



Notice of Public Meeting

The Board of Retirement of the San Mateo County Employees' Retirement Association will meet on **Tuesday, February 27, 2018, 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**
- 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 Regular Board Meeting Minutes from January 23, 2018
- 4. Approval of the Consent Agenda***
 - 4.1 Disability Retirements (4)
 - Samantha Fireman
 - Meghan Selig
 - Tom Sheppard
 - Robert Stiavetti
 - 4.2 Survivor Death Benefits
 - 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 Acceptance of Semi-Annual Compliance Certification Statements for Period Ended December 31, 2017
- 5. Benefit & Actuarial Services**
 - 5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda
- 6. Investment Services**
 - 6.1 Preliminary Monthly Portfolio Performance Report for the Period Ended January 31, 2018
 - 6.2 Report on Quarterly Investment Performance Report for the Period Ended December 31, 2017
 - 6.3 Educational Presentation on Risk Parity
 - 6.4 Approval of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2)
- 7. Board & Management Support**
 - 7.1 Acceptance of Preliminary Semi-Annual Financial Report for Period Ended December 31, 2017
 - 7.2 Acceptance of Preliminary Semi-Annual Budget Report for Period Ended December 31, 2017
 - 7.3 Report on April 24 and 25, 2018 Board-Staff Retreat Planning
- 8. Management Reports**
 - 8.1 Chief Executive Officer's Report
 - 8.2 Assistant Executive Officer's Report
 - 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

Notice of Public Meeting

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C2 Approval of Proposed Alternative Investments (Confidential Under Gov. Code §54956.81 and §6254.26 – see also item 6.4)

10. Adjournment in Memory of the Following Deceased Members:

Musante, Andrew	December 30, 2017	Fire Warden
Crouch, Michael	December 30, 2017	Chope Hospital
Sbragia, Roy	January 4, 2018	Long Term Care
Enis, Shirley	January 5, 2018	Crystal Springs Rehab Center
Jones, Mary	January 6, 2018	Courts
Turner, Mary	January 7, 2018	Coroner
Lovisa, Rosemary	January 9, 2018	Human Resources
Summey, Lemuel	January 9, 2018	District Attorney
McKercher, Roy	January 11, 2018	Sheriff's
Ferguson, Neal	January 17, 2018	Sheriff's
Ford, Marjorie	January 18, 2018	Board of Supervisors
Shoemaker, Gerard	January 19, 2018	Coroner
Bennett, Lorena	January 20, 2018	General Hospital
Sprague, Yulanda	January 20, 2018	Probation
Lavaki, Halamako	January 22, 2018	Hospital
Toschik, Joseph	January 23, 2018	Library
Sandoval, Julian	January 24, 2018	Probation
Nelson, Gertrude	January 25, 2018	Crystal Springs Rehab Center
Rojas, Concordia	January 27, 2018	Public Works
Daniels, Margie	January 30, 2018	Crystal Springs Rehab Center
Cutts, Gordon	February 1, 2018	Mental Health
Glass, Sharon	February 1, 2018	Courts
Kashiwahara, Rosa	February 2, 2018	Medical Center

Scott Hood, Chief Executive Officer

Posted: February 21, 2018

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

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

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

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

JANUARY 23, 2018 – REGULAR BOARD MEETING MINUTES

1801.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Mr. Mark Battey, Chair, called the Regular Meeting of the Board of Retirement to order at 10:00 a.m.

Roll Call:

Present: Mark Battey, Albert David, Paul Hackleman, Kurt Hoefer, Susan Lee (for David Spinello), Eric Tashman and Shirley Tourel.

Absent: Sandie Arnott, Ben Bowler and David Spinello.

Alternates present: Susan Lee, Alma Salas.

Staff: Scott Hood, Michael Coultrip, Brenda Carlson, Gladys Smith, Lili Dames, Elizabeth LeNguyen, and Barbara Edwards.

Consultants: Margaret Jadallah, Faraz Shooshani, John Nicolini and Paul Kreiselmaier (Verus).

1801.2.1 Oral Communications from the Public: None.

1801.2.2 Oral Communications from the Board: Ms. Smith informed the Board that Sue Thompson, SamCERA's Ret will be retiring and thanked Ms. Thompson for her service to SamCERA and its membership.

1801.3.0 Approval of Board Meeting Minutes: Mr. Battey asked if there were any changes or corrections, or objections, to the meeting minutes from the Board meeting held on December 5, 2017 and the Special Board meeting on January 8, 2018.

1801.3.1 Action: Mr. Hackleman moved to approve the minutes from the Regular Meeting on December 5, 2017. The motion was seconded by Mr. David and carried with a vote of 7-0, with trustees Battey, David, Hackleman, Hoefer, Lee (for Spinello) Tashman and Tourel all in favor; none opposed.

1801.3.2 Action: Mr. Hackleman moved to approve the minutes from the Special Meeting on January 8, 2018. The motion was seconded by Mr. Hoefer and carried with a vote of 6-0, with trustees Battey, David, Hackleman, Hoefer, Lee (for Spinello) and Tashman all in favor; Ms. Tourel abstained; none opposed.

1801.4.0 Approval of the Consent Agenda: Mr. Battey asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed.

Action: Mr. Hackleman moved to approve the items on the Consent Agenda, and the motion was seconded by Mr. Hoefer. The motion carried with a vote of 7-0, with trustees Battey, David, Hackleman, Hoefer, Lee (for Spinello), Tashman, and Tourel, all in favor; none opposed.

1801.4.1 Disability Retirements:

- a) The Board found that Richard Holman is (1) permanently incapacitated from the performance of his usual and customary duties as an Human Services Supervisor, (2) found that his disability was a result of an injury arising out of and in the course of his employment and (3) granted his application for a service-connected disability retirement.
- b) The Board found that Denise Sorensen is (1) permanently incapacitated from the performance of her usual and customary duties as a Library Assistant II, (2) found that her disability was a 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.

1801.4.2 **Survivor Death Benefits:** The Board found that **Brian Kwong**, would have been entitled to a non-service-connected disability, but died. Sun Hee Kim, the surviving spouse, elected to receive an optional death allowance pursuant to Government Code § 31781.1.

1801.4.3 **Service Retirements:**

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

<u>Member Name</u>	<u>Effective Retirement Date</u>	<u>Department</u>
Brown, Gary T.	October 6, 2017	Sheriff's
Field, Peter	October 28, 2017	Behavioral Health
Figueroa, Cecilia	October 28, 2017	Probation
Hallett, Edward	October 28, 2017	Parks
Harrison, Vaughn	October 28, 2017	Library
Heath, Yvonne	October 14, 2017	Behavioral Health
Jovel, Anna	October 28, 2017	Human Services Agency
Kutzler, Joanne	October 1, 2017	Deferred from Assessor's
Newman, Mary	October 1, 2017	Mental Health
Roinestad, Joy	October 21, 2017	HOS Ob/Gyn
Saunders-Sui, Diane	October 24, 2017	Deferred
Villanis, Christine	October 4, 2017	Probation
Villanueva, Reynaldo	October 28, 2017	HOS Housekeeping
About, James	November 5, 2017	Sheriff's
Buchalter, William	December 1, 2017	Sheriff's
Casanova, Divina	November 29, 2017	Medical Center
Erickson, Joan	November 24, 2017	Medical Center
Gallagher, Kelly	November 4, 2017	Probation
Huertas, Jessica	November 27, 2017	Aging & Adult Services
Lang, Kenneth	November 4, 2017	Deferred from Medical Center
McLaughlin, Joan	December 1, 2017	Environmental Health
Rivera, Silvana	December 1, 2017	HOS Daly City Clinic
Sousa, Deborah	November 15, 2017	HOS Fair Oaks Clinic
Taylor, Marney	November 17, 2017	Public Works
Weinberg, Samuel	December 1, 2017	Probation
Young, Jaime	November 25, 2017	Public Safety Communications

1801.4.4 **Continuances:**

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

<u>Survivor's Name</u>	<u>Beneficiary of:</u>
Grinnell, Elisabeth	Grinnell, George
Kim, Sunhee	Kwong, Brian
Linaja, Rodolfo	Linaja, Violeta
Lundquist, Cheryl	Lundquist, John
Molinar, Vera	Molinar, Adolfo
Stanford, Mae	Stanford, William

1801.4.5 **Deferred Retirements:**

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

<u>Member Name</u>	<u>Retirement Plan Type</u>
Aragona, Sheryll	G4, Vested – Reciprocity
Au, Julia	G5, Vested
Balluom, Jumana	G4, Vested

Becerra, Eric	G4, Vested
Bravo, Stephanie	G7, Non-vested – Reciprocity
Chidester, Mathew	G4, Vested – Reciprocity
Cota, Alexis	G5, Vested
Cruse, Lourdes	G4, Vested – Auto Defer – Gov’t Code 31700
Geranios, James	G4, Vested – Reciprocity
Lu, Wendy	G7, Non-vested – Reciprocity
Newton, Heidi	G4, Vested – Reciprocity
Orozco, Carmen	G3, Non-vested – Reciprocity
Ritchie, Jeannette	G4, Vested
Smith, Sarah	G4, Vested – Reciprocity
Teall, Billie	G4, Vested – Auto Defer – Gov’t Code 31700
Tyrell, Jolly	G4, Vested
Vandrey, Christopher	G4, Vested

1801.4.6 **Member Account Refunds:**

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

<u>Member Name</u>	<u>Retirement Plan Type</u>
Alegria, Rocio	G7, Non-vested
Betanzo, Diana	S4, Vested
Caughey, Robert	S7, Non-veste
Dague, Stacey	P4, Vested
Gillenwater, Jason	G7, Non-vested
Sarate, Miriam	G7, Non-vested
Yang-Liang, Jimmy	G7, Non-vested

1801.4.7 **Member Account Rollovers:**

The Board ratified the actions as listed below for the following members regarding rollovers: None.

1801.4.8 **Member Account Redeposits:**

<u>Member Name</u>	<u>Retirement Plan Type</u>
Stafford, Karrie	G4, Non-vested

1801.4.9 **Acceptance of Trustees’ Reports of Educational Activities Through Outside Provider:** None.

1801.4.10 **Acceptance of Semi-Annual Compliance Certification Statements for the Period Ended December 31, 2017:** The Board accepted the semi-annual Compliance Certification Statements for the Period Ended December 31, 2017 for its non-alternative investment managers and investment consultant.

1801.5.1 **Consideration of Agenda Items, if any, removed from the Consent Agenda:** None.

1801.5.2 **Approval of a Resolution Adopting Cost of Living Adjustments (COLAs) for 2018:**
The Board approved the resolution adopting the cost of living adjustments for 2018, as recommended by Milliman, Inc.

1801.6.1 **Preliminary Monthly Portfolio Performance Report for the Period Ended December 31, 2017:**
Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported that SamCERA’s net preliminary return for December 2017 was 1.1%, while the preliminary trailing twelve-month return ending December 2017 was 14.6% net. This item was informational and for discussion only, no action was taken.

- 1801.6.2 **Presentation of Private Asset Semi-Annual Performance Reports as of June 30, 2017:**
Mr. Shooshani and Mr. Nicolini, from Verus, reviewed the private equity and private real assets portfolios with the Board. Mr. Shooshani provided an overview of SamCERA's private equity portfolio, its performance, diversification strategy and target allocation. Mr. Nicolini reviewed with the Board real assets portfolio performance, various diversification strategy views and provided an update. This item was informational only, no action was taken.
- The meeting was adjourned for a break at 11:11 a.m. and reconvened at 11:17 a.m.
- 1801.6.3 **Presentation on SamCERA's Absolute Return Portfolio:**
Mr. Paul Kreiselmaier and Ms. Jadallah, from Verus, provided an educational presentation on Absolute Return. They summarized and reviewed the different types of hedge fund strategies, SamCERA's current implementation of its absolute return portfolio and alternative beta strategies. This item was informational only, no action was taken.
- (Mr. Hoefer left the meeting at 11:55 a.m.)
- 1801.7.1 **Report on April 25 and 26, 2018 Board-Staff Retreat Planning:**
Mr. Hood reviewed the proposed agenda on the upcoming Board-Staff Retreat in April. Staff is finalizing speakers and offsite location for Day 2 of the Board retreat. This item was informational and for discussion only, no action was taken.
- 1801.7.2 **Report on Upcoming Trustee Elections and Appointments:**
Ms. Smith reported that there are two elected and two appointed seats expiring at the end of June. She has been in contact with the Elections office while Mr. Hood has been in contact with the Board of Supervisors. An election schedule will be brought to the Board in February. This item was informational and for discussion only, no action was taken.
- 1801.7.3 **Report on Strategic Plan Implementation:**
Mr. Hood provided summary of completed strategic items and ones that have been rescheduled for completion in the latter part of the fiscal year.
- 1801.8.1 **Chief Executive Officer's Report:**
Mr. Hood informed the Board that in their Day of Folder, there is an election memo from SACRS for those interested on serving on their Board. He also informed the Board of upcoming CALAPRS conferences and training; Trustee Roundtable on February 2 in Glendale, General Assembly from March 4-6 in Palm Springs and the Advanced Principles for Trustees at UCLA from March 28-30. He reported his attendance at the Administrators Roundtable on January 19 and that he will be meeting with San Mateo County Mosquito & Vector Control District's finance committee and its board in early February. Mr. Hood informed the Board at next month's meeting, they will be provided with a draft Board-Retreat schedule and a budget report.
- 1801.8.2 **Assistant Executive Officer's Report:**
Ms. Smith reminded the Board to sign their education forms found in their Day of Folder. She informed the Board that the newsletters will be going out soon but was waiting for the Board to approve the cost of living adjustment. Ms. Smith also informed the Board that they will be receiving an email with instructions on accessing the online sexual harassment prevention training.
- 1801.8.3 **Chief Investment Officer's Report:**
None.

1801.8.4 **Chief Legal Counsel's Report:**

Ms. Carlson updated the Board on the recent published Court of Appeal decision in *Alameda County Sheriff's Association et al., v. Alameda County Employees' Retirement Association et al.* and discussed key parts of the Court's decision.

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

1801.9 **Report on Actions Taken in Closed Session:** None.

1801.10 **Adjournment:** Mr. Battey adjourned the meeting at 12:17 p.m. in memory of the deceased members listed below.

Bishop, Betty	November 4, 2017	Registrar
Errichetti, Anthony	November 12, 2017	Mental Health
Hicks, Margie	November 17, 2017	Crystal Springs Rehab
Lewis, Virt	November 18, 2017	Medical Center
Fasshauer, Nora	November 19, 2017	District Attorney's
Stanford, William	November 22, 2017	Courts
Ennen, Russell	December 1, 2017	General Hospital
Fields, Margie	December 2, 2017	Controller's
Serverian, Aram	December 5, 2017	Superior Courts
Rackham, Don	December 6, 2017	SMC General Hospital
Moore, Alida	December 9, 2017	Chope Hospital
Giovannini, Helen	December 13, 2017	Chope Hospital
Dawson, Else	December 26, 2017	Human Services Agency
Tarshes, Marvin	December 26, 2017	County Manager
Dillon, Rex	December 29, 2017	Probation
Cohn, Jerry	December 30, 2017	Sheriff
Hanley, Dennis	December 31, 2017	Parks
Legaspi, Carmen	January 3, 2018	Human Services Agency
Luke, Alfred	January 5, 2018	Behavioral Health
Clarke, Kathleen	January 14, 2018	Information Services

Scott Hood
Chief Executive Officer

Gladys Smith
Assistant Executive Officer

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board find that **Samantha Fireman** is (1) not permanently incapacitated for the performance of her usual and customary duties as a Deputy Probation Officer III, and (2) deny her application for a service-connected disability retirement.

- b) The Board find that **Meghan Selig** is (1) not permanently incapacitated for the performance of her usual and customary duties as a Deputy Probation Officer II, and (2) deny her application for a non-service-connected disability retirement.

- c) The Board find that **Tom Sheppard** is (1) permanently incapacitated from the performance of his usual and customary duties as a Correctional Officer, (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.

- d) The Board find that **Robert Stiavetti** is (1) permanently incapacitated from the performance of his usual and customary duties as a Stationary Engineer, (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.

4.2 Survivor Death Benefits

None.

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
Ammerman, Mark	December 26, 2017	Sheriff's
Anaya, Roberto	December 18, 2017	Deferred from Human Resources
Burr, Letecia	December 8, 2017	H.S.A.
Dellamonica, Laura	January 1, 2018	Deferred from Medical Center

Himmist, Marja	December 30, 2017	Aging and Adult Services
Jimenez, Maria	December 28, 2017	Family Health
McDougall, Michael	December 9, 2017	Deferred from General Services
Mucha, Jerome	December 30, 2017	H.S.A.
Pineda, Edgardo	December 30, 2017	Courts
Pineda, Veronica	December 30, 2017	Family Health Services
Preston, Helen	December 16, 2017	Aging and Adult Services
Rashed, Shawna	December 2, 2017	Courts
Thomas, John	December 3, 2017	Medical Center
Toy-Wong, Valerie	December 28, 2017	Deferred from Social Services
Yamamoto, Conrad	December 3, 2017	Library

4.4 Continuances

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

Survivor's Name	Beneficiary of:
Dillon, Nola	Dillon, Rex
O'Donnell, Noreen	Fasshauer, Nora
Rackham, Elaine	Rackham, Don
Serverian, Hasma	Serverian, Aram
Fields, Elridge	Fields, Margie

4.5 Deferred Retirements

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

Member Name	Retirement Plan Type
Anicete, Maria Theresa	G4, Vested– Auto Defer - Code 31700
Johnson, Lauren K.	S4, Vested– Auto Defer - Code 31700
McCracken, Elizabeth E.	G5, Vested– Auto Defer - Code 31700
Paraiso, Jenifer Helise	G4, Vested– Auto Defer - Code 31700
Quan, Jennifer	G4, Vested– Auto Defer - Code 31700
Robinson, Stephen	S4, 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
Arguello, Carlos	G2, Non-vested
Armenta, Casandra	G7, Non-vested
Briseno Sahagun, J Jesus	G7, Non-vested
Cano, Ciara	G7, Non-vested
Carpio, Jose	G7, Non-vested
Chambers, Nicole	G7, Non-vested
Foz, Angela	G7, Non-vested
Gomez, Sandra	G4, Vested
Haimowicz, Andrea	G7, Non-vested
Lerchin, Harvey	G1, Vested
Lodin, Farhad	G7, Non-vested
Mahoney, Brian	G7, Non-vested
Panaligan, Gil-John	G7, Non-vested
Prowitt, Sarah	G7, Non-vested
Rose, Brian (QDRO)	G3/G4, Non-vested
Tunchez, Maria	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
Boeldt, Angela	G7, Non-vested
Brasel, Leslie	G7, Non-vested
Cheng, James	G7, Non-vested
Collison, Amanda	G7, Non-vested
Gray, Seth	G7, Non-vested
Hayes, Rosario	G7, Non-vested
Hsu, Sheng	G5, Non-vested
Lerchin, Harvey	G1, Vested

Ochoa, Veronica	G5, Vested
Salmeron, Daisy	G7, Non-vested
Stanton, Kristine	G7, Non-vested
Teo Aukusitino, Myra	G4, Non-vested

4.8 Member Account Redeposits

None.

4.9 Acceptance of Trustees' Reports of Educational Activities

None.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 4.10

TO: Board of Retirement

FROM: Doris Ng, Retirement Investment Analyst 

SUBJECT: Semi-Annual Compliance Certification Statements for Period Ended December 31, 2017

Staff Recommendation

Accept the semi-annual Compliance Certification Statements for the Western Asset Management Total Return Unconstrained Bond Fund and Franklin Templeton Global Multisector Plus Bond Fund, as of December 31, 2017.

Background

As part of SamCERA's ongoing due diligence process, the Compliance Certification Statement is completed by each of the association's public equity, fixed income, real estate, risk parity and cash overlay investment managers and investment consultant on a semi-annual basis.

These statements are used to update SamCERA on any firm-wide compliance issues and to provide strategic-level information regarding such things as derivatives and portfolio positioning. For investment managers whose investments are considered "alternative investment vehicles" per the California Government Section Code §6254.26, the Compliance Certification Statements are not provided in the public board packet and will be sent separately to the Board.

The attached Compliance Certification Statements (along with applicable statements for "alternative investment vehicles" – which will be submitted separately to the Board) were not received in time to be included in the mailing for the January Board meeting.

Discussion

The attached Compliance Certification Statements report that SamCERA's investment managers, Western Asset Management and Franklin Templeton, are in compliance with SamCERA's Investment Policy as of December 31, 2017. There were no reported significant developments in portfolio construction, investment approach, firm ownership or organizational structure. There were no notable issues regarding industry or regulatory actions that impact SamCERA. The managers were also requested to provide data regarding the characteristics and composition of their portfolios. No prominent issues were identified during the review. Any items that raise concern will be brought to the manager's or investment consultant's attention and will be thoroughly vetted by staff.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Attachments

Compliance Certification Statement Matrix 12-2017

Compliance Certification Statements (2)

- A. Domestic Fixed Income: Western Asset Management
- B. Global Fixed Income: Franklin Templeton

Compliance Certification Statement Matrix – December 31, 2017

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Domestic Fixed Income					
Western		<ul style="list-style-type: none"> • Mar 2019-Carl Eichstaedt, PM, Broad Mkt Inv Team to retire • Dec 2018-Kenneth Winston, Chief Risk Officer to retire, to be succeeded by Ahmet Kocagil. 	<ul style="list-style-type: none"> • Largest single counterparty: BAML 2.08% of portfolio 	No Concerns	<ul style="list-style-type: none"> • 23.04% Rule 144A securities
Global Fixed Income					
Franklin Templeton		<ul style="list-style-type: none"> • Aug 2017-Owen Solis joined as rsrch associate 	No Concerns	No Concerns	No Concerns

Western Asset Management Total Return Unconstrained – December 31, 2017

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, January 8, 2018**.

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?

Yes: Please explain. / **No**

During the reporting period, the following personnel changes were announced:

- Mr. Carl L. Eichstaedt, Portfolio Manager and member of the Firm's Broad Market investment team, has announced his plans to retire in March 2019 after 23 years of service at Western Asset. Mr. Eichstaedt will continue to play a role in the management of the portfolios and will work to transition his responsibilities to the broader Broad Market portfolio management team during the transition period.
- After serving as Chief Risk Officer (CRO) since October 2008, Mr. Kenneth Winston plans to retire effective December 31, 2018. Western Asset is pleased to announce the appointment of Mr. Ahmet Kocagil as Mr. Winston's successor. Mr. Kocagil joined the Firm in January 2017 as a member of the risk team focusing specifically on credit risk and has been working closely with the broader risk, investment and client service professionals to continue to enhance risk tools and insights. Over the next year, Mr. Winston and Mr. Kocagil will work closely together to ensure a smooth transition and continued enhancement of the Firm's best-in-class risk team and processes, quantitative solutions and proprietary risk system (WISER). Mr. Kocagil will assume full CRO responsibilities by June of 2018.

2. Have there been any changes in the firm's investment approach?

Yes: Please explain. / **No**

3. Have there have been any industry or regulatory disciplinary actions taken against the firm?

Yes: Please explain. / **No**

4. Has the firm's insurance coverage been sustained?

Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes** / **No: Please explain.**
4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes / **No: Please explain.**
5. Is individual counter-party exposure well diversified? **Yes** / **No: Please explain.**
a) What is the largest exposure to a single counter-party within the portfolio?
2.08%
b) Please specify the name of the counter-party and the amount of exposure.
BAML – \$33,901,110.31
c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
No material changes within derivative counterparties
6. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.

The pricing sources used for derivatives will vary depending on the derivative instrument and clearing method. For example, for exchange traded instruments such as futures, Bloomberg is used to receive the settlement price from the exchange the derivative contract is traded on. For OTC derivatives which are cleared, Western Asset will receive the valuations from the exchange the derivative is cleared. For non-cleared OTC derivatives, Western Asset's primary pricing vendor is Markit. The Firm will consider secondary sources such as Bloomberg swap models, mark-to-market counter party statements or internal model methodology if Markit does not cover an OTC derivative instrument. Western Asset has a formal pricing policy, which outlines the pricing process in greater detail and is provided in Appendix A.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Western Asset's management style focuses on adding incremental value without taking on excessive risk. To ensure that the Firm's use of derivative instruments is consistent with this investment philosophy, Western Asset has developed the following guidelines—listed below along with a brief description of their rationale—which form the basis of every decision to employ derivatives in the Firm's investment portfolios:

- The duration contribution of derivatives will not bring the portfolio's duration outside the portfolio's specific duration band.
- Where a portfolio enters into forward foreign exchange contracts the aggregate underlying exposure of the portfolio attained through such contracts shall not exceed 100% of the portfolio's market value.
- A portfolio's gross exposure to forward foreign exchange contracts shall not exceed 50% with any single counterparty and net exposure shall not exceed 25% with any single counterparty. Net exposure is defined as the value (in account base currency terms) of open forward foreign exchange purchase contracts less forward foreign exchange sale contracts. Gross exposure is defined as the value (in account base currency terms) of open forward foreign exchange purchase contracts plus forward foreign exchange sale contracts.
- The net notional exposure to index and credit default swaps will count at their full notional value as exposure to the underlying asset. Concentration limits for a particular name or asset class will apply based on the net sum of its cash and derivative security holdings.
- Short (written) options positions will always be covered, either with current security holdings, other options or futures positions. Mortgage derivatives with significant short option characteristics will not exceed 5% of the portfolio, and will generally be a) offset by positions in other mortgage derivatives (e.g., floaters and inverse floaters), or b) offset by other portfolio positions (e.g., IOs and long duration bonds).
- Futures and options contracts will be limited to liquid instruments actively traded on major exchanges or, if over-the-counter, executed with major dealers.
- Swap contracts are considered over-the-counter contracts between two parties and have counterparty credit risk different from exchange traded derivatives. Western Asset tries to limit its counterparty risk by executing swaps with the strongest financial counterparties. The vast majority of these counterparties are rated is A- or better. In addition, collateral agreements will be in place to trigger margin movement whenever the current mark-to-market amount to be paid or received by either counterparty exceeds a threshold amount.

- Finally, under no circumstances will the derivative positions change the characteristics of the portfolio so that it violates any guideline set forth in the Investment Management Agreement.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**
2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Domestic Fixed Income Portfolios

1. State the percentage of the portfolio held in each of the following types of securities
*Note – please see attached Factsheet for sector exposures.

<i>Treasury</i>	<i>%</i>
<i>Agency</i>	<i>%</i>
<i>Inflation-Linked</i>	<i>%</i>
<i>Mortgage-Backed</i>	<i>%</i>
<i>Asset-Backed</i>	<i>%</i>
<i>Investment-Grade Credit</i>	<i>%</i>
<i>High-Yield Credit</i>	<i>%</i>
<i>Bank Loan</i>	<i>%</i>
<i>Non-US</i>	<i>%</i>
<i>EM Government</i>	<i>%</i>
<i>EM Local Currency</i>	<i>%</i>
<i>EM Corporate</i>	<i>%</i>
<i>Cash & Equivalents</i>	<i>%</i>
<i>Total</i>	<i>%</i>

2. Does the firm conduct horizon analysis testing? **Yes** / **No: Please explain.**

Western Asset's investment management team estimates horizon excess returns under various market scenarios, including best, worst and likely cases. Particular attention is paid to diversifying strategies under each scenario. The horizon for risk management is the same as that for investment management, as the risk effort is closely integrated into the investment process. The firm's tracking error model calculates predicted tracking errors based on 18 months of historical data. Western Asset also generates scenario analysis results daily for representative accounts. These results estimate horizon durations given various interest rate shocks. The horizon is generally instantaneous as Western Asset evaluates one day extreme movements in rates for duration hedging purposes. The Firm's systems allow for any time horizon and can output a wide array of horizon performance or analytics related statistics.

3. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio? Yes / No

a) If **Yes**, please specify the bond issue and percentage amount.

4. What percentage of the portfolio is held in Rule 144A securities?
23.04%

5. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account. Yes / No

a) If **Yes**, please specify the name of the industry, percentage amount and size relative to benchmark.

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

As of December 31, 2017, Western Asset's Total Return Unconstrained (TRU) Bond product makes up 1.1% of Firmwide AUM, and SamCERA's account comprises 2.6% of total TRU Bond product assets.

Signed by: James Raffini

Dated: 1/16/2018

Name of Firm: Western Asset Management Company



FRANKLIN TEMPLETON
INVESTMENTS

January 18, 2017

RESPONSE TO COMPLIANCE CERTIFICATION STATEMENT FROM
San Mateo County Employees' Retirement Association

Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7)
Review Period: July 1, 2017 – December 31, 2017

Bill Deakyne, CFA

Senior Vice President – Director of Institutional Client Relations
Franklin Templeton Institutional

tel: (650) 312-2270

email: bill.deakyne@franklintempleton.com

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APPENDIX 1

FRANKLIN ADVISERS, INC. REGULATORY HISTORY

Please note that the San Mateo Employees' Retirement account is in a 3c7 fund and is no longer managed in a separately managed account within the guidelines of an investment management agreement (IMA).

As such, any references to the terms, guideline(s) and policy statement(s) within this questionnaire refer to the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd.'s offering documents and/or private placement memorandum.

GENERAL COMPLIANCE ISSUES

1. **Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?**

Yes No

If yes, please explain.

Portfolio Developments

There have been no significant developments to the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. over the last six months ended December 31, 2017.

Firm Ownership

There have been no material changes to the ownership structure of Franklin Resources, Inc. (Parent Company) during the past six months ended December 31, 2017.

Organizational Structure

There have been no material changes to the organizational structure of Franklin Resources, Inc. (Parent Company) during the past six months ended December 31, 2017.

There have been no significant developments to the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. over the last six months ended December 31, 2017.

Personnel

The investment team responsible for managing the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd., the Templeton Global Macro group, has experienced limited turnover during the past six months ending December 31, 2017. In August 2017, Owen Solis joined the team as a research associate.

2. **Have there been any changes in the firm's investment approach?**

Yes No

If yes, please explain.

3. **Have there have been any industry or regulatory disciplinary actions taken against the firm?**

Yes No

If yes, please explain.

During the period of July 1, 2017 through December 31, 2017, Franklin Advisers Inc. (FAV) was not the subject of any *investment-related proceedings, findings or orders* brought or made by any U.S. federal or state regulatory agency, *foreign financial regulatory authority or self-regulatory organization*.

For a summary of *investment-related proceedings, findings or orders* brought or issued by any such regulatory entity against FAV and/or certain of its *advisory affiliates* in the past 10 years ended December 31, 2017, as well as certain

other regulatory matters, please see Appendix 1: Franklin Advisers, Inc. Regulatory History. In addition, from time to time, FAV and its *advisory affiliates* receive subpoenas and inquiries including requests for documents or information, from governmental authorities or regulatory bodies and also may be the subject of governmental or regulatory examinations or investigations. *Investment-related proceedings, findings or orders* resulting from such subpoenas, inquiries, examinations or investigations if any, will be reported, to the extent required and permitted by law, on FAVs Form ADV filed with the U.S. Securities and Exchange Commission. (Italicized terms are as defined on Form ADV.)

4. Has the firm's insurance coverage been sustained?

Yes **No**

If no, please explain.

INVESTMENT MANAGEMENT FEES

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes No

If yes, please explain.

DERIVATIVE INVESTMENTS

1. Are derivatives used in the management of the investment strategy?

Yes No

If Yes, please answer the remaining questions in this section. If No, please skip the remaining questions in this section.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?

Yes No

If no, please explain.

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?

Yes No

If yes:

a) Do the counter-parties have investment grade debt?

Yes No

b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances?

Yes No

If no, please explain.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?

Yes No

If yes:

a) Do the counter-parties have investment grade debt?

Yes No

b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?

Yes No

If no, please explain.

5. Is individual counter-party exposure well diversified?

Yes **No**

The risk exposure to a single counterparty in an OTC derivative transaction may not exceed 10%.

All proposed counterparties are subject to review and initial approval by the Counterparty Credit Committee satisfying certain credit and other standards. The Counterparty Credit Committee and Portfolio Analysis and Investment Risk (PAIR) team provide ongoing monitoring of counterparties creditworthiness and FTI-wide exposure. Counterparty risk is an issue addressed at a firm-wide level by Franklin Templeton. Franklin Templeton requires all OTC counterparties to maintain a credit rating of BBB- or better. Additionally, Funds are only permitted to enter into derivative instruments with counterparties included on the "approved list" maintained by the investment manager in conjunction with the counterparty credit risk policy. PAIR calculates Account and FTI-wide exposure to each counterparty on a weekly basis, and on an as needed basis based on market conditions. Total exposure is compared to monetary limits that vary based on the size and creditworthiness of the counterparty.

Finally, the majority of our counterparty relationships are collateralized. This means that an account is set up in between FTI and the counterparty and every night the side that "lost" on the trade that day transfers the equivalent amount of cash or T-bills into the account to reflect the mark-to-market of the derivative's value. The account itself is ring-fenced and protected from the balance sheet of either firm. Therefore, should one of our counterparties go out of business overnight it would not affect the value of the trade we have on, given that the trade's cash value would be in the collateral account and protected from creditors.

If no, please explain.

- a) **What is the largest exposure to a single counter-party within the portfolio?**
- b) **Please specify the name of the counter-party and the amount of exposure.**
- c) **Have there been any changes to the investment manager's list of approved counter-parties over the past six month?**

Counter-party exposure cannot be released under fair disclosure rules.

Changes to our approved list of counter-parties routinely occur nearly every month.

6. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.

Not applicable. No limited allocation derivative investments are held in the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Derivatives will only be used when client guidelines permit and Franklin Templeton's proprietary risk management systems enable us to properly model derivative instruments and fully understand portfolio risk. Derivative instruments are used for hedging purposes and for efficient portfolio management when we determine that it is more

cost or tax efficient to use a derivative instrument rather than investing directly in the underlying bond or currency market. Compared with cash bonds, derivatives can be more flexible and more liquid, and may have lower transaction costs. In those strategies that employ derivative instruments, or when clients request the use of derivatives to achieve certain investment objectives, we may also seek to gain exposure through the use of exchange-traded and/or over-the-counter derivatives.

As an opportunistic strategy, the Templeton Global Multisector Plus Strategy (the investment strategy of the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd.) utilizes a wide variety of instruments to gain exposure to various fixed income sectors and achieve strategy objectives. For example, foreign exchange forward contracts are frequently used in the implementation of its overall strategy, either for hedging purposes and/or to express positive and negative currency views. We may also engage in cross hedging as an efficient method of implementing the portfolio's optimal currency structure. Interest rate swaps may also be used to implement views on interest rates, quickly adjust portfolio duration, or efficiently handle cash flows.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months.

Yes No

If yes, please explain.

INVESTMENT MANAGER GUIDELINES

1. Are portfolio holdings well-diversified, and made in liquid securities?

Yes No

As an essential part of the investment process, liquidity risk is researched in the security selection stage. Our research analysts and traders partner to ensure that any required liquidity provisions can be met given the risk parameters of the underlying mandate. In the event that, within the confines of the account structure, we invest in securities that have limited liquidity, we seek to ensure that investors are being adequately compensated for any liquidity risk. On an ongoing basis, analysts are required to ensure that current market prices reflect attractive valuations. Liquidity risk is further controlled by monitoring aggregate ownership levels to help ensure that they remain prudent.

The global government bond and foreign currency markets in which the fund invests are among the largest and most liquid markets in the world. We generally seek to avoid holding assets in which we believe forced selling could occur at stressed levels due to liquidity constraints. Historically, the fund has never experienced any significant issues with liquidity, and we do not believe that liquidity issues going forward are likely to be of great concern, regardless of the economic environment.

It is also important to note that at a firm level, we have our Global Credit Facility, an unsecured, senior committed line of credit, if required as a source of funds for temporary and emergency purposes to meet unanticipated or unusually large redemption requests by shareholders. In the case that this facility would be needed, this would provide the portfolio managers with added flexibility in managing redemptions without disrupting our ability to meet our investment objectives and serve the long-term interests of our shareholders. Currently, it is undrawn.

If no, please explain.

2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities?

Yes No

The Templeton Global Multisector Plus Strategy does not engage in short selling, employ leverage, margins or investments in commodities.

If yes, please explain.

GLOBAL FIXED INCOME PORTFOLIOS

1. State the percentage of the portfolio held in each of the following types of securities (please sub-total each by region):

The following table represents the sector versus region breakdown as of December 31, 2017.

Sector	Region	MV%
Certificates of Deposit (by region)		
Cash & Cash Equivalents		20.90
Preferred Stock ^[1]		0.65
Commercial Paper (by region)		
Other high grade short-term securities (by region)		
Government securities (by region)		
	US	
	Non-US	74.04
Agency Securities (by region)		
	US	
	Non-US	3.75
Investment Grade Corporate Bonds (by region)		
	US	
	Non-US	0.13
High Yield Corporate Bonds (by region)		
	US	0.09
	Non-US	0.01
Mortgage and asset-backed securities (by region)		
Supranational		0.06
Derivatives		-0.57
Bank Loans		
Other ^[2]		0.94
Total		100.00

^[1] Includes Convertibles.

^[2] Other includes 0.93% Sovereign and 0.01% Equity.

The following table represents the regional breakdown for the portfolio as of December 31, 2017.

Region	Percentage (%)
Americas	41.30
Asia	28.99
Europe/Africa	8.75
Cash and Cash Equivalents	20.90
Other	0.00
Supranational	0.06
Total	100.00

2. Please list any holdings that are below investment grade or not-rated

The table below represents the allocation ratings data, as of December 31, 2017. During that quarter, 48.55% of the portfolios fall below investment grade or are not rated.

Range	IG/Non-IG	Percentage
AAA	IG	0.06
AA+	IG	0.00
AA	IG	12.25
AA-	IG	0.00
A+	IG	0.00
A	IG	0.13
A-	IG	17.60
BBB+	IG	4.6
BBB	IG	6.39
BBB-	IG	10.42
BB+	Non-IG	2.19
BB	Non-IG	13.4
BB-	Non-IG	0.00
B+	Non-IG	0.3
B	Non-IG	5.19
B-	Non-IG	5.82
CCC+	Non-IG	0.00
CCC	Non-IG	0.00
CCC-	Non-IG	0.00
CC+	Non-IG	0.00
CC	Non-IG	0.00
C	Non-IG	0.00
D	Non-IG	0.00

San Mateo County Employees' Retirement Association

Range	IG/Non-IG	Percentage
NR	Non-IG	0.75
N/A	Non-IG	0.00
Cash & Cash Equivalents	Non-IG	20.90

3. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio?

Yes No

If yes, please specify the bond issue and percentage amount.

4. What percentage of the portfolio is held in Rule 144A securities?

As of December 31, 2017, the portfolio held no Rule 144A securities.

5. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account.

Yes No

If yes, please specify the name of the industry and percentage amount.

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does the SamCERA's account comprise of total product assets?

The table below provides assets under management figures requested regarding the Templeton Global Multisector Plus strategy and the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7), as of December 31, 2017.

	Assets Under Management ^[1] (in Millions \$)	% of Total Firm Assets
Templeton Global Multisector Plus Strategy	40,677.07	5.40
Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7)	1,087.55	0.14

^[1] This information relating to assets under management (AUM) is being provided in response to the particular request contained in the Due Diligence Questionnaire and the figures provided may, therefore, be categorized differently than those reported for regulatory or other disclosure purposes. AUM includes assets for which the firm provides various investment management services as described in Franklin Resources, Inc.'s current Form 10K (See Item I, "Business". A copy of the current Form 10K as well as the most recent Annual Report can be located at www.franklinresources.com). The way we calculate our AUM may change from time to time based on such factors as changes in industry standards, regulatory requirements or specific requests.

The table below provides the requested figures regarding the SamCERA account assets compared to Templeton Global Multisector Plus strategy and the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7), as of December 31, 2017.

SamCERA Assets Under Management (in Millions \$)	% of Strategy Assets	% of Product Assets
41.04	0.10	3.77

Signed By: 

Name: Breda Beckerle

Title: Chief Compliance Officer

Dated: Thursday, January 18, 2018

Name of Firm: Franklin Advisers, Inc. (FAV)

IMPORTANT NOTES

This response (the Response) is based on the information provided in the Due Diligence Questionnaire (the Questionnaire). To the extent any such information in the Questionnaire is incomplete or inaccurate, Franklin Templeton reserves the right to alter, amend or delete any information it has provided in the Response. Franklin Templeton has prepared the Response in good faith and, to the best of its knowledge; all information provided in the Response is accurate as of the date submitted. Information, including all data, provided in the Response is unaudited, unless otherwise indicated. Additionally, any information relating to assets under management (AUM) is being provided in response to the particular request contained in the Questionnaire and the figures provided may, therefore, be categorized differently than those reported for regulatory or other disclosure purposes. AUM includes assets for which the firm provides various investment management services as described in Franklin Resources, Inc.'s current Form 10K (See Item I, "Business". A copy of the current Form 10K as well as the most recent Annual Report can be located at www.franklintempleton.com). The way we calculate our AUM may change from time to time based on such factors as changes in industry standards, regulatory requirements or specific requests. Any information from third-party sources is believed to be reliable, but Franklin Templeton cannot guarantee its accuracy or completeness. Information set forth in the Response is subject to change and Franklin Templeton does not undertake any duty to update the Response after its issuance nor does it accept responsibility for any modifications made to the Response after its date of issue. Responses may include a general description of the types of services Franklin Templeton may provide to its clients and may not be applicable or tailored to the Questionnaire. Data shown for currency exposure, country exposure, maturity, duration, coupon allocation, sector allocation and asset allocation may reflect certain derivatives held in the portfolio (or their underlying reference assets). Breakdowns may not total 100% or may be negative due to rounding, use of derivatives, unsettled trades or other factors.

The information contained in the Response is solely for the purpose of responding to the Questionnaire, shall be treated as confidential, and shall be distributed internally on an as-needed basis only. Subject to applicable regulatory requirements, it shall not be distributed or otherwise communicated to third parties (other than any consultant engaged by the issuer of the Questionnaire to assist in connection therewith) without the prior written consent of Franklin Templeton. Any such consultant shall likewise be obligated to treat the Response as confidential.

Investing may involve a high degree of risk. The issuer of the Questionnaire is deemed to be an experienced institutional investor or consultant and is expected to make its own independent assessment of the appropriateness and the associated risks of investing. Franklin Templeton shall not be held liable for any losses or damages arising out of any person's reliance upon the information contained in the Response. Except as expressly provided in the Response, no person, firm, or corporation has been authorized to give any information or to make any representation other than those contained in the Response.

All investors should inform themselves as to the legal and other requirements applicable to them with respect to any investments, holdings, and/or disposition of any investments. Franklin Templeton takes no responsibility for informing or advising investors of any applicable laws or regulations.

Views or opinions expressed in the Response do not constitute investment, legal, tax, financial or other advice. The Response is neither an offer for a particular security nor a recommendation to purchase any investments. The way Franklin Templeton implements its investment strategies and the resulting portfolio holdings may change depending on a variety of factors such as market and economic conditions, as well as client account guidelines and restrictions, if applicable. The information provided in the Response is not a complete analysis of every aspect of any market, country, industry, security, strategy or portfolio. Past performance does not guarantee future results and results may differ over future time periods.

By accepting these materials, you confirm your acceptance of the above terms.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 6.1

TO: Board of Retirement

Michael R Coultrip

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Preliminary Monthly Portfolio Performance Report for the Period Ended January 31, 2018

Staff Recommendation

Accept the preliminary performance report dated January 31, 2018.

Background

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

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

Discussion

The fund's net preliminary return for January was 2.5%, bringing the preliminary trailing twelve-month return ending January 2018 to 15.5% net. The twelve-month net return is below SamCERA's Plan Benchmark return of 16.8%, but is higher than SamCERA's Actuarial Assumed Earnings Rate of 6.75%.

January was yet another good month for risk assets, with higher global equity prices, subdued market volatility, and tightening credit spreads producing generally positive returns. The broad U.S. equity market (as measured by the Russell 3000 Index) was up 5.3%, while developed international equity (as measured by MSCI EAFE) was up 5.0%. Emerging markets were also higher by 8.3%.

Economic data continued to show strength, with real GDP growing at an annual estimated rate of 2.6% in the fourth quarter of 2017. Manufacturing, the labor market, and consumer confidence all continued to show strength during January. Inflation remained low in January, but there are signs of inflation pressures potentially growing.

The general U.S. fixed income market was down 1.2% during the month as investors shifted assets out of Treasuries and into equities. Higher interest rates more than offset tighter credit spreads, resulting in negative returns. The 10-year U.S. Treasury yield was sharply higher during the month, with the yield increasing 30 basis points and ending at 2.71% by month-end.

Attachments

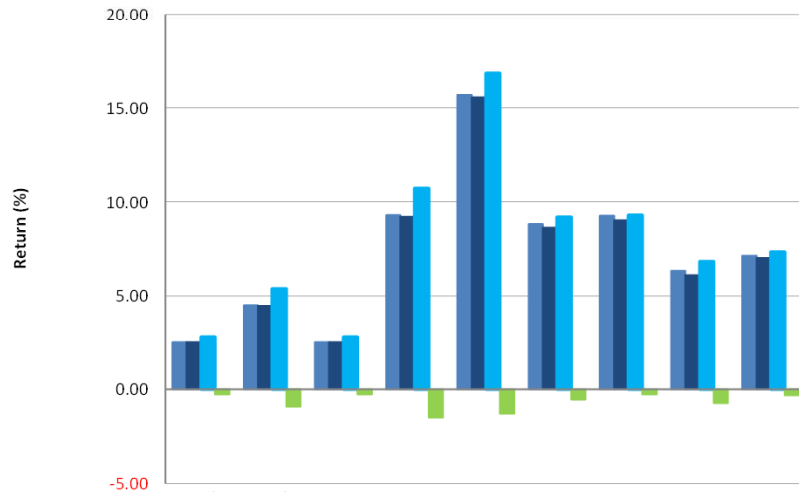
Northern Trust Performance Report
Verus Capital Markets Update

San Mateo County Total Fund Characteristics

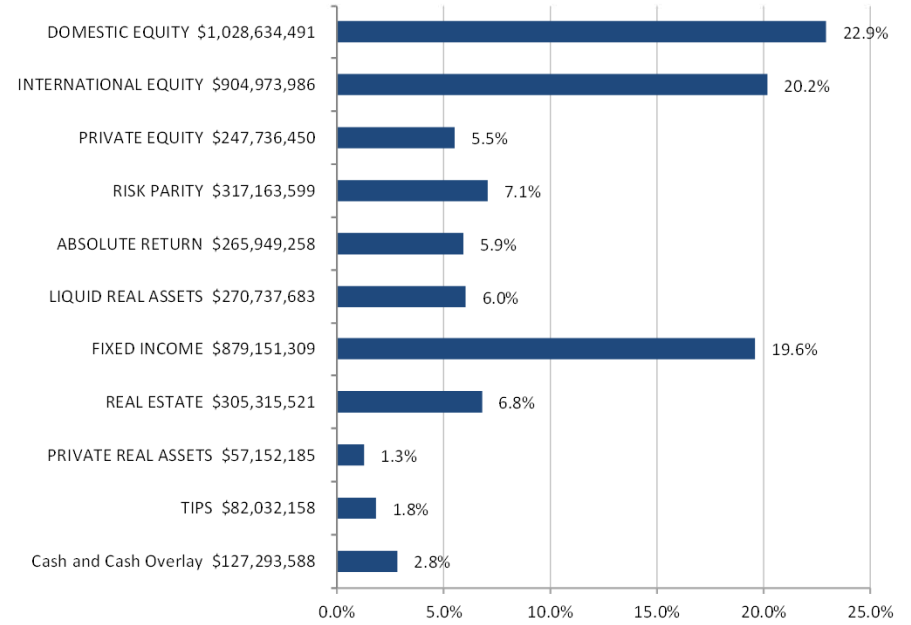


January 31, 2018

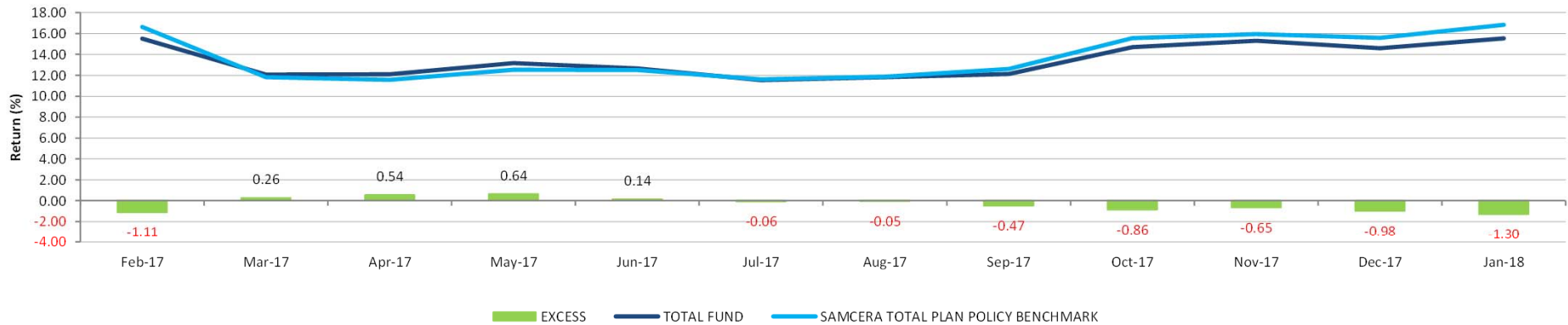
Total Fund Performance



Asset Allocation



Rolling Month End Annual Returns

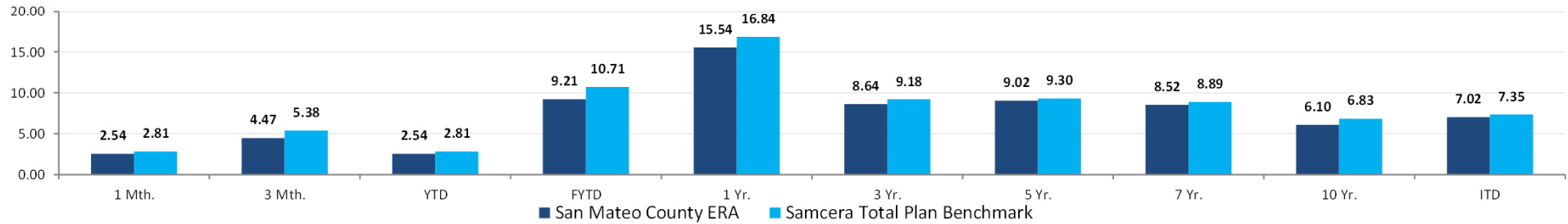


San Mateo County Composite Return Summary



January 31, 2018

Return Comparison



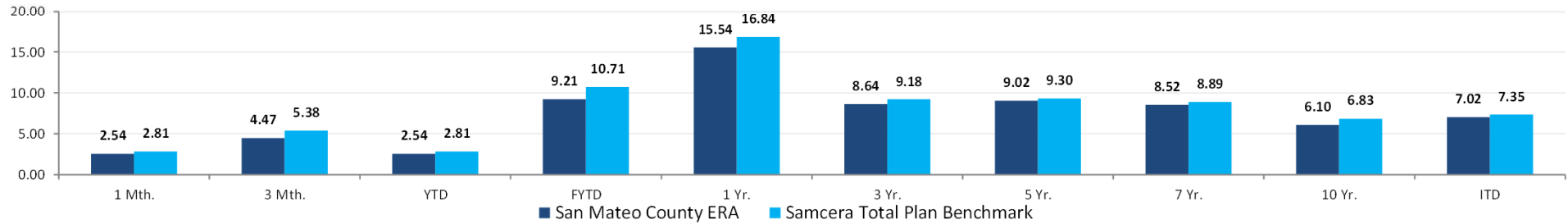
Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County ERA	4,486,140,230	2.54	4.47	2.54	9.21	15.54	8.64	9.02	8.52	6.10	7.02
Samcera Total Plan Benchmark		2.81	5.38	2.81	10.71	16.84	9.18	9.30	8.89	6.83	7.35
Excess		-0.27	-0.91	-0.27	-1.51	-1.30	-0.55	-0.28	-0.38	-0.74	-0.33
San Mateo Ex-Clifton Overlay	4,470,238,234	2.57	4.50	2.57	9.22	15.49	8.54	8.96	8.47	6.01	6.94
Samcera Total Plan Benchmark		2.81	5.38	2.81	10.71	16.84	9.18	9.30	8.89	6.83	7.35
Excess		-0.24	-0.88	-0.24	-1.50	-1.35	-0.65	-0.34	-0.43	-0.82	-0.40
Total Equity	1,933,608,477	5.22	8.64	5.22	16.40	26.60	12.66	12.61	10.80	7.05	8.25
Samcera Total Equity Benchmark		5.33	9.40	5.33	17.19	26.08	13.46	13.45	11.71	8.28	8.82
Excess		-0.10	-0.76	-0.10	-0.79	0.52	-0.79	-0.84	-0.91	-1.24	-0.58
Fixed Income	879,151,309	-0.19	0.34	-0.19	1.61	4.82	3.69	3.49	4.92	5.15	5.62
Samcera Fixed Income Benchmark		-0.79	-0.61	-0.79	0.76	3.41	2.33	2.20	3.46	4.04	5.03
Excess		0.60	0.94	0.60	0.85	1.41	1.36	1.29	1.46	1.10	0.59
Risk Parity	317,163,599	0.30	2.11	0.30	8.71	14.23	5.11	5.50	--	--	6.82
Samcera Risk Parity Benchmark		2.71	5.02	2.71	9.68	15.85	9.13	10.21	--	--	9.52
Excess		-2.41	-2.92	-2.41	-0.97	-1.63	-4.02	-4.71	--	--	-2.70

San Mateo County Composite Return Summary



January 31, 2018

Return Comparison



Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Alternatives	513,685,709	0.74	1.50	0.74	4.64	9.88	6.58	5.28	5.65	-7.96	-2.41
Samcera Alternatives Benchmark		3.18	6.12	3.18	11.45	17.39	9.67	9.36	8.86	7.09	8.00
Excess		-2.45	-4.63	-2.45	-6.80	-7.51	-3.09	-4.09	-3.21	-15.05	-10.41
Inflation Hedge	715,237,548	1.83	2.89	1.83	5.88	8.42	--	--	--	--	11.24
SamCERA Inflation Hedge Index		1.10	3.52	1.10	7.83	9.85	--	--	--	--	9.72
Excess		0.73	-0.63	0.73	-1.95	-1.43	--	--	--	--	1.52
Cash	111,391,592	0.05	0.24	0.05	0.49	0.83	0.59	0.59	0.61	0.44	1.97
Samcera Cash Benchmark		0.12	0.31	0.12	0.67	0.93	0.45	0.29	0.24	0.35	1.83
Excess		-0.07	-0.07	-0.07	-0.18	-0.10	0.14	0.29	0.37	0.08	0.14

San Mateo County Manager Return Summary



January 31, 2018

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	1,933,608,477	5.22	8.64	5.22	16.40	26.60	12.66	12.61	10.80	7.05	8.25
Samcera Total Equity Benchmark		5.33	9.40	5.33	17.19	26.08	13.46	13.45	11.71	8.28	8.82
Excess		-0.10	-0.76	-0.10	-0.79	0.52	-0.79	-0.84	-0.91	-1.24	-0.58
Domestic Equity	1,028,634,491	4.95	8.87	4.95	16.74	24.53	14.07	15.06	13.14	9.11	9.01
Samcera Dom. Equity Benchmark		5.27	9.55	5.27	17.06	25.16	13.97	15.34	13.81	9.91	9.37
Excess		-0.32	-0.68	-0.32	-0.32	-0.63	0.10	-0.27	-0.66	-0.80	-0.36
Large Cap Equity	895,138,904	5.29	9.60	5.29	17.66	26.04	15.07	15.98	13.70	9.36	9.78
Russell 1000		5.49	9.92	5.49	17.47	25.84	14.28	15.72	14.15	9.85	10.09
Excess		-0.20	-0.32	-0.20	0.18	0.21	0.79	0.26	-0.45	-0.50	-0.31
Blackrock Russell 1000	737,104,496	5.49	9.91	5.49	17.47	25.86	--	--	--	--	25.71
Russell 1000		5.49	9.92	5.49	17.47	25.84	--	--	--	--	25.46
Excess		0.00	-0.01	0.00	-0.01	0.02	--	--	--	--	0.24
DE Shaw Commingled Fund	158,034,408	4.38	8.22	4.38	18.62	27.13	15.41	--	--	--	14.62
Russell 1000		5.49	9.92	5.49	17.47	25.84	14.28	--	--	--	12.85
Excess		-1.11	-1.69	-1.11	1.15	1.29	1.12	--	--	--	1.77
Small Cap Equity	133,495,587	2.75	4.28	2.75	11.02	15.09	8.88	10.73	10.68	7.84	6.83
Russell 2000		2.61	5.14	2.61	12.05	17.18	12.12	13.33	12.07	9.76	8.30
Excess		0.14	-0.87	0.14	-1.03	-2.09	-3.24	-2.60	-1.39	-1.92	-1.47
QMA US Small Cap	133,495,587	2.75	4.28	2.75	11.02	15.09	--	--	--	--	20.20
Russell 2000		2.61	5.14	2.61	12.05	17.18	--	--	--	--	19.66
Excess		0.14	-0.87	0.14	-1.03	-2.09	--	--	--	--	0.53
International Equity	904,973,986	5.53	8.35	5.53	16.00	29.23	10.18	7.89	6.06	2.70	6.13
MS AC WIdxUS IMI Nt		5.48	8.94	5.48	17.95	30.15	10.39	7.50	5.83	3.81	5.73
Excess		0.05	-0.59	0.05	-1.95	-0.92	-0.21	0.38	0.23	-1.10	0.40

San Mateo County Manager Return Summary



January 31, 2018

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Developed Markets Equity	802,426,205	5.36	8.01	5.36	15.49	29.11	10.24	8.34	6.41	3.11	5.10
MS AC WldxUS IMI Nt		5.48	8.94	5.48	17.95	30.15	10.39	7.50	5.83	3.81	5.64
Excess		-0.11	-0.93	-0.11	-2.46	-1.04	-0.15	0.84	0.58	-0.70	-0.55
Baillie Gifford	270,145,552	5.62	8.08	5.62	16.30	32.08	12.17	10.00	--	--	10.68
MSCI ACWI ex US Growth		5.22	8.71	5.22	18.44	33.98	11.27	8.69	--	--	9.14
Excess		0.41	-0.63	0.41	-2.14	-1.91	0.90	1.31	--	--	1.54
Blackrock EAFE Index Fund	260,348,998	5.02	7.83	5.02	15.45	28.06	9.74	--	--	--	5.95
MSCI EAFE ND		5.02	7.82	5.02	15.37	27.60	9.39	--	--	--	5.64
Excess		-0.00	0.01	-0.00	0.07	0.45	0.35	--	--	--	0.31
Mondrian Investment Partners	271,931,656	5.44	8.12	5.44	15.05	27.24	8.17	7.05	6.09	3.41	6.43
MSCI ACWI ex US Value		5.95	9.02	5.95	17.26	26.75	9.38	6.43	5.25	3.39	6.36
Excess		-0.51	-0.89	-0.51	-2.22	0.49	-1.21	0.62	0.83	0.02	0.07
Emerging Markets Equity	102,547,780	6.86	11.08	6.86	20.06	30.06	9.38	4.21	--	--	4.66
MSCI Emerging Markets ND		8.33	12.45	8.33	25.58	41.01	11.83	5.74	--	--	5.79
Excess		-1.48	-1.37	-1.48	-5.52	-10.94	-2.45	-1.53	--	--	-1.13
EV Parametric EM	102,547,780	6.86	11.08	6.86	20.06	30.06	--	--	--	--	13.63
MSCI Emerging Markets GD		8.34	12.52	8.34	25.83	41.49	--	--	--	--	17.02
Excess		-1.48	-1.44	-1.48	-5.78	-11.43	--	--	--	--	-3.39
Fixed Income	879,151,309	-0.19	0.34	-0.19	1.61	4.82	3.69	3.49	4.92	5.15	5.62
Samcera Fixed Income Benchmark		-0.79	-0.61	-0.79	0.76	3.41	2.33	2.20	3.46	4.04	5.03
Excess		0.60	0.94	0.60	0.85	1.41	1.36	1.29	1.46	1.10	0.59
Core Fixed Income	599,201,563	-0.60	-0.22	-0.60	0.91	3.45	2.28	3.03	4.18	4.53	5.38
BB Barclays U.S. Aggregate		-1.15	-0.83	-1.15	0.07	2.15	1.14	2.01	3.02	3.71	4.92
Excess		0.56	0.60	0.56	0.83	1.30	1.14	1.02	1.16	0.82	0.46

San Mateo County Manager Return Summary



January 31, 2018

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
FIAM Core Bond	255,970,379	-0.97	-0.63	-0.97	0.56	2.60	1.80	2.58	3.72	4.61	4.66
BB Barclays U.S. Aggregate		-1.15	-0.83	-1.15	0.07	2.15	1.14	2.01	3.02	3.71	4.18
Excess		0.18	0.20	0.18	0.48	0.45	0.65	0.58	0.70	0.89	0.48
Western Total Return	129,232,836	0.74	2.23	0.74	4.37	9.26	--	--	--	--	6.09
BB Barclays U.S. Aggregate		-1.15	-0.83	-1.15	0.07	2.15	--	--	--	--	1.98
Excess		1.89	3.06	1.89	4.30	7.11	--	--	--	--	4.11
Blackrock Inter Gov	213,998,348	-0.94	-1.20	-0.94	-0.91	0.19	--	--	--	--	0.17
BB Barclays U.S. Aggregate		-1.15	-0.83	-1.15	0.07	2.15	--	--	--	--	2.28
Excess		0.22	-0.37	0.22	-0.98	-1.96	--	--	--	--	-2.11
Opportunistic Credit	279,949,747	0.68	1.53	0.68	3.65	8.12	7.46	7.16	7.83	--	9.72
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	5.24	5.14	6.40	--	7.61
Excess		0.74	1.70	0.74	1.84	2.87	2.22	2.02	1.43	--	2.11
AG Opportunistic Whole Loan	8,578,990	0.00	-0.65	0.00	4.29	12.62	6.89	--	--	--	4.80
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	5.24	--	--	--	4.75
Excess		0.06	-0.48	0.06	2.48	7.37	1.65	--	--	--	0.04
Angelo Gordon	9,152,286	0.00	7.05	0.00	14.85	23.88	11.84	11.96	--	--	11.56
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	5.24	5.14	--	--	5.35
Excess		0.06	7.21	0.06	13.04	18.63	6.60	6.83	--	--	6.21
Beach Point Select Fund	48,418,723	0.11	1.79	0.11	3.90	6.69	9.14	--	--	--	9.14
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	5.24	--	--	--	5.24
Excess		0.17	1.95	0.17	2.09	1.44	3.90	--	--	--	3.90
Brigade Cap Mngmt	76,656,160	1.73	2.06	1.73	3.49	7.22	6.58	5.27	6.65	--	7.21
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	5.24	5.14	6.40	--	6.89
Excess		1.79	2.23	1.79	1.68	1.97	1.34	0.13	0.25	--	0.32

San Mateo County Manager Return Summary



January 31, 2018

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
SAMCERA - White Oak Yield Spec	5,358,375	1.39	4.81	1.39	0.75	--	--	--	--	--	--
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	--	--	--	--	--	--
Excess		1.45	4.98	1.45	-1.06	--	--	--	--	--	--
SAMCERA-PIMCO Div. Income Fund	80,575,784	-0.44	-0.02	-0.44	--	--	--	--	--	--	1.35
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	--	--	--	--	--	--	0.92
Excess		-0.38	0.15	-0.38	--	--	--	--	--	--	0.43
TCP Direct Lending VIII	9,523,775	1.64	5.38	1.64	6.49	12.17	--	--	--	--	--
BB Barc BA Intermediate HY Ind		-0.06	-0.17	-0.06	1.81	5.25	--	--	--	--	--
Excess		1.70	5.54	1.70	4.68	6.92	--	--	--	--	--
Franklin Templeton	41,685,654	1.58	0.95	1.58	1.35	5.50	3.04	2.43	4.88	--	4.47
BB Barclays Multiverse Index		1.23	2.68	1.23	4.24	7.72	2.80	1.44	2.35	--	2.35
Excess		0.34	-1.73	0.34	-2.89	-2.22	0.23	0.99	2.53	--	2.12
Risk Parity	317,163,599	0.30	2.11	0.30	8.71	14.23	5.11	5.50	--	--	6.82
Samcera Risk Parity Benchmark		2.71	5.02	2.71	9.68	15.85	9.13	10.21	--	--	9.52
Excess		-2.41	-2.92	-2.41	-0.97	-1.63	-4.02	-4.71	--	--	-2.70
AQR Global Risk III	150,015,098	0.67	3.14	0.67	10.13	15.86	4.32	4.10	--	--	5.79
Samcera Risk Parity Benchmark		2.71	5.02	2.71	9.68	15.85	9.13	10.21	--	--	9.52
Excess		-2.03	-1.89	-2.03	0.45	0.01	-4.81	-6.11	--	--	-3.73
Panagora	167,148,501	-0.03	1.20	-0.03	7.46	12.79	5.84	--	--	--	7.24
Samcera Risk Parity Benchmark		2.71	5.02	2.71	9.68	15.85	9.13	--	--	--	8.51
Excess		-2.74	-3.82	-2.74	-2.22	-3.06	-3.29	--	--	--	-1.27
Alternatives	513,685,709	0.74	1.50	0.74	4.64	9.88	6.58	5.28	5.65	-7.96	-2.41
Samcera Alternatives Benchmark		3.18	6.12	3.18	11.45	17.39	9.67	9.36	8.86	7.09	8.00
Excess		-2.45	-4.63	-2.45	-6.80	-7.51	-3.09	-4.09	-3.21	-15.05	-10.41

San Mateo County Manager Return Summary



January 31, 2018

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Private Equity	247,736,450	0.11	0.97	0.11	3.60	13.42	13.19	13.89	-11.68	--	-21.31
Samcera PE Benchmark		5.52	10.34	5.52	19.05	28.84	17.40	18.90	17.32	--	18.30
Excess		-5.40	-9.37	-5.40	-15.45	-15.42	-4.21	-5.02	-29.01	--	-39.61
Absolute Return	265,949,258	1.34	1.97	1.34	5.72	6.15	4.84	6.50	--	--	5.33
Samcera LIBOR + 4%		0.46	1.32	0.46	3.06	5.14	4.62	4.44	--	--	4.39
Excess		0.87	0.66	0.87	2.65	1.01	0.22	2.06	--	--	0.94
AQR Delta XN	167,476,999	1.27	1.68	1.27	6.69	6.44	5.33	6.80	--	--	5.55
Samcera LIBOR + 4%		0.46	1.32	0.46	3.06	5.14	4.62	4.44	--	--	4.39
Excess		0.81	0.36	0.81	3.63	1.30	0.71	2.35	--	--	1.16
SamCERA-Aberdeen Std GARS	98,472,259	1.46	2.59	1.46	3.71	5.66	--	--	--	--	1.17
Samcera LIBOR + 4%		0.46	1.32	0.46	3.06	5.14	--	--	--	--	4.74
Excess		1.00	1.28	1.00	0.65	0.52	--	--	--	--	-3.57
Inflation Hedge	715,237,548	1.83	2.89	1.83	5.88	8.42	--	--	--	--	11.24
SamCERA Inflation Hedge Index		1.10	3.52	1.10	7.83	9.85	--	--	--	--	9.72
Excess		0.73	-0.63	0.73	-1.95	-1.43	--	--	--	--	1.52
TIPS	82,032,158	-0.45	0.49	-0.45	1.48	1.08	--	--	--	--	1.88
BBG Barclays US TIPS		-0.86	0.18	-0.86	1.26	1.27	--	--	--	--	1.27
Excess		0.41	0.31	0.41	0.22	-0.19	--	--	--	--	0.60
Brown Brothers Harriman	82,032,158	-0.45	0.49	-0.45	1.48	1.08	1.17	-0.48	2.47	--	2.52
BBG Barclays US TIPS		-0.86	0.18	-0.86	1.26	1.27	0.71	0.10	2.76	--	2.83
Excess		0.41	0.31	0.41	0.22	-0.19	0.46	-0.58	-0.29	--	-0.30
Real Estate	305,315,521	1.92	2.28	1.92	3.64	7.96	--	--	--	--	9.14
Samcera NCREIF ODCE EW (gross)		0.00	2.15	0.00	4.08	7.80	--	--	--	--	7.91
Excess		1.92	0.13	1.92	-0.44	0.16	--	--	--	--	1.23

San Mateo County Manager Return Summary



January 31, 2018

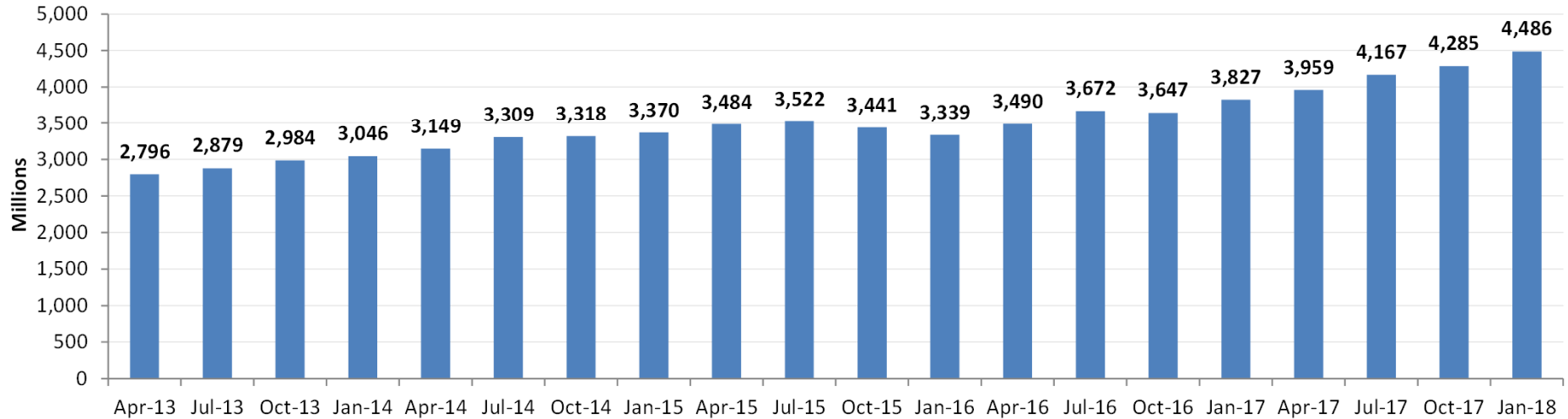
Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Invesco Core Real Estate	253,388,392	2.18	2.18	2.18	3.58	8.03	10.38	11.55	11.74	4.93	7.87
Samcera NCREIF ODCE EW (gross)		0.00	2.15	0.00	4.08	7.80	10.70	11.56	12.10	4.85	7.74
Excess		2.18	0.03	2.18	-0.50	0.23	-0.32	-0.01	-0.36	0.08	0.13
Invesco US Val IV	17,874,138	1.84	7.26	1.84	9.03	11.41	--	--	--	--	13.09
Samcera NCREIF ODCE EW (gross)		0.00	2.15	0.00	4.08	7.80	--	--	--	--	9.54
Excess		1.84	5.11	1.84	4.95	3.61	--	--	--	--	3.55
PGIM Real Estate US Debt Fund	34,052,991	0.02	0.13	0.02	0.13	--	--	--	--	--	0.13
Samcera NCREIF ODCE EW (gross)		0.00	2.15	0.00	4.08	--	--	--	--	--	4.08
Excess		0.02	-2.02	0.02	-3.95	--	--	--	--	--	-3.95
Liquid Real Assets	270,737,683	2.68	5.71	2.68	13.63	14.48	--	--	--	--	--
SamCera Custom Real Asset Index		2.68	5.75	2.68	13.47	14.29	--	--	--	--	--
Excess		-0.01	-0.04	-0.01	0.16	0.19	--	--	--	--	--
SSGA CST REAL ASSET NL	270,737,683	2.68	5.71	2.68	13.63	14.48	--	--	--	--	--
SamCera Custom Real Asset Index		2.68	5.75	2.68	13.47	14.29	--	--	--	--	--
Excess		-0.01	-0.04	-0.01	0.16	0.19	--	--	--	--	--
Private Real Assets	57,152,185	0.71	-3.42	0.71	-7.24	-3.92	--	--	--	--	20.02
SamCera Custom Real Asset Inde		2.68	5.75	2.68	13.47	14.29	--	--	--	--	16.03
Excess		-1.97	-9.16	-1.97	-20.71	-18.22	--	--	--	--	3.98
Cash	111,391,592	0.05	0.24	0.05	0.49	0.83	0.59	0.59	0.61	0.44	1.97
Samcera Cash Benchmark		0.12	0.31	0.12	0.67	0.93	0.45	0.29	0.24	0.35	1.83
Excess		-0.07	-0.07	-0.07	-0.18	-0.10	0.14	0.29	0.37	0.08	0.14
SamCera General Account	55,393,257	0.13	0.34	0.13	0.76	1.18	0.68	0.46	0.41	0.57	1.98
County Treasury Pool	55,981,667	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.41	0.23	2.60
San Mateo County ERA	4,486,140,230	2.54	4.47	2.54	9.21	15.54	8.64	9.02	8.52	6.10	7.02
Samcera Total Plan Benchmark		2.81	5.38	2.81	10.71	16.84	9.18	9.30	8.89	6.83	7.35
Excess		-0.27	-0.91	-0.27	-1.51	-1.30	-0.55	-0.28	-0.38	-0.74	-0.33

January 31, 2018

Record of Asset Growth

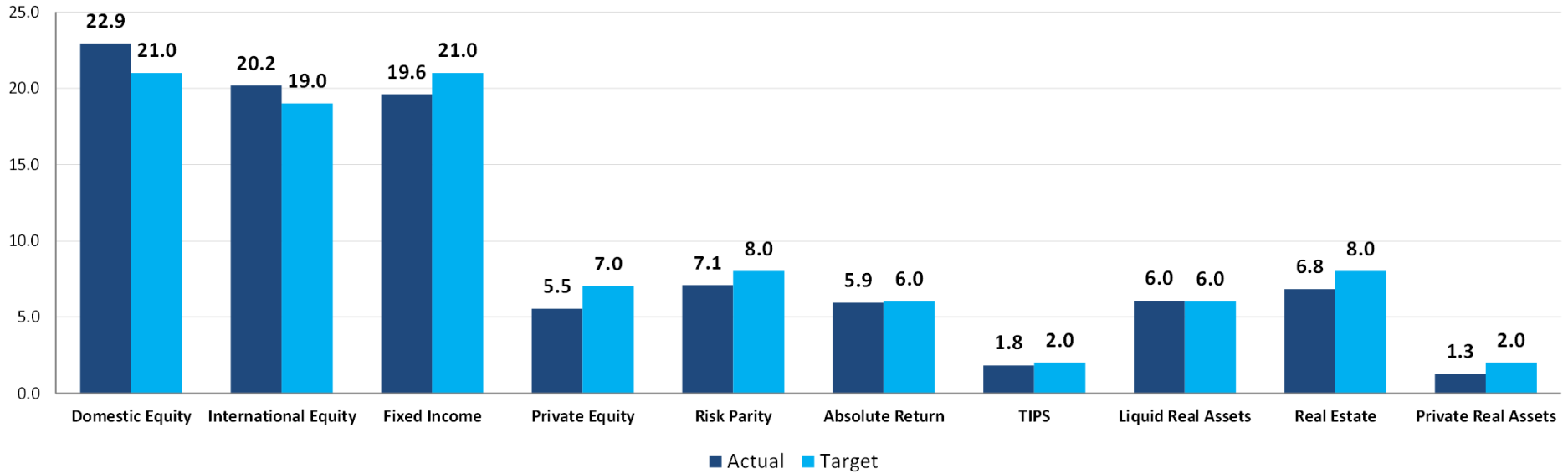
	Three Months	One Year
TOTAL FUND		
Beginning Market Value	4,285,253,792	3,827,216,901
Contributions	87,611,585	260,126,938
Withdrawals	-56,607,015	-207,635,762
Income Received	8,127,700	35,126,347
Gain/Loss	184,127,047	568,770,578
Ending Market Value	4,486,140,230	4,486,140,230

Net Asset Values Over Time (\$000)



January 31, 2018

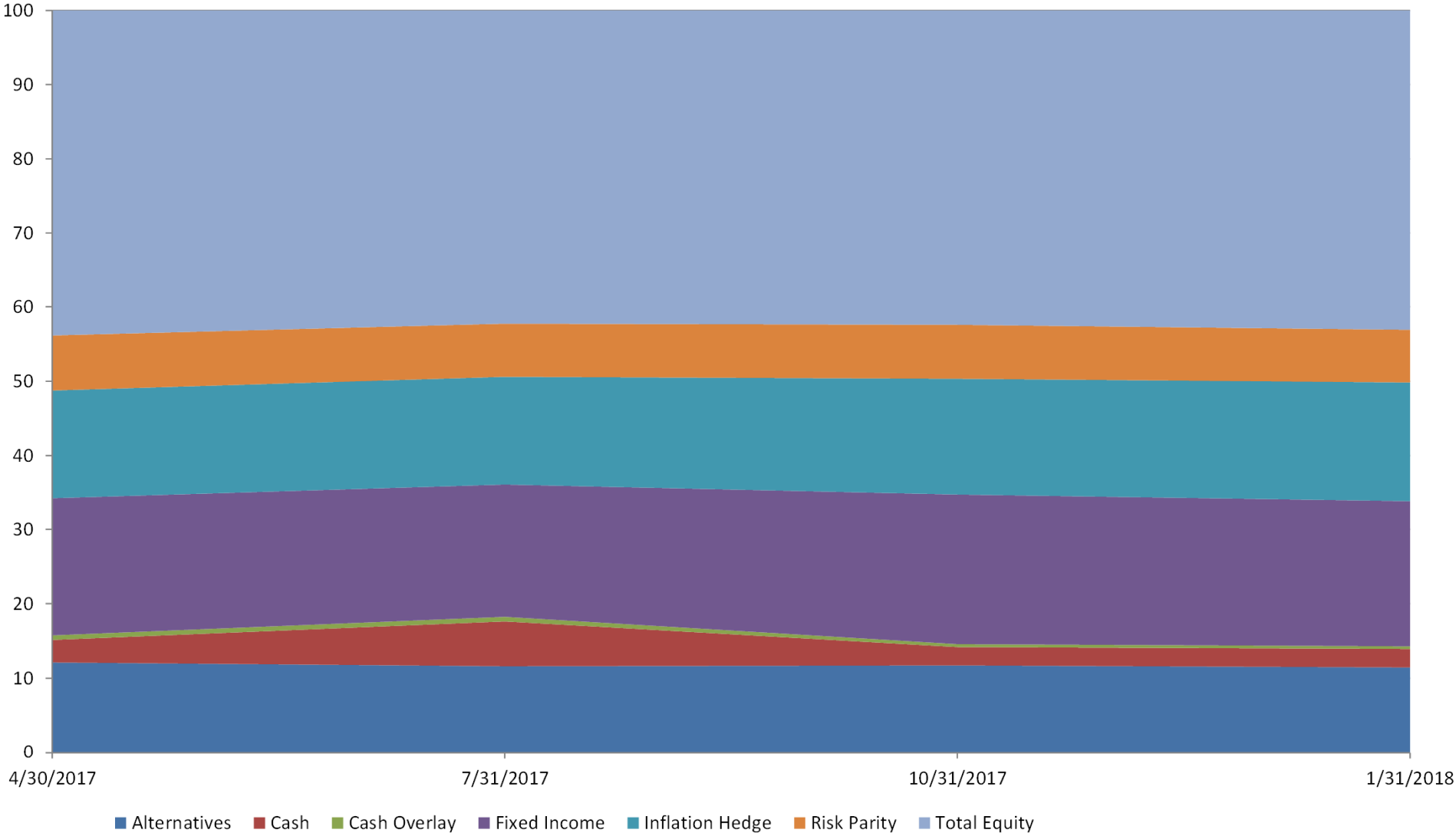
Actual vs Target Weights



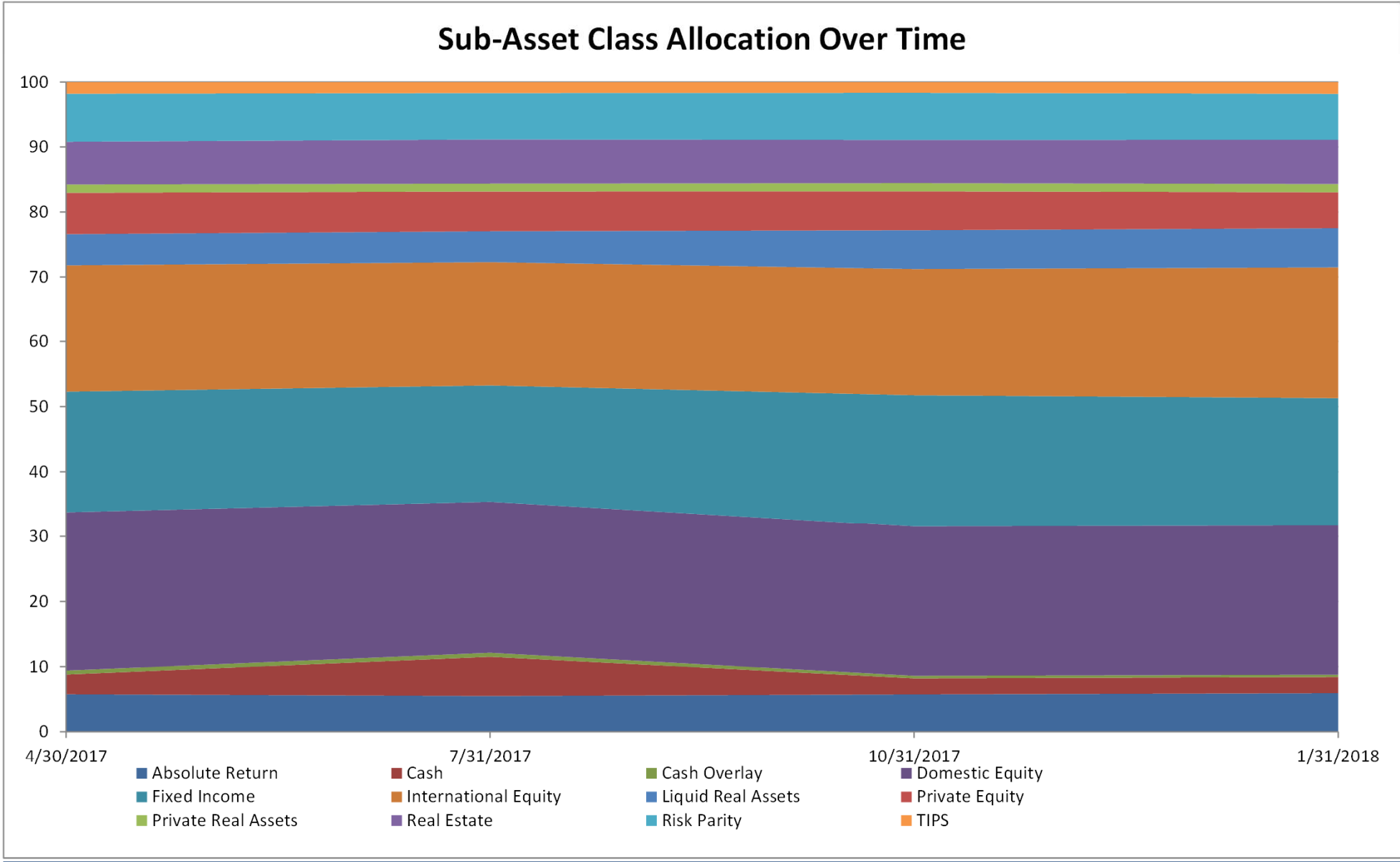
	Min	Actual	Target	Deviation	Max
Domestic Equity	19.0	22.9	21.0	1.9	23.0
International Equity	17.0	20.2	19.0	1.2	21.0
Fixed Income	19.0	19.6	21.0	-1.4	23.0
Private Equity	5.0	5.5	7.0	-1.5	9.0
Risk Parity	6.0	7.1	8.0	-0.9	10.0
Absolute Return	4.0	5.9	6.0	-0.1	8.0
TIPS	0.0	1.8	2.0	-0.2	4.0
Liquid Real Assets	4.0	6.0	6.0	0.0	8.0
Real Estate	6.0	6.8	8.0	-1.2	10.0
Private Real Assets	0.0	1.3	2.0	-0.7	4.0

January 31, 2018

Asset Allocation over Time



January 31, 2018





**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

JANUARY 2018
Capital Markets Update

Market commentary

ECONOMIC CLIMATE

- U.S. real GDP grew at an annualized rate of 2.6% (2.5% YoY) during the fourth quarter. Economic growth was supported by consumer spending and a further acceleration in fixed business investment.
- The U.S. job market continued to show strength, as 200,000 jobs were added during January and the unemployment rate was unchanged at 4.1%.
- Average hourly earnings rose 2.9% from the previous month, the highest pace of wage growth in the current expansion. The pickup in wages was mainly attributable to a drop in total hours worked.
- The ISM Manufacturing PMI fell slightly from 59.7 to 59.1 during the month, above the consensus estimate of 58.7.
- Headline CPI decreased from 2.2% YoY in December to 2.1% in January. Core CPI increased during the same period to 1.8% YoY, up from 1.7% during the previous month.

DOMESTIC EQUITIES

- Domestic equities experienced positive returns during the month – the S&P 500 rose 5.7%.
- As of February 9th, with 68% of companies reporting, the blended Q4 earnings and revenue growth rates of the S&P 500 were 14.0% and 8.0% YoY, respectively. Energy (+103.7%) and materials (+41.2%) are leading all other sectors in terms of earnings growth.

DOMESTIC FIXED INCOME

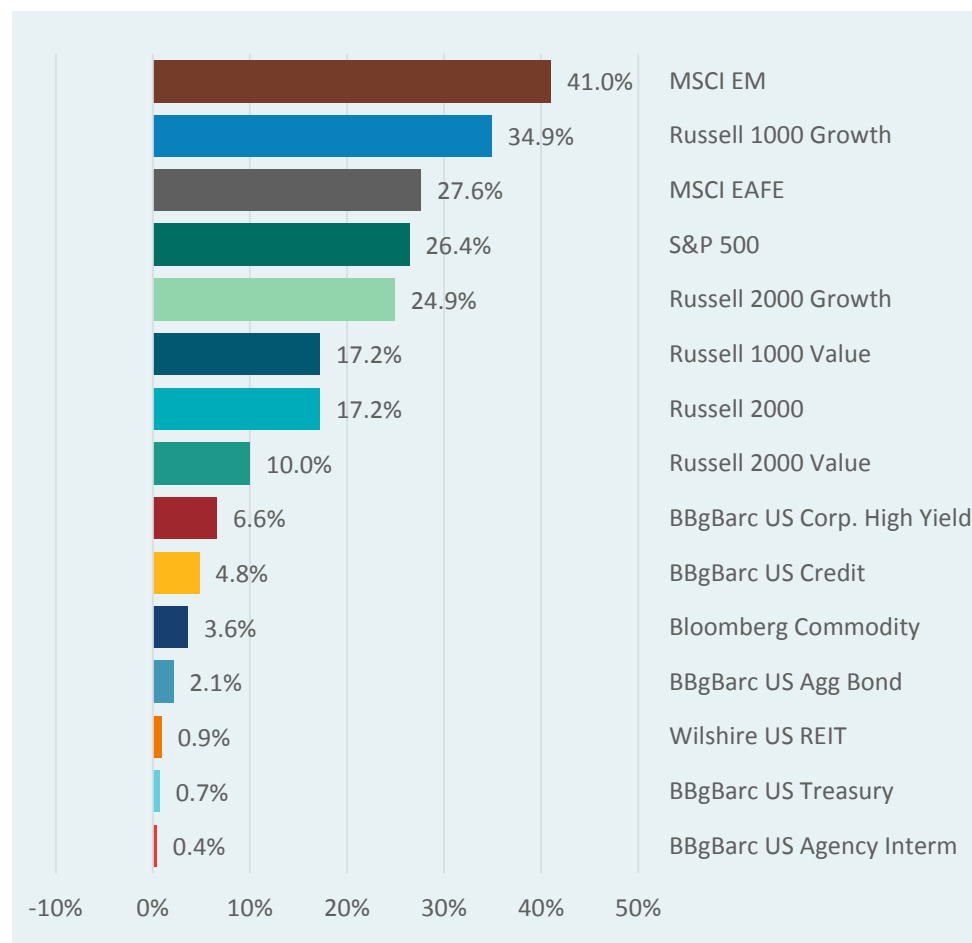
- Domestic fixed income returns were negative in January as the Bloomberg Barclays U.S. Aggregate Index fell -1.2%.
- U.S. high yield spreads fell to 3.3% during the period, down from 3.6% at the end of December, and well below the 20-year average of 5.9%.
- The U.S. Treasury curve steepened slightly over the month, led by higher long-term yields – the 10-year minus 2-year yield spread expanded 7 bps to 0.58%.

INTERNATIONAL MARKETS

- International equities provided strong returns in January as the MSCI ACWI ex U.S. Index appreciated by 5.6%. The hedged index returned +2.5% in the month, impacted by U.S. dollar weakness.
- Manufacturing PMI in the Eurozone fell slightly from 60.6 to 59.6, below expectations of 60.4. However, the index remains elevated relative to recent history.
- Eurozone real GDP advanced at a 2.4% quarterly annualized rate (2.7% YoY) during the fourth quarter, in line with expectations.
- The European Central Bank left monetary policy unchanged, and will continue to purchase €30 billion in assets per month until September. The market is not pricing in any interest rate hikes this year, but three hikes are price in 2019.

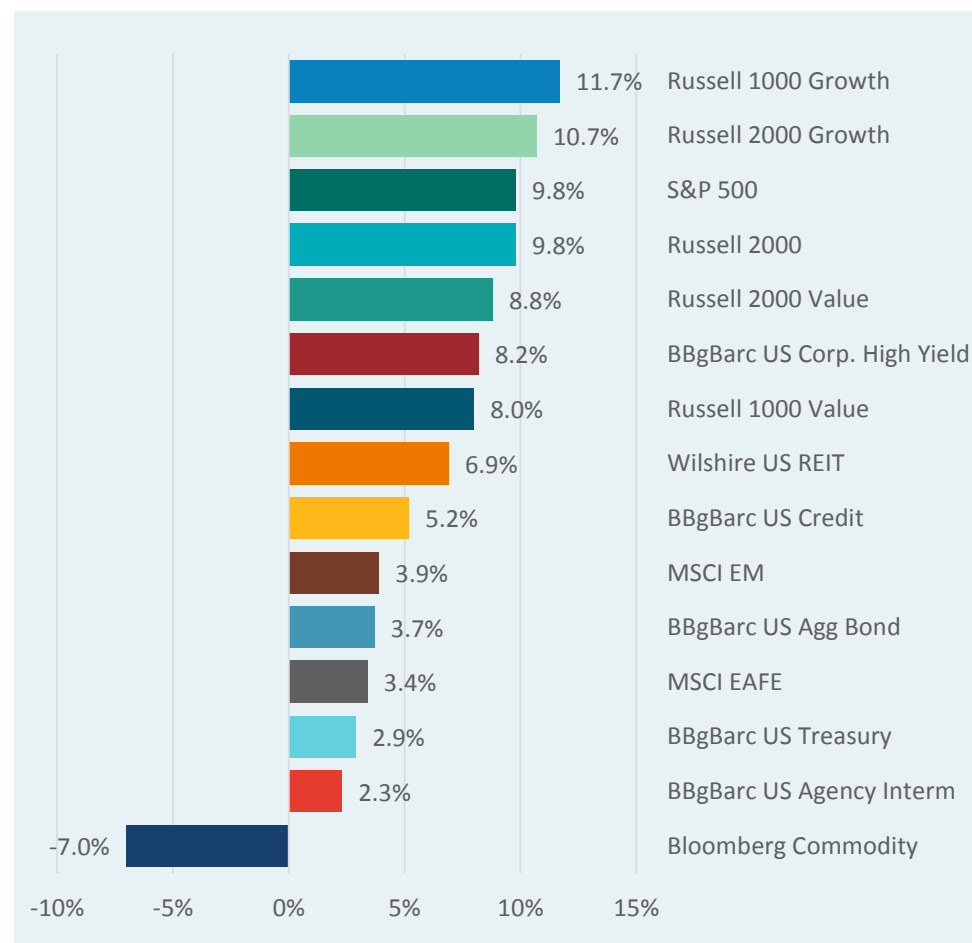
Major asset class returns

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/18

TEN YEARS ENDING JANUARY



Source: Morningstar, as of 1/31/18

U.S. large cap equities

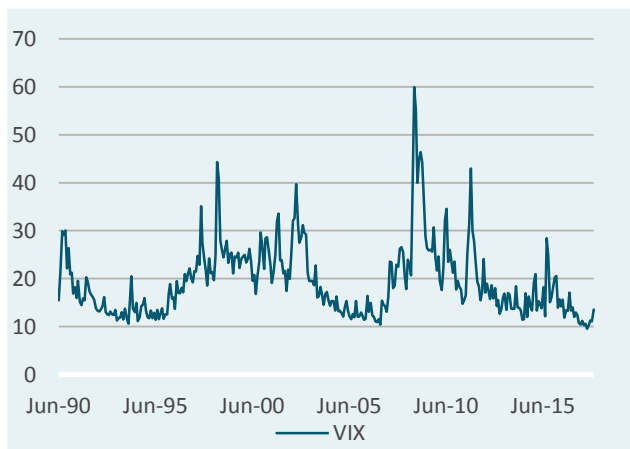
- Domestic large cap equities appreciated in January (S&P 500 +5.7%). 30-day realized volatility increased during the month to 8.1% (annualized), above recently experienced levels, but still below the 5-year annualized average of 11.8%.
- According to FactSet, as of February 9th, the estimated earnings growth rate of the S&P 500 is 18.5% YoY for the 2018 calendar year. This figure was revised upward from the January 5th estimate of 13.1%, which resulted in a lower forward P/E ratio, despite strong equity performance during the month.
- Consumer discretionary and technology shares led gains in the S&P 500 during the month, returning 9.3% and 7.6%, respectively. Utilities were the worst performing sector, falling 3.1% in January.

S&P 500 PRICE INDEX



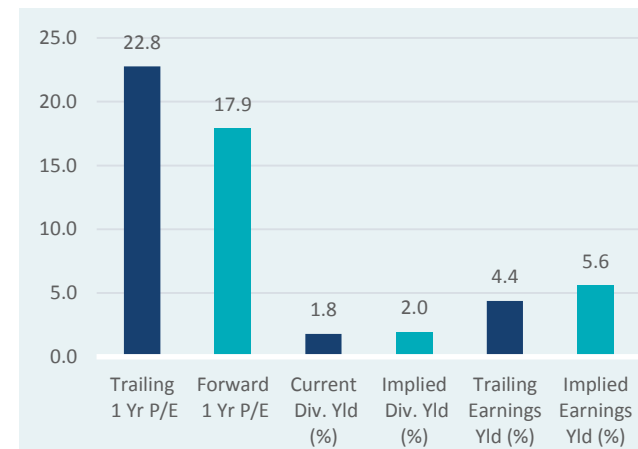
Source: Bloomberg, as of 1/31/18

IMPLIED VOLATILITY



Source: CBOE, as of 1/31/18

S&P 500 VALUATION SNAPSHOT

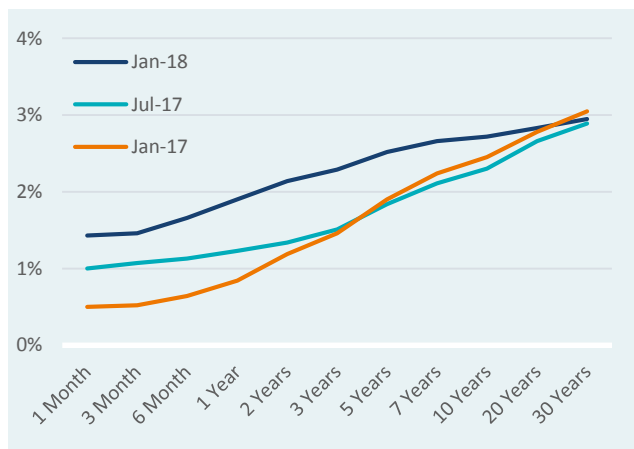


Source: Bloomberg, as of 1/31/18

Fixed income

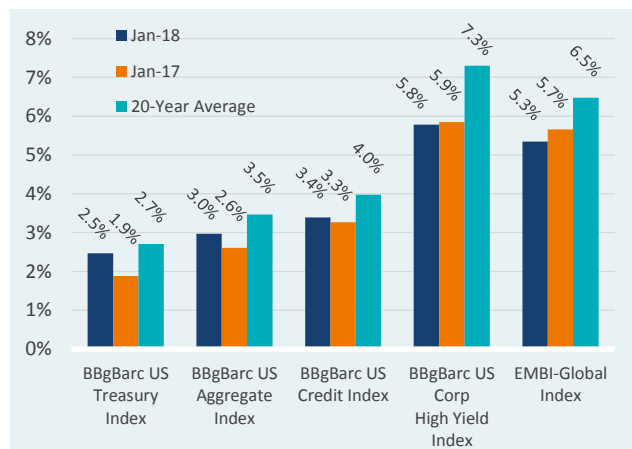
- The U.S. Treasury curve steepened slightly during the period as the 10 minus 2-year yield spread rose 7 bps to 0.58%. The BBgBarc U.S. Treasury Long Index underperformed the BBgBarc 1-3 Year U.S. Treasury Index by 2.9% in January.
- Market inflation expectations increased during the month based on TIPS breakeven rates. The 5 and 10- year implied inflation rates increased to 2.0% and 2.1%, up from 1.9% and 2.0%, respectively, in December.
- As expected, the Fed increased the rate at which it allowed securities to roll off of its balance sheet at maturity in January. The new expected rate is \$12 billion in treasuries, and \$8 billion in mortgage backed securities per month, for the rest of Q1.
- According to fed funds futures pricing, the market is expecting three interest rate hikes in 2018, in line with what the fed has communicated during their last two meetings.

U.S. TREASURY YIELD CURVE



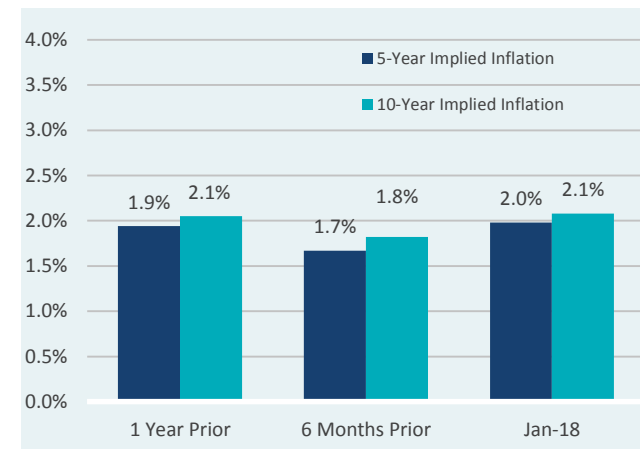
Source: Bloomberg, as of 1/31/18

NOMINAL FIXED INCOME YIELDS



Source: Morningstar, as of 1/31/18

IMPLIED INFLATION (TIPS BREAKEVEN)

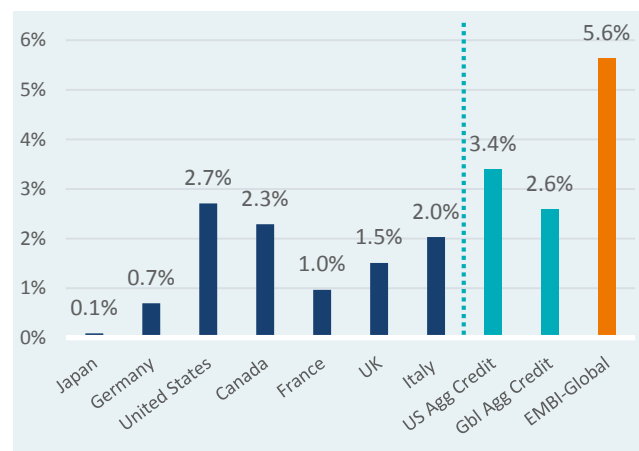


Source: Federal Reserve, as of 1/31/18

Global markets

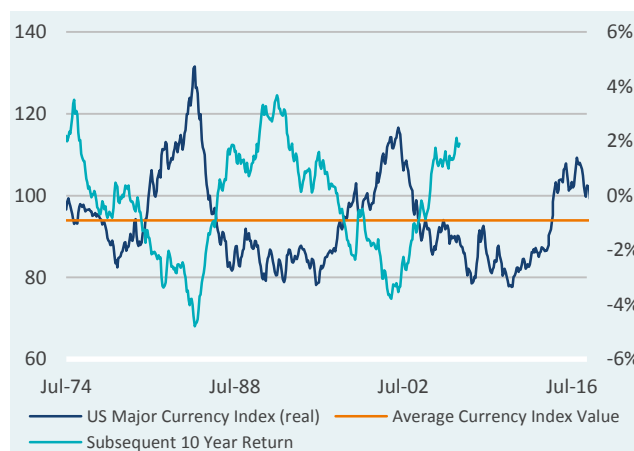
- Emerging market equities continued to rally during the month (MSCI EM Index +8.3%), outperforming international equities by 3.3% (MSCI EAFE Index +5.0%) on an unhedged basis.
- European equities experienced the strongest gains of international developed markets, as the MSCI Euro Index returned 7.2% on an unhedged basis (1.3% hedged). Currency appreciation provided a boost to unhedged returns (Euro +3.7%) during the month.
- Global sovereign yields rose across most of the developed world in January, with the U.K. 10-year yield experiencing the largest gain, rising by 32 bps during the period. The BOE was also more hawkish after its latest meeting, communicating the possibility of more rate hikes over the next year if inflation pressures continue.

GLOBAL SOVEREIGN 10 YEAR INDEX YIELDS



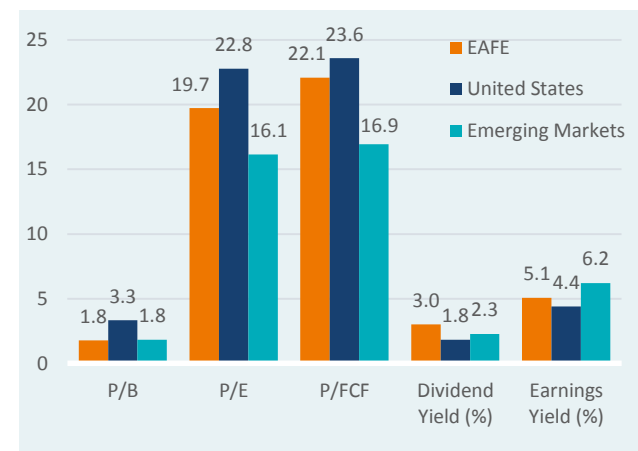
Source: Bloomberg, as of 1/31/18

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 1/31/18

MSCI VALUATION METRICS (3 MONTH AVERAGE)



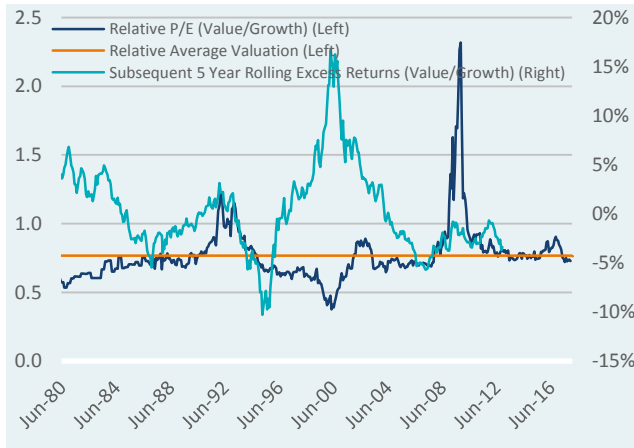
Source: Bloomberg, as of 1/31/18

Domestic equity size and style

— Large cap equities continued their recent outperformance of small cap equities (Russell 1000 +5.5% and Russell 2000 +2.6%) in January. Consumer discretionary and telecommunications stocks contributed the most to the large cap outperformance, returning 6.5% and 5.3% more than their small cap peers, respectively.

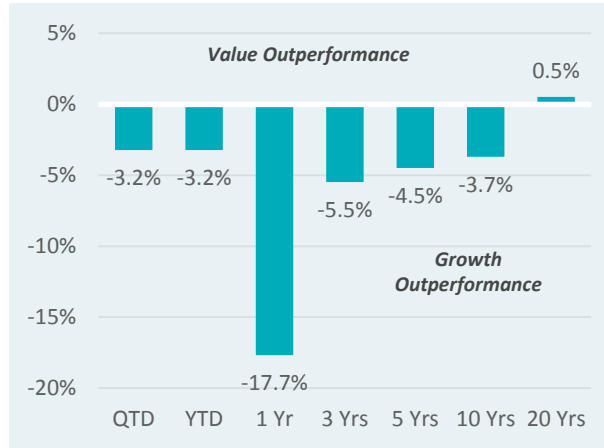
— Growth oriented equities (Russell 1000 Growth +7.1%) outperformed value oriented equities (Russell 1000 Value +3.9%) during the month. The Russell 1000 Growth Index was positively affected by larger allocations to consumer discretionary and technology sectors, which returned 8.6% and 7.3%, respectively.

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



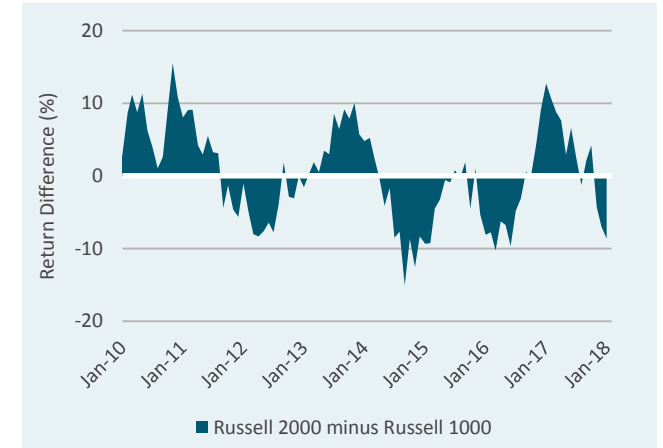
Source: Russell, Bloomberg, as of 1/31/18

U.S. VALUE VS. GROWTH RELATIVE PERFORMANCE



Source: Morningstar, as of 1/31/18

U.S. SMALL VS. LARGE RELATIVE PERFORMANCE



Source: FTSE, as of 1/31/18

Commodities

- The broad Bloomberg Commodity Index rose 2.0% in January. Petroleum and energy were the leading sub-sectors, returning 4.6% and 4.5%, respectively.
- The Bloomberg Softs sub-index was the largest detractor from the commodity basket during the period. Sugar was the worst performing asset in the softs sub-index, returning -12.7% in January, and -37.3% over the last year.
- The Bloomberg Petroleum sub-index was positively affected by WTI crude oil prices, which rose 7.1% during the month, closing at a price of \$64.73 per barrel. Oil prices have risen 51.5% since their recent low in June 2017, while crude oil rotary rigs in operation increased to 750 in January, the highest level since September 2017.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	2.0	2.0	2.0	3.6	(3.3)	(8.5)	(7.0)
Bloomberg Agriculture	1.4	1.4	1.4	(12.7)	(6.2)	(10.1)	(5.4)
Bloomberg Energy	4.5	4.5	4.5	8.2	(8.7)	(15.2)	(17.0)
Bloomberg Grains	4.3	4.3	4.3	(9.6)	(8.4)	(12.6)	(7.2)
Bloomberg Industrial Metals	0.2	0.2	0.2	20.6	6.3	(2.2)	(3.6)
Bloomberg Livestock	(1.3)	(1.3)	(1.3)	6.4	(4.2)	(2.6)	(5.7)
Bloomberg Petroleum	4.6	4.6	4.6	20.2	(4.0)	(14.4)	(11.3)
Bloomberg Precious Metals	1.9	1.9	1.9	6.4	0.4	(6.7)	2.3
Bloomberg Softs	(7.0)	(7.0)	(7.0)	(25.6)	(7.1)	(9.8)	(4.5)

Source: Morningstar, as of 1/31/18

COMMODITY PERFORMANCE



Source: Bloomberg, as of 1/31/18

Appendix

Periodic table of returns

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	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	37.3	8.3	17.9	11.7
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	30.2	7.1	15.7	10.7
Large Cap 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	25.0	5.5	14.6	9.9
International 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	22.2	5.0	13.5	9.8
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	21.7	3.9	13.3	8.8
Large Cap Value	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	17.1	3.9	12.0	8.0
60/40 Global Portfolio	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	14.6	3.9	10.2	6.1
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	13.7	2.6	7.8	5.1
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	7.8	2.4	7.1	3.9
Commodities	-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	7.7	2.0	5.7	3.7
Small Cap Value	-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	7.0	1.2	4.0	3.4
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	3.5	0.1	2.0	1.6
Real Estate	-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	1.7	0.0	0.3	0.3
US Bonds	-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	0.9	-1.2	-8.5	-7.0

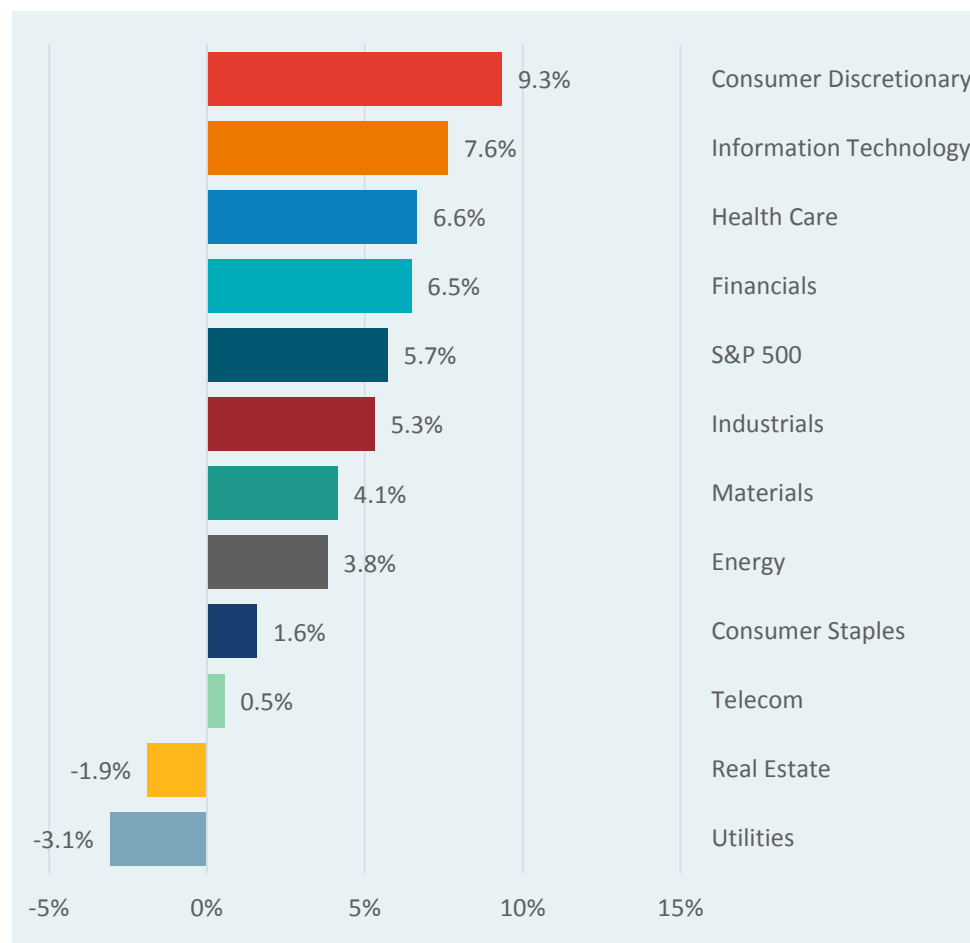
BEST
↑
WORST
↓



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/17.

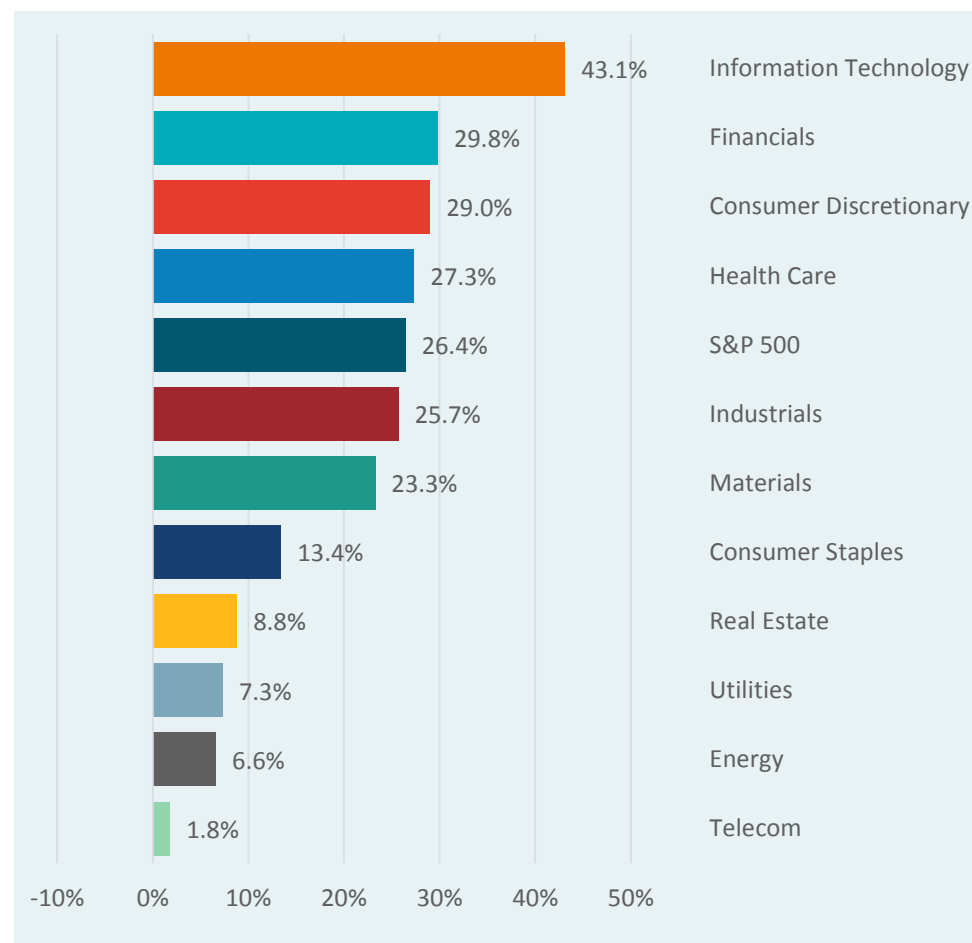
S&P 500 sector returns

QTD



Source: Morningstar, as of 1/31/18

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/18

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	5.7	5.7	5.7	26.4	14.7	15.9	9.8
S&P 500 Equal Weighted	4.5	4.5	4.5	21.7	12.8	15.3	11.1
DJ Industrial Average	5.9	5.9	5.9	34.8	18.0	16.4	10.4
Russell Top 200	6.2	6.2	6.2	28.2	15.4	16.3	9.7
Russell 1000	5.5	5.5	5.5	25.8	14.3	15.7	9.9
Russell 2000	2.6	2.6	2.6	17.2	12.1	13.3	9.8
Russell 3000	5.3	5.3	5.3	25.2	14.1	15.5	9.8
Russell Mid Cap	3.8	3.8	3.8	20.1	11.5	14.3	10.3
Style Index							
Russell 1000 Growth	7.1	7.1	7.1	34.9	17.0	17.9	11.7
Russell 1000 Value	3.9	3.9	3.9	17.2	11.5	13.5	8.0
Russell 2000 Growth	3.9	3.9	3.9	24.9	12.6	14.6	10.7
Russell 2000 Value	1.2	1.2	1.2	10.0	11.6	12.0	8.8

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	5.6	5.6	5.6	27.5	11.9	11.0	6.1
MSCI ACWI ex US	5.6	5.6	5.6	29.7	9.9	7.1	3.4
MSCI EAFE	5.0	5.0	5.0	27.6	9.4	7.8	3.4
MSCI EM	8.3	8.3	8.3	41.0	11.8	5.7	3.9
MSCI EAFE Small Cap	5.1	5.1	5.1	35.0	16.1	12.8	7.4
Style Index							
MSCI EAFE Growth	4.6	4.6	4.6	30.4	10.4	8.8	4.1
MSCI EAFE Value	5.4	5.4	5.4	24.9	8.3	6.9	2.7
Regional Index							
MSCI UK	3.0	3.0	3.0	24.4	5.5	5.0	2.8
MSCI Japan	4.6	4.6	4.6	25.0	12.4	11.4	4.1
MSCI Euro	7.2	7.2	7.2	34.0	10.1	8.2	1.7
MSCI EM Asia	8.0	8.0	8.0	45.7	13.0	9.4	6.0
MSCI EM Latin American	13.2	13.2	13.2	30.1	10.5	(1.5)	0.2

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US Treasury USTIPS	(0.9)	(0.9)	(0.9)	1.3	0.7	0.1	3.0
BBgBarc US Treasury Bills	0.1	0.1	0.1	0.9	0.5	0.3	0.4
BBgBarc US Agg Bond	(1.2)	(1.2)	(1.2)	2.1	1.1	2.0	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	(0.3)	(0.3)	(0.3)	(0.0)	0.3	0.5	1.2
BBgBarc US Treasury Long	(3.2)	(3.2)	(3.2)	4.6	(1.1)	3.5	5.9
BBgBarc US Treasury	(1.4)	(1.4)	(1.4)	0.7	0.1	1.2	2.9
Issuer							
BBgBarc US MBS	(1.2)	(1.2)	(1.2)	1.3	1.2	1.9	3.5
BBgBarc US Corp. High Yield	0.6	0.6	0.6	6.6	6.3	5.6	8.2
BBgBarc US Agency Interm	(0.5)	(0.5)	(0.5)	0.4	0.6	0.9	2.3
BBgBarc US Credit	(0.9)	(0.9)	(0.9)	4.8	2.4	3.2	5.2

OTHER

Index							
Bloomberg Commodity	2.0	2.0	2.0	3.6	(3.3)	(8.5)	(7.0)
Wilshire US REIT	(3.8)	(3.8)	(3.8)	0.9	1.7	7.7	6.9
CS Leveraged Loans	1.1	1.1	1.1	4.8	4.8	4.3	5.0
Regional Index							
JPM EMBI Global Div	(0.0)	(0.0)	(0.0)	8.6	6.8	4.9	7.2
JPM GBI-EM Global Div	4.5	4.5	4.5	17.7	3.9	(0.8)	3.9
Hedge Funds							
HFRI Composite	2.8	2.8	2.8	10.4	5.2	5.0	3.8
HFRI FOF Composite	2.4	2.4	2.4	9.1	3.3	4.0	1.6
Currency (Spot)							
Euro	3.7	3.7	3.7	15.3	3.4	(1.7)	(1.7)
Pound	5.1	5.1	5.1	13.0	(1.8)	(2.2)	(3.3)
Yen	3.2	3.2	3.2	3.1	2.5	(3.5)	(0.3)

Source: Morningstar, as of 1/31/18

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. Beginning in January 2018, computation of the indexes is accomplished utilizing unrounded numbers.

www.instituteforsupplymanagement.org

Markit Euro Manufacturing Index – The Eurozone PMI (Purchasing Managers' Index) is produced by IHS Markit and is based on original survey data collected from a representative panel of around 5,000 companies based in the euro area manufacturing and service sectors. National manufacturing data are included for Germany, France, Italy, Spain, the Netherlands, Austria, the Republic of Ireland and Greece. National services data are included for Germany, France, Italy, Spain and the Republic of Ireland. The flash estimate is typically based on approximately 85%–90% of total PMI survey responses each month and is designed to provide an accurate advance indication of the final PMI data.

Notices & disclosures

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 6.2

TO: Board of Retirement *Michael R Coultrip*
FROM: Michael Coultrip, Chief Investment Officer
SUBJECT: Report on Quarterly Investment Performance Report for the Period Ended December 31, 2017

Staff Recommendation

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

Discussion

The 4th quarter net total return for the SamCERA portfolio was +3.2%, which was 60 bps lower than the +3.8% policy benchmark return. As can be seen on Page 19 and 20, private equity and international equity were the main detractors of relative performance during the quarter.

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

Attachment

Verus Quarterly Performance Report Ending 12/31/2017



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2017

Investment Performance Review for

San Mateo County Employees' Retirement Association

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VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

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4th quarter summary

THE ECONOMIC CLIMATE

- Global growth forecasts for 2018 have been revised higher, most notably in the Eurozone. U.S. expected 2018 GDP growth is 2.6%, above the expansion average.
- The Eurozone has experienced an impressive economic recovery. In the third quarter, real GDP accelerated to 2.6%, the fastest pace of growth since 2011.
- The House and Senate agreed to a final tax bill that was signed into law by President Trump on December 22nd. The bill, formally known as the Tax Cuts & Jobs Act, represents a major overhaul of the U.S. tax system.

PORTFOLIO IMPACTS

- A synchronized pickup in global economic growth, low inflation, strong employment, and accommodative central banks should support global equities moving forward. We recommend maintaining an overweight equity position.
- Markets remain expensive by most measures. However, it is important to note the merits and flaws of various valuation metrics.

THE INVESTMENT CLIMATE

- Global equities produced strong returns over the quarter and finished the year on a positive note. Emerging market equities led the way, driven by high earnings growth and expansion of valuation multiples off of low levels.
- The outlook for U.S. equity earnings has improved further, following the signing of the Tax Cuts and Jobs Act. S&P 500 earnings expectations for 2018 were revised upwards from 11.1% to 13.1%.
- U.S. high yield spreads became increasingly tight. Credit premiums are near all time lows, which may warrant an underweight to U.S. credit.

ASSET ALLOCATION ISSUES

- Risk assets continue to deliver strong performance, fueled by improving fundamentals and accelerating growth. The current environment appears accommodative for further gains.
- Equity volatility is very low, helped by stable economic conditions and inflation. Historically, low volatility has indicated less risk of an equity downside event.

We believe a moderate overweight to risk is warranted

U.S. economics summary

- U.S. real GDP grew 2.3% from the previous year in Q3, the fastest pace in more than two years. Growth was driven by consumer spending, private inventory accumulation, and business investment.
- Growth in business investment has provided a material support to the economy over recent periods for the first time in the recovery. Rising domestic and external demand has influenced companies to ramp up production. Survey based measures indicate firms are planning to increase capex over the next six months.
- Core inflation rose slightly from 1.7% to 1.8% over the quarter, driven by higher shelter prices. Strong demand, higher raw material prices, and a weaker dollar may provide modest pressures on inflation, but overall levels remain low. Any material rise in inflation would likely be met by more aggressive monetary tightening than what is priced into markets.
- The U3 unemployment rate fell further from 4.2% to 4.1%, its lowest level in 17 years.
- Net job creation averaged 204,000 per month in Q3 - above the expansion average of 196,000. Despite robust job gains and low unemployment, wage growth remained modest at 2.5% YoY.
- The Fed raised interest rates for the third time this year to a target rate of 1.25-1.50%. Fed dot plots indicate three more interest rate hikes in 2018, while the market is only forecasting two. Officials noted that strong economic growth is expected to continue, and raised the 2018 GDP forecast from 2.1% to 2.5%.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% 9/30/17	1.5% 9/30/16
Inflation (CPI YoY, Core)	1.8% 12/31/17	2.2% 12/31/16
Expected Inflation (5yr-5yr forward)	2.1% 12/31/17	2.1% 12/31/16
Fed Funds Target Range	1.25 – 1.50% 12/31/17	0.50 – 0.75% 12/31/16
10 Year Rate	2.4% 12/31/17	2.4% 12/31/16
U-3 Unemployment	4.1% 12/31/17	4.7% 12/31/16
U-6 Unemployment	8.1% 12/31/17	9.1% 12/31/16

International economics summary

- Economic growth advanced in the third quarter across developed and emerging markets. The United States grew at 2.3% YoY, the Eurozone improved to 2.6%, and overall growth in the BRICS nations accelerated to 5.6%. Central bank policy is still broadly accommodative, which is supportive of continued progress.
- Expectations for global GDP growth for the next two years has been revised upward in the past six months, according to the consensus estimate from Bloomberg. The upward revision to global growth forecasts were driven by the Eurozone and emerging markets.
- A pickup in lending and investment, strong external demand, and accommodative monetary policy has helped fuel an impressive economic recovery in the Eurozone. GDP grew 2.6% in Q3 from the

previous year and the unemployment rate fell to 8.8%, the lowest level in nine years.

- PMIs across major markets were all above 50, indicating further expansion in the manufacturing sector.
- There are still concerns of a hard landing in China because the central bank has been tightening financial conditions on the short-end of the yield curve to reign in excessive leverage. Thus far, this process has been successful with economic growth slowing only moderately.
- Low inflation in developed economies has persisted, contributing to slower monetary tightening as central banks have been reluctant to raise rates too quickly.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% <i>9/30/17</i>	2.1% <i>12/31/17</i>	4.1% <i>12/31/17</i>
Western Europe	2.5% <i>9/30/17</i>	1.6% <i>12/31/17</i>	7.4% <i>12/31/17</i>
Japan	2.1% <i>9/30/17</i>	0.6% <i>11/30/17</i>	2.7% <i>11/30/17</i>
BRICS Nations	5.6% <i>9/30/17</i>	2.0% <i>12/31/17</i>	5.7% <i>9/30/17</i>
Brazil	1.4% <i>9/30/17</i>	3.0% <i>12/31/17</i>	12.1% <i>12/31/17</i>
Russia	1.8% <i>9/30/17</i>	2.5% <i>12/31/17</i>	5.1% <i>11/30/17</i>
India	5.3% <i>9/30/17</i>	4.9% <i>11/30/17</i>	8.0% <i>12/31/16</i>
China	6.8% <i>9/30/17</i>	1.8% <i>12/31/17</i>	4.0% <i>9/30/17</i>

Equity environment

- We maintain an overweight position to equities with a preference for emerging markets. Equity markets delivered strong returns over the quarter and were supported by robust earnings growth. Emerging markets provided outsized gains as is often the case in periods of strong economic growth.
- U.S. corporate earnings are expected to increase by 13.1% YoY in 2018 according to Factset. Expectations improved by a net 2% following the Tax Cuts & Jobs Act, which lowered the corporate tax rate from 35% to 21%, effective January 1st, 2018. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively.
- The way businesses spend tax savings may have significant positive effects on wages, capital investment, and equity returns.

We will be monitoring this activity throughout the year.

- Equity volatility has stayed extraordinarily low. U.S. market volatility over the past year was 3.9% (S&P 500), followed by International at 4.2% (MSCI EAFE) and emerging markets at 6.5% (MSCI Emerging Markets). Low equity volatility has historically indicated less risk of an equity downside event.
- Currency movement contributed to volatility and uncertainty in international assets for investors with unhedged exposure. Recently, the U.S. dollar has weakened, creating a tailwind for unhedged performance.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.6%		21.7%		21.7%	
US Small Cap (Russell 2000)	3.3%		14.6%		14.6%	
US Large Value (Russell 1000 Value)	5.3%		13.7%		13.7%	
US Large Growth (Russell 1000 Growth)	7.9%		30.2%		30.2%	
International Large (MSCI EAFE)	4.3%	4.0%	25.7%	16.8%	25.7%	16.8%
Eurozone (Euro Stoxx 50)	(0.4%)	(1.8%)	25.3%	11.1%	25.3%	11.1%
U.K. (FTSE 100)	6.0%	5.3%	22.6%	12.9%	22.6%	12.9%
Japan (NIKKEI 225)	12.0%	12.3%	25.7%	21.9%	25.7%	21.9%
Emerging Markets (MSCI Emerging Markets)	7.3%	5.3%	37.3%	28.6%	37.3%	28.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/17

Domestic equity

U.S. equities produced gains over the quarter (S&P 500 +6.6%), adding to record highs. Over the past year, U.S. equity performance (S&P 500 +21.8%) has lagged international developed equities (MSCI EAFE +25.0%) and emerging markets (MSCI Emerging Markets +37.3%). Performance of each equity market is in line with the degree of earnings growth – emerging markets have produced the strongest year-over-year growth and the U.S. has produced the weakest earnings growth. However, earnings growth in the U.S. has still been strong relative to history.

U.S. corporate earnings are expected to increase by 13.1% YoY in 2018, according to Factset. Forecasts were revised upwards by a net 2% following the passing of tax cuts. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively. The way businesses spend additional tax savings may have significant positive effects on wages, capital investment, and equity returns. We will be monitoring the situation throughout the year.

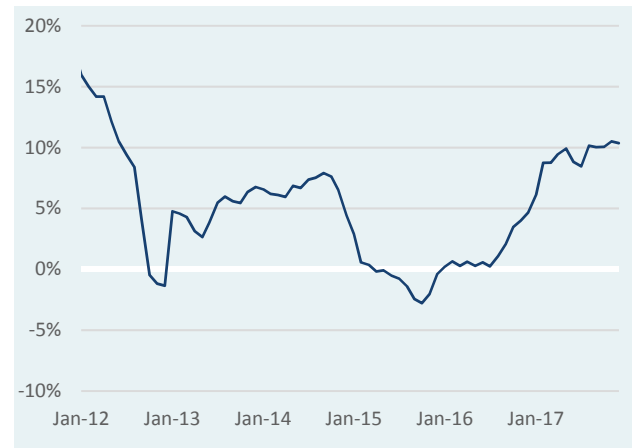
We maintain a neutral weight to U.S. equities

U.S. EQUITIES



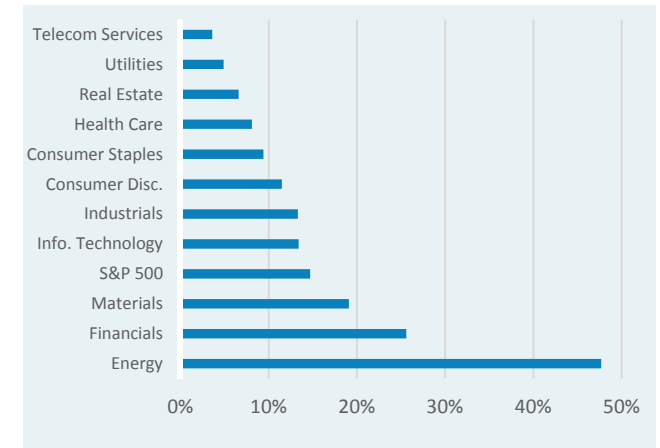
Source: Russell Investments, as of 12/31/17

EARNINGS GROWTH



Source: MSCI, as of 12/31/17, YoY growth in forward earnings

2018 S&P 500 EARNINGS EXPECTATIONS



Source: FactSet, as of 1/12/18

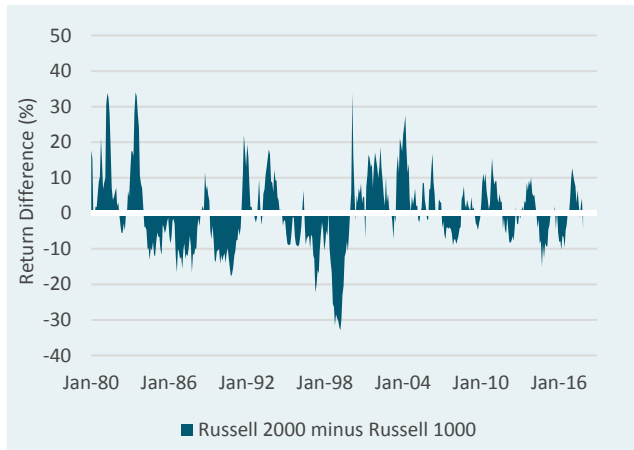
Domestic equity size and style

Large cap equities (Russell 1000 +6.6%) continued to outperform small cap equities (Russell 2000 +3.3%) during the quarter. Small cap stocks are very expensive relative to history based on traditional measures. It appears that a greater number of companies in the small cap universe with low or negative earnings has contributed to rising price-to-earnings multiples of the index.

technology sector performance (growth stocks are highly concentrated in the tech sector). Value has now underperformed on a 1-, 3-, 5-, and 10-year basis. Value stocks have underperformed over a 10-year period only twice in the past 100 years – during the great depression (1937) and during the dotcom bubble (1999). Both of these occasions were followed by an impressive bounce back in value performance.

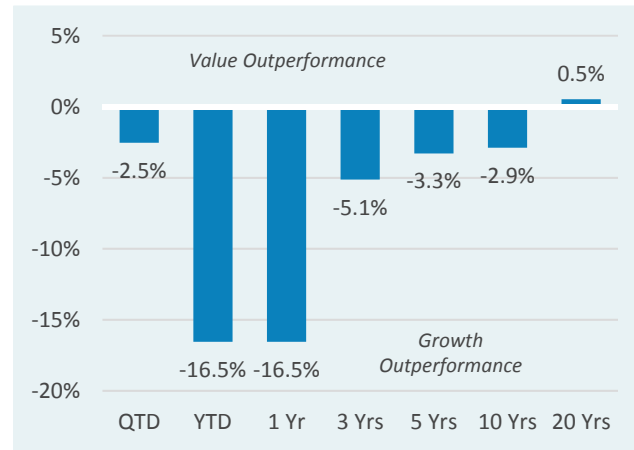
Value equities underperformed growth equities over the quarter and the past year – caused by extremely positive

SMALL CAP VS LARGE CAP (YOY)



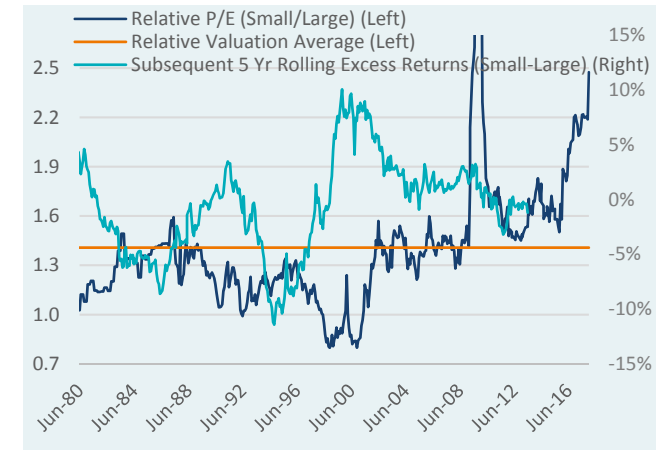
Source: Russell Investments, as of 12/31/17

U.S. VALUE VS GROWTH RELATIVE PERFORMANCE



Source: Morningstar, as of 12/31/17

U.S. LARGE VS. SMALL RELATIVE VALUATIONS



Source: Russell, Bloomberg, as of 12/31/17

International developed equity

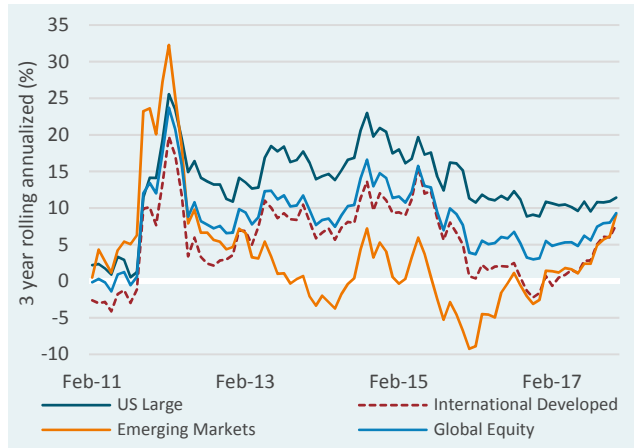
International equities lagged U.S. equities during the fourth quarter as U.S. tax reform contributed to a strong domestic rally. The MSCI EAFE Index returned 4.3% (+4.0% hedged) while the S&P 500 returned 6.6%. Emerging markets continued to outperform (MSCI EM +7.4% unhedged).

Japan outperformed among developed markets, which is particularly notable when considering the pessimism baked into Japan's equity valuations. Japan generated a

12.0% return in the fourth quarter and a 25.7% return in 2017 (Nikkei 225 unhedged). Recent equity gains were fundamentally supported by earnings growth.

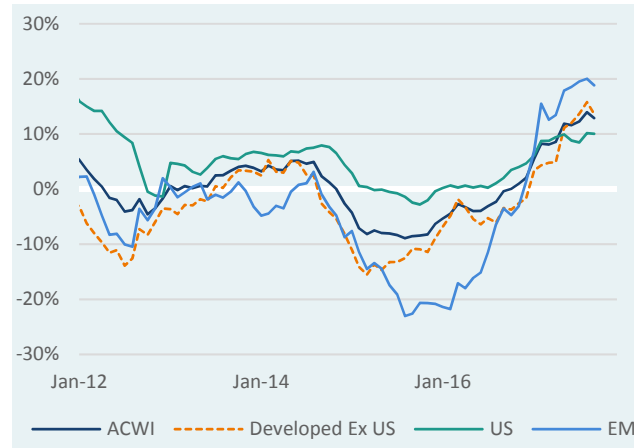
Currency effects added a positive 0.3% to the unhedged MSCI EAFE in Q4 (+8.9% year-to-date), as the U.S. dollar weakened slightly against a trade weighted basket of currencies.

EQUITY PERFORMANCE (3YR ROLLING)



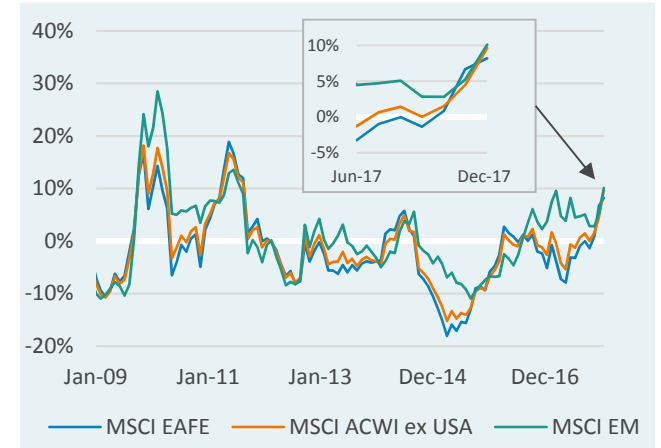
Source: Bloomberg, as of 12/31/17

EARNINGS GROWTH



Source: MSCI, as of 12/31/17 – YoY growth in forward earnings

EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 12/31/17

Emerging market equity

We maintain an overweight to emerging market equities. These markets have led the way in economic growth, earnings, and equity performance. Emerging market equities delivered exceptional returns in 2017 (MSCI Emerging Markets +37.3%) relative to developed markets (MSCI ACWI +24.2%) and during the fourth quarter (7.4% vs. 4.2%).

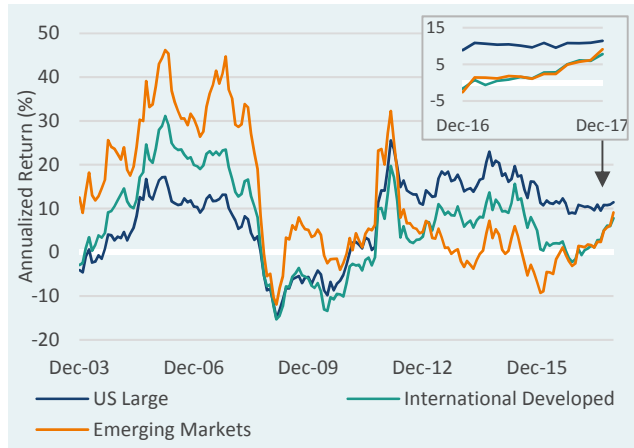
Emerging markets have lagged the U.S. significantly since the global financial crisis, prior to the recent rotation. Emerging market currencies remain depressed relative to

history, and a reversal could provide additional tailwinds to recent outperformance.

Equity multiples have risen modestly, supported by a brighter earnings outlook. As these economies evolve, it has become more difficult to refer to emerging markets as a distinct category. Different levels of economic progress, capital market development, and valuations can be witnessed across emerging market indices. Active management is typically preferred in this asset class.

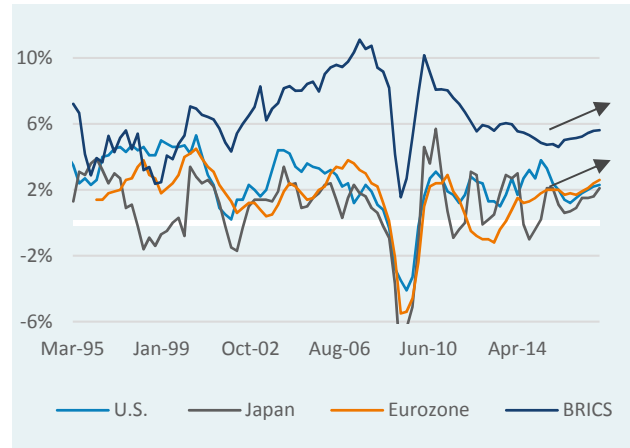
Coordinated global growth has helped propel emerging market equities

EQUITY PERFORMANCE (3YR ROLLING)



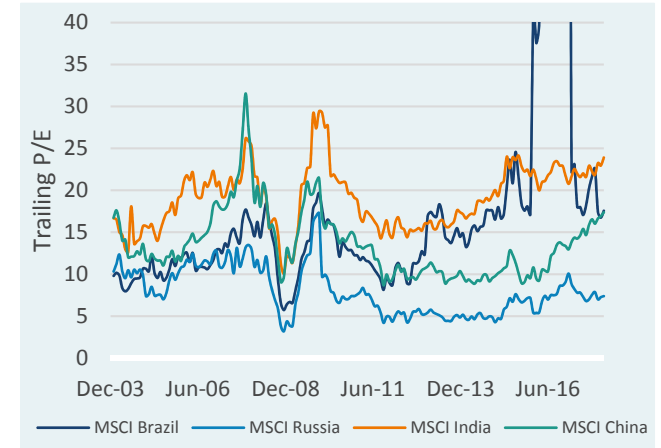
Source: Standard & Poor's, MSCI, as of 12/31/17

ECONOMIC MOMENTUM



Source: Bloomberg, as of 9/30/17

BRIC VALUATIONS



Source: MSCI, as of 12/31/17

Interest rate environment

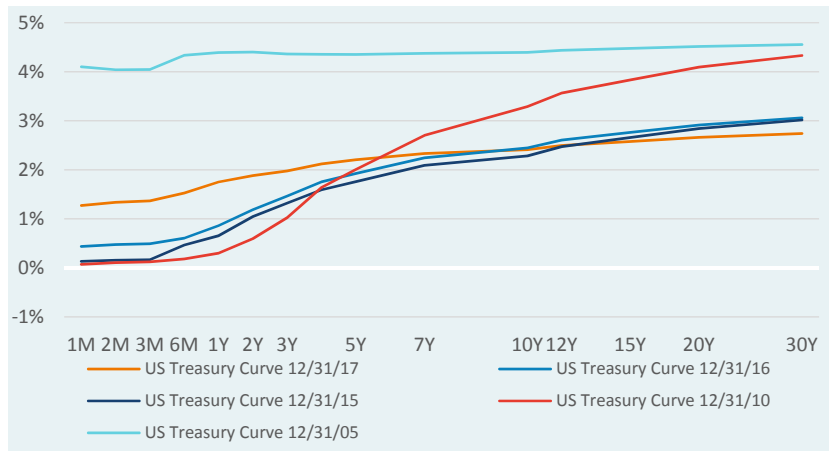
- On December 13th, the Federal Reserve raised the benchmark interest rate by 25 bps to a target range of 1.25%-1.50%. The Fed has communicated three rate hikes in 2018, while the market is pricing in only two.
- U.S. Treasury yields experienced significant increases on the short end of the curve, while longer term rates were modestly higher. The 2- and 10-year yields rose 40 bps and 8 bps, respectively. The increase in short-term rates was likely caused by the Fed raising overnight borrowing rates.
- The Fed began to reduce its balance sheet slowly. Approximately \$30 billion in Treasuries and mortgage-backed securities were trimmed from the balance sheet over the quarter, which did not have a material impact on the market.
- Minutes from the ECB meeting in December showed that officials discussed additional tapering of asset purchases in early 2018 due to stronger than expected economic growth.
- Markets generally expect minimal yield rises across developed markets – between 0% and 0.3% movement over the next year in U.S., U.K., German, and Japanese sovereign bonds. However, we remain watchful of bond market reactions to balance sheet unwinding, given the unprecedented size of central bank assets.
- We remain underweight to U.S. and developed sovereign bonds (currency hedged) primarily due to low yields. It is important to keep in mind the diversification benefits that fixed income provides to the portfolio, despite near record prices.

Area	Short Term (3M)	10 Year
United States	1.38%	2.41%
Germany	(0.80%)	0.42%
France	(0.78%)	0.78%
Spain	(0.58%)	1.56%
Italy	(0.63%)	2.00%
Greece	1.40%	4.10%
U.K.	0.36%	1.19%
Japan	(0.15%)	0.04%
Australia	1.74%	2.63%
China	3.95%	3.90%
Brazil	6.77%	10.25%
Russia	6.55%	7.42%

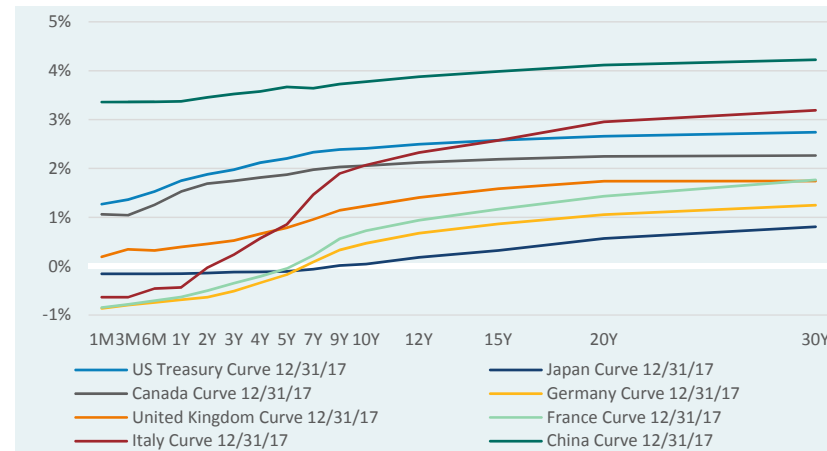
Source: Bloomberg, as of 12/31/17

Yield environment

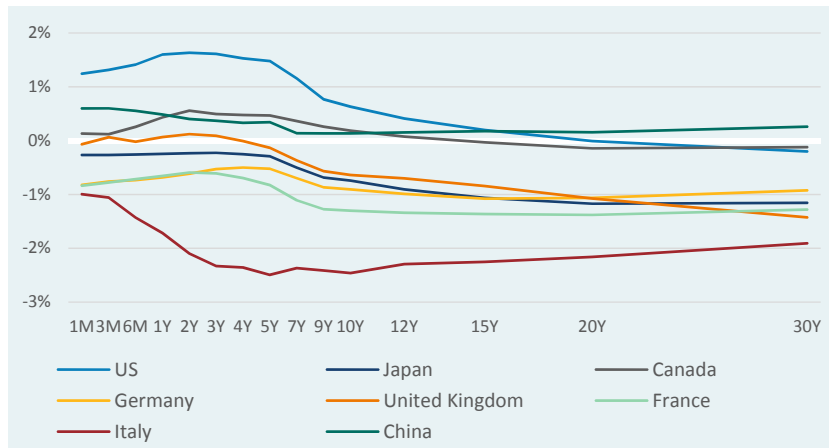
U.S. YIELD CURVE



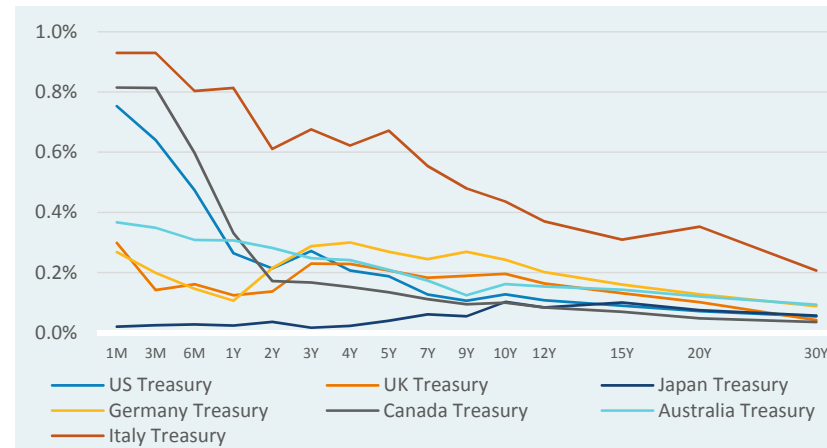
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/17

Currency

The U.S. dollar was little changed in the fourth quarter, but finished the year down 7%. Investors with unhedged international asset exposure have seen large disparities in performance as currency movement continued to contribute to volatility and uncertainty.

Recent strengthening of developed and developing economies relative to the U.S. has likely contributed to U.S. dollar weakness. The U.S. Federal Reserve is engaged in monetary tightening, which implies a stronger dollar on a standalone basis. However, U.S. growth expectations

have shifted relative to international economies which has influenced exchange rates and contributed to recent U.S. dollar movement. Fluctuations in relative growth expectations implies changes in expected inflation and interest rate levels, which directly impacts the foreign exchange market.

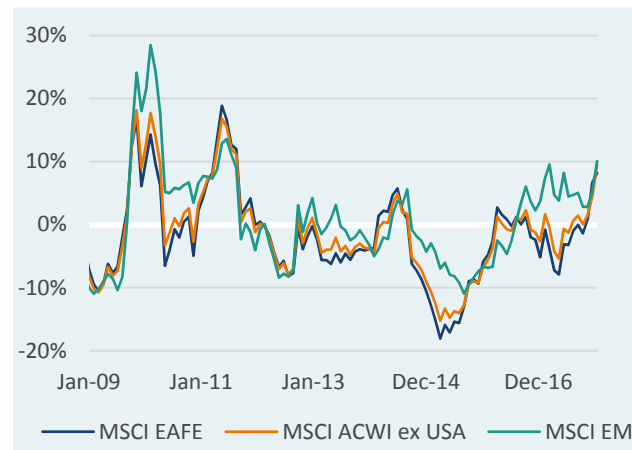
Forecasting currency movement over short periods of time can be extremely difficult. Hedging currency risk is an appropriate method for mitigating currency volatility and uncertainty.

U.S. DOLLAR TRADE WEIGHTED INDEX



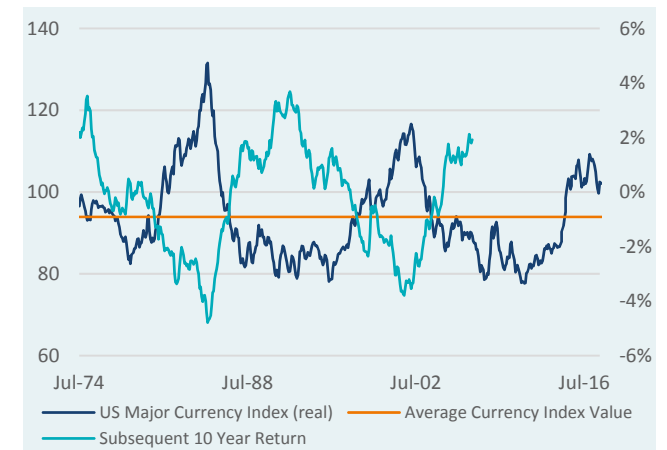
Source: Federal Reserve, as of 12/27/17

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MPI, as of 12/31/17

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 12/31/17

- The Total Fund, net of manager fees, returned 3.2% in the fourth quarter of 2017 and ranked 79th percentile among other public plans greater than \$1 billion (median of 3.5%). It lagged the policy index return of 3.8%. The Total Fund ex Overlay was 3.3% for the quarter. The Total Fund one year return of 14.7% lagged the policy index 15.6%, and ranked in 64th percentile of its peer universe. The three-year return of 7.8% (32nd percentile) was above median among large public plans (7.5%).
- Fourth quarter results were enhanced by the following factors:
 1. Western TRU ranked in the 1st percentile of Core Fixed Income managers, gaining 1.3% versus the Barclays Aggregate (0.4%). For a third quarter in a row, risk assets did well this quarter, and macro strategies were strong contributors to performance. Spread sector performance also contributed to performance.
- Fourth quarter results were hindered by the following factors:
 1. Franklin Templeton lost 1.3% trailing the Bloomberg Barclays Multiverse (1.1%). Currency positions (an underweight in the euro) detracted from the portfolio's relative performance.
 2. Parametric Core gained 5.2% while the MSCI Emerging Markets gained 7.5%. An underweight to China and overweight to Mexico detracted from relative performance.
 3. QMA underperformed the Russell 2000 by 1% with an absolute return of 2.3% for the quarter. Stock selection within information technology and healthcare contributed to the underperformance.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Rank *	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	3.2	79	6.6	76	14.7	64	11.4	61	7.8	32	9.2	29	5.4	52
<i>Policy Index¹</i>	3.8	33	7.7	32	15.6	50	12.2	25	7.9	25	9.4	20	6.1	22
<i>Allocation Index</i>	3.8	36	7.6	35	15.4	52	12.0	34	7.8	33	9.3	23	--	--
<i>InvestorForce Public DB > \$1B Net Median</i>	3.5		7.4		15.6		11.7		7.5		8.7		5.4	
Total Fund ex Overlay	3.3	76	6.6	77	14.6	68	11.3	63	7.7	40	9.1	34	5.3	55
<i>Policy Index¹</i>	3.8	33	7.7	32	15.6	50	12.2	25	7.9	25	9.4	20	6.1	22
<i>Allocation Index</i>	3.8	36	7.6	35	15.4	52	12.0	34	7.8	33	9.3	23	--	--
<i>InvestorForce Public DB > \$1B Net Median</i>	3.5		7.4		15.6		11.7		7.5		8.7		5.4	
Public Equity	5.2	78	10.7	55	23.6	37	15.6	64	10.0	41	12.4	50	5.7	69
<i>Blended Public Equity Index²</i>	5.9	25	11.6	19	24.3	27	16.8	20	10.3	21	12.5	46	6.5	37
<i>InvestorForce All DB Total Eq Net Median</i>	5.6		10.8		22.7		15.8		9.8		12.4		6.2	
US Equity	5.9	67	11.3	28	21.2	34	16.1	61	10.8	44	15.0	51	7.9	66
<i>Blended US Equity Index²</i>	6.3	33	11.2	35	21.1	39	17.0	25	11.0	38	15.4	33	8.7	24
<i>Russell 3000</i>	6.3	33	11.2	35	21.1	39	16.9	31	11.1	28	15.6	20	8.6	26
<i>InvestorForce All DB US Eq Net Median</i>	6.2		11.0		20.5		16.5		10.7		15.0		8.3	
Large Cap Equity	6.5	51	11.9	42	24.2	32	17.2	21	12.1	17	16.0	28	8.2	52
<i>Russell 1000</i>	6.6	48	11.4	50	21.7	46	16.8	29	11.2	27	15.7	33	8.6	39
<i>eV US Large Cap Equity Net Median</i>	6.5		11.3		21.1		15.5		10.0		14.8		8.3	
<i>BlackRock Russell 1000***</i>	6.6	49	11.4	48	--	--	--	--	--	--	--	--	--	--
<i>eV US Large Cap Core Equity Net Median</i>	6.6		11.2		21.4		15.3		10.2		14.8		8.3	
<i>DE Shaw</i>	6.3	58	14.2	9	25.3	14	19.5	4	14.0	1	17.3	4	--	--
<i>Russell 1000</i>	6.6	49	11.4	48	21.7	47	16.8	25	11.2	22	15.7	28	8.6	33
<i>eV US Large Cap Core Equity Net Median</i>	6.6		11.2		21.4		15.3		10.2		14.8		8.3	

* 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 10/1/17, Policy Index is 21% Russell 3000/19% MSCI ACWI ex US IMI NI/ 14% BBgBarc Aggregate/ 2% BBgBarc TIPS/ 7% BBgBarc BA Intermediate HY / 8% NCREIF NFI ODCE/ 7% Russell 3000 + 3% 8% (60% Russell 3000/40% BBgBarc Aggregate)/ 6% Labor +4%/ 8% (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.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	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	80	8.1	71	12.6	60	14.9	78	7.4	87	12.2	82	7.2	86
<i>Russell 2000</i>	3.3	64	9.2	55	14.6	49	17.9	42	10.0	52	14.1	53	8.7	56
<i>eV US Small Cap Equity Net Median</i>	3.9		9.6		14.4		17.4		10.0		14.3		9.0	
QMA US Small Cap	2.3	80	8.1	70	12.6	66	--	--	--	--	--	--	--	--
<i>Russell 2000</i>	3.3	59	9.2	54	14.6	46	17.9	40	10.0	58	14.1	58	8.7	58
<i>eV US Small Cap Core Equity Net Median</i>	3.7		9.3		14.4		17.2		10.5		14.6		9.1	
International Equity	4.4	60	9.9	75	26.9	71	14.5	72	8.4	51	7.6	46	1.2	81
<i>MSCI ACWI ex US IMI²</i>	5.2	26	11.9	22	28.3	45	16.0	32	8.8	34	7.6	46	2.5	47
<i>MSCI EAFE Gross</i>	4.3	66	10.0	73	25.6	81	12.9	88	8.3	56	8.4	28	2.4	48
<i>InvestorForce All DB ex-US Eq Net Median</i>	4.7		11.0		27.9		15.5		8.4		7.4		2.4	
Developed Markets	4.3	48	9.6	71	26.8	43	13.8	45	8.6	47	8.2	53	1.4	80
<i>MSCI ACWI ex USA Gross</i>	5.1	19	11.6	24	27.8	32	15.8	20	8.3	52	7.3	69	2.3	48
<i>InvestorForce All DB Dev Mkt ex-US Eq Net Median</i>	4.3		10.2		26.5		13.6		8.5		8.3		2.2	
Baillie Gifford	4.8	70	10.1	89	31.7	73	15.1	54	10.4	57	9.9	44	--	--
<i>MSCI ACWI ex US²</i>	5.1	64	11.6	74	27.8	94	15.8	44	8.3	90	8.6	68	--	--
<i>MSCI ACWI ex US Growth²</i>	5.8	49	12.6	64	32.5	68	15.4	52	9.7	66	9.6	48	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	5.7		13.5		34.2		15.5		10.8		9.3		4.5	
BlackRock EAFE Index	4.2	50	9.9	62	25.5	63	12.8	55	8.2	63	--	--	--	--
<i>MSCI EAFE</i>	4.2	50	9.9	63	25.0	67	12.4	62	7.8	69	7.9	74	1.9	87
<i>MSCI EAFE Gross</i>	4.3	49	10.0	61	25.6	62	12.9	52	8.3	60	8.4	67	2.4	73
<i>eV EAFE Core Equity Net Median</i>	4.2		10.4		27.1		13.0		8.7		9.1		3.1	
Mondrian	4.0	55	9.1	61	22.9	69	13.5	61	6.8	78	6.9	82	2.0	69
<i>MSCI ACWI ex USA Value Gross</i>	4.3	48	10.7	42	23.3	66	16.3	46	6.9	77	6.2	85	1.8	77
<i>MSCI ACWI ex USA Gross</i>	5.1	21	11.6	34	27.8	26	15.8	50	8.3	54	7.3	79	2.3	54
<i>eV ACWI ex-US Value Equity Net Median</i>	4.2		10.0		25.8		15.8		8.5		8.4		2.4	

2. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets	5.2	84	12.4	69	28.1	90	20.3	72	6.8	86	3.4	68	--	--
MSCI Emerging Markets Gross	7.5	15	16.1	16	37.8	17	24.0	26	9.5	18	4.7	27	2.0	47
InvestorForce All DB Emg Mkt Eq Net Median	6.3		13.5		33.8		21.4		8.3		3.9		1.9	
Parametric Core	5.2	84	12.4	77	28.1	90	20.3	70	--	--	--	--	--	--
MSCI Emerging Markets Gross	7.5	29	16.1	35	37.8	44	24.0	33	9.5	42	4.7	63	2.0	63
eV Emg Mkts Equity Net Median	6.7		14.9		37.1		22.8		9.1		5.4		2.7	
Fixed Income	0.6	46	1.8	52	5.7	41	6.9	23	4.1	23	3.5	25	5.3	36
Blended Fixed Income Index ²	0.4	67	1.7	55	4.9	53	5.2	46	3.3	45	2.2	64	4.3	69
InvestorForce All DB Total Fix Inc Net Median	0.5		1.8		5.0		5.1		3.1		2.6		4.8	
Core Fixed	0.3	--	1.4	--	4.5	--	4.6	--	3.1	--	2.8	--	4.6	--
BBgBarc US Aggregate TR	0.4	--	1.2	--	3.5	--	3.1	--	2.2	--	2.1	--	4.0	--
BlackRock Intermediate Govt*	-0.4	75	0.0	75	--	--	--	--	--	--	--	--	--	--
BBgBarc US Govt Int TR	-0.4	93	-0.1	83	1.1	78	1.1	75	1.1	73	0.9	67	2.7	88
eV US Government Fixed Inc Net Median	-0.1		0.4		2.0		1.7		1.3		1.2		3.2	
FIAM Bond	0.4	51	1.5	20	4.1	30	4.3	11	2.9	18	2.7	20	4.9	20
Western TRU	1.3	1	3.3	1	8.8	1	7.1	1	--	--	--	--	--	--
3-Month Libor Total Return USD	0.4	66	0.7	92	1.3	99	1.0	99	0.8	99	0.6	99	0.8	99
BBgBarc US Aggregate TR	0.4	66	1.2	60	3.5	66	3.1	68	2.2	69	2.1	62	4.0	77
eV US Core Fixed Inc Net Median	0.4		1.3		3.8		3.4		2.4		2.3		4.4	
Opportunistic Credit	1.1	--	2.8	--	9.0	--	11.9	--	7.1	--	7.6	--	--	--
BBgBarc BA Intermediate HY	0.1	--	1.9	--	6.3	--	9.0	--	5.7	--	3.8	--	--	--
Angelo Gordon Opportunistic**	11.1	--	10.4	--	19.9	--	13.4	--	9.1	--	--	--	--	--
Angelo Gordon STAR**	3.1	--	8.0	--	19.1	--	12.4	--	9.9	--	12.5	--	--	--
BBgBarc US Aggregate TR	0.4	--	1.2	--	3.5	--	3.1	--	2.2	--	2.1	--	4.0	--

* Funded January 2017.

** Preliminary return as of 12/31/2017.

2. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Beach Point Select	1.8	2	3.9	4	8.5	12	12.2	14	--	--	--	--	--	--
BBgBarc BA Intermediate HY ²	0.1	85	1.9	78	6.3	72	9.0	73	5.7	49	3.8	95	--	--
eV US High Yield Fixed Inc Net Median	0.5		2.4		7.1		10.2		5.6		5.2		7.2	
Brigade Capital	0.3	71	1.7	82	7.6	36	14.9	1	5.8	47	4.8	70	--	--
BBgBarc BA Intermediate HY ²	0.1	85	1.9	78	6.3	72	9.0	73	5.7	49	3.8	95	--	--
50% Barclays HY/ 50% Bank Loan	0.8	31	2.3	53	5.9	78	9.6	64	5.4	58	5.1	63	--	--
eV US High Yield Fixed Inc Net Median	0.5		2.4		7.1		10.2		5.6		5.2		7.2	
PIMCO Diversified**	0.8	31	--	--	--	--	--	--	--	--	--	--	--	--
Blended PIMCO Diversified Index ²	0.8	33	2.6	38	7.3	45	8.5	76	5.6	52	4.5	80	6.7	72
BBgBarc BA Intermediate HY ²	0.1	85	1.9	78	6.3	72	9.0	73	5.7	49	3.8	95	--	--
eV US High Yield Fixed Inc Net Median	0.5		2.4		7.1		10.2		5.6		5.2		7.2	
Franklin Templeton	-1.3	99	-0.1	99	4.2	89	5.9	61	2.5	69	2.3	58	--	--
BBgBarc Multiverse TR	1.1	31	3.0	36	7.7	46	5.2	69	2.3	73	1.0	79	3.3	77
eV All Global Fixed Inc Net Median	0.8		2.6		7.5		6.6		3.3		2.9		4.7	
Private Credit	3.2	--	4.3	--	8.2	--	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	2.0	--	4.0	--	8.6	--	9.9	--	8.4	--	9.5	--	--	--
TCP Direct Lending VIII*	4.7	1	6.6	1	10.7	2	--	--	--	--	--	--	--	--
White Oak Yield* ***	0.5	51	-1.0	99	--	--	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	2.0	1	4.0	4	8.6	12	9.9	58	8.4	3	9.5	1	--	--
eV US High Yield Fixed Inc Net Median	0.5		2.4		7.1		10.2		5.6		5.2		7.2	
Risk Parity	4.5	--	8.4	--	14.8	--	13.4	--	6.3	--	5.5	--	--	--
Blended Risk Parity Index ²	3.6	--	6.9	--	14.3	--	11.5	--	7.8	--	10.2	--	--	--

* Preliminary return as of 12/31/2017.

** Funded August 2017.

*** Funded June 2017.

2. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
AQR GRP, 10% Volatility	4.7	--	9.4	--	16.1	--	13.3	--	5.2	--	4.1	--	--	--
PanAgora	4.4	--	7.5	--	13.8	--	13.5	--	7.4	--	--	--	--	--
<i>Blended Risk Parity Index²</i>	3.6	--	6.9	--	14.3	--	11.5	--	7.8	--	10.2	--	--	--
<i>Blended RP Secondary Index²</i>	3.9	--	7.1	--	13.8	--	10.0	--	6.6	--	8.2	--	--	--
Alternatives	1.5	--	3.2	--	9.6	--	9.4	--	8.3	--	6.5	--	--	--
<i>Alternatives Allocation Index²</i>	4.3	--	8.0	--	14.7	--	12.6	--	7.4	--	7.5	--	--	--
<i>Blended Alternatives Index²</i>	4.5	--	8.2	--	15.2	--	13.0	--	7.8	--	9.2	--	--	--
Private Equity**	1.4	64	2.1	89	13.6	46	14.1	15	16.3	5	15.9	9	--	--
<i>Russell 3000 +3%</i>	7.1	3	13.1	2	24.1	2	19.9	2	14.1	12	18.6	5	11.7	1
<i>InvestorForce All DB Private Eq Net Median</i>	2.6		5.5		13.2		10.4		10.0		11.3		7.3	
Hedge Fund/Absolute Return	1.5	56	4.3	35	5.0	65	3.0	72	5.3	12	6.5	18	--	--
<i>Libor 1 month +4%</i>	1.5	60	2.8	71	5.3	61	4.9	42	4.7	19	4.5	52	--	--
<i>InvestorForce All DB Hedge Funds Net Median</i>	1.7		3.8		6.1		4.3		2.7		4.7		2.3	
AQR DELTA XN	1.3	61	5.4	41	5.6	61	3.6	71	5.8	41	6.8	42	--	--
Aberdeen Standard GARS	1.9	50	2.2	69	3.7	73	0.8	86	--	--	--	--	--	--
<i>Libor 1 month +4%</i>	1.5	56	2.8	62	5.3	64	4.9	61	4.7	47	4.5	62	--	--
<i>eV Alt All Multi-Strategy Median</i>	1.9		4.0		7.5		6.5		4.2		5.5		5.7	
Inflation Hedge	2.6	--	5.0	--	8.2	--	--	--	--	--	--	--	--	--
<i>Blended Inflation Pool Index²</i>	3.0	--	6.3	--	9.0	--	--	--	--	--	--	--	--	--
Real Estate	2.2	14	3.8	21	8.2	12	8.5	12	10.6	7	11.5	5	4.9	18
NCREIF ODCE	2.1	17	4.0	13	7.6	22	8.2	22	10.4	7	11.5	5	5.4	8
<i>InvestorForce All DB Real Estate Pub Net Median</i>	1.6		3.2		6.3		6.8		8.8		9.9		4.0	
Invesco	2.2	--	3.6	--	8.1	--	8.5	--	10.4	--	11.4	--	4.9	--
NCREIF ODCE	2.1	--	4.0	--	7.6	--	8.2	--	10.4	--	11.5	--	5.4	--

** Returns are one-quarter lag.

2. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Invesco US Val IV	1.8	--	7.3	--	11.9	--	9.2	--	--	--	--	--	--	--
NCREIF ODCE	2.1	--	4.0	--	7.6	--	8.2	--	10.4	--	11.5	--	5.4	--
NCREIF CEVA 1Q Lag - NET	3.0	--	5.7	--	10.2	--	11.6	--	13.4	--	--	--	--	--
PGIM RE US Debt Fund***	2.4	--	--	--	--	--	--	--	--	--	--	--	--	--
NCREIF ODCE	2.1	--	4.0	--	7.6	--	8.2	--	10.4	--	11.5	--	5.4	--
Private Real Asset**	-2.5	--	-5.5	--	-2.8	--	18.6	--	10.5	--	--	--	--	--
Blended Real Asset Index ²	4.4	--	9.7	--	12.5	--	9.4	--	7.8	--	--	--	--	--
Liquid Pool	4.6	--	10.4	--	14.0	--	--	--	--	--	--	--	--	--
Blended Real Asset Index ²	4.4	--	9.7	--	12.5	--	9.4	--	7.8	--	--	--	--	--
SSgA Custom Real Asset	4.6	--	10.4	--	14.0	--	--	--	--	--	--	--	--	--
Blended Real Asset Index ²	4.4	--	9.7	--	12.5	--	9.4	--	7.8	--	--	--	--	--
TIPS	1.2	--	1.9	--	2.4	--	3.6	--	2.0	--	-0.4	--	--	--
BBgBarc US TIPS TR	1.3	--	2.1	--	3.0	--	3.8	--	2.0	--	0.1	--	3.5	--
Brown Brothers Harriman	1.2	72	1.9	85	2.4	81	3.6	65	2.0	48	-0.4	81	--	--
BBgBarc US TIPS TR	1.3	64	2.1	68	3.0	57	3.8	49	2.0	36	0.1	38	3.5	57
eV US TIPS / Inflation Fixed Inc Net Median	1.3	--	2.2	--	3.1	--	3.8	--	1.9	--	0.1	--	3.6	--
Cash	0.3	--	0.5	--	0.9	--	0.9	--	1.0	--	0.8	--	0.6	--
91 Day T-Bills	0.3	--	0.6	--	0.9	--	0.6	--	0.4	--	0.3	--	0.3	--
General Account	0.7	--	1.2	--	1.8	--	1.4	--	1.6	--	1.1	--	0.9	--
Treasury & LAIF	0.2	--	0.5	--	1.1	--	1.0	--	0.9	--	0.8	--	0.6	--
91 Day T-Bills	0.3	--	0.6	--	0.9	--	0.6	--	0.4	--	0.3	--	0.3	--

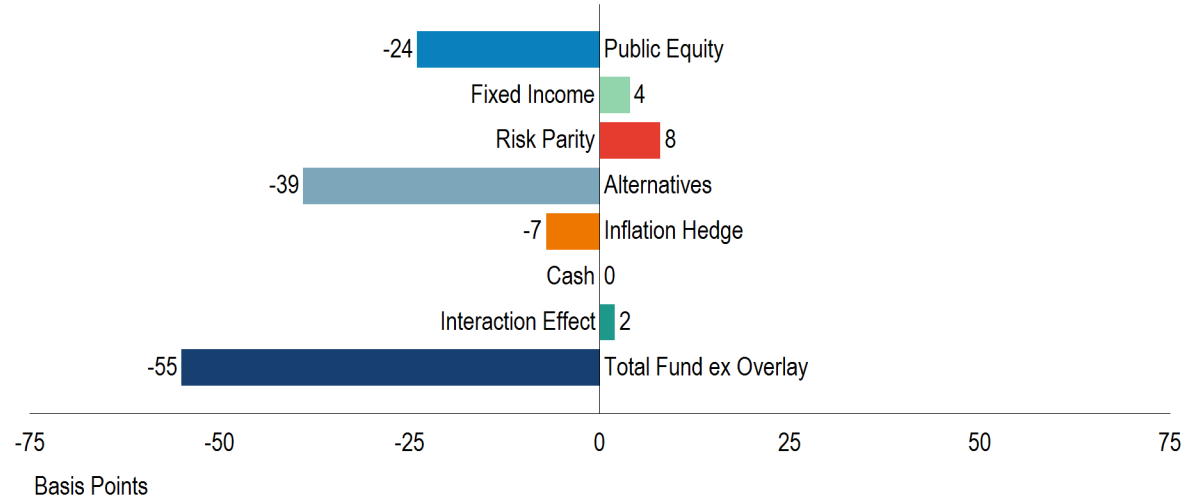
** Returns are one-quarter lag.

*** Funded July 2017.

2. See Appendix for Benchmark History.

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2017

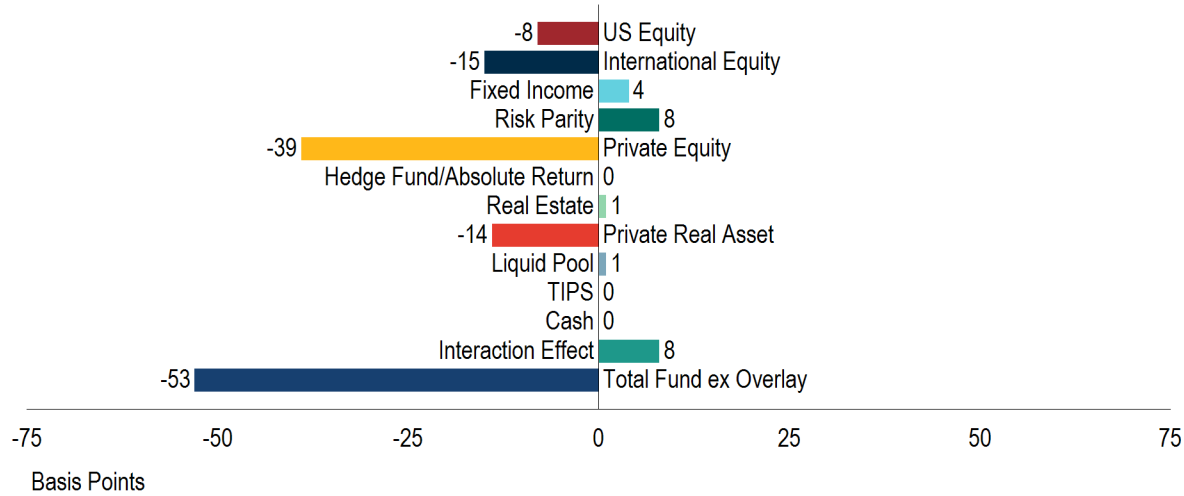


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	5.25%	5.87%	-0.62%	-0.24%	0.06%	-0.02%	-0.21%
Fixed Income	0.59%	0.42%	0.17%	0.04%	0.02%	0.00%	0.06%
Risk Parity	4.54%	3.61%	0.93%	0.08%	0.00%	-0.01%	0.07%
Alternatives	1.48%	4.45%	-2.97%	-0.39%	-0.01%	0.04%	-0.36%
Inflation Hedge	2.60%	2.98%	-0.38%	-0.07%	0.02%	0.01%	-0.04%
Cash	0.26%	0.30%	-0.04%	0.00%	-0.07%	0.00%	-0.07%
Total	3.28%	3.83%	-0.55%	-0.59%	0.02%	0.02%	-0.55%

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

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2017

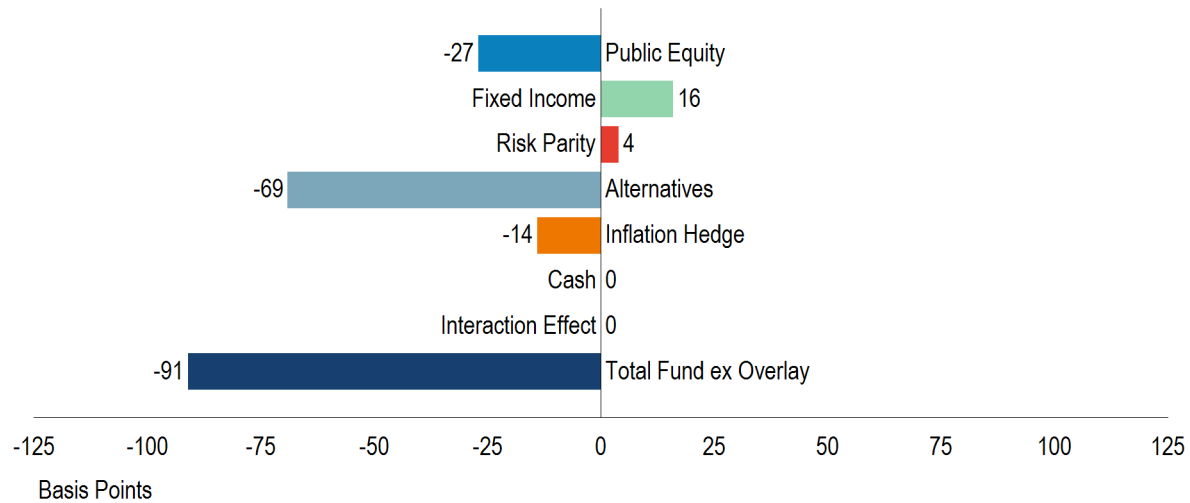


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	5.93%	6.34%	-0.41%	-0.08%	0.05%	-0.01%	-0.04%
International Equity	4.44%	5.23%	-0.79%	-0.15%	0.01%	-0.01%	-0.14%
Fixed Income	0.59%	0.42%	0.17%	0.04%	0.02%	0.00%	0.06%
Risk Parity	4.54%	3.61%	0.93%	0.08%	0.00%	-0.01%	0.07%
Private Equity	1.42%	7.07%	-5.65%	-0.39%	-0.03%	0.06%	-0.37%
Hedge Fund/Absolute Return	1.50%	1.46%	0.04%	0.00%	0.00%	0.00%	0.01%
Real Estate	2.19%	2.07%	0.12%	0.01%	0.02%	0.00%	0.03%
Private Real Asset	-2.46%	4.38%	-6.84%	-0.14%	0.00%	0.05%	-0.09%
Liquid Pool	4.59%	4.38%	0.21%	0.01%	0.00%	0.00%	0.01%
TIPS	1.21%	1.26%	-0.05%	0.00%	0.01%	0.00%	0.01%
Cash	0.26%	0.30%	-0.04%	0.00%	-0.07%	0.00%	-0.07%
Total	3.28%	3.81%	-0.53%	-0.63%	0.01%	0.08%	-0.53%

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

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: December 31, 2017

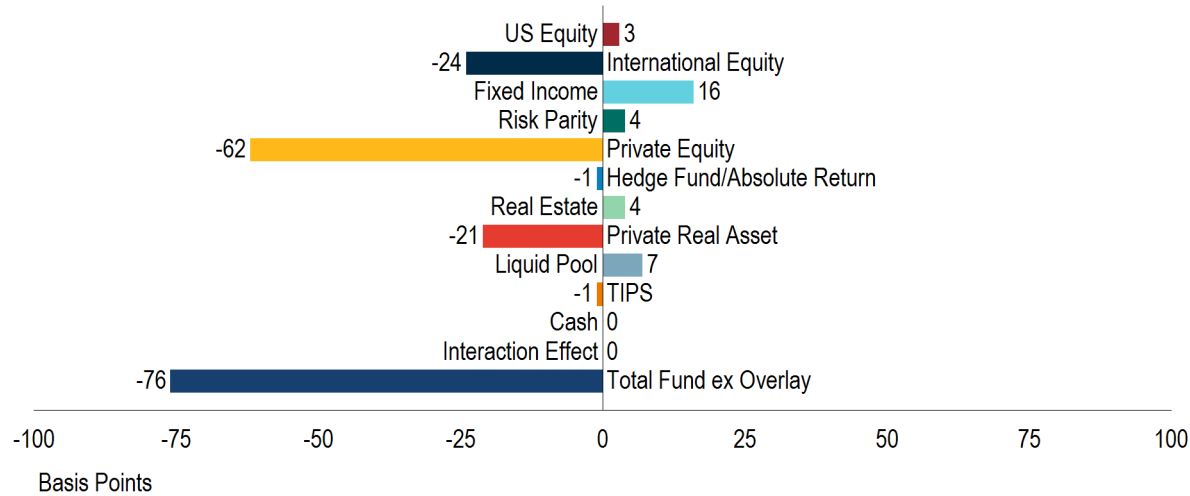


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
Public Equity	23.62%	24.30%	-0.68%	-0.27%	0.00%	0.00%	-0.27%
Fixed Income	5.73%	4.94%	0.79%	0.16%	0.00%	0.00%	0.16%
Risk Parity	14.84%	14.30%	0.54%	0.04%	0.00%	0.00%	0.04%
Alternatives	9.61%	15.17%	-5.56%	-0.69%	0.00%	0.00%	-0.69%
Inflation Hedge	8.21%	9.01%	-0.80%	-0.14%	0.00%	0.00%	-0.14%
Cash	0.92%	0.92%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	14.71%	15.62%	-0.91%	-0.91%	0.00%	0.00%	-0.91%

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

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: December 31, 2017



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
US Equity	21.23%	21.13%	0.10%	0.03%	0.00%	0.00%	0.03%
International Equity	26.94%	28.31%	-1.37%	-0.24%	0.00%	0.00%	-0.24%
Fixed Income	5.73%	4.94%	0.79%	0.16%	0.00%	0.00%	0.16%
Risk Parity	14.84%	14.30%	0.54%	0.04%	0.00%	0.00%	0.04%
Private Equity	13.58%	24.13%	-10.55%	-0.62%	0.00%	0.00%	-0.62%
Hedge Fund/Absolute Return	5.03%	5.27%	-0.24%	-0.01%	0.00%	0.00%	-0.01%
Real Estate	8.24%	7.62%	0.63%	0.04%	0.00%	0.00%	0.04%
Private Real Asset	-2.79%	12.55%	-15.34%	-0.21%	0.00%	0.00%	-0.21%
Liquid Pool	14.03%	12.55%	1.48%	0.07%	0.00%	0.00%	0.07%
TIPS	2.42%	3.01%	-0.58%	-0.01%	0.00%	0.00%	-0.01%
Cash	0.92%	0.92%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	14.76%	15.52%	-0.76%	-0.76%	0.00%	0.00%	-0.76%

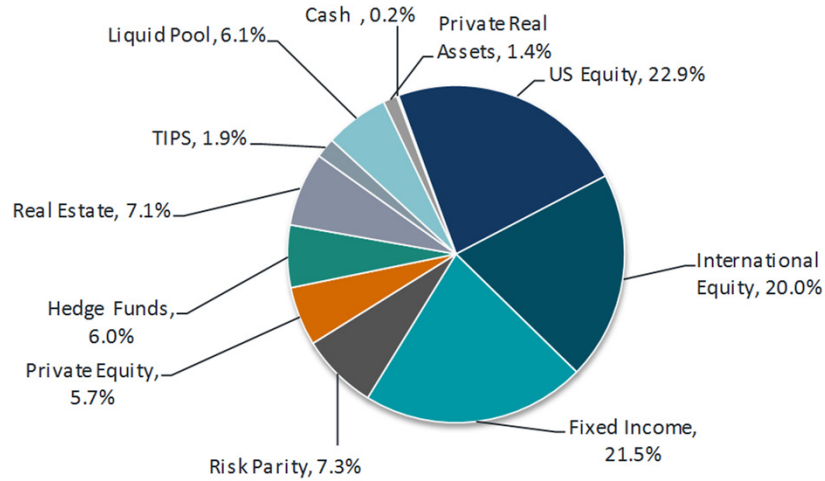
Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund

Asset Allocation Analysis

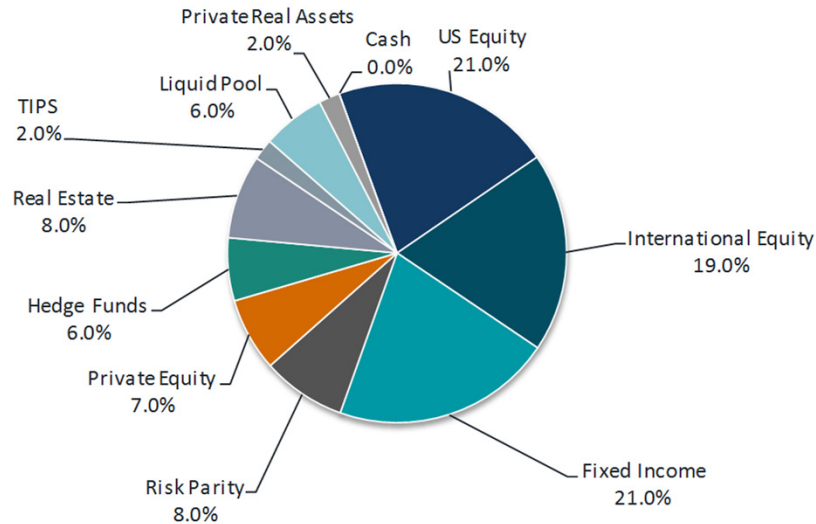
Period Ending: December 31, 2017

Current w/Overlay



ASSET ALLOCATION	MARKET VALUE	
	W/OVERLAY	W/O OVERLAY
US Equity	985,081,724	22.9%
International Equity	859,466,592	20.0%
Fixed Income	923,573,452	21.5%
Risk Parity	316,216,352	7.3%
Private Equity	244,037,279	5.7%
Hedge Funds	257,521,085	6.0%
Real Estate	305,685,958	7.1%
TIPS	82,401,749	1.9%
Liquid Pool	263,683,074	6.1%
Private Real Assets	58,217,389	1.4%
Cash	7,040,046	0.2%
TOTAL	4,302,924,700	100.0%

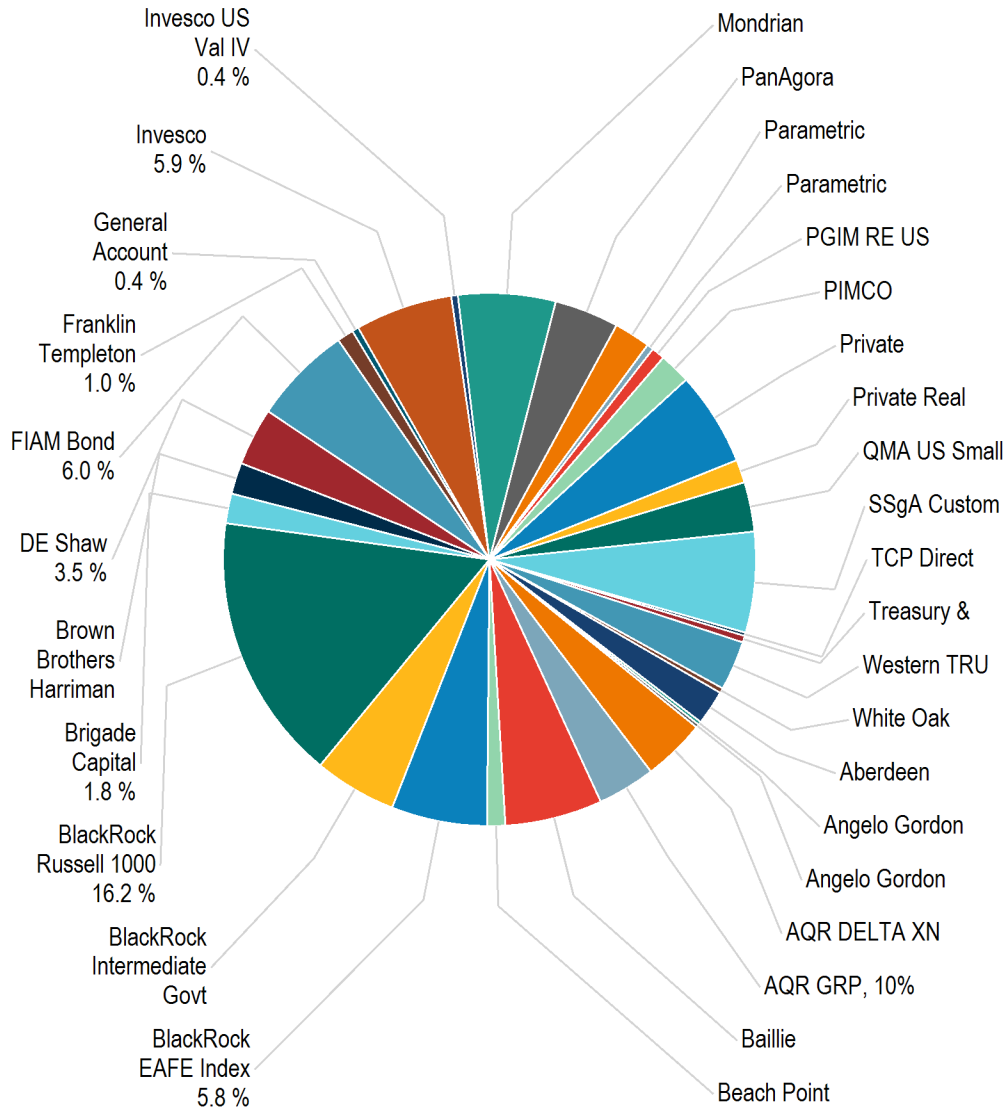
Target



ASSET ALLOCATION	W/OVERLAY	TARGET	DIFF
US Equity	22.9%	21.0%	1.9%
International Equity	20.0%	19.0%	1.0%
Fixed Income	21.5%	21.0%	0.5%
Risk Parity	7.3%	8.0%	-0.7%
Private Equity	5.7%	7.0%	-1.3%
Hedge Funds	6.0%	6.0%	0.0%
Real Estate	7.1%	8.0%	-0.9%
TIPS	1.9%	2.0%	-0.1%
Liquid Pool	6.1%	6.0%	0.1%
Private Real Assets	1.4%	2.0%	-0.6%
Cash	0.2%	0.0%	0.2%
TOTAL	100.0%	100.0%	0.0%

Total Fund Manager Allocation Analysis

Period Ending: December 31, 2017



	Actual	Actual
Aberdeen Standard GARS	\$92,124,752	2%
Angelo Gordon Opportunistic	\$9,527,000	0%
Angelo Gordon STAR	\$10,398,000	0%
AQR DELTA XN	\$165,396,333	4%
AQR GRP, 10% Volatility	\$149,012,863	3%
Baillie Gifford	\$255,490,197	6%
Beach Point Select	\$48,418,723	1%
BlackRock EAFE Index	\$247,914,877	6%
BlackRock Intermediate Govt	\$216,019,223	5%
BlackRock Russell 1000	\$698,742,099	16%
Brigade Capital	\$75,355,031	2%
Brown Brothers Harriman	\$82,401,749	2%
DE Shaw	\$151,343,823	4%
FIAM Bond	\$258,488,671	6%
Franklin Templeton	\$41,038,670	1%
General Account	\$19,168,829	0%
Invesco	\$253,388,704	6%
Invesco US Val IV	\$17,874,138	0%
Mondrian	\$254,617,849	6%
PanAgora	\$167,203,489	4%
Parametric Core	\$95,899,675	2%
Parametric Minneapolis Overlay	\$16,600,552	0%
PGIM RE US Debt Fund	\$34,423,116	1%
PIMCO Diversified	\$80,884,948	2%
Private Equity	\$244,037,279	6%
Private Real Asset	\$58,217,389	1%
QMA US Small Cap	\$129,919,172	3%
SSgA Custom Real Asset	\$263,683,074	6%
TCP Direct Lending VIII	\$9,523,775	0%
Transition 3	\$16,647	0%
Treasury & LAIF	\$15,557,335	0%
Western TRU	\$128,289,306	3%
White Oak Yield	\$11,947,413	0%
Total	\$4,302,924,700	100%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.8%	32	5.9%	60	1.2	45	-0.1	60	1.2%	56
Policy Index	7.9%	25	6.5%	80	1.2	60	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	7.5%	--	5.7%	--	1.2	--	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	9.2%	29	6.0%	68	1.5	42	-0.2	74	1.0%	31
Policy Index	9.4%	20	6.4%	78	1.4	48	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	8.7%	--	5.6%	--	1.4	--	0.1	--	1.1%	--

Statistics Summary

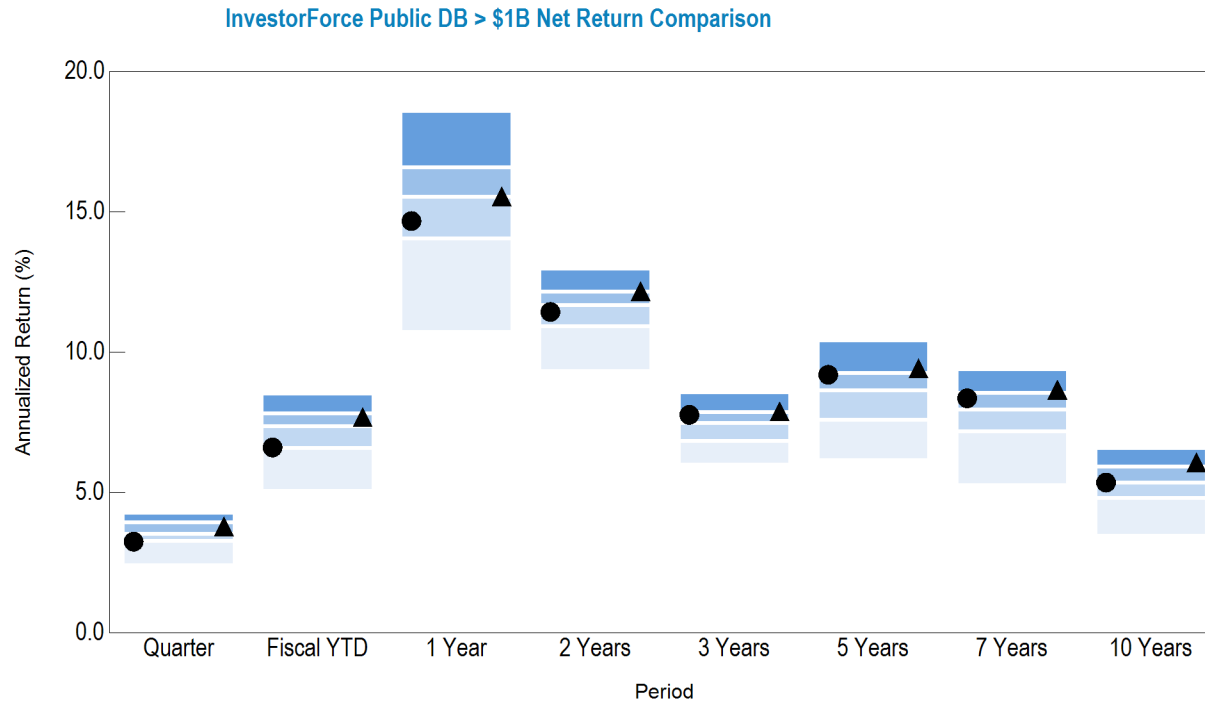
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	1.0%	0.4%	1.5	1.5	0.4%
91 Day T-Bills	0.4%	0.1%	0.0	--	0.0%
General Account	1.6%	0.6%	1.9	2.0	0.6%
91 Day T-Bills	0.4%	0.1%	0.0	--	0.0%
Treasury & LAIF	0.9%	0.5%	1.0	1.0	0.5%
91 Day T-Bills	0.4%	0.1%	0.0	--	0.0%

Statistics Summary

5 Years

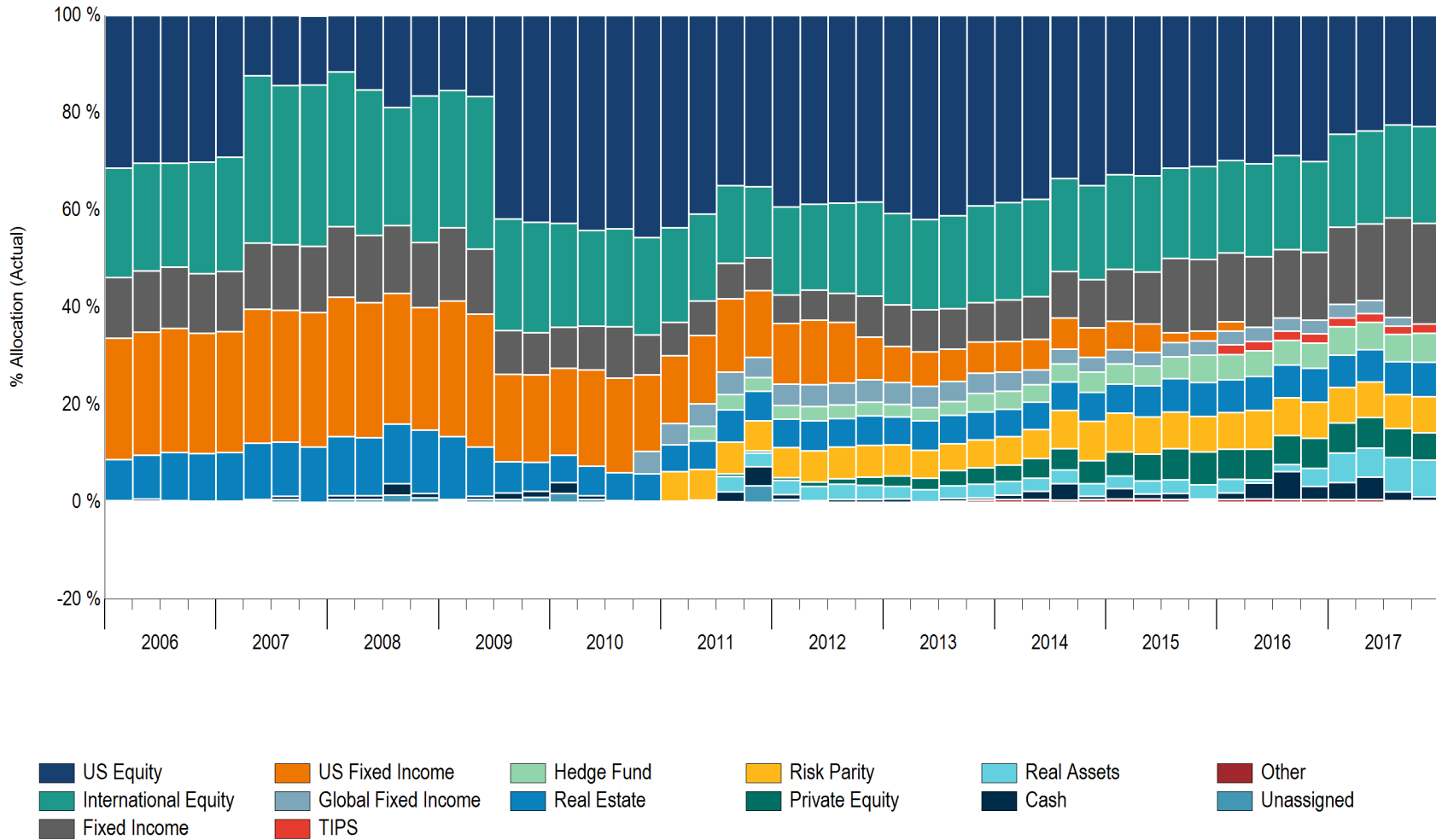
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	0.8%	0.3%	1.7	1.7	0.3%
91 Day T-Bills	0.3%	0.1%	0.0	--	0.0%
General Account	1.1%	0.5%	1.6	1.7	0.5%
91 Day T-Bills	0.3%	0.1%	0.0	--	0.0%
Treasury & LAIF	0.8%	0.4%	1.3	1.3	0.4%
91 Day T-Bills	0.3%	0.1%	0.0	--	0.0%

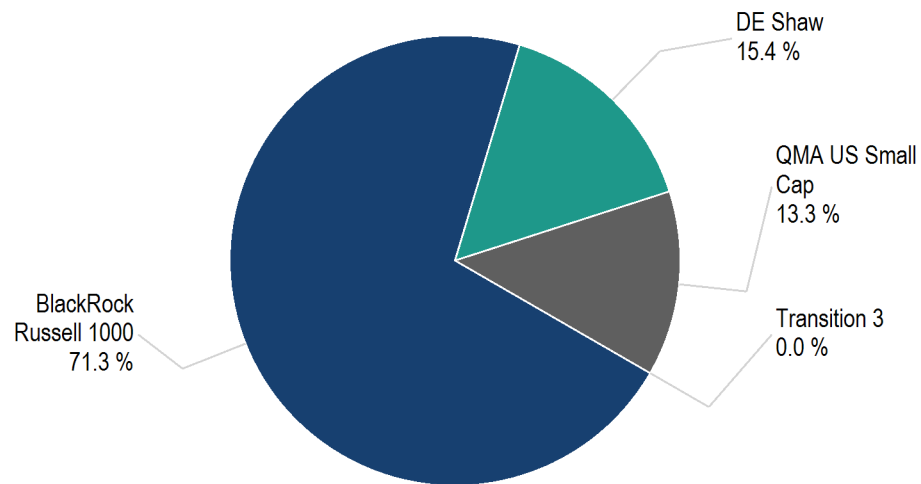


	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.3	8.5	18.6	13.0	8.6	10.4	9.4	6.6
25th Percentile	3.9	7.8	16.6	12.2	7.9	9.3	8.6	5.9
Median	3.5	7.4	15.6	11.7	7.5	8.7	8.0	5.4
75th Percentile	3.3	6.6	14.1	10.9	6.8	7.6	7.2	4.8
95th Percentile	2.4	5.1	10.7	9.3	6.0	6.2	5.3	3.5
# of Portfolios	61	61	61	61	61	60	59	55
● Total Fund	3.2 (79)	6.6 (76)	14.7 (64)	11.4 (61)	7.8 (32)	9.2 (29)	8.4 (33)	5.4 (52)
▲ Policy Index	3.8 (33)	7.7 (32)	15.6 (50)	12.2 (25)	7.9 (25)	9.4 (20)	8.7 (21)	6.1 (22)

Total Fund
Asset Allocation History

Period Ending: December 31, 2017





	Actual \$	Actual %	Manager Contribution to Excess Return %
BlackRock Russell 1000	\$698,742,099	71.3%	0.0%
DE Shaw	\$151,343,823	15.4%	0.0%
QMA US Small Cap	\$129,919,172	13.3%	-0.1%
Transition Account	\$16,647	0.0%	0.0%
Actual vs. Policy Weight Difference			-0.2%
Total	\$980,021,740	100.0%	-0.4%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	10.8%	10.2%	1.0	-0.2	0.7%
Blended US Equity Index	11.0%	10.3%	1.0	--	0.0%
Russell 3000	11.1%	10.2%	1.0	0.3	0.6%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	12.1%	10.2%	1.1	0.7	1.2%
Russell 1000	11.2%	10.1%	1.1	--	0.0%
DE Shaw	14.0%	10.4%	1.3	1.2	2.3%
Russell 1000	11.2%	10.1%	1.1	--	0.0%
Small Cap Equity	7.4%	13.7%	0.5	-0.9	2.8%
Russell 2000	10.0%	14.1%	0.7	--	0.0%

Statistics Summary

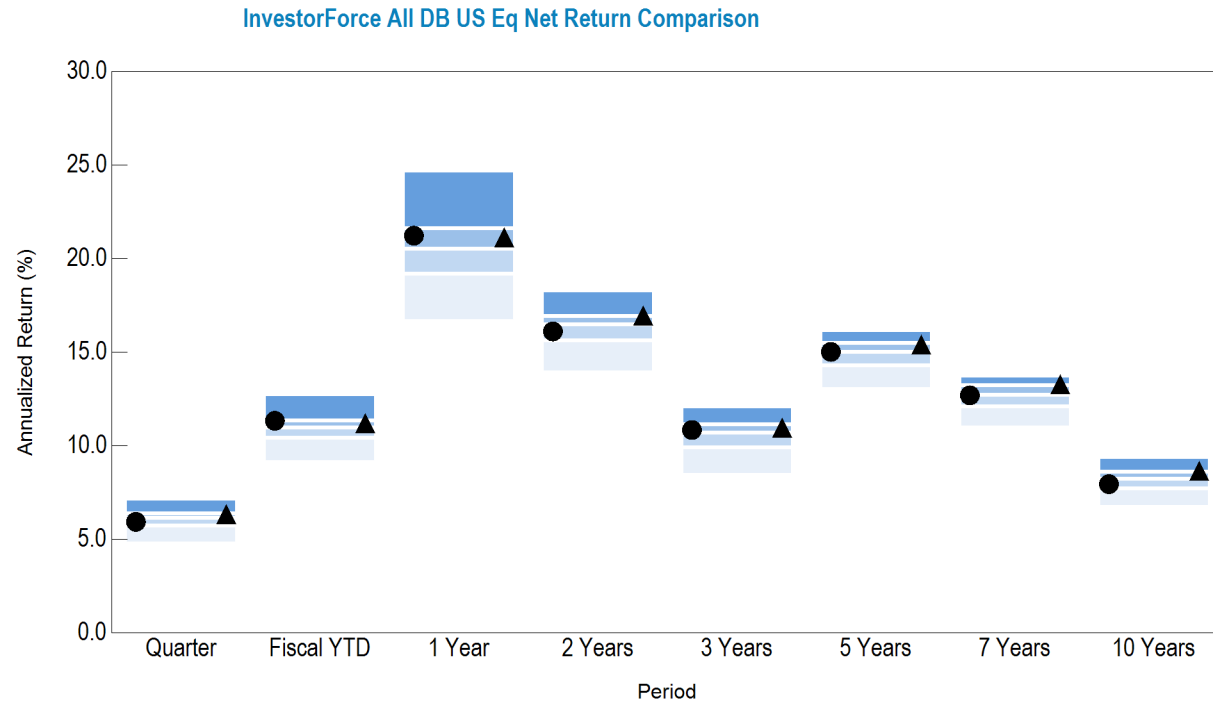
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	15.0%	9.8%	1.5	-0.5	0.8%
Blended US Equity Index	15.4%	9.9%	1.5	--	0.0%
Russell 3000	15.6%	9.7%	1.6	0.2	0.8%

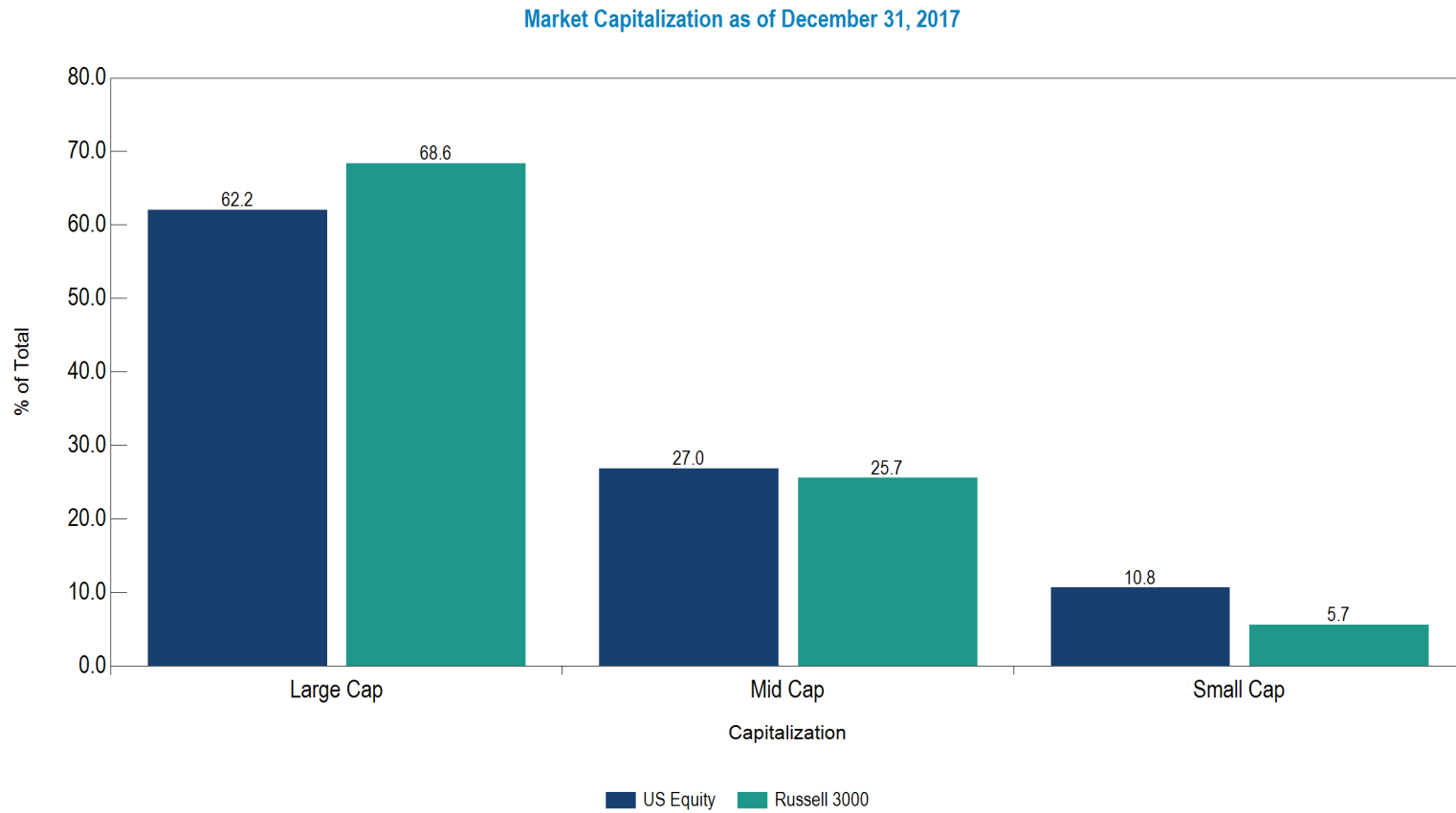
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	16.0%	9.5%	1.6	0.3	1.1%
Russell 1000	15.7%	9.6%	1.6	--	0.0%
DE Shaw	17.3%	9.9%	1.7	0.7	2.2%
Russell 1000	15.7%	9.6%	1.6	--	0.0%
Small Cap Equity	12.2%	13.5%	0.9	-0.7	2.6%
Russell 2000	14.1%	13.9%	1.0	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.2	12.7	24.7	18.3	12.1	16.2	13.7	9.4
25th Percentile	6.4	11.4	21.7	17.0	11.2	15.5	13.3	8.6
Median	6.2	11.0	20.5	16.5	10.7	15.0	12.8	8.3
75th Percentile	5.7	10.4	19.2	15.7	9.9	14.3	12.1	7.8
95th Percentile	4.8	9.1	16.7	13.9	8.5	13.1	11.0	6.7
# of Portfolios	594	592	588	579	567	503	428	338
● US Equity	5.9 (67)	11.3 (28)	21.2 (34)	16.1 (61)	10.8 (44)	15.0 (51)	12.7 (53)	7.9 (66)
▲ Blended US Equity Index	6.3 (33)	11.2 (35)	21.1 (39)	17.0 (25)	11.0 (38)	15.4 (33)	13.3 (24)	8.7 (24)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,600	2,961
Weighted Avg. Market Cap. (\$B)	134.9	150.1
Median Market Cap. (\$B)	3.0	1.7
Price To Earnings	26.9	25.0
Price To Book	5.4	4.6
Price To Sales	3.5	3.6
Return on Equity (%)	22.5	17.5
Yield (%)	1.7	1.7
Beta (holdings; domestic)	1.1	1.1

Top Holdings

APPLE	3.4%
MICROSOFT	1.8%
JOHNSON & JOHNSON	1.4%
AMAZON.COM	1.2%
ALPHABET 'C'	1.2%
FACEBOOK CLASS A	1.2%
ALPHABET A	1.1%
BERKSHIRE HATHAWAY 'B'	1.1%
JP MORGAN CHASE & CO.	1.0%
EXXON MOBIL	1.0%

Best Performers

	Return %
VERSO 'A' (VRS)	245.2%
ENDOCYTE (ECYT)	203.5%
ANAPTYSBIO (ANAB)	188.2%
SAGE THERAPEUTICS (SAGE)	164.4%
NEKTAR THERAPEUTICS (NKTR)	148.8%
FORTERRA (FRTA)	146.7%
SIERRA ONCOLOGY (SRRA)	140.6%
WARRIOR MET COAL (HCC)	129.4%
SORRENTO THERAPEUTICS (SRNE)	123.5%
RESOLUTE FOREST PRODUCTS (RFP)	118.8%

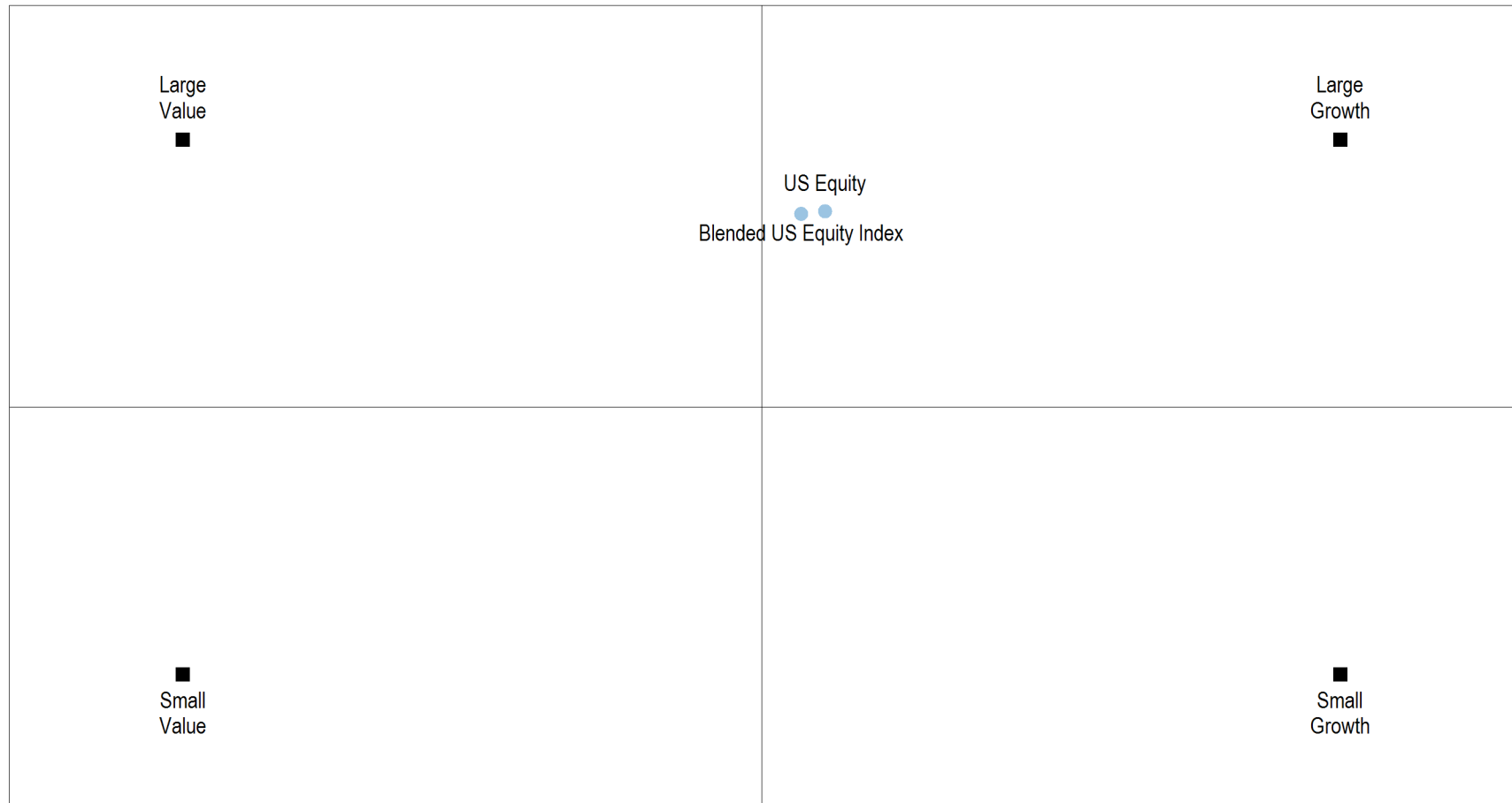
Worst Performers

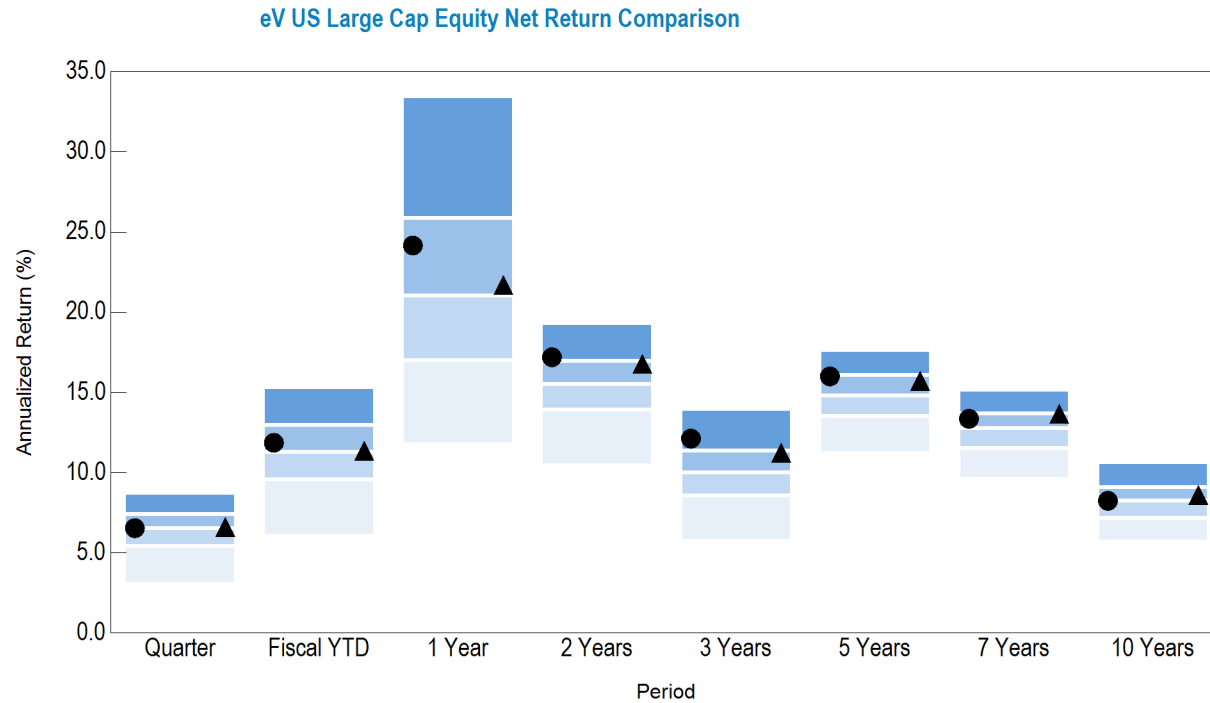
	Return %
REAL INDUSTRY (RELYQ)	-83.9%
ICONIX BRAND GROUP (ICON)	-77.3%
TANDEM DIABETES CARE (TNDM)	-67.7%
IMMUNE DESIGN (IMDZ)	-62.3%
EASTMAN KODAK (KODK)	-57.8%
GENMARK DIAGNOSTICS (GNMK)	-56.7%
WILLBROS GROUP (WG)	-55.9%
NOVELION THERP. (NAS) (NVLN)	-55.6%
NANOSTRING TECHNOLOGIES (NSTG)	-53.8%
CURIS (CRIS)	-53.0%

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%	0.0%	0.0%	0.0%	6.4%	6.4%	5.3%	5.7%			
Materials	0.0%	0.0%	0.0%	0.0%	6.7%	6.7%	3.7%	3.4%			
Industrials	0.0%	0.0%	0.0%	0.0%	6.6%	6.5%	11.4%	10.9%			
Consumer Discretionary	-0.1%	-0.1%	0.0%	0.0%	8.5%	9.1%	12.1%	12.2%			
Consumer Staples	0.1%	0.1%	0.0%	0.0%	7.2%	6.4%	6.8%	7.4%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	0.6%	1.6%	14.0%	13.9%			
Financials	-0.1%	-0.1%	0.0%	0.0%	7.3%	7.7%	14.5%	15.1%			
Information Technology	-0.2%	-0.2%	0.0%	0.0%	7.4%	8.5%	23.7%	22.4%			
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	3.4%	3.2%	1.6%	1.9%			
Utilities	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%	2.8%	3.1%			
Real Estate	0.0%	0.0%	0.0%	0.0%	2.1%	2.6%	4.0%	4.0%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.0%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	6.8%	--	0.1%	0.0%			
Portfolio	-0.4%	=	-0.5%	+	0.0%	+	0.0%	5.9%	6.4%	100.0%	100.0%

U.S. Effective Style Map





	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	8.7	15.3	33.5	19.3	13.9	17.6	15.2	10.6
25th Percentile	7.4	13.0	25.9	17.0	11.4	16.1	13.7	9.1
Median	6.5	11.3	21.1	15.5	10.0	14.8	12.8	8.3
75th Percentile	5.4	9.6	17.0	13.9	8.6	13.6	11.6	7.2
95th Percentile	3.1	6.1	11.8	10.5	5.7	11.2	9.6	5.7
# of Portfolios	604	601	601	590	576	541	482	424
● Large Cap Equity	6.5 (51)	11.9 (42)	24.2 (32)	17.2 (21)	12.1 (17)	16.0 (28)	13.3 (35)	8.2 (52)
▲ Russell 1000	6.6 (48)	11.4 (50)	21.7 (46)	16.8 (29)	11.2 (27)	15.7 (33)	13.7 (27)	8.6 (39)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	2,531	978
Weighted Avg. Market Cap. (\$B)	155.1	162.3
Median Market Cap. (\$B)	3.5	10.1
Price To Earnings	27.3	24.9
Price To Book	5.6	4.9
Price To Sales	3.7	3.7
Return on Equity (%)	23.9	18.8
Yield (%)	1.8	1.8
Beta (holdings; domestic)	1.1	1.1

Top Holdings

APPLE	4.0%
MICROSOFT	2.1%
JOHNSON & JOHNSON	1.6%
AMAZON.COM	1.4%
ALPHABET 'C'	1.4%
FACEBOOK CLASS A	1.3%
ALPHABET A	1.2%
BERKSHIRE HATHAWAY 'B'	1.2%
JP MORGAN CHASE & CO.	1.2%
EXXON MOBIL	1.1%

Best Performers

	Return %
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FORTERRA (FRTA)	146.7%
SIERRA ONCOLOGY (SRRA)	140.6%
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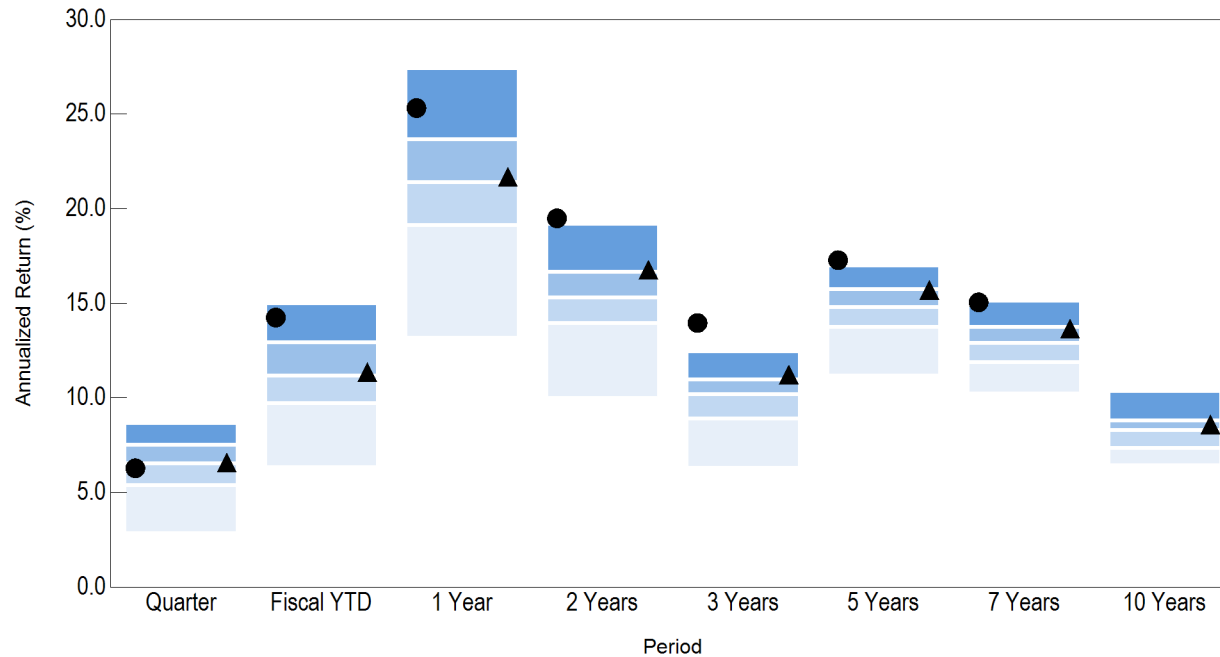
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IMMUNE DESIGN (IMDZ)	-62.3%
GENMARK DIAGNOSTICS (GNMK)	-56.7%
WILLBROS GROUP (WG)	-55.9%
NOVELION THERP. (NAS) (NVLN)	-55.6%
NANOSTRING TECHNOLOGIES (NSTG)	-53.8%
CURIS (CRIS)	-53.0%
WESTMORELAND COAL (WLB)	-52.5%

Large Cap Equity Performance Attribution vs. Russell 1000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	6.1%	6.4%	5.7%	5.9%			
Materials	0.0%	0.0%	0.0%	0.0%	7.2%	7.0%	3.5%	3.3%			
Industrials	0.1%	0.1%	0.0%	0.0%	7.0%	6.5%	10.7%	10.5%			
Consumer Discretionary	0.0%	0.0%	0.0%	0.0%	9.0%	9.2%	12.1%	12.2%			
Consumer Staples	0.1%	0.1%	0.0%	0.0%	7.6%	6.4%	7.5%	7.7%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	0.9%	1.5%	13.8%	13.7%			
Financials	0.0%	0.0%	0.0%	0.0%	8.4%	8.3%	14.0%	14.8%			
Information Technology	-0.1%	-0.1%	0.0%	0.0%	8.5%	8.9%	24.6%	22.8%			
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	3.7%	3.5%	1.7%	2.0%			
Utilities	0.0%	0.0%	0.0%	0.0%	-0.1%	0.6%	2.7%	3.1%			
Real Estate	0.0%	-0.1%	0.0%	0.0%	1.7%	3.1%	3.5%	3.7%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	6.8%	--	0.1%	0.0%			
Portfolio	-0.1%	=	-0.1%	+	0.1%	+	0.0%	6.5%	6.6%	100.0%	100.0%

eV US Large Cap Core Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	8.7	15.0	27.4	19.2	12.4	17.0	15.1	10.4
25th Percentile	7.5	13.0	23.7	16.7	11.0	15.8	13.8	8.8
Median	6.6	11.2	21.4	15.3	10.2	14.8	12.9	8.3
75th Percentile	5.4	9.7	19.2	14.0	8.9	13.8	11.9	7.4
95th Percentile	2.9	6.3	13.2	10.0	6.3	11.2	10.2	6.5
# of Portfolios	191	188	188	184	179	164	147	128
● DE Shaw	6.3 (58)	14.2 (9)	25.3 (14)	19.5 (4)	14.0 (1)	17.3 (4)	15.1 (6)	-- (--)
▲ Russell 1000	6.6 (49)	11.4 (48)	21.7 (47)	16.8 (25)	11.2 (22)	15.7 (28)	13.7 (29)	8.6 (33)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	977	978
Weighted Avg. Market Cap. (\$B)	162.3	162.3
Median Market Cap. (\$B)	10.1	10.1
Price To Earnings	27.1	24.9
Price To Book	6.0	4.9
Price To Sales	3.8	3.7
Return on Equity (%)	23.5	18.8
Yield (%)	1.8	1.8
Beta (holdings; domestic)	1.1	1.1

Top Holdings

APPLE	3.4%
MICROSOFT	2.5%
AMAZON.COM	1.8%
FACEBOOK CLASS A	1.6%
BERKSHIRE HATHAWAY 'B'	1.5%
JOHNSON & JOHNSON	1.5%
JP MORGAN CHASE & CO.	1.5%
EXXON MOBIL	1.4%
ALPHABET 'C'	1.2%
ALPHABET A	1.2%

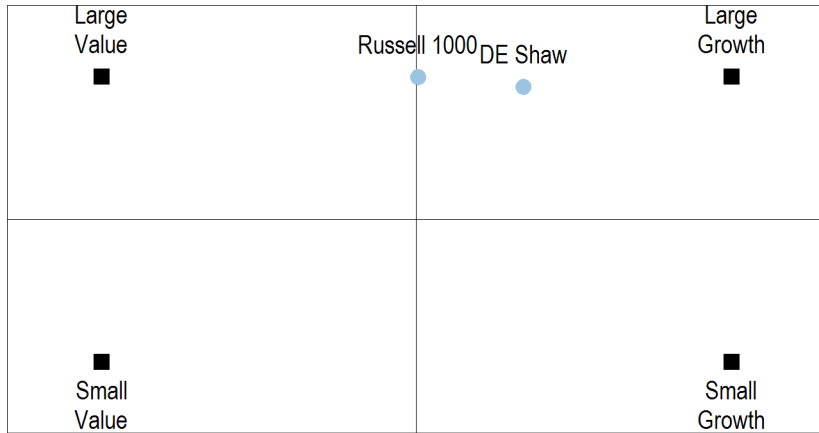
Best Performers

	Return %
CALATLANTIC GROUP (CAA)	54.1%
SKECHERS USA 'A' (SKX)	50.8%
FIRST SOLAR (FSLR)	47.2%
URBAN OUTFITTERS (URBN)	46.7%
L BRANDS (LB)	46.5%
REGAL ENTM.GP. 'A' (RGC)	45.4%
HOLLYFRONTIER (HFC)	43.5%
TWITTER (TWTR)	42.3%
KROGER (KR)	37.6%
UNITED STATES STEEL (X)	37.4%

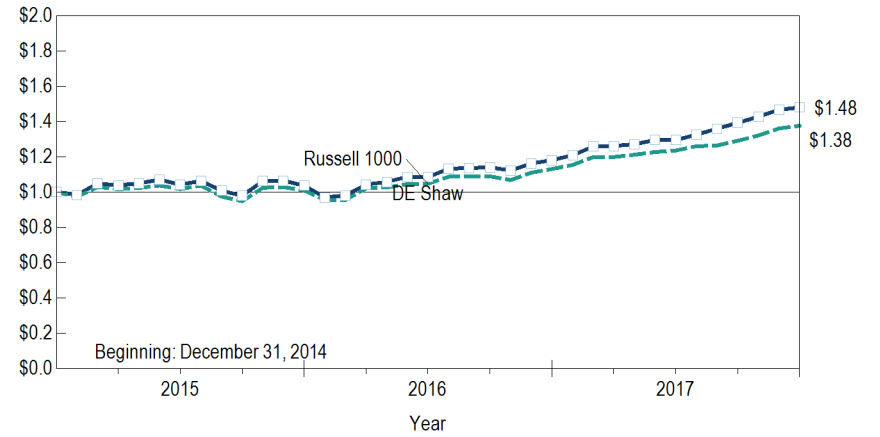
Worst Performers

	Return %
MALLINCKRODT (MNK)	-39.6%
INTREXON (XON)	-39.4%
PANDORA MEDIA (P)	-37.4%
TESARO (TSRO)	-35.8%
PG&E (PCG)	-34.2%
ACADIA HEALTHCARE CO. (ACHC)	-31.7%
OPKO HEALTH (OPK)	-28.6%
CELGENE (CELG)	-28.4%
GENERAL ELECTRIC (GE)	-27.3%
NEWELL BRANDS (NWL)	-27.0%

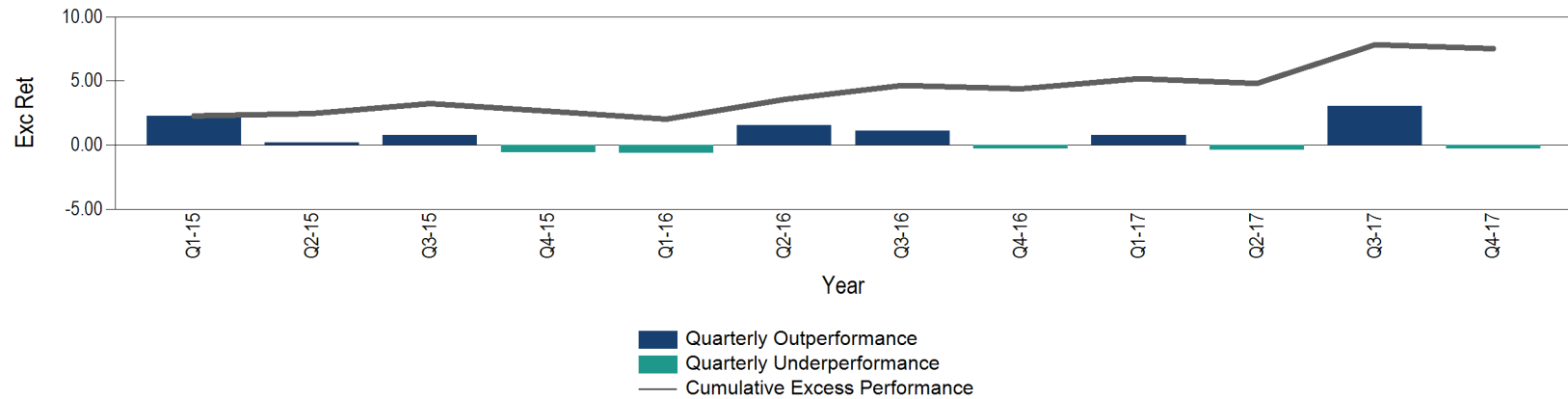
U.S. Effective Style Map



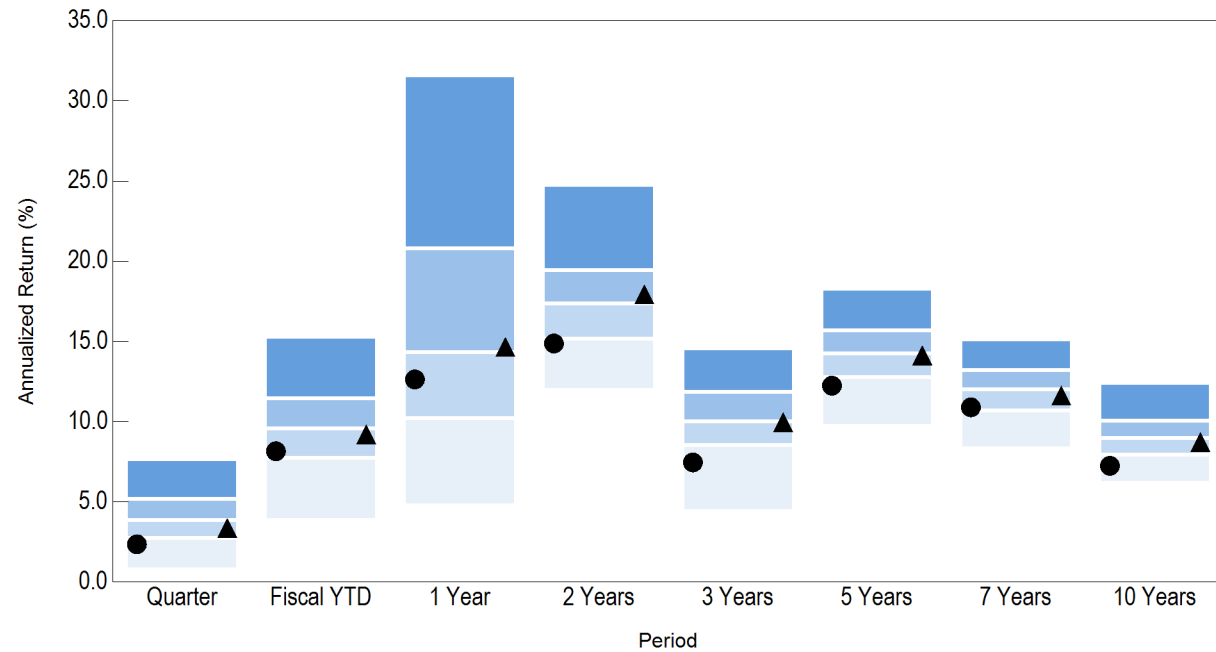
Growth of a Dollar



Quarterly and Cumulative Excess Performance



eV US Small Cap Equity Net Return Comparison



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	7.6	15.3	31.6	24.7	14.5	18.3	15.1	12.4
25th Percentile	5.2	11.5	20.8	19.5	11.8	15.7	13.2	10.1
Median	3.9	9.6	14.4	17.4	10.0	14.3	12.0	9.0
75th Percentile	2.8	7.7	10.2	15.2	8.6	12.8	10.7	8.0
95th Percentile	0.8	3.9	4.8	12.0	4.4	9.8	8.3	6.2
# of Portfolios	412	411	410	403	386	366	344	294
● Small Cap Equity	2.3 (80)	8.1 (71)	12.6 (60)	14.9 (78)	7.4 (87)	12.2 (82)	10.9 (72)	7.2 (86)
▲ Russell 2000	3.3 (64)	9.2 (55)	14.6 (49)	17.9 (42)	10.0 (52)	14.1 (53)	11.6 (59)	8.7 (56)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	336	1,983
Weighted Avg. Market Cap. (\$B)	2.3	2.4
Median Market Cap. (\$B)	1.2	0.8
Price To Earnings	24.2	18.4
Price To Book	4.4	3.3
Price To Sales	2.4	3.1
Return on Equity (%)	13.9	7.8
Yield (%)	1.2	1.0
Beta (holdings; domestic)	1.3	1.3

Top Holdings

GRAND CANYON EDUCATION	0.9%
ENTEGRIS	0.9%
MGIC INVESTMENT	0.9%
PEABODY ENERGY	0.8%
RADIAN GP.	0.8%
INSPERITY	0.8%
CORCEPT THERAPEUTICS	0.8%
CVR ENERGY	0.8%
WINTRUST FINANCIAL	0.8%
FIVE BELOW	0.8%

Best Performers

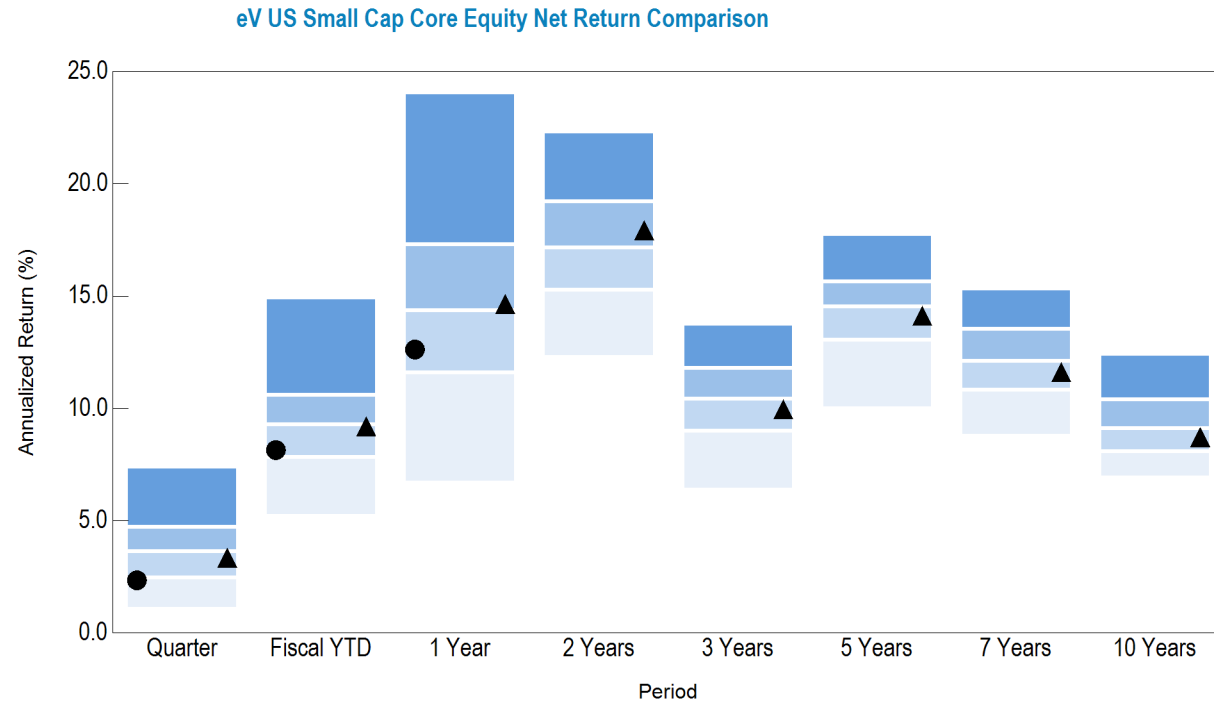
	Return %
WARRIOR MET COAL (HCC)	129.4%
CONCERT PHARMACEUTICALS (CNCE)	75.4%
SUCAMPO PHARMACEUTICALS CLASS A (SCMP)	52.1%
SKECHERS USA 'A' (SKX)	50.8%
EXACTECH (EXAC)	50.1%
CVR ENERGY (CVI)	46.1%
SPARTAN MOTORS (SPAR)	43.0%
PETMED EXPRESS (PETS)	38.0%
INGLES MARKETS 'A' (IMKTA)	35.5%
AMER.WOODMARK (AMWD)	35.3%

Worst Performers

	Return %
EASTMAN KODAK (KODK)	-57.8%
RAIT FINANCIAL TRUST (RAS)	-48.6%
FTD COMPANIES (FTD)	-44.9%
MALLINCKRODT (MNK)	-39.6%
ARGAN (AGX)	-32.1%
J JILL (JILL)	-28.4%
AMAG PHARMACEUTICALS (AMAG)	-28.2%
ULTRA CLEAN HOLDINGS (UCTT)	-24.6%
AXOVANT SCIENCES (AXON)	-23.4%
PAPA JOHNS INTL. (PZZA)	-22.9%

Small Cap Equity Performance Attribution vs. Russell 2000

	Total Effects	Attribution Effects				Returns		Sector Weights			
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	0.0%	0.0%	9.9%	6.8%	3.0%	3.6%			
Materials	0.0%	0.0%	0.0%	0.0%	4.7%	4.2%	5.0%	4.5%			
Industrials	-0.2%	-0.2%	0.0%	0.0%	4.8%	6.4%	16.0%	14.9%			
Consumer Discretionary	-0.2%	-0.2%	0.0%	0.0%	6.1%	7.9%	12.6%	12.1%			
Consumer Staples	-0.2%	-0.2%	0.0%	0.0%	-0.1%	7.1%	2.2%	2.7%			
Health Care	-0.5%	-0.5%	0.0%	0.0%	-1.0%	2.4%	15.5%	15.4%			
Financials	0.0%	-0.1%	0.0%	0.0%	1.3%	1.7%	17.0%	18.1%			
Information Technology	-0.6%	-0.6%	0.0%	0.0%	-2.4%	1.0%	17.9%	17.1%			
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	-4.3%	-4.0%	0.4%	0.8%			
Utilities	0.1%	0.1%	0.0%	0.0%	4.9%	1.0%	2.9%	3.7%			
Real Estate	0.2%	0.2%	0.0%	0.0%	3.1%	-0.4%	7.3%	7.1%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.2%	0.0%			
Portfolio	-1.3%	=	-1.3%	+	0.1%	+	-0.1%	2.0%	3.3%	100.0%	100.0%



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	7.4	14.9	24.1	22.3	13.8	17.8	15.3	12.4
25th Percentile	4.7	10.6	17.3	19.2	11.8	15.7	13.6	10.4
Median	3.7	9.3	14.4	17.2	10.5	14.6	12.1	9.1
75th Percentile	2.5	7.8	11.6	15.3	9.0	13.1	10.9	8.1
95th Percentile	1.1	5.2	6.7	12.3	6.4	10.0	8.8	6.9
# of Portfolios	108	107	106	105	103	99	89	72
● QMA US Small Cap	2.3 (80)	8.1 (70)	12.6 (66)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 2000	3.3 (59)	9.2 (54)	14.6 (46)	17.9 (40)	10.0 (58)	14.1 (58)	11.6 (62)	8.7 (58)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	336	1,983
Weighted Avg. Market Cap. (\$B)	2.3	2.4
Median Market Cap. (\$B)	1.2	0.8
Price To Earnings	24.2	18.4
Price To Book	4.4	3.3
Price To Sales	2.4	3.1
Return on Equity (%)	13.9	7.8
Yield (%)	1.2	1.0
Beta (holdings; domestic)	1.3	1.3

Top Holdings

GRAND CANYON EDUCATION	0.9%
ENTEGRIS	0.9%
MGIC INVESTMENT	0.9%
PEABODY ENERGY	0.8%
RADIAN GP.	0.8%
INSPERITY	0.8%
CORCEPT THERAPEUTICS	0.8%
CVR ENERGY	0.8%
WINTRUST FINANCIAL	0.8%
FIVE BELOW	0.8%

Best Performers

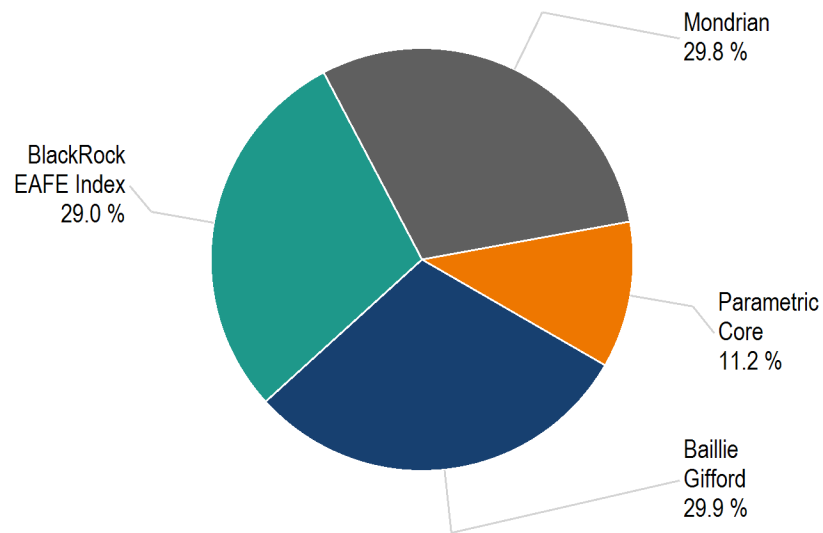
	Return %
WARRIOR MET COAL (HCC)	129.4%
CONCERT PHARMACEUTICALS (CNCE)	75.4%
SUCAMPO PHARMACEUTICALS CLASS A (SCMP)	52.1%
SKECHERS USA 'A' (SKX)	50.8%
EXACTECH (EXAC)	50.1%
CVR ENERGY (CVI)	46.1%
SPARTAN MOTORS (SPAR)	43.0%
PETMED EXPRESS (PETS)	38.0%
INGLES MARKETS 'A' (IMKTA)	35.5%
AMER.WOODMARK (AMWD)	35.3%

Worst Performers

	Return %
EASTMAN KODAK (KODK)	-57.8%
RAIT FINANCIAL TRUST (RAS)	-48.6%
FTD COMPANIES (FTD)	-44.9%
MALLINCKRODT (MNK)	-39.6%
ARGAN (AGX)	-32.1%
J JILL (JILL)	-28.4%
AMAG PHARMACEUTICALS (AMAG)	-28.2%
ULTRA CLEAN HOLDINGS (UCTT)	-24.6%
AXOVANT SCIENCES (AXON)	-23.4%
PAPA JOHNS INTL. (PZZA)	-22.9%

QMA US Small Cap Performance Attribution vs. Russell 2000

	Total Effects	Attribution Effects			Returns		Sector Weights				
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.1%	0.0%	0.0%	9.9%	6.8%	3.0%	3.6%			
Materials	0.0%	0.0%	0.0%	0.0%	4.7%	4.2%	5.0%	4.5%			
Industrials	-0.2%	-0.2%	0.0%	0.0%	4.8%	6.4%	16.0%	14.9%			
Consumer Discretionary	-0.2%	-0.2%	0.0%	0.0%	6.1%	7.9%	12.6%	12.1%			
Consumer Staples	-0.2%	-0.2%	0.0%	0.0%	-0.1%	7.1%	2.2%	2.7%			
Health Care	-0.5%	-0.5%	0.0%	0.0%	-1.0%	2.4%	15.5%	15.4%			
Financials	0.0%	-0.1%	0.0%	0.0%	1.3%	1.7%	17.0%	18.1%			
Information Technology	-0.6%	-0.6%	0.0%	0.0%	-2.4%	1.0%	17.9%	17.1%			
Telecommunication Services	0.0%	0.0%	0.0%	0.0%	-4.3%	-4.0%	0.4%	0.8%			
Utilities	0.1%	0.1%	0.0%	0.0%	4.9%	1.0%	2.9%	3.7%			
Real Estate	0.2%	0.2%	0.0%	0.0%	3.1%	-0.4%	7.3%	7.1%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.2%	0.0%			
Portfolio	-1.3%	=	-1.3%	+	0.1%	+	-0.1%	2.0%	3.3%	100.0%	100.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$255,490,197	29.9%	-0.1%
BlackRock EAFE Index	\$247,914,877	29.0%	0.0%
Mondrian	\$254,617,849	29.8%	-0.1%
Parametric Core	\$95,899,675	11.2%	-0.3%
Actual vs. Policy Weight Difference			-0.4%
Total	\$853,922,598	100.0%	-0.8%

Statistics Summary

3 Years

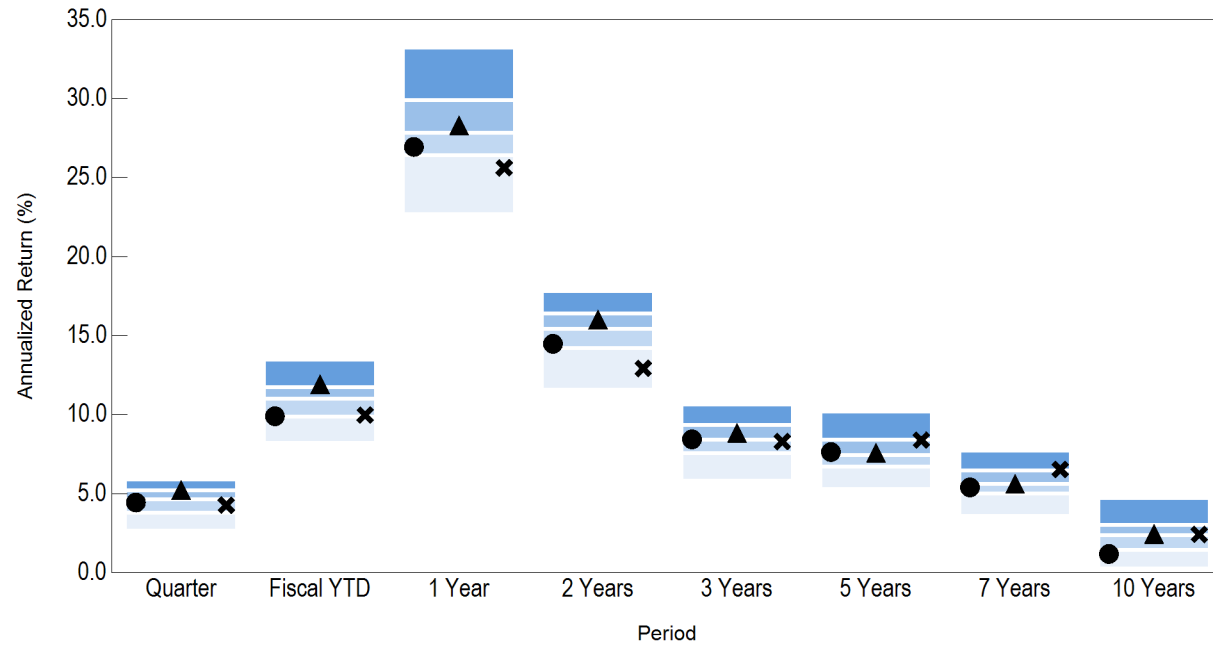
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	8.4%	11.7%	0.7	-0.2	1.9%
MSCI ACWI ex US IMI	8.8%	11.9%	0.7	--	0.0%
Developed Markets	8.6%	11.7%	0.7	0.1	2.3%
MSCI ACWI ex USA Gross	8.3%	12.0%	0.7	--	0.0%
Baillie Gifford	10.4%	13.1%	0.8	0.5	4.2%
MSCI ACWI ex US	8.3%	12.0%	0.7	--	0.0%
BlackRock EAFE Index	8.2%	12.0%	0.6	2.9	0.1%
MSCI EAFE	7.8%	12.0%	0.6	--	0.0%
Mondrian	6.8%	11.2%	0.6	0.0	5.3%
MSCI ACWI ex USA Value Gross	6.9%	12.9%	0.5	--	0.0%

Statistics Summary

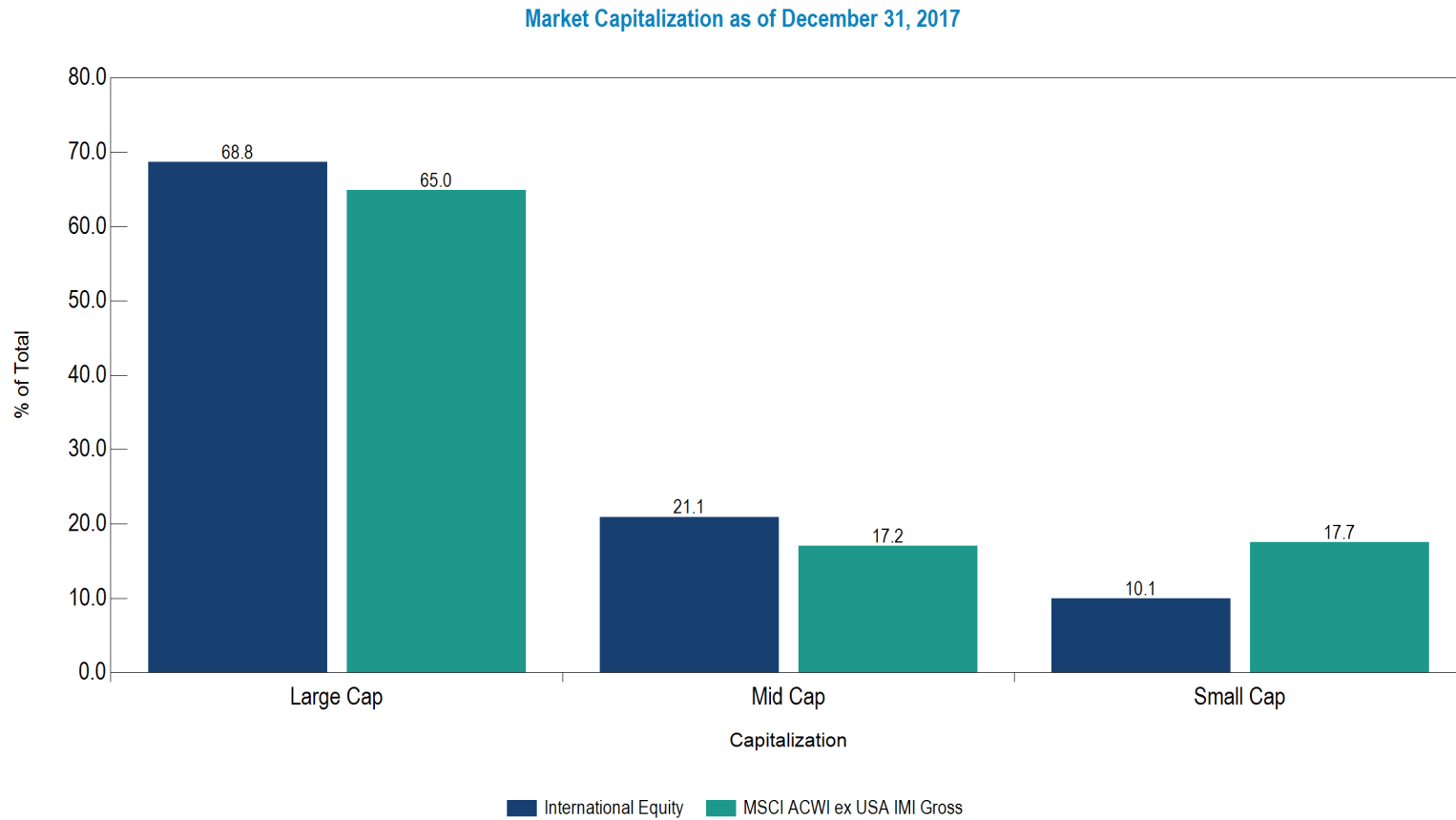
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	7.6%	11.2%	0.7	0.0	1.7%
MSCI ACWI ex US IMI	7.6%	11.4%	0.6	--	0.0%
Developed Markets	8.2%	11.3%	0.7	0.4	2.1%
MSCI ACWI ex USA Gross	7.3%	11.5%	0.6	--	0.0%
Baillie Gifford	9.9%	12.4%	0.8	0.3	4.0%
MSCI ACWI ex US	8.6%	11.7%	0.7	--	0.0%
Mondrian	6.9%	11.1%	0.6	0.2	4.6%
MSCI ACWI ex USA Value Gross	6.2%	12.4%	0.5	--	0.0%

InvestorForce All DB ex-US Eq Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	5.9	13.5	33.2	17.8	10.6	10.2	7.7	4.7
25th Percentile	5.2	11.8	29.9	16.4	9.3	8.4	6.5	3.1
Median	4.7	11.0	27.9	15.5	8.4	7.4	5.6	2.4
75th Percentile	3.8	9.9	26.4	14.2	7.6	6.7	5.0	1.5
95th Percentile	2.7	8.2	22.7	11.6	5.8	5.3	3.6	0.3
# of Portfolios	418	416	411	408	396	350	295	228
● International Equity	4.4 (60)	9.9 (75)	26.9 (71)	14.5 (72)	8.4 (51)	7.6 (46)	5.4 (61)	1.2 (81)
▲ MSCI ACWI ex US IMI	5.2 (26)	11.9 (22)	28.3 (45)	16.0 (32)	8.8 (34)	7.6 (46)	5.6 (51)	2.5 (47)
✕ MSCI EAFE Gross	4.3 (66)	10.0 (73)	25.6 (81)	12.9 (88)	8.3 (56)	8.4 (28)	6.5 (25)	2.4 (48)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	2,137	6,221
Weighted Avg. Market Cap. (\$B)	50.3	57.1
Median Market Cap. (\$B)	7.2	1.6
Price To Earnings	22.1	20.7
Price To Book	3.7	2.8
Price To Sales	2.8	2.3
Return on Equity (%)	18.0	14.6
Yield (%)	2.7	2.6
Beta (holdings; global)	1.0	1.1

Top Holdings

UNITED OVERSEAS BANK	1.4%
NASPERS	1.0%
HONDA MOTOR	1.0%
NESTLE 'R'	0.9%
BP	0.9%
NOVARTIS 'R'	0.9%
SANOFI	0.9%
NOVO NORDISK 'B'	0.8%
LLOYDS BANKING GROUP	0.8%
IBERDROLA	0.8%

Best Performers

	Return %
CHABIOTECH (KO:DTH)	105.7%
RELIANCE COMMUNICATIONS (IN:RCN)	92.7%
KINGSTON FINANCIAL GROUP (K:STIM)	88.3%
KUMBA IRON ORE (R:KIOJ)	87.6%
CELLTRION (KO:ORC)	69.9%
ASTRAL FOODS (R:ARLJ)	69.8%
TURK HAVA YOLLARI (TK:THY)	68.2%
SINO BIOPHM. (K:SBIO)	68.0%
SUMCO (J:UMCO)	63.9%
ACER (TW:ASK)	62.4%

Worst Performers

	Return %
STEINHOFF INTL.HOLDING (R:SNHJ)	-91.6%
DAEWOO SHIPBLDG.& MAR. ENGR. (KO:OSM)	-66.8%
ALTICE B (OTC) (ALVVF)	-56.8%
SAPURA ENERGY (L:SAKE)	-51.3%
ALTICE A (H:ATC)	-47.6%
GENEREA (MX:CSV)	-47.3%
PAK ELEKTRON (PK:PET)	-40.3%
GRANA Y MONTERO (PE:GYM)	-38.8%
MAGNIT (RS:MGN)	-36.9%
LEONARDO (I:LDO)	-36.4%

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	0.0%	0.0%	0.0%	0.0%	8.0%	7.2%	5.3%	6.2%			
Materials	-0.1%	-0.1%	-0.1%	0.0%	7.4%	8.3%	5.5%	8.2%			
Industrials	-0.2%	-0.2%	0.0%	0.0%	3.1%	4.7%	12.9%	13.0%			
Consumer Discretionary	0.0%	-0.1%	0.0%	0.0%	5.9%	6.2%	14.8%	11.9%			
Consumer Staples	0.3%	0.2%	0.0%	0.1%	8.2%	5.7%	11.9%	9.1%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	1.2%	2.3%	8.8%	7.7%			
Financials	0.0%	0.0%	0.0%	0.0%	4.7%	4.5%	18.4%	21.6%			
Information Technology	-0.2%	-0.2%	0.0%	-0.1%	4.7%	6.7%	10.4%	11.4%			
Telecommunication Services	-0.1%	-0.1%	0.0%	0.0%	-0.3%	1.7%	4.8%	3.8%			
Utilities	0.0%	0.0%	0.0%	0.0%	0.4%	0.2%	3.9%	3.0%			
Real Estate	-0.1%	-0.1%	0.0%	0.0%	3.7%	6.0%	2.5%	4.1%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.8%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	1.5%	5.2%	0.0%	0.0%			
Portfolio	-0.6%	=	-0.5%	+	-0.2%	+	0.1%	4.7%	5.2%	100.0%	100.0%

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

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	5.8%	6.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-1.5%	-1.0%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	8.1%	7.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	7.7%	1.9%	2.3%	1.3%	0.1%	0.0%	0.0%	0.1%	0.1%
Finland	-0.3%	-1.7%	0.7%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-2.1%	1.6%	5.2%	6.8%	-0.3%	0.1%	0.0%	0.1%	-0.2%
Germany	2.2%	3.0%	7.4%	6.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Greece*	10.3%	11.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	4.7%	6.6%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	12.8%	3.7%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	0.0%	-2.0%	2.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-5.4%	5.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	8.7%	1.6%	2.3%	2.4%	0.2%	0.0%	0.0%	0.0%	0.2%
Norway	2.3%	1.1%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	2.5%	4.7%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	-1.5%	-0.1%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-4.4%	4.2%	1.1%	0.7%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Spain	-3.9%	-1.1%	3.0%	2.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Sweden	-2.2%	-2.8%	3.5%	2.3%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Switzerland	1.9%	2.3%	5.7%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%
United Kingdom	4.5%	5.8%	14.1%	12.5%	-0.2%	0.0%	0.0%	0.0%	-0.2%

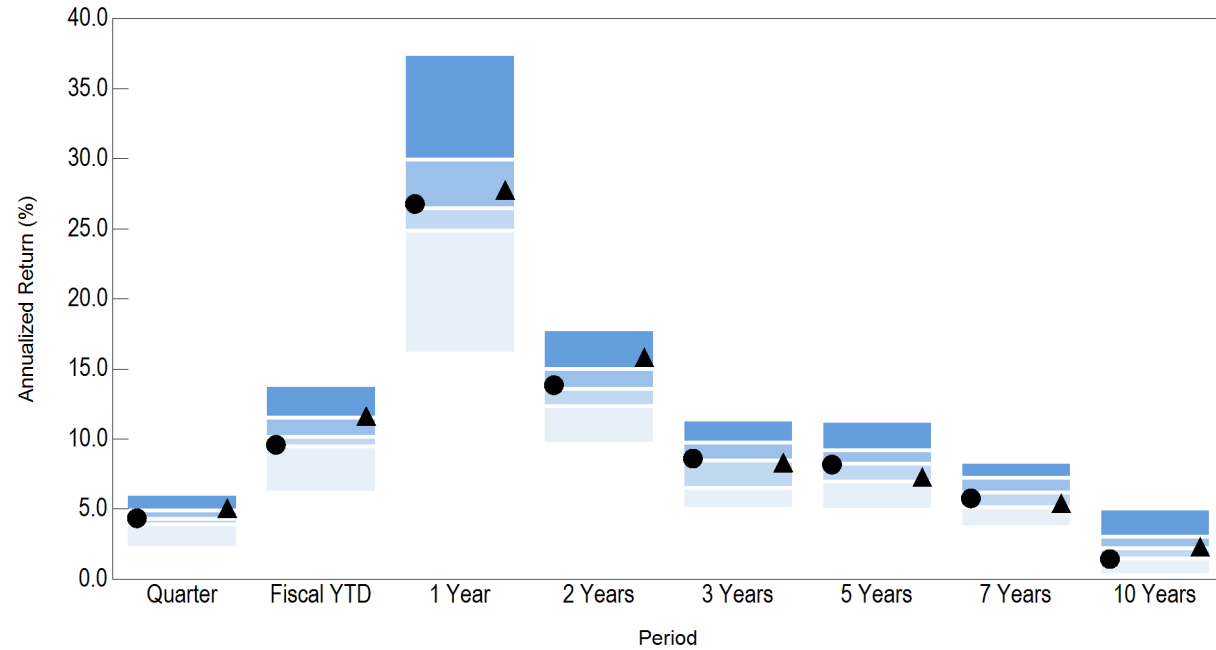
Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects	
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect		
AsiaPacific										
Australia	8.5%	7.4%	3.9%	4.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
China*	3.5%	7.1%	3.4%	6.8%	-0.3%	-0.1%	0.0%	0.1%	-0.2%	
Hong Kong	5.0%	7.2%	3.8%	2.3%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
India*	11.1%	13.5%	2.2%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indonesia*	8.0%	7.2%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	9.0%	8.6%	16.1%	16.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Korea*	9.7%	11.7%	2.9%	3.6%	0.0%	0.0%	-0.1%	0.0%	-0.1%	
Malaysia*	8.0%	6.9%	0.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	0.1%	4.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	-9.5%	-9.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	1.2%	5.5%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	6.9%	9.4%	3.0%	0.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Taiwan*	3.7%	5.1%	2.6%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	7.7%	9.0%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas										
Brazil*	1.6%	-2.0%	1.7%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Canada	-1.6%	4.2%	0.9%	6.6%	-0.4%	0.0%	0.0%	0.3%	0.0%	
Chile*	8.9%	7.8%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	5.0%	0.8%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	-7.2%	-8.2%	1.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	5.8%	6.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	0.9%	6.4%	1.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	

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

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	15.0%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	7.3%	4.2%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Kazakhstan**	31.3%	25.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	-4.8%	-7.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	2.6%	3.2%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	7.3%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	25.5%	21.0%	2.3%	1.5%	0.1%	0.1%	0.1%	0.0%	0.2%
Turkey*	3.5%	4.6%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	-3.3%	-3.8%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-0.1%	2.1%	5.6%	9.6%	-0.2%	0.0%	0.0%	0.1%	0.0%
Europe	2.0%	2.6%	49.3%	45.6%	-0.3%	-0.1%	0.0%	0.0%	-0.4%
Asia/Pacific	7.5%	8.3%	40.6%	42.3%	-0.3%	0.0%	-0.1%	0.0%	-0.4%
Other	17.0%	13.4%	3.7%	2.5%	0.1%	0.0%	0.1%	0.0%	0.2%
Cash	0.3%	--	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	4.7%	5.2%	100.0%	100.0%	-0.6%	-0.1%	0.0%	0.1%	-0.6%
Totals									
Developed	4.1%	4.5%	76.2%	76.3%	-0.3%	0.0%	0.1%	0.0%	-0.3%
Emerging*	6.5%	7.5%	22.9%	23.7%	-0.2%	0.0%	0.0%	0.0%	-0.3%
Frontier**	9.6%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.3%	--	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

InvestorForce All DB Dev Mkt ex-US Eq Net Return Comparison



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	6.1	13.8	37.5	17.8	11.4	11.3	8.4	5.0
25th Percentile	4.9	11.5	30.0	15.0	9.8	9.2	7.2	3.1
Median	4.3	10.2	26.5	13.6	8.5	8.3	6.2	2.2
75th Percentile	3.9	9.5	24.9	12.4	6.5	7.0	5.2	1.5
95th Percentile	2.2	6.2	16.1	9.7	5.0	5.0	3.8	0.3
# of Portfolios	152	152	150	144	141	118	95	68
● Developed Markets	4.3 (48)	9.6 (71)	26.8 (43)	13.8 (45)	8.6 (47)	8.2 (53)	5.8 (66)	1.4 (80)
▲ MSCI ACWI ex USA Gross	5.1 (19)	11.6 (24)	27.8 (32)	15.8 (20)	8.3 (52)	7.3 (69)	5.4 (71)	2.3 (48)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	1,059	1,866
Weighted Avg. Market Cap. (\$B)	53.6	66.3
Median Market Cap. (\$B)	12.2	8.6
Price To Earnings	22.2	20.8
Price To Book	3.7	2.8
Price To Sales	2.8	2.2
Return on Equity (%)	18.1	15.0
Yield (%)	2.8	2.7
Beta (holdings; global)	1.1	1.1

Top Holdings

UNITED OVERSEAS BANK	1.5%
HONDA MOTOR	1.1%
NASPERS	1.1%
NESTLE 'R'	1.1%
BP	1.0%
NOVARTIS 'R'	1.0%
SANOFI	1.0%
NOVO NORDISK 'B'	0.9%
LLOYDS BANKING GROUP	0.9%
IBERDROLA	0.9%

Best Performers

	Return %
KINGSTON FINANCIAL GROUP (K:STIM)	88.3%
SUMCO (J:UMCO)	63.9%
WHARF HOLDINGS (K:HKWH)	52.9%
NESTE (M:NEST)	46.7%
SUMITOMO METAL MINING (J:EM@N)	43.2%
BARCLAYS AFRICA GROUP (R:BGAJ)	42.8%
IDEMITSU KOSAN (J:IDKO)	42.4%
TOTO (J:TOTO)	40.2%
DON QUIJOTE HOLDINGS (J:DONQ)	40.1%
YASKAWA ELECTRIC (J:YE@N)	39.2%

Worst Performers

	Return %
ALTICE B (OTC) (ALVVF)	-56.8%
ALTICE A (H:ATC)	-47.6%
LEONARDO (I:LDO)	-36.4%
PJSC MAGNIT GDR (REG S) (UKIR:MGNT)	-33.2%
SES FDR (LX:SES)	-28.6%
CAPITA (UKIR:CPI)	-27.0%
BNC.STDR.AMER.DEPY. SHS. 1:5 (BSMX)	-25.8%
GENMAB (DK:GEN)	-24.8%
CENTRICA (UKIR:CNA)	-24.5%
CONVATEC GROUP (UKIR:CTEC)	-24.4%

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	0.0%	0.0%	-0.1%	0.0%	8.4%	7.6%	4.8%	6.7%			
Materials	-0.2%	-0.1%	-0.1%	0.0%	7.1%	8.3%	4.6%	7.7%			
Industrials	-0.2%	-0.2%	0.0%	-0.1%	2.9%	4.8%	13.4%	11.9%			
Consumer Discretionary	0.1%	0.0%	0.0%	0.1%	6.1%	6.1%	15.5%	11.3%			
Consumer Staples	0.4%	0.3%	0.0%	0.1%	8.5%	5.4%	12.2%	9.6%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	0.1%	1.3%	9.2%	7.9%			
Financials	0.0%	-0.1%	0.0%	0.0%	4.6%	4.6%	18.8%	23.3%			
Information Technology	-0.2%	-0.1%	0.0%	-0.1%	4.7%	6.2%	10.7%	11.2%			
Telecommunication Services	-0.1%	-0.2%	0.0%	0.0%	-1.8%	1.5%	4.3%	4.2%			
Utilities	0.0%	0.0%	0.0%	0.0%	0.5%	-0.5%	3.5%	3.1%			
Real Estate	-0.1%	0.0%	0.0%	0.0%	5.1%	6.4%	2.1%	3.2%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.9%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	1.5%	--	0.0%	0.0%			
Portfolio	-0.5%	=	-0.4%	+	-0.2%	+	0.1%	4.5%	5.0%	100.0%	100.0%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

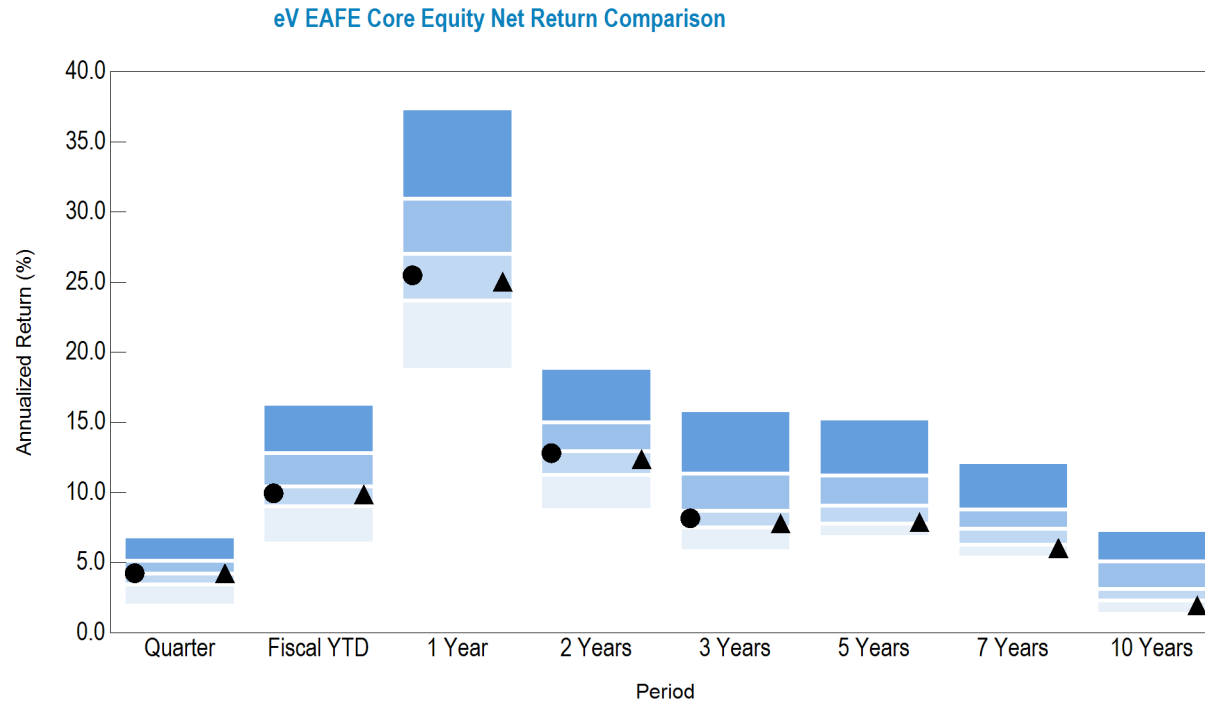
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	5.8%	5.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-1.5%	-1.6%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	--	7.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	7.7%	2.3%	2.6%	1.3%	0.1%	0.0%	0.0%	0.1%	0.1%
Finland	-0.3%	-2.5%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-2.1%	1.6%	5.9%	7.4%	-0.3%	0.1%	0.0%	0.1%	-0.2%
Germany	2.2%	2.5%	8.3%	6.7%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Greece*	--	13.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	7.1%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	12.8%	3.7%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	0.0%	-2.2%	2.3%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-5.5%	5.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	8.8%	1.2%	2.5%	2.6%	0.2%	0.0%	0.0%	0.0%	0.2%
Norway	2.3%	2.3%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	--	6.0%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	-1.5%	-2.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-9.1%	4.6%	0.5%	0.8%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Spain	-3.9%	-1.5%	3.3%	2.4%	-0.1%	-0.1%	0.0%	0.0%	-0.1%
Sweden	-2.2%	-3.7%	4.0%	2.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Switzerland	1.9%	1.8%	6.4%	5.7%	0.0%	0.0%	0.0%	0.0%	0.0%
United Kingdom	4.5%	5.8%	15.8%	12.4%	-0.2%	0.0%	0.0%	0.0%	-0.2%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	8.5%	6.7%	4.3%	4.7%	0.1%	0.0%	0.0%	0.0%	0.1%
China*	3.2%	7.7%	3.1%	7.1%	-0.3%	-0.1%	0.0%	0.2%	-0.3%
Hong Kong	4.1%	7.7%	3.5%	2.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
India*	9.7%	11.8%	1.7%	2.0%	0.0%	0.0%	0.0%	0.0%	-0.1%
Indonesia*	18.3%	8.0%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%
Japan	9.0%	8.5%	18.1%	16.1%	0.1%	0.1%	0.0%	0.0%	0.2%
Korea*	7.6%	10.2%	2.3%	3.6%	0.0%	0.0%	-0.1%	0.0%	-0.1%
Malaysia*	8.0%	6.4%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	--	-5.2%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-3.3%	6.5%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	6.9%	10.1%	3.3%	0.9%	0.0%	0.1%	0.0%	-0.1%	0.0%
Taiwan*	2.9%	4.2%	2.1%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	8.7%	9.4%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	4.8%	-2.1%	1.0%	1.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Canada	-1.6%	4.4%	1.0%	6.6%	-0.4%	0.0%	0.0%	0.3%	-0.1%
Chile*	--	7.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	0.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	-2.2%	-7.9%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%	0.1%
Peru*	3.6%	7.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	0.0%	6.4%	1.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	-2.4%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	7.3%	3.8%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Kazakhstan**	31.3%	25.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	2.7%	4.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	7.3%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	27.3%	21.4%	1.7%	1.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Turkey*	1.0%	4.4%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	0.0%	-4.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	0.7%	2.2%	3.5%	9.7%	-0.1%	0.0%	0.1%	0.1%	0.1%
Europe	1.9%	2.4%	53.7%	46.2%	-0.2%	-0.2%	0.0%	0.0%	-0.4%
Asia/Pacific	7.5%	8.1%	39.5%	41.6%	-0.1%	-0.1%	-0.2%	0.0%	-0.3%
Other	20.9%	14.1%	2.4%	2.5%	0.1%	0.0%	0.0%	0.0%	0.2%
Cash	0.3%	--	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	4.5%	5.0%	100.0%	100.0%	-0.2%	-0.3%	0.0%	0.0%	-0.5%
Totals									
Developed	4.1%	4.3%	84.5%	75.9%	-0.2%	0.0%	0.1%	0.0%	-0.2%
Emerging*	7.2%	7.3%	14.6%	24.1%	-0.1%	-0.1%	-0.1%	0.0%	-0.3%
Frontier**	19.4%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.3%	--	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	6.8	16.3	37.4	18.8	15.9	15.2	12.1	7.3
25th Percentile	5.1	12.8	31.0	15.0	11.4	11.2	8.8	5.1
Median	4.2	10.4	27.1	13.0	8.7	9.1	7.4	3.1
75th Percentile	3.5	9.0	23.7	11.3	7.5	7.8	6.3	2.3
95th Percentile	2.0	6.4	18.8	8.8	5.9	6.9	5.4	1.4
# of Portfolios	132	131	131	129	119	101	87	73
● BlackRock EAFE Index	4.2 (50)	9.9 (62)	25.5 (63)	12.8 (55)	8.2 (63)	-- (--)	-- (--)	-- (--)
▲ MSCI EAFE	4.2 (50)	9.9 (63)	25.0 (67)	12.4 (62)	7.8 (69)	7.9 (74)	6.0 (80)	1.9 (87)

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	931	928
Weighted Avg. Market Cap. (\$B)	59.7	59.8
Median Market Cap. (\$B)	11.5	11.5
Price To Earnings	20.6	20.4
Price To Book	3.2	2.7
Price To Sales	2.4	2.1
Return on Equity (%)	15.7	13.8
Yield (%)	2.9	2.9
Beta (holdings; global)	1.1	1.1

Top Holdings

NESTLE 'R'	1.8%
HSBC HOLDINGS	1.4%
NOVARTIS 'R'	1.2%
ROCHE HOLDING	1.2%
TOYOTA MOTOR	1.1%
BRITISH AMERICAN TOBACCO	1.0%
ROYAL DUTCH SHELL A	1.0%
BP	0.9%
TOTAL	0.9%
ROYAL DUTCH SHELL B	0.8%

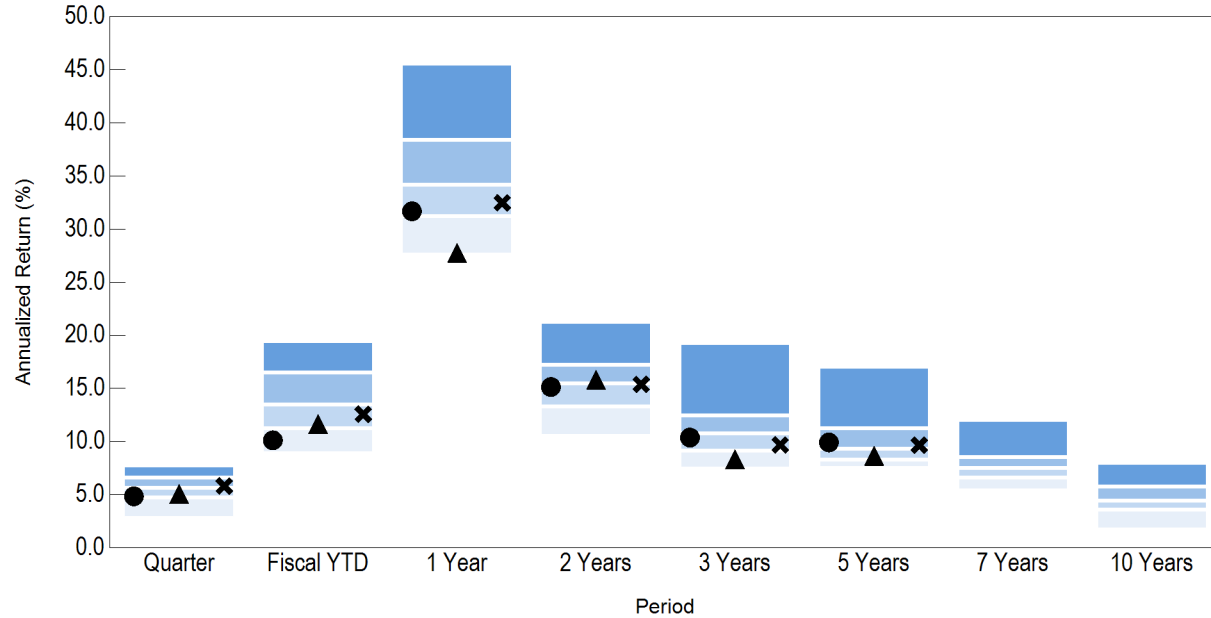
Best Performers

	Return %
KINGSTON FINANCIAL GROUP (K:STIM)	88.3%
SUMCO (J:UMCO)	63.9%
WHARF HOLDINGS (K:HKWH)	52.9%
NESTE (M:NEST)	46.7%
SUMITOMO METAL MINING (J:EM@N)	43.2%
IDEMITSU KOSAN (J:IDKO)	42.4%
TOTO (J:TOTO)	40.2%
DON QUIJOTE HOLDINGS (J:DONQ)	40.1%
YASKAWA ELECTRIC (J:YE@N)	39.2%
SBI HDG. (J:SFBI)	39.0%

Worst Performers

	Return %
ALTICE B (OTC) (ALVVF)	-56.8%
ALTICE A (H:ATC)	-47.6%
LEONARDO (I:LDO)	-36.4%
SES FDR (LX:SES)	-28.6%
CAPITA (UKIR:CPI)	-27.0%
GENMAB (DK:GEN)	-24.8%
CENTRICA (UKIR:CNA)	-24.5%
CONVATEC GROUP (UKIR:CTEC)	-24.4%
INMARSAT (UKIR:ISAT)	-23.1%
VESTAS WINDSYSTEMS (DK:VEW)	-23.0%

eV ACWI ex-US Growth Equity Net Return Comparison



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	7.7	19.4	45.5	21.2	19.2	17.0	12.0	8.0
25th Percentile	6.6	16.5	38.4	17.2	12.5	11.3	8.6	5.8
Median	5.7	13.5	34.2	15.5	10.8	9.3	7.5	4.5
75th Percentile	4.8	11.3	31.3	13.3	9.2	8.3	6.6	3.6
95th Percentile	2.8	8.9	27.6	10.6	7.5	7.5	5.5	1.7
# of Portfolios	71	71	71	71	65	56	50	40
● Baillie Gifford	4.8 (70)	10.1 (89)	31.7 (73)	15.1 (54)	10.4 (57)	9.9 (44)	-- (--)	-- (--)
▲ MSCI ACWI ex US	5.1 (64)	11.6 (74)	27.8 (94)	15.8 (44)	8.3 (90)	8.6 (68)	-- (--)	-- (--)
✕ MSCI ACWI ex US Growth	5.8 (49)	12.6 (64)	32.5 (68)	15.4 (52)	9.7 (66)	9.6 (48)	-- (--)	-- (--)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	90	1,866
Weighted Avg. Market Cap. (\$B)	47.0	66.3
Median Market Cap. (\$B)	14.3	8.6
Price To Earnings	30.0	20.8
Price To Book	6.9	2.8
Price To Sales	4.3	2.2
Return on Equity (%)	24.7	15.0
Yield (%)	1.6	2.7
Beta (holdings; global)	1.1	1.1

Top Holdings

NASPERS	3.2%
TAIWAN SEMICON.SPN.ADR 1:5	2.7%
HARGREAVES LANSDOWN	2.5%
ATLAS COPCO 'B'	2.2%
NOVO NORDISK 'B'	2.2%
KAO	2.1%
INDITEX	2.1%
COCHLEAR	2.1%
MS&AD INSURANCE GP.HDG.	2.0%
ZALANDO	2.0%

Best Performers

	Return %
TSINGTAO BREWERY 'H' (K:TSIN)	34.7%
KAKAKU.COM (J:KAKA)	32.7%
NASPERS (R:NPNJ)	28.9%
CLICKS GROUP (R:CLSJ)	25.0%
NAVER (KO:NHN)	24.9%
HARGREAVES LANSDOWN (UKIR:HL.)	22.8%
SHISEIDO (J:SHDO)	21.1%
MAHINDRA & MAHINDRA GDR REG 'S' (UKIR:MHID)	20.7%
DENSO (J:DE@N)	18.7%
RAIA DROGASIL ON (BR:DR3)	16.9%

Worst Performers

	Return %
PJSC MAGNIT GDR (REG S) (UKIR:MGNT)	-33.2%
CAPITA (UKIR:CPI)	-27.0%
CTRP.COM INTL.ADR 8:1 (CTRP)	-16.4%
PAX GLOBAL TECHNOLOGY (K:PGTL)	-15.9%
RAKUTEN (J:RAKT)	-15.9%
SHOPIFY 'A' (NYS) (SHOP)	-13.3%
DISTRIBUIDORA INTNAC.DE ALIMENTACION (E:DIA)	-11.4%
ADIDAS (D:ADS)	-11.2%
CAFE DE CORAL HDG. (K:CAFE)	-11.0%
HON HAI PREC.GDR (UKIR:HHPD)	-9.6%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Total Effects	Attribution Effects			Returns		Sector Weights				
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.3%	-0.7%	-0.2%	0.6%	-3.7%	7.5%	0.6%	6.7%			
Materials	-0.4%	-0.5%	-0.1%	0.2%	2.7%	8.2%	3.9%	7.8%			
Industrials	-0.2%	-0.2%	0.0%	-0.1%	3.1%	4.8%	14.7%	11.8%			
Consumer Discretionary	-0.3%	-0.3%	0.0%	0.0%	4.0%	6.1%	19.6%	11.3%			
Consumer Staples	0.8%	0.4%	0.1%	0.4%	9.4%	5.4%	18.1%	9.6%			
Health Care	0.5%	0.5%	0.0%	0.0%	6.9%	1.3%	7.7%	7.9%			
Financials	0.2%	0.3%	0.0%	0.0%	6.1%	4.6%	17.0%	23.3%			
Information Technology	-0.4%	-0.2%	0.0%	-0.2%	3.1%	6.3%	17.1%	11.2%			
Telecommunication Services	0.1%	-0.2%	0.1%	0.2%	-6.6%	1.5%	0.0%	4.2%			
Utilities	0.1%	--	0.2%	--	--	-0.5%	0.0%	3.1%			
Real Estate	-0.1%	--	0.0%	--	--	6.2%	0.0%	3.2%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.3%	--	1.4%	0.0%			
Portfolio	0.1%	=	-1.0%	+	0.1%	+	1.0%	5.1%	5.0%	100.0%	100.0%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	--	5.8%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Belgium	--	-1.5%	0.0%	0.8%	--	0.1%	0.0%	--	0.0%
Czech Republic*	--	7.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	11.5%	2.3%	5.2%	1.3%	0.1%	-0.1%	0.1%	0.4%	0.4%
Finland	1.5%	-2.5%	1.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	6.7%	1.6%	1.5%	7.4%	0.4%	0.2%	-0.1%	-0.3%	0.2%
Germany	0.3%	2.5%	5.4%	6.7%	-0.2%	0.0%	0.0%	0.0%	-0.1%
Greece*	--	13.6%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	7.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	3.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Italy	--	-2.2%	0.0%	1.7%	--	0.1%	0.0%	--	0.1%
Netherlands	-1.0%	1.3%	0.0%	2.6%	-0.1%	0.1%	0.0%	0.0%	0.1%
Norway	--	2.3%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	5.9%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	-1.4%	-1.9%	1.2%	0.1%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Russia*	-33.2%	4.6%	0.6%	0.8%	-0.3%	0.0%	0.0%	0.1%	-0.2%
Spain	-9.0%	-1.5%	2.2%	2.4%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Sweden	-4.7%	-3.7%	5.6%	2.0%	0.0%	-0.3%	0.0%	0.0%	-0.3%
Switzerland	-0.1%	1.8%	5.2%	5.7%	-0.1%	0.0%	0.0%	0.0%	-0.1%
United Kingdom	4.7%	5.8%	15.0%	12.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%

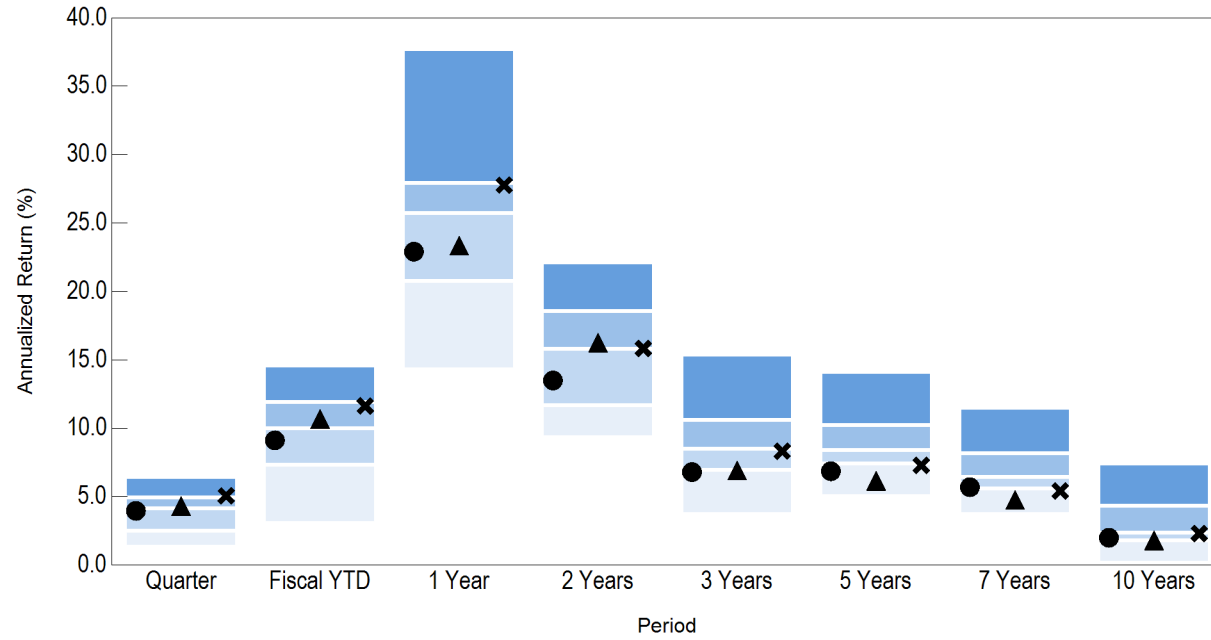
Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	11.2%	6.7%	5.3%	4.7%	0.2%	0.0%	0.0%	0.0%	0.3%
China*	1.7%	7.7%	7.4%	7.1%	-0.4%	0.0%	0.0%	0.0%	-0.4%
Hong Kong	2.7%	7.6%	1.8%	2.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
India*	12.6%	11.8%	1.9%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indonesia*	--	8.1%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Japan	9.4%	8.5%	17.1%	16.0%	0.2%	0.0%	0.0%	0.0%	0.2%
Korea*	8.2%	10.3%	3.8%	3.6%	0.1%	0.0%	-0.1%	0.0%	-0.1%
Malaysia*	6.1%	6.3%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	--	0.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	-5.2%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-1.7%	6.5%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	3.8%	10.1%	3.9%	0.9%	-0.1%	0.1%	0.0%	-0.2%	-0.1%
Taiwan*	1.1%	4.2%	3.8%	2.8%	0.0%	0.0%	-0.1%	0.0%	-0.1%
Thailand*	--	9.4%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Americas									
Brazil*	16.9%	-1.9%	1.1%	1.8%	0.3%	0.0%	0.0%	-0.1%	0.2%
Canada	-3.1%	4.3%	1.7%	6.7%	-0.5%	0.0%	0.0%	0.4%	-0.1%
Chile*	--	7.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	0.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	8.6%	-8.0%	0.6%	0.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Peru*	--	7.3%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
United States	-0.2%	6.4%	2.4%	0.0%	0.0%	0.1%	0.0%	-0.2%	-0.1%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	-2.4%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	4.0%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Qatar*	--	4.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
South Africa*	27.6%	21.2%	3.8%	1.5%	0.1%	0.2%	0.3%	0.1%	0.6%
Turkey*	--	4.4%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
United Arab Emirates*	--	-4.9%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Totals									
Americas	3.0%	2.2%	5.8%	9.9%	0.1%	0.0%	0.1%	0.0%	0.1%
Europe	1.6%	2.4%	43.1%	46.1%	-0.3%	0.1%	-0.1%	0.0%	-0.3%
Asia/Pacific	6.9%	8.1%	46.0%	41.6%	-0.3%	0.1%	-0.2%	0.0%	-0.4%
Other	27.6%	14.1%	3.8%	2.5%	0.2%	0.1%	0.3%	0.1%	0.6%
Cash	0.3%	--	1.4%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Total	5.1%	5.0%	100.0%	100.0%	-0.2%	0.2%	0.0%	0.0%	0.1%
Totals									
Developed	4.4%	4.3%	74.7%	76.0%	0.1%	0.0%	-0.1%	0.0%	0.1%
Emerging*	7.6%	7.3%	23.9%	24.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Cash	0.3%	--	1.4%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

eV ACWI ex-US Value Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	6.4	14.6	37.7	22.1	15.4	14.1	11.5	7.4
25th Percentile	5.0	12.0	28.0	18.6	10.7	10.3	8.2	4.4
Median	4.2	10.0	25.8	15.8	8.5	8.4	6.5	2.4
75th Percentile	2.6	7.4	20.8	11.7	7.0	7.4	5.6	1.8
95th Percentile	1.4	3.1	14.3	9.4	3.8	5.1	3.7	0.2
# of Portfolios	40	39	39	36	35	31	25	20
● Mondrian	4.0 (55)	9.1 (61)	22.9 (69)	13.5 (61)	6.8 (78)	6.9 (82)	5.7 (70)	2.0 (69)
▲ MSCI ACWI ex USA Value Gross	4.3 (48)	10.7 (42)	23.3 (66)	16.3 (46)	6.9 (77)	6.2 (85)	4.8 (88)	1.8 (77)
✕ MSCI ACWI ex USA Gross	5.1 (21)	11.6 (34)	27.8 (26)	15.8 (50)	8.3 (54)	7.3 (79)	5.4 (79)	2.3 (54)

Characteristics

	Portfolio	MSCI ACWI ex USA Value Gross
Number of Holdings	142	1,074
Weighted Avg. Market Cap. (\$B)	54.1	59.3
Median Market Cap. (\$B)	19.6	7.8
Price To Earnings	16.4	15.4
Price To Book	1.9	1.6
Price To Sales	1.6	1.6
Return on Equity (%)	14.3	11.5
Yield (%)	3.7	3.6
Beta (holdings: global)	1.0	1.1

Top Holdings

HONDA MOTOR	2.8%
UNITED OVERSEAS BANK	2.5%
TESCO	2.4%
IBERDROLA	2.4%
TAKEDA PHARMACEUTICAL	2.3%
SANOFI	2.3%
LLOYDS BANKING GROUP	2.2%
ENEL	2.2%
BP	2.2%
DAIMLER	2.1%

Best Performers

	Return %
BARCLAYS AFRICA GROUP (R:BGAJ)	42.8%
KAZMUNAIGAS EXP.PRDN.GDR REG S (UKIR:KMG)	31.3%
MIDEA GROUP 'A' (CN:MGA)	28.0%
ISUZU MOTORS (J:IM@N)	26.5%
SASOL (R:SOLJ)	25.9%
GROWTHPOINT PROPS. (R:GRTJ)	24.1%
EREGLI DEMIR CELIK (TK:ERE)	21.6%
PEARSON (UKIR:PSON)	21.3%
RELIANCE INDUSTRIES (IN:REL)	20.7%
CSPC PHARMACEUTICAL GP. (K:CPHA)	20.5%

Worst Performers

	Return %
BNC.STDR.AMER.DEPY. SHS. 1:5 (BSMX)	-25.8%
TURKIYE HALK BANKASI (TK:HLB)	-16.6%
SANOFI (F:SQ@F)	-13.1%
SOCIETE GENERALE (F:SGE)	-11.7%
NEXT (UKIR:NXT)	-11.5%
TURK TELEKOMUNIKASYON (TK:TUT)	-11.0%
CMPH.COCS. RODOVIARIAS ON (BR:CCR)	-11.0%
LUPIN (IN:LUP)	-10.7%
FIBRA UNO ADMINISTRACION REIT (MX:FUN)	-10.5%
QUANTA COMPUTER (TW:QUM)	-9.6%

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%	0.0%	8.2%	8.8%	8.8%	9.7%			
Materials	-0.3%	-0.1%	-0.2%	0.0%	10.2%	10.3%	2.3%	6.7%			
Industrials	-0.4%	-0.3%	0.0%	-0.1%	0.5%	4.8%	11.2%	8.9%			
Consumer Discretionary	0.6%	0.3%	0.0%	0.3%	8.8%	5.2%	14.6%	8.2%			
Consumer Staples	0.5%	0.1%	0.1%	0.3%	11.3%	4.8%	7.3%	2.7%			
Health Care	-0.5%	-0.2%	-0.2%	-0.1%	-5.1%	-2.1%	9.4%	5.8%			
Financials	0.3%	0.5%	0.1%	-0.3%	5.4%	3.7%	18.0%	38.1%			
Information Technology	0.3%	0.2%	-0.1%	0.2%	7.3%	4.1%	8.9%	5.0%			
Telecommunication Services	-0.4%	-0.3%	-0.1%	-0.1%	-2.9%	1.4%	8.7%	5.9%			
Utilities	0.0%	0.1%	-0.1%	0.1%	1.1%	-0.9%	7.3%	4.9%			
Real Estate	-0.1%	-0.1%	0.0%	0.0%	2.3%	6.1%	2.9%	4.3%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.4%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	4.3%	--	0.1%	0.0%			
Portfolio	-0.2%	=	0.1%	+	-0.6%	+	0.4%	4.2%	4.3%	100.0%	100.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	--	6.9%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Belgium	--	-0.5%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	14.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	-3.6%	-2.2%	0.8%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Finland	--	-1.4%	0.0%	1.0%	--	0.1%	0.0%	--	0.1%
France	-11.1%	-1.6%	5.7%	7.7%	-0.7%	0.1%	0.0%	0.2%	-0.4%
Germany	2.7%	3.7%	9.7%	6.5%	-0.1%	0.0%	0.1%	0.0%	-0.1%
Greece*	--	16.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	6.2%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	4.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Italy	1.2%	-2.8%	4.5%	2.5%	0.1%	-0.2%	0.0%	0.1%	0.1%
Netherlands	15.3%	2.1%	3.2%	1.3%	0.2%	-0.1%	0.0%	0.2%	0.4%
Norway	--	0.5%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Poland*	--	-2.1%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	--	-8.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Russia*	7.0%	6.6%	0.9%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	-3.6%	-2.6%	4.3%	3.6%	0.0%	0.0%	0.0%	0.0%	-0.1%
Sweden	3.1%	-5.5%	3.4%	2.0%	0.2%	-0.1%	0.0%	0.1%	0.2%
Switzerland	2.5%	2.4%	6.1%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%
United Kingdom	4.0%	6.1%	17.1%	14.0%	-0.3%	0.1%	0.0%	-0.1%	-0.3%

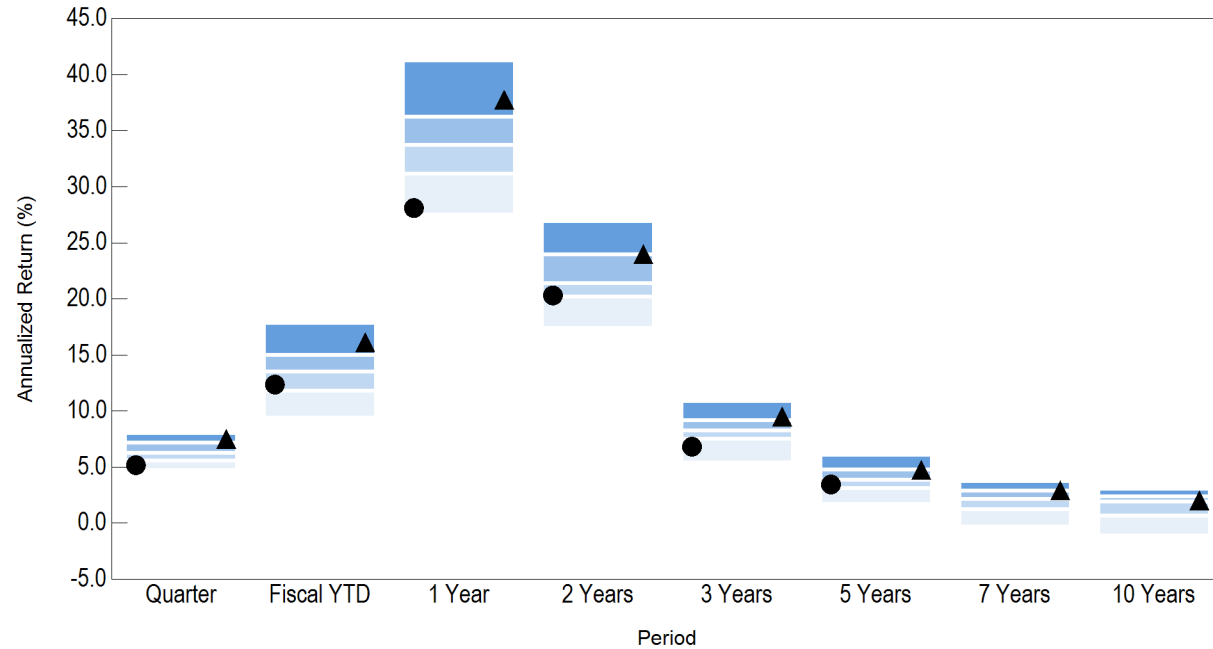
Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	6.4%	3.1%	1.0%	4.7%	0.2%	0.0%	0.0%	-0.1%	0.0%
China*	8.9%	5.1%	1.8%	6.3%	0.2%	-0.1%	0.0%	-0.1%	0.0%
Hong Kong	1.3%	3.9%	4.1%	2.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%
India*	7.5%	14.1%	3.1%	2.0%	-0.1%	0.1%	0.0%	-0.1%	-0.1%
Indonesia*	18.3%	13.4%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	9.6%	7.8%	14.3%	16.0%	0.3%	-0.1%	0.0%	0.0%	0.2%
Korea*	7.7%	9.4%	3.0%	3.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Malaysia*	9.1%	5.7%	1.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	--	-2.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	-0.3%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-5.8%	5.4%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	9.3%	11.0%	4.4%	1.0%	0.0%	0.2%	0.1%	-0.1%	0.2%
Taiwan*	5.7%	3.5%	2.4%	2.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Thailand*	8.7%	8.2%	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	-1.8%	0.1%	2.0%	1.8%	-0.1%	0.0%	0.0%	0.0%	0.0%
Canada	0.6%	5.8%	1.2%	6.6%	-0.3%	-0.1%	0.0%	0.3%	-0.2%
Chile*	--	9.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	0.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	-9.2%	-5.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	3.6%	5.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

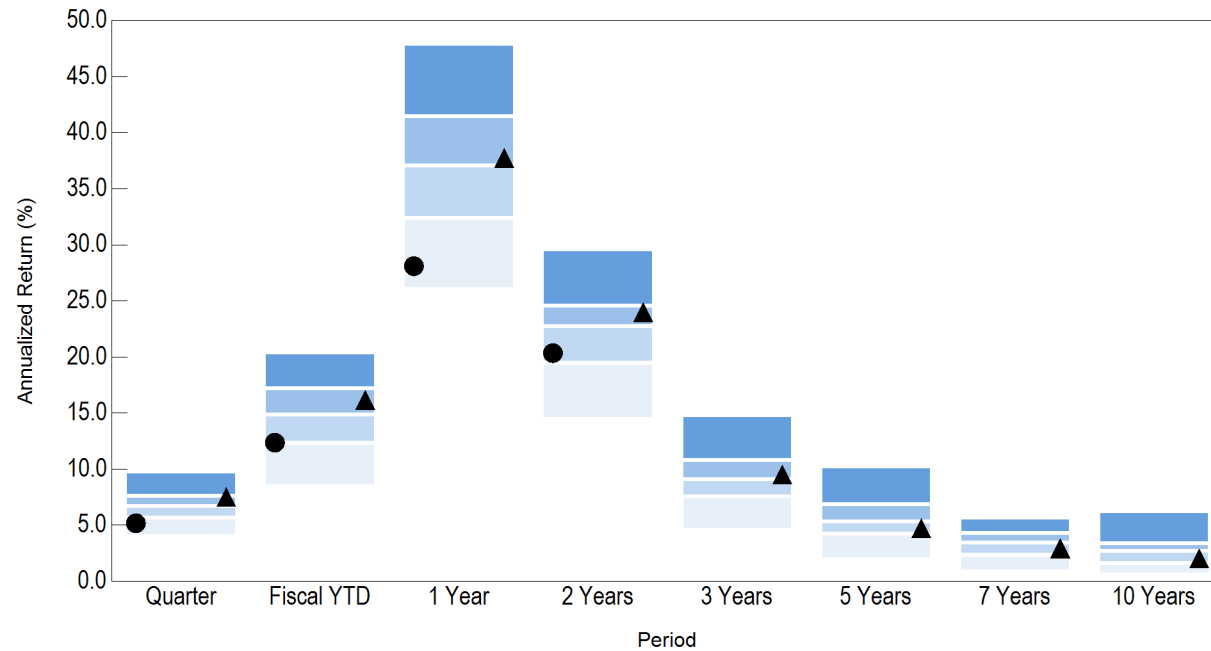
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	-6.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	6.9%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Kazakhstan**	31.3%	4.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	2.7%	3.4%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	7.3%	4.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	26.3%	16.6%	1.4%	1.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Turkey*	1.0%	4.0%	0.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	0.0%	-7.2%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-2.4%	3.7%	4.3%	9.7%	-0.5%	-0.1%	0.0%	0.3%	-0.3%
Europe	1.8%	1.9%	55.9%	47.3%	-0.1%	-0.2%	0.1%	0.0%	-0.2%
Asia/Pacific	7.9%	6.9%	36.5%	40.6%	0.3%	-0.1%	0.1%	0.0%	0.2%
Other	14.0%	11.1%	3.0%	2.4%	0.1%	0.0%	0.0%	0.0%	0.1%
Cash	0.3%	--	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	4.2%	4.3%	100.0%	100.0%	-0.2%	-0.4%	0.2%	0.3%	-0.2%
Totals									
Developed	3.5%	3.7%	79.9%	76.9%	-0.3%	0.0%	0.2%	0.0%	-0.1%
Emerging*	6.7%	6.5%	19.6%	23.1%	0.0%	0.0%	0.0%	0.0%	-0.1%
Frontier**	19.4%	--	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.3%	--	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

InvestorForce All DB Emg Mkt Eq Net Return Comparison



	Return (Rank)									
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years		
5th Percentile	8.0	17.8	41.2	26.9	10.9	6.1	3.8	3.0		
25th Percentile	7.2	15.0	36.3	24.0	9.2	4.8	2.9	2.4		
Median	6.3	13.5	33.8	21.4	8.3	3.9	2.2	1.9		
75th Percentile	5.6	11.8	31.2	20.2	7.5	3.2	1.3	0.7		
95th Percentile	4.8	9.5	27.5	17.5	5.4	1.7	-0.3	-1.1		
# of Portfolios	96	95	93	90	86	69	42	14		
● Emerging Markets	5.2 (84)	12.4 (69)	28.1 (90)	20.3 (72)	6.8 (86)	3.4 (68)	-- (--)	-- (--)	-- (--)	-- (--)
▲ MSCI Emerging Markets Gross	7.5 (15)	16.1 (16)	37.8 (17)	24.0 (26)	9.5 (18)	4.7 (27)	2.9 (27)	2.0 (47)		

eV Emg Mkts Equity Net Return Comparison



	Return (Rank)															
5th Percentile	9.8	20.4	47.9	29.6	14.8	10.2	5.7	6.2								
25th Percentile	7.7	17.3	41.5	24.6	10.9	6.9	4.4	3.4								
Median	6.7	14.9	37.1	22.8	9.1	5.4	3.5	2.7								
75th Percentile	5.7	12.4	32.4	19.5	7.6	4.3	2.4	1.7								
95th Percentile	4.0	8.5	26.1	14.5	4.6	2.0	0.9	0.6								
# of Portfolios	187	187	184	180	170	139	93	63								
● Parametric Core	5.2 (84)	12.4 (77)	28.1 (90)	20.3 (70)	-- (--)	-- (--)	-- (--)	-- (--)								
▲ MSCI Emerging Markets Gross	7.5 (29)	16.1 (35)	37.8 (44)	24.0 (33)	9.5 (42)	4.7 (63)	2.9 (65)	2.0 (63)								

Characteristics

	Portfolio	MSCI Emerging Markets Gross
Number of Holdings	1,156	846
Weighted Avg. Market Cap. (\$B)	23.6	89.8
Median Market Cap. (\$B)	3.5	6.0
Price To Earnings	20.6	22.1
Price To Book	3.2	3.3
Price To Sales	2.7	2.7
Return on Equity (%)	16.6	18.1
Yield (%)	2.7	2.1
Beta (holdings; global)	0.9	1.0

Top Holdings

SBERBANK OF RUSSIA	1.0%
NASPERS	0.9%
AMERICA MOVIL SAB DE CV SPN.ADR 'L' 1:20	0.9%
SASOL	0.8%
CHINA MOBILE	0.7%
CREDICORP	0.6%
MTN GROUP	0.6%
SAMSUNG ELECTRONICS	0.6%
OAO GAZPROM SPN.ADR 1:2	0.5%
BHARTI AIRTEL	0.5%

Best Performers

	Return %
CHABIOTECH (KO:DTH)	105.7%
RELIANCE COMMUNICATIONS (IN:RCN)	92.7%
KUMBA IRON ORE (R:KIOJ)	87.6%
CELLTRION (KO:ORC)	69.9%
ASTRAL FOODS (R:ARLJ)	69.8%
TURK HAVA YOLLARI (TK:THY)	68.2%
SINO BIOPHM. (K:SBIO)	68.0%
ACER (TW:ASK)	62.4%
DLF (IN:DL)	61.5%
HARTELEGA HOLDINGS (L:HARA)	60.7%

Worst Performers

	Return %
STEINHOFF INTL.HOLDING (R:SNHJ)	-91.6%
DAEWOO SHIPBLDG.& MAR. ENGR. (KO:OSM)	-66.8%
SAPURA ENERGY (L:SAKE)	-51.3%
GENEREA (MX:CSV)	-47.3%
PAK ELEKTRON (PK:PET)	-40.3%
GRANA Y MONTERO (PE:GYM)	-38.8%
MAGNIT (RS:MGN)	-36.9%
LIPPO KARAWACI (ID:POK)	-33.2%
CONTROLADORA VUELA COMPANIA DE AVIACION (MX:VOA)	-32.3%
CPFL ENERGIA ON (BR:CPL)	-32.2%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

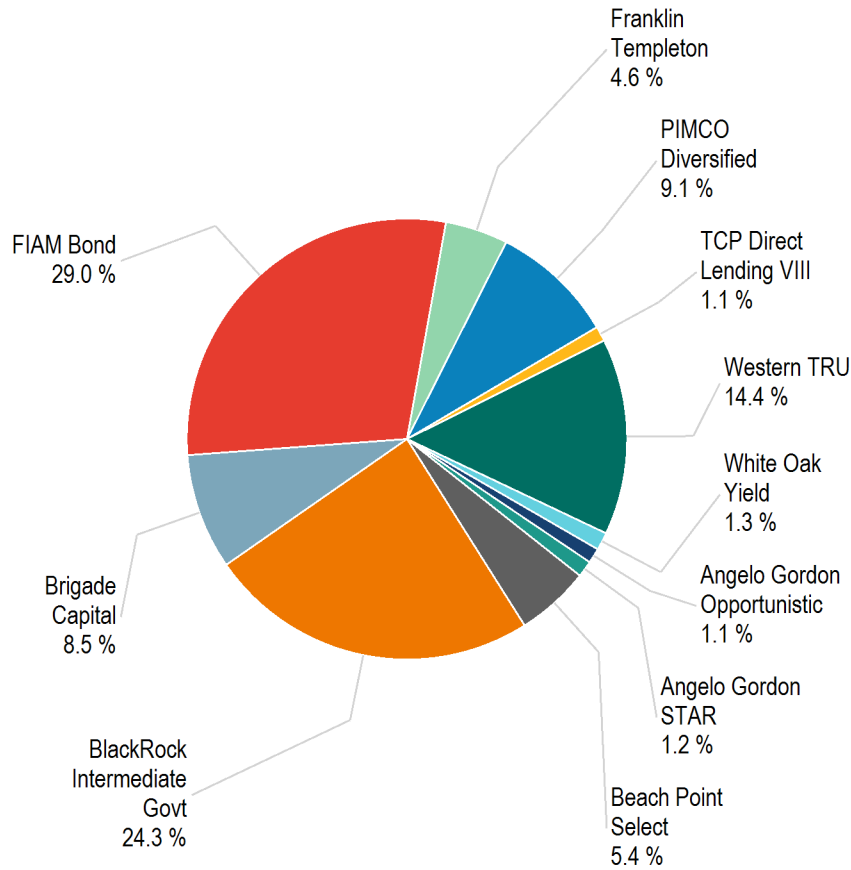
	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	-0.1%	0.0%	0.0%	6.7%	7.8%	9.5%	6.8%			
Materials	0.2%	0.0%	0.1%	0.1%	8.5%	8.5%	12.4%	7.1%			
Industrials	0.0%	0.1%	-0.1%	0.1%	5.5%	4.6%	9.2%	5.4%			
Consumer Discretionary	-0.5%	-0.4%	0.0%	-0.2%	3.3%	8.8%	9.4%	10.3%			
Consumer Staples	-0.1%	-0.2%	0.1%	0.0%	5.4%	7.4%	10.0%	6.5%			
Health Care	0.3%	0.0%	0.3%	0.0%	15.6%	17.4%	5.6%	2.3%			
Financials	-0.5%	-0.3%	-0.1%	0.0%	6.4%	8.1%	14.9%	23.5%			
Information Technology	-0.5%	-0.7%	0.2%	0.0%	4.1%	7.1%	7.9%	27.6%			
Telecommunication Services	0.1%	0.1%	-0.1%	0.2%	5.8%	3.0%	8.8%	5.1%			
Utilities	-0.2%	0.0%	-0.2%	0.0%	0.3%	1.1%	6.7%	2.6%			
Real Estate	-0.3%	0.0%	-0.1%	-0.1%	-0.7%	2.8%	5.4%	2.9%			
Cash	0.0%	0.0%	0.0%	0.0%	0.3%	--	0.2%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	-1.6%	=	-1.6%	+	0.0%	+	0.0%	5.7%	7.3%	100.0%	100.0%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Czech Republic*	8.1%	7.8%	0.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	10.3%	13.5%	1.6%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%
Hungary*	4.7%	7.1%	1.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-4.7%	7.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-8.1%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	2.5%	6.0%	3.5%	1.3%	0.0%	-0.1%	0.1%	-0.1%	-0.1%
Russia*	-1.2%	4.6%	6.2%	3.4%	-0.2%	0.0%	0.0%	-0.2%	-0.4%
United Kingdom	5.5%	5.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AsiaPacific									
China*	4.9%	7.7%	5.9%	29.6%	-0.8%	-0.5%	0.0%	0.7%	-0.7%
Hong Kong	8.9%	6.6%	6.4%	0.0%	0.0%	0.1%	0.0%	0.1%	0.2%
India*	13.8%	11.8%	7.0%	8.4%	0.2%	-0.1%	-0.1%	0.0%	0.0%
Indonesia*	5.1%	8.0%	3.4%	2.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Korea*	14.9%	10.2%	7.7%	15.0%	0.7%	0.2%	-0.5%	-0.3%	0.0%
Malaysia*	7.9%	6.4%	3.5%	2.3%	0.0%	0.0%	0.1%	0.0%	0.1%
Pakistan*	-9.5%	-5.2%	1.7%	0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.2%
Philippines*	3.6%	6.5%	3.7%	1.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Singapore	3.9%	10.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	5.5%	4.2%	7.1%	11.5%	0.1%	0.1%	-0.1%	-0.1%	0.2%
Thailand*	7.2%	9.4%	3.4%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	-2.3%	-2.1%	6.9%	7.4%	-0.1%	0.0%	0.1%	0.0%	0.0%
Chile*	8.9%	7.3%	3.5%	1.3%	0.0%	-0.1%	0.1%	0.0%	0.1%
Colombia*	5.0%	0.8%	1.8%	0.4%	0.0%	0.0%	0.0%	0.1%	0.0%
Mexico*	-10.1%	-7.9%	7.0%	3.5%	-0.2%	-0.2%	-0.1%	-0.2%	-0.6%
Peru*	6.7%	7.3%	1.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	6.3%	6.4%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	15.0%	-2.4%	0.9%	0.1%	0.0%	-0.1%	0.0%	0.1%	0.1%
Kuwait**	-4.8%	-7.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	2.5%	4.1%	1.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	21.5%	21.4%	6.6%	6.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	5.0%	4.4%	3.5%	1.1%	0.0%	0.1%	-0.2%	0.0%	0.0%
United Arab Emirates*	-5.4%	-4.9%	1.4%	0.7%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Totals									
Americas	-1.2%	-2.4%	22.2%	13.0%	-0.1%	-0.3%	0.1%	-0.1%	-0.5%
Europe	2.2%	5.7%	13.5%	5.6%	-0.2%	-0.1%	0.2%	-0.3%	-0.5%
Asia/Pacific	8.1%	8.1%	50.0%	72.5%	0.1%	-0.1%	-0.6%	0.0%	-0.6%
Other	11.7%	15.6%	14.2%	8.9%	0.0%	0.2%	-0.2%	0.0%	0.0%
Cash	0.3%	--	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	5.7%	7.3%	100.0%	100.0%	-0.3%	-0.3%	-0.5%	-0.5%	-1.6%
Totals									
Developed	8.0%	--	8.4%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
Emerging*	5.6%	7.3%	91.1%	100.0%	-1.3%	0.0%	-0.5%	0.1%	-1.7%
Frontier**	-4.8%	--	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.3%	--	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Angelo Gordon Opportunistic	\$9,527,000	1.1%	0.1%
Angelo Gordon STAR	\$10,398,000	1.2%	0.0%
Beach Point Select	\$48,418,723	5.4%	0.1%
BlackRock Intermediate Govt	\$216,019,223	24.3%	0.0%
Brigade Capital	\$75,355,031	8.5%	0.0%
FIAM Bond	\$258,488,671	29.0%	0.0%
Franklin Templeton	\$41,038,670	4.6%	-0.2%
PIMCO Diversified	\$80,884,948	9.1%	0.0%
TCP Direct Lending VIII	\$9,523,775	1.1%	0.0%
Western Asset TRU	\$128,289,306	14.4%	0.1%
White Oak Yield	\$11,947,413	1.3%	0.0%
Actual vs. Policy Weight Difference			-0.1%
Total	\$889,890,759	100.0%	0.2%

Statistics Summary

3 Years

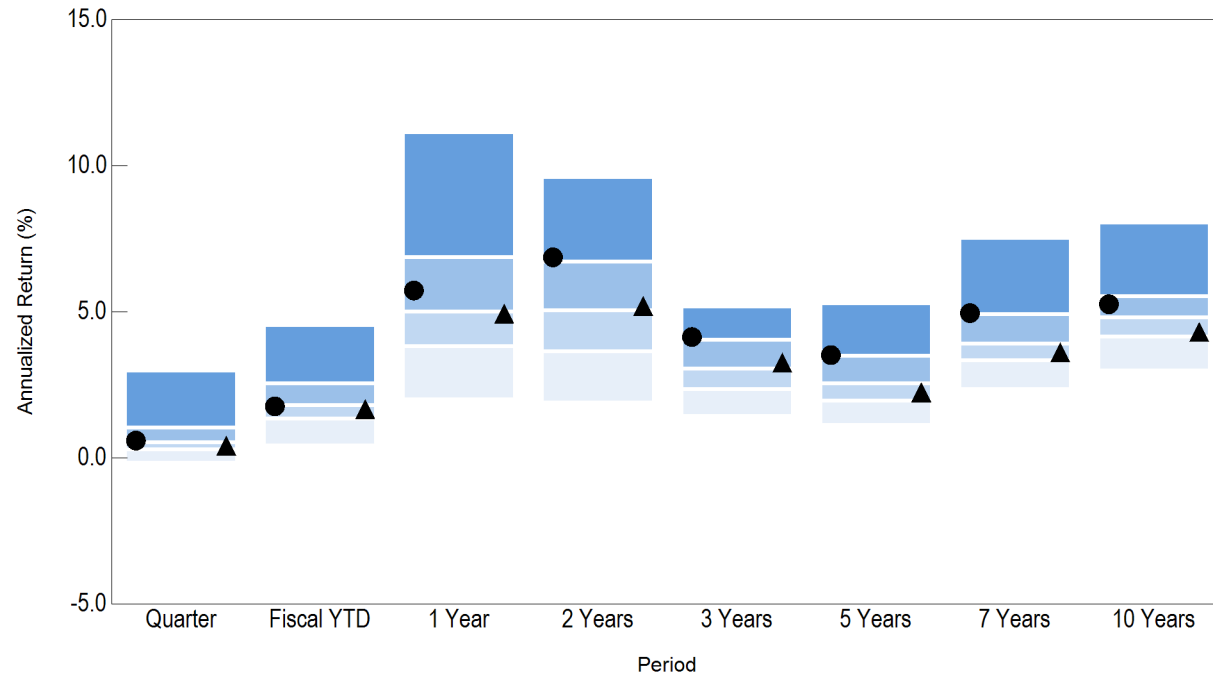
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.1%	2.8%	1.3	0.4	2.1%
Blended Fixed Income Index	3.3%	2.8%	1.0	--	0.0%
FIAM Bond	2.9%	3.0%	0.8	0.7	0.9%
BBgBarc US Aggregate TR	2.2%	2.8%	0.6	--	0.0%
Angelo Gordon Opportunistic	9.1%	7.7%	1.1	0.8	8.3%
BBgBarc US Aggregate TR	2.2%	2.8%	0.6	--	0.0%
Angelo Gordon STAR	9.9%	5.9%	1.6	1.1	6.8%
BBgBarc US Aggregate TR	2.2%	2.8%	0.6	--	0.0%
Brigade Capital	5.8%	7.2%	0.7	0.0	4.3%
BBgBarc BA Intermediate HY	5.7%	4.3%	1.2	--	0.0%
Franklin Templeton	2.5%	6.4%	0.3	0.0	8.3%
BBgBarc Multiverse TR	2.3%	4.8%	0.4	--	0.0%

Statistics Summary

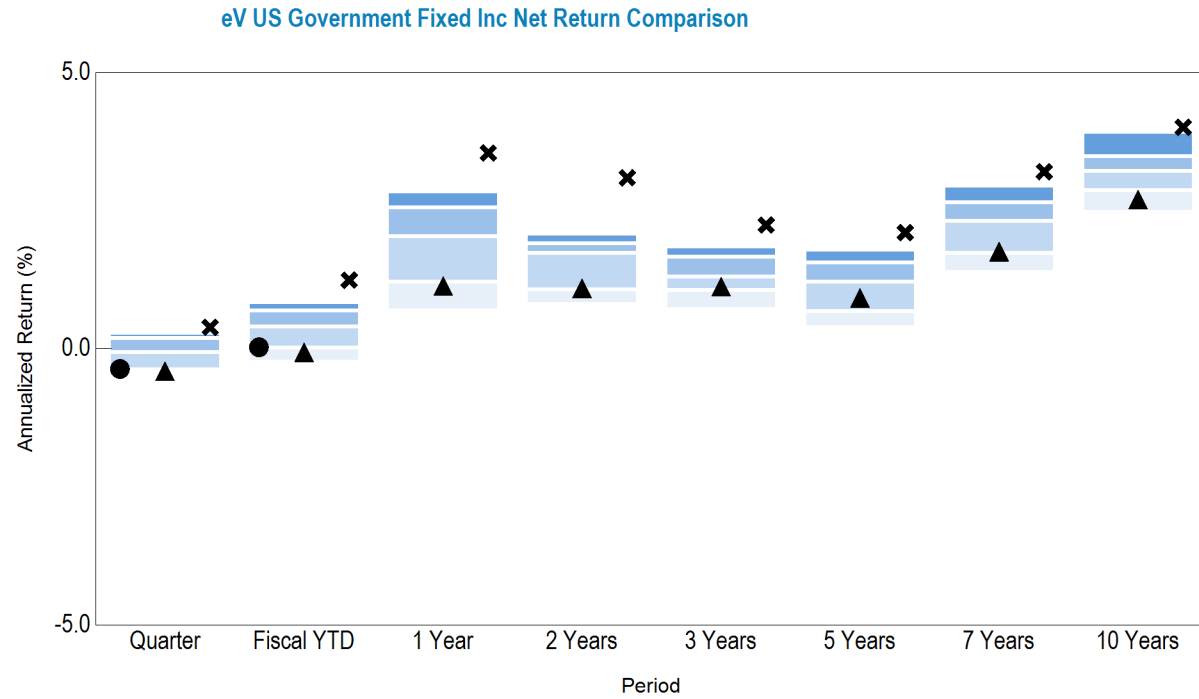
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	3.5%	3.1%	1.1	0.7	1.9%
Blended Fixed Income Index	2.2%	3.2%	0.6	--	0.0%
FIAM Bond	2.7%	3.0%	0.8	0.8	0.7%
BBgBarc US Aggregate TR	2.1%	2.8%	0.6	--	0.0%
Angelo Gordon STAR	12.5%	6.5%	1.9	1.4	7.7%
BBgBarc US Aggregate TR	2.1%	2.8%	0.6	--	0.0%
Brigade Capital	4.8%	6.2%	0.7	0.2	4.2%
BBgBarc BA Intermediate HY	3.8%	4.7%	0.8	--	0.0%
Franklin Templeton	2.3%	6.2%	0.3	0.2	7.1%
BBgBarc Multiverse TR	1.0%	4.6%	0.2	--	0.0%

InvestorForce All DB Total Fix Inc Net Return Comparison



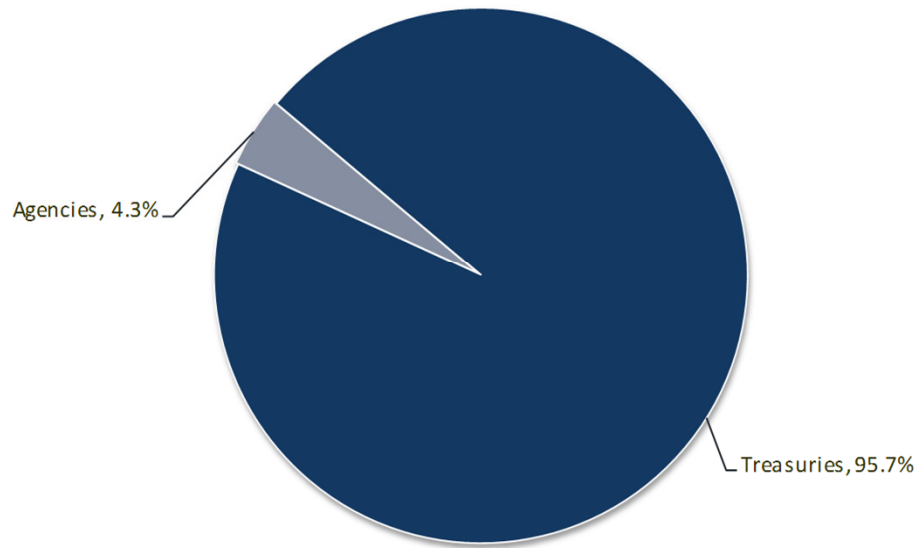
	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	3.0	4.5	11.1	9.6	5.2	5.3	7.5	8.0
25th Percentile	1.0	2.6	6.9	6.7	4.0	3.5	4.9	5.5
Median	0.5	1.8	5.0	5.1	3.1	2.6	3.9	4.8
75th Percentile	0.3	1.3	3.8	3.7	2.4	2.0	3.3	4.2
95th Percentile	-0.2	0.4	2.0	1.9	1.4	1.1	2.4	3.0
# of Portfolios	310	308	305	297	288	263	230	187
● Fixed Income	0.6 (46)	1.8 (52)	5.7 (41)	6.9 (23)	4.1 (23)	3.5 (25)	5.0 (25)	5.3 (36)
▲ Blended Fixed Income Index	0.4 (67)	1.7 (55)	4.9 (53)	5.2 (46)	3.3 (45)	2.2 (64)	3.6 (62)	4.3 (69)



	Return (Rank)															
5th Percentile	0.3	0.8	2.8	2.1	1.8	1.8	2.9	3.9								
25th Percentile	0.2	0.7	2.6	1.9	1.7	1.6	2.7	3.5								
Median	-0.1	0.4	2.0	1.7	1.3	1.2	2.3	3.2								
75th Percentile	-0.4	0.0	1.2	1.1	1.1	0.7	1.7	2.9								
95th Percentile	-0.4	-0.2	0.7	0.8	0.7	0.4	1.4	2.5								
# of Portfolios	11	11	11	11	11	11	11	10								
● BlackRock Intermediate Govt	-0.4 (75)	0.0 (75)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)								
▲ BBgBarc US Govt Int TR	-0.4 (93)	-0.1 (83)	1.1 (78)	1.1 (75)	1.1 (73)	0.9 (67)	1.8 (70)	2.7 (88)								
✕ BBgBarc US Aggregate TR	0.4 (1)	1.2 (1)	3.5 (1)	3.1 (1)	2.2 (1)	2.1 (1)	3.2 (1)	4.0 (3)								

BlackRock Intermediate Govt Market Duration Pool
 Bond Sector Allocation

Period Ending: December 31, 2017



Sector	Account Weight	BBgBarc Intermediate	
		Govt Weight	Difference
Treasuries	95.7%	95.4%	0.3%
Agencies	4.3%	4.6%	-0.3%
Corporates	0.0%	0.0%	0.0%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	0.0%	0.0%	0.0%
CMO	0.0%	0.0%	0.0%
ABS	0.0%	0.0%	0.0%
Municipals	0.0%	0.0%	0.0%
Others/Cash	0.0%	0.0%	0.0%
TOTAL	100.0%	100.0%	0.0%

BlackRock Intermediate Govt Market Duration Pool

Bond Summary Statistics

Period Ending: December 31, 2017

Portfolio Characteristics		Portfolio
Total Number of Securities		245
Total Market Value	\$	216,019,223
Current Coupon		2.13
Yield to Maturity		2.09
Average Life		4.07
Duration		3.80
Quality		AA+

BBgBarc Intermediate Govt	
Current Coupon	1.90
Yield to Maturity	2.09
Average Life	4.09
Duration	3.82
Quality	AA+

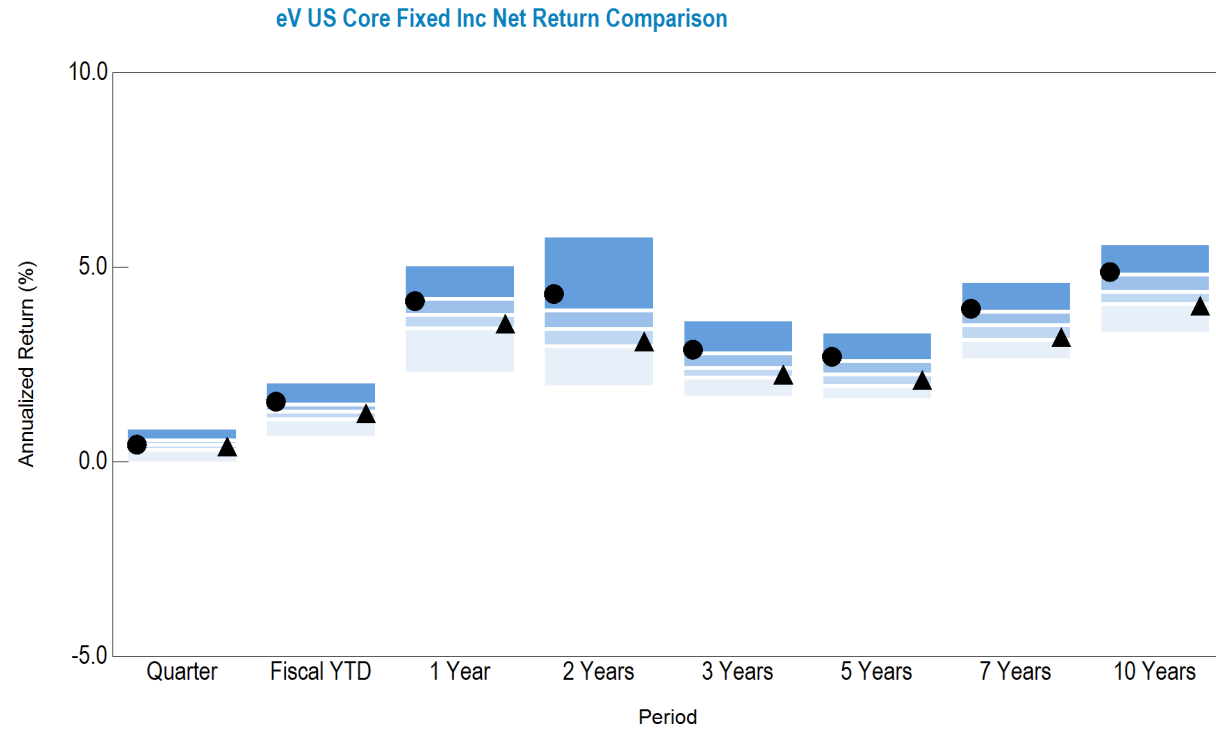
Yield to Maturity	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.0
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 1.0	n/a
1.0 - 3.0	n/a
3.0 - 5.0	n/a
5.0 - 10.0	n/a
10.0 - 20.0	n/a
20.0+	n/a
Unclassified	n/a

Duration	
Range	% Held
0.0 - 2.0	0.3
2.0 - 4.0	1.2
4.0 - 6.0	0.9
6.0 - 8.0	1.0
8.0+	0.3
Unclassified	96.2

Quality	
Range	% Held
Govt (10)	0.0
Aaa (10)	99.0
Aa (9)	1.0
A (8)	0.0
Baa (7)	0.0
Below Baa (6-1)	0.0
Other	0.0

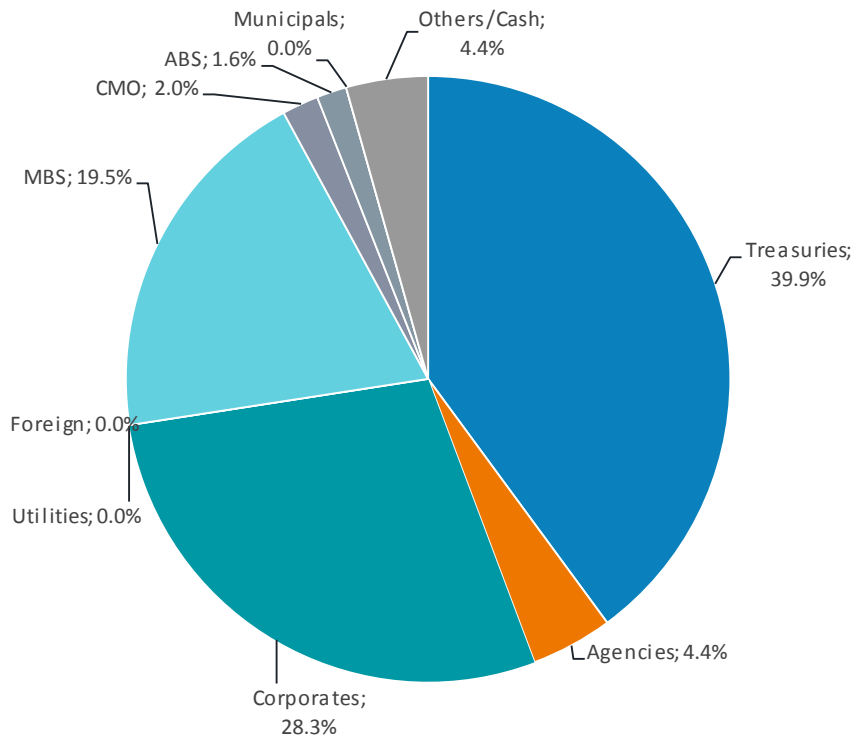
Coupon	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 10.0	0.0
10.0+	0.0
Unclassified	0.0



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.9	2.0	5.1	5.8	3.6	3.3	4.6	5.6
25th Percentile	0.6	1.5	4.2	3.9	2.8	2.6	3.9	4.8
Median	0.4	1.3	3.8	3.4	2.4	2.3	3.5	4.4
75th Percentile	0.3	1.1	3.4	3.0	2.2	2.0	3.1	4.1
95th Percentile	0.0	0.6	2.3	1.9	1.7	1.6	2.6	3.3
# of Portfolios	143	143	141	138	138	136	128	111
● FIAM Bond	0.4 (51)	1.5 (20)	4.1 (30)	4.3 (11)	2.9 (18)	2.7 (20)	3.9 (21)	4.9 (20)
▲ BBgBarc US Aggregate TR	0.4 (66)	1.2 (60)	3.5 (66)	3.1 (68)	2.2 (69)	2.1 (62)	3.2 (72)	4.0 (77)

FIAM Bond Market Duration Pool
Bond Sector Allocation

Period Ending: December 31, 2017



Sector	BBgBarc Aggregate		
	Account Weight	Weight	Difference
Treasuries	39.9%	36.9%	3.0%
Agencies	4.4%	6.9%	-2.6%
Corporates	28.3%	25.7%	2.6%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	19.5%	28.1%	-8.6%
CMO	2.0%	0.0%	2.0%
ABS	1.6%	2.3%	-0.7%
Municipals	0.0%	0.0%	0.0%
Others/Cash	4.4%	0.0%	4.4%
TOTAL	100.0%	100.0%	0.0%

FIAM Bond Market Duration Pool
Bond Summary Statistics

Period Ending: December 31, 2017

Portfolio Characteristics		Portfolio	BBgBarc Aggregate	
Total Number of Securities		851		
Total Market Value	\$	258,488,671		
Current Coupon		3.03		3.15
Yield to Maturity		2.72		2.70
Average Life		8.12		8.09
Duration		5.79		5.88
Quality		AA		AA

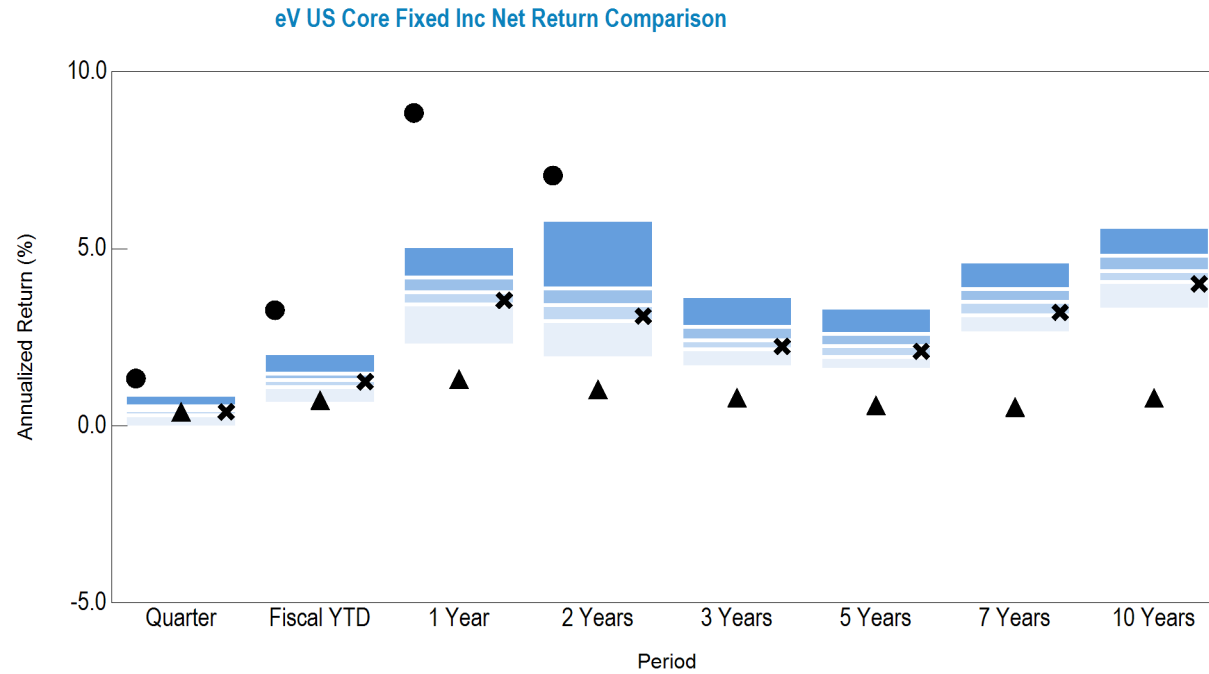
Yield to Maturity	
Range	% Held
0.0 - 5.0	94.5
5.0 - 7.0	3.0
7.0 - 9.0	0.1
9.0 - 11.0	0.0
11.0 - 13.0	0.1
13.0+	2.4
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 1.0	0.8
1.0 - 3.0	7.5
3.0 - 5.0	30.7
5.0 - 10.0	41.2
10.0 - 20.0	3.6
20.0+	16.2
Unclassified	0.0

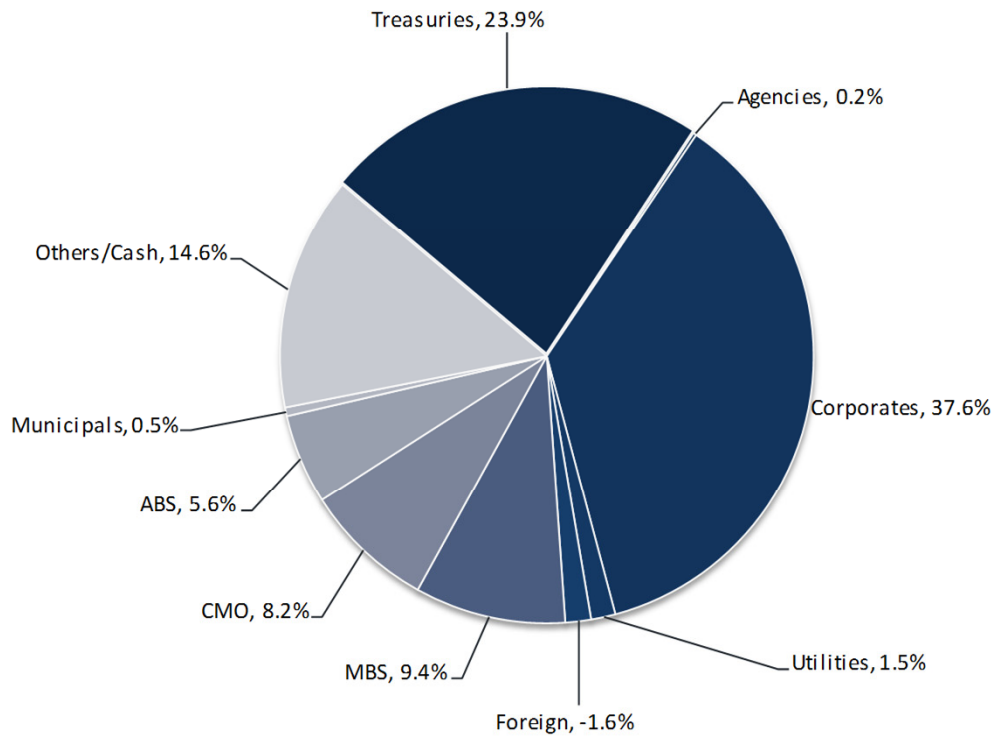
Duration	
Range	% Held
0.0 - 1.0	1.6
1.0 - 3.0	9.0
3.0 - 5.0	45.2
5.0 - 7.0	20.9
7.0 - 10.0	5.0
10.0+	18.3
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	62.7
Aaa (10)	0.4
Aa (9)	1.0
A (8)	12.7
Baa (7)	18.2
Below Baa (6-1)	1.6
Other	3.5

Coupon	
Range	% Held
0.0 - 5.0	83.3
5.0 - 7.0	9.4
7.0 - 9.0	1.8
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	5.5
Unclassified	0.0



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.9	2.0	5.1	5.8	3.6	3.3	4.6	5.6
25th Percentile	0.6	1.5	4.2	3.9	2.8	2.6	3.9	4.8
Median	0.4	1.3	3.8	3.4	2.4	2.3	3.5	4.4
75th Percentile	0.3	1.1	3.4	3.0	2.2	2.0	3.1	4.1
95th Percentile	0.0	0.6	2.3	1.9	1.7	1.6	2.6	3.3
# of Portfolios	143	143	141	138	138	136	128	111
● Western TRU	1.3 (1)	3.3 (1)	8.8 (1)	7.1 (1)	-- (--)	-- (--)	-- (--)	-- (--)
▲ 3-Month Libor Total Return USD	0.4 (66)	0.7 (92)	1.3 (99)	1.0 (99)	0.8 (99)	0.6 (99)	0.5 (99)	0.8 (99)
✕ BBgBarc US Aggregate TR	0.4 (66)	1.2 (60)	3.5 (66)	3.1 (68)	2.2 (69)	2.1 (62)	3.2 (72)	4.0 (77)



Sector	Account Weight	BBgBarc Aggregate	
		Weight	Difference
Treasuries	23.9%	36.9%	-13.0%
Agencies	0.2%	6.9%	-6.7%
Corporates	37.6%	25.7%	11.9%
Utilities	1.5%	0.0%	1.5%
Foreign	-1.6%	0.0%	-1.6%
MBS	9.4%	28.1%	-18.6%
CMO	8.2%	0.0%	8.2%
ABS	5.6%	2.3%	3.3%
Municipals	0.5%	0.0%	0.5%
Others/Cash	14.6%	0.0%	14.6%
TOTAL	100.0%	100.0%	0.1%

Portfolio Characteristics		Portfolio	BBgBarc Aggregate
Total Number of Securities		5,194	
Total Market Value	\$	128,289,306	
Current Coupon		4.86	3.15
Yield to Maturity		5.24	2.70
Average Life		10.37	8.09
Duration		2.95	5.88
Quality		A-	AA

Yield to Maturity	
Range	% Held
0.0 - 5.0	62.3
5.0 - 7.0	26.0
7.0 - 9.0	12.5
9.0 - 11.0	1.7
11.0 - 13.0	0.3
13.0+	1.8
Unclassified	-4.6

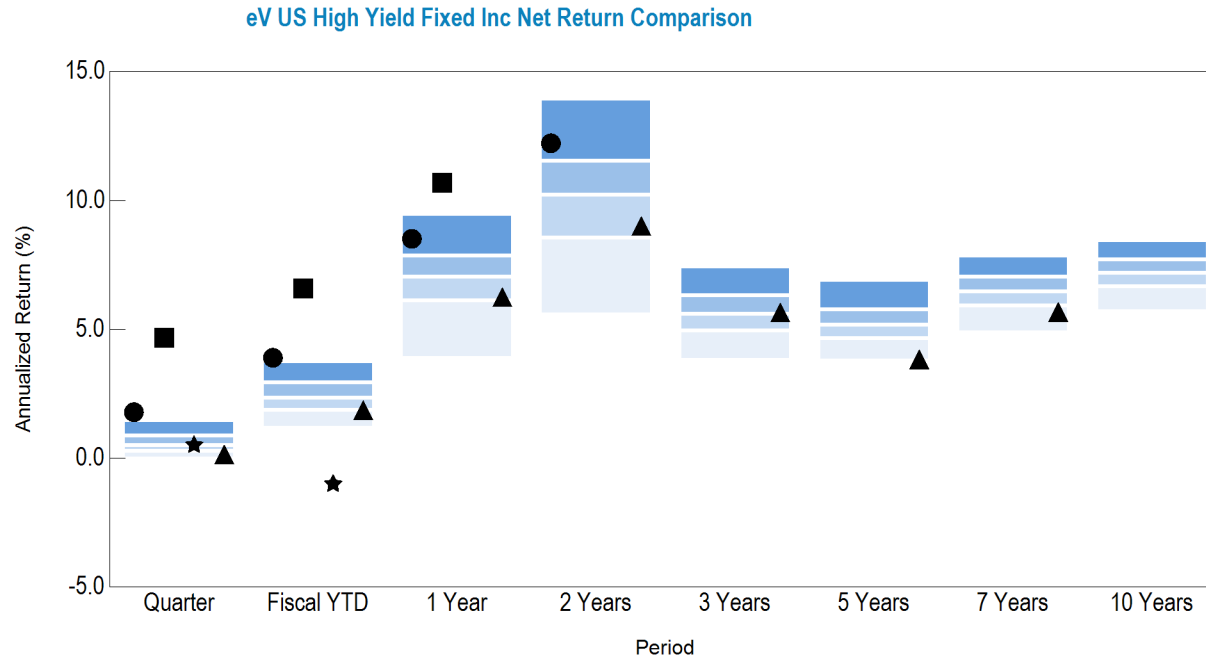
Average Life	
Range	% Held
0.0 - 1.0	10.8
1.0 - 3.0	15.0
3.0 - 5.0	17.7
5.0 - 10.0	16.7
10.0 - 20.0	22.9
20.0+	16.8
Unclassified	0.2

Duration	
Range	% Held
< 1.0	29.6
1.0 - 3.0	10.4
3.0 - 5.0	14.5
5.0 - 7.0	22.0
7.0 - 10.0	10.8
10.0+	12.5
Unclassified	0.2

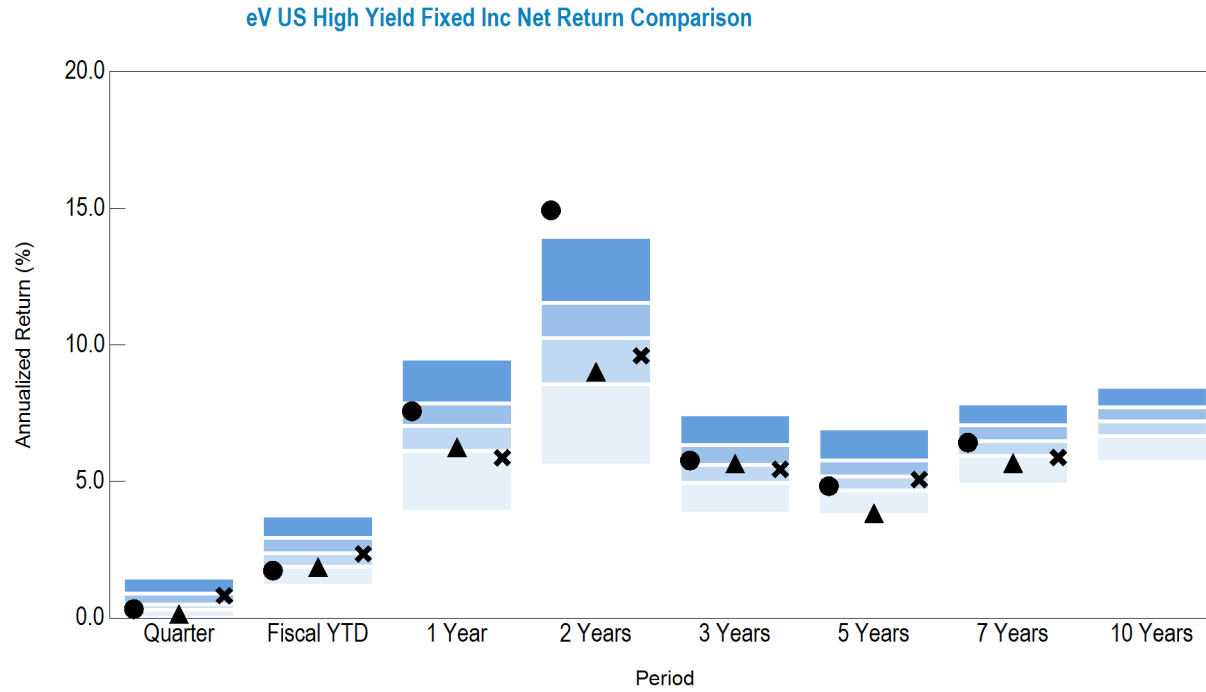
Quality	
Range	% Held
Govt* (10)	2.9
Aaa (10)	14.7
Aa (9)	4.4
A (8)	19.9
Baa (7)	30.2
Below Baa (6-1)	27.8
Other	0.0

Coupon	
Range	% Held
0.0 - 5.0	58.5
5.0 - 7.0	23.8
7.0 - 9.0	11.5
9.0 - 10.0	1.5
10.0+	4.3
Unclassified	0.4

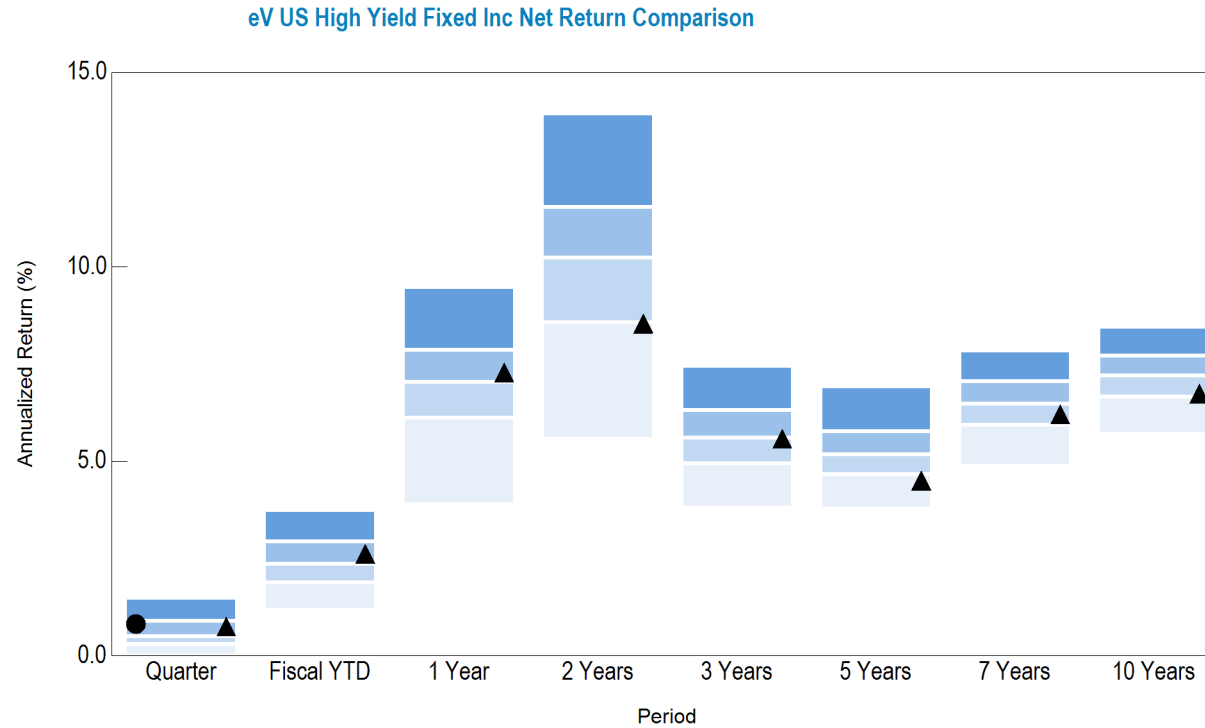
*Govt is specifically U.S Govt securities



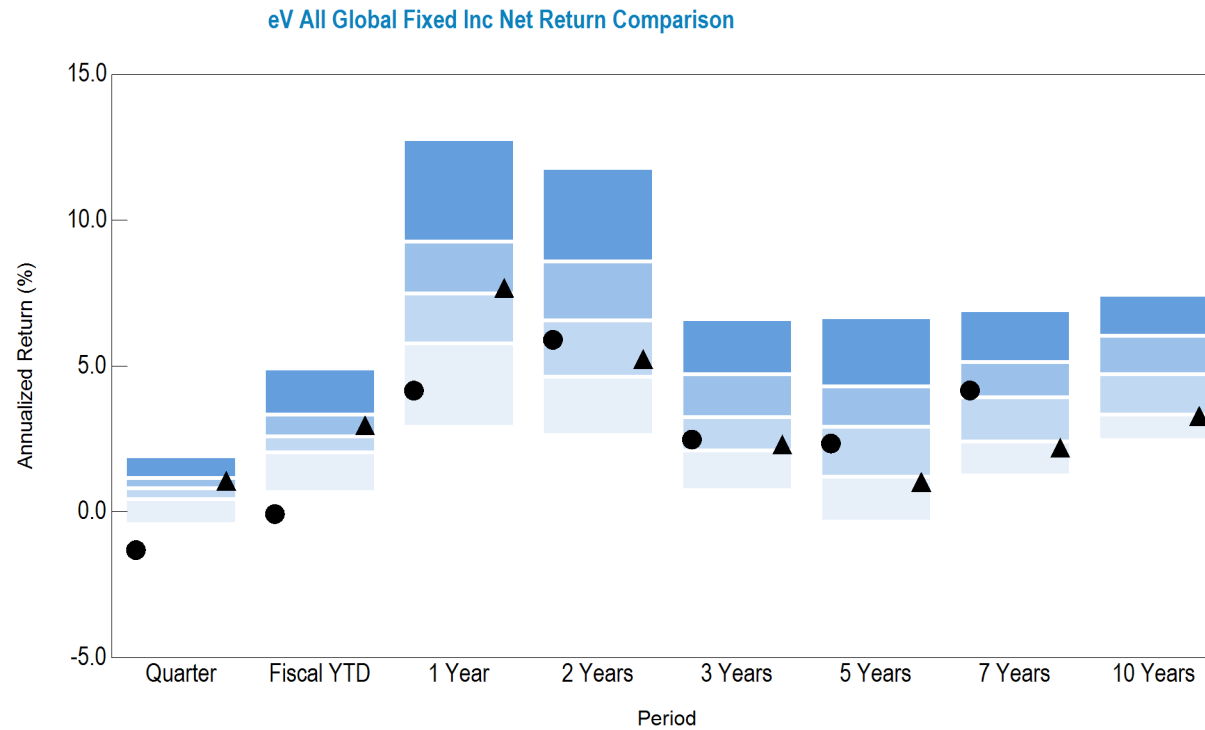
	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
Return (Rank)																
5th Percentile	1.5	3.7	9.5	13.9	7.4	6.9	7.8	8.4	0.9	3.0	7.9	11.5	6.3	5.8	7.1	7.7
25th Percentile	0.9	3.0	7.9	11.5	6.3	5.8	7.1	7.7	0.5	2.4	7.1	10.2	5.6	5.2	6.5	7.2
Median	0.5	2.4	7.1	10.2	5.6	5.2	6.5	7.2	0.3	1.9	6.1	8.6	5.0	4.7	5.9	6.7
75th Percentile	0.3	1.9	6.1	8.6	5.0	4.7	5.9	6.7	0.0	1.2	3.9	5.6	3.8	3.8	4.9	5.7
95th Percentile	0.0	1.2	3.9	5.6	3.8	3.8	4.9	5.7	130	129	129	124	116	100	85	64
# of Portfolios	130	129	129	124	116	100	85	64	1.8 (2)	3.9 (4)	8.5 (12)	12.2 (14)	-- (--)	-- (--)	-- (--)	-- (--)
● Beach Point Select	1.8 (2)	3.9 (4)	8.5 (12)	12.2 (14)	-- (--)	-- (--)	-- (--)	-- (--)	4.7 (1)	6.6 (1)	10.7 (2)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
■ TCP Direct Lending VIII	4.7 (1)	6.6 (1)	10.7 (2)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.5 (51)	-1.0 (99)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
★ White Oak Yield	0.5 (51)	-1.0 (99)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	0.1 (85)	1.9 (78)	6.3 (72)	9.0 (73)	5.7 (49)	3.8 (95)	5.7 (84)	-- (--)
▲ BBgBarc BA Intermediate HY	0.1 (85)	1.9 (78)	6.3 (72)	9.0 (73)	5.7 (49)	3.8 (95)	5.7 (84)	-- (--)								



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	1.5	3.7	9.5	13.9	7.4	6.9	7.8	8.4
25th Percentile	0.9	3.0	7.9	11.5	6.3	5.8	7.1	7.7
Median	0.5	2.4	7.1	10.2	5.6	5.2	6.5	7.2
75th Percentile	0.3	1.9	6.1	8.6	5.0	4.7	5.9	6.7
95th Percentile	0.0	1.2	3.9	5.6	3.8	3.8	4.9	5.7
# of Portfolios	130	129	129	124	116	100	85	64
● Brigade Capital	0.3 (71)	1.7 (82)	7.6 (36)	14.9 (1)	5.8 (47)	4.8 (70)	6.4 (55)	-- (--)
▲ BBgBarc BA Intermediate HY	0.1 (85)	1.9 (78)	6.3 (72)	9.0 (73)	5.7 (49)	3.8 (95)	5.7 (84)	-- (--)
✕ 50% Barclays HY/ 50% Bank Loan	0.8 (31)	2.3 (53)	5.9 (78)	9.6 (64)	5.4 (58)	5.1 (63)	5.9 (77)	-- (--)



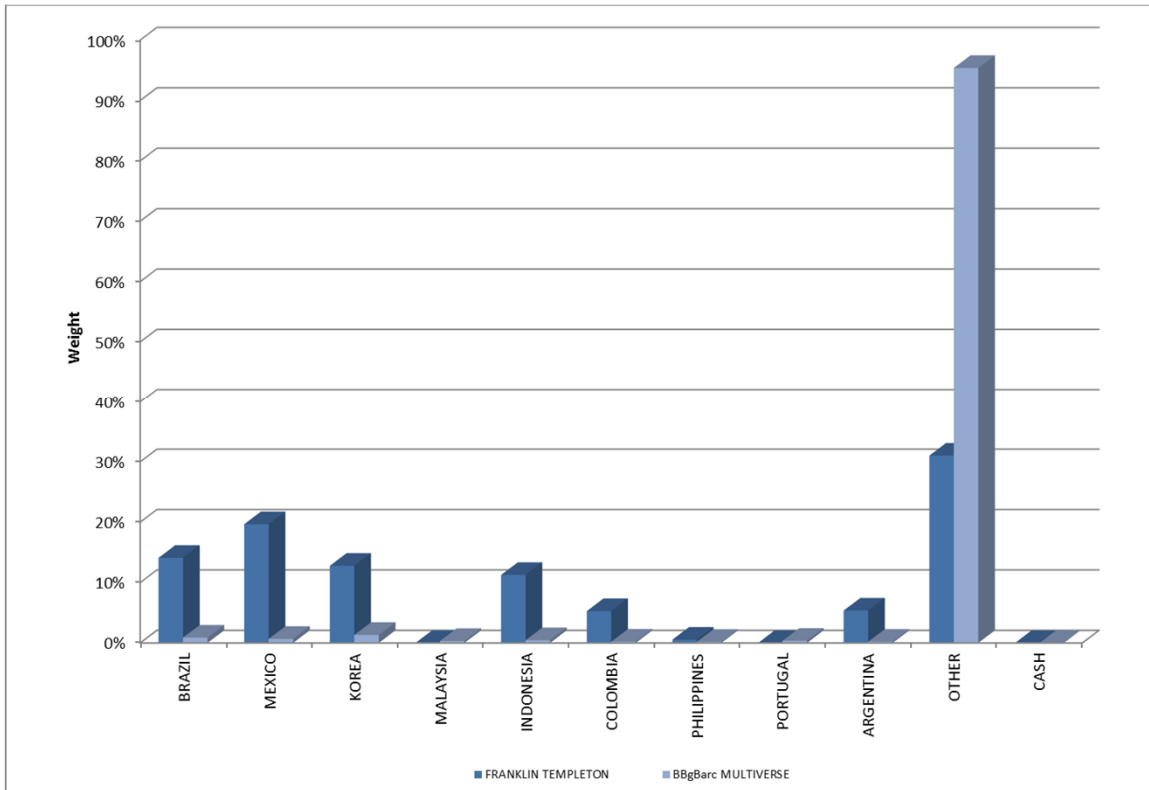
	Return (Rank)															
	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.5	3.7	9.5	13.9	7.4	6.9	7.8	8.4								
25th Percentile	0.9	3.0	7.9	11.5	6.3	5.8	7.1	7.7								
Median	0.5	2.4	7.1	10.2	5.6	5.2	6.5	7.2								
75th Percentile	0.3	1.9	6.1	8.6	5.0	4.7	5.9	6.7								
95th Percentile	0.0	1.2	3.9	5.6	3.8	3.8	4.9	5.7								
# of Portfolios	130	129	129	124	116	100	85	64								
● PIMCO Diversified	0.8 (31)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)								
▲ Blended PIMCO Diversified Index	0.8 (33)	2.6 (38)	7.3 (45)	8.5 (76)	5.6 (52)	4.5 (80)	6.2 (63)	6.7 (72)								



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	1.9	4.9	12.8	11.8	6.6	6.7	6.9	7.4
25th Percentile	1.2	3.3	9.3	8.6	4.7	4.3	5.2	6.1
Median	0.8	2.6	7.5	6.6	3.3	2.9	3.9	4.7
75th Percentile	0.4	2.0	5.8	4.6	2.1	1.2	2.4	3.3
95th Percentile	-0.4	0.7	2.9	2.7	0.8	-0.3	1.3	2.5
# of Portfolios	217	216	214	210	198	172	139	94
● Franklin Templeton	-1.3 (99)	-0.1 (99)	4.2 (89)	5.9 (61)	2.5 (69)	2.3 (58)	4.2 (45)	-- (--)
▲ BBgBarc Multiverse TR	1.1 (31)	3.0 (36)	7.7 (46)	5.2 (69)	2.3 (73)	1.0 (79)	2.2 (77)	3.3 (77)

Franklin Templeton
Portfolio Country Weights

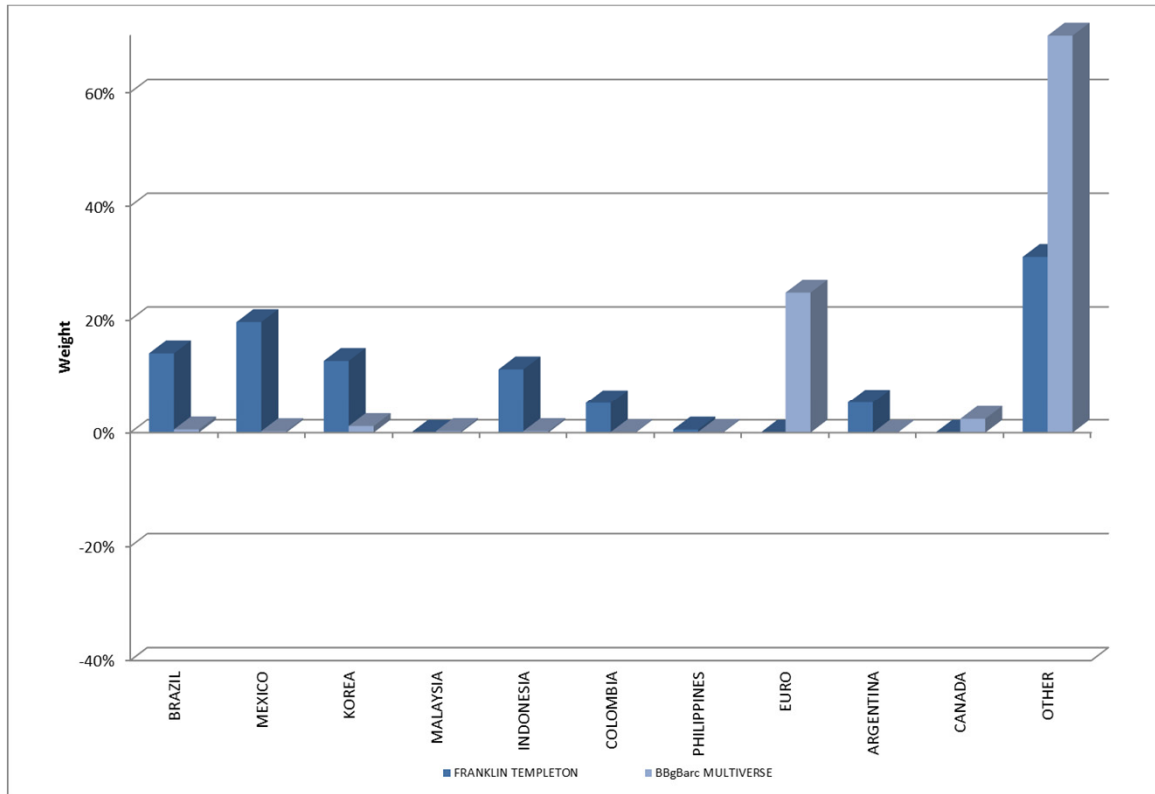
Period Ending: December 31, 2017



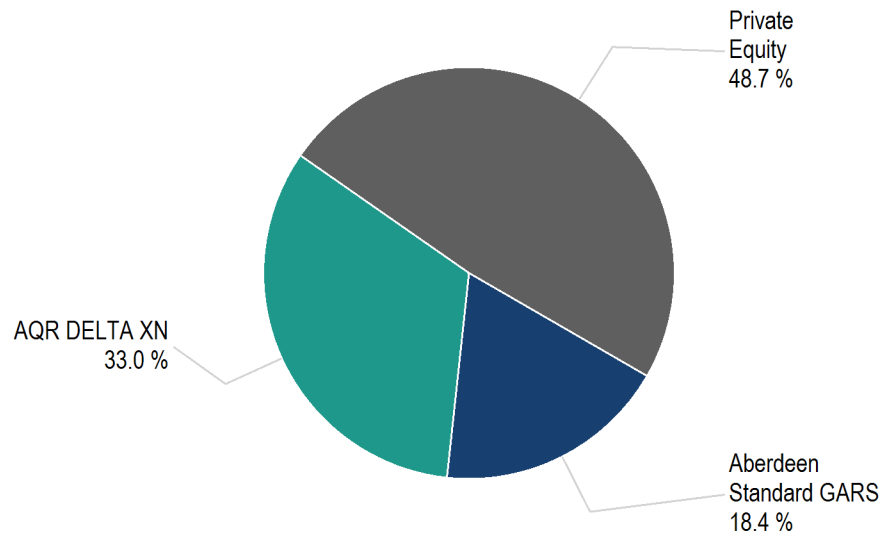
COUNTRY	MARKET VALUE	FRANKLIN TEMPLETON	BBgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,785	14.1%	0.9%	+13.2%
MEXICO	\$ 8,067	19.7%	0.7%	+19.0%
KOREA	\$ 5,241	12.8%	1.3%	+11.4%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,623	11.3%	0.5%	+10.8%
COLOMBIA	\$ 2,164	5.3%	0.2%	+5.1%
PHILIPPINES	\$ 223	0.5%	0.2%	+0.4%
PORTUGAL	\$ -	0.0%	0.4%	-0.4%
ARGENTINA	\$ 2,203	5.4%	0.2%	+5.2%
OTHER	\$ 12,732	31.0%	95.4%	-64.4%
CASH	\$ -	0.0%	0.0%	0.0%
TOTAL	\$ 41,039	100.0%	100.0%	0.0%

Franklin Templeton
Portfolio Currency Exposures

Period Ending: December 31, 2017



CURRENCY	MARKET VALUE	FRANKLIN TEMPLETON	BbgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,785	14.1%	0.6%	+13.5%
MEXICO	\$ 8,046	19.6%	0.3%	+19.3%
KOREA	\$ 5,241	12.8%	1.2%	+11.6%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,623	11.3%	0.3%	+11.0%
COLOMBIA	\$ 2,164	5.3%	0.1%	+5.2%
PHILIPPINES	\$ 223	0.5%	0.1%	+0.4%
EURO	\$ 4	0.0%	24.8%	-24.8%
ARGENTINA	\$ 2,203	5.4%	0.0%	+5.4%
CANADA	\$ -	0.0%	2.4%	-2.4%
OTHER	\$ 12,749	31.1%	70.0%	-39.0%
	\$ 41,039	100.0%	100.0%	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$92,124,752	18.4%	0.1%
AQR DELTA XN	\$165,396,333	33.0%	0.0%
Private Equity	\$244,037,279	48.7%	-2.9%
Actual vs. Policy Weight Difference			0.1%
Total	\$501,558,364	100.0%	-2.8%

Statistics Summary

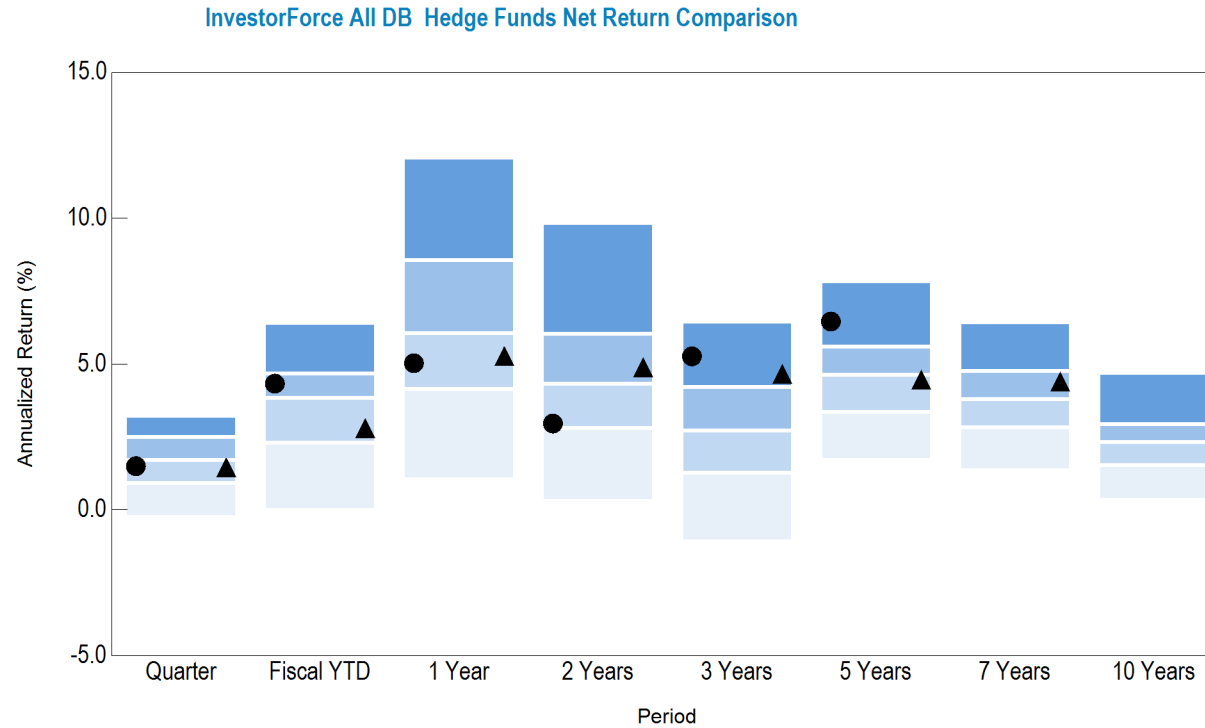
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	8.3%	5.2%	1.5	0.1	6.9%
Alternatives Allocation Index	7.4%	5.6%	1.3	--	0.0%
Private Equity	16.3%	9.6%	1.6	0.2	13.8%
Russell 3000 +3%	14.1%	10.0%	1.4	--	0.0%
Hedge Fund/Absolute Return	5.3%	4.5%	1.1	0.1	4.5%
Libor 1 month +4%	4.7%	0.2%	23.0	--	0.0%
AQR DELTA XN	5.8%	5.0%	1.1	0.2	5.0%
Libor 1 month +4%	4.7%	0.2%	23.0	--	0.0%

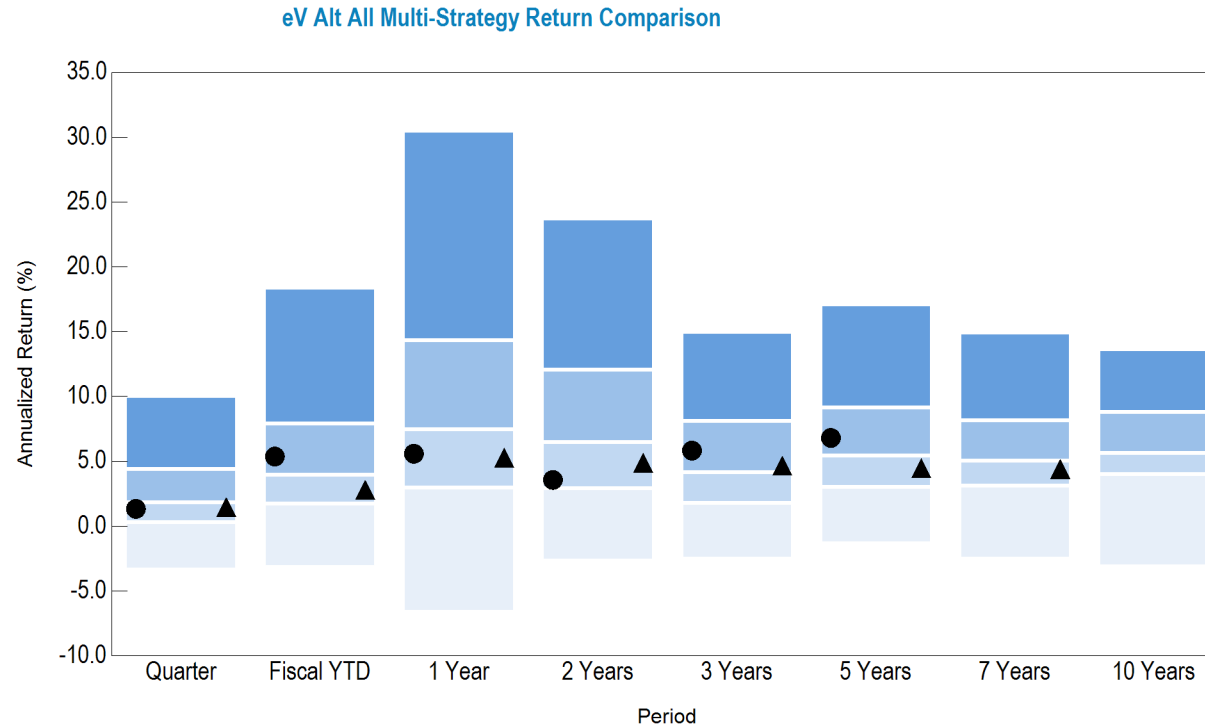
Statistics Summary

5 Years

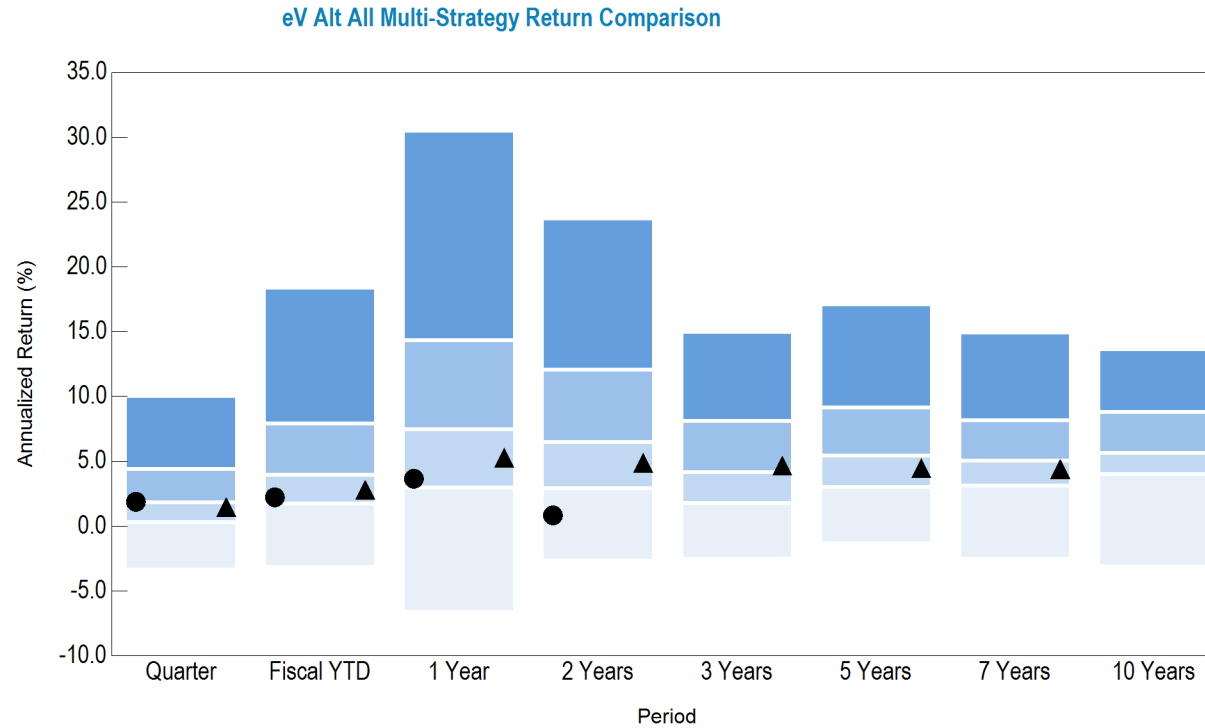
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	6.5%	5.2%	1.2	-0.2	6.2%
Alternatives Allocation Index	7.5%	5.4%	1.3	--	0.0%
Private Equity	15.9%	9.2%	1.7	-0.2	13.0%
Russell 3000 +3%	18.6%	9.6%	1.9	--	0.0%
Hedge Fund/Absolute Return	6.5%	4.6%	1.3	0.4	4.7%
Libor 1 month +4%	4.5%	0.2%	25.3	--	0.0%
AQR DELTA XN	6.8%	4.9%	1.3	0.5	4.9%
Libor 1 month +4%	4.5%	0.2%	25.3	--	0.0%



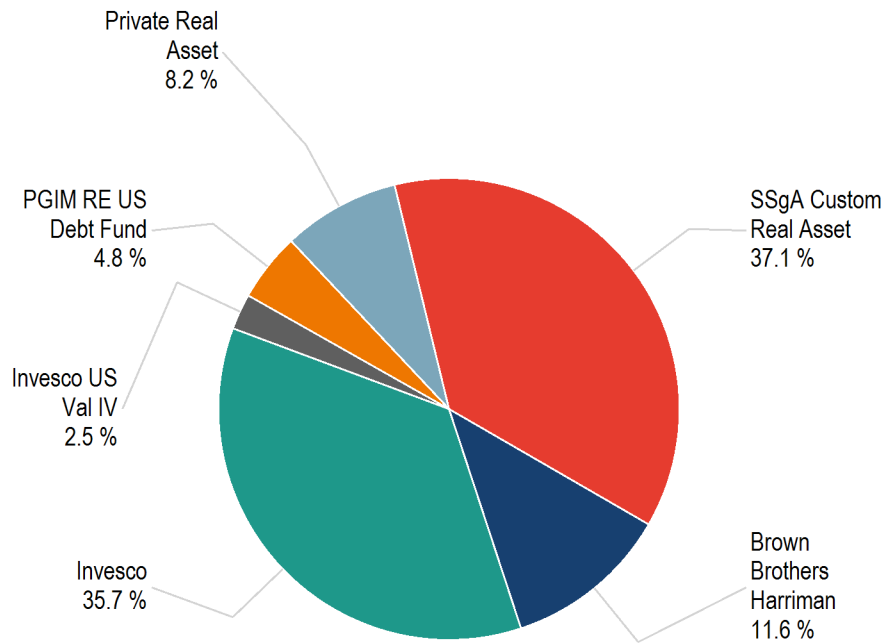
	Return (Rank)							
5th Percentile	3.2	6.4	12.1	9.8	6.4	7.8	6.4	4.7
25th Percentile	2.5	4.7	8.6	6.0	4.2	5.6	4.8	3.0
Median	1.7	3.8	6.1	4.3	2.7	4.7	3.8	2.3
75th Percentile	0.9	2.3	4.2	2.8	1.3	3.4	2.8	1.5
95th Percentile	-0.2	0.0	1.1	0.3	-1.1	1.7	1.4	0.4
# of Portfolios	227	227	224	218	212	194	168	91
● Hedge Fund/Absolute Return	1.5 (56)	4.3 (35)	5.0 (65)	3.0 (72)	5.3 (12)	6.5 (18)	-- (--)	-- (--)
▲ Libor 1 month +4%	1.5 (60)	2.8 (71)	5.3 (61)	4.9 (42)	4.7 (19)	4.5 (52)	4.4 (32)	-- (--)



	Return (Rank)							
5th Percentile	10.0	18.4	30.5	23.7	15.0	17.1	14.9	13.6
25th Percentile	4.4	7.9	14.4	12.1	8.1	9.2	8.2	8.9
Median	1.9	4.0	7.5	6.5	4.2	5.5	5.1	5.7
75th Percentile	0.3	1.7	3.0	3.0	1.8	3.1	3.1	4.1
95th Percentile	-3.3	-3.1	-6.6	-2.6	-2.5	-1.3	-2.5	-3.1
# of Portfolios	300	299	291	273	254	198	162	104
● AQR DELTA XN	1.3 (61)	5.4 (41)	5.6 (61)	3.6 (71)	5.8 (41)	6.8 (42)	-- (--)	-- (--)
▲ Libor 1 month +4%	1.5 (56)	2.8 (62)	5.3 (64)	4.9 (61)	4.7 (47)	4.5 (62)	4.4 (61)	-- (--)



	Return (Rank)							
5th Percentile	10.0	18.4	30.5	23.7	15.0	17.1	14.9	13.6
25th Percentile	4.4	7.9	14.4	12.1	8.1	9.2	8.2	8.9
Median	1.9	4.0	7.5	6.5	4.2	5.5	5.1	5.7
75th Percentile	0.3	1.7	3.0	3.0	1.8	3.1	3.1	4.1
95th Percentile	-3.3	-3.1	-6.6	-2.6	-2.5	-1.3	-2.5	-3.1
# of Portfolios	300	299	291	273	254	198	162	104
● Aberdeen Standard GARS	1.9 (50)	2.2 (69)	3.7 (73)	0.8 (86)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Libor 1 month +4%	1.5 (56)	2.8 (62)	5.3 (64)	4.9 (61)	4.7 (47)	4.5 (62)	4.4 (61)	-- (--)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Brown Brother Harriman	\$82,401,749	11.6%	0.0%
Invesco	\$253,388,704	35.7%	0.1%
Invesco US Val IV	\$17,874,138	2.5%	0.0%
PGIM RE US Debt Fund	\$34,423,116	4.8%	0.0%
Private Real Asset	\$58,217,389	8.2%	-0.5%
SSGA Custom Real Asset	\$263,683,074	37.1%	0.1%
Actual vs. Policy Weight Difference			0.0%
Total	\$709,988,170	100.0%	-0.4%

Statistics Summary

3 Years

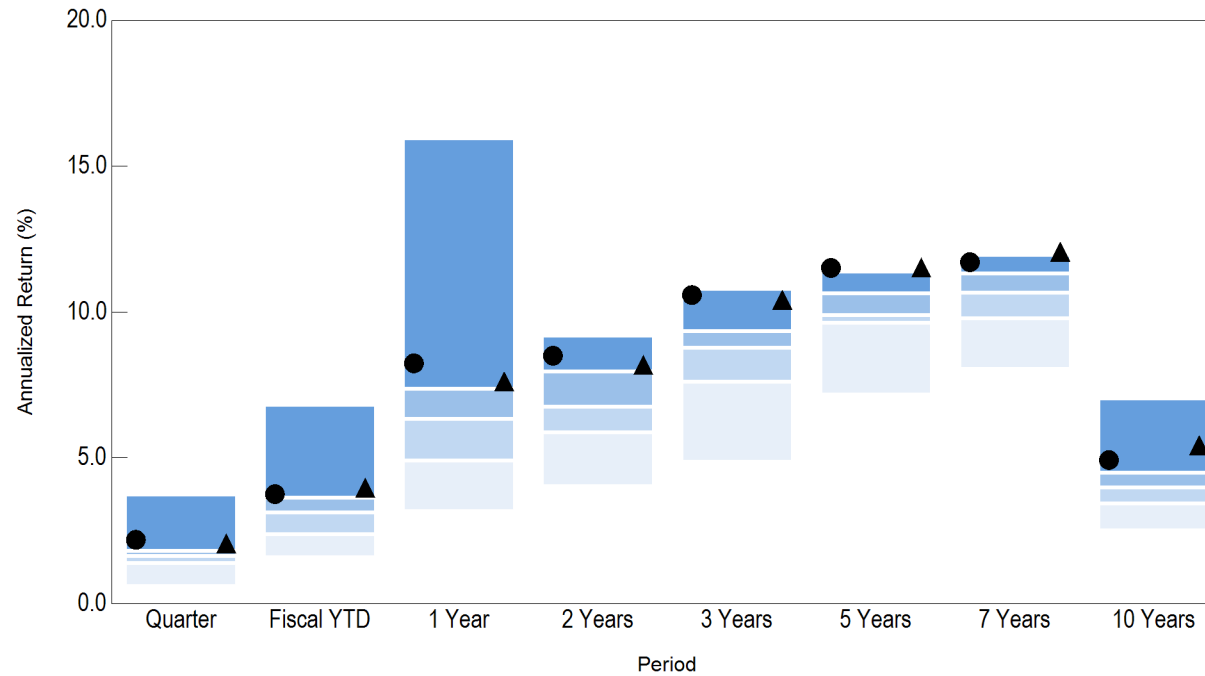
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Real Estate	10.58%	4.73%	2.15	0.11	1.45%
NCREIF ODCE	10.42%	4.44%	2.25	--	0.00%
Invesco	10.41%	4.68%	2.14	0.00	1.54%
NCREIF ODCE	10.42%	4.44%	2.25	--	0.00%
Private Real Asset	10.54%	26.83%	0.38	0.10	26.91%
Blended Real Asset Index	7.84%	3.44%	2.16	--	0.00%
TIPS	1.99%	2.51%	0.62	-0.04	1.46%
BBgBarc US TIPS TR	2.05%	3.51%	0.46	--	0.00%
Brown Brothers Harriman	1.99%	2.52%	0.62	-0.04	1.46%
BBgBarc US TIPS TR	2.05%	3.51%	0.46	--	0.00%

Statistics Summary

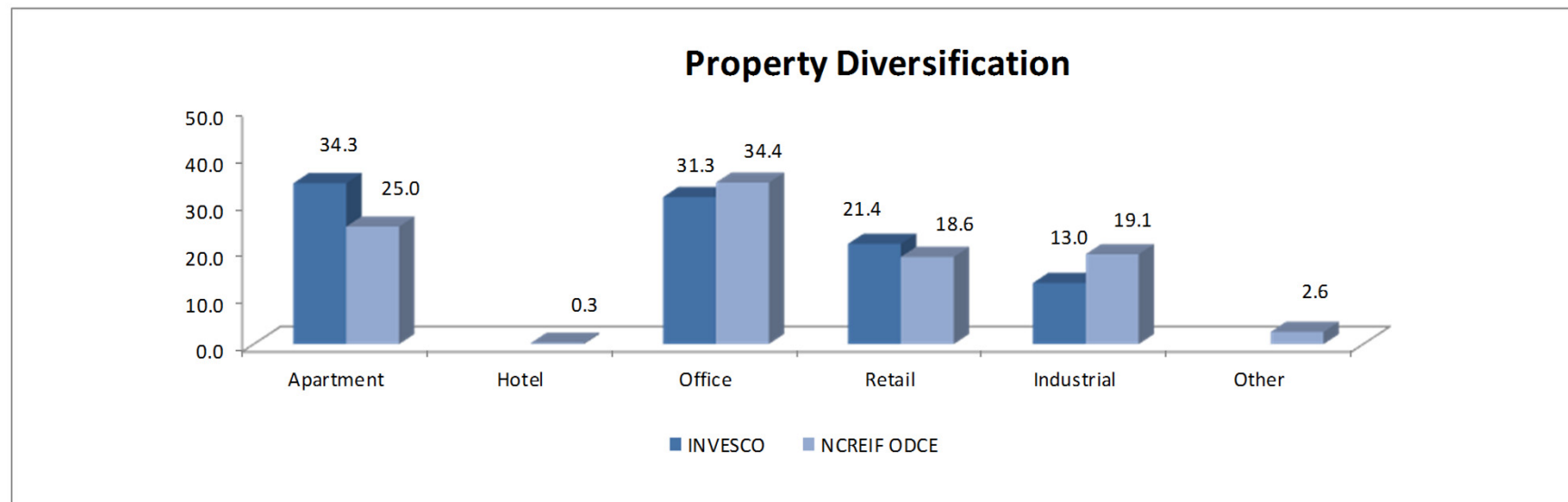
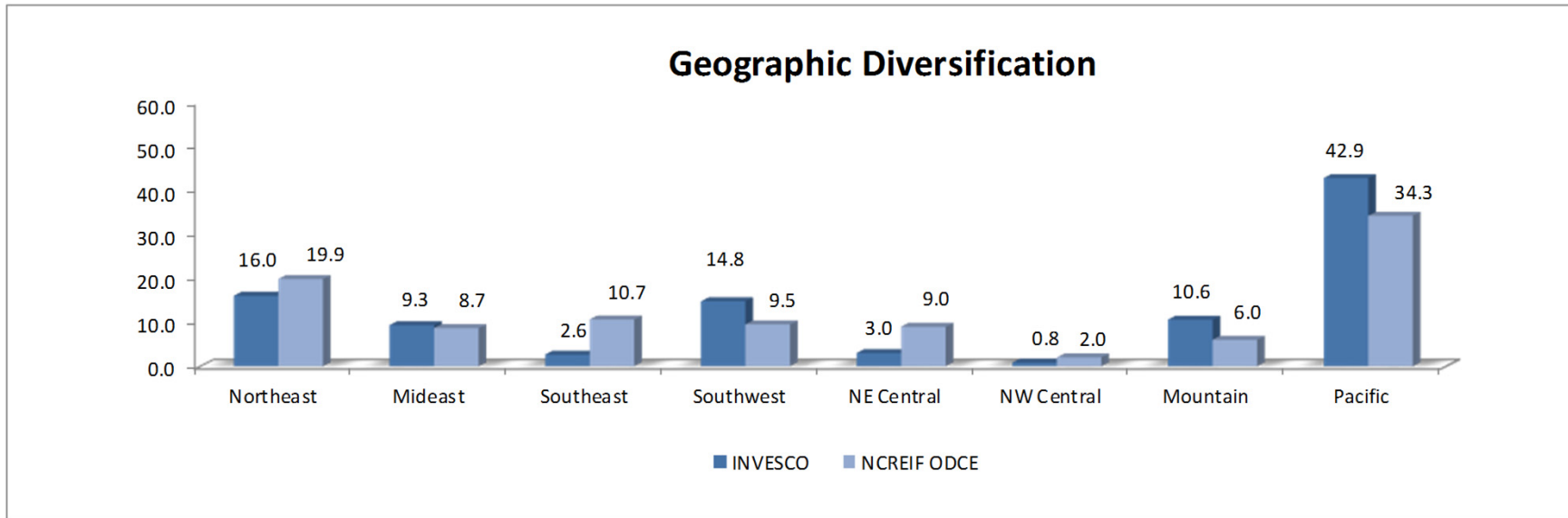
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	11.51%	4.99%	2.26	-0.01	27
NCREIF ODCE	11.53%	4.78%	2.35	--	1
Invesco	11.41%	4.96%	2.25	-0.08	--
NCREIF ODCE	11.53%	4.78%	2.35	--	--
TIPS	-0.35%	3.85%	-0.16	-0.37	--
BBgBarc US TIPS TR	0.13%	4.46%	-0.03	--	--
Brown Brothers Harriman	-0.35%	3.85%	-0.16	-0.37	60
BBgBarc US TIPS TR	0.13%	4.46%	-0.03	--	1

InvestorForce All DB Real Estate Pub Net Return Comparison



	Return (Rank)							
5th Percentile	3.7	6.8	16.0	9.2	10.8	11.4	12.0	7.0
25th Percentile	1.8	3.7	7.4	8.0	9.4	10.6	11.3	4.5
Median	1.6	3.2	6.3	6.8	8.8	9.9	10.7	4.0
75th Percentile	1.4	2.4	4.9	5.9	7.6	9.7	9.8	3.5
95th Percentile	0.6	1.6	3.2	4.0	4.9	7.2	8.1	2.5
# of Portfolios	73	73	72	72	70	62	55	42
● Real Estate	2.2 (14)	3.8 (21)	8.2 (12)	8.5 (12)	10.6 (7)	11.5 (5)	11.7 (12)	4.9 (18)
▲ NCREIF ODCE	2.1 (17)	4.0 (13)	7.6 (22)	8.2 (22)	10.4 (7)	11.5 (5)	12.1 (2)	5.4 (8)



INVESCO Core Real Estate
Real Estate Valuation Analysis

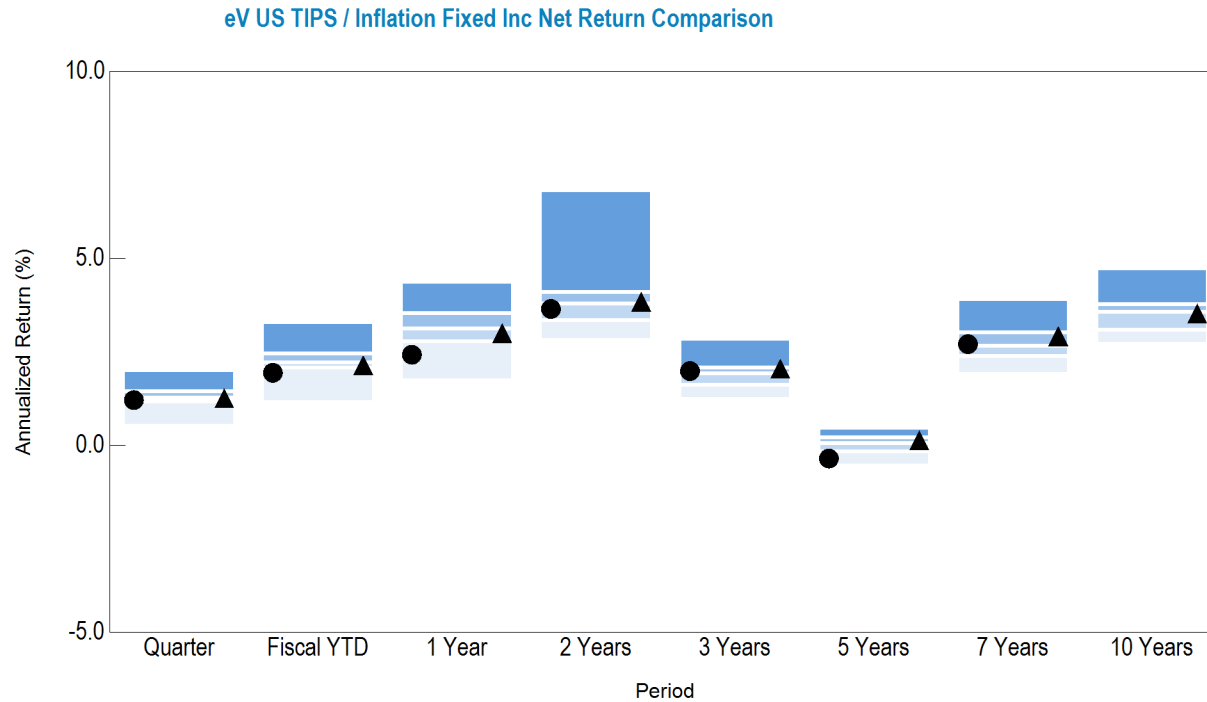
Period Ending: December 31, 2017

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 12/31/2017 2.82%
APARTMENTS							
Stoneridge Apartments	Pleasanton, CA	\$236,000,000	\$237,000,000	\$237,000,000	4Q06	December-17	\$6,685,723
Instrata Pentagon City	Arlington, VA	\$152,000,000	\$152,000,000	\$152,000,000	3Q10	December-17	\$4,287,890
Ladd Tower	Portland, OR	\$137,000,000	\$136,000,000	\$78,731,383	4Q10	December-17	\$2,220,997
Legacy Fountain Plaza	San Jose, CA	\$156,964,172	\$157,966,912	\$157,966,912	1Q11	December-17	\$4,456,215
Instrata Gramercy (fka The Elektra)	New York, NY	\$172,500,000	\$172,300,000	\$99,283,450	1Q11	December-17	\$2,800,766
Instrata Brooklyn Heights (fka 75 Clinton Street)	Brooklyn, NY	\$67,300,000	\$69,200,000	\$69,200,000	1Q12	December-17	\$1,952,118
The Artisan Laguna Beach	Orange County, CA	\$165,000,000	\$165,000,000	\$103,023,519	3Q12	December-17	\$2,906,273
The GoodWynn	Atlanta, GA	\$97,500,000	\$98,400,000	\$98,400,000	4Q12	December-17	\$2,775,844
Instrata Hell's Kitchen	New York, NY	\$189,000,000	\$194,000,000	\$194,000,000	1Q13	December-17	\$5,472,702
Sunset Vine Tower	Los Angeles, CA	\$97,100,000	\$98,000,000	\$98,000,000	2Q13	December-17	\$2,764,561
The Ashton	Dallas, TX	\$123,000,000	\$122,000,000	\$64,428,138	4Q13	December-17	\$1,817,505
The Pointe at Westchester	West Chester, PA	\$59,400,000	\$0	\$0	4Q13	Sold in Q417	\$0
206 Bell	Seattle, WA	\$48,500,000	\$48,700,000	\$48,700,000	4Q13	December-17	\$1,373,817
Cadence Union Station	Denver, CO	\$90,000,000	\$90,100,000	\$52,721,688	1Q14	December-17	\$1,487,268
Joseph Arnold Lofts	Seattle, WA	\$71,600,000	\$71,600,000	\$37,122,167	2Q14	December-17	\$1,047,209
Verve	Denver, CO	\$113,000,000	\$108,000,000	\$108,000,000	3Q14	December-17	\$3,046,659
Broadstone Little Italy	San Diego CA	\$121,000,000	\$121,000,000	\$67,434,811	3Q14	December-17	\$1,902,323
33 Tehama	San Francisco, CA	\$260,917,747	\$272,513,101	\$168,675,863	3Q14	December-17	\$4,758,313
The Parker	Portland, OR	\$67,000,000	\$66,000,000	\$33,746,610	1Q15	December-17	\$951,985
Legacy West Apartments	Plano, TX	\$111,520,438	\$113,950,008	\$82,525,248	1Q15	December-17	\$2,328,021
Village at Park Place	Irvine, CA	\$146,729,082	\$161,950,335	\$94,875,271	2Q15	December-17	\$2,676,413
Wheaton 121	Wheaton, IL	\$81,400,000	\$77,000,000	\$77,000,000	2Q15	December-17	\$2,172,155
Jefferson Marketplace	Washington, DC	\$153,000,000	\$154,000,000	\$83,292,894	4Q15	December-17	\$2,349,676
Retreat at Park Meadows	Littleton, CO	\$137,000,000	\$137,000,000	\$137,000,000	4Q15	December-17	\$3,864,743
North Water	Chicago, IL	\$264,000,000	\$265,000,000	\$265,000,000	1Q16	December-17	\$7,475,597
2270 Broadway	Oakland, CA	\$25,551,852	\$26,873,390	\$26,873,390	1Q16	December-17	\$758,093
Runway at Playa Vista -Apartments	Playa Vista, CA	\$163,770,000	\$163,770,012	\$100,302,508	1Q16	December-17	\$2,829,514
Clayton Lane Apartments	Denver, CO	\$35,564,159	\$36,716,851	\$36,716,851	1Q16	December-17	\$1,035,775
Biscayne 27	Miami, FL	\$42,307,897	\$50,493,109	\$49,669,615	2Q16	December-17	\$1,401,170
Flats 8300	Washington DC	\$231,000,000	\$236,000,000	\$132,500,000	2Q16	December-17	\$3,737,799
407 1st Ave	New York, NY	\$194,000,000	\$195,600,000	\$195,600,000	4Q16	December-17	\$5,517,837
5250 Park	Miami, FL	\$10,409,778	\$13,940,141	\$13,568,859	2Q17	December-17	\$382,775
The Mason	Pleasanton, CA	\$99,625,000	\$100,000,000	\$100,000,000	3Q17	December-17	\$2,820,980
		\$4,120,660,125	\$4,112,073,859	\$3,263,359,177			\$92,058,715
INDUSTRIAL							
Arjons Industrial Park	San Diego CA	\$41,300,000	\$42,700,000	\$42,700,000	2Q04	December-17	\$1,204,559
Gateway Business Park	Dallas TX	\$13,000,000	\$13,000,000	\$13,000,000	2Q04	December-17	\$366,727
Hayward Industrial	Oakland CA	\$185,100,000	\$187,600,000	\$187,600,000	3Q04-3Q07	December-17	\$5,292,159
Oakesdale Commerce Center	Seattle - Belle - Eve WA	\$54,700,000	\$55,700,000	\$55,700,000	1Q06	December-17	\$1,571,286
South Bay Industrial	Los Angeles, CA	\$56,200,000	\$56,300,000	\$56,300,000	4Q06	December-17	\$1,588,212
Steeplechase 95 International Business Park	Capitol Heights, MD	\$97,200,000	\$97,200,000	\$97,200,000	1Q11	December-17	\$2,741,993
Airport Trade Center Portfolio	Dallas, TX	\$130,500,000	\$130,900,000	\$130,900,000	1Q11	December-17	\$3,692,663
IE Logistics	San Bernardino, CA	\$133,100,000	\$147,500,000	\$147,500,000	3Q11	December-17	\$4,160,946
Railhead Drive Industrial	Dallas, TX	\$62,500,000	\$62,500,000	\$62,500,000	4Q11	December-17	\$1,763,113
Empire Gateway aka Chino South Logistics Center	Chino, CA	\$264,000,000	\$275,000,000	\$275,000,000	4Q12	December-17	\$7,757,695
SFO Logistics Center	San Francisco, CA	\$141,000,000	\$146,000,000	\$146,000,000	4Q13	December-17	\$4,118,631
Miami Industrial Portfolio	Various, FL	\$116,050,274	\$119,269,981	\$79,283,443	1Q16	December-17	\$2,236,570
OMP Burbank	Los Angeles, CA	\$73,788,384	\$74,234,521	\$74,234,521	2Q16	December-17	\$2,094,141
US Storage	Compton, CA	\$0	\$7,630,467	\$7,630,467	4Q17	Acquired in 4Q17	\$215,254
Pacific Commons	Freemont, CA	\$124,566,938	\$160,128,073	\$160,128,073	1Q17	December-17	\$4,517,181
		\$1,493,005,596	\$1,575,663,042	\$1,535,676,504			\$43,321,130

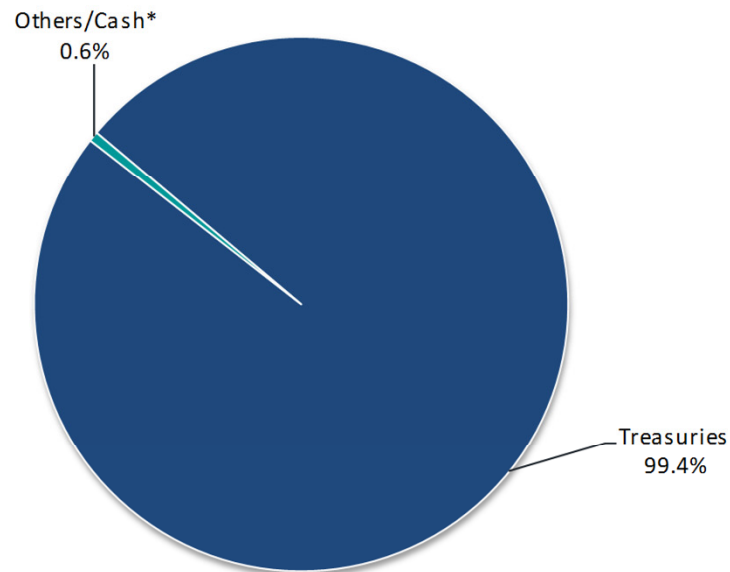
INVESCO Core Real Estate
Real Estate Valuation Analysis

Period Ending: December 31, 2017

OFFICE							
55 Cambridge Parkway	Boston MA - NH	\$286,000,000	\$291,000,000	\$291,000,000	4Q06	December-17	\$8,209,052
1111 Pennsylvania Avenue	Washington, D.C.	\$322,000,000	\$327,000,000	\$327,000,000	4Q10	December-17	\$9,224,605
1800 Larimer	Denver, CO	\$327,000,000	\$327,000,000	\$327,000,000	1Q11	December-17	\$9,224,605
Hillview Office	San Jose, CA	\$79,500,000	\$80,100,000	\$80,100,000	3Q12	December-17	\$2,259,605
Williams Tower	Houston, TX	\$590,000,000	\$594,000,000	\$409,864,136	1Q13	December-17	\$11,562,186
Westlake Park Place	Westlake Village, CA	\$112,000,000	\$112,000,000	\$112,000,000	4Q13	December-17	\$3,159,498
101 Second	San Francisco, CA	\$408,000,000	\$415,000,000	\$415,000,000	1Q14	December-17	\$11,707,068
Energy Crossing II	Houston, TX	\$101,300,000	\$103,700,000	\$103,700,000	2Q14	December-17	\$2,925,356
1776 Wilson Blvd.	Arlington, VA	\$90,200,000	\$90,400,000	\$90,400,000	3Q14	December-17	\$2,550,166
631 Howard	San Francisco, CA	\$90,600,000	\$92,000,000	\$92,000,000	3Q14	December-17	\$2,595,302
Barton Oaks	Austin, TX	\$88,600,000	\$91,500,000	\$91,500,000	3Q14	December-17	\$2,581,197
Hercules East and South Campus	Los Angeles, CA	\$168,308,406	\$176,532,387	\$176,532,387	3Q14	December-17	\$4,979,944
The Reserve	Playa Vista, CA	\$367,778,942	\$371,739,709	\$371,739,709	1Q15	December-17	\$10,486,703
Fort Point Portfolio	Boston, MA	\$232,288,247	\$239,421,743	\$239,421,743	2Q15	December-17	\$6,754,040
Legacy West Office	Plano, TX	\$76,634,009	\$87,182,740	\$40,182,403	1Q15	December-17	\$1,133,538
Summit IV	Aliso Viejo, CA	\$123,000,000	\$123,000,000	\$84,722,025	2Q15	December-17	\$2,389,992
1101 Westlake	Seattle, WA	\$121,000,000	\$127,000,000	\$127,000,000	3Q15	December-17	\$3,582,645
PearlWest	Boulder, CO	\$121,000,000	\$120,000,000	\$120,000,000	4Q16	December-17	\$3,385,176
		\$3,705,209,604	\$3,768,576,579	\$3,499,162,403			\$98,710,678
RETAIL							
Chandler Pavilion	Phoenix - Mesa AZ	\$24,000,000	\$23,900,000	\$23,900,000	2Q04	December-17	\$674,214
Cityline at Tenley	Washington, D.C.	\$63,700,000	\$65,000,000	\$65,000,000	4Q05	December-17	\$1,833,637
Ridgehaven Shopping Center	Minnetonka, MN	\$42,300,000	\$42,300,000	\$42,300,000	4Q05	December-17	\$1,193,275
The Beacon Retail	San Francisco, CA	\$68,430,894	\$68,430,894	\$68,430,894	1Q06	December-17	\$1,930,422
The Beacon Garage (units)	San Francisco, CA	\$36,069,106	\$36,069,106	\$36,069,106	1Q06	December-17	\$1,017,502
The Beacon Office (210 King)	San Francisco, CA	\$25,300,000	\$25,500,000	\$25,500,000	1Q15	December-17	\$719,350
Hawthorne Plaza	Overland Park, KS	\$51,525,000	\$51,525,000	\$51,525,000	4Q07	December-17	\$1,453,510
The Loop	Boston MA - NH	\$89,000,000	\$89,000,000	\$89,000,000	1Q08	December-17	\$2,510,672
Westbank Market	Austin, TX	\$62,000,000	\$61,700,000	\$61,700,000	3Q10	December-17	\$1,740,545
Lake Pointe Village	Houston, TX	\$79,350,000	\$83,650,000	\$83,650,000	4Q11	December-17	\$967,596
Safeway Kapahulu	Hawaii	\$91,400,000	\$94,900,000	\$58,568,989	4Q11	December-17	\$1,652,220
Safeway Burlingame	San Francisco, CA	\$58,600,000	\$58,700,000	\$35,902,686	4Q11	December-17	\$1,012,808
Shamrock Plaza	Oakland, CA	\$39,600,000	\$40,600,000	\$24,315,050	4Q11	December-17	\$685,923
Pavilions Marketplace	West Hollywood, CA	\$67,600,000	\$69,900,000	\$45,123,935	1Q12	December-17	\$1,272,937
130 Prince	New York, NY	\$217,000,000	\$217,000,000	\$217,000,000	2Q12	December-17	\$6,121,527
Safeway Pleasanton	Pleasanton, CA	\$82,800,000	\$83,200,000	\$83,200,000	4Q12	December-17	\$2,347,056
Liberty Wharf	Boston, MA	\$94,500,000	\$97,100,000	\$67,199,142	4Q12	December-17	\$1,895,674
Shops at Legacy	Plano, TX	\$110,690,478	\$117,547,410	\$117,547,410	3Q13	December-17	\$3,315,989
Pasadena Commons	Pasadena, CA	\$60,300,000	\$61,200,000	\$61,200,000	4Q14	December-17	\$1,726,440
Rush Street Retail	Chicago, IL	\$16,400,000	\$16,700,000	\$16,700,000	4Q14	December-17	\$471,104
Legacy West Retail	Plano, TX	\$184,575,429	\$191,902,109	\$144,901,772	1Q15	December-17	\$4,087,650
Legacy West Land	Plano, TX	\$917,929	\$917,929	\$917,929	2Q17	December-17	\$25,895
131-137 Spring Street	New York, NY	\$237,294,192	\$235,667,973	\$123,026,671	3Q15	December-17	\$3,470,558
Runway at Playa Vista - Retail	Playa Vista, CA	\$122,430,000	\$122,960,009	\$60,552,505	1Q16	December-17	\$1,708,174
139 Spring	New York, NY	\$126,924,800	\$126,924,800	\$126,924,800	1Q16	December-17	\$3,580,523
Clayton Lane	Denver, CO	\$142,088,956	\$141,644,611	\$95,009,240	1Q16	December-17	\$2,680,192
4th & Colorado	Santa Monica, CA	\$13,280,000	\$13,280,000	\$13,280,000	1Q16	December-17	\$374,626
Legacy West - Block H	Plano, TX	\$4,236,570	\$4,832,913	\$4,832,913	4Q17	December-17	\$136,336
Shops at Crystals	Las Vegas, NV	\$290,000,000	\$290,250,000	\$152,599,597	2Q16	December-17	\$4,304,804
		\$2,563,547,726	\$2,566,602,754	\$2,030,177,639			\$56,651,704
Portfolio Total		\$11,882,423,051	\$12,022,916,234	\$10,328,375,723			\$290,742,226



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	2.0	3.3	4.4	6.8	2.8	0.5	3.9	4.7
25th Percentile	1.5	2.5	3.5	4.1	2.1	0.2	3.0	3.8
Median	1.3	2.2	3.1	3.8	1.9	0.1	2.7	3.6
75th Percentile	1.2	2.1	2.8	3.4	1.6	-0.2	2.4	3.1
95th Percentile	0.5	1.2	1.7	2.8	1.2	-0.5	1.9	2.7
# of Portfolios	20	20	20	20	18	17	15	11
● Brown Brothers Harriman	1.2 (72)	1.9 (85)	2.4 (81)	3.6 (65)	2.0 (48)	-0.4 (81)	2.7 (48)	-- (--)
▲ BBgBarc US TIPS TR	1.3 (64)	2.1 (68)	3.0 (57)	3.8 (49)	2.0 (36)	0.1 (38)	2.9 (31)	3.5 (57)



Sector	Account Weight	BBgBarc TIPS	
		Index	Difference
Treasuries	99.4%	100.0%	-0.6%
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*	0.6%	0.0%	0.6%
TOTAL	100.0%	100.0%	0.0%

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

Brown Brothers Harriman
Bond Summary Statistics

Period Ending: December 31, 2017

Portfolio Characteristics		Portfolio
Total Number of Securities		11
Total Market Value	\$	82,401,749
Current Coupon		1.04
Yield to Maturity		0.34
Average Life		
Duration		7.10
Quality		GOV

BBgBarc TIPS	
Total Number of Securities	38
Total Market Value	N/A
Current Coupon	0.78
Yield to Maturity	0.34
Average Life	
Duration	5.84
Quality	AAA

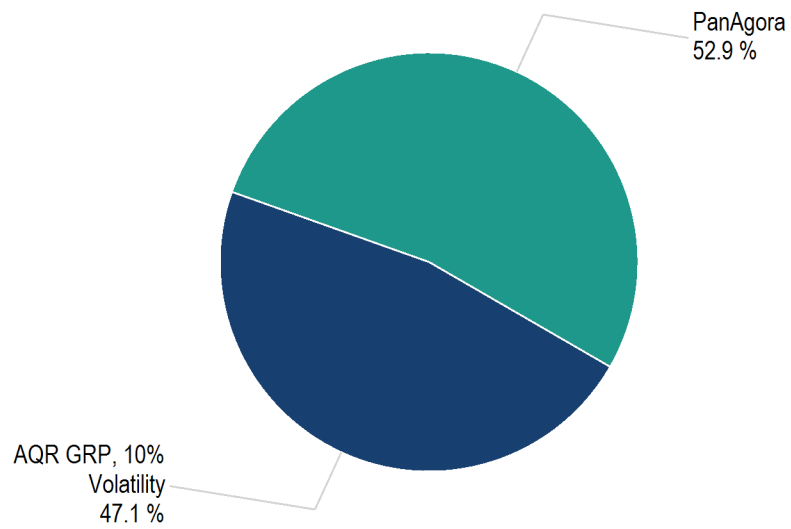
Yield to Maturity	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.0
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 3.0	27.7
3.0 - 5.0	13.6
5.0 - 10.0	42.5
10.0- 15.0	4.4
15.0+	11.9
Unclassified	0.0

Duration	
Range	% Held
0.0 - 3.0	27.7
3.0 - 5.0	13.6
5.0 - 10.0	42.5
10.0- 15.0	4.4
15.0+	11.9
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	99.4
Aaa (10)	0.0
Aa (9)	0.0
A (8)	0.0
Baa (7)	0.0
Below Baa (6-1)	0.0
Other	0.6

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	\$149,012,863	47.1%	0.5%
PanAgora	\$167,203,489	52.9%	0.4%
Actual vs. Policy Weight Difference			0.0%
Total	\$316,216,352	100.0%	0.9%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	6.3%	7.8%	0.8	-0.2	6.5%
Blended Risk Parity Index	7.8%	6.0%	1.2	--	0.0%
AQR GRP, 10% Volatility	5.2%	7.6%	0.6	-0.4	6.2%
Blended Risk Parity Index	7.8%	6.0%	1.2	--	0.0%
PanAgora	7.4%	8.5%	0.8	-0.1	7.4%
Blended Risk Parity Index	7.8%	6.0%	1.2	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	5.5%	8.6%	0.6	-0.7	6.8%
Blended Risk Parity Index	10.2%	5.8%	1.7	--	0.0%
AQR GRP, 10% Volatility	4.1%	8.6%	0.4	-0.9	6.7%
Blended Risk Parity Index	10.2%	5.8%	1.7	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	6.3%	7.8%	0.8	-0.2	6.5%
Blended Risk Parity Index	7.8%	6.0%	1.2	--	0.0%
AQR GRP, 10% Volatility	5.2%	7.6%	0.6	-0.4	6.2%
Blended Risk Parity Index	7.8%	6.0%	1.2	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	5.5%	8.6%	0.6	-0.7	6.8%
Blended Risk Parity Index	10.2%	5.8%	1.7	--	0.0%
AQR GRP, 10% Volatility	4.1%	8.6%	0.4	-0.9	6.7%
Blended Risk Parity Index	10.2%	5.8%	1.7	--	0.0%

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	3.3	6.7	14.9	11.7	8.0	9.5	5.7
<i>Policy Index</i>	3.8	7.7	15.6	12.2	7.9	9.4	6.1
<i>Allocation Index</i>	3.8	7.6	15.4	12.0	7.8	9.3	--
Total Fund ex Overlay	3.3	6.7	14.8	11.6	7.9	9.4	5.6
<i>Policy Index</i>	3.8	7.7	15.6	12.2	7.9	9.4	6.1
<i>Allocation Index</i>	3.8	7.6	15.4	12.0	7.8	9.3	--
Public Equity	5.3	10.8	23.9	15.9	10.3	12.8	6.1
<i>Blended Public Equity Index</i>	5.9	11.6	24.3	16.8	10.3	12.5	6.5
US Equity	5.9	11.4	21.4	16.4	11.2	15.3	8.3
<i>Blended US Equity Index</i>	6.3	11.2	21.1	17.0	11.0	15.4	8.7
<i>Russell 3000</i>	6.3	11.2	21.1	16.9	11.1	15.6	8.6
Large Cap Equity	6.5	11.9	24.3	17.4	12.3	16.2	8.5
<i>Russell 1000</i>	6.6	11.4	21.7	16.8	11.2	15.7	8.6
<i>BlackRock Russell 1000</i>	6.6	11.4	--	--	--	--	--
<i>DE Shaw</i>	6.4	14.5	25.9	20.2	14.7	17.9	--
<i>Russell 1000</i>	6.6	11.4	21.7	16.8	11.2	15.7	8.6
Small Cap Equity	2.3	8.4	13.1	15.6	8.2	13.0	8.0
<i>Russell 2000</i>	3.3	9.2	14.6	17.9	10.0	14.1	8.7
<i>QMA US Small Cap</i>	2.3	8.4	13.1	--	--	--	--
<i>Russell 2000</i>	3.3	9.2	14.6	17.9	10.0	14.1	8.7
International Equity	4.5	10.1	27.4	14.9	8.9	8.0	1.5
<i>MSCI ACWI ex US IMI</i>	5.2	11.9	28.3	16.0	8.8	7.6	2.5
<i>MSCI EAFE Gross</i>	4.3	10.0	25.6	12.9	8.3	8.4	2.4
Developed Markets	4.4	9.8	27.2	14.3	9.0	8.6	1.8
<i>MSCI ACWI ex USA Gross</i>	5.1	11.6	27.8	15.8	8.3	7.3	2.3
<i>Baillie Gifford</i>	5.0	10.4	32.2	15.6	10.9	10.4	--
<i>MSCI ACWI ex US</i>	5.1	11.6	27.8	15.8	8.3	8.6	--
<i>MSCI ACWI ex US Growth</i>	5.8	12.6	32.5	15.4	9.7	9.6	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock EAFE Index	4.3	10.0	25.5	12.9	8.2	--	--
<i>MSCI EAFE</i>	4.2	9.9	25.0	12.4	7.8	7.9	1.9
<i>MSCI EAFE Gross</i>	4.3	10.0	25.6	12.9	8.3	8.4	2.4
Mondrian	4.1	9.3	23.4	13.9	7.2	7.2	2.3
<i>MSCI ACWI ex USA Value Gross</i>	4.3	10.7	23.3	16.3	6.9	6.2	1.8
<i>MSCI ACWI ex USA Gross</i>	5.1	11.6	27.8	15.8	8.3	7.3	2.3
Emerging Markets	5.2	12.5	28.5	20.7	7.3	4.0	--
<i>MSCI Emerging Markets Gross</i>	7.5	16.1	37.8	24.0	9.5	4.7	2.0
Parametric Core	5.2	12.5	28.5	20.7	--	--	--
<i>MSCI Emerging Markets Gross</i>	7.5	16.1	37.8	24.0	9.5	4.7	2.0
Fixed Income	0.6	1.8	5.9	7.2	4.5	3.8	5.5
<i>Blended Fixed Income Index</i>	0.4	1.7	4.9	5.2	3.3	2.2	4.3
Core Fixed	0.4	1.5	4.8	4.9	3.3	3.0	4.8
<i>BBgBarc US Aggregate TR</i>	0.4	1.2	3.5	3.1	2.2	2.1	4.0
BlackRock Intermediate Govt	-0.4	0.0	--	--	--	--	--
<i>BBgBarc US Govt Int TR</i>	-0.4	-0.1	1.1	1.1	1.1	0.9	2.7
FIAM Bond	0.5	1.6	4.3	4.4	3.0	2.8	5.0
Western TRU	1.5	3.6	9.7	7.8	--	--	--
<i>3-Month Libor Total Return USD</i>	0.4	0.7	1.3	1.0	0.8	0.6	0.8
<i>BBgBarc US Aggregate TR</i>	0.4	1.2	3.5	3.1	2.2	2.1	4.0
Opportunistic Credit	1.1	2.8	9.0	12.5	7.8	8.4	--
<i>BBgBarc BA Intermediate HY</i>	0.1	1.9	6.3	9.0	5.7	3.8	--
Angelo Gordon Opportunistic	11.1	10.4	19.9	14.0	9.9	--	--
Angelo Gordon STAR	3.1	8.0	19.1	13.4	11.0	13.8	--
<i>BBgBarc US Aggregate TR</i>	0.4	1.2	3.5	3.1	2.2	2.1	4.0
Beach Point Select	1.8	3.9	8.5	12.8	--	--	--
<i>BBgBarc BA Intermediate HY</i>	0.1	1.9	6.3	9.0	5.7	3.8	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Brigade Capital	0.3	1.7	7.6	15.4	6.3	5.4	--
<i>BBgBarc BA Intermediate HY</i>	0.1	1.9	6.3	9.0	5.7	3.8	--
<i>50% Barclays HY/ 50% Bank Loan</i>	0.8	2.3	5.9	9.6	5.4	5.1	--
PIMCO Diversified	0.8	--	--	--	--	--	--
<i>Blended PIMCO Diversified Index</i>	0.8	2.6	7.3	8.5	5.6	4.5	6.7
<i>BBgBarc BA Intermediate HY</i>	0.1	1.9	6.3	9.0	5.7	3.8	--
Franklin Templeton	-1.3	-0.1	4.2	5.9	2.5	2.4	--
<i>BBgBarc Multiverse TR</i>	1.1	3.0	7.7	5.2	2.3	1.0	3.3
Private Credit	3.2	4.3	8.2	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.0	4.0	8.6	9.9	8.4	9.5	--
TCP Direct Lending VIII	4.7	6.6	10.7	--	--	--	--
White Oak Yield	0.5	-1.0	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.0	4.0	8.6	9.9	8.4	9.5	--
Risk Parity	4.5	8.4	14.8	13.4	6.3	5.6	--
<i>Blended Risk Parity Index</i>	3.6	6.9	14.3	11.5	7.8	10.2	--
AQR GRP, 10% Volatility	4.7	9.4	16.1	13.3	5.2	4.2	--
PanAgora	4.4	7.5	13.8	13.5	7.4	--	--
<i>Blended Risk Parity Index</i>	3.6	6.9	14.3	11.5	7.8	10.2	--
<i>Blended RP Secondary Index</i>	3.9	7.1	13.8	10.0	6.6	8.2	--
Alternatives	1.5	3.2	9.6	9.4	8.3	6.5	--
<i>Alternatives Allocation Index</i>	4.3	8.0	14.7	12.6	7.4	7.5	--
<i>Blended Alternatives Index</i>	4.5	8.2	15.2	13.0	7.8	9.2	--
Private Equity	1.4	2.1	13.6	14.1	16.3	15.9	--
<i>Russell 3000 +3%</i>	7.1	13.1	24.1	19.9	14.1	18.6	11.7
Hedge Fund/Absolute Return	1.5	4.3	5.0	3.0	5.3	6.5	--
<i>Libor 1 month +4%</i>	1.5	2.8	5.3	4.9	4.7	4.5	--
AQR DELTA XN	1.3	5.4	5.6	3.6	5.8	6.8	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2017

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Aberdeen Standard GARS	1.9	2.2	3.7	0.8	--	--	--
Libor 1 month +4%	1.5	2.8	5.3	4.9	4.7	4.5	--
Inflation Hedge	2.7	5.1	8.5	--	--	--	--
Blended Inflation Pool Index	3.0	6.3	9.0	--	--	--	--
Real Estate	2.3	4.0	8.7	8.9	11.0	11.9	5.4
NCREIF ODCE	2.1	4.0	7.6	8.2	10.4	11.5	5.4
Invesco	2.3	3.8	8.5	8.9	10.8	11.8	5.3
NCREIF ODCE	2.1	4.0	7.6	8.2	10.4	11.5	5.4
Invesco US Val IV	2.1	7.8	12.9	10.5	--	--	--
NCREIF ODCE	2.1	4.0	7.6	8.2	10.4	11.5	5.4
NCREIF CEVA 1Q Lag - NET	3.0	5.7	10.2	11.6	13.4	--	--
PGIM RE US Debt Fund	2.5	--	--	--	--	--	--
NCREIF ODCE	2.1	4.0	7.6	8.2	10.4	11.5	5.4
Private Real Asset	-2.5	-5.5	-2.8	18.6	12.5	--	--
Blended Real Asset Index	4.4	9.7	12.5	9.4	7.8	--	--
Liquid Pool	4.7	10.5	14.2	--	--	--	--
Blended Real Asset Index	4.4	9.7	12.5	9.4	7.8	--	--
SSgA Custom Real Asset	4.7	10.5	14.2	--	--	--	--
Blended Real Asset Index	4.4	9.7	12.5	9.4	7.8	--	--
TIPS	1.2	2.0	2.6	3.8	2.2	-0.2	--
BBgBarc US TIPS TR	1.3	2.1	3.0	3.8	2.0	0.1	3.5
Brown Brothers Harriman	1.2	2.0	2.6	3.8	2.2	-0.2	--
BBgBarc US TIPS TR	1.3	2.1	3.0	3.8	2.0	0.1	3.5
Cash	0.3	0.5	0.9	0.9	1.0	0.8	0.6
91 Day T-Bills	0.3	0.6	0.9	0.6	0.4	0.3	0.3
General Account	0.7	1.2	1.8	1.4	1.6	1.1	0.9
Treasury & LAIF	0.2	0.5	1.1	1.0	0.9	0.8	0.6
91 Day T-Bills	0.3	0.6	0.9	0.6	0.4	0.3	0.3

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.

PGIM RE Debt

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

PIMCO Diversified

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

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 Aberdeen Global Absolute Return Strategy (GARS)

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

State Street Global Advisors (SSgA) Custom Real Asset

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

Tennenbaum Capital Partners - TCP Direct Lending Fund VIII

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

Western Asset Management – Total Return Unconstrained (TRU)

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

White Oak - White Oak Yield Spectrum Fund

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

Policy Index and Benchmark History

Period Ending: December 31, 2017

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

Policy Index and Benchmark History

Period Ending: December 31, 2017

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

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

International Equity Benchmark	As of:			
	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%

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

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

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

Policy Index and Benchmark History

Period Ending: December 31, 2017

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%	0.0%
S&P Global Large-MidCap Commodity and Resource	14.44%	11.8%	0.0%
S&P Global Infrastructure	14.44%	11.8%	0.0%
NCREIF ODCE	43.75%	50.0%	50.0%
	100.0%	100.0%	100.0%

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 Resource	33.00%	0.0%
S&P Global Infrastructure	33.00%	0.0%
CPI + 5%	0.00%	100.0%
	100.0%	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%	

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

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

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

Fee Schedule

Period Ending: December 31, 2017

Baillie Gifford

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

BlackRock-EAFE Equity Index Fund

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

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

BlackRock-Intermediate Govt Bond Index Fund

On All Assets:	0.04% per annum
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Brown Brothers Harriman

On All Assets:	0.15% per annum
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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

Parametric

On All Assets:	0.30% per annum
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PIMCO Diversified

On All Assets:	0.75% per annum
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QMA

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

Western Asset Management

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

Mondrian Investment Partners

Assets Below \$190 million

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

Assets Above \$190 million

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

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

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

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

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

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

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

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

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

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2017

	Oct	Nov	Dec	4th Qtr. 2017	Difference	3rd Qtr. 2017	Difference	2nd Qtr. 2017	Difference	1st Qtr. 2017	Difference	4th Qtr. 2016	Difference
Verus	2.29%	3.05%	1.11%	6.58%		4.49%		3.07%					
BlackRock Russell 1000	2.29%	3.05%	1.12%	6.59%	-0.01%	4.49%	0.00%	3.07%					
Russell 1000 Index	2.29%	0.32%	2.22%	4.90%		4.48%		3.07%					
Verus	2.53%	2.83%	0.90%	6.38%		7.60%		2.79%		7.02%		3.76%	
D.E. Shaw	2.54%	2.83%	0.90%	6.39%	-0.01%	7.60%	0.00%	2.79%	0.00%	7.02%	0.00%	3.76%	0.00%
Russell 1000 Index	2.29%	0.32%	2.22%	4.90%		4.48%		3.07%		6.02%		3.83%	
Verus	0.75%	1.89%	-0.31%	2.34%		5.94%		1.82%		2.46%		10.64%	
QMA US Small Cap (Net)	0.75%	1.89%	-0.31%	2.34%	0.00%	5.95%	-0.01%	1.82%	0.00%	2.46%	0.00%	10.64%	-0.01%
Russell 2000 Index	0.85%	2.88%	-0.40%	3.34%		5.67%		2.46%		2.47%		8.83%	
Verus	2.45%	0.56%	1.87%	4.95%		5.14%		8.83%		10.12%		-7.01%	
Baillie Gifford	2.45%	0.55%	1.85%	4.92%	0.03%	5.12%	0.02%	8.80%	0.03%	10.07%	0.01%	-7.01%	0.00%
MSCI ACWI ex US	1.89%	0.83%	2.27%	5.06%		6.25%		5.99%		7.98%		-1.20%	
MSCI ACWI ex US Growth	2.41%	1.12%	2.18%	5.81%		6.39%		7.74%		9.22%		-5.68%	
Verus	1.53%	1.05%	1.62%	4.26%		5.47%		6.32%		7.38%		-0.66%	
BlackRock EAFE Equity	1.53%	1.05%	1.62%	4.26%	0.00%	5.47%	0.00%	6.32%	0.00%	7.38%	0.00%	-0.65%	-0.01%
MSCI EAFE (Net)	1.52%	1.05%	1.61%	4.23%		5.40%		6.12%		7.25%		-0.71%	
MSCI EAFE (Gross)	1.53%	1.06%	1.62%	4.27%		5.47%		6.37%		7.39%		-0.68%	
Verus	1.47%	0.32%	2.22%	4.06%		5.05%		4.26%		8.23%		-1.01%	
Mondrian(Net)	1.46%	0.32%	2.20%	4.02%	0.04%	5.08%	-0.03%	4.29%	-0.03%	8.23%	0.00%	-0.97%	-0.04%
MSCI ACWI -ex US Value Index	1.37%	0.53%	2.36%	4.31%		6.11%		4.33%		6.82%		3.36%	
MSCI ACWI -ex US	1.89%	0.83%	2.27%	5.06%		6.25%		5.99%		7.98%		-1.20%	
Verus	1.24%	-0.55%	4.53%	5.24%		6.91%		3.44%		10.39%		-2.58%	
Parametric Core	1.26%	-0.54%	4.55%	5.30%	-0.06%	6.96%	-0.05%	3.47%	-0.03%	10.44%	0.00%	-2.54%	-0.04%
MSCI EM Market Index	3.51%	0.21%	3.64%	7.50%		8.04%		6.38%		11.49%		-4.08%	

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2017

	Oct	Nov	Dec	4th Qtr. 2017	Difference	3rd Qtr. 2017	Difference	2nd Qtr. 2017	Difference	1st Qtr. 2017	Difference	4th Qtr. 2016	Difference
Verus	-0.10%	-0.29%	0.03%	-0.36%		0.40%		0.73%					
BlackRock Intermediate Govt	-0.10%	-0.29%	0.04%	-0.35%	-0.01%	0.41%	-0.01%	0.73%					
BBgBarc US Govt Int Index	-0.13%	-0.31%	0.03%	-0.41%		0.85%		1.45%					
Verus	0.09%	-0.09%	0.47%	0.47%		1.13%		1.36%		1.24%		-2.66%	
FIAM Bond	0.09%	-0.09%	0.48%	0.48%	-0.01%	1.13%	0.00%	1.36%	0.00%	1.24%	0.00%	-2.66%	0.00%
BBgBarc US Aggregate Index	0.06%	-0.13%	0.46%	0.39%		0.85%		1.45%		0.82%		-2.98%	
Verus	0.02%	0.67%	0.81%	1.51%		2.09%		3.54%		2.25%		1.09%	
Western TRU	0.02%	0.67%	0.81%	1.51%	0.00%	2.09%	0.00%	3.54%	0.00%	2.25%	0.00%	1.09%	0.00%
3-Month Libor Total Return USD Index	0.12%	0.12%	0.15%	0.39%		0.34%		0.31%		0.27%		0.24%	
BBgBarc US Aggregate Index	0.06%	-0.13%	0.46%	0.39%		0.85%		1.45%		0.82%		-2.98%	
Verus (Net)				11.05%		-0.59%		4.18%		4.34%		2.54%	
Angelo Gordon Opportunistic				11.05%	0.00%	-0.59%	0.00%	4.18%	0.00%	4.34%	0.00%	2.54%	0.00%
BBgBarc US Aggregate Index				0.39%		0.85%		1.45%		0.82%		-2.98%	
Verus (Net)				3.13%		4.96%		6.13%		4.58%		1.99%	
Angelo Gordon STAR Fund (Net)				3.13%	0.00%	4.96%	0.00%	6.13%	0.00%	4.58%	0.00%	1.99%	0.00%
BBgBarc US Aggregate Index				0.39%		0.85%		1.45%		0.82%		-2.98%	
Verus	0.28%	0.51%	0.98%	1.79%		2.07%		1.95%		2.45%		3.56%	
Beach Point Select (Net)	0.28%	0.51%	0.98%	1.79%	0.00%	2.07%	0.00%	1.95%	0.00%	2.45%	0.00%	3.56%	0.00%
BBgBarc BA Intermediate HY	0.25%	-0.11%	0.01%	0.15%		1.72%		2.50%		1.76%		0.63%	
Verus	0.41%	-0.44%	0.36%	0.33%		1.40%		1.83%		3.84%		2.50%	
Brigade Capital (Net)	0.41%	-0.45%	0.32%	0.28%	0.05%	1.44%	-0.04%	1.77%	0.06%	3.77%	0.01%	2.50%	0.00%
BBgBarc BA Intermediate HY	0.25%	-0.11%	0.01%	0.15%		1.72%		2.50%		1.76%		0.63%	
50% BBgBarc HY/ 50% Bank Loan	0.54%	-0.07%	0.34%	0.82%		1.52%		1.46%		1.95%		2.00%	
Verus	0.45%	-0.16%	0.53%	0.82%									
PIMCO Diversified	0.45%	-0.16%	0.53%	0.82%	0.00%								
Blended PIMCO Diversified Index	0.48%	-0.19%	0.46%	0.75%									
BBgBarc BA Intermediate HY	0.25%	-0.11%	0.01%	0.15%									
Verus	-0.71%	0.53%	-1.13%	-1.31%		1.25%		-0.98%		5.27%		6.49%	
Franklin Templeton Investments	-0.71%	0.52%	-1.13%	-1.32%	0.01%	1.25%	0.00%	-0.98%	0.00%	5.27%	0.00%	6.49%	0.00%
BBgBarc Multiverse Index	-0.36%	1.07%	0.36%	1.06%		1.88%		2.64%		1.90%		-6.68%	
Verus				4.67%		2.69%		2.65%		2.06%		0.17%	
TCP Direct Lending VIII				4.67%	0.00%	2.69%	0.00%	2.65%	0.00%	2.06%	0.00%	0.17%	0.00%
Cliffwater Direct Lending Index				1.97%		1.72%		2.50%		1.76%		0.63%	

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2017

	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>4th Qtr.</u> <u>2017</u>	<u>Difference</u>	<u>3rd Qtr.</u> <u>2017</u>	<u>Difference</u>	<u>2nd Qtr.</u> <u>2017</u>	<u>Difference</u>	<u>1st Qtr.</u> <u>2017</u>	<u>Difference</u>	<u>4th Qtr.</u> <u>2016</u>	<u>Difference</u>
Verus				0.51%		-4.64%							
White Oak Yield				0.51%	0.00%	-4.64%	0.00%						
Cliffwater Direct Lending Index				1.97%		1.72%							
Verus	2.22%	0.55%	1.89%	4.72%		4.47%		1.46%		4.57%		-2.38%	
AQR GRP, 10% Volatility (Net)	2.22%	0.55%	1.89%	4.72%	0.00%	4.47%	0.00%	1.46%	0.00%	4.57%	0.00%	-2.39%	0.00%
60% R3000/ 40% BBgBarc Agg	1.30%	1.36%	0.90%	3.61%		3.21%		2.39%		3.76%		1.34%	
60% MSCI World/ 40% BBgBarc Glb	1.33%	1.77%	0.78%	3.93%		3.08%		2.80%		3.98%		0.17%	
Verus	3.11%	0.05%	1.18%	4.38%		2.98%		1.60%		4.16%		-5.19%	
PanAgora (Net)	3.11%	0.05%	1.18%	4.38%	0.00%	2.98%	0.00%	1.60%	0.00%	4.16%	0.00%	-5.19%	0.00%
60% R3000/ 40% BBgBarc Agg	1.30%	1.36%	0.90%	3.61%		3.21%		2.39%		3.76%		1.34%	
60% MSCI World/ 40% BBgBarc Glb	1.33%	1.77%	0.78%	3.93%		3.08%		2.80%		3.98%		0.17%	
Verus	0.93%	-0.89%	1.31%	1.33%		3.99%		-1.19%		1.42%		2.38%	
AQR DELTA XN (Net)	0.93%	-0.89%	1.31%	1.33%	0.00%	3.99%	0.00%	-1.19%	0.00%	1.43%	0.00%	2.38%	0.00%
Libor + 4%	0.44%	0.55%	0.46%	1.46%		1.22%		1.29%		1.11%		1.17%	
Verus	0.75%	0.27%	0.85%	1.87%		0.34%		0.81%		0.59%		1.80%	
Aberdeen Standard GARS (Net)	0.75%	0.27%	0.85%	1.87%	0.00%	0.34%	0.00%	0.81%	0.00%	0.59%	0.00%	1.80%	0.00%
Libor + 4%	0.44%	0.55%	0.46%	1.46%		1.22%		1.29%		1.11%		1.17%	
Verus				2.29%		1.48%		1.88%		2.55%		2.19%	
INVESCO Real Estate				2.26%	0.03%	1.46%	0.02%	1.88%	0.00%	2.54%	0.00%	2.17%	0.02%
NCREIF NFI ODCE Index				2.07%		1.87%		1.70%		1.77%		2.11%	
Verus				2.09%		5.56%		1.85%		2.90%		1.31%	
Invesco US Val IV				2.09%	0.00%	5.56%	0.00%	1.85%	0.00%	2.90%	0.00%	1.31%	0.00%
NCREIF NFI ODCE Index				2.07%		1.87%		1.70%		1.77%		2.11%	
NCREIF CEVA 1Q Lag - NET				3.00%		2.61%		1.36%		2.75%		2.54%	
Verus				2.52%									
PGIM RE US Debt Fund				2.52%	0.00%								
NCREIF NFI ODCE Index				2.07%									
Verus	0.27%	0.19%	0.79%	1.25%		0.76%		-0.58%		1.13%		-0.55%	
Brown Brothers Harriman	0.27%	0.19%	0.80%	1.26%	-0.01%	0.76%	0.00%	-0.60%	0.02%	1.13%	0.00%	-0.53%	-0.02%
BBgBarc U.S Tips	0.21%	0.13%	0.92%	1.26%		0.86%		-0.40%		1.26%		-2.41%	

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
12/31/2017	17.679	9.979	5.011	2.793	0
9/30/2017	17.696	9.979	5.011	2.793	0
6/30/2017	15.834	9.267	4.517	2.573	0
3/31/2017	15.834	9.267	4.517	2.573	0
12/31/2016	15.239	9.375	4.416	2.520	0
9/30/2016	15.239	9.375	4.416	2.520	0
6/30/2016	15.358	9.43	4.548	2.591	0
3/31/2016	15.358	9.43	4.548	2.591	0
12/31/2015	16.507	9.968	5.069	2.917	0
9/30/2015	16.507	9.968	5.069	2.917	0
6/30/2015	15.288	9.09	4.506	2.596	0
3/31/2015	15.356	9.083	4.491	2.577	0
12/31/2014	15.356	9.083	4.491	2.577	0

Number in billion USD

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

1.2 MSCI DEVELOPED AND EMERGING MARKET BREAKPOINTS

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

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

* Standard Index (Large+Mid)

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

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

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

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

Number in billion USD

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

2 RUSSELL US BREAKPOINTS

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

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

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

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

As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
12/31/2017	95.036	26.237	8.819	3.021	0
9/30/2017	93.539	24.882	8.344	2.935	0
6/30/2017	87.845	25.481	8.204	2.859	0
3/31/2017	89.968	25.293	8.241	2.737	0
12/31/2016	84.960	23.168	7.890	2.702	0
9/30/2016	78.745	23.385	7.394	2.533	0
6/30/2016	77.349	22.250	7.1432	2.444	0
3/31/2016	83.360	22.414	7.435	2.395	0
12/31/2015	90.075	24.308	8.141	2.936	0
9/30/2015	88.944	23.139	7.993	2.946	0

Market Capitalization Breakpoints

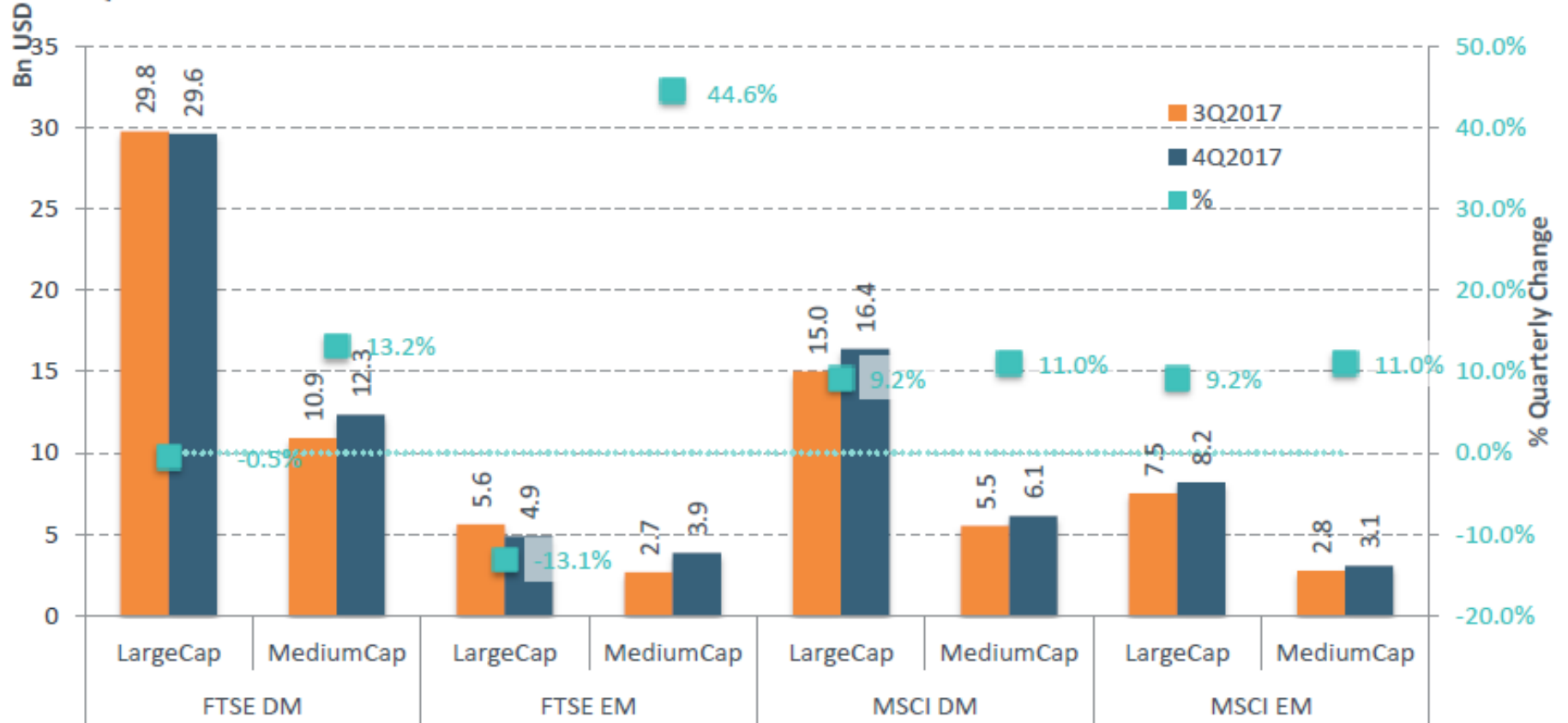
Period Ending: December 31, 2017

As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
6/30/2015	92.87	25.07	8.797	3.352	0
3/31/2015	93.082	25.494	8.794	3.384	0
12/31/2014	89.92	25.19	8.51	3.29	0
9/30/2014	84.51	24.44	7.97	3.04	0
6/30/2014	80.39	23.62	8.07	3.24	0
3/31/2014	76.77	23.15	7.83	3.06	0
12/31/2013	77.11	22.27	7.65	3.03	0
9/30/2013	72.4	19.93	7.15	2.71	0
6/30/2013	68.47	19.36	6.48	2.46	0
3/31/2013	64.31	18.64	6.39	2.39	0
12/31/2012	58.45	16.8	5.75	2.13	0
9/30/2012	57.06	16.48	5.49	2.08	0
6/30/2012	55.65	16.13	5.14	1.99	0
3/31/2012	57.58	16.43	5.55	2.13	0
12/31/2011	51.97	14.66	4.93	1.93	0
9/30/2011	45.35	13.88	4.38	1.66	0
6/30/2011	54.25	15.95	5.66	2.16	0
3/31/2011	52.22	15.69	5.7	2.16	0
12/31/2010	49.54	14.8	5.16	2.04	0
9/30/2010	42.83	13.13	4.64	1.8	0
6/30/2010	39.95	11.58	4.1	1.59	0
3/31/2010	42.43	12.61	4.3	1.68	0

Numbers are billions USD

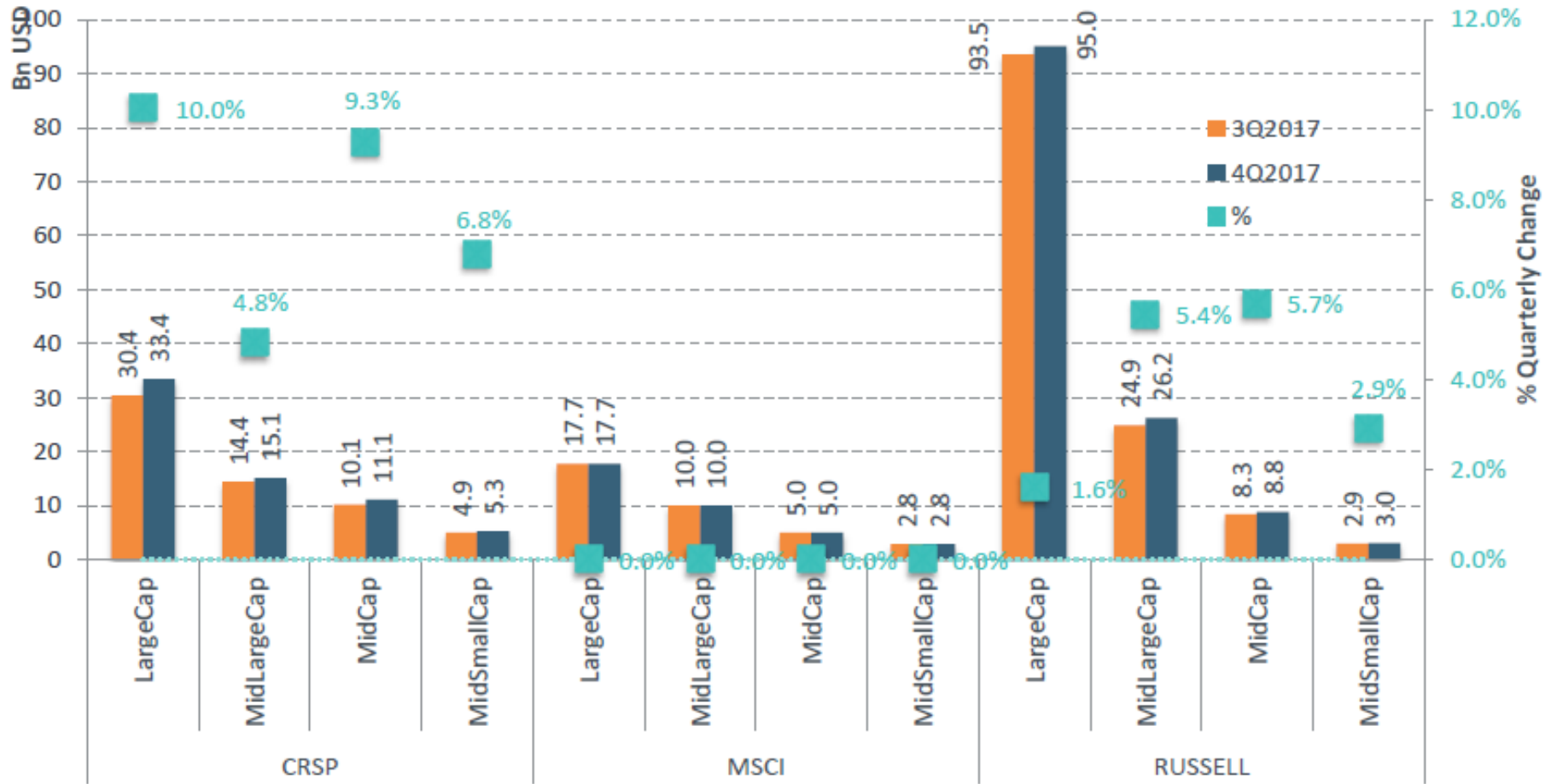
BREAKPOINT TRENDS

4Q2017 DEVELOPED AND EMERGING MARKET BREAKPOINT CHANGES



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

4Q2017 US MARKET BREAKPOINT CHANGES



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



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

1ST QUARTER 2018
Investment Landscape

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LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

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4th quarter summary

THE ECONOMIC CLIMATE

- Global growth forecasts for 2018 have been revised higher, most notably in the Eurozone. U.S. expected 2018 GDP growth is 2.6%, above the expansion average. [p. 15](#)
- The Eurozone has experienced an impressive economic recovery. In the third quarter, real GDP accelerated to 2.6%, the fastest pace of growth since 2011. [p. 16](#)
- The House and Senate agreed to a final tax bill that was signed into law by President Trump on December 22nd. The bill, formally known as the Tax Cuts & Jobs Act, represents a major overhaul of the U.S. tax system. [p. 27](#)

PORTFOLIO IMPACTS

- A synchronized pickup in global economic growth, low inflation, strong employment, and accommodative central banks should support global equities moving forward. We recommend maintaining an overweight equity position. [p. 14](#)
- Markets remain expensive by most measures. However, it is important to note the merits and flaws of various valuation metrics. [p. 32](#)

THE INVESTMENT CLIMATE

- Global equities produced strong returns over the quarter and finished the year on a positive note. Emerging market equities led the way, driven by high earnings growth and expansion of valuation multiples off of low levels. [p. 25](#)
- The outlook for U.S. equity earnings has improved further, following the signing of the Tax Cuts and Jobs Act. S&P 500 earnings expectations for 2018 were revised upwards from 11.1% to 13.1%. [p. 27](#)
- U.S. high yield spreads became increasingly tight. Credit premiums are near all time lows, which may warrant an underweight to U.S. credit. [p. 22](#)

ASSET ALLOCATION ISSUES

- Risk assets continue to deliver strong performance, fueled by improving fundamentals and accelerating growth. The current environment appears accommodative for further gains. [p. 4](#)
- Equity volatility is very low, helped by stable economic conditions and inflation. Historically, low volatility has indicated less risk of an equity downside event. [p. 33](#)

We believe a moderate overweight to risk is warranted

What drove the market in Q4?

“Tax plan optimism propels Wall Street to record highs”

S&P 500 HIGH TAX RATE BASKET MONTHLY RETURN

Jul	Aug	Sep	Oct	Nov	Dec
0.9%	-1.9%	4.1%	0.5%	6.1%	5.8%

Article Source: Reuters, December 18th, 2017

“GDP swings up to 3.2% for best gain in three years”

U.S. REAL GDP (QUARTERLY ANNUALIZED RATE)

Q2 16	Q3 16	Q4 16	Q1 17	Q2 17	Q3 17
2.2%	2.8%	1.8%	1.2%	3.1%	3.2%

Article Source: U.S. News & World Report, November 29th, 2017

“U.S. yield curve hits its flattest point since November 2007”

10-YEAR MINUS 2-YEAR TREASURY YIELD SPREAD (BPS)

Jul	Aug	Sep	Oct	Nov	Dec
94	78	84	78	62	52

Article Source: Financial Times, November 21st, 2017

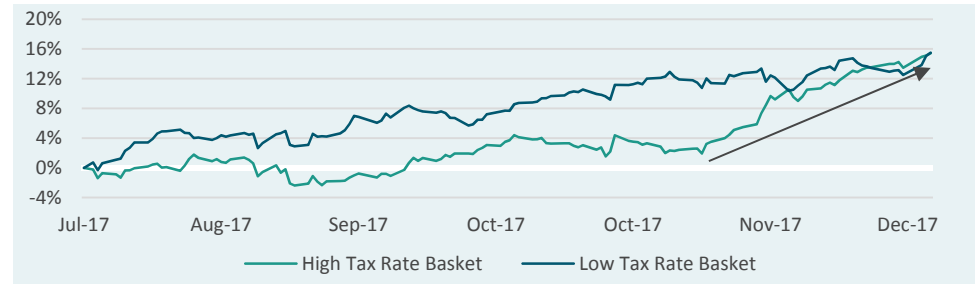
“Global manufacturers strain to keep up with faster economy”

GLOBAL PURCHASING MANAGERS INDEX (PMI)

Jul	Aug	Sep	Oct	Nov	Dec
53	53	53	54	54	55

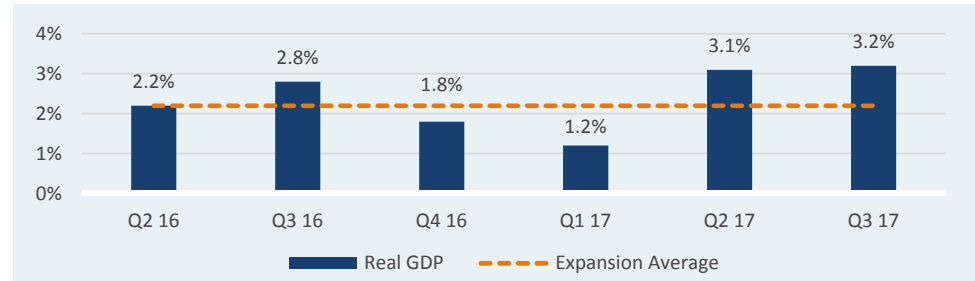
Article Source: Bloomberg, January 2nd, 2018

S&P 500 HIGH TAX RATE VS. LOW TAX RATE BASKET



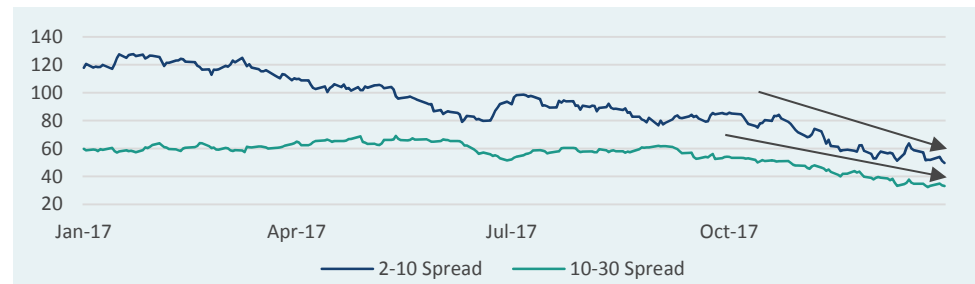
Source: Verus, Bloomberg, as of 1/4/18

REAL GDP VS. EXPANSION AVERAGE



Source: FRED, as of 9/30/17, quarterly annualized rate

U.S. YIELD CURVE SPREADS (BPS)



Source: Bloomberg, as of 1/4/18

Economic environment

U.S. economics summary

- U.S. real GDP grew 2.3% from the previous year in Q3, the fastest pace in more than two years. Growth was driven by consumer spending, private inventory accumulation, and business investment.
- Growth in business investment has provided a material support to the economy over recent periods for the first time in the recovery. Rising domestic and external demand has influenced companies to ramp up production. Survey based measures indicate firms are planning to increase capex over the next six months.
- Core inflation rose slightly from 1.7% to 1.8% over the quarter, driven by higher shelter prices. Strong demand, higher raw material prices, and a weaker dollar may provide modest pressures on inflation, but overall levels remain low. Any material rise in inflation would likely be met by more aggressive monetary tightening than what is priced into markets.
- The U3 unemployment rate fell further from 4.2% to 4.1%, its lowest level in 17 years.
- Net job creation averaged 204,000 per month in Q3 - above the expansion average of 196,000. Despite robust job gains and low unemployment, wage growth remained modest at 2.5% YoY.
- The Fed raised interest rates for the third time this year to a target rate of 1.25-1.50%. Fed dot plots indicate three more interest rate hikes in 2018, while the market is only forecasting two. Officials noted that strong economic growth is expected to continue, and raised the 2018 GDP forecast from 2.1% to 2.5%.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% 9/30/17	1.5% 9/30/16
Inflation (CPI YoY, Core)	1.8% 12/31/17	2.2% 12/31/16
Expected Inflation (5yr-5yr forward)	2.1% 12/31/17	2.1% 12/31/16
Fed Funds Target Range	1.25 – 1.50% 12/31/17	0.50 – 0.75% 12/31/16
10 Year Rate	2.4% 12/31/17	2.4% 12/31/16
U-3 Unemployment	4.1% 12/31/17	4.7% 12/31/16
U-6 Unemployment	8.1% 12/31/17	9.1% 12/31/16

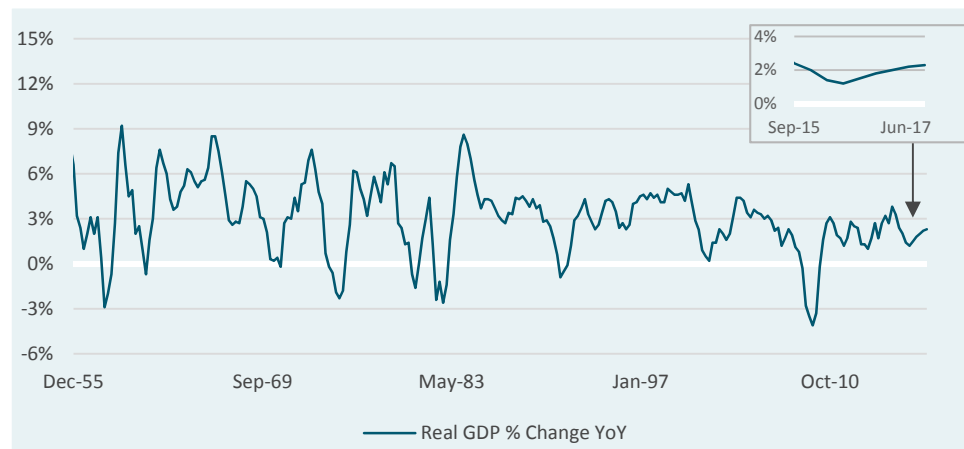
GDP growth

Real GDP rose by 2.3% from the previous year (3.2% quarterly annualized rate) in Q3, the fastest pace of growth in two years. Economic growth picked up meaningfully in 2017 and consumer and business surveys indicate further strength. Support to the economy includes strong consumer demand both domestically and abroad, low unemployment, and stable core inflation. Despite Fed moves toward normalizing monetary policy, financial conditions have yet to slow down the expansion, likely due to a slower pace of interest rate hikes than expected by the market.

All major components of the economy were positive contributors to growth in Q3, which has only happened in 6% of quarters since 1947. The main source of growth was consumer spending, which rose 2.5% from the previous quarter and contributed 1.4% to the overall growth rate. A faster pace of inventory accumulation was the second largest contributor to GDP, followed by non-residential business investment. According to the Atlanta Fed GDPNow forecast, real GDP growth is expected to be 3.3% in Q4. Looking ahead to 2018, we believe the economic backdrop is positive, and will remain supportive of the recent pickup in growth.

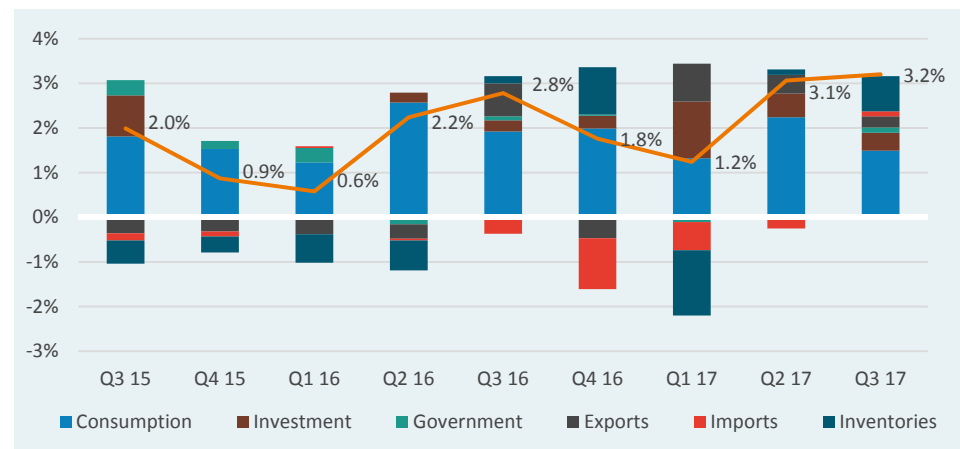
Economic growth has accelerated over the past two quarters

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/17

U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 9/30/17

Business investment

During most of the current expansion, corporate investment has been minimal. Many companies have held higher than normal cash balances or used the abundant liquidity created by easy monetary policy to buy back stock. Over the past year, however, there has been a meaningful increase in business capital expenditure (capex) as firms have needed to ramp up production to meet rising global demand. With the labor market close to full employment and jobs more difficult to fill, businesses may rely on investment to meet rising demand. Moving

forward, business capex will likely be an important factor if economic growth is set to continue.

Survey based measures indicate that businesses are making plans to increase investment over the next six months. In addition to rising demand, the changes to the U.S. tax code should provide incentives for businesses to invest. Most notably, the mandatory repatriation of foreign profits at a special tax rate will give firms an ample source of cash that can be used for investment.

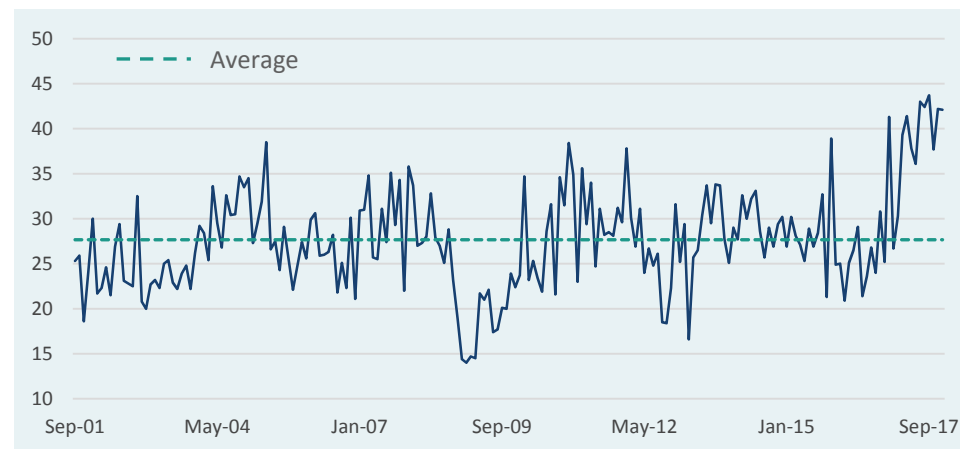
Business investment has been a material contributor to the recent pickup in growth

NON-FINANCIAL CORPORATE CAPEX GROWTH (YOY)



Source: Bloomberg, as of 9/30/17

SIX MONTH FORECAST OF CAPEX INCREASES



Source: Philadelphia FRB Business Outlook Survey, the x-axis represents the % of firms expecting to increase capex minus the % of firms expecting to decrease capex over the next six months

Inflation

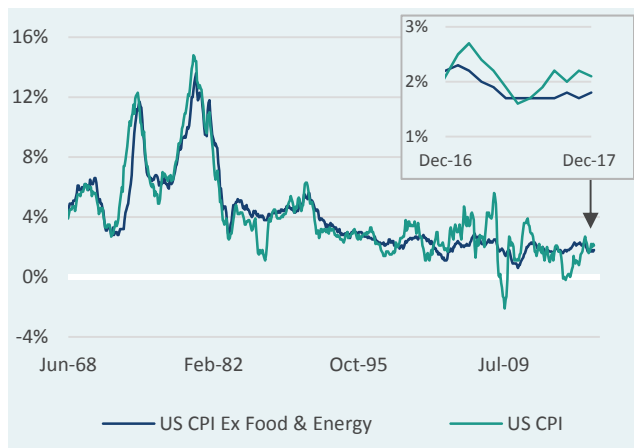
Core U.S. inflation picked up slightly to 1.8% YoY in December, a rise from 1.7% in September. Increases in housing and healthcare costs contributed to the move. Headline inflation fell from 2.2% to 2.1% over the quarter.

Market based inflation expectations increased slightly as the 10-year TIPS breakeven inflation rate moved from 1.8% to 2.0%. Investors expect inflation to stay low for the long-run based on market pricing.

Low inflation remains a roadblock for central banks hoping to normalize interest rates. However, lower inflation may benefit markets overall by dampening the need for central bank market intervention, which contributes to lower borrowing costs and lower market volatility through greater price stability. The current inflation level may provide markets with a happy medium.

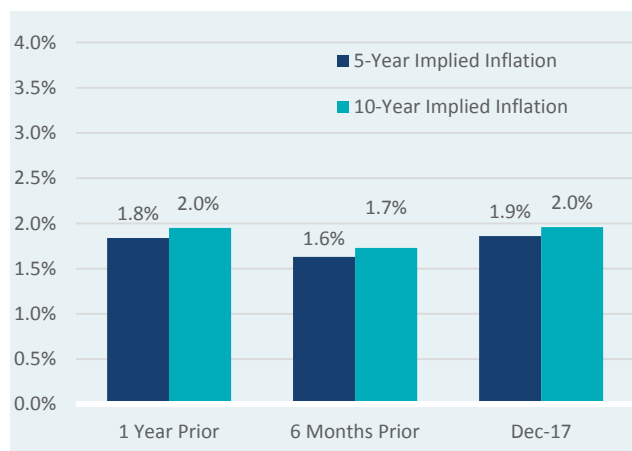
Low inflation may be supportive of further economic expansion

U.S. CPI (YOY)



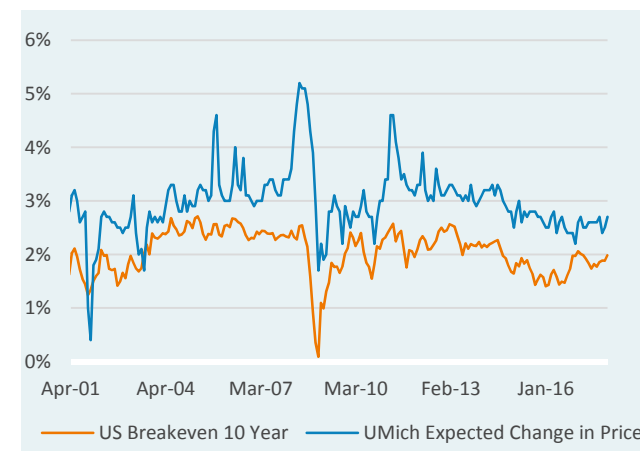
Source: FRED, as of 12/31/17

U.S. TIPS BREAKEVEN RATES



Source: Federal Reserve, as of 12/31/17

INFLATION EXPECTATIONS



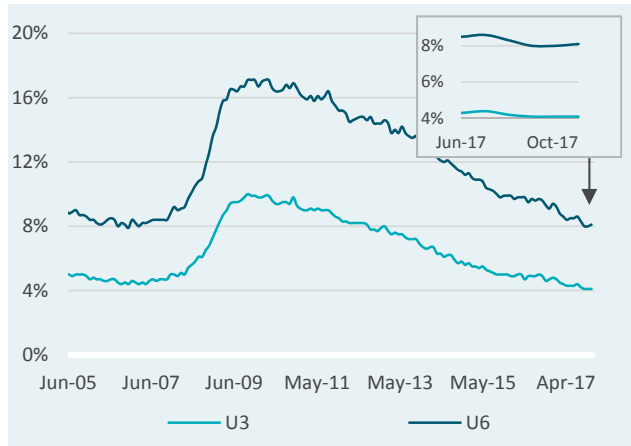
Source: Bloomberg, as of 12/31/17

Labor market

The U.S. labor market tightened further as unemployment fell from 4.2% to 4.1% over the quarter. Net job creation was robust, averaging 204,000 per month in the third quarter, higher than the expansion average of 196,000. A falling unemployment rate and above average job creation points toward some remaining slack in the labor market despite the longer length of the recovery relative to history. Wage growth improved modestly at 2.5% YoY, but remains below average relative to past economic expansions.

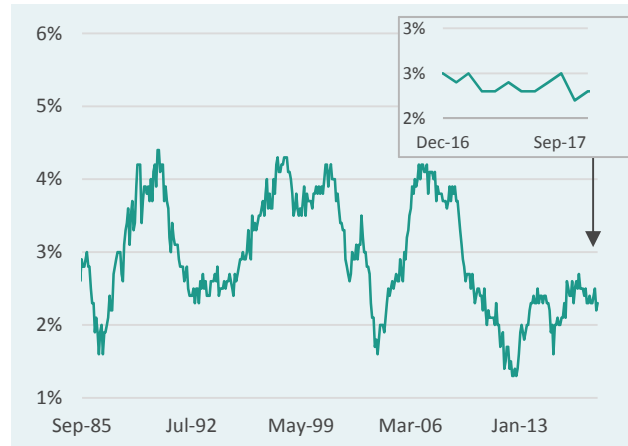
In previous quarters, we noted that the headline unemployment rate may be overstating tight labor market conditions due to discouraged or longer-term unemployed workers not included in traditional measures. It appears these individuals are slowly making their way back into the labor force, especially during the past two years. The core age (25-54) participation rate was 81.9% in December, up from a low of 80.6% in September of 2015. This figure was 83.3% prior to the global financial crisis, suggesting there may still be room for additional workers to reenter the labor force.

UNEMPLOYMENT RATE



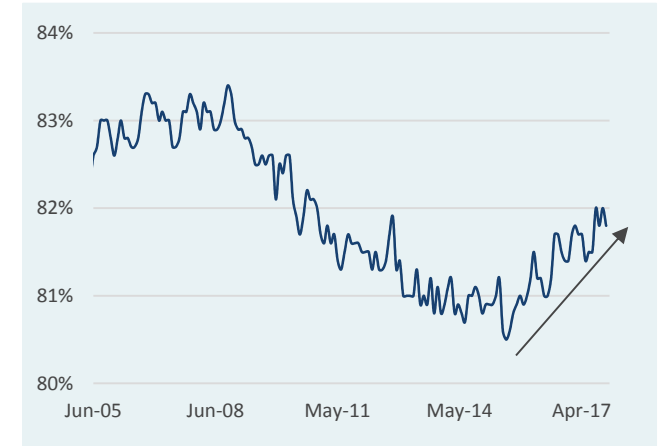
Source: FRED, as of 12/31/17

AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as of 11/30/17

CORE AGE PARTICIPATION RATE



Source: FRED, as of 12/31/17

The consumer

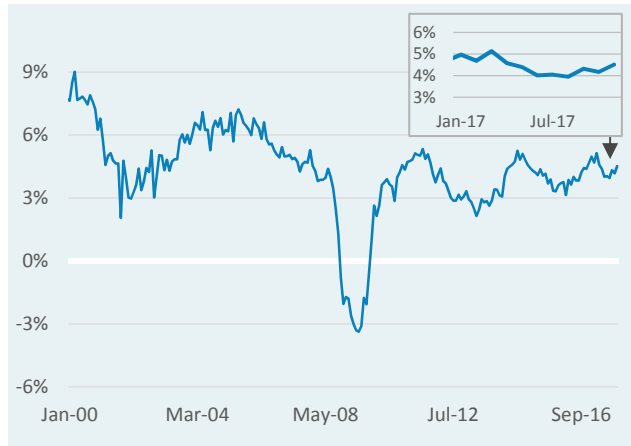
Positive economic conditions are providing continued support to strong consumer demand, although this has not led to signs of late-cycle overheating. Consumer spending was 4.5% YoY in November, up from 4.0% three months prior.

Low unemployment, low inflation, and modest wage gains have helped create consistent growth in consumer spending. Monetary tightening has yet to have a material negative impact on consumers through higher borrowing costs and increasing interest payments on existing debt. Furthermore,

a portion of individual costs are determined by the long end of the curve, which has remained fairly stable.

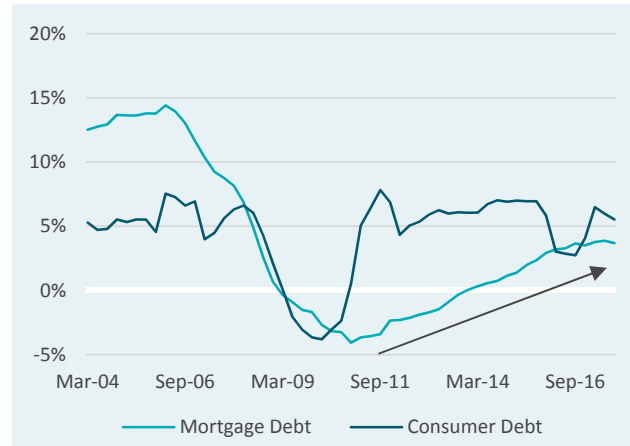
Low interest rates have not led individuals to take on large debt loads as both borrowers and lenders remain cautious. Consumer debt has seen modest growth, while mortgage debt is still recovering from a sharp decline following the 2008-2009 financial crisis. Growth in consumer debt has been mostly fueled by increases in student and auto loans, which would likely be impacted by further interest rate rises.

CONSUMER SPENDING (YOY GROWTH)



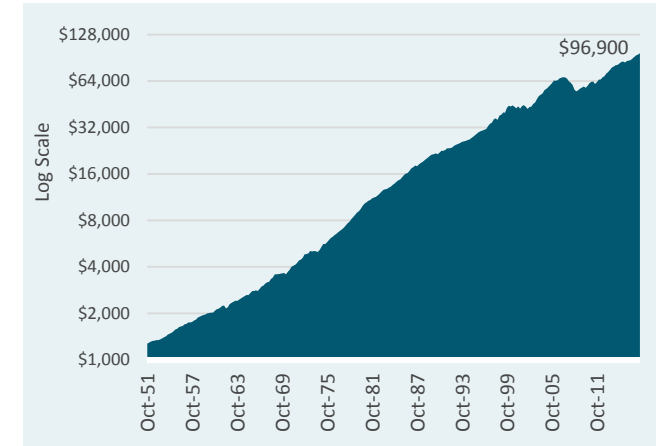
Source: Bloomberg, as of 11/30/17

DEBT GROWTH (YOY)



Source: FRED, as of 9/30/17

HOUSEHOLD NET WORTH



Source: Bloomberg, as of 7/31/17

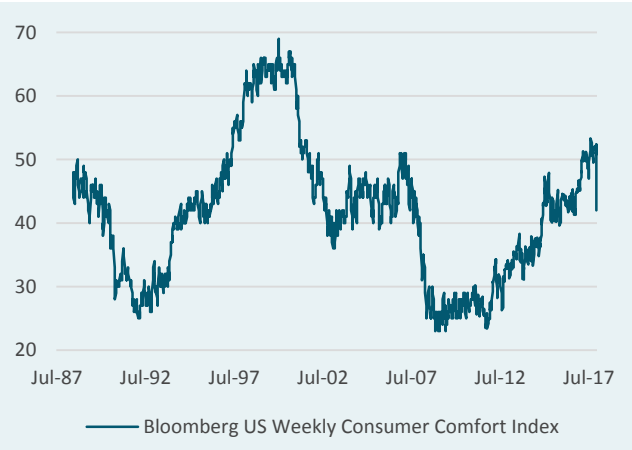
Sentiment

Measures of consumer and business sentiment remained above average in the fourth quarter. The University of Michigan Consumer Sentiment Index was 95.9 in December, which placed it in the 85th percentile relative to its own history, since 1978. The average value of the index in 2017 was the highest since 2000, driven by consumers' positive attitudes toward current economic conditions. U.S. tax reform did not result in an increase in sentiment and was only mentioned by 29% of respondents, who demonstrated mixed reactions.

The NFIB Small Business Optimism Index increased to 107.5 in November – near a record high. This indicator jumped following the election in 2016 and has stayed high, reflecting positive attitudes towards policy changes, deregulation, and economic conditions. A net 37% of small businesses expect the economy to improve and a net 27% are planning on increasing capital outlays. Companies also reported that finding qualified workers to hire is getting increasingly difficult. Higher labor costs would be a headwind to small businesses.

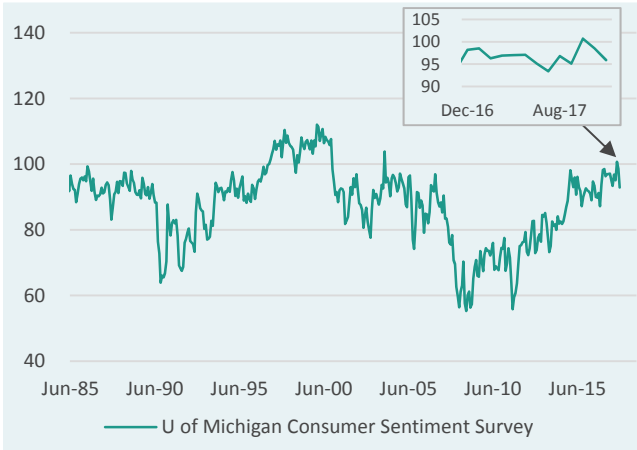
Consumers and small businesses have a positive outlook on the economy

CONSUMER COMFORT INDEX



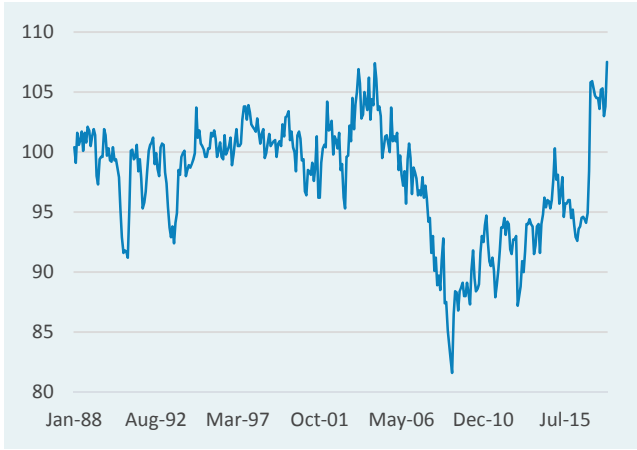
Source: Bloomberg, as of 12/31/17 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/17 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 11/30/17 (see Appendix for details)

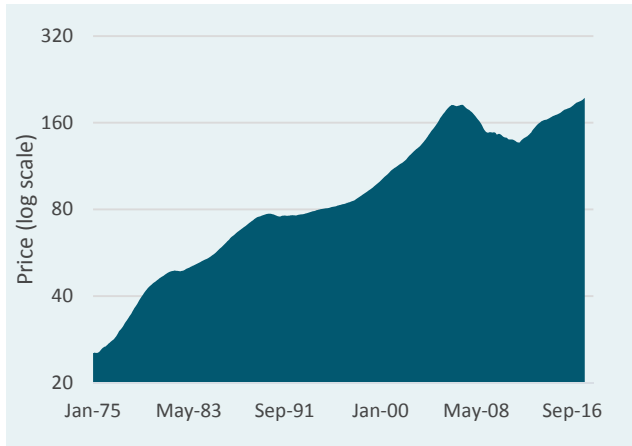
Housing

Growth in U.S. home prices has steadily accelerated over the past three years. National home prices increased 6.2% YoY in October, according to the S&P/Case-Shiller Index, up from a growth rate of 5.2% one year prior. Sales growth continued to be constrained by a lack of supply, which has helped lead to higher prices due to demand outpacing supply. At the current sales rate, it would take only 4.7 months to completely exhaust the supply in the market, below the long-term historical average of 6.1.

Thus far, tightening from the Fed has not led to a material rise in mortgage rates. Home ownership has remained affordable as lower interest costs have somewhat offset rising home prices.

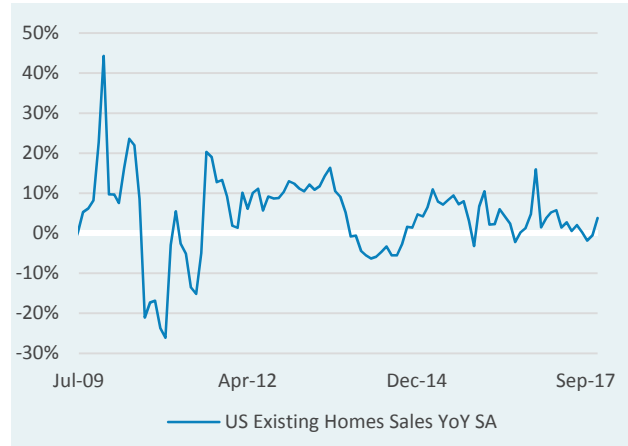
Total mortgage debt outstanding has just recently recovered from the global financial crisis. Mortgage lending standards are still tight, which has led to a higher quality pool of mortgage borrowers relative to past cycles.

CASE-SHILLER HOME PRICE INDEX



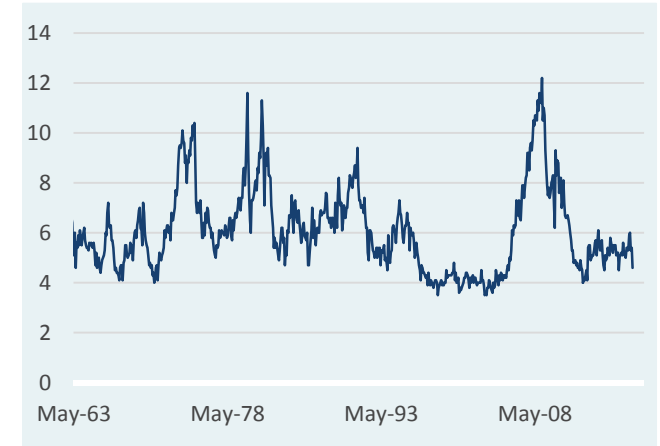
Source: FRED, as of 10/31/17

HOUSING SALES



Source: Bloomberg, as of 11/30/17

MONTHLY SUPPLY OF HOMES



Source: FRED, as of 11/30/17

International economics summary

- Economic growth advanced in the third quarter across developed and emerging markets. The United States grew at 2.3% YoY, the Eurozone improved to 2.6%, and overall growth in the BRICS nations accelerated to 5.6%. Central bank policy is still broadly accommodative, which is supportive of continued progress.
- Expectations for global GDP growth for the next two years has been revised upward in the past six months, according to the consensus estimate from Bloomberg. The upward revision to global growth forecasts were driven by the Eurozone and emerging markets.
- A pickup in lending and investment, strong external demand, and accommodative monetary policy has helped fuel an impressive economic recovery in the Eurozone. GDP grew 2.6% in Q3 from the

previous year and the unemployment rate fell to 8.8%, the lowest level in nine years.

- PMIs across major markets were all above 50, indicating further expansion in the manufacturing sector.
- There are still concerns of a hard landing in China because the central bank has been tightening financial conditions on the short-end of the yield curve to reign in excessive leverage. Thus far, this process has been successful with economic growth slowing only moderately.
- Low inflation in developed economies has persisted, contributing to slower monetary tightening as central banks have been reluctant to raise rates too quickly.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% <i>9/30/17</i>	2.1% <i>12/31/17</i>	4.1% <i>12/31/17</i>
Western Europe	2.5% <i>9/30/17</i>	1.6% <i>12/31/17</i>	7.4% <i>12/31/17</i>
Japan	2.1% <i>9/30/17</i>	0.6% <i>11/30/17</i>	2.7% <i>11/30/17</i>
BRICS Nations	5.6% <i>9/30/17</i>	2.0% <i>12/31/17</i>	5.7% <i>9/30/17</i>
Brazil	1.4% <i>9/30/17</i>	3.0% <i>12/31/17</i>	12.1% <i>12/31/17</i>
Russia	1.8% <i>9/30/17</i>	2.5% <i>12/31/17</i>	5.1% <i>11/30/17</i>
India	5.3% <i>9/30/17</i>	4.9% <i>11/30/17</i>	8.0% <i>12/31/16</i>
China	6.8% <i>9/30/17</i>	1.8% <i>12/31/17</i>	4.0% <i>9/30/17</i>

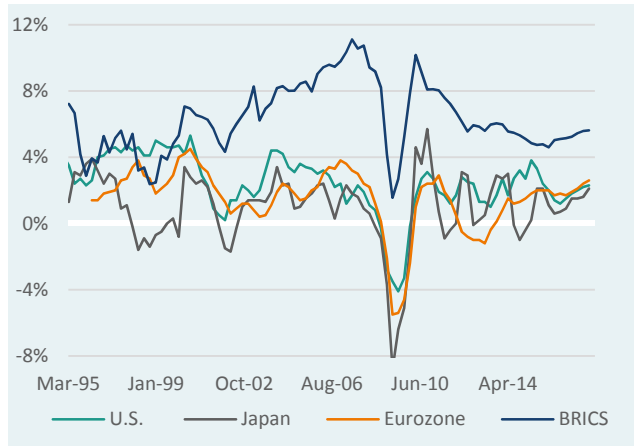
International economics

Economic growth accelerated broadly over the quarter, while inflation remained moderate in the developed world and fell in many emerging markets. Emerging economies appear to be very early in their cycle. Brazil and Russia recently pulled out of recession, with economic slack and room for expansion. Improving economic conditions and rising global demand have led to a material pickup in growth expectations for future years. The consensus forecast for 2018 Eurozone real GDP growth was revised upwards by 50 bps over the past six months.

Central bank policies in developed markets remained accommodative, but the intent to move towards tighter financial conditions has been clearly communicated. Stimulus from central banks, notably the ECB and BOJ, is likely still necessary to support the recent improvement in economic growth. A lack of pressure in inflation, however, should allow central banks to take a careful approach to future policy changes.

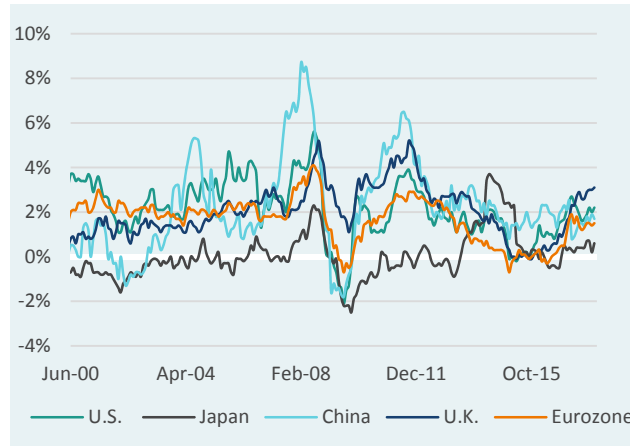
Growth accelerated, while inflation remained moderate

REAL GDP GROWTH (YOY)



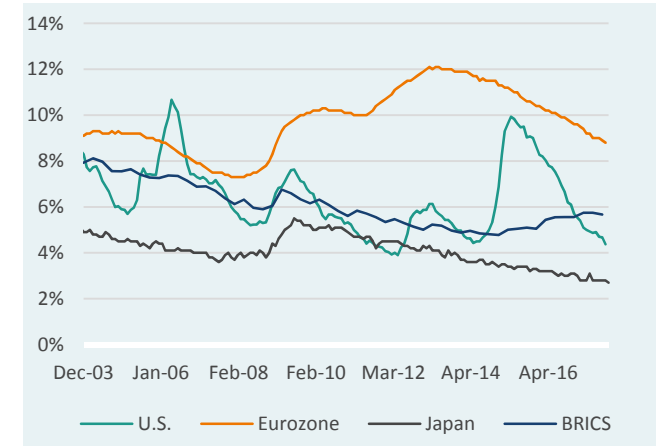
Source: Bloomberg, as of 9/30/17

INFLATION (CPI)



Source: Bloomberg, as of 11/30/17

UNEMPLOYMENT



Source: Bloomberg, as of 11/30/17 or most recent release

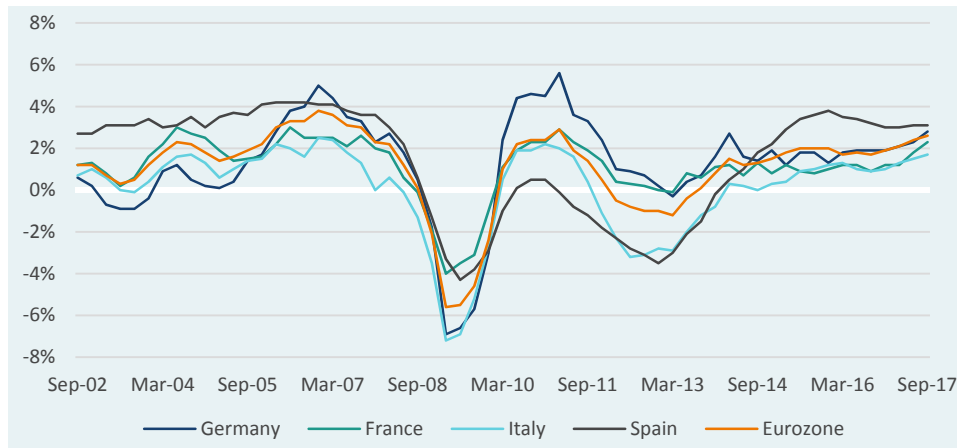
Eurozone economic recovery

A pickup in lending and investment, strong external demand, and accommodative monetary policy has helped fuel an impressive economic recovery in the Eurozone. In Q3, real GDP was 2.6% YoY - its highest rate of growth since 2011. Economic data has come in better than expected for most of the past year and economic forecasts have been revised upwards significantly. Additionally, labor markets have also improved markedly with the overall Eurozone unemployment rate falling from 9.6% to 8.8% over the past year, with further room for improvement.

The continuing recovery is not without risks. Most notably, economies are still heavily reliant on monetary stimulus. The ECB has already started to taper asset purchases, although any additional tightening will likely be considered with caution. The recovery in economic conditions has been led by Germany, while periphery countries such as Italy and Spain have lagged behind and are still experiencing high unemployment rates. Finally, political risk in Europe, such as the Italian election this year, is still lurking in the background.

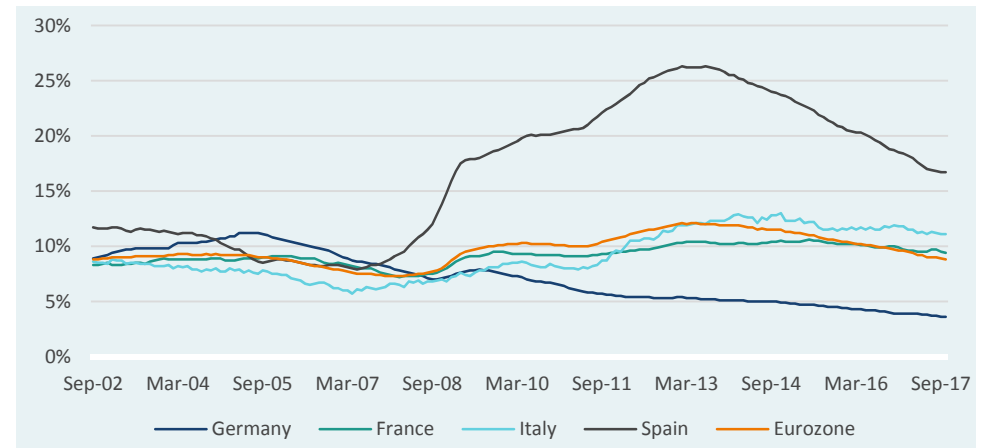
The Eurozone is experiencing an impressive economic recovery

REAL GDP GROWTH



Source: Bloomberg, as of 9/30/17

UNEMPLOYMENT RATE



Source: Bloomberg, as of 10/31/17

Global PMIs

PMI 1 YEAR (CROSS SECTION) – BLUE HIGH / ORANGE LOW

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Manufacturing												
Global	53	53	53	53	53	53	53	53	53	54	54	55
Developed	54	54	54	54	54	54	54	54	55	55	56	56
US	56	58	57	55	55	58	56	59	61	59	58	60
UK	55	55	54	57	56	54	55	57	56	56	58	56
Eurozone	55	55	56	57	57	57	57	57	58	59	60	61
Germany	56	57	58	58	60	60	58	59	61	61	63	63
Japan	53	53	52	53	53	52	52	52	53	53	54	54
EM	51	51	52	51	51	51	51	52	51	51	52	52
Services												
Global	54	53	54	54	54	54	54	54	54	54	54	54
Developed	55	54	54	54	54	55	55	55	55	55	54	54
US	57	58	55	58	57	57	54	55	60	60	57	56
UK	55	53	55	56	54	53	54	53	54	56	54	54
Eurozone	54	56	56	56	56	55	55	55	56	55	56	57
Germany	53	54	56	55	55	54	53	54	56	55	54	56
Japan	52	51	53	52	53	53	52	52	51	53	51	51
EM	54	56	56	56	56	55	55	55	56	55	56	57

Source: Bloomberg, as of 12/31/17 – PMIs are based on survey data compiled from purchasing and supply managers. Survey questions are asked about several different components of each sector, such as new orders, employment, prices, etc. The final PMI reading is based on the percentage of respondents with a positive view on the sector. A reading above 50 indicates expansion in the sector while a reading below 50 indicates contraction. Historically, PMIs have had a relatively strong positive relationship with actual economic activity.

Fixed income rates & credit

Interest rate environment

- On December 13th, the Federal Reserve raised the benchmark interest rate by 25 bps to a target range of 1.25%-1.50%. The Fed has communicated three rate hikes in 2018, while the market is pricing in only two.
- U.S. Treasury yields experienced significant increases on the short end of the curve, while longer term rates were modestly higher. The 2- and 10-year yields rose 40 bps and 8 bps, respectively. The increase in short-term rates was likely caused by the Fed raising overnight borrowing rates.
- The Fed began to reduce its balance sheet slowly. Approximately \$30 billion in Treasuries and mortgage-backed securities were trimmed from the balance sheet over the quarter, which did not have a material impact on the market.
- Minutes from the ECB meeting in December showed that officials discussed additional tapering of asset purchases in early 2018 due to stronger than expected economic growth.
- Markets generally expect minimal yield rises across developed markets – between 0% and 0.3% movement over the next year in U.S., U.K., German, and Japanese sovereign bonds. However, we remain watchful of bond market reactions to balance sheet unwinding, given the unprecedented size of central bank assets.
- We remain underweight to U.S. and developed sovereign bonds (currency hedged) primarily due to low yields. It is important to keep in mind the diversification benefits that fixed income provides to the portfolio, despite near record prices.

Area	Short Term (3M)	10 Year
United States	1.38%	2.41%
Germany	(0.80%)	0.42%
France	(0.78%)	0.78%
Spain	(0.58%)	1.56%
Italy	(0.63%)	2.00%
Greece	1.40%	4.10%
U.K.	0.36%	1.19%
Japan	(0.15%)	0.04%
Australia	1.74%	2.63%
China	3.95%	3.90%
Brazil	6.77%	10.25%
Russia	6.55%	7.42%

Source: Bloomberg, as of 12/31/17

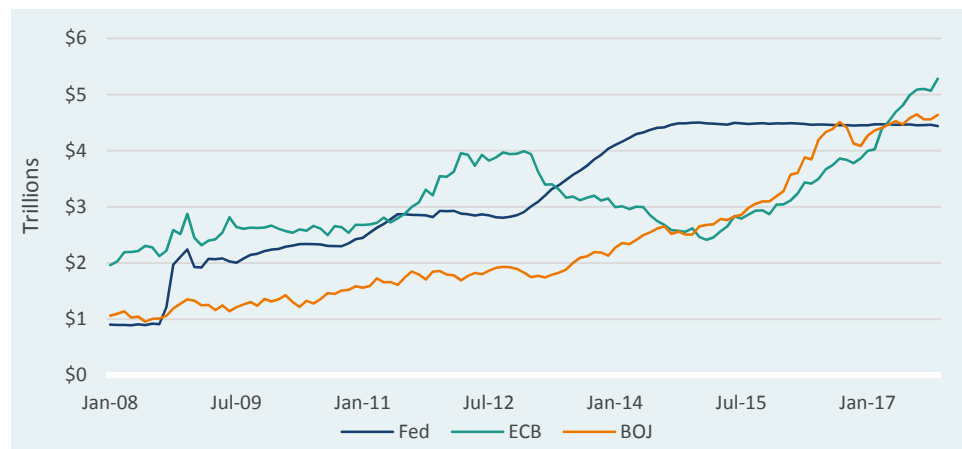
Monetary policy

The global shift towards tighter monetary policy will be an important theme in financial markets moving forward, and the possibility of a policy mistake represents a major risk. Thus far, the Fed is the only major central bank to take steps to tighten policy by raising interest rates and trimming its balance sheet. Moderate inflation has allowed the Fed to take a cautious approach to tightening, which at this point does not appear to have had a material impact on markets. While other central banks remain accommodative, several have begun tightening, including a rate hike from the BOE, and asset purchase tapering from the ECB.

Looking ahead at the next two years, there is not much monetary tightening priced into markets, which creates greater chance of a negative surprise. In the current cycle, central banks have been cautious and worked hard to clearly communicate changes in policy to avoid market surprises. We think this behavior is likely to continue, but with so little priced into markets even a slightly faster pace of tightening than expected might have a significant impact. A policy mistake is especially a concern for the Eurozone and Japan because improving economic conditions are probably still dependent on support from monetary stimulus.

Very little monetary tightening is priced into markets

MAJOR CENTRAL BANK BALANCE SHEET SIZE



Source: Bloomberg, as of 11/30/17

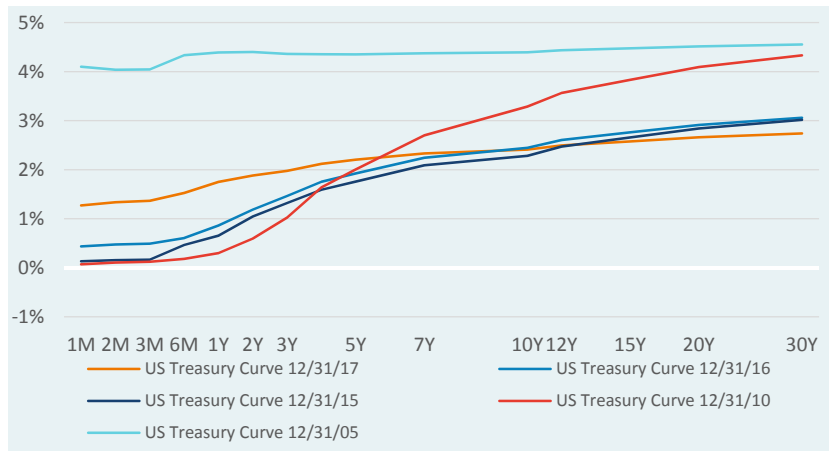
MAJOR CENTRAL BANK POLICY RATES AND EXPECTATIONS

	Policy Rate	Rate Hikes in 2017	Market Pricing YE 2018	Market Pricing YE 2019
Fed	1.4%	3	1.9%	2.1%
ECB	-0.4%	0	-0.3%	-0.1%
BOJ	-0.1%	0	-0.1%	0.0%
BOE	0.5%	1	0.7%	0.9%

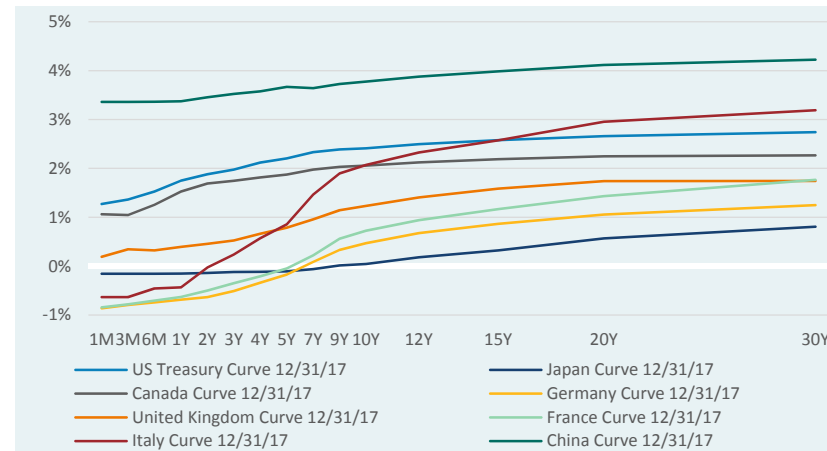
Source: Bloomberg, as of 1/4/18

Yield environment

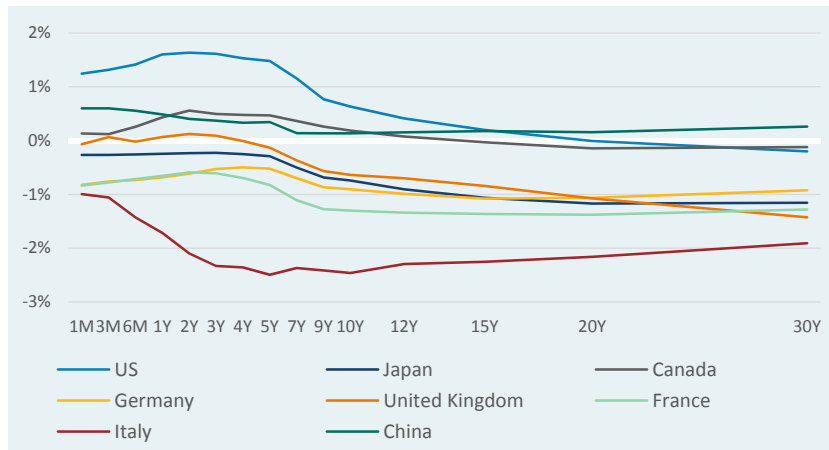
U.S. YIELD CURVE



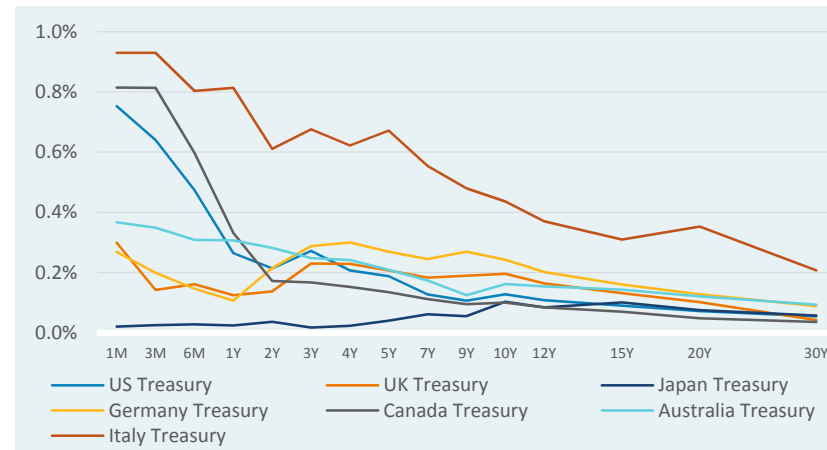
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/17

Credit environment

Credit spreads fell throughout 2017 to all-time tight levels. U.S. high yield option-adjusted spreads compressed in the fourth quarter to 3.4%, and the asset class generated a 0.5% total return for the quarter and 7.5% for 2017 (BBgBarc U.S. Corp. High Yield Index). High yield spreads are tighter than those of bank loans on a duration-neutral basis.

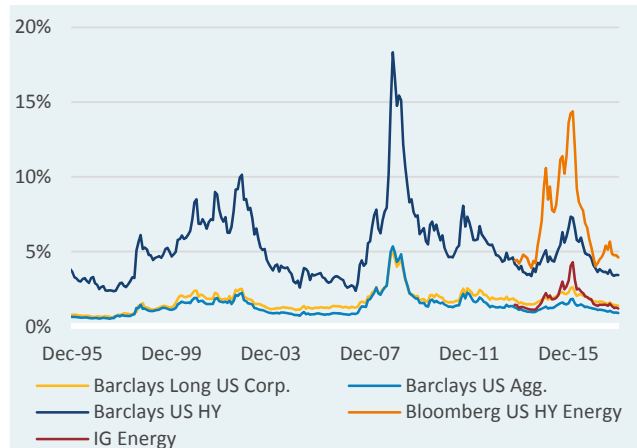
Credit spreads in both high yield and loans have continued to tighten close to multi-year lows, driven by strong corporate fundamentals and general macroeconomic improvement.

The combination of tighter credit spreads and higher yields over Treasuries led credit to broadly outperform U.S. Treasuries in Q4. High yield spreads began the year at 4.1% and tightened by 66 bps in 2017. Credit spreads have historically been a good indicator of future performance relative to Treasuries.

Based on low interest rates and tight spreads, we recommend an underweight to U.S. investment and high yield credit.

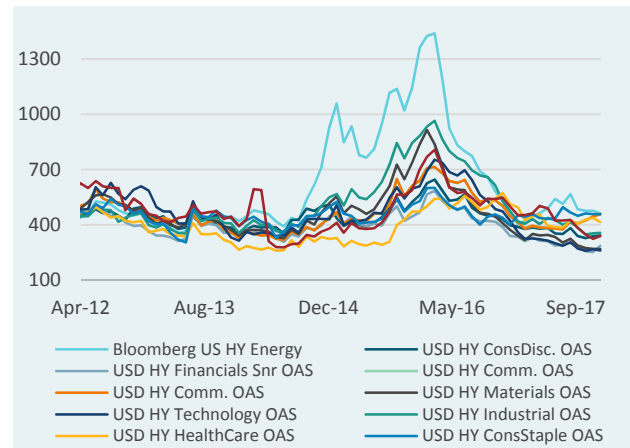
Credit spreads are tight across the capital structure

SPREADS



Source: Barclays, Bloomberg, as of 12/31/17

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/17

Market	Credit Spread (12/31/17)	Credit Spread (1 Year Ago)
Long US Corporate	1.4%	1.6%
US Aggregate	0.9%	1.2%
US High Yield	3.4%	4.1%
US High Yield Energy	4.6%	4.6%
US Bank Loans	3.6%	3.9%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/17

Issuance and default

Default activity remains low and stable in U.S. and international credit markets. The par-weighted U.S. default rate remains below its long-term average of 3.0-3.5%. Four U.S. companies defaulted in December totaling \$1.6 Billion in bonds and \$582 Million in loans. Total default activity during 2017 was at levels not seen since 2013.

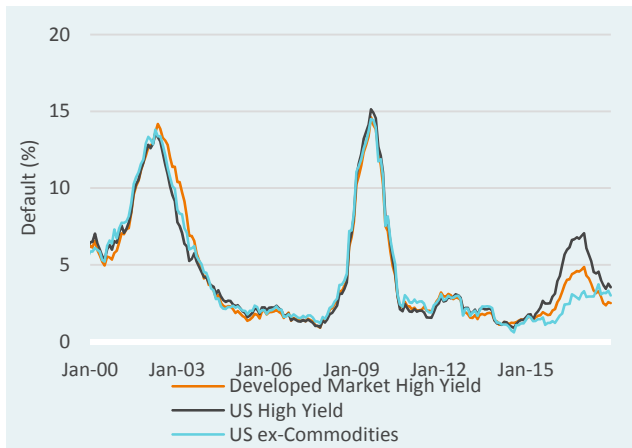
Senior loan and high yield markets normalized in 2017, compared to 2016 when a majority of defaults were generated from energy and metals/mining sectors.

Issuance in bonds and loans both increased in 2017. The majority of proceeds were used for refinancing activity as the market continues to be borrower-friendly, allowing issuers to refinance at lower rates.

Active management may offer value to investors in the high yield space.

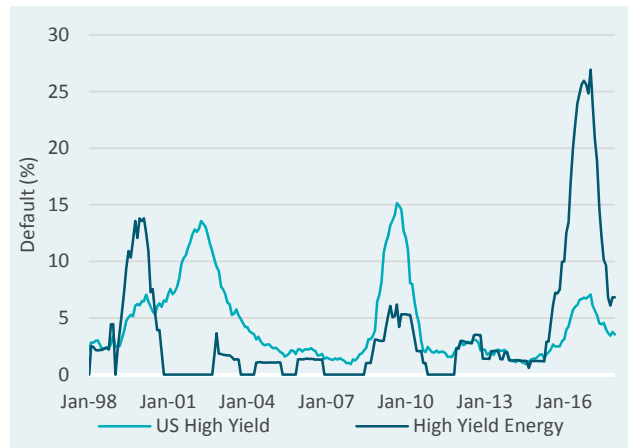
The effects of commodity related defaults are subsiding

HY DEFAULT TRENDS (ROLLING 1 YEAR)



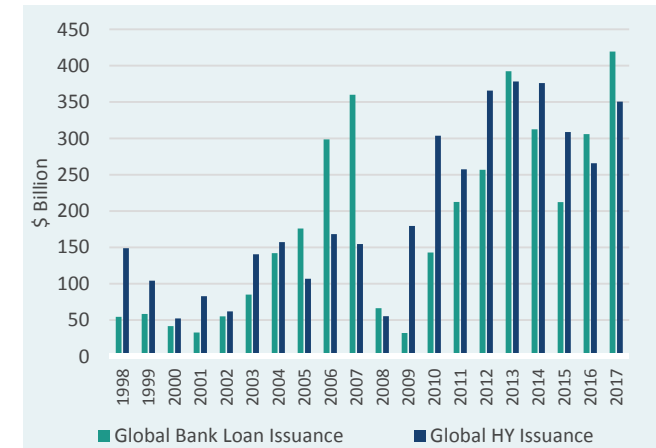
Source: BofA Merrill Lynch, as of 12/31/17

ENERGY DEFAULT TRENDS



Source: BofA Merrill Lynch, as of 12/31/17

GLOBAL ISSUANCE



Source: Bloomberg, BofA Merrill Lynch, as of 12/31/17

Equity

Equity environment

- We maintain an overweight position to equities with a preference for emerging markets. Equity markets delivered strong returns over the quarter and were supported by robust earnings growth. Emerging markets provided outsized gains as is often the case in periods of strong economic growth.
- U.S. corporate earnings are expected to increase by 13.1% YoY in 2018 according to Factset. Expectations improved by a net 2% following the Tax Cuts & Jobs Act, which lowered the corporate tax rate from 35% to 21%, effective January 1st, 2018. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively.
- The way businesses spend tax savings may have significant positive effects on wages, capital investment, and equity returns.

We will be monitoring this activity throughout the year.

- Equity volatility has stayed extraordinarily low. U.S. market volatility over the past year was 3.9% (S&P 500), followed by International at 4.2% (MSCI EAFE) and emerging markets at 6.5% (MSCI Emerging Markets). Low equity volatility has historically indicated less risk of an equity downside event.
- Currency movement contributed to volatility and uncertainty in international assets for investors with unhedged exposure. Recently, the U.S. dollar has weakened, creating a tailwind for unhedged performance.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	6.6%		21.7%		21.7%	
US Small Cap (Russell 2000)	3.3%		14.6%		14.6%	
US Large Value (Russell 1000 Value)	5.3%		13.7%		13.7%	
US Large Growth (Russell 1000 Growth)	7.9%		30.2%		30.2%	
International Large (MSCI EAFE)	4.3%	4.0%	25.7%	16.8%	25.7%	16.8%
Eurozone (Euro Stoxx 50)	(0.4%)	(1.8%)	25.3%	11.1%	25.3%	11.1%
U.K. (FTSE 100)	6.0%	5.3%	22.6%	12.9%	22.6%	12.9%
Japan (NIKKEI 225)	12.0%	12.3%	25.7%	21.9%	25.7%	21.9%
Emerging Markets (MSCI Emerging Markets)	7.3%	5.3%	37.3%	28.6%	37.3%	28.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/17

Domestic equity

U.S. equities produced gains over the quarter (S&P 500 +6.6%), adding to record highs. Over the past year, U.S. equity performance (S&P 500 +21.8%) has lagged international developed equities (MSCI EAFE +25.0%) and emerging markets (MSCI Emerging Markets +37.3%). Performance of each equity market is in line with the degree of earnings growth – emerging markets have produced the strongest year-over-year growth and the U.S. has produced the weakest earnings growth. However, earnings growth in the U.S. has still been strong relative to history.

U.S. corporate earnings are expected to increase by 13.1% YoY in 2018, according to Factset. Forecasts were revised upwards by a net 2% following the passing of tax cuts. Energy and Financial sectors are expected to lead in earnings with growth of 47% and 25%, respectively. The way businesses spend additional tax savings may have significant positive effects on wages, capital investment, and equity returns. We will be monitoring the situation throughout the year.

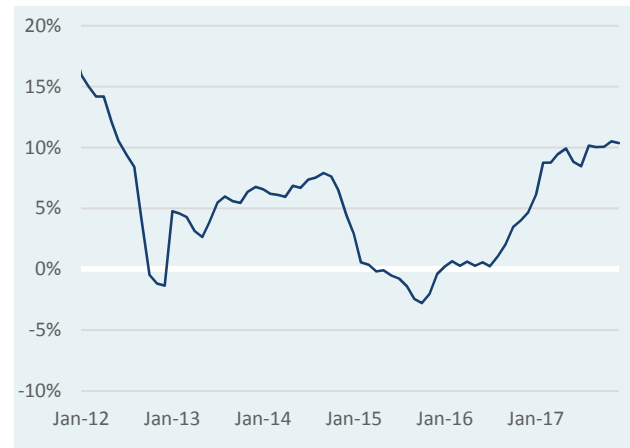
We maintain a neutral weight to U.S. equities

U.S. EQUITIES



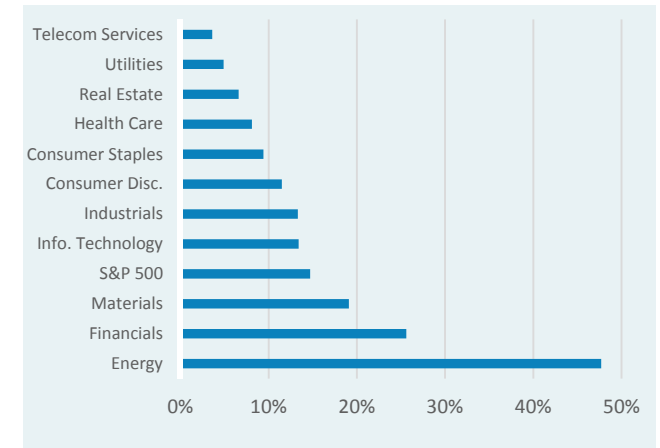
Source: Russell Investments, as of 12/31/17

EARNINGS GROWTH



Source: MSCI, as of 12/31/17, YoY growth in forward earnings

2018 S&P 500 EARNINGS EXPECTATIONS



Source: FactSet, as of 1/12/18

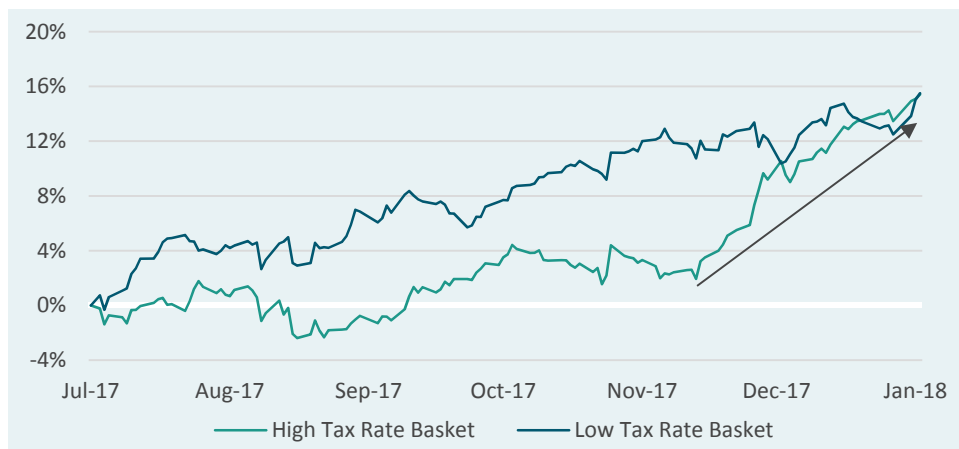
U.S. tax reform

The House and Senate passed a final tax bill, which was then signed into law by President Trump on December 22, 2017. The most widely publicized component of the bill is a corporate tax cut that lowers the statutory tax rate from 35% to 21%. The tax cut should result in a material boost to corporate earnings, which was priced into markets as the proposal was negotiated. Equities with relatively high effective tax rates significantly outperformed those with low effective tax rates since November. We believe that higher earnings growth resulting from the one-time tax cut is likely fully priced into equities.

The second component to the tax cut relates to the way corporations choose to use the savings. Its impact is more difficult to determine. In the past, firms have used tax savings to return capital to shareholders, which will likely play an important role once again. We believe that in the current economic and deregulatory environment, a material gain in business investment and wages is possible. A rise in investment could lead to further earnings growth and would have a more lasting impact on the economy than if firms simply return the savings to shareholders.

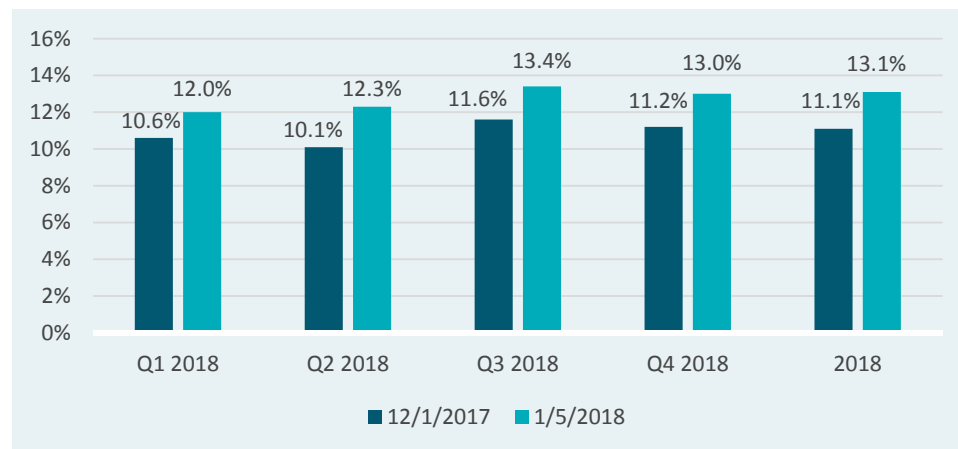
Corporate tax cuts will be a boost to earnings

S&P 500 HIGH TAX RATE VS. LOW TAX RATE BASKET



Source: Bloomberg, Verus, as of 1/4/18

S&P 500 2018 EARNINGS EXPECTATIONS



Source: FactSet, as of 1/5/18

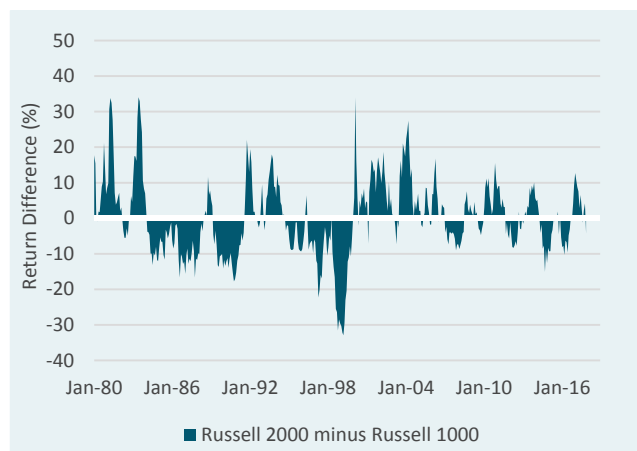
Domestic equity size and style

Large cap equities (Russell 1000 +6.6%) continued to outperform small cap equities (Russell 2000 +3.3%) during the quarter. Small cap stocks are very expensive relative to history based on traditional measures. It appears that a greater number of companies in the small cap universe with low or negative earnings has contributed to rising price-to-earnings multiples of the index.

Value equities underperformed growth equities over the quarter and the past year – caused by extremely positive

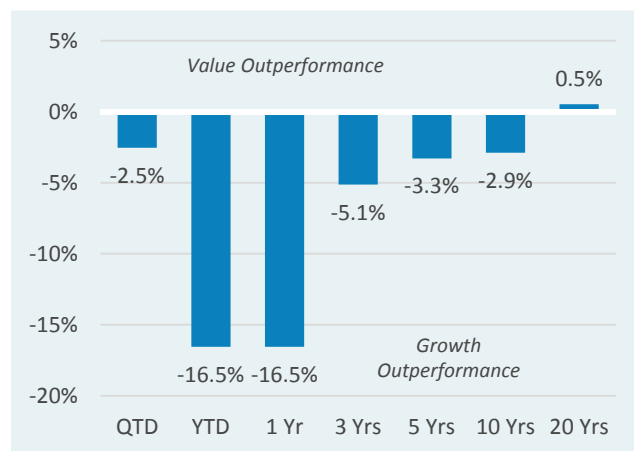
technology sector performance (growth stocks are highly concentrated in the tech sector). Value has now underperformed on a 1-, 3-, 5-, and 10-year basis. Value stocks have underperformed over a 10-year period only twice in the past 100 years – during the great depression (1937) and during the dotcom bubble (1999). Both of these occasions were followed by an impressive bounce back in value performance.

SMALL CAP VS LARGE CAP (YOY)



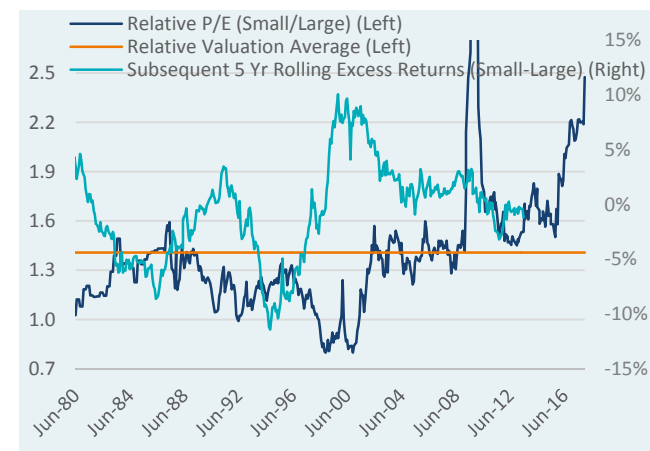
Source: Russell Investments, as of 12/31/17

U.S. VALUE VS GROWTH RELATIVE PERFORMANCE



Source: Morningstar, as of 12/31/17

U.S. LARGE VS. SMALL RELATIVE VALUATIONS



Source: Russell, Bloomberg, as of 12/31/17

International developed equity

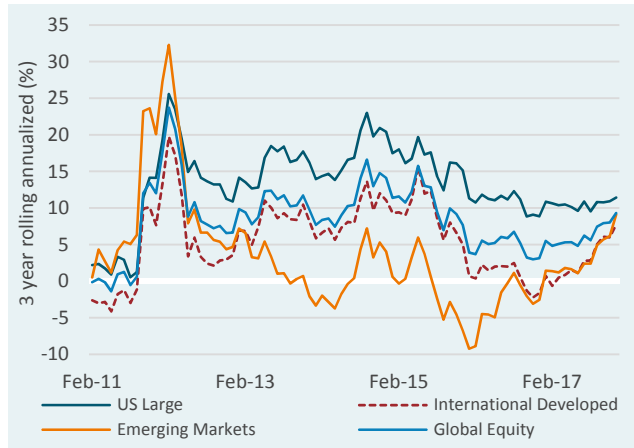
International equities lagged U.S. equities during the fourth quarter as U.S. tax reform contributed to a strong domestic rally. The MSCI EAFE Index returned 4.3% (+4.0% hedged) while the S&P 500 returned 6.6%. Emerging markets continued to outperform (MSCI EM +7.4% unhedged).

Japan outperformed among developed markets, which is particularly notable when considering the pessimism baked into Japan's equity valuations. Japan generated a

12.0% return in the fourth quarter and a 25.7% return in 2017 (Nikkei 225 unhedged). Recent equity gains were fundamentally supported by earnings growth.

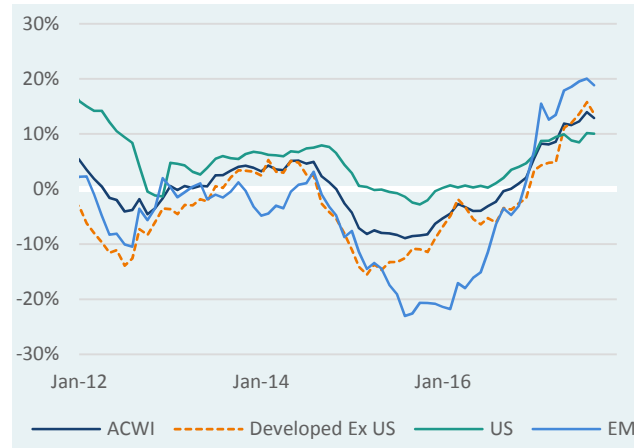
Currency effects added a positive 0.3% to the unhedged MSCI EAFE in Q4 (+8.9% year-to-date), as the U.S. dollar weakened slightly against a trade weighted basket of currencies.

EQUITY PERFORMANCE (3YR ROLLING)



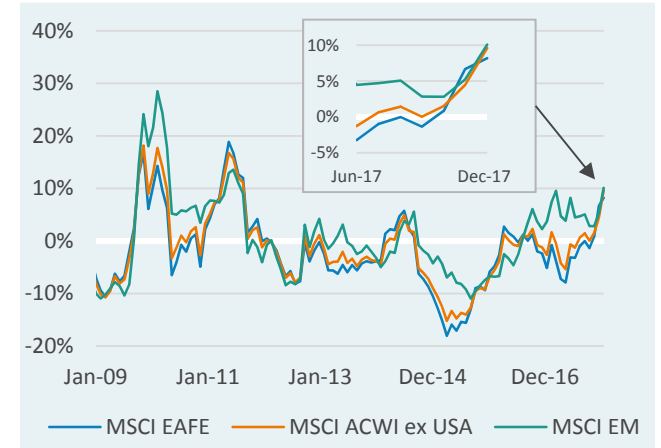
Source: Bloomberg, as of 12/31/17

EARNINGS GROWTH



Source: MSCI, as of 12/31/17 – YoY growth in forward earnings

EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 12/31/17

Emerging market equity

We maintain an overweight to emerging market equities. These markets have led the way in economic growth, earnings, and equity performance. Emerging market equities delivered exceptional returns in 2017 (MSCI Emerging Markets +37.3%) relative to developed markets (MSCI ACWI +24.2%) and during the fourth quarter (7.4% vs. 4.2%).

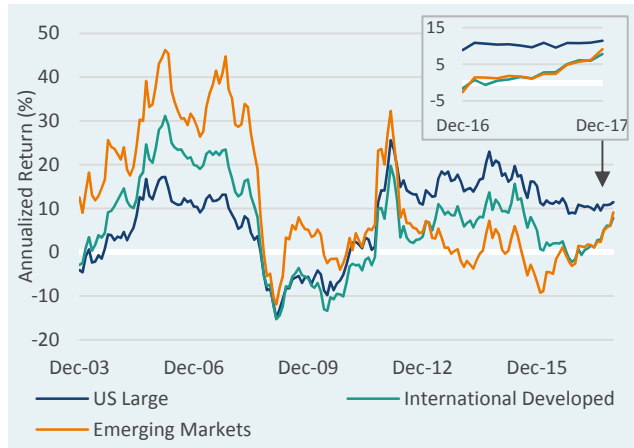
Emerging markets have lagged the U.S. significantly since the global financial crisis, prior to the recent rotation. Emerging market currencies remain depressed relative to

history, and a reversal could provide additional tailwinds to recent outperformance.

Equity multiples have risen modestly, supported by a brighter earnings outlook. As these economies evolve, it has become more difficult to refer to emerging markets as a distinct category. Different levels of economic progress, capital market development, and valuations can be witnessed across emerging market indices. Active management is typically preferred in this asset class.

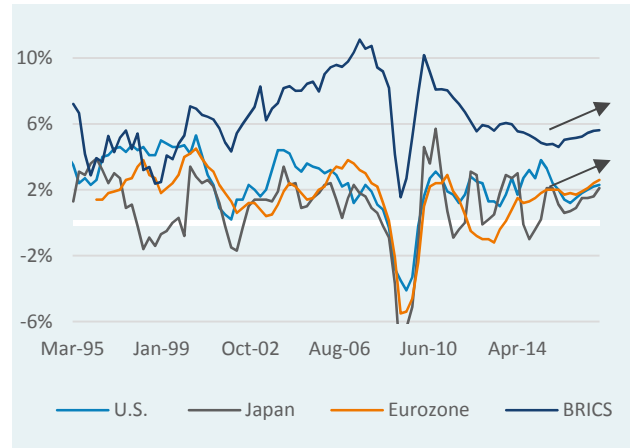
Coordinated global growth has helped propel emerging market equities

EQUITY PERFORMANCE (3YR ROLLING)



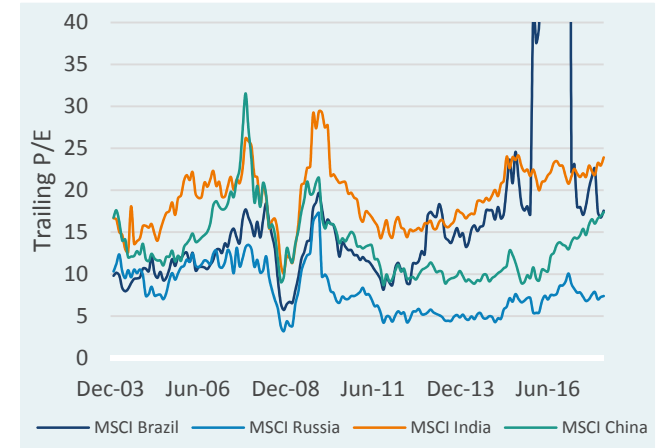
Source: Standard & Poor's, MSCI, as of 12/31/17

ECONOMIC MOMENTUM



Source: Bloomberg, as of 9/30/17

BRIC VALUATIONS



Source: MSCI, as of 12/31/17

Equity valuations

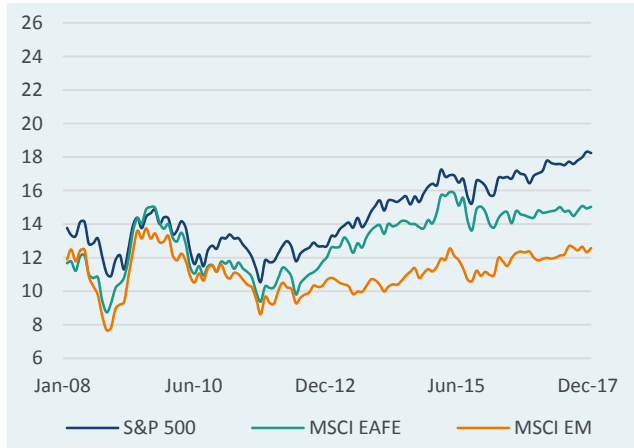
Equity valuations grew slightly richer over the quarter and remain high. However, strong underlying earnings growth has sustained above-average performance. Global economic acceleration, robust earnings growth, and accommodative monetary policies contribute to our view that a risk overweight position is warranted.

Comparing valuation increases to earnings growth demonstrates that the recent pickup in equity performance is fundamentally driven (fueled by earnings rather than higher equity prices). In this environment the forward P/E measure tends to provide a more accurate representation of

valuations. Equity price is a product of expectations for future earnings and cash flows. The forward P/E measure takes into account future earnings while the trailing P/E focuses on past earnings, which leads the trailing P/E measure to incorrectly rise during times when prices and earnings may in fact be rising at the same pace (implying no true valuation movement).

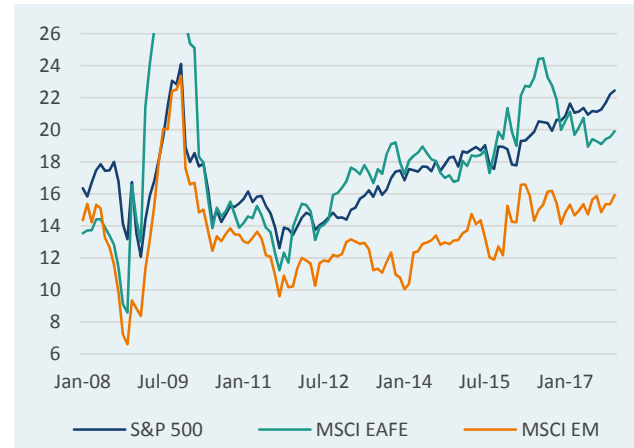
Higher valuations imply lower future equity returns over the longer-term. However, over shorter periods of time equities may produce strong returns despite high valuations, as seen recently.

FORWARD P/E RATIOS



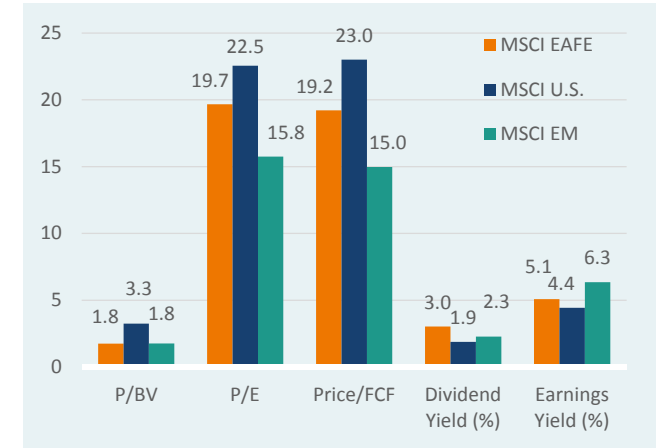
Source: MSCI, as of 12/31/17

TRAILING P/E RATIOS



Source: Bloomberg, as of 12/31/17

VALUATION METRICS



Source: Bloomberg, as of 12/31/17 - trailing P/E

Shiller P/E



Source: Robert Shiller, *Verus* – The light blue line is Robert Shiller’s CAPE ratio over the past 30 years. Each line illustrates how the CAPE ratio will move assuming various after-inflation earnings growth rates, and assuming equity prices increase at the rate of inflation.

- The Shiller P/E, or CAPE ratio (cyclically adjusted price-to-earnings), uses current market price divided by average real (inflation-adjusted) corporate earnings of the past 10 years to arrive at a valuation multiple.
- The CAPE ratio is currently very high relative to history, though this can be partly explained by the fact that the past 10 years of earnings includes the global financial crisis – one of worst earnings depressions in history (which has pushed the CAPE ratio upward).
- The chart on the left illustrates that the CAPE ratio will come down significantly in the near future, all other things being equal, as the global financial crisis falls out of the CAPE’s 10 year earnings window.

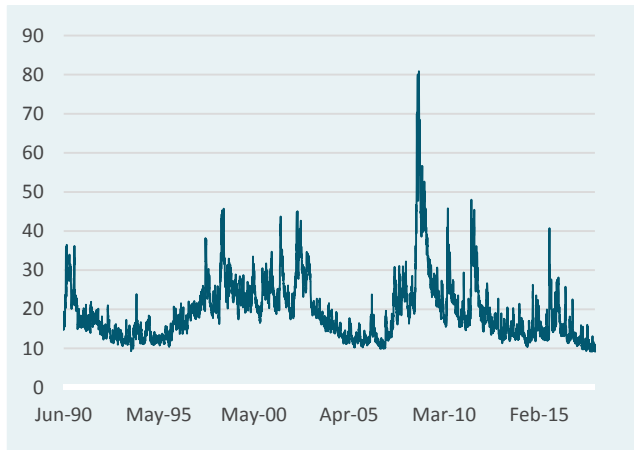
Equity volatility

Equity volatility has stayed extraordinarily low. U.S. market volatility over the past year was 3.9% (S&P 500), compared to its historical average annualized volatility of 14.2%. International equity volatility has also been low with developed markets at 4.2% (MSCI EAFE) and emerging markets at 6.5% (MSCI Emerging Markets). Implied volatility as indicated by the VIX has also remained suppressed. Muted volatility environments have historically resulted in a lower probability of a significant market drawdown.

The current low volatility environment has been influenced by very few significant economic surprises. Steady increases in GDP growth and consistent inflation, which is likely a byproduct of central bank intervention, has helped lead to stable asset price movements. Volatility may begin to return to more normal levels if central banks stay on course with monetary tightening. However, central banks will likely remain very sensitive to contributing to market volatility.

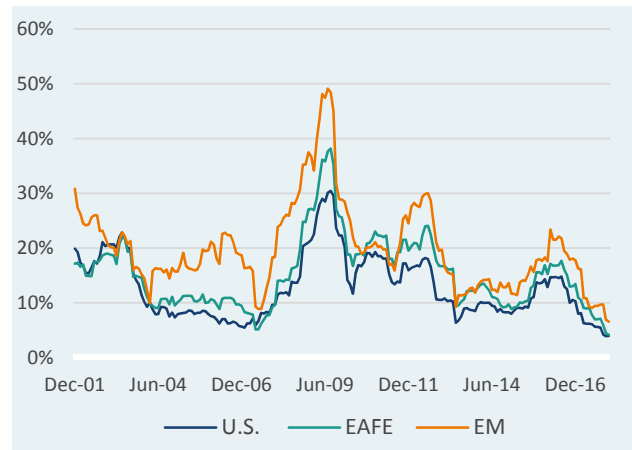
Equity volatility has trended downwards

U.S. IMPLIED VOLATILITY (VIX)



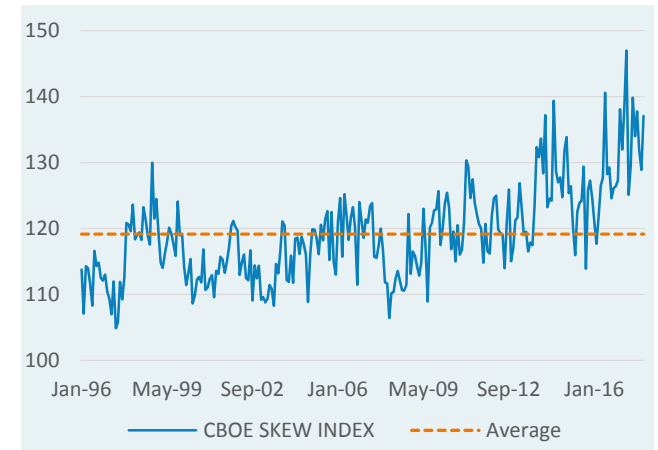
Source: CBOE, as of 12/31/17

REALIZED 1-YEAR ROLLING VOLATILITY



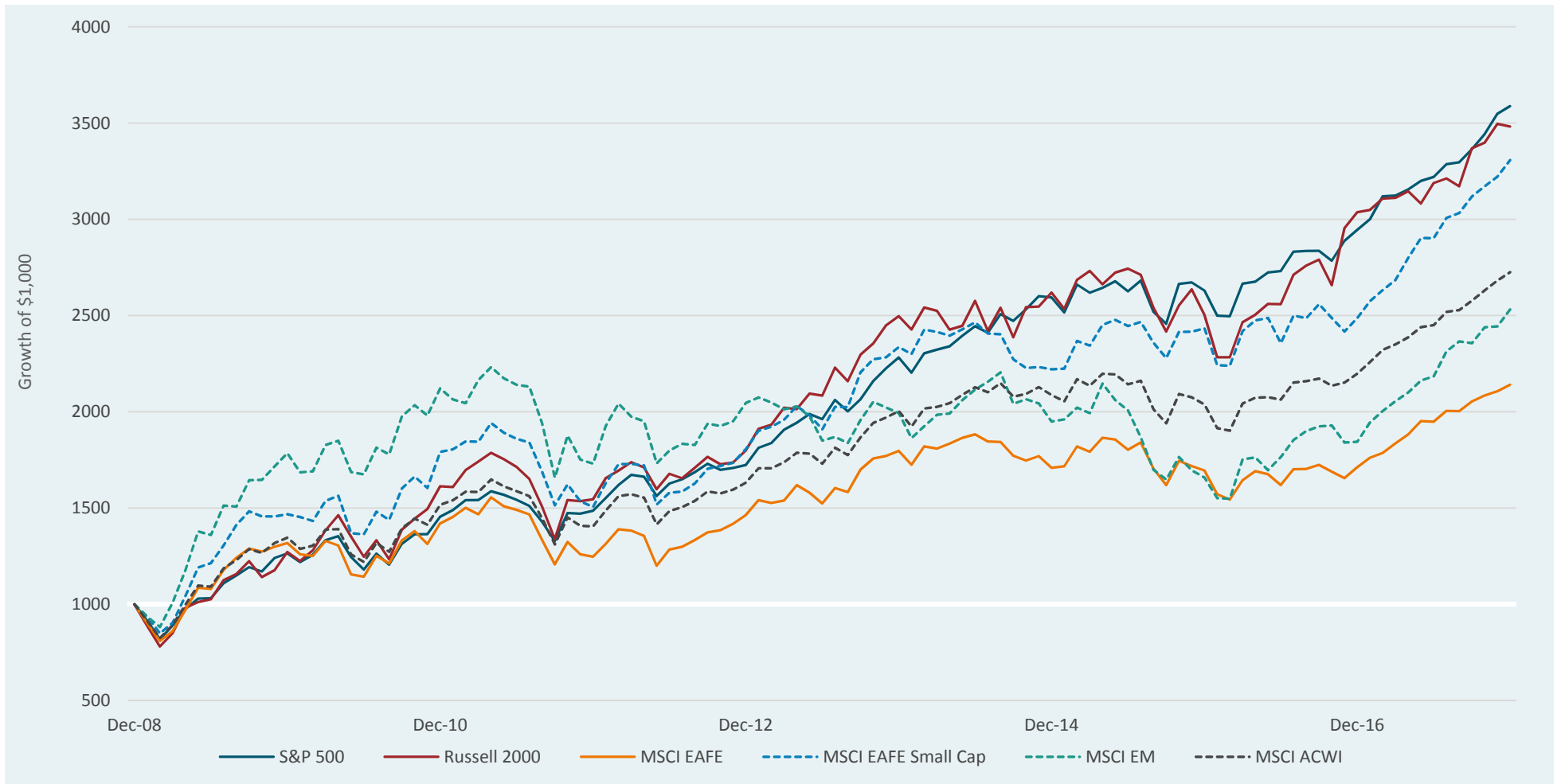
Source: Bloomberg, as of 12/31/17

U.S. VOLATILITY SKEW



Source: CBOE, as of 12/31/17

Long-term equity performance



Source: MPI, as of 12/31/17

Other assets

Real estate

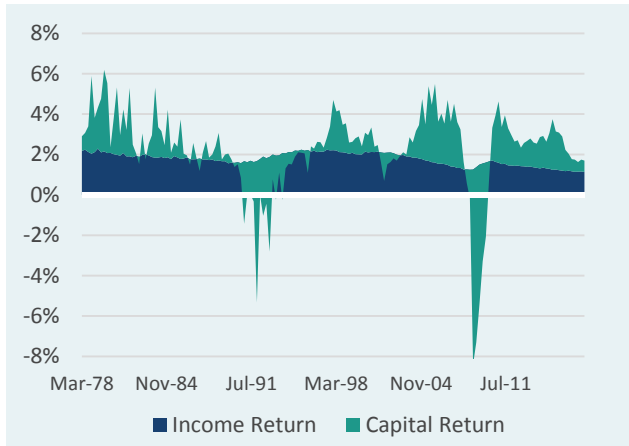
The core real estate market experienced lower returns in recent quarters than earlier in the cycle as price appreciation has slowed. In the third quarter, the NCREIF Property Index returned 1.7%, of which a net 1.1% came from income. With cap rates at 4.4% as of September 30th, further real estate price appreciation may be difficult. Income will likely continue to play a central role in overall returns.

Although valuations are high, fundamentals remain positive. Growth in net operating income (NOI) has leveled out, but is still healthy at 5.2% and transaction volumes are

above average. NOI growth has been driven by industrial properties, which have benefitted from the expansion of e-commerce. On the other side of the e-commerce trend, retail properties have experienced weak NOI growth. The downtrend in vacancy rates has flattened out, but vacancies are still low relative to history at 6.7%.

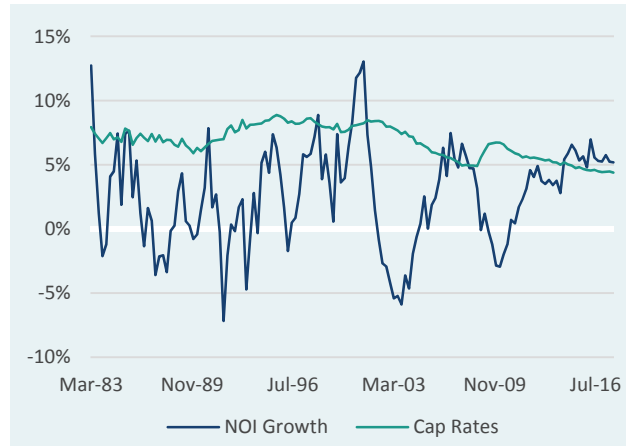
Given where real estate stands in the cycle, we recommend a conservative approach to leverage, liquidity, and quality. We are more constructive on core real estate, as opposed to value add or opportunistic.

NCREIF PROPERTY INDEX RETURNS



Source: NCREIF, as of 9/30/17

NOI GROWTH & CAP RATES



Source: NCREIF, as of 9/30/17

VACANCY RATES



Source: NCREIF, as of 9/30/17

Currency

The U.S. dollar was little changed in the fourth quarter, but finished the year down 7%. Investors with unhedged international asset exposure have seen large disparities in performance as currency movement continued to contribute to volatility and uncertainty.

Recent strengthening of developed and developing economies relative to the U.S. has likely contributed to U.S. dollar weakness. The U.S. Federal Reserve is engaged in monetary tightening, which implies a stronger dollar on a standalone basis. However, U.S. growth expectations

have shifted relative to international economies which has influenced exchange rates and contributed to recent U.S. dollar movement. Fluctuations in relative growth expectations implies changes in expected inflation and interest rate levels, which directly impacts the foreign exchange market.

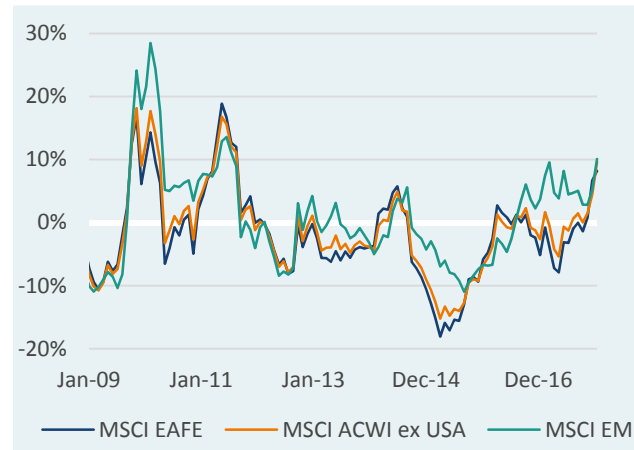
Forecasting currency movement over short periods of time can be extremely difficult. Hedging currency risk is an appropriate method for mitigating currency volatility and uncertainty.

U.S. DOLLAR TRADE WEIGHTED INDEX



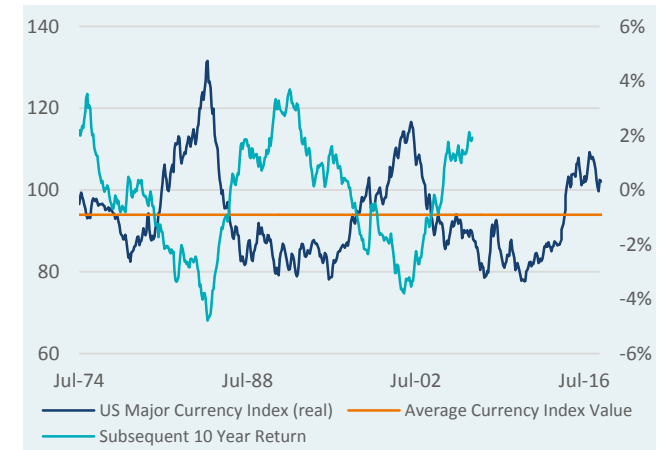
Source: Federal Reserve, as of 12/27/17

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MPI, as of 12/31/17

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 12/31/17

Appendix

Periodic table of returns

	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	37.3	17.3	10.0
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	30.2	15.2	9.2
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	25.0	15.7	8.7
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	22.2	14.1	8.6
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	21.7	14.0	8.2
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	17.1	13.0	7.1
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	14.6	10.3	6.2
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	13.7	7.9	4.3
Small Cap Value	-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	7.8	6.8	4.0
Hedge Funds of Funds	-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	7.7	4.3	1.9
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	5.1	4.0	1.7
US Bonds	-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	3.5	2.1	1.1
Commodities	-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	1.7	0.3	0.3
Cash	-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	0.9	-8.5	-6.8

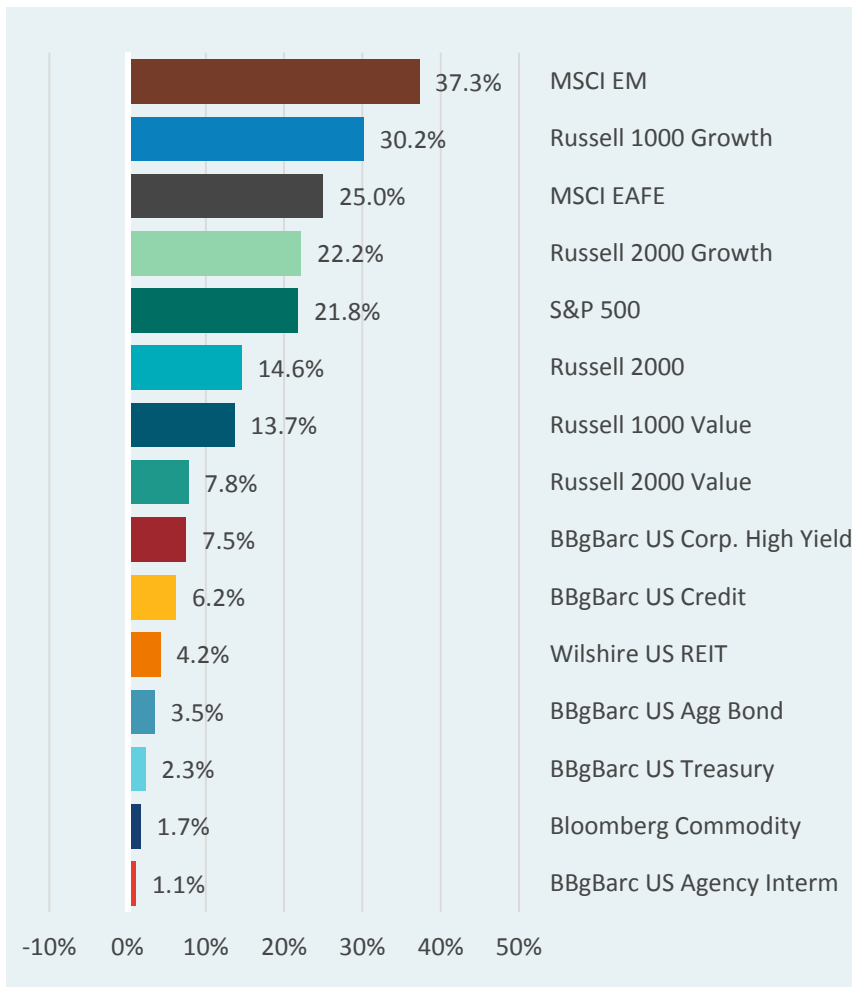
WORST

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

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/17.

Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/17

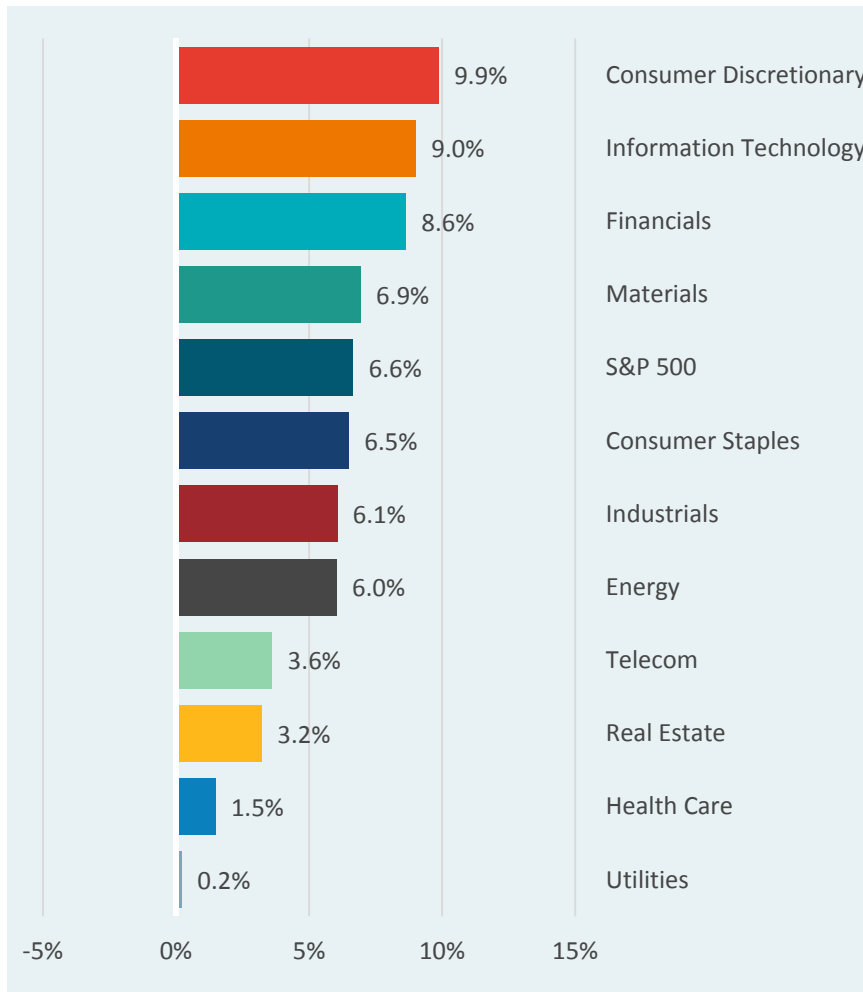
TEN YEARS ENDING DECEMBER



Source: Morningstar, as of 12/31/17

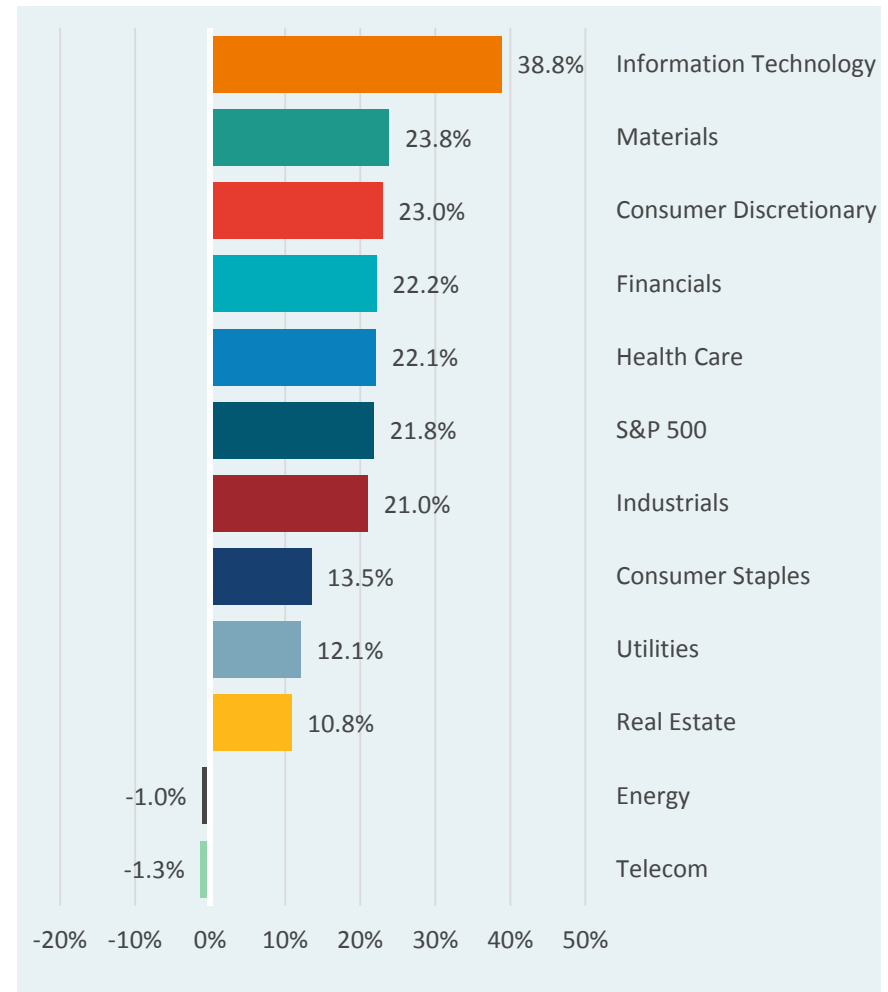
S&P 500 sector returns

4TH QUARTER



Source: Morningstar, as of 12/31/17

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/17

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	1.1	6.6	21.8	21.8	11.4	15.8	8.5
S&P 500 Equal Weighted	1.2	6.2	18.9	18.9	10.1	15.8	10.2
DJ Industrial Average	1.9	11.0	28.1	28.1	14.4	16.4	9.3
Russell Top 200	1.2	6.8	23.0	23.0	11.9	16.0	8.4
Russell 1000	1.1	6.6	21.7	21.7	11.2	15.7	8.6
Russell 2000	(0.4)	3.3	14.6	14.6	10.0	14.1	8.7
Russell 3000	1.0	6.3	21.1	21.1	11.1	15.6	8.6
Russell Mid Cap	0.9	6.1	18.5	18.5	9.6	15.0	9.1
Style Index							
Russell 1000 Growth	0.8	7.9	30.2	30.2	13.8	17.3	10.0
Russell 1000 Value	1.5	5.3	13.7	13.7	8.7	14.0	7.1
Russell 2000 Growth	0.1	4.6	22.2	22.2	10.3	15.2	9.2
Russell 2000 Value	(1.0)	2.0	7.8	7.8	9.5	13.0	8.2

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	1.6	5.7	24.0	24.0	9.3	10.8	4.7
MSCI ACWI ex US	2.2	5.0	27.2	27.2	7.8	6.8	1.8
MSCI EAFE	1.6	4.2	25.0	25.0	7.8	7.9	1.9
MSCI EM	3.6	7.4	37.3	37.3	9.1	4.3	1.7
MSCI EAFE Small Cap	2.7	6.1	33.0	33.0	14.2	12.9	5.8
Style Index							
MSCI EAFE Growth	1.7	5.2	28.9	28.9	9.2	8.8	2.7
MSCI EAFE Value	1.5	3.2	21.4	21.4	6.4	6.9	1.1
Regional Index							
MSCI UK	5.0	5.7	22.3	22.3	4.1	5.2	1.5
MSCI Japan	0.7	8.5	24.0	24.0	11.6	11.2	3.2
MSCI Euro	(0.5)	0.4	26.5	26.5	7.6	7.9	(0.3)
MSCI EM Asia	2.8	8.4	42.8	42.8	11.0	7.9	3.6
MSCI EM Latin American	4.4	(2.3)	23.7	23.7	3.8	(3.2)	(1.7)

Source: Morningstar, as of 12/31/17

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US Treasury US TIPS	0.9	1.3	3.0	3.0	2.1	0.1	3.5
BBgBarc US Treasury Bills	0.1	0.2	0.8	0.8	0.4	0.3	0.5
BBgBarc US Agg Bond	0.5	0.4	3.5	3.5	2.2	2.1	4.0
Duration							
BBgBarc US Treasury 1-3 Yr	0.0	(0.3)	0.4	0.4	0.6	0.6	1.5
BBgBarc US Treasury Long	1.7	2.4	8.5	8.5	2.8	3.5	6.6
BBgBarc US Treasury	0.3	0.1	2.3	2.3	1.4	1.3	3.3
Issuer							
BBgBarc US MBS	0.3	0.2	2.5	2.5	1.9	2.0	3.8
BBgBarc US Corp. High Yield	0.3	0.5	7.5	7.5	6.4	5.8	8.0
BBgBarc US Agency Interm	0.0	(0.3)	1.1	1.1	1.1	1.0	2.5
BBgBarc US Credit	0.8	1.0	6.2	6.2	3.6	3.2	5.4

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	3.0	4.7	1.7	1.7	(5.0)	(8.5)	(6.8)
Wilshire US REIT	(0.1)	1.7	4.2	4.2	5.2	9.3	7.3
CS Leveraged Loans	0.4	1.2	4.2	4.2	4.5	4.3	4.6
Regional Index							
JPM EMBI Global Div	0.7	1.2	10.3	10.3	7.1	4.6	7.3
JPM GBI-EM Global Div	2.0	0.8	15.2	15.2	2.5	(1.5)	3.6
Hedge Funds							
HFRI Composite	0.9	2.5	8.5	8.5	4.2	4.9	3.2
HFRI FOF Composite	0.9	2.0	7.7	7.7	2.6	4.0	1.1
Currency (Spot)							
Euro	0.7	1.6	13.8	13.8	(0.3)	(1.9)	(1.9)
Pound	(0.1)	0.8	9.5	9.5	(4.6)	(3.6)	(3.8)
Yen	(0.7)	(0.1)	3.5	3.5	2.1	(5.2)	(0.1)

Definitions

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

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

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/>)

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Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 6.3

TO: Board of Retirement
FROM: Michael Coultrip, Chief Investment Officer
SUBJECT: Educational Presentation on Risk Parity

Michael R Coultrip

Recommendation

Review the educational report on risk parity and provide direction to staff as needed.

Background

This is the second of two educational presentations that will set the stage for the Board's annual review of SamCERA's asset allocation. In January, Verus provided an educational session on hedge funds and our absolute return portfolio. In February, Scott Whalen from Verus will provide an educational session on risk parity.

SamCERA's target allocation to risk parity is currently 8%.

Discussion

Scott Whalen and Margaret Jadallah from Verus will present this agenda item. They will provide an overview on risk parity, discuss the potential plan level impact of various portfolio allocations to risk parity, and lead a discussion on the potential roles of risk parity within SamCERA's portfolio going forward.

Attachment

Verus Risk Parity Education



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



FEBRUARY 2018

Risk Parity Education

SamCERA

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Role of Risk Parity **TAB III**

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I. Risk Parity Overview

Overview

Risks across asset classes are balanced evenly to target a desired volatility level (typically 10 or 12%.)

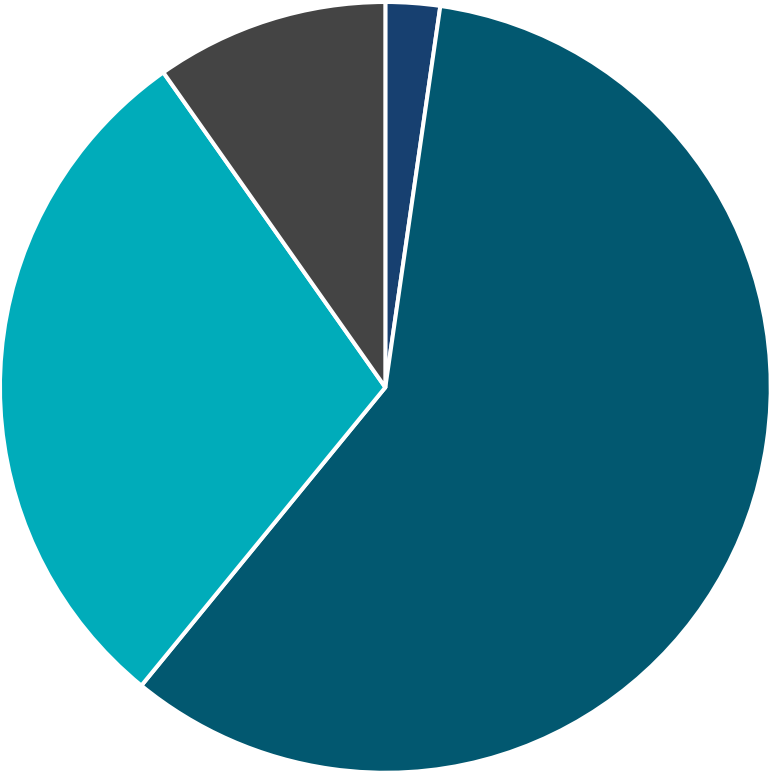
Strategies attempt to provide better risk-adjusted returns (Sharpe ratios) than other asset classes.

Risk Parity use leverage in certain asset classes (eg. fixed income) to achieve a portfolio with equal risk weights.

The goal of risk parity is to achieve equity-like returns with significantly less equity risk.

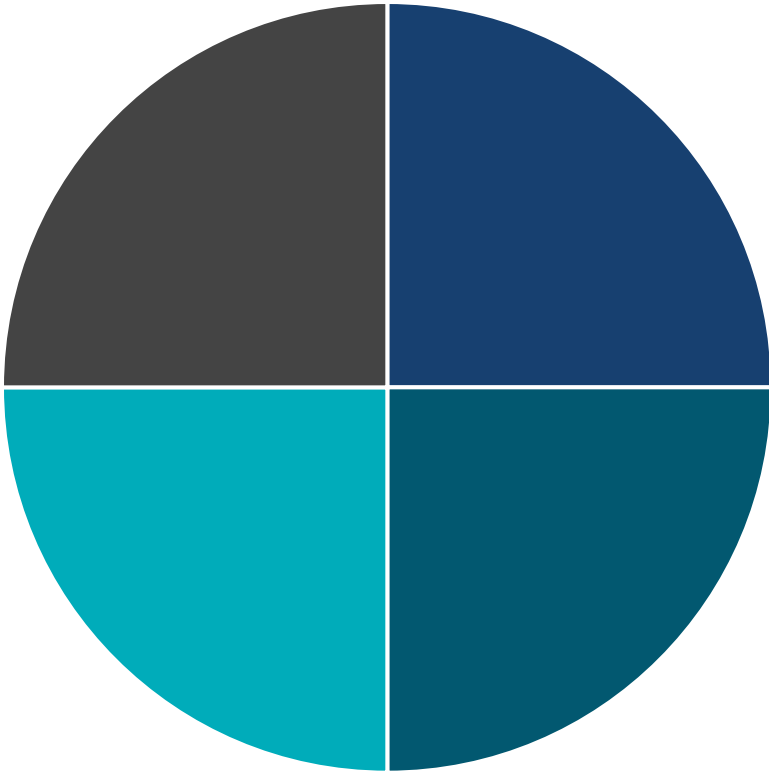
Contribution to risk by asset class

Traditional Portfolio



■ Asset A ■ Asset B ■ Asset C ■ Asset D

Risk Parity



■ Asset A ■ Asset B ■ Asset C ■ Asset D

In practice Risk Parity portfolios vary to some extent from this idealized picture, both for technical reasons and to reflect some degree of active insight

Risk parity

Risk parity is built upon the philosophy of allocating to risk premia rather than to asset classes. Because risk parity by definition aims to diversify risk, the actual asset allocation can appear very different from traditional asset class allocation.

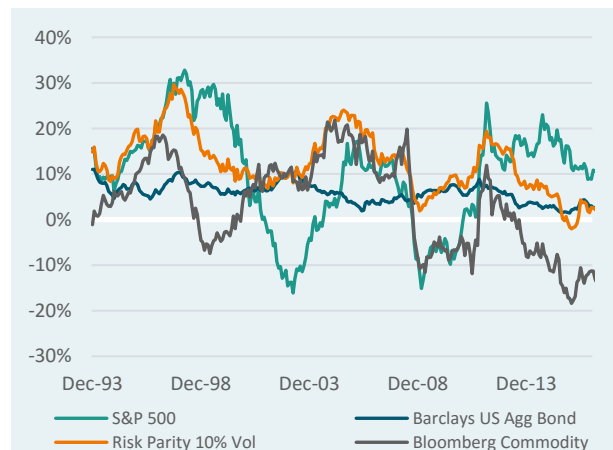
We model risk parity using an assumed Sharpe Ratio of 0.5, which considers the historical performance of risk parity. This assumed Sharpe Ratio is higher than other asset class forecasts, but is consistent with these forecasts because *portfolios* of assets tend to deliver materially higher Sharpe Ratios than individual assets.

The expected return of Risk Parity is determined by this Sharpe Ratio forecast, along with a 10% volatility assumption.

We used a 10-year historical return stream from a market-leading product to represent risk parity correlations relative to the behaviors of each asset class. Risk parity funds are suggested to be better able to withstand various difficult economic environments - reducing volatility without sacrificing return, over longer periods.

It is difficult to arrive at a single model for risk parity, since strategies can differ significantly across firms/strategies. Risk parity almost always requires explicit leverage. The amount of leverage will depend on the specific strategy implementation style, as well as expected correlations and volatility.

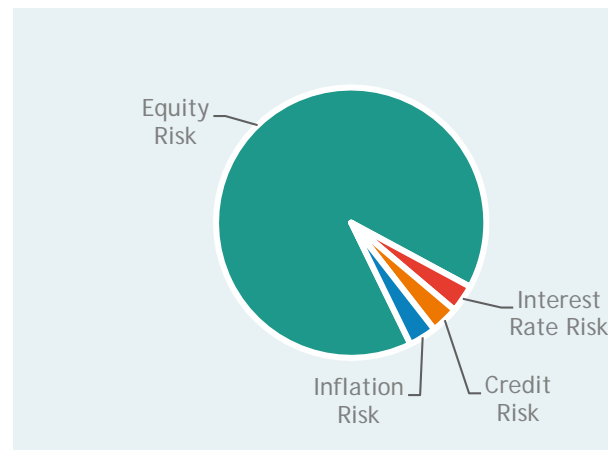
VS. TRADITIONAL ASSET CLASSES



Source: MPI, as of 12/31/17

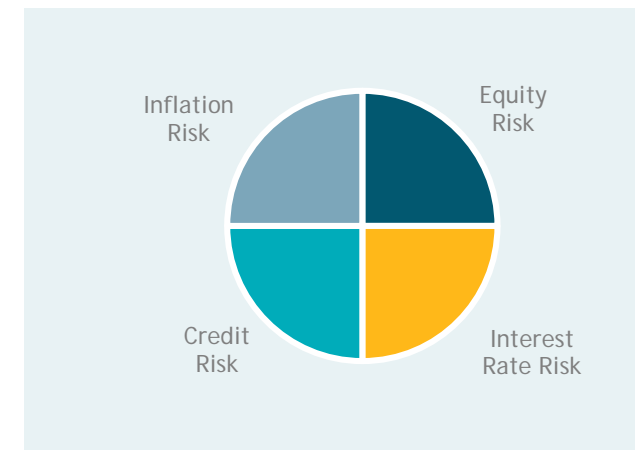
Note: Risk parity is modeled here using the AQR GRP-EL 10% Volatility fund. Performance is back tested prior to February 2015

TRADITIONAL ASSET ALLOCATION



Source: Verus

RISK PARITY



Source: Verus

Risk Parity vs. traditional portfolio construction

THE TRADITIONAL APPROACH TO PORTFOLIO CONSTRUCTION:

- Accepts the volatility level of the asset classes available in the marketplace
- Constructs a portfolio with those asset classes



Each asset class contributes a **different** level of risk to the portfolio.

A RISK PARITY APPROACH:

- Uses leverage to adjust the volatility of each asset class to the same level
- Weights the asset class exposures so that each asset class contributes an equal or similar amount of expected volatility to the portfolio

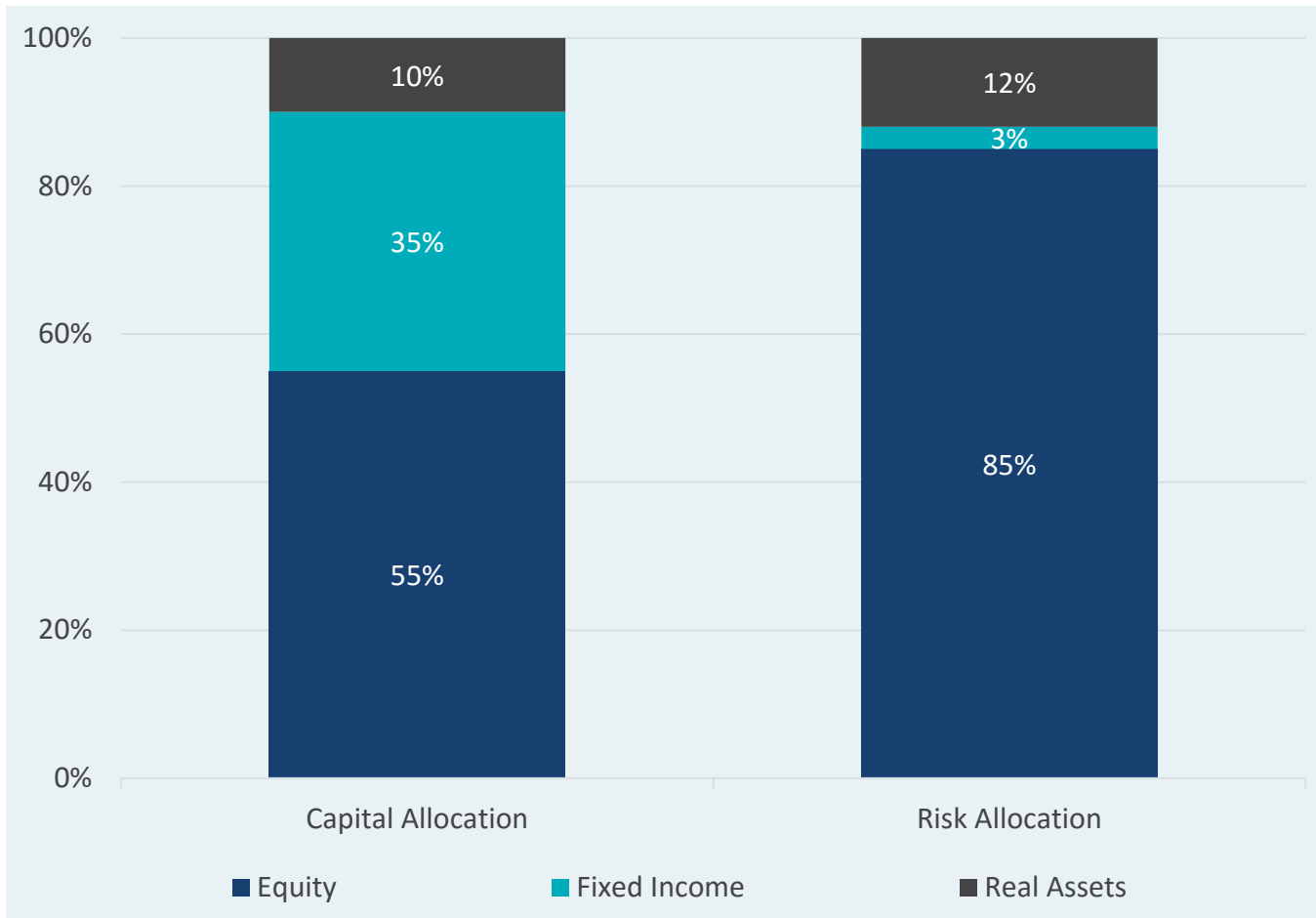


Each asset class contributes the **same or similar** level of risk to the portfolio

Risk Parity is about how you choose to buy betas in your portfolio. It is not an alpha-based strategy.

Traditional portfolio

CAPITAL AND RISK ALLOCATION

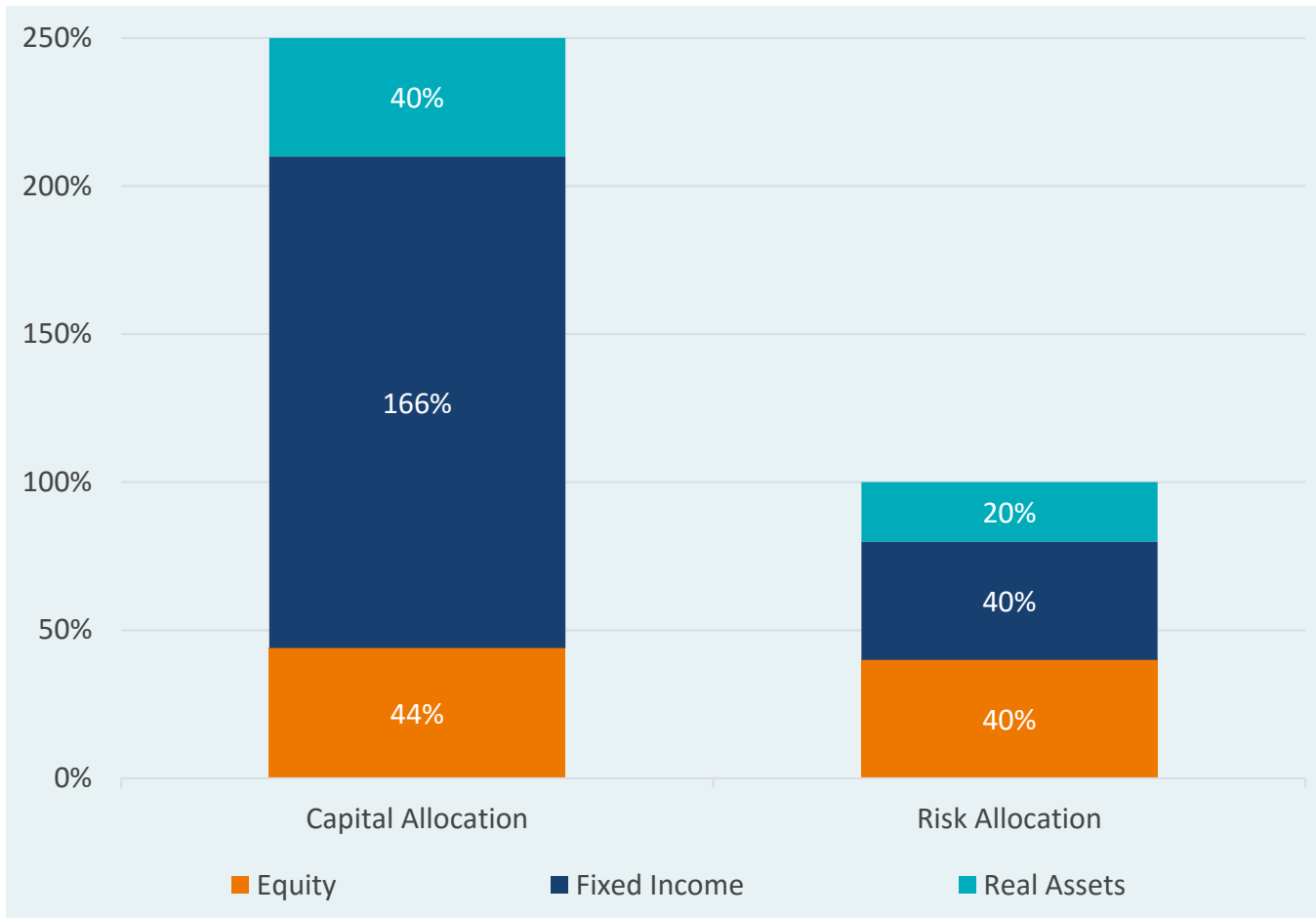


The traditional approach to portfolio construction may result in the Plan closely tracking the outcome of the equity market.

Source: PanAgora Asset Management, Inc.

Risk Parity portfolio

CAPITAL AND RISK ALLOCATION

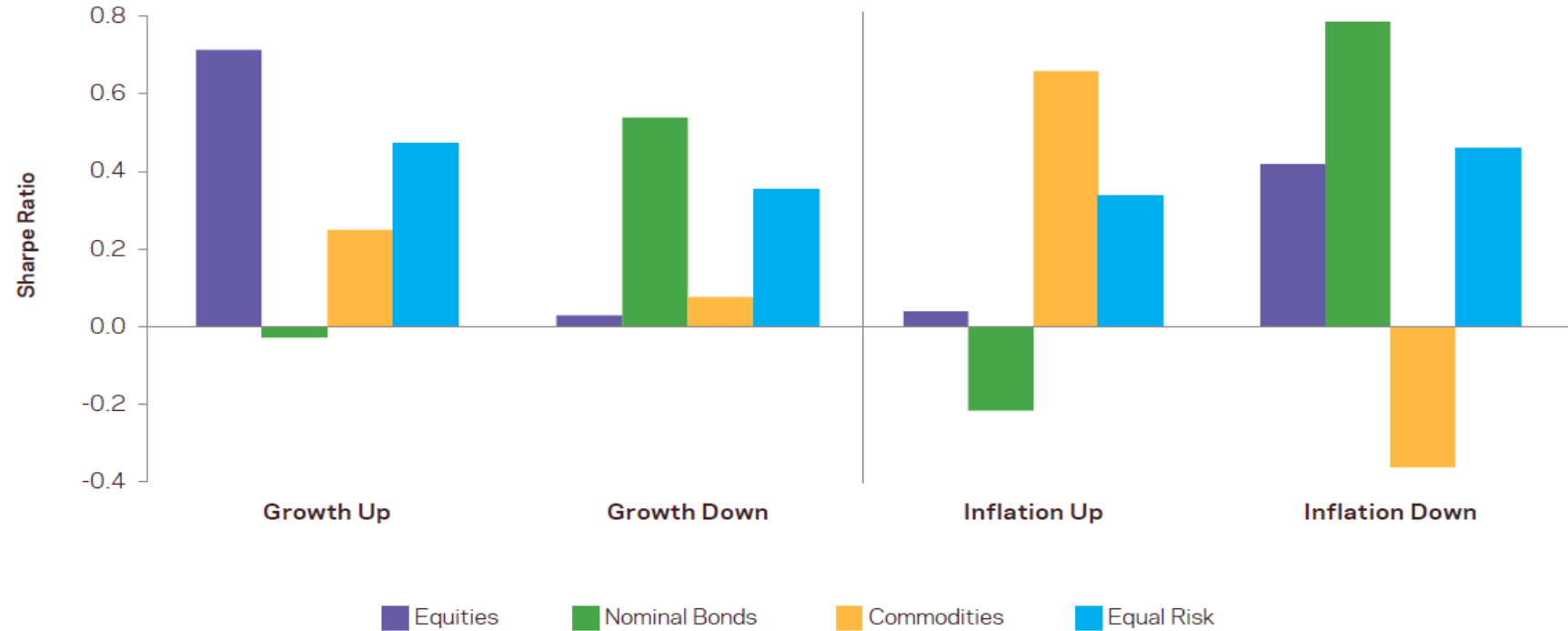


The Risk Parity approach, through the use of leverage, weights assets so that all investments influence the portfolio similarly.

Source: PanAgora Asset Management, Inc.

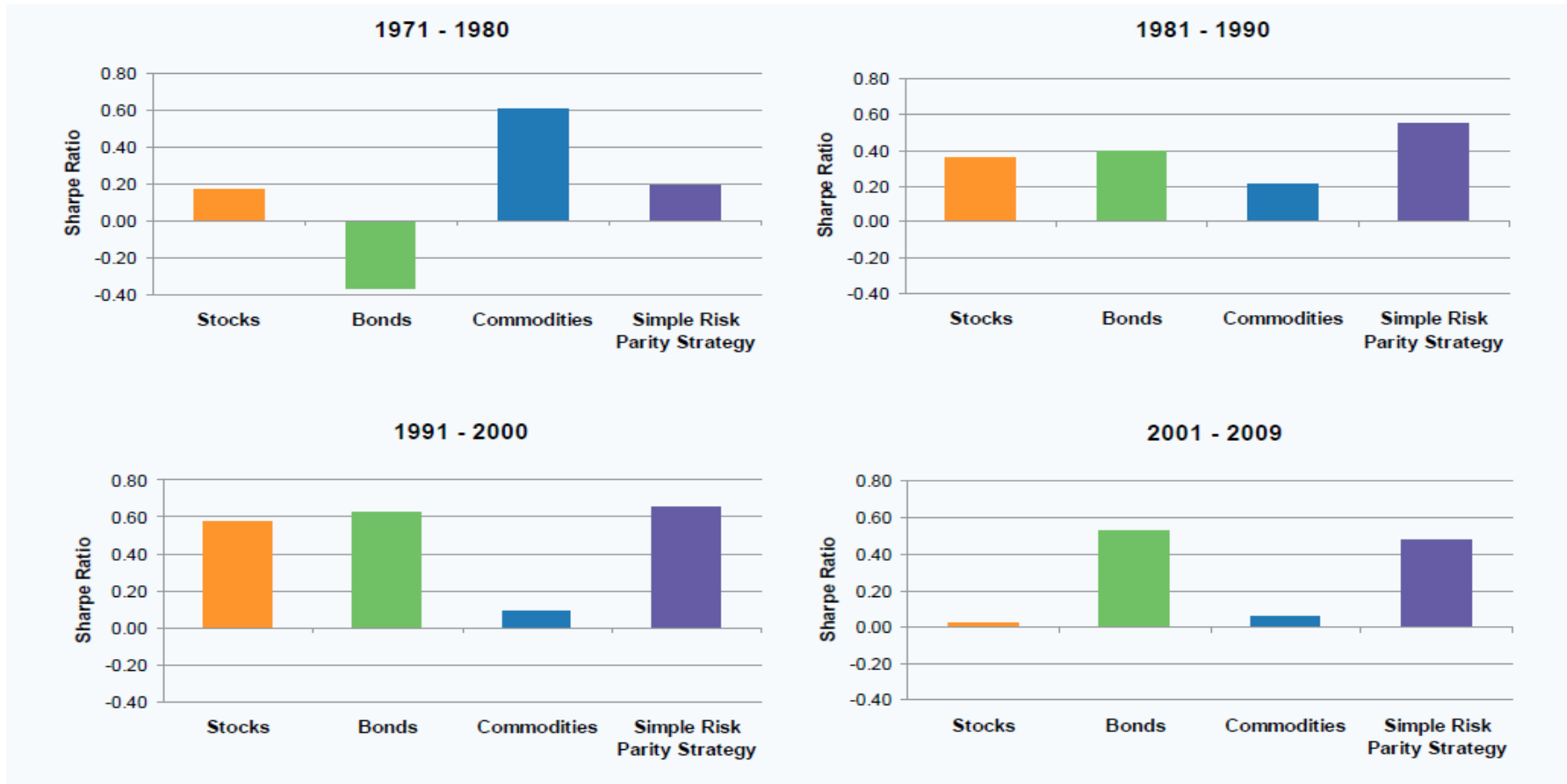
Contribution to risk by asset class

Asset Class and Portfolio Risk Adjusted Returns in Different Macro Environments
 January 1972-December 2015



Source: AQR, Barclays Live, Bloomberg, Ibbotson Associates (Morningstar). The *Equal Risk Weight Strategy* is constructed by allocating equal risk, rebalanced monthly, across three asset classes based on the previous 12 month realized volatility to target a total annualized portfolio volatility of 10%. Equities are defined as the MSCI World Index. Bonds are defined as the Barclays Capital U.S. Government Index and, prior to 1976, the Ibbotson U.S. Intermediate Government Bond Index. Commodities are defined as the S&P GSCI Total Return Index. The risk free rate is assumed to be the U.S. 3-month Treasury Bill in Sharpe ratio calculations. Please see the Appendix for more details on the macroeconomic environmental indicators. Past performance is not a guarantee of future performance. Please read

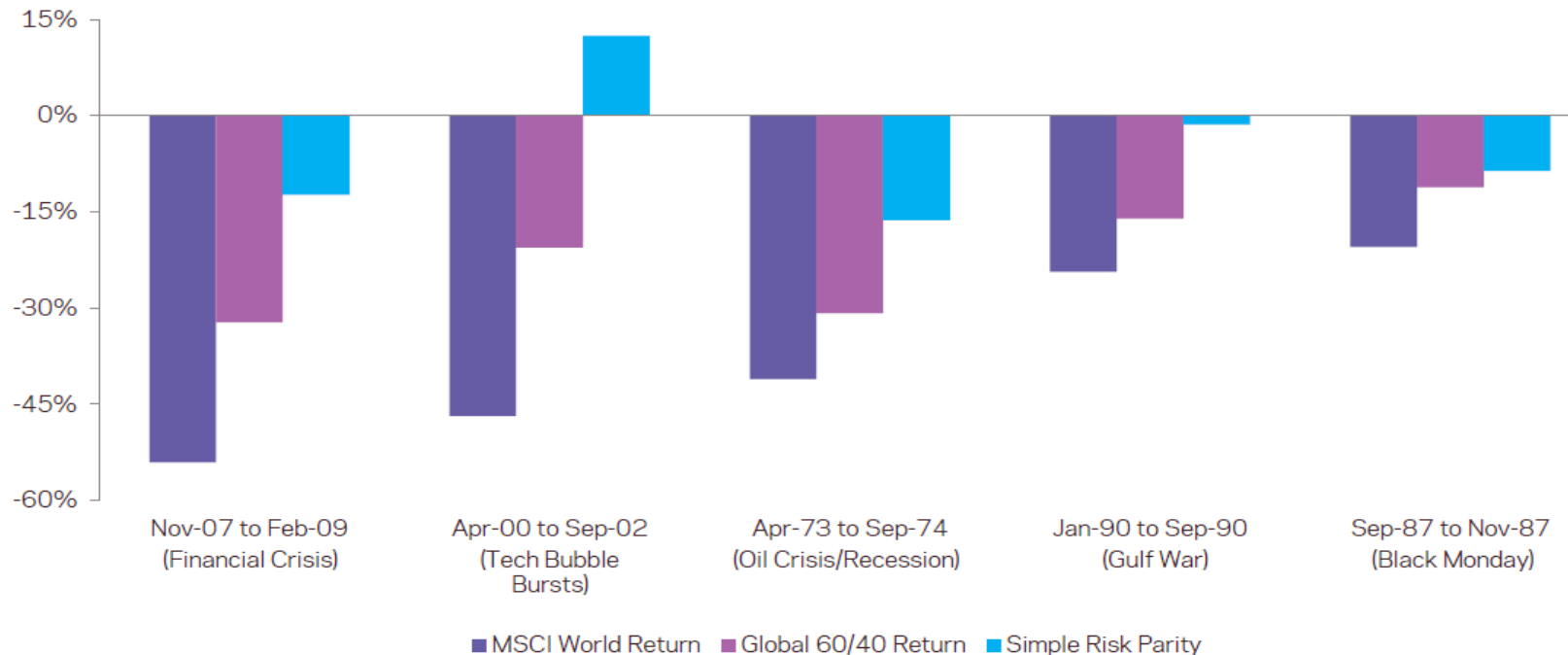
Sharpe Ratio over various market environments



Source: AQR. MSCI World Index (stocks), Barclays Capital U.S. Government Index and Ibbotson U.S. Intermediate Government Bond Index (before 1976) [bonds] and the S&P GSCI Total Return Index (commodities). The simulated Simple Risk Parity Strategy is based on a hypothetical portfolio. This analysis has been provided for illustrative purposes only and is not based on an actual portfolio AQR manages. Past performance is not a guarantee of future performance.

Sample Performance during drawdowns

Worst 5 Drawdowns for MSCI World
January 1970-December 2016

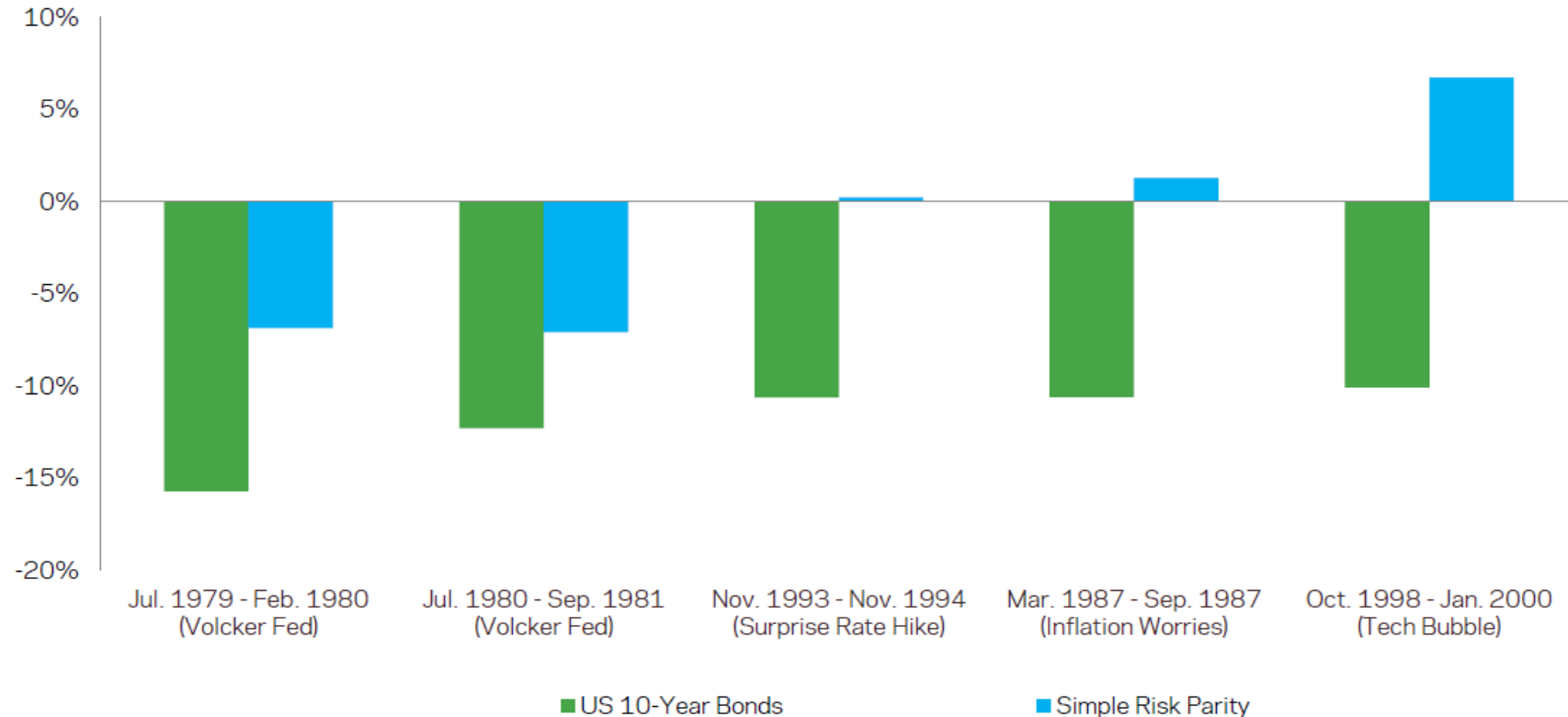


Source: AQR, Bloomberg. Global 60/40 Portfolio is based on 60% MSCI World Index and 40% Barclays Capital Global Aggregate Bond Index from January 1, 1970, through December 31, 2016. Hypothetical Simple Risk Parity is constructed by AQR by allocating equal risk, rebalanced monthly, across three asset classes (equities, bonds and commodities) based on each asset class' previous 12 month realized volatility to target a total annualized portfolio volatility of 10%. Please see Appendix for detailed construction methodology. Please read important disclosures in the Appendix. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix.

Sample Performance during drawdowns

Worst 5 Drawdowns for U.S. Bonds with Simple Risk Parity

January 1947-December 2016



Sources: AQR, Bloomberg. Bonds are based on the Barclays Capital U.S. Government Index (we use Barclays U.S. instead of Barclays Global Aggregate Index as it goes back significantly further in time). Hypothetical Simple Risk Parity is constructed by AQR by allocating equal risk, rebalanced monthly, across three asset classes (equities, bonds and commodities) based on each asset class' previous 12 month realized volatility to target a total annualized portfolio volatility of 10%. Please see Appendix for detailed construction methodology. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. Please read important disclosures in the Appendix.

Argument for/against Risk Parity

Argument For

- Higher risk-adjusted returns/ Sharpe Ratios
- Provides risk diversification
- Relatively low cost strategy
- Adaptive to market environments
- Addresses goal of reducing equity risk identified in the ALM study

Argument Against

- Will underperform in strong bull markets
- Adds complexity to the portfolio
- Look through to asset classes
- Difficult to benchmark
- Current portfolio has greater diversification than when risk parity was initially implemented

II. Plan Level Impact

Total plan level impact during stress periods

— The chart below illustrates the net current return impact on a the policy portfolio looking at portfolios with varying degrees of risk parity allocations (0% to 20%) across a variety of historical stress environments. As equity markets fell sharply during the Oil Crisis ('72 – '74), the increased risk parity option would have resulted in a larger impact by preserving value. In contrast, equities strongly rallied during the '97 – '99 Oil Decline so that increased risk parity portfolio lagged.



Source: MSCI Barra, Verus

III. Role of Risk Parity

Original reasoning for Risk Parity

- Ability to generate equity-like returns over time in a risk-controlled manner.
- Reduced likelihood of a substantial drawdown relative to public equities.
- Diversified exposure to a variety of global asset classes and markets, but with better risk-adjusted returns (e.g., higher Sharpe Ratio) than traditional balanced portfolios.
- Enhanced stability and consistency of returns across different economic environments and market cycles (most institutional portfolios are biased towards rising growth and falling inflation environments, and are ill-equipped to handle periods of falling growth and/or rising inflation).
- Greater portfolio liquidity than a standard portfolio mix that includes asset classes such as private equity and real estate.

Are there other ways to achieve Risk Parity?

- Splitting Risk Parity into each asset class bucket
 - Increases transparency
 - Will not be actively managed in a risk on/risk off environment
 - Risk Parity is an asset type and does not fit into one category (diversifying, growth, real return)
- Customizing Risk Parity to exclude Equities/Credit risk
 - Will lower overall portfolio's allocation to equity risk
 - Less diversified Risk Parity
- Add to other diversifying asset classes
 - The asset class in diversifying that would provide somewhat similar objectives as Risk Parity is alternative beta (within absolute return)
 - Increases costs and potentially increases complexity
- Maintain current Risk Parity exposure
 - *Does this do enough to balance risks at current allocation?*
 - *Does this introduce too much complexity to warrant inclusion?*

Ways to implement Risk Parity

Small Allocation

- Add a small allocation (10% or less) of Risk Parity to an otherwise standard portfolio
- Allows the investor to experience the effect of Risk Parity
- Provides some attenuation of volatility through time
- Improve total portfolio Sharpe Ratio (a bit)

Full Conviction

- Use Risk Parity as a dominant means to access major market betas
- Allocate significant exposure (20% or more) to Risk Parity
- Complement with allocations to Absolute Return Alt Beta
- Barbell risk-diversified strategies with allocation to strongly focused alpha generators

Next Steps

- Solicit feedback from the Board in deciding if risk parity fits it's objectives
- Review SamCERA's Asset Allocation in May

IV. Appendix

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)	
		Geometric	Arithmetic						
Equities									
U.S. Large	S&P 500	4.5%	5.6%	15.7%	0.15	0.22	0.50	0.56	
U.S. Small	Russell 2000	4.4%	6.5%	21.5%	0.10	0.20	0.36	0.44	
International Developed	MSCI EAFE	8.6%	10.1%	18.1%	0.35	0.44	0.11	0.2	
International Developed Hedged	MSCI EAFE Hedged	8.6%	9.8%	16.2%	0.40	0.47	0.21	0.28	
International Small	MSCI EAFE Small Cap	7.9%	10.2%	22.7%	0.25	0.35	0.24	0.33	
International Small Hedged	MSCI EAFE Small Cap Hedged	7.9%	9.7%	20.1%	0.28	0.37	0.36	0.43	
Emerging Markets	MSCI EM	7.3%	10.4%	26.6%	0.19	0.31	0.17	0.28	
Global Equity	MSCI ACWI	6.3%	7.7%	17.5%	0.23	0.31	0.27	0.35	
Private Equity	Cambridge Private Equity	7.0%	9.9%	25.8%	0.19	0.30	0.93	0.92	
Fixed Income									
Cash	30 Day T-Bills	2.2%	2.2%	1.2%	-	-	-	-	
U.S. TIPS	BBgBarc U.S. TIPS 5 - 10	2.6%	2.7%	5.5%	0.07	0.09	0.57	0.59	
U.S. Treasury	BBgBarc Treasury 7-10 Year	2.4%	2.6%	6.8%	0.03	0.06	0.68	0.70	
Global Sovereign ex U.S.	BBgBarc Global Treasury ex U.S.	2.7%	3.2%	9.9%	0.05	0.10	0.30	0.33	
Global Sovereign ex U.S. Hedged	BBgBarc Global Treasury ex U.S. Hedged	2.7%	2.8%	3.3%	0.15	0.18	1.23	1.22	
Core Fixed Income	BBgBarc U.S. Aggregate Bond	2.9%	3.1%	6.4%	0.11	0.14	1.09	1.08	
Core Plus Fixed Income	BBgBarc U.S. Corporate IG	3.3%	3.6%	8.4%	0.13	0.17	0.81	0.81	
Short-Term Gov't/Credit	BBgBarc U.S. Gov't/Credit 1 - 3 year	2.5%	2.6%	3.7%	0.08	0.11	1.36	1.34	
Short-Term Credit	BBgBarc Credit 1-3 Year	2.4%	2.5%	3.7%	0.05	0.08	1.05	1.05	
Long-Term Credit	BBgBarc Long U.S. Corporate	3.5%	3.9%	9.4%	0.14	0.18	0.64	0.67	
High Yield Corp. Credit	BBgBarc U.S. Corporate High Yield	3.7%	4.3%	11.6%	0.13	0.18	0.64	0.67	
Bank Loans	S&P/LSTA	4.9%	5.4%	10.5%	0.26	0.30	0.48	0.51	
Global Credit	BBgBarc Global Credit	1.7%	2.0%	7.6%	-0.07	-0.03	0.59	0.61	
Global Credit Hedged	BBgBarc Global Credit Hedged	1.7%	1.8%	5.0%	-0.10	-0.08	1.01	1.00	
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.1%	5.9%	12.8%	0.23	0.29	0.74	0.76	
Emerging Markets Debt (Local)	JPM GBI EM Global Diversified	5.8%	6.5%	12.1%	0.30	0.36	0.31	0.37	
Private Credit	Bank Loans + 200 bps	6.9%	7.5%	10.5%	0.45	0.50	-	-	
Other									
Commodities	Bloomberg Commodity	4.3%	5.5%	15.9%	0.13	0.21	-0.33	-0.25	
Hedge Funds	HFRI Fund of Funds	4.0%	4.8%	7.9%	0.23	0.33	0.21	0.23	
Hedge Fund of Funds	HFRI Fund of Funds	3.0%	3.8%	7.9%	0.10	0.20	0.21	0.23	
Hedge Funds - Equity Hedge	HFRI Equity Hedge	4.2%	5.5%	11.1%	0.18	0.30	0.36	0.39	
Hedge Funds - Event Driven	HFRI Event Driven	4.5%	5.6%	9.9%	0.22	0.34	0.55	0.57	
Hedge Funds - Relative Value	HFRI Relative Value	3.9%	4.5%	6.8%	0.25	0.34	0.89	0.89	
Hedge Funds - Macro	HFRI Macro	3.3%	4.7%	8.5%	0.12	0.29	0.43	0.44	
Core Real Estate	NCREIF Property	6.0%	6.7%	12.7%	0.30	0.35	0.77	0.75	
Value-Add Real Estate	NCREIF Property + 200bps	8.0%	9.7%	19.5%	0.30	0.38	-	-	
Opportunistic Real Estate	NCREIF Property + 400bps	10.0%	12.9%	26.0%	0.30	0.41	-	-	
REITs	Wilshire REIT	6.0%	7.7%	19.5%	0.19	0.28	0.16	0.28	
Infrastructure	S&P Global Infrastructure	7.1%	8.7%	18.9%	0.26	0.34	0.27	0.34	
Risk Parity	Risk Parity	7.2%	7.7%	10.0%	0.50	0.55	-	-	
Currency Beta	Russell Conscious Currency	2.2%	2.3%	4.4%	0.00	0.02	0.23	0.24	
Inflation		2.1%	-	-	-	-	-	-	

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

Alternative Beta characteristics

- A portion of a hedge fund's returns do not just reflect the manager's skill (alpha), but can be attributed to common risk factors (beta)
- Hedge fund betas reflect the fact that similar strategies are exposed to common systematic risks.
- Alt Beta managers seek to efficiently capture these generic variations and systematic risk exposures of common hedge fund strategies.
- These funds typically offer cost savings, increased transparency, and greater liquidity when compared to direct hedge fund or hedge fund of funds investments.

Alternative Beta characteristics

Characteristics	Detail
Low fee structure	<ul style="list-style-type: none"> — Hedge funds typically charge a 1.5-2% management fee and 15-20% performance fee, while Alt Beta strategies typically have a management fee of 1% or lower, and may have performance fees ranging from 10-20%. — Alt Beta offerings are multi-strategy (i.e. exposure to various hedge fund strategies such as long/short equity and global macro) and investors receive the benefit of performance netting on any performance fees.
Strategy bias	<ul style="list-style-type: none"> — Alt Beta strategies are generally liquid and fully funded, which can be an advantage. However, certain hedge fund strategies have been difficult to replicate because of a focus on concentrated, idiosyncratic, or illiquid strategies. As a result, Alt Beta funds tend to bias toward strategies with lower barriers to entry and traffic in more liquid markets.
Performance sensitivity	<ul style="list-style-type: none"> — Alt Beta funds generally fall under two approaches – those that try to generate returns similar to the underlying hedge fund strategies and those that try to isolate specific return drivers within a strategy in a market-neutral approach. For example, conventional long-short equity hedge funds are typically not run in a market-neutral fashion (i.e. beta to equities ranges from 0.2 to 0.5). However, an Alt Beta manager may choose to replicate the long-short equity strategy by isolating value or momentum factors in a market neutral sense and run the portfolio with a beta of 0 to equities. This difference in exposure to common market beta is often a driver of relative under/outperformance, particularly when markets rally or sell-off significantly.

Risk Parity and AR Alt Beta Comparison

Similarities

- Higher risk-adjusted returns/Sharpe Ratios
- Provides risk diversification
- Relatively low cost strategy
- Reduces equity risk; underperforms in strong bull market
- Transparent; rules-based; liquid
- Use of moderate leverage
- Equal risk weighting in portfolio
- Benchmark mismatch
- Adds complexity to SamCERA portfolio

Differences

- Risk Parity has greater market beta than AR Alt Beta
- Risk Parity is lower cost than AR Alt Beta
- Risk Parity is higher risk (volatility) than AR Alt Beta
- Risk Parity has, on average, longer track records, than AR Alt Beta
- Risk Parity look through complexity more pronounced than with AR Alt Beta (across and within asset classes)

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

February 27, 2018

Agenda Item 6.4

TO: Board of Retirement

Michael R Coultrip

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Approval of Proposed Alternative Investment (Confidential Under Gov. Code §54956.81 and §6254.26, to be heard in Closed Session, C2)

Recommendation

Approve a commitment of \$20 million to LS Power IV, as part of SamCERA's infrastructure portfolio within private real assets.

Discussion

In closed session, John Nicolini (Verus) will present this agenda item, including a review of the firm and investment process.

Attachments

- A. Verus Recommendation - LS Power IV (Confidential)
- B. Verus Memo - LS Power IV (Confidential)
- C. LS Power Equity Partners IV Investor Presentation (Confidential)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 7.1

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer
Chezelle Milan, Senior Accountant *CBM*
Lilibeth Dames, Investment Analyst *Ldy*

SUBJECT: Preliminary Financial Statements for the Six-Month Period Ended December 31, 2017

Staff Recommendation

Accept the Preliminary Financial Statements for the Six-Month Period Ended December 31, 2017.

Background

The preliminary financial statements provide financial information on SamCERA's financial position as of December 31, 2017, and its operating results for the six-month period ended December 31, 2017.

The *Statement of Fiduciary Net Position* (balance sheet) provides a snapshot of the account balance as of December 31, 2017. This Statement indicates the amount of fiduciary net position (total assets minus total liabilities) available to pay future pension benefits. Over time, increases and decreases in net position may serve as a useful indicator of whether the financial health of SamCERA is improving or declining. Other factors, such as market conditions, should also be considered in measuring SamCERA's overall financial health.

The *Statement of Changes in Fiduciary Net Position* (income statement) reports additions to, and deductions from, SamCERA's fiduciary net position for the six-months ended December 31, 2017. "Additions" consist of contributions from plan sponsors and members, investment income net of investment expenses, securities lending income net of related expenses, and other additions. "Deductions" include member benefits, member refunds, administrative and other expenses.

Summary

SamCERA's financial position improved modestly over the six-months ended December 31, 2017. Its net position increased \$294 million, or 7%, to \$4.3 billion, fueled mainly by an appreciation of investments.

Statement of Fiduciary Net Position

The table below shows SamCERA's preliminary Statement of Fiduciary Net Position as of December 31, 2017. Its assets and liabilities as of December 31, 2017, were compared to those as of July 1, 2017, to reflect changes over the first six-months of the fiscal year. Significant changes are discussed below.

Statement of Fiduciary Net Position

	Preliminary	Actual	Increase (Decrease)	
	12/31/17	7/1/17	Amount	Percentage
ASSETS:				
Cash and Cash Equivalents	\$ 42,371,309	\$ 192,194,061	\$ (149,822,752)	-78%
Cash Management Overlay	16,847,333	25,207,998	(8,360,665)	-33%
Securities Lending Cash Collateral	812,253	-	812,253	N/A
Subtotal - Cash and Other Cash Related Activities	<u>60,030,895</u>	<u>217,402,059</u>	<u>(157,371,164)</u>	-72%
Receivables				
Contributions	-	8,622,173	(8,622,173)	-100%
Due from Broker for Investments Sold	11,284,035	8,273,972	3,010,063	36%
Investment Income	4,555,431	8,406,749	(3,851,318)	-46%
Securities Lending Income	3,727	-	3,727	N/A
Other Receivable	95,307	95,657	(350)	0%
Subtotal - Receivables	<u>15,938,500</u>	<u>25,398,551</u>	<u>(9,460,051)</u>	-37%
Prepaid Expense	7,669	7,669	-	0%
Investments at Fair Value				
Fixed Income	889,922,844	741,361,558	148,561,286	20%
Equity	1,833,662,014	1,714,975,800	118,686,214	7%
Alternatives	514,977,256	480,730,879	34,246,377	7%
Risk Parity	316,216,345	291,757,142	24,459,203	8%
Inflation Hedge	703,186,153	573,336,864	129,849,289	23%
Subtotal - Investment at Fair Value	<u>4,257,964,612</u>	<u>3,802,162,243</u>	<u>455,802,369</u>	12%
Fixed Assets	7,684,679	7,629,373	55,306	1%
TOTAL ASSETS	<u>4,341,626,355</u>	<u>4,052,599,895</u>	<u>289,026,460</u>	7%
LIABILITIES:				
Payable - Investment Management Fees	1,873,820	1,822,557	51,263	3%
Due to Broker for Investments Purchased	4,966,344	9,416,634	(4,450,290)	-47%
Securities Lending Cash Collateral - Due to Borrowers	814,527	-	814,527	N/A
Other	968,302	2,658,714	(1,690,412)	-64%
TOTAL LIABILITIES	<u>8,622,993</u>	<u>13,897,905</u>	<u>(5,274,912)</u>	-38%
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 4,333,003,362</u>	<u>\$ 4,038,701,990</u>	<u>\$ 294,301,372</u>	7%

Assets. SamCERA's total assets increased \$289 million, or 7%, due primarily to the following:

- Cash and Cash Equivalents decreased \$150 million, or 78%. The cash balance as of July 1, 2017, was substantially higher than normal, caused mainly by the County's supplemental contribution of \$33.6 million in late June 2017. The cash was subsequently drawn down to fund new investments and pension benefit payments.
- Cash Management Overlay decreased \$8 million, or 33%. Surplus cash in the Cash Management Overlay account was drawn to fund new investments.

- Securities Lending Cash Collateral increased approximately \$1 million. After an amendment to the securities lending program guidelines, SamCERA resumed its securities lending activity in fiscal year 2018 to add incremental income. Under the securities lending program, SamCERA received cash collateral for securities on loan.
- Receivables overall decreased \$9 million, or 37%. Most of the receivables from the prior year-end were either fully paid or reversed in July 2017. The receivables as of December 31, 2017, represented unsettled transactions from redemption of certain securities as well as investment income earned but not yet received.
- Investments overall increased \$456 million, or 12%. The increase was mainly from new investments and an appreciation of investments. In an effort to rebalance its portfolio, SamCERA increased its investment by \$140 million in fixed income securities, \$20 million in alternatives, \$101 million in inflation hedge, and decreased its investment in equities by \$65 million. The rest of the increase represented capital appreciation of investments due to continued strong investment performance under favorable economic conditions.

Liabilities. SamCERA's total liabilities decreased \$5 million, or 38%, due mainly to the following:

- Monies due to broker for investments purchased decreased \$4 million, or 47%. Most of the amounts carried from last fiscal year were fully settled in July 2017. The payables as of December 31, 2017, resulted mainly from unsettled transactions for investment purchased in late December.
- Securities lending cash collateral due to borrowers increased approximately \$1 million. SamCERA participated in securities lending transactions and is obligated to return all cash collateral received when the agreed upon criteria are met.

Statement of Changes in Fiduciary Net Position

SamCERA's preliminary Statement of Changes in Fiduciary Net Position (income statement) for the six-months ended December 30, 2017, is presented on page 4. Additions to and deductions from the Retirement Fund for the first half year were compared to those of the same period last year. Significant changes are discussed below.

Additions. Total additions to the Retirement Fund during the first half year was \$399 million, which was \$121 million higher than the same period last year. Significant changes are discussed below:

- Regular Employer Contributions were \$5 million, or 9%, higher than the same period last year. This change reflected an increase in the employer contribution rate from 31.96% in the prior year to 33.76%, the current year.
- Employer Prefunded Contributions were \$12 million, or 377%, higher than the same period last year. As of December 30, 2017, the prepayment from the County was \$8.5 million compared to the \$3.1 million for the same period last year. In addition, the Courts

started making prepayments in fiscal year 2018. The Courts' prepayment balance was \$3.4 million as of December 30, 2017.

- Investment Income overall was \$102 million, or 59%, higher than the same period last year. The increase was fueled by strong investment performance under favorable economic conditions.

Deductions. Total deductions from the Retirement Fund during the first half year was approximately \$105 million, which was \$7 million, or 7%, higher than the same period last year. The increase was mostly seen in the service retirement benefits. The number of retirees increased from 4,846 in December 2016 to 4,990 in December 2017, and the final average compensation for the new retirees were relatively higher.

Statement of Changes in Fiduciary Net Position

	<u>Preliminary</u>	<u>Actual</u>	<u>Increase (Decrease)</u>	
	<u>7/1/17 - 12/31/17</u>	<u>7/1/16 - 12/31/16</u>	<u>Amount</u>	<u>Percentage</u>
ADDITIONS:				
Contributions				
Employee Contribution	\$ 28,906,697	\$ 28,238,075	\$ 668,622	2%
Employer Contributions - Regular	62,090,376	57,081,809	5,008,567	9%
Employer Contributions - COLA	18,561,708	17,426,115	1,135,593	7%
Employer Prefunded Contribution	<u>14,981,043</u>	<u>3,143,409</u>	<u>11,837,634</u>	377%
Subtotal - Contributions	<u>124,539,824</u>	<u>105,889,409</u>	<u>18,650,415</u>	18%
Investment Income				
Interest and Dividends	17,341,728	18,216,150	(874,422)	-5%
Net Appreciation (Depreciation) in fair value of investments	276,846,955	171,096,510	105,750,445	62%
Less: Investment Expense	<u>(19,539,560)</u>	<u>(16,687,971)</u>	<u>(2,851,589)</u>	-17%
Subtotal - Investment Income	<u>274,649,123</u>	<u>172,624,689</u>	<u>102,024,434</u>	59%
Securities Lending Income				
Earnings	28,158	77,701	(49,543)	-64%
Less: Securities Lending Expenses	<u>(6,192)</u>	<u>(34,343)</u>	<u>28,151</u>	82%
Subtotal - Securities Lending Income	<u>21,966</u>	<u>43,358</u>	<u>(21,392)</u>	-49%
Other Additions	<u>21,581</u>	<u>29,783</u>	<u>(8,202)</u>	-28%
Total Additions	<u>399,232,494</u>	<u>278,587,239</u>	<u>120,645,255</u>	43%
DEDUCTIONS:				
Benefits				
Service Retirement Allowance	87,846,063	81,860,764	5,985,299	7%
Disability Retirement Allowance	11,919,431	11,372,777	546,654	5%
Survivor, Death and Other Benefits	<u>430,838</u>	<u>365,936</u>	<u>64,902</u>	18%
Subtotal - Benefits	<u>100,196,332</u>	<u>93,599,477</u>	<u>6,596,855</u>	7%
Refund of Member Contributions	1,908,010	1,603,475	304,535	19%
Administrative Expense	2,780,793	3,092,750	(311,957)	-10%
Other Expense	<u>45,987</u>	<u>81,069</u>	<u>(35,082)</u>	-43%
Total Deductions	<u>104,931,122</u>	<u>98,376,771</u>	<u>6,554,351</u>	7%
Net Income	294,301,372	180,210,468	114,090,904	63%

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 7.2

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer
Chezelle Milan, Senior Accountant *CBM*
Lilibeth Dames, Investment Analyst *ldg*

SUBJECT: Preliminary Report on Budget-to-Actual for the six-month period ended December 31, 2017

Staff Recommendation

Accept the Preliminary Report on Budget-to-Actual for the six-months ended December 31, 2017.

Background

SamCERA's budget covers three different areas as follows:

1. Administrative Budget – covers personnel expenses (salaries and benefits) and administrative overhead (services and supplies). The administrative budget cannot exceed the mandated limit of 0.21% of the accrued actuarial liability of the retirement fund (Government Code §31580.2(a)).
2. Technology Budget – covers expenses for computer software, computer hardware, and computer technology consulting services in support of these computer products, and is not subject to the mandated limit of 0.21% discussed above (Government Code §31580.2(b)).
3. Professional Services Budget – covers costs for actuarial consulting services, custodial services, investment management, investment consulting services, and outside legal services for investment related matters. (Government Code §31596.1).

Discussion

The mid-year budget review indicates that SamCERA's overall budget is on track as of December 31, 2017.

Administrative Budget. About 41% of the budgeted expenses (or \$3 million) were made during the first six months of the fiscal year. This is a good indicator that the expenses have been properly managed and are under control. The following table summarizes actual administrative expenses versus budgeted amounts with explanations for why the actual results of certain items significantly differ from expected.

	<u>Adopted Budget Through 6/30/18</u>	<u>Actual Expense Through 12/31/17</u>	<u>% of Budget Used</u>	<u>Under Budget</u>	<u>% of Budget Remaining</u>
Salaries and Benefits					
Salaries	\$ 3,393,192	\$ 1,386,637	41%	\$ 2,006,555	59%
Benefits	1,660,579	704,842	42%	955,737	58%
Total Salaries and Benefits	5,053,771	2,091,479	41%	2,962,292	59%
Services and Supplies					
Board Expense	10,000	3,600	36%	6,400	64%
Insurance	80,000	43,636	55%	36,364	45%
Medical record and hearing service	75,000	4,990	7%	70,010	93%
Member Education	61,000	22,903	38%	38,097	62%
Education and Conference	119,880	41,100	34%	78,780	66%
Transportation and Lodging	138,705	18,059	13%	120,646	87%
Property and Equipment	36,000	6,998	19%	29,002	81%
General Office Supplies	45,000	9,176	20%	35,824	80%
Postage and Printing	40,000	7,508	19%	32,492	81%
Leased Facilities	525,000	219,037	42%	305,963	58%
County Services	384,821	228,872	59%	155,949	41%
Audit Services	52,500	44,537	85%	7,963	15%
Other Administration	15,000	-	0%	15,000	100%
Total Services and Supplies	1,582,906	650,416	41%	932,490	59%
Total	\$ 6,636,677	\$ 2,741,895	41%	\$ 3,894,782	59%

Salaries and Benefits – Total expenses were \$2 million, which was in line with the mid-year expectation.

Services and Supplies – Total expenses were \$0.7 million, which is closely in sync with the mid-year expectation. For the six-months ended December 31, 2017, actual expenses for most items under Services and Supplies appeared reasonable. Significant variances are explained in the following:

- Medical Record and Hearing Service expenses were significantly lower than expected. During the six-month period, only one member applying for disability required an independent medical evaluation per SamCERA’s medical advisor’s recommendation. In addition, only a handful of members pursued a formal hearing for their disability cases.
- “Education and Conference” and “Transportation and Lodging” expenses were substantially lower than the budgeted amounts as most educational events and conferences will take place in the second half of the fiscal year.
- Property and Equipment expenses were 81% below the budget. Plans to replace old equipment will be carried out in the months to come.
- General Office Supplies expenses were 80% below the budget. The demand for office supplies was much less than estimated.

- Postage and Printing expenses were 81% below the budget. Most of these expenses, such as mailing 1099-Rs and newsletters, occur during the second half of the fiscal year.
- County Services expenses consist of fixed fees for basic services (such as human resources and risk management) and variable fees for non-basic services. Fees for basic services were fully paid, leaving about 41% of the budget for non-basic services.
- Audit Services expenses were fully paid before the mid-year, which used up about 85% of the budgeted amount.
- Other Administration expenses were zero as of December 31, 2017. The budgeted amount is mainly for seeking legal advice from outside professionals as needed.

Technology Budget. About 2% of the budgeted expenses (or \$39 thousand) were used during the first six months of this fiscal year. Below is a summary of actual technology expenses versus budgeted amounts with explanations for why the actual outcomes differ from expected.

	<u>Adopted Budget Through 6/30/18</u>	<u>Actual Expense Through 12/31/17</u>	<u>% of Budget Used</u>	<u>Under Budget</u>	<u>% of Budget Remaining</u>
Computer Equipment and Software	\$ 150,000	\$ 2,721	2%	\$ 147,279	98%
Software License Maintenance - IT infrastructure	430,340	7,447	2%	422,893	98%
Electronic Content Management	500,000	-	0%	500,000	100%
Server - IT infrastructure	200,000	12,380	6%	187,620	94%
Contract Services - IT Infrastructure	203,000	16,350	8%	186,650	92%
ISD Budget	150,000	-	0%	150,000	100%
Technology Research and Development	34,000	-	0%	34,000	100%
Total	\$ 1,667,340	\$ 38,898	2%	\$ 1,628,442	98%

- Computer Equipment and Software - Requests for new computer equipment and software were much less than anticipated.
- Software License Maintenance – The approximate \$400,000 maintenance fee for the pension administration software will be due in the second half of the fiscal year.
- Electronic Content Management – This project converts paper documents initiated by the Finance, Investment, and Administration teams to digital images. Implementation is expected to happen in the coming months.
- Server – SamCERA has been using old servers to support the test environment. The budget sets aside funding for replacing old servers as needed.
- Contract IT Services – Staff initially planned to employ outside consultants for the performance of certain IT projects (such as expanding technology infrastructure), but later decided to handle most of these projects internally.

- ISD Budget – This budget provides funding for special projects such as improving the wireless connectivity to the County. The budget will be depleted once these projects begin.
- Technology Research and Development (R&D) – This budget provides funding to evaluate and experiment with new technologies that may benefit SamCERA. The budget will be depleted as opportunities arise.

Professional Services Budget. For the six-months ended December 31, 2017, the actual professional service expenses totaled \$11.5 million, or 53.9 basis points. Overall expenses were closely in sync with what was estimated. Below is a summary of professional services expenses incurred during the first half of the fiscal year.

Investment Management Services				
Investment	Actual Fee (bps)	Investment		Percentage of Projected Fee Used
		Management Fee Through 12/31/17	Projected Fee Fiscal Year 17-18	
Total Public Equity	29.6	\$ 2,714,938	\$ 5,261,036	52%
Total Fixed Income	46.2	2,055,139	3,224,190	64%
Total Risk Parity	36.2	571,675	1,043,286	55%
Total Alternative Assets	153.2	3,943,763	10,816,617	36%
Total Inflation Hedge	61.1	2,148,033	3,285,188	65%
Total Cash Overlay	N/A	79,348	185,000	43%
TOTAL	53.9	\$ 11,512,896	\$ 23,815,317	48%

Investment management fees are driven by contractual agreements and based on assets under management, the amount of capital committed, and/or investment performance.

Investment Management & Other Professional Services				
Service	Actual Fee (bps)	Professional Fee		Percentage of Projected Fee Used
		Through 12/31/17	Projected Fee Fiscal Year 17-18	
Investment Management	53.9	\$ 11,512,896	\$ 23,815,317	48%
Other Professional Services	2.5	541,698	1,070,000	51%
TOTAL	56.0	\$ 12,054,594	\$ 24,885,317	48%

Other professional service charges are primarily based on contractual agreements.

Other Professional Services					
Contractor	Service	Actual Fee (bps)	Professional Fee		Percentage of Projected Fee Used
			Through 12/31/17	Projected Fee Fiscal Year 17-18	
Milliman Inc.	Actuarial Consulting	0.3	\$ 53,996	\$ 125,000	43%
Segal Consulting	Actuarial Audit	0.4	95,000	95,000	100% *
Verus Investments	Investment Consulting	1.1	231,452	500,000	46%
Northern Trust	Custodian	0.7	161,250	350,000	46%
	TOTAL	2.5	\$ 541,698	\$ 1,070,000	51%

* Triennial audit done by Segal Consulting was fully completed and paid.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 27, 2018

Agenda Item 7.3

TO: Board of Retirement
FROM: Scott Hood, Chief Executive Officer
SUBJECT: 2018 Board-Staff Retreat Topics

Recommendation

Provide direction to staff regarding the topics and schedule for the April 24 and 25, 2018 Board-Staff Retreat.

Background

This item is to give trustees another opportunity to discuss the upcoming two-day retreat in April. The Board assists with setting the topics to be addressed and provides input regarding the proposed presenters. Following this meeting, staff will finalize scheduling the presenters.

Discussion

Attached is a proposed schedule which reflects a well-balanced list of topics that fits in with the allotted time for the retreat. This year, with help from a consultant, there will be a "Strategic Planning Workshop" consisting of a presentation on strategic planning and followed by a Board discussion of its strategic plan. If you have additional topics to suggest, please mention them during this agenda item.

The 2018 SamCERA Board-Staff Retreat is scheduled along the same lines as prior years:

Days: Two consecutive days
Timing: Leaves time in the presentations for discussion
Location: SamCERA Boardroom
Speakers: Outside professionals as well as SamCERA's consultants and staff
Regular Business: Conduct the Board's regular monthly business during the afternoon on Tuesday of the retreat
Dates: **Tuesday, April 24 and Wednesday, April 25**

Attachment

Draft 2018 Board-Staff Retreat Agenda

Agenda & Presenters

Board / Staff Retreat

April 24 & 25, 2018



San Mateo County Employees'
Retirement Association

BOARD / STAFF RETREAT AGENDA
Day One—Tuesday, April 24, 2018

<u>TIME</u>	<u>TOPIC AND PRESENTER</u>
8:30 a.m.	Coffee and Refreshments
8:45 a.m.	Welcome Presenter: Scott Hood, SamCERA Chief Executive Officer
9:00 a.m.	High level look at the Global Economy Presenter: Sonal Desai, PH.D., Senior Vice President, Portfolio Manager Director of Research Templeton Global Macro Franklin Advisers, Inc.
10:00 a.m.	Break
10:15 a.m.	Team Building Exercise Presenter: TBD
10:30 a.m.	Deep Dive Led by Mike Coultrip. Assess longer-term drivers of fund returns and risks. Investigate longer-term manager performance and other characteristics vs indexes and peer groups. Review Risk Dashboard. Presenters: Michael Coultrip, SamCERA Chief Investment Officer and Margaret Jadallah, Verus
11:45 a.m.	Lunch
12:30 p.m.	Allocating Assets Among Membership Groups Presenter: Nick Collier, Milliman, Inc
1:30 p.m.	Break
1:45 p.m.	Mandated Ethics Training Presenter: Brenda Carlson, SamCERA Chief Legal Counsel
2:30 p.m.	Break
2:45 p.m.	Beginning of Regular Board Meeting Agenda

BOARD / STAFF RETREAT AGENDA
Day Two—Wednesday, April 25, 2018

<u>TIME</u>	<u>TOPIC AND PRESENTER</u>
8:30 a.m.	Coffee and Refreshments
9:00 a.m.	Team Building Exercise Presenter: TBD
9:15 a.m.	Portfolio Risk and Discussion Presenter: Jeff MacLean, CEO, Verus
10:15 a.m.	Break
10:30 a.m.	Strategic Planning Session Presenter: Scott Hood, SamCERA and Tom Iannucci, President, Cortex Applied Research
11:30 a.m.	Lunch
12:00 p.m.	Strategic Planning Session, continued
1:00 p.m.	End of Retreat