' Retirement Association
April 26, 2017 – Special Board Meeting Minutes
(Day 2 of Retreat)

1704.1 **Call to Order, Roll Call and Miscellaneous Business**
Call to Order: Mr. Paul Hackleman, Chair, called the Special Meeting of the Board of Retirement to order at 9:00 a.m.

Roll Call:
Present: Sandie Arnott, Mark Battey, Albert David, Paul Hackleman, Kurt Hoefer (arrived 9:15 a.m.), David Spinello (arrived 9:25 a.m.), and Shirley Tourel.
Excused: Eric Tashman, Ben Bowler.
Alternates present: Susan Lee, Alma Salas.
Staff: Scott Hood, Michael Coultrip, Brenda Carlson, Doris Ng, Lili Dames, Elizabeth LeNguyen, Colin Bishop, and Kristina Perez.

1704.2.1 **Oral Communications from the Board:** None.

1704.2.2 **Oral Communications from the Public:** None.

1704.2.3 **Retreat Presentations:**

Risk Parity – Brian Hurst, Principal and Portfolio Manager from AQR, presented and discussed information on the role of risk parity in a fund portfolio, and its purpose. He reviewed the benefits and risks, and discussed risk parity performance across different markets.

Mandated Ethics Training– Brenda Carlson, SamCERA Chief Legal Counsel, presented the Board's annual ethics training in compliance with the requirements set forth in the California Government Code. Board members and Ms. Carlson discussed topics including: reporting gifts, conflicts of interest, Brown Act and the Public Records Act.

The Board adjourned for lunch at 11:45 a.m. and reconvened at 1:05 p.m.

Trends of the Fund: Liabilities, Membership and Cash Flow – Scott Hood, SamCERA Chief Executive Officer, presented a detailed review of 20 years of historical data on SamCERA's liabilities, membership and cash flow. He discussed the direction of trends in these areas, and expectations for the future.

Medical Education – Trends- Dr. Henry Brodkin, SamCERA Board's Medical Advisor, discussed common orthopedic conditions routinely cited in disability applications, and answered questions from the Board members.

Overview of V3 Member Self Service - Elizabeth LeNguyen, SamCERA's Retirement Benefits Manager, and Colin Bishop, SamCERA's Retirement Communication Specialist, presented a step-by-step tutorial of the features of the new member self-service portal, MySamCERA, now available to members.

All the retreat items presented were for discussion and information only, and no action by the Board was taken. The retreat presentations were concluded at 3:05 p.m.

1704.10 **Adjournment:** Mr. Hackleman adjourned the meeting at 3:05 p.m. in the memory of the deceased members listed below, and in memory of Mr. Yves Cherry, Immediate Past President of SACRS and LACERA Board Member, who died unexpectedly on April 25.

Bouscal, Ray	March 13, 2017	Sheriff's
Price, Anna	March 9, 2017	Human Services Agency
Peterson, Eugene	March 15, 2017	Assessor

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Scott Hood	Kristina Perez
Chief Executive Officer	Retirement Executive Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 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) After review of packet material and presentations by counsel, determine what action to take regarding the following findings and recommendation of the Hearing Officer: (1) that **Jeffrey Edralin** is permanently incapacitated for the performance of his duties as an Associate Systems Engineer, (2) that his disability was not a result of an injury/illness arising out of and in the course of his employment and to (3) deny his application for a service-connected disability retirement.

b) The Board find that **Roy Galleguillos** is (1) permanently incapacitated for the performance of his usual and customary duties as a Utility Worker II, (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.

c) The Board find that that **Marc Mullaney** is (1) permanently incapacitated from the performance of his usual and customary duties as a Hazardous Materials Specialist III, (2) find that his disability was not result of an illness arising out of and in the course of his employment and (3) grant his application for a non-service-connected disability retirement.

d) The Board find that **Leisa Quadt** is (1) permanently incapacitated for the performance of her usual and customary duties as a Communications Dispatcher, (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.

e) The Board find that **Veronica Rosaia-Calabrese** is (1) permanently incapacitated for the performance of her usual and customary duties as a Court Reporter, (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.

f) The Board find that that **Debra Tucker** is (1) permanently incapacitated from the performance of her usual and customary duties as a Lead Office Assistant, (2) find that her disability was not result of an illness arising out of and in the course of her employment and (3) grant her application for a non-service-connected disability retirement.

4.2 Survivor Death Benefits

a) The Board find that **Bradford Lew**, would have been entitled to a non-service connected disability but has died and Helen Cole-Lew, the surviving spouse, has elected to receive an optional death allowance pursuant to Government Code § 31781.1.

4.3 Service Retirements

The Board ratifies the actions as listed below for the following members regarding service retirements:

Member Name	Effective Retirement Date	Department
Arbizu, Margarita	April 1, 2017	Human Services Agency
Atendido, Elsa	April 1, 2017	Human Services Agency
Azar, Suheil	March 28, 2017	Sheriff's
Bachus-Ballard, Carolyn	March 25, 2017	Medical Center
Ballon, Deborah	March 31, 2017	Behavioral Health
Baumgard, Imelda	April 1, 2017	Health Administration
Berg, Juliette	March 25, 2017	Sheriff's
Bradford, Rossi	April 1, 2017	Probation
Castellanos, Marie	April 1, 2017	Human Services Agency
Coffman, James	March 31, 2017	Sheriff's
Cogliati, Kevin	April 1, 2017	Sheriff's
Coyle, Barry	April 1, 2017	Sheriff's
Cruz, Carmelita	April 1, 2017	ACR
Davis, Sharon	March 31, 2017	Human Services Agency
DiLorenzo, Mary	March 17, 2017	Sheriff's
Drayton, Larry	March 31, 2017	Medical Center
Earles, Dwayne	April 1, 2017	Sheriff's
Eaton, Ronnie	March 25, 2017	Deferred from
Ekers, Lisa	March 31, 2017	Deferred from Public Works
Eppes, Karen	April 1, 2017	Medical Center
Flores, Felicitas	March 18, 2017	Human Services Agency
Frechette, Karen	April 1, 2017	Mental Health
Fry, Peggy	March 11, 2017	District Attorney's Office

Gallagher, Thomas	March 31, 2017	Sheriff's
Gomez-Benton, Deborah	April 1, 2017	Family Health Services
Gonzales, Encarnacion	March 31, 2017	Sheriff's
Gonzalez, Maria	April 1, 2017	Health System
Hartman, Maureen	March 30, 2017	Courts
Haynes, Edward	March 31, 2017	Sheriff's
Hess, Carl	March 18, 2017	Health Administration
Ho, Yvonne	March 25, 2017	Housing
Jackson, Edward	April 1, 2017	Medical Center
Jewett, Patricia	March 31, 2017	Public Safety Communications
Johnson, Gary	March 5, 2017	Sheriff's
Jumman, Nur	April 1, 2017	SHF Food Services
Kearns, Stephen	March 31, 2017	Aging & Adult Services
Kong, Gregory	April 1, 2017	Medical Center
Krause, Lori	March 11, 2017	Sheriff's
Kuhaiki, Michele	April 1, 2017	Aging & Adult Services
Landeros, Christina	March 31, 2017	Health System
Locker, Jan	March 31, 2017	Superior Court
Lopez, Felipe	April 1, 2017	Human Services Agency
Luft, Pauline	April 1, 2017	Controllers
Maher, Linda	March 31, 2017	Family Health Services
Marks, Carolyn	April 1, 2017	Board of Supervisors
Martinez, Marilu	April 1, 2017	Health System
McTaggart, Patrick	March 30, 2017	Sheriff's
Miller, Abbie	March 31, 2017	Aging & Adult Services
Mitchell, Manuel	April 1, 2017	Public Works
Mulawka, Chester	April 1, 2017	Library
Neal, Patricia	April 1, 2017	Human Services Agency
Neher, Michael	March 29, 2017	Medical Center
O'Rourke, Patrick	April 1, 2017	Sheriff's
Palaby, Melvin	April 1, 2017	Sheriff's

Pierluissi, Edgar	April 1, 2017	Deferred from Medical Center
Puddicombe, Maureen	March 4, 2017	Courts
Ramos, Gary	March 26, 2017	Sheriff's
Randich, Gregory	April 1, 2017	ACR
Roehr, Lesley	April 1, 2017	Probation
Rubio, Margarita	April 1, 2017	Medical Center
Sakuma, Eric	April 1, 2017	Sheriff's
Siat, Racquel	April 1, 2017	Family Health Services
Sims, Frederick	March 31, 2017	Probation
Soberano, Maria	April 1, 2017	Family Health Services
Sorbo, Paul	April 1, 2017	Behavioral Health
Stein, Margaret	March 31, 2017	Medical Center
Stock, Anna	March 31, 2017	Medical Center
Stockand, Carol	March 2, 2017	Deferred from Public Works
Straus, Rob	April 1, 2017	Human Services Agency
Sullivan, Denise	March 2, 2017	Deferred from Human Services
Titus, David	March 26, 2017	Sheriff's
Tokarski, Peter	March 31, 2017	Sheriff's
Tolentino, Lourdes	March 31, 2017	Medical Center
Toscano, Marsha	April 1, 2017	Health Administration
Traube, Lorna	March 25, 2017	Courts
Tucker, Debra	March 14, 2017	Human Services Agency
Watson, Phillip	April 1, 2017	Sheriff's
Weber, Renee	March 25, 2017	Sheriff's
Weiher, Donald	April 1, 2017	Behavioral Health
Wiggins, Antoinette	March 31, 2017	Probation
Witherspoon, Jerome	April 1, 2017	Medical Center
Wong, Stephen	April 1, 2017	Human Services Agency
Worden, Susan	April 1, 2017	Library

4.4 Continuances

The Board ratifies the actions as listed below for the following members regarding continuances:

Survivor's Name	Beneficiary of:
Lauron, Prescilla	Lauron, Antonio
Mitvalsky, Joyce	Mitvalsky, Derek
Patane, Mario	Patane, Carmen

4.5 Deferred Retirements

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

Member Name	Retirement Plan Type
Bader, Darren	G4, Vested
Boyo, Toritsesan	G7, Non-vested - Reciprocity
Crapo, Timothy	G5, Vested - Reciprocity
Dabel, Sean	G4, Vested
Dham, Sonia	G4, Vested
Dutaret, Sylvie	G4, Vested
Fong, John	G4, Vested - Reciprocity
Fortin, Thomas	G5, Non-vested - Reciprocity
Foster, Kathleen	G4, Vested – Reciprocity
Gerrodette, Marie	G2, Vested
Gonzales, Jocelyn	G4, Vested
Gonzalez, Amada	S4, Vested – Community Property
Granados, Oskar	G4, Vested
Harary, Sam	G2, Vested
Hayes, Aaron	G4, Vested
He, Jie	G4, Vested
Howton, Nana	G4, Vested
Jasso, Janine	G4, Vested
Jimenez, Joaquin	P4, Vested
Karzen, Laura	G5, Vested - Reciprocity

Kwan Lloyd, Natalie	G4, Vested
Lalaind, Angela	G7, Non-vested - Reciprocity
Martinez, Patricia	G4, Vested
Mayer, Sarat	G4, Vested
Mccord, Heather	G4, Vested
McGovern, Peter	G4, Vested
Miranda, Dereck	G4, Vested
Mosley, Tyesha	G4, Vested
Munoz, Nicole	G4, Vested
Ortiz, Nadia	G4, Vested - Reciprocity
Ou, Shu-Liang	G4, Vested
Pang, Yen	G4, Vested
Patel, Neel	G4, Vested
Pena, Jose	G4, Vested
Perez, Alexander	G4, Vested
Pham, Andrew	G4, Vested
Piazza, Mitchelle	G4, Vested
Rodriguez, Rebecca	G2, Vested
Ruiz-Vides, Annette	G2, Vested
Saggese, Amy	G4, Vested
Schiantarelli, Jennifer	G2, Vested - Reciprocity
Sholaas, Mary	G4, Vested
Starnes, Susan	G4, Vested
Taiby, Hussain	G4, Vested
Taylor, Elizabeth	G4, Vested - Reciprocity
Verdusco, Jose	G4, Vested
Wallingford, Samantha	G4, Vested
Weibel, Lance	G4, Vested - Reciprocity
Wilkins, Megan	G4, Vested
Woodward, Michaela	G4, Vested

4.6 Member Account Refunds

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

Member Name	Retirement Plan Type
Esquivel, Lisa	G4, Vested
Gatonye, Francis	G7, Non-vested
Halcon, Anthony	G7, Non-vested
Hedstrom, Jessica	G7, Non-vested
Hill, Soledad	G7, Non-vested
Morton, Khadijah	G7, Non-vested

4.7 Member Account Rollovers

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

Member Name	Retirement Plan Type
Artale, Ellie	G4, Non-vested
Eick, Joseph	G7, Non-vested
Fely, Vaitogi	G7, Non-vested
Jones, Grant	G7, Non-vested

4.8 Member Account Redeposits

None.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 Agenda Item 4.9

TO: Board of Retirement

FROM: Kristina Perez, Executive Secretary Kristina Perez

SUBJECT: Trustees' Reports of Educational Activities

Staff Recommendation

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

Background

SamCERA's Education Policy was amended in December 2016.

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."

The "reporting out" requirement was changed from an oral report given by individual Trustees under agenda item 2.2, Oral Communications from the Board, to a written report submitted on the Consent Agenda.

Discussion

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

SACRS Spring Conference, Napa, CA, May 16-19, 2017:
- Ben Bowler
- Susan Lee
- David Spinello

Portfolio Concepts and Management, Wharton School, Philadelphia, PA, May 1-4, 2017
- Kurt Hoefer

Attachments

Trustee Education Proof of Participation Certificate and Summary (4)

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

SamCERA

Trustee Name Ben Bowler	**Date(s) of Event** May 16-19, 2017
Education Event Name SACRS Spring Conference, Napa, California	
Event Provider SACRS	
Type of Participation: Attended Event ☒ Listened to Audio/Watched Video ☐	**Eligible Credit:** Total hours for sessions you participated in: 2 *(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)*

- ☐ Fiduciary responsibilities
- ☐ Ethics
- ☐ Benefits administration
- ☐ Actuarial matters
- ☐ Pension funding
- ☑ Pension fund investments and investment program management
- ☐ Disability evaluation
- ☐ Fair hearings
- ☐ Pension fund governance
- ☐ New board member orientation
- ☑ Other: ECONOMY, GEOPOLITICAL RISK

Summary Report

What concepts or information did you learn about?

UPDATES ON CURRENT ALLOCATION STRATEGY TRENDS, FIXED INCOME OPPORTUNITIES AND GLOBAL ECONOMIC ISSUES.

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 5/31/17

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** May 16-19, 2017
Education Event Name SACRS Spring Conference, Napa, California	
Event Provider SACRS	
Type of Participation: Attended Event ☒ Listened to Audio/Watched Video ☐	**Eligible Credit:** Total hours for sessions you participated in: 13 hrs. *(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)*

- ☒ Fiduciary responsibilities
- ☐ Ethics
- ☐ Benefits administration
- ☒ Actuarial matters
- ☒ Pension funding
- ☒ Pension fund investments and investment program management
- ☒ Disability evaluation
- ☐ Fair hearings
- ☒ Pension fund governance
- ☐ New board member orientation
- ☐ Other: ____________________

Summary Report

What concepts or information did you learn about?

- Communication concepts re = not what you say but really what ppl hear
- POTUS first 100 days affect on economy
- Safety breakout updates & exchange on info.
- leadership from a Navy Seal point of view w/ tips

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 5-31-17

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

SamCERA

Trustee Name	Date(s) of Event
DAVID SPINELLO	May 16-19, 2017
Education Event Name SACRS Spring Conference, Napa, California	
Event Provider SACRS	
Type of Participation: Attended Event ☒ Listened to Audio/Watched Video ☐	**Eligible Credit:** Total hours for sessions you participated in: 20 *(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)*

- ☒ Fiduciary responsibilities
- ☐ Ethics
- ☐ Benefits administration
- ☐ Actuarial matters
- ☒ Pension funding
- ☒ Pension fund investments and investment program management
- ☐ Disability evaluation
- ☐ Fair hearings
- ☐ Pension fund governance
- ☐ New board member orientation
- ☐ Other: ____________

Summary Report

What concepts or information did you learn about?

A LOT!! IT'S ON THE SACRS AGENDA.

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
[signature]	5/24/17

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.

File Name: TrusteeParticipationSummaryReportDRAFT.DOCX

RECEIVED
MAY 24 2017
SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

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

SamCERA
SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Trustee Name	Date(s) of Event
Kurt Hoefer	May 1-4, 2017
Education Event Name Wharton Portfolio Concepts and Management, Philadelphia	
Event Provider IFEBP	
Type of Participation: Attended Event ☒ Listened to Audio/Watched Video ☐	**Eligible Credit:** Total hours for sessions you participated in: 20 *(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)*

- ☐ Fiduciary responsibilities
- ☐ Ethics
- ☐ Benefits administration
- ☐ Actuarial matters
- ☐ Pension funding
- ☑ Pension fund investments and investment program management
- ☐ Disability evaluation
- ☐ Fair hearings
- ☐ Pension fund governance
- ☐ New board member orientation
- ☐ Other: ______________________

Summary Report

What concepts or information did you learn about?

Great overview of manager selection criteria, portfolio construction, performance metrics, capital markets, valuation techniques, and other things relevant for managing pension funds. Included an interesting session that discussed the current state of government and municipal finance, debt levels, funded status of pension systems around the country.

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
[signature]	5/25/17

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 6, 2017 Agenda Item 4.10

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer

SUBJECT: Report on County's Prepayments of its Estimated Employer Contributions for Fiscal Year 2017-18

Staff Recommendation
Accept the report on the County's prepayments of its estimated employer contribution totaling $184,066,429 for Fiscal Year 2017-18.

Background
Milliman Inc. determined the recommended employer contribution rates for fiscal year 2017-18 in its actuarial valuation for June 30, 2016. These contribution rates were subsequently approved by the Board of Retirement and the County's Board of Supervisors.

Discussion
Based on Milliman's recommended contribution rates, Staff estimates that the County's overall contribution for fiscal year 2017-18 is approximately $184 million. The County intends to pay this amount through two semi-annual installments into the Advance County Contribution Account with SamCERA in July 2017 and January 2018, respectively.

During fiscal year 2017-18, the County Controller will certify the employee biweekly payroll and then attest to the County's required contribution amount. After validation, Staff will transfer the County's required contribution amount from the Advance County Contribution Account to the Employer Contribution Account. The remaining balance on the County Advance Contribution Account at the end of each biweekly pay period will receive interest at an assumed interest rate of 7% per annum.

If the overall prepayment received is insufficient to satisfy the annual required contribution, the County will pay the amount still owing. If the overall prepayment exceeds the annual required contribution, the County may request the excess be used as a credit towards its prepayment for the following year, or be placed in the County Supplementary Contribution Account based on the terms of its Memorandum of Understanding with this Board.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 7, 2016 Agenda Item 5.2

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer

SUBJECT: Consideration and Direction to Milliman Inc. Regarding Assumptions to be used in the June 30, 2017 Actuarial Valuation

Staff Recommendation

Provide direction to Milliman, Inc. as to the economic actuarial assumptions to be used in the June 30, 2017 actuarial valuation.

- Staff recommends that the assumptions be set as follows: investment return at 6.75%, inflation between 2.50% and 2.75%, general wage and payroll growth between 3.00% and 3.25%

- Staff further recommends that the COLA assumption for Plans 1 and 2 be set in accordance with the inflation assumption.

Discussion

Today, the Board will be asked to provide guidance to Milliman, Inc. regarding the economic assumptions to be used in its June 30, 2017 actuarial valuation of the system. Nick Collier, lead actuary, will be present to discuss the attached slides and a preview of the economic assumptions section from the "Investigation of Experience" report (our upcoming triennial experience study). The full report will be presented at the July meeting and the resulting valuation will be presented at the September meeting, at which time the Board will approve employer and employee rates to be recommended to the Board of Supervisors for adoption.

The most significant assumption to provide direction for is the assumed investment return rate which is currently set at 7.00%. A Milliman poll of investment consultants' capital market expectations based on SamCERA's portfolio shows a median return for the next 10 years of about 6.5% (net of investment and administrative costs).

Lowering the assumed rate to 6.75% by itself with no other corresponding economic assumption changes would increase the employer rate by an estimated 5.8% of payroll. Lowering the assumed rate to 6.75% with corresponding reductions (.25%) to the price inflation assumption, wage growth and payroll growth assumptions would lessen the impact to the employer rate by increasing the employer rate by an estimated 3.4% of payroll.

As discussed in prior meetings, we anticipate that Milliman will recommend moving away from our "static" mortality tables and adopt generational mortality tables, which would affect both employer and employee contribution rates. The adoption of these mortality tables and other demographic assumptions to be used in the valuation will not occur until the Board's July meeting. However, the generational mortality tables have been incorporated already as part of the cost projection for the economic assumptions to provide a more accurate forecast of projected retirement costs for employers and employees, should this demographic assumption be adopted in July. The use of generational mortality tables added an estimated 2.19% to each of the employer rates to reach the 5.8% and 3.4%, respectively mentioned above.

Per the Memorandum of Understanding (MOU) with SamCERA, the County of San Mateo continues to voluntarily pay additional contributions through an annual lump sum of $10 million for six more years and paying the difference between the Statutory Contribution Rate (SCR) and 38% (adjusted to 37.14% to recognize negotiated additional contributions paid by employees subsequent to the MOU), but no less than the SCR. Lowering the assumed investment return to 6.75% will initially increase the UAAL but with the County continuing to make the supplemental contributions, Milliman does not project an increase in the time that it will take to pay off the UAAL. Lowering the assumed investment return could potentially temporarily raise the SCR to over 38%.

The estimated employer contribution increase does impact the SMCMVCD, but to a lesser extent, due to the large contribution the SMCMVCD made towards their UAAL in late 2015. There will be a significant decrease to their employer rate in July 2017, but it will subsequently increase with the adoption of the new economic assumptions.

With regards to member rates, changing these assumptions would increase the vast majority of contribution rates by anywhere from .12% to 2.5%, depending on the member's plan and entry age and the economic assumptions that are changed. Rates may be higher for members with higher entry ages. Milliman provided some sample member contribution calculations in the attached presentation. As with the employer rates, employee rates will also be impacted due to the utilization of generational mortality tables.

Staff believes that lowering the assumed investment return rate will add to the financial strength and stability of the fund by mitigating the impacts if future returns are lower than current expectations.

Attachments
Section 2 of the Milliman Investigation of Experience (2014-2017)
Milliman, Inc Economic Assumption for the 2017 Valuation Presentation

Section 2 Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recent changes in ASOP No. 27 have restricted what assumptions satisfy the standard. In particular, previously any assumption within the "best-estimate" range (a wide range in our opinion) was likely to satisfy the standard. To meet the new standard, the assumption "reflects the actuary's estimate of future experience" and "it has no significant bias (i.e., it is not significantly optimistic or pessimistic)…" We believe this reduces the range of assumptions that would be considered reasonable.

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may lead the actuary to recommend the same inflation component in each of the economic assumptions proposed.

This section will discuss the economic assumptions. We have recommended a reduction in the price inflation assumption with corresponding reductions in the wage inflation and COLA increase (for Plans 1 and 2) assumptions. We have also provided two potential reductions in the investment return assumptions depending on how administrative expenses are treated. We believe either of these sets of assumptions satisfy ASOP No. 27.

The following table shows our two recommended alternatives.

Economic Assumptions	Current Assumptions	Recommended Assumptions Alternative #1	Recommended Assumptions Alternative #2
Investment Return	7.00%	6.75%	6.75%
GASB Discount Rate	7.20%	6.92%	6.92%
General Wage Growth	3.25%	3.00%	3.25%
Payroll Growth	3.25%	3.00%	3.25%
Price Inflation	2.75%	2.50%	2.75%
COLAs for Retirees	2.75%/2.65%/1.90%	2.5%/2.4%/1.9%	2.75%/2.65%/1.90%

1. Price Inflation & COLA Assumptions

Use in the Valuation

When we refer to inflation in this report, we are generally referring to price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage increases and the payroll increase assumption. It does not have a direct impact on the valuation results, except where it affects the assumed COLA to be paid.

The long-term relationship between inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower expected investment returns, at least in the long run.

The current valuation assumption for inflation is 2.75% per year. We have recommended two alternatives to be considered, one maintaining the current inflation rate, and the other lowering the assumption to 2.50% with corresponding adjustments to the assumed COLA.

Historical Perspective

The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics.

Although economic activities in general and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and long-term trends are a factor to be considered in developing the inflation assumption.

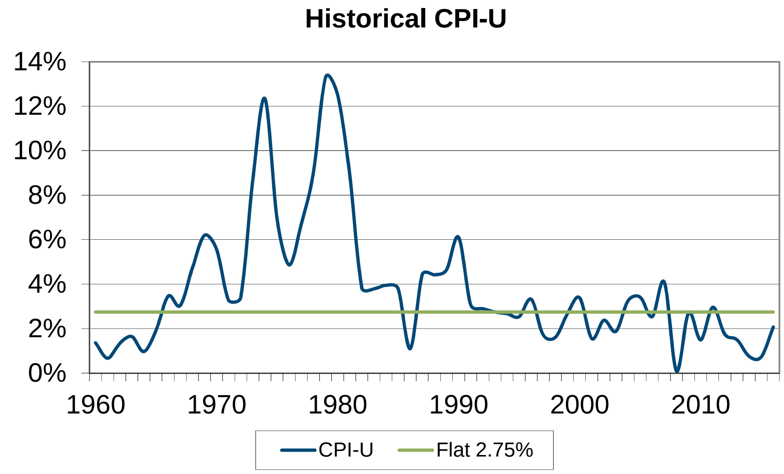
There are numerous ways to review historical data, with significantly differing results. The table below shows the compounded annual inflation rate for various 10-year periods, and for the 50-year period ended in December 2015. Note that the 50-year average is heavily influenced by the inflation of the late 1970s and early 1980s.

Decade	CPI Increase
2007-2016	1.8%
1997-2006	2.4%
1987-1996	3.7%
1977-1986	6.6%
1967-1976	5.9%
Prior 50 Years	
1967-2016	4.1%

Historical Perspective (Continued)

These are national statistics. The inflation assumption as it relates to the investment return assumption should be based more on national and even global inflation, whereas, the inflation assumption used in the wage growth, payroll growth, and COLA increase assumptions is tied to inflation in the Bay Area. We believe that although there have been historical differences between U.S. and California CPI changes, in the long term there should be a high correlation. For comparison, the average CPI increase for the Bay Area has been about 0.25% higher than the national average for the 30-year period 1987-2016.

The following graph shows historical national CPI increases. Note that the actual CPI increase has generally been less than 2.75% since 1991.



Forecasts of Inflation

Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. Current market prices as of May 2017 suggest investors expect inflation to be about 2.0% over the next 30 years.

Additionally, we reviewed the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2016 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.6%.

Price Inflation Recommendation

The price inflation assumption is not used in determining SamCERA's funding and thus has no direct impact on the contribution rates; however, it is a factor in our recommendations for the wage growth, COLA, and investment return assumptions.

We recommend either maintaining the long-term assumed inflation rate or decreasing it by 0.25% to reflect lower forecasts.

Consumer Price Inflation	
Current Assumption	2.75%
Recommended	
Alternative #1	2.50%
Alternative #2	2.75%

Postretirement Cost-of-Living Adjustments (COLA)

The current assumption is that retiree COLAs for Plan 1 will be equal to the price inflation assumption. We recommend continuing this practice. If the assumption is lowered, this would result in a reduction in the assumed COLAs for Plan 1 to 2.5% per year. In reality, some years, the CPI will be higher than the assumption and some years it will be lower. Over the long term, if CPI increases average 2.5% (or 2.75%), Plan 1 COLAs should average close to 2.5% (or 2.75%), since the maximum COLA is much higher at 5% (3% for Probation) and there is a COLA bank.

For the other contributory plans, the maximum COLA is lower (3% for Plan 2 and 2% for the other plans) and there is no COLA bank. Since when CPI increases are higher than 2% (or 3% for Plan 2) the COLA will be limited, but when they are lower they will not be limited (except in rare cases), we expect the actual COLAs granted will be less than the average CPI (or the maximum COLA in the case of Plans 4-7). Our current assumption for the Plan 2 COLA is that it will be 0.1% less than the CPI assumption, and the COLAs for Plans 4-7 will be 0.1% less than the maximum COLA amount. We feel this continues to be a reasonable assumption.

General Plan 3 does not have a COLA. Therefore, the assumed COLA is 0.0%.

COLA Recommendation

We recommend the COLA assumption be adjusted if the price inflation assumption is reduced.

Annual Cost of Living Adjustment			
	Current	Recommended	
		Alternative #1	Alternative #2
Plan 1	2.75%	2.50%	2.75%
Plan 2	2.65%	2.40%	2.65%
Plan 3	0.00%	0.00%	0.00%
Plans 4, 5, 6 & 7	1.90%	1.90%	1.90%

2. Wage Growth

Use in the Valuation

Estimates of future salaries are based on two types of assumptions: 1) general wage increase and 2) merit increase. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity generally occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions (see Section 5).

The current assumption is for wage growth of 0.50% above the inflation assumption.

Historical Perspective

We have used statistics from the Social Security Administration on the National Average Wage back to 1967.

There are numerous ways to review this data. For consistency with our observations of other indices, the table below shows the compounded annual rates of wage growth for various 10-year periods and for the 50-year period ending in 2016. The excess of wage growth over price inflation represents "productivity" (or the increase in the standard of living, also called the real wage inflation rate).

Decade	Wage Growth	CPI Increase	Real Wage Inflation
2007-2016	2.5%	1.8%	0.7%
1997-2006	4.1%	2.4%	1.7%
1987-1996	4.1%	3.7%	0.4%
1977-1986	6.5%	6.6%	-0.1%
1967-1976	6.4%	5.9%	0.5%
Prior 50 Years			
1967-2016	4.7%	4.1%	0.6%

Like price inflation, wage growth can also be influenced by location, particularly in the short term. The average annual salary for SamCERA members has increased by 3.1% over the last ten years compared to 2.5% nationally. After removing the actual price inflation for the period, this results in 0.6% real wage growth over the period, very comparable to the national real wage inflation of 0.7% for the same ten years.

Forecasts of Future Wages

Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2016 Trustees Report, the ultimate long-term annual increase in the National Average Wage is estimated to be 1.2% higher than the Social Security intermediate inflation assumption of 2.6% per year.

Recommendation

Over the last 50 years, the actual experience, on a national basis, has been close to the current assumption. We believe that wages will continue to grow at a greater rate than prices over the long term, although not to the extent projected by Social Security. We are recommending that the long-term assumed real wage inflation rate remain at 0.50% per year.

Real Wage Inflation Rate	
Current assumption	0.50%
Recommended Assumption	0.50%

The wage growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate. If the real wage inflation assumption remains 0.50% and the price inflation is set at 2.50%, this would result in a total wage growth assumption of 3.00%. If there is no change in the price inflation assumption, the total wage growth would remain at 3.25%.

Payroll Increase Assumption

In addition to setting salary assumptions for individual members, the aggregate payroll of SamCERA is expected to increase, without accounting for the possibility of an increase in membership. See comments on growth in membership discussed below.

The current payroll increase assumption is equal to the general wage growth assumption of 3.25%. It is our general recommendation to set these two assumptions to be equal, unless there is a specific circumstance that would call for an alternative assumption. We are recommending that the payroll increase continue to be equal to the wage growth assumption, so it would be either 3.00% or 3.25% depending on the wage growth assumption adopted.

Growth in Membership

We propose continuing the assumption that no future growth in membership will occur. This assumption affects the Unfunded Actuarial Accrued Liability (UAAL) amortization payment rate. With no assumed growth in membership, future salaries are assumed to grow due to wage growth increases. If increases should occur because of additional members, there will be a larger pool of salaries over which to spread the UAAL, if any, resulting in an actuarial gain. This current assumption is consistent with GASB parameters.

It should be noted that membership growth could be affected by the County's "Agile" workforce program, which fills some positions with employees who would not participate in SamCERA. To the extent this occurs, membership growth could be negative, although over the past few years, the active membership has been increasing, so there does not appear to have been a significant impact so far.

3. Investment Return

Use in the Valuation

The investment return assumption is one of the primary determinants in the calculation of the projected contributions needed to pay for SamCERA's benefits, providing a discount of the future benefit payments that reflects the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, member contribution rates, and the factors for optional forms of benefits. The current investment return assumption for SamCERA is 7.00% per year, net of all administrative and investment-related expenses.

Expected Long-Term Investment Return

To determine the expected long-term investment return, we have used Verus's 2017 assumptions for capital markets and SamCERA's current target asset allocation. The target asset allocation, along with the capital market assumptions, are summarized in the following table:

	Allocation	Expected Return[1]	Standard Deviation
Large Cap Equity	20%	4.7 %	15.8 %
Small Cap Equity	3	4.8	21.8
International Equity	19	9.7	18.9
Fixed Income	21	3.9	6.5
Private Equity	7	7.8	26.2
Risk Parity	8	7.2	10.0
Hedge Fund Composite	6	6.0	13.2
TIPS	2	2.6	5.7
Liquid Real Assets[1]	5	4.3	16.1
Real Estate	7	6.6	17.9
Private Real Assets[1]	2	3.1	18.0
Total	100 %		

(1) 10-year geometric average.

(2) Used Verus's assumption for commodities.

Combining the capital market assumptions with the target asset allocation policy, Verus has calculated the 10-year expected rate of return to be 6.7%. This expected return is the median return on a geometric basis for SamCERA's assets. That is, there is a 50% probability the return will exceed 6.7% and a 50% probability the return will be less than 6.7%. We independently calculated the expected return and came close to Verus's 6.7% using their capital market assumptions which include an implicit 2.1% inflation assumption.

Administrative and Investment-Related Expenses

The investment return used for the valuation is assumed to be net of all administrative and investment-related expenses. The following table shows the ratio of administrative expenses to the SamCERA Plan assets over the last 10 fiscal years beginning July 1. The expense ratio is calculated as the expense amount divided by the ending asset balance at fair market value.

($millions) FYB	Market Assets	Admin. Expense	Expense Ratio
2006	$ 1,790	$ 2.1	0.12%
2007	2,132	2.8	0.13
2008	2,011	3.2	0.16
2009	1,591	3.4	0.21
2010	1,816	3.6	0.20
2011	2,318	5.0	0.22
2012	2,360	4.9	0.21
2013	2,728	4.9	0.18
2014	3,292	5.5	0.17
2015	3,454	6.0	0.17

Note that for purposes of this calculation we have included only the regular administrative expenses. If the information technology expense was included, the expense ratio for the fiscal year beginning July 1, 2015 would be 0.19%, instead of 0.17%.

For the administrative expenses, we have assumed a reduction in the current assumption of 0.20% of market assets to 0.17%, as the actual ratio has been less than 0.20% over the last three years and we project a material growth in the market assets over the next few years due to the current high level of funding.

Investment expenses have been slightly less than 1% of the market value of assets. However, for purposes of our analysis of the investment return assumption, we have only accounted for passive management fees and other fixed investment expenses. The reasoning for this is that for assets classes where passive management is available, SamCERA would not use active management unless there was an expectation that the returns net of fees would be at least as great as the net return using passive management. For asset classes where passive management is not available, our understanding is that Verus's capital market assumptions are net of investment expenses. We have therefore assumed that investment expenses to be 0.06% (0.04% for passive management fees and 0.02% for fixed investment expenses).

The expense assumption does not have a direct impact on the actuarial valuation results under the current methods, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, the current investment return assumption is 7.00%, so SamCERA needs to earn a gross return (after adjustment for investment expenses) on its assets of 7.17% in order to net the 7.00% for funding purposes.

Administrative and Investment-Related Expenses (continued)

Additionally, we recommend the 0.17% adjustment be added to the investment return assumption adopted to determine the discount rate used in SamCERA's GASB 67 and 68 valuations, as GASB requires the discount rate to be the long-term expected rate of return gross of administrative expenses.

Explicit Recognition of Administrative Expenses

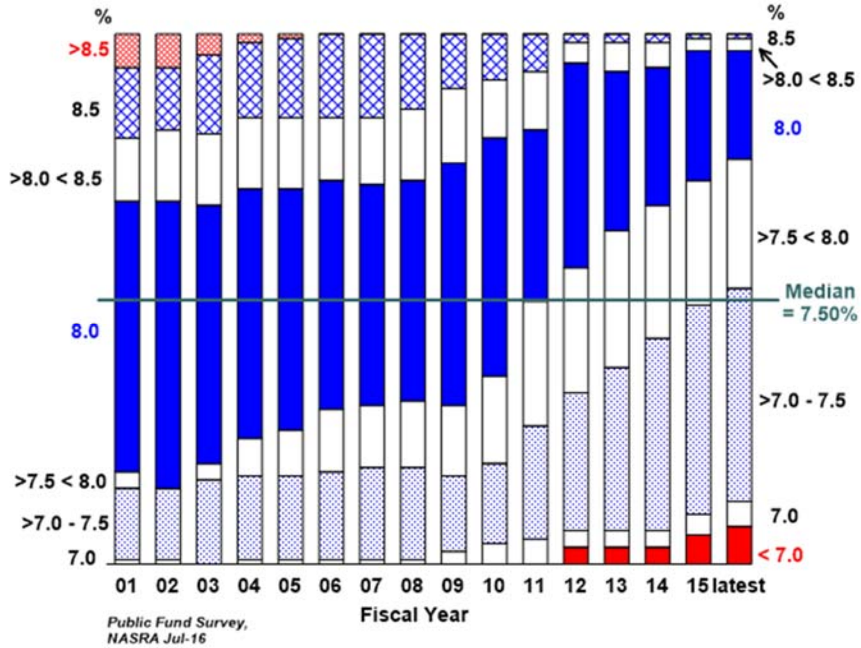
The investment return assumption used for the valuation is assumed to be net of all administrative and investment related expenses. By deducting both of these categories of expenses, the investment return assumption is less than if just the investment related expenses were deducted, resulting in higher employer and member contribution rates. A portion of these higher contribution rates is assumed to pay for administrative expenses. Consequently, the administrative expense is "implicitly" included in the rates.

About half of the '37Act systems only deduct the investment related expenses from the investment return assumption, which does not decrease the investment return assumption as much and, correspondingly, does not increase the contribution rates as much. For these systems, however, the administrative costs are separately accounted for and then "explicitly" included in the contribution rates, which, in turn, increases the rates. For the systems that explicitly include the administrative expenses in the contribution rates, the costs can be applied to either the member or the employer or shared between the two. A sharing of these cost would be required for the PEPRA Plan 7 members if the administrative expenses are assumed to be part of the normal cost rate.

Switching from the "implicit" to "explicit" method would in essence redistribute the payment of the administrative costs among the different employers and different plan members. Either method is acceptable. Given that SamCERA currently uses the implicit method and there would be some administrative issues in changing, we are recommending continuing with the current method of implicitly recognizing administrative expenses for the 2017 valuation.

Peer System Comparison

According to the *Public Fund Survey*, the average investment return assumption for statewide systems has been steadily declining. As of the most recent study, the median rate is 7.50%. The following chart shows a progression of the distribution of the investment return assumptions. In 2001, very few systems had an assumption of 7.5% or lower and over 80% had an assumption of 8.0% or greater. As of fiscal year 2016, over 50% have an assumption of 7.5% or less and this is continuing to trend down.



Excess Earnings

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside surplus earnings of the retirement fund which are in excess of the total interest credited to reserves, provided this surplus exceeds 1.00% of the total assets of the retirement system. Historically, some '37 Act systems have used these excess earnings to increase benefits as allowed under the law. This creates a drag on the investment return, if not all earnings are used to pay for the current benefits. If this is the case, the actuary may recommend reducing the investment return assumption to account for this impact.

SamCERA's current interest crediting policy requires that any available earnings first go to crediting the basic reserves. Any remaining available earnings are then used to fill up the contingency reserve up to 3% of assets. All remaining available earnings or losses are then credited to the Undistributed Earnings/Losses Reserve. Since there is no provision for spending investment earnings on anything but the current benefits, no adjustment in the investment return assumption is needed.

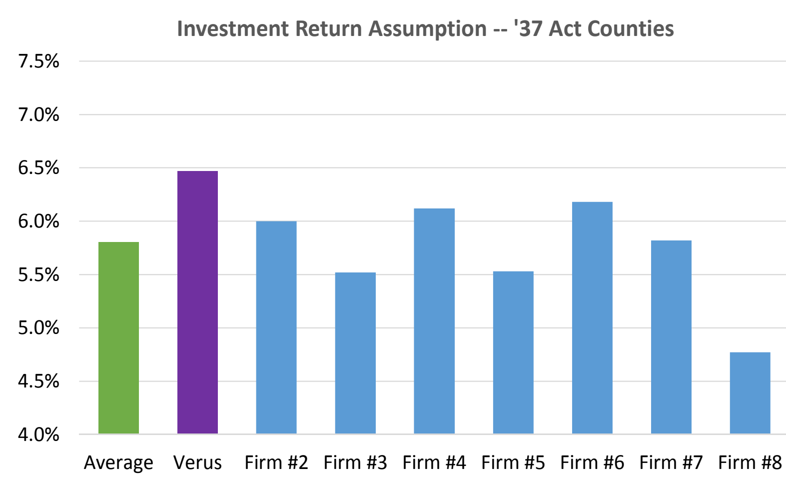
Additional Factors for Consideration in Setting the Investment Return Assumption

The capital market assumptions provide the most tangible measure for estimating future returns; however, there are other factors that we believe should be considered in setting the investment return assumption, with the two key considerations being:

- **Long-Term Perspective:** The 10-year time horizon used in Verus's capital market assumptions is shorter than the 30 years we usually recommend for setting the investment return assumption for valuing pension liabilities. In the shorter term (10 years or less), there is an expectation of lower returns, primarily due to the current low interest rate environment. The expectation is that when interest rates will increase from their historical lows this will ultimately result in higher expected returns. Reflecting higher returns for the period from 10 to 30 years would result in a higher expected return for the 30-year period than Verus's 10-year estimated return. For example, Milliman's capital market assumptions, which vary by time horizon, have an expected return that is 0.35% greater over the next 30 years than the next 10 years. However, the argument can also be made that a greater emphasis should be placed on the shorter term returns, since there is more certainty that they will occur than the higher long-term returns.

- **Variance in Capital Market Assumptions:** We calculated the expected return for the SamCERA portfolio based on the capital market assumptions of a number of other investment consultants we work with in addition to Verus. The expected return of the other investment consultants was less than Verus's, sometimes significantly. This variance among investment consultants is typical of what we see with other plans.

  A comparison of the expected returns based on SamCERA's target asset allocation and the capital market assumptions of other investment consultants is shown below. These expected returns are net of assumed investment and administrative expenses, so the expected return we show for Verus is slightly less than the 6.7% they report. Verus is represented by the purple bar in the graph, and the average of just under 6.0% is represented by the green bar. Note that we have used Verus's capital market assumptions in our analysis, as we believe Verus is most familiar with SamCERA's specific investments.



Variability of Future Returns

Our focus in this analysis has been on the median expected future return. The median return indicates there is a 50% probability, based on the capital market assumptions, that the actual return will meet or exceed this amount. For comparison, the following are the probabilities based on Verus's capital market assumptions that the actual return, net of expenses, will exceed the following thresholds over a 30-year time period. Note that we have extrapolated Verus's 10-year capital market assumptions over a 30-year period, so it isn't a perfect comparison, but it does give some idea of the potential variability of the expected return.

30-Year Average Return(1)	Probability of Achieving
8.0%	23%
7.0%	40%
6.5%	50%
6.0%	59%
5.0%	76%

1. *Average return is net of assumed administrative and investment expenses.*

Note that if we increased SamCERA's expected 30-year returns by 0.35% over the expected 10-year return, there would be a 47% probability of meeting a 7.0% return over the 30-year period. The 0.35% difference is based on the difference in Milliman's capital market expectations over 10-year and 30-year periods.

Cost Implications of Changes in Investment Return Assumption

In most retirement systems with variable contribution rates, such as SamCERA, the greatest factor contributing to the volatility of contribution rates is the return on investments. If, in the future, the full actuarial assumption of 7.00% is not met, there would likely be an increase in the employer contribution rate.

The base member contribution rates are determined based on the '37 Act statutes, the actuarial assumptions, and the benefit provisions. The COLA portion of the member rates and the cost-sharing contributions also do not reflect asset values. Therefore, any experience gain or loss in investments is not expected to directly impact the member contribution rates but will impact the employer contribution rates.

To assist the Board in understanding the sensitivity to changes in the investment return rate assumption, we revalued the June 30, 2016 valuation results using the recommended investment return assumption of 6.75% net of all expenses. We show key results for the 6.75% return assumption and two alternative inflation assumptions on the attached exhibits. Note that estimated employer costs and member rates shown on the exhibits also reflect a preliminary proposed change to the mortality assumption.

Exhibit 1 shows the estimated impact on the statutory employer contribution rate. Exhibit 2 shows the estimated impact on member contribution rates.

Recommendation

Based on Verus's capital market assumptions, we find there is less than a 50% probability that the current investment return of 7.0% (net of all expenses) will be met. Based on our limited survey, other investment consultants are generally predicting lower returns than Verus. Although there may be an expectation of higher returns over periods longer than the 10 years Verus is using, 7.00% still appears to be above the expected median return based on our analysis. Therefore, we are recommending a reduction of 0.25% in the investment return assumption to 6.75%.

	Investment Return
Current assumption	7.00%
Recommendation	6.75%

Exhibit 1

SamCERA

Estimated Financial Impact of Possible Assumption Changes[1]

	Statutory Employer Rate	Funded Ratio
Alternative Economic Scenarios		
June 30, 2016 Valuation	33.77%	83.1%
Economic Alternative #1 (2.50% Inflation) with Proposed Mortality[2][3]	3.44%	-2.5%
June 30, 2016 Valuation with New Assumptions	37.21%	80.6%
June 30, 2016 Valuation	33.77%	83.1%
Economic Alternative #2 (2.75% Inflation) with Proposed Mortality[2][3]	5.76%	-4.4%
June 30, 2016 Valuation with New Assumptions	39.53%	78.7%

(1) Estimates based on June 30, 2016 actuarial valuation. Actual results will be determined based on the June 30, 2017 actuarial valuation and will likely include additional demographic assumption changes.

(2) The estimated impact of the proposed mortality assumptions is a 2.19% increase in the statuory contribution rate.

(3) The proposed mortality assumptions are based on a preliminary analysis of retired mortality experience and are subject to change. The proposed tables used in this analysis are shown below.

Group	Base Table	Projection Table	Minimum Rate
General Male Service Retirees	95% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	n/a
General Female Service Retirees	95% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	n/a
Safety Male Service Retirees	95% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	n/a
Safety Female Service Retirees	95% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	n/a
General Male Disabilities	------------ Average of ---------- 95% of RP-2014 Table for Male Annuitants 105% of RP-2014 Table for Male Disabilities	MP-2014 Ultimate	1.0%
General Female Disabilities	------------ Average of ---------- 95% of RP-2014 Table for Female Annuitants 105% of RP-2014 Table for Female Disabilities	MP-2014 Ultimate	0.5%
Safety Male Disabilities	105% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	1.0%
Safety Female Disabilities	105% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	0.5%

Exhibit 2

SamCERA

Estimated Impact of Possible Assumption Changes on Member Contribution Rates [1]

	Entry Age	Current Total as a % of Pay	6.75% & Proposed Mortality[2][3]	
			2.50% Inflation	2.75% Inflation
General Members				
Plan 1	35	13.54%	13.66%	14.30%
Increase / (Decrease)		--	0.12%	0.76%
Plan 2	35	13.45%	13.61%	14.25%
Increase / (Decrease)		--	0.16%	0.80%
Plan 4	35	12.26%	12.72%	12.96%
Increase / (Decrease)		--	0.46%	0.70%
Plan 5	35	7.91%	8.37%	8.62%
Increase / (Decrease)		--	0.46%	0.71%
Plan 7	All	8.14%	8.77%	9.04%
Increase / (Decrease)		--	0.63%	0.90%
Safety Members - Other than Deputy Sheriff				
Plan 1	25	19.46%	19.68%	20.93%
Increase / (Decrease)		--	0.22%	1.47%
Plan 2	25	19.26%	19.46%	20.70%
Increase / (Decrease)		--	0.20%	1.44%
Plan 4	25	16.50%	17.24%	17.62%
Increase / (Decrease)		--	0.74%	1.12%
Plan 5	25	15.19%	15.94%	16.33%
Increase / (Decrease)		--	0.75%	1.14%
Plan 6	25	10.96%	11.64%	12.01%
Increase / (Decrease)		--	0.68%	1.05%
Plan 7	All	13.90%	14.86%	15.24%
Increase / (Decrease)		--	0.96%	1.34%
Probation Members				
Plan 1	25	17.78%	18.05%	19.28%
Increase / (Decrease)		--	0.27%	1.50%
Plan 2	25	17.59%	17.83%	19.05%
Increase / (Decrease)		--	0.24%	1.46%
Plan 4	25	14.99%	15.74%	16.13%
Increase / (Decrease)		--	0.75%	1.14%
Plan 5	25	14.67%	15.44%	15.83%
Increase / (Decrease)		--	0.77%	1.16%
Plan 6	25	10.87%	11.60%	11.97%
Increase / (Decrease)		--	0.73%	1.10%
Plan 7	All	13.38%	14.33%	14.73%
Increase / (Decrease)		--	0.95%	1.35%

(1) Estimates based on June 30, 2016 actuarial valuation. Actual member rates will be determined based on the June 30, 2017 actuarial valuation and may include changes to the merit portion of the salary increase assumption.

(2) The proposed mortality assumptions are based on a preliminary analysis of retired mortality experience and are subject to change. The proposed tables used in this analysis are shown in Exhibit 1.

(3) For all columns, total rates include base rate, cost sharing, and COLA sharing.

Section 2 Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience.

Recent changes in ASOP No. 27 have restricted what assumptions satisfy the standard. In particular, previously any assumption within the "best-estimate" range (a wide range in our opinion) was likely to satisfy the standard. To meet the new standard, the assumption "reflects the actuary's estimate of future experience" and "it has no significant bias (i.e., it is not significantly optimistic or pessimistic)…" We believe this reduces the range of assumptions that would be considered reasonable.

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may lead the actuary to recommend the same inflation component in each of the economic assumptions proposed.

This section will discuss the economic assumptions. We have recommended a reduction in the price inflation assumption with corresponding reductions in the wage inflation and COLA increase (for Plans 1 and 2) assumptions. We have also provided two potential reductions in the investment return assumptions depending on how administrative expenses are treated. We believe either of these sets of assumptions satisfy ASOP No. 27.

The following table shows our two recommended alternatives.

Economic Assumptions	Current Assumptions	Recommended Assumptions Alternative #1	 Alternative #2
Investment Return	7.00%	6.75%	6.75%
GASB Discount Rate	7.20%	6.92%	6.92%
General Wage Growth	3.25%	3.00%	3.25%
Payroll Growth	3.25%	3.00%	3.25%
Price Inflation	2.75%	2.50%	2.75%
COLAs for Retirees	2.75%/2.65%/1.90%	2.5%/2.4%/1.9%	2.75%/2.65%/1.90%

1. Price Inflation & COLA Assumptions

Use in the Valuation

When we refer to inflation in this report, we are generally referring to price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage increases and the payroll increase assumption. It does not have a direct impact on the valuation results, except where it affects the assumed COLA to be paid.

The long-term relationship between inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower expected investment returns, at least in the long run.

The current valuation assumption for inflation is 2.75% per year. We have recommended two alternatives to be considered, one maintaining the current inflation rate, and the other lowering the assumption to 2.50% with corresponding adjustments to the assumed COLA.

Historical Perspective

The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics.

Although economic activities in general and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and long-term trends are a factor to be considered in developing the inflation assumption.

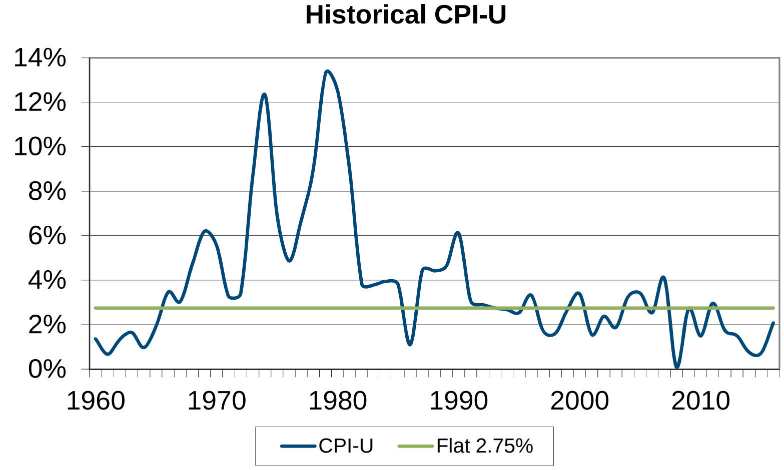
There are numerous ways to review historical data, with significantly differing results. The table below shows the compounded annual inflation rate for various 10-year periods, and for the 50-year period ended in December 2015. Note that the 50-year average is heavily influenced by the inflation of the late 1970s and early 1980s.

Decade	CPI Increase
2007-2016	1.8%
1997-2006	2.4%
1987-1996	3.7%
1977-1986	6.6%
1967-1976	5.9%
Prior 50 Years	
1967-2016	4.1%

Historical Perspective (Continued)

These are national statistics. The inflation assumption as it relates to the investment return assumption should be based more on national and even global inflation, whereas, the inflation assumption used in the wage growth, payroll growth, and COLA increase assumptions is tied to inflation in the Bay Area. We believe that although there have been historical differences between U.S. and California CPI changes, in the long term there should be a high correlation. For comparison, the average CPI increase for the Bay Area has been about 0.25% higher than the national average for the 30-year period 1987-2016.

The following graph shows historical national CPI increases. Note that the actual CPI increase has generally been less than 2.75% since 1991.



Forecasts of Inflation

Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. Current market prices as of May 2017 suggest investors expect inflation to be about 2.0% over the next 30 years.

Additionally, we reviewed the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2016 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.6%.

Price Inflation Recommendation

The price inflation assumption is not used in determining SamCERA's funding and thus has no direct impact on the contribution rates; however, it is a factor in our recommendations for the wage growth, COLA, and investment return assumptions.

We recommend either maintaining the long-term assumed inflation rate or decreasing it by 0.25% to reflect lower forecasts.

Consumer Price Inflation	
Current Assumption	2.75%
Recommended	
Alternative #1	2.50%
Alternative #2	2.75%

Postretirement Cost-of-Living Adjustments (COLA)

The current assumption is that retiree COLAs for Plan 1 will be equal to the price inflation assumption. We recommend continuing this practice. If the assumption is lowered, this would result in a reduction in the assumed COLAs for Plan 1 to 2.5% per year. In reality, some years, the CPI will be higher than the assumption and some years it will be lower. Over the long term, if CPI increases average 2.5% (or 2.75%), Plan 1 COLAs should average close to 2.5% (or 2.75%), since the maximum COLA is much higher at 5% (3% for Probation) and there is a COLA bank.

For the other contributory plans, the maximum COLA is lower (3% for Plan 2 and 2% for the other plans) and there is no COLA bank. Since when CPI increases are higher than 2% (or 3% for Plan 2) the COLA will be limited, but when they are lower they will not be limited (except in rare cases), we expect the actual COLAs granted will be less than the average CPI (or the maximum COLA in the case of Plans 4-7). Our current assumption for the Plan 2 COLA is that it will be 0.1% less than the CPI assumption, and the COLAs for Plans 4-7 will be 0.1% less than the maximum COLA amount. We feel this continues to be a reasonable assumption.

General Plan 3 does not have a COLA. Therefore, the assumed COLA is 0.0%.

COLA Recommendation

We recommend the COLA assumption be adjusted if the price inflation assumption is reduced.

Annual Cost of Living Adjustment			
	Current	Recommended	
		Alternative #1	Alternative #2
Plan 1	2.75%	2.50%	2.75%
Plan 2	2.65%	2.40%	2.65%
Plan 3	0.00%	0.00%	0.00%
Plans 4, 5, 6 & 7	1.90%	1.90%	1.90%

2. Wage Growth

Use in the Valuation

Estimates of future salaries are based on two types of assumptions: 1) general wage increase and 2) merit increase. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity generally occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions (see Section 5).

The current assumption is for wage growth of 0.50% above the inflation assumption.

Historical Perspective

We have used statistics from the Social Security Administration on the National Average Wage back to 1967.

There are numerous ways to review this data. For consistency with our observations of other indices, the table below shows the compounded annual rates of wage growth for various 10-year periods and for the 50-year period ending in 2016. The excess of wage growth over price inflation represents "productivity" (or the increase in the standard of living, also called the real wage inflation rate).

Decade	Wage Growth	CPI Increase	Real Wage Inflation
2007-2016	2.5%	1.8%	0.7%
1997-2006	4.1%	2.4%	1.7%
1987-1996	4.1%	3.7%	0.4%
1977-1986	6.5%	6.6%	-0.1%
1967-1976	6.4%	5.9%	0.5%
Prior 50 Years			
1967-2016	4.7%	4.1%	0.6%

Like price inflation, wage growth can also be influenced by location, particularly in the short term. The average annual salary for SamCERA members has increased by 3.1% over the last ten years compared to 2.5% nationally. After removing the actual price inflation for the period, this results in 0.6% real wage growth over the period, very comparable to the national real wage inflation of 0.7% for the same ten years.

Forecasts of Future Wages

Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2016 Trustees Report, the ultimate long-term annual increase in the National Average Wage is estimated to be 1.2% higher than the Social Security intermediate inflation assumption of 2.6% per year.

Recommendation

Over the last 50 years, the actual experience, on a national basis, has been close to the current assumption. We believe that wages will continue to grow at a greater rate than prices over the long term, although not to the extent projected by Social Security. We are recommending that the long-term assumed real wage inflation rate remain at 0.50% per year.

Real Wage Inflation Rate	
Current assumption	0.50%
Recommended Assumption	0.50%

The wage growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate. If the real wage inflation assumption remains 0.50% and the price inflation is set at 2.50%, this would result in a total wage growth assumption of 3.00%. If there is no change in the price inflation assumption, the total wage growth would remain at 3.25%.

Payroll Increase Assumption

In addition to setting salary assumptions for individual members, the aggregate payroll of SamCERA is expected to increase, without accounting for the possibility of an increase in membership. See comments on growth in membership discussed below.

The current payroll increase assumption is equal to the general wage growth assumption of 3.25%. It is our general recommendation to set these two assumptions to be equal, unless there is a specific circumstance that would call for an alternative assumption. We are recommending that the payroll increase continue to be equal to the wage growth assumption, so it would be either 3.00% or 3.25% depending on the wage growth assumption adopted.

Growth in Membership

We propose continuing the assumption that no future growth in membership will occur. This assumption affects the Unfunded Actuarial Accrued Liability (UAAL) amortization payment rate. With no assumed growth in membership, future salaries are assumed to grow due to wage growth increases. If increases should occur because of additional members, there will be a larger pool of salaries over which to spread the UAAL, if any, resulting in an actuarial gain. This current assumption is consistent with GASB parameters.

It should be noted that membership growth could be affected by the County's "Agile" workforce program, which fills some positions with employees who would not participate in SamCERA. To the extent this occurs, membership growth could be negative, although over the past few years, the active membership has been increasing, so there does not appear to have been a significant impact so far.

3. Investment Return

Use in the Valuation

The investment return assumption is one of the primary determinants in the calculation of the projected contributions needed to pay for SamCERA's benefits, providing a discount of the future benefit payments that reflects the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, member contribution rates, and the factors for optional forms of benefits. The current investment return assumption for SamCERA is 7.00% per year, net of all administrative and investment-related expenses.

Expected Long-Term Investment Return

To determine the expected long-term investment return, we have used Verus's 2017 assumptions for capital markets and SamCERA's current target asset allocation. The target asset allocation, along with the capital market assumptions, are summarized in the following table:

	Allocation	Expected Return[1]	Standard Deviation
Large Cap Equity	20%	4.7 %	15.8 %
Small Cap Equity	3	4.8	21.8
International Equity	19	9.7	18.9
Fixed Income	21	3.9	6.5
Private Equity	7	7.8	26.2
Risk Parity	8	7.2	10.0
Hedge Fund Composite	6	6.0	13.2
TIPS	2	2.6	5.7
Liquid Real Assets[1]	5	4.3	16.1
Real Estate	7	6.6	17.9
Private Real Assets[1]	2	3.1	18.0
Total	100 %		

[1] 10-year geometric average.
[2] Used Verus's assumption for commodities.

Combining the capital market assumptions with the target asset allocation policy, Verus has calculated the 10-year expected rate of return to be 6.7%. This expected return is the median return on a geometric basis for SamCERA's assets. That is, there is a 50% probability the return will exceed 6.7% and a 50% probability the return will be less than 6.7%. We independently calculated the expected return and came close to Verus's 6.7% using their capital market assumptions which include an implicit 2.1% inflation assumption.

Administrative and Investment-Related Expenses

The investment return used for the valuation is assumed to be net of all administrative and investment-related expenses. The following table shows the ratio of administrative expenses to the SamCERA Plan assets over the last 10 fiscal years beginning July 1. The expense ratio is calculated as the expense amount divided by the ending asset balance at fair market value.

($millions) FYB	Market Assets	Admin. Expense	Expense Ratio
2006	$ 1,790	$ 2.1	0.12%
2007	2,132	2.8	0.13
2008	2,011	3.2	0.16
2009	1,591	3.4	0.21
2010	1,816	3.6	0.20
2011	2,318	5.0	0.22
2012	2,360	4.9	0.21
2013	2,728	4.9	0.18
2014	3,292	5.5	0.17
2015	3,454	6.0	0.17

Note that for purposes of this calculation we have included only the regular administrative expenses. If the information technology expense was included, the expense ratio for the fiscal year beginning July 1, 2015 would be 0.19%, instead of 0.17%.

For the administrative expenses, we have assumed a reduction in the current assumption of 0.20% of market assets to 0.17%, as the actual ratio has been less than 0.20% over the last three years and we project a material growth in the market assets over the next few years due to the current high level of funding.

Investment expenses have been slightly less than 1% of the market value of assets. However, for purposes of our analysis of the investment return assumption, we have only accounted for passive management fees and other fixed investment expenses. The reasoning for this is that for assets classes where passive management is available, SamCERA would not use active management unless there was an expectation that the returns net of fees would be at least as great as the net return using passive management. For asset classes where passive management is not available, our understanding is that Verus's capital market assumptions are net of investment expenses. We have therefore assumed that investment expenses to be 0.06% (0.04% for passive management fees and 0.02% for fixed investment expenses).

The expense assumption does not have a direct impact on the actuarial valuation results under the current methods, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, the current investment return assumption is 7.00%, so SamCERA needs to earn a gross return (after adjustment for investment expenses) on its assets of 7.17% in order to net the 7.00% for funding purposes.

Administrative and Investment-Related Expenses (continued)

Additionally, we recommend the 0.17% adjustment be added to the investment return assumption adopted to determine the discount rate used in SamCERA's GASB 67 and 68 valuations, as GASB requires the discount rate to be the long-term expected rate of return gross of administrative expenses.

Explicit Recognition of Administrative Expenses

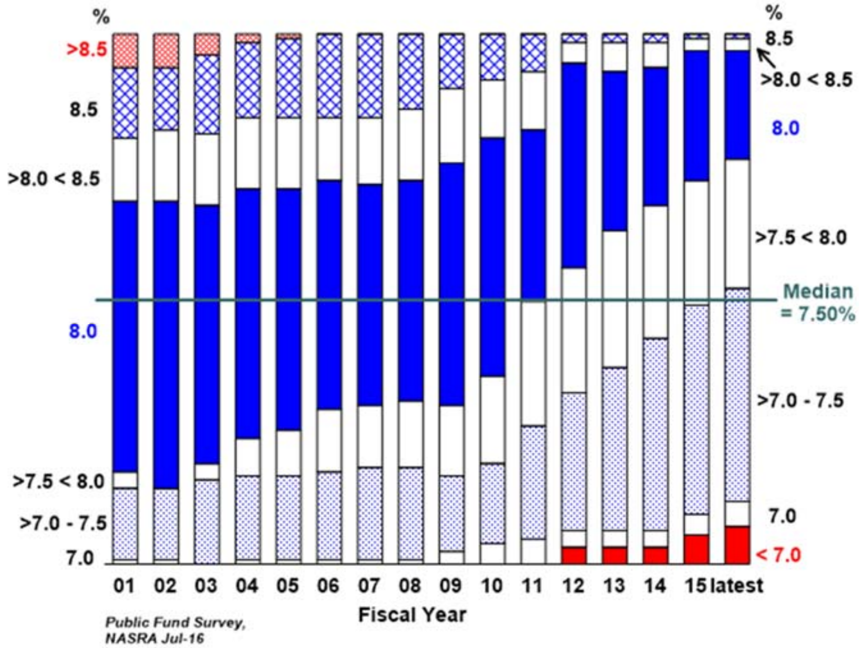
The investment return assumption used for the valuation is assumed to be net of all administrative and investment related expenses. By deducting both of these categories of expenses, the investment return assumption is less than if just the investment related expenses were deducted, resulting in higher employer and member contribution rates. A portion of these higher contribution rates is assumed to pay for administrative expenses. Consequently, the administrative expense is "implicitly" included in the rates.

About half of the '37Act systems only deduct the investment related expenses from the investment return assumption, which does not decrease the investment return assumption as much and, correspondingly, does not increase the contribution rates as much. For these systems, however, the administrative costs are separately accounted for and then "explicitly" included in the contribution rates, which, in turn, increases the rates. For the systems that explicitly include the administrative expenses in the contribution rates, the costs can be applied to either the member or the employer or shared between the two. A sharing of these cost would be required for the PEPRA Plan 7 members if the administrative expenses are assumed to be part of the normal cost rate.

Switching from the "implicit" to "explicit" method would in essence redistribute the payment of the administrative costs among the different employers and different plan members. Either method is acceptable. Given that SamCERA currently uses the implicit method and there would be some administrative issues in changing, we are recommending continuing with the current method of implicitly recognizing administrative expenses for the 2017 valuation.

Peer System Comparison

According to the *Public Fund Survey*, the average investment return assumption for statewide systems has been steadily declining. As of the most recent study, the median rate is 7.50%. The following chart shows a progression of the distribution of the investment return assumptions. In 2001, very few systems had an assumption of 7.5% or lower and over 80% had an assumption of 8.0% or greater. As of fiscal year 2016, over 50% have an assumption of 7.5% or less and this is continuing to trend down.



Excess Earnings

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside surplus earnings of the retirement fund which are in excess of the total interest credited to reserves, provided this surplus exceeds 1.00% of the total assets of the retirement system. Historically, some '37 Act systems have used these excess earnings to increase benefits as allowed under the law. This creates a drag on the investment return, if not all earnings are used to pay for the current benefits. If this is the case, the actuary may recommend reducing the investment return assumption to account for this impact.

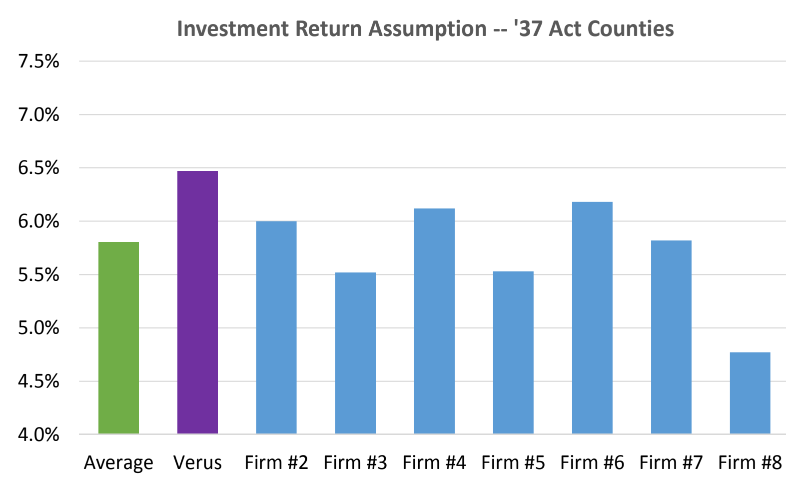
SamCERA's current interest crediting policy requires that any available earnings first go to crediting the basic reserves. Any remaining available earnings are then used to fill up the contingency reserve up to 3% of assets. All remaining available earnings or losses are then credited to the Undistributed Earnings/Losses Reserve. Since there is no provision for spending investment earnings on anything but the current benefits, no adjustment in the investment return assumption is needed.

Additional Factors for Consideration in Setting the Investment Return Assumption

The capital market assumptions provide the most tangible measure for estimating future returns; however, there are other factors that we believe should be considered in setting the investment return assumption, with the two key considerations being:

- **Long-Term Perspective:** The 10-year time horizon used in Verus's capital market assumptions is shorter than the 30 years we usually recommend for setting the investment return assumption for valuing pension liabilities. In the shorter term (10 years or less), there is an expectation of lower returns, primarily due to the current low interest rate environment. The expectation is that when interest rates will increase from their historical lows this will ultimately result in higher expected returns. Reflecting higher returns for the period from 10 to 30 years would result in a higher expected return for the 30-year period than Verus's 10-year estimated return. For example, Milliman's capital market assumptions, which vary by time horizon, have an expected return that is 0.35% greater over the next 30 years than the next 10 years. However, the argument can also be made that a greater emphasis should be placed on the shorter term returns, since there is more certainty that they will occur than the higher long-term returns.
- **Variance in Capital Market Assumptions:** We calculated the expected return for the SamCERA portfolio based on the capital market assumptions of a number of other investment consultants we work with in addition to Verus. The expected return of the other investment consultants was less than Verus's, sometimes significantly. This variance among investment consultants is typical of what we see with other plans.

  A comparison of the expected returns based on SamCERA's target asset allocation and the capital market assumptions of other investment consultants is shown below. These expected returns are net of assumed investment and administrative expenses, so the expected return we show for Verus is slightly less than the 6.7% they report. Verus is represented by the purple bar in the graph, and the average of just under 6.0% is represented by the green bar. Note that we have used Verus's capital market assumptions in our analysis, as we believe Verus is most familiar with SamCERA's specific investments.



Variability of Future Returns

Our focus in this analysis has been on the median expected future return. The median return indicates there is a 50% probability, based on the capital market assumptions, that the actual return will meet or exceed this amount. For comparison, the following are the probabilities based on Verus's capital market assumptions that the actual return, net of expenses, will exceed the following thresholds over a 30-year time period. Note that we have extrapolated Verus's 10-year capital market assumptions over a 30-year period, so it isn't a perfect comparison, but it does give some idea of the potential variability of the expected return.

30-Year Average Return(1)	Probability of Achieving
8.0%	23%
7.0%	40%
6.5%	50%
6.0%	59%
5.0%	76%

1. *Average return is net of assumed administrative and investment expenses.*

Note that if we increased SamCERA's expected 30-year returns by 0.35% over the expected 10-year return, there would be a 47% probability of meeting a 7.0% return over the 30-year period. The 0.35% difference is based on the difference in Milliman's capital market expectations over 10-year and 30-year periods.

Cost Implications of Changes in Investment Return Assumption

In most retirement systems with variable contribution rates, such as SamCERA, the greatest factor contributing to the volatility of contribution rates is the return on investments. If, in the future, the full actuarial assumption of 7.00% is not met, there would likely be an increase in the employer contribution rate.

The base member contribution rates are determined based on the '37 Act statutes, the actuarial assumptions, and the benefit provisions. The COLA portion of the member rates and the cost-sharing contributions also do not reflect asset values. Therefore, any experience gain or loss in investments is not expected to directly impact the member contribution rates but will impact the employer contribution rates.

To assist the Board in understanding the sensitivity to changes in the investment return rate assumption, we revalued the June 30, 2016 valuation results using the recommended investment return assumption of 6.75% net of all expenses. We show key results for the 6.75% return assumption and two alternative inflation assumptions on the attached exhibits. Note that estimated employer costs and member rates shown on the exhibits also reflect a preliminary proposed change to the mortality assumption.

Exhibit 1 shows the estimated impact on the statutory employer contribution rate. Exhibit 2 shows the estimated impact on member contribution rates.

Recommendation

Based on Verus's capital market assumptions, we find there is less than a 50% probability that the current investment return of 7.0% (net of all expenses) will be met. Based on our limited survey, other investment consultants are generally predicting lower returns than Verus. Although there may be an expectation of higher returns over periods longer than the 10 years Verus is using, 7.00% still appears to be above the expected median return based on our analysis. Therefore, we are recommending a reduction of 0.25% in the investment return assumption to 6.75%.

	Investment Return
Current assumption	7.00%
Recommendation	6.75%

Exhibit 1

SamCERA

Estimated Financial Impact of Possible Assumption Changes[1]

	Statutory Employer Rate	Funded Ratio
Alternative Economic Scenarios		
June 30, 2016 Valuation	33.77%	83.1%
Economic Alternative #1 (2.50% Inflation) with Proposed Mortality[2][3]	3.44%	-2.5%
June 30, 2016 Valuation with New Assumptions	37.21%	80.6%
June 30, 2016 Valuation	33.77%	83.1%
Economic Alternative #2 (2.75% Inflation) with Proposed Mortality[2][3]	5.76%	-4.4%
June 30, 2016 Valuation with New Assumptions	39.53%	78.7%

(1) Estimates based on June 30, 2016 actuarial valuation. Actual results will be determined based on the June 30, 2017 actuarial valuation and will likely include additional demographic assumption changes.

(2) The estimated impact of the proposed mortality assumptions is a 2.19% increase in the statuory contribution rate.

(3) The proposed mortality assumptions are based on a preliminary analysis of retired mortality experience and are subject to change. The proposed tables used in this analysis are shown below.

Group	Base Table	Projection Table	Minimum Rate
General Male Service Retirees	95% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	n/a
General Female Service Retirees	95% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	n/a
Safety Male Service Retirees	95% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	n/a
Safety Female Service Retirees	95% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	n/a
General Male Disabilities	------------ Average of ---------- 95% of RP-2014 Table for Male Annuitants 105% of RP-2014 Table for Male Disabilities	MP-2014 Ultimate	1.0%
General Female Disabilities	------------ Average of ---------- 95% of RP-2014 Table for Female Annuitants 105% of RP-2014 Table for Female Disabilities	MP-2014 Ultimate	0.5%
Safety Male Disabilities	105% of RP-2014 Table for Male Annuitants	MP-2014 Ultimate	1.0%
Safety Female Disabilities	105% of RP-2014 Table for Female Annuitants	MP-2014 Ultimate	0.5%

Exhibit 2

SamCERA

Estimated Impact of Possible Assumption Changes on Member Contribution Rates (1)

	Entry Age	Current Total as a % of Pay	6.75% & Proposed Mortality(2)(3)	
			2.50% Inflation	2.75% Inflation
General Members				
Plan 1	35	13.54%	13.66%	14.30%
Increase / (Decrease)		--	0.12%	0.76%
Plan 2	35	13.45%	13.61%	14.25%
Increase / (Decrease)		--	0.16%	0.80%
Plan 4	35	12.26%	12.72%	12.96%
Increase / (Decrease)		--	0.46%	0.70%
Plan 5	35	7.91%	8.37%	8.62%
Increase / (Decrease)		--	0.46%	0.71%
Plan 7	All	8.14%	8.77%	9.04%
Increase / (Decrease)		--	0.63%	0.90%
Safety Members - Other than Deputy Sheriff				
Plan 1	25	19.46%	19.68%	20.93%
Increase / (Decrease)		--	0.22%	1.47%
Plan 2	25	19.26%	19.46%	20.70%
Increase / (Decrease)		--	0.20%	1.44%
Plan 4	25	16.50%	17.24%	17.62%
Increase / (Decrease)		--	0.74%	1.12%
Plan 5	25	15.19%	15.94%	16.33%
Increase / (Decrease)		--	0.75%	1.14%
Plan 6	25	10.96%	11.64%	12.01%
Increase / (Decrease)		--	0.68%	1.05%
Plan 7	All	13.90%	14.86%	15.24%
Increase / (Decrease)		--	0.96%	1.34%
Probation Members				
Plan 1	25	17.78%	18.05%	19.28%
Increase / (Decrease)		--	0.27%	1.50%
Plan 2	25	17.59%	17.83%	19.05%
Increase / (Decrease)		--	0.24%	1.46%
Plan 4	25	14.99%	15.74%	16.13%
Increase / (Decrease)		--	0.75%	1.14%
Plan 5	25	14.67%	15.44%	15.83%
Increase / (Decrease)		--	0.77%	1.16%
Plan 6	25	10.87%	11.60%	11.97%
Increase / (Decrease)		--	0.73%	1.10%
Plan 7	All	13.38%	14.33%	14.73%
Increase / (Decrease)		--	0.95%	1.35%

(1) Estimates based on June 30, 2016 actuarial valuation. Actual member rates will be determined based on the June 30, 2017 actuarial valuation and may include changes to the merit portion of the salary increase assumption.

(2) The proposed mortality assumptions are based on a preliminary analysis of retired mortality experience and are subject to change. The proposed tables used in this analysis are shown in Exhibit 1.

(3) For all columns, total rates include base rate, cost sharing, and COLA sharing.

San Mateo County Employees' Retirement Association
Board of Retirement

June 6, 2017 Agenda Item 6.1

TO: Board of Retirement

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

SUBJECT: Report on Preliminary Monthly Portfolio Performance for the Period Ended April 30, 2017

Staff Recommendation
Accept the preliminary performance report dated April 30, 2017.

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 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 4-8) also shown.

Discussion
The fund's net preliminary return for April was 1.3%, while the preliminary trailing twelve-month return ending April 2017 was 12.1% net. The twelve-month return is higher than both SamCERA's Total Plan Policy Benchmark return of 11.4% and the Actuarial Assumed Earnings Rate of 7.0%.

Despite weaker economic measures and heightened geopolitical risks, global equities continued moving higher while exhibiting low volatility. Domestic equities were higher on the month, with the broad U.S. equity market (as measured by the S&P 500 Index) up 1.0%, while developed international equity (as measured by MSCI EAFE) was up 2.5%. Emerging markets were also higher and returned 2.2%.

Economic data softened in April. Real GDP increased at an annual rate of 0.7% in the first quarter, which was below the predicted 1.0% increase and the lowest level in three years. Consumer confidence slipped a bit during the month, and while manufacturing continued to show strength, advancing for the eighth straight month, the rate of growth slowed. The labor market remained healthy as the unemployment rate fell from 4.5% to 4.4%.

The general U.S. fixed income market was up 0.8% during the month, as interest rates modestly decreased on the month. The 10-year U.S. Treasury yield decreased by 11 basis points during the month with the yield ending at 2.29% by month-end. Credit spreads tightened during the month, leading the high yield market higher by 1.2%, while emerging debt returned 1.5%.

Attachments

Verus April 2017 Capital Markets Update
Northern Trust Performance Report

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

APRIL 2017

Capital Markets Update

Market commentary

ECONOMIC CLIMATE

- Real GDP grew 1.9% YoY in the first quarter (0.7% QoQ annualized). The pace of growth was below the Bloomberg consensus estimate of 1.1% QoQ, negatively affected by lower than anticipated government spending and an increase in imports.
- Economic growth was also affected by consumer spending, which was lower than in previous quarters. Consumer spending was negatively influenced by a decrease in automobile sales.
- The U.S. economy added 211,000 non-farm jobs in April, above the consensus estimate of 185,000. The unemployment rate fell from 4.5% to 4.4%, partially influenced by a decrease in the participation rate from 63.0% to 62.9%.
- Headline CPI increased by 2.4% year-over-year in March, down 41 bps from February. Core CPI increased 2.0% over the previous year, down 21 bps from the prior month.
- The ISM Manufacturing index decreased in April from 57.2 to 54.8, below the consensus estimate of 56.5. The report was a break from the recent upward trend, however, readings above 50 still indicate general expansion in manufacturing.

DOMESTIC EQUITIES

- Domestic equities increased in April. The S&P 500 returned 1.0% during the month, and the index has risen 7.2% year-to-date.
- According to FactSet, 83% of S&P 500 companies had reported Q1 earnings as of May 5th, and the blended year-over-year earnings growth rate was 13.5%. This was above the previous estimate of 9.0% on March 31st.

DOMESTIC FIXED INCOME

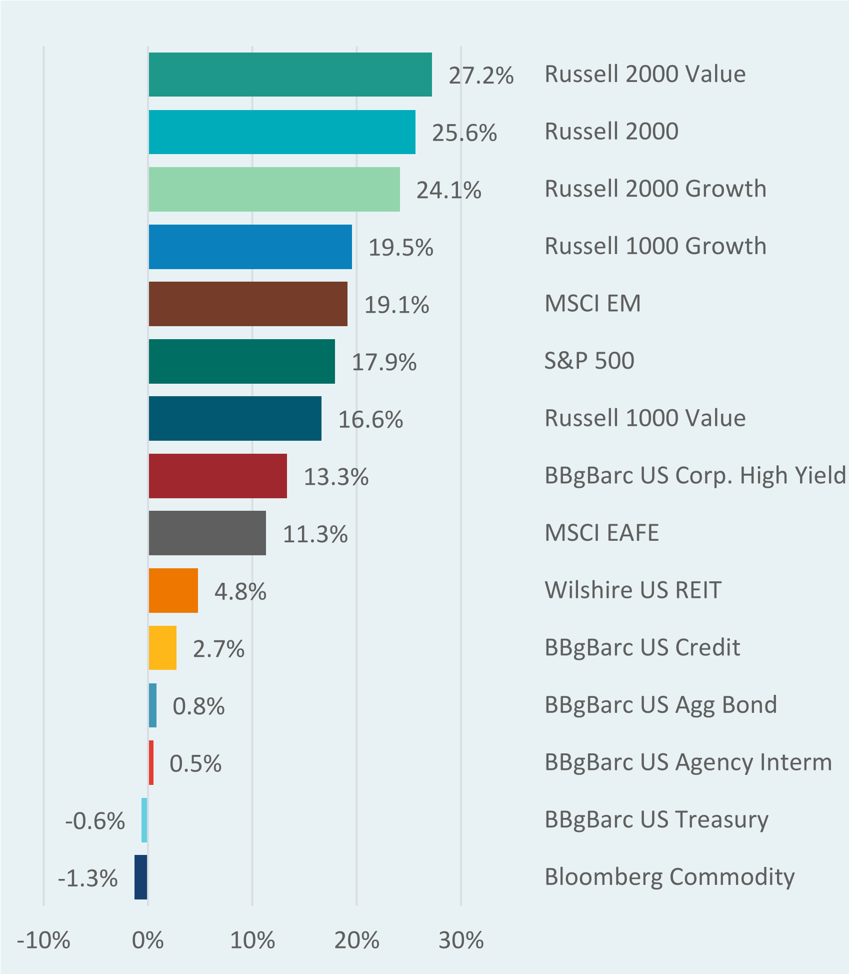
- Domestic fixed income returns were positive in April. The Bloomberg Barclays U.S. Aggregate returned 0.8%.
- The U.S. Treasury curve flattened slightly in April, with the 10-year minus 2-year Treasury yield spread contracting 11 bps to 1.06%.
- Medium and longer-term interest rates continued downward from recent highs. The 10-year Treasury yield ended April at 2.29%, down from 2.40% at prior month end and the recent high of 2.62% on March 13th.

INTERNATIONAL MARKETS

- International equities outperformed domestic equities (S&P 500 1.0%) as the unhedged MSCI ACWI ex U.S. index returned 2.1% (1.6% hedged). Eurozone equities contributed to the outperformance as the MSCI Euro returned 4.0% in the month.
- Real U.K. GDP increased 2.1% year-over-year in the first quarter, below the consensus estimate of 2.3%. Positive manufacturing output was muted by lower than anticipated growth in retail sales and services.
- Real GDP growth in the Euro area grew at 1.7% year-over-year in the first quarter. The European Commission forecasted 2017 GDP growth of 1.5%.
- Pro European Union candidate Emmanuel Macron defeated Marine Le Pen of the National Front party in the final ballot of the French Election. The president elect took office on May 14th.

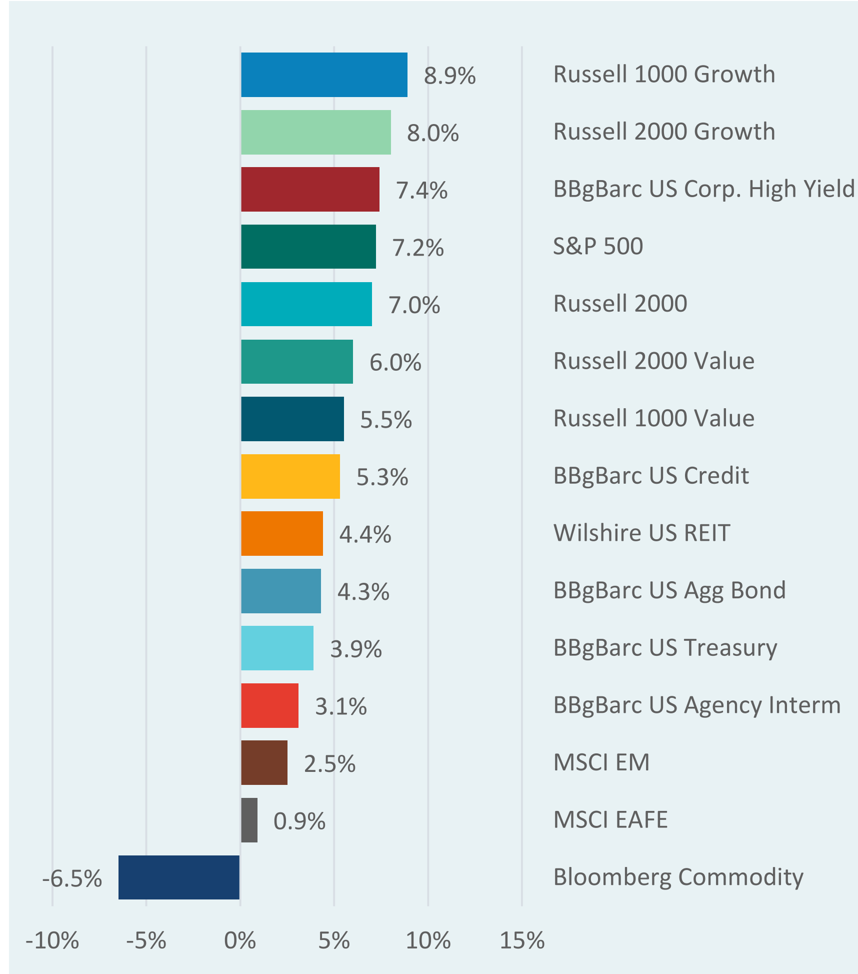
Major asset class returns

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/17

TEN YEARS ENDING APRIL



Source: Morningstar, as of 4/30/17

U.S. large cap equities

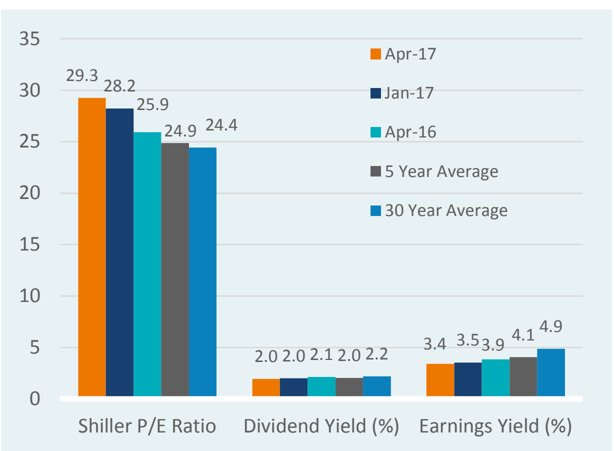
— The S&P 500 returned 1.0% in April. According to FactSet, the blended year-over-year Q1 earnings growth rate of 13.5% was the highest since Q3 2011. Ten of the eleven sectors have reported positive year-over-year earnings growth, led by Energy, Financials, and Information Technology.

— In April, Information Technology and Consumer Discretionary companies outperformed the S&P 500 index (+1.0%). The sectors returned 2.5% and 2.4%, respectively.

— The two worst performing sectors were Telecom Services and Energy, returning -3.3% and -2.8%, respectively. Telecom earnings growth was -0.8% in the first quarter. Energy stocks benefited from 21.9% earnings growth, but were negatively affected by declining energy prices.

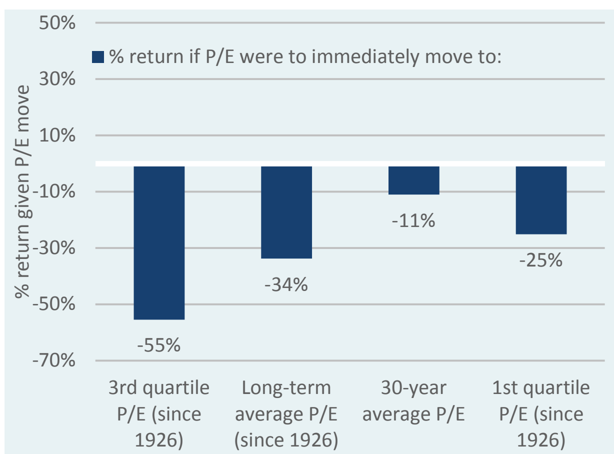
— The trailing P/E ratio of the S&P 500 declined from 21.8 to 21.3 in April on positive earnings reports. The valuation remained elevated above its 5-year average of 17.8.

US LARGE CAP (S&P 500) VALUATION SNAPSHOT



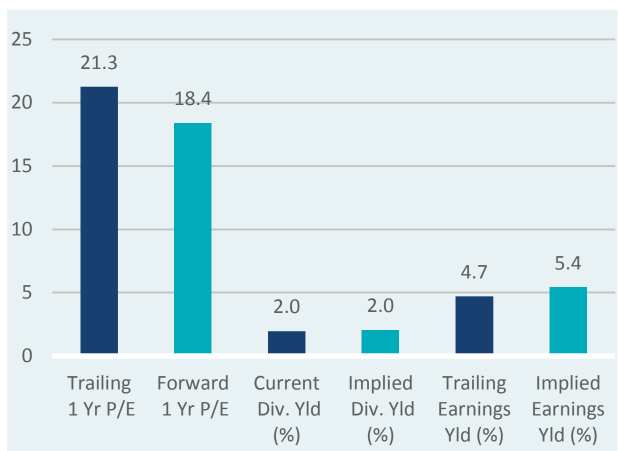
Source: Yale/Shiller, as of 4/30/17

RETURNS IF P/E MOVED TO HISTORIC LEVEL



Source: Yale/Shiller, Verus, as of 4/30/17

S&P 500 VALUATION SNAPSHOT



Source: Bloomberg, as of 4/30/17

Fixed income

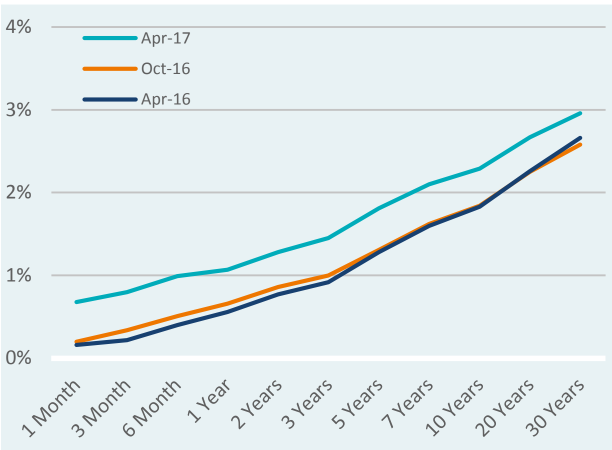
— The Federal Reserve chose to hold the federal funds rate at its current range of 0.75% - 1.00%. The market is pricing in the next rate hike to occur at the June meeting, according to federal funds futures prices.

— In April, the Bloomberg Barclays Treasury Long index (+1.5%) outperformed the U.S. Aggregate index (+0.8%). The longer duration index benefitted from a slight flattening of the yield curve, as the 10-year and 20-year yields fell by 11 bps and 9 bps, respectively.

— Market based inflation expectations fell slightly during the month. The 10-year TIPS breakeven rate decreased to 1.9%, down from 2.0% in March and 2.1% in January.

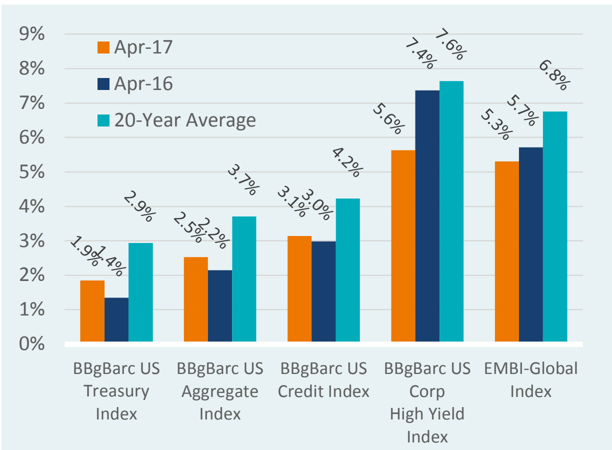
— According to Bloomberg, leveraged loan issuance in Q1 hit its highest quarterly rate since 1999, at approximately $434 billion in loans. The repricing and issuance of loans may have been influenced by expectations of interest rate hikes later in the year.

U.S. TREASURY YIELD CURVE



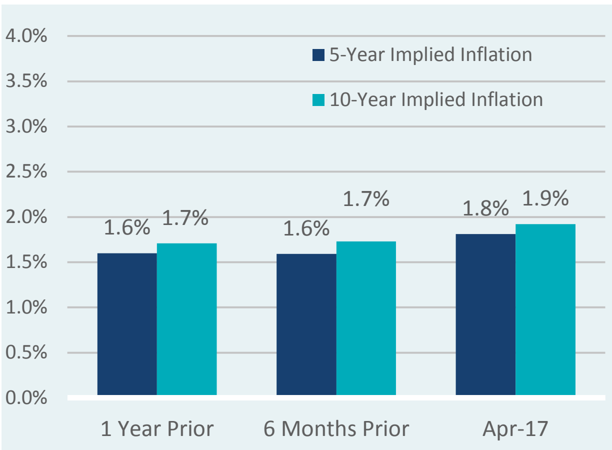
Source: Federal Reserve, as of 4/30/17

NOMINAL FIXED INCOME YIELDS



Source: Morningstar, as of 4/30/17

IMPLIED INFLATION (TIPS BREAKEVEN)



Source: Federal Reserve, as of 4/30/17

Global markets

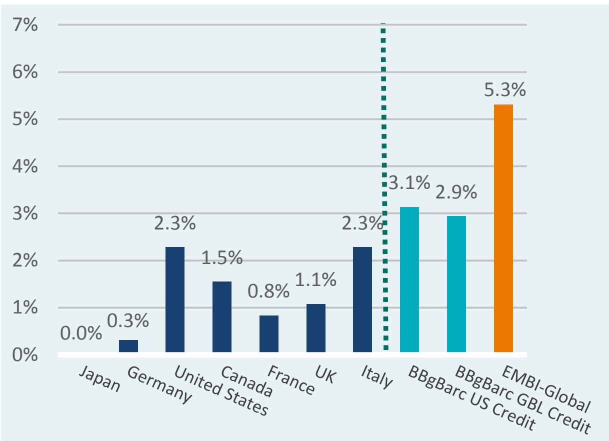
— Global sovereign bond yields were generally lower in April. The French 10-year yield experienced the largest change, decreasing by 13 bps.

— The U.S. major currency index decreased -0.5% to 107.5 in April against a trade weighted basket of currencies. The index was down 1.6% year-to-date but remained well above its long-term average of 93.8.

— Valuations of international, emerging, and U.S. equities fell slightly in April due to positive Q1 earnings growth. Emerging market equities remain the cheapest based on P/E and P/FCF valuations.

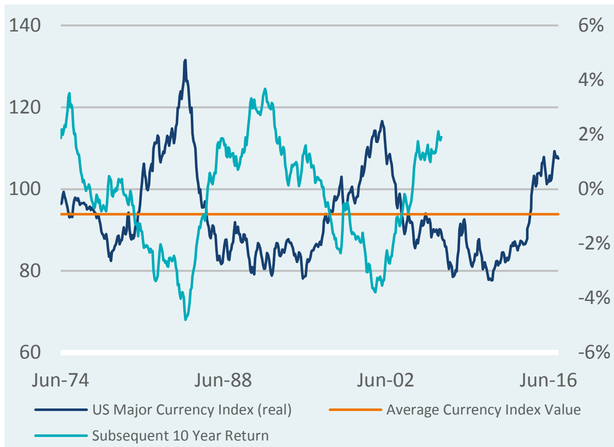
— Trans-Pacific Partnership (TPP) trade talks resumed in Canada for the first time since the U.S. withdrew from negotiations in January. The future of the pact will be determined by the 10 remaining countries at the APEC trade summit in November.

GLOBAL SOVEREIGN 10 YEAR INDEX YIELDS



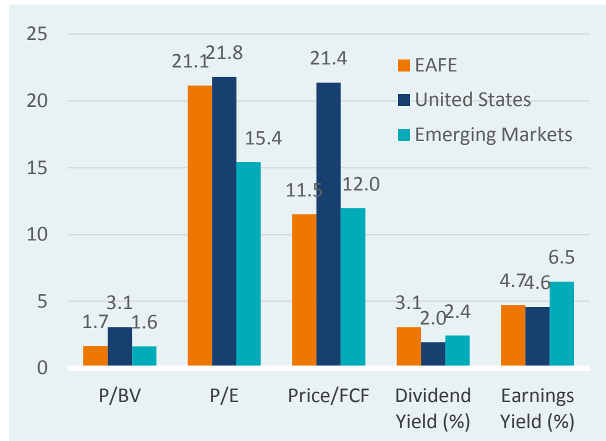
Source: Morningstar, as of 4/30/17

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 4/30/17

MSCI VALUATION METRICS (3 MONTH AVERAGE)

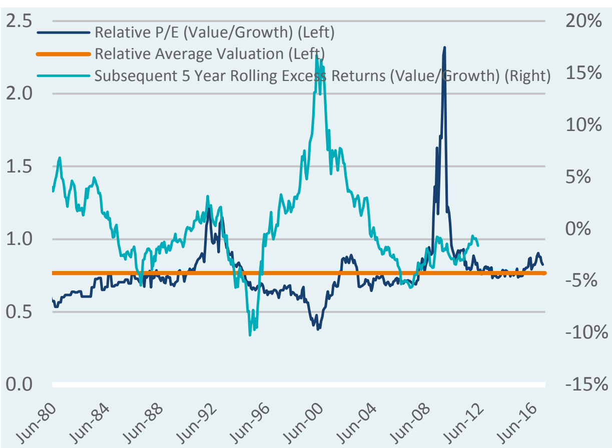


Source: Bloomberg, as of 4/30/17

Style tilts: U.S. large value vs. growth

- For a fourth consecutive month, growth equities outperformed value equities. In April, the Russell 1000 Growth Index and Russell 1000 Value Index returned 2.3% and -0.2%, respectively. The large cap growth index has outperformed value by 8.3% year-to-date.
- In April, the Russell 1000 Growth index had a 5-year EPS growth rate of 9.8%, significantly higher than the Russell 1000 Value which was only 2.3%.
- The outperformance of growth equities in April was attributable to a higher relative concentration of Consumer Discretionary and Technology companies. The two sectors returned 2.6% and 2.4%, respectively.
- As calculated by the Sharpe ratio, growth equities have provided higher risk adjusted returns over the 3-year, 5-year and 10-year periods, despite strong outperformance of value equities in 2016.

RELATIVE TRAILING PE RATIO OF U.S. VALUE VS. GROWTH



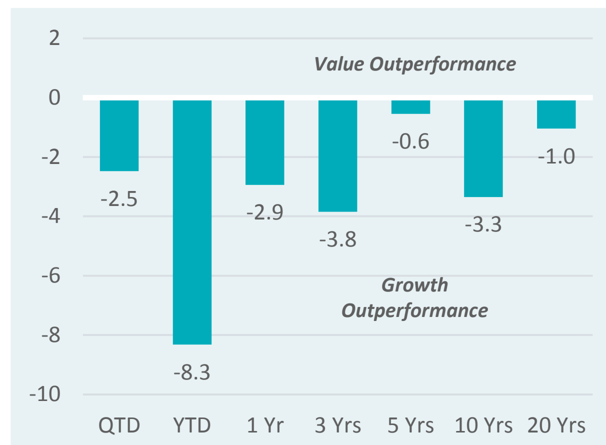
Source: Russell, Bloomberg, as of 4/30/17

U.S. VALUE VS. GROWTH ABSOLUTE PERFORMANCE

	RUSSELL 1000 VALUE ANNUALIZED RETURN TO DATE %	RUSSELL 1000 GROWTH ANNUALIZED RETURN TO DATE %
QTD	(0.2)	2.3
YTD	3.1	11.4
1 YEAR	16.6	19.5
3 YEARS	8.3	12.1
5 YEARS	13.3	13.9
10 YEARS	5.5	8.9
20 YEARS	8.1	7.1
	SHARPE RATIO	SHARPE RATIO
3 YEARS	0.79	1.07
5 YEARS	1.23	1.27
10 YEARS	0.38	0.59
20 YEARS	0.45	0.36

Source: Morningstar, as of 4/30/17

U.S. VALUE VS. GROWTH RELATIVE PERFORMANCE



Source: Morningstar, as of 4/30/17

Style tilts: U.S. large vs. small

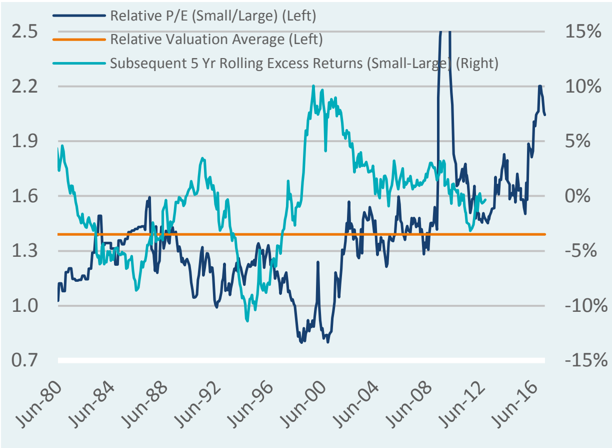
— U.S. small cap equities performance was on par with large cap equities in April, as the Russell 2000 index and Russell 1000 index both returned 1.1%.

— The relative trailing P/E ratio of small to large equities regressed moderately from a 7-year high (2.2) in December to 2.04 in April. The ratio remained well above the long-term average of 1.39.

— In the calendar year of 2016 small cap equities outperformed large cap equities by 10.3%. In 2017, large cap equities have reversed that trend with a relative outperformance of 3.6% year-to-date.

— Large cap equities have provided superior risk-adjusted returns (Sharpe ratio) relative to small cap equities over the periods examined below. The difference was mainly attributed to the consistently higher realized volatility of small cap equities.

RELATIVE TRAILING PE RATIO OF U.S. SMALL VS. LARGE



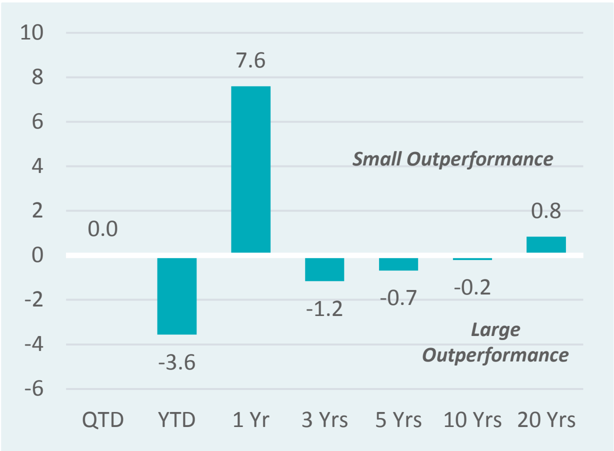
Source: Russell, Bloomberg, as of 4/30/17

U.S. LARGE VS. SMALL ABSOLUTE PERFORMANCE

	RUSSELL 1000 INDEX ANNUALIZED RETURN TO DATE %	RUSSELL 2000 INDEX ANNUALIZED RETURN TO DATE %
QTD	1.1	1.1
YTD	7.1	3.6
1 YEAR	18.0	25.6
3 YEARS	10.2	9.0
5 YEARS	13.6	12.9
10 YEARS	7.3	7.0
20 YEARS	7.9	8.7
	SHARPE RATIO	SHARPE RATIO
3 YEARS	0.96	0.62
5 YEARS	1.29	0.92
10 YEARS	0.49	0.41
20 YEARS	0.43	0.41

Source: Morningstar, as of 4/30/17

U.S. LARGE VS. SMALL RELATIVE PERFORMANCE



Source: Morningstar, as of 4/30/17

Commodities

— The Bloomberg Commodity index returned -1.5% in April. The Livestock sub-index (+7.4%) significantly outperformed the broad index, bolstered by tight supply and seasonal demand that led to an 11.9% month-over-month increase in Cattle futures.

— WTI Crude Oil edged lower by -2.5% and ended the month at $49.33 per barrel. The decrease in prices occurred despite multiple OPEC members comments signaling an extension of the production cuts.

— Precious Metals was the second highest returning commodity sub-index - returning -0.6% in April. The positive price increase in gold (+1.4%) was offset by a drop in Silver which fell by -5.4%.

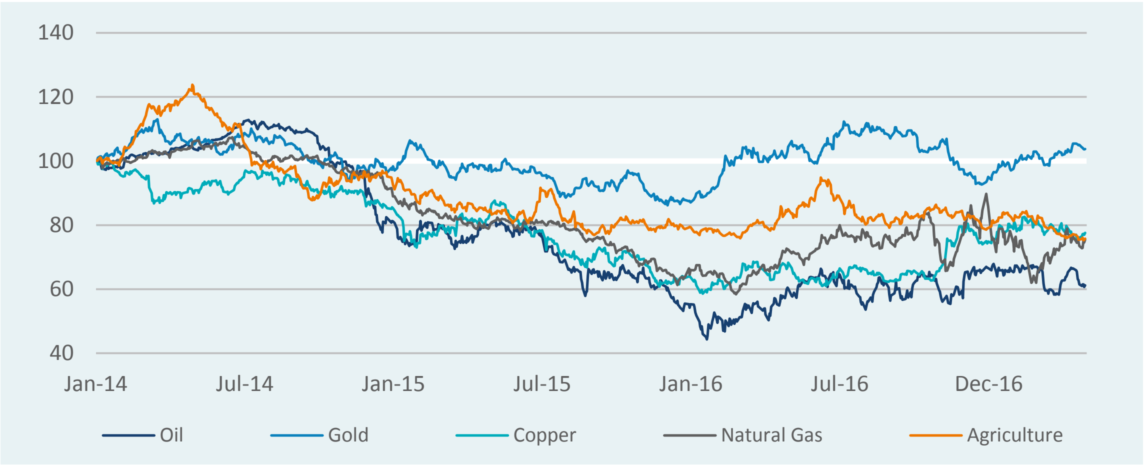
— Sugar futures continued their downward trend and fell by -4.0% in April. The commodity is down -31.1% from October of 2017.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(1.5)	(1.5)	(3.8)	(1.3)	(15.0)	(9.7)	(6.5)
Bloomberg Agriculture	(1.2)	(1.2)	(4.2)	(9.2)	(14.7)	(8.3)	(1.0)
Bloomberg Energy	(3.0)	(3.0)	(14.1)	(2.9)	(29.8)	(17.7)	(17.6)
Bloomberg Grains	(0.8)	(0.8)	(2.2)	(15.3)	(17.5)	(9.4)	(2.4)
Bloomberg Industrial Metals	(3.4)	(3.4)	4.0	13.7	(4.8)	(7.0)	(7.3)
Bloomberg Livestock	7.4	7.4	7.6	4.0	(7.1)	(1.4)	(7.1)
Bloomberg Petroleum	(4.4)	(4.4)	(13.2)	(6.1)	(29.7)	(19.4)	(11.2)
Bloomberg Precious Metals	(0.6)	(0.6)	9.1	(3.3)	(2.1)	(7.4)	4.8
Bloomberg Softs	(3.5)	(3.5)	(8.2)	2.6	(12.5)	(9.8)	(0.9)

Source: Morningstar, as of 4/30/17

COMMODITY PERFORMANCE



Source: Bloomberg, as of 4/30/17

Appendix

Periodic table of returns

BEST

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD	5-Year	10-Year
Emerging Markets Equity	16.6	38.4	23.2	35.2	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	13.9	13.9	8.9
Large Cap Growth	8.1	37.8	23.1	32.9	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	11.4	13.6	8.0
International Equity	6.4	37.2	22.4	31.8	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	10.0	13.3	7.3
Small Cap Growth	4.4	31.0	21.6	30.5	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	7.3	13.0	7.0
Large Cap Equity	3.2	28.5	21.4	22.4	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	7.1	12.9	6.7
60/40 Global Portfolio	2.6	25.7	16.5	16.2	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	6.3	12.9	6.0
Small Cap Equity	0.4	19.6	14.4	13.9	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	3.6	10.7	5.5
Large Cap Value	-1.5	18.5	11.3	12.9	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	3.1	6.8	4.3
Hedge Funds of Funds	-1.8	15.2	10.3	10.6	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	3.0	5.6	3.9
US Bonds	-2.0	11.6	9.9	9.7	-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	1.6	3.4	2.5
Real Estate	-2.4	11.1	6.4	5.2	-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	1.6	2.3	1.1
Small Cap Value	-2.9	7.5	6.0	2.1	-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	0.3	1.5	0.9
Cash	-3.5	5.7	5.1	-3.4	-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	0.2	0.1	0.5
Commodities	-7.3	-5.2	3.6	-11.6	-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	-3.8	-9.7	-6.5

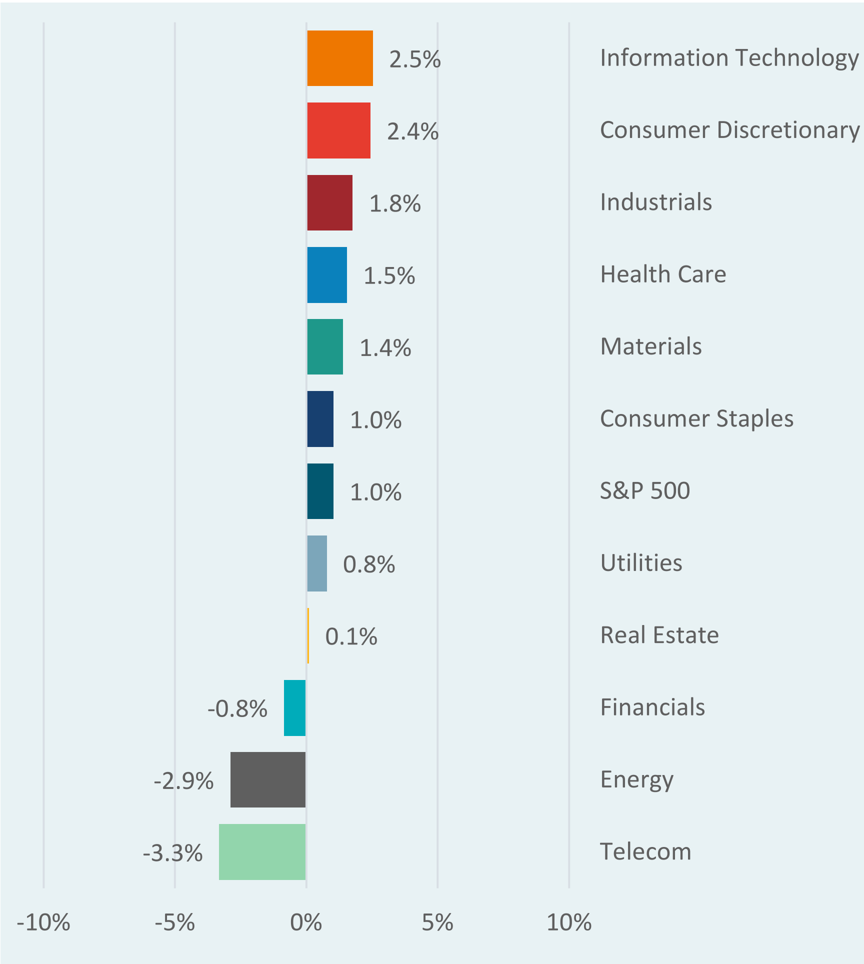
WORST

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

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 3/31/17.

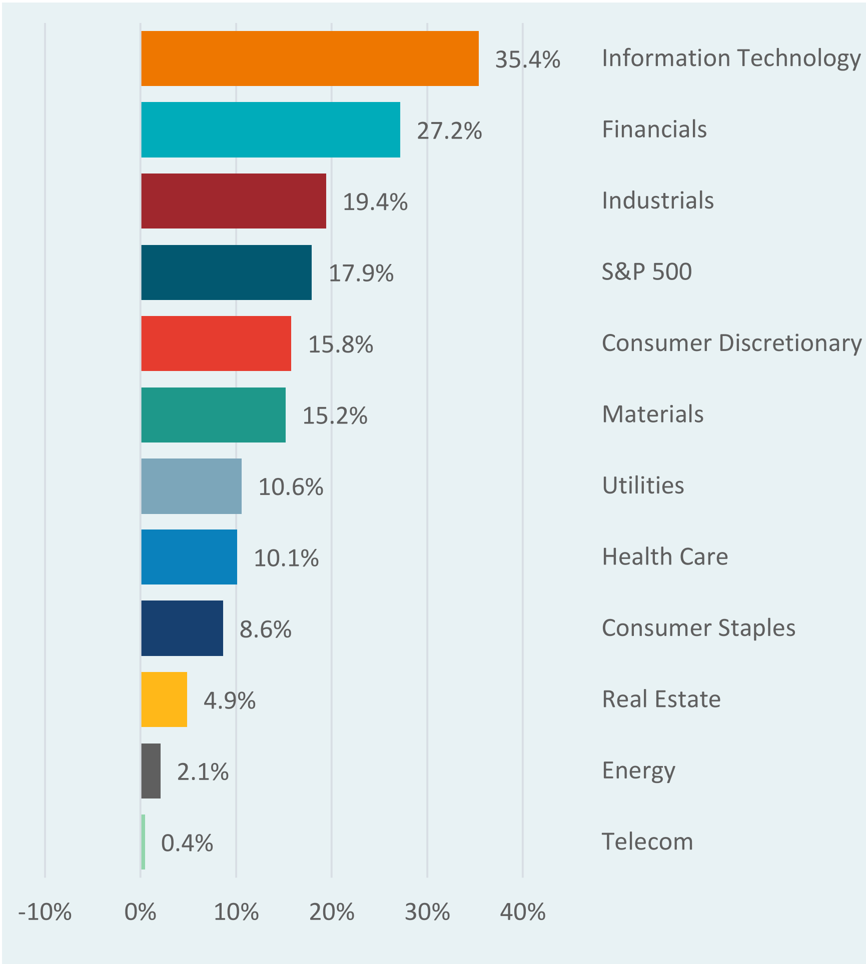
S&P 500 and S&P 500 sector returns

QTD



Source: Morningstar, as of 4/30/17

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/17

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	1.0	1.0	7.2	17.9	10.5	13.7	7.2
S&P 500 Equal Weighted	0.7	0.7	6.1	16.8	9.7	14.4	8.3
DJ Industrial Average	1.4	1.4	6.7	20.9	10.8	12.4	7.6
Russell Top 200	1.2	1.2	7.6	18.6	10.7	13.7	7.1
Russell 1000	1.1	1.1	7.1	18.0	10.2	13.6	7.3
Russell 2000	1.1	1.1	3.6	25.6	9.0	12.9	7.0
Russell 3000	1.1	1.1	6.9	18.6	10.1	13.6	7.2
Russell Mid Cap	0.8	0.8	6.0	16.7	9.0	13.3	7.6
Style Index							
Russell 1000 Growth	2.3	2.3	11.4	19.5	12.1	13.9	8.9
Russell 1000 Value	(0.2)	(0.2)	3.1	16.6	8.3	13.3	5.5
Russell 2000 Growth	1.8	1.8	7.3	24.1	9.3	12.9	8.0
Russell 2000 Value	0.4	0.4	0.3	27.2	8.7	13.0	6.0

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US Treasury US TIPS	0.6	0.6	1.9	1.7	1.8	0.7	4.2
BBgBarc US Treasury Bills	0.1	0.1	0.2	0.4	0.2	0.2	0.7
BBgBarc US Agg Bond	0.8	0.8	1.6	0.8	2.7	2.3	4.3
Duration							
BBgBarc US Treasury 1-3 Yr	0.1	0.1	0.4	0.3	0.7	0.6	2.0
BBgBarc US Treasury Long	1.5	1.5	3.0	(3.1)	5.7	3.5	6.8
BBgBarc US Treasury	0.7	0.7	1.4	(0.6)	2.1	1.5	3.9
Issuer							
BBgBarc US MBS	0.7	0.7	1.1	0.7	2.6	2.0	4.2
BBgBarc US Corp. High Yield	1.2	1.2	3.9	13.3	4.7	6.8	7.4
BBgBarc US Agency Interm	0.3	0.3	0.8	0.5	1.4	1.1	3.1
BBgBarc US Credit	1.0	1.0	2.3	2.7	3.5	3.6	5.3

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	1.6	1.6	8.6	15.1	5.3	9.0	3.7
MSCI ACWI ex US	2.1	2.1	10.2	12.6	0.8	5.1	1.1
MSCI EAFE	2.5	2.5	10.0	11.3	0.9	6.8	0.9
MSCI EM	2.2	2.2	13.9	19.1	1.8	1.5	2.5
MSCI EAFE Small Cap	4.3	4.3	12.6	13.1	5.3	10.2	3.1
Style Index							
MSCI EAFE Growth	3.0	3.0	11.8	8.6	2.3	6.8	1.9
MSCI EAFE Value	2.1	2.1	8.3	13.9	(0.6)	6.7	(0.2)
Regional Index							
MSCI UK	2.1	2.1	7.2	6.0	(3.3)	3.6	0.3
MSCI Japan	1.0	1.0	5.6	10.5	7.3	7.7	0.9
MSCI Euro	4.0	4.0	12.8	15.4	(0.7)	8.6	(0.6)
MSCI EM Asia	2.1	2.1	15.8	22.1	5.2	4.8	4.5
MSCI EM Latin American	(0.0)	(0.0)	12.1	16.3	(4.8)	(5.4)	0.3

OTHER

Index							
Bloomberg Commodity	(1.5)	(1.5)	(3.8)	(1.3)	(15.0)	(9.7)	(6.5)
Wilshire US REIT	(0.1)	(0.1)	(0.0)	4.8	8.9	9.1	4.4
CS Leveraged Loans	0.4	0.4	1.6	8.2	3.8	4.8	4.2
Regional Index							
JPM EMBI Global Div	1.5	1.5	5.4	8.6	6.3	5.8	7.1
JPM GBI-EM Global Div	1.2	1.2	7.7	4.0	(2.6)	(1.6)	3.9
Hedge Funds							
HFRI Composite	0.6	0.6	3.1	8.2	3.1	4.3	3.2
HFRI FOF Composite	0.6	0.6	3.0	6.3	2.2	3.4	1.1
Currency (Spot)							
Euro	1.8	1.8	3.2	(4.9)	(7.7)	(3.8)	(2.2)
Pound	3.5	3.5	4.7	(11.7)	(8.5)	(4.4)	(4.3)
Yen	(0.0)	(0.0)	4.6	(4.0)	(2.9)	(6.5)	0.7

Source: Morningstar, as of 4/30/17

Definitions

ISM Manufacturing Index – *based on data compiled from purchasing and supply executives nationwide. Survey responses reflect the change, if any, in the current month compared to the previous month. For each of the indicators measured (New Orders, Backlog of Orders, New Export Orders, Imports, Production, Supplier Deliveries, Inventories, Customers' Inventories, Employment and Prices), this report shows the percentage reporting each response, the net difference between the number of responses in the positive economic direction and the negative economic direction, and the diffusion index. (www.instituteforsupplymanagement.org)*

Notices & disclosures

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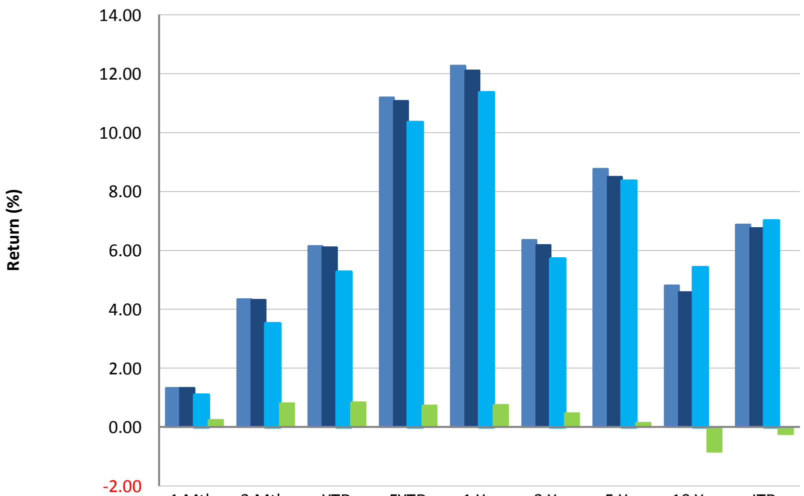
San Mateo County
Total Fund Characteristics

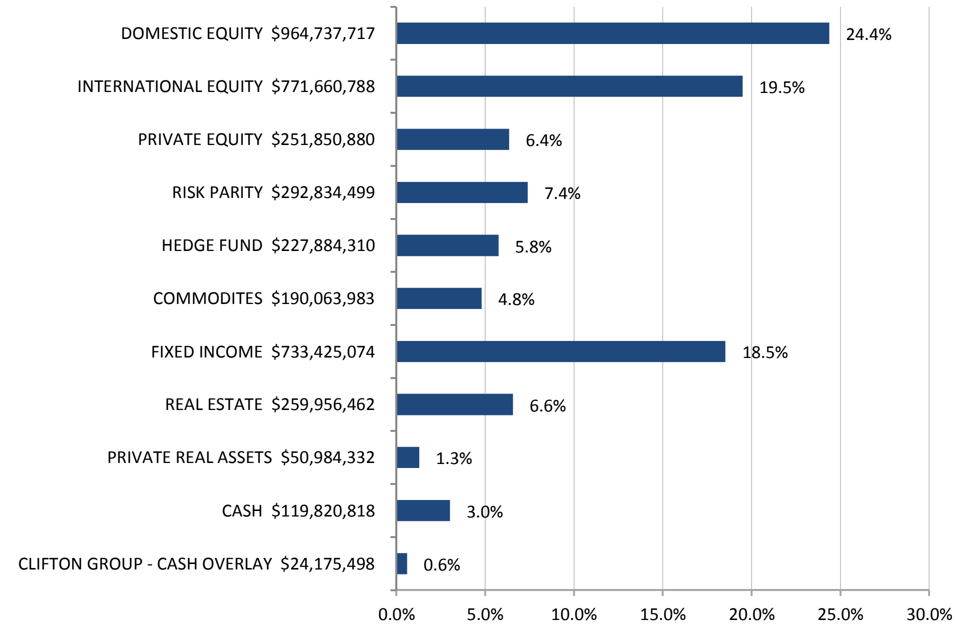
April 30,2017

Total Fund Performance

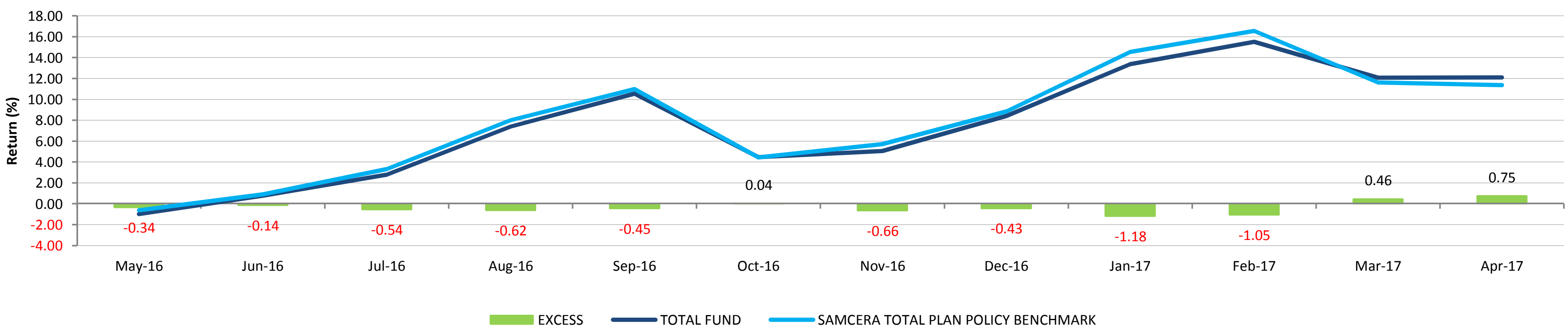


	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	10 Yr.	ITD
TOTAL FUND - Gross	1.33	4.34	6.14	11.20	12.27	6.36	8.77	4.81	6.88
TOTAL FUND - Net	1.33	4.32	6.10	11.08	12.11	6.18	8.50	4.59	6.76
SAMCERA PLAN BENCHMARK	1.09	3.51	5.26	10.35	11.36	5.71	8.36	5.42	7.00
Excess (Net)	0.24	0.80	0.84	0.73	0.75	0.47	0.14	-0.83	-0.24

Asset Allocation

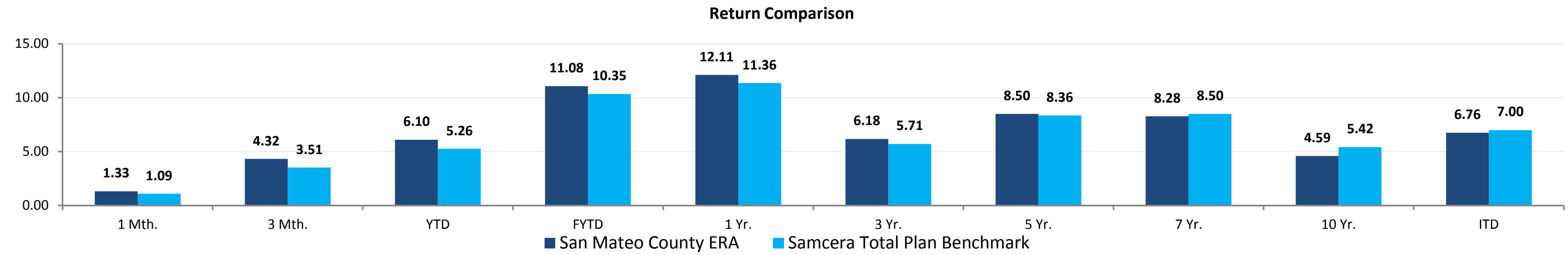


Rolling Month End Annual Returns



San Mateo County
Composite Return Summary

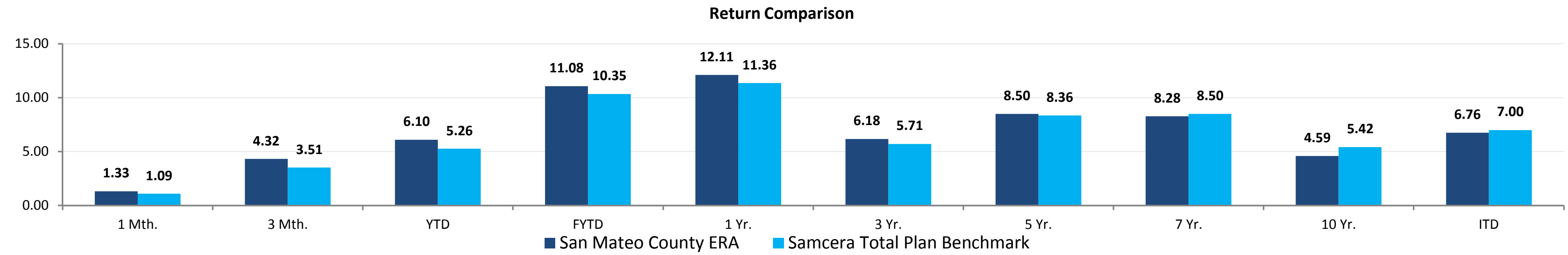
April 30,2017



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	3,959,027,184	1.33	4.32	6.10	11.08	12.11	6.18	8.50	8.28	4.59	6.76
Samcera Total Plan Benchmark		1.09	3.51	5.26	10.35	11.36	5.71	8.36	8.50	5.42	7.00
Excess		0.24	0.80	0.84	0.73	0.75	0.47	0.14	-0.22	-0.83	-0.24
San Mateo Ex-Clifton Overlay	3,934,851,686	1.30	4.26	6.02	11.20	12.06	6.05	8.44	8.24	4.48	6.68
Samcera Total Plan Benchmark		1.09	3.51	5.26	10.35	11.36	5.71	8.36	8.50	5.42	7.00
Excess		0.21	0.75	0.76	0.85	0.71	0.34	0.08	-0.26	-0.94	-0.32
Total Equity	1,736,398,505	1.84	6.16	9.74	16.41	16.42	6.89	10.52	9.53	4.21	7.68
Samcera Total Equity Benchmark		1.31	5.23	7.61	17.13	18.30	8.28	11.63	10.46	5.74	8.25
Excess		0.53	0.93	2.13	-0.72	-1.89	-1.40	-1.11	-0.93	-1.53	-0.57
Total Fixed Income	733,425,074	0.48	2.15	3.24	6.16	7.34	3.96	4.42	5.43	5.25	5.70
Samcera Fixed Income Benchmark		0.97	1.67	2.22	1.09	2.65	2.80	2.41	3.77	4.53	5.13
Excess		-0.49	0.47	1.02	5.07	4.69	1.16	2.01	1.65	0.72	0.57
Total Risk Parity	292,834,499	1.91	5.46	6.35	4.55	10.49	4.98	5.75	--	--	6.29
Samcera Risk Parity Benchmark		1.20	3.79	5.38	9.79	11.92	7.44	9.21	--	--	8.78
Excess		0.72	1.67	0.97	-5.24	-1.43	-2.46	-3.46	--	--	-2.49

San Mateo County
Composite Return Summary

April 30,2017



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
Total Hedge Fund Composite	227,884,310	-0.32	0.67	0.85	4.76	5.10	7.83	6.32	--	--	5.08
Samcera LIBOR + 4%		0.41	1.19	1.59	3.85	4.61	4.35	4.29	--	--	4.29
Excess		-0.73	-0.52	-0.74	0.91	0.49	3.48	2.03	--	--	0.80
Total Private Real Assets	50,984,332	0.97	5.99	6.39	34.30	34.52	--	--	--	--	49.09
SamCera Custom Real Asset Inde		-0.05	0.62	3.06	--	--	--	--	--	--	--
Excess		1.02	5.36	3.33	--	--	--	--	--	--	--
Total Real Estate	259,956,462	2.44	2.44	2.49	6.30	9.93	--	--	--	--	10.47
Samcera NCREIF ODCE EW (gross)		0.00	1.83	1.83	6.30	8.61	--	--	--	--	7.93
Excess		2.44	0.61	0.66	0.01	1.31	--	--	--	--	2.54
Total Cash	119,820,818	0.06	0.18	-0.06	0.71	0.79	0.47	0.54	0.64	0.70	2.02
Samcera Cash Benchmark		0.07	0.13	0.17	0.35	0.40	0.19	0.15	0.14	0.65	1.86
Excess		-0.01	0.06	-0.23	0.36	0.39	0.28	0.38	0.50	0.05	0.16

San Mateo County
Manager Return Summary

April 30,2017

Composite Returns (NET)	Market Value ($)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	1,736,398,505	1.84	6.16	9.74	16.41	16.42	6.89	10.52	9.53	4.21	7.68
Samcera Total Equity Benchmark		1.31	5.23	7.61	17.13	18.30	8.28	11.63	10.46	5.74	8.25
Excess		0.53	0.93	2.13	-0.72	-1.89	-1.40	-1.11	-0.93	-1.53	-0.57
Total Domestic Equity	964,737,717	1.19	4.94	8.19	17.39	18.88	9.81	12.86	11.99	6.03	8.48
Samcera Dom. Equity Benchmark		1.06	4.89	6.86	16.56	18.90	9.86	13.44	12.55	7.22	8.82
Excess		0.13	0.05	1.33	0.83	-0.02	-0.05	-0.58	-0.56	-1.19	-0.35
Total Large Cap Equity	834,629,458	1.01	5.04	8.82	17.12	18.84	10.76	13.45	12.28	6.35	9.22
Russell 1000		1.06	5.04	7.15	15.73	18.03	10.20	13.63	12.83	7.25	9.55
Excess		-0.04	0.01	1.67	1.38	0.81	0.57	-0.18	-0.55	-0.90	-0.33
Blackrock Russell 1000	695,329,094	1.06	5.04	--	--	--	--	--	--	--	--
Russell 1000		1.06	5.04	--	--	--	--	--	--	--	--
Excess		0.00	0.00	--	--	--	--	--	--	--	--
DE Shaw Commingled Fund	139,300,364	0.79	5.19	7.66	17.21	20.24	--	--	--	--	10.41
Russell 1000		1.06	5.04	7.15	15.73	18.03	--	--	--	--	8.58
Excess		-0.26	0.15	0.51	1.47	2.21	--	--	--	--	1.84
Total Small Cap Equity	130,108,259	2.31	4.17	4.64	19.64	19.81	5.67	10.74	10.95	4.74	6.53
Russell 2000		1.10	3.18	3.59	22.94	25.63	9.03	12.95	11.56	7.05	7.89
Excess		1.21	0.98	1.05	-3.30	-5.82	-3.36	-2.21	-0.61	-2.30	-1.37
QMA US Small Cap	130,108,259	2.31	4.17	4.64	--	--	--	--	--	--	18.28
Russell 2000		1.10	3.18	3.59	--	--	--	--	--	--	14.33
Excess		1.21	0.98	1.05	--	--	--	--	--	--	3.95
Total International Equity	771,660,788	2.66	7.71	11.65	14.40	12.17	1.82	6.06	4.62	0.40	5.42
MSCI ACW ex US-IMI		2.26	6.61	10.43	16.35	12.57	1.19	5.44	4.54	1.37	4.93
Excess		0.40	1.10	1.23	-1.96	-0.41	0.63	0.62	0.08	-0.98	0.49
Total Developed Markets Equity	687,863,455	2.78	7.84	11.59	14.32	11.97	2.03	6.62	5.02	0.84	4.26
MSCI ACW ex US-IMI		2.26	6.61	10.43	16.35	12.57	1.19	5.44	4.54	1.37	4.71
Excess		0.52	1.24	1.16	-2.03	-0.60	0.84	1.17	0.48	-0.53	-0.45
Baillie Gifford	233,926,230	3.56	8.22	13.92	14.68	12.82	3.54	7.99	--	--	7.99
MSCI ACWI ex US Growth		2.97	8.11	12.47	12.58	11.53	2.65	5.94	--	--	5.94
Excess		0.59	0.11	1.45	2.11	1.29	0.90	2.05	--	--	2.05

San Mateo County
Manager Return Summary

April 30,2017

Composite Returns (NET)	Market Value ($)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Blackrock EAFE Index Fund	145,000,705	2.62	7.07	10.18	16.54	11.74	1.16	--	--	--	1.72
MSCI EAFE ND		2.54	6.87	9.97	16.22	11.29	0.86	--	--	--	1.41
Excess		0.08	0.20	0.21	0.32	0.44	0.30	--	--	--	0.32
Mondrian Investment Partners	230,262,993	1.73	8.01	10.00	13.03	11.52	0.66	5.69	5.07	1.27	5.43
MSCI ACWI ex US Value		1.47	5.12	8.39	20.90	14.67	-0.13	5.22	4.01	0.94	5.16
Excess		0.27	2.88	1.61	-7.87	-3.15	0.79	0.47	1.05	0.33	0.27
FIAM Intl Small Cap	78,673,527	3.85	7.69	12.17	13.08	11.26	3.51	6.77	--	--	6.64
MSCI ACWI Small Cap ex US Net		3.00	7.90	12.04	16.65	12.48	3.53	7.49	--	--	7.19
Excess		0.85	-0.22	0.13	-3.57	-1.22	-0.02	-0.72	--	--	-0.55
Total Emerging Markets Equity	83,797,333	1.70	6.58	12.17	14.99	13.78	-0.11	1.63	--	--	1.32
MSCI Emerging Markets ND		2.19	7.98	13.88	18.99	19.13	1.79	1.49	--	--	1.22
Excess		-0.49	-1.40	-1.71	-4.00	-5.35	-1.90	0.15	--	--	0.10
EV Parametric EM	83,797,333	1.70	6.58	12.17	14.99	13.78	--	--	--	--	7.11
MSCI Emerging Markets GD		2.21	8.03	13.95	19.30	19.58	--	--	--	--	7.29
Excess		-0.51	-1.46	-1.78	-4.31	-5.80	--	--	--	--	-0.18
Total Fixed Income	733,425,074	0.48	2.15	3.24	6.16	7.34	3.96	4.42	5.43	5.25	5.70
Samcera Fixed Income Benchmark		0.97	1.67	2.22	1.09	2.65	2.80	2.41	3.77	4.53	5.13
Excess		-0.49	0.47	1.02	5.07	4.69	1.16	2.01	1.65	0.72	0.57
Total Domestic Fixed Income	621,852,017	0.63	1.69	2.97	5.15	6.44	4.06	4.27	5.40	5.26	5.81
Samcera US Fixed Inc Benchmark		0.90	1.58	2.08	1.89	3.42	3.30	2.70	4.08	4.75	5.34
Excess		-0.28	0.11	0.89	3.25	3.01	0.76	1.57	1.32	0.51	0.47
Total Core Fixed Income	460,643,884	0.75	1.59	2.17	2.25	3.61	3.66	3.49	4.66	4.73	5.50
BB Barclays U.S. Aggregate		0.77	1.40	1.59	-0.98	0.83	2.66	2.27	3.44	4.30	5.08
Excess		-0.02	0.19	0.58	3.23	2.78	1.00	1.22	1.21	0.43	0.42
FIAM Core Bond	228,422,876	0.80	1.51	1.97	0.45	2.21	3.23	3.05	4.26	4.82	4.87
BB Barclays U.S. Aggregate		0.77	1.40	1.59	-0.98	0.83	2.66	2.27	3.44	4.30	4.39
Excess		0.03	0.11	0.37	1.42	1.38	0.57	0.78	0.81	0.52	0.48
Western Total Return	111,043,861	0.85	2.08	3.12	7.02	7.35	--	--	--	--	4.67
BB Barclays U.S. Aggregate		0.77	1.40	1.59	-0.98	0.83	--	--	--	--	2.40
Excess		0.07	0.69	1.52	8.00	6.52	--	--	--	--	2.27

San Mateo County
Manager Return Summary

April 30,2017

Composite Returns (NET)	Market Value ($)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Blackrock Inter Gov	121,177,147	0.56	0.95	--	--	--	--	--	--	--	--
BB Barclays U.S. Aggregate		0.77	1.40	--	--	--	--	--	--	--	--
Excess		-0.21	-0.45	--	--	--	--	--	--	--	--
Total Opportunistic Credit	161,208,133	0.28	1.95	4.90	12.05	13.19	5.64	8.96	9.28	--	9.88
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	7.88	8.93	4.92	6.33	7.25	--	7.98
Excess		-0.99	-0.19	1.85	4.16	4.26	0.72	2.64	2.03	--	1.90
AG Opportunistic Whole Loan	15,172,652	0.00	2.79	2.79	9.55	9.15	2.85	--	--	--	2.85
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	7.88	8.93	4.92	--	--	--	4.92
Excess		-1.27	0.65	-0.26	1.66	0.22	-2.07	--	--	--	-2.07
Angelo Gordon	18,738,490	0.00	2.27	2.27	10.21	7.70	6.80	--	--	--	8.82
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	7.88	8.93	4.92	--	--	--	5.57
Excess		-1.27	0.13	-0.78	2.32	-1.22	1.88	--	--	--	3.25
Beach Point Select Fund	45,871,938	0.46	1.08	4.98	12.05	14.49	--	--	--	--	9.70
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	7.88	8.93	--	--	--	--	5.63
Excess		-0.81	-1.06	1.92	4.16	5.56	--	--	--	--	4.07
Brigade Cap Mngmt	72,989,714	0.28	2.09	6.44	14.41	17.31	4.05	6.44	--	--	7.26
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	7.88	8.93	4.92	6.33	--	--	7.20
Excess		-0.99	-0.05	3.39	6.53	8.38	-0.87	0.11	--	--	0.06
TCP Direct Lending VIII	8,435,306	0.40	2.95	2.95	--	--	--	--	--	--	--
BB Barc BA Intermediate HY Ind		1.27	2.14	3.05	--	--	--	--	--	--	--
Excess		-0.87	0.81	-0.10	--	--	--	--	--	--	--
Total Global Fixed Income	111,573,057	-0.35	4.76	4.89	11.55	12.13	3.29	4.89	--	--	5.12
Samcera Global Fixed Benchmark		1.16	1.86	3.08	-2.80	-1.31	-0.19	0.65	--	--	1.73
Excess		-1.51	2.90	1.81	14.35	13.44	3.48	4.24	--	--	3.39
Franklin Templeton	111,573,057	-0.35	4.76	4.89	11.55	12.13	2.83	4.60	--	--	4.90
BB Barclays Multiverse Index		1.16	1.86	3.08	-2.80	-1.31	-0.19	0.65	--	--	1.73
Excess		-1.51	2.90	1.81	14.35	13.44	3.02	3.95	--	--	3.17
Total Risk Parity	292,834,499	1.91	5.46	6.35	4.55	10.49	4.98	5.75	--	--	6.29
Samcera Risk Parity Benchmark		1.20	3.79	5.38	9.79	11.92	7.44	9.21	--	--	8.78
Excess		0.72	1.67	0.97	-5.24	-1.43	-2.46	-3.46	--	--	-2.49

San Mateo County
Manager Return Summary

April 30,2017

Composite Returns (NET)	Market Value ($)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
AQR Global Risk III	136,202,473	1.46	5.20	6.10	6.07	10.01	2.09	3.99	--	--	4.86
Samcera Risk Parity Benchmark		1.20	3.79	5.38	9.79	11.92	7.44	9.21	--	--	8.78
Excess		0.26	1.41	0.72	-3.72	-1.90	-5.35	-5.22	--	--	-3.92
Panagora	156,632,026	2.31	5.70	6.56	3.26	10.90	--	--	--	--	6.77
Samcera Risk Parity Benchmark		1.20	3.79	5.38	9.79	11.92	--	--	--	--	6.66
Excess		1.11	1.91	1.19	-6.54	-1.01	--	--	--	--	0.11
Total Alternatives	479,735,190	0.70	4.11	4.81	13.01	12.50	6.24	5.58	-6.01	-7.67	-2.97
Samcera Alternatives Benchmark		0.82	3.24	4.48	11.75	13.72	5.04	8.10	8.53	6.00	7.39
Excess		-0.12	0.87	0.33	1.26	-1.22	1.20	-2.52	-14.54	-13.66	-10.35
Total Private Equity	251,850,880	1.65	7.45	8.62	20.89	19.53	15.74	14.22	--	--	-24.09
Samcera PE Benchmark		1.31	5.66	7.90	19.12	22.09	13.29	16.89	--	--	16.99
Excess		0.35	1.80	0.72	1.77	-2.56	2.45	-2.67	--	--	-41.08
Total Hedge Fund Composite	227,884,310	-0.32	0.67	0.85	4.76	5.10	7.83	6.32	--	--	5.08
Samcera LIBOR + 4%		0.41	1.19	1.59	3.85	4.61	4.35	4.29	--	--	4.29
Excess		-0.73	-0.52	-0.74	0.91	0.49	3.48	2.03	--	--	0.80
AQR Delta XN	157,750,424	-0.71	0.26	0.58	4.85	5.51	8.09	6.47	--	--	5.21
Samcera LIBOR + 4%		0.41	1.19	1.59	3.85	4.61	4.35	4.29	--	--	4.29
Excess		-1.11	-0.93	-1.00	1.00	0.90	3.74	2.18	--	--	0.92
Standard Life GARS	70,133,886	0.54	1.61	1.19	3.44	2.40	--	--	--	--	-0.75
Samcera LIBOR + 4%		0.41	1.19	1.59	3.85	4.61	--	--	--	--	4.51
Excess		0.14	0.42	-0.40	-0.41	-2.21	--	--	--	--	-5.25
Total Inflation Hedge	572,637,600	1.23	1.89	2.52	8.35	10.60	--	--	--	--	13.09
SamCERA Inflation Hedge Index		0.05	1.20	2.38	4.61	7.07	--	--	--	--	8.47
Excess		1.18	0.69	0.14	3.73	3.53	--	--	--	--	4.62
Total TIPS	71,632,824	0.42	0.64	1.52	2.14	2.66	--	--	--	--	2.78
BBG Barclays US TIPS		0.59	1.01	1.86	0.37	1.73	--	--	--	--	1.92
Excess		-0.17	-0.37	-0.34	1.77	0.93	--	--	--	--	0.86
Brown Brothers Harriman	71,632,824	0.42	0.64	1.52	2.14	2.66	1.01	0.15	--	--	2.74
BBG Barclays US TIPS		0.59	1.01	1.86	0.37	1.73	1.77	0.69	--	--	3.11
Excess		-0.17	-0.37	-0.34	1.77	0.93	-0.76	-0.54	--	--	-0.37

San Mateo County
Manager Return Summary

April 30,2017

Composite Returns (NET)	Market Value ($)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Real Estate	259,956,462	2.44	2.44	2.49	6.30	9.93	--	--	--	--	10.47
Samcera NCREIF ODCE EW (gross)		0.00	1.83	1.83	6.30	8.61	--	--	--	--	7.93
Excess		2.44	0.61	0.66	0.01	1.31	--	--	--	--	2.54
Invesco Core Real Estate	245,548,937	2.46	2.46	2.46	6.26	10.01	12.30	11.77	13.27	5.26	7.91
Samcera NCREIF ODCE EW (gross)		0.00	1.83	1.83	6.30	8.61	12.00	12.00	13.48	5.40	7.73
Excess		2.46	0.63	0.63	-0.04	1.39	0.30	-0.24	-0.21	-0.14	0.18
Invesco US Val IV	14,407,525	2.18	2.18	3.25	8.12	8.12	--	--	--	--	13.55
Samcera NCREIF ODCE EW (gross)		0.00	1.83	1.83	6.30	8.61	--	--	--	--	10.42
Excess		2.18	0.35	1.42	1.82	-0.50	--	--	--	--	3.12
Liquid Real Assets	190,063,983	-0.00	0.56	2.40	--	--	--	--	--	--	--
SamCera Custom Real Asset Index		-0.05	0.62	3.06	--	--	--	--	--	--	--
Excess		0.04	-0.06	-0.65	--	--	--	--	--	--	--
SSGA CST REAL ASSET NL	190,063,983	-0.00	0.56	2.40	--	--	--	--	--	--	--
SamCera Custom Real Asset Index		-0.05	0.62	3.06	--	--	--	--	--	--	--
Excess		0.04	-0.06	-0.65	--	--	--	--	--	--	--
Total Private Real Assets	50,984,332	0.97	5.99	6.39	34.30	34.52	--	--	--	--	49.09
SamCera Custom Real Asset Inde		-0.05	0.62	3.06	--	--	--	--	--	--	--
Excess		1.02	5.36	3.33	--	--	--	--	--	--	--
Total Cash	119,820,818	0.06	0.18	-0.06	0.71	0.79	0.47	0.54	0.64	0.70	2.02
Samcera Cash Benchmark		0.07	0.13	0.17	0.35	0.40	0.19	0.15	0.14	0.65	1.86
Excess		-0.01	0.06	-0.23	0.36	0.39	0.28	0.38	0.50	0.05	0.16
SamCera General Account	90,437,126	0.08	0.23	0.30	0.61	0.70	0.42	0.30	0.30	0.87	2.01
County Treasury Pool	29,256,186	0.00	0.00	0.00	0.00	0.00	0.06	0.33	0.54	0.57	2.69
San Mateo County ERA	3,959,027,184	1.33	4.32	6.10	11.08	12.11	6.18	8.50	8.28	4.59	6.76
Samcera Total Plan Benchmark		1.09	3.51	5.26	10.35	11.36	5.71	8.36	8.50	5.42	7.00
Excess		0.24	0.80	0.84	0.73	0.75	0.47	0.14	-0.22	-0.83	-0.24

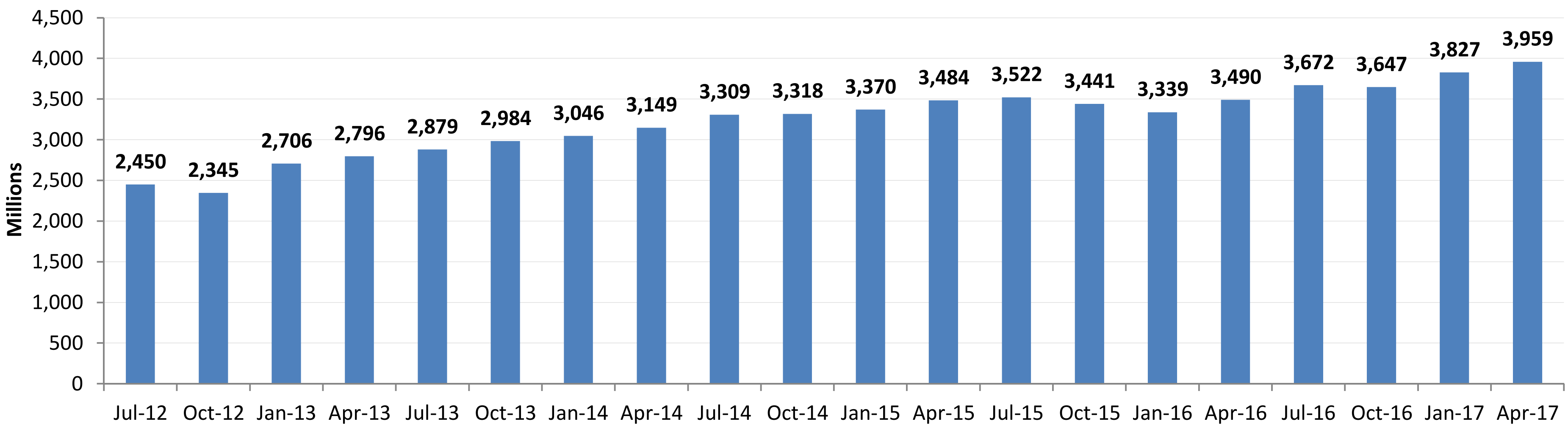
San Mateo County
Accounting Change in Market Value Details

April 30,2017

Record of Asset Growth

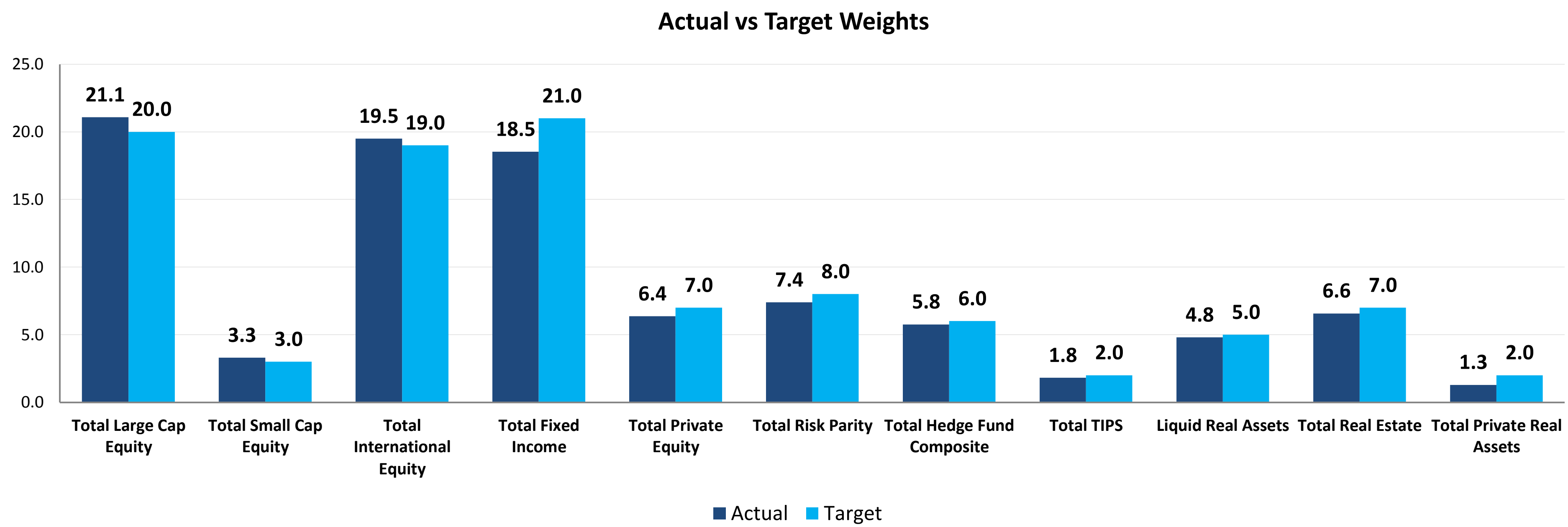
	Three Months	One Year
TOTAL FUND		
Beginning Market Value	3,827,216,901	3,489,912,452
Contributions	12,733,278	1,653,665,259
Withdrawals	-46,815,943	-1,621,135,422
Income Received	9,691,875	37,552,710
Gain/Loss	156,113,110	397,230,889
Ending Market Value	3,959,027,184	3,959,027,184

Net Asset Values Over Time ($000)

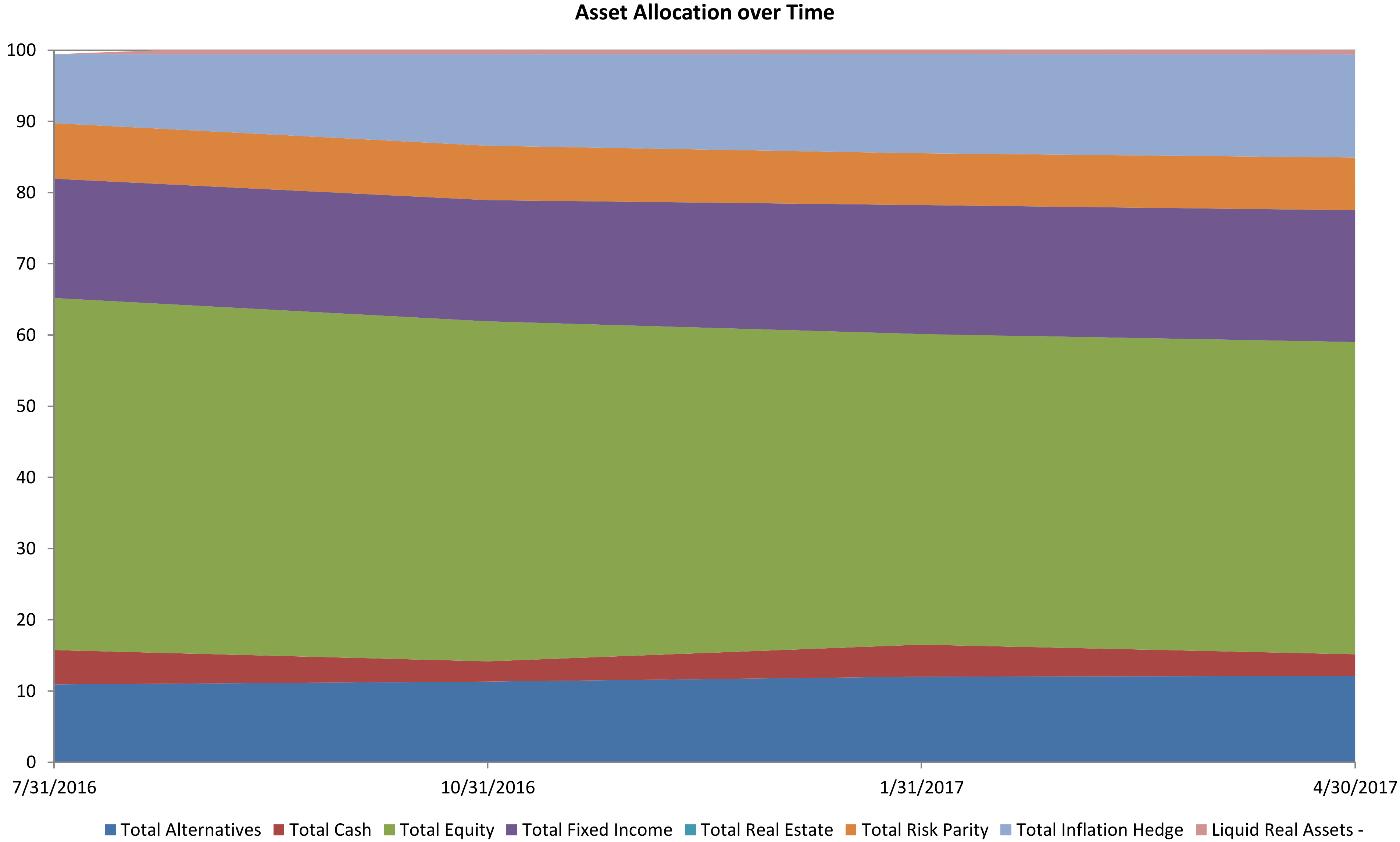


San Mateo County
Asset Allocation

April 30,2017

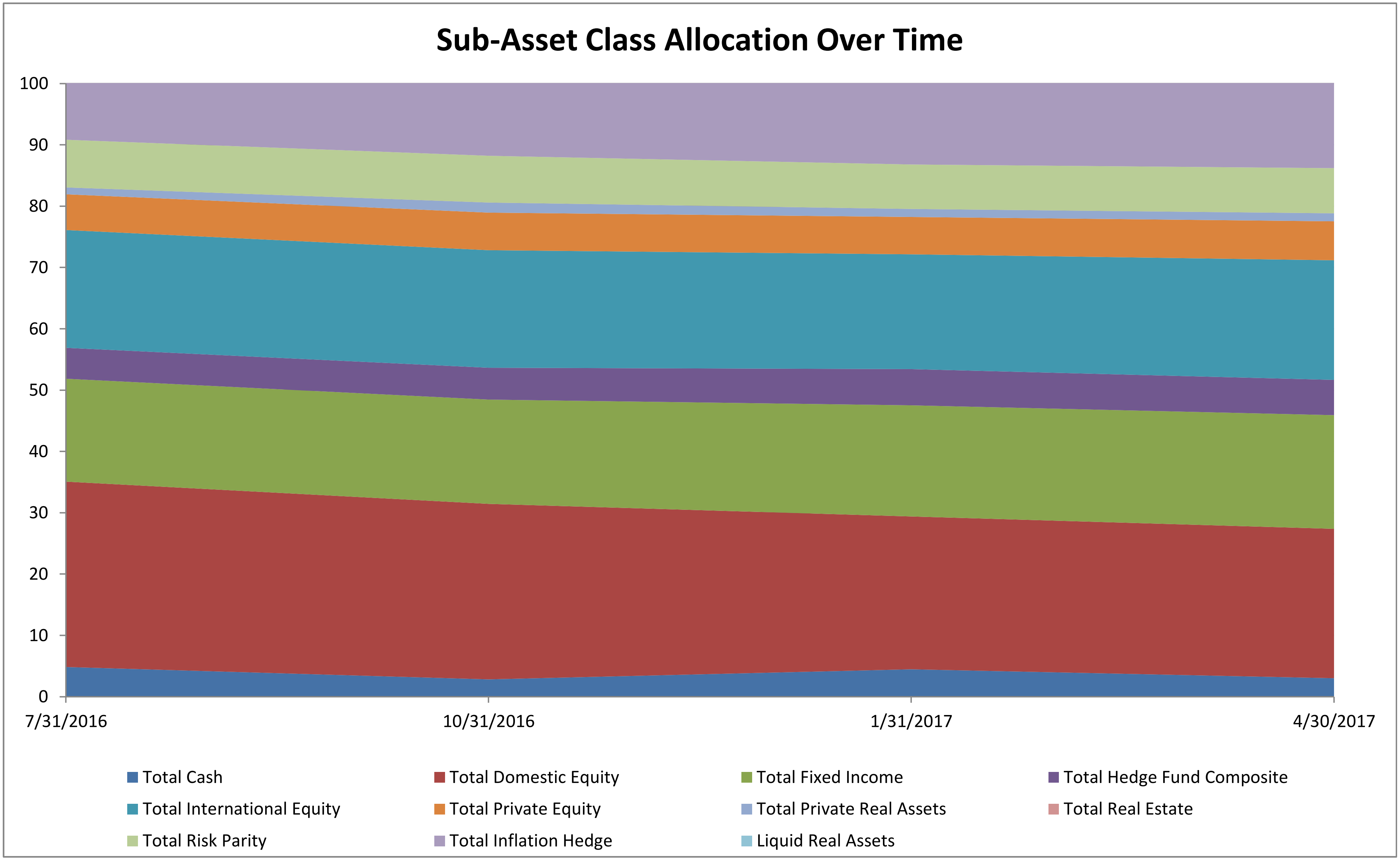


	Min	Actual	Target	Deviation	Max
Total Large Cap Equity	18.0	21.1	20.0	1.1	22.0
Total Small Cap Equity	1.0	3.3	3.0	0.3	5.0
Total International Equity	17.0	19.5	19.0	0.5	21.0
Total Fixed Income	19.0	18.5	21.0	-2.5	23.0
Total Private Equity	5.0	6.4	7.0	-0.6	9.0
Total Risk Parity	6.0	7.4	8.0	-0.6	10.0
Total Hedge Fund Composite	4.0	5.8	6.0	-0.2	8.0
Total TIPS	0.0	1.8	2.0	-0.2	4.0
Liquid Real Assets	3.0	4.8	5.0	-0.2	7.0
Total Real Estate	5.0	6.6	7.0	-0.4	9.0
Total Private Real Assets	0.0	1.3	2.0	-0.7	4.0


Asset Allocation over Time
100
90
80
70
60
50
40
30
20
10
0
7/31/2016
10/31/2016
1/31/2017
4/30/2017
Total Alternatives
Total Cash
Total Equity
Total Fixed Income
Total Real Estate
Total Risk Parity
Total Inflation Hedge
Liquid Real Assets -

San Mateo County
Sub-Asset Class Allocation Over Time

April 30,2017



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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 Agenda Item 6.2

TO: Board of Retirement

Michl R Coultrip

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Report on Quarterly Investment Performance for the Period Ended March 31, 2017

Staff Recommendation
Accept Verus Advisory's quarterly performance report for the period ended March 31, 2017.

Discussion
The 1st quarter net total return for the SamCERA portfolio was 4.8%, which was 50 bps higher than the 4.3% policy benchmark return. As can be seen on Page 19, all of the major asset classes contributed to relative performance, led by fixed income.

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

Attachment
Verus Quarterly Performance Report Ending 3/31/2017

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: MARCH 31, 2017

Investment Performance Review for

San Mateo County Employees' Retirement Association

Table of Contents

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484

1st quarter summary

THE ECONOMIC CLIMATE

— Developed economies continued to experience steady, moderate expansion with fourth quarter real GDP growth in the U.S., the Eurozone, and Japan all between 1.5-2.0%. The base effect of lower oil prices led to higher year-over-year headline inflation in many countries.

— During the first quarter, the global economy exhibited a coordinated pick up in economic activity. Data generally exceeded expectations, especially in the U.S. and the Eurozone.

MARKET PORTFOLIO IMPACTS

— The U.S. Treasury curve flattened in the first quarter. Short-term rates were driven higher by the Fed, while the long end of the curve remained unchanged. Even with Fed tightening, the U.S. may not be in a typical rising rate environment.

— A better outlook for commodity performance, as well as a flattening of the futures curve in some markets increases the attractiveness of commodities as an inflation hedge.

THE INVESTMENT CLIMATE

— While central banks are still accommodative outside of the U.S., most appear to be in later stages of the easing cycle. Developed central banks appear to be broadly entering a period of policy normalization.

— The market is expecting better earnings growth in U.S. equities. According to FactSet, the estimated Q1 earnings growth for the S&P 500 is 9.2% from the previous year. Higher earnings growth may help justify above average valuations.

ASSET ALLOCATION ISSUES

— Stabilizing currencies and commodity prices, as well as higher growth outlooks, may benefit emerging market equities.

— With U.S. Treasury yields still at historic lows and the expectation of additional tightening from the Fed, investors may not be adequately compensated for taking duration risk in the current environment.

We continue to be neutral towards risk

U.S. economics summary

— U.S. real GDP grew 2.0% YoY in Q4, up from 1.7% in Q3. Moderate increases in consumer spending continued to be the main driver of the economy.

— Inflation moved higher as headline CPI increased 2.8% YoY in February. Core inflation, however, increased only modestly to 2.2%. Most of the rise was caused by the low base effect from falling oil prices last year.

— The Fed continued tighter monetary policy by raising the target federal funds rate 25 bps to 0.75-1.00% at its March meeting. The FOMC dot plot indicates two more rate hikes in 2017, while the market has only priced in one more increase.

— The March Fed meeting minutes revealed that the central bank may begin shrinking its balance sheet as early as December, representing a form of monetary tightening. It remains unclear whether the Fed will stop rolling over maturing securities or actively sell in the open market.

— On average, 178,000 jobs were added each month during Q1, and unemployment fell 0.2% to 4.5%. Data continued to indicate a tighter labor market, though wage growth is lackluster. Real hourly earnings fell 0.1% in February from the prior year.

— Soft data (consumer & business sentiment) improved markedly following the U.S. presidential election. We are continuing to monitor the degree to which soft data flows through to actual spending and investment patterns. At this point evidence still is lacking.

	Most Recent	**12 Months Prior**
GDP *(annual YoY)*	2.0% *12/31/16*	1.9% *12/31/15*
Inflation *(CPI YoY, Headline)*	2.8% *2/28/17*	1.0% *2/29/16*
Expected Inflation *(5yr-5yr forward)*	2.2% *3/31/17*	1.8% *3/31/16*
Fed Funds Rate	0.75% *3/31/17*	0.25% *3/31/16*
10 Year Rate	2.4% *3/31/17*	1.8% *3/31/16*
U-3 Unemployment	4.5% *3/31/17*	5.0% *3/31/16*
U-6 Unemployment	8.9% *3/31/17*	9.8% *3/31/16*

International economics summary

— Developed countries once again experienced moderate positive growth in the fourth quarter, in line with the trend of recent years. Real GDP in the U.S., Europe, and Japan grew between 1.5-2.0%.

— The low base effect of the drop in energy prices that occurred in Q1 2016 helped boost inflation across the globe. With energy prices stabilizing over recent months, it is possible the jump in inflation is only transitory.

— Developed world unemployment rates declined over the quarter. In the Euro Area, the unemployment rate fell to a nearly eight year low of 9.5%, although this is still well above its pre-crisis level of 7.3%.

— The economic recovery in Europe has also picked up in terms of higher growth and inflation. Much of this recovery can be attributed to the core countries, rather than the periphery. However, significant tail risks remain including the French election, ECB tapering, and Brexit negotiations.

— On March 29th, the British Prime Minister, Theresa May, filed the official papers to withdraw the U.K. from the European Union. Article 50 of the Treaty of Lisbon outlines a two year timeframe for negotiations to take place.

— As many expected, Emmanuel Macron and Marine Le Pen were the top two vote getters in the first round of the French election. Macron and Le Pen will have a runoff vote on May 7th, where Macron is heavily favored, according to the most recent polls. Equity markets reacted positively to the results and the euro strengthened.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.0% *12/31/16*	2.7% *2/28/17*	4.5% *3/31/17*
Western Europe	1.8% *12/31/16*	1.5% *3/31/17*	8.6% *12/31/16*
Japan	1.6% *12/31/16*	0.3% *2/28/17*	2.8% *2/28/17*
BRIC Nations	5.2% *12/31/16*	3.1% *12/31/16*	5.5% *12/31/16*
Brazil	(2.5%) *12/31/16*	4.6% *3/31/17*	12.9% *3/31/17*
Russia	0.3% *12/31/16*	4.3% *3/31/17*	5.4% *12/31/16*
India	7.0% *12/31/16*	3.7% *2/28/17*	7.1% *12/31/15*
China	6.8% *12/31/16*	0.8% *2/28/17*	4.0% *12/30/16*

Equity environment

- The U.S. economic environment has shifted in a materially more positive direction, post-election. This move was reflected in an upward adjustment to equity prices. We are relatively bullish on U.S. earnings growth in the near term, but remain concerned that investors are paying for this excess growth upfront through higher valuations. We maintain a neutral weight to U.S. equities.
- According to FactSet, the estimated Q1 2017 earnings growth rate of the S&P 500 was 9.2% YoY. The estimate was revised downward from 12.5% on December 31st due to negative EPS guidance in the Materials and Consumer Discretionary sectors.
- Growth equities outperformed value equities in Q1. The Russell 1000 Growth Index and Russell 1000 Value Index returned 8.9% and 3.3%, respectively.
- The U.S. dollar fell 3.6% in Q1 on a trade-weighted basis, which has affected the returns of portfolios with unhedged currency exposure.
- As discussed recently in our *Sound Thinking* research piece, investors should be mindful of their biases in portfolio construction. One particularly prevalent bias is the tendency for investors to hold greater exposure to the markets where they reside (home country bias). As with any portfolio tilt, investors should understand why they hold it, have a solid basis for the exposure, and understand the tracking error the position introduces to the portfolio.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.0%		6.0%		17.4%	
US Small Cap (Russell 2000)	2.5%		2.5%		26.2%	
US Large Value (Russell 1000 Value)	3.3%		3.3%		19.2%	
US Large Growth (Russell 1000 Growth)	8.9%		8.9%		15.8%	
International Large (MSCI EAFE)	7.2%	5.0%	7.2%	5.0%	11.7%	18.9%
Eurozone (Euro Stoxx 50)	8.3%	7.2%	8.3%	7.2%	12.9%	21.7%
U.K. (FTSE 100)	4.9%	3.8%	4.9%	3.8%	7.3%	23.3%
Japan (NIKKEI 225)	4.3%	0.1%	4.3%	0.1%	15.8%	14.7%
Emerging Markets (MSCI Emerging Markets)	11.4%	7.3%	11.4%	7.3%	17.2%	12.5%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/17

Domestic equity

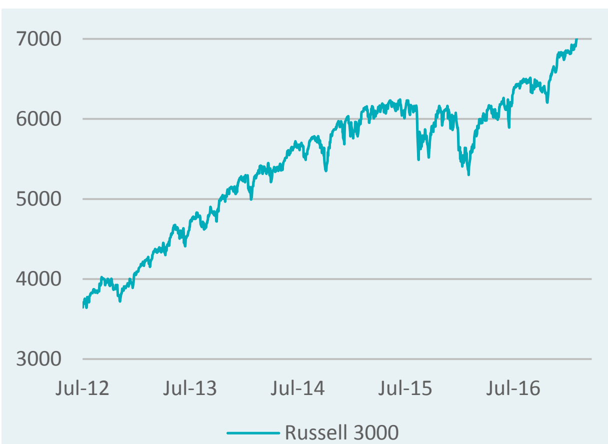
The U.S. economic environment has shifted in a materially more positive direction, post-election, as reflected by rising in equity prices. We are relatively bullish on U.S. earnings growth in the near term but remain concerned that investors are paying for this excess growth upfront through higher valuations. We maintain a neutral weight to U.S. equities.

Higher equity prices and earnings expectations have been influenced by corporate tax cuts and deregulation proposed by the new administration. There have been no further details released on timing of tax cuts, and lofty expectations may leave room for disappointment.

According to FactSet, Q1 2017 S&P 500 earnings are expected to grow 9.2% YoY. The estimate was revised downward from 12.5% on December 31st due to negative EPS guidance in the Materials and Consumer Discretionary sectors.

Investors may be paying for higher earnings growth through elevated valuations

U.S. EQUITIES

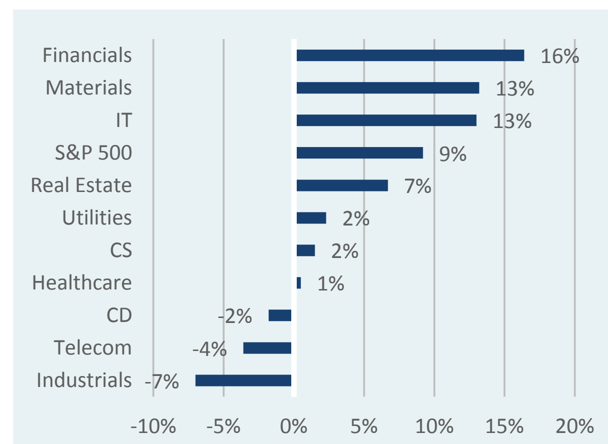


Source: Russell Investments, as of 4/3/17

S&P 500 EPS GROWTH

Source: Bloomberg, as of 12/31/16

Q1 FORECAST EPS GROWTH



Source: FactSet, as of 4/14/17

Domestic equity size and style

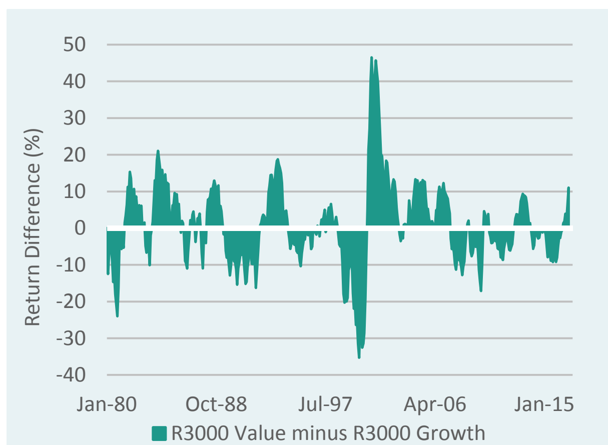
Growth equities outperformed value equities during the quarter. The Russell 1000 Growth Index and Russell 1000 Value Index returned 8.9% and 3.3%, respectively. Financial sector performance had a significant effect on the value premium, affected by uncertainty around the direction of interest rates and deregulation proposals.

U.S. large cap equities outperformed small cap during the quarter, though small caps have delivered strong year-over-year outperformance. Small cap equity valuations remain considerably elevated relative to large cap equities which will likely act as a headwind to future performance. However, if President Trump's deregulation proposals are seen through, this should benefit smaller American companies. Further U.S. dollar appreciation would also benefit smaller companies on a relative basis due to less international currency exposure.

SMALL CAP VS LARGE CAP (YOY)

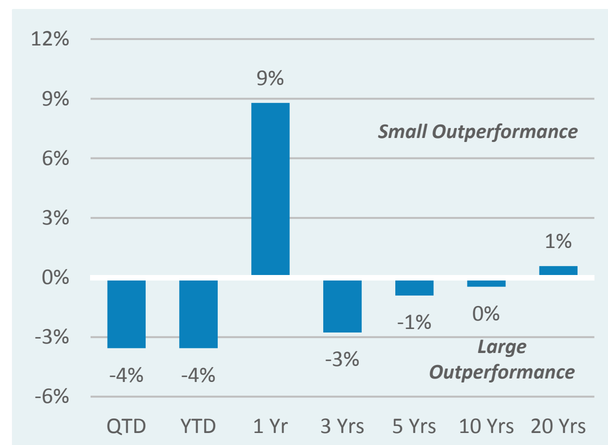
Source: Russell Investments, as of 3/31/17

VALUE VS GROWTH (YOY)



Source: Russell Investments, as of 3/31/17

U.S. LARGE VS. SMALL RELATIVE PERFORMANCE



Source: Morningstar, as of 3/31/17

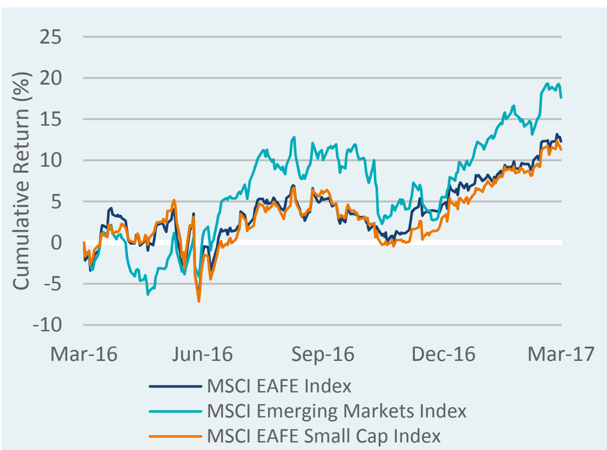
International equity

International equity markets outperformed domestic equities over the quarter. The MSCI ACWI ex U.S. returned 7.9% on an unhedged basis while the S&P 500 returned 6.1%.

International and emerging markets continue to trade at lower valuation levels than domestic markets, based on a variety of metrics. Despite our positive outlook for earnings growth in the U.S., the upside for domestic equities appears limited due to the optimism already baked into the price. International markets likely possess greater upside potential through either valuation expansion or earnings growth surprise, simply due to current valuation levels. However, tail risks are also apparent in these markets. We believe a neutral weight is appropriate.

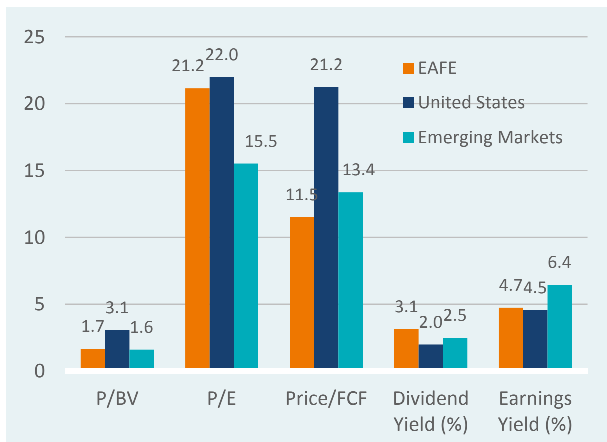
The U.S. dollar fell 3.6% in Q1 on a trade-weighted basis, and continued to contribute volatility to portfolios with unhedged currency exposure. Emerging market currencies exhibited further recovery during the quarter (MSCI EM 11.4% unhedged return vs. 7.3% hedged return) while the yen appreciated (4.3% NIKKEI 225 unhedged return vs. 0.1% hedged).

GLOBAL EQUITY PERFORMANCE



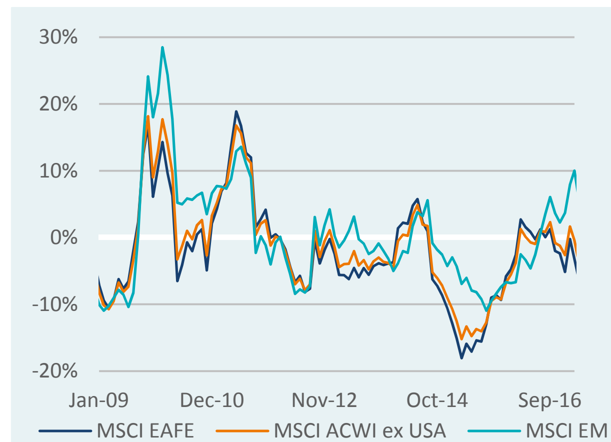
Source: Bloomberg, as of 3/31/17

VALUATIONS



Source: Bloomberg, MSCI, as of 3/31/17 - 3 month average

EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 3/31/17

Emerging market equity

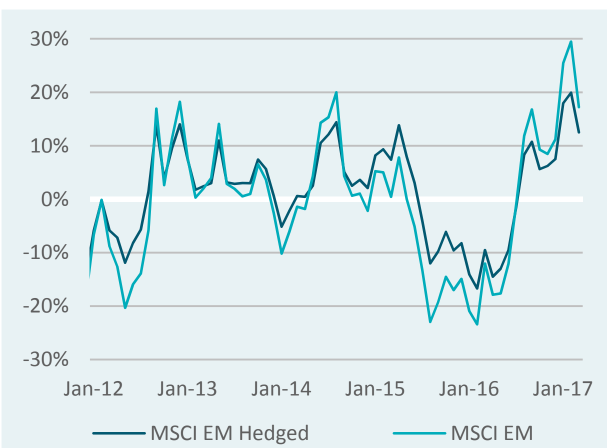
Emerging market equities extended their positive run in the first quarter, as the unhedged MSCI Emerging Markets index returned 11.4% (7.3% hedged). Performance was bolstered by strong global growth and stable commodity prices which have correlated highly with emerging market equities in the past. Steady demand from developed markets encouraged manufacturing in emerging economies as seen by increases in aggregate purchasing managers' indices (PMI).

Valuations increased moderately over the past three years but remain at attractive levels relative to EAFE and U.S equities. Earnings growth estimates were highest in the Technology and Financial sectors, concentrated mainly in Korea and China.

Positive long-term growth expectations are not without potential disruptions. We remain particularly watchful of U.S. trade policies and upcoming elections in France, Germany, and Turkey.

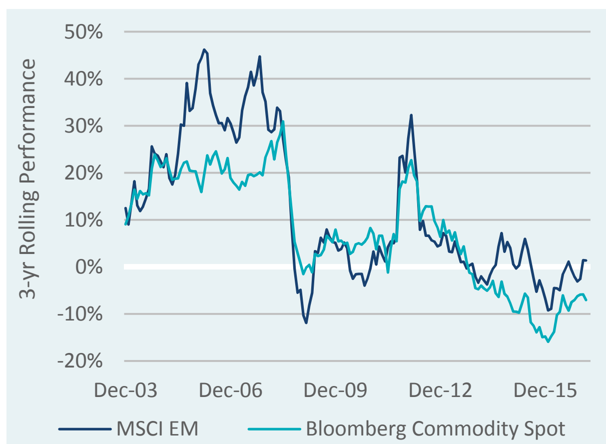
Fundamentals are improving in emerging economies

12-MONTH ROLLING PERFORMANCE



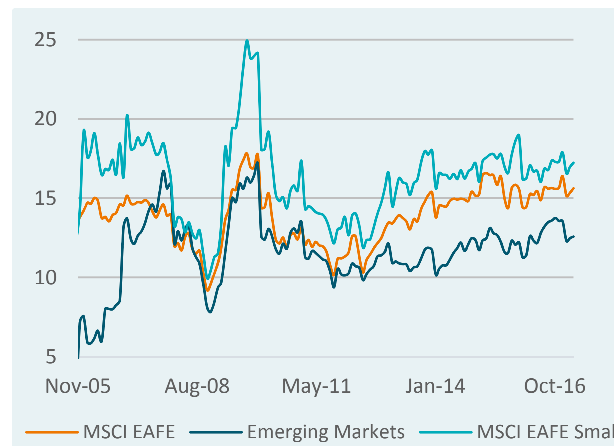
Source: MPI, as of 3/31/17

COMMODITY PRICES & EM PERFORMANCE



Source: Bloomberg, as of 3/31/17

FORWARD P/E RATIOS



Source: Bloomberg as of 3/31/17

Interest rate environment

— U.S. Treasuries have an attractive yield relative to other developed sovereign bonds, but remain historically expensive.

— Despite broad agreement that the U.S. has entered an environment of rising interest rates, the broad yield curve rose very little over the past year. However, the short end of the curve has increased in line with Federal Reserve rate rises. Inflation has historically had a significant impact on the yield curve, which indicates investors should keep an eye on inflation trends.

— In March, the Federal Reserve announced a change to the federal funds target rate from 0.50-0.75% to 0.75-1.00%. The move resulted in the U.S. Treasury curve flattening moderately as short-term interest rates increased and long-term rates remained materially unchanged. The Fed has indicated two additional rate hikes are expected to occur this year.

— Developed sovereign yields are expected to rise only modestly over the next year, with very little movement expected in longer dated bonds. Central banks of most developed economies are nearing the end of the monetary easing cycle or have begun to pull back, as in the case of the U.S. Federal Reserve.

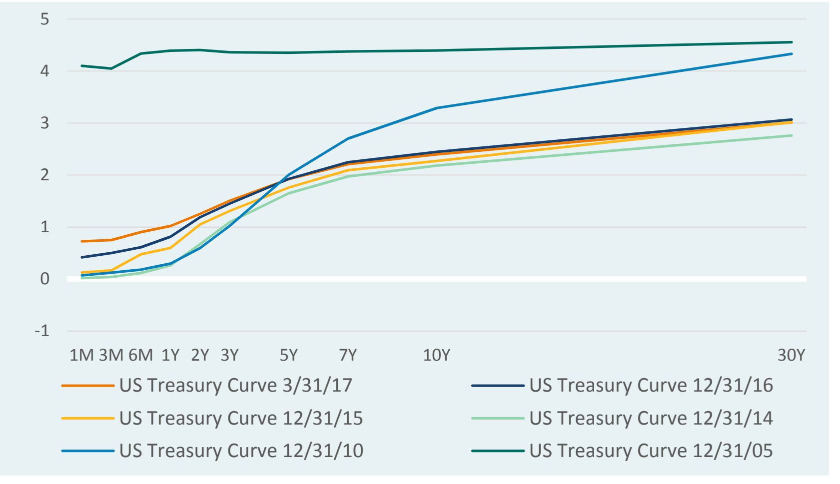
— Many emerging market governments continue with monetary easing, suggesting these economies may be in an earlier stage of the economic cycle.

Area	Short Term (3M)	10 Year
United States	0.75%	2.39%
Germany	(0.92%)	0.33%
France	(0.57%)	0.97%
Spain	(0.39%)	1.65%
Italy	(0.34%)	2.31%
Greece	2.39%	6.90%
U.K.	0.13%	1.14%
Japan	(0.20%)	0.07%
Australia	1.59%	2.70%
China	2.93%	3.28%
Brazil	10.91%	10.06%
Russia	9.50%	7.87%

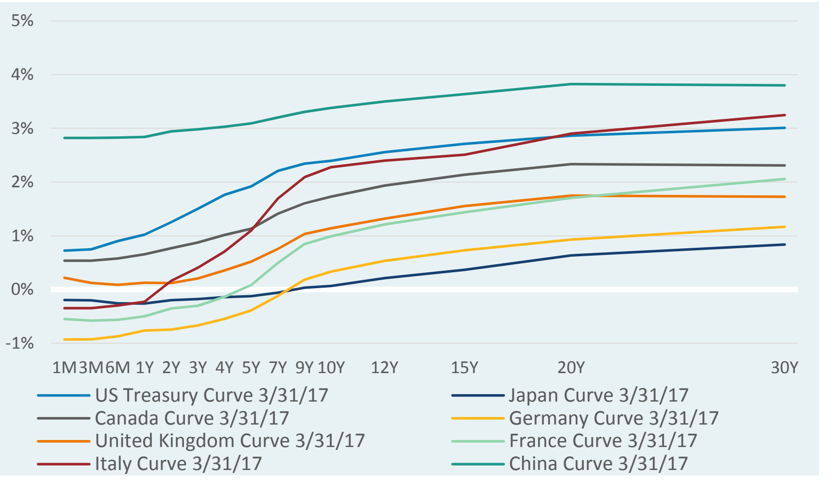
Source: Bloomberg, as of 3/31/17

Yield environment

U.S. YIELD CURVE

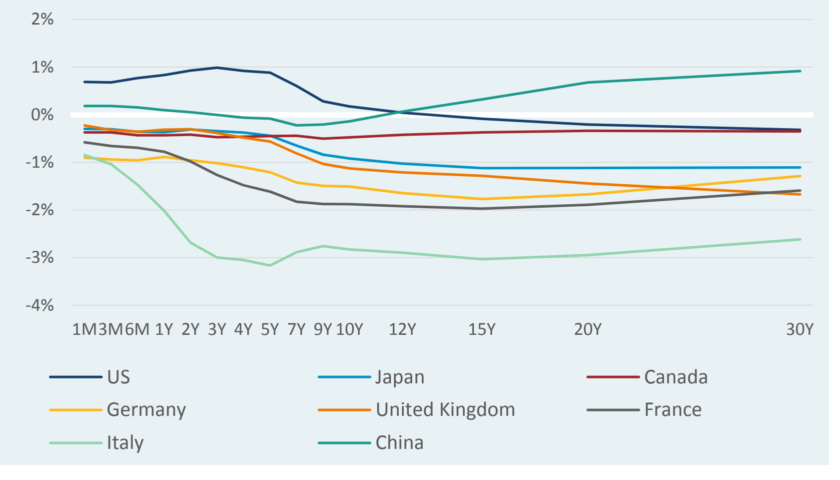


GLOBAL GOVERNMENT YIELD CURVES

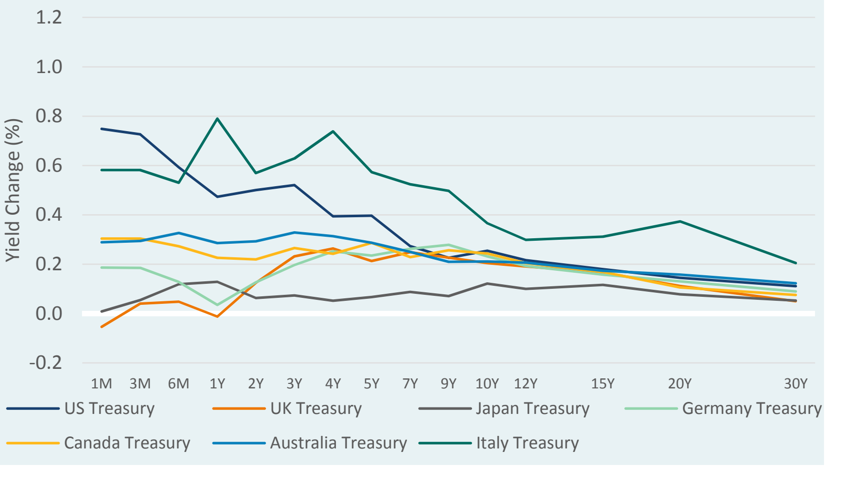


Global investors continue to prefer U.S. Treasuries due to higher relative yields

YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/17

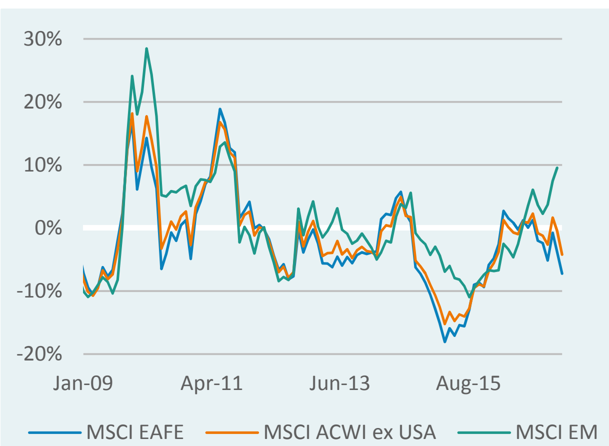
Currency

In the first quarter, the U.S. dollar reversed part of its gains following the presidential election in November. On a trade weighted basis, the dollar was down 3.6% against a basket of major currencies. Currency movement has been an important influence in unhedged foreign asset exposure. Over the past year, U.S. dollar strength has eroded positive equity returns in developed markets, while dollar weakness against emerging markets has added to returns.

Emerging market currencies rallied in the first quarter following a sharp decline to end last year. The JPM Emerging Market Currency Index was up 2.5%.

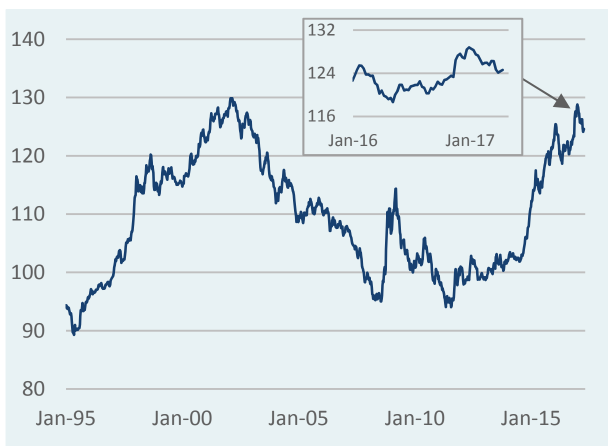
While long-term movements in the U.S. are often driven by broad mean reversion to fair value based on purchasing power parity, shorter term moves are still likely to be heavily influenced by developments in foreign trade policy, where much uncertainty remains.

EFFECT OF CURRENCY (1YR ROLLING)



Source: MPI, as of 3/31/17

LONG-TERM TRADE WEIGHTED DOLLAR



Source: FRED, as of 4/7/17

JPM EM CURRENCY INDEX

Source: Bloomberg, as of 3/31/17

Verus

— The Total Fund, net of manager fees, returned 4.8% in the first quarter of 2017 and ranked 20th among other public plans greater than $1 billion (median of 4.3%). It beat the policy index return of 4.3%. The Total Fund w/o Overlay was 4.8% for the quarter. The Total Fund one year return of 11.9% matched the policy, and ranked in 30th percentile of its peer universe. The three-year return of 5.9% (20th percentile) was above median among large public plans (5.0%).

— First quarter results were enhanced by the following factors:

1. Franklin Templeton had a second strong quarter in a row gaining 5.3% beating the Barclays Multiverse (1.9%) and ranked in the 5th percentile of its peers. The portfolio benefited from a defensive approach regarding interest rates, and positive currency contributions.

2. Mondrian was up 8.1% while the MSCI ACWI ex US Value index rose 6.8%. Performance was enhanced by country allocation, and stock selection within Japan and Switzerland.

3. Western TRU ranked in the 1st percentile of Core Fixed Income managers, gaining 2.1% versus the Barclays Aggregate (0.8%). Risk assets did well as interest rates declined slightly. A positive US duration also contributed to performance.

— First quarter results were hindered by the following factors:

1. Parametric Core gained 10.3% % while the MSCI Emerging Markets gained 11.5%. An underweight to China and Korea detracted from performance versus the index.

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank*	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund **	**4.8**	**20**	**9.7**	**41**	**11.9**	**30**	**5.4**	**24**	**5.9**	**20**	**8.3**	**15**	**4.7**	**67**
Policy Index 1	*4.3*	*45*	*9.5*	*52*	*11.9*	*34*	*5.4*	*26*	*5.6*	*30*	*8.1*	*20*	*5.6*	*15*
Allocation Index	*4.3*	*52*	*9.1*	*60*	*11.7*	*47*	*5.3*	*31*	*5.5*	*39*	--	--	--	--
InvestorForce Public DB > $1B Net Median	*4.3*		*9.5*		*11.6*		*4.7*		*5.0*		*7.4*		*4.9*	
Total Fund ex Overlay	**4.8**	**25**	**9.9**	**34**	**11.9**	**31**	**5.3**	**28**	**5.8**	**26**	**8.2**	**17**	**4.7**	**67**
Policy Index 1	*4.3*	*45*	*9.5*	*52*	*11.9*	*34*	*5.4*	*26*	*5.6*	*30*	*8.1*	*20*	*5.6*	*15*
Allocation Index	*4.3*	*52*	*9.1*	*60*	*11.7*	*47*	*5.3*	*31*	*5.5*	*39*	--	--	--	--
InvestorForce Public DB > $1B Net Median	*4.3*		*9.5*		*11.6*		*4.7*		*5.0*		*7.4*		*4.9*	
Public Equity	**7.1**	**29**	**13.6**	**70**	**14.9**	**78**	**5.7**	**49**	**5.9**	**51**	**9.8**	**46**	**4.4**	**75**
Blended Public Equity Index 2	*6.7*	*44*	*15.0*	*36*	*16.6*	*38*	*5.8*	*42*	*6.1*	*46*	*10.0*	*42*	*5.5*	*38*
InvestorForce All DB Total Eq Net Median	*6.6*		*14.5*		*16.1*		*5.7*		*5.9*		*9.7*		*5.1*	
US Equity	**5.9**	**33**	**15.0**	**60**	**17.2**	**71**	**7.8**	**51**	**8.8**	**55**	**12.4**	**57**	**6.3**	**90**
Blended US Equity Index 2	*5.7*	*41*	*15.3*	*46*	*18.5*	*35*	*8.1*	*43*	*9.3*	*38*	*13.0*	*29*	*7.5*	*31*
Russell 3000	*5.7*	*41*	*15.0*	*55*	*18.1*	*49*	*8.5*	*29*	*9.8*	*20*	*13.2*	*20*	*7.5*	*27*
InvestorForce All DB US Eq Net Median	*5.6*		*15.2*		*18.0*		*7.8*		*8.9*		*12.5*		*7.2*	
Large Cap Equity	**7.8**	**--**	**15.9**	**--**	**18.5**	**--**	**9.4**	**--**	**10.4**	**--**	**13.2**	**--**	**6.7**	**--**
Russell 1000	*6.0*	--	*14.5*	--	*17.4*	--	*8.6*	--	*10.0*	--	*13.3*	--	*7.6*	--
BlackRock Russell 1000 ***	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Russell 1000	*6.0*	*43*	*14.5*	*35*	*17.4*	*23*	*8.6*	*17*	*10.0*	*19*	*13.3*	*16*	*7.6*	*37*
eA US Large Cap Core Equity Net Median	*5.7*		*13.0*		*15.1*		*6.7*		*8.4*		*12.0*		*7.2*	
DE Shaw	6.8	20	16.3	18	21.0	5	10.2	6	11.8	2	14.2	3	--	--
Russell 1000	*6.0*	*43*	*14.5*	*35*	*17.4*	*23*	*8.6*	*17*	*10.0*	*19*	*13.3*	*16*	*7.6*	*37*
eA US Large Cap Core Equity Net Median	*5.7*		*13.0*		*15.1*		*6.7*		*8.4*		*12.0*		*7.2*	

** 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 January 2017.*
1. Effective 2/1/17, Policy Index is 23% Russell 3000/19% MSCI ACWI ex US IMI/ 12% BBgBarc Aggregate/ 2% BBgBarc TIPS/ 6% BBgBarc BA Intermediate HY / 3% BBgBarc Multi-verse/ 7% NCREIF NFI ODCE/ 7% Russell 3000 + 3% 8% (60% Russell 3000/40% BBgBarc Aggregate)/ 6% Libor +4%/ 3% Bloomberg Commodity/ 7% (34% Bloomberg Roll Select Commodity/ 33% S&P Global Large-MidCap Commodity and Resources/ 33% S&P Global Infrastructure)
2. See Appendix for Benchmark History.

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	**2.3**	**52**	**19.6**	**53**	**20.1**	**73**	**4.4**	**74**	**4.4**	**80**	**10.8**	**75**	**5.1**	**96**
Russell 2000	*2.5*	*51*	*21.6*	*32*	*26.2*	*25*	*6.7*	*54*	*7.2*	*52*	*12.4*	*50*	*7.1*	*62*
eA US Small Cap Equity Net Median	*2.5*		*20.0*		*23.2*		*7.0*		*7.3*		*12.3*		*7.5*	
QMA US Small Cap *	2.3	54	--	--	--	--	--	--	--	--	--	--	--	--
Russell 2000	*2.5*	*51*	*21.6*	*26*	*26.2*	*20*	*6.7*	*56*	*7.2*	*56*	*12.4*	*56*	*7.1*	*65*
eA US Small Cap Core Equity Net Median	*2.5*		*19.7*		*23.2*		*7.1*		*7.5*		*12.8*		*7.7*	
International Equity	**8.8**	**49**	**11.4**	**81**	**11.3**	**78**	**2.3**	**36**	**1.3**	**44**	**5.3**	**48**	**0.7**	**74**
MSCI ACWI ex US IMI [2]	*8.1*	*74*	*14.1*	*43*	*13.5*	*47*	*2.4*	*34*	*1.3*	*44*	*5.1*	*55*	*1.9*	*35*
MSCI EAFE Gross	*7.4*	*89*	*13.6*	*51*	*12.2*	*66*	*1.7*	*55*	*1.0*	*57*	*6.3*	*20*	*1.5*	*50*
InvestorForce All DB ex-US Eq Net Median	*8.7*		*13.7*		*13.4*		*1.9*		*1.1*		*5.1*		*1.5*	
Developed Markets	**8.6**	**28**	**11.2**	**72**	**10.9**	**71**	**2.3**	**33**	**1.4**	**38**	**5.8**	**49**	**0.9**	**74**
MSCI ACWI ex USA Gross	*8.0*	*53*	*14.2*	*35*	*13.7*	*27*	*1.8*	*48*	*1.0*	*49*	*4.8*	*74*	*1.8*	*41*
InvestorForce All DB Dev Mkt ex-US Eq Net Median	*8.0*		*13.0*		*12.0*		*1.8*		*1.0*		*5.7*		*1.6*	
Baillie Gifford	10.0	31	10.7	46	10.4	40	2.8	54	2.3	45	--	--	--	--
MSCI ACWI ex US [2]	*8.0*	*76*	*14.2*	*17*	*13.7*	*21*	*1.8*	*67*	*1.0*	*67*	--	--	--	--
MSCI ACWI ex US Growth [2]	*9.2*	*51*	*9.3*	*56*	*10.0*	*45*	*1.8*	*67*	*1.9*	*56*	--	--	--	--
eA ACWI ex-US Growth Equity Net Median	*9.3*		*10.4*		*9.4*		*3.1*		*2.1*		*6.2*		*3.6*	
BlackRock EAFE Index	7.4	62	13.6	35	12.1	27	1.6	56	0.8	60	--	--	--	--
MSCI EAFE	*7.2*	*65*	*13.3*	*38*	*11.7*	*41*	*1.2*	*63*	*0.5*	*70*	*5.8*	*73*	*1.1*	*75*
MSCI EAFE Gross	*7.4*	*61*	*13.6*	*35*	*12.2*	*25*	*1.7*	*56*	*1.0*	*57*	*6.3*	*67*	*1.5*	*59*
eA EAFE Core Equity Net Median	*7.7*		*12.7*		*10.8*		*2.1*		*1.2*		*7.0*		*1.9*	

* *Funded August 2016.*
2. See Appendix for Benchmark History.

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
FIAM Equity	8.0	63	8.9	64	8.5	61	4.0	75	2.2	66	6.0	86	--	--
MSCI ACWI ex US Small Cap Gross	*8.9*	*44*	*13.5*	*28*	*12.7*	*30*	*6.0*	*42*	*2.8*	*56*	*7.1*	*79*	*3.4*	*84*
eA ACWI ex-US Small Cap Equity Net Median	*8.6*		*9.4*		*9.9*		*5.3*		*3.1*		*8.5*		*5.4*	
Mondrian	8.1	32	11.1	74	11.5	69	1.7	78	0.8	67	4.8	87	1.6	60
MSCI ACWI ex USA Value Gross	*6.8*	*71*	*19.2*	*23*	*17.4*	*22*	*1.7*	*77*	*0.0*	*76*	*4.4*	*89*	*1.3*	*67*
MSCI ACWI ex USA Gross	*8.0*	*38*	*14.2*	*70*	*13.7*	*52*	*1.8*	*77*	*1.0*	*60*	*4.8*	*87*	*1.8*	*50*
eA ACWI ex-US Value Equity Net Median	*7.6*		*16.6*		*14.1*		*3.9*		*1.6*		*6.5*		*1.8*	
Emerging Markets	**10.3**	**89**	**13.1**	**72**	**14.6**	**81**	**2.6**	**43**	**-0.1**	**84**	**1.1**	**52**	**--**	**--**
MSCI Emerging Markets Gross	*11.5*	*57*	*16.7*	*28*	*17.7*	*46*	*1.9*	*68*	*1.5*	*55*	*1.2*	*50*	*3.1*	*33*
InvestorForce All DB Emg Mkt Eq Net Median	*11.7*		*14.9*		*17.4*		*2.4*		*1.6*		*1.2*		*2.6*	
Parametric Core	10.3	85	13.1	66	14.6	71	--	--	--	--	--	--	--	--
MSCI Emerging Markets Gross	*11.5*	*67*	*16.7*	*40*	*17.7*	*48*	*1.9*	*56*	*1.5*	*62*	*1.2*	*73*	*3.1*	*61*
eA Emg Mkts Equity Net Median	*12.2*		*15.2*		*17.2*		*2.2*		*2.1*		*2.1*		*3.4*	
Fixed Income	**2.5**	**12**	**5.7**	**4**	**8.8**	**4**	**3.8**	**7**	**3.9**	**23**	**4.5**	**20**	**5.2**	**42**
Blended Fixed Income Index[2]	*1.3*	*59*	*0.3*	*51*	*3.0*	*54*	*2.4*	*29*	*2.8*	*48*	*2.5*	*77*	*4.5*	*69*
InvestorForce All DB Total Fix Inc Net Median	*1.4*		*0.4*		*3.2*		*1.8*		*2.8*		*3.0*		*5.0*	
US Fixed Income	**2.0**	**12**	**4.6**	**6**	**8.0**	**5**	**3.7**	**6**	**4.1**	**23**	**4.4**	**27**	**5.2**	**38**
Blended US Fixed Index[2]	*1.2*	*54*	*1.1*	*28*	*3.7*	*31*	*2.6*	*19*	*3.4*	*34*	*2.8*	*61*	*4.7*	*52*
InvestorForce All DB US Fix Inc Net Median	*1.2*		*-0.6*		*2.3*		*1.6*		*3.0*		*3.2*		*4.8*	
Core Fixed	**1.4**	**--**	**1.3**	**--**	**4.0**	**--**	**2.1**	**--**	**3.4**	**--**	**3.3**	**--**	**4.5**	**--**
BBgBarc US Aggregate TR	*0.8*	*--*	*-1.7*	*--*	*0.4*	*--*	*1.2*	*--*	*2.7*	*--*	*2.3*	*--*	*4.3*	*--*
BlackRock Intermediate Govt *	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FIAM Bond	1.2	11	-0.3	13	2.4	12	2.0	14	3.3	15	3.2	22	4.8	34

** Funded January 2017.*
2 . See Appendix for Benchmark History.

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Western TRU	2.1	1	5.6	1	8.3	1	--	--	--	--	--	--	--	--
3-Month Libor Total Return USD	*0.3*	*99*	*0.7*	*4*	*0.9*	*55*	*0.6*	*97*	*0.5*	*99*	*0.4*	*99*	*1.1*	*99*
BBgBarc US Aggregate TR	*0.8*	*66*	*-1.7*	*74*	*0.4*	*74*	*1.2*	*71*	*2.7*	*60*	*2.3*	*73*	*4.3*	*77*
eA US Core Fixed Inc Net Median	*0.9*		*-1.3*		*1.1*		*1.4*		*2.8*		*2.6*		*4.5*	
Opportunistic Credit	**3.5**	**--**	**12.3**	**--**	**17.6**	**--**	**6.9**	**--**	**6.1**	**--**	**9.5**	**--**	**--**	**--**
BBgBarc BA Intermediate HY	*1.8*	--	*6.5*	--	*10.0*	--	*5.0*	--	*4.7*	--	*4.7*	--	--	--
Angelo Gordon Opportunistic *	4.3	--	12.0	--	12.3	--	6.9	--	--	--	--	--	--	--
Angelo Gordon STAR *	4.6	--	11.0	--	13.1	--	6.6	--	8.5	--	--	--	--	--
BBgBarc US Aggregate TR	*0.8*	--	*-1.7*	--	*0.4*	--	*1.2*	--	*2.7*	--	*2.3*	--	*4.3*	--
Beach Point Select	2.4	44	11.7	16	16.1	23	8.9	1	--	--	--	--	--	--
BBgBarc BA Intermediate HY[2]	*1.8*	*79*	*6.5*	*82*	*10.0*	*79*	*5.0*	*43*	*4.7*	*22*	*4.7*	*90*	--	--
eA US High Yield Fixed Inc Net Median	*2.3*		*9.1*		*13.8*		*4.8*		*3.8*		*6.1*		*6.7*	
Brigade Capital	3.8	3	14.0	5	23.7	3	5.4	32	3.7	52	6.2	46	--	--
BBgBarc BA Intermediate HY[2]	*1.8*	*79*	*6.5*	*82*	*10.0*	*79*	*5.0*	*43*	*4.7*	*22*	*4.7*	*90*	--	--
50% Barclays HY/ 50% Bank Loan	*1.9*	*74*	*8.5*	*61*	*13.0*	*56*	*5.0*	*42*	*4.2*	*36*	*5.9*	*60*	--	--
eA US High Yield Fixed Inc Net Median	*2.3*		*9.1*		*13.8*		*4.8*		*3.8*		*6.1*		*6.7*	
TCP Direct Lending VIII * **	2.1	70	--	--	--	--	--	--	--	--	--	--	--	--
BBgBarc BA Intermediate HY	*1.8*	*79*	*6.5*	*82*	*10.0*	*79*	*5.0*	*43*	*4.7*	*22*	*4.7*	*90*	--	--
eA US High Yield Fixed Inc Net Median	*2.3*		*9.1*		*13.8*		*4.8*		*3.8*		*6.1*		*6.7*	
Global Fixed Income	**5.3**	**14**	**12.0**	**3**	**13.2**	**7**	**4.1**	**28**	**2.8**	**44**	**4.7**	**21**	**--**	**--**
BBgBarc Multiverse TR	*1.9*	*80*	*-3.9*	*99*	*-1.0*	*99*	*1.6*	*71*	*-0.2*	*91*	*0.7*	*92*	*3.5*	*99*
InvestorForce All DB Glbl Fix Inc Net Median	*3.1*		*4.1*		*7.0*		*2.7*		*2.4*		*3.4*		*5.0*	
Franklin Templeton	5.3	5	12.0	2	13.2	11	4.1	22	2.8	40	4.7	26	--	--
BBgBarc Multiverse TR	*1.9*	*61*	*-3.9*	*86*	*-1.0*	*84*	*1.6*	*64*	*-0.2*	*76*	*0.7*	*79*	*3.5*	*80*
eA All Global Fixed Inc Net Median	*2.2*		*2.0*		*4.4*		*2.1*		*2.1*		*3.2*		*4.4*	

** Preliminary return as of 03/31/2017.*
*** Funded September 2016.*
2. See Appendix for Benchmark History.

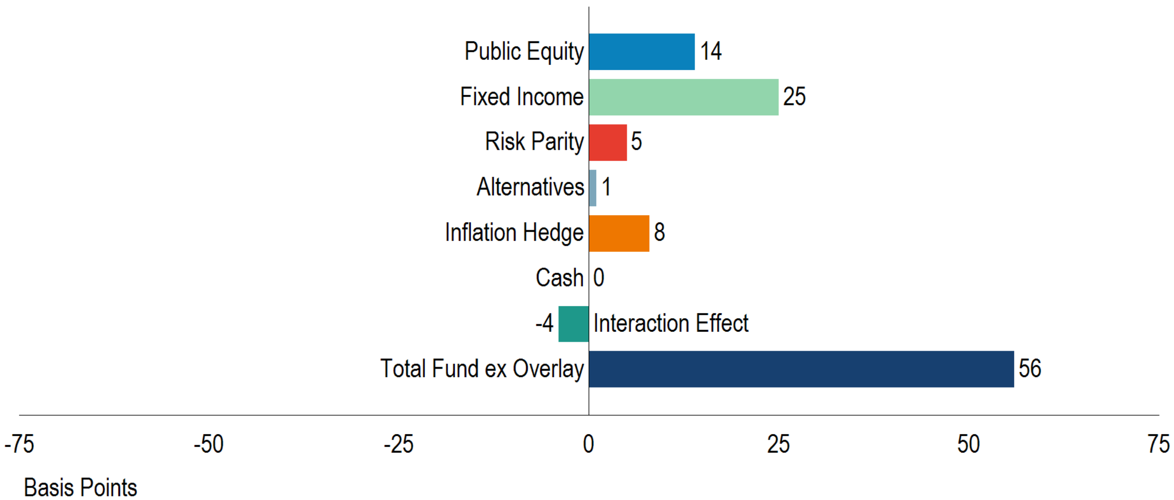
	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Risk Parity	**4.4**	**--**	**2.5**	**--**	**9.6**	**--**	**2.0**	**--**	**4.9**	**--**	**5.5**	**--**	**--**	**--**
60/40 Russell 3000/BBgBarc US Aggregate	*3.8*	*--*	*8.1*	*--*	*10.8*	*--*	*5.7*	*--*	*7.0*	*--*	*8.9*	*--*	*6.6*	*--*
AQR GRP, 10% Volatility	4.6	--	4.4	--	10.4	--	0.4	--	2.3	--	3.9	--	--	--
PanAgora	4.2	--	0.9	--	9.0	--	3.4	--	--	--	--	--	--	--
60/40 Russell 3000/BBgBarc US Aggregate	*3.8*	*--*	*8.1*	*--*	*10.8*	*--*	*5.7*	*--*	*7.0*	*--*	*8.9*	*--*	*6.6*	*--*
60/40 MSCI World/BBgBarc Global Aggregate	*4.0*	*--*	*7.4*	*--*	*9.2*	*--*	*4.0*	*--*	*4.9*	*--*	*7.1*	*--*	*--*	*--*
Alternatives	**4.3**	**--**	**15.0**	**--**	**13.8**	**--**	**8.6**	**--**	**8.0**	**--**	**6.8**	**--**	**--**	**--**
Alternatives Allocation Index[2]	*3.9*	*--*	*11.1*	*--*	*13.3*	*--*	*5.9*	*--*	*3.8*	*--*	*5.9*	*--*	*--*	*--*
Blended Alternatives Index	*4.1*	*--*	*11.6*	*--*	*13.8*	*--*	*6.2*	*--*	*4.9*	*--*	*7.8*	*--*	*--*	*--*
Private Equity **	**6.9**	**3**	**24.1**	**2**	**23.0**	**2**	**18.1**	**2**	**18.7**	**1**	**16.1**	**3**	**--**	**--**
Russell 3000 +3%	*6.5*	*3*	*17.9*	*3*	*21.1*	*3*	*11.5*	*16*	*12.8*	*17*	*16.2*	*2*	*10.6*	*9*
InvestorForce All DB Private Eq Net Median	*2.0*		*7.5*		*8.6*		*7.8*		*8.7*		*9.9*		*7.6*	
Hedge Fund/Absolute Return	**1.3**	**68**	**5.1**	**66**	**3.7**	**89**	**4.7**	**8**	**7.6**	**2**	**6.8**	**6**	**--**	**--**
Libor 1 month +4%	*1.1*	*71*	*3.5*	*88*	*4.6*	*83*	*4.4*	*8*	*4.3*	*13*	*4.3*	*53*	*--*	*--*
InvestorForce All DB Hedge Funds Net Median	*1.7*		*6.6*		*7.5*		*0.6*		*1.9*		*4.3*		*2.6*	
AQR DELTA XN	1.4	69	5.6	61	4.1	75	5.4	37	8.1	22	7.0	38	--	--
Libor 1 month +4%	*1.1*	*73*	*3.5*	*75*	*4.6*	*74*	*4.4*	*48*	*4.3*	*44*	*4.3*	*63*	*--*	*--*
eV Alt All Multi-Strategy Median	*2.3*		*7.6*		*8.2*		*3.7*		*3.2*		*5.7*		*5.9*	
Standard Life GARS	0.6	78	2.8	76	2.0	84	--	--	--	--	--	--	--	--
Libor 1 month +4%	*1.1*	*73*	*3.5*	*75*	*4.6*	*74*	*4.4*	*48*	*4.3*	*44*	*4.3*	*63*	*--*	*--*
eV Alt All Multi-Strategy Median	*2.3*		*7.6*		*8.2*		*3.7*		*3.2*		*5.7*		*5.9*	
Inflation Hedge	**2.5**	**--**	**5.4**	**--**	**9.3**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Blended Inflation Pool Index[2]	*2.0*	*--*	*3.6*	*--*	*8.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*

*** Returns are one-quarter lag.*

2. See Appendix for Benchmark History.

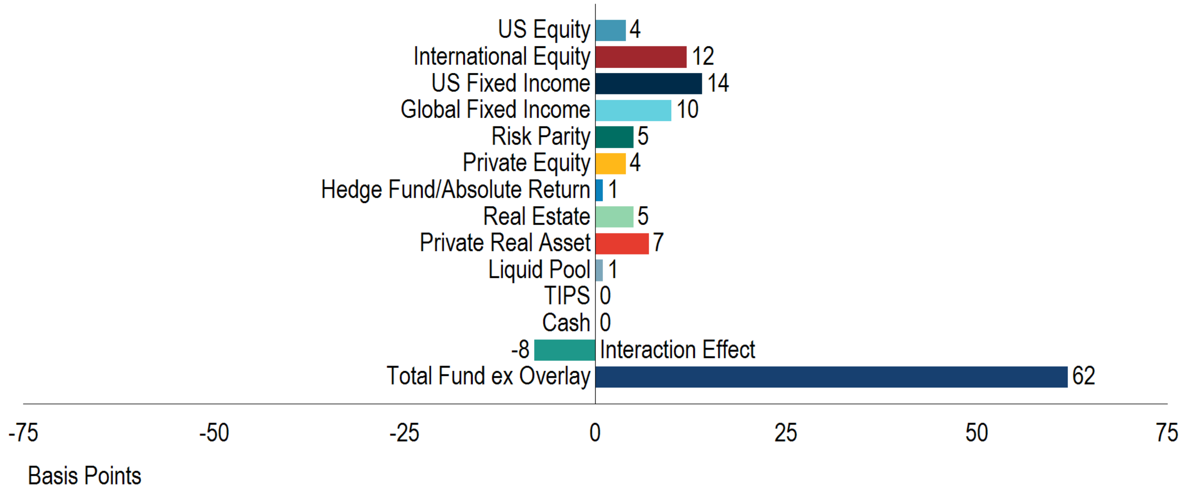
	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Real Estate	**2.5**	**9**	**6.3**	**18**	**10.0**	**3**	**11.4**	**5**	**12.2**	**7**	**11.7**	**11**	**5.2**	**18**
NCREIF ODCE	*1.8*	*36*	*6.1*	*22*	*8.3*	*19*	*11.0*	*9*	*11.8*	*8*	*12.0*	*5*	*6.0*	*5*
InvestorForce All DB Real Estate Pub Net Median	*1.5*		*4.5*		*6.3*		*9.2*		*10.2*		*10.3*		*4.4*	
Invesco	2.5	--	6.3	--	10.0	--	11.2	--	12.1	--	11.6	--	5.2	--
NCREIF ODCE	*1.8*	--	*6.1*	--	*8.3*	--	*11.0*	--	*11.8*	--	*12.0*	--	*6.0*	--
Invesco US Val IV	2.6	--	7.3	--	9.5	--	--	--	--	--	--	--	--	--
NCREIF ODCE	*1.8*	--	*6.1*	--	*8.3*	--	*11.0*	--	*11.8*	--	*12.0*	--	*6.0*	--
NCREIF CEVA 1Q Lag - NET	*2.8*	--	*7.7*	--	*9.8*	--	*14.2*	--	*15.1*	--	--	--	--	--
Private Real Asset **	**6.2**	**--**	**6.2**	**--**	**5.6**	**--**	**21.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Blended Real Asset Index	*2.8*	--	*5.2*	--	*8.1*	--	*6.5*	--	*5.9*	--	--	--	--	--
Liquid Pool	**3.1**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Blended Real Asset Index 2	*2.8*	--	*5.2*	--	*8.1*	--	*6.5*	--	*5.9*	--	--	--	--	--
SSgA Custom Real Asset ***	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--
Blended Real Asset Index 2	*2.8*	--	*5.2*	--	*8.1*	--	*6.5*	--	*5.9*	--	--	--	--	--
TIPS	**1.1**	**--**	**1.7**	**--**	**2.6**	**--**	**1.9**	**--**	**1.6**	**--**	**0.7**	**--**	**--**	**--**
BBgBarc US TIPS TR	*1.3*	--	*-0.2*	--	*1.5*	--	*1.5*	--	*2.0*	--	*1.0*	--	*4.2*	--
Brown Brothers Harriman	1.1	74	1.7	18	2.6	28	1.9	17	1.6	62	0.7	61	--	--
BBgBarc US TIPS TR	*1.3*	*49*	*-0.2*	*66*	*1.5*	*56*	*1.5*	*32*	*2.0*	*22*	*1.0*	*36*	*4.2*	*63*
eA TIPS / Infl Indexed Fixed Inc Net Median	*1.2*		*-0.1*		*1.6*		*1.4*		*1.7*		*0.8*		*4.3*	
Cash	**0.2**	**--**	**0.6**	**--**	**0.8**	**--**	**1.1**	**--**	**0.9**	**--**	**0.7**	**--**	**0.8**	**--**
91 Day T-Bills	*0.1*	--	*0.3*	--	*0.4*	--	*0.2*	--	*0.2*	--	*0.1*	--	*0.5*	--
General Account	0.3	--	0.7	--	1.1	--	1.5	--	1.2	--	0.8	--	1.2	--
Treasury & LAIF	0.3	--	0.2	--	0.5	--	0.7	--	0.9	--	0.8	--	0.8	--
91 Day T-Bills	*0.1*	--	*0.3*	--	*0.4*	--	*0.2*	--	*0.2*	--	*0.1*	--	*0.5*	--

*** Returns are one-quarter lag.*
**** Funded October 2016.*
2. See Appendix for Benchmark History.



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
Public Equity	7.06%	6.73%	0.32%	0.14%	0.07%	0.00%	0.21%
Fixed Income	2.46%	1.28%	1.18%	0.25%	0.08%	-0.03%	0.29%
Risk Parity	4.35%	3.76%	0.59%	0.05%	0.00%	0.00%	0.05%
Alternatives	4.35%	4.08%	0.27%	0.01%	0.00%	0.00%	0.02%
Inflation Hedge	2.50%	1.99%	0.51%	0.08%	0.04%	-0.01%	0.11%
Cash	0.20%	0.14%	0.06%	0.00%	-0.11%	0.00%	-0.11%
Total	**4.88%**	**4.32%**	**0.56%**	**0.53%**	**0.08%**	**-0.04%**	**0.56%**

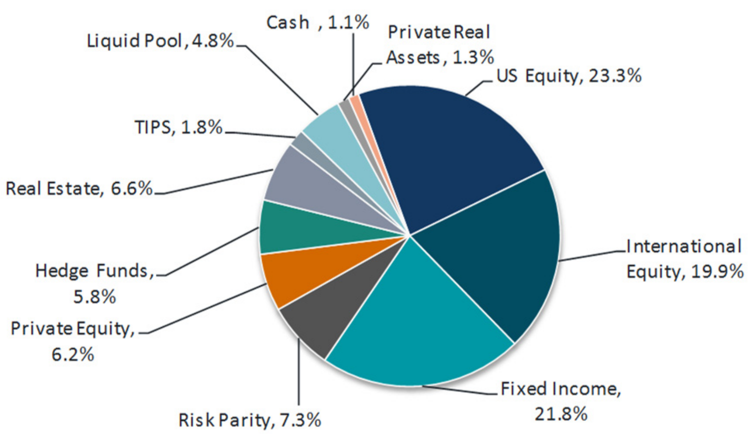
Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	5.86%	5.74%	0.12%	0.04%	0.08%	0.00%	0.12%
International Equity	8.76%	8.10%	0.66%	0.12%	-0.01%	0.00%	0.11%
US Fixed Income	1.96%	1.16%	0.80%	0.14%	0.08%	-0.02%	0.20%
Global Fixed Income	5.27%	1.90%	3.37%	0.10%	0.00%	-0.01%	0.10%
Risk Parity	4.35%	3.76%	0.59%	0.05%	0.00%	0.00%	0.05%
Private Equity	6.92%	6.50%	0.42%	0.04%	-0.01%	-0.01%	0.01%
Hedge Fund/Absolute Return	1.26%	1.11%	0.15%	0.01%	0.00%	0.00%	0.01%
Real Estate	2.47%	1.77%	0.70%	0.05%	0.00%	0.00%	0.05%
Private Real Asset	6.23%	2.81%	3.42%	0.07%	0.01%	-0.02%	0.06%
Liquid Pool	3.06%	2.81%	0.26%	0.01%	0.01%	0.00%	0.02%
TIPS	1.10%	1.26%	-0.16%	0.00%	0.00%	0.00%	0.00%
Cash	0.20%	0.14%	0.06%	0.00%	-0.11%	0.00%	-0.11%
Total	**4.93%**	**4.32%**	**0.62%**	**0.63%**	**0.06%**	**-0.08%**	**0.62%**

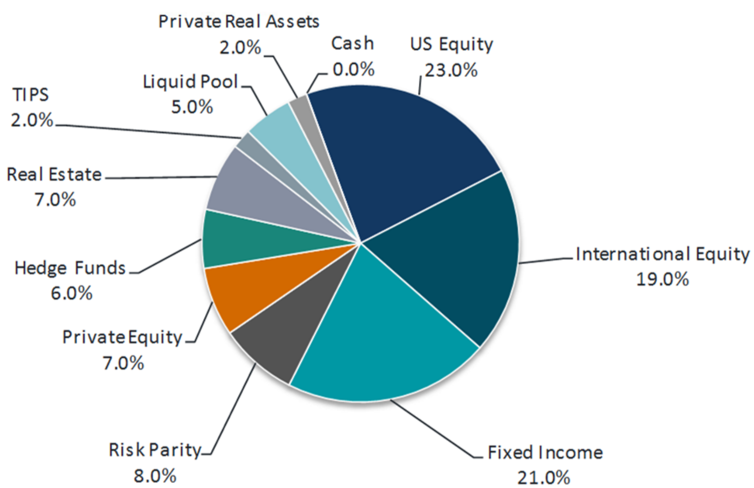
Attribution does not include the impact of the Parametric Minneapolis strategy.
** Interaction Effects include Residual Effects.*

Current w/Overlay

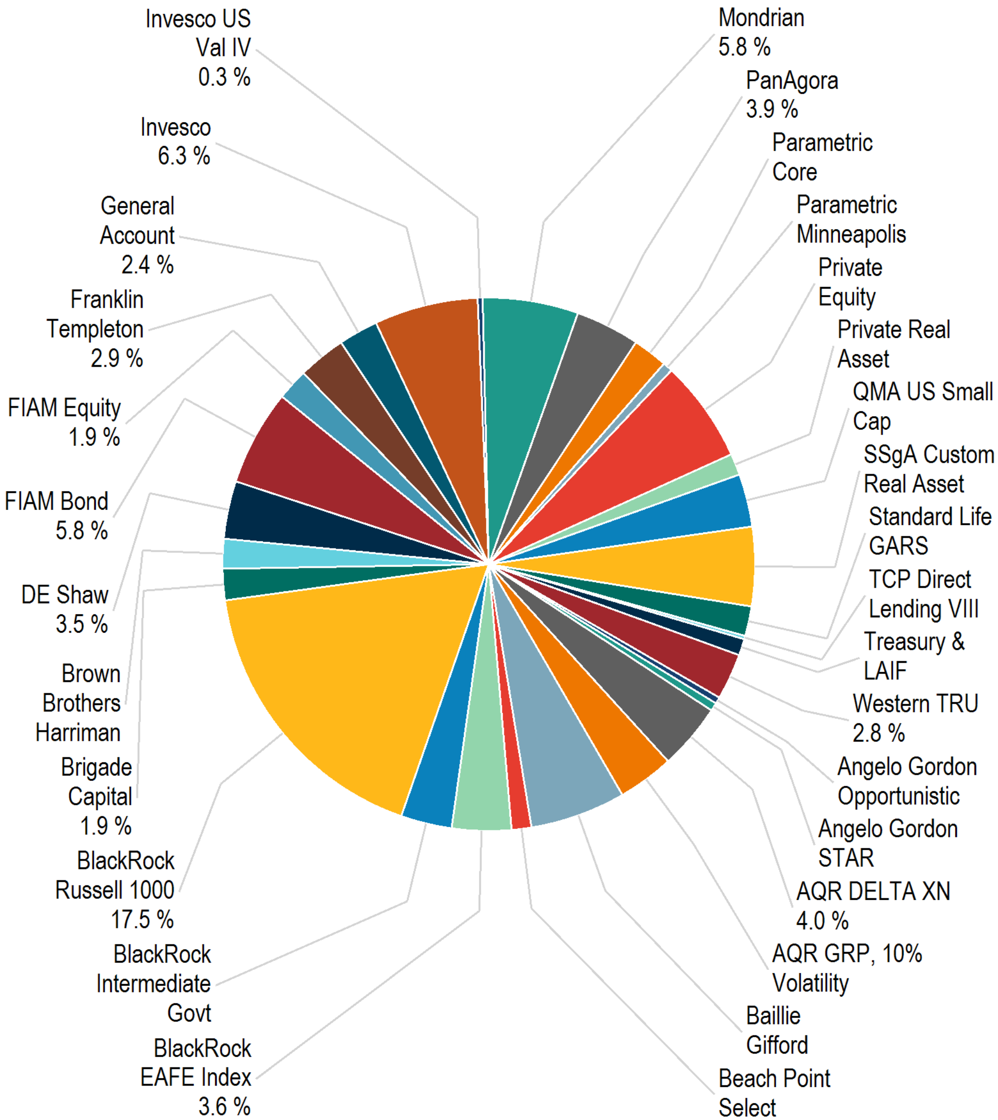


ASSET ALLOCATION	MARKET VALUE W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	915,520,385	23.3%	24.3%
International Equity	781,801,272	19.9%	19.2%
Fixed Income	855,874,325	21.8%	18.7%
Risk Parity	287,340,052	7.3%	7.3%
Private Equity	241,716,455	6.2%	6.2%
Hedge Funds	228,623,058	5.8%	5.8%
Real Estate	256,992,866	6.6%	6.6%
TIPS	71,331,777	1.8%	1.8%
Liquid Pool	190,072,798	4.8%	4.8%
Private Real Assets	50,726,743	1.3%	1.3%
Cash	42,702,322	1.1%	4.1%
TOTAL	**3,922,702,053**	**100.0%**	**100.0%**

Target



ASSET ALLOCATION	W/OVERLAY	TARGET	DIFF
US Equity	23.3%	23.0%	0.3%
International Equity	19.9%	19.0%	0.9%
Fixed Income	21.8%	21.0%	0.8%
Risk Parity	7.3%	8.0%	-0.7%
Private Equity	6.2%	7.0%	-0.8%
Hedge Funds	5.8%	6.0%	-0.2%
Real Estate	6.6%	7.0%	-0.4%
TIPS	1.8%	2.0%	-0.2%
Liquid Pool	4.8%	5.0%	-0.2%
Private Real Assets	1.3%	2.0%	-0.7%
Cash	1.1%	0.0%	1.1%
TOTAL	**100.0%**	**100.0%**	**0.0%**



	Actual	Actual
Angelo Gordon Opportunistic	$15,889,000	0%
Angelo Gordon STAR	$19,687,000	1%
AQR DELTA XN	$158,867,617	4%
AQR GRP, 10% Volatility	$134,245,527	3%
Baillie Gifford	$225,881,934	6%
Barrow Hanley	$4	0%
Beach Point Select	$45,711,946	1%
BlackRock EAFE Index	$141,292,093	4%
BlackRock Intermediate Govt	$120,504,719	3%
BlackRock Russell 1000	$688,048,850	18%
Brigade Capital	$72,742,390	2%
Brown Advisory	$1	0%
Brown Brothers Harriman	$71,331,777	2%
DE Shaw	$138,208,517	4%
FIAM Bond	$226,604,481	6%
FIAM Equity	$75,759,693	2%
Franklin Templeton	$111,961,666	3%
General Account	$95,016,438	2%
Invesco	$245,549,163	6%
Invesco US Val IV	$11,443,703	0%
Mondrian	$226,337,934	6%
PanAgora	$153,094,525	4%
Parametric Core	$82,395,549	2%
Parametric Minneapolis Overlay	$22,915,714	1%
Private Equity	$241,716,455	6%
Private Real Asset	$50,726,743	1%
QMA US Small Cap	$127,170,619	3%
SSgA Custom Real Asset	$190,072,798	5%
Standard Life GARS	$69,755,441	2%
TCP Direct Lending VIII	$8,435,306	0%
Transition 3	$127,402	0%
Treasury & LAIF	$41,094,660	1%
Western TRU	$110,112,390	3%
Total	**$3,922,702,053**	**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	5.9%	20	6.4%	63	0.9	35	0.2	31	1.1%	51
Policy Index	5.6%	30	6.9%	81	0.8	44	--	--	0.0%	1
InvestorForce Public DB > $1B Net Median	5.0%	--	6.0%	--	0.8	--	0.0	--	1.1%	--

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	8.3%	15	6.7%	72	1.2	35	0.1	45	1.0%	27
Policy Index	8.1%	20	7.0%	83	1.1	46	--	--	0.0%	1
InvestorForce Public DB > $1B Net Median	7.4%	--	6.1%	--	1.1	--	0.1	--	1.1%	--

Statistics Summary

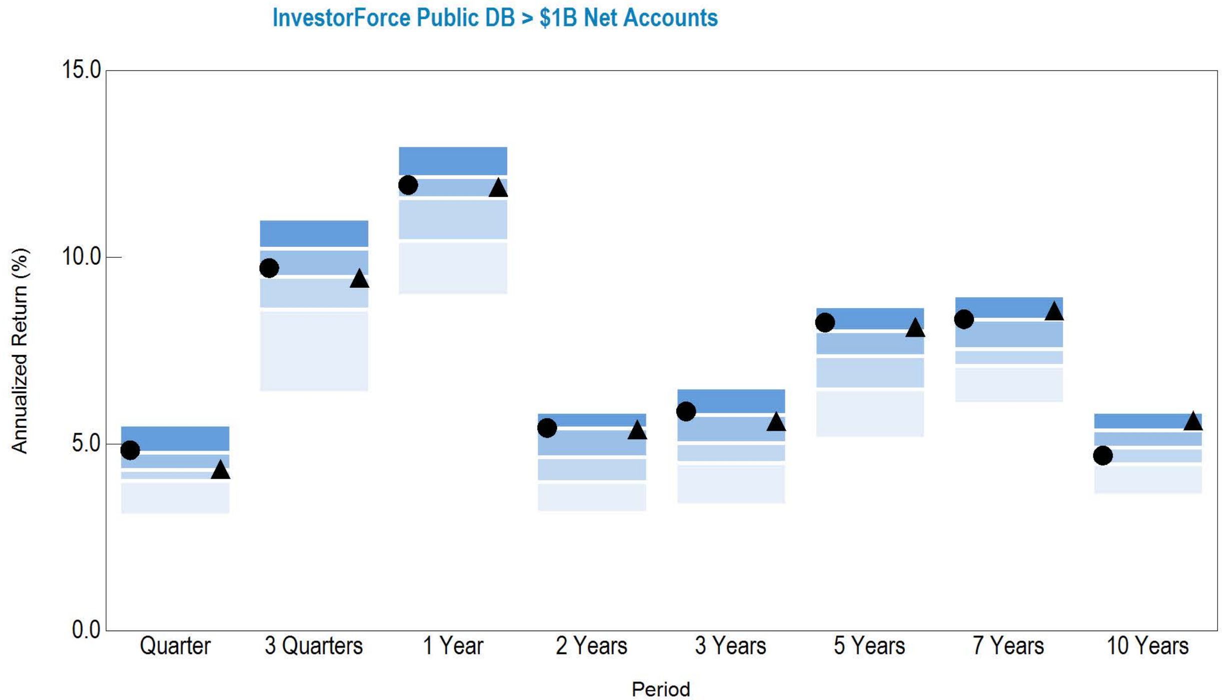
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	0.9%	0.4%	1.9	1.9	0.4%
91 Day T-Bills	0.2%	0.1%	0.0	--	0.0%
General Account	1.2%	0.6%	1.9	1.9	0.6%
91 Day T-Bills	0.2%	0.1%	0.0	--	0.0%
Treasury & LAIF	0.9%	0.5%	1.3	1.3	0.5%
91 Day T-Bills	0.2%	0.1%	0.0	--	0.0%

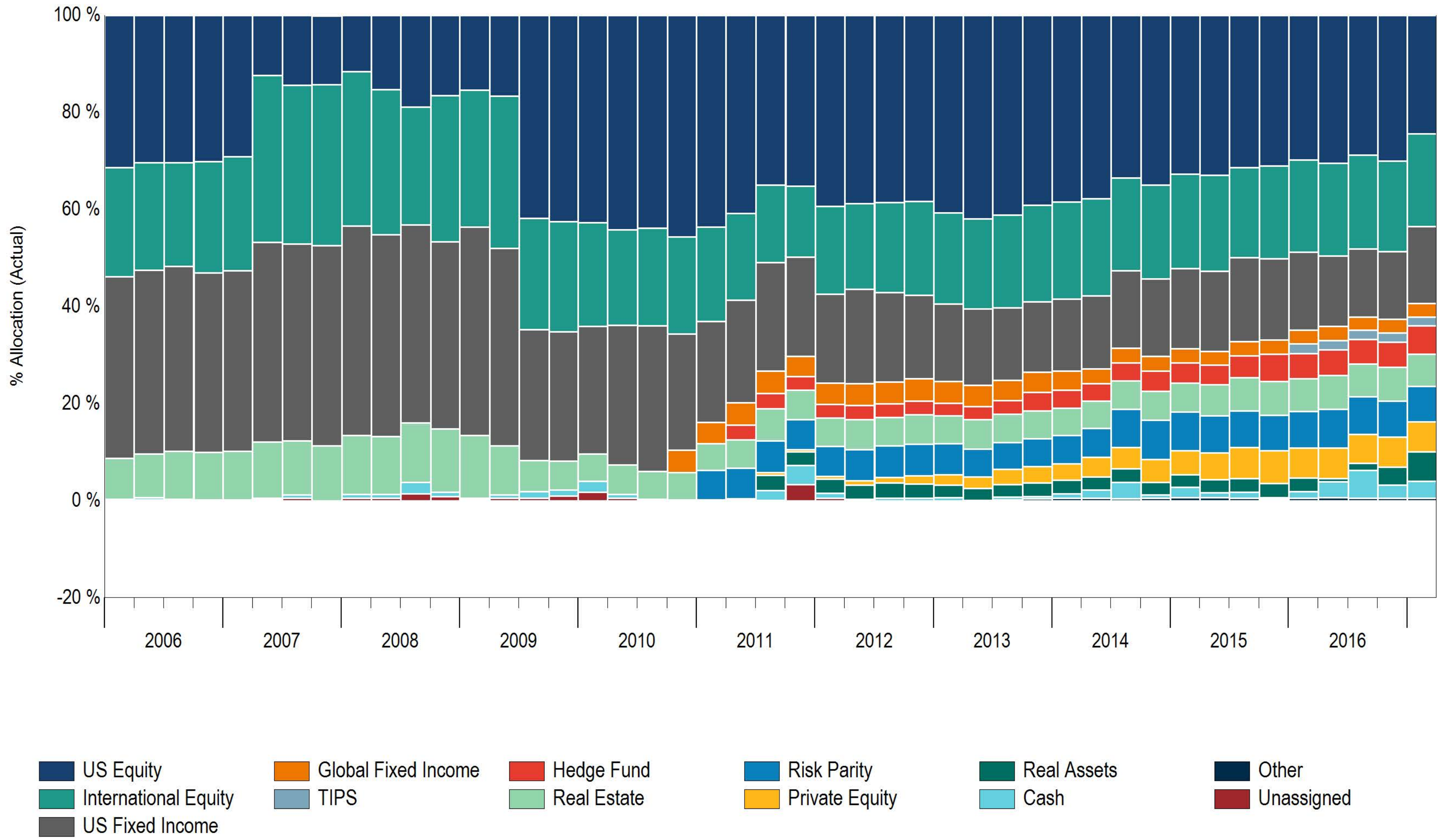
Statistics Summary

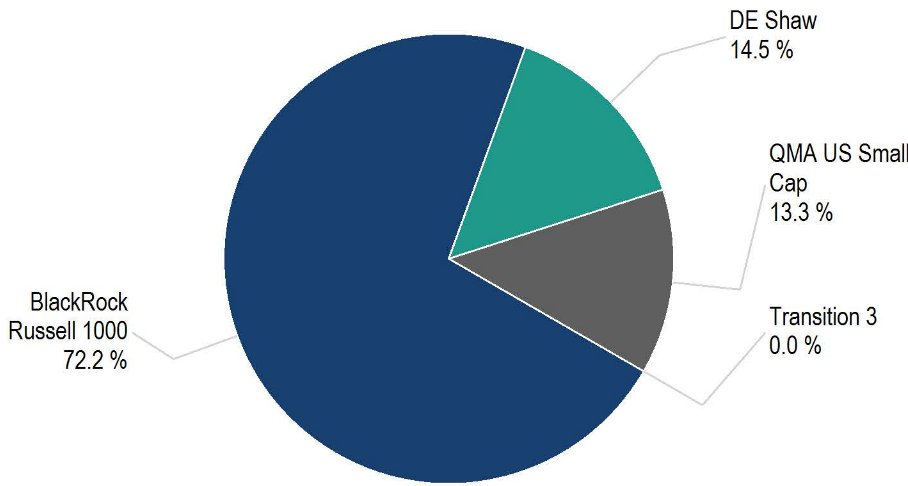
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	0.7%	0.3%	2.0	2.0	0.3%
91 Day T-Bills	0.1%	0.0%	0.0	--	0.0%
General Account	0.8%	0.5%	1.4	1.4	0.5%
91 Day T-Bills	0.1%	0.0%	0.0	--	0.0%
Treasury & LAIF	0.8%	0.4%	1.6	1.6	0.4%
91 Day T-Bills	0.1%	0.0%	0.0	--	0.0%



	Return (Rank)															
5th Percentile	5.5		11.0		13.0		5.9		6.5		8.7		9.0		5.9	
25th Percentile	4.8		10.2		12.2		5.4		5.8		8.0		8.3		5.4	
Median	4.3		9.5		11.6		4.7		5.0		7.4		7.6		4.9	
75th Percentile	4.0		8.6		10.5		4.0		4.5		6.5		7.1		4.5	
95th Percentile	3.1		6.4		9.0		3.2		3.4		5.2		6.1		3.6	
# of Portfolios	58		58		58		57		56		55		54		51	
● Total Fund	4.8	(20)	9.7	(41)	11.9	(30)	5.4	(24)	5.9	(20)	8.3	(15)	8.3	(25)	4.7	(67)
▲ Policy Index	4.3	(45)	9.5	(52)	11.9	(34)	5.4	(26)	5.6	(30)	8.1	(20)	8.6	(13)	5.6	(15)


100 %
80 %
60 %
40 %
20 %
0 %
-20 %
% Allocation (Actual)
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
US Equity
International Equity
US Fixed Income
Global Fixed Income
TIPS
Hedge Fund
Real Estate
Risk Parity
Private Equity
Real Assets
Cash
Other
Unassigned



	Actual $	Actual %	Manager Contribution to Excess Return %
BlackRock Russell 1000	$688,048,850	72.2%	0.0%
DE Shaw	$138,208,517	14.5%	0.4%
QMA US Small Cap	$127,170,619	13.3%	-0.1%
Transition Account	$127,402	0.0%	0.0%
Actual vs. Policy Weight Difference			-0.2%
Total	**$953,555,392**	**100.0%**	**0.1%**

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	8.8%	10.8%	0.8	-0.7	0.8%
Blended US Equity Index	9.3%	10.9%	0.8	--	0.0%
Russell 3000	9.8%	10.7%	0.9	0.5	0.9%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	10.4%	10.6%	1.0	0.3	1.2%
Russell 1000	10.0%	10.5%	0.9	--	0.0%
DE Shaw	11.8%	10.9%	1.1	0.9	2.1%
Russell 1000	10.0%	10.5%	0.9	--	0.0%
Small Cap Equity	4.4%	14.8%	0.3	-1.0	2.8%
Russell 2000	7.2%	15.7%	0.4	--	0.0%

Statistics Summary

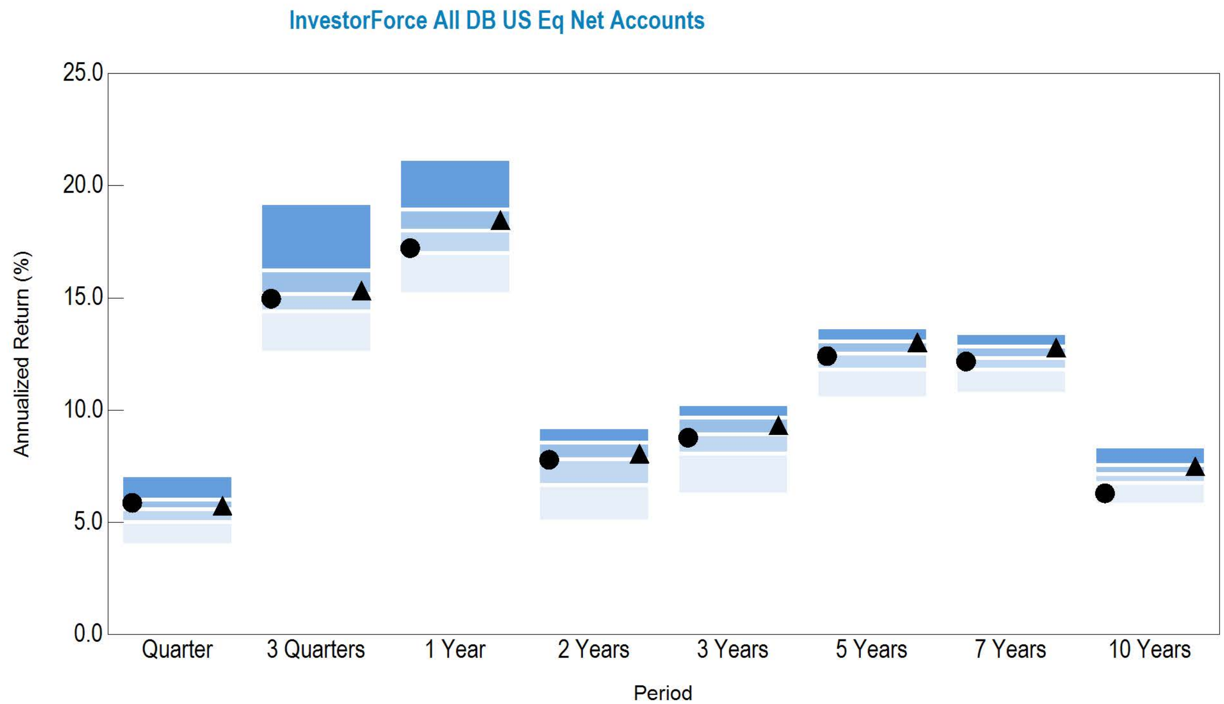
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	12.4%	10.6%	1.2	-0.7	0.9%
Blended US Equity Index	13.0%	10.7%	1.2	--	0.0%
Russell 3000	13.2%	10.5%	1.2	0.2	0.8%

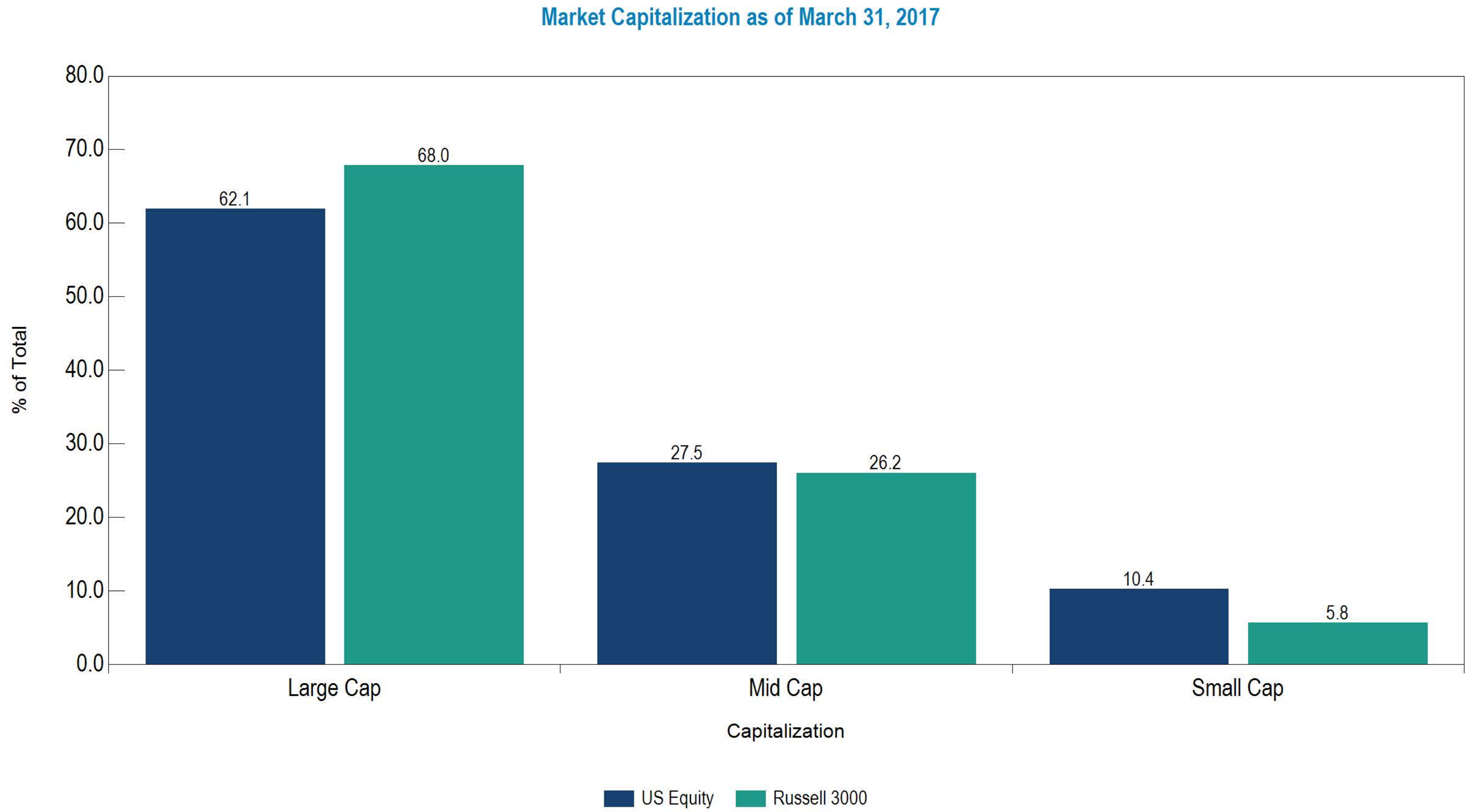
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	13.2%	10.4%	1.3	-0.1	1.1%
Russell 1000	13.3%	10.3%	1.3	--	0.0%
DE Shaw	14.2%	10.7%	1.3	0.5	1.9%
Russell 1000	13.3%	10.3%	1.3	--	0.0%
Small Cap Equity	10.8%	13.8%	0.8	-0.6	2.7%
Russell 2000	12.4%	14.4%	0.9	--	0.0%



	Return (Rank)															
5th Percentile	7.1		19.2		21.2		9.2		10.2		13.7		13.4		8.4	
25th Percentile	6.0		16.3		19.0		8.6		9.7		13.1		12.8		7.6	
Median	5.6		15.2		18.0		7.8		8.9		12.5		12.3		7.2	
75th Percentile	5.0		14.4		17.0		6.7		8.1		11.8		11.8		6.8	
95th Percentile	4.0		12.6		15.2		5.0		6.2		10.5		10.7		5.8	
# of Portfolios	694		688		687		673		651		556		463		370	
● US Equity	5.9	(33)	15.0	(60)	17.2	(71)	7.8	(51)	8.8	(55)	12.4	(57)	12.2	(61)	6.3	(90)
▲ Blended US Equity Index	5.7	(41)	15.3	(46)	18.5	(35)	8.1	(43)	9.3	(38)	13.0	(29)	12.8	(28)	7.5	(31)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,531	2,943
Weighted Avg. Market Cap. ($B)	118.6	127.3
Median Market Cap. ($B)	2.7	1.6
Price To Earnings	24.0	23.8
Price To Book	4.6	4.1
Price To Sales	3.3	3.4
Return on Equity (%)	20.3	16.8
Yield (%)	1.9	1.9
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	3.5%
MICROSOFT	1.6%
JOHNSON & JOHNSON	1.6%
AMAZON.COM	1.4%
AT&T	1.2%
EXXON MOBIL	1.1%
ALPHABET 'C'	1.1%
JP MORGAN CHASE & CO.	1.0%
FACEBOOK CLASS A	1.0%
BERKSHIRE HATHAWAY 'B'	1.0%

Best Performers

	Return %
CALITHERA BIOSCIENCES	255.4%
ESPERION THERAPEUTICS (ESPR)	182.0%
TG THERAPEUTICS (TGTX)	150.5%
INTERNAP (INAP)	141.6%
APPLIED OPTOELECTRONICS	139.5%
INFINITY PHARMACEUTICALS	139.3%
NEWLINK GENETICS	134.4%
STAR BULK CARRIERS	132.5%
TETRAPHASE PHARMS. (TTPH)	128.0%
EVERI HOLDINGS (EVRI)	120.7%

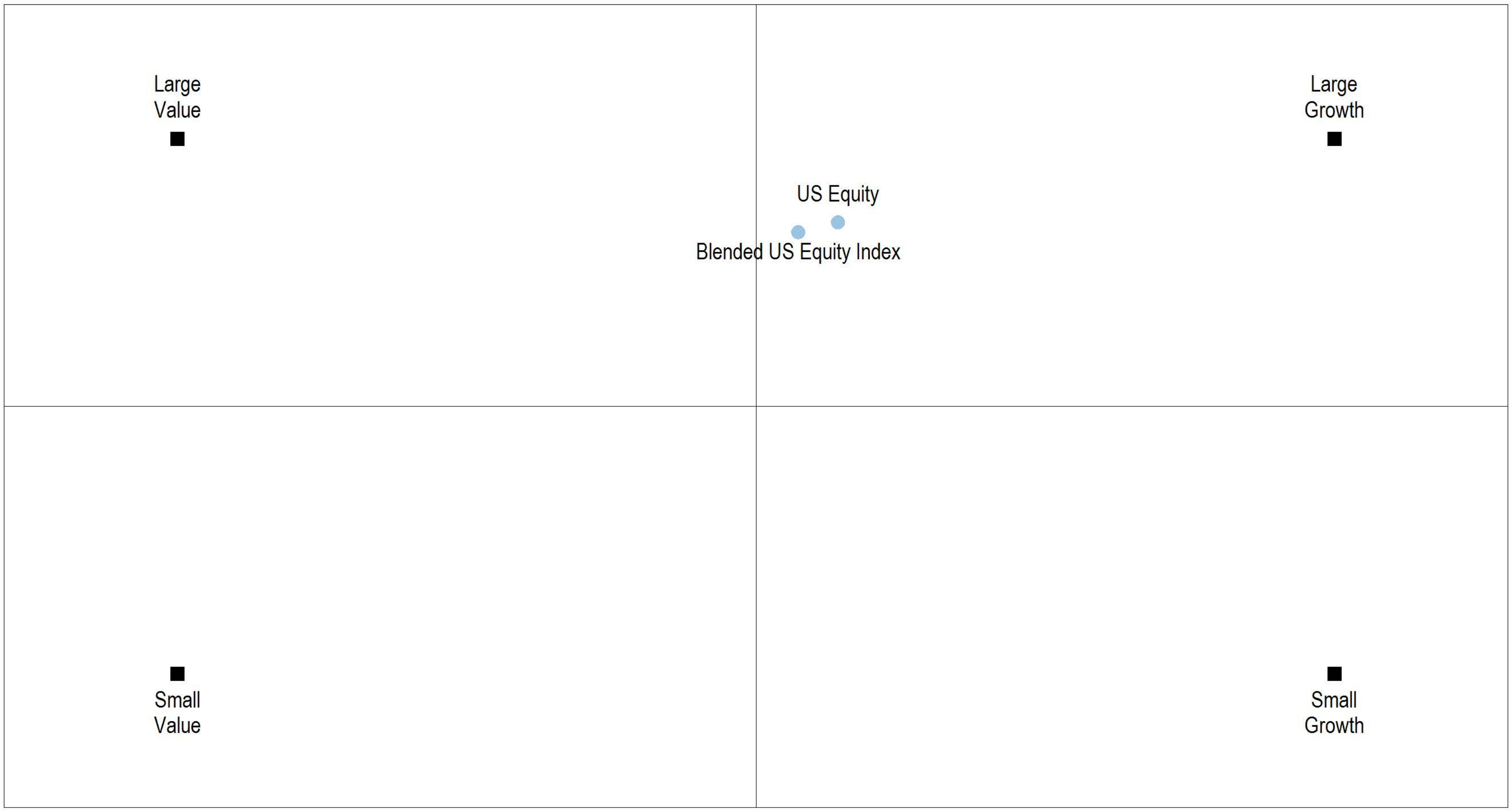
Worst Performers

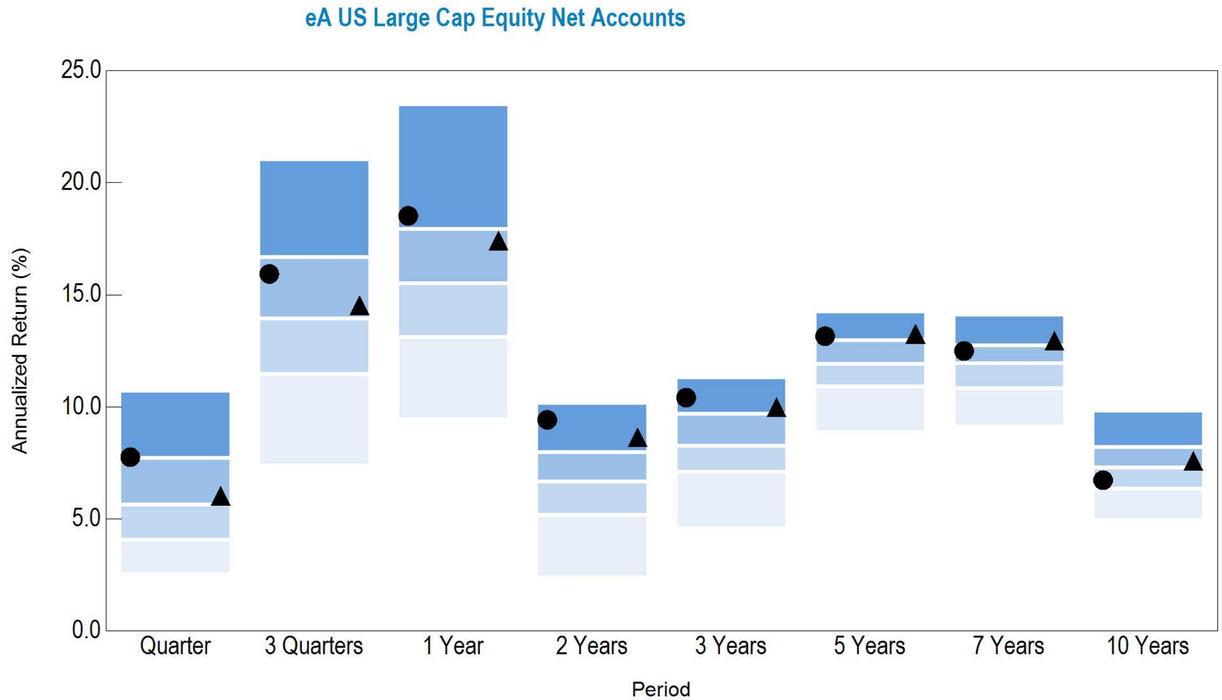
	Return %
RENTECH (RTK)	-79.8%
WALTER INVESTMENT MAN.	-77.3%
ADEPTUS HEALTH CL.A	-76.4%
NOVAN ORD (NOVN)	-76.4%
INOTEK PHARMACEUTICALS	-67.2%
TIDEWATER (TDW)	-66.3%
TRIANGLE PETROLEUM (TPLMQ)	-63.1%
VINCE HOLDING	-61.7%
COBALT INTL.ENERGY	-56.3%
INVENTURE FOODS (SNAK)	-55.1%

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	0.0%		-0.1%	0.1%	0.0%	-7.9%	-6.9%	6.3%	6.9%
Materials	0.0%		0.0%	0.0%	0.0%	7.2%	6.5%	4.0%	3.4%
Industrials	0.0%		0.0%	0.0%	0.0%	4.3%	4.1%	11.1%	10.9%
Consumer Discretionary	-0.1%		-0.1%	0.0%	0.0%	7.1%	7.8%	11.6%	12.5%
Consumer Staples	0.1%		0.1%	0.0%	0.0%	7.3%	5.9%	8.7%	8.4%
Health Care	0.0%		0.0%	0.0%	0.0%	9.0%	8.8%	13.5%	12.9%
Financials	0.0%		0.0%	0.0%	0.0%	2.3%	2.2%	15.1%	15.5%
Information Technology	-0.1%		-0.2%	0.1%	0.0%	11.1%	11.9%	21.4%	19.9%
Telecommunication Services	0.1%		0.1%	0.0%	0.0%	-1.0%	-3.5%	2.3%	2.4%
Utilities	0.0%		0.0%	0.0%	0.0%	6.4%	6.1%	2.4%	3.2%
Real Estate	0.1%		0.0%	0.0%	0.0%	3.6%	2.9%	2.8%	4.1%
Cash	0.0%		0.0%	0.0%	0.0%	0.1%	--	0.6%	0.0%
Unclassified	0.0%		0.0%	0.0%	0.0%	5.9%	--	0.1%	0.0%
Portfolio	**0.2%**	**=**	**0.0% +**	**0.2% +**	**0.0%**	**5.9%**	**5.8%**	**100.0%**	**100.0%**

U.S. Effective Style Map





Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	10.7		21.0		23.5		10.2		11.3		14.3		14.1		9.8	
25th Percentile	7.7		16.7		18.0		8.0		9.7		13.0		12.8		8.2	
Median	5.6		14.0		15.5		6.7		8.3		11.9		12.0		7.3	
75th Percentile	4.1		11.5		13.1		5.2		7.1		10.9		10.8		6.4	
95th Percentile	2.5		7.4		9.4		2.4		4.6		8.9		9.1		5.0	
# of Portfolios	592		591		590		579		564		506		467		405	
● Large Cap Equity	7.8	(25)	15.9	(29)	18.5	(21)	9.4	(10)	10.4	(14)	13.2	(21)	12.5	(32)	6.7	(66)
▲ Russell 1000	6.0	(45)	14.5	(45)	17.4	(31)	8.6	(18)	10.0	(20)	13.3	(19)	13.0	(21)	7.6	(41)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	2,439	997
Weighted Avg. Market Cap. ($B)	136.8	137.7
Median Market Cap. ($B)	3.3	8.8
Price To Earnings	23.8	23.7
Price To Book	4.8	4.4
Price To Sales	3.5	3.5
Return on Equity (%)	20.9	17.9
Yield (%)	1.9	2.0
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	4.0%
MICROSOFT	1.8%
JOHNSON & JOHNSON	1.8%
AMAZON.COM	1.6%
AT&T	1.4%
EXXON MOBIL	1.3%
ALPHABET 'C'	1.2%
JP MORGAN CHASE & CO.	1.2%
FACEBOOK CLASS A	1.2%
BERKSHIRE HATHAWAY 'B'	1.2%

Best Performers

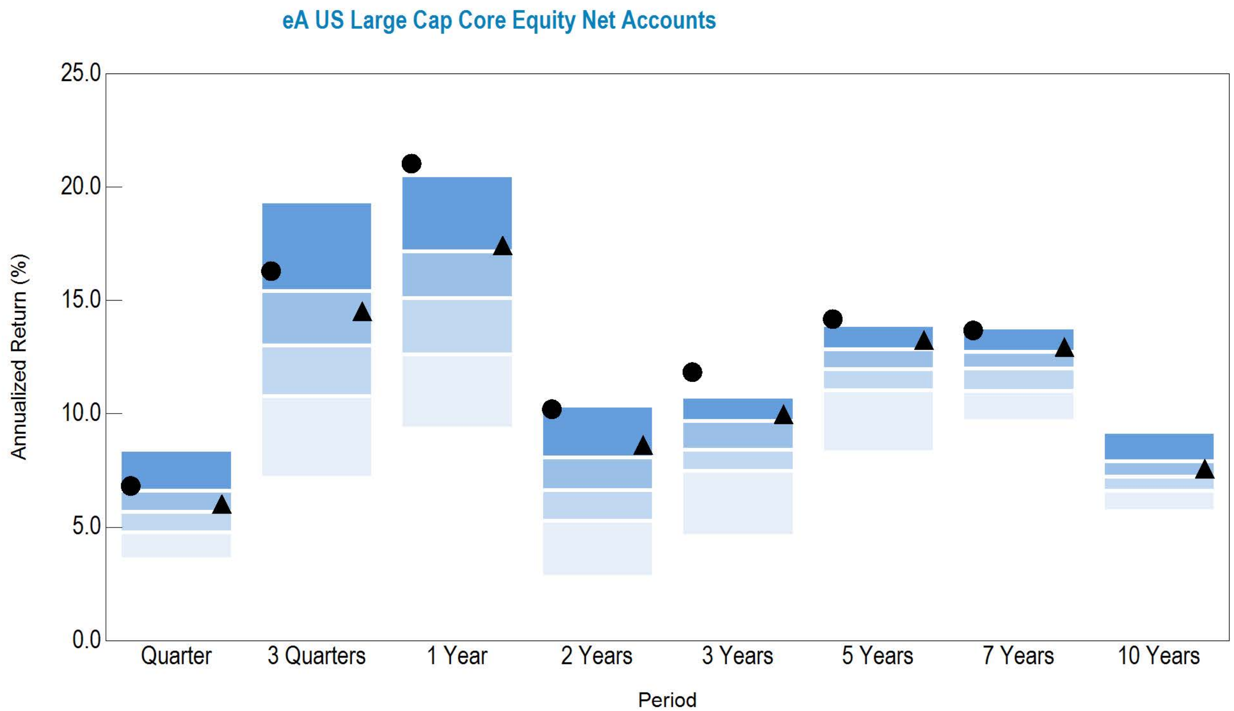
	Return %
CALITHERA BIOSCIENCES	255.4%
ESPERION THERAPEUTICS (ESPR)	182.0%
TG THERAPEUTICS	150.5%
INTERNAP (INAP)	141.6%
APPLIED OPTOELECTRONICS	139.5%
INFINITY PHARMACEUTICALS (INFI)	139.3%
NEWLINK GENETICS (NLNK)	134.4%
STAR BULK CARRIERS	132.5%
TETRAPHASE PHARMS.	128.0%
EVERI HOLDINGS	120.7%

Worst Performers

	Return %
RENTECH (RTK)	-79.8%
WALTER INVESTMENT MAN.	-77.3%
ADEPTUS HEALTH CL.A	-76.4%
NOVAN ORD (NOVN)	-76.4%
INOTEK PHARMACEUTICALS	-67.2%
TIDEWATER (TDW)	-66.3%
TRIANGLE PETROLEUM (TPLMQ)	-63.1%
VINCE HOLDING (VNCE)	-61.7%
COBALT INTL.ENERGY	-56.3%
INVENTURE FOODS	-55.1%

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	0.0%		-0.1%		0.1%		0.0%	-8.0%	-6.7%	6.7%	7.1%
Materials	0.0%		0.0%		0.0%		0.0%	6.5%	6.6%	3.8%	3.3%
Industrials	0.1%		0.1%		0.0%		0.0%	5.1%	4.4%	10.6%	10.6%
Consumer Discretionary	0.0%		0.0%		0.0%		0.0%	8.2%	8.4%	11.4%	12.5%
Consumer Staples	0.1%		0.1%		0.0%		0.0%	7.5%	6.1%	9.4%	8.8%
Health Care	0.1%		0.0%		0.0%		0.0%	8.9%	8.6%	13.6%	13.0%
Financials	0.0%		0.0%		0.0%		0.0%	2.6%	2.6%	14.6%	15.1%
Information Technology	0.0%		-0.1%		0.1%		0.0%	12.0%	12.3%	21.9%	20.2%
Telecommunication Services	0.1%		0.1%		0.0%		0.0%	-0.8%	-3.4%	2.5%	2.5%
Utilities	0.0%		0.0%		0.0%		0.0%	6.7%	6.3%	2.3%	3.1%
Real Estate	0.0%		0.0%		0.0%		0.0%	3.5%	3.4%	2.2%	3.7%
Cash	0.0%		0.0%		0.0%		0.0%	0.1%	--	0.7%	0.0%
Unclassified	0.0%		0.0%		0.0%		0.0%	5.9%	--	0.2%	0.0%
Portfolio	**0.3%**	**=**	**0.1%**	**+**	**0.2%**	**+**	**0.0%**	**6.3%**	**6.0%**	**100.0%**	**100.0%**



	Return (Rank)															
5th Percentile	8.4		19.4		20.5		10.3		10.7		13.9		13.8		9.2	
25th Percentile	6.6		15.4		17.2		8.1		9.7		12.9		12.8		7.9	
Median	5.7		13.0		15.1		6.7		8.4		12.0		12.0		7.2	
75th Percentile	4.8		10.8		12.6		5.3		7.5		11.1		11.0		6.6	
95th Percentile	3.6		7.2		9.4		2.8		4.6		8.3		9.7		5.7	
# of Portfolios	184		183		183		179		176		154		138		125	
● **DE Shaw**	6.8	(20)	16.3	(18)	21.0	(5)	10.2	(6)	11.8	(2)	14.2	(3)	13.7	(7)	--	(--)
▲ **Russell 1000**	6.0	(43)	14.5	(35)	17.4	(23)	8.6	(17)	10.0	(19)	13.3	(16)	13.0	(19)	7.6	(37)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	996	997
Weighted Avg. Market Cap. ($B)	137.7	137.7
Median Market Cap. ($B)	8.8	8.8
Price To Earnings	24.6	23.7
Price To Book	4.9	4.4
Price To Sales	3.6	3.5
Return on Equity (%)	20.5	17.9
Yield (%)	2.0	2.0
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	3.5%
MICROSOFT	2.2%
AMAZON.COM	1.5%
JOHNSON & JOHNSON	1.5%
EXXON MOBIL	1.5%
JP MORGAN CHASE & CO.	1.4%
FACEBOOK CLASS A	1.4%
BERKSHIRE HATHAWAY 'B'	1.4%
GENERAL ELECTRIC	1.2%
AT&T	1.1%

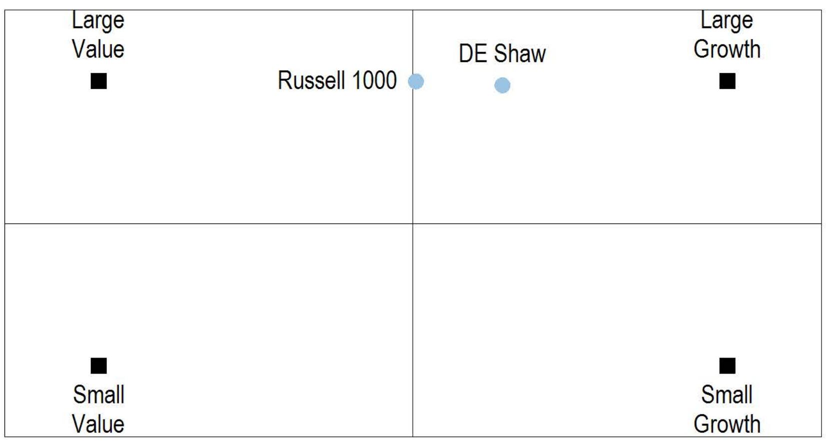
Best Performers

	Return %
NRG ENERGY	52.8%
VERTEX PHARMS.	48.4%
ALCOA	42.4%
DEXCOM	41.9%
AGIOS PHARMACEUTICALS	39.9%
CLEAR CHL.OUTDR.HDG.'A'	39.9%
ACTIVISION BLIZZARD	38.9%
ALNYLAM PHARMACEUTICALS	36.9%
ARISTA NETWORKS	36.7%
VIACOM 'B'	33.4%

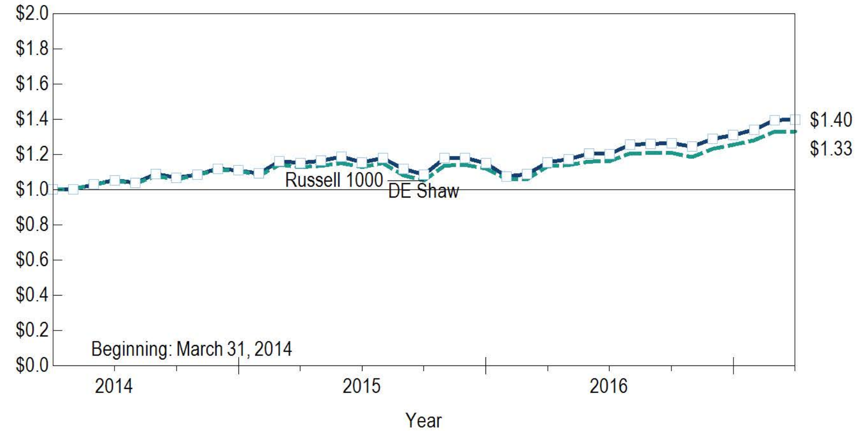
Worst Performers

	Return %
RITE AID	-48.4%
VISTA OUTDOOR	-44.2%
FRONTIER COMMUNICATIONS	-34.1%
ENDO INTERNATIONAL	-32.2%
AMTRUST FINL.SVS.	-32.0%
TEMPUR SEALY INTL.	-32.0%
UNDER ARMOUR 'A'	-31.9%
QEP RESOURCES	-31.0%
SM ENERGY	-30.3%
NUTANIX ORD	-29.3%

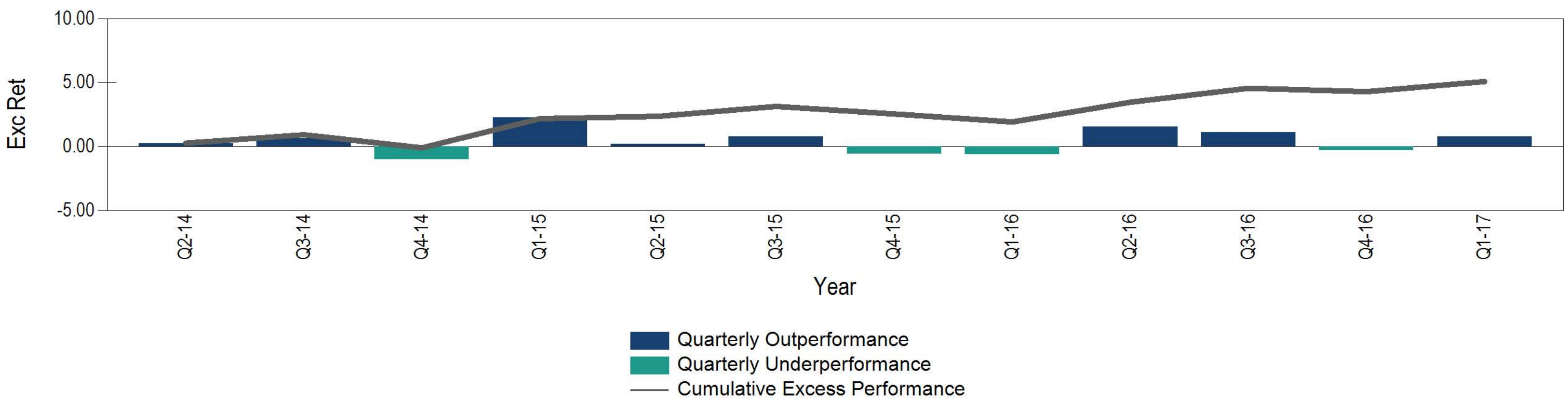
U.S. Effective Style Map

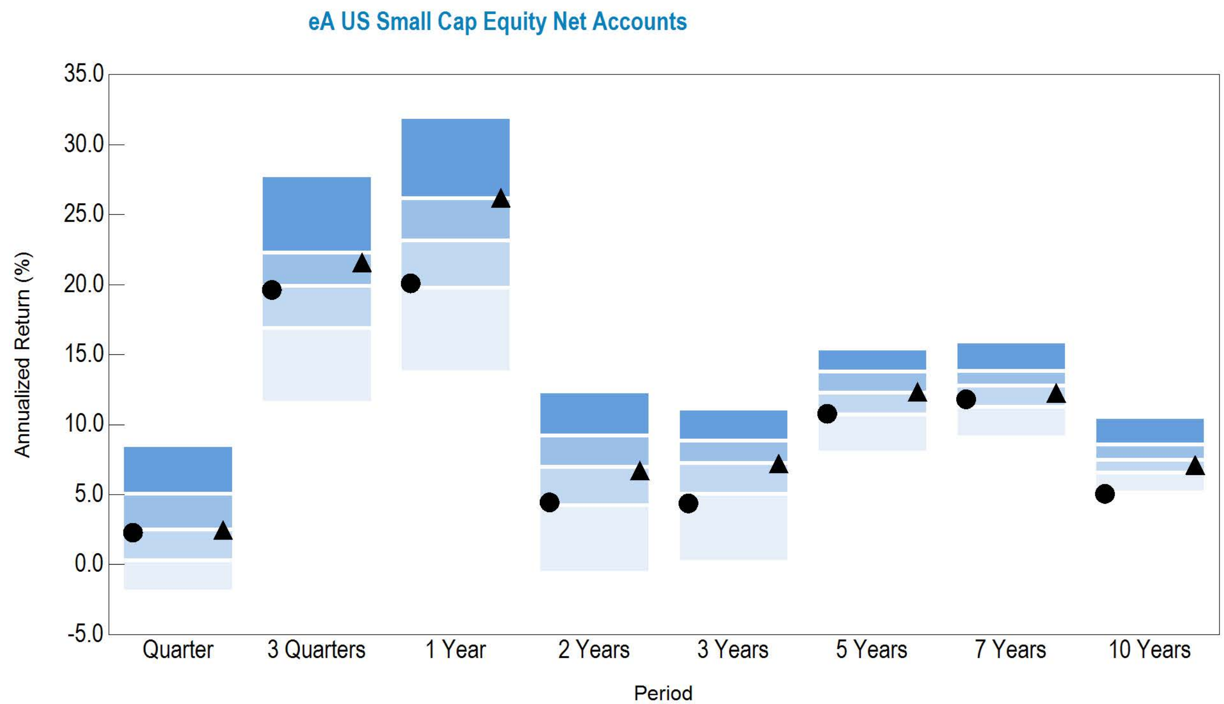


Growth of a Dollar



Quarterly and Cumulative Excess Performance





Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	8.5		27.8		32.0		12.3		11.1		15.4		15.9		10.5	
25th Percentile	5.1		22.3		26.2		9.3		8.9		13.8		13.8		8.6	
Median	2.5		20.0		23.2		7.0		7.3		12.3		12.8		7.5	
75th Percentile	0.4		16.9		19.8		4.3		5.1		10.8		11.3		6.6	
95th Percentile	-1.9		11.6		13.8		-0.6		0.2		8.0		9.1		5.2	
# of Portfolios	378		375		374		361		352		321		304		254	
● Small Cap Equity	2.3	(52)	19.6	(53)	20.1	(73)	4.4	(74)	4.4	(80)	10.8	(75)	11.8	(68)	5.1	(96)
▲ Russell 2000	2.5	(51)	21.6	(32)	26.2	(25)	6.7	(54)	7.2	(52)	12.4	(50)	12.3	(59)	7.1	(62)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	350	1,946
Weighted Avg. Market Cap. ($B)	2.1	2.2
Median Market Cap. ($B)	1.2	0.8
Price To Earnings	25.1	24.3
Price To Book	3.6	3.0
Price To Sales	2.4	3.1
Return on Equity (%)	16.2	10.0
Yield (%)	1.4	1.2
Beta (holdings; domestic)	1.2	1.3

Top Holdings

CHEMOURS	1.1%
MASIMO	0.8%
GEO GROUP	0.8%
GRAND CANYON EDUCATION	0.8%
ADVANCED ENERGY INDS.	0.8%
HESKA	0.7%
ASPEN TECHNOLOGY	0.7%
CHAMBERS STREET PROPS.	0.7%
FAIR ISAAC	0.7%
ENTEGRIS	0.7%

Best Performers

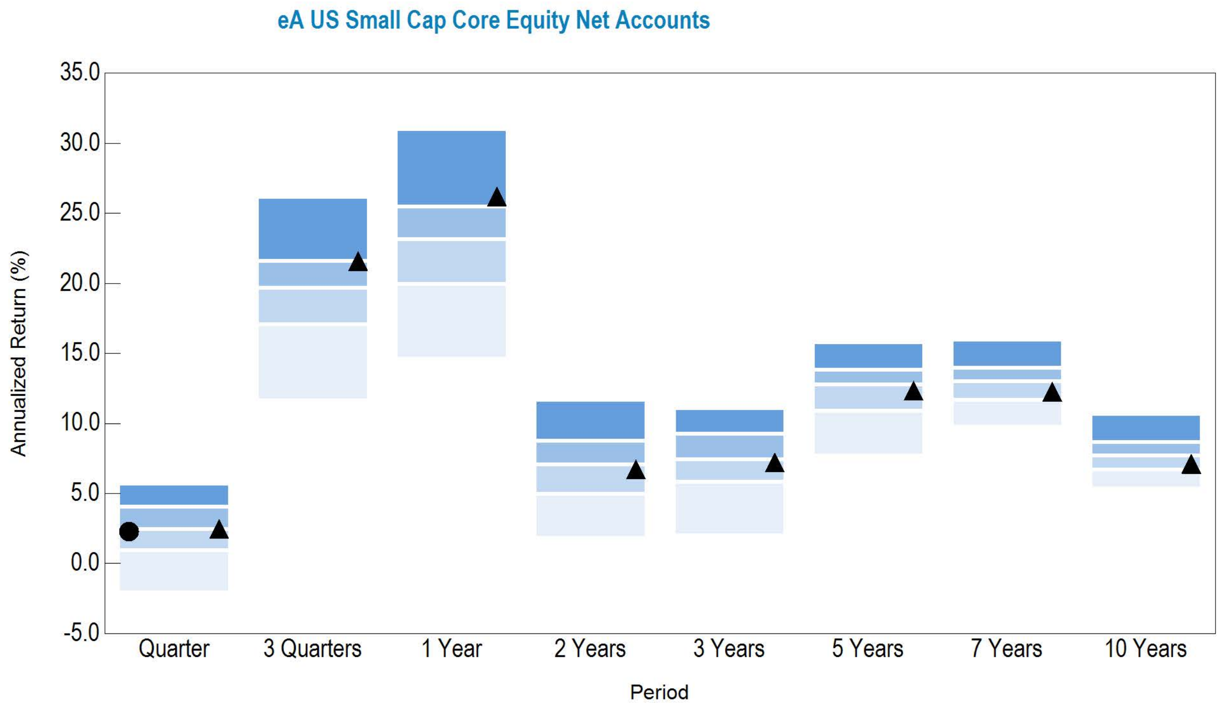
	Return %
CHEMOURS (CC)	74.4%
ULTRA CLEAN HOLDINGS (UCTT)	73.9%
CONCERT PHARMACEUTICALS	65.8%
NATIONAL BEVERAGE	65.5%
NUTRISYSTEM	60.7%
EXTREME NETWORKS (EXTR)	49.3%
ORASURE TECHS.	47.3%
HESKA (HSKA)	46.6%
EXELIXIS	45.3%
INTRAWEST RESORTS HDG.	40.1%

Worst Performers

	Return %
BLACK BOX	-40.5%
AMAG PHARMACEUTICALS (AMAG)	-35.2%
ROADRUNNER TRSP.SYSTEMS	-33.9%
PHI NON-VOTING	-33.5%
OPUS BANK (OPB)	-32.9%
IDT 'B' (IDT)	-30.4%
PACIFIC ETHANOL	-27.9%
TILLY'S CLASS A	-27.7%
MATRIX SERVICE (MTRX)	-27.3%
APPLIED GENETIC TECHS.	-26.2%

Small Cap Equity Performance Attribution vs. Russell 2000

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.2%		0.2%		0.1%		0.0%	-6.4%	-10.6%	3.1%	3.8%
Materials	0.3%		0.3%		0.0%		0.0%	11.2%	6.0%	5.5%	4.9%
Industrials	-0.2%		-0.2%		0.0%		0.0%	0.0%	1.1%	15.6%	14.6%
Consumer Discretionary	-0.2%		-0.2%		0.0%		0.0%	-0.7%	0.8%	13.3%	12.4%
Consumer Staples	0.1%		0.1%		0.0%		0.0%	2.3%	-1.3%	3.5%	3.0%
Health Care	-0.2%		-0.2%		0.1%		0.0%	9.7%	11.7%	12.5%	11.9%
Financials	0.5%		0.5%		0.0%		0.0%	0.8%	-1.5%	19.1%	20.4%
Information Technology	-0.7%		-0.7%		0.0%		0.0%	1.8%	6.1%	16.8%	16.8%
Telecommunication Services	0.0%		-0.1%		0.0%		0.0%	-13.7%	-4.3%	0.3%	0.7%
Utilities	0.0%		0.0%		0.0%		0.0%	4.4%	4.7%	3.1%	3.6%
Real Estate	0.3%		0.3%		0.0%		0.0%	4.2%	0.1%	7.2%	7.8%
Cash	0.0%		0.0%		0.0%		0.0%	0.1%	--	0.0%	0.0%
Portfolio	**0.1%**	**=**	**-0.1%**	**+**	**0.2%**	**+**	**0.0%**	**2.5%**	**2.4%**	**100.0%**	**100.0%**



	Return (Rank)															
5th Percentile	5.7		26.2		31.0		11.7		11.1		15.8		15.9		10.6	
25th Percentile	4.1		21.6		25.5		8.8		9.3		13.9		14.0		8.7	
Median	2.5		19.7		23.2		7.1		7.5		12.8		13.0		7.7	
75th Percentile	1.0		17.1		20.0		5.0		5.9		10.9		11.7		6.8	
95th Percentile	-2.0		11.7		14.6		1.9		2.0		7.7		9.8		5.4	
# of Portfolios	102		102		102		100		98		89		79		61	
● QMA US Small Cap	2.3	(54)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ Russell 2000	2.5	(51)	21.6	(26)	26.2	(20)	6.7	(56)	7.2	(56)	12.4	(56)	12.3	(63)	7.1	(65)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	350	1,946
Weighted Avg. Market Cap. ($B)	2.1	2.2
Median Market Cap. ($B)	1.2	0.8
Price To Earnings	25.1	24.3
Price To Book	3.6	3.0
Price To Sales	2.4	3.1
Return on Equity (%)	16.2	10.0
Yield (%)	1.4	1.2
Beta (holdings; domestic)	1.2	1.3

Top Holdings

CHEMOURS	1.1%
MASIMO	0.8%
GEO GROUP	0.8%
GRAND CANYON EDUCATION	0.8%
ADVANCED ENERGY INDS.	0.8%
HESKA	0.7%
ASPEN TECHNOLOGY	0.7%
CHAMBERS STREET PROPS.	0.7%
FAIR ISAAC	0.7%
ENTEGRIS	0.7%

Best Performers

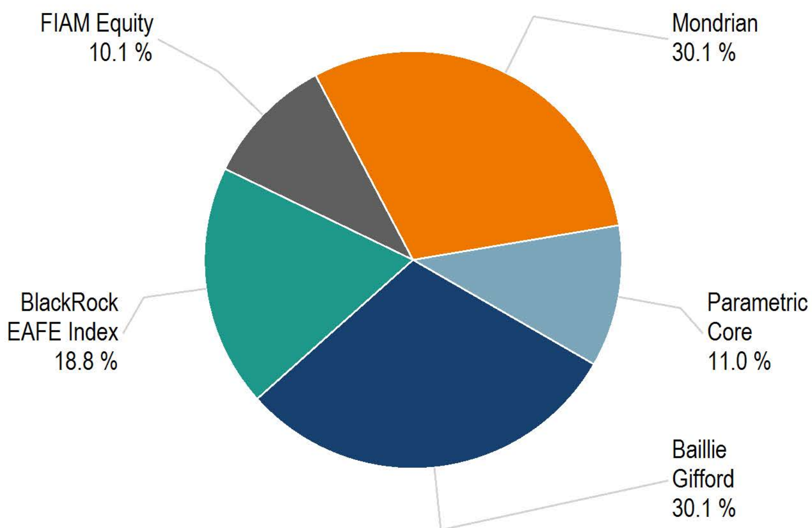
	Return %
CHEMOURS (CC)	74.4%
ULTRA CLEAN HOLDINGS	73.9%
CONCERT PHARMACEUTICALS (CNCE)	65.8%
NATIONAL BEVERAGE (FIZZ)	65.5%
NUTRISYSTEM	60.7%
EXTREME NETWORKS	49.3%
ORASURE TECHS.	47.3%
HESKA (HSKA)	46.6%
EXELIXIS (EXEL)	45.3%
INTRAWEST RESORTS HDG.	40.1%

Worst Performers

	Return %
BLACK BOX (BBOX)	-40.5%
AMAG PHARMACEUTICALS	-35.2%
ROADRUNNER TRSP.SYSTEMS (RRTS)	-33.9%
PHI NON-VOTING (PHIIK)	-33.5%
OPUS BANK (OPB)	-32.9%
IDT 'B' (IDT)	-30.4%
PACIFIC ETHANOL	-27.9%
TILLY'S CLASS A (TLYS)	-27.7%
MATRIX SERVICE	-27.3%
APPLIED GENETIC TECHS. (AGTC)	-26.2%

QMA US Small Cap Performance Attribution vs. Russell 2000

	Attribution Effects						Returns		Sector Weights	
	Total Effects		Selection Effect		Allocation Effect		Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.2%		0.2%		0.1%		0.0%	-6.4%	-10.6%	3.1%	3.8%
Materials	0.3%		0.3%		0.0%		0.0%	11.2%	6.0%	5.5%	4.9%
Industrials	-0.2%		-0.2%		0.0%		0.0%	0.0%	1.1%	15.6%	14.6%
Consumer Discretionary	-0.2%		-0.2%		0.0%		0.0%	-0.7%	0.8%	13.3%	12.4%
Consumer Staples	0.1%		0.1%		0.0%		0.0%	2.3%	-1.3%	3.5%	3.0%
Health Care	-0.2%		-0.2%		0.1%		0.0%	9.7%	11.7%	12.5%	11.9%
Financials	0.5%		0.5%		0.0%		0.0%	0.8%	-1.5%	19.1%	20.4%
Information Technology	-0.7%		-0.7%		0.0%		0.0%	1.8%	6.1%	16.8%	16.8%
Telecommunication Services	0.0%		-0.1%		0.0%		0.0%	-13.7%	-4.3%	0.3%	0.7%
Utilities	0.0%		0.0%		0.0%		0.0%	4.4%	4.7%	3.1%	3.6%
Real Estate	0.3%		0.3%		0.0%		0.0%	4.2%	0.1%	7.2%	7.8%
Cash	0.0%		0.0%		0.0%		0.0%	0.1%	--	0.0%	0.0%
Portfolio	**0.1%**	**=**	**-0.1%**	**+**	**0.2%**	**+**	**0.0%**	**2.5%**	**2.4%**	**100.0%**	**100.0%**



	Actual $	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	$225,881,934	30.1%	0.6%
BlackRock EAFE Index	$141,292,093	18.8%	0.0%
FIAM Equity	$75,759,693	10.1%	-0.1%
Mondrian	$226,337,934	30.1%	0.4%
Parametric Core	$82,395,549	11.0%	-0.1%
Actual vs. Policy Weight Difference			-0.1%
Total	**$751,667,203**	**100.0%**	**0.7%**

Statistics Summary

3 Years

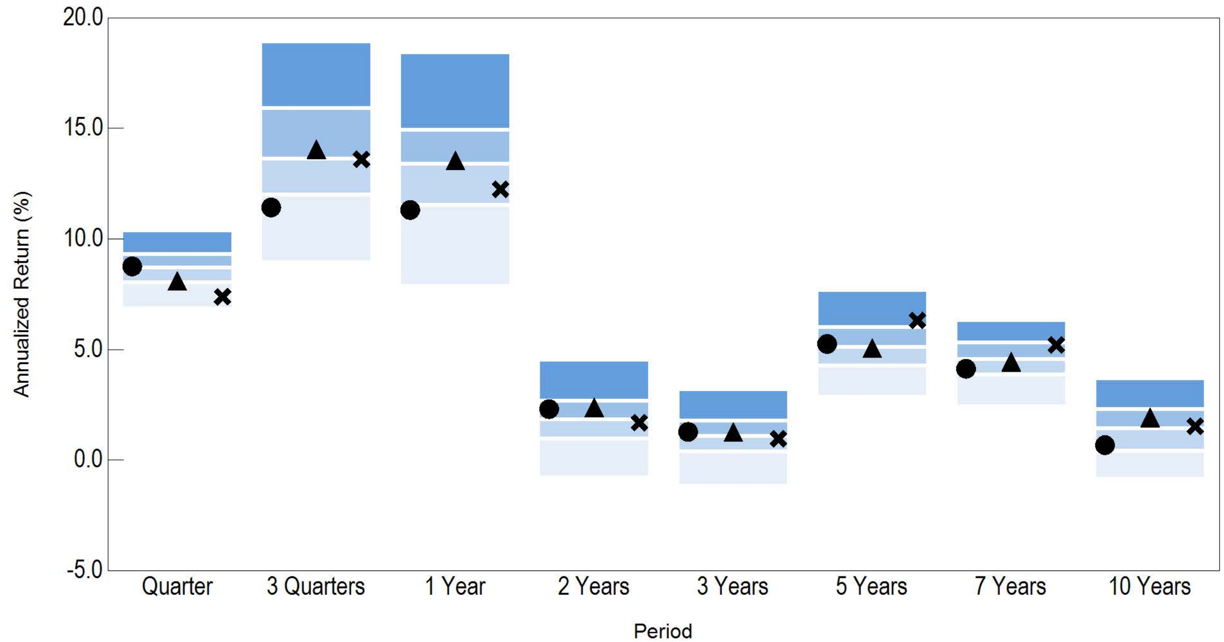
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	1.3%	12.0%	0.1	0.0	1.7%
MSCI ACWI ex US IMI	1.3%	12.3%	0.1	--	0.0%
Developed Markets	1.4%	12.0%	0.1	0.2	2.2%
MSCI ACWI ex USA Gross	1.0%	12.4%	0.1	--	0.0%
Baillie Gifford	2.3%	13.4%	0.2	0.3	4.3%
MSCI ACWI ex US	1.0%	12.4%	0.1	--	0.0%
BlackRock EAFE Index	0.8%	12.3%	0.1	2.6	0.1%
MSCI EAFE	0.5%	12.2%	0.0	--	0.0%
FIAM Equity	2.2%	11.8%	0.2	-0.2	2.7%
MSCI ACWI ex US Small Cap Gross	2.8%	12.2%	0.2	--	0.0%
Mondrian	0.8%	11.5%	0.1	0.1	5.1%
MSCI ACWI ex USA Value Gross	0.0%	13.4%	0.0	--	0.0%

Statistics Summary

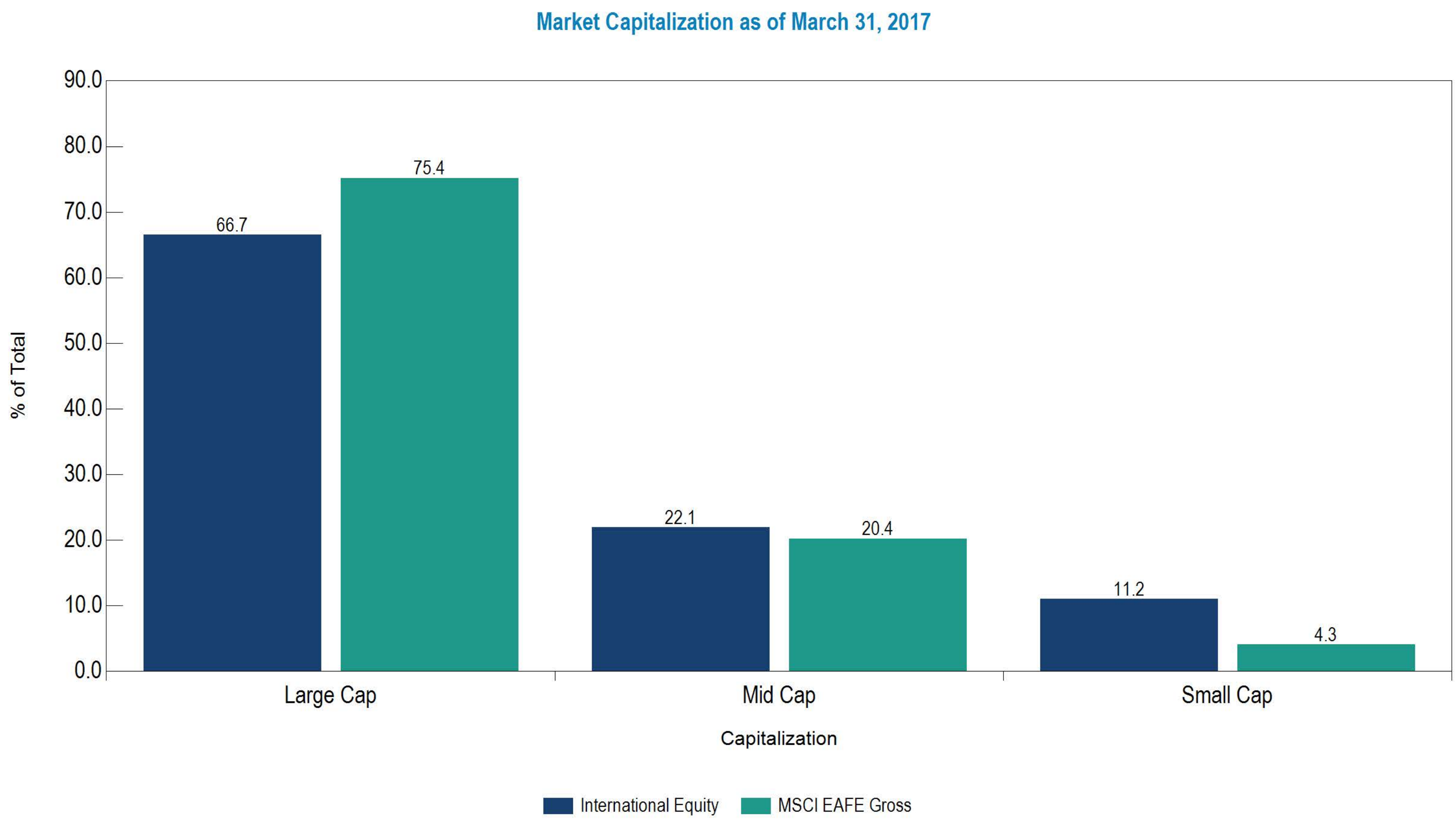
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	5.3%	12.4%	0.4	0.1	1.7%
MSCI ACWI ex US IMI	5.1%	12.8%	0.4	--	0.0%
Developed Markets	5.8%	12.5%	0.5	0.4	2.1%
MSCI ACWI ex USA Gross	4.8%	12.9%	0.4	--	0.0%
FIAM Equity	6.0%	12.2%	0.5	-0.4	2.6%
MSCI ACWI ex US Small Cap Gross	7.1%	12.7%	0.5	--	0.0%
Mondrian	4.8%	12.4%	0.4	0.1	4.5%
MSCI ACWI ex USA Value Gross	4.4%	14.0%	0.3	--	0.0%

InvestorForce All DB ex-US Eq Net Accounts



	Return (Rank)															
5th Percentile	10.4		18.9		18.4		4.5		3.2		7.7		6.3		3.7	
25th Percentile	9.3		15.9		14.9		2.7		1.8		6.0		5.3		2.3	
Median	8.7		13.7		13.4		1.9		1.1		5.1		4.6		1.5	
75th Percentile	8.1		12.0		11.6		1.0		0.4		4.3		3.9		0.4	
95th Percentile	6.9		9.0		7.9		-0.8		-1.1		2.9		2.4		-0.8	
# of Portfolios	483		481		480		465		450		378		311		242	
● International Equity	8.8	(49)	11.4	(81)	11.3	(78)	2.3	(36)	1.3	(44)	5.3	(48)	4.1	(65)	0.7	(74)
▲ MSCI ACWI ex US IMI	8.1	(74)	14.1	(43)	13.5	(47)	2.4	(34)	1.3	(44)	5.1	(55)	4.5	(55)	1.9	(35)
✖ MSCI EAFE Gross	7.4	(89)	13.6	(51)	12.2	(66)	1.7	(55)	1.0	(57)	6.3	(20)	5.2	(29)	1.5	(50)



Excludes FIAM Equity holdings.

See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	2,128	6,126
Weighted Avg. Market Cap. ($B)	43.7	46.0
Median Market Cap. ($B)	6.2	1.3
Price To Earnings	23.3	20.7
Price To Book	3.4	2.5
Price To Sales	2.7	2.1
Return on Equity (%)	16.6	13.3
Yield (%)	2.8	2.8
Beta (holdings; global)	1.1	1.0

Top Holdings

BANK RAKYAT INDONESIA	2.7%
BANK MANDIRI	1.7%
NESTLE 'R'	1.3%
UNITED OVERSEAS BANK	1.3%
SANOFI	1.1%
GLAXOSMITHKLINE	1.0%
IBERDROLA	0.9%
SYNGENTA	0.9%
TAIWAN SEMICON.SPN.ADR 1:5	0.9%
COCHLEAR	0.9%

Best Performers

	Return %
YINGDE GASES GROUP (K:YGGC)	108.6%
GRUPO ELEKTRA (MX:ELP)	85.6%
SHARP	82.2%
OI PN (BR:LR4)	78.6%
MELCO CWN.(PHILPS.)RSTS. (PH:MCP)	75.1%
AGILE PROPERTY HDG.	70.0%
PRESS METAL (L:PMET)	69.9%
MESOBLAST (A:MSBX)	68.0%
LG INNOTEK (KO:LGO)	66.8%
CAP	65.0%

Worst Performers

	Return %
DRYSHIPS (DRYS)	-94.4%
CHINA HUISHAN DY.HDG.CO.	-86.1%
GRANA Y MONTERO (PE:GYM)	-53.9%
CEMEX HOLDINGS ORD (PH:CHP)	-37.3%
ARABTEC HOLDING (DU:ART)	-30.2%
UMW OIL & GAS (L:UMWO)	-28.8%
EMPRESAS ICA (MX:IHA)	-27.6%
ARYZTA (S:ARYN)	-25.7%
JAZEERA AIRWAYS (KU:JAZ)	-24.5%
MATAHARI PUTRA PRIMA (ID:MPP)	-24.5%

Excludes FIAM Equity holdings.

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	0.1%	0.1%	0.1%	-0.1%	-0.4%	-1.0%	5.5%	6.8%
Materials	0.0%	0.1%	0.1%	-0.2%	8.7%	8.8%	5.7%	8.4%
Industrials	0.2%	0.3%	0.0%	-0.1%	11.2%	9.6%	13.4%	12.8%
Consumer Discretionary	0.1%	0.2%	0.0%	0.0%	7.8%	7.2%	14.5%	12.1%
Consumer Staples	0.6%	0.3%	0.1%	0.3%	11.7%	8.5%	12.8%	9.3%
Health Care	0.4%	0.2%	0.0%	0.1%	11.8%	8.5%	9.2%	7.9%
Financials	-0.4%	-0.5%	0.0%	0.1%	5.7%	7.6%	16.7%	21.6%
Information Technology	-0.5%	-0.3%	0.1%	-0.2%	9.6%	14.7%	10.3%	9.6%
Telecommunication Services	0.2%	0.2%	0.0%	0.0%	9.4%	6.1%	4.9%	4.2%
Utilities	0.1%	0.2%	0.0%	0.0%	12.9%	8.6%	3.6%	3.1%
Real Estate	0.0%	0.0%	0.0%	-0.1%	5.4%	6.6%	2.5%	4.2%
Cash	-0.1%	0.0%	-0.1%	0.0%	0.1%	--	0.7%	0.0%
Unclassified	0.0%	0.0%	0.0%	0.0%	6.4%	8.1%	0.1%	0.0%
Portfolio	**0.9%** =	**0.8%** +	**0.4%** +	**-0.3%**	**8.9%**	**8.1%**	**100.0%**	**100.0%**

Excludes FIAM Equity holdings.

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

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Austria	15.7%	9.6%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	5.7%	6.1%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	7.6%	5.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	7.2%	7.3%	2.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	3.6%	6.1%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	7.8%	7.5%	4.9%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Germany	10.2%	8.9%	6.5%	6.2%	0.1%	0.0%	0.0%	0.0%	0.1%
Greece*	5.4%	-0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	0.2%	-0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	4.6%	5.9%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	6.4%	8.4%	1.6%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	2.5%	8.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	3.4%	11.1%	2.0%	2.2%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Norway	5.0%	0.5%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	18.4%	18.4%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	14.9%	6.5%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-3.7%	-4.5%	1.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	12.8%	14.0%	2.9%	2.1%	0.0%	0.1%	0.0%	0.0%	0.0%
Sweden	9.4%	8.7%	3.4%	2.2%	0.0%	0.0%	0.0%	0.0%	0.1%
Switzerland	9.9%	9.2%	7.4%	5.7%	0.0%	0.0%	0.0%	0.0%	0.1%
United Kingdom	5.9%	5.2%	15.8%	12.7%	0.1%	0.0%	0.0%	0.0%	0.1%

Excludes FIAM Equity holdings.

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

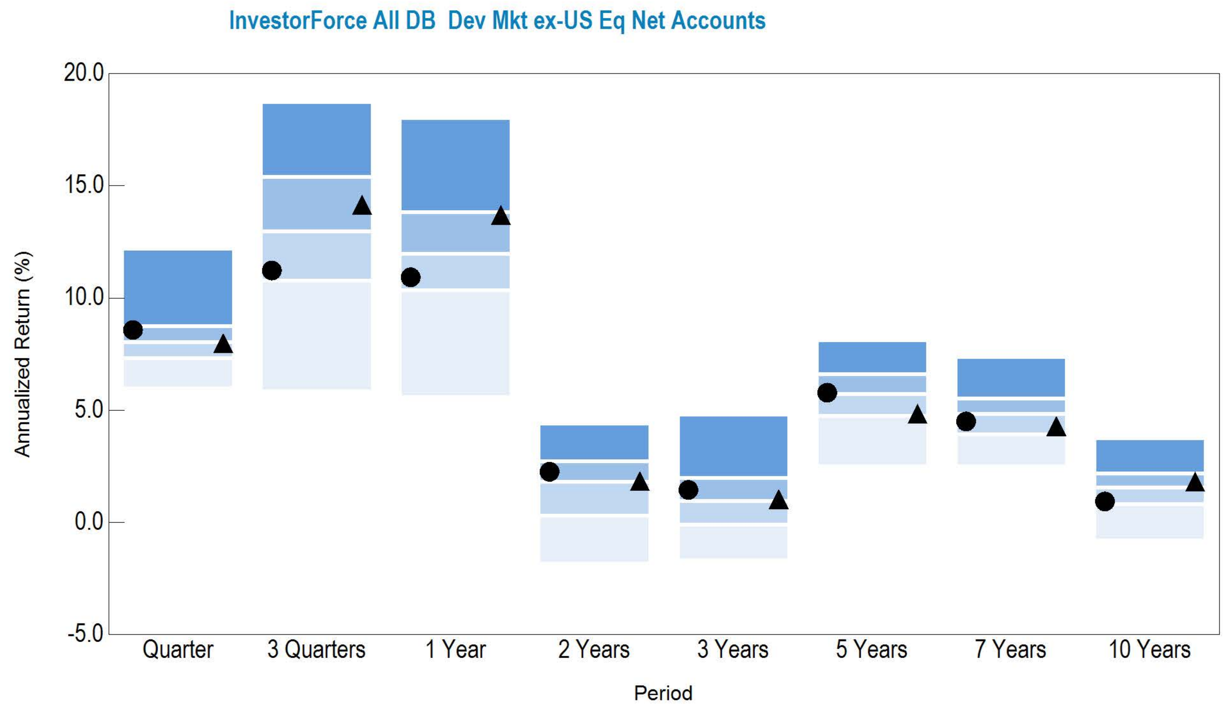
	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
AsiaPacific									
Australia	10.2%	10.6%	4.5%	5.2%	0.0%	0.0%	0.0%	0.0%	-0.1%
China*	16.2%	12.6%	2.7%	5.8%	0.2%	-0.2%	0.0%	-0.1%	-0.1%
Hong Kong	8.1%	12.3%	3.0%	2.2%	-0.1%	0.1%	0.0%	0.0%	-0.1%
India*	18.4%	18.8%	1.7%	2.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
Indonesia*	6.9%	6.2%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	6.2%	4.9%	17.7%	17.8%	0.2%	0.0%	0.0%	0.0%	0.2%
Korea*	16.6%	15.8%	2.7%	3.3%	0.1%	0.0%	-0.1%	0.0%	0.0%
Malaysia*	8.3%	8.9%	0.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	2.4%	5.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan**	-0.2%	-2.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	9.3%	6.3%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	15.0%	13.3%	3.1%	0.9%	0.0%	0.1%	0.1%	0.1%	0.2%
Taiwan*	13.8%	12.8%	2.7%	2.9%	0.1%	0.0%	-0.1%	0.0%	0.0%
Thailand*	9.3%	7.7%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	9.5%	11.1%	1.2%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Canada	5.3%	3.0%	0.3%	7.2%	0.2%	0.2%	0.0%	-0.2%	0.2%
Chile*	16.8%	16.2%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	4.8%	5.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	17.9%	15.6%	1.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.1%
Peru*	2.3%	5.5%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	13.7%	6.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%

Excludes FIAM Equity holdings.

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

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	--	3.4%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	2.6%	8.7%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Kazakhstan**	30.0%	27.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	12.0%	10.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	0.5%	1.5%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	23.6%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	9.4%	4.7%	2.1%	1.6%	0.1%	0.0%	0.0%	0.0%	0.1%
Turkey*	11.2%	10.1%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	2.5%	0.3%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	12.3%	5.7%	4.5%	10.1%	0.5%	0.1%	0.0%	-0.3%	0.3%
Europe	7.8%	7.5%	50.3%	44.8%	0.2%	0.0%	0.1%	0.0%	0.3%
Asia/Pacific	9.9%	9.4%	40.8%	42.4%	0.4%	0.0%	-0.2%	0.0%	0.1%
Other	8.1%	5.4%	3.6%	2.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Cash	0.1%	--	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**8.8%**	**8.1%**	**100.0%**	**100.0%**	**1.2%**	**0.1%**	**-0.2%**	**-0.3%**	**0.8%**
Totals									
Developed	8.0%	7.0%	78.3%	77.5%	0.8%	0.0%	0.1%	0.0%	0.8%
Emerging*	12.2%	11.6%	20.5%	22.5%	0.3%	-0.1%	-0.3%	0.0%	0.0%
Frontier**	7.4%	--	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.1%	--	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Excludes FIAM Equity holdings.



Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	12.2		18.7		18.0		4.4		4.8		8.1		7.4		3.7	
25th Percentile	8.8		15.4		13.9		2.7		2.0		6.6		5.5		2.2	
Median	8.0		13.0		12.0		1.8		1.0		5.7		4.9		1.6	
75th Percentile	7.3		10.8		10.4		0.3		-0.1		4.8		3.9		0.8	
95th Percentile	6.0		5.8		5.6		-1.8		-1.7		2.5		2.5		-0.8	
# of Portfolios	173		170		170		170		158		138		106		69	
● Developed Markets	8.6	(28)	11.2	(72)	10.9	(71)	2.3	(33)	1.4	(38)	5.8	(49)	4.5	(65)	0.9	(74)
▲ MSCI ACWI ex USA Gross	8.0	(53)	14.2	(35)	13.7	(27)	1.8	(48)	1.0	(49)	4.8	(74)	4.3	(69)	1.8	(41)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	1,056	1,853
Weighted Avg. Market Cap. ($B)	46.9	53.1
Median Market Cap. ($B)	10.3	7.3
Price To Earnings	23.8	20.7
Price To Book	3.6	2.5
Price To Sales	2.8	2.1
Return on Equity (%)	16.8	13.2
Yield (%)	2.8	2.9
Beta (holdings; global)	1.1	1.0

Top Holdings

BANK RAKYAT INDONESIA	3.0%
BANK MANDIRI	1.9%
NESTLE 'R'	1.5%
UNITED OVERSEAS BANK	1.5%
SANOFI	1.2%
GLAXOSMITHKLINE	1.1%
IBERDROLA	1.0%
SYNGENTA	1.0%
TAIWAN SEMICON.SPN.ADR 1:5	1.0%
COCHLEAR	1.0%

Best Performers

	Return %
SHARP	82.2%
MESOBLAST (A:MSBX)	68.0%
LG INNOTEK (KO:LGO)	66.8%
INDIABULLS HOUSING FIN	62.1%
MOBILEYE	61.1%
MAKEMYTRIP	55.9%
PKC GROUP (M:PKC)	51.0%
YANGZIJIANG SHIPBUILDING (HOLDINGS) (T:YSHL)	43.4%
MINEBEA (J:IA@N)	42.5%
INTERPUMP GROUP (I:IP)	42.2%

Worst Performers

	Return %
ARYZTA	-25.7%
GO-AHEAD GROUP (UKIR:GOG)	-20.6%
ASICS	-19.8%
SAIPEM	-19.4%
BRAMBLES (A:BXBX)	-19.3%
FLETCHER BUILDING (Z:FBUZ)	-19.0%
IIDA GROUP HOLDINGS	-18.0%
COBHAM (UKIR:COB)	-17.8%
KAKAKU.COM	-17.3%
CAPCOM (J:CAPO)	-16.4%

Excludes FIAM Equity holdings.

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	0.1%		0.0%	0.2%	-0.1%	-1.6%	-0.8%	5.0%	7.3%
Materials	-0.1%		0.0%	0.1%	-0.2%	7.8%	8.4%	4.8%	8.0%
Industrials	0.3%		0.3%	0.0%	0.0%	11.3%	9.6%	13.9%	11.7%
Consumer Discretionary	0.2%		0.2%	0.0%	0.1%	7.7%	6.9%	15.1%	11.5%
Consumer Staples	0.6%		0.3%	0.1%	0.3%	11.8%	8.6%	13.2%	9.8%
Health Care	0.4%		0.2%	0.0%	0.1%	11.7%	8.3%	9.6%	8.1%
Financials	-0.4%		-0.6%	0.0%	0.1%	5.8%	7.6%	16.9%	23.4%
Information Technology	-0.4%		-0.3%	0.1%	-0.2%	9.5%	14.6%	10.6%	9.3%
Telecommunication Services	0.1%		0.2%	0.0%	-0.1%	9.2%	5.9%	4.4%	4.7%
Utilities	0.1%		0.1%	0.0%	0.0%	11.6%	8.3%	3.1%	3.2%
Real Estate	0.0%		0.0%	0.0%	0.0%	5.4%	6.8%	2.5%	3.3%
Cash	-0.1%		0.0%	-0.1%	0.0%	0.1%	--	0.8%	0.0%
Unclassified	0.0%		--	--	--	--	--	0.0%	0.0%
Portfolio	**0.8%**	**=**	**0.4% +**	**0.4% +**	**0.0%**	**8.8%**	**7.9%**	**100.0%**	**100.0%**

Excludes FIAM Equity holdings.

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Austria	15.7%	9.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	5.7%	5.1%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	--	5.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	7.2%	6.5%	2.3%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	3.6%	7.7%	0.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	7.8%	7.4%	5.5%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Germany	10.2%	8.5%	7.3%	6.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Greece*	--	-3.4%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	-0.1%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	4.6%	3.9%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	6.4%	6.2%	1.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	2.6%	7.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	3.4%	11.3%	2.3%	2.3%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Norway	5.0%	1.5%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	--	17.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	14.9%	8.2%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-9.6%	-4.8%	0.3%	1.0%	0.0%	0.1%	-0.1%	0.0%	0.1%
Spain	12.8%	14.7%	3.3%	2.2%	0.0%	0.1%	0.0%	0.0%	0.0%
Sweden	9.4%	10.0%	3.8%	2.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Switzerland	9.9%	8.8%	8.3%	6.1%	0.1%	0.0%	0.0%	0.0%	0.2%
United Kingdom	5.9%	5.1%	17.6%	12.8%	0.1%	-0.1%	0.1%	0.0%	0.1%

Excludes FIAM Equity holdings.

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

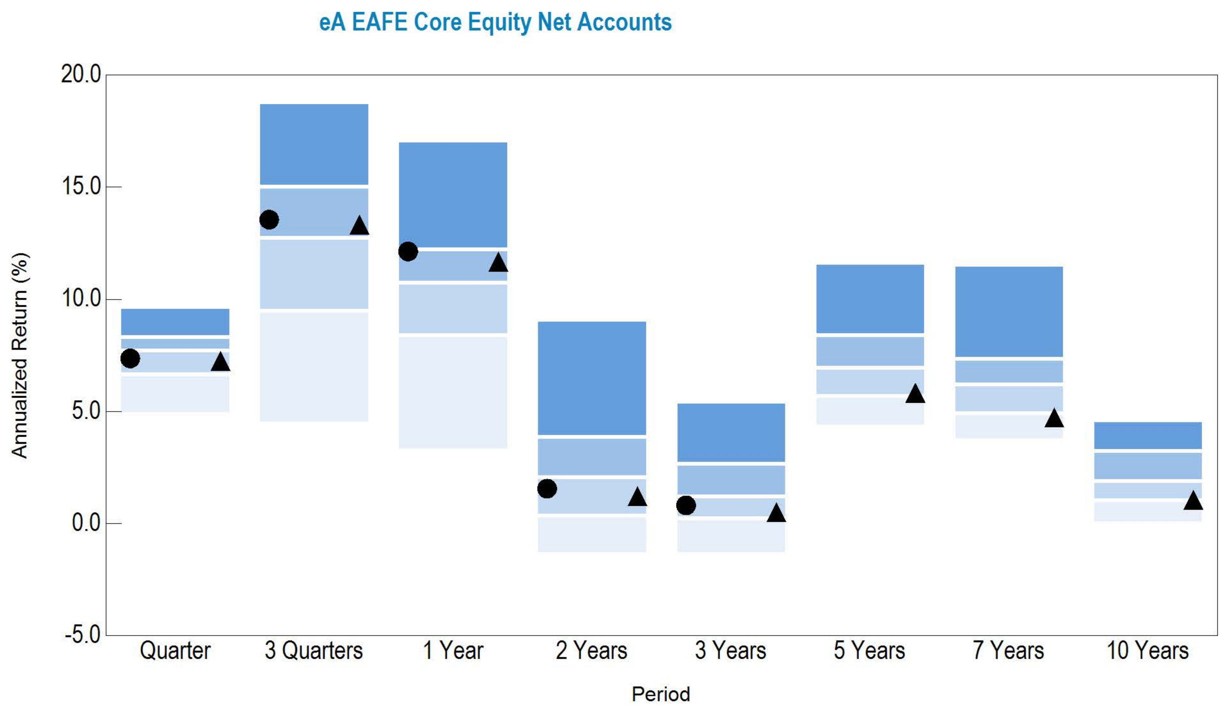
	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
AsiaPacific									
Australia	10.2%	11.0%	5.1%	5.2%	0.0%	0.0%	0.0%	0.0%	-0.1%
China*	16.8%	13.0%	2.4%	6.0%	0.2%	-0.3%	0.0%	-0.1%	-0.2%
Hong Kong	7.6%	13.2%	2.7%	2.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%
India*	19.6%	17.1%	1.3%	1.9%	0.1%	0.0%	0.0%	0.0%	0.0%
Indonesia*	11.3%	7.1%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	6.2%	4.5%	19.8%	17.1%	0.3%	-0.1%	0.1%	0.0%	0.3%
Korea*	17.3%	16.7%	2.2%	3.3%	0.1%	0.0%	-0.2%	0.0%	-0.1%
Malaysia*	7.4%	8.3%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	2.4%	2.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	14.9%	6.3%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	14.9%	13.5%	3.4%	0.9%	0.0%	0.1%	0.1%	0.1%	0.3%
Taiwan*	14.8%	11.8%	2.1%	2.7%	0.2%	0.0%	-0.1%	0.0%	0.0%
Thailand*	8.1%	8.7%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	5.7%	10.3%	0.4%	1.7%	-0.1%	0.0%	0.0%	0.1%	-0.1%
Canada	5.3%	2.7%	0.4%	7.1%	0.2%	0.2%	0.0%	-0.2%	0.2%
Chile*	14.7%	16.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	--	5.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	20.6%	16.1%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	3.4%	5.5%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	15.0%	6.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%

Excludes FIAM Equity holdings.

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	--	1.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	2.6%	5.7%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Kazakhstan**	30.0%	27.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-0.3%	1.3%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	23.6%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	12.4%	4.6%	1.5%	1.6%	0.1%	0.0%	0.0%	0.0%	0.1%
Turkey*	14.6%	10.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	8.4%	1.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	12.5%	5.5%	2.2%	10.1%	0.6%	0.1%	-0.1%	-0.5%	0.1%
Europe	7.9%	7.3%	54.6%	45.6%	0.3%	0.0%	0.1%	0.1%	0.5%
Asia/Pacific	9.8%	9.4%	40.2%	41.5%	0.3%	0.0%	-0.1%	0.0%	0.1%
Other	10.3%	4.8%	2.2%	2.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Cash	0.1%	--	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**8.8%**	**7.9%**	**100.0%**	**100.0%**	**1.3%**	**0.1%**	**-0.2%**	**-0.4%**	**0.8%**
Totals									
Developed	8.0%	6.9%	86.7%	77.3%	0.8%	-0.1%	0.3%	0.1%	1.1%
Emerging*	14.4%	11.4%	12.5%	22.7%	0.9%	-0.3%	-0.5%	-0.4%	-0.3%
Frontier**	27.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.1%	--	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Excludes FIAM Equity holdings.



	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
Return (Rank)																
5th Percentile	9.6		18.8		17.1		9.1		5.4		11.6		11.5		4.6	
25th Percentile	8.3		15.1		12.2		3.9		2.7		8.4		7.4		3.2	
Median	7.7		12.7		10.8		2.1		1.2		7.0		6.2		1.9	
75th Percentile	6.7		9.5		8.4		0.4		0.3		5.7		4.9		1.0	
95th Percentile	4.9		4.5		3.3		-1.3		-1.4		4.3		3.7		0.0	
# of Portfolios	117		117		117		110		104		88		78		58	
● **BlackRock EAFE Index**	7.4	(62)	13.6	(35)	12.1	(27)	1.6	(56)	0.8	(60)	--	(--)	--	(--)	--	(--)
▲ **MSCI EAFE**	7.2	(65)	13.3	(38)	11.7	(41)	1.2	(63)	0.5	(70)	5.8	(73)	4.7	(82)	1.1	(75)

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	932	929
Weighted Avg. Market Cap. ($B)	52.9	53.0
Median Market Cap. ($B)	9.4	9.4
Price To Earnings	22.7	21.2
Price To Book	2.9	2.4
Price To Sales	2.3	2.0
Return on Equity (%)	14.2	12.5
Yield (%)	3.0	3.0
Beta (holdings; global)	1.1	1.1

Top Holdings

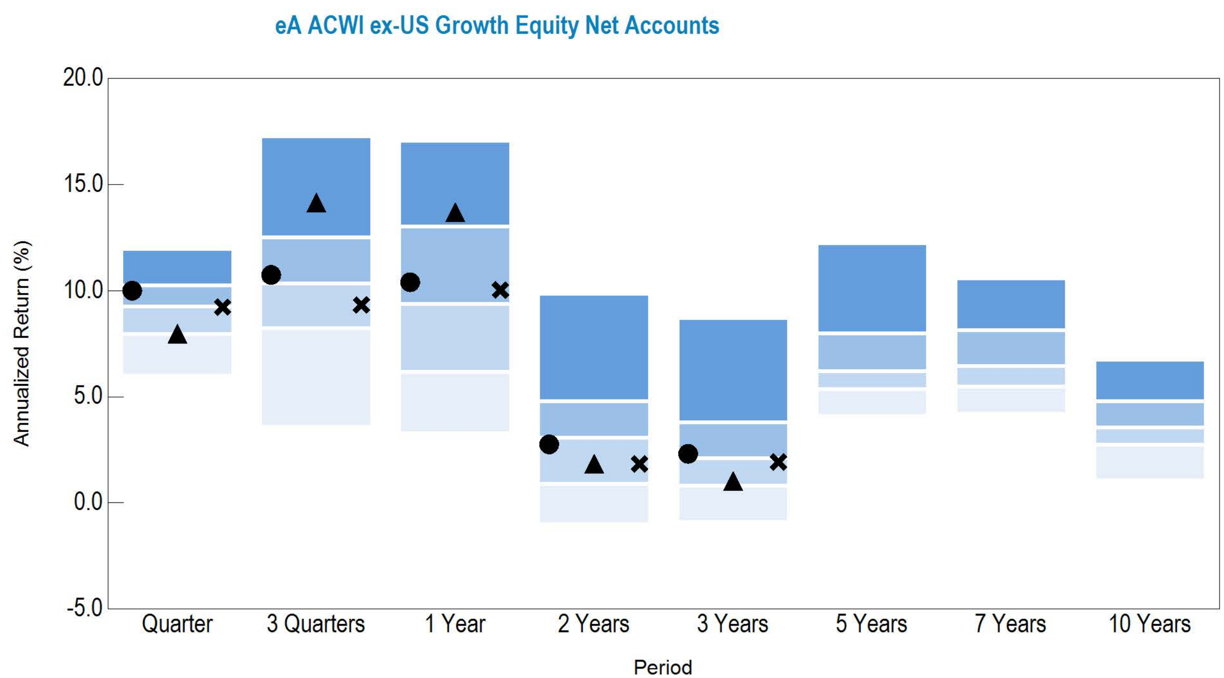
NESTLE 'R'	1.8%
ROCHE HOLDING	1.4%
NOVARTIS 'R'	1.3%
HSBC HOLDINGS	1.2%
TOYOTA MOTOR	1.1%
BRITISH AMERICAN TOBACCO	0.9%
TOTAL	0.9%
ROYAL DUTCH SHELL A	0.9%
COMMONWEALTH BK.OF AUS.	0.9%
BP	0.8%

Best Performers

	Return %
SHARP (J:SH@N)	82.2%
MOBILEYE (MBLY)	61.1%
YANGZIJIANG SHIPBUILDING (HOLDINGS)	43.4%
MINEBEA	42.5%
WHEELOCK AND CO.	40.4%
SHANGRI-LA ASIA	38.1%
STMICROELECTRONICS (PAR) (F:SGS)	35.3%
MIXI	33.7%
RWE (D:RWE)	33.3%
AKZO NOBEL (H:AKZO)	32.7%

Worst Performers

	Return %
ARYZTA	-25.7%
ASICS (J:FD@N)	-19.8%
SAIPEM	-19.4%
BRAMBLES	-19.3%
FLETCHER BUILDING	-19.0%
IIDA GROUP HOLDINGS	-18.0%
COBHAM	-17.8%
KAKAKU.COM	-17.3%
PEARSON (UKIR:PSON)	-15.6%
PANDORA	-14.3%



	Return (Rank)															
5th Percentile	11.9		17.3		17.1		9.8		8.7		12.2		10.6		6.7	
25th Percentile	10.3		12.5		13.0		4.8		3.8		8.0		8.1		4.8	
Median	9.3		10.4		9.4		3.1		2.1		6.2		6.5		3.6	
75th Percentile	8.0		8.2		6.2		0.9		0.8		5.4		5.5		2.7	
95th Percentile	6.0		3.6		3.3		-1.0		-0.9		4.1		4.2		1.1	
# of Portfolios	70		70		70		67		60		53		47		39	
● Baillie Gifford	10.0	(31)	10.7	(46)	10.4	(40)	2.8	(54)	2.3	(45)	--	(--)	--	(--)	--	(--)
▲ MSCI ACWI ex US	8.0	(76)	14.2	(17)	13.7	(21)	1.8	(67)	1.0	(67)	--	(--)	--	(--)	--	(--)
✕ MSCI ACWI ex US Growth	9.2	(51)	9.3	(56)	10.0	(45)	1.8	(67)	1.9	(56)	--	(--)	--	(--)	--	(--)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	85	1,853
Weighted Avg. Market Cap. ($B)	37.1	53.1
Median Market Cap. ($B)	12.4	7.3
Price To Earnings	26.7	20.7
Price To Book	6.3	2.5
Price To Sales	4.0	2.1
Return on Equity (%)	24.4	13.2
Yield (%)	1.8	2.9
Beta (holdings; global)	1.1	1.0

Top Holdings

TAIWAN SEMICON.SPN.ADR 1:5	2.6%
COCHLEAR	2.6%
NASPERS	2.4%
ATLAS COPCO 'B'	2.2%
MS&AD INSURANCE GP.HDG.	2.2%
KAO	2.1%
HARGREAVES LANSDOWN	2.0%
METTLER TOLEDO INTL.	1.9%
SVENSKA HANDBKN.'A'	1.9%
SAMSUNG ELECTRONICS GDR	1.8%

Best Performers

	Return %
MESOBLAST (A:MSBX)	68.0%
MAKEMYTRIP	55.9%
WALMART DE MEXICO 'V' (MX:WAV)	27.9%
JARDINE STRATEGIC HDG. (T:JSTG)	27.2%
ASIAN PAINTS	25.9%
PIGEON (J:PIGC)	25.6%
SMC (J:SMCC)	23.9%
ASOS (UKIR:ASC)	23.2%
CTRIP.COM INTL.ADR 4:1 (CTRP)	22.9%
SAMSUNG ELECTRONICS GDR (UKIR:SMSN)	22.8%

Worst Performers

	Return %
BRAMBLES (A:BXBX)	-19.3%
KAKAKU.COM (J:KAKA)	-17.3%
PJSC MAGNIT GDR (REG S)	-13.5%
WOOD GROUP (JOHN) (UKIR:WG.)	-12.1%
SHIMANO (J:SHMO)	-7.3%
SURUGA BANK (J:SURB)	-5.6%
PAX GLOBAL TECHNOLOGY (K:PGTL)	-3.7%
SUGI HOLDINGS (J:SUGP)	-3.3%
NOVO NORDISK 'B' (DK:NON)	-2.8%
AUTO TRADER GROUP (UKIR:AUTO)	-2.5%

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	0.3%	-0.8%	0.5%	0.6%	-12.1%	-0.8%	0.8%	7.3%
Materials	-0.2%	0.0%	0.0%	-0.2%	6.8%	8.4%	2.7%	8.0%
Industrials	0.2%	0.1%	0.0%	0.0%	10.2%	9.6%	14.5%	11.7%
Consumer Discretionary	1.1%	0.6%	-0.1%	0.6%	11.4%	6.9%	20.8%	11.5%
Consumer Staples	1.6%	0.6%	0.1%	0.9%	15.4%	8.6%	18.8%	9.8%
Health Care	0.4%	0.2%	0.0%	0.2%	12.3%	8.3%	9.6%	8.1%
Financials	-0.6%	-0.9%	0.0%	0.3%	5.2%	7.6%	16.0%	23.4%
Information Technology	-0.3%	-0.3%	0.3%	-0.4%	8.9%	14.6%	15.5%	9.3%
Telecommunication Services	0.0%	--	0.1%	--	--	5.9%	0.0%	4.7%
Utilities	-0.1%	--	0.0%	--	--	8.3%	0.0%	3.2%
Real Estate	-0.1%	--	0.0%	--	--	6.8%	0.0%	3.3%
Cash	-0.1%	0.0%	-0.1%	0.0%	0.1%	--	1.3%	0.0%
Portfolio	**2.2%**	**= -0.4%**	**+ 0.9%**	**+ 1.7%**	**10.2%**	**7.9%**	**100.0%**	**100.0%**

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

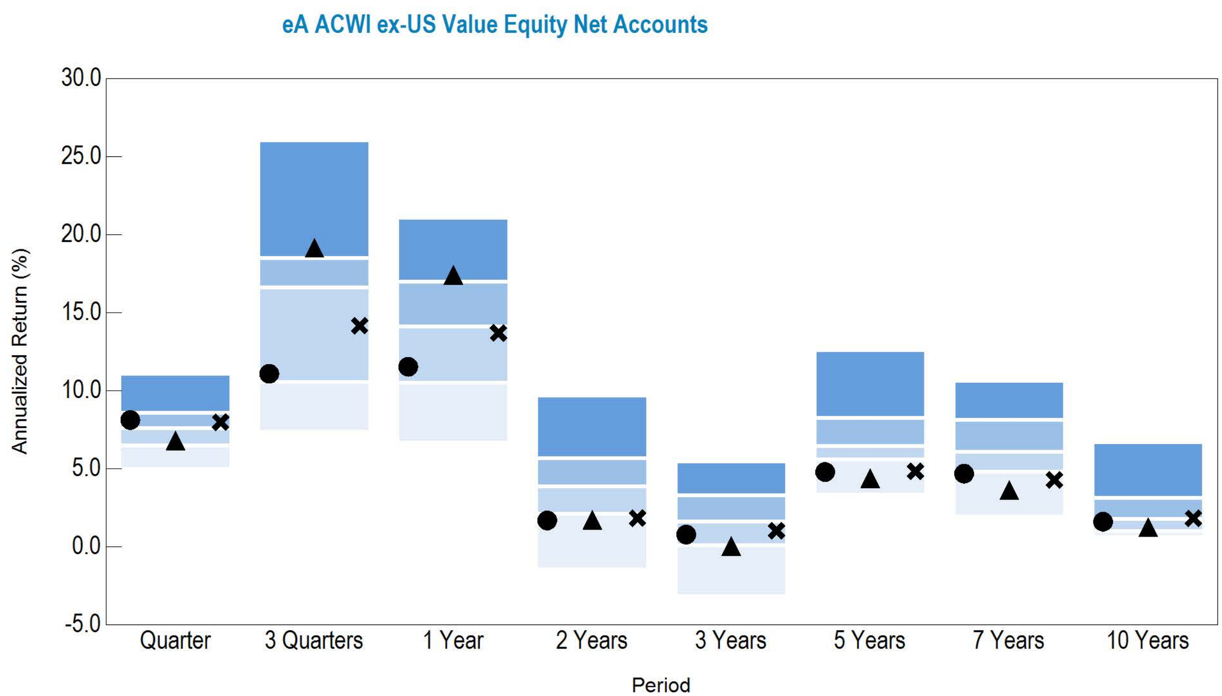
	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Austria	--	9.1%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Belgium	--	5.2%	0.0%	0.8%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	5.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	6.1%	6.6%	4.6%	1.2%	0.0%	0.0%	0.1%	0.0%	0.0%
Finland	1.8%	7.8%	1.2%	0.7%	0.0%	0.0%	0.0%	0.0%	-0.1%
France	6.2%	7.3%	0.9%	7.1%	-0.1%	0.0%	-0.1%	0.1%	-0.1%
Germany	14.1%	8.5%	4.6%	6.5%	0.4%	0.0%	0.0%	-0.1%	0.2%
Greece*	--	-3.3%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	-0.1%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	3.9%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Italy	--	6.5%	0.0%	1.5%	--	0.0%	0.0%	--	0.0%
Netherlands	--	11.3%	0.0%	2.3%	--	-0.1%	0.0%	--	-0.1%
Norway	--	1.5%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	17.8%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	15.4%	8.2%	1.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%
Russia*	4.8%	-4.8%	0.0%	1.0%	0.1%	0.1%	-0.1%	0.0%	0.1%
Spain	8.4%	14.7%	2.4%	2.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Sweden	10.5%	10.0%	5.4%	2.0%	0.0%	0.1%	0.1%	0.0%	0.2%
Switzerland	13.3%	8.8%	6.5%	6.1%	0.3%	0.0%	0.0%	0.0%	0.3%
United Kingdom	7.8%	5.1%	16.8%	12.8%	0.3%	-0.1%	0.1%	0.1%	0.4%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
AsiaPacific									
Australia	9.6%	11.0%	6.8%	5.2%	-0.1%	0.0%	0.1%	0.0%	0.0%
China*	17.8%	13.0%	6.4%	6.0%	0.3%	0.0%	0.0%	0.0%	0.3%
Hong Kong	-0.5%	13.2%	1.4%	2.3%	-0.3%	-0.1%	0.0%	0.1%	-0.3%
India*	14.2%	17.2%	1.3%	1.9%	0.0%	0.0%	-0.1%	0.0%	-0.1%
Indonesia*	--	7.1%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Japan	5.2%	4.5%	20.8%	17.1%	0.1%	-0.2%	0.2%	0.0%	0.1%
Korea*	16.0%	16.7%	3.5%	3.3%	0.1%	0.0%	-0.2%	0.0%	0.0%
Malaysia*	3.9%	8.3%	0.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	--	2.4%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Philippines*	11.8%	6.3%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	17.9%	13.5%	4.5%	0.9%	0.1%	0.2%	0.1%	0.2%	0.5%
Taiwan*	16.2%	11.8%	3.6%	2.7%	0.3%	0.0%	-0.2%	0.1%	0.2%
Thailand*	--	8.7%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Americas									
Brazil*	--	10.3%	0.0%	1.8%	--	0.0%	-0.1%	--	-0.1%
Canada	--	2.8%	0.0%	7.1%	--	0.2%	0.0%	--	0.2%
Chile*	--	16.1%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	5.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	27.9%	16.0%	0.6%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%
Peru*	--	5.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
United States	13.3%	6.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	--	1.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	5.7%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Qatar*	--	1.4%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
South Africa*	16.5%	4.6%	3.3%	1.6%	0.2%	-0.1%	0.0%	0.2%	0.4%
Turkey*	--	10.9%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
United Arab Emirates*	--	1.7%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Totals									
Americas	16.0%	5.6%	2.4%	10.1%	1.0%	0.1%	-0.1%	-0.8%	0.3%
Europe	9.5%	7.4%	43.4%	45.6%	1.0%	0.0%	-0.1%	0.0%	0.9%
Asia/Pacific	10.3%	9.4%	49.5%	41.4%	0.7%	0.0%	-0.1%	0.1%	0.8%
Other	16.5%	4.8%	3.3%	2.8%	0.3%	0.0%	0.0%	0.1%	0.4%
Cash	0.1%	--	1.3%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	**10.2%**	**7.9%**	**100.0%**	**100.0%**	**3.1%**	**0.0%**	**-0.3%**	**-0.6%**	**2.2%**
Totals									
Developed	8.8%	6.9%	78.8%	77.3%	1.2%	0.0%	0.3%	0.0%	1.5%
Emerging*	16.4%	11.4%	19.9%	22.7%	1.6%	-0.1%	-0.6%	-0.2%	0.8%
Cash	0.1%	--	1.3%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%



Return (Rank)

	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	11.1		26.0		21.0		9.7		5.5		12.6		10.6		6.7	
25th Percentile	8.6		18.5		17.0		5.7		3.3		8.3		8.1		3.1	
Median	7.6		16.6		14.1		3.9		1.6		6.5		6.1		1.8	
75th Percentile	6.5		10.6		10.5		2.1		0.1		5.6		4.8		1.0	
95th Percentile	5.0		7.4		6.7		-1.4		-3.2		3.4		2.0		0.7	
# of Portfolios	37		36		35		32		30		25		21		18	
● Mondrian	8.1	(32)	11.1	(74)	11.5	(69)	1.7	(78)	0.8	(67)	4.8	(87)	4.7	(86)	1.6	(60)
▲ MSCI ACWI ex USA Value Gross	6.8	(71)	19.2	(23)	17.4	(22)	1.7	(77)	0.0	(76)	4.4	(89)	3.6	(91)	1.3	(67)
✖ MSCI ACWI ex USA Gross	8.0	(38)	14.2	(70)	13.7	(52)	1.8	(77)	1.0	(60)	4.8	(87)	4.3	(89)	1.8	(50)

Characteristics

	Portfolio	MSCI ACWI ex USA Value Gross
Number of Holdings	136	1,060
Weighted Avg. Market Cap. ($B)	52.9	49.2
Median Market Cap. ($B)	17.5	7.1
Price To Earnings	21.8	16.2
Price To Book	2.0	1.6
Price To Sales	1.7	1.5
Return on Equity (%)	11.5	10.3
Yield (%)	3.6	3.6
Beta (holdings; global)	1.0	1.1

Top Holdings

BANK RAKYAT INDONESIA	8.0%
BANK MANDIRI	5.1%
SANOFI	2.8%
IBERDROLA	2.5%
SYNGENTA	2.5%
KIRIN HOLDINGS	2.5%
GLAXOSMITHKLINE	2.4%
ABB LTD N	2.4%
HONDA MOTOR	2.3%
TAKEDA PHARMACEUTICAL	2.3%

Best Performers

	Return %
INDIABULLS HOUSING FIN (IN:IEZ)	62.1%
CAIRN INDIA	32.0%
ARCA CONTINENTAL (MX:ARC)	31.7%
G4S	31.0%
KAZMUNAIGAS EXP.PRDN.GDR REG S	30.0%
WALMART DE MEXICO 'V'	27.9%
RELIANCE INDUSTRIES (IN:REL)	27.6%
GRUPO FINANCIERO STDR. MEX.SR.B ADR 1:5	25.6%
HOUSING DEVELOPMENT FIN.	24.6%
ROMGAZ GDR REGS	23.6%

Worst Performers

	Return %
PEARSON	-15.6%
NEXT	-12.3%
BIDVEST GROUP	-12.2%
OAO GAZPROM SPN.ADR 1:2	-11.7%
TESCO (UKIR:TSCO)	-9.2%
BP (UKIR:BP.)	-7.5%
KINGFISHER (UKIR:KGF)	-5.8%
LUKOIL OAO SPN.ADR 1:1 (LUKOY)	-5.5%
ROYAL DUTCH SHELL B (UKIR:RDSB)	-4.5%
SUZANO BAHIA SUL PAPEL CELULOSE A PN	-4.3%

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	0.1%		0.1%		0.0%		-0.1%	0.0%	-0.6%	9.8%	10.5%
Materials	-0.2%		0.1%		-0.1%		-0.2%	9.1%	8.9%	3.0%	7.4%
Industrials	0.4%		0.4%		0.0%		0.0%	14.0%	10.4%	10.4%	10.2%
Consumer Discretionary	-0.2%		-0.1%		0.0%		0.0%	0.9%	2.7%	10.8%	10.2%
Consumer Staples	0.3%		0.0%		0.0%		0.3%	7.4%	7.9%	11.5%	1.6%
Health Care	0.5%		0.1%		0.2%		0.3%	11.3%	8.8%	9.9%	3.3%
Financials	-0.4%		0.5%		-0.2%		-0.8%	9.0%	7.4%	16.5%	38.1%
Information Technology	0.4%		0.1%		0.1%		0.2%	13.0%	12.3%	9.0%	4.5%
Telecommunication Services	0.4%		0.2%		0.0%		0.2%	9.5%	5.8%	9.6%	5.8%
Utilities	0.2%		0.1%		0.0%		0.0%	9.1%	7.4%	6.5%	4.3%
Real Estate	0.0%		0.0%		0.0%		0.0%	10.0%	8.9%	2.6%	4.1%
Cash	0.0%		0.0%		0.0%		0.0%	0.1%	--	0.3%	0.0%
Portfolio	**1.5%**	**=**	**1.5%**	**+**	**0.0%**	**+**	**0.0%**	**8.2%**	**6.7%**	**100.0%**	**100.0%**

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

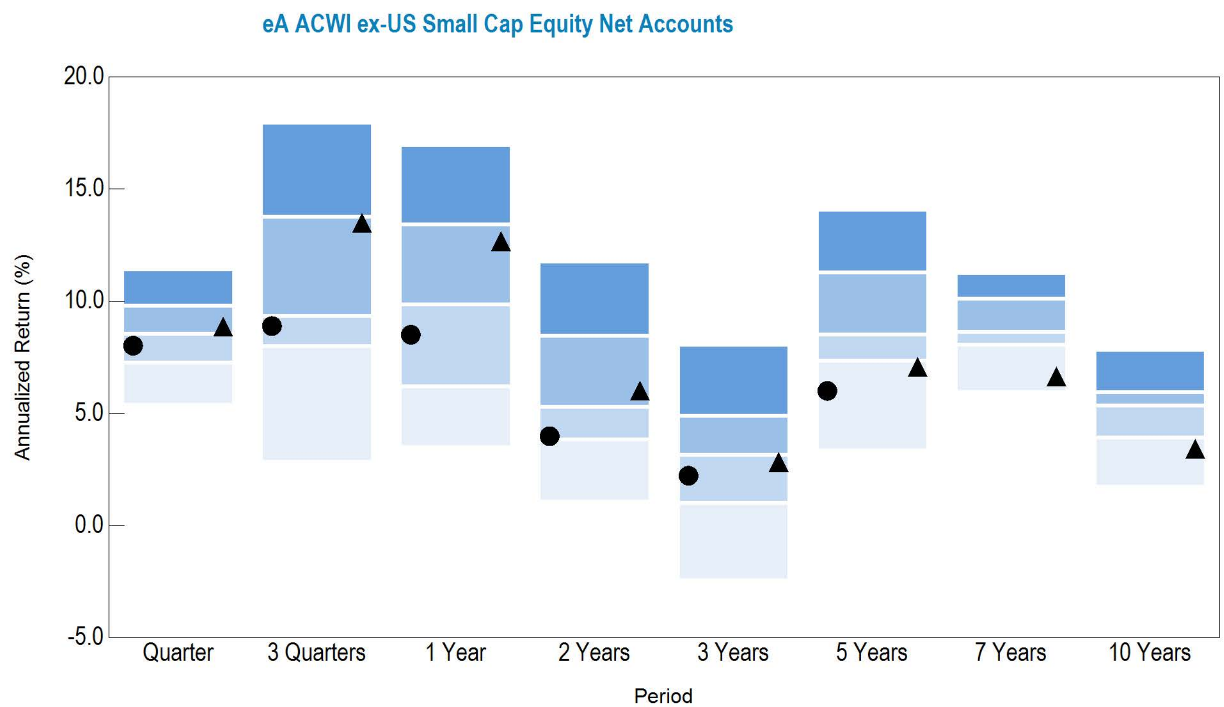
	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Austria	--	9.5%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Belgium	--	5.4%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	3.4%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	15.4%	11.0%	0.8%	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%
Finland	--	7.4%	0.0%	1.0%	--	0.0%	0.0%	--	0.0%
France	9.4%	5.6%	5.9%	8.0%	0.3%	0.0%	0.0%	-0.1%	0.2%
Germany	7.3%	7.9%	8.3%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	--	-3.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	-2.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	1.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Italy	4.4%	5.9%	3.5%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-0.1%	8.3%	3.6%	1.4%	-0.1%	0.1%	0.0%	-0.2%	-0.2%
Norway	--	3.0%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	18.4%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	--	7.9%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Russia*	-9.6%	-4.9%	0.8%	1.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
Spain	15.3%	16.0%	4.2%	3.3%	0.0%	0.1%	0.0%	0.0%	0.1%
Sweden	8.5%	10.6%	3.5%	2.2%	0.0%	0.1%	0.0%	0.0%	0.0%
Switzerland	8.0%	5.3%	10.1%	3.5%	0.1%	0.0%	0.1%	0.2%	0.4%
United Kingdom	3.5%	2.3%	19.6%	13.8%	0.2%	-0.2%	0.1%	0.1%	0.1%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
AsiaPacific									
Australia	12.2%	11.4%	1.0%	5.3%	0.0%	-0.1%	-0.2%	0.0%	-0.3%
China*	8.8%	8.9%	0.8%	6.0%	0.0%	-0.3%	0.0%	0.0%	-0.2%
Hong Kong	8.6%	14.4%	2.8%	2.2%	-0.1%	0.1%	0.0%	0.0%	-0.1%
India*	23.0%	16.6%	2.5%	1.9%	0.1%	0.1%	0.0%	0.0%	0.2%
Indonesia*	11.3%	9.0%	0.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	10.0%	3.3%	14.2%	17.2%	1.1%	0.2%	-0.1%	-0.2%	1.0%
Korea*	15.2%	15.5%	1.9%	3.2%	0.0%	0.0%	-0.1%	0.0%	-0.2%
Malaysia*	9.7%	10.7%	1.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	--	4.6%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Philippines*	18.9%	8.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	13.0%	14.0%	4.5%	0.9%	0.0%	0.2%	0.1%	0.0%	0.3%
Taiwan*	12.8%	12.2%	2.7%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	8.1%	13.6%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	5.7%	10.6%	1.2%	1.8%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Canada	5.3%	2.3%	1.1%	7.4%	0.2%	0.1%	0.0%	-0.2%	0.1%
Chile*	14.7%	20.5%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	--	5.3%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	16.5%	15.9%	1.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	3.4%	4.4%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	16.4%	6.3%	0.2%	0.0%	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				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	--	2.4%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	-4.3%	0.0%	0.5%	--	0.1%	0.0%	--	0.0%
Kazakhstan**	30.0%	6.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	-0.3%	3.2%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	23.6%	6.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	1.3%	-1.1%	1.2%	1.7%	0.0%	0.0%	0.0%	0.0%	0.1%
Turkey*	14.6%	12.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	8.4%	3.1%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	9.1%	5.3%	3.9%	10.5%	0.3%	0.0%	-0.1%	-0.2%	0.1%
Europe	6.3%	5.9%	60.4%	45.4%	0.2%	0.0%	0.2%	0.1%	0.5%
Asia/Pacific	11.9%	8.4%	32.8%	41.3%	1.3%	0.0%	-0.3%	-0.3%	0.8%
Other	4.5%	0.1%	2.5%	2.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Cash	0.1%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**8.2%**	**6.7%**	**100.0%**	**100.0%**	**2.0%**	**0.0%**	**-0.2%**	**-0.4%**	**1.5%**
Totals									
Developed	7.6%	5.8%	83.4%	77.5%	1.6%	0.0%	0.0%	0.1%	1.7%
Emerging*	11.3%	10.1%	16.1%	22.5%	0.2%	-0.2%	-0.2%	0.0%	-0.2%
Frontier**	27.0%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.1%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



	Return (Rank)							
5th Percentile	11.4	18.0	16.9	11.8	8.1	14.1	11.2	7.8
25th Percentile	9.8	13.8	13.4	8.5	4.9	11.3	10.1	6.0
Median	8.6	9.4	9.9	5.3	3.1	8.5	8.7	5.4
75th Percentile	7.3	8.0	6.2	3.8	1.0	7.4	8.1	3.9
95th Percentile	5.4	2.9	3.5	1.1	-2.4	3.3	6.0	1.7
# of Portfolios	44	43	43	38	31	23	17	12
● **FIAM Equity**	8.0 (63)	8.9 (64)	8.5 (61)	4.0 (75)	2.2 (66)	6.0 (86)	-- (--)	-- (--)
▲ **MSCI ACWI ex US Small Cap Gross**	8.9 (44)	13.5 (28)	12.7 (30)	6.0 (42)	2.8 (56)	7.1 (79)	6.6 (94)	3.4 (84)

Characteristics

	Portfolio	MSCI ACWI ex-US Small Cap
No. of Securities	226	4,262
Wgtd. Avg. Market Cap (000's)	2,609	2,062
Price to Book Ratio	1.8	1.6
Return on Equity	11.9%	10.7%

Ten Holdings

TECHTRONIC INDUSTRIES CO LTD	1.6
OBIC CO LTD	1.3
JUNGHEINRICH AG NON-VTG PFD	1.2
FRUTAROM INDS LTD	1.2
NIHON PARKERIZING CO LTD	1.1
IWG PLC	1.1
AAREAL BANK AG	1.0
QUEBECOR INC CL B SUB VTG	1.0
NITTO KOHKI CO LTD	1.0
MELIA HOTELS INTERNATIONAL SA	1.0

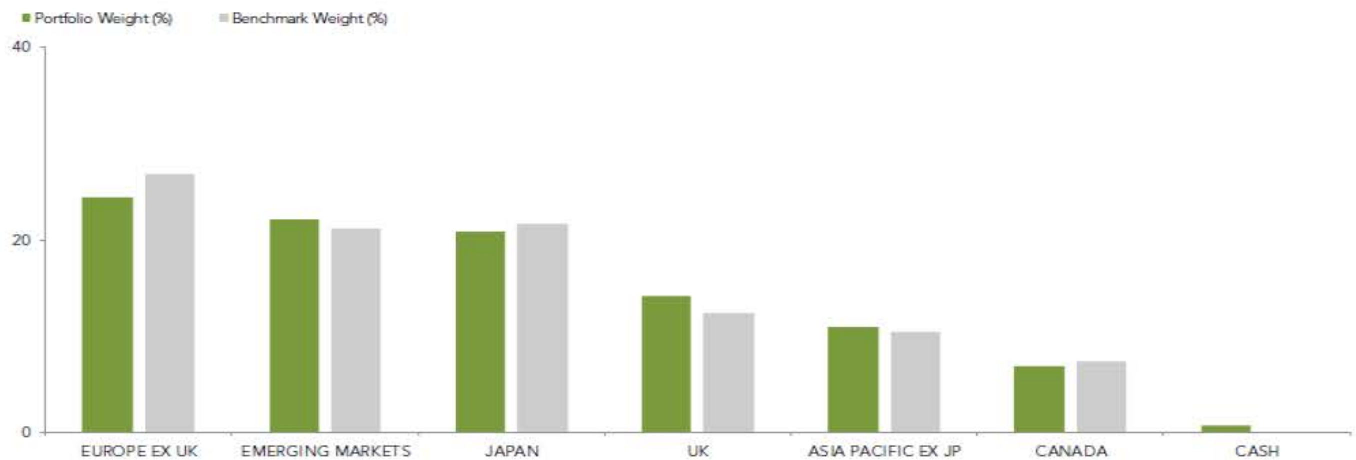
Best Performers (Absolute Return %)

NIPPON DENKO CO	69.2
LG INNOTEK CO LTD	66.1
TEGMA GESTAO LOGISTICA	54.0
RELIANCE CAPITAL LTD	49.4
EPISTAR CORP	47.1
INTERPUMP GROUP SPA	42.2
MEDY-TOX INC	39.8
IMARKETKOREA INC	37.7
TCC INTERNATIONAL HLDGS LTD	35.6
CIMC ENRIC HOLDINGS LTD	33.4

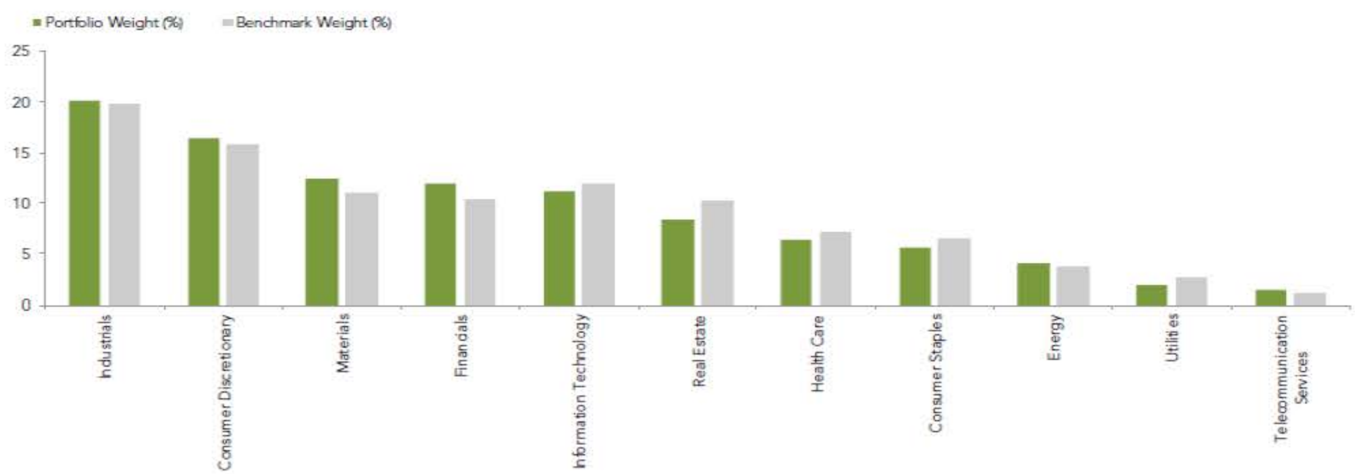
Worst Performers (Absolute Return %)

TRILOGY ENERGY CORP	(35.1)
TULLOW OIL PLC	(24.3)
WESTERN ENERGY SERVICES CORP	(23.4)
CAPCOM CO LTD	(16.4)
DETOUR GOLD CORP	(16.2)
AWE LTD	(15.9)
TAHOE RESOURCES INC	(14.7)
WHITECAP RESOURCES INC	(13.9)
SCHOELLER-BLECKMANN OIL (AUST)	(13.7)
AMER SPORTS OYJ	(13.0)

REGIONAL WEIGHTS

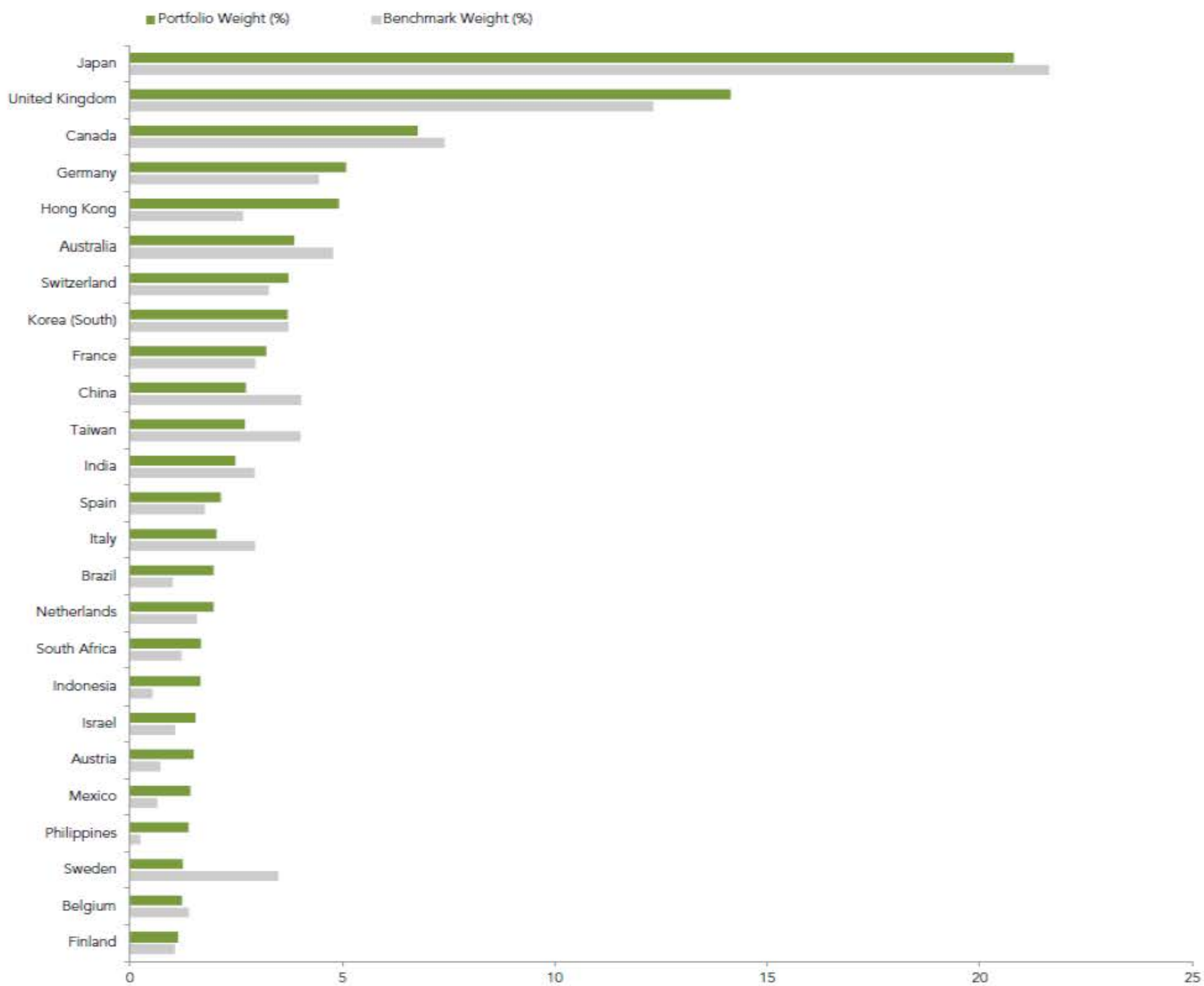


SECTOR WEIGHTS

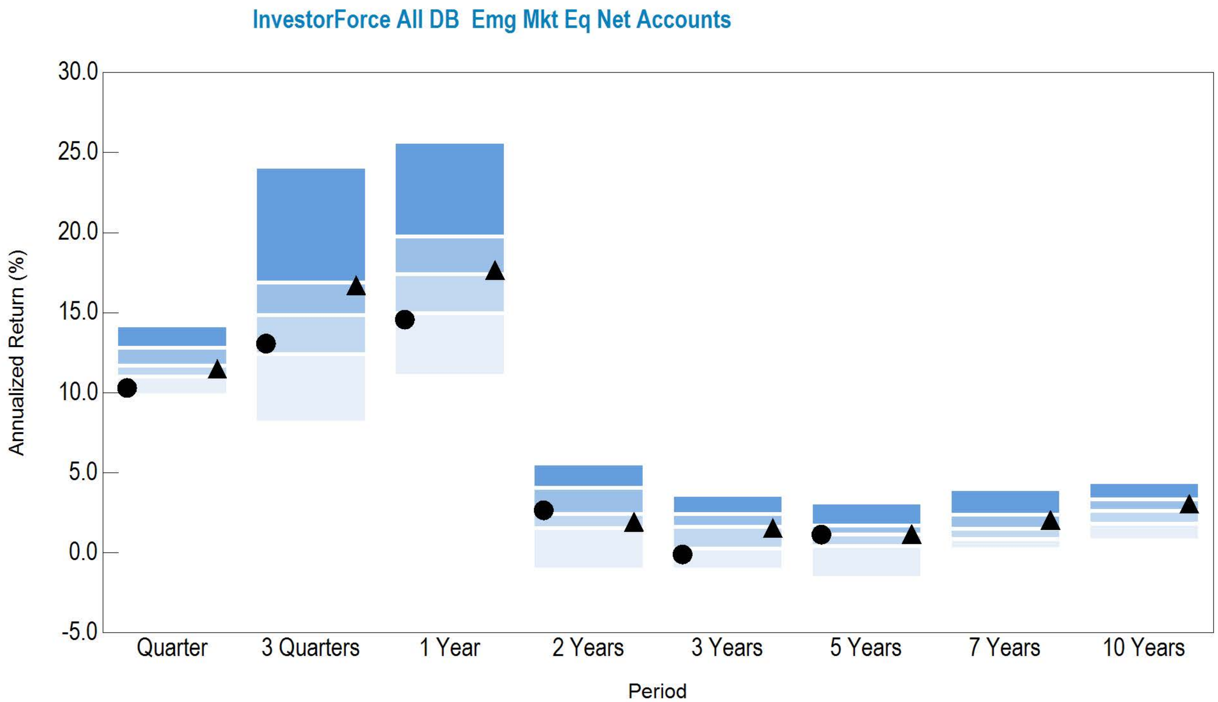


Sector breakdowns are only applied to equities and convertibles and the allocation percentages may not add to 100%.
Benchmark: MSCI AC Wld Sm Cap xUS(N)

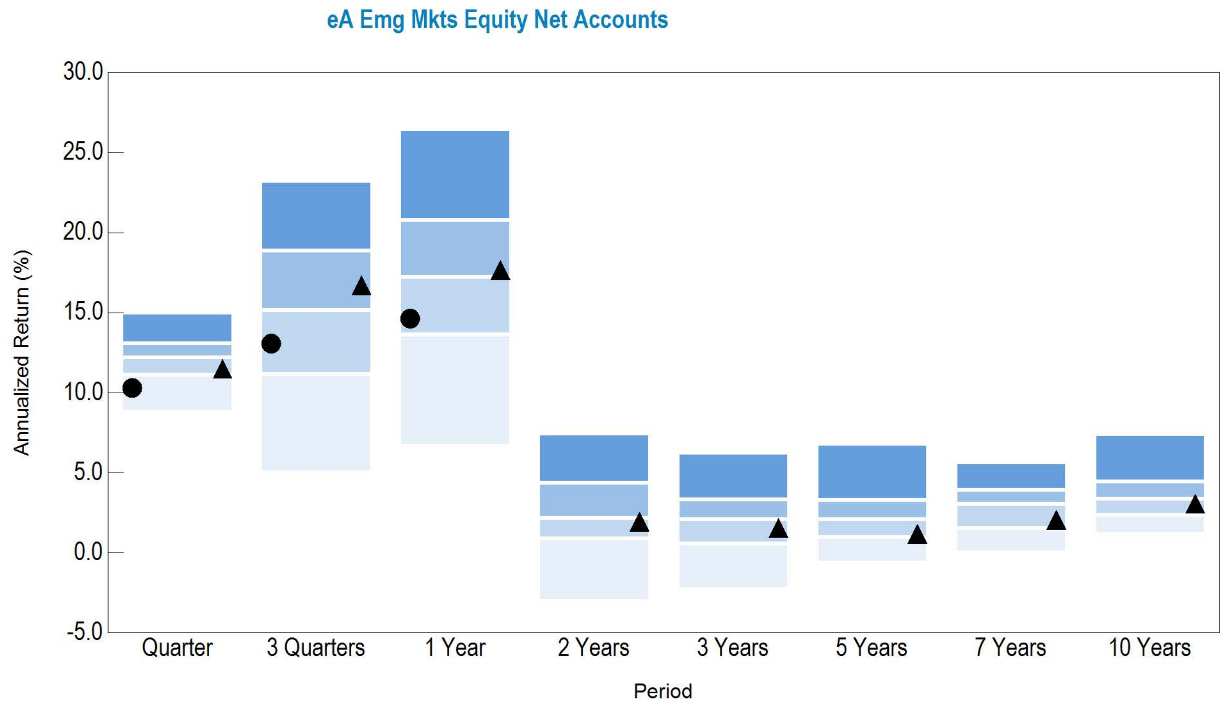
TOP 25 COUNTRY WEIGHTS



Benchmark: MSCI AC Wld Sm Cap xUS(N)



	Return (Rank)															
5th Percentile	14.2		24.1		25.7		5.6		3.6		3.1		4.0		4.4	
25th Percentile	12.8		16.9		19.8		4.1		2.4		1.7		2.4		3.4	
Median	11.7		14.9		17.4		2.4		1.6		1.2		1.5		2.6	
75th Percentile	11.0		12.4		15.0		1.6		0.3		0.4		0.9		1.8	
95th Percentile	9.9		8.2		11.1		-1.0		-1.1		-1.6		0.2		0.8	
# of Portfolios	100		98		98		94		85		62		28		16	
● Emerging Markets	10.3	(89)	13.1	(72)	14.6	(81)	2.6	(43)	-0.1	(84)	1.1	(52)	--	(--)	--	(--)
▲ MSCI Emerging Markets Gross	11.5	(57)	16.7	(28)	17.7	(46)	1.9	(68)	1.5	(55)	1.2	(50)	2.0	(38)	3.1	(33)



Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	15.0		23.2		26.4		7.4		6.2		6.8		5.6		7.4	
25th Percentile	13.1		18.9		20.8		4.4		3.3		3.3		4.0		4.5	
Median	12.2		15.2		17.2		2.2		2.1		2.1		3.1		3.4	
75th Percentile	11.1		11.2		13.7		0.9		0.6		1.0		1.6		2.4	
95th Percentile	8.8		5.0		6.7		-3.0		-2.3		-0.6		0.0		1.2	
# of Portfolios	187		187		187		179		166		130		90		54	
● **Parametric Core**	10.3	(85)	13.1	(66)	14.6	(71)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ **MSCI Emerging Markets Gross**	11.5	(67)	16.7	(40)	17.7	(48)	1.9	(56)	1.5	(62)	1.2	(73)	2.0	(72)	3.1	(61)

Characteristics

	Portfolio	MSCI Emerging Markets Gross
Number of Holdings	1,143	830
Weighted Avg. Market Cap. ($B)	20.3	56.9
Median Market Cap. ($B)	3.1	5.1
Price To Earnings	19.8	19.4
Price To Book	2.9	2.7
Price To Sales	2.5	2.2
Return on Equity (%)	15.5	15.8
Yield (%)	2.7	2.4
Beta (holdings; global)	0.9	0.9

Top Holdings

AMERICA MOVIL SAB DE CV SPN.ADR 'L' 1:20	1.0%
TAIWAN SEMICON.MNFG.	0.9%
CHINA MOBILE	0.8%
SBERBANK OF RUSSIA	0.8%
SAMSUNG ELECTRONICS	0.8%
SASOL	0.7%
GRUPO TELEVISA SPN.ADR 1:5	0.6%
GPO FINANCE BANORTE	0.6%
NASPERS	0.6%
OAO GAZPROM SPN.ADR 1:2	0.6%

Best Performers

	Return %
YINGDE GASES GROUP (K:YGGC)	108.6%
GRUPO ELEKTRA	85.6%
OI PN (BR:LR4)	78.6%
MELCO CWN.(PHILPS.)RSTS. (PH:MCP)	75.1%
AGILE PROPERTY HDG.	70.0%
PRESS METAL (L:PMET)	69.9%
CAP	65.0%
FUFENG GROUP (K:FUFE)	63.9%
INDIABULLS HOUSING FIN. GDR (LX:INF)	62.5%
COUNTRY GARDEN HOLDINGS	60.7%

Worst Performers

	Return %
DRYSHIPS	-94.4%
CHINA HUISHAN DY.HDG.CO.	-86.1%
GRANA Y MONTERO	-53.9%
CEMEX HOLDINGS ORD (PH:CHP)	-37.3%
ARABTEC HOLDING (DU:ART)	-30.2%
UMW OIL & GAS (L:UMWO)	-28.8%
EMPRESAS ICA (MX:IHA)	-27.6%
JAZEERA AIRWAYS	-24.5%
MATAHARI PUTRA PRIMA	-24.5%
NICKEL ASIA	-23.5%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

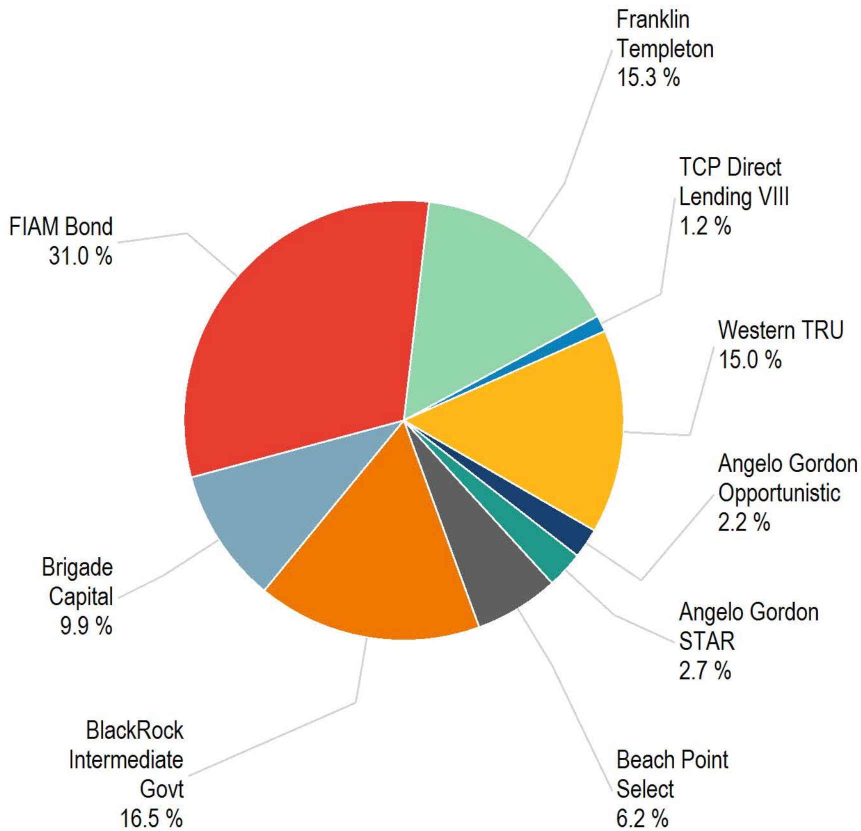
	Attribution Effects					Returns		Sector Weights	
	Total Effects		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.1%		0.3%	-0.1%	0.0%	6.4%	4.3%	9.9%	7.9%
Materials	0.2%		0.1%	-0.1%	0.1%	11.3%	12.0%	13.5%	7.4%
Industrials	0.1%		0.0%	0.1%	0.0%	12.5%	13.6%	9.5%	5.8%
Consumer Discretionary	-0.1%		0.0%	0.0%	-0.1%	12.3%	12.9%	9.6%	10.3%
Consumer Staples	-0.2%		0.0%	-0.1%	-0.1%	5.9%	7.6%	9.3%	7.2%
Health Care	-0.1%		0.0%	-0.2%	0.1%	4.6%	5.5%	5.6%	2.5%
Financials	-0.4%		-0.4%	0.1%	-0.1%	8.4%	10.0%	15.5%	24.3%
Information Technology	-1.7%		-0.6%	-0.7%	-0.3%	13.6%	17.0%	8.0%	23.3%
Telecommunication Services	0.3%		0.2%	-0.1%	0.1%	10.9%	7.7%	8.8%	5.9%
Utilities	0.1%		0.0%	0.0%	0.1%	9.8%	10.2%	7.0%	2.9%
Real Estate	-0.2%		-0.2%	0.0%	0.0%	2.7%	10.5%	2.3%	2.6%
Cash	0.0%		0.0%	0.0%	0.0%	0.1%	--	0.3%	0.0%
Unclassified	0.0%		0.0%	0.0%	0.0%	7.2%	--	0.9%	0.0%
Portfolio	**-1.9%**	**=**	**-0.5% +**	**-1.2% +**	**-0.3%**	**9.5%**	**11.4%**	**100.0%**	**100.0%**

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Europe									
Czech Republic*	7.6%	5.6%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	5.4%	-3.4%	1.7%	0.4%	0.0%	-0.2%	0.0%	0.1%	0.0%
Hungary*	0.2%	-0.1%	1.0%	0.3%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Luxembourg	2.0%	11.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	12.8%	11.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	18.4%	17.7%	3.9%	1.1%	0.0%	0.1%	0.2%	0.0%	0.3%
Russia*	-1.7%	-4.8%	6.8%	4.5%	0.2%	-0.4%	0.0%	0.1%	-0.1%
United Kingdom	1.7%	5.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AsiaPacific									
China*	13.9%	13.0%	5.3%	26.4%	0.2%	-1.1%	0.0%	-0.2%	-1.0%
Hong Kong	10.6%	13.4%	5.3%	0.0%	0.0%	0.3%	0.0%	-0.1%	0.1%
India*	15.8%	17.1%	5.1%	8.3%	0.3%	-0.1%	-0.4%	-0.1%	-0.4%
Indonesia*	5.2%	7.1%	3.4%	2.6%	0.0%	0.0%	0.0%	0.0%	-0.1%
Korea*	14.5%	16.7%	6.8%	14.5%	-0.3%	0.0%	-0.7%	0.1%	-0.8%
Malaysia*	9.7%	8.3%	3.2%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan**	-0.2%	-2.1%	2.2%	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.2%
Philippines*	6.3%	6.3%	3.6%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	20.8%	13.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	11.5%	11.8%	7.6%	12.1%	0.0%	0.1%	-0.3%	0.0%	-0.2%
Thailand*	9.8%	8.7%	3.4%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	11.2%	10.3%	7.9%	7.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Chile*	17.0%	16.1%	3.7%	1.2%	0.0%	0.2%	0.0%	0.0%	0.2%
Colombia*	4.8%	5.7%	1.8%	0.5%	0.0%	-0.1%	0.0%	0.0%	0.0%
Mexico*	15.9%	16.1%	6.0%	3.6%	0.1%	0.0%	0.0%	0.1%	0.2%
Peru*	1.7%	5.5%	1.6%	0.4%	0.0%	0.0%	0.0%	-0.1%	-0.1%
United States	9.6%	6.1%	2.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Returns and Weights				Attribution Effects				
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	Total Effects
Other									
Egypt*	--	1.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Kuwait**	12.0%	10.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Qatar*	1.3%	1.3%	1.8%	0.9%	0.0%	-0.1%	0.0%	0.0%	-0.1%
South Africa*	3.8%	4.6%	6.8%	7.2%	-0.1%	0.0%	0.0%	0.0%	0.0%
Turkey*	10.4%	10.9%	3.8%	1.0%	0.0%	0.2%	-0.1%	0.0%	0.1%
United Arab Emirates*	-1.5%	1.6%	1.6%	0.9%	0.0%	0.0%	0.0%	0.0%	-0.1%
Totals									
Americas	12.1%	12.1%	23.2%	13.3%	0.2%	0.0%	0.1%	0.2%	0.4%
Europe	5.3%	-0.2%	14.7%	6.5%	0.5%	-1.1%	0.2%	0.6%	0.2%
Asia/Pacific	10.9%	13.4%	46.1%	70.0%	-1.0%	-0.5%	-1.3%	0.3%	-2.5%
Other	5.5%	4.7%	15.8%	10.1%	0.2%	-0.2%	-0.1%	0.1%	0.0%
Cash	0.1%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**9.5%**	**11.4%**	**100.0%**	**100.0%**	**-0.1%**	**-1.8%**	**-1.2%**	**1.2%**	**-2.0%**
Totals									
Developed	10.2%	--	8.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
Emerging*	9.6%	11.4%	87.6%	100.0%	-1.0%	0.0%	-1.2%	0.1%	-2.0%
Frontier**	5.4%	--	4.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Cash	0.1%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



	Actual $	Actual %	Manager Contribution to Excess Return %
Angelo Gordon Opportunistic	$15,889,000	2.2%	0.1%
Angelo Gordon STAR	$19,687,000	2.7%	0.1%
Beach Point Select	$45,711,946	6.2%	0.0%
BlackRock Intermediate Govt	$120,504,719	16.5%	0.0%
Brigade Capital	$72,742,390	9.9%	0.2%
FIAM Bond	$226,604,481	31.0%	0.4%
Franklin Templeton	$111,961,666	15.3%	0.6%
TCP Direct Lending VIII	$8,435,306	1.2%	0.0%
Western Asset TRU	$110,112,390	15.0%	0.3%
Actual vs. Policy Weight Difference			-0.6%
Total	**$731,648,898**	**100.0%**	**1.2%**

Statistics Summary

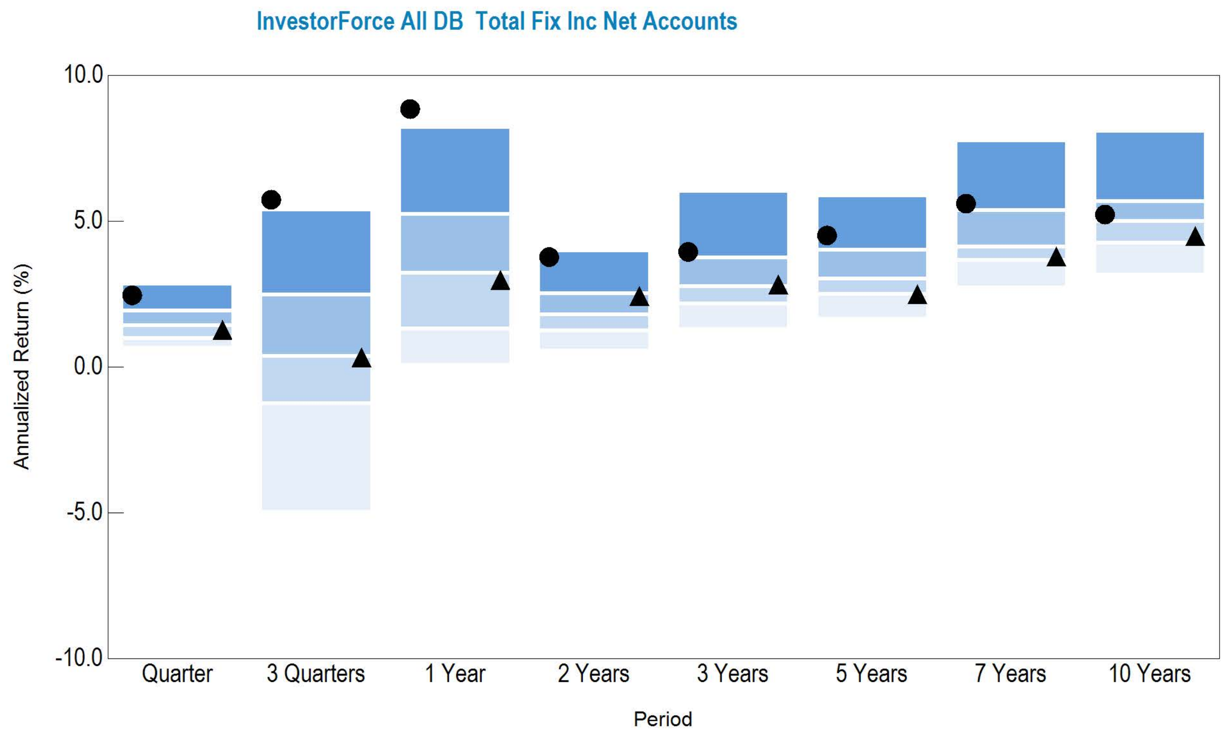
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	3.9%	3.1%	1.2	0.5	2.0%
Blended Fixed Income Index	2.8%	3.1%	0.9	--	0.0%
US Fixed Income	4.1%	2.9%	1.4	0.5	1.5%
Blended US Fixed Index	3.4%	3.0%	1.1	--	0.0%
FIAM Bond	3.3%	3.1%	1.0	0.7	0.9%
BBgBarc US Aggregate TR	2.7%	2.9%	0.9	--	0.0%
Angelo Gordon STAR	8.5%	5.3%	1.6	0.9	6.4%
BBgBarc US Aggregate TR	2.7%	2.9%	0.9	--	0.0%
Brigade Capital	3.7%	7.6%	0.5	-0.2	4.7%
BBgBarc BA Intermediate HY	4.7%	4.8%	0.9	--	0.0%
Global Fixed Income	2.8%	6.5%	0.4	0.4	7.9%
BBgBarc Multiverse TR	-0.2%	5.0%	-0.1	--	0.0%
Franklin Templeton	2.8%	6.5%	0.4	0.4	7.9%
BBgBarc Multiverse TR	-0.2%	5.0%	-0.1	--	0.0%

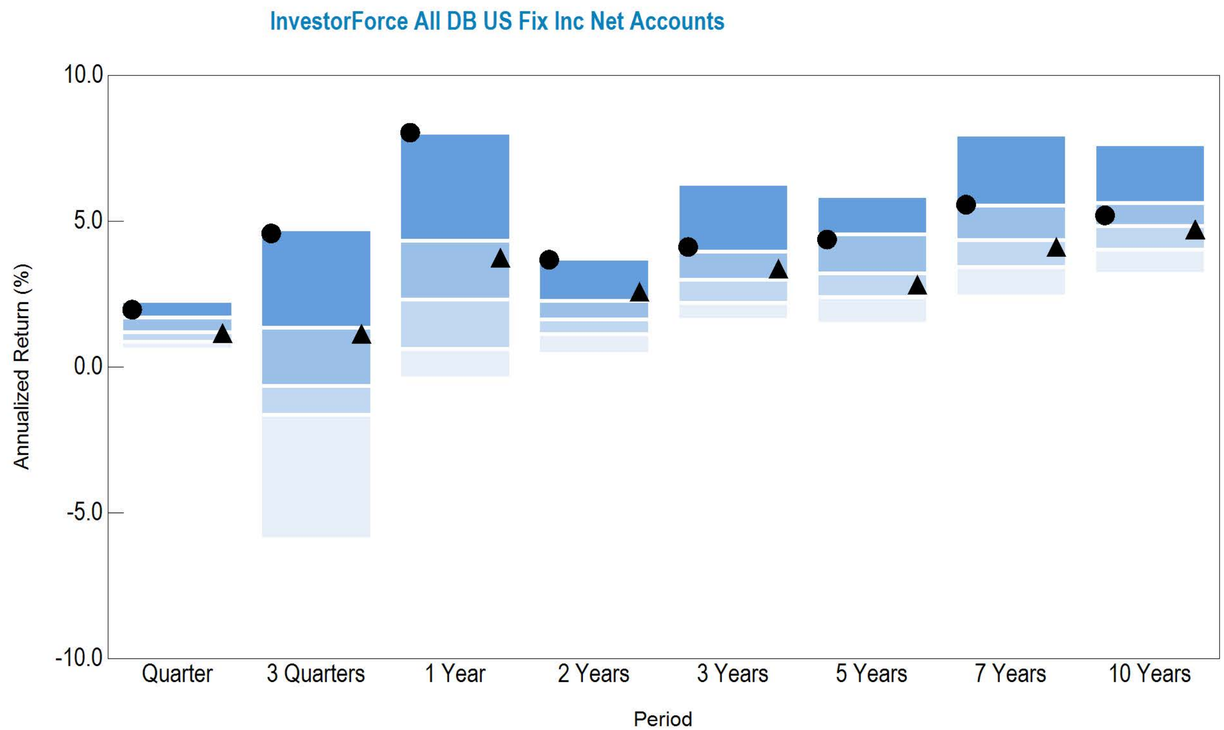
Statistics Summary

5 Years

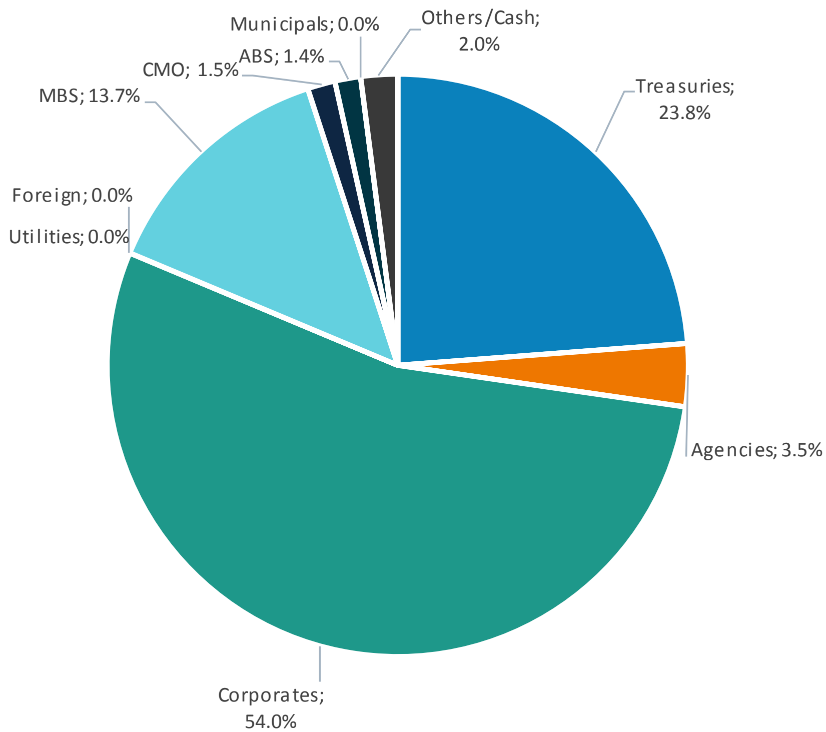
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.5%	3.3%	1.3	1.0	2.0%
Blended Fixed Income Index	2.5%	3.3%	0.7	--	0.0%
US Fixed Income	4.4%	3.0%	1.4	1.2	1.3%
Blended US Fixed Index	2.8%	3.2%	0.8	--	0.0%
FIAM Bond	3.2%	3.1%	1.0	1.1	0.8%
BBgBarc US Aggregate TR	2.3%	2.9%	0.8	--	0.0%
Brigade Capital	6.2%	6.3%	1.0	0.3	4.3%
BBgBarc BA Intermediate HY	4.7%	4.9%	0.9	--	0.0%
Global Fixed Income	4.7%	7.4%	0.6	0.5	7.6%
BBgBarc Multiverse TR	0.7%	4.6%	0.1	--	0.0%
Franklin Templeton	4.7%	7.4%	0.6	0.5	7.6%
BBgBarc Multiverse TR	0.7%	4.6%	0.1	--	0.0%



	Return (Rank)															
5th Percentile	2.8		5.4		8.2		4.0		6.0		5.9		7.8		8.1	
25th Percentile	2.0		2.5		5.3		2.5		3.8		4.0		5.4		5.7	
Median	1.4		0.4		3.2		1.8		2.8		3.0		4.1		5.0	
75th Percentile	1.0		-1.2		1.3		1.3		2.2		2.5		3.7		4.3	
95th Percentile	0.7		-5.0		0.1		0.6		1.3		1.7		2.7		3.2	
# of Portfolios	334		331		331		323		316		284		234		199	
● **Fixed Income**	2.5	(12)	5.7	(4)	8.8	(4)	3.8	(7)	3.9	(23)	4.5	(20)	5.6	(22)	5.2	(42)
▲ **Blended Fixed Income Index**	1.3	(59)	0.3	(51)	3.0	(54)	2.4	(29)	2.8	(48)	2.5	(77)	3.8	(71)	4.5	(69)



	Return (Rank)															
5th Percentile	2.2		4.7		8.0		3.7		6.3		5.9		7.9		7.6	
25th Percentile	1.7		1.4		4.3		2.3		4.0		4.6		5.5		5.6	
Median	1.2		-0.6		2.3		1.6		3.0		3.2		4.4		4.8	
75th Percentile	0.9		-1.6		0.6		1.1		2.2		2.4		3.4		4.0	
95th Percentile	0.6		-5.9		-0.4		0.5		1.6		1.5		2.4		3.2	
# of Portfolios	465		463		462		458		444		376		300		220	
● US Fixed Income	2.0	(12)	4.6	(6)	8.0	(5)	3.7	(6)	4.1	(23)	4.4	(27)	5.6	(25)	5.2	(38)
▲ Blended US Fixed Index	1.2	(54)	1.1	(28)	3.7	(31)	2.6	(19)	3.4	(34)	2.8	(61)	4.1	(58)	4.7	(52)



Sector*	Account Weight	BBgBarc Aggregate Weight	Difference
Treasuries	23.8%	36.0%	-12.2%
Agencies	3.5%	7.9%	-4.4%
Corporates	54.0%	25.8%	28.3%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	13.7%	28.1%	-14.5%
CMO	1.5%	0.0%	1.5%
ABS	1.4%	2.2%	-0.7%
Municipals	0.0%	0.0%	0.0%
Others/Cash	2.0%	0.0%	2.0%
TOTAL	**100.0%**	**100.0%**	**0.0%**

* Sector Allocation excludes Opportunistic Credit Managers.

Bond Summary Statistics

Portfolio Characteristics*		Portfolio	BBgBarc Aggregate
Total Number of Securities			
Total Market Value	$	336,716,871	
Current Coupon		2.15	3.15
Yield to Maturity		3.25	2.59
Average Life		8.85	8.00
Duration		5.15	5.84
Quality		AA-	AA

Yield to Maturity

Range	% Held
0.0 - 5.0	n/a
5.0 - 7.0	n/a
7.0 - 9.0	n/a
9.0 - 11.0	n/a
11.0 - 13.0	n/a
13.0+	n/a
Unclassified	n/a

Average Life

Range	% Held
0.0 - 1.0	1.6
1.0 - 3.0	5.7
3.0 - 5.0	18.1
5.0 - 10.0	62.6
10.0 - 20.0	2.0
20.0+	10.0
Unclassified	0.0

Duration

Range	% Held
0.0 - 1.0	1.7
1.0 - 3.0	6.0
3.0 - 5.0	56.3
5.0 - 7.0	20.3
7.0 - 10.0	4.2
10.0+	11.5
Unclassified	0.0

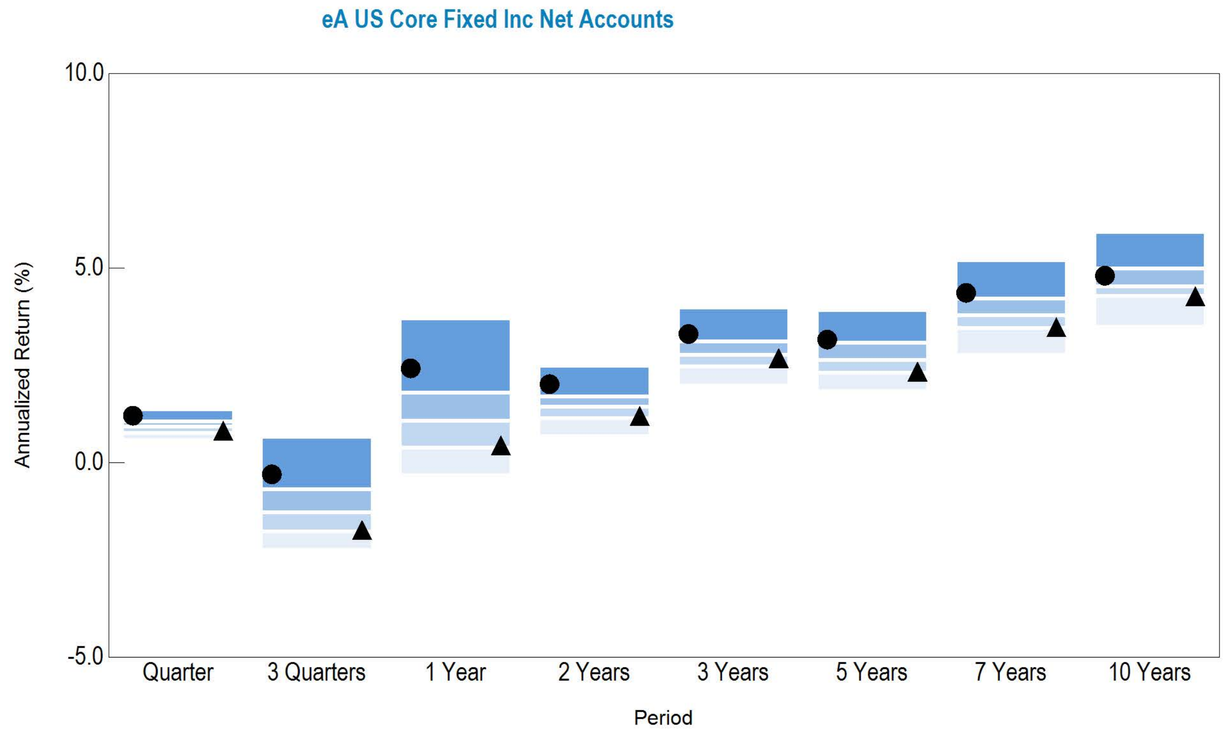
Quality

Range	% Held
Govt (10)	40.3
Aaa (10)	0.6
Aa (9)	0.8
A (8)	41.5
Baa (7)	14.2
Below Baa (6-1)	1.5
Other	1.1

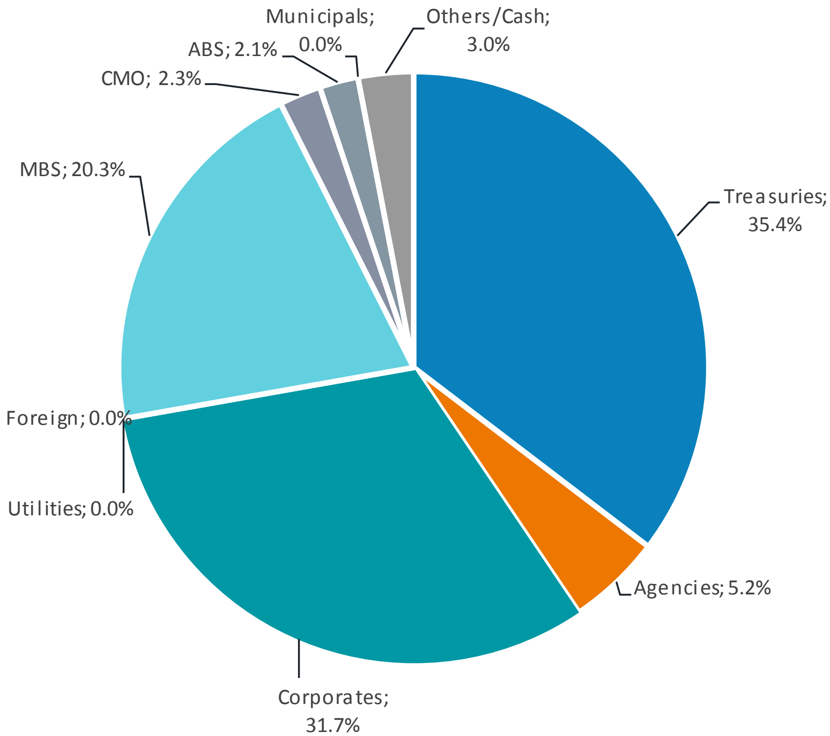
Coupon

Range	% Held
0.0 - 5.0	87.2
5.0 - 7.0	8.2
7.0 - 9.0	1.6
9.0 - 11.0	0.1
11.0 - 13.0	0.0
13.0+	2.9
Unclassified	0.0

* Characteristics excludes Opportunistic Credit Managers.



	Return (Rank)															
5th Percentile	1.4		0.7		3.7		2.5		4.0		3.9		5.2		5.9	
25th Percentile	1.1		-0.7		1.8		1.7		3.1		3.1		4.2		5.0	
Median	0.9		-1.3		1.1		1.4		2.8		2.6		3.8		4.5	
75th Percentile	0.8		-1.8		0.4		1.1		2.5		2.3		3.5		4.3	
95th Percentile	0.6		-2.2		-0.3		0.7		2.0		1.8		2.8		3.5	
# of Portfolios	130		130		129		129		129		126		117		103	
● FIAM Bond	1.2	(11)	-0.3	(13)	2.4	(12)	2.0	(14)	3.3	(15)	3.2	(22)	4.4	(20)	4.8	(34)
▲ BBgBarc US Aggregate TR	0.8	(66)	-1.7	(74)	0.4	(74)	1.2	(71)	2.7	(60)	2.3	(73)	3.5	(75)	4.3	(77)



Sector	Account Weight	BBgBarc Aggregate Weight	Difference
Treasuries	35.4%	36.0%	-0.6%
Agencies	5.2%	7.9%	-2.7%
Corporates	31.7%	25.8%	5.9%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	20.3%	28.1%	-7.8%
CMO	2.3%	0.0%	2.3%
ABS	2.1%	2.2%	0.0%
Municipals	0.0%	0.0%	0.0%
Others/Cash	3.0%	0.0%	3.0%
TOTAL	**100.0%**	**100.0%**	**0.0%**

FIAM Bond Market Duration Pool

Bond Summary Statistics

Period Ending: March 31, 2017

Portfolio Characteristics	Portfolio	BBgBarc Aggregate
Total Number of Securities	873	
Total Market Value	$ 226,604,481	
Current Coupon	3.20	3.15
Yield to Maturity	2.77	2.59
Average Life	8.56	8.00
Duration	6.02	5.84
Quality	AA-	AA

Yield to Maturity

Range	% Held
0.0 - 5.0	93.2
5.0 - 7.0	3.8
7.0 - 9.0	0.6
9.0 - 11.0	0.1
11.0 - 13.0	0.0
13.0+	2.4
Unclassified	0.0

Average Life

Range	% Held
0.0 - 1.0	2.4
1.0 - 3.0	8.5
3.0 - 5.0	26.9
5.0 - 10.0	44.4
10.0 - 20.0	3.0
20.0+	14.9
Unclassified	0.0

Duration

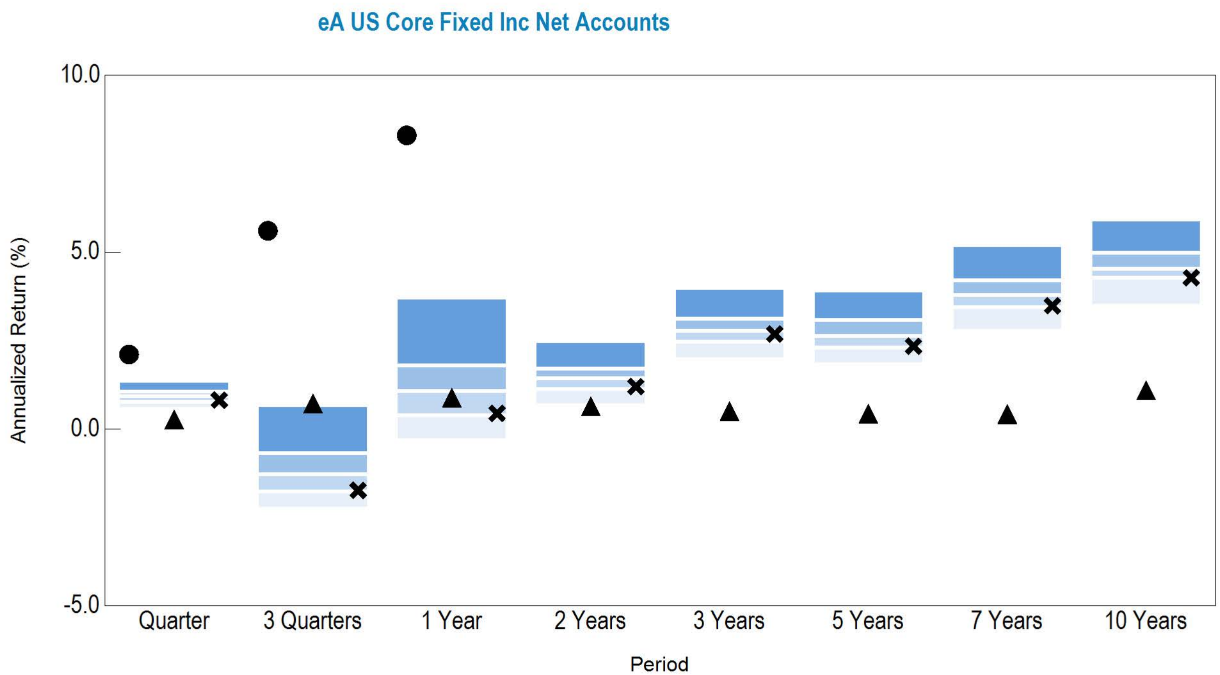
Range	% Held
0.0 - 1.0	2.5
1.0 - 3.0	8.9
3.0 - 5.0	35.1
5.0 - 7.0	30.2
7.0 - 10.0	6.3
10.0+	17.1
Unclassified	0.0

Quality

Range	% Held
Govt (10)	59.9
Aaa (10)	0.9
Aa (9)	1.2
A (8)	13.0
Baa (7)	21.1
Below Baa (6-1)	2.3
Other	1.6

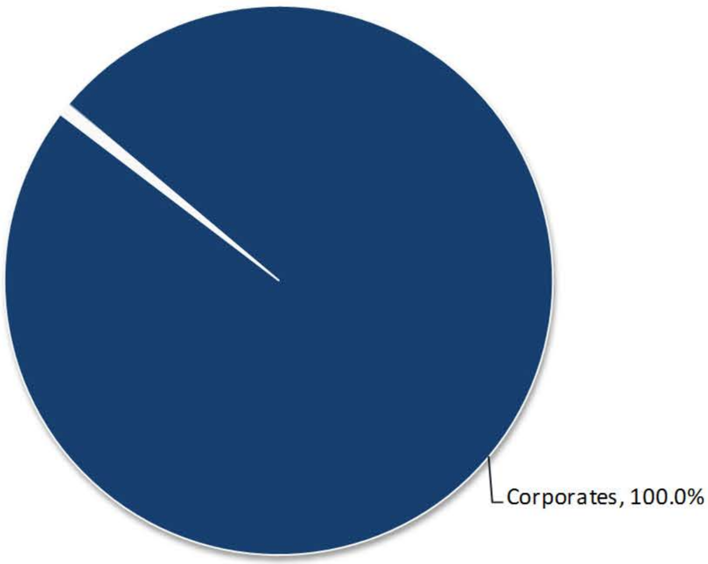
Coupon

Range	% Held
0.0 - 5.0	81.0
5.0 - 7.0	12.2
7.0 - 9.0	2.4
9.0 - 11.0	0.1
11.0 - 13.0	0.0
13.0+	4.4
Unclassified	0.0



	Return (Rank)															
5th Percentile	1.4		0.7		3.7		2.5		4.0		3.9		5.2		5.9	
25th Percentile	1.1		-0.7		1.8		1.7		3.1		3.1		4.2		5.0	
Median	0.9		-1.3		1.1		1.4		2.8		2.6		3.8		4.5	
75th Percentile	0.8		-1.8		0.4		1.1		2.5		2.3		3.5		4.3	
95th Percentile	0.6		-2.2		-0.3		0.7		2.0		1.8		2.8		3.5	
# of Portfolios	130		130		129		129		129		126		117		103	
● Western TRU	2.1	(1)	5.6	(1)	8.3	(1)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ 3-Month Libor Total Return USD	0.3	(99)	0.7	(4)	0.9	(55)	0.6	(97)	0.5	(99)	0.4	(99)	0.4	(99)	1.1	(99)
✖ BBgBarc US Aggregate TR	0.8	(66)	-1.7	(74)	0.4	(74)	1.2	(71)	2.7	(60)	2.3	(73)	3.5	(75)	4.3	(77)

Bond Sector Allocation



Sector	Account Weight	BBgBarc Aggregate Weight	Difference
Treasuries	0.0%	36.0%	-36.0%
Agencies	0.0%	7.9%	-7.9%
Corporates	100.0%	25.8%	74.2%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	0.0%	28.1%	-28.1%
CMO	0.0%	0.0%	0.0%
ABS	0.0%	2.2%	-2.2%
Municipals	0.0%	0.0%	0.0%
Others/Cash	0.0%	0.0%	0.0%
TOTAL	**100.0%**	**100.0%**	**0.0%**

Bond Summary Statistics

Portfolio Characteristics	Portfolio	BBgBarc Aggregate
Total Number of Securities	1	
Total Market Value	$ 110,112,390	
Current Coupon	0.00	3.15
Yield to Maturity	4.25	2.59
Average Life	9.45	8.00
Duration	3.36	5.84
Quality	A-	AA

Yield to Maturity

Range	% Held
0.0 - 5.0	n/a
5.0 - 7.0	n/a
7.0 - 9.0	n/a
9.0 - 11.0	n/a
11.0 - 13.0	n/a
13.0+	n/a
Unclassified	n/a

Average Life

Range	% Held
0.0 - 1.0	0.0
1.0 - 3.0	0.0
3.0 - 5.0	0.0
5.0 - 10.0	100.0
10.0 - 20.0	0.0
20.0+	0.0
Unclassified	0.0

Duration

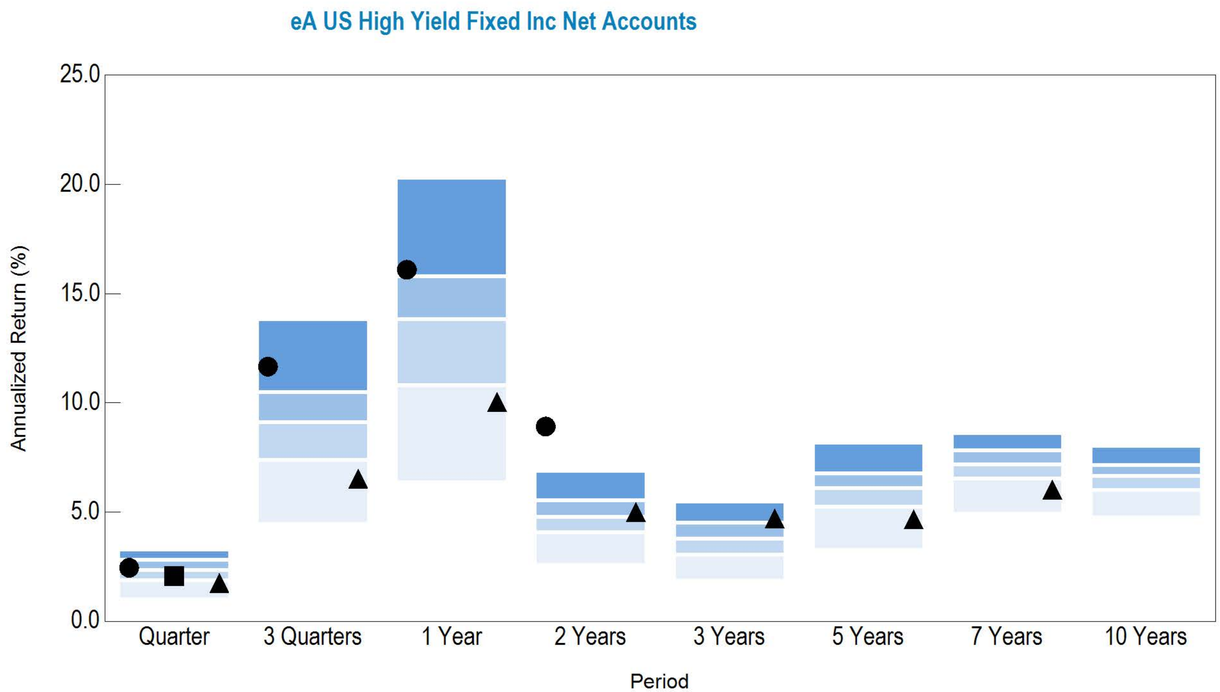
Range	% Held
< 1.0	0.0
1.0 - 3.0	0.0
3.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 10.0	0.0
10.0+	0.0
Unclassified	0.0

Quality

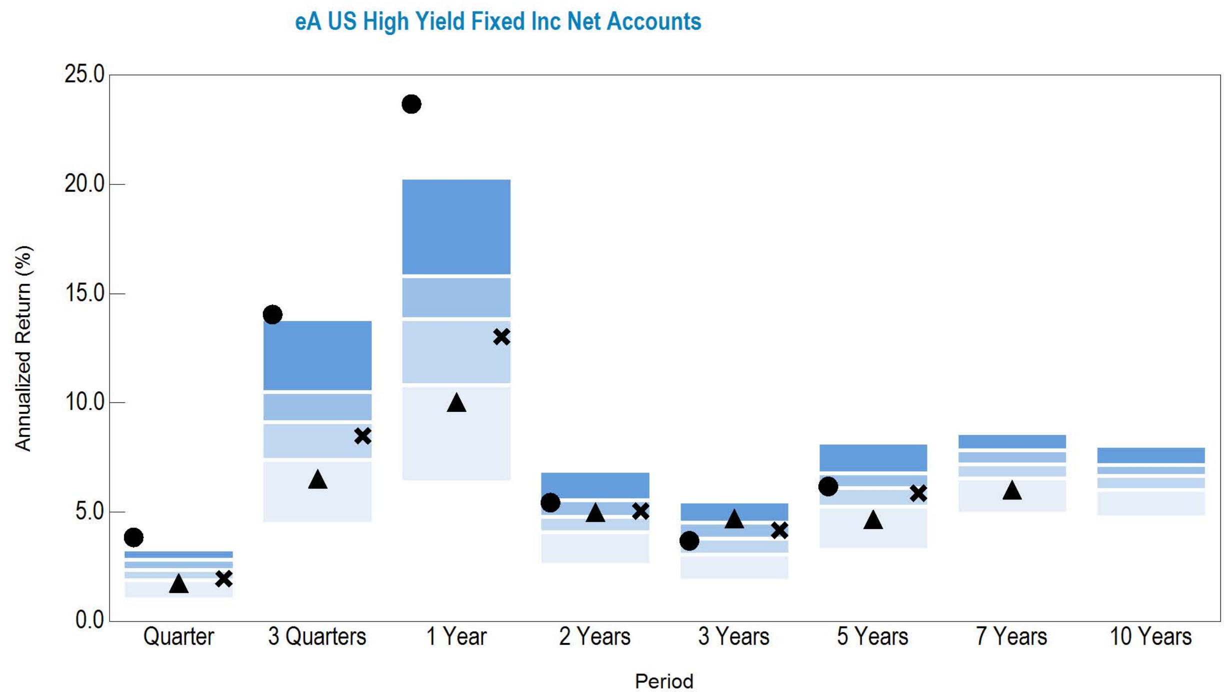
Range	% Held
Govt (10)	0.0
Aaa (10)	0.0
Aa (9)	0.0
A (8)	100.0
Baa (7)	0.0
Below Baa (6-1)	0.0
Other	0.0

Coupon

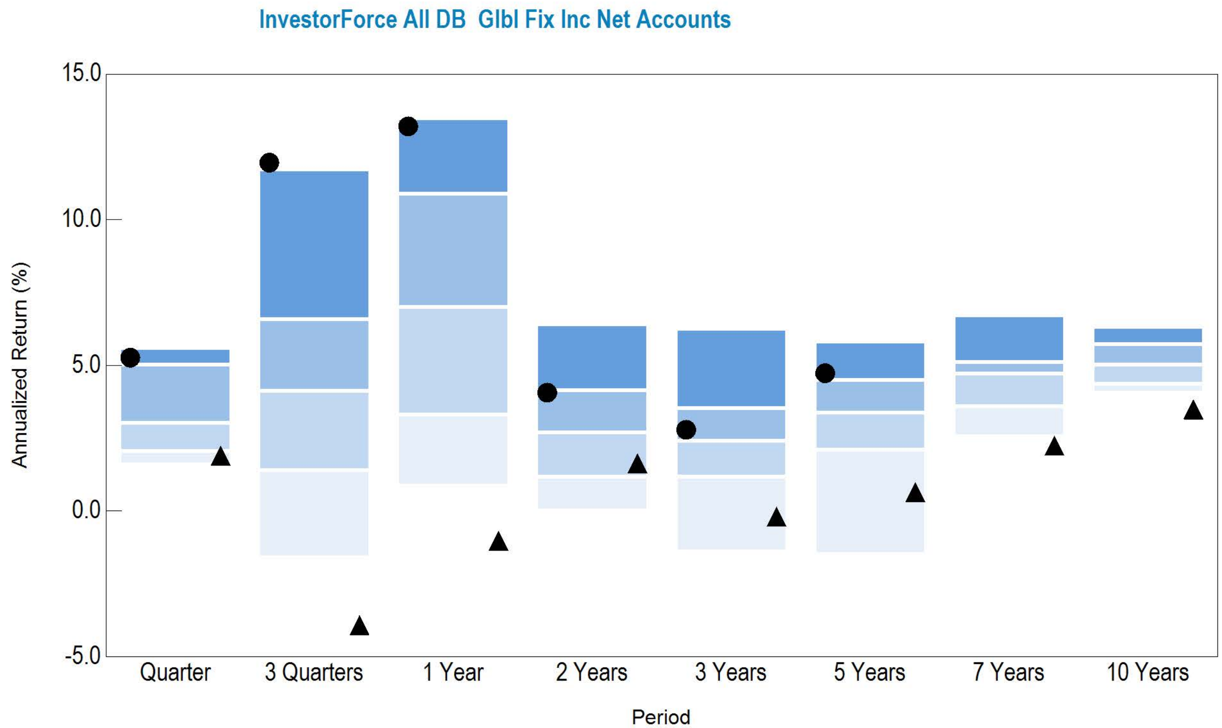
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 10.0	0.0
10.0+	0.0
Unclassified	0.0



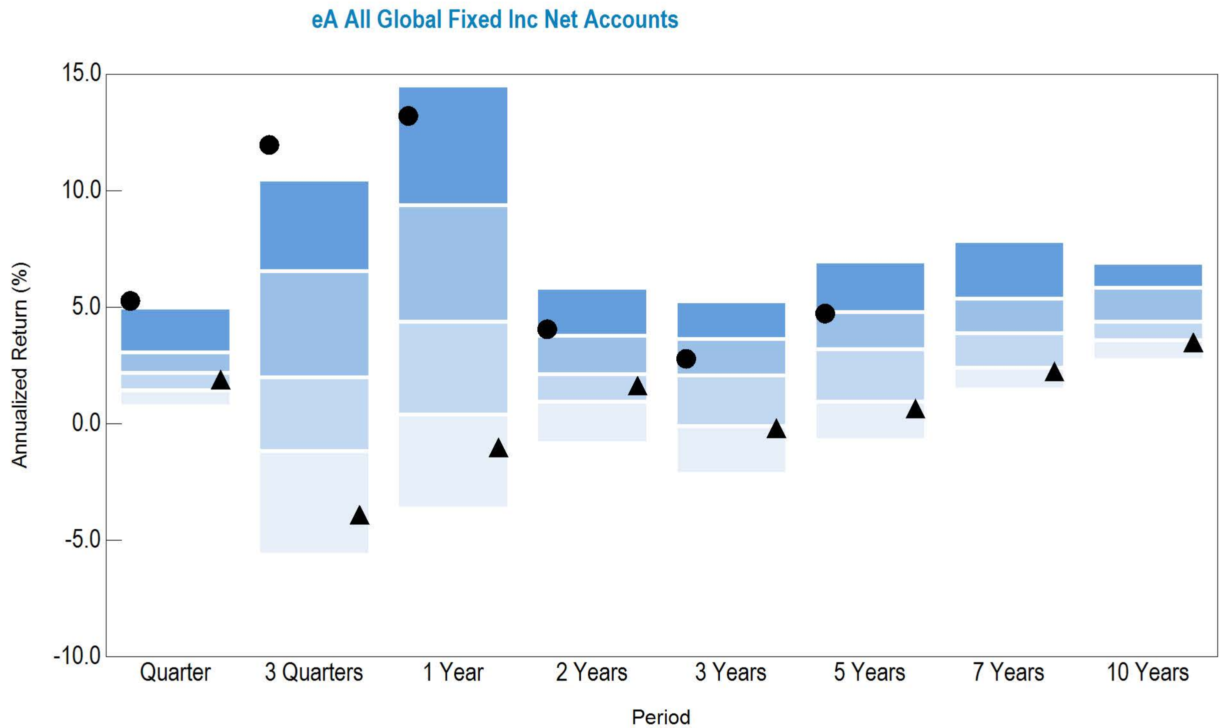
Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	3.3		13.8		20.3		6.9		5.5		8.2		8.6		8.0	
25th Percentile	2.8		10.5		15.8		5.6		4.5		6.8		7.8		7.2	
Median	2.3		9.1		13.8		4.8		3.8		6.1		7.2		6.7	
75th Percentile	1.9		7.4		10.8		4.1		3.1		5.3		6.6		6.0	
95th Percentile	1.0		4.5		6.4		2.6		1.9		3.3		5.0		4.8	
# of Portfolios	119		118		117		111		103		95		81		62	
● Beach Point Select	2.4	(44)	11.7	(16)	16.1	(23)	8.9	(1)	--	(--)	--	(--)	--	(--)	--	(--)
■ TCP Direct Lending VIII	2.1	(70)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ BBgBarc BA Intermediate HY	1.8	(79)	6.5	(82)	10.0	(79)	5.0	(43)	4.7	(22)	4.7	(90)	6.0	(88)	--	(--)



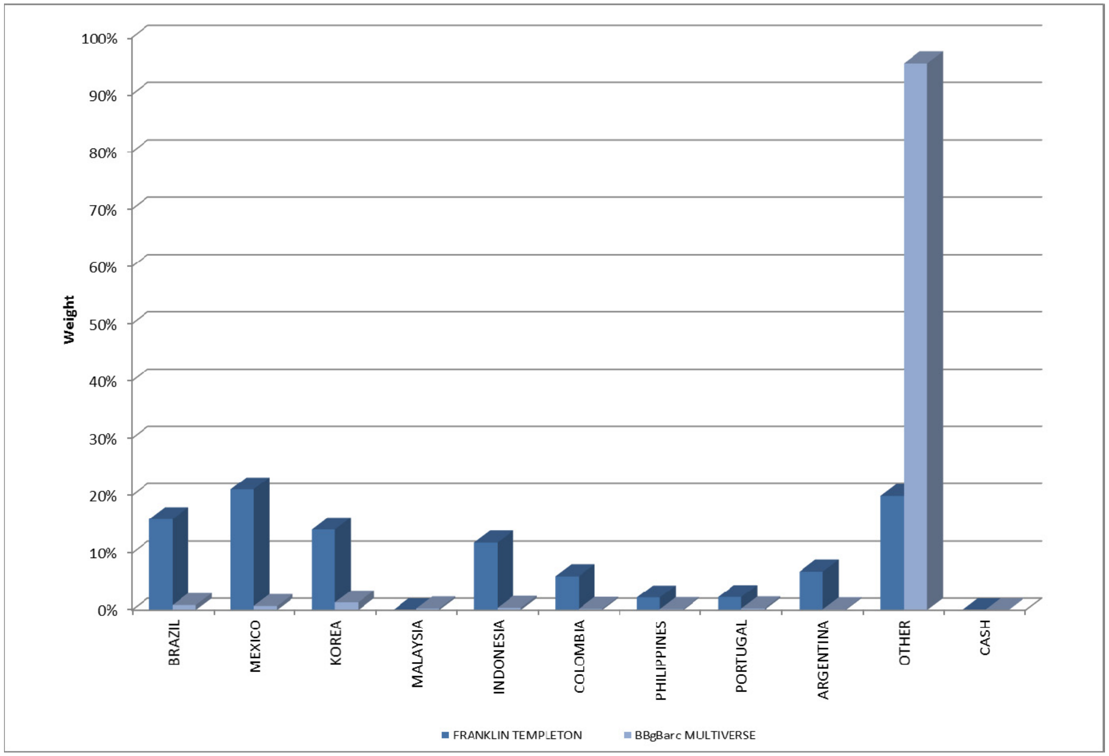
	Return (Rank)															
5th Percentile	3.3		13.8		20.3		6.9		5.5		8.2		8.6		8.0	
25th Percentile	2.8		10.5		15.8		5.6		4.5		6.8		7.8		7.2	
Median	2.3		9.1		13.8		4.8		3.8		6.1		7.2		6.7	
75th Percentile	1.9		7.4		10.8		4.1		3.1		5.3		6.6		6.0	
95th Percentile	1.0		4.5		6.4		2.6		1.9		3.3		5.0		4.8	
# of Portfolios	119		118		117		111		103		95		81		62	
● Brigade Capital	3.8	(3)	14.0	(5)	23.7	(3)	5.4	(32)	3.7	(52)	6.2	(46)	--	(--)	--	(--)
▲ BBgBarc BA Intermediate HY	1.8	(79)	6.5	(82)	10.0	(79)	5.0	(43)	4.7	(22)	4.7	(90)	6.0	(88)	--	(--)
✖ 50% Barclays HY/ 50% Bank Loan	1.9	(74)	8.5	(61)	13.0	(56)	5.0	(42)	4.2	(36)	5.9	(60)	--	(--)	--	(--)



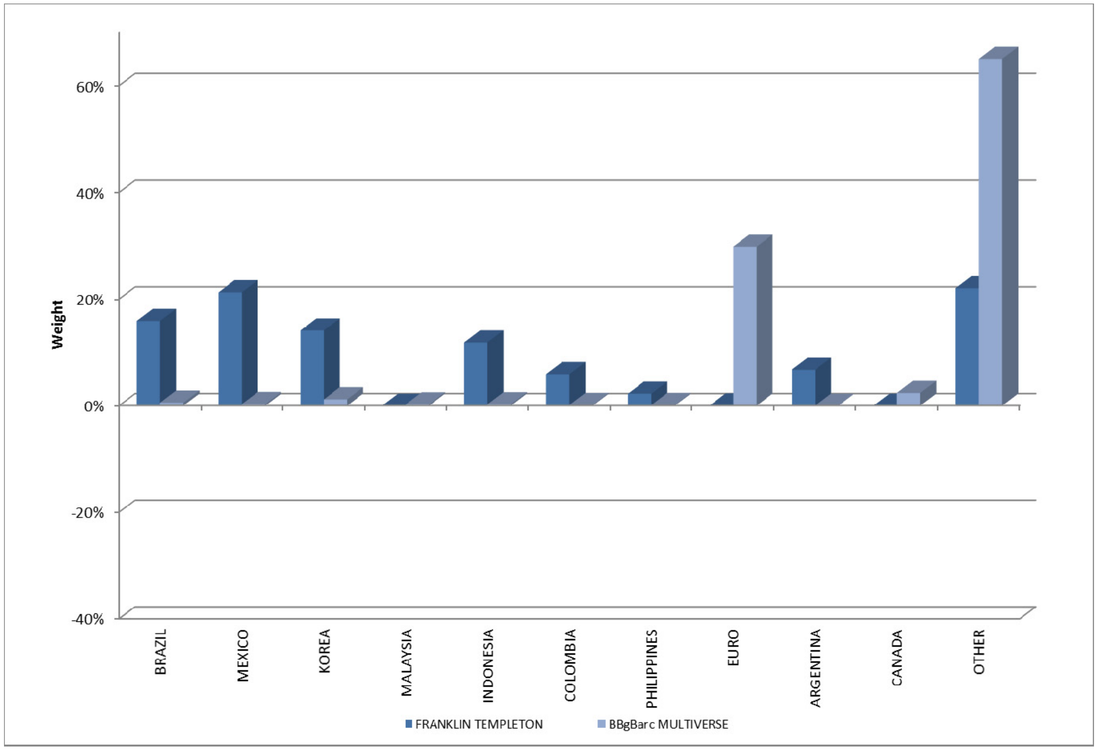
	Return (Rank)															
5th Percentile	5.6		11.7		13.5		6.4		6.2		5.8		6.7		6.3	
25th Percentile	5.0		6.6		10.9		4.2		3.6		4.5		5.1		5.7	
Median	3.1		4.1		7.0		2.7		2.4		3.4		4.7		5.0	
75th Percentile	2.1		1.4		3.3		1.2		1.2		2.1		3.6		4.4	
95th Percentile	1.6		-1.6		0.9		0.0		-1.4		-1.5		2.6		4.1	
# of Portfolios	46		45		45		45		40		35		22		18	
● Global Fixed Income	5.3	(14)	12.0	(3)	13.2	(7)	4.1	(28)	2.8	(44)	4.7	(21)	--	(--)	--	(--)
▲ BBgBarc Multiverse TR	1.9	(80)	-3.9	(99)	-1.0	(99)	1.6	(71)	-0.2	(91)	0.7	(92)	2.2	(99)	3.5	(99)



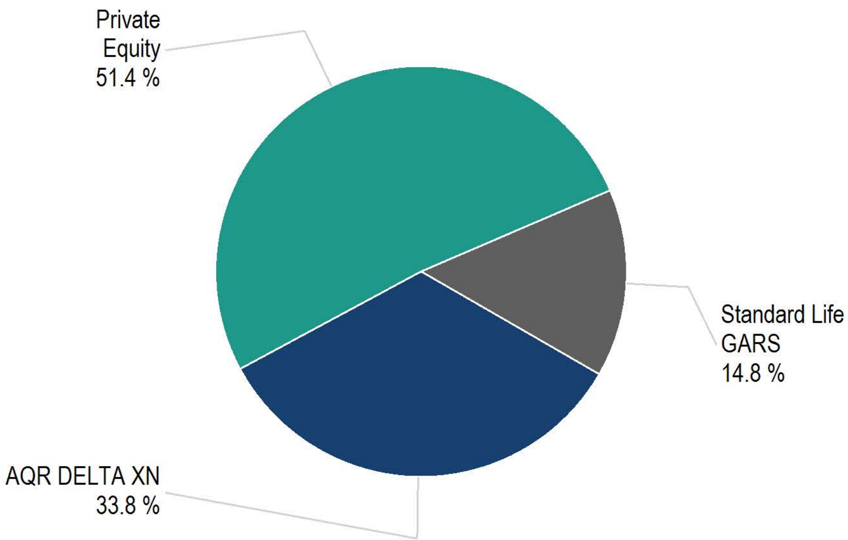
	Return (Rank)															
5th Percentile	5.0		10.5		14.5		5.8		5.2		7.0		7.8		6.9	
25th Percentile	3.1		6.6		9.4		3.8		3.7		4.8		5.4		5.8	
Median	2.2		2.0		4.4		2.1		2.1		3.2		3.9		4.4	
75th Percentile	1.5		-1.2		0.4		1.0		-0.1		1.0		2.4		3.6	
95th Percentile	0.8		-5.6		-3.6		-0.8		-2.1		-0.7		1.5		2.7	
# of Portfolios	217		214		211		197		189		163		122		91	
● Franklin Templeton	5.3	(5)	12.0	(2)	13.2	(11)	4.1	(22)	2.8	(40)	4.7	(26)	--	(--)	--	(--)
▲ BBgBarc Multiverse TR	1.9	(61)	-3.9	(86)	-1.0	(84)	1.6	(64)	-0.2	(76)	0.7	(79)	2.2	(78)	3.5	(80)



COUNTRY	MARKET VALUE	FRANKLIN TEMPLETON	BBgBarc MULTIVERSE	DIFF
BRAZIL	$ 17,791	15.9%	0.9%	+15.0%
MEXICO	$ 23,613	21.1%	0.7%	+20.4%
KOREA	$ 15,775	14.1%	1.4%	+12.7%
MALAYSIA	$ -	0.0%	0.3%	-0.3%
INDONESIA	$ 13,256	11.8%	0.4%	+11.4%
COLOMBIA	$ 6,617	5.9%	0.2%	+5.7%
PHILIPPINES	$ 2,497	2.2%	0.2%	+2.0%
PORTUGAL	$ 2,575	2.3%	0.3%	+2.0%
ARGENTINA	$ 7,513	6.7%	0.2%	+6.6%
OTHER	$ 22,325	19.9%	95.5%	-75.5%
CASH	$ -	0.0%	0.0%	0.0%
	$ 111,962	100.0%	100.0%	0.0%



CURRENCY	MARKET VALUE	FRANKLIN TEMPLETON	BBgBarc MULTIVERSE	DIFF
BRAZIL	$ 17,791	15.9%	0.6%	+15.3%
MEXICO	$ 23,792	21.3%	0.3%	+21.0%
KOREA	$ 15,775	14.1%	1.2%	+12.9%
MALAYSIA	$ -	0.0%	0.2%	-0.2%
INDONESIA	$ 13,256	11.8%	0.3%	+11.6%
COLOMBIA	$ 6,617	5.9%	0.1%	+5.8%
PHILIPPINES	$ 2,497	2.2%	0.1%	+2.1%
EURO	$ 78	0.1%	29.8%	-29.8%
ARGENTINA	$ 7,513	6.7%	0.0%	+6.7%
CANADA	$ -	0.0%	2.4%	-2.4%
OTHER	$ 24,643	22.0%	65.0%	-43.0%
	$ 111,962	100.0%	100.0%	0.0%



	Actual $	Actual %	Manager Contribution to Excess Return %
AQR DELTA XN	$158,867,617	33.8%	0.1%
Private Equity	$241,716,455	51.4%	0.2%
Standard Life GARS	$69,755,441	14.8%	-0.0%
Actual vs. Policy Weight Difference			0.1%
Total	**$470,339,513**	**100.0%**	**0.4%**

Statistics Summary

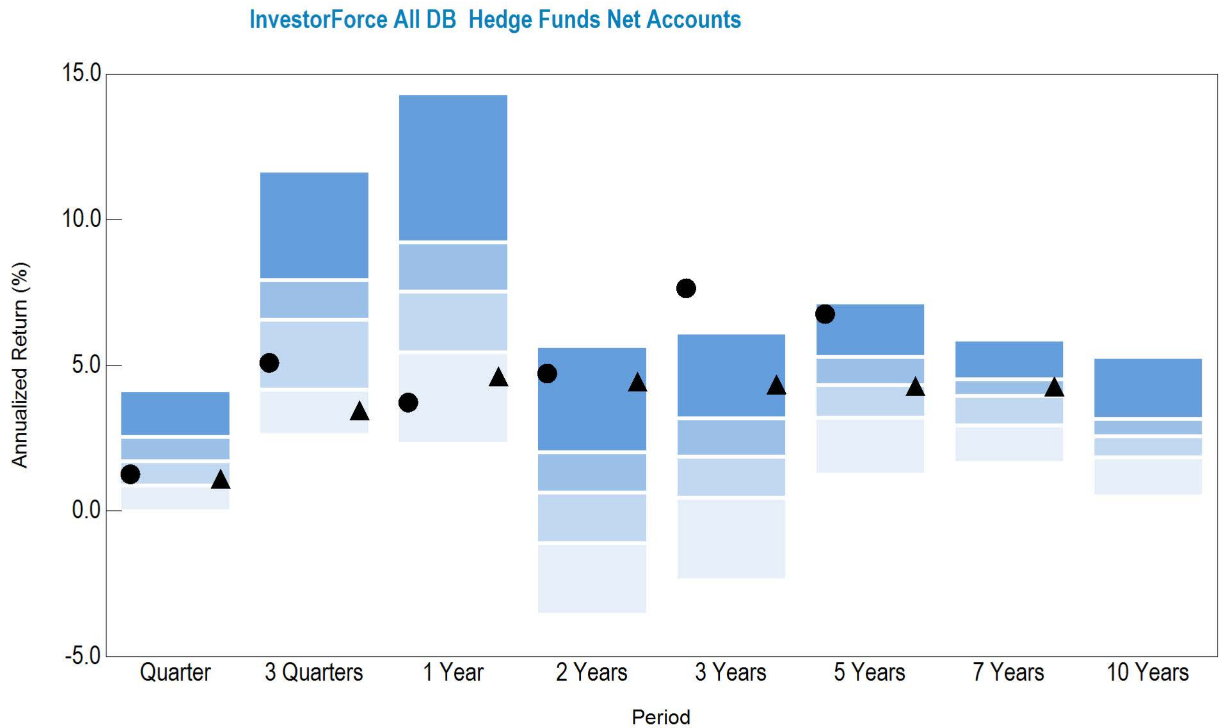
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	8.0%	5.3%	1.5	0.6	6.9%
Alternatives Allocation Index	3.8%	5.9%	0.6	--	0.0%
Private Equity	18.7%	10.0%	1.9	0.4	14.3%
Russell 3000 +3%	12.8%	10.5%	1.2	--	0.0%
Hedge Fund/Absolute Return	7.6%	5.0%	1.5	0.7	5.0%
Libor 1 month +4%	4.3%	0.1%	40.5	--	0.0%
AQR DELTA XN	8.1%	5.2%	1.5	0.7	5.2%
Libor 1 month +4%	4.3%	0.1%	40.5	--	0.0%

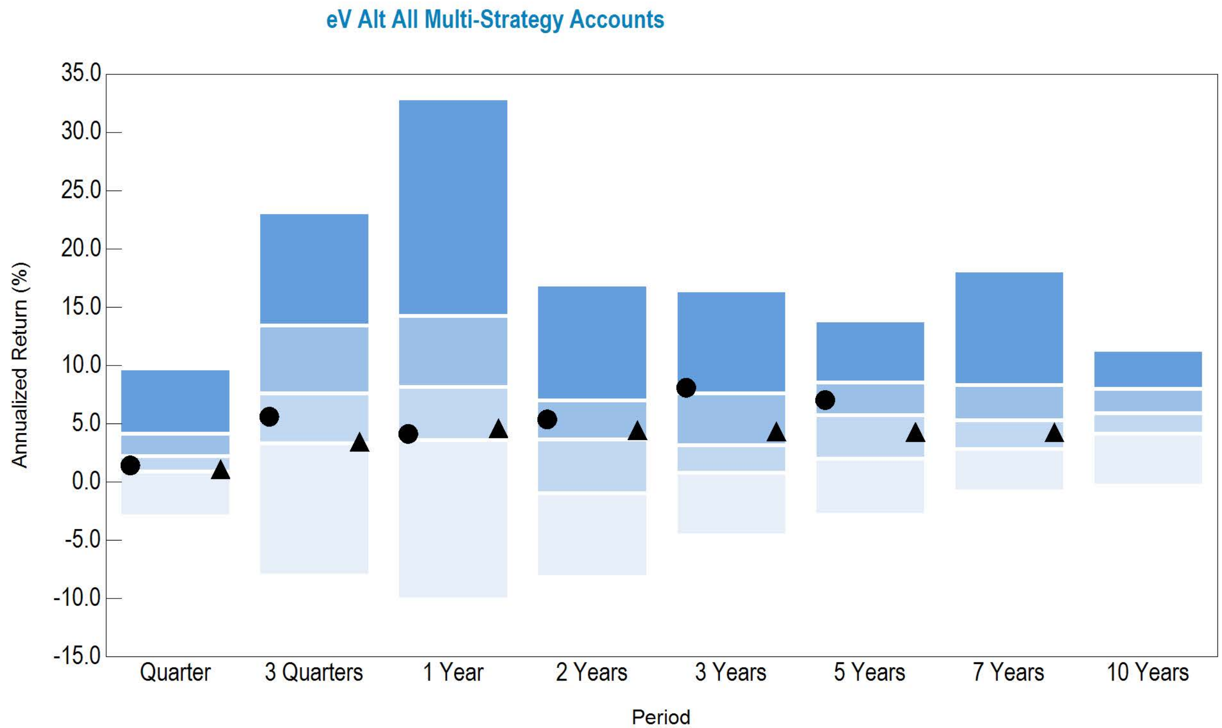
Statistics Summary

5 Years

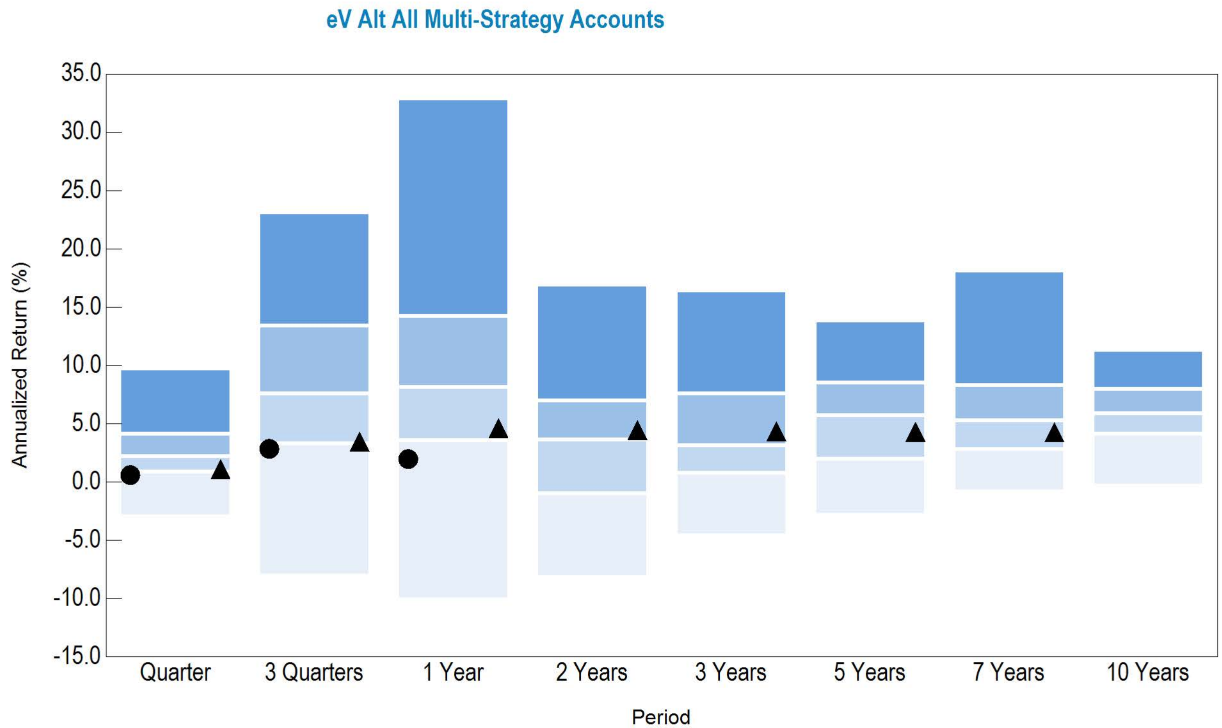
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	6.8%	5.7%	1.2	0.1	6.2%
Alternatives Allocation Index	5.9%	5.9%	1.0	--	0.0%
Private Equity	16.1%	9.6%	1.7	0.0	13.9%
Russell 3000 +3%	16.2%	10.3%	1.6	--	0.0%
Hedge Fund/Absolute Return	6.8%	5.0%	1.3	0.5	5.0%
Libor 1 month +4%	4.3%	0.1%	42.3	--	0.0%
AQR DELTA XN	7.0%	5.1%	1.3	0.5	5.1%
Libor 1 month +4%	4.3%	0.1%	42.3	--	0.0%



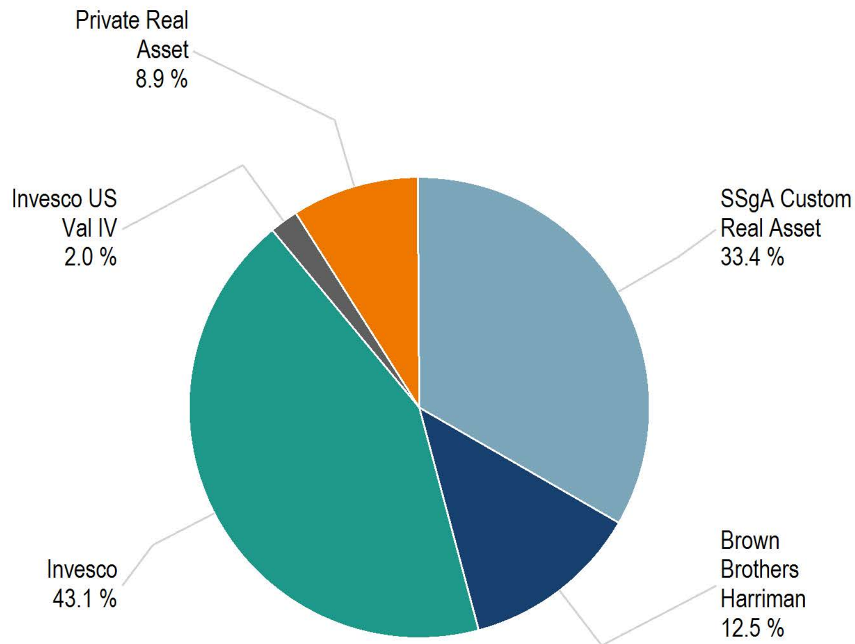
	Return (Rank)															
5th Percentile	4.1		11.7		14.3		5.6		6.1		7.1		5.9		5.3	
25th Percentile	2.6		7.9		9.2		2.0		3.2		5.3		4.5		3.2	
Median	1.7		6.6		7.5		0.6		1.9		4.3		4.0		2.6	
75th Percentile	0.9		4.2		5.5		-1.1		0.5		3.2		2.9		1.9	
95th Percentile	0.0		2.6		2.3		-3.5		-2.4		1.3		1.7		0.5	
# of Portfolios	260		258		257		250		246		220		157		90	
● Hedge Fund/Absolute Return	1.3	(68)	5.1	(66)	3.7	(89)	4.7	(8)	7.6	(2)	6.8	(6)	--	(--)	--	(--)
▲ Libor 1 month +4%	1.1	(71)	3.5	(88)	4.6	(83)	4.4	(8)	4.3	(13)	4.3	(53)	4.3	(36)	--	(--)



Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	9.7		23.1		32.9		16.9		16.4		13.9		18.1		11.3	
25th Percentile	4.2		13.4		14.3		7.0		7.6		8.6		8.4		8.0	
Median	2.3		7.6		8.2		3.7		3.2		5.7		5.3		5.9	
75th Percentile	1.0		3.3		3.6		-0.9		0.8		2.0		2.8		4.2	
95th Percentile	-2.9		-8.0		-10.1		-8.1		-4.6		-2.8		-0.8		-0.3	
# of Portfolios	121		121		121		121		121		114		105		70	
● AQR DELTA XN	1.4	(69)	5.6	(61)	4.1	(75)	5.4	(37)	8.1	(22)	7.0	(38)	--	(--)	--	(--)
▲ Libor 1 month +4%	1.1	(73)	3.5	(75)	4.6	(74)	4.4	(48)	4.3	(44)	4.3	(63)	4.3	(62)	--	(--)



	Return (Rank)															
5th Percentile	9.7		23.1		32.9		16.9		16.4		13.9		18.1		11.3	
25th Percentile	4.2		13.4		14.3		7.0		7.6		8.6		8.4		8.0	
Median	2.3		7.6		8.2		3.7		3.2		5.7		5.3		5.9	
75th Percentile	1.0		3.3		3.6		-0.9		0.8		2.0		2.8		4.2	
95th Percentile	-2.9		-8.0		-10.1		-8.1		-4.6		-2.8		-0.8		-0.3	
# of Portfolios	121		121		121		121		121		114		105		70	
● Standard Life GARS	0.6	(78)	2.8	(76)	2.0	(84)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ Libor 1 month +4%	1.1	(73)	3.5	(75)	4.6	(74)	4.4	(48)	4.3	(44)	4.3	(63)	4.3	(62)	--	(--)



	Actual $	Actual %	Manager Contribution to Excess Return %
Invesco	$245,549,163	43.1%	0.4%
Invesco US Val IV	$11,443,703	2.0%	0.0%
Brown Brother Harriman	$71,331,777	12.5%	-0.0%
Private Real Asset	$50,726,743	8.9%	0.4%
SSgA Custom Real Asset	$190,072,798	33.4%	0.0%
Actual vs. Policy Weight Difference			-0.3%
Total	**$569,124,184**	**100.0%**	**0.5%**

Statistics Summary

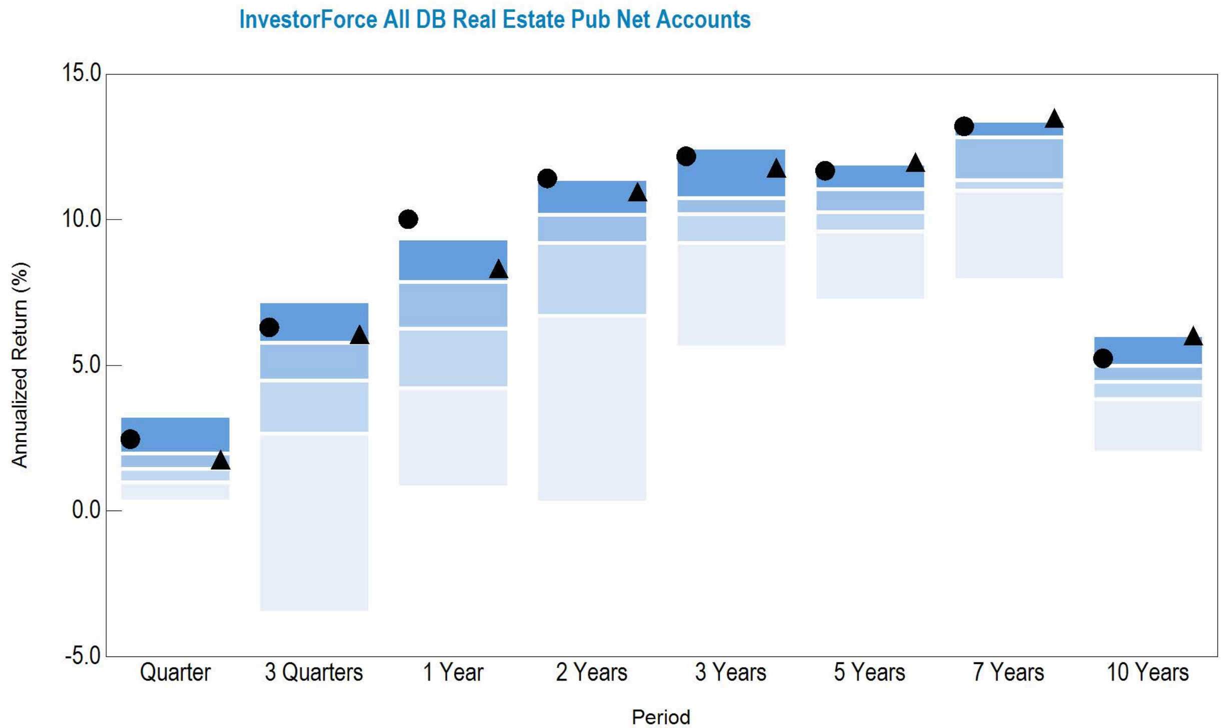
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Real Estate	12.17%	5.23%	2.30	0.27	1.44%
NCREIF ODCE	11.78%	4.89%	2.38	--	0.00%
Invesco	12.05%	5.19%	2.29	0.18	1.52%
NCREIF ODCE	11.78%	4.89%	2.38	--	0.00%
TIPS	1.55%	2.99%	0.46	-0.31	1.54%
BBgBarc US TIPS TR	2.03%	4.01%	0.46	--	0.00%
Brown Brothers Harriman	1.55%	2.99%	0.46	-0.31	1.54%
BBgBarc US TIPS TR	2.03%	4.01%	0.46	--	0.00%

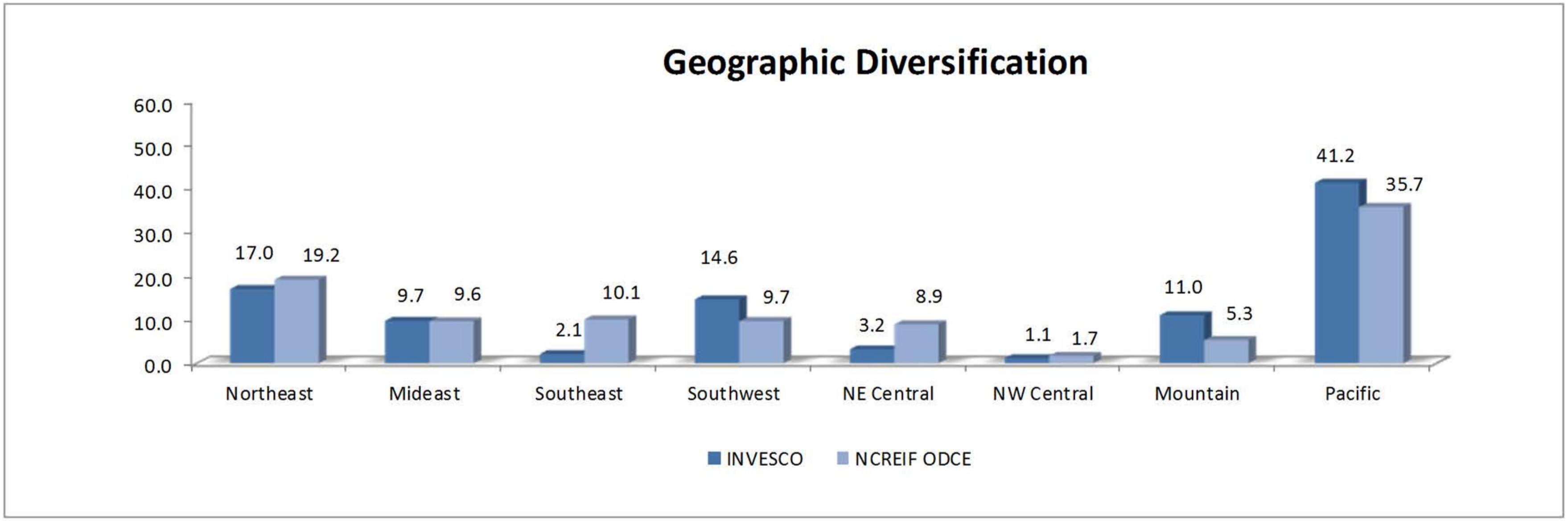
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	11.68%	5.03%	2.30	-0.20	31
NCREIF ODCE	11.98%	4.89%	2.42	--	1
Invesco	11.61%	5.00%	2.30	-0.24	--
NCREIF ODCE	11.98%	4.89%	2.42	--	--
TIPS	0.70%	4.17%	0.14	-0.21	--
BBgBarc US TIPS TR	0.97%	4.64%	0.18	--	--
Brown Brothers Harriman	0.70%	4.17%	0.14	-0.21	52
BBgBarc US TIPS TR	0.97%	4.64%	0.18	--	1



Return (Rank)	Quarter		3 Quarters		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	3.3		7.2		9.3		11.4		12.5		11.9		13.4		6.0	
25th Percentile	2.0		5.8		7.9		10.2		10.7		11.1		12.8		5.0	
Median	1.5		4.5		6.3		9.2		10.2		10.3		11.4		4.4	
75th Percentile	1.0		2.7		4.2		6.7		9.2		9.6		11.0		3.8	
95th Percentile	0.3		-3.5		0.8		0.3		5.6		7.2		7.9		2.0	
# of Portfolios	87		87		87		86		83		72		62		39	
● Real Estate	2.5	(9)	6.3	(18)	10.0	(3)	11.4	(5)	12.2	(7)	11.7	(11)	13.2	(17)	5.2	(18)
▲ NCREIF ODCE	1.8	(36)	6.1	(22)	8.3	(19)	11.0	(9)	11.8	(8)	12.0	(5)	13.5	(4)	6.0	(5)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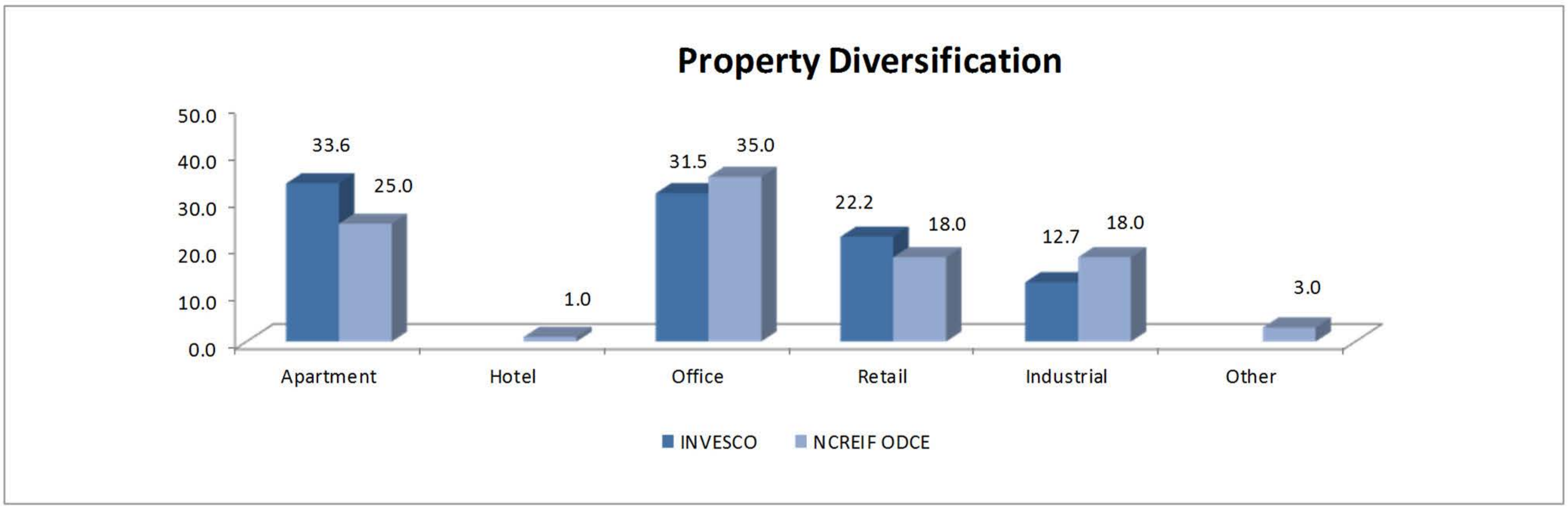
3.2
8.9
1.1
1.7
11.0
5.3
41.2
35.7
Northeast
Mideast
Southeast
Southwest
NE Central
NW Central
Mountain
Pacific
INVESCO
NCREIF ODCE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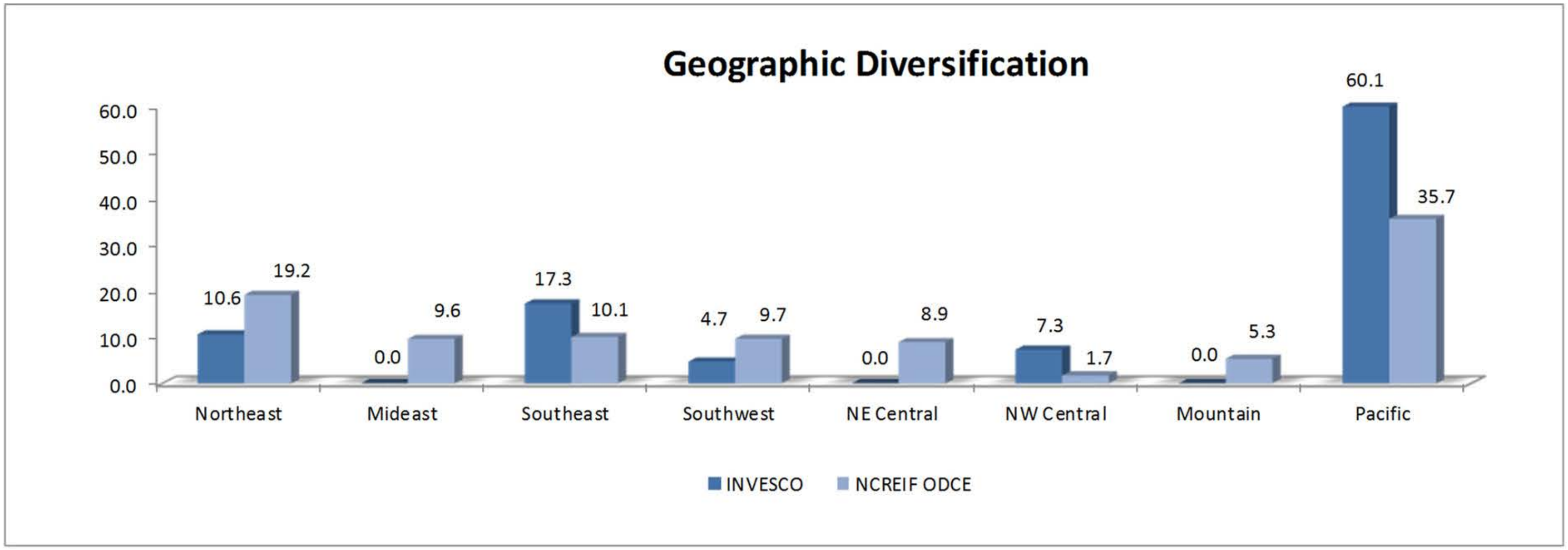
22.2
18.0
12.7
18.0
3.0
Apartment
Hotel
Office
Retail
Industrial
Other
INVESCO
NCREIF ODCE

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 03/31/2017 2.92%
APARTMENTS							
Stoneridge Apartments	Pleasanton, CA	$232,000,000	$241,100,000	$241,100,000	4Q06	March-17	$7,038,778
Instrata Pentagon City	Arlington, VA	$148,000,000	$149,000,000	$89,000,000	3Q10	March-17	$2,598,305
Ladd Tower	Portland, OR	$136,000,000	$137,000,000	$79,924,350	4Q10	March-17	$2,333,346
Legacy Fountain Plaza	San Jose, CA	$157,955,192	$155,959,280	$155,959,280	1Q11	March-17	$4,553,143
Instrata Gramercy (fka The Elektra)	New York, NY	$173,000,000	$177,500,000	$104,675,261	1Q11	March-17	$3,055,935
Instrata Brooklyn Heights (fka 75 Clinton Street)	Brooklyn, NY	$66,100,000	$66,000,000	$66,000,000	1Q12	March-17	$1,926,833
The Artisan Laguna Beach	Orange County, CA	$162,000,000	$163,000,000	$101,232,350	3Q12	March-17	$2,955,421
The GoodWynn	Atlanta, GA	$100,000,000	$97,200,000	$60,201,308	4Q12	March-17	$1,757,543
Instrata Hell's Kitchen	New York, NY	$194,000,000	$194,000,000	$120,104,000	1Q13	March-17	$3,506,368
Sunset Vine Tower	Los Angeles, CA	$97,100,000	$96,000,000	$96,000,000	2Q13	March-17	$2,802,666
The Ashton	Dallas, TX	$124,000,000	$124,000,000	$66,622,127	4Q13	March-17	$1,944,995
The Pointe at Westchester	West Chester, PA	$58,500,000	$58,500,000	$58,500,000	4Q13	March-17	$1,707,874
206 Bell	Seattle, WA	$46,100,000	$46,200,000	$46,200,000	4Q13	March-17	$1,348,783
Cadence Union Station	Denver, CO	$87,300,000	$88,100,000	$50,847,635	1Q14	March-17	$1,484,468
Joseph Arnold Lofts	Seattle, WA	$70,100,000	$70,100,000	$35,738,341	2Q14	March-17	$1,043,361
Verve	Denver, CO	$114,000,000	$114,000,000	$114,000,000	3Q14	March-17	$3,328,165
Broadstone Little Italy	San Diego CA	$116,000,000	$118,000,000	$64,615,299	3Q14	March-17	$1,886,407
33 Tehama	San Francisco, CA	$189,004,305	$215,507,125	$157,442,983	3Q14	March-17	$4,596,459
The Parker	Portland, OR	$66,200,000	$67,000,000	$34,504,100	1Q15	March-17	$1,007,328
Legacy West Apartments	Plano, TX	$78,191,439	$93,619,102	$76,568,992	1Q15	March-17	$2,235,388
Village at Park Place	Irvine, CA	$103,205,383	$118,386,247	$86,946,409	2Q15	March-17	$2,538,351
Wheaton 121	Wheaton, IL	$88,800,000	$89,300,000	$89,300,000	2Q15	March-17	$2,607,063
Jefferson Marketplace	Washington, DC	$149,000,000	$149,000,000	$78,523,894	4Q15	March-17	$2,292,461
Retreat at Park Meadows	Littleton,CO	$129,000,000	$129,000,000	$129,000,000	4Q15	March-17	$3,766,082
North Water	Chicago, IL	$261,000,000	$257,000,000	$257,000,000	1Q16	March-17	$7,502,970
2270 Broadway	Oakland, CA	$20,091,330	$20,466,761	$20,466,761	1Q16	March-17	$597,516
Runway at Playa Vista -Apartments	Playa Vista, CA	$150,520,000	$154,760,000	$91,286,108	1Q16	March-17	$2,665,046
Clayton Lane Apartments	Denver, CO	$33,580,740	$34,083,028	$34,083,028	1Q16	March-17	$995,035
Biscayne 27	Miami, FL	$16,540,362	$17,738,305	$17,738,305	2Q16	March-17	$517,860
Flats 8300	Washington DC	$215,000,000	$219,000,000	$115,500,000	2Q16	March-17	$3,371,957
407 1st Ave	New York, NY	$190,000,000	$190,000,000	$190,000,000	4Q16	March-17	$5,546,942
		$3,772,288,751	**$3,850,519,848**	**$2,929,080,531**			**$85,512,848**
INDUSTRIAL							
Arjons Industrial Park	San Diego CA	$40,100,000	$39,900,000	$39,900,000	2Q04	March-17	$1,164,858
Gateway Business Park	Dallas TX	$13,300,000	$13,400,000	$13,400,000	2Q04	March-17	$391,205
Hayward Industrial	Oakland CA	$156,200,000	$178,600,000	$178,600,000	3Q04-3Q07	March-17	$5,214,126
Lackman Park	Kansas City MO-KS	$24,900,000	$24,900,000	$24,900,000	2Q04	March-17	$726,941
Crossroads Industrial	Kansas City MO-KS	$7,900,000	$8,400,000	$8,400,000	1Q06	March-17	$245,233
Oakesdale Commerce Center	Seattle - Belle - Eve WA	$52,300,000	$52,200,000	$52,200,000	1Q06	March-17	$1,523,949
South Bay Industrial	Los Angeles, CA	$45,800,000	$47,200,000	$47,200,000	4Q06	March-17	$1,377,977
Steeplechase 95 International Business Park	Capitol Heights, MD	$93,300,000	$96,300,000	$96,300,000	1Q11	March-17	$2,811,424
Airport Trade Center Portfolio	Dallas, TX	$121,400,000	$121,700,000	$121,700,000	1Q11	March-17	$3,552,963
IE Logistics	San Bernardino, CA	$133,400,000	$134,800,000	$134,800,000	3Q11	March-17	$3,935,410
Railhead Drive Industrial	Dallas, TX	$62,200,000	$62,500,000	$62,500,000	4Q11	March-17	$1,824,652
Empire Gateway aka Chino South Logistics Center	Chino, CA	$244,000,000	$245,000,000	$245,000,000	4Q12	March-17	$7,152,636
SFO Logistics Center	San Francisco, CA	$140,000,000	$140,000,000	$140,000,000	4Q13	March-17	$4,087,221
Miami Industrial Portfolio	Various ,FL	$92,683,687	$93,864,605	$62,966,827	1Q16	March-17	$1,838,281
OMP Burbank	Los Angeles, CA	$67,285,295	$70,896,635	$70,896,635	2Q16	March-17	$2,069,787
Pacific Commons	Freemont, CA	$0	$121,263,390	$56,800,490	1Q17	Acq 1Q17	$1,658,258
		$1,294,768,982	**$1,450,924,630**	**$1,355,563,952**			**$39,574,922**

OFFICE							
55 Cambridge Parkway	Boston MA - NH	$262,000,000	$272,000,000	$272,000,000	4Q06	March-17	$7,940,886
1111 Pennsylvania Avenue	Washington, D.C.	$316,000,000	$313,000,000	$313,000,000	4Q10	March-17	$9,137,858
1800 Larimer	Denver, CO	$314,000,000	$321,000,000	$321,000,000	1Q11	March-17	$9,371,413
Hillview Office	San Jose, CA	$78,300,000	$77,900,000	$77,900,000	3Q12	March-17	$2,274,246
Williams Tower	Houston, TX	$587,000,000	$587,000,000	$402,850,403	1Q13	March-17	$11,760,989
Westlake Park Place	Westlake Village, CA	$111,000,000	$112,000,000	$112,000,000	4Q13	March-17	$3,269,777
101 Second	San Francisco, CA	$376,000,000	$390,000,000	$390,000,000	1Q14	March-17	$11,385,829
Energy Crossing II	Houston, TX	$108,000,000	$108,000,000	$108,000,000	2Q14	March-17	$3,152,999
1776 Wilson Blvd.	Arlington, VA	$94,300,000	$94,800,000	$94,800,000	3Q14	March-17	$2,767,632
631 Howard	San Francisco, CA	$94,700,000	$94,400,000	$94,400,000	3Q14	March-17	$2,755,955
Barton Oaks	Austin, TX	$85,700,000	$85,700,000	$85,700,000	3Q14	March-17	$2,501,963
Hercules East and South Campus	Los Angeles, CA	$161,584,535	$164,920,672	$164,920,672	3Q14	March-17	$4,814,766
The Reserve	Playa Vista, CA	$354,587,594	$366,277,678	$366,277,678	1Q15	March-17	$10,693,269
Fort Point Portfolio	Boston, MA	$218,201,592	$218,719,105	$129,622,267	2Q15	March-17	$3,784,249
Legacy West Office	Plano, TX	$55,620,714	$56,147,262	$29,861,676	1Q15	March-17	$871,795
Summit IV	Aliso Viejo, CA	$122,000,000	$124,000,000	$85,528,045	2Q15	March-17	$2,496,943
1101 Westlake	Seattle, WA	$97,500,000	$99,300,000	$99,300,000	3Q15	March-17	$2,899,007
PearlWest	Boulder, CO	$122,312,425	$122,000,000	$122,000,000	4Q16	March-17	$3,561,721
		$3,558,806,860	**$3,607,164,717**	**$3,269,160,741**			**$95,441,297**
RETAIL							
Chandler Pavilion	Phoenix - Mesa AZ	$24,400,000	$23,900,000	$23,900,000	2Q04	March-17	$697,747
Cityline at Tenley	Washington, D.C.	$59,600,000	$63,000,000	$63,000,000	4Q05	March-17	$1,839,249
Ridgehaven Shopping Center	Minnetonka, MN	$42,500,000	$42,600,000	$42,600,000	4Q05	March-17	$1,243,683
The Beacon Retail	San Francisco, CA	$67,500,000	$68,430,751	$68,430,751	1Q06	March-17	$1,997,797
The Beacon Garage (units)	San Francisco, CA	$35,600,000	$36,069,249	$36,069,249	1Q06	March-17	$1,053,021
The Beacon Office (210 King)	San Francisco, CA	$23,900,000	$24,800,000	$24,800,000	1Q15	March-17	$724,022
Hawthorne Plaza	Overland Park, KS	$54,800,000	$54,400,000	$54,400,000	4Q07	March-17	$1,588,177
The Loop	Boston MA - NH	$96,900,000	$92,800,000	$92,800,000	1Q08	March-17	$2,709,243
Westbank Market	Austin, TX	$60,700,000	$60,700,000	$60,700,000	3Q10	March-17	$1,772,102
Lake Pointe Village	Houston, TX	$78,850,000	$79,250,000	$79,250,000	4Q11	March-17	$2,313,659
Safeway Kapahulu	Hawaii	$91,400,000	$91,600,000	$55,348,100	4Q11	March-17	$1,615,856
Safeway Burlingame	San Francisco, CA	$58,500,000	$58,600,000	$35,826,985	4Q11	March-17	$1,045,949
Shamrock Plaza	Oakland, CA	$38,700,000	$39,200,000	$22,946,107	4Q11	March-17	$669,899
Pavilions Marketplace	West Hollywood, CA	$63,700,000	$67,800,000	$43,073,731	1Q12	March-17	$1,257,513
130 Prince	New York, NY	$204,000,000	$223,800,000	$223,800,000	2Q12	March-17	$6,533,714
Safeway Pleasanton	Pleasanton, CA	$81,800,000	$82,000,000	$82,000,000	4Q12	March-17	$2,393,944
Liberty Wharf	Boston, MA	$90,200,000	$94,600,000	$64,248,232	4Q12	March-17	$1,875,691
Shops at Legacy	Plano, TX	$109,710,916	$110,690,478	$110,690,478	3Q13	March-17	$3,231,546
Pasadena Commons	Pasadena, CA	$53,400,000	$58,800,000	$58,800,000	4Q14	March-17	$1,716,633
Rush Street Retail	Chicago, IL	$15,700,000	$15,800,000	$15,800,000	4Q14	March-17	$461,272
Legacy West Retail	Plano, TX	$141,651,344	$165,353,014	$137,646,586	1Q15	March-17	$4,018,514
Legacy West Land	Plano, TX	$8,541,584	$8,549,783	$8,549,783	2Q16	March-17	$249,606
131-137 Spring Street	New York, NY	$235,177,039	$235,905,423	$125,029,874	3Q15	March-17	$3,650,176
Runway at Playa Vista - Retail	Playa Vista, CA	$118,720,000	$119,780,000	$57,366,215	1Q16	March-17	$1,674,774
139 Spring	New York, NY	$118,992,000	$125,850,405	$125,850,405	1Q16	March-17	$3,674,131
Clayton Lane	Denver, CO	$142,966,879	$142,157,558	$95,471,607	1Q16	March-17	$2,787,240
4th & Colorado	Santa Monica, CA	$12,720,000	$12,880,000	$12,880,000	1Q16	March-17	$376,024
Shops at Crystals	Las Vegas, NV	$287,500,000	$287,500,000	$150,439,962	2Q16	March-17	$4,392,010
		$2,477,629,762	**$2,546,716,661**	**$2,031,618,065**			**$59,311,939**
	Portfolio Total	**$11,103,494,355**	**$11,455,325,856**	**$9,585,423,289**			**$279,841,006**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Southeast
Southwest
NE Central
NW Central
Mountain
Pacific
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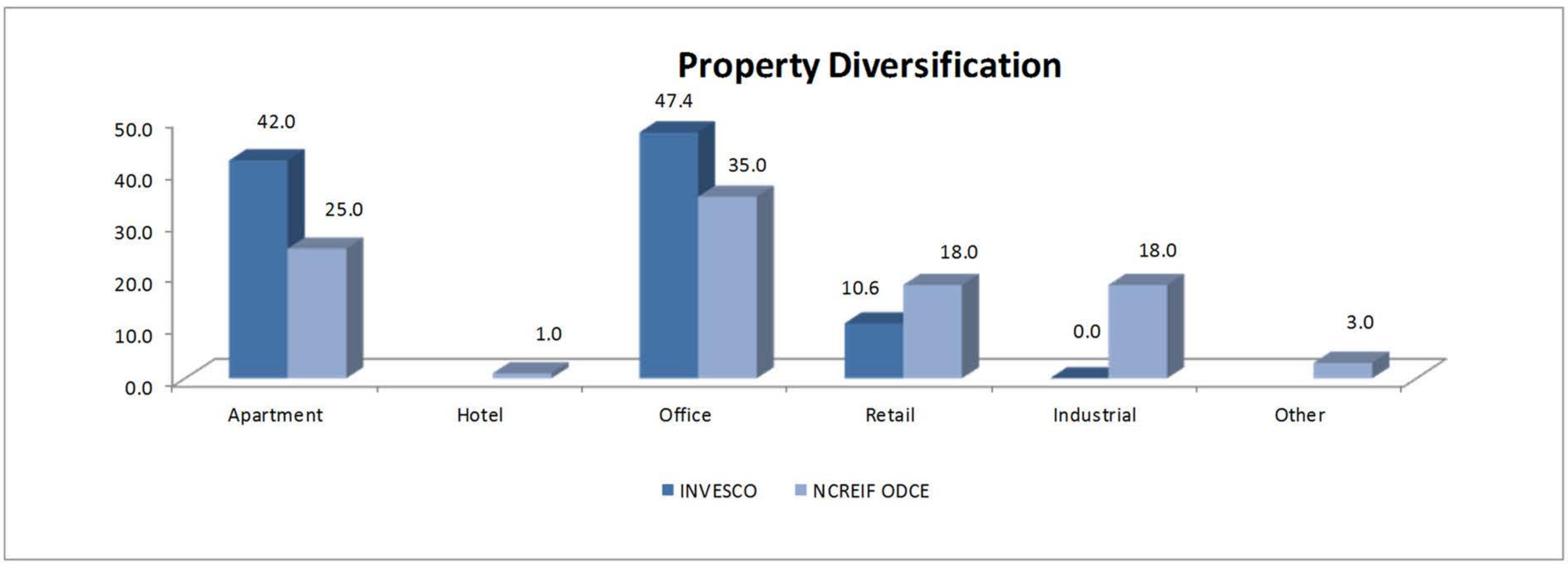
Property Diversification
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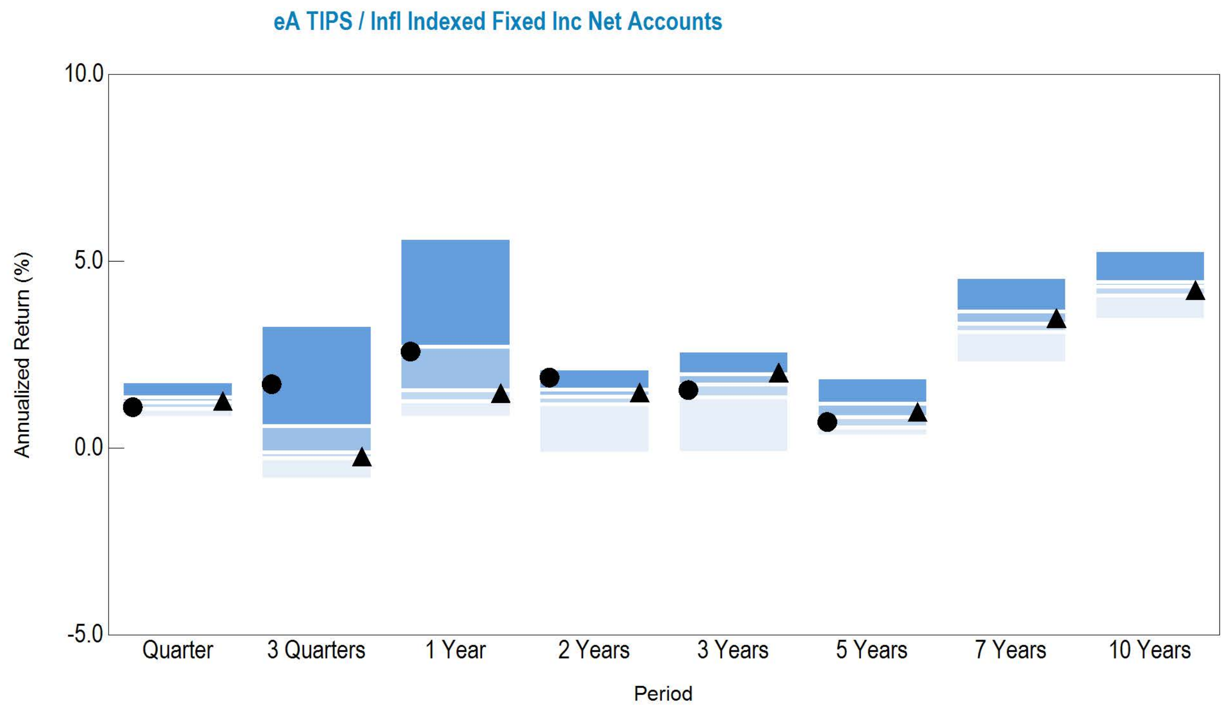
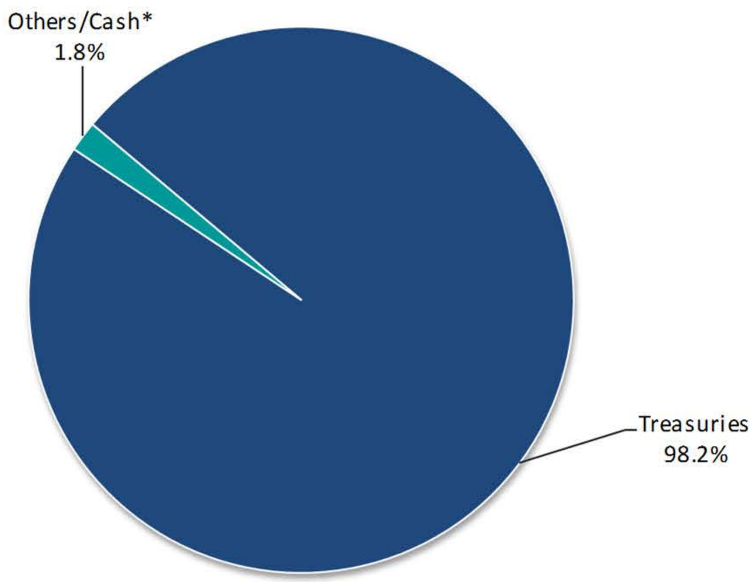
10.6
18.0
0.0
18.0
3.0
Apartment
Hotel
Office
Retail
Industrial
Other
INVESCO
NCREIF ODCE

Property Name	Region Classification	Geographic Classification	MSA	Prior Quarter Carry Value	Current Quarter Carry Value	Net Market Value	Date Added to Fund	Last Valuation Date
APARTMENTS								
Brookwood	West	Southeast	Atlanta, GA	$66,152,752	$77,500,000	$30,392,978	3Q14	March-17
Broadstone Harbor Beach	East	Southeast	Ft. Lauderdale, FL	$85,217,025	$93,184,876	$36,873,534	1Q15	March-17
Downtown East	MidWest	West North Central	Minneapolis, MN	$71,600,000	$71,800,000	$31,702,620	2Q15	March-17
Legacy West Mid-Rise	MidWest	Southwest	Dallas, TX	$10,698,179	$12,118,247	$12,124,087	2Q16	March-17
LaSalle Apartments	West	Pacific	Beaverton, OR	$141,762,585	$143,600,000	$46,566,337	4Q16	March-17
Broadstone Burnside	West	Pacific	Portland, OR	$0	$15,101,022	$15,328,664	1Q17	Acq. 1Q17
				$375,430,542	**$413,304,145**	**$172,988,220**		
INDUSTRIAL								
OFFICE								
Silicon Valley Towers	West	Pacific	San Jose, CA	$110,000,000	$112,300,000	$60,372,415	2Q15	March-17
Post 3rd	West	Pacific	Los Angeles, CA	$88,000,000	$92,500,000	$39,284,583	1Q16	March-17
LAM Campus	West	Pacific	San Jose, CA	$83,000,000	$84,800,000	$33,278,627	2Q16	March-17
Fashion Island	West	Pacific	San Mateo, CA	$143,200,000	$143,200,000	$58,080,349	3Q16	March-17
Third & Shoal	South	Southwest	Austin, TX	$0	$34,287,021	$34,287,021	1Q17	Acq. 1Q17
				$424,200,000	**$467,087,021**	**$225,302,995**		
RETAIL								
Ledgewood Mall	East	Northeast	Roxbury, NJ	$32,600,000	$37,999,700	$22,522,414	3Q15	March-17
Paramus Retail Portfolio	East	Northeast	Paramus, NJ	$65,800,000	$66,300,000	$28,822,679	4Q15	March-17
				$98,400,000	**$104,299,700**	**$51,345,094**		
			Portfolio Total	**$898,030,542**	**$984,690,866**	**$449,636,309**		



	Return (Rank)															
5th Percentile	1.8		3.3		5.6		2.1		2.6		1.9		4.6		5.3	
25th Percentile	1.4		0.6		2.7		1.6		2.0		1.2		3.7		4.4	
Median	1.2		-0.1		1.6		1.4		1.7		0.8		3.3		4.3	
75th Percentile	1.1		-0.3		1.3		1.2		1.4		0.6		3.1		4.1	
95th Percentile	0.8		-0.8		0.8		-0.1		-0.1		0.3		2.3		3.4	
# of Portfolios	21		21		21		20		19		17		14		10	
● Brown Brothers Harriman	1.1	(74)	1.7	(18)	2.6	(28)	1.9	(17)	1.6	(62)	0.7	(61)	--	(--)	--	(--)
▲ BBgBarc US TIPS TR	1.3	(49)	-0.2	(66)	1.5	(56)	1.5	(32)	2.0	(22)	1.0	(36)	3.5	(31)	4.2	(63)



Sector	Account Weight	BBgBarc TIPS Index	Difference
Treasuries	98.2%	100.0%	-1.8%
Agencies	0.0%	0.0%	0.0%
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*	1.8%	0.0%	1.8%
TOTAL	**100.0%**	**100.0%**	**0.0%**

* May include Derivatives, Futures, Swaps, Credit Default Swaps, Total Return Swaps or Currency Contracts.

Bond Summary Statistics

Period Ending: March 31, 2017

Portfolio Characteristics	Portfolio	BBgBarc TIPS
Total Number of Securities	10	38
Total Market Value	$ 71,331,777	N/A
Current Coupon	1.41	0.80
Yield to Maturity	0.08	0.09
Average Life		
Duration	6.26	7.70
Quality	GOV	AAA

Yield to Maturity

Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	n/a
7.0 - 9.0	n/a
9.0 - 11.0	n/a
11.0 - 13.0	n/a
13.0+	n/a
Unclassified	n/a

Average Life

Range	% Held
0.0 - 3.0	12.7
3.0 - 5.0	11.7
5.0 - 10.0	38.4
10.0- 15.0	13.1
15.0+	24.2
Unclassified	0.0

Duration

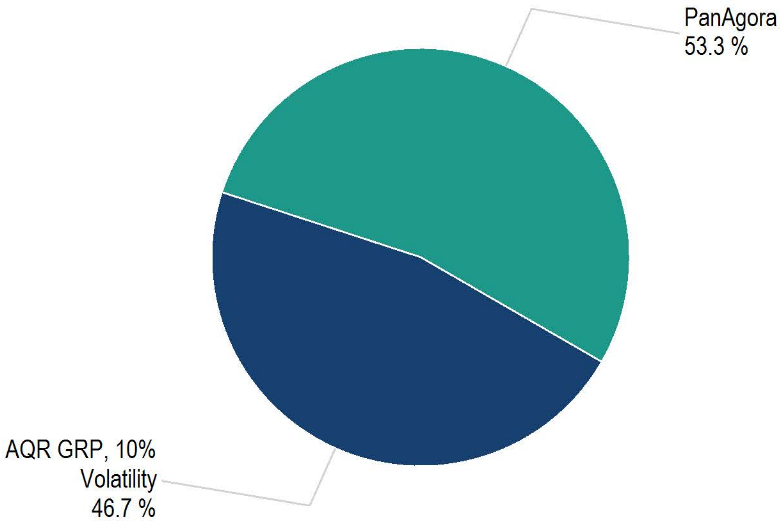
Range	% Held
0.0 - 3.0	14.6
3.0 - 5.0	11.7
5.0 - 10.0	51.4
10.0- 15.0	10.3
15.0+	12.0
Unclassified	0.0

Quality

Range	% Held
Govt (10)	98.2
Aaa (10)	0.0
Aa (9)	0.0
A (8)	0.0
Baa (7)	0.0
Below Baa (6-1)	0.0
Other	1.8

Coupon

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



	Actual $	Actual %	Manager Contribution to Excess Return %
AQR GRP, 10% Volatility	$134,245,527	46.7%	0.4%
PanAgora	$153,094,525	53.3%	0.2%
Actual vs. Policy Weight Difference			0.0%
Total	**$287,340,052**	**100.0%**	**0.6%**

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	4.9%	8.7%	0.5	-0.3	6.7%
60/40 Russell 3000/BBgBarc US Aggregate	7.0%	6.4%	1.1	--	0.0%
AQR GRP, 10% Volatility	2.3%	8.7%	0.2	-0.7	6.6%
60/40 Russell 3000/BBgBarc US Aggregate	7.0%	6.4%	1.1	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	5.5%	8.8%	0.6	-0.5	6.9%
60/40 Russell 3000/BBgBarc US Aggregate	8.9%	6.2%	1.4	--	0.0%
AQR GRP, 10% Volatility	3.9%	8.8%	0.4	-0.7	6.8%
60/40 Russell 3000/BBgBarc US Aggregate	8.9%	6.2%	1.4	--	0.0%

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	**4.9**	**9.9**	**12.2**	**5.7**	**6.2**	**8.6**	**5.0**
Policy Index	*4.3*	*9.5*	*11.9*	*5.4*	*5.6*	*8.1*	*5.6*
Allocation Index	*4.3*	*9.1*	*11.7*	*5.3*	*5.5*	--	--
Total Fund ex Overlay	**4.8**	**10.1**	**12.2**	**5.6**	**6.1**	**8.5**	**5.0**
Policy Index	*4.3*	*9.5*	*11.9*	*5.4*	*5.6*	*8.1*	*5.6*
Allocation Index	*4.3*	*9.1*	*11.7*	*5.3*	*5.5*	--	--
Public Equity	**7.1**	**13.9**	**15.3**	**6.1**	**6.3**	**10.2**	**4.8**
Blended Public Equity Index	*6.7*	*15.0*	*16.6*	*5.8*	*6.1*	*10.0*	*5.5*
US Equity	**5.9**	**15.2**	**17.6**	**8.1**	**9.1**	**12.8**	**6.7**
Blended US Equity Index	*5.7*	*15.3*	*18.5*	*8.1*	*9.3*	*13.0*	*7.5*
Russell 3000	*5.7*	*15.0*	*18.1*	*8.5*	*9.8*	*13.2*	*7.5*
Large Cap Equity	**7.8**	**16.1**	**18.8**	**9.7**	**10.6**	**13.4**	**7.0**
Russell 1000	*6.0*	*14.5*	*17.4*	*8.6*	*10.0*	*13.3*	*7.6*
BlackRock Russell 1000	--	--	--	--	--	--	--
Russell 1000	*6.0*	*14.5*	*17.4*	*8.6*	*10.0*	*13.3*	*7.6*
DE Shaw	7.0	17.0	22.0	11.1	12.5	14.8	--
Russell 1000	*6.0*	*14.5*	*17.4*	*8.6*	*10.0*	*13.3*	*7.6*
Small Cap Equity	**2.5**	**20.4**	**21.1**	**5.3**	**5.2**	**11.6**	**5.9**
Russell 2000	*2.5*	*21.6*	*26.2*	*6.7*	*7.2*	*12.4*	*7.1*
QMA US Small Cap	2.5	--	--	--	--	--	--
Russell 2000	*2.5*	*21.6*	*26.2*	*6.7*	*7.2*	*12.4*	*7.1*
International Equity	**8.9**	**11.8**	**11.7**	**2.7**	**1.7**	**5.6**	**1.0**
MSCI ACWI ex US IMI	*8.1*	*14.1*	*13.5*	*2.4*	*1.3*	*5.1*	*1.9*
MSCI EAFE Gross	*7.4*	*13.6*	*12.2*	*1.7*	*1.0*	*6.3*	*1.5*
Developed Markets	**8.7**	**11.6**	**11.4**	**2.7**	**1.8**	**6.2**	**1.3**
MSCI ACWI ex USA Gross	*8.0*	*14.2*	*13.7*	*1.8*	*1.0*	*4.8*	*1.8*
Baillie Gifford	10.1	11.1	10.9	3.2	2.7	--	--
MSCI ACWI ex US	*8.0*	*14.2*	*13.7*	*1.8*	*1.0*	--	--
MSCI ACWI ex US Growth	*9.2*	*9.3*	*10.0*	*1.8*	*1.9*	--	--

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock EAFE Index	7.4	13.6	12.2	1.6	0.9	--	--
MSCI EAFE	*7.2*	*13.3*	*11.7*	*1.2*	*0.5*	*5.8*	*1.1*
MSCI EAFE Gross	*7.4*	*13.6*	*12.2*	*1.7*	*1.0*	*6.3*	*1.5*
FIAM Equity	8.2	9.6	9.5	4.9	3.1	6.9	--
MSCI ACWI ex US Small Cap Gross	*8.9*	*13.5*	*12.7*	*6.0*	*2.8*	*7.1*	*3.4*
Mondrian	8.2	11.4	11.9	2.1	1.1	5.1	1.9
MSCI ACWI ex USA Value Gross	*6.8*	*19.2*	*17.4*	*1.7*	*0.0*	*4.4*	*1.3*
MSCI ACWI ex USA Gross	*8.0*	*14.2*	*13.7*	*1.8*	*1.0*	*4.8*	*1.8*
Emerging Markets	**10.4**	**13.3**	**14.9**	**3.2**	**0.5**	**1.7**	**--**
MSCI Emerging Markets Gross	*11.5*	*16.7*	*17.7*	*1.9*	*1.5*	*1.2*	*3.1*
Parametric Core	10.4	13.4	14.9	--	--	--	--
MSCI Emerging Markets Gross	*11.5*	*16.7*	*17.7*	*1.9*	*1.5*	*1.2*	*3.1*
Fixed Income	**2.5**	**6.0**	**9.2**	**4.1**	**4.3**	**4.8**	**5.5**
Blended Fixed Income Index	*1.3*	*0.3*	*3.0*	*2.4*	*2.8*	*2.5*	*4.5*
US Fixed Income	**2.0**	**4.9**	**8.5**	**4.1**	**4.5**	**4.7**	**5.5**
Blended US Fixed Index	*1.2*	*1.1*	*3.7*	*2.6*	*3.4*	*2.8*	*4.7*
Core Fixed	**1.4**	**1.5**	**4.3**	**2.4**	**3.6**	**3.6**	**4.8**
BBgBarc US Aggregate TR	*0.8*	*-1.7*	*0.4*	*1.2*	*2.7*	*2.3*	*4.3*
BlackRock Intermediate Govt	--	--	--	--	--	--	--
FIAM Bond	1.2	-0.2	2.6	2.1	3.4	3.3	5.0
Western TRU	2.3	6.1	8.9	--	--	--	--
3-Month Libor Total Return USD	*0.3*	*0.7*	*0.9*	*0.6*	*0.5*	*0.4*	*1.1*
BBgBarc US Aggregate TR	*0.8*	*-1.7*	*0.4*	*1.2*	*2.7*	*2.3*	*4.3*
Opportunistic Credit	**3.5**	**12.9**	**18.5**	**7.8**	**7.0**	**10.2**	**--**
BBgBarc BA Intermediate HY	*1.8*	*6.5*	*10.0*	*5.0*	*4.7*	*4.7*	--
Angelo Gordon Opportunistic	4.3	12.6	13.2	8.0	--	--	--
Angelo Gordon STAR	4.6	12.0	14.7	8.0	9.9	--	--
BBgBarc US Aggregate TR	*0.8*	*-1.7*	*0.4*	*1.2*	*2.7*	*2.3*	*4.3*

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Beach Point Select	2.4	12.2	17.0	9.9	--	--	--
BBgBarc BA Intermediate HY	*1.8*	*6.5*	*10.0*	*5.0*	*4.7*	*4.7*	--
Brigade Capital	3.8	14.5	24.4	6.2	4.4	6.7	--
BBgBarc BA Intermediate HY	*1.8*	*6.5*	*10.0*	*5.0*	*4.7*	*4.7*	--
50% Barclays HY/ 50% Bank Loan	*1.9*	*8.5*	*13.0*	*5.0*	*4.2*	*5.9*	--
TCP Direct Lending VIII	2.1	--	--	--	--	--	--
BBgBarc BA Intermediate HY	*1.8*	*6.5*	*10.0*	*5.0*	*4.7*	*4.7*	--
Global Fixed Income	**5.3**	**12.0**	**13.2**	**4.1**	**2.8**	**4.9**	**--**
BBgBarc Multiverse TR	*1.9*	*-3.9*	*-1.0*	*1.6*	*-0.2*	*0.7*	*3.5*
Franklin Templeton	5.3	12.0	13.2	4.1	2.8	4.9	--
BBgBarc Multiverse TR	*1.9*	*-3.9*	*-1.0*	*1.6*	*-0.2*	*0.7*	*3.5*
Risk Parity	**4.4**	**2.5**	**9.6**	**2.0**	**4.9**	**5.6**	**--**
60/40 Russell 3000/BBgBarc US Aggregate	*3.8*	*8.1*	*10.8*	*5.7*	*7.0*	*8.9*	*6.6*
AQR GRP, 10% Volatility	4.6	4.4	10.4	0.4	2.3	4.0	--
PanAgora	4.2	0.9	9.0	3.4	--	--	--
60/40 Russell 3000/BBgBarc US Aggregate	*3.8*	*8.1*	*10.8*	*5.7*	*7.0*	*8.9*	*6.6*
60/40 MSCI World/BBgBarc Global Aggregate	*4.0*	*7.4*	*9.2*	*4.0*	*4.9*	*7.1*	--
Alternatives	**4.3**	**15.0**	**13.8**	**8.6**	**8.1**	**7.0**	**--**
Alternatives Allocation Index	*3.9*	*11.1*	*13.3*	*5.9*	*3.8*	*5.9*	--
Blended Alternatives Index	*4.1*	*11.6*	*13.8*	*6.2*	*4.9*	*7.8*	--
Private Equity	**6.9**	**24.1**	**23.0**	**18.1**	**18.7**	**16.1**	**--**
Russell 3000 +3%	*6.5*	*17.9*	*21.1*	*11.5*	*12.8*	*16.2*	*10.6*
Hedge Fund/Absolute Return	**1.3**	**5.1**	**3.7**	**4.7**	**7.6**	**6.8**	**--**
Libor 1 month +4%	*1.1*	*3.5*	*4.6*	*4.4*	*4.3*	*4.3*	--
AQR DELTA XN	1.4	5.6	4.1	5.4	8.1	7.1	--
Libor 1 month +4%	*1.1*	*3.5*	*4.6*	*4.4*	*4.3*	*4.3*	--
Standard Life GARS	0.6	2.8	2.0	--	--	--	--
Libor 1 month +4%	*1.1*	*3.5*	*4.6*	*4.4*	*4.3*	*4.3*	--

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Inflation Hedge	**2.6**	**5.6**	**9.6**	**--**	**--**	**--**	**--**
Blended Inflation Pool Index	*2.0*	*3.6*	*8.2*	*--*	*--*	*--*	*--*
Real Estate	**2.6**	**6.6**	**10.4**	**11.8**	**12.6**	**12.1**	**5.7**
NCREIF ODCE	*1.8*	*6.1*	*8.3*	*11.0*	*11.8*	*12.0*	*6.0*
Invesco	2.5	6.6	10.4	11.6	12.4	12.0	5.6
NCREIF ODCE	*1.8*	*6.1*	*8.3*	*11.0*	*11.8*	*12.0*	*6.0*
Invesco US Val IV	2.9	8.2	10.7	--	--	--	--
NCREIF ODCE	*1.8*	*6.1*	*8.3*	*11.0*	*11.8*	*12.0*	*6.0*
NCREIF CEVA 1Q Lag - NET	*2.8*	*7.7*	*9.8*	*14.2*	*15.1*	*--*	*--*
Private Real Asset	**6.2**	**6.2**	**5.6**	**23.9**	**--**	**--**	**--**
Blended Real Asset Index	*2.8*	*5.2*	*8.1*	*6.5*	*5.9*	*--*	*--*
Liquid Pool	**3.1**	**--**	**--**	**--**	**--**	**--**	**--**
Blended Real Asset Index	*2.8*	*5.2*	*8.1*	*6.5*	*5.9*	*--*	*--*
SSgA Custom Real Asset	3.1	--	--	--	--	--	--
Blended Real Asset Index	*2.8*	*5.2*	*8.1*	*6.5*	*5.9*	*--*	*--*
TIPS	**1.1**	**1.8**	**2.7**	**2.0**	**1.7**	**0.9**	**--**
BBgBarc US TIPS TR	*1.3*	*-0.2*	*1.5*	*1.5*	*2.0*	*1.0*	*4.2*
Brown Brothers Harriman	1.1	1.8	2.7	2.0	1.7	0.9	--
BBgBarc US TIPS TR	*1.3*	*-0.2*	*1.5*	*1.5*	*2.0*	*1.0*	*4.2*
Cash	**0.2**	**0.6**	**0.8**	**1.1**	**0.9**	**0.7**	**0.8**
91 Day T-Bills	*0.1*	*0.3*	*0.4*	*0.2*	*0.2*	*0.1*	*0.5*
General Account	0.3	0.7	1.1	1.5	1.2	0.8	1.2
Treasury & LAIF	0.3	0.2	0.5	0.7	0.9	0.8	0.8
91 Day T-Bills	*0.1*	*0.3*	*0.4*	*0.2*	*0.2*	*0.1*	*0.5*

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 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 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).

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.

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 – 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.

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.

Pyramis Global Advisors – Select International Small Cap

Pyramis Select International Small Cap is a core strategy. The approach is designed to leverage Pyramis/Fidelity's proprietary resources to add value exclusively via stock selection. To that end the portfolio is constructed to be regionally neutral, with only modest deviations from the benchmark's country and sector weights. The investment process involves three basic stages. The first stage is the security level research conducted by the analysts. The second stage is stock selection from within the pool of names that are highly ranked by the analysts. The third step is portfolio construction and risk management. The essential differentiating feature of this strategy is the breadth of coverage that is made possible by the large staff of analysts. Analysts actively conduct regular fundamental research on, and give a formal rating of 1-5, 1200-1300 international small cap companies. While there is no single firm-wide approach to security research, analysts are expected to establish an upside target for any given stock and assign a formal rating. The decision making structure is quite efficient, with portfolio manager Rob Feldman making all the buy and sell decisions. His role, as he puts it, is to be an intelligent user of the analysts' research. He selects the 1- and 2-rated stocks that he thinks are compelling and additive to his portfolio, and he sells names when they are downgraded by the analysts. There are approximately 200 holdings in the portfolio. Country and sector weights are within 3 percentage points of the benchmark and position sizes are within 2 percentage points of the benchmark. Turnover tends to be in the 60%-80% range.

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 Global Absolute Return Strategy (GARS)

The Standard Life 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.

Total Plan Policy Index	As of 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%	8.0%	10.0%	10.0%
60/40 MSCI World/BBgBarc Global Aggregate (RP)	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%	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%
BBgBarc Aggregate	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%
BBgBarc BA Intermediate HY	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%
BBgBarc BBB	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%
BBgBarc Credit BAA	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%
BBgBarc Multiverse	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%
BBgBarc TIPS	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%
Bloomberg Commodity	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%
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%	5.0%	9.0%	9.0%
CPI + 5% (RA)	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%
Blended Real Asset	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%
Libor +4% (HF)	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%
MSCI ACWI ex-US	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%
MSCI ACWI ex-US IMI	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%
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%	20.0%	20.0%	20.0%
NCREIF ODCE	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%
NCREIF Property	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%
Russell 1000	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%
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%	5.0%	5.0%	0.0%
Russell 2000	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%
Russell 3000	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%
Russell 3000 +3% (PE)	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%
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%	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%

Total Equity Benchmark	As of: 2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%
MSCI ACWI ex-US IMI	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%
Russell 3000	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	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
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%
Russell 3000	100.0%	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%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark	As of: 1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	100.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%

Total Fixed Income Benchmark	As of: 2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13
BBgBarc Aggregate	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%
BBgBarc BA Intermediate HY	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%
BBgBarc BBB	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%	16.0%
BBgBarc Multiverse	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%
BBgBarc TIPS	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Fixed Income Benchmark	As of: 2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13
BBgBarc Aggregate	66.7%	62.5%	66.7%	58.8%	56.9%	62.5%
BBgBarc BA Intermediate HY	33.3%	37.5%	33.3%	29.4%	30.8%	0.0%
BBgBarc BBB	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%	20.0%
BBgBarc TIPS	0.0%	0.0%	0.0%	11.8%	12.3%	17.5%
	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%

Alternatives Benchmark	As of: 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%	30.0%
Bloomberg Commodity	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	46.2%	41.7%	29.4%	25.0%	15.0%
Russell 3000 +3% (PE)	53.8%	58.3%	41.2%	43.8%	40.0%
	100.0%	100.0%	100.0%	100.0%	100.0%

Private Equity Benchmark	As of: 10/1/10
Russell 3000 +3%	100.0%
	100.0%

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

Inflation Hedge	As of: 2/1/17	10/1/16	4/1/16
BBgBarc TIPS	12.50%	14.3%	14.3%
Bloomberg Commodity	0.00%	0.0%	21.4%
CPI + 5% (RA)	0.00%	0.0%	14.3%
Bloomberg Roll Select Commodity	14.87%	12.1%	21.4%
S&P Global Large-MidCap Commodity and Resourc	14.44%	11.8%	14.3%
S&P Global Infrastructure	14.44%	11.8%	0.0%
NCREIF ODCE	43.75%	50.0%	50.0%
	100.0%	100.0%	135.7%

Real Asset Benchmark	As of: 10/1/16	1/1/14
Bloomberg Roll Select Commodity	34.00%	0.0%
S&P Global Large-MidCap Commodity and Resourc	33.00%	0.0%
S&P Global Infrastructure	33.00%	0.0%
CPI + 5%	0.00%	100.0%
	0.0%	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%

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%

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

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

Brown Brothers Harriman

On All Assets:	0.15% per annum

Clifton Group

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	

Franklin Templeton Investment

First $50 million:	0.45% per annum
Next $50 million:	0.35% per annum
Thereafter:	0.30% 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

FIAM Equity

On All Assets:	0.90% per annum

Parametric

On All Assets:	0.30% per annum

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
DE Shaw	Russell 1000	✓	✓	✓
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	--	--	--
FIAM Equity	MSCI ACWI ex US Small Cap Gross	⚐	⚐	⚐
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	--	--	--
Beach Point Select	BBgBarc BA Intermediate HY	--	--	--
Brigade Capital	BBgBarc BA Intermediate HY	✓	✓	⚐
TCP Direct Lending VIII	BBgBarc BA Intermediate HY	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	✓	✓	✓

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
DE Shaw	Russell 1000	✓	✓	✓
QMA US Small Cap	Russell 2000	--	--	--
Baillie Gifford	MSCI ACWI ex US	--	--	--
FIAM Equity	MSCI ACWI ex US Small Cap Gross	⚑	⚑	✓
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	--	--	--
Beach Point Select	BBgBarc BA Intermediate HY	--	--	--
Brigade Capital	BBgBarc BA Intermediate HY	✓	✓	⚑
TCP Direct Lending VIII	BBgBarc BA Intermediate HY	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	✓	✓	✓

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

	Jan	Feb	Mar	1st Qtr. 2017	Difference	4th Qtr. 2016	Difference	3rd Qtr. 2016	Difference	2nd Qtr. 2016	Difference	1st Qtr. 2016	Difference
Verus	2.41%	4.14%	0.35%	7.02%		3.76%		5.32%		4.28%		0.75%	
D.E. Shaw	2.41%	4.14%	0.35%	7.02%	0.00%	3.76%	0.00%	5.33%	-0.01%	4.29%	-0.01%	0.76%	-0.01%
Russell 1000 Index	2.01%	3.87%	0.06%	6.02%		3.83%		4.03%		2.54%		1.18%	
Verus	0.46%	1.09%	0.89%	2.46%		10.64%							
QMA US Small Cap (Net)	0.46%	1.09%	0.89%	2.46%	0.00%	10.64%	-0.01%						
Russell 2000 Index	0.39%	1.93%	0.13%	2.47%		8.83%							
Verus	5.38%	0.97%	3.50%	10.12%		-7.01%		8.50%		-0.20%		0.42%	
Baillie Gifford	5.34%	0.99%	3.47%	10.07%	0.05%	-7.01%	0.00%	8.55%	-0.05%	-0.21%	0.01%	0.42%	0.00%
MSCI ACWI ex US	3.55%	1.61%	2.63%	7.98%		-1.20%		7.00%		-0.40%		-0.26%	
MSCI ACWI ex US Growth	4.03%	2.02%	2.91%	9.22%		-5.68%		6.11%		0.64%		-0.24%	
Verus	2.90%	1.44%	2.86%	7.38%		-0.66%		6.49%		-1.24%		-2.90%	
BlackRock EAFE Equity	2.90%	1.44%	2.86%	7.38%	0.00%	-0.65%	-0.01%	6.49%	0.00%	-1.24%	-0.00%	-2.90%	-0.00%
MSCI EAFE (Net)	2.90%	1.43%	2.75%	7.25%		-0.71%		6.43%		-1.46%		-3.01%	
MSCI EAFE (Gross)	2.91%	1.45%	2.87%	7.39%		-0.68%		6.51%		-1.19%		-2.89%	
Verus	4.16%	1.21%	2.68%	8.25%		-5.35%		7.00%		-0.16%		1.12%	
FIAM Equity	4.16%	1.21%	2.68%	8.25%	0.00%	-5.36%	0.01%	6.99%	0.01%	-0.15%	-0.01%	1.11%	0.01%
MSCI ACWI -ex US Small Cap Index	3.84%	2.65%	2.13%	8.86%		-3.47%		8.00%		-0.72%		0.76%	
Verus	1.94%	2.42%	3.66%	8.23%		-1.01%		3.99%		0.49%		1.70%	
Mondrian	1.95%	2.42%	3.66%	8.23%	-0.00%	-0.97%	-0.04%	4.00%	-0.01%	0.50%	-0.01%	1.70%	-0.00%
MSCI ACWI -ex US Value Index	3.10%	1.22%	2.36%	6.82%		3.36%		7.92%		-1.46%		-0.29%	
MSCI ACWI -ex US	3.55%	1.61%	2.63%	7.98%		-1.20%		7.00%		-0.40%		-0.26%	
Verus	5.34%	2.08%	2.65%	10.39%		-2.58%		5.41%		1.40%		8.88%	
Parametric Core	5.36%	2.10%	2.67%	10.44%	-0.05%	-2.54%	-0.04%	5.47%	-0.06%	1.42%	-0.02%	8.91%	-0.03%
MSCI EM Market Index	5.48%	3.07%	2.55%	11.49%		-4.08%		9.15%		0.80%		5.74%	

Manager Performance Comparison (Gross of Fees)

Period Ending: March 31, 2017

	Jan	Feb	Mar	1st Qtr. 2017	Difference	4th Qtr. 2016	Difference	3rd Qtr. 2016	Difference	2nd Qtr. 2016	Difference	1st Qtr. 2016	Difference
Verus	0.45%	0.74%	0.04%	1.24%		-2.66%		1.27%		2.77%		3.28%	
FIAM Bond	0.45%	0.74%	0.04%	1.24%	0.00%	-2.66%	-0.00%	1.27%	-0.00%	2.77%	0.00%	3.28%	0.00%
BBgBarc US Aggregate Index	0.20%	0.67%	-0.05%	0.82%		-2.98%		0.46%		2.21%		3.02%	
Verus	1.01%	0.69%	0.53%	2.25%		1.09%		2.67%		2.62%		-0.64%	
Western TRU	1.01%	0.69%	0.53%	2.25%	0.00%	1.09%	0.00%	2.67%	0.00%	2.62%	-0.01%	-0.63%	-0.01%
3-Month Libor Total Return USD Index	0.09%	0.08%	0.10%	0.27%		0.24%		0.21%		0.17%		0.13%	
BBgBarc US Aggregate Index	0.20%	0.67%	-0.05%	0.82%		-2.98%		0.46%		2.21%		3.04%	
Verus (Net)				*4.34%*		*2.54%*		*5.38%*		*0.31%*		*0.70%*	
Angelo Gordon Opportunistic				*4.34%*	0.00%	*2.54%*	0.00%	5.38%	0.00%	0.31%	0.00%	0.70%	0.00%
BBgBarc US Aggregate Index				0.82%		-2.98%		-0.06%		2.21%		0.92%	
Verus (Net)				*4.58%*		*1.99%*		*5.17%*		*2.05%*		*-2.17%*	
Angelo Gordon STAR Fund (Net)				*4.58%*	0.00%	*1.99%*	0.00%	5.17%	0.00%	2.05%	0.00%	-2.17%	0.00%
BBgBarc US Aggregate Index				0.82%		-2.98%		-0.06%		2.21%		0.92%	
Verus	1.86%	0.47%	0.11%	2.45%		3.56%		5.50%		4.23%		2.67%	
Beach Point Select (Net)	1.86%	0.47%	0.11%	2.45%	0.00%	3.56%	-0.00%	5.25%	0.25%	3.98%	0.26%	2.41%	0.26%
BBgBarc BA Intermediate HY	0.89%	0.98%	-0.12%	1.76%		0.63%		4.04%		3.29%		3.43%	
Verus	2.06%	1.79%	-0.04%	3.84%		2.50%		7.15%		8.52%		3.29%	
Brigade Capital	*2.00%*	*1.80%*	*-0.06%*	*3.77%*	0.07%	2.50%	-0.00%	7.09%	0.06%	8.48%	0.05%	3.29%	0.00%
BBgBarc BA Intermediate HY	0.89%	0.98%	-0.12%	1.76%		0.63%		4.04%		3.29%		3.43%	
50% BBgBarc HY/ 50% Bank Loan	0.99%	1.02%	-0.07%	1.95%		2.00%		4.32%		4.19%		2.34%	
Verus				*2.06%*		0.17%							
TCP Direct Lending VIII				*2.06%*	0.00%	*0.17%*	-0.00%						
BBgBarc BA Intermediate HY				1.76%		0.63%							
Verus	0.13%	2.49%	2.58%	5.27%		6.49%		-0.13%		1.11%		0.12%	
Franklin Templeton Investments	0.13%	2.49%	2.58%	5.27%	0.00%	6.49%	0.00%	-0.13%	-0.00%	1.11%	0.00%	0.12%	0.00%
BBgBarc Multiverse	1.20%	0.52%	0.17%	1.90%		-6.68%		1.05%		3.00%		5.88%	

	Jan	Feb	Mar	1st Qtr. 2017	Difference	4th Qtr. 2016	Difference	3rd Qtr. 2016	Difference	2nd Qtr. 2016	Difference	1st Qtr. 2016	Difference
Verus	0.86%	3.70%	-0.01%	4.57%		-2.38%		2.23%		5.80%		4.65%	
AQR GRP, 10% Volatility (Net)	0.86%	3.70%	-0.01%	4.57%	0.00%	-2.39%	0.00%	2.24%	-0.01%	5.80%	-0.00%	4.65%	0.00%
60% R3000/ 40% BBgBarc Agg	1.21%	2.50%	0.02%	3.76%		1.34%		2.82%		2.47%		1.89%	
60% MSCI World/ 40% BBgBarc Glb	1.30%	2.01%	0.62%	3.98%		0.17%		3.13%		1.62%		1.21%	
Verus	0.82%	2.72%	0.58%	4.16%		-5.19%		2.20%		7.99%		8.22%	
PanAgora (Net)	0.82%	2.72%	0.58%	4.16%	0.00%	-5.19%	-0.00%	2.20%	-0.00%	7.99%	0.00%	8.23%	-0.01%
60% R3000/ 40% BBgBarc Agg	1.21%	2.50%	0.02%	3.76%		1.34%		2.82%		2.47%		1.89%	
60% MSCI World/ 40% BBgBarc Glb	1.30%	2.01%	0.62%	3.98%		0.17%		3.13%		1.62%		1.21%	
Verus	0.36%	2.20%	-1.11%	1.42%		2.38%		1.69%		-1.39%		-1.06%	
AQR DELTA XN (Net)	0.36%	2.20%	-1.11%	1.43%	-0.01%	2.38%	0.00%	1.70%	-0.01%	-1.39%	-0.00%	-1.07%	0.01%
Libor + 4%	0.32%	0.37%	0.42%	1.11%		1.17%		1.14%		1.13%		0.99%	
Verus	-0.46%	0.80%	0.26%	0.59%		1.80%		0.42%		-0.85%		-3.24%	
Standard Life GARS (Net)	-0.46%	0.80%	0.26%	0.59%	0.00%	1.80%	0.00%	0.42%	-0.00%	-0.85%	-0.01%	-3.25%	-0.01%
Libor + 4%	0.32%	0.37%	0.42%	1.11%		1.17%		1.14%		1.13%		0.99%	
Verus				2.55%		2.19%		1.68%		3.64%		1.47%	
INVESCO Real Estate				*2.54%*	0.01%	*2.17%*	0.02%	*1.68%*	0.00%	*3.62%*	0.02%	*1.47%*	0.00%
NCREIF NFI ODCE Index				1.77%		2.11%		2.07%		2.13%		2.18%	
Verus				2.90%		1.31%		3.82%		2.31%		-0.19%	
Invesco US Val IV				*2.90%*	0.00%	*1.31%*	-0.00%	3.82%	0.00%	2.31%	0.00%	-0.19%	0.00%
NCREIF NFI ODCE Index				1.77%		2.11%		2.07%		2.13%		2.18%	
NCREIF CEVA 1Q Lag - NET				2.75%		2.54%		2.17%		1.99%		5.84%	
Verus	0.88%	0.28%	-0.02%	1.13%		-0.55%		1.24%		0.90%		3.41%	
Brown Brothers Harriman	0.86%	0.29%	-0.02%	1.13%	-0.00%	-0.53%	-0.02%	1.22%	0.02%	0.91%	-0.02%	3.52%	-0.11%
BBgBarc U.S Tips	0.84%	0.47%	-0.05%	1.26%		-2.41%		0.97%		1.71%		4.46%	

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
3/31/2017	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 - adjustedmarket 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
3/31/2017	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

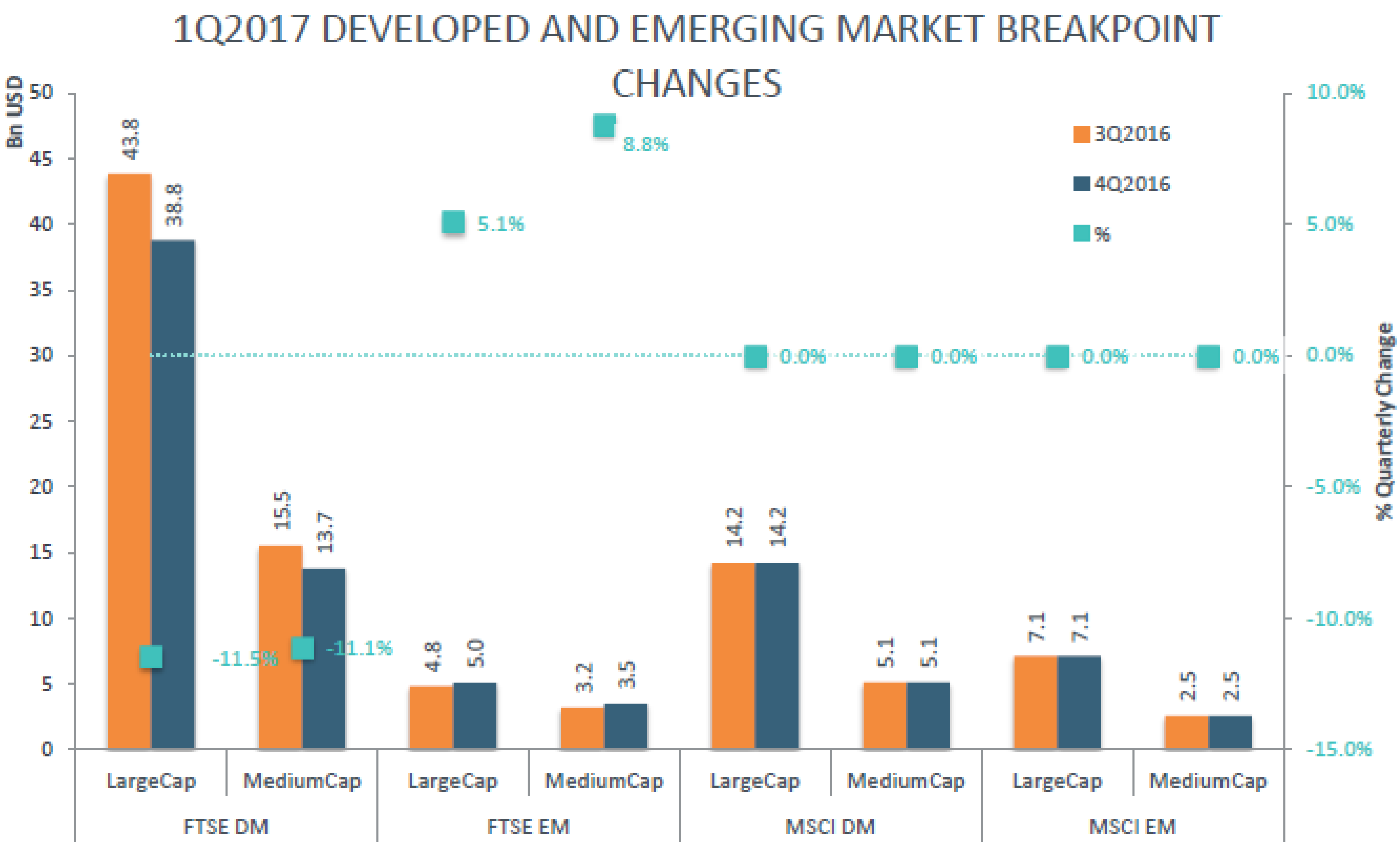
After the breakpoints are determined by the ranges above, new members are assigned on the basis of the breakpoints and existing members are reviewed to determine if they fall within a cumulative 5% market cap range around the new market capitalization breakpoints. If an existing securities market cap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

As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
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

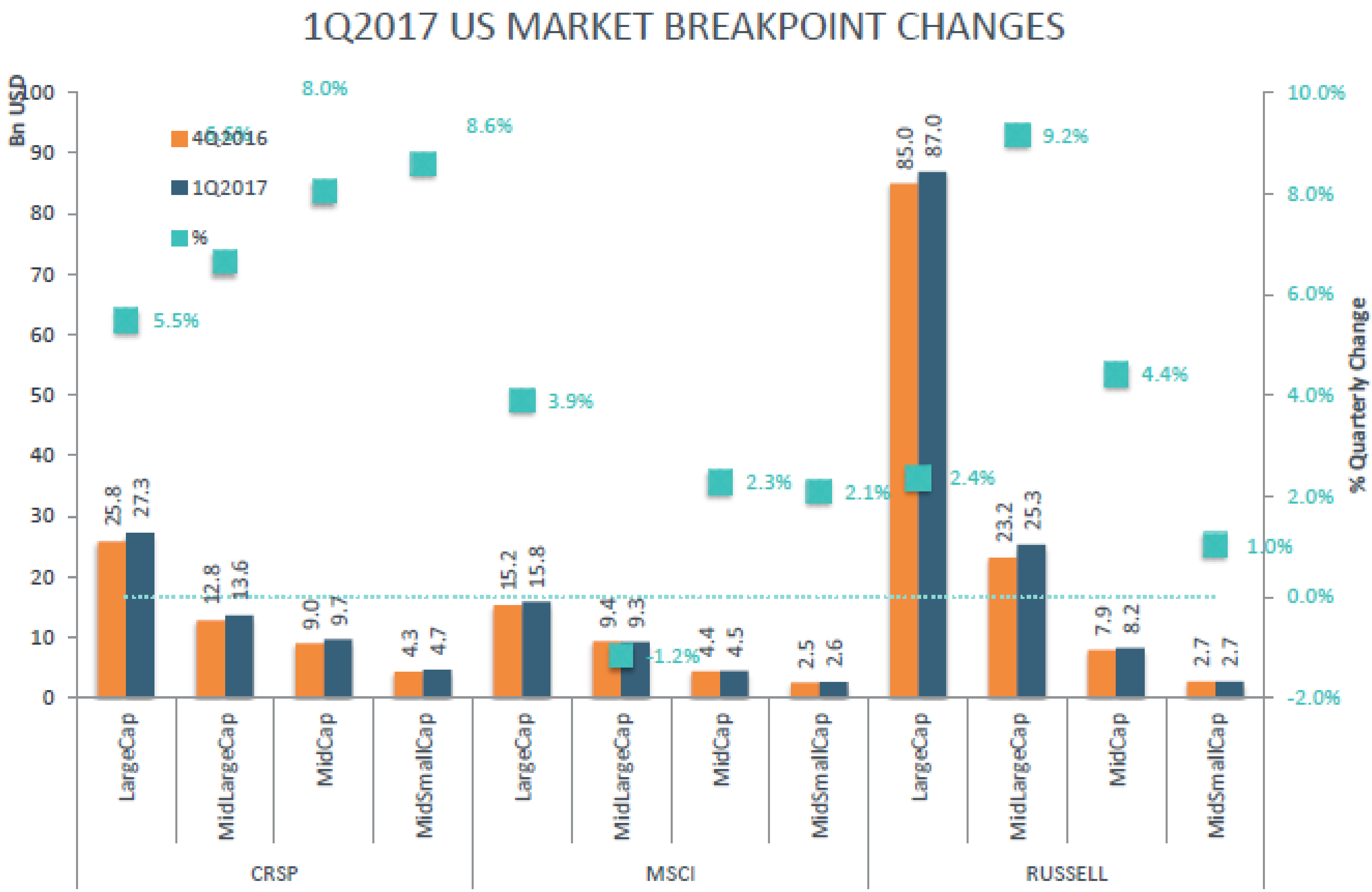
As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
9/30/2014	84.51	24.44	7.97	3.04	0
6/30/2014	80.39	23.62	8.07	3.24	0
3/31/2014	76.77	23.15	7.83	3.06	0
12/31/2013	77.11	22.27	7.65	3.03	0
9/30/2013	72.4	19.93	7.15	2.71	0
6/30/2013	68.47	19.36	6.48	2.46	0
3/31/2013	64.31	18.64	6.39	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
3/31/2010	42.43	12.61	4.3	1.68	0

Numbers are billions USD

BREAKPOINT TRENDS



MSCI is releasing market capitalization breakpoints less frequently then FTSE, hence the market capitalization breakpoints are longer in effect, showing as no change.



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.

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

2ND QUARTER 2017
Investment Landscape

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Verus

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484

1st quarter summary

THE ECONOMIC CLIMATE

— Developed economies continued to experience steady, moderate expansion with fourth quarter real GDP growth in the U.S., the Eurozone, and Japan all between 1.5-2.0%. The base effect of lower oil prices led to higher year-over-year headline inflation in many countries. ***p. 16***

— During the first quarter, the global economy exhibited a coordinated pick up in economic activity. Data generally exceeded expectations, especially in the U.S. and the Eurozone. ***p. 18***

MARKET PORTFOLIO IMPACTS

— The U.S. Treasury curve flattened in the first quarter. Short-term rates were driven higher by the Fed, while the long end of the curve remained unchanged. Even with Fed tightening, the U.S. may not be in a typical rising rate environment. ***p. 22***

— A better outlook for commodity performance, as well as a flattening of the futures curve in some markets increases the attractiveness of commodities as an inflation hedge. ***p. 38***

THE INVESTMENT CLIMATE

— While central banks are still accommodative outside of the U.S., most appear to be in later stages of the easing cycle. Developed central banks appear to be broadly entering a period of policy normalization. ***p. 22***

— The market is expecting better earnings growth in U.S. equities. According to FactSet, the estimated Q1 earnings growth for the S&P 500 is 9.2% from the previous year. Higher earnings growth may help justify above average valuations. ***p. 29***

ASSET ALLOCATION ISSUES

— Stabilizing currencies and commodity prices, as well as higher growth outlooks, may benefit emerging market equities. ***p. 33***

— With U.S. Treasury yields still at historic lows and the expectation of additional tightening from the Fed, investors may not be adequately compensated for taking duration risk in the current environment. ***p.23***

We continue to be neutral towards risk

What drove the market in Q1?

"The Global Economy Enjoys a Synchronized Upswing"

CITI GLOBAL ECONOMIC SURPRISE INDEX

Oct 31st	Nov 30th	Dec 31st	Jan 31st	Feb 28th	Mar 31st
3.1	17.1	27.0	37.0	43.8	38.8

Source: The Economist, March 16th 2017

"Rates Rise, But Yield Curve Keeps Flattening"

U.S. TREASURY 10-YR MINUS 2-YEAR YIELD SPREAD

Oct 31st	Nov 30th	Dec 31st	Jan 31st	Feb 28th	Mar 31st
0.98%	1.26%	1.25%	1.26%	1.14%	1.13%

Source: Barron's, March 28th 2017

"French Political Turmoil Hits Bond Spreads"

GERMAN-FRENCH 10-YR YIELD SPREAD

Oct 31st	Nov 30th	Dec 31st	Jan 31st	Feb 28th	Mar 31st
0.30%	0.48%	0.48%	0.60%	0.68%	0.64%

Source: Financial Times, February 6th 2017

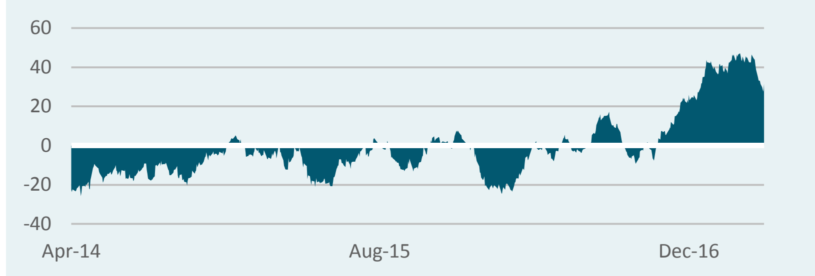
"The Market Conundrum of (Low) Volatility and Uncertainty"

CBOE VIX (10-YEAR AVERAGE, 20.7)

Oct 31st	Nov 30th	Dec 31st	Jan 31st	Feb 28th	Mar 31st
17.1	13.3	14.0	12.0	12.9	12.4

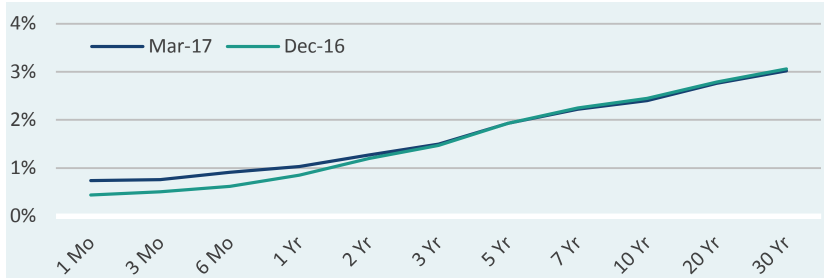
Source: Bloomberg, January 30th 2017

CITI GLOBAL ECONOMIC SURPRISE INDEX



Source: Bloomberg, 4/13/17

U.S. TREASURY CURVE



Source: Bloomberg, as of 3/31/17

GERMAN-FRENCH 10-YR YIELD SPREAD

Source: Bloomberg, as of 4/12/17 – German 10yr yield minus French 10yr yield

Economic environment

U.S. economics summary

— U.S. real GDP grew 2.0% YoY in Q4, up from 1.7% in Q3. Moderate increases in consumer spending continued to be the main driver of the economy.

— Inflation moved higher as headline CPI increased 2.8% YoY in February. Core inflation, however, increased only modestly to 2.2%. Most of the rise was caused by the low base effect from falling oil prices last year.

— The Fed continued tighter monetary policy by raising the target federal funds rate 25 bps to 0.75-1.00% at its March meeting. The FOMC dot plot indicates two more rate hikes in 2017, while the market has only priced in one more increase.

— The March Fed meeting minutes revealed that the central bank may begin shrinking its balance sheet as early as December, representing a form of monetary tightening. It remains unclear whether the Fed will stop rolling over maturing securities or actively sell in the open market.

— On average, 178,000 jobs were added each month during Q1, and unemployment fell 0.2% to 4.5%. Data continued to indicate a tighter labor market, though wage growth is lackluster. Real hourly earnings fell 0.1% in February from the prior year.

— Soft data (consumer & business sentiment) improved markedly following the U.S. presidential election. We are continuing to monitor the degree to which soft data flows through to actual spending and investment patterns. At this point evidence still is lacking.

	Most Recent	**12 Months Prior**
GDP *(annual YoY)*	2.0% *12/31/16*	1.9% *12/31/15*
Inflation *(CPI YoY, Headline)*	2.8% *2/28/17*	1.0% *2/29/16*
Expected Inflation *(5yr-5yr forward)*	2.2% *3/31/17*	1.8% *3/31/16*
Fed Funds Rate	0.75% *3/31/17*	0.25% *3/31/16*
10 Year Rate	2.4% *3/31/17*	1.8% *3/31/16*
U-3 Unemployment	4.5% *3/31/17*	5.0% *3/31/16*
U-6 Unemployment	8.9% *3/31/17*	9.8% *3/31/16*

U.S. economics – GDP growth

Real GDP grew 2.0% YoY in Q4 (2.1% quarterly annualized rate) as slow but positive economic growth continued.

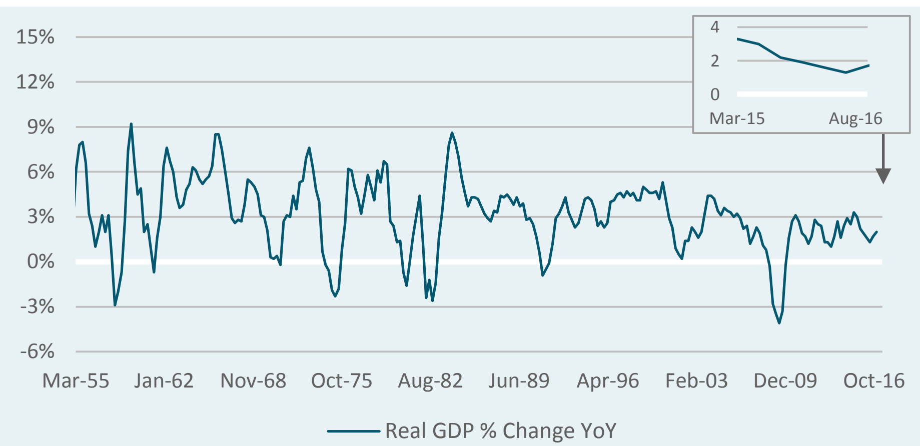
Personal consumption contributed 2.4% to quarterly GDP growth, and was once again the main driver of improvement in the economy. Rising post-election consumer confidence did not immediately flow through to the real economy, but may support increased spending in coming quarters.

Private domestic investment also contributed to growth. A widening trade deficit from both an increase in imports and a decrease in exports was the largest detractor from GDP growth.

The Atlanta Fed GDP Now forecast for Q1 was 0.5% as of April 14th. The forecast was revised downward throughout the quarter mainly due to softer personal spending data. Part of this weakness can be attributed to a temporary decline in utilities spending from milder winter weather.

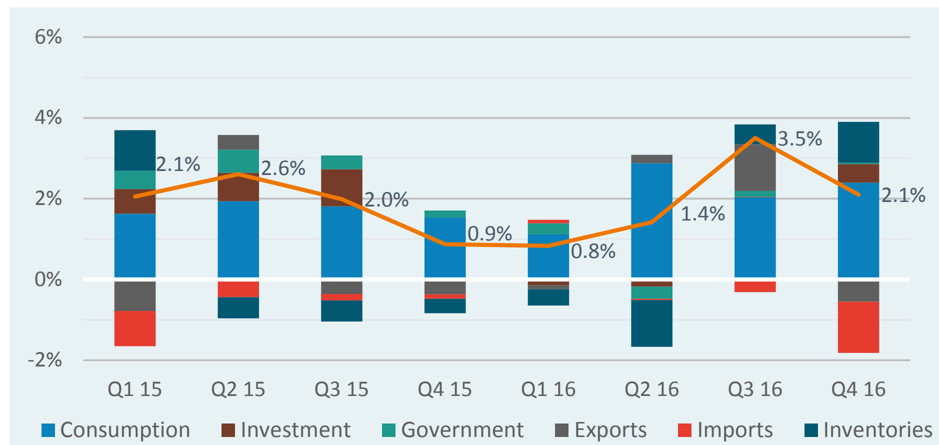
The U.S. economy continued to grow at a moderate pace

U.S. REAL GDP GROWTH



Source: FRED, as of 12/31/16

U.S. GDP COMPONENTS



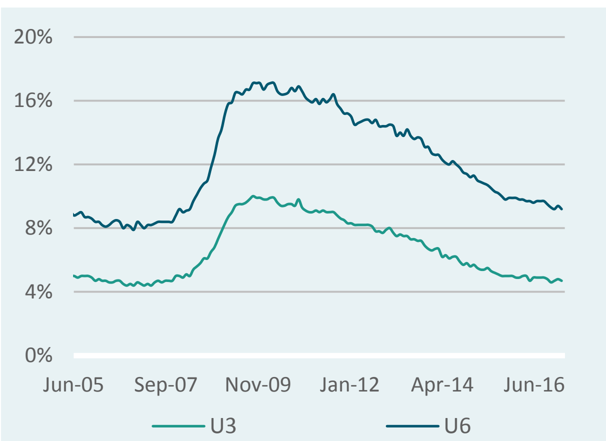
Source: BEA, annualized quarterly rate, as of 12/31/16

U.S. economics – Labor market

Moderate additions to payrolls and higher employment indicate a tighter labor market. Job gains averaged 178,000 per month in the first quarter, slightly below the expansion average of 199,000. The headline unemployment rate fell to a nearly decade low of 4.5%. The broader U-6 unemployment rate, which includes discouraged workers who want a job but have given up looking, and part-time workers who would like to be full-time, fell to a cyclical low of 8.9%. The participation rate rose to 63.0%, an increase of 0.3%.

The number of job openings in the economy is relatively high, likely due to a lack of supply. Companies are having a difficult time finding qualified workers to fill open positions. While most employment data suggests a tight labor market, wage growth has been unusually muted throughout this cycle. As the U.S. economic expansion ages, we would expect companies to raise wages in order to attract and retain workers. However, real average hourly earnings fell 0.1% in February YoY.

U.S. UNEMPLOYMENT

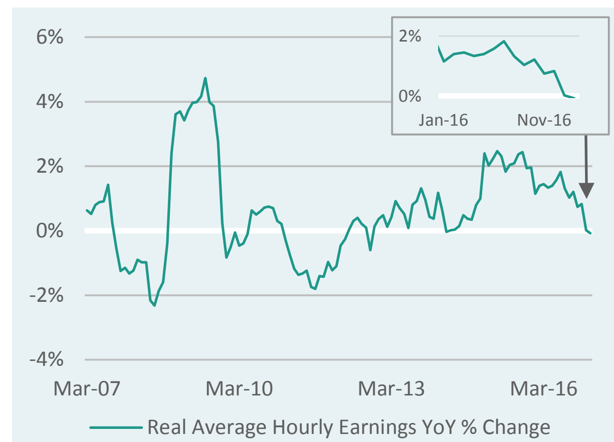


Source: FRED, as of 2/28/17

JOB OPENINGS

Source: FRED, as of 2/28/17

REAL AVERAGE HOURLY EARNINGS



Source: FRED, as of 2/28/17

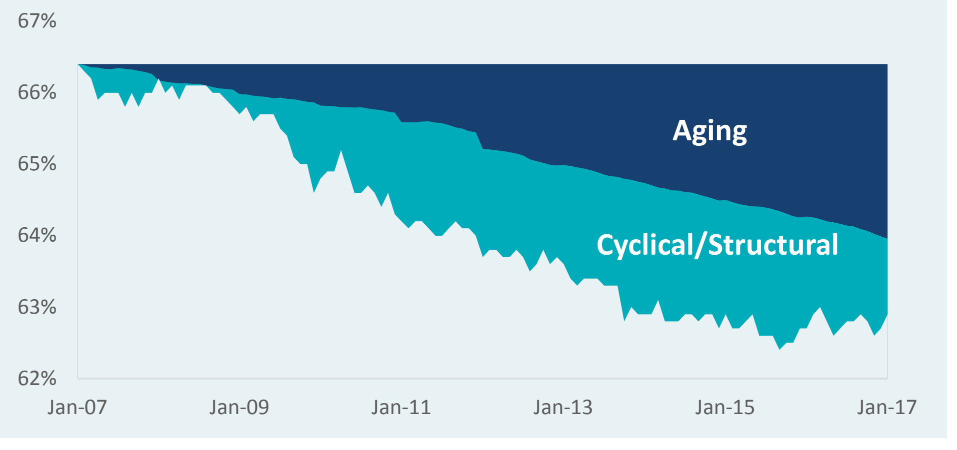
A closer look at participation

The labor force participation rate has fallen significantly following the financial crisis. While most of the drop can be attributed to an aging population, one-third is a result of structural issues, and possibly some remaining cyclical factors. Stripping out the aging effect by looking at the core working age group shows a drop of 1.9% in participation over the past 10 years.

Unlike cyclical factors that move with the economic cycle, structural issues in the labor market may be more or less permanent. This is important because fewer workers participating in the economy will result in slower growth, all else equal. Workers reentering the economy, however, could provide some protection against rapid wage price inflation, and therefore mitigate the risk that rapid wage inflation disrupts economic growth.

Structural issues that may explain lower participation include an increased number of unqualified workers due to a lack of requisite skills and education and those with criminal felony convictions. There may also be fewer incentives for people outside of the workforce to return because of slow wage growth and a greater reliance on permanent federal disability.

U.S. LABOR FORCE PARTICIPATION



Source: BLS, Verus, as of 1/31/17

CORE AGE GROUP (25-54) PARTICIPATION

Source: BLS, as of 1/31/17

U.S. economics – The consumer

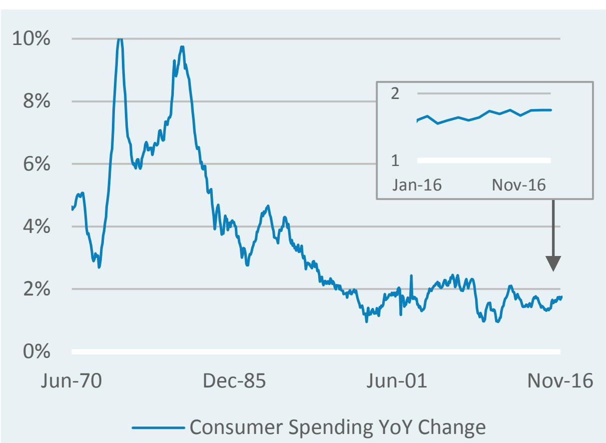
Higher interest rates are expected to be a headwind for U.S. consumers, but other fundamentals reflect a positive overall environment. Much of the economic growth in the current cycle has been attributed to moderate, steady increases in consumer spending. In February, consumer spending grew 1.7% from the previous year. While positive spending growth has been consistent, there has yet to be a material flow through effect from the jump in confidence following the U.S. election in November.

An increase in financial assets during the current recovery has led to large gains in household net worth. The wealth effect, in which consumers increase spending habits based on a higher level of perceived wealth could have a positive impact on economic growth.

Although the consumer has led the economic expansion, credit has not been used as much as in previous cycles. Consumer credit growth has been moderate and household balance sheets remain relatively healthy.

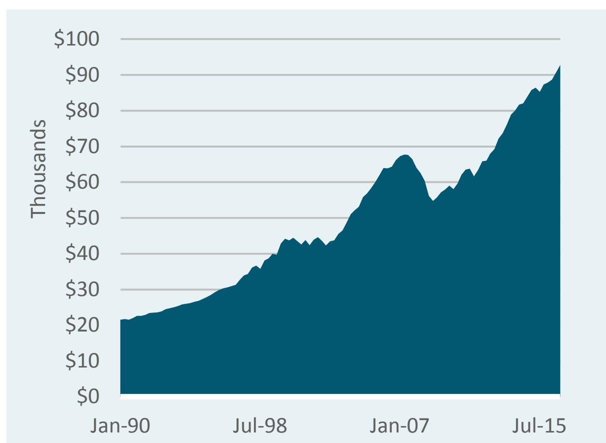
Steady increases in consumer spending has driven recent growth

CONSUMER SPENDING



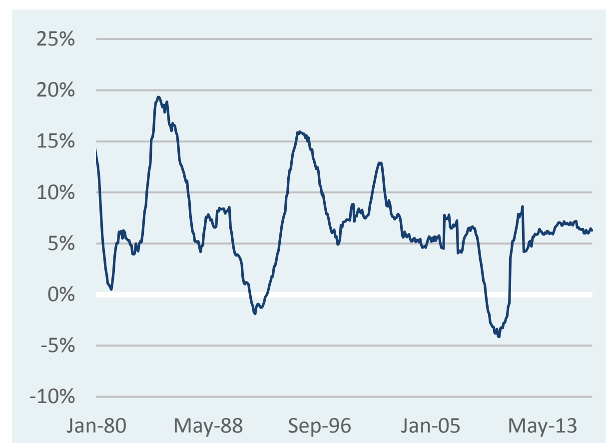
Source: Bloomberg, as of 2/28/17

HOUSEHOLD NET WORTH



Source: FRED, as of 1/31/17

CONSUMER CREDIT GROWTH



Source: FRED, as of 1/31/17

U.S. economics – Sentiment

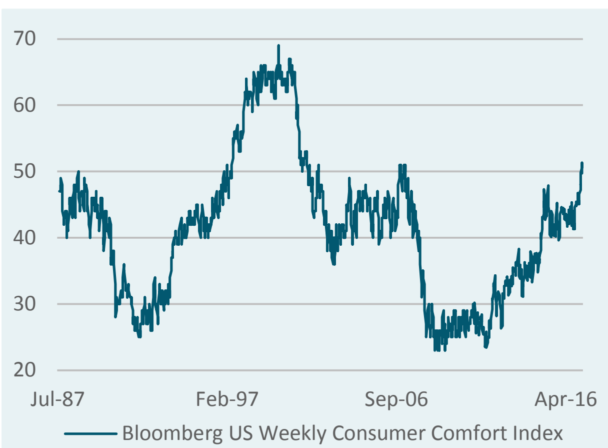
Consumer sentiment fell slightly over the quarter, but the overall level remains high. The University of Michigan Consumer Sentiment Index was 96.9 at the end of March, compared to the long-term average of 85.6. Consumers cited three key components for the greater optimism: higher incomes, favorable job prospects, and low inflation expectations. Consumer sentiment and hard data do not always align as sentiment builds and falls more slowly through time.

The University of Michigan survey also identified a disconnect in consumer sentiment across political party affiliations. Democrats expect an immediate recession, while Republicans expect robust economic growth. The index of consumer expectations was 50.5 points higher for Republicans than Democrats. Continued political uncertainty could weigh on sentiment in the coming months.

U.S. economic data has exceeded expectations - a trend that started prior to the election. The Citi Economic Surprise Index was 48 at quarter-end, its highest level in more than three years. However, much of the uptick in this indicator has been driven by "soft" data that has yet to flow through to the real economy.

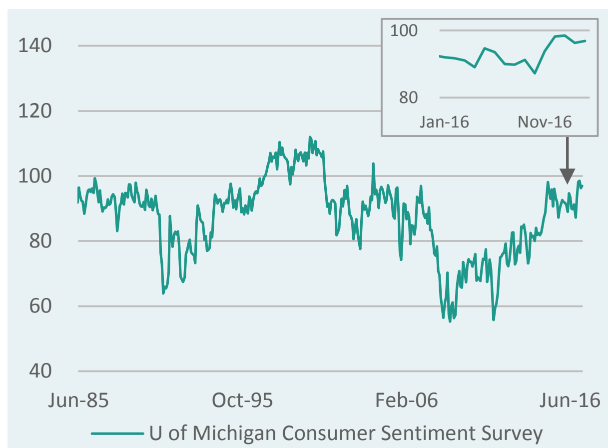
Overall, consumers remain optimistic about the economy

CONSUMER COMFORT INDEX



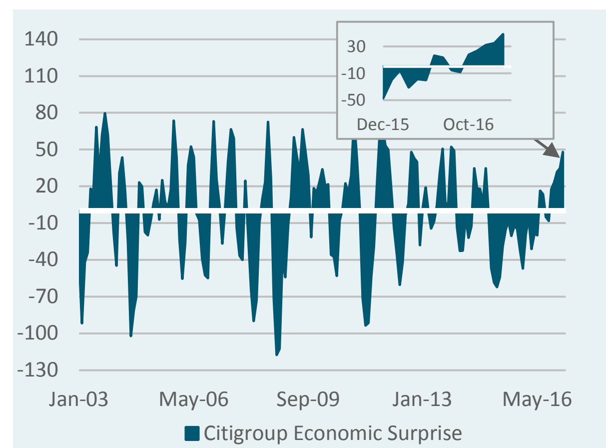
Source: Bloomberg, as of 3/19/17 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/17 (see Appendix)

U.S. ECONOMIC SURPRISE



Source: Bloomberg, as of 3/31/17 (see Appendix)

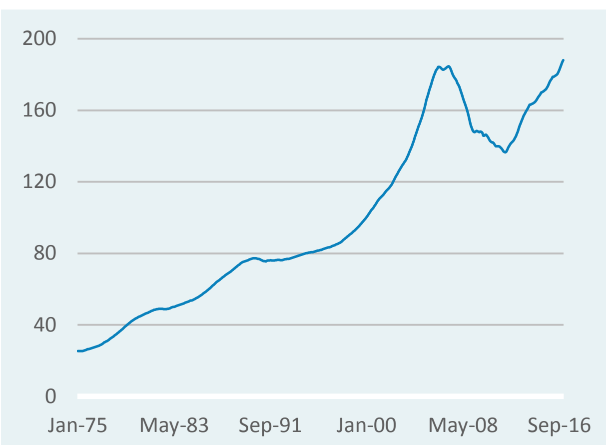
U.S. economics – Housing

Despite higher mortgage rates since November, home prices in the U.S. have moved upward. Over the 12 months ending in January, the Case-Shiller National Home Price Index rose 5.8%. This price gauge has rallied 37.7% since bottoming in January of 2012 and is now slightly higher than the previous peak.

While increases in interest rates may act as a headwind, the housing market is supported by strong demand for single-family homes and historically low supply, in addition to an overall financially healthy consumer base. At the current rate of sales it would take only 5.4 months to completely sell the entire supply of homes.

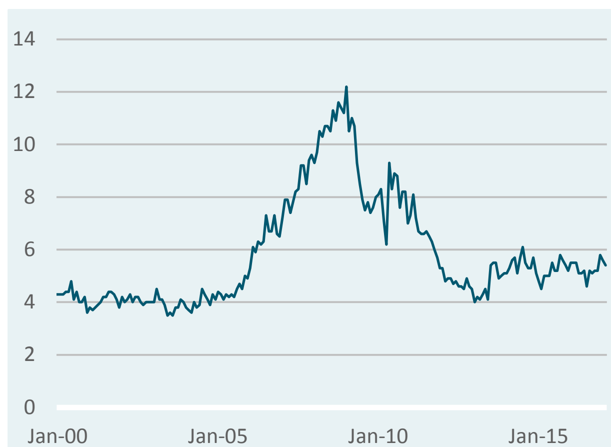
Housing starts and building permits have been steadily trending upwards with homebuilders ramping up construction to meet outsized market demand. New homes coming on line may put downward pressure on prices.

CASE-SHILLER HOME PRICE INDEX



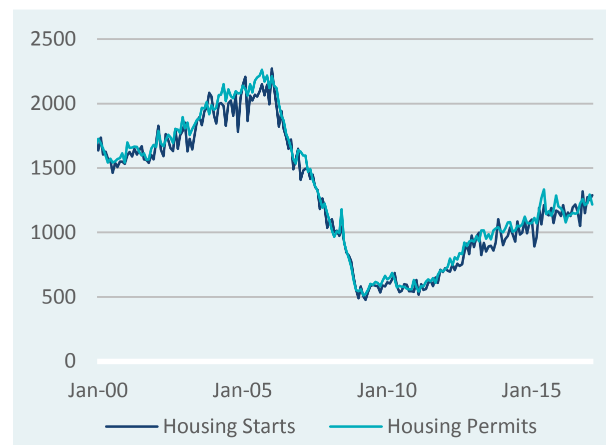
Source: FRED, as of 1/31/17

MONTHLY SUPPLY OF HOMES



Source: FRED, as of 2/28/17

HOUSING STARTS AND PERMITS



Source: FRED, as of 2/28/17

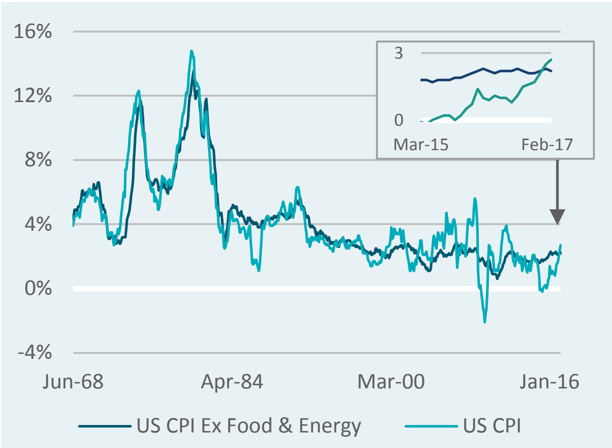
U.S. economics – Inflation

Headline CPI rose 2.8% in February from the previous year, its highest rate in five years. Much of this jump in inflation can be attributed to the base effect of low oil prices one year ago. The energy component of the CPI basket increased 15.6%. Core inflation remained unchanged at 2.2%.

After rising considerably following the presidential election, market inflation expectations were mostly unchanged during the first quarter. The 10-year TIPS breakeven inflation rate finished the period at 2.0%. The market continues to discount low levels of future inflation relative to history. In comparison, consumers are expecting 2.5% annualized inflation over the next 5-10 years, according to the University of Michigan survey.

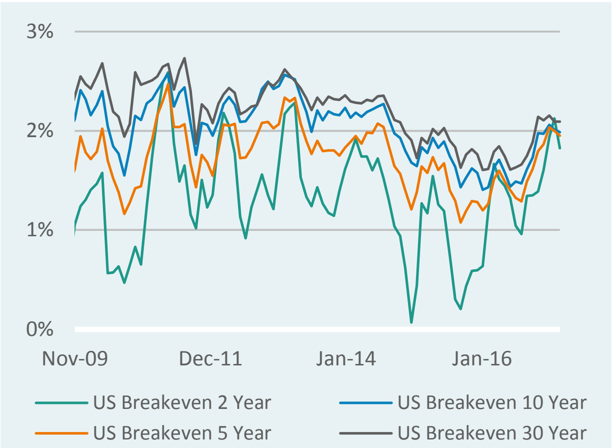
Our view remains that the market may be underpricing expected inflation at a time when inflation risks are skewed to the upside.

U.S. CPI (YOY)



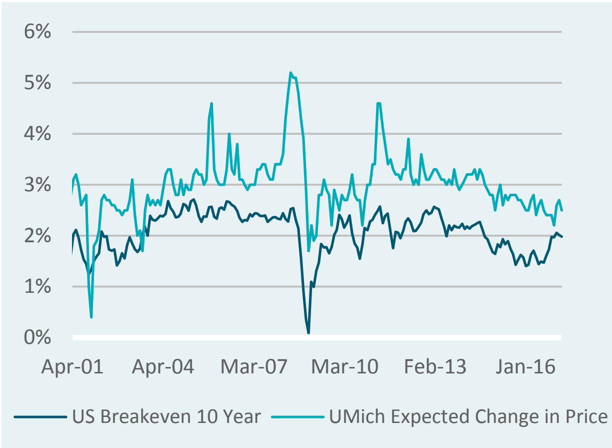
Source: FRED, as of 2/28/17

U.S. TIPS Breakeven Rates



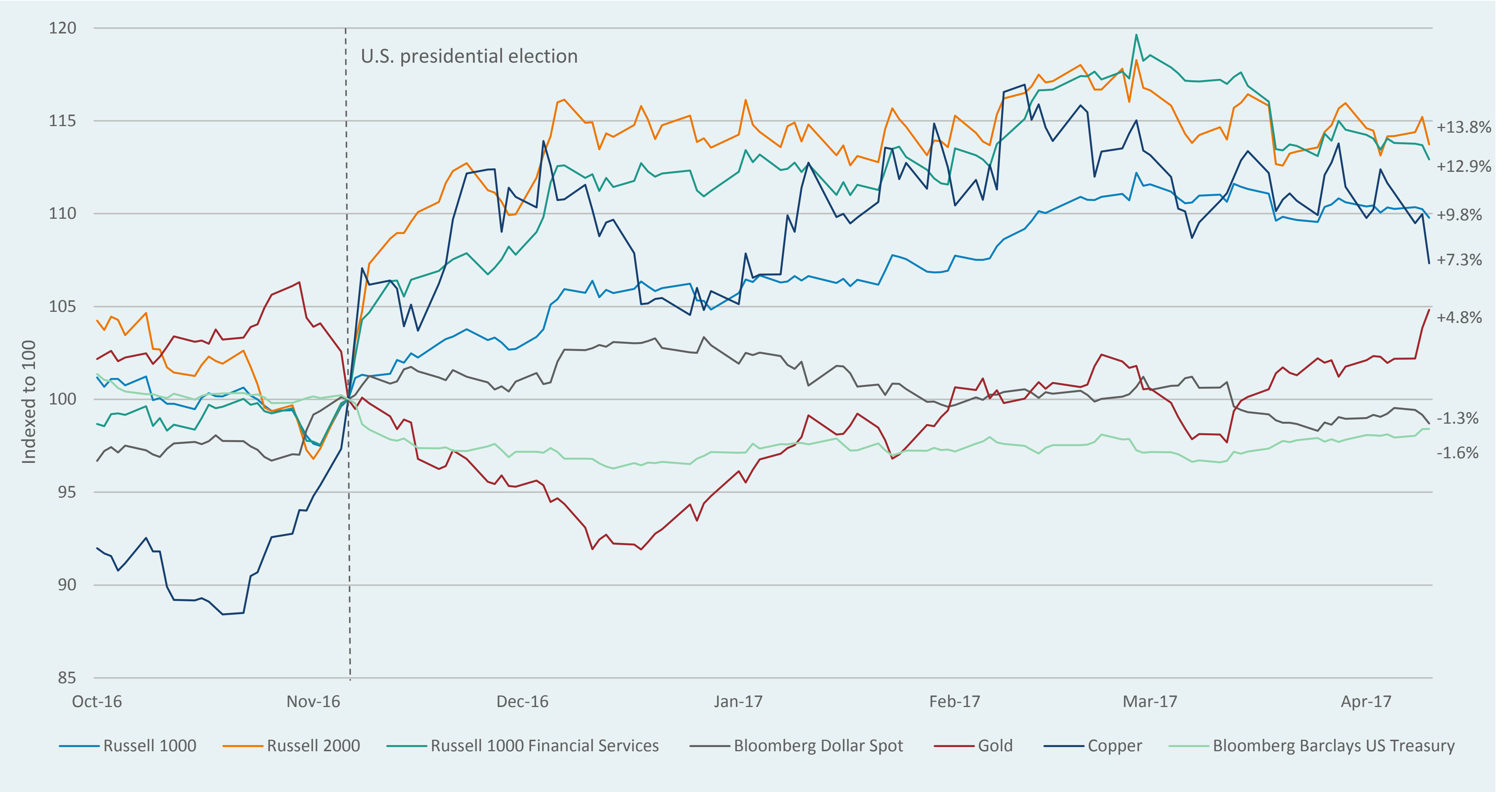
Source: FRED, as of 3/31/17

Inflation Expectations



Source: Bloomberg, as of 3/31/17

Post-election price movements



Source: Bloomberg, 10/3/16-4/10/17

An update on political policies

POLICY AREA	
Taxes	— Much of the optimism surrounding Trump's victory in November was based on his promise to cut taxes for individuals and businesses. — President Trump has stated that he wants to find a solution to repealing and replacing the Affordable Healthcare Act (ACA) prior to working on tax reforms. No further details have been released. — The tentative deadline for the tax plan was originally set for August by Treasury Secretary Mnuchin, but it appears this may be pushed back further, and the actual timing remains unknown.
Trade	— In one of his first acts as president, Donald Trump delivered on a campaign promise and removed the U.S. from the Trans Pacific Partnership (TPP) in an effort to move away from multilateral trade agreements. — After making many other "America first" trade policy promises, including withdrawing from NAFTA and implementing a border adjustment tax (BAT), the new administration appears to have softened its stance. — Rather than a complete overhaul of U.S. trade policy, it may be more likely that President Trump makes smaller tweaks, such as renegotiating and stepping up enforcement of existing trade deals.
Deregulation	— President Trump signed an executive order to reduce the regulatory burden on businesses by requiring federal regulators to kill two existing regulations for every new rule introduced. — In perhaps the biggest blow to the administration thus far, House Republican leaders pulled legislation to repeal parts of the ACA before a single vote was cast, exposing a divided Republican Congress. — House Republicans announced a plan to introduce legislation that would overhaul Dodd Frank, although opposition from Senate Democrats is expected to be strong.
Infrastructure	— Infrastructure is another area in which President Trump has not provided much in terms of additional details after promising a $1 trillion dollar spending initiative through private tax breaks during his campaign. — With the current focus on healthcare, and the lack of progress on tax reform, it is possible that the new administration may push back the timeline for introducing its infrastructure plan.

International economics summary

- Developed countries once again experienced moderate positive growth in the fourth quarter, in line with the trend of recent years. Real GDP in the U.S., Europe, and Japan grew between 1.5-2.0%.
- The low base effect of the drop in energy prices that occurred in Q1 2016 helped boost inflation across the globe. With energy prices stabilizing over recent months, it is possible the jump in inflation is only transitory.
- Developed world unemployment rates declined over the quarter. In the Euro Area, the unemployment rate fell to a nearly eight year low of 9.5%, although this is still well above its pre-crisis level of 7.3%.
- The economic recovery in Europe has also picked up in terms of higher growth and inflation. Much of this recovery can be attributed to the core countries, rather than the periphery. However, significant tail risks remain including the French election, ECB tapering, and Brexit negotiations.
- On March 29th, the British Prime Minister, Theresa May, filed the official papers to withdraw the U.K. from the European Union. Article 50 of the Treaty of Lisbon outlines a two year timeframe for negotiations to take place.
- As many expected, Emmanuel Macron and Marine Le Pen were the top two vote getters in the first round of the French election. Macron and Le Pen will have a runoff vote on May 7th, where Macron is heavily favored, according to the most recent polls. Equity markets reacted positively to the results and the euro strengthened.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.0% *12/31/16*	2.7% *2/28/17*	4.5% *3/31/17*
Western Europe	1.8% *12/31/16*	1.5% *3/31/17*	8.6% *12/31/16*
Japan	1.6% *12/31/16*	0.3% *2/28/17*	2.8% *2/28/17*
BRIC Nations	5.2% *12/31/16*	3.1% *12/31/16*	5.5% *12/31/16*
Brazil	(2.5%) *12/31/16*	4.6% *3/31/17*	12.9% *3/31/17*
Russia	0.3% *12/31/16*	4.3% *3/31/17*	5.4% *12/31/16*
India	7.0% *12/31/16*	3.7% *2/28/17*	7.1% *12/31/15*
China	6.8% *12/31/16*	0.8% *2/28/17*	4.0% *12/30/16*

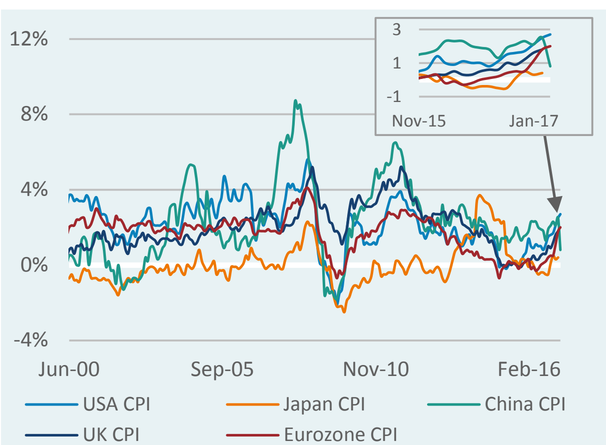
International economics

A coordinated uptick in global economic sentiment occurred in recent quarters, and data continued to exceed expectations in Q1. Outside of the U.S., central banks remain relatively accommodative, and developed economies have experienced moderate growth and higher inflation. Real year-over-year GDP growth in the Euro Area and Japan came in at 1.8% and 1.6%, respectively.

In the Eurozone, headline CPI in February reached 2.0% YoY for the first time in the recovery. However, core inflation, which excludes food and energy prices, only rose 0.7%, well below the ECB's target of 2.0%. A weaker British pound helped boost U.K. headline inflation to 2.3% in February, the highest rate in more than three years.

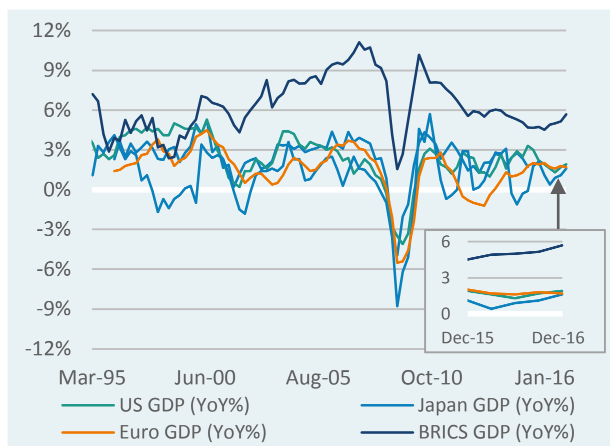
Real GDP growth in the BRICS countries, the five major emerging economies, was 5.2% in the fourth quarter. Once again, India and China were the main drivers of growth. Russia experienced positive growth for the first time in seven quarters, while Brazil remained in a recession.

INTERNATIONAL INFLATION



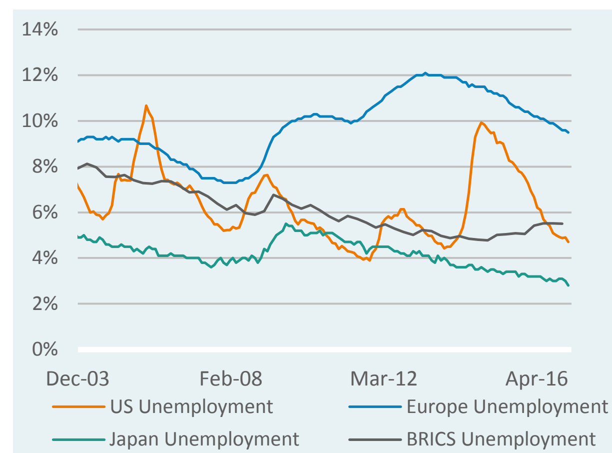
Source: Bloomberg, as of 2/28/17

REAL GDP GROWTH



Source: Bloomberg, as of 12/31/16

GLOBAL UNEMPLOYMENT



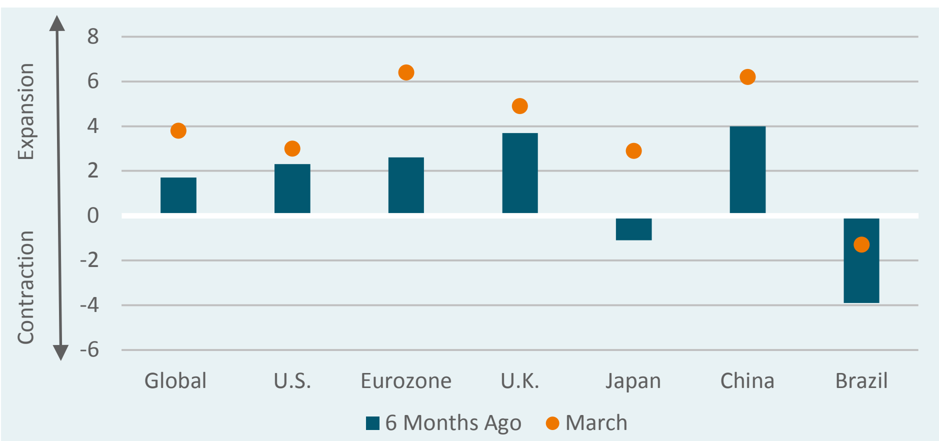
Source: Bloomberg, as of 2/28/17 or most recent release

Global economic pickup

There has been a general pick up in global economic conditions over the past six months, a trend that started prior to the U.S. presidential election. Purchasing managers' indexes (PMI), which are derived from monthly surveys of private companies, have increased across nearly all major economies. The global composite PMI increased from 51.7 in September to 53.8 in March. Readings above 50 indicate economic expansion and have historically held some explanatory power of future economic growth.

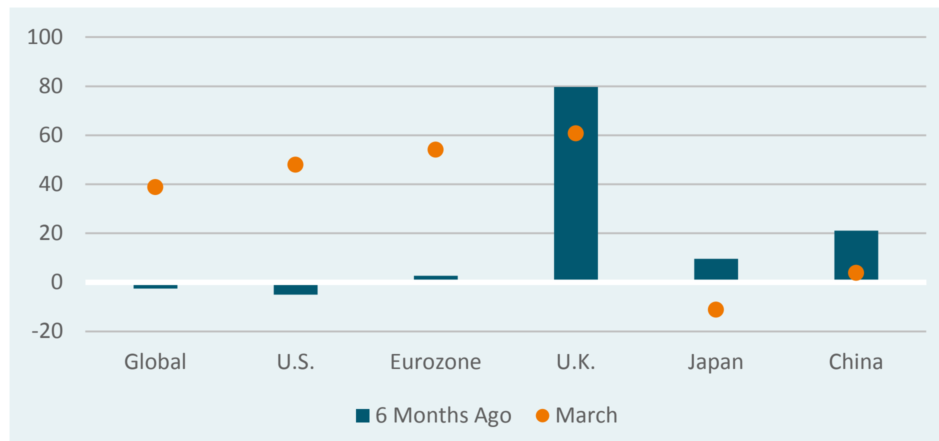
Global economic data has also been coming in above expectations, as indicated by the Citi Economic Surprise Index (CESI). The Global CESI increased to 38.8 in March from -2.6 six months earlier. However, much of this move has been driven by "soft" data, such as sentiment and confidence indicators, which have not always flowed through to the real economy. If higher sentiment and confidence does lead to increased spending and production, it will be a boost to economic growth.

PURCHASING MANAGERS' INDEXES



Source: Bloomberg, as of 3/31/17

CITI ECONOMIC SURPRISE INDEXES



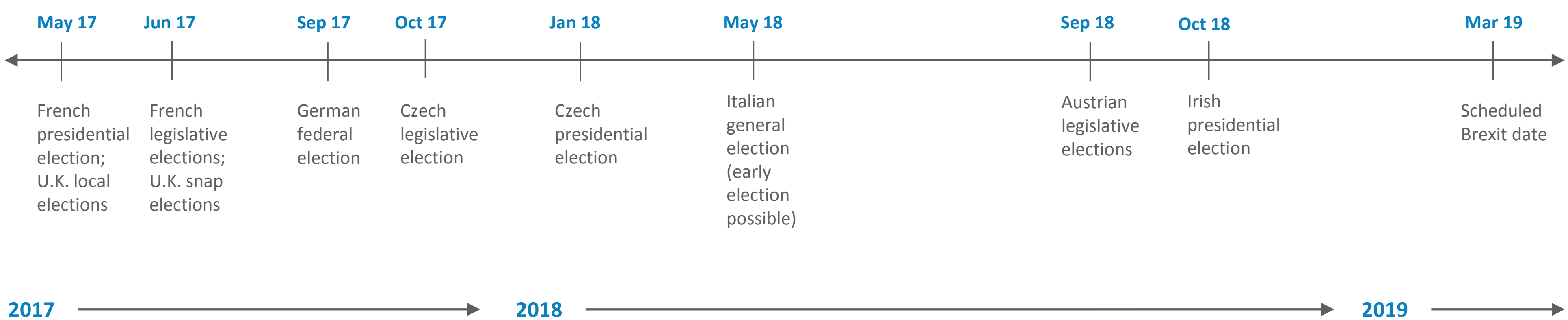
Source: Bloomberg, as of 3/31/17

The European election cascade

Following the U.K.'s decision last June to leave the European Union, the rise in populism in Europe and corresponding political risks to the currency bloc have been heavily scrutinized. While the upcoming French presidential election has dominated the headlines, several other important elections coming up will help shape the future of Europe.

The presidential election in France may pose the largest political risk to the region. Far-right, euroskeptic candidate, Marine Le Pen, has gained popularity running on the platform to remove France from the European Union and the use of the euro. Le Pen and centrist candidate, Emmanuel Macron, were the top two vote getters in the first round of the election and will go head to head on May 7th. Macron is favored in the polls and market fears of a Frexit have subsided.

However, the threat of populism in Europe remains. Other elections, such as the German federal election in September and the Italian general election in early 2018 at the latest, will also be important as populist parties have gained popularity in countries across Europe. Additional risks loom in periphery countries like the Czech Republic, as debates heat up regarding EU membership referendums.



Fixed income rates & credit

Interest rate environment

- U.S. Treasuries have an attractive yield relative to other developed sovereign bonds, but remain historically expensive.
- Despite broad agreement that the U.S. has entered an environment of rising interest rates, the broad yield curve rose very little over the past year. However, the short end of the curve has increased in line with Federal Reserve rate rises. Inflation has historically had a significant impact on the yield curve, which indicates investors should keep an eye on inflation trends.
- In March, the Federal Reserve announced a change to the federal funds target rate from 0.50-0.75% to 0.75-1.00%. The move resulted in the U.S. Treasury curve flattening moderately as short-term interest rates increased and long-term rates remained materially unchanged. The Fed has indicated two additional rate hikes are expected to occur this year.
- Developed sovereign yields are expected to rise only modestly over the next year, with very little movement expected in longer dated bonds. Central banks of most developed economies are nearing the end of the monetary easing cycle or have begun to pull back, as in the case of the U.S. Federal Reserve.
- Many emerging market governments continue with monetary easing, suggesting these economies may be in an earlier stage of the economic cycle.

Area	Short Term (3M)	10 Year
United States	0.75%	2.39%
Germany	(0.92%)	0.33%
France	(0.57%)	0.97%
Spain	(0.39%)	1.65%
Italy	(0.34%)	2.31%
Greece	2.39%	6.90%
U.K.	0.13%	1.14%
Japan	(0.20%)	0.07%
Australia	1.59%	2.70%
China	2.93%	3.28%
Brazil	10.91%	10.06%
Russia	9.50%	7.87%

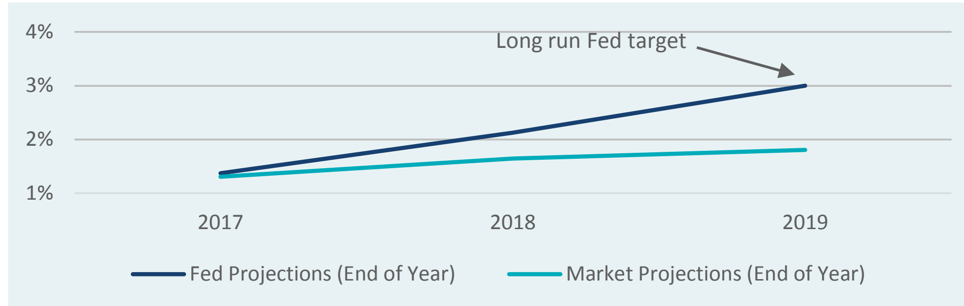
Source: Bloomberg, as of 3/31/17

Monetary tightening

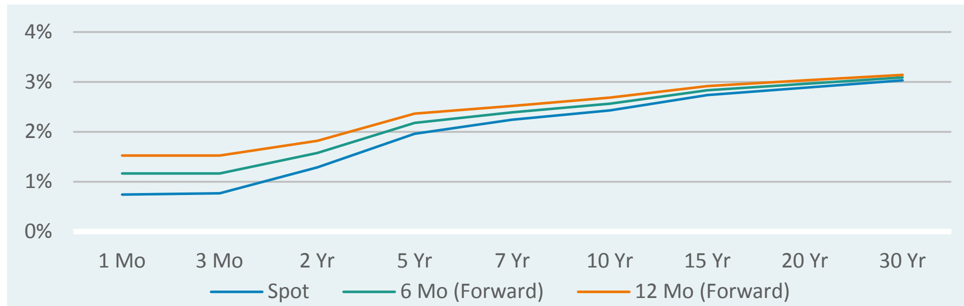
- The Federal Reserve hiked interest rates for the second time in March, raising the federal funds target to 0.75-1.00%. Given the increased pace of tightening and more hawkish tone from the Fed, there has been much discussion regarding the effects of a rising rate environment in the U.S.
- While the Fed expects short-term rates to normalize to 3% by 2019, the market is pricing in movement to only 1.8%. The market also does not expect much change in the long-end of the curve with the 10-year Treasury yield priced to rise only 26 bps over the next year. We believe that the market view of the path of interest rates is reasonable, and that there is a greater likelihood of surprisingly slow, rather than surprisingly fast, rate rises.
- Another unknown aspect of monetary policy relates to the Fed's $4.5 trillion balance sheet. In the most recent meeting minutes it was noted that an unwinding of the balance sheet may begin at the end of the year. It remains unclear whether the Fed will simply stop reinvesting securities or actively sell in the market. A sale would be the more aggressive option, but either action would equate to monetary tightening, which may slow the expected pace of federal fund rate hikes.

Source: Bloomberg, FRED, as of 3/31/17

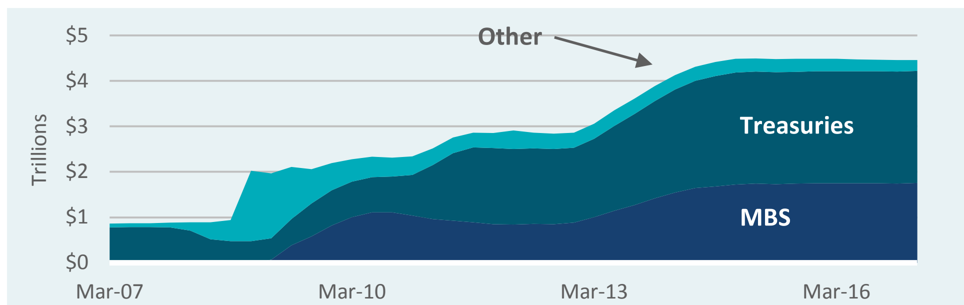
FED FUNDS PROJECTED RATE



U.S. TREASURY FORWARD YIELD CURVE

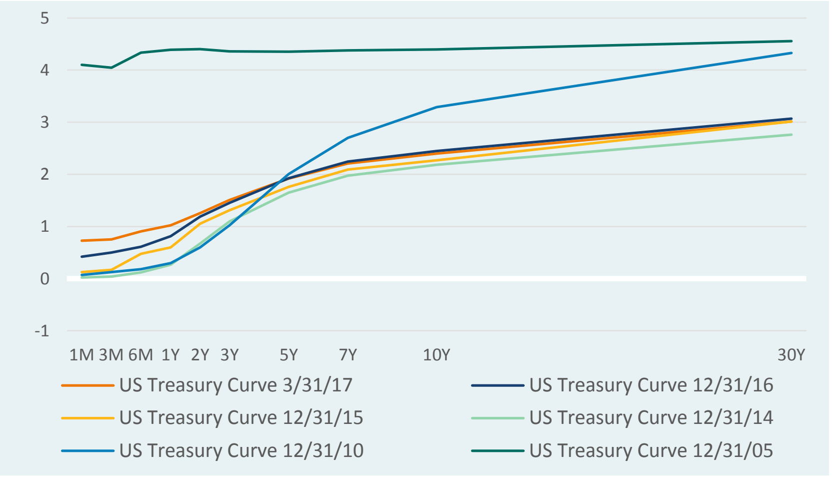


FEDERAL RESERVE BALANCE SHEET

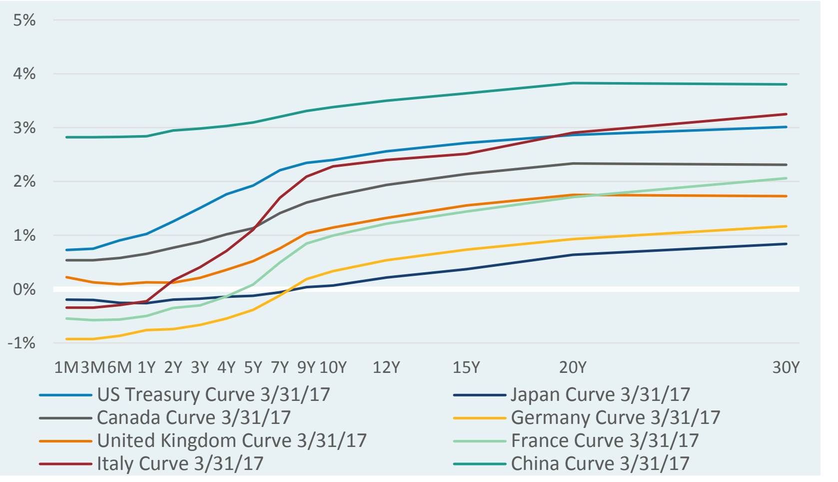


Yield environment

U.S. YIELD CURVE

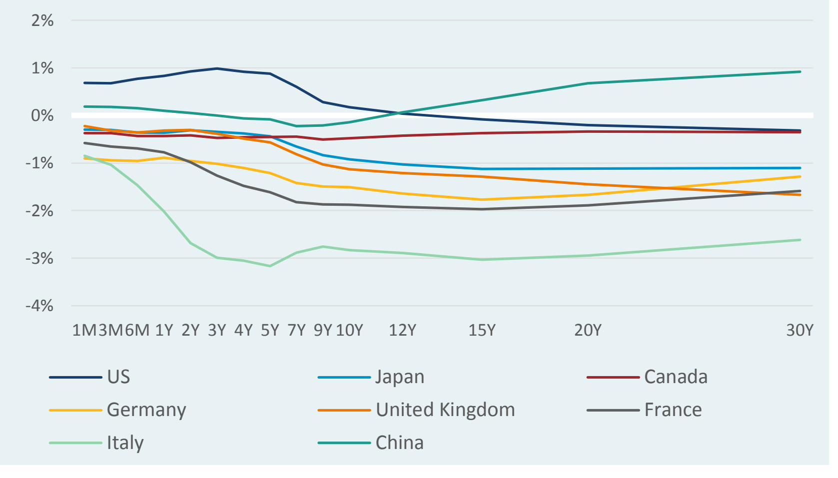


GLOBAL GOVERNMENT YIELD CURVES

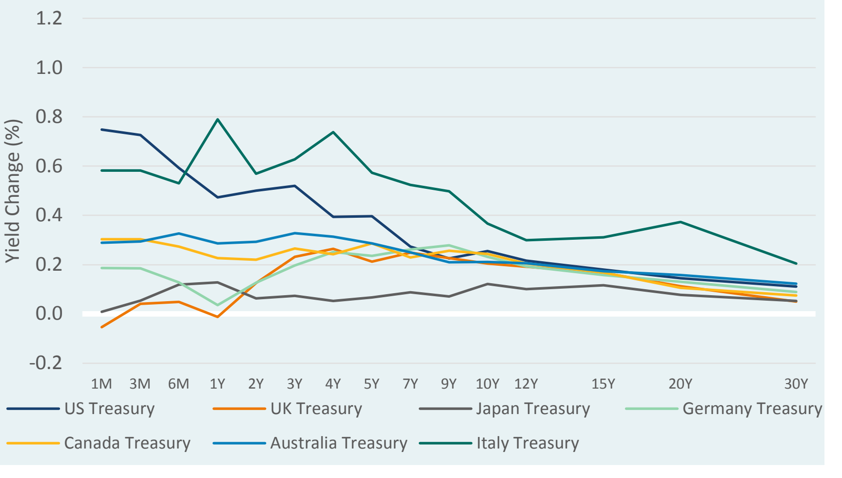


Global investors continue to prefer U.S. Treasuries due to higher relative yields

YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/17

Verus

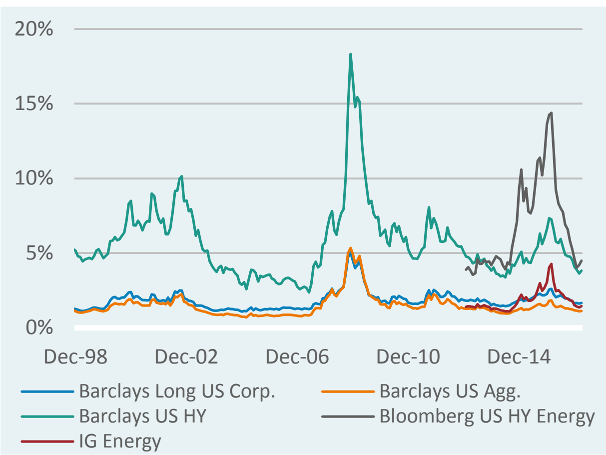
Credit environment

U.S. high yield option-adjusted spreads compressed slightly during the first quarter to 3.9% and the asset class generated a 2.7% return (BBgBarc U.S. Corp. High Yield Index). High yield spreads are now tighter than those of bank loans on a duration neutral basis, despite being of generally lower credit quality and higher in the capital structure. Bank loans may provide a better risk-return tradeoff in the current environment.

Upbeat consumer sentiment, stronger labor markets, and a generally brighter picture for the U.S. economy all bode well for credit markets. Although spreads have tightened to levels consistent with a mid-to-later stage economic cycle, no overheating or obvious threats to the credit markets seem apparent.

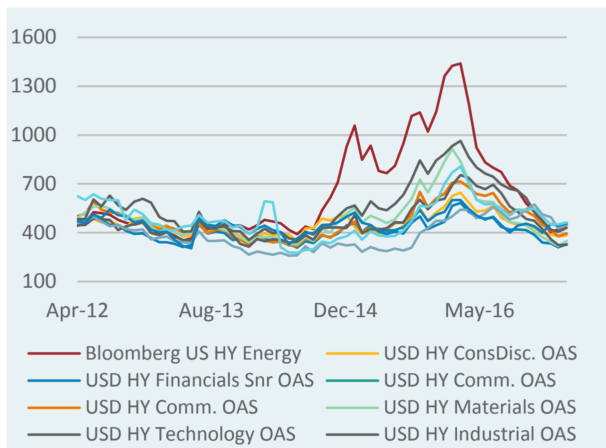
The Federal Reserve voted to increase interest rates by 0.25% in March. The speed of rate rises has underwhelmed the market for some time, and the market is expecting this slow pace to continue. Investors may be well served by limiting duration risk, though the probability of a sharp bond selloff (quickly rising rates) seems low.

CREDIT SPREADS



Source: Barclays Capital Indices, Bloomberg, as of 3/31/17

HIGH YIELD SECTOR SPREADS



Source: Bloomberg, as of 3/31/17

SPREADS

Market	Credit Spread (3/31/17)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	2.1%
US Aggregate	0.9%	1.1%
US High Yield	4.1%	7.0%
US High Yield Energy	4.5%	11.9%
US Bank Loans	3.8%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/17

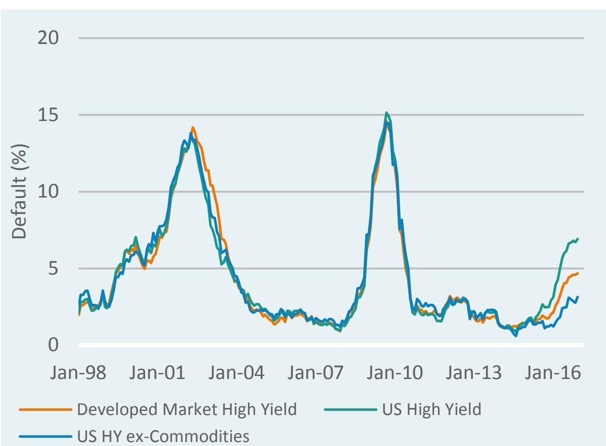
Issuance and default

Both U.S. senior loan and high yield markets continue to stabilize with the majority of par defaults last year coming from energy and metals/mining sectors. Rolling default rates should fall as commodity prices continue to recover and commodity price-induced credit problems have less impact on the credit universe. Active management may offer value to investors in the high yield space.

Global high yield and bank loan issuance has continued at a similar pace to what was seen last year. Lower spread levels lessen the borrowing costs for these issuers. The direction of interest rates will likely impact issuance trends in the near future.

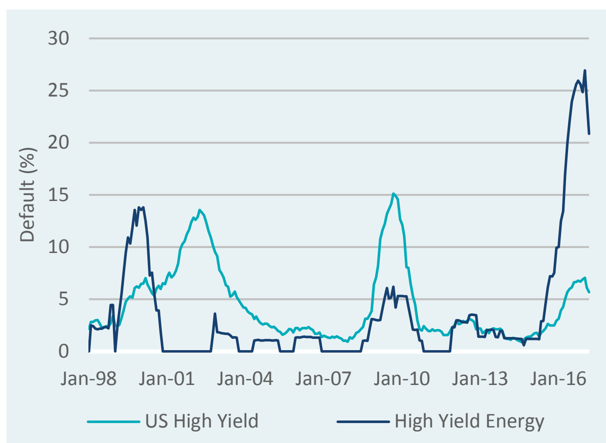
The effect of commodity related defaults should subside

HY DEFAULT TRENDS (ROLLING 1 YEAR)



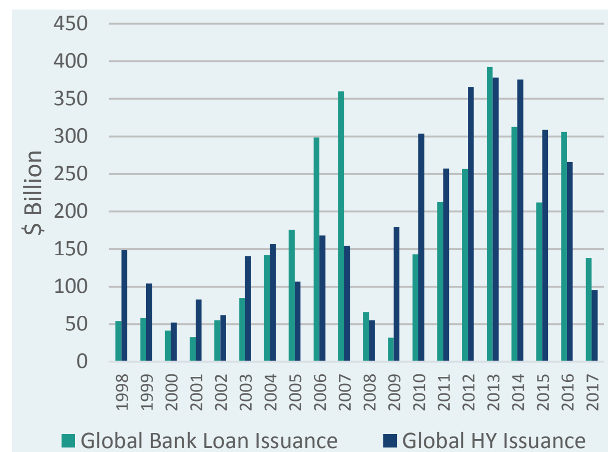
Source: BofA Merrill Lynch, as of 3/31/17

ENERGY DEFAULT TRENDS



Source: BofA Merrill Lynch, as of 3/31/17

GLOBAL ISSUANCE



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/17

Equity

Equity environment

— The U.S. economic environment has shifted in a materially more positive direction, post-election. This move was reflected in an upward adjustment to equity prices. We are relatively bullish on U.S. earnings growth in the near term, but remain concerned that investors are paying for this excess growth upfront through higher valuations. We maintain a neutral weight to U.S. equities.

— According to FactSet, the estimated Q1 2017 earnings growth rate of the S&P 500 was 9.2% YoY. The estimate was revised downward from 12.5% on December 31st due to negative EPS guidance in the Materials and Consumer Discretionary sectors.

— Growth equities outperformed value equities in Q1. The Russell 1000 Growth Index and Russell 1000 Value Index returned 8.9% and 3.3%, respectively.

— The U.S. dollar fell 3.6% in Q1 on a trade-weighted basis, which has affected the returns of portfolios with unhedged currency exposure.

— As discussed recently in our *Sound Thinking* research piece, investors should be mindful of their biases in portfolio construction. One particularly prevalent bias is the tendency for investors to hold greater exposure to the markets where they reside (home country bias). As with any portfolio tilt, investors should understand why they hold it, have a solid basis for the exposure, and understand the tracking error the position introduces to the portfolio.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.0%		6.0%		17.4%	
US Small Cap (Russell 2000)	2.5%		2.5%		26.2%	
US Large Value (Russell 1000 Value)	3.3%		3.3%		19.2%	
US Large Growth (Russell 1000 Growth)	8.9%		8.9%		15.8%	
International Large (MSCI EAFE)	7.2%	5.0%	7.2%	5.0%	11.7%	18.9%
Eurozone (Euro Stoxx 50)	8.3%	7.2%	8.3%	7.2%	12.9%	21.7%
U.K. (FTSE 100)	4.9%	3.8%	4.9%	3.8%	7.3%	23.3%
Japan (NIKKEI 225)	4.3%	0.1%	4.3%	0.1%	15.8%	14.7%
Emerging Markets (MSCI Emerging Markets)	11.4%	7.3%	11.4%	7.3%	17.2%	12.5%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/17

Domestic equity

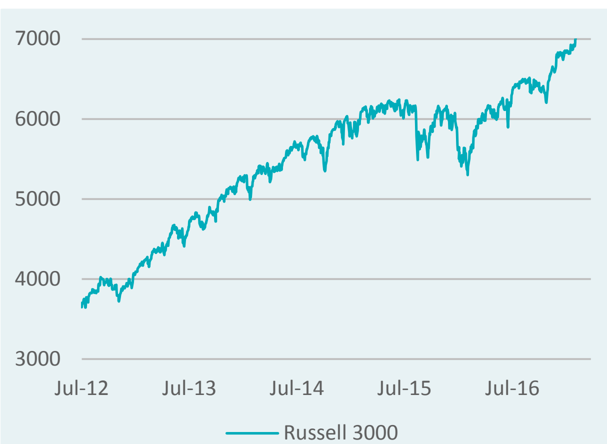
The U.S. economic environment has shifted in a materially more positive direction, post-election, as reflected by rising equity prices. We are relatively bullish on U.S. earnings growth in the near term but remain concerned that investors are paying for this excess growth upfront through higher valuations. We maintain a neutral weight to U.S. equities.

Higher equity prices and earnings expectations have been influenced by corporate tax cuts and deregulation proposed by the new administration. There have been no further details released on timing of tax cuts, and lofty expectations may leave room for disappointment.

According to FactSet, Q1 2017 S&P 500 earnings are expected to grow 9.2% YoY. The estimate was revised downward from 12.5% on December 31st due to negative EPS guidance in the Materials and Consumer Discretionary sectors.

Investors may be paying for higher earnings growth through elevated valuations

U.S. EQUITIES

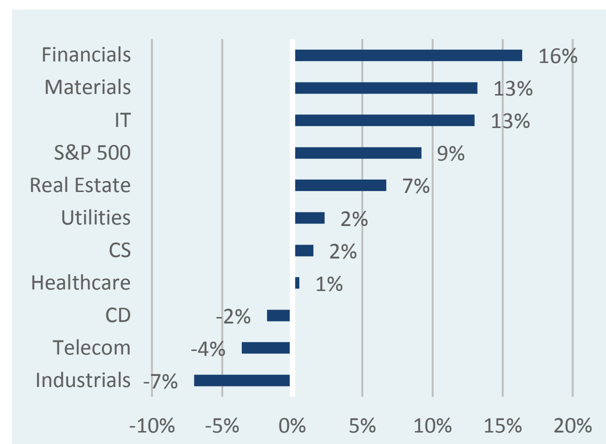


Source: Russell Investments, as of 4/3/17

S&P 500 EPS GROWTH

Source: Bloomberg, as of 12/31/16

Q1 FORECAST EPS GROWTH



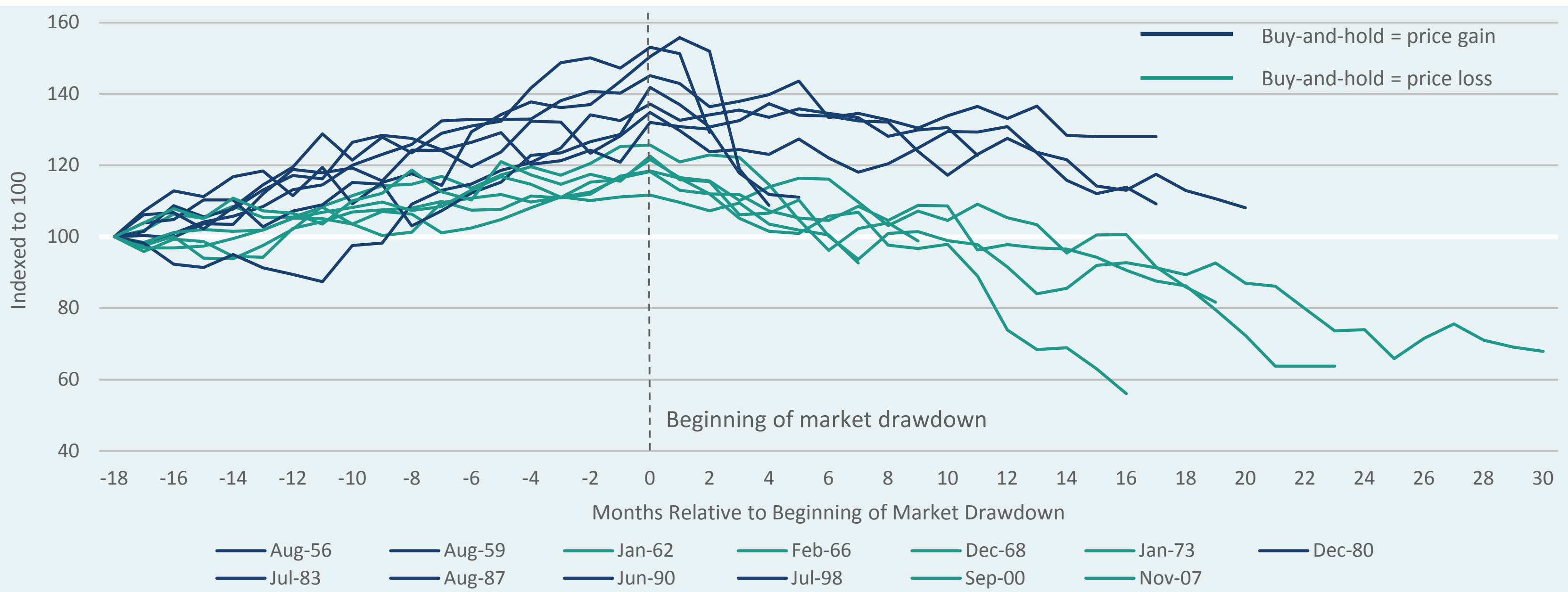
Source: FactSet, as of 4/14/17, the energy sector is excluded because the sector had negative earnings one year prior

Equity market corrections

With above average U.S. equity valuations and a bull market that has lasted nearly nine years, there has been speculation that a market correction is approaching. While we remain concerned about valuations we do not believe that equities are necessarily in the final stages of the cycle, nor that market corrections are predictable. It is important to remember that equity drawdowns are normal, and should be viewed in the proper context.

The chart below shows the cumulative price movement of the S&P 500 during equity market corrections of at least 10%, starting from 18 months prior to the drawdown. In many instances, late cycle equity gains were enough to offset the entire drawdown, outside of major financial collapses. Market timing can be especially dangerous in these instances if an investor gets out of the market too early.

Equity market corrections are normal and should be viewed in the proper context



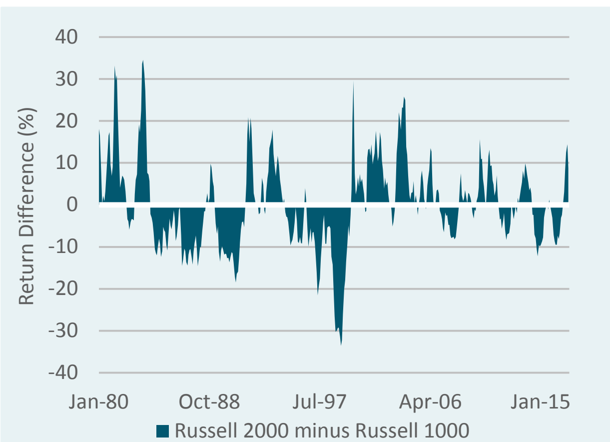
Source: Bloomberg

Domestic equity size and style

Growth equities outperformed value equities during the quarter. The Russell 1000 Growth Index and Russell 1000 Value Index returned 8.9% and 3.3%, respectively. Financial sector performance had a significant effect on the value premium, affected by uncertainty around the direction of interest rates and deregulation proposals.

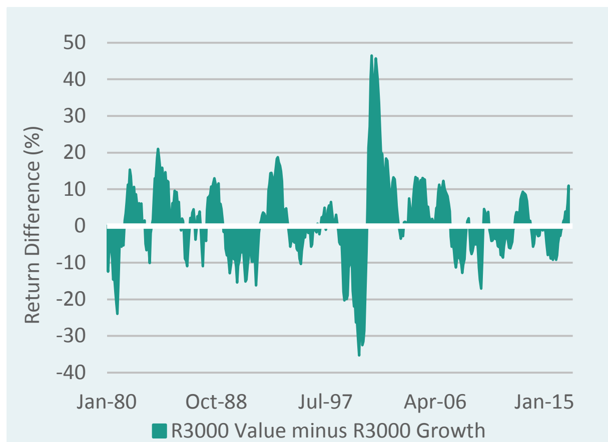
U.S. large cap equities outperformed small cap during the quarter, though small caps have delivered strong year-over-year outperformance. Small cap equity valuations remain considerably elevated relative to large cap equities which will likely act as a headwind to future performance. However, if President Trump's deregulation proposals are seen through, this should benefit smaller American companies. Further U.S. dollar appreciation would also benefit smaller companies on a relative basis due to less international currency exposure.

SMALL CAP VS LARGE CAP (YOY)



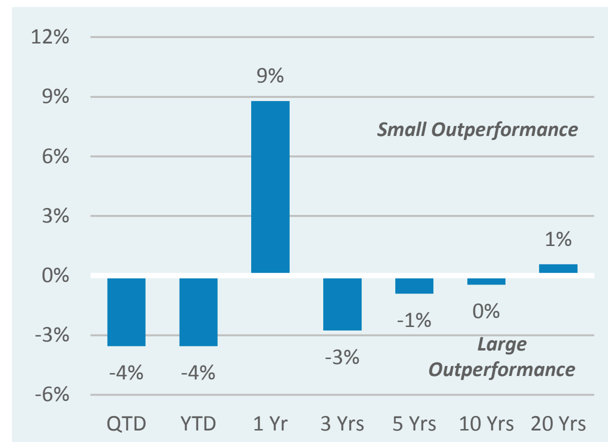
Source: Russell Investments, as of 3/31/17

VALUE VS GROWTH (YOY)



Source: Russell Investments, as of 3/31/17

U.S. LARGE VS. SMALL RELATIVE PERFORMANCE



Source: Morningstar, as of 3/31/17

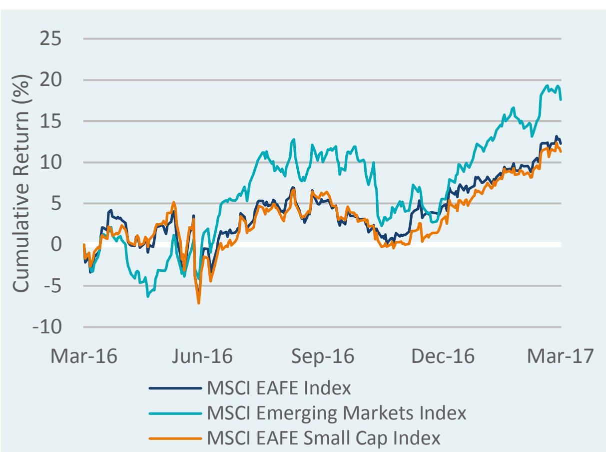
International equity

International equity markets outperformed domestic equities over the quarter. The MSCI ACWI ex U.S. returned 7.9% on an unhedged basis while the S&P 500 returned 6.1%.

International and emerging markets continue to trade at lower valuation levels than domestic markets, based on a variety of metrics. Despite our positive outlook for earnings growth in the U.S., the upside for domestic equities appears limited due to the optimism already baked into the price. International markets likely possess greater upside potential through either valuation expansion or earnings growth surprise, simply due to current valuation levels. However, tail risks are also apparent in these markets. We believe a neutral weight is appropriate.

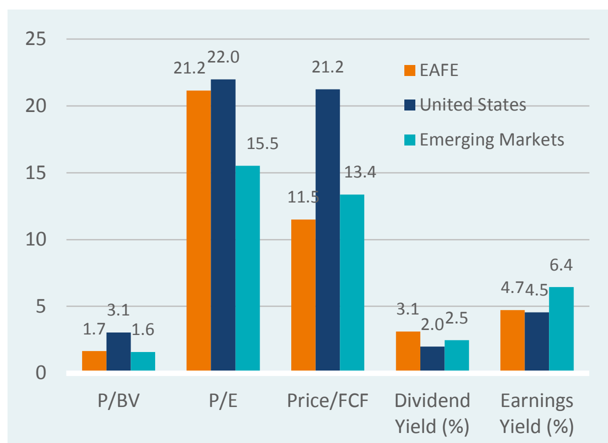
The U.S. dollar fell 3.6% in Q1 on a trade-weighted basis, and continued to contribute volatility to portfolios with unhedged currency exposure. Emerging market currencies exhibited further recovery during the quarter (MSCI EM 11.4% unhedged return vs. 7.3% hedged return) while the yen appreciated (4.3% NIKKEI 225 unhedged return vs. 0.1% hedged).

GLOBAL EQUITY PERFORMANCE



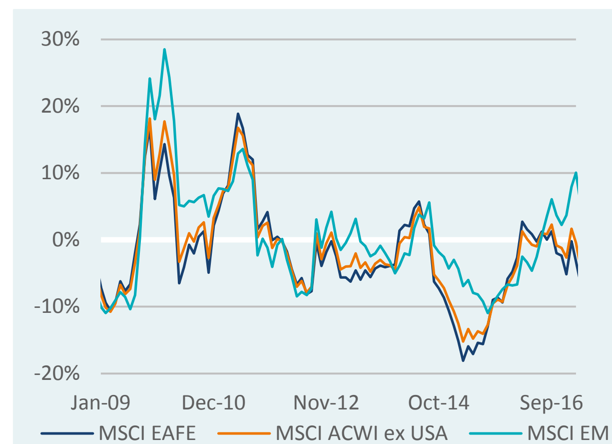
Source: Bloomberg, as of 3/31/17

VALUATIONS



Source: Bloomberg, MSCI, as of 3/31/17 - 3 month average

EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 3/31/17

Emerging market equity

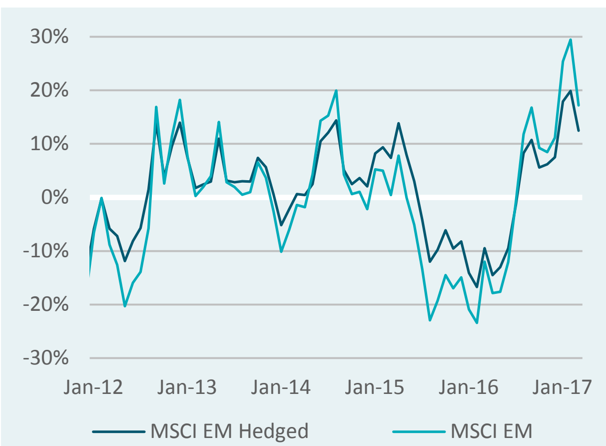
Emerging market equities extended their positive run in the first quarter, as the unhedged MSCI Emerging Markets index returned 11.4% (7.3% hedged). Performance was bolstered by strong global growth and stable commodity prices which have correlated highly with emerging market equities in the past. Steady demand from developed markets encouraged manufacturing in emerging economies as seen by increases in aggregate purchasing managers' indices (PMI).

Valuations increased moderately over the past three years but remain at attractive levels relative to EAFE and U.S equities. Earnings growth estimates were highest in the Technology and Financial sectors, concentrated mainly in Korea and China.

Positive long-term growth expectations are not without potential disruptions. We remain particularly watchful of U.S. trade policies and upcoming elections in France, Germany, and Turkey.

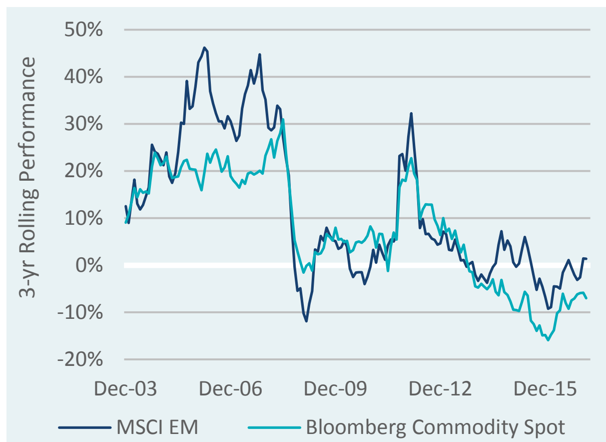
Fundamentals are improving in emerging economies

12-MONTH ROLLING PERFORMANCE



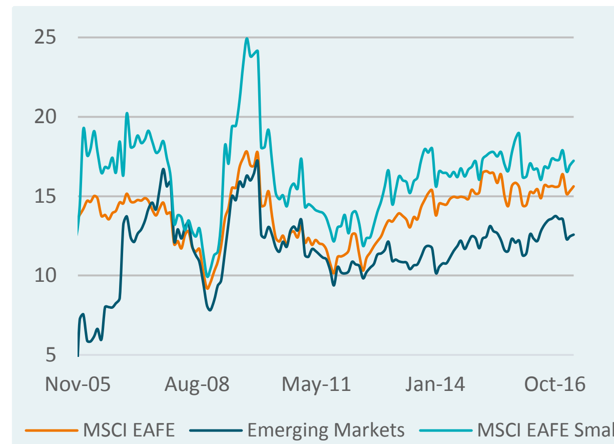
Source: MPI, as of 3/31/17

COMMODITY PRICES & EM PERFORMANCE



Source: Bloomberg, as of 3/31/17

FORWARD P/E RATIOS



Source: Bloomberg as of 3/31/17

Equity valuations

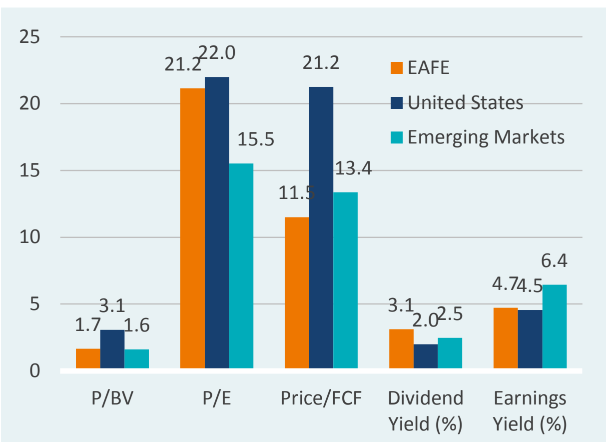
The outlook for corporate earnings growth improved in Q1 which contributed to mildly lower forward P/E multiples. Overall, valuations remain elevated, consistent with mid-to-later stages of the economic cycle and an environment of low interest rates and moderate inflation. As the global economy transitions towards higher rates and inflation, valuations may shift to a lower, more normal level.

The S&P 500 sits at a forward P/E of 18.3, above the 20-year average of 16.9, but within a single standard deviation of the average. The valuation of domestic equities is richer than international equities and emerging markets, as measured by trailing P/E and price-to-free cash flow ratios.

Further positive earnings and earnings expectations surprises would of course bode well for valuation levels as investors are properly compensated for above-average equity prices.

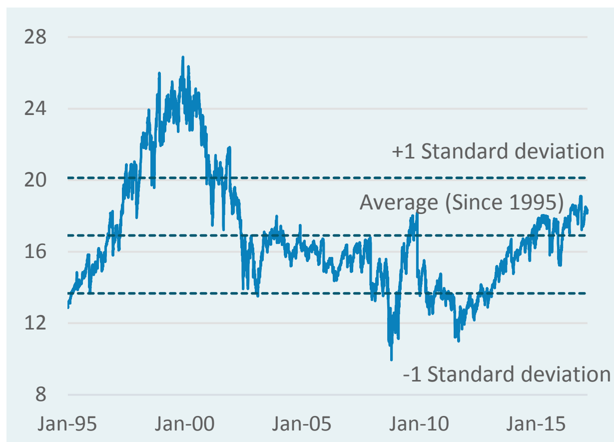
Valuations are above average, but not unusual

MSCI VALUATION METRICS (3 MONTH AVERAGE)



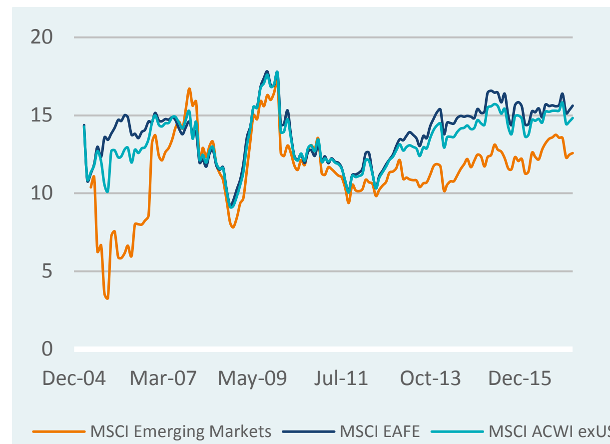
Source: Bloomberg, as of 3/31/17

S&P 500 FORWARD P/E



Source: Bloomberg, as of 3/31/17

INTERNATIONAL FORWARD P/E RATIOS



Source: Bloomberg, as of 3/31/17

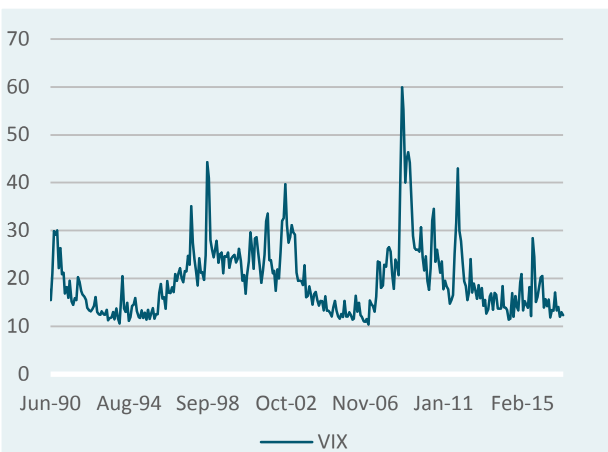
Equity volatility

Equity volatility was considerably low in the first quarter. Realized volatility of the S&P 500 was 6.7%, the lowest mark since the beginning of this business cycle. Implied volatility, as indicated by the VIX, is also below average, despite greater political uncertainty. However, it is important to remember that volatility can return quickly. Other measures of equity risk, such as option skews, show that investors are paying a premium for large downside risk protection. Traditional measures of volatility may be understating equity market risk.

International and emerging equities followed in a similar trend with below average realized volatility. Currency continued to play an important role in unhedged international equity exposure. Over the last ten years, unhedged currency exposure increased the annualized standard deviation of the MSCI EAFE and EM indices by 4% and 6%, respectively.

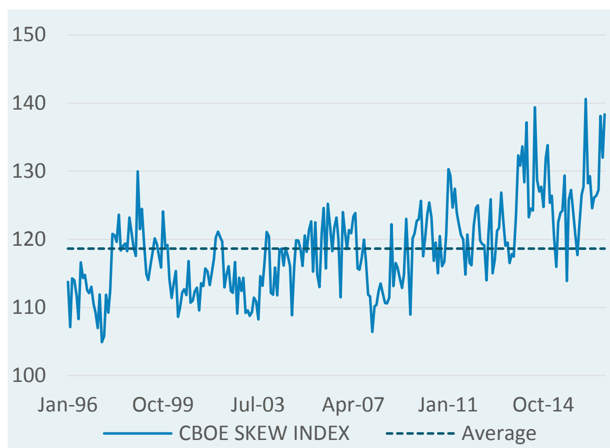
Equity volatility is low, but can return quickly

U.S. IMPLIED VOLATILITY



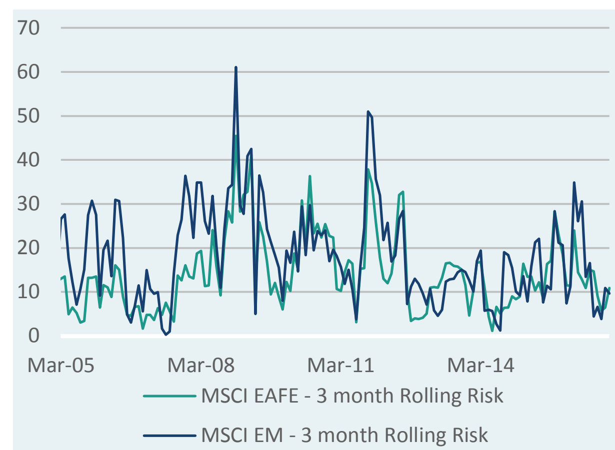
Source: CBOE, as of 3/31/17

U.S. VOLATILITY SKEW



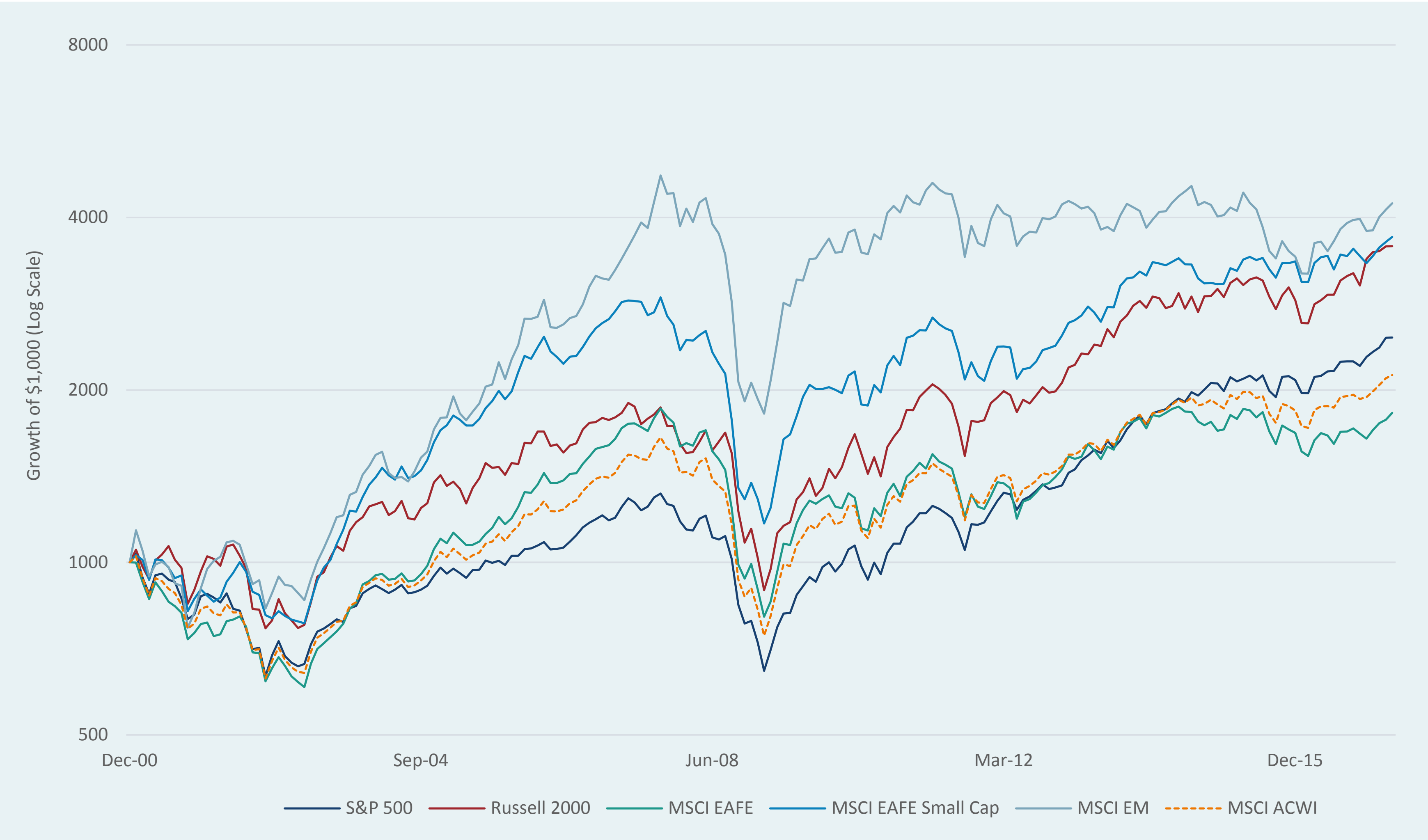
Source: CBOE, as of 3/31/17

INTERNATIONAL EQUITY VOLATILITY



Source: MSCI, as of 3/31/17

Long-term equity performance



Source: MPI, as of 3/31/17

Other assets

Commodities

Commodity performance has been lackluster over the past decade, delivering negative returns through the global financial crisis and the recent oil crisis. Much of this performance has been caused not by price movement, but by the shape of commodity futures curves. An upward sloping curve creates a drag for investors as a higher price is paid to enter each futures contract, and a downward sloping curve creates positive carry for investors as prices paid for futures contracts are lower. This premium/discount is a major determinant of commodity performance, and is known as "roll yield". Roll yield can be negatively affected by commodity crises as current contract prices drop further than distant prices and the curve becomes steeper.

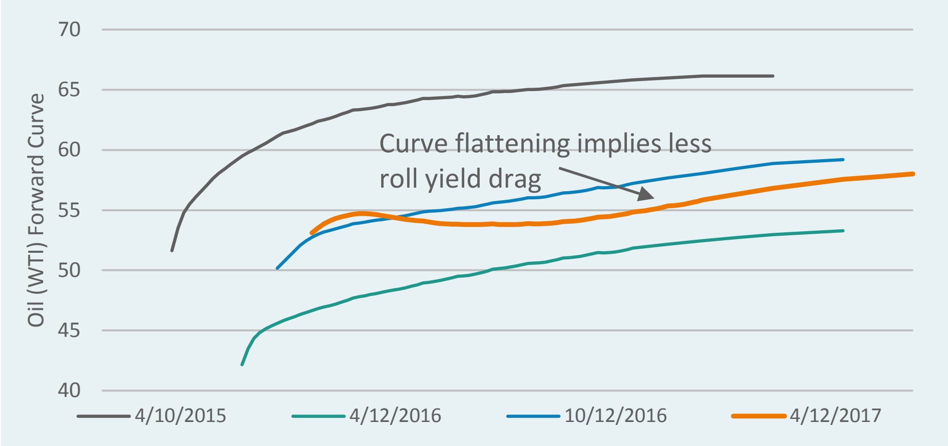
As commodity prices moderate, futures curves have flattened and negative roll yield has begun to dissipate. Oil in particular significantly impacts overall roll yield due to its larger weight in commodities indices. Oil has exhibited a flatter curve shape recently. We are continuing to monitor these effects since a neutral or positive roll return would help to materially improve commodity returns.

The drag from negative roll yield is abating, improving the outlook for commodities performance

ROLL RETURN

Source: Standard & Poor's, Goldman Sachs, as of 3/31/17

CURVE SHAPE



Source: Bloomberg, as of 4/12/17

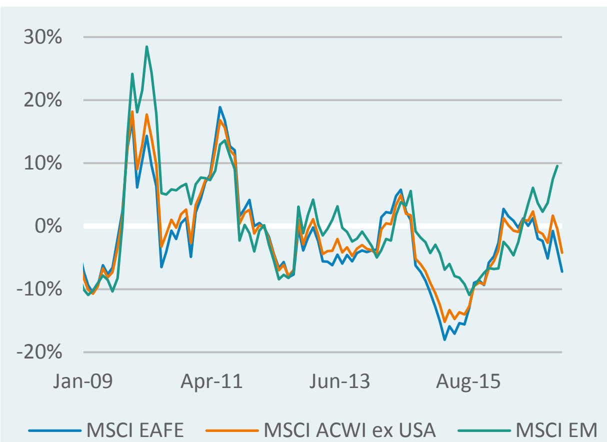
Currency

In the first quarter, the U.S. dollar reversed part of its gains following the presidential election in November. On a trade weighted basis, the dollar was down 3.6% against a basket of major currencies. Currency movement has been an important influence in unhedged foreign asset exposure. Over the past year, U.S. dollar strength has eroded positive equity returns in developed markets, while dollar weakness against emerging markets has added to returns.

Emerging market currencies rallied in the first quarter following a sharp decline to end last year. The JPM Emerging Market Currency Index was up 2.5%.

While long-term movements in the U.S. are often driven by broad mean reversion to fair value based on purchasing power parity, shorter term moves are still likely to be heavily influenced by developments in foreign trade policy, where much uncertainty remains.

EFFECT OF CURRENCY (1YR ROLLING)

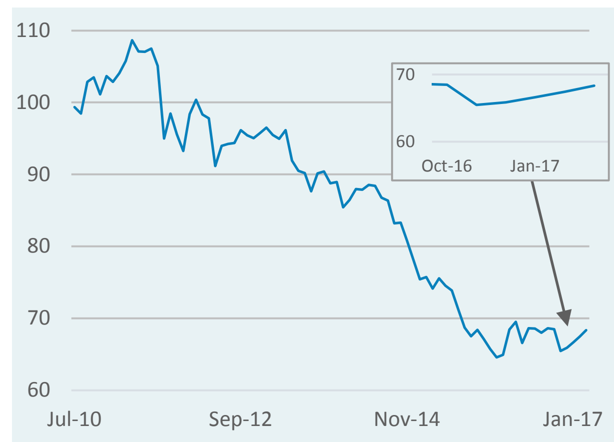


Source: MPI, as of 3/31/17

LONG-TERM TRADE WEIGHTED DOLLAR

Source: FRED, as of 4/7/17

JPM EM CURRENCY INDEX



Source: Bloomberg, as of 3/31/17

Appendix

Periodic table of returns – March 2017

BEST

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	YTD	5-Year	10-Year
Emerging Markets Equity	16.6	38.4	23.2	35.2	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	11.4	13.3	9.1
Large Cap Growth	8.1	37.8	23.1	32.9	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	8.9	13.3	8.1
International Equity	6.4	37.2	22.4	31.8	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	7.2	13.1	7.6
Large Cap Equity	4.4	31.0	21.6	30.5	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	6.0	12.5	7.1
Small Cap Growth	3.2	28.5	21.4	22.4	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	5.3	12.4	6.7
60/40 Global Portfolio	2.6	25.7	16.5	16.2	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	4.8	12.1	6.1
Large Cap Value	0.4	19.6	14.4	13.9	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	3.3	10.7	5.9
Small Cap Equity	-1.5	18.5	11.3	12.9	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	2.5	5.8	4.3
Hedge Funds of Funds	-1.8	15.2	10.3	10.6	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	2.0	5.2	4.0
Real Estate	-2.0	11.6	9.9	9.7	-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	1.6	3.1	2.7
US Bonds	-2.4	11.1	6.4	5.2	-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	0.8	2.3	1.2
Cash	-2.9	7.5	6.0	2.1	-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	0.1	0.8	1.1
Small Cap Value	-3.5	5.7	5.1	-3.4	-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	-0.1	0.1	0.5
Commodities	-7.3	-5.2	3.6	-11.6	-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	-2.3	-9.5	-6.2

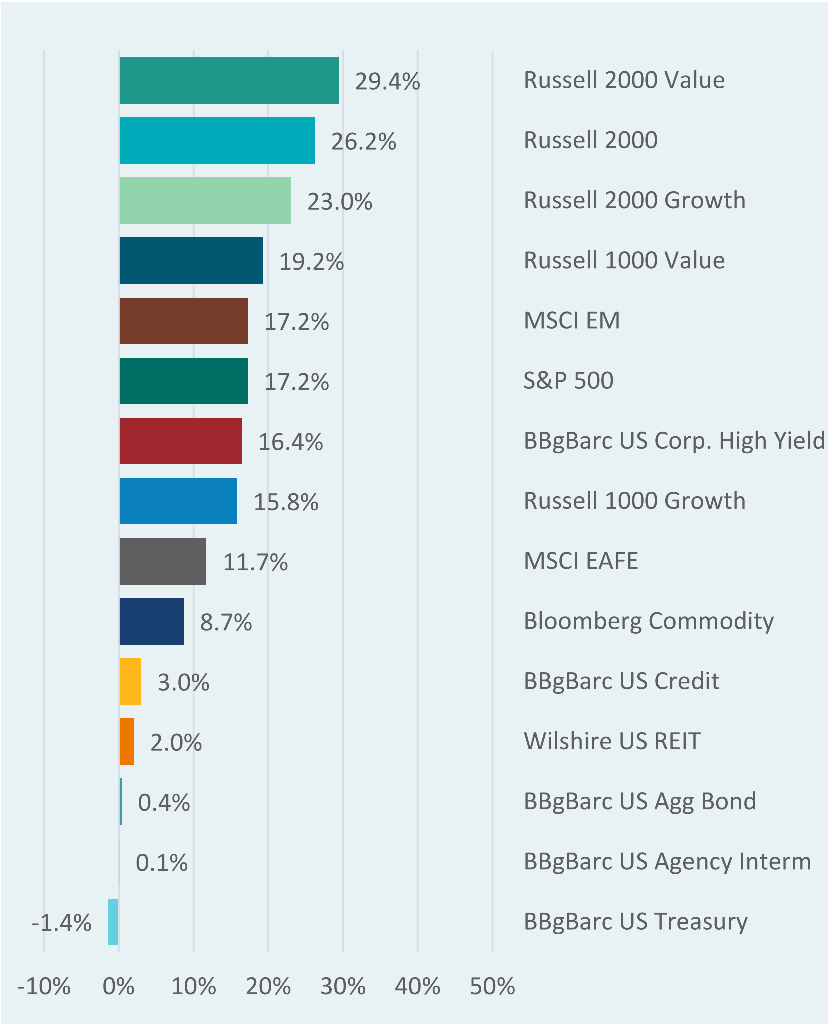
WORST

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

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 performance data as of 3/31/17.

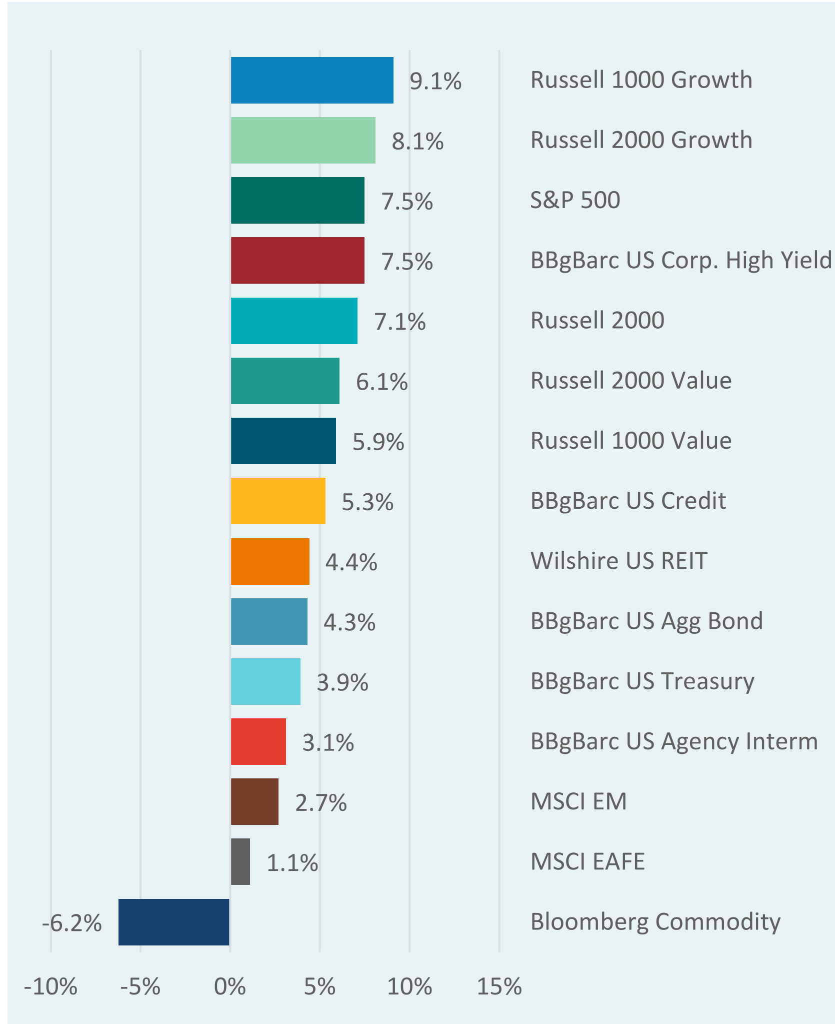
Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/17

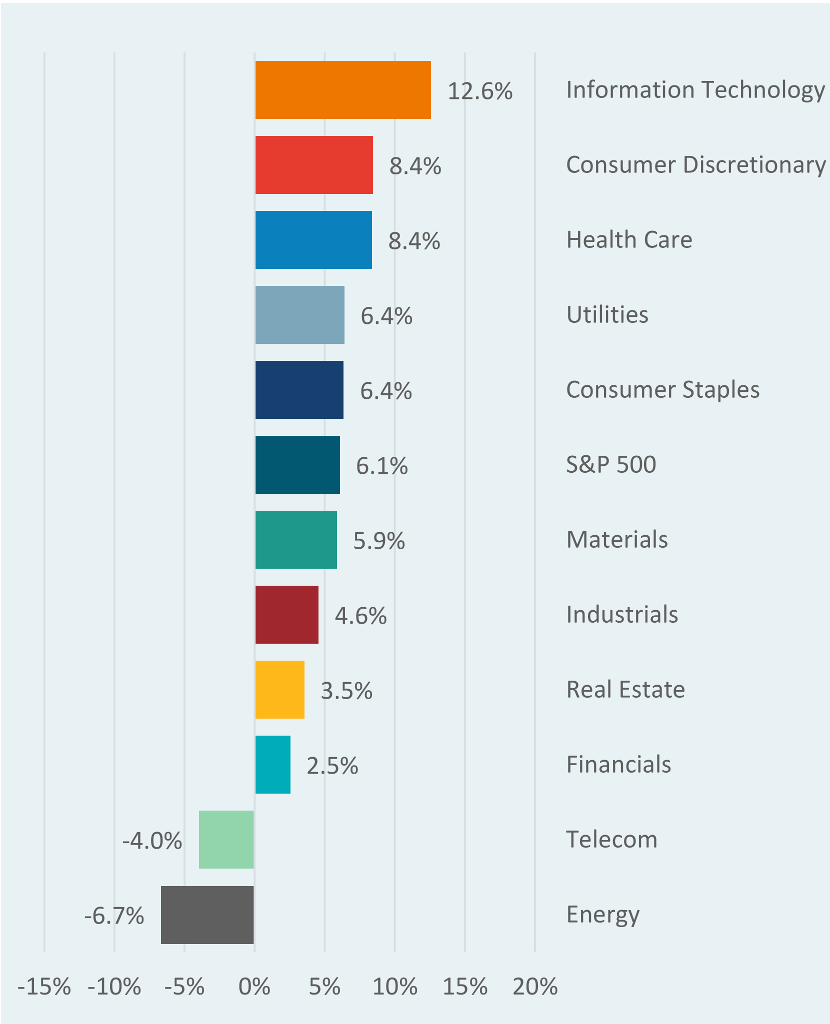
TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/17

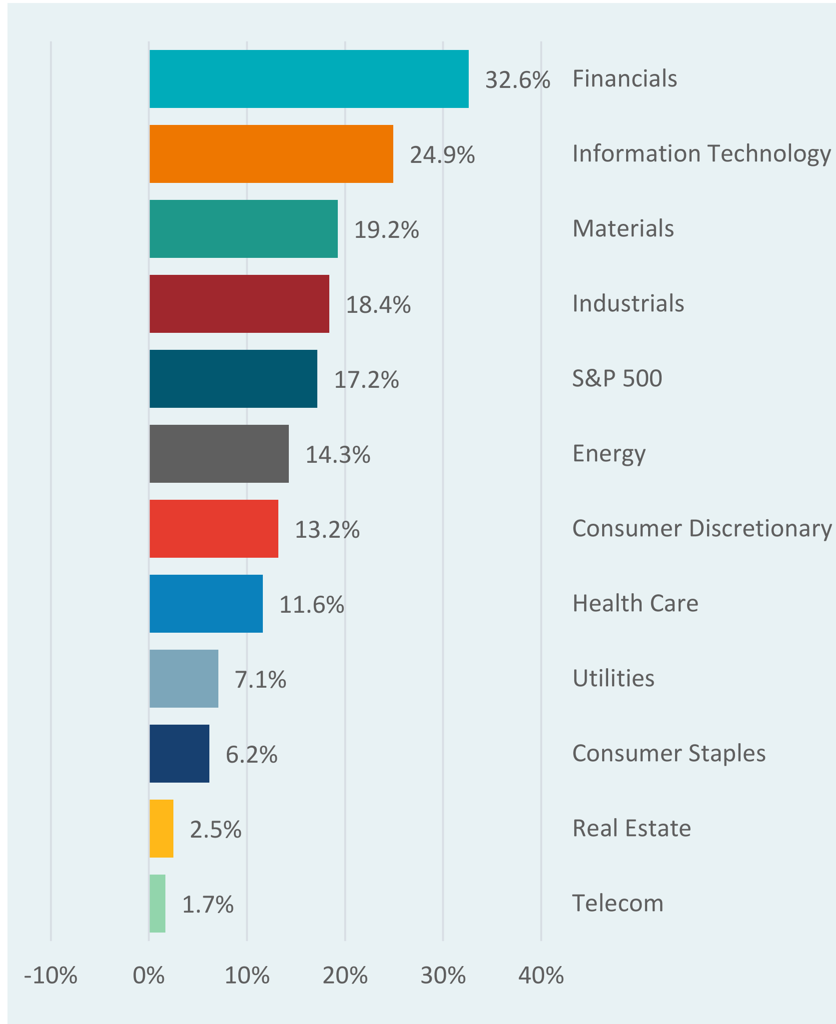
S&P 500 and S&P 500 sector returns

1ST QUARTER



Source: Morningstar, as of 3/31/17

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/17

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	0.1	6.1	6.1	17.2	10.4	13.3	7.5
S&P 500 Equal Weighted	0.0	5.4	5.4	17.4	9.6	14.0	8.7
DJ Industrial Average	(0.6)	5.2	5.2	19.9	10.6	12.2	8.1
Russell Top 200	0.2	6.4	6.4	17.6	10.6	13.3	7.5
Russell 1000	0.1	6.0	6.0	17.4	10.0	13.3	7.6
Russell 2000	0.1	2.5	2.5	26.2	7.2	12.4	7.1
Russell 3000	0.1	5.7	5.7	18.1	9.8	13.2	7.5
Russell Mid Cap	(0.2)	5.1	5.1	17.0	8.5	13.1	7.9
Style Index							
Russell 1000 Growth	1.2	8.9	8.9	15.8	11.3	13.3	9.1
Russell 1000 Value	(1.0)	3.3	3.3	19.2	8.7	13.1	5.9
Russell 2000 Growth	1.2	5.3	5.3	23.0	6.7	12.1	8.1
Russell 2000 Value	(0.8)	(0.1)	(0.1)	29.4	7.6	12.5	6.1

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US Treasury US TIPS	(0.1)	1.3	1.3	1.5	2.0	1.0	4.2
BBgBarc US Treasury Bills	0.0	0.1	0.1	0.4	0.2	0.2	0.8
BBgBarc US Agg Bond	(0.1)	0.8	0.8	0.4	2.7	2.3	4.3
Duration							
BBgBarc US Treasury 1-3 Yr	0.0	0.3	0.3	0.2	0.7	0.6	2.0
BBgBarc US Treasury Long	(0.6)	1.4	1.4	(5.0)	5.8	4.0	6.7
BBgBarc US Treasury	(0.0)	0.7	0.7	(1.4)	2.1	1.6	3.9
Issuer							
BBgBarc US MBS	0.0	0.5	0.5	0.2	2.7	2.0	4.2
BBgBarc US Corp. High Yield	(0.2)	2.7	2.7	16.4	4.6	6.8	7.5
BBgBarc US Agency Interm	0.0	0.5	0.5	0.1	1.4	1.2	3.1
BBgBarc US Credit	(0.2)	1.3	1.3	3.0	3.5	3.7	5.3

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	1.2	6.9	6.9	15.0	5.1	8.4	4.0
MSCI ACWI ex US	2.5	7.9	7.9	13.1	0.6	4.4	1.4
MSCI EAFE	2.8	7.2	7.2	11.7	0.5	5.8	1.1
MSCI EM	2.5	11.4	11.4	17.2	1.2	0.8	2.7
MSCI EAFE Small Cap	2.0	8.0	8.0	11.0	3.6	9.2	3.0
Style Index							
MSCI EAFE Growth	2.7	8.5	8.5	7.4	1.5	6.0	2.0
MSCI EAFE Value	2.8	6.0	6.0	16.0	(0.6)	5.6	0.0
Regional Index							
MSCI UK	1.7	5.0	5.0	7.4	(2.6)	3.5	0.5
MSCI Japan	(0.4)	4.5	4.5	14.4	6.0	6.8	0.6
MSCI Euro	6.2	8.5	8.5	12.8	(1.3)	6.4	(0.2)
MSCI EM Asia	3.3	13.4	13.4	18.0	4.5	4.4	4.7
MSCI EM Latin American	0.6	12.1	12.1	23.3	(4.0)	(6.1)	0.8

OTHER

Index							
Bloomberg Commodity	(2.7)	(2.3)	(2.3)	8.7	(13.9)	(9.5)	(6.2)
Wilshire US REIT	(2.7)	0.0	0.0	2.0	10.2	9.8	4.4
CS Leveraged Loans	0.1	1.2	1.2	9.7	3.7	4.9	4.2
Regional Index							
JPM EMBI Global Div	0.4	3.9	3.9	8.9	6.2	5.8	7.0
JPM GBI-EM Global Div	2.3	6.5	6.5	5.5	(2.7)	(1.6)	4.1
Hedge Funds							
HFRI Composite	0.2	2.3	2.3	8.6	2.8	4.0	3.3
HFRI FOF Composite	0.1	2.0	2.0	5.9	1.7	3.1	1.2
Currency (Spot)							
Euro	0.7	1.4	1.4	(6.1)	(8.1)	(4.3)	(2.2)
Pound	0.5	1.2	1.2	(13.0)	(9.1)	(4.8)	(4.4)
Yen	0.4	4.7	4.7	0.9	(2.6)	(5.9)	0.6

Source: Morningstar, as of 3/31/17

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.langerresearch.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)*

Citi Economic Surprise Index *- objective and quantitative measures of economic news. Defined as weighted historical standard deviations of data surprises (actual releases vs Bloomberg survey median). A positive reading of the Economic Surprise Index suggests that economic releases have on balance been beating consensus. The indices are calculated daily in a rolling three-month window. The weights of economic indicators are derived from relative high-frequency spot FX impacts of 1 standard deviation data surprises. The indices also employ a time decay function to replicate the limited memory of markets. (www.Bloomberg.com)*

Merrill Lynch Option Volatility Estimate (MOVE) Index *– a yield curve weighted index comprised of a weighted set of 1-month Treasury options, including 2.5.10 and 30 year tenor contracts. This index is an indicator of the expected (implied) future volatility in the rate markets. (www.Bloomberg.com)*

OECD Consumer Confidence Index *- based on households' plans for major purchases and their economic situation, both currently and their expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions. (https://data.oecd.org/)*

OECD Business Confidence Index *- based on enterprises' assessment of production, orders and stocks, as well as its current position and expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions. (https://data.oecd.org/)*

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/)*

Notices & disclosures

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: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - 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: Portfolio Excess Return / 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 6, 2017 Agenda Item 6.3

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst

SUBJECT: Report on Real Estate Annual Manager Review

Staff Recommendation
Accept and review the report on the annual review of SamCERA's Real Estate manager.

Background
In April, SamCERA staff and consultant held annual review meeting in SamCERA's office for our real estate manager, INVESCO.

The meeting lasted approximately 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, a closed-end fund which acquires and repositions fundamentally sound, but "broken core" real estate assets into institutional-quality assets across the same four property sectors, was also reviewed.

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

Attachment
INVESCO Real Estate Annual Review Meeting Notes

Research Meeting Notes

Investment Organization	Invesco Real Estate
Business Type	Private
Firm Inception Date	1935
Firm $AUM	$812B
Investment Org Attendees	Bill Grubbs, Max Swango, Chad Provost
Verus Attendees	John Nicolini
SamCERA Attendees	Scott Hood, Michael Coultrip, Doris Ng
Interview Date(s)	4/13/17
Meeting Type	SamCERA Office
Meeting Purpose	Annual Review
Strategy Name	Invesco Core Real Estate/Value-Add
Strategy Inception Date	2004
Asset Class (Style)	Real Estate
If other, please name	
Sub-Style	
Strategy $AUM	$11B
Interest Level (High, Low, None)	**High**

Notes and Analysis

Firm:

Invesco has become a large investment management firm with assets under management of $812 billion and more than 6,500 employees worldwide. Of this number, more than 750 are investment professionals. The client base is a mix of retail and institutional. Bill Grubbs continues to credit the leadership of CEO Marty Flanagan with the firm's expansion.

As of the December 31, 2016, the real estate platform had assets of $67.8 billion. It has also become increasingly global both in terms of offices and product offerings. Invesco manages core open end funds in all three 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 $26 billion in these vehicles. The Core Fund grew from $9.8 billion in 2015 to $11.3 billion at the end of 2016.

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.

Michelle Foss has been co-portfolio manager on the Core Fund with Bill Grubbs for about three years. She joined from Bailard where she was a core, open end real estate fund manager. She had worked with Bill previously at Prudential 20 years ago. Bill stated that Invesco continues to expand its real estate staff across the U.S. to the point where Dallas is no longer the dominant real estate presence for Invesco. Notably, the real estate team has grown in San Francisco and New York, where there are 20 and 30 professionals, respectively. (Bill Grubb has always been based in the Bay Area.) Grubbs stated that a local presence in regions helps with off market purchases.

Process/Philosophy

SamCERA was one of the founding investors in the Invesco Core Real Estate fund in 2004. At that time, there were 14 funds in the ODCE (open end, diversified, core peer group) and now there are approximately 25 funds in this peer universe. Among this group, Invesco has traditionally been a more conservative fund offering with less leverage than the index and many of its peers. 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 about $11 billion. U.S. direct real estate assets in total were about $28 billion at 12/31/16. The Core Fund has an entry queue of $48 million which is down from $200M in 2016.

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.

As mentioned, they will also 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% and, thus, value add investments in the Core Fund fail to meet the higher hurdle for inclusion in the Value Add Fund.

Performance

Bill Grubbs discussed Invesco's outlook and positioning with a focus on the Core Fund where he is lead portfolio manager. There are big differences between winners and losers post-Great Financial Crisis, so geography and location is critical for success. Industrial pricing is high in some regions now to the extent that it is above replacement cost and finding scalable transactions continues to present challenges for Invesco. The Fund has a few industrial parks in development that will increase the industrial position closer to target in the next couple years. The apartment overweight will continue though they are opportunistically selling down assets. Office exposure has been reduced because it is more volatile. The retail segment has 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. Invesco's analysis includes a detailed review of tenant profiles. Almost all tenant profiles are strong from the cash flow and longevity standpoint.

Recently, the Fund closed on a large industrial park in Fremont California. The park will be a component of the value-add portfolio as the property is in development. The industrial park will target leases from many of the companies supplying parts and components to Tesla and other companies in the South Bay area.

Bill believes that rental income growth will be achieved in several large properties where they offered large tenants (Facebook, Amazon, etc.) an initial rental discount for 1-2 years in exchange for a long- term lease agreement. Those initial discounts will be rolling off in the next year which will bring rental rates up to market, driving meaningful income growth. The team has been selling properties where there are good gains (230 Park Ave.) and proactively writing down property values where warranted ahead of comp/appraisal changes. The underperformance experienced in 2015 they believe is reflective of proactive losses they experienced in an effort to upgrade the portfolio. They believe that competitor funds in the ODCE index will have to follow the same course of action in 2017 as values have fallen in second tier markets.

This strategy employs a moderate amount of leverage. As of the end of 2016, debt to total assets was 25.5%. They have maintained a longer duration than most peers. The weighted average remaining term on their debt was 8.5 years with an average contract interest rate of 3.6% at year-end. They have taken the opportunity in the current low interest rate environment to lock in low borrowing costs. Noticeably, the leverage on the Core Fund increased from 21% to 25.5% in the last year which puts the leverage ratio above the ODCE average.

Over the past year ended 12/31/16, the Invesco Core Fund has outperformed ODCE and provided a strong absolute return (9.23% v. 8.77% for ODCE).

Other Considerations

Invesco spoke briefly about Value Fund IV that SamCERA committed to in 2015. The Fund raised $759 million in commitments and is now 80% committed. Since inception, the product has returned an 24% IRR and 1.15x multiple on a gross basis. Invesco plans to return to market in the summer of 2017 with a new value-add fund.

San Mateo County Employees' Retirement Association
Board of Retirement

June 6, 2017 Agenda Item 6.4

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst

SUBJECT: Report on Core Equity Annual Manager Reviews

Staff Recommendation

Review the report on the annual reviews of SamCERA's Core Equity Managers.

Background

On May 4th, SamCERA staff held annual review meetings in SamCERA's office for our core equity managers (Blackrock, D.E. Shaw and Quantitative Management Associates - QMA). 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.

Discussion

The Blackrock S&P 500 and EAFE Index Funds were reviewed first. In addition, the Blackrock Russell 1000 and Intermediate Government Bond Index Funds were also reviewed. As part of the first phase implementation of the new asset allocation policy that was approved by the Board in October 2016, SamCERA's investment in the S&P 500 Index Fund was transitioned to the Russell 1000 Index Fund, and the Intermediate Government Bond Index Fund was added in January 2017.

Next, the D.E. Shaw U.S. Broad Market Core Alpha Extension Fund, which is a 130/30 large-cap core strategy that seeks to identify market inefficiencies through quantitative analysis, was reviewed. Lastly, 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.

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 Russell 1000, EAFE and Int. Govt. Bond Index Annual Review Meeting Notes
B. D.E. Shaw U.S. Broad Market Core Alpha Extension Fund Annual Review Meeting Notes
C. QMA US Small Cap Core Equity Fund Annual Review Meeting Notes

Date of meeting: 5/4/2017

Location: SamCERA Office

Manager Representative(s)

Tim Murray (Product Strategist), Gordon Readey (Fixed Income Product Strategy), Tony Freitas (Client Service)

Verus Representative(s)

Margaret Jadallah

Client Representative(s)

Mike Coultrip (CIO), Scott Hood (CEO), Lilibeth Dames (Analyst), Doris Ng (Analyst)

Product Description

BlackRock uses a full replication approach to equity indexing. They hold each stock in the same proportion in which they are represented in the Russell 1000 Index (formerly S&P 500) and the MSCI EAFE Index, respectively. In January 2017, SamCERA transitioned from the S&P 500 to the Russell 1000 Index Fund which also uses full replication. 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. In January 2017, SamCERA also added an Intermediate Government Bond Index mandate with BlackRock, using a stratified sampling technique which replicates the performance and portfolio characteristics of the Bloomberg Barclays U.S. Intermediate Bond Index with a broad subset of the underlying benchmark constituents.

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. Two 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.

Total firm assets at 3/31/17 were $5.4 trillion with $3.3 trillion in equity indexed strategies and $822 billion in passive fixed income strategies. Passive includes both index funds and ETFs. ETFs and Smart Beta applications have been growth engines for the beta business. At 3/31/17, SamCERA had $950 million in index funds with BlackRock - $688MM in Russell 1000, $141MM in EAFE and $121MM in the Intermediate Govt. Bond index.

Over the past 12-18 months, BlackRock made some meaningful structural changes to its businesses. In 2016, the firm consolidated its fixed income business into a global unit, combined Fundamental Active Equity and Scientific Active Equity into a unified active equity business, and streamlined its Beta Strategies business through simplifying and reducing team sizes. In November 2016, BlackRock further consolidated its index and ETF teams into a unified global beta group. In March 2017, BlackRock further re-aligned certain active equity teams to more fully utilize technology and big data in their investment approaches. The firm is also reallocating resources to what they believe are future growth areas, including Multi-Asset Strategies.

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. All of the Americas fixed income index team is based in San Francisco.

Amy Schioldager, long time global head of beta strategies, formally retired in March 2017. The ETF and index investments business is now run by Manish Mehta who came from the ETF side of BlackRock. There were few changes to the passive equity portfolio management team with Manish's promotion during Q4 2016. Global research for indexing and iShares was combined at this time which did result in some research redundancies. Scott Dohemann has been and continues to be an experienced and knowledgeable client service contact to SamCERA.

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.

Performance & Positioning

For the past year ended 3/31/17, 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 (0-15 bps), and Intermediate Government Bond Index Fund (5-10 bps). BlackRock's passive size and scale is a differentiator, and the ability to cross trade is an important means of cost reduction.

BlackRock has finished implementing new and enhanced systems for the team's portfolio managers which fully incorporate the Aladdin risk and trading system.

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: 5/4/2017

Location: SamCERA Office

Manager Representative(s)

Letitia Yang (Client Relations) and Jordan Drachman (Product Strategist)

Verus Representative(s)

Margaret Jadallah

Client Representative(s)

Mike Coultrip (CIO), Scott Hood (CEO), Lilibeth Dames (Analyst), Doris Ng (Analyst)

Product Description

The D. E. Shaw group believes that there exist some market inefficiencies that can 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 two decades in the course of research conducted for purposes of managing the firm's hedge funds.

D.E. Shaw commits substantial resources to quantitative research and portfolio management. 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 quantitatively-oriented peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. D.E. Shaw builds broadly diversified portfolios with a modest over- and under-weighting of sectors and industries relative to the benchmark. The portfolio is constructed with the intention that most of the alpha be generated by security selection.

In December 2014, SamCERA changed D.E. Shaw's mandate from large cap long only (Broad Market Core Enhanced Plus) to a large cap core 130/30 mandate (Broad Market Core Alpha Extension) which uses the same basic methodology and alpha sources. In addition to allowing shorting, the targeted tracking error for the SamCERA portfolio increased from 200 to 300 bps. As of April 1, SamCERA switched from the Series A commingled fund to the Series B fund which uses an identical strategy but charges a performance fee instead of a fixed fee.

The SamCERA portfolio was $138MM in size as of 3/31/17.

Organization

D.E. Shaw & Co., L.P. ("DESCO") is the parent entity of D.E. Shaw Investment Management, L.L.C. ("DESIM"). D. E. Shaw's firm-wide assets under management were at $42.3 billion as of April 1, 2017. D.E. Shaw has over 1000 employees implementing and supporting investment-related activities with offices in North America, Europe and Asia, including a large presence in Hyderabad, India. DESIM manages the firm's benchmark relative Structured Equity strategies and long-biased Orienteer strategies which currently stand at $15.6 billion. DESIM has had net inflows over the past year of approximately $1.5 billion. Structured Equity assets of $13.0 billion are about evenly split between long only and 130/30 strategies.

In April 2015, Hillspire, LLC (the family office for Eric Schmidt of Google and his family) acquired Lehman Brothers Inc.'s 20% non-voting stake in D.E. Shaw & Co., L.P. ("DESCO"). Hillspire had been an investor in D.E. Shaw's funds for several years. Hillspire is a passive owner. The firm is majority employee-owned with David Shaw as the largest shareholder. In 2016, D.E. Shaw employees purchased a 4% ownership stake from B of A.

D.E. Shaw spun out its back- and middle-office technology platform and related personnel into an independently operated company called Arcesium, LLC. The D.E. Shaw group is the majority owner of this offshoot firm, and Blackstone Alternative Asset Management owns a minority stake. Arcesium remains D.E. Shaw's trade operations (reconciliation, booking and verification) and accounting system. Arcesium is not a risk management or trade execution system and is not associated with D.E. Shaw's investment process.

In 2016, Dr. Philip Kearns replaced Dr. Anne Dinning as DESIM's CIO. Effective March 1, 2017, Anne Dinning transitioned to a part time role with D.E. Shaw group and stepped down from DESIM's Executive Committee. Max Stone, a member of the Executive Committee of DESCO and D.E. Shaw & Co., replaced Dr. Dinning on DESIM's Executive Committee, with Dr. Kearns reporting to Mr. Stone. The firm's COO also joined the Executive Committee.

Investment Team

The Structured Equity team harnesses the resources of DESIM and the broader D.E. Shaw organization. Quantitative resources include 1) 70 investment professionals with Ph.Ds., principally with backgrounds in math, physics and computer science, 2) a team of 55 quantitatively oriented research analysts, financial analysts and software developers, and 3) robust, proprietary technological tools for modeling and trading utilizing "cluster" servers and serviced by 300 IT professionals.

Philip Kearns, Ph.D. remains the Head of Structured Equity strategies and Orienteering. As noted above, Anne Dinning transitioned to a part time role.

Investment Strategy

As described above, DESIM's Structured Equity strategies are underpinned by the firm's proprietary modeling, optimization and trading systems and a powerful computing network distributed across hundreds of "cluster" servers. These systems are continually reviewed and upgraded.

The Broad Market Core Alpha Extension (130/30) strategy is managed with the stated goal of constructing portfolios that are style and capitalization neutral. However, it is worth noting that the weighted average market cap can skew slightly lower than that of the benchmark. Their investment approach allows for small out of benchmark weights which are typically lower cap. The optimizer will account for trading costs and, as a result, smaller cap stocks in small positions may continue to be held or only trimmed due to their higher trading costs.

Portfolios are broadly diversified by position weight (approximately 2000 positions) yet maintain a high active share (about 90%) compared to the Russell 1000 because of active position weight differentials. The portfolio is structured such that forecast specific and residual factors are the greatest contributors to return, and other factors, such as beta, sector and macro, are actively minimized.

The Structured Equity strategies, including the 130/30 strategy, should outperform in periods of high liquidity when transactions costs are low, and when there is moderate to high price dispersion among stocks. Conversely, the strategy will underperform when there is lower liquidity, lower intra-market volatility and lower cross-sectional dispersion.

Performance & Positioning

The Broad Market Core Alpha Extension Fund outperformed the Russell 1000 Index by 360 bps net of fees over the past year ended 3/31/17 (21.03% net vs. 17.43% for the Russell 1000). Since inception, the SamCERA portfolio, using the linked long only and 130/30 track record, has outperformed the index and median large cap core manager, ranking in the top decile of the peer group.

The portfolio's sector weightings and portfolio characteristics (market cap, P/E, yield, etc.) were fairly close to the Russell 1000 Index at 3/31/17. As of the end of March, Apple was a larger than normal overweight, and was driven by the sum of the forecasts as opposed to one particular forecast. Size was a large contributor to active returns during the fourth quarter after the election.

The firm reviews its forecasts twice a year. It is in the process of reviewing them now with the possible outcome of reactivating some zero weight factors or introducing a few new ones. Their research effort continues to work on enhancing its "common investor risk" in order to improve its knowledge of the positioning of competitors (ex., hedge funds) and better avoid downside risk associated with owning positions that hedge funds are selling.

Conclusion

Verus believes that D.E. Shaw is a skilled investor that uses unique and differentiated sources of alpha, many derived from the firm's years as a successful hedge fund investor. The Broad Market Core Alpha Extension strategy continues to be additive to SamCERA's portfolio.

Date of meeting: 5/4/2017

Location: SamCERA Office

Manager Representative(s)

Stacie Mintz (Portfolio Manager) and Brad Zenz (Client Relations)

Verus Representative(s)

Margaret Jadallah

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 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.

QMA was added to the SamCERA portfolio in August 2016. QMA managed $127 million for SamCERA as of 3/31/17.

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. No changes in investment professionals or process occurred as a result of this change in legal structure.

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 research is also performed.

Effective April 3, 2017, Andrew Dyson became CEO of QMA. Scott Hayward exited the role at the end of 2016 after more than a decade to take on a new challenge.

As of 3/31/17, QMA managed $120.5 billion in total assets under management. Asset gains and losses were about even at the firm level over the past year. There was one outsized redemption of $470 million from sovereign wealth fund that scaled back allocations from all of its external managers. US Small Cap comprised $1.5 billion of the firm's assets. QMA believes that controlled growth is the optimal way to grow its business.

Investment Team

QMA's investment team includes 21 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 15 years and has an average of 17 years of investment experience. All US Small Cap Core Equity portfolios are team managed.

Team members spend most their time managing portfolios and undertaking research related to the small cap strategy and other US core strategies. The US Core Equity team manages 10 strategies with the same process, managed against different benchmarks.

Peter Xu, PhD is the head of the team. SamCERA's portfolio manager Stacie Mintz, CFA has worked on the small cap portfolio since its inception in 1997.

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. At the time of the review, the slow growth bucket had a 70% weighting to valuation which was additive to performance. Consistency of alphas are emphasized in their approach, and industry adjustments are utilized for multiple industries.

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. The portfolio currently holds about 350 stocks; the maximum number of stocks is 400.

While the model is run daily, they trade about every two weeks. Changes in earnings, valuation and quality observed daily help to determine the speed of trading.

Performance & Positioning

Since SamCERA's portfolio inception in August 2016, the QMA small cap portfolio outperformed by 218 bps at 3/31/17 (15.8% vs. 13.6% for the Russell 2000 Index). The timing for the portfolio was advantageous in that the fourth quarter post-election period was particularly strong for QMA, driven by their value factors performing well.

During Q4 2016, a credit signal looking at high yield spreads was added to the quality bucket after two years of research.

Conclusion

QMA is off to a good start and meeting expectations from the return and risk standpoint.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 Agenda Item 6.5

TO: Board of Retirement

FROM: Lilibeth Dames, Investment Analyst

SUBJECT: Report on SamCERA's Securities Lending Program

Staff Recommendation
Review the report on SamCERA's Securities Lending Program.

Background
SamCERA commenced its securities lending program on July 1, 2007. The program was implemented by SamCERA's then custodian, State Street Bank & Trust. Effective July 1, 2014, SamCERA switched custodial banks from State Street Bank & Trust to The Northern Trust Company.

SamCERA's current collateral reinvestment pool with Northern Trust, the NILAP Cash Collateral Fund, converted from a money market fund to a government money market in September 2016 due to regulatory changes mandated by the SEC. As a result of the conversion, the NILAP is now required to invest a minimum of 99.5% of assets in cash, government securities and/or government repurchase agreements.

Discussion
In the nearly ten years since inception, the securities lending program has earned $6.9 million for SamCERA. During this fiscal year so far, the program has earned $45,289 as of April 30th. This is a 84% decrease from last fiscal year's earnings of $277,758. Utilization (on-loan amount divided by lendable assets) has decreased from 13.9% from the end of last fiscal year to 0%. This is partly as a result of the decrease in the number of separately managed accounts in SamCERA's portfolio that participate in securities lending as well as the NILAP's conversion to a government fund. Following SamCERA's recent changes to its domestic equity structure, there are now only two separately managed funds in the program, down from the initial eight funds when we hired Northern Trust. In addition, with the drop in lendable assets, a 20% borrower restriction has prevented any further lending.

Staff will be present to discuss SamCERA's securities lending program.

SamCERA Securities Lending Report

As of April 30, 2017

Securities are loaned versus collateral that may include cash, U.S. government securities and irrevocable letters of credit. U.S. securities are loaned versus collateral valued at 102% of the market value of the securities plus any accrued interest. Non-U.S. securities are loaned versus collateral valued at 105% of the market value of the securities plus any accrued interest.

Non-cash collateral cannot be pledged or sold unless the borrower defaults.

All securities loans can be terminated on demand by either the lender or the borrower. There were no loans outstanding as of April 30, 2017.

Cash open collateral is invested in a government fund reinvestment pool, the NILAP fund.

EARNINGS

As of April 30, 2017, SamCERA's securities lending program has earned $48,289 for fiscal year to date. This is a 84% decrease over last year's fiscal year earnings of $277,758. The program has earned $6.9 million since its inception on July 1, 2007.

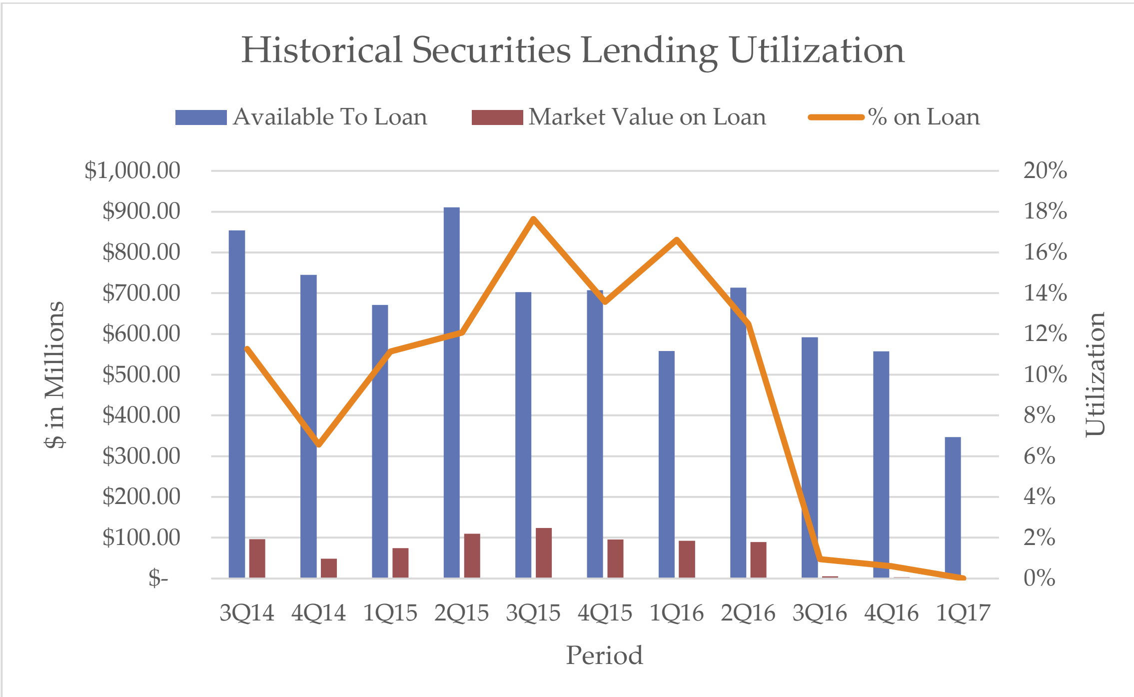
Earnings History

San Mateo County Employees' Retirement Association

	US Corp Bond & Equity	US Government	Non-US Equity & Fixed	Total	Cumulative Earnings
FY 2008	$ 762,882	$ 342,325	$ 513,648	$ 1,618,855	$ 1,618,855
FY 2009	$ 764,480	$ 317,263	$ 549,531	$ 1,631,274	$ 3,250,129
FY 2010	$ 489,982	$ 51,009	$ 201,945	$ 742,936	$ 3,993,065
FY 2011	$ 311,009	$ 23,915	$ 195,387	$ 530,311	$ 4,523,376
FY 2012	$ 489,375	$ 10,926	$ 220,918	$ 721,219	$ 5,244,595
FY 2013	$ 398,363	$ 8,087	$ 215,443	$ 621,893	$ 5,866,488
FY 2014	$ 295,063	$ 6,277	$ 134,118	$ 435,458	$ 6,301,946
FY 2015	$ 215,458	$ 2,989	$ 91,199	$ 309,645	$ 6,611,591
FY 2016	$ 190,240	$ 1,347	$ 86,171	$ 277,758	$ 6,889,349
FY 2017	$ 30,013	$ -	$ 15,276	$ 45,289	$ 6,934,639

Fiscal year earnings were impacted by the changes to the collateral reinvestment pool as well as changes to SamCERA's public equity manager structure. During the fiscal year, SamCERA terminated two small cap equity and two large cap equity managers that invested in securities that were the major contributors of earnings in the securities lending program.

UTILIZATION



Utilization (securities on-loan amount divided by lendable assets) has ranged from 0% to 20% during the approximately three years that SamCERA has used Northern Trust as its securities lending provider. Utilization significantly declined in the Third Quarter of 2016 when the NILAP fund converted into a government money market fund and SamCERA changed its small cap manager struture during that quarter, removing two separate accounts from the securities lending program. SamCERA removed another two accounts when it made changes to its large cap equity structure in the early First Quarter of 2017. Because of these recent changes, utilization as of April 30, 2017, has dropped to zero.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 Agenda Item 6.6

TO: Board of Retirement

FROM: Lilibeth Dames, Investment Analyst

SUBJECT: Presentation of Private Asset Semi-Annual Performance Reports as of December 31, 2016

Staff Recommendation
Accept and review Verus' semi-annual private equity and private real assets performance reports as of December 31, 2016.

Background
In August 2010, the Board of Retirement approved the implementation of SamCERA's private equity program. In October 2013, the Board of Retirement subsequently approved the implementation of SamCERA's private real asset program. SamCERA's current target asset allocation to private equity and private real assets are 7% and 2% of the total fund, respectively. Every year, Verus provides a semi-annual private equity and private real asset performance report as of June 30th and December 31st.

Discussion
As of December 31, 2016, SamCERA's private equity portfolio had a total market value of $244.3 million (6.6% of SamCERA's total fund). For the six-month period from July 1, 2016 through December 31, 2016, SamCERA committed to one new fund, Angeles Equity Partners I, LP, for a total of $10 million. This brought the sum of private equity funds in the portfolio to nineteen with $323.5 million in committed capital across fourteen private equity managers.

As of December 31, 2016, SamCERA's private real assets portfolio had a total market value of $52.8 million (1.4% of SamCERA's total fund). For the six-month period from July 1, 2016 through December 31, 2016, SamCERA committed to one new fund, Taurus Mining Finance Annex Fund LP, for a total of $10 million. This brought the sum of private real asset funds in the portfolio to seven with $110 million in committed capital across six private real assets managers.

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

Attachments
Verus Semi-Annual Private Equity Performance Report for Period Ended 12/31/2016
Verus Semi-Annual Private Real Assets Performance Report for Period Ended 12/31/2016

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: DECEMBER 31, 2016

Private Equity Review

San Mateo County Employees' Retirement Association

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Debt-Related:

HY down but leveraged loans up. 2016 high yield issuance of $228.2 billion[1] is down 12.8% from 2015 and leveraged loan volume of $336.4 billion[1] is up 30.6% versus 2015. The rise in popularity of leveraged loans can be attributed to corporate borrowers increasingly able to secure covenant lite terms from banks[2].

Spreads tightened across the board. Reflecting increased business confidence post election, HY Credit Index tightened by 214 bps or 40.8%[1] versus the same period last year. BB-, B+ and B index tightened by 126 bps, 104 bps and 140 bps respectively, a 31.2%[1], 23.21%[1] and 25.5%[1] decrease versus same period last year.

LBO debt terms improve slightly. Total leverage (Debt / EBITDA) for 2016 at 5.4x[3] down 3.4% from last year. Interest coverage (EBITDA / Cash Interest) for the first half of 2016 at 3.05x[3] down slightly by 0.3% from 2015.

Buyouts & PE:

PE dry powder increasing. At the end of 2016, PE dry powder was at $1.4 trillion[4], up 6.7% from 2015. Total buyout dry power was at $534 billion[4], up 13.1% from 2015.

PE Fundraising is strengthening led by Buyouts. During 2016, US PE firms raised $187.8 billion[5], up 12.0% from prior year. US buyout firms across all buyout strategies raised $120.2 billion[5], up 46.9% from prior year.

Investment activity is down. During 2016, PE firms invested in $319 billion[6] worth of deals, down 24.7% from prior year and closed on 3,985 transactions[6], up 0.8% from prior year.

LBO price multiples still above 2007 peak. As of December 31, 2016, US LBO purchase price multiples (Enterprise Value / EBITDA) are at 10.02x[7] , a 2.3% decrease from prior year. This is still above the peak in the previous cycle of 9.7x[7] which was reached in 2007.

Exit activity decreased. During 2016, US PE firms exited 1,097 companies[7], representing $316.0 billion[7] in total transaction value. This represents a 18.0% decrease in the number of exits and a 22.1% decrease in total transaction value compared to prior year. In number of exits, the decline was led by a 21.8% decline in the total number of exits to strategic buyers, which currently comprise 50.2% of exits, and a 13.0% decline in the total value of exits to financial buyers, which currently comprise 46.9% of exits.

VC:

VC dry powder increasing. VC dry powder at $142.0 billion[4], up 11.8% from the same period last year.

VC fundraising up but sizes decline. US VC firms raised $34.2 billion[5]in 2016, a 3.6% increase from the same period last year. 220 funds[5] closed in 2016, a 25.0% increase from the same period last year. Most of the increases were led by smaller funds. The average VC fund size shrank 17.1% at $155.3 million[5] versus the same period last year.

Fewer rounds closed but larger deals. US VC firms deployed $71.7 billion[8] in capital for 2016, a 9% decrease from prior year. The decline was led by a large decrease in number of rounds closed at 8,467[8], a 19.3% decrease from prior year. This decline was offset by an increase in average investment per deal which grew to $8.5 million[8], a 12.8% increase from prior years.

Late stage valuations down, early stage up. Reflecting a reversal in trends from prior years, the average valuation of a Seed Stage, Series A, Series B and Series C investment was up 17.0% at $8.0 million[8], 8.0% at $21.0 million[8], 0.4% at $50.7 million[8] and 10.2% at $100.4 million[8], respectively. However, the average valuation of Series D+ investment was down 6.8% at $192.7 million[8].

Exit activity down. VC exits are down for 2016 compared to prior years. VC firms exited 1,152 companies[9] in 2016, down 23.6% from the same period last year. Similarly, VC firm exits represented $60.9 billion[9] in transaction value down 7.2% from the same period last year. In total number, the decrease was led by a 22.7% decline in the total exits to strategic buyers, which comprise 78.9% of total exits, and a 42.0% decline in exits by IPO, which comprise 7.0% of total exits.

Ex US:

Ex US dry powder grew but less than dry powder in the US. PE dry powder outside the US grew to $594.5 billion[4] for 2016, a 8.4% increase versus last year. This was led by Europe which grew to $347.3 billion[4], a 14.7% increase from prior year. Asian dry powder also grew to $178.9 billion[4], a 2.8% increase from prior year. Dry power in the rest of the world (excluding US, Europe and Asia) declined by 4.1% to $68.3 billion[4]. Dry powder outside the US is less than dry powder in the US by 27.2%.

Fundraising outside of U.S. up. For 2016, Ex US fundraising was up 31.8% to $157.2 billion[5] compared to prior year. The increase was led by European funds which raised $109.7 billion[5], up 57.9% from prior year. The increase was offset by a decrease in funds outside Asia, Europe and the North America which only raised $8.6 billion[5], down 26.1% from prior year.

Investments outside of U.S. down. For 2016, Ex-US PE firms transacted on $129.0 billion[6] of aggregate value, down 21.9% from prior year. The largest decline in dollar value was in Asia where firms deployed $24.0 billion[6] in deals, a 52.6% decrease from prior years. Deals in Europe drew $88.0 billion[6] in capital (-7.4% from prior year). Funds outside Asia, Europe and North America invested in just $18.0 billion[6] worth of deals (-14.5% from prior year).

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Global purchase price multiples increase. As of December 31, 2016, global median purchase price multiples (Enterprise Value / EBITDA) was up at 9.8x[10], a 6.0% increase from prior year. This was driven by a 9.7% increase in European purchase multiples at 9.7x[10] offset slightly by a 2.3% decrease in purchase price multiples in the US at 10.0x[10]. Purchase multiples outside Europe and the US decrease by 1.5% at 8.3x[10].

Leverage multiples in Europe stayed flat. European LBO leverage multiples (Debt / EBITDA) have averaged 5.0x[11] in 2016, a decrease of less than 1% from prior year. European LBO Loan volume at $50.4 billion[12] is up 12.6% versus prior year.

Exit activity weakened in Europe. Similar to the U.S. which recorded $316.0 billion[7] in exits for 2016, a decrease of 22.1% from prior year, exits in Europe amounted to $180.1 billion[13], a 28.1% decrease from prior year.

Outlook:

PE allocations likely to increase. A recent survey of institutional investors conducted on December 31, 2016 indicated that 40%[14] intend to increase their allocation for private equity compared to 43%[14] 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, 2016, Institutional investors view North America as the most attractive location to invest in the current economic climate with 61%[14] choosing it as their preferred investment destination. This compares favorably versus Europe (44%[14]) and Asia (21%[14]). In the same survey, 58%[14] of institutional investors also cited the small to mid-market buyout strategy as presenting the best opportunities in the current financial climate. Venture capital was mentioned next with 28%[14] of institutional investors believing it presented the best opportunities.

1. *UBS' US Leveraged Capital Markets Weekly Update – January 13, 2017*
2. *Jones, B. (2017, April 6). 1Q Borrowing Booms Across Leveraged Loan, HY and HG Markets; M&A, Pro Rata Underwhelm. Retrieved April 23, 2017, from https://www.forbes.com/sites/spleverage/2017/04/06/1q-borrowing-booms-across-leveraged-loan-hy-hg-markets-ma-pro-rata underwhelm/#553d67132be8*
3. *LCD's Leveraged Buyout Review – 4Q16*
4. *Preqin Dry powder by Geography (Preqin Website) Dry powder includes Buyout, Distressed PE, Growth, Mezzanine, Other, Real Estate and Venture Strategies.*
5. *Preqin Q4 2016 Private Equity Fundraising*
6. *Preqin Q4 2016 Private Equity-Backed Buyout Deals and Exits Factsheet*
7. *PitchBook's 2016 Annual US Breakdown*
8. *PitchBook's Venture Capital Valuations + Trends Data Sheet (2H 2016)*
9. *PitchBook's Venture Capital Liquidity Data Sheet (2H 2016)*
10. *Ex US Multiples were estimated utilizing a number of sources including Preqin Q4 2016 Private Equity-Backed Buyout Deals and Exits Factsheet, LCD's Leveraged Buyout Review (2H 2016), Pitchbook 2016 4Q M&A Report and Europe Leverage Lending Review.*
11. *LCD European Leveraged Buyout Review (2H 2016)*
12. *European Leveraged Lending Review (2H 2016)*
13. *PitchBook's 2016 Global PE Exits & Company Inventory Report*
14. *Preqin Investor Outlook: Alternative Assets, 2H 2016 Data Pack*

Investment Type	Policy Target	Policy Range	Market Value %	Market Value $(000)	Unfunded Commitment $(000)	Market Value + Unfunded $(000)
SamCERA - Total Plan			**100.0%**	**3,693,904**		
Buyout (60% +/- 20%)	4.2%	2.8%-5.6%	4.0%	146,785	69,252	216,037
Venture Capital (20%, 0%-30%)	1.4%	0.0%-2.1%	1.8%	66,542	12,368	78,910
Debt-Related/Special Situations (20% +/- 10%)	1.4%	0.7%-2.1%	0.8%	31,013	51,981	82,994
Total Private Equity	**7.0%**	**6%-10%**	**6.6%**	**244,340**	**133,601**	**377,941**

Portfolio Summary

— As of December 31, 2016, the Private Equity Portfolio had a total market value of $244.3 million, with $146.8 million in Buyout, $66.5 million in Venture Capital, and $31.0 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 $220.6 million toward its Private Equity commitments. Unfunded commitments total $133.6 million.

— All sub-asset classes are within the policy range while commitments continue to be made to new managers at a slower pace.

Portfolio Activity

— SamCERA committed $7.0 million to ABRY Senior Equity V and $20.0 million to Great Hill Equity Partners VI in the first quarter of 2017.

Performance

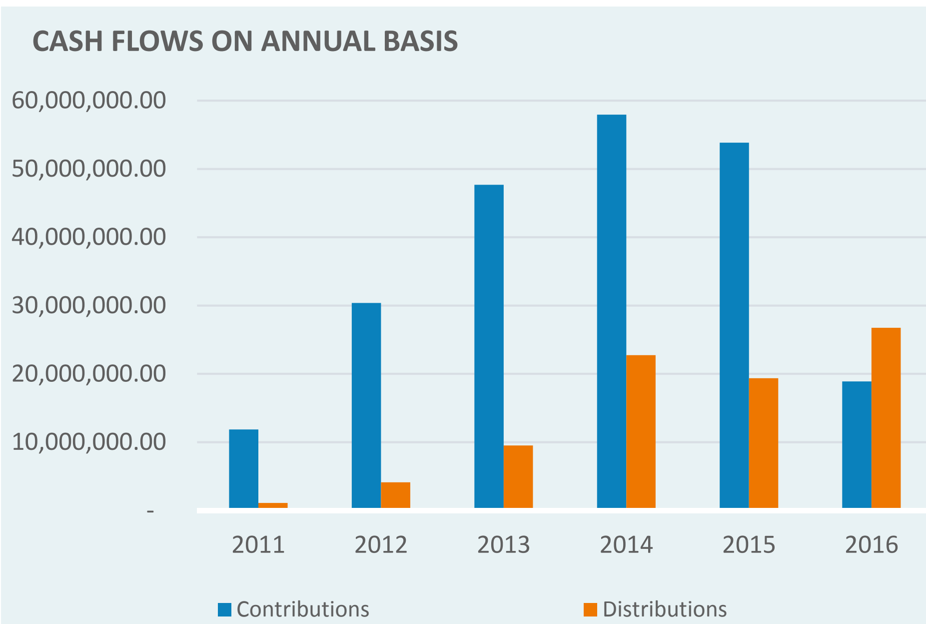
— The Private Equity portfolio's performance, as measured by net IRR, is 19.29%. Capital weighted average investment age of the portfolio is 2.64 years.

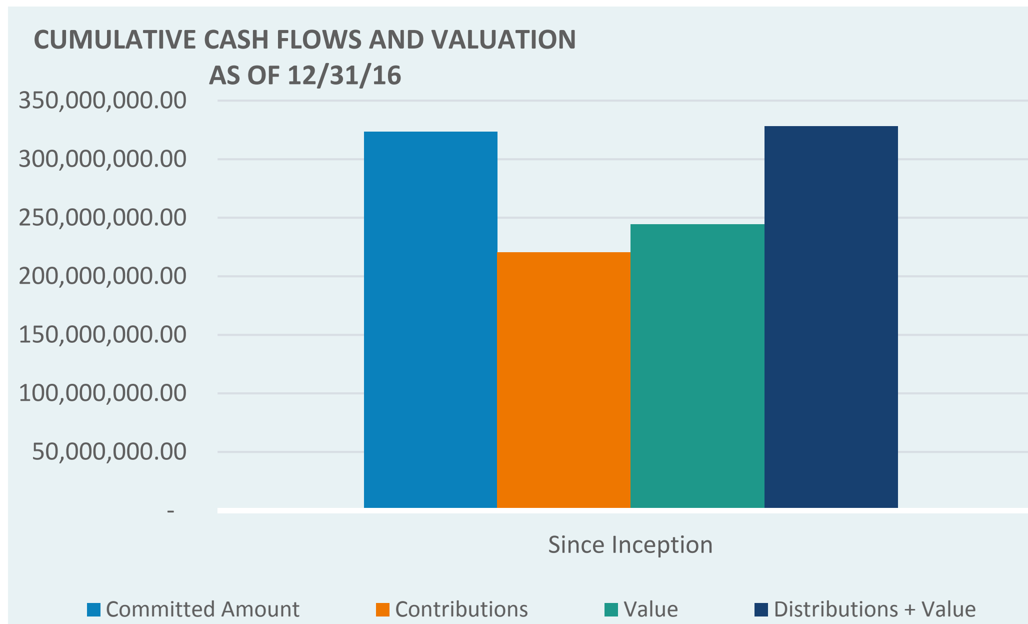
— The portfolio is currently valued at $244.3 million. Together with $83.6 million in realized distributions, the Total Value at $327.9 million is approximately $107.3 million above $220.6 million total capital contributions, resulting in a total value multiple of 1.49x and a distribution multiple of 0.38x.

— Attribution of returns:

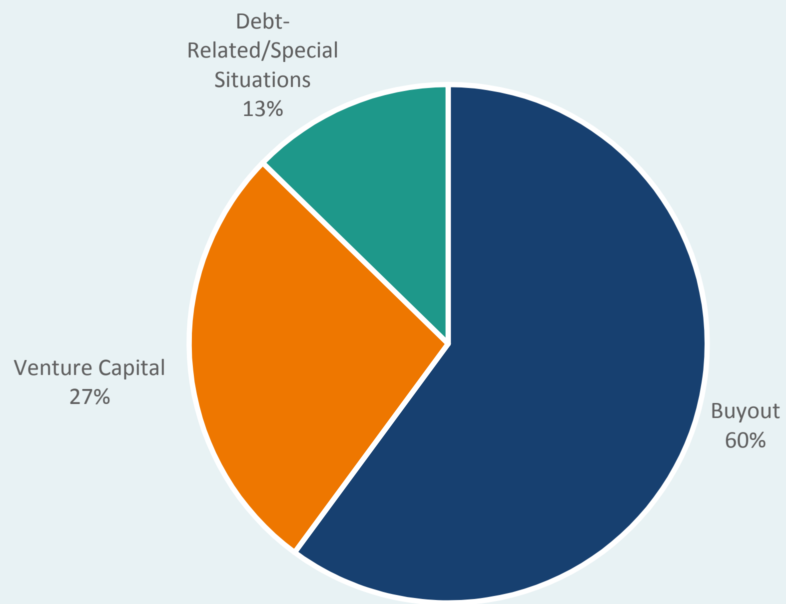
- Buyouts up $61.8 million / +46.5% versus cost (Sycamore, ABRY VII, and Warburg Pincus XI leading), with 36.1% of Total Value of portfolio distributed;
- Venture Capital up $29.9 million / +71.8% versus cost (General Catalyst VI, Emergence Capital III, Third Rock III, and NEA 14 leading), with 12.2% of Total Value of portfolio distributed; and
- Debt-related/Special Situations up $15.6 million / +34.0% versus cost (Catalyst Fund Limited Partners V and ABRY Advanced Securities II leading), with 66.4% of Total Value of portfolio distributed.

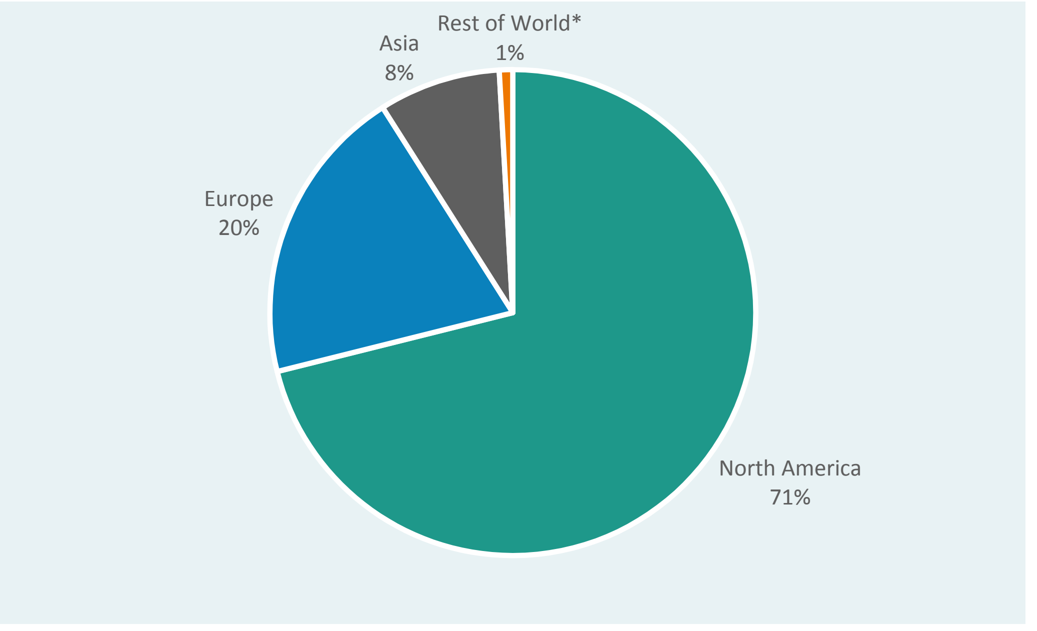
— Within Private Equity, the current allocation of invested capital is 60.1% to Buyout, 27.2% to Venture Capital, and 12.7% to Debt-Related/Special Situations.





PRIVATE EQUITY PORTFOLIO: CURRENT EXPOSURE



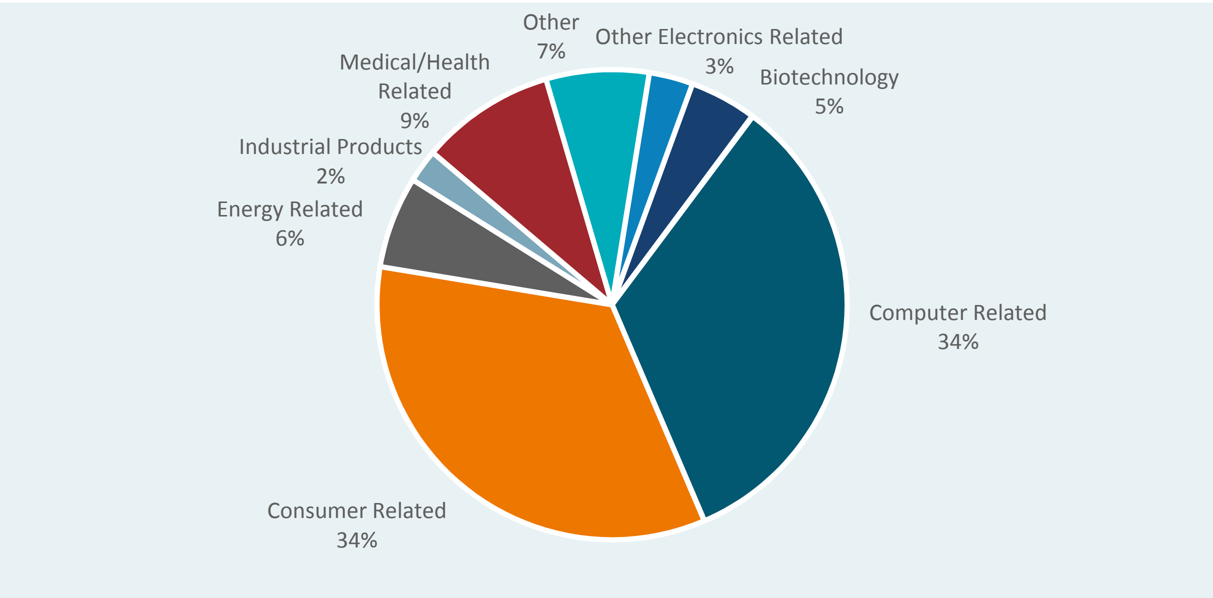


** Rest of World includes Kenya, United Arab Emirates, and Brazil.*

Based on the value of portfolio companies as of December 31, 2016, 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.

Portfolio Diversification

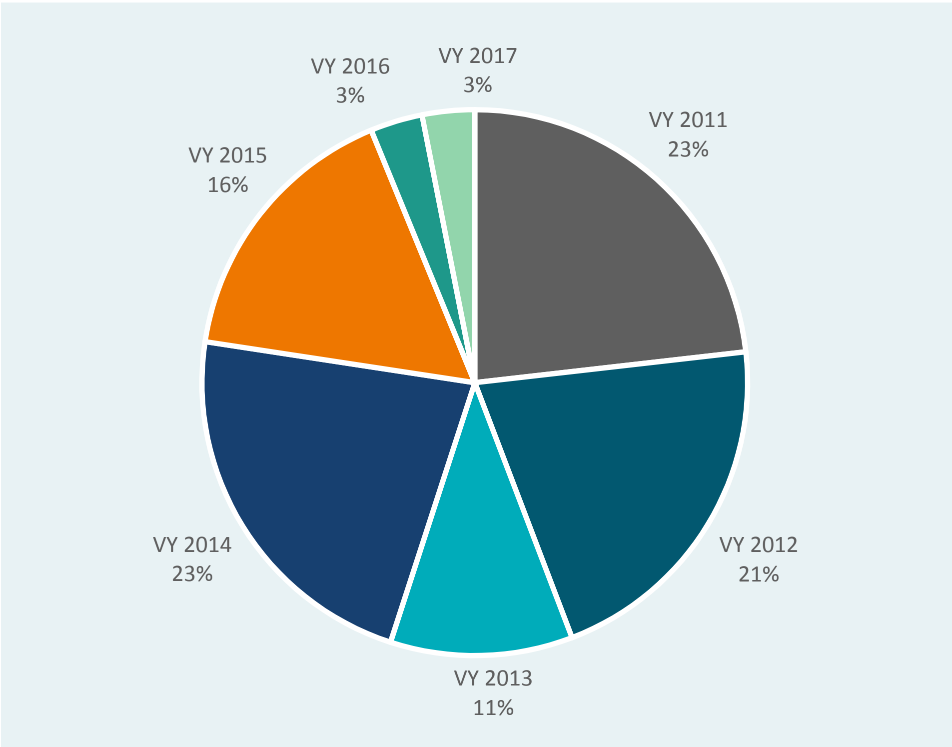
Period Ending: December 31, 2016



*** Please note the industry names have been reclassified to Burgiss' standard, which uses Thomson Reuters' Venture Economic Industry Codes.**

As of the date of this report, the industry's exposures are preliminary as the data need to be remapped appropriately.

Based on the value of portfolio companies as of December 31, 2016, 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.


VY 2016
3%
VY 2017
3%
VY 2011
23%
VY 2015
16%
VY 2014
23%
VY 2012
21%
VY 2013
11%

— **As of December 31, 2016, the Private Equity Portfolio is slightly below the lower range of its target allocation, with exposures within target diversification bands.**

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: DECEMBER 31, 2016

Real Assets Review

San Mateo County Employees’ Retirement Association

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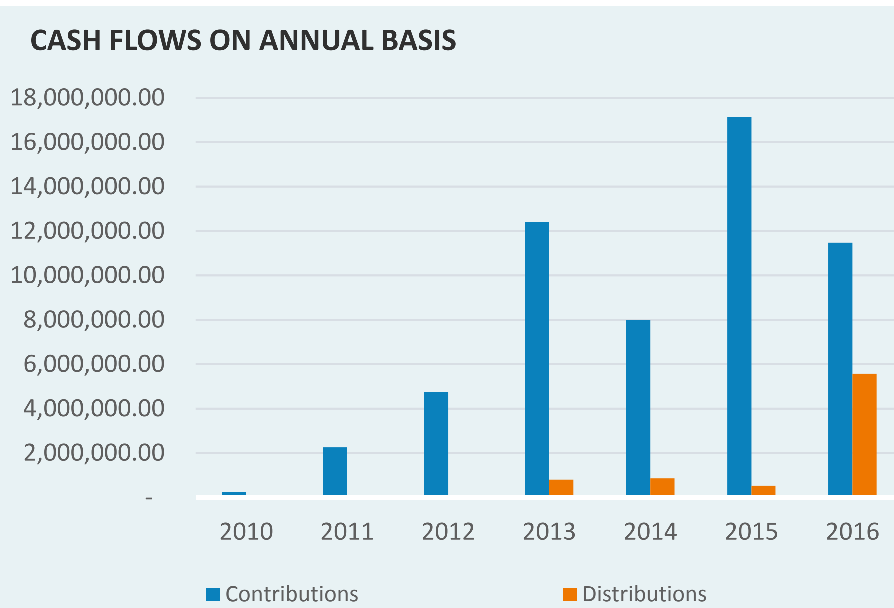
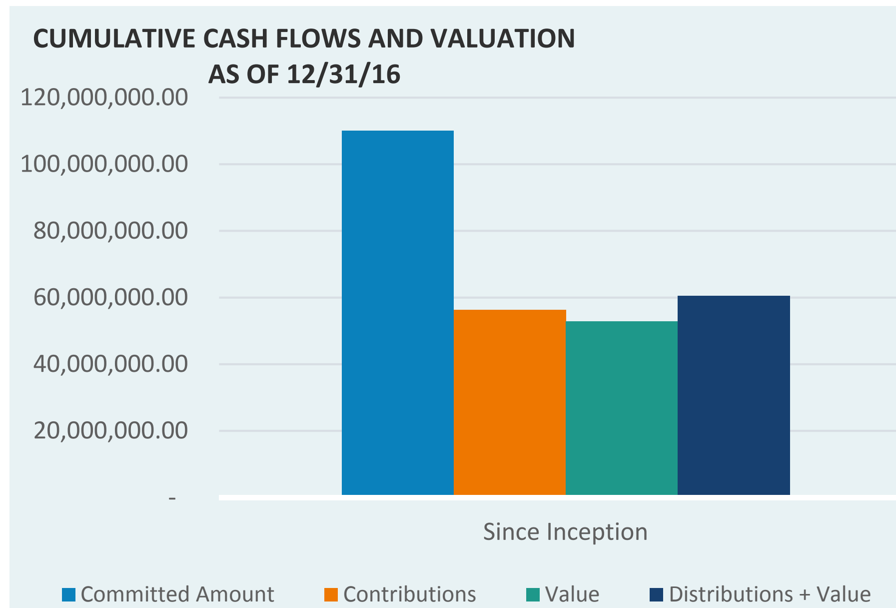
Performance

- The portfolio is currently valued at $52.8 million. Together with $7.7 million in realized distributions, the Total Value at $60.5 million is approximately $4.3 million above $56.2 million total capital contributions, resulting in a total value multiple of 1.08x and a net IRR of 3.59%. Capital weighted average investment age of the portfolio is 2.27 years.

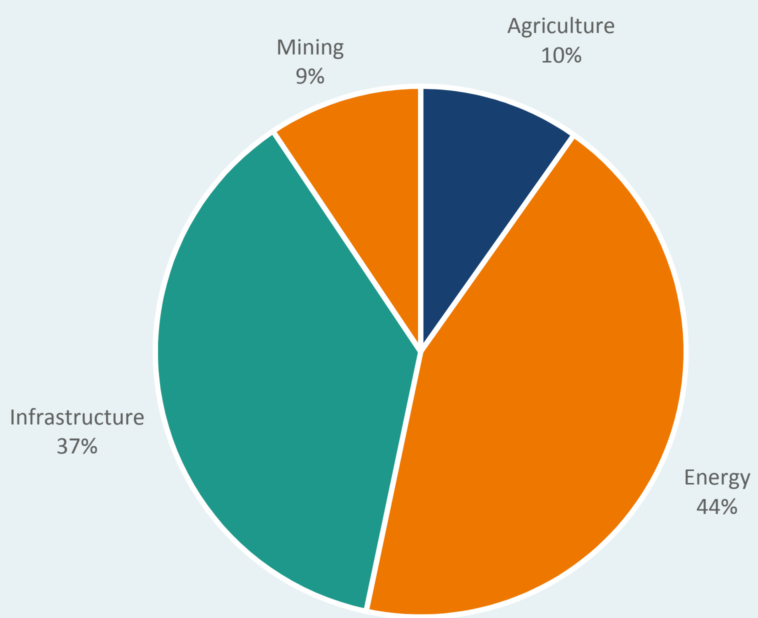
- SamCERA funded a liquid real asset pool in 2016 that seeks to proxy many of the risk exposures targeted in private real assets. SSgA is managing the pool in a mix of passive exposures to infrastructure, natural resource equities and commodities.

- Within Private Real Assets, the current allocation of invested capital is 9.8% to Agriculture, 43.5% to Energy, 37.3% to Infrastructure, and 9.4% to Mining. This allocation includes the $10.0 million commitment to Taurus Mining Finance Annex Fund in September 2016.



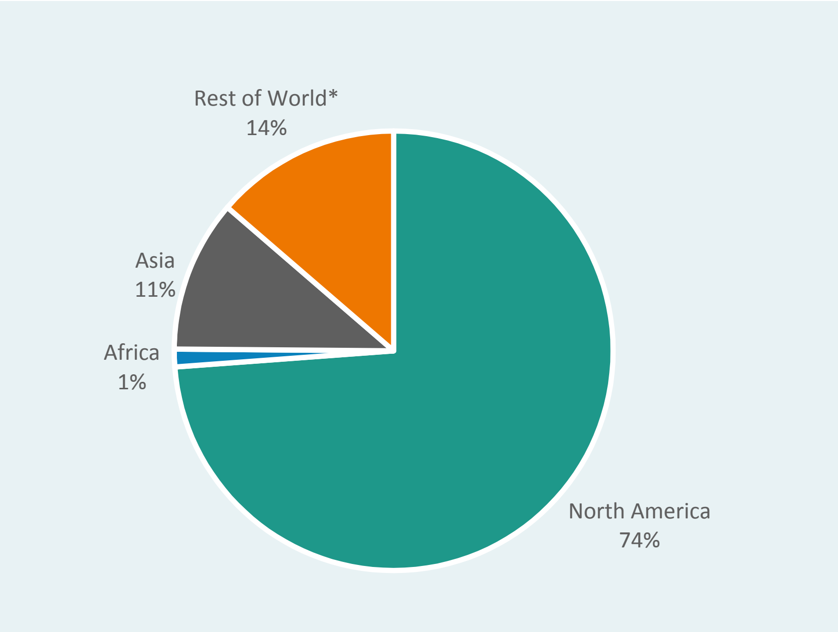


PRIVATE EQUITY PORTFOLIO: CURRENT EXPOSURE



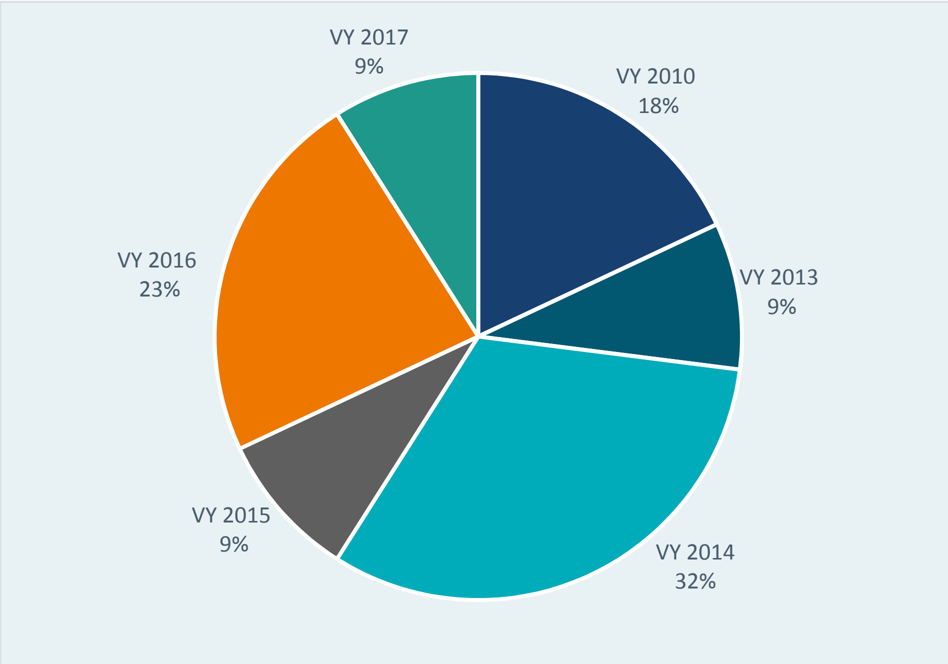
Portfolio Diversification

Period Ending: December 31, 2016



- *Rest of World includes Chile and Australia.*

Based on invested capital as of December 31, 2016, if provided by the partnerships. The portfolio is expected to be US-biased given the mandate to hedge domestic inflation.


VY 2017
9%
VY 2010
18%
VY 2016
23%
VY 2013
9%
VY 2015
9%
VY 2014
32%

Funds Screened in 2016

Energy	Mining	Infrastructure	Power/Midstream	Timber/Agriculture	FOF	Real Estate
6 Funds	3 Funds	4 Funds	5 Funds	1 Funds	1 Funds	4 Funds

— SamCERA funded an allocation to SSgA Liquid Real Assets in October of 2016. The portfolio will provide a proxy to the types of risk exposures found in private real assets.

— We completed a re-up with Taurus Mining Finance in the second half of 2016. The Annex Fund has already begun generating positive value due to a write-up on a royalty stream attached to the Fund's first investment.

— We anticipate funding an energy fund in 2017. Infrastructure remains an area we are keenly interested in finding an attractive opportunity.

San Mateo County Employees' Retirement Association
Board of Retirement

June 6, 2017 Agenda Item 6.7

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Approval of International Equity Manager Structure

Staff Recommendation

Approve the proposed International Equity manager structure.

Background

The international equity manager structure was last reviewed 3 ½ years ago in December 2013. At that time, the Board approved changes including converting Baillie Gifford to an ACWI ex US mandate, adding EAFE Index passive exposure, and decreasing Mondrian to lower its manager-specific concentration risk to the portfolio.

Discussion

In January 2017, the domestic equity manager structure was reviewed as part of the implementation plan for the new asset allocation policy that the Board approved in October 2016. As part of the on-going implementation of the new asset allocation policy, the international equity manager structure is now being reviewed. The table below shows the current international equity manager structure (and corresponding manager fees) and the proposed manager structure.

The proposed changes to the manager structure include removing the dedicated international small-cap allocation and repositioning the proceeds so that the allocation across Ballie Gifford, Mondrian, and Blackrock EAFE Index are similar. These proposed changes simplify the manager structure by reducing the number of managers from five to four and reduce the weighted manager fees by 8 basis points for the international equity portfolio (from an estimated 0.376 basis points to 0.293 basis points) without dramatically changing the policy risk of the international equity portfolio.

Current International Equity Manager Structure

	Weight	Manager Fee
Baillie Gifford ACWI ex-US Growth	29%	0.44
Mondrian ACWI ex-US Value	29%	0.38
Blackrock EAFE Index	21%	0.05
Parametric Emerging Core	11%	0.30
FIAM International Small-Cap	11%	0.90
Total:	100%	0.376

Proposed International Equity Manager Structure

	Weight	Manager Fee
Baillie Gifford ACWI ex-US Growth	30%	0.44
Mondrian ACWI ex-US Value	30%	0.38
Blackrock EAFE Index	30%	0.05
Parametric Emerging Core	11%	0.30
FIAM International Small-Cap	0%	0.00
Total:	100%	0.293

Attachment

International Equity Manager Structure Presentation

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

JUNE 2017

International Structure

SamCERA

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Risk Budgeting

Guiding Principles

— Implementation of the asset allocation target.

— **Risk management** implementation:

- Identify and quantify risks in the asset class and its implementation.

— At the asset class level, implementation risk is best measured in terms of tracking error to the asset class benchmark and can be decomposed into multiple sources.

— Allocate assets based on risks (risk budgeting).

Expected Results from Process

— Improved probability of consistently adding value.

— Improve clarity and understanding of manager roles and contributions.

— Minimized risk of underperforming (or outperforming) due to unintended risks.

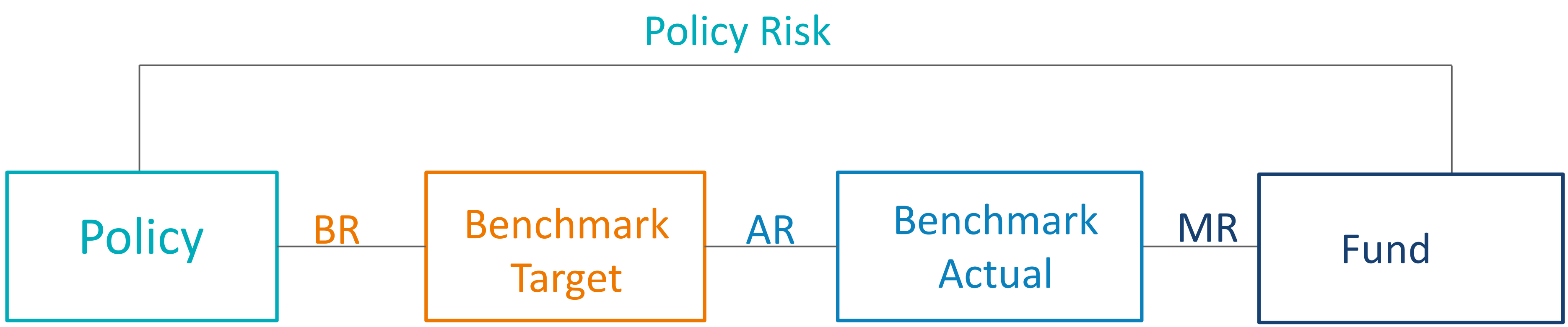
  - Removal of unintended and uncompensated risk.

Concepts – Portfolio Definitions

- **Policy:** as defined by the asset allocation target.
- **Benchmark Target:** mandate benchmarks at target weights.
- **Benchmark Actual:** mandate benchmarks at actual weights.
- **Fund:** manager exposures.

Concepts – Risk Definitions

- **Policy Risk (PR):** Fund tracking error to Policy.
- **Benchmark Risk (BR):** Benchmark Target tracking error to Policy.
- **Allocation Risk (AR):** Benchmark Actual tracking error to Benchmark Target.
- **Manager Risk (MR):** Fund tracking error to Benchmark Actual.



Considerations

— Consider a number of factors which can affect risk:

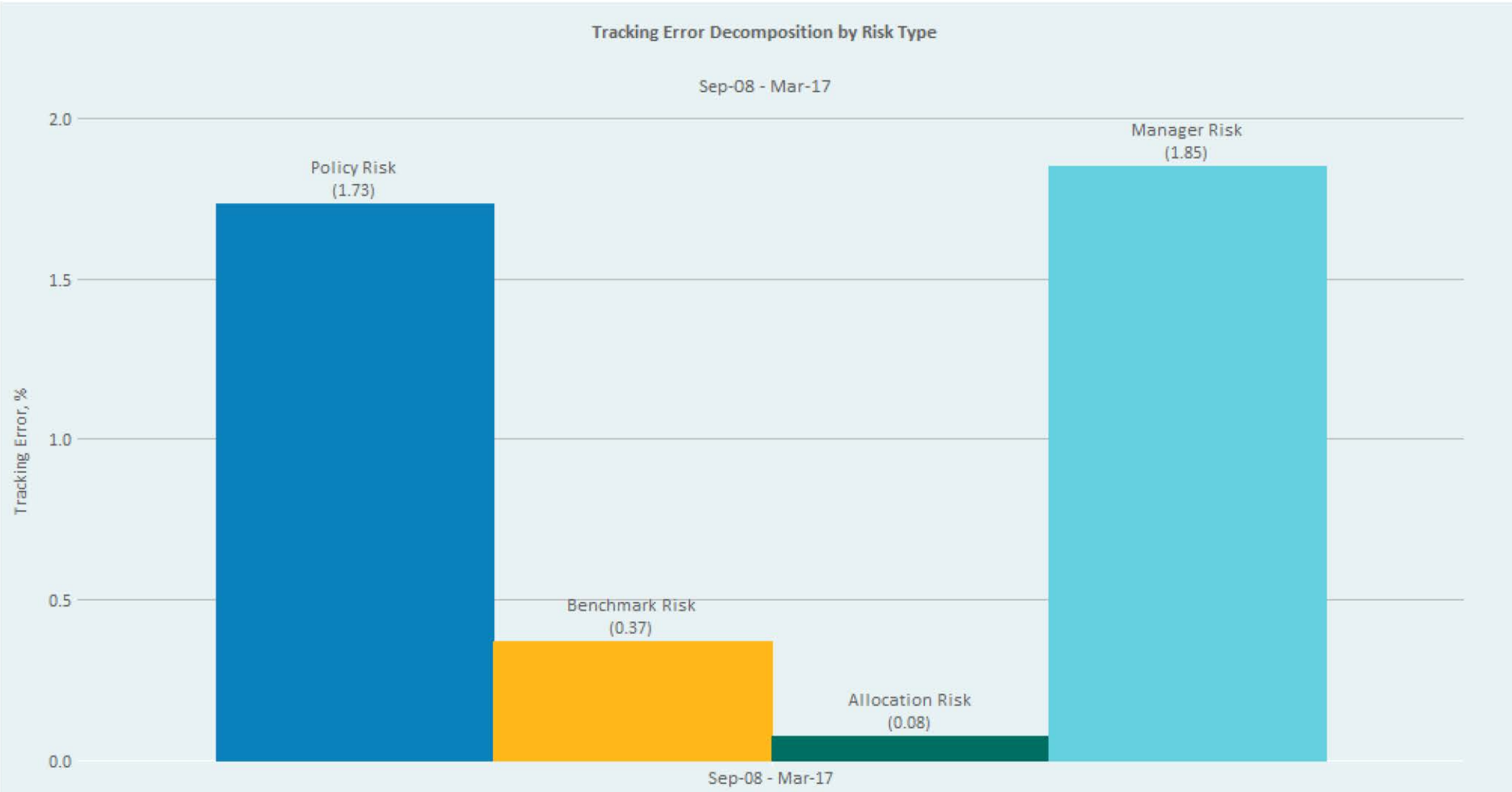
- **Active/Passive allocation**
  — Is passive or active management a better alternative to gain exposure?
- **Policy Risk**
  — How does the tracking error compare with alternatives and fund objectives?
- **Benchmark Risk**
  — Why?
- **Allocation Risk**
  — Is it based on a tactical allocation?
- **Manager Risk**
  — Is the asset class active risk balanced and diversified across managers and approaches?
- **Factor exposure**
  — Are there unintended factor exposures that need to be corrected?

International Structure

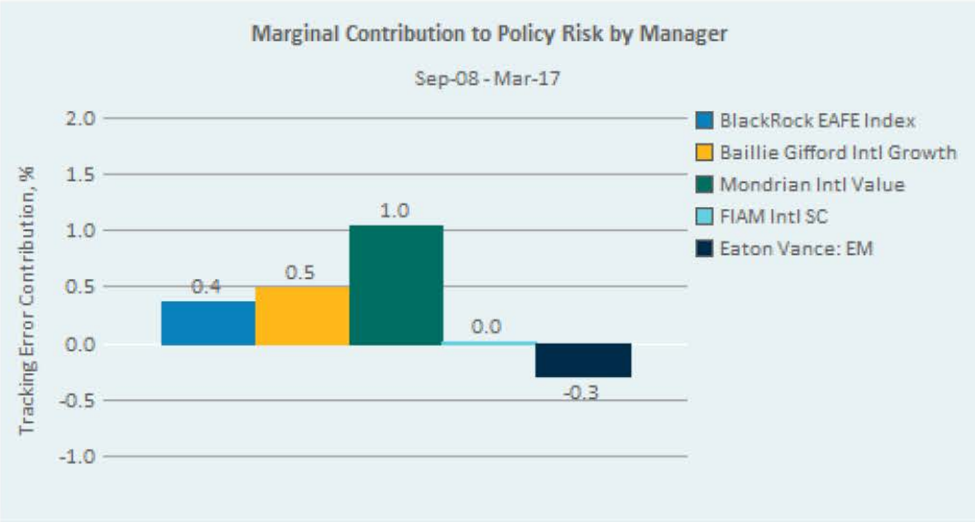
Allocations

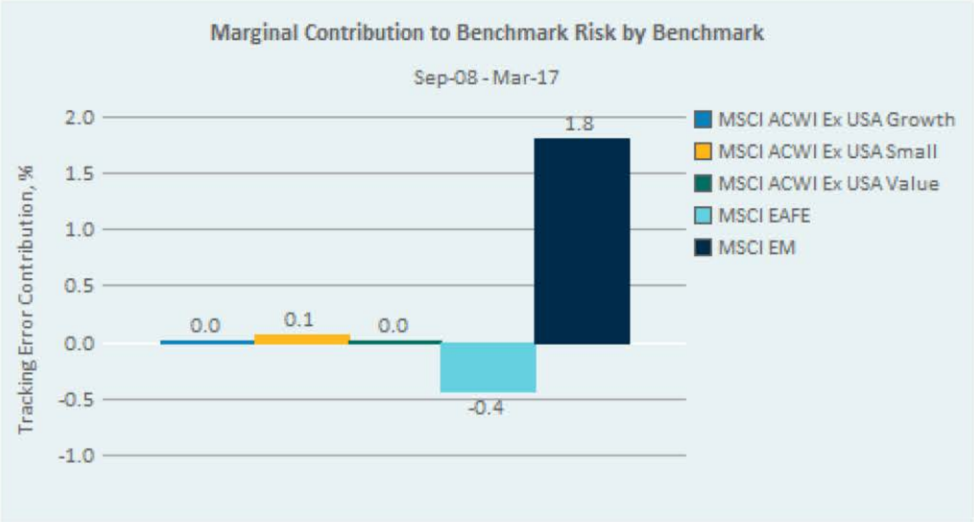
	Policy	Benchmark	Allocation	Fund
MSCI ACWI ex US IMI	100%			
MSCI ACWI ex US Growth		28.9%	29.7%	
MSCI ACWI ex US Value		28.9%	30.3%	
MSCI EAFE		21.1%	19.1%	
MSCI ACWI ex US SC		10.5%	10.1%	
MSCI Emerging Mkts		10.5%	10.8%	
Baillie Gifford				29.7%
BlackRock EAFE				19.1%
Mondrian				30.3%
FIAM				10.1%
Parametric Core				10.8%

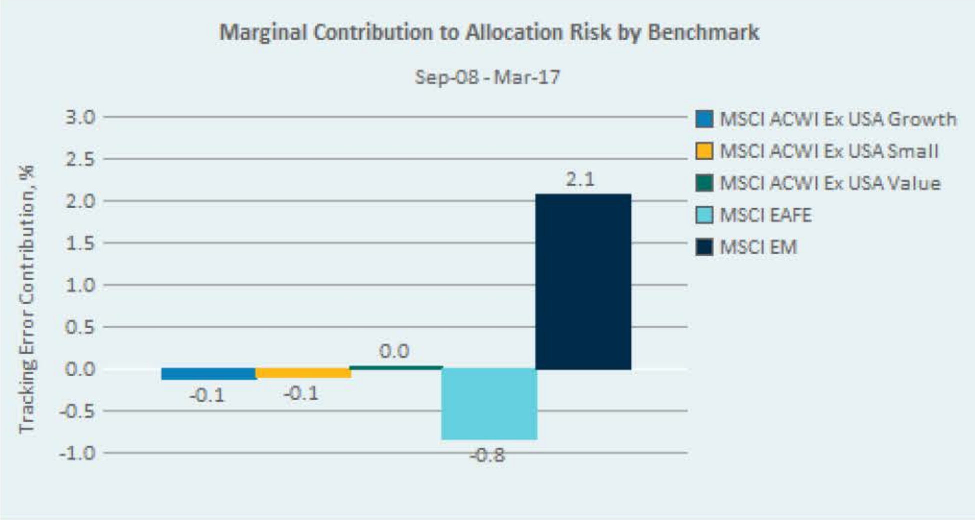
Policy risk levels

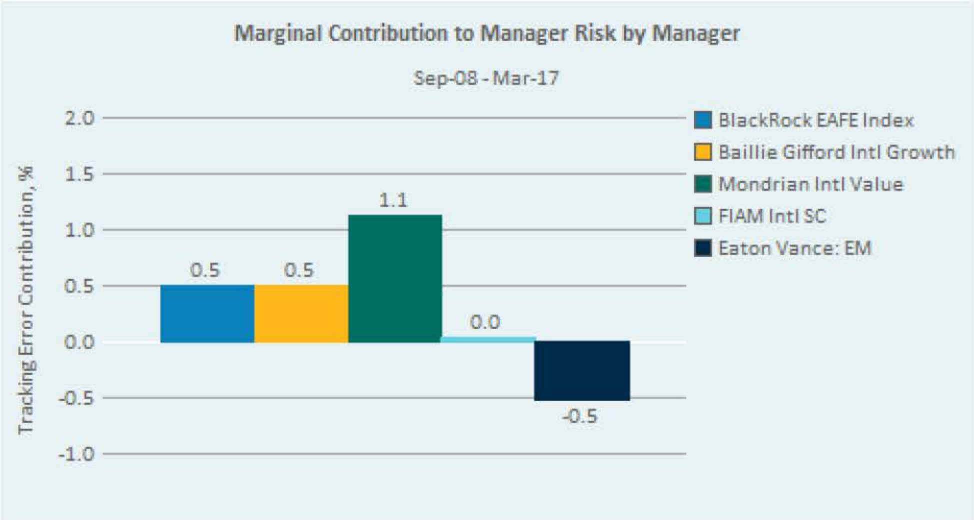


Marginal Contribution

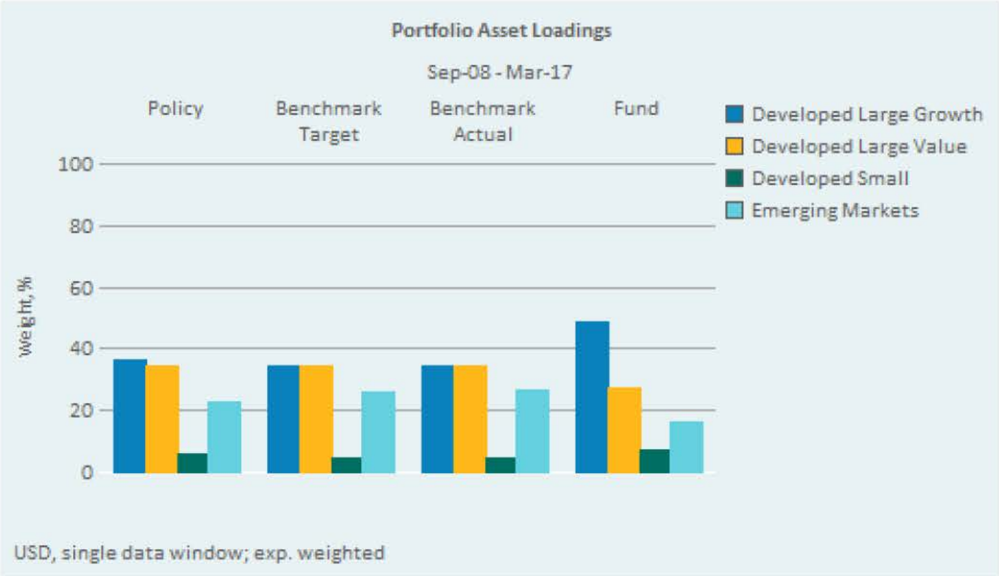


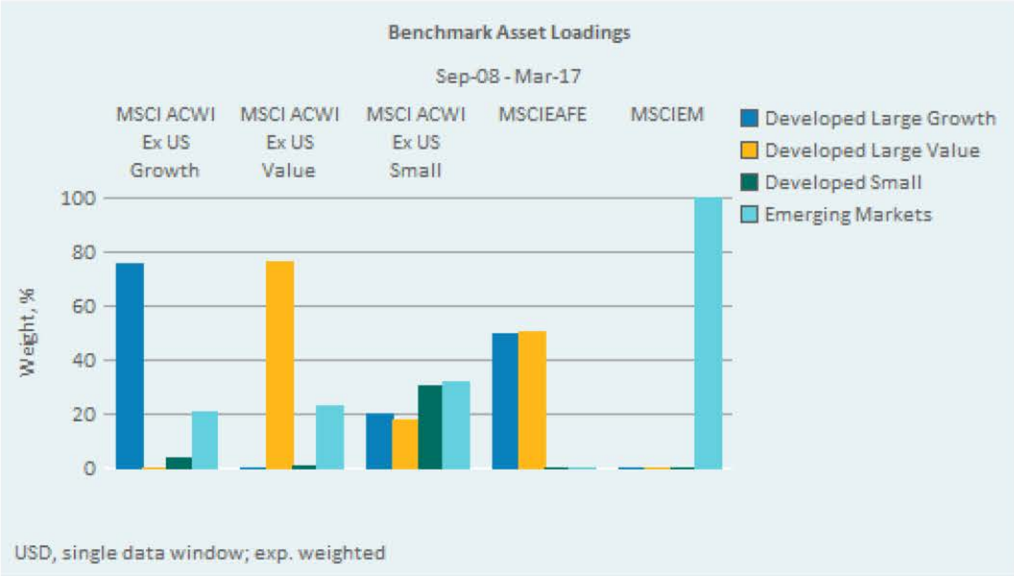


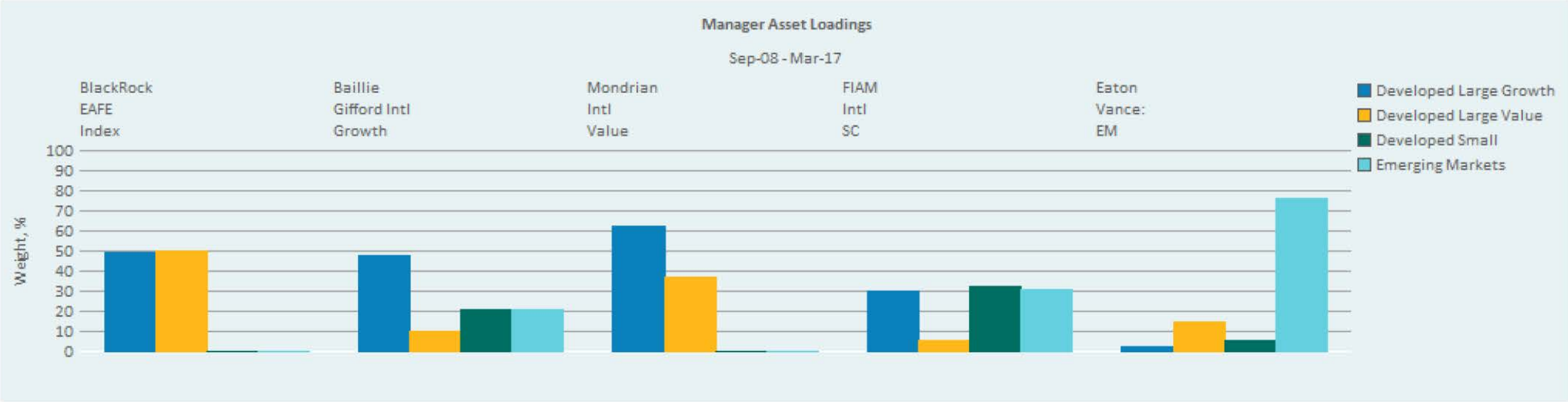




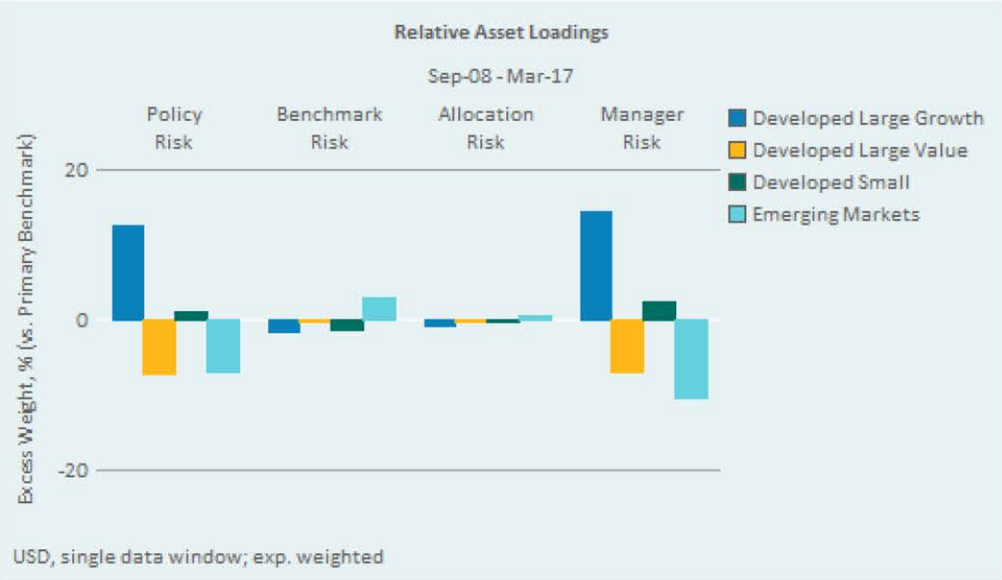
Factor Loadings (absolute)

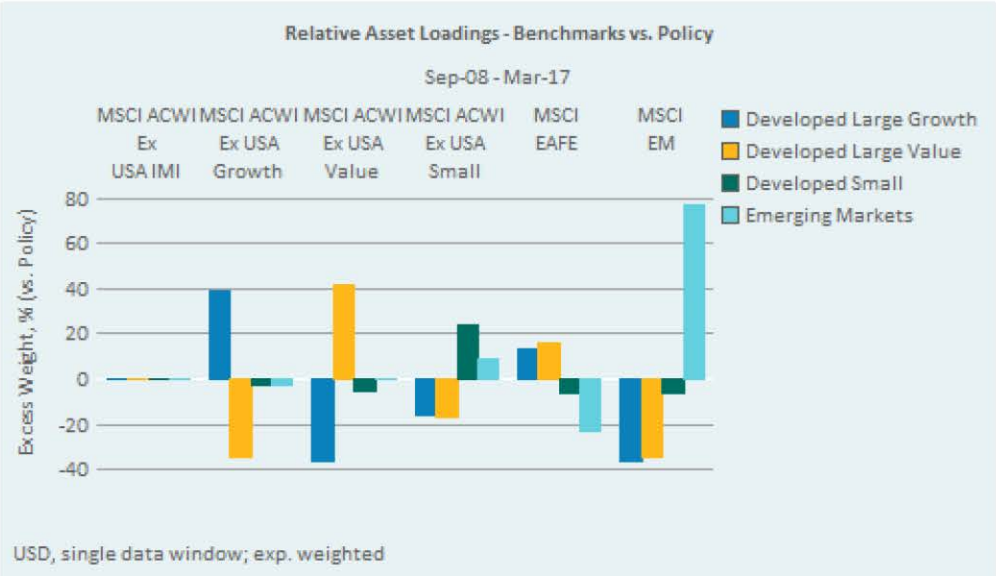


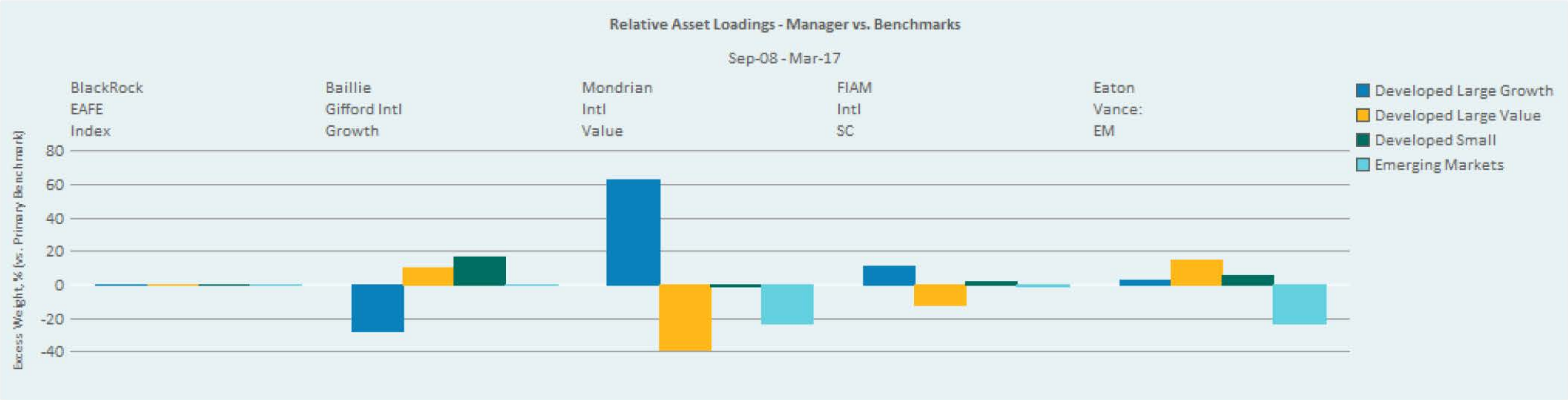




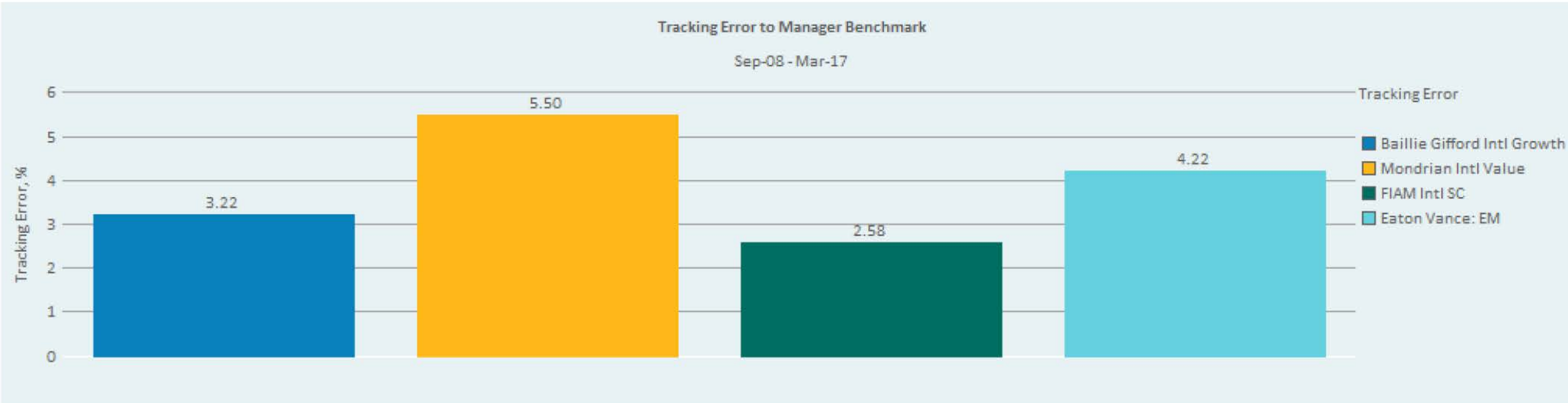
Factor Loadings (relative)







Manager Tracking Errors and Correlations



Excess Returns Correlation	Baillie Gifford Intl Growth	Mondrian Intl Value	FIAM Intl SC	Parametric Emerging
Baillie Gifford Intl Growth	1.00	-0.33	-0.13	0.08
Mondrian Intl Value	-0.33	1.00	0.23	0.23
FIAM Intl SC	-0.13	0.23	1.00	-0.15
Parametric Emerging	0.08	0.23	-0.15	1.00

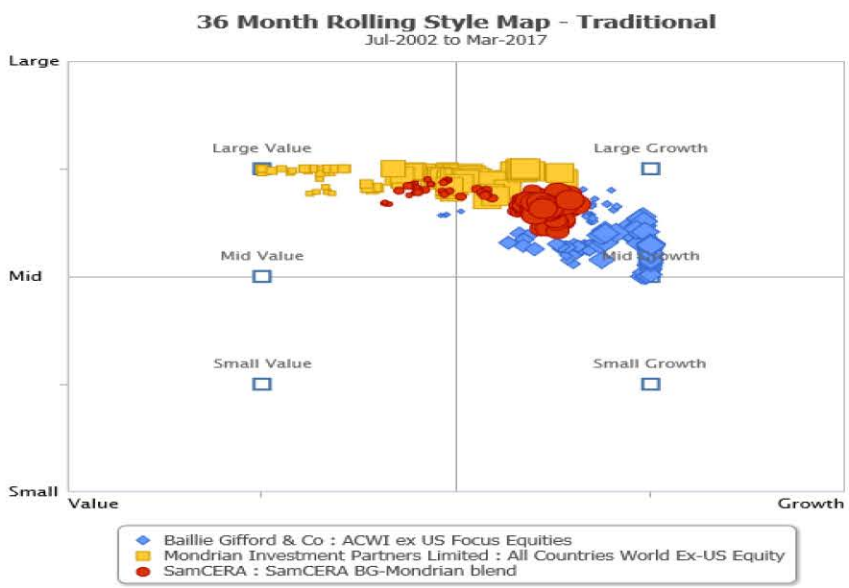
Risk Correlations

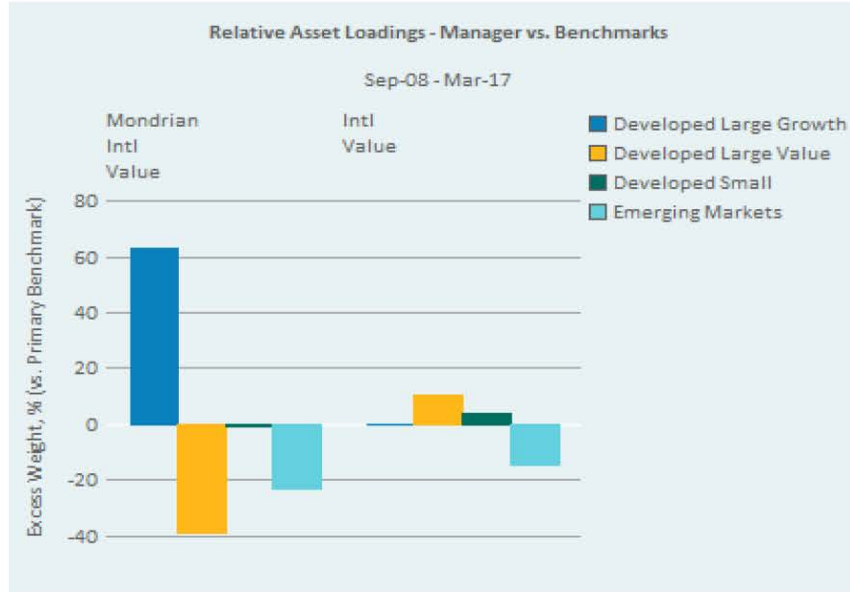
Correlation	Policy Risk	Benchmark Risk	Allocation Risk	Manager Risk
Policy Risk	1.00	-0.10	-0.43	0.97
Benchmark Risk	-0.10	1.00	0.62	-0.32
Allocation Risk	-0.43	0.62	1.00	-0.57
Manager Risk	0.97	-0.32	-0.57	1.00

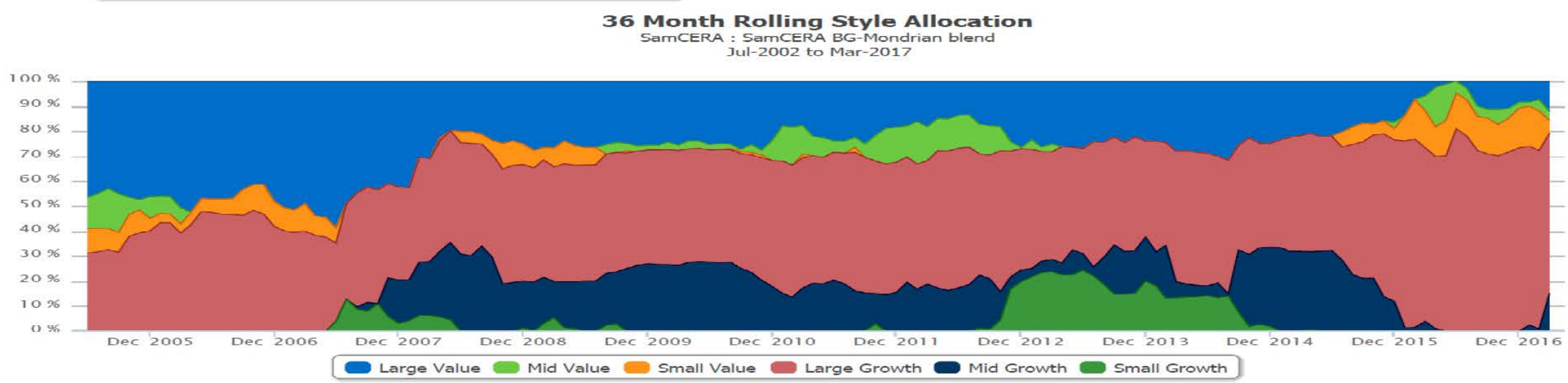
Scenario Analysis

Scenario I- International Developed Review

The current international value manager has been drifting more towards a core/growth strategy in recent quarters.

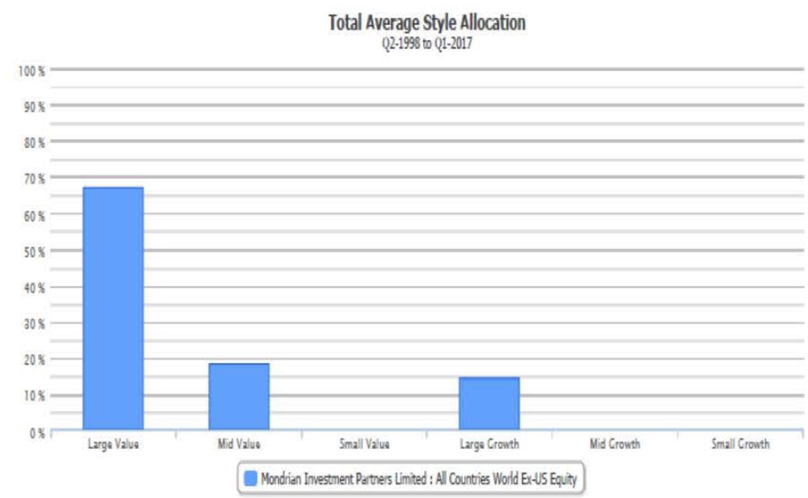


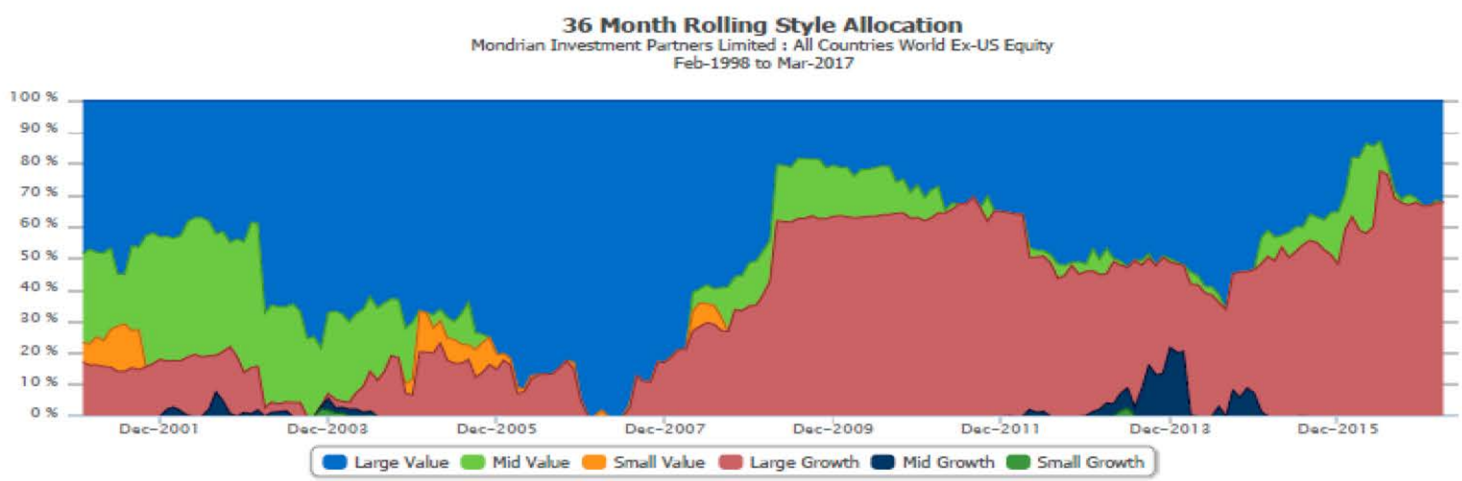




Scenario I- International Developed Review

Long term, Mondrian plots as a value manager.

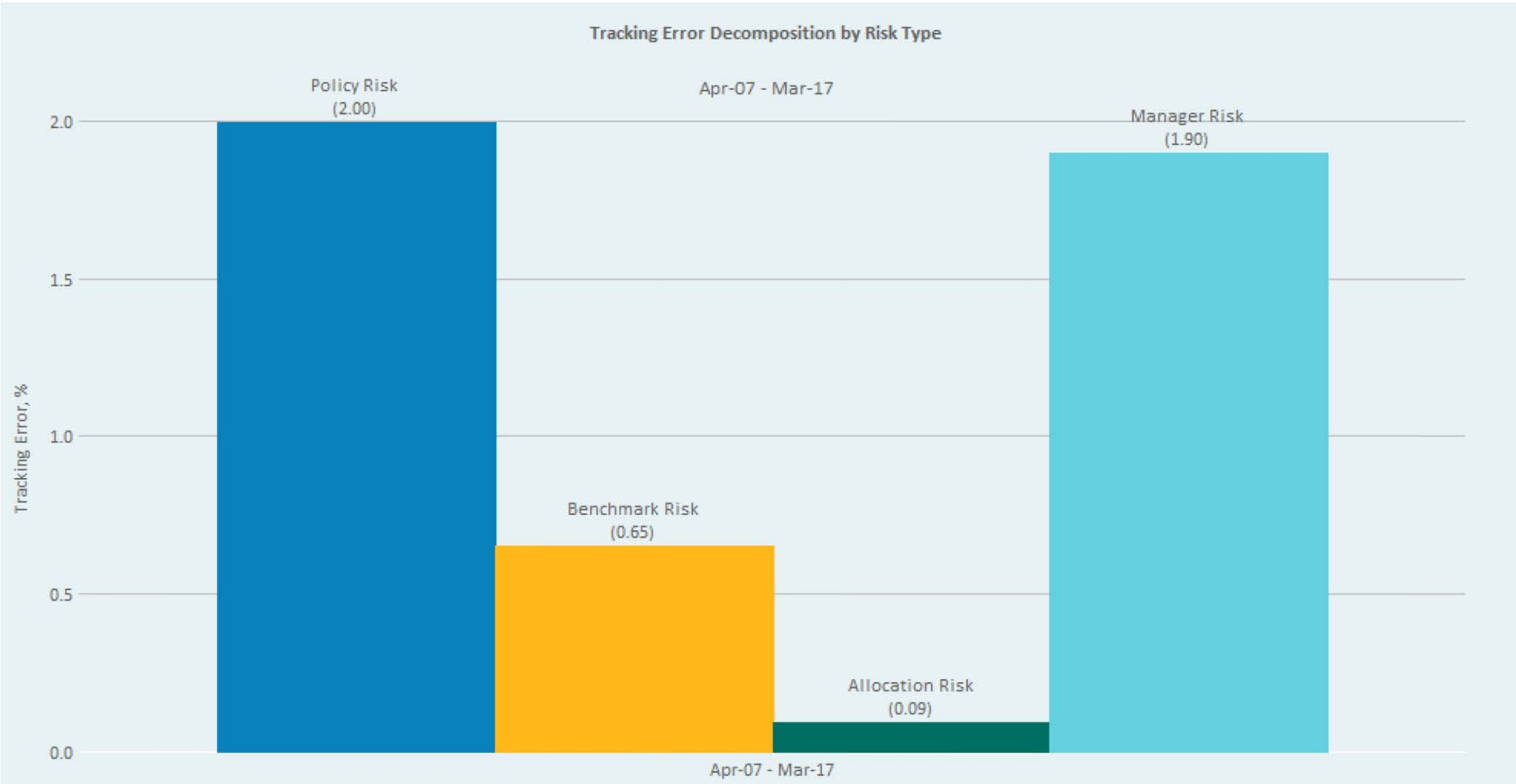




Scenario II: Remove Intl Small Cap Allocation

	Policy	Target	Actual	Fund
MSCI ACWI ex US IMI	100%			
MSCI ACWI ex US Growth		28.9%	29.7%	
MSCI ACWI ex US Value		28.9%	30.3%	
MSCI EAFE		31.6%	29.2%	
MSCI Emerging Mkts		10.5%	10.8%	
Baillie Gifford				29.7%
BlackRock EAFE				29.2%
Mondrian Intl Value				30.3%
Parametric Core				10.8%

Policy Risk Levels



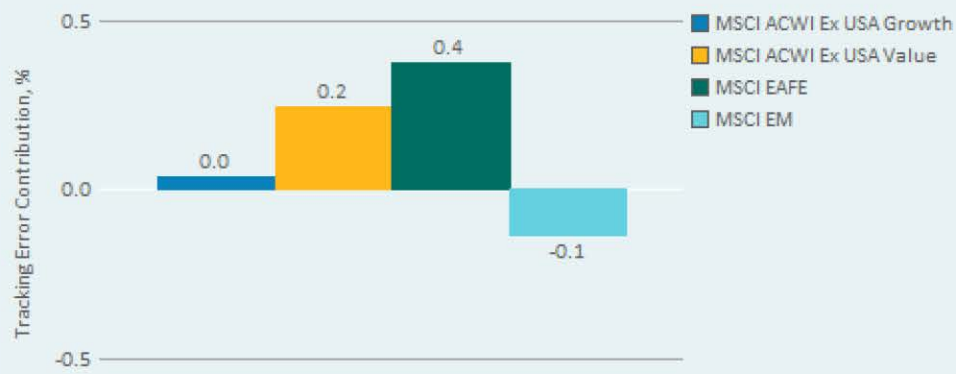
Marginal Contribution

Marginal Contribution to Policy Risk by Manager

Apr-07 - Mar-17

Marginal Contribution to Benchmark Risk by Benchmark

Apr-07 - Mar-17



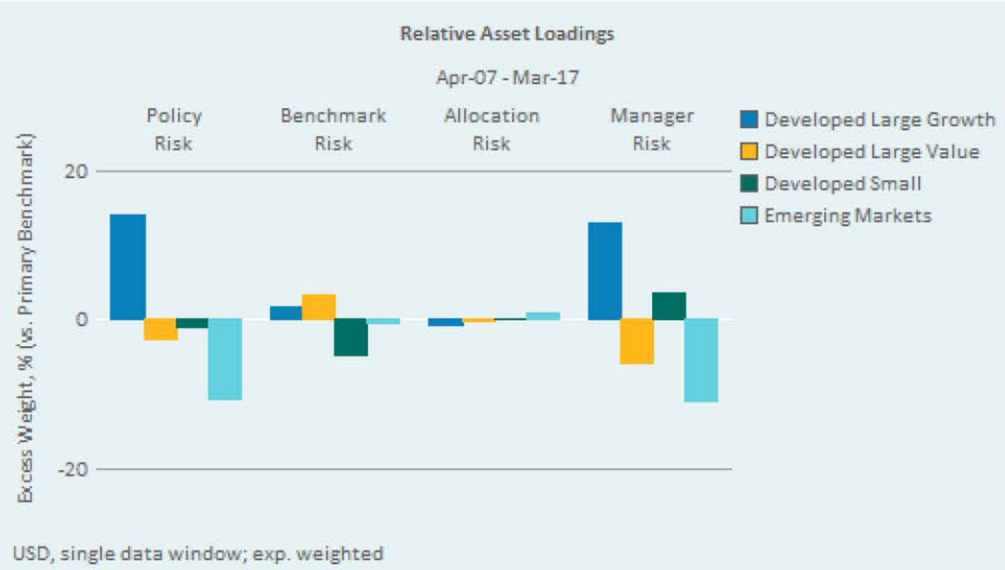
Marginal Contribution to Allocation Risk by Benchmark

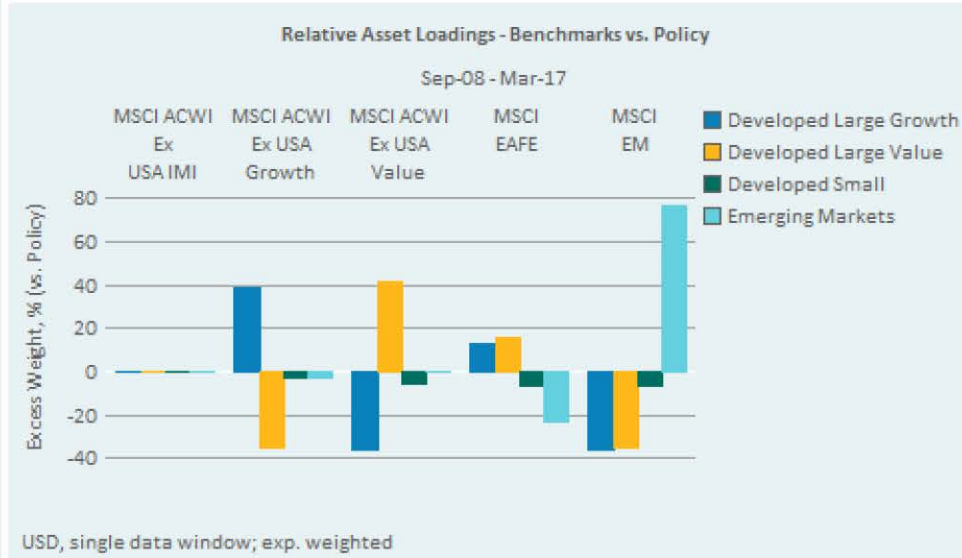
Apr-07 - Mar-17

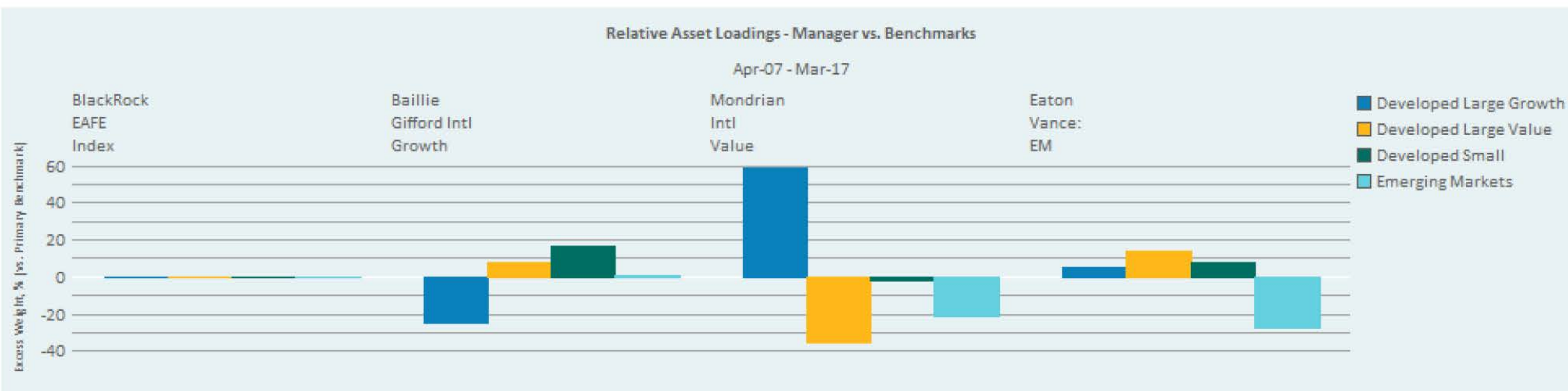
Marginal Contribution to Manager Risk by Manager

Apr-07 - Mar-17

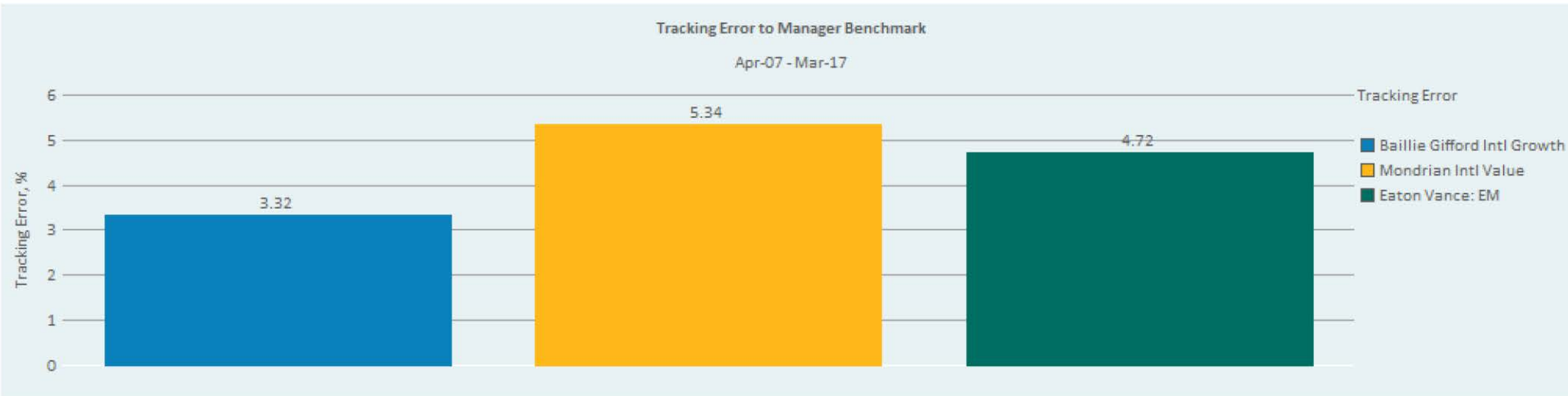
Factor Loadings (relative)







Manager Tracking Errors and Correlations



Excess Returns Correlation	Baillie Gifford Intl Growth	Mondrian Intl Value	Parametric: EM
Baillie Gifford Intl Growth	1.00	-0.26	0.06
Mondrian Intl Value	-0.26	1.00	0.31
Parametric: EM	0.06	0.31	1.00

Conclusion

Current International Structure Conclusions

- **Active/Passive allocation**
  - —International equity can benefit from active management
- **Policy Risk**
  - —Policy Risk is appropriate and in line with other client portfolios
- **Benchmark Risk/Allocation Risk**
  - —Both of these risk factors are minimal in the SamCERA portfolio, which we view as positive
- **Manager Risk**
  - —Manager risk should drive the alpha of the portfolio. Risks should be diversified across managers
  - —FIAM is extremely low risk by design
- **Factor exposure**
  - —Overall the largest factor exposure to the portfolio is growth. This is an unintended exposure, but one that we believe is temporary.

Scenario Analysis Conclusions

- Growth tilt in the international equity structure stemming from the international value portfolio (Mondrian) should be temporary

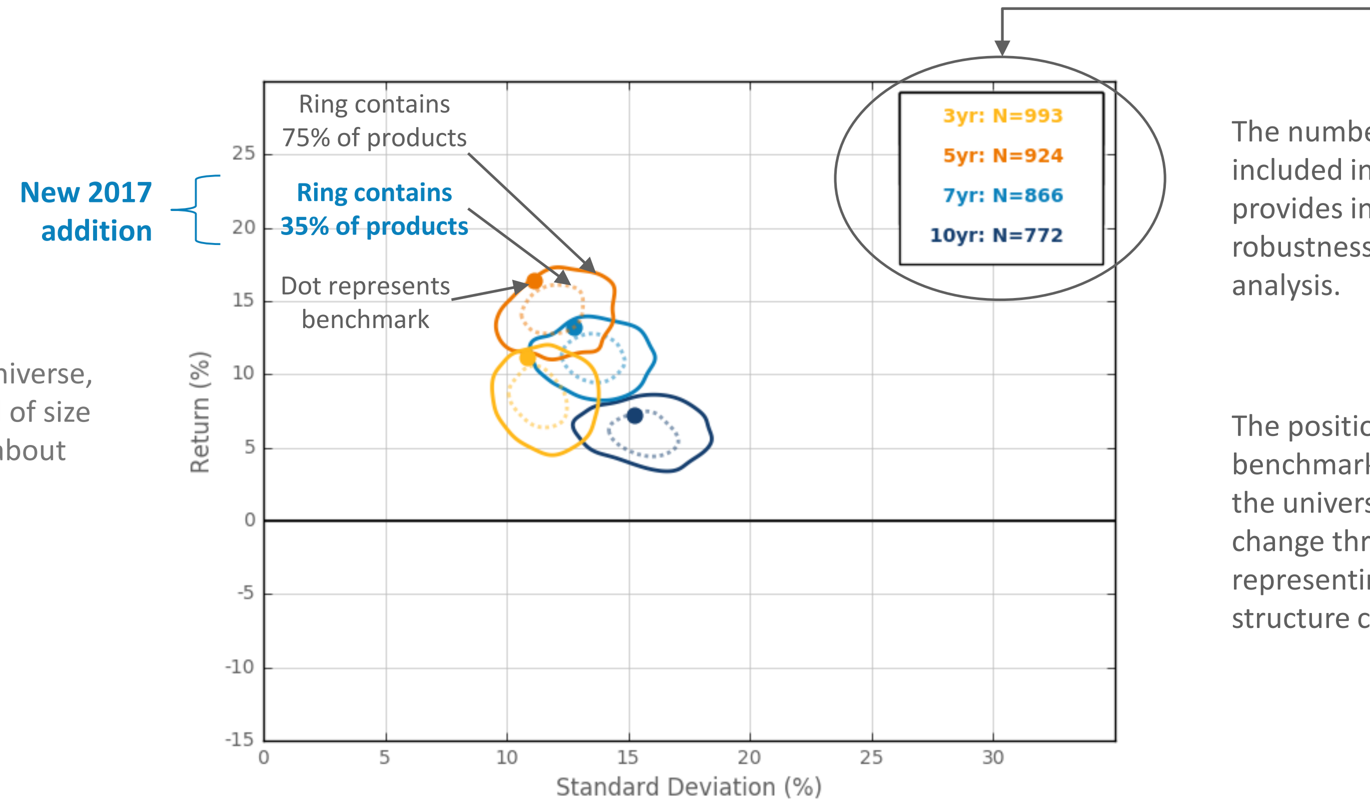
- Elimination of Intl SC (FIAM) marginally increases benchmark risk
  - Total policy risk is still reasonably low
  - Majority of risk still comes from manager risk
  - FIAM has underperformed for SamCERA
  - Holdings based performance reporting shows market cap and portfolio characteristics of composite close to MSCI ACWI ex-US IMI excluding FIAM*

* See pages 33-34 in appendix

Appendix

How to read a universe chart

The movement of the universe, the change in shape and of size all provide information about product behavior.



The number of products included in the analysis provides insight into the robustness of the analysis.

The position of the benchmark relative to the universe may also change through time, representing dynamic structure changes.

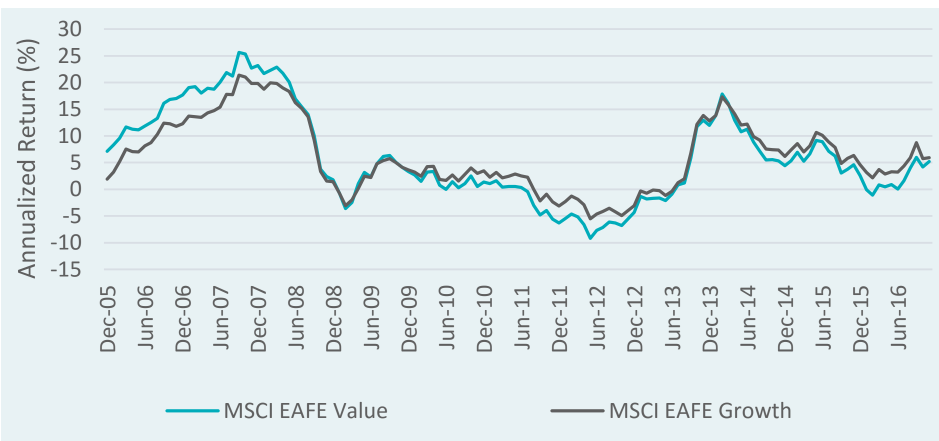
Throughout this report each asset class universe chart is placed at the same position on the page, at the same size and with the scales of the axes identical. This allows for easy comparison between universes.

Equities – International developed

— In the most recent 3 years, active management was as likely to outperform the benchmark as to underperform, and volatility was less than in longer periods. However, international active products struggled to add value in an absolute sense, with a significant portion of the universe delivering negative returns. Also, the most recent 3 years displayed less volatility dispersion than observed over 5-, 7- and 10-year periods. We see a much broader range of volatility during these periods, the longest of which includes the global financial crisis.

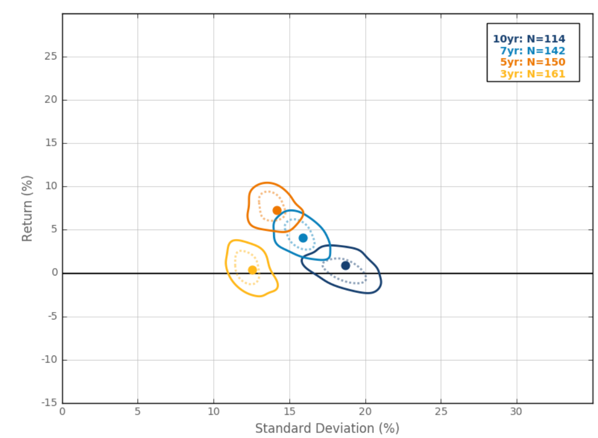
— The value style has been out of favor relative to growth for long periods. More recently, the gap between value and growth has narrowed as value has shown a more recent resurgence in the latest year.

INTERNATIONAL DEVELOPED – VALUE VS. GROWTH



Source: MSCI, as of 11/30/16

INTERNATIONAL LARGE

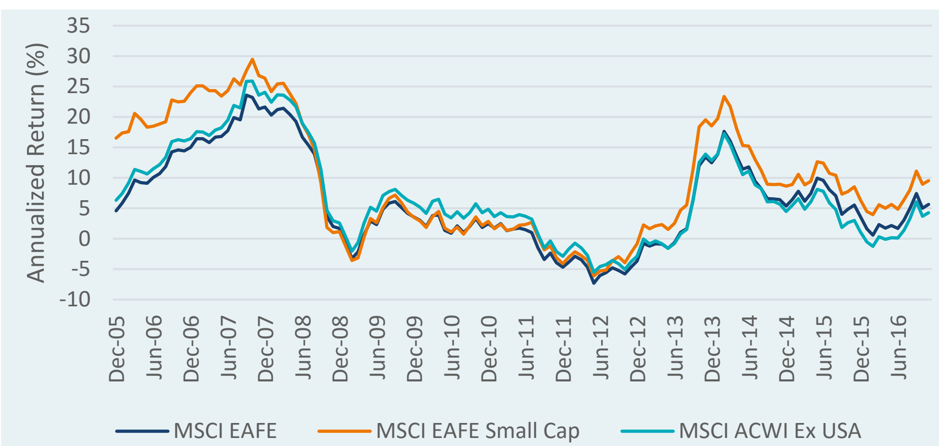


Source: eVestment. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is MSCI EAFE

Equities – International developed small cap

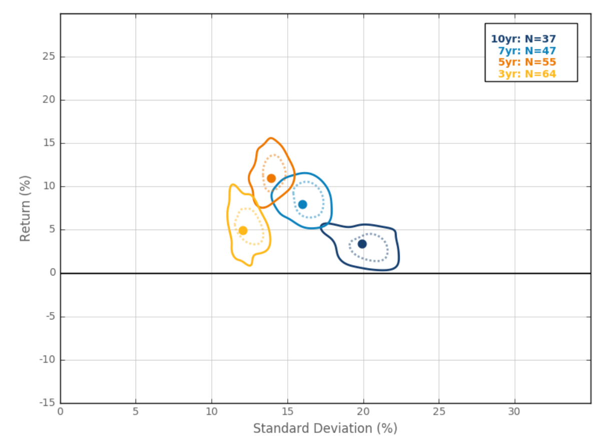
- During most periods, active management in international small cap was as likely to add value over the benchmark as to underperform. As would be expected, during the shortest period the range of performance was wider than in longer periods. During both short and long periods, there appears to be a negligible relationship between return and the level of excess risk taken.
- International Small Cap remains an inefficient space and continues to attract new entrants. The size of the universe of actively managed products has increased considerably over time, although successful products often close, which limits availability for new clients.
- Many active international small cap products allocate a portion of the portfolio to emerging markets, which historically has influenced return. In the recent period, the MSCI EAFE Small Cap index has outperformed MSCI EAFE. However, the MSCI ACWI ex US Small Cap index underperformed both EAFE and EAFE Small Cap during the most recent 5-year period.

INTERNATIONAL SMALL CAP – EAFE & ACWI EX-US



Source: MSCI, as of 11/30/16

INTERNATIONAL SMALL



Source: eVestment. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is MSCI EAFE Small

Equities – Emerging markets

— A major portion of emerging market equity products underperformed the index over the most recent 3-, 5-, 7- and 10-year periods. During the latest 3 years in particular, a large portion of active products exhibited both negative absolute and relative performance. In the 3-, 5- and 7-year periods, products taking less risk than the benchmark were more likely to have outperformed.

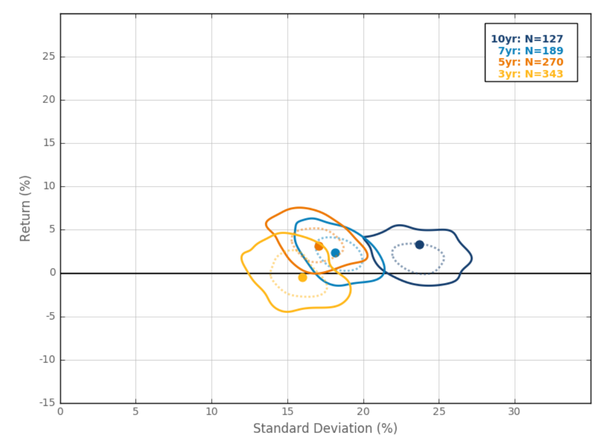
— Performance of active products with significant country bets was influenced by the degree of under- or overweighting of countries exposed to the commodities complex. Latin American and emerging European companies tend to have a greater portion of commodity producers, while Asian markets have a greater portion of commodity consumers. The swings of commodity prices in the recent period had a significant impact on returns. In addition, countries with large current account deficits were more vulnerable to U.S. monetary policy and potential increases in interest rates.

— During the latest ten years, performance of actively managed emerging markets products appears to show a weak but positive relationship between tracking error and excess return. During this period, this relationship has held whether the product has a value or a growth orientation, though growth displayed more outliers. We note that there are fewer value products exhibiting an extremely high level of tracking error that also have a 10-year track record.

TRACKING ERROR & EXCESS RETURN

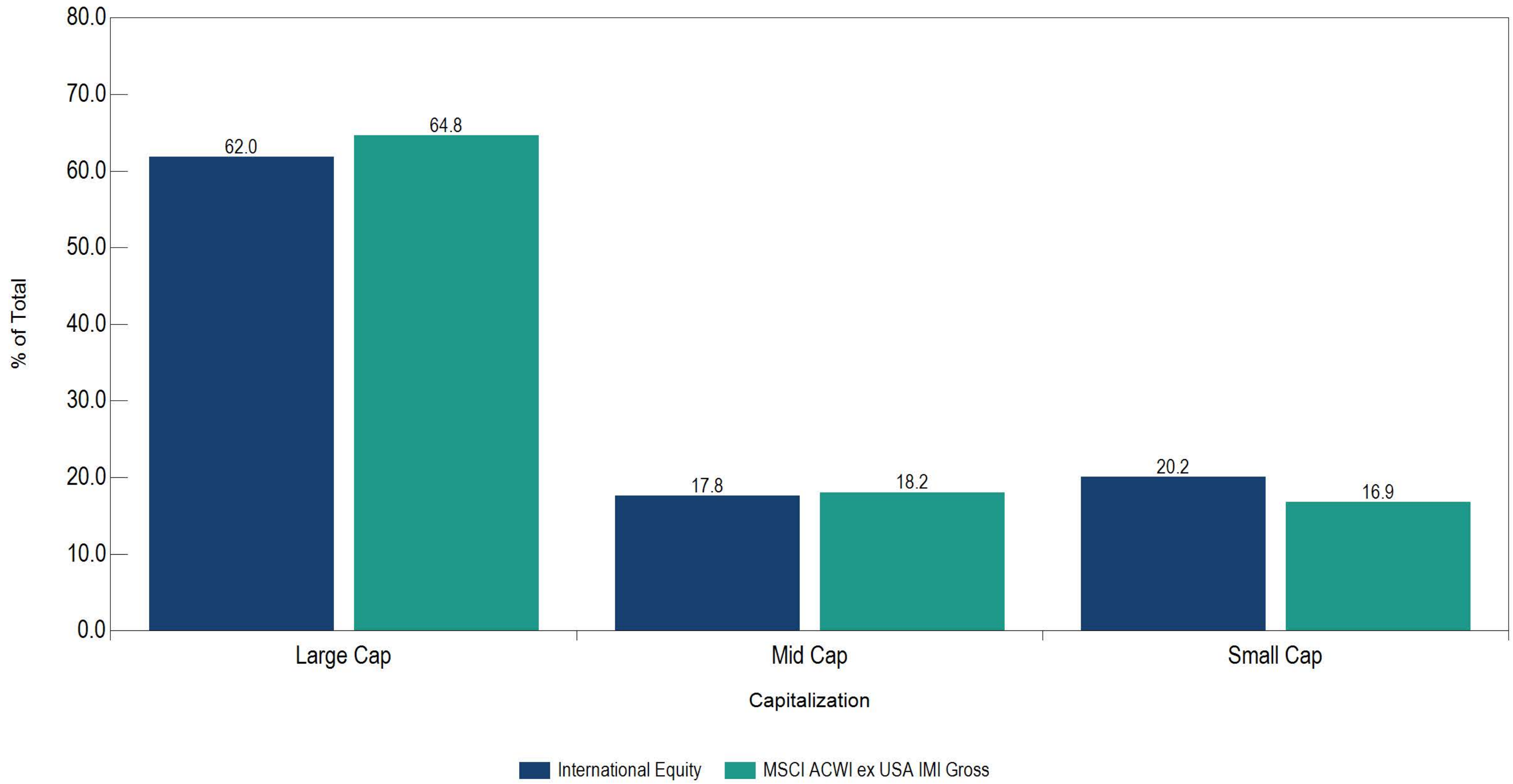
Source: eVestment, Verus

EMERGING MARKETS



Source: eVestment. Universe returns have been adjusted for fees and survivorship bias. Benchmark displayed is MSCI EM

Market Capitalization as of March 31, 2017



Excludes FIAM Equity holdings.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	2,128	6,126
Weighted Avg. Market Cap. ($B)	43.7	46.0
Median Market Cap. ($B)	6.2	1.3
Price To Earnings	23.3	20.7
Price To Book	3.4	2.5
Price To Sales	2.7	2.1
Return on Equity (%)	16.6	13.3
Yield (%)	2.8	2.8
Beta (holdings; global)	1.1	1.0

Top Holdings

BANK RAKYAT INDONESIA	2.7%
BANK MANDIRI	1.7%
NESTLE 'R'	1.3%
UNITED OVERSEAS BANK	1.3%
SANOFI	1.1%
GLAXOSMITHKLINE	1.0%
IBERDROLA	0.9%
SYNGENTA	0.9%
TAIWAN SEMICON.SPN.ADR 1:5	0.9%
COCHLEAR	0.9%

Best Performers

	Return %
YINGDE GASES GROUP (K:YGGC)	108.6%
GRUPO ELEKTRA (MX:ELP)	85.6%
SHARP	82.2%
OI PN (BR:LR4)	78.6%
MELCO CWN.(PHILPS.)RSTS. (PH:MCP)	75.1%
AGILE PROPERTY HDG.	70.0%
PRESS METAL (L:PMET)	69.9%
MESOBLAST (A:MSBX)	68.0%
LG INNOTEK (KO:LGO)	66.8%
CAP	65.0%

Worst Performers

	Return %
DRYSHIPS (DRYS)	-94.4%
CHINA HUISHAN DY.HDG.CO.	-86.1%
GRANA Y MONTERO (PE:GYM)	-53.9%
CEMEX HOLDINGS ORD (PH:CHP)	-37.3%
ARABTEC HOLDING (DU:ART)	-30.2%
UMW OIL & GAS (L:UMWO)	-28.8%
EMPRESAS ICA (MX:IHA)	-27.6%
ARYZTA (S:ARYN)	-25.7%
JAZEERA AIRWAYS (KU:JAZ)	-24.5%
MATAHARI PUTRA PRIMA (ID:MPP)	-24.5%

Excludes FIAM Equity holdings.

San Mateo County Employees' Retirement Association
Board of Retirement

June 6, 2017 Agenda Item 6.8

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Approval of Real Estate Debt Investment Opportunity

Staff Recommendation
Approve the recommendation to commit $70 million to the Prudential Real Estate U.S. Debt Fund within the real estate sub-asset class.

Background
In October 2016, the Board approved a new asset allocation policy that increased the overall allocation to real estate from 7% to 10% of the total plan.

Discussion
Given the current valuations in private equity real estate, consultant and staff recommend utilizing a real estate debt strategy to implement part of the increase in the real estate allocation (approximately 2%).

In April staff and consultant presented a short-list of potential real estate debt strategies currently in the market, and staff and consultant performed further due diligence on three of these strategies (Brookfield, Invesco, and Prudential) over the past two months.

Based upon this analysis, staff and consultant believe that the Prudential strategy provides the most compelling product for this mandate. The Prudential strategy will focus on extending predominantly senior loans (although it can invest up to 30% of fund assets in subordinated mezzanine loans) on institutional quality, income-producing real estate while targeting 6-8% net returns. A key advantage for Prudential is their loan origination and servicing capabilities. Also, as a founder investor, SamCERA would be eligible for a 0.15% fee discount off the standard management fee. Assuming a $70 million investment commitment to the fund, the weighted average fee would be 0.77%.

Attachments
Verus Prudential Real Estate Debt Recommendation
Verus Real Estate Debt Search Finalist Manager Comparison

Memorandum

To: SamCERA Board & Staff
From: Verus
Date: June 6th, 2017
RE: Real Estate Debt Search

Executive Summary

In March, Verus and Staff presented the board with a preliminary search document that detailed six open-end real estate debt managers that we reviewed. As a reminder, SamCERA is below its real estate target allocation by 3% (7% allocation vs. a 10% target). Given real estate valuations and concerns around a late stage economic cycle, Staff and Verus believe a conservative approach within real estate is warranted. We began reaching out to real estate debt managers in 2016 to gauge their view of the market and found that we could invest in senior secured real estate debt (with a turn of leverage) or in second lien (mezzanine) debt with no leverage and receive returns that mirrored our expectations for core real estate equity. This is an unusual market environment where equity is not providing a meaningful premium to subordinated debt. Key to this anomaly are expectations around rental growth rates. In real estate equity, returns are driven by cap rates and rental growth. With cap rates on core real estate hovering around 3-5%, we would need rental growth rates in excess of 3-5% each year for equity returns to outperform their debt counterparts. We think the likelihood of the market achieving those growth rates is unlikely, especially on the higher end. Thus, by investing in debt, we are giving up the upside that growth rates exceed our expectations but believe we will be better protected on the downside. Returns within the style of real estate debt we are investing is expected to be 6-8% (net), with all the return coming from interest and fees earned on the loans. Our focus on open-end vehicles is purposeful to allow for some liquidity should the market change in the next few years and better opportunities arise.

Search Process

We began the search process by screening the universe of open-end real estate debt funds, a small universe of 10-15 managers. It should be noted that not only is the universe small but several of the strategies in the universe are in the process of raising initial funding capital which presents additional layers of risk and complexity. The first screen involved removing strategies that were either taking more risk than we were comfortable assuming or had strategies that did not fit the mandate. Once we had screened through the initial list, we were left with six products that warranted additional work. After conducting in-person meetings and/or conference calls with each of the six managers and reviewing fund documents, we prepared a comparative report which we presented to the SamCERA board in March. Following the meeting in March, Staff and Verus narrowed the initial list of six managers down to three that we felt best fit with the mandate.
Those managers are:

- Invesco
- Brookfield
- Prudential

Verus sent out an RFI to each of the three managers in April and conducted onsite visits to both Prudential and Brookfield in May. Invesco presented to Staff and Verus in SamCERA's office in February and having had a long-term relationship with SamCERA, we felt an onsite visit was unnecessary. Following onsite visits, we conducted follow-up conference calls, where necessary and continued negotiations with each of the three managers to determine final terms for SamCERA. It should be noted that all three products are new strategies though each of the managers has experience and relevant track records investing in real estate debt. Being new products, SamCERA is able to negotiate favorable terms which in a low yield environment is critical to net performance.

Real Estate Debt Market Dynamics

Given the concerns we expressed around the current stage of the real estate cycle, we reviewed how real estate debt performed against the NCREIF ODCE index over different time periods. We analyzed performance and correlation metrics using the Giliberto-Levy index ("GL"). The GL index is made up of a large pool of senior real estate loans on commercial properties. The Index loans are more conservative than those targeted by the managers but we can glean some valuable information using the index as a proxy. One notable difference is that the strategies we are reviewing today include mezzanine loans which are not included in the GL index. Looking at performance, the senior loans hold up quite well in down markets, with a loss of 4.0% in 2008 vs. a loss of 10% in 2008 and nearly 30% in 2009 for the NCREIF ODCE index. The senior loans also recovered quickly, returning almost 15% in 2009. Over the last 20 years, the GL index has returned 6.5% vs. 9.3% for the NCREIF ODCE index. We expect the strategies we are recommending to have greater volatility given the exposure to mezzanine debt and/or economic leverage but still well below that experienced by equity holders. Commensurate with the higher risk are returns that would exceed the GL index, as well.

Chart 1: Details rolling performance for a series of indices within major asset classes. The dark blue line indicates the Giliberto index which experiences a stable trendline close to the Barclays Aggregate.

Chart 1: Rolling Performance (2007-2016)

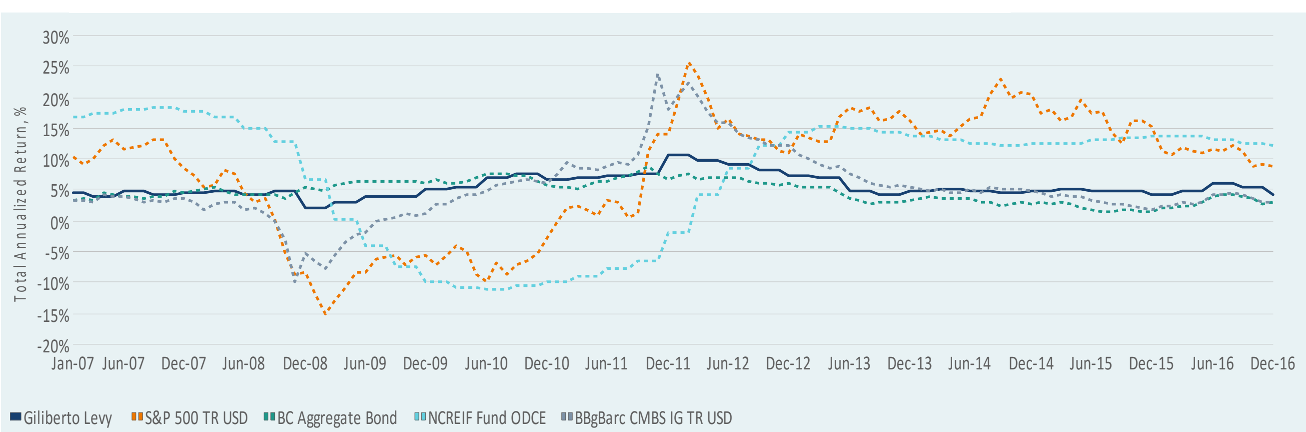
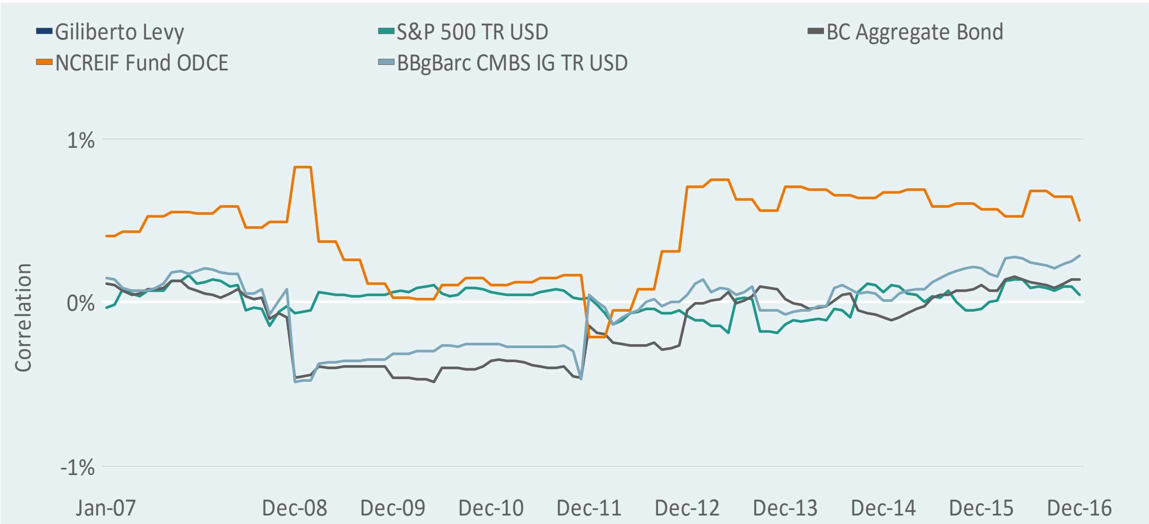


Chart 2: Looks at rolling correlations between major asset class indices and the GL index. As the orange line indicates, the highest correlated asset class is the NCREIF ODCE index. The GL index is negatively correlated to the S&P 500, has no correlation to the fixed income market and is negatively correlated to CMBS Bonds. Interestingly, CMBS bonds are negatively correlated to the NCREIF Index, as well. We would expect loans in the mezzanine space to have even higher correlation to the real estate equity sector as risk factors increase.

Chart 2: Rolling Correlation to the Giliberto-Levy Index (2007-2016)



Traditionally, most institutional investors have invested in the riskier parts of the real estate debt market. Banks and Insurance companies continue to dominate the senior loan and less risky end of the loan market. Regulations have kept banks from lending in the higher LTV end of the market which has allowed private capital to step in and become a lender. As with other areas within private credit, opportunities exist for investors to compete for loans along the risk spectrum.

Chart 3 is a graphic of the real estate loan market. On the far-left hand of the graph are the least risky and lowest returning loans. Loans are pricing around Libor+250-400bps for gateway markets in high quality real estate. On the far-right side of the graph is where real estate debt funds have traditionally competed as returns are high enough that managers can charge lucrative management fees and earn carried interest. The middle section from traditional whole loans to transitional asset loans is the target market for the three strategies in this search. Senior loans with an LTV (Loan-to-value) of 60-80% within this submarket are yielding Libor+350-550bps and mezzanine loans with an LTV of 60-80% are yielding Libor+600-850.

Chart 3: Lending Premiums on Real Estate Loans

	Stable Asset Whole Loans	Transitional Asset Whole Loans	Lower Risk Mezzanine	Transitional Asset Mezzanine & Preferred Equity	Developmental Asset Mezzanine & Preferred Equity
Capital Stack	0 - 70% LTV	0 - 85% LTV	60-85% LTV	65-90% LTC	65 - 90% LTC
Duration	2-5 Years	2-5 Years	2-7 Years	2-4 Years	2-4 Years
Typical Lending Spreads	LIBOR + 2.50 - 4.0%	LIBOR + 3.50 - 5.5%	LIBOR + 6 - 7%	LIBOR + 7 - 8.5%	LIBOR + 10 - 15%

Invesco, Prudential and Brookfield are each targeting 6-8% net returns, but achieving that return by investing in different allocations of the loan market. Invesco will hold all mezzanine debt in their portfolio, ranging from lower risk to transitional assets. They will have no additional leverage within their portfolio. Brookfield will write whole loans with an LTV of 70-80%, sell down the senior piece of the loan (0-60%) and retain the mezzanine note for investors. In essence, investing mostly in mezzanine debt but they will have the flexibility to hold 20-30% of the portfolio in senior loans (with one turn of leverage allowed on senior loans, only). Prudential is focusing on the senior loan market, the left two ends of the risk spectrum but adding one turn of leverage. They will also have the flexibility to hold 20-30% of mezzanine debt with no leverage allowed on the loans. Investors are assuming very similar levels of risk by either method, leverage on senior loans or unlevered mezzanine. By example, if you place the fund leverage higher in the cap structure than Prudential’s loan they end up taking the second loan risk (i.e. mezzanine). There are of course other factors to consider beyond the decision of mezzanine vs senior loans but the key point is that investors are going to be assuming some level of “leverage” risk by either holding less security or by using economic leverage. The portfolio LTV of 70-75% will be the same across all three strategies meaning first loss levels are equivalent.

Recommendation

After reviewing the three strategies and the strengths and weaknesses of each, Verus and Staff believe that Prudential provides the most compelling product for this mandate. Prudential has a key origination advantage that neither Invesco or Brookfield can or plan to replicate. Prudential, as one of the largest insurance loan providers in the real estate market, has loan origination and loan servicing teams in 12 markets in US. They have run a senior loan-only commingled fund for over 10 years with third-party capital, providing a track record of originating and investing in real estate debt in an open-end vehicle. While all three strategies are new to the respective managers, only Prudential has run an open-end vehicle within the real estate loan market. We spent considerable time working through the opportunities and challenges of assuming economic leverage vs. credit risk within this area of the market. As a reminder, Prudential is the strategy that will assume the most economic leverage but also the least risk as it relates to loan quality and LTV risk. Knowing the conservative reputation of Prudential as an organization and working with the management team on this strategy, we gained comfort that the strategy intends to utilize leverage in as risk averse a manner as is feasible. The Fund's leverage will not exceed 60% of the Fund's GAV (gross asset value) and 45% of the underlying real estate value.

Prudential provided a hypothetical portfolio below showing the planned allocation to three different areas of the loan market. Roughly 20% of the portfolio will consist of low risk, stable senior loans with no leverage added. The middle 60% of the graphic represents senior loans that are floating rate and will have one turn of leverage added to achieve a gross 8-9% return. The last 20% of the portfolio will be mezzanine paper with no leverage and targeting a gross 8-9% rate of return. Prudential has projected a 3-year hypothetical return of 8-9% (gross) on this portfolio

Underlying Asset	Strategy/Duration/ Type of Loan	Average Investment Size ($M)	Target # of Investments	% of Equity	Fund Equity Invested ($M)	Total Invested Capital ($M)	Assumed Real Estate Value[2]	Fund Leverage Against Loan	Fund Leverage Against Underlying Real Estate	% of GAV	Year 3 Gross Return
Stable	Sr. Debt/ Long Duration/ Fixed Rate	$40	6	20%	$200	$200	$267	None	None	10.1%	4.9%
Stable & Transitional	Sr. Debt/ Short to Medium Duration/ Floating Rate	$35	49	60%	$600	$1,579	$2,105	62.0%	46.5%	79.8%	9.5%
Stable & Transitional	Subordinated Debt/ Medium to Long Duration/ Floating & Fixed Rate	$20	10	20%	$200	$200	$267	None	None	10.1%	9.5%
			65	100%	$1,000	$1,979	$2,639	49.5%	37.1%	100%	8.3%[3]

The debt facility for Prudential will initially consist of a revolving credit facility that will be secured by a pool of senior loans that Prudential and the lender identify as fitting the mandate of the Fund. The credit facility will charge a Libor spread, depending on the type of underlying real estate that the loan holds. Prudential has indicated they will slowly ramp up the credit facility as loans are built out in the portfolio and max leverage levels will likely not be achieved within the first year. As the Fund builds out the loan portfolio, term debt facilities and other forms of flexible debt will be utilized. As interest rates increase, the use of leverage will fall as the target return of 6-8% becomes feasible on an unlevered basis. Our comfort level with the use of leverage is helped by two key data points, the performance of senior loans during the GFC and the max use of leverage on the portfolio of 60% of GAV. That leaves a considerable amount of unencumbered asset protection should we experience another GFC type of event and the underlying collateral experienced very modest drawdowns throughout its history.

SamCERA Staff and Verus continue to work with Prudential on the Fund terms and expect to earn a fee discount on the management fee for being a founding investor. Prudential charges a flat management fee and all origination fees or other loan fees earned by Prudential go back to the Fund's investors. We note that this was an additional differentiator as several competitors kept all or a portion of the loan fees with the management company.

No placement agent was involved in the Prudential US Real Estate Debt Fund.

The stated management fee schedule is below:

Asset Management Fee

Invested Amount	Standard Fee	Founders Fee
First $50M	0.95%	0.80%
Over $50M and up to $100M	0.85%	0.70%
Over $100 and up to $150M	0.75%	0.60%
Over $150M	0.65%	0.50%

Manager Evaluation

Prudential Real Estate U.S. Debt Fund

LAST UPDATED: JUNE 2017

STRATEGY BASICS

Asset Class:	Real Estate
Sub-Asset Class:	Debt
Investment Type:	Loans
Geography:	U.S.
Firm Inception:	1875
Firm AUM:	$154 Billion
Fund Size:	N/A (new fund)
Min. Commitment:	$5 Million
Fund Term:	Evergreen
Investment Period:	N/A
Management Fee:	0.95% Standard Fee 0.80% Founders Fee
GP Carried Interest:	N/A

Firm Background and History

PGIM Inc., the asset management division of Prudential Financial Inc. ("PFI"), a publicly traded firm. PGIM offers individuals and institutions in the United States, Asia, Europe, and Latin America a wide array of financial products and services, including life insurance, annuities, mutual funds, investment management and retirement related services. In 2016, asset management accounted for 6% of PFI's revenue.

Prudential has invested in real estate debt strategies for over 140 years and has been managing core real estate investments for U.S. pension fund clients since 1970 when t industry's first they launched the first open-end commingled real estate fund.

In 2005, PGIM established an open-end commingled fund through which U.S. qualified plans may invest in senior mortgages secured by U.S. commercial real estate properties. In addition to the open-end fund, PGIM manages single client account mandates for U.S and non-U.S. insurance companies and a U.S. public plan. PGIM established a dedicated high yield debt investment platform in 2009 to provide clients with the opportunity to invest in high yield real estate debt strategies in the U.S. and Europe.

Strategy Background

Real estate investment management activity is carried out by two distinct divisions within PGIM:

- PGIM Real Estate Finance is a global real estate mortgage finance company with one of the largest non-bank senior loan origination platforms in the U.S. with 34 loan origination teams (teams average 3-4 professionals). PGIM Real Estate Finance manages $57.6 billion gross AUM and $30.4 billion gross AUA (total $88. billion) as of December 31, 2016.
- PGIM Real Estate is a global real estate investment management firm dedicated to providing real estate investment strategies to institutional investors through a broad array of vehicles that span the risk-return spectrum. PGIM Real Estate manages $66 billion gross ($47.6 net) AUM as of December 31, 2016.

In 2015, PGIM's U.S. real estate businesses launched a collaboration focused on the U.S. commercial real estate debt markets with a goal of leveraging the expertise of the two groups to develop investment vehicles focused on higher yielding U.S. real estate debt investments. The venture, PGIM Real Estate Debt Strategies ("PREDS"), combines the strength of PGIM's U.S. senior debt originations and loan servicing capabilities with the investment management, high yield origination and structuring capabilities as a leading multi-product real estate manager for institutional investors. PGIM Real Estate's existing U.S. high yield mandates are now managed by the PREDS team with Steve Bailey as the business head and senior portfolio manager. PREDS is governed by a steering group represented by senior executives from across PGIM's real estate businesses. The

U.S. Debt Fund will be overseen by a dedicated team of six investment professionals, headed by Steve Bailey. In addition to the investment team, the strategy will utilize the loan origination and servicing platform in place at Prudential Real Estate Finance.

Key Investment Professionals

The U.S. Debt Fund will be overseen by Steve Bailey with support from three Executive Directors and two research analysts. The broader origination and loan servicing platform at Prudential includes 34 origination teams and Prudential Asset Resources (PAR) which services over $87 Billion in loans.

STEPHEN BAILEY, SENIOR PORTFOLIO MANAGER

Steve Bailey is a managing director and head of PGIM Real Estate Debt Strategies (PREDS). Based in New York, Steve is responsible for managing all aspects of PGIM Real Estate's US Debt Funds and any future PREDS investment funds and vehicles. PREDS is a collaboration between PGIM Real Estate and Prudential Mortgage Capital Company (PGIM Real Estate Finance) focused on investing in real estate high yield debt in the US on behalf of institutional investors. Before joining Prudential in 2015, Steve was a senior managing director and co-head of the Debt group at Heitman Real Estate.

CHRISTINA DO, EXECUTIVE DIRECTOR

Christina is an executive director of PGIM Real Estate. Based in New York, Christina is engaged in sourcing, underwriting, closing and asset management of commercial real estate debt in the US. Prior to joining Prudential, Christina was a managing director at Square Mile Capital where she was responsible for sourcing and executing commercial real estate debt and equity transactions.

MARC BROOKS, EXECUTIVE DIRECTOR

Marc is an executive director of PGIM Real Estate. Based in New York, Marc is engaged in sourcing, underwriting, closing and asset management of commercial real estate debt in the US. Prior to joining Prudential, Marc was vice president at Deutsche Bank/RREEF where he was a member of an investment team that invested in real estate debt across the capital structure.

JOCELYN FRIEL, EXECUTIVE DIRECTOR

Jocelyn is an executive director with Prudential Mortgage Capital Company. In this role, she handles development of institutional fund products including operation strategy and implementation for PREDS. Jocelyn is located in San Francisco. Jocelyn joined Prudential in 1997 and has worked in various roles at PGIM Real Estate Finance: as a loan officer covering west coast clients; in the Capital Markets unit pricing and structuring loans for securitization and in several positions within the real estate financing platform.

Process

The overarching philosophy for the PGIM Real Estate U.S. Debt Fund is focused on capital preservation and the generation of current income through careful evaluation of real estate fundamentals. This will be accomplished by utilizing a lower risk, lower volatility strategy of investing in a diversified portfolio of senior and subordinated loans on institutional quality, income producing real estate.

The Fund's investment approach is to achieve optimal investment performance and mitigate risks by creating a diversified portfolio with a focus on:

- Lower risk and lower volatility – Originate loans to quality borrowers secured by institutional quality real estate in the top 30 CSAs
- Direct Origination Model – Results in improved risk assessment, transaction structuring and risk-adjusted returns
- High Quality Sponsorship – Develop and nurture relationships with sponsors that are financially strong, operationally sound and have proven track records
- Strong Real Estate Underwriting – Focused real estate fundamental analysis informed by the investment experience and research expertise of PGIM Real Estate and PGIM REF
- Customized Execution – Each transaction structure is customized to meet borrowers' needs and best mitigate risks specific to a transaction
- Thoughtful Portfolio Construction – Provide diversification to improve risk management and build portfolio to enhance overall investment performance
- Rigorous Asset Management – Integrated service platform and access to PGIM Real Estate and PGIM REF regional asset management teams and partners

The Fund will make investments in first mortgages and mezzanine debt. First mortgages can be floating rate or fixed rate debt but importantly, only floating rate loans will have leverage applied to them. Prudential wants to match floating rate loans with floating rate debt to minimize basis risk. Subordinate investments (mezzanine debt and preferred equity) will be limited to no more than 30% of the Fund's investments but is expected to comprise around 20% of the Fund's investments.

Investment Process: The US Real Estate Debt Fund's investment process is a multi-step discipline involving many investment professionals across PGIM's real estate business. The first step involves loan origination which begins with the PGIM Originations and Transactions staff who utilize the 34 loan origination teams to source opportunities in the market. The Transaction team will conduct initial due diligence on potential loans sourced by the origination teams. Loans that make it through the initial due diligence screening will be reviewed by the portfolio management team to discuss structure and pricing terms. A term sheet will be created with the portfolio management teams input and submitted to the borrower. Once a term sheet has been negotiated and executed by the borrower, full due diligence on the loan, along with third party appraisals of the property and full analysis of the borrower's real estate experience, financial position and business plan for the property are conducted. Investment committee approval will be required before closing on a loan. Once the Investment Committee has approved a loan, the PREDS investment team will work with inside and outside counsel to prepare and negotiate loan documents. Loan servicing will utilize the in-house Prudential Asset Resources team which allows the borrower to maintain a servicing relationship with the lender as opposed to a third-party servicer. Asset management will be handled by the PREDS investment professionals with support from the broader PGIM real estate investment professionals.

Risk Management

Risk management is about identifying relevant risks and having a plan to manage them. The Fund will monitor risk during all stages of the investment process.

All investments are reviewed by the chief underwriter, who has an independent reporting line from the Fund. In addition to the review by the chief underwriter, all investments must be approved by the Investment Committee, which is comprised of senior members of the debt and equity platforms, each with substantial real estate experience.

The portfolio management team will monitor its investments through LoanConnect, a proprietary loan monitoring system which will allow the team to track loans from initial quote stage to loan payoff. LoanConnect provides real-time tracking of the loan's historical and current credit metrics and allows the portfolio management team to assess exposure against established limits and for specific exposure requests like tenant/borrower exposures related to a bankruptcy and geographic exposure related to a natural disaster.

The Fund will also be subject to a formal semi-annual portfolio review process by the Risk Management team. As part of the portfolio review, the Risk Management team provides governance, organizational infrastructure and processes to address major layers of risk on a macro, portfolio and deal level. The Risk Management team also assists in developing views on how to manage risk regarding portfolio construction and investment strategies.

The Fund will limit exposure to any one real estate sector to 40% of GAV. Stable Assets are expected to comprise 50-60% of the Fund with the balance invested in Light Transitional assets. Mezzanine or subordinated debt is limited to 30% of the Fund's NAV.

Potential Concerns

The US Real Estate Debt Fund is a new product for Prudential and thus some risk around executing a new product is a potential concern. We gain comfort from the fact that Prudential has been running an open-end real estate debt fund since 2007 and investing in real estate debt for over 100 years. Steve Bailey, the lead portfolio manager joins Prudential having run an open-end real estate debt fund at Heitman, along with other debt strategies.

Leverage on the Fund is always a key risk and we gain comfort that Prudential is planning to utilize debt in a conservative manner. The only loans that can utilize leverage are senior loans on high quality assets. Any subordinated debt, which will be capped at 30% of Fund NAV, will be unlevered. The initial leverage facility on the

Fund will consist of a line of credit that is backed by a pool of senior floating rate loans in the Fund. Leverage is capped at 60% of GAV. Prudential plans to utilize leverage levels around 50% of GAV. Based on performance of senior loans during the financial crisis, we gain comfort that in one of the worst market dislocations, senior loans held up quite well with a small markdown in one quarter. Further, the portfolio will hold at least 40% of its assets in unencumbered debt that could be utilized as a form of liquidity or additional collateral, if necessary.

Performance

The US Real Estate Debt Fund has yet to have a first close so we do not have a track record. We do have the performance associated with an open-end senior real estate loan fund that Prudential has run since 2005. Historical performance is provided in an attached report.

Recommendation

Prudential has a key origination advantage due to its status as one of the largest non-bank loan providers in real estate. The global real estate platform which manages over $66 Billion in assets has a strong reputation in the market and is known for its risk management philosophy. The organization has run a senior loan-only commingled fund for over 10 years with third-party capital, providing a track record of originating and investing in real estate debt in an open-end vehicle. We believe the strategy is an attractive option for clients looking for a lower risk real estate debt fund in an open-end structure.

Verus

PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS

May 2017

Real Estate Debt Search

San Mateo County Employees' Retirement System

I. Manager overview

Firm Background

	Brookfield	Invesco Real Estate	PGIM
FIRM OWNERSHIP	Publicly traded	Subsidiary of Invesco Ltd.	Subsidiary of Prudential Financial, Inc
LOCATION	New York, NY	Dallas, TX	New York, NY
FIRM AUM ($BB)	$250	$825.3	$1,090
FIRM REAL ESTATE AUM ($BB)	$148	$71.0	$66.9
FIRM REAL ESTATE DEBT AUM ($MM)	$3,800	$540	$6,000

Fund Backround

	Brookfield	Invesco Real Estate	PGIM
FUND NAME	Brookfield Senior Real Estate Finance Fund	Invesco Real Estate Strategy	PGIM Real Estate US Debt Fund
FUND NAV ($MM)	$1,000 Target Raise	Target: $150 by April 30, $450 by June 30	Target $500 by end of 2017 & $1,000 by 2019
INCEPTION DATE	2Q 2017	4/30/2017	April 2017
TARGET IRR (NET)	6-7%	8%	6.25-7.25%
NUMBER OF INVESTMENTS	Target: 20	Target: 20	Target:65 (at $1bb fund size)

Firm Characteristics

	Brookfield	Invesco Real Estate	PGIM
ESTIMATED TIME TO INVEST NEW CAPITAL	1-2 Quarters	4 Quarters	1 Quarter
QUEUE (COMMITTED)	$0 - early marketing	$150 mm closed	$100 mm parent seed
TARGET LEVERAGE	0%	0%	60%
MAX. LEVERAGE	35%	Mezz: 0%	60% (only on senior loans)
AVERAGE LTV	70% Max	Current: 67% Target: 70% Max: 75%	Avg: 72% Max: 80%/Loan Max: 75%/Fund
AVERAGE LOAN MATURITY	3 Years	3 Years	4-5 Years

Index: NCREIF ODCE Index Returns: Net of Fees
Data Source: Verus Investments

Target Allocations

	Brookfield	Invesco Real Estate	PGIM
1st Mortgages	15-20%		70%
Mezzanine & B-Piece	75%	100%	30%
Participating Mortgages			
Equity			
CMBS	5-10%		

Investment vehicle information

	INVESTMENT VEHICLES	MINIMUM INVESTMENT	MANAGEMENT FEE	FEE SCHEDULE	INCENTIVE FEES	PREF. RETURN	CATCH UP	OTHER FEES
Brookfield	Open-end fund	n/a	1.0%	All assets	None	n/a	No	
Invesco Real Estate	Open-end fund	n/a	1.0% 0.9% 0.8%	$0-50mm 50-100mm >100mm	None	n/a	No	0.75% origination fee paid to Invesco by borrowers 0.15% Founders Discount first 6 months
PGIM	Open-end fund	n/a	0.95% 0.85% 0.75% 0.65%	$0-50mm 50-100mm 100-150mm >150mm	None	n/a	No	Founders will receive a discount of 0.15% in perpetuity.

II. Strategy detail

Strategy Overview - Brookfield

INVESTMENT STRATEGY	- Brookfield is targeting a $1 billion open end fund to originate or acquire real estate mezzanine loans (75%), senior whole loans (15-20%) and a small amount of single borrower CMBS (~5%). - Target returns of 6-7% net, the majority coming from current income. - Mezzanine loans will typically by jointly originated with a senior lender providing a first mortgage. The mezzanine component will target 50-70% LTV. - Targeting a maximum loan-to-value for the fund of 70%. Underlying assets will be diversified by property type and geography primarily within the U.S. Assets will be light value added, substantially leased, no construction loans expected. - Loans will be floating rate, 5-year term with call protection from 18-24 months. Average maturity expected to be 3-years. - Average loan size $50 million. - Targeting a first close in 3Q 2017. Final PPM available late March.
TEAM DESCRIPTION / EXPERIENCE	- Brookfield has 18 professionals located in New York that provide origination, underwriting, closing and reporting. - The team is led by Managing Partners Andrea Balkan and Chris Reilly. Andrew has been with Brookfield since 2002 and has 30 years of financing & investing experience. Chris has been with Brookfield for five years and has 24 years of experience. - Team has managed five prior closed end funds and one separate account totaling $3.9 billion. The five closed end funds (BREF I-V) have had slightly higher return targets of 9-10% net, with higher loan-to-value limits (75-80%) and slightly more transitional assets. - They have managed separate accounts with similar risk profile to the proposed fund.
FUND LIQUIDITY	- Quarterly with two year lock-up. Redemptions made on a pro rata basis, based on liquidity. - Distributions made quarterly.

Strategy Overview - Invesco Real Estate

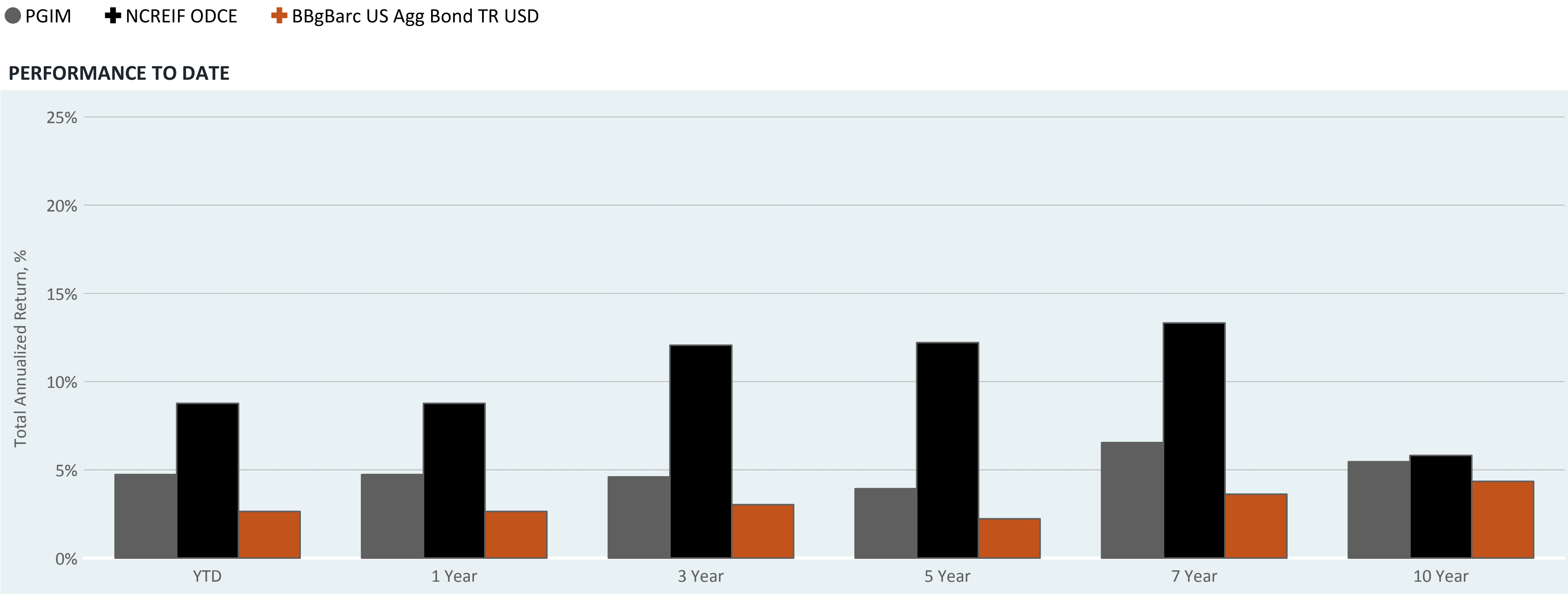
INVESTMENT STRATEGY	- Raising an open end fund, targeting origination of primarily mezzanine loans, with the ability to selectively include preferred equity, bridge loans, B-notes and participating loans. - Asset types will be diversified by the four primary property types and selective hotels. - Market selection will be driven by the firm's research driven "Qualified Markets". - Focus on shorter term, floating rate loans. - Focus on value added assets, no land or ground up development assets. - Maximum LTV 80% at individual loan level, 75% at fund level. - \$20-\$30 million average loan size. - First close expect April 30, 2017. PPM still in draft form.
TEAM DESCRIPTION / EXPERIENCE	- 443 employees globally, managing \$71 billion in real estate assets. - The North American team has 196 employees, managing asset across all investment sub-styles. - Since 2013, Invesco has managed over \$500 million in mezzanine positions with \$2.9 billion in total financings, generating a 9.0% gross IRR. - Invesco has long history with real estate debt strategies, including being selected as a PPIP manager during the financial crisis.
FUND LIQUIDITY	- Quarterly liquidity with 45 days notice. - Distributions paid quarterly.

Strategy Overview - PGIM

INVESTMENT STRATEGY	- PGIM is starting a new open end fund focusing on a loan origination strategy with a mix of: - 20% senior loans, long duration, fixed rate loans on stable assets. - 60% senior loans, short to medium duration, floating rate on stable and transitional assets(core plus to value added). Fund level leverage used up to 60%. - 20% mezzanine debt, medium to long duration, fixed and floating rate on stable and transitional assets (core plus to value added). - Moderate leverage will be used to enhance yield. Leverage only applied to senior loans, to a maximum of 60%. - Targeting 7-8% gross returns (6.25%-7.25% net returns). - LTV limit 80% on individual assets, maximum 75% LTV at fund level. - Average size loans \$20 to \$40 million, diversified by property type. - 1st close expected in April 2017.
TEAM DESCRIPTION / EXPERIENCE	- Team of five senior investment professionals on the portfolio management team average 22+ years of experience. - Team is led by Steve Bailey, who recently joined in 2015 from Heitman, has 30 years of investment experience. - The PM team is supported by a debt origination team of 13 senior professionals and a support staff of 44 professionals. This team has generated approximately \$15 billion of loan originations per year for the firm's General Account, with a focus on core loans. The proposed fund will focus on core plus loans.
FUND LIQUIDITY	- Quarterly, based on available capital. - Distributions available quarterly. 95% of total return expected in the form of income.

III. Performance

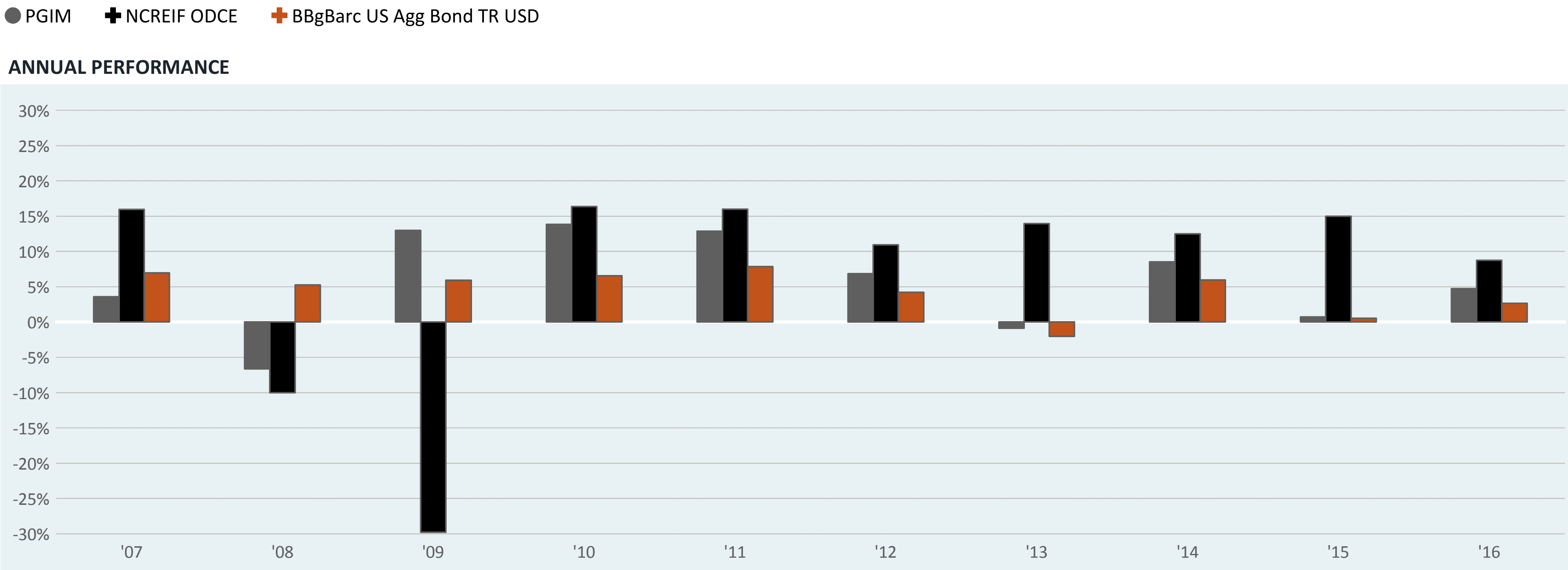
Performance comparison - as of December 2016



TOTAL ANNUALIZED RETURN TO DATE, %	YTD	1 Year	3 Years	5 Years	7 Years	10 Years
PGIM	4.7	4.7	4.6	3.9	6.5	5.5
NCREIF ODCE	8.8	8.8	12.1	12.2	13.3	5.8
BBgBarc US Agg Bond TR USD	2.6	2.6	3.0	2.2	3.6	4.3

Performance shown for PGIM is their US Senior Mortgage Fund, which is slightly more conservative that the proposed fund. Loans included are core vs. core plus assets and have a slightly more conservative LTV.

Calendar year performance



ANNUAL PERFORMANCE	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
PGIM	3.6	-6.6	13.0	13.8	12.9	6.9	-0.9	8.5	0.7	4.7
NCREIF ODCE	16.0	-10.0	-29.8	16.4	16.0	10.9	13.9	12.5	15.0	8.8
BBgBarc US Agg Bond TR USD	7.0	5.2	5.9	6.5	7.8	4.2	-2.0	6.0	0.6	2.6

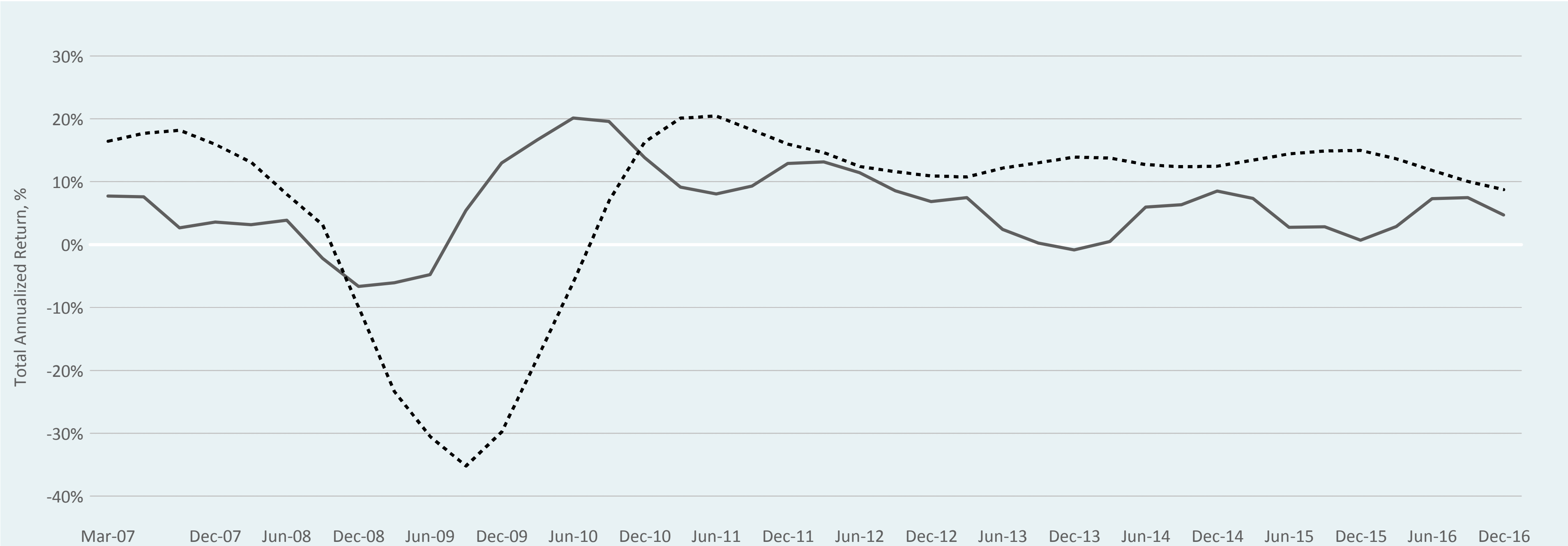
Performance shown for PGIM is their US Senior Mortgage Fund, which is slightly more conservative that the proposed fund. Loans included are core vs. core plus assets and have a slightly more conservative LTV.

Index: NCREIF ODCE Index Returns: Net of Fees
Data Source: Verus Investments

Rolling performance

● PGIM ✚ NCREIF ODCE

12 MONTH ROLLING PERFORMANCE

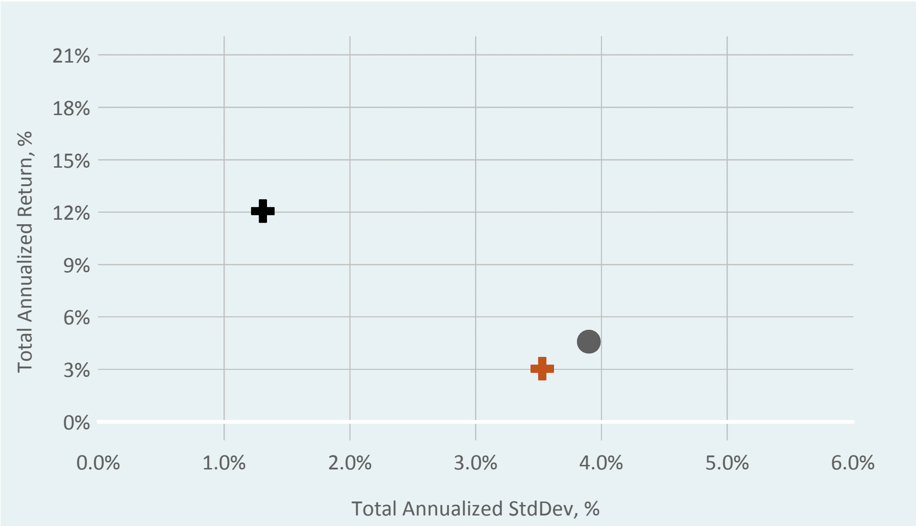


Performance shown for PGIM is their US Senior Mortgage Fund, which is slightly more conservative that the proposed fund. Loans included are core vs. core plus assets and have a slightly more conservative LTV.

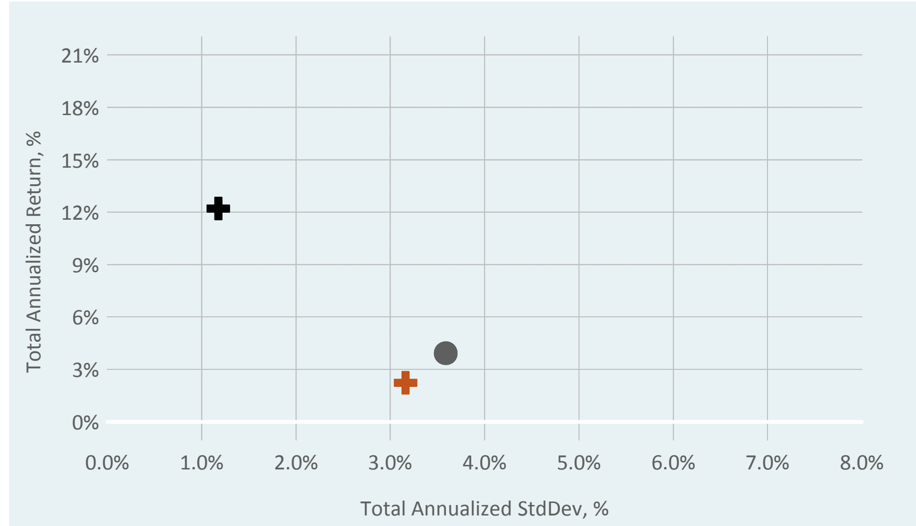
Risk vs. return

● PGIM ✚ NCREIF ODCE ✚ BBgBarc US Agg Bond TR USD

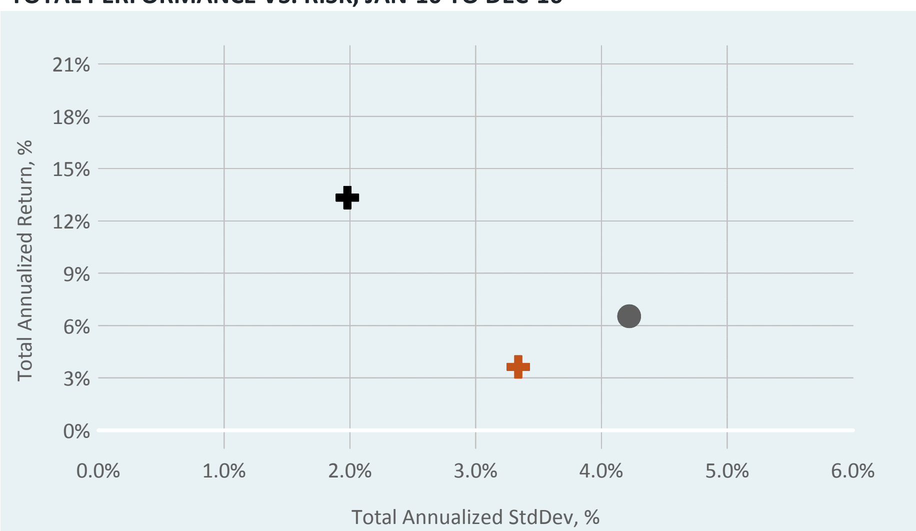
TOTAL PERFORMANCE VS. RISK, JAN-14 TO DEC-16



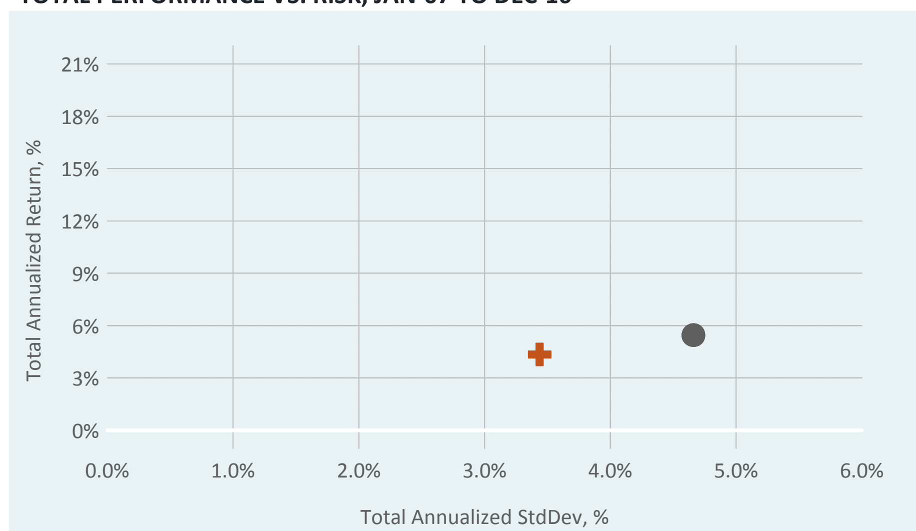
TOTAL PERFORMANCE VS. RISK, JAN-12 TO DEC-16



TOTAL PERFORMANCE VS. RISK, JAN-10 TO DEC-16



TOTAL PERFORMANCE VS. RISK, JAN-07 TO DEC-16



Performance shown for PGIM is their US Senior Mortgage Fund, which is slightly more conservative that the proposed fund. Loans included are core vs. core plus assets and have a slightly more conservative LTV.

Brookfield

		Proceeds			Current Performance		Projected Performance	
Fund (Vintage)	**Equity Invested**	**Realized**	**Unrealized**	**Total**	**IRR**	**Investment Multiple**	**IRR**	**Investment Multiple**
BREF I (2004)	$1,580	$1,581	$853	$2,434	13.8% Gross 10.5% Net	2.4x Gross 2.2x Net	13.0% Gross 10.0% Net	2.8x Gross 2.5x Net
BREF II (2007)	$696	$868	--	$868	8.8% Gross 5.3% Net	1.2x Gross 1.2x Net	8.8% Gross 5.3% Net	1.2x Gross 1.2x Net
BREF III (2011)	$396	$462	$37	$499	14.8% Gross 11.1% Net	1.3x Gross 1.2x Net	14.0% Gross 11.0% Net	1.3x Gross 1.2x Net
BREF IV (2014)	$996	$276	$859	$1,136	13.2% Gross 11.3% Net	1.1x Gross 1.1x Net	12.0% Gross 9.0% Net	1.3x Gross 1.2x Net
Senior Mezzanine Separate Account (2016)	$261	$30	$247	$278	n/m n/m	n/m n/m	7.0% Gross 6.0% Net	1.5x Gross 1.4x Net

As of September 30, 2016. $ in millions, except as noted.

Invesco

Investment Vehicle	Vintage Year	Fund Strategy	Geographic Focus	Asset Count	Total Capital Raised	Total Capital Committed	Debt LTV (%)	IRR (%)	EM (x)
Global				No.				Realized/Unrealized	
Invesco Mortgage Recovery Fund I	2010	Opportunistic	US	39	$ 1,456,000,000	$ 1,079,500,000	43%	24.0%	1.7x
Invesco Mortgage Recovery Fund II	2014	Opportunistic	US & EU	11	$ 359,000,000	$ 279,000,000	47%	18.6%	1.7x
North America									
Invesco US Value-Add SMAs	1992-2016	Value-Add	US	135	$ 5,118,300,000	$ 5,118,300,000	29%	15.2%	1.6x
Invesco US Value-Add Fund I	2005	Value-Add	US	15	$ 320,000,000	$ 330,200,000	--	3.2%	1.2x
Invesco US Value-Add Fund II	2007	Value-Add	US	16	$ 457,000,000	$ 416,300,000	--	8.1%	1.4x
Invesco US Value-Add Fund III	2012	Value-Add	US	13	$ 344,000,000	$ 322,000,000	47%	21.3%	1.7x
Invesco US Value-Add Fund IV	2014	Value-Add	US	15	$ 759,000,000	$ 523,100,000	39%	17.6%	1.7x
Asia-Pacific									
Invesco Asia Value-Add SMAs	2013	Value-Add	Asia-Pacific	2	$ 168,000,000	$ 168,000,000	--	26.0%	1.7x
Invesco Asia Fund I	2008	Value-Add	Asia-Pacific	6	$ 113,000,000	$ 111,200,000	22%	14.6%	1.6x
Invesco Asia Fund II (USD Sleeve)	2007	Opportunistic	Asia-Pacific	8	$ 295,000,000	$ 102,200,000	57%	15.6%	1.9x
Invesco Asia Fund II (YEN Sleeve)	2007	Opportunistic	Asia-Pacific	8	¥ 42,700,000,000	¥ 13,400,000,000	57%	16.4%	2.1x
Invesco Asia Fund III	2016	Value-Add	Asia-Pacific	2	$ 100,000,000	$ 39,100,000	45%	--	--
Europe									
Invesco Value-Add SMAs	1996-2014	Value-Add	Pan-European	19	€ 814,400,000	€ 814,400,000	37%	17.8%	1.6x
Invesco European Value-Add Fund I	2016	Value-Add	Pan-European	7	€ 245,000,000	€ 135,000,000	60%	--	--
Total				**288**	**$ 11,268,800,000**	**$ 9,851,500,000**			

IV. Disclosures

Notices & Disclosures

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

June 6, 2017 Agenda Item 7.1

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer

SUBJECT: Discussion and Approval of SamCERA's Fiscal Year 2017-18 Budget

Staff Recommendation

Approve SamCERA's Fiscal Year (FY) 2017-18 Budget totaling $33 million, which is 7.5% lower than the prior fiscal year.

SamCERA Budget	FY 2017-18 Proposed	FY 2016-17 Adopted	Increase	% of Change
Professional Services	$ 24,885,317	$ 23,145,914	$ 1,739,403	7.5%
Administrative	6,636,677	6,821,723	(185,046)	-2.7%
Technology	1,667,340	5,907,340	(4,240,000)	-71.8%
Total budget - SamCERA	$ 33,189,334	$ 35,874,977	$ (2,685,643)	-7.5%

Background

SamCERA's budget consists of three components: a professional services budget, an administrative budget, and a technology budget.

- **Professional Services Budget** (see Attachment 1 on page 4) – provides an itemized summary of projected professional fees as authorized by Government Code §31596.1. This Code authorizes the Board of Retirement to expend funds from investment earnings of SamCERA's pension trust for specific professional services. These professional services include the following: actuarial consulting, custodial, investment management, investment consulting, and outside legal services.

Professional Services Budget	FY 2017-18 Proposed	FY 2016-17 Adopted	Increase	% of Change
Investment Managers	$ 23,815,317	$ 22,193,414	$ 1,621,903	7.3%
Other Professional Service Fees	1,070,000	952,500	117,500	12.3%
Total - Professional Services	$ 24,885,317	$ 23,145,914	$ 1,739,403	7.5%

The professional services budget for FY 2017-18 is projected to be around $25 million, 7.5% higher than the adopted budget for FY 2016-17. As SamCERA continues to build out its private equity portfolio, staff expects a moderate increase in management fees within SamCERA's alternative assets. Other professional fees also experience a moderate increase because of the upcoming triennial experience study and triennial actuarial audit.

- **Administrative Budget** – provides an itemized summary of projected administrative expenses. 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.

Administrative Budget	FY 2017-18 Proposed	FY 2016-17 Adopted	Increase/ (Decrease)	% of Change
Salaries and Benefits				
Salaries	$ 3,393,192	$ 3,352,710	$ 40,482	1.2%
Benefits	1,660,579	1,686,813	(26,234)	-1.6%
Total salaries and benefits	5,053,771	5,039,523	14,248	0.3%
Services and Supplies				
Board expense	10,000	10,500	(500)	-4.8%
Insurance	80,000	80,000	-	0.0%
Medical record and appeal hearing	75,000	50,000	25,000	50.0%
Member education	61,000	60,000	1,000	1.7%
Education and conference	119,880	137,800	(17,920)	-13.0%
Transporation and lodging	138,705	205,500	(66,795)	-32.5%
Property and equipment	36,000	43,000	(7,000)	-16.3%
General office supplies	45,000	45,000	-	0.0%
Postage and printing	40,000	70,000	(30,000)	-42.9%
Leased facilities	525,000	575,000	(50,000)	-8.7%
County services	384,821	397,900	(13,079)	-3.3%
Audit services	52,500	52,500	-	0.0%
Other administration	15,000	55,000	(40,000)	-72.7%
Total Serices and Supplies	1,582,906	1,782,200	(199,294)	-11.2%
Total administrative expenses	$ 6,636,677	$ 6,821,723	$ (185,046)	-2.7%

The proposed administrative budget for FY 2017-18 is $6.6 million, about 3% lower than the adopted budget for FY 2016-17. This amount approximates to 0.15% of the total accrued actuarial liability of $4.4 billion at June 30, 2016 (determined by the SamCERA's actuarial firm, Milliman).

Salaries and benefits is slightly higher than the prior fiscal year's budget by 0.3%. The increase in salaries is caused mainly by the negotiated increase in October 2017, which is partially offset by the reduction in overtime after the implementation of the Pension Administration Software System (PASS) in January 2017. The decrease in benefits is mainly from the reduction of the employer's share of health benefits based on the information from the County.

Services and supplies expenses overall is 11% lower than the prior year's budget. Major changes include is the following:

- Medical records and appeal hearing expenses are expected to increase by $25,000 based on the number of recent applications for disability retirement benefits.
- Education and conference expenses are estimated to decrease by $17,920 due to utilization of cost-effective educational programs.
- Transportation and lodging expenses are projected to decline by $66,795 due to anticipated attendance at educational programs within the State of California.
- Postage and printing expenses are expected to shrink by $30,000 to align the budget with the actual business needs.

- Leased facilities expenses are $50,000 lower than the previous year. With the end of the PASS project, the additional office space for the PASS team was returned to the landlord in March 2017.
- Other administration expenses are adjusted downward by $40,000. With a favorable tax determination from the IRS, no tax attorney expenses are expected in FY 2017-18.

- **Technology Budget** (see Attachment 2 on pages 5-7) – provides an itemized summary of projected technology expenses 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."

Technology Budget	FY 2017-18 Proposed	FY 2016-17 Adopted	Increase/ (Decrease)	% of Change
Computer equipment and software	150,000	200,000	$ (50,000)	-25.0%
Software license maintenance - IT infrastructure	430,340	230,340	200,000	86.8%
Electronic content management	500,000	500,000	-	0.0%
Server - IT infrastructure	200,000	200,000	-	0.0%
Contract IT Services - IT Infrastructure	203,000	503,000	(300,000)	-59.6%
Leasehold improvements	-	20,000	(20,000)	-100.0%
ISD budget	150,000	150,000	-	0.0%
Pension administration software system (PASS)	-	4,000,000	(4,000,000)	-100.0%
Technology research and development	34,000	104,000	(70,000)	-67.3%
Total - Technology expenses	$ 1,667,340	$ 5,907,340	$ (4,240,000)	-71.8%

The technology budget for FY 2017-18 is projected to be around $1.7 million, 72% lower than the prior year budget. Areas with significant changes include the following:

- Staff reduces the budget for computer equipment and software by $50,000 to match with anticipated purchases of hardware and software.
- Staff increases the software license maintenance budget by $200,000 to cover the licensing costs for PASS that went live in January 2017.
- SamCERA does not anticipate additional project expenses on PASS after implementation. This drives a significant budget reduction with $300,000 in contract IT services and $4 million in PASS expenses.
- SamCERA allocated a one-time expense of $20,000 in leasehold improvements last fiscal year to support its moving plan from Suite 255 to Suite 175. The monies were allocated for data and voice cabling, project management, and labor charges. The moving plan was subsequently cancelled.
- Staff adjusts the budget for technology research and development to align with anticipated outlays.

Attachments

1- SamCERA's Professional Services Budget
2- SamCERA's Technology Budget

Attachment 1 - SamCERA's Professional Services Budget

SamCERA employs professional investment managers to maximize its investment return and minimize related risks. Investment management fees are performance driven, primarily dependent upon the market value of the assets under management and the negotiated fee schedule of the individual investment management agreements. As market values of the assets increase, so do management fees. Such expenses/fees are netted against investment income for financial reporting purposes; however, they are reported at gross for budgetary purposes.

Other professional service fees related to investments are driven by contractual agreements. Fees for the actuarial services, investment consulting services, and global custodian services are based on per-service and/or per-retainer as detailed in individual contractual agreements.

The tables below summarize the fee estimates for services provided by investment managers and other professionals for FY 2017-18.

Investment Management Fees

Investment Manager	Fee (bps)	Projected Annual Fee	Projected Performance Fee	Total Projected Fee FY17-18
Total Public Equity	29.9	$ 4,854,739	$ 406,296.00	$ 5,261,036
Total Fixed Income	49.9	2,954,886	269,305	3,224,190
Total Risk Parity	37.2	1,043,286	-	1,043,286
Total Alternative Assets	N/A	8,517,985	2,298,633	10,816,617
Total Inflation Hedge	56.8	2,740,341	544,846	3,285,188
Total Cash Overlay	N/A	185,000	-	185,000
TOTAL	62.5	$ 20,296,237	$ 3,519,080	$ 23,815,317

Other Professional Fees

Contractor	Service	Fee	Projected Annual Fee
Milliman	Actuarial Consulting	0.3	$ 125,000
Segal	Actuarial Audit	0.2	95,000
Verus Investments	Investment Consulting	1.3	500,000
Northern Trust	Custodian	0.9	350,000
TOTAL		2.8	$ 1,070,000

The Chief Investment Officer and the investment consultant periodically review the portfolio's performance and report the results to the Board. Likewise, staff reviews other professional service expenses quarterly to verify compliance with the respective contractual agreements.

Attachment 2 - SamCERA's Technology Budget

The table below provides details for the Technology Budget items:

	Budget Item	Description	Amount
1	**Computer Equipment <$3000 - Property & Equipment**		
2	**Computer Equipment**	SamCERA purchases equipment to meet the needs of SamCERA staff. Examples: purchasing a color laser printer; purchasing networking equipment; Laptops, PCs, other hardware.	$50,000
3	**Electronic Board Materials**	This budget item is for board members who have not gone electronic, for new board members, and for upgrades to existing devices.	$50,000
4	**SUB TOTAL**		**$100,000**
5	**Computer Software**		
6	**Computer Software**	SamCERA purchases software to meet the needs of SamCERA staff. Examples: purchasing extra licenses for Adobe Acrobat, or Microsoft Office; Microsoft Windows, Microsoft Office, Adobe Acrobat Professional, other software licensing.	$50,000
7	**SUB TOTAL**		**$50,000**
8	**Software License Maintenance – IT Infrastructure**		
9	**V3 Hosting and PASS Support**	Required annual fee for hosting services, support, and maintenance of the Vitech V3 product	$250,000
10	**V3 Hardware and Commercial Software Support**	Required annual fee which costs associated with hardware warranty's, service, and support for third party software used with the Vitech V3 system.	$150,000
11	**Dynamics Yearly Maintenance**	Required annual maintenance fee which provides SamCERA with 6 support calls to Microsoft per year, and version upgrades as they are released.	$3,000
12	**Datawatch Yearly Maintenance**	Required annual maintenance fee which provides SamCERA with support and upgrades for 4 licenses of Datawatch Monarch software	$1,700
13	**Sun Storage Support and Maintenance**	Annual Gold Support 7x24	$5,000
14	**Website Support**	Monthly support from Digital Deployment will be $975/month for a yearly total of $11,700	$12,000

	Budget Item	Description	Amount
15	**Kodak Scanners**	Annual maintenance agreement for two Kodak scanners, $870 each	$1,740
16	**Kofax Software**	Annual support and maintenance for Kofax Scanning Software	$2,500
17	**Desktop Central**	Annual maintenance for patch management software	$400
18	**Sharepoint (Vitech)**	Annual license cost for SharePoint Online used for collaboration with Vitech	$2,500
19	**Atlassian**	Annual support and maintenance for Confluence and JIRA	$500
20	**Other Yearly Licenses**	Other miscellaneous annual license expenses (Including Apple Developer, App Store, Google Developer accounts)	$1,000
21	**SUB TOTAL**		**$430,340**
22	**Imaging Expense – IT Infrastructure**		
23	**ECM Phase 2**	Phase 1 of the Electronic Content Management project involved converting member documents from paper to electronic and importing them into the County HP Autonomy system. Phase 2 will analyze the other areas SamCERA could convert paper to digital, including Finance, Investments, and Administration. The County has switched from HP Autonomy to Microsoft SharePoint. SamCERA will implement phase 2 using the County SharePoint software solution.	$500,000
24	**SUB TOTAL**		**$500,000**
25	**Server - IT Infrastructure (Maintenance Tools & Equipment)**		
26	**Technology Infrastructure**	In an ongoing effort to maintain long term usability and viability, Staff has planned on increasing the capacities of the existing infrastructure to help SamCERA handle current and future workloads, in addition to creating a robust business continuance and disaster recovery plan. Currently SamCERA is using virtual hosts running a variety of operating systems and applications. SamCERA has continually reused older equipment in a lab/test environment, and only replaces equipment as needed.	$200,000
27	**SUB TOTAL 5231**		**$200,000**
28	**Contract IT Services – IT Infrastructure**		

	Budget Item	Description	Amount
29	**Miscellaneous Consulting Fees**	SamCERA Staff anticipates some special projects that may require consultation from experts. These special projects may include services from the County Information Services Department; consultation on expanding our technology infrastructure, such as backup systems, more power, more rack space in our file room, and possibly researching alternative offsite services in case of a disaster.	$200,000
30	**Printer Maintenance**	Printer maintenance is performed by Computer Extras Xpress. They are on-call for any problems with the printers including jamming, distortion, or just a failure of a printer, and perform routine yearly maintenance.	$3,000
31	**SUB TOTAL**		**$203,000**
32	**County**		
33	**ISD Budget**	ISD charges include network connectivity, remote access, mobile data, cell phones, network backup, and other related IT services offered by the County. Staff will also be engaged in some special projects which include the upgrade of the wireless connectivity to the County.	$150,000
34	**SUB TOTAL**		**$150,000**
35	**Other Special Department Expense**		
36	**Research and Development**	SamCERA has been able to take advantage of new technology in recent years. SamCERA will use these funds in order to continue to evaluate and experiment with ideas and technologies that may benefit the SamCERA board, staff, and membership.	$30,000
37	**Norex Subscription**	Technology research resources	$4,000
38	**SUB TOTAL**		**$34,000**
39	**TOTAL**		**$1,667,340**