



Notice of Public Meeting

The Board of Retirement of the San Mateo County Employees' Retirement Association will meet on **Tuesday, February 26, 2019, at 10:00 A.M.**

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

- 1. Call to Order, Roll Call and Miscellaneous Business**
- 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 29, 2019
- 4. Approval of the Consent Agenda***

4.1 Disability Retirements (2) <ul style="list-style-type: none">• Araceli Nevarez• Rick Tippins	4.8 Member Account Redeposit
4.2 Survivor Death Benefits	4.9 Acceptance of Trustees' Reports of Educational Activities Through Outside Provider
4.3 Service Retirements	4.10 Acceptance of Semi-Annual Compliance Certification Statements for the Period Ended December 31, 2018
4.4 Continuances	4.11 Approval of Resolution Authorizing Fifth Amendment with Northern Trust
4.5 Deferred Retirements	
4.6 Member Account Refunds	
4.7 Member Account Rollovers	
- 5. Benefit & Actuarial Services**
 - 5.1 Consideration of Agenda Items, if any, removed from the Consent Agenda
 - 5.2 Presentation by Milliman, Inc of Cash Flow Analysis
- 6. Investment Services**
 - 6.1 Report on Preliminary Monthly Portfolio Performance for the Period Ended January 31, 2019
 - 6.2 Quarterly Investment Performance Report for the Period Ended December 31, 2018
 - 6.3 Discussion of Delegation of Authority for Terminating Investments
 - 6.4 Approval of Proposed Alternative Investment (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, 2018
 - 7.2 Acceptance of Preliminary Semi-Annual Budget Report for Period Ended December 31, 2018
 - 7.3 Report on April 23, 2019 Board-Staff Retreat Planning
 - 7.4 Approval of Change to Start Time of the April 2019, Regular Board Meeting
- 8. Management Reports**
 - 8.1 Chief Executive Officer's Report
 - 8.2 Assistant Executive Officer's Report
 - 8.3 Chief Investment Officer's Report

Notice of Public Meeting

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8.4 Chief Legal Counsel's Report

- C1 Consideration of Disability Items, if any, Removed from the Consent Agenda
- C2 Approval of Proposed Alternative Investment (Confidential Under Gov. Code §54956.81 and §6254.26 – see also item 6.4)

9. Report on Actions Taken in Closed Session

10. Adjournment in Memory of the Following Deceased Members:

Wyro, Muriel	December 28, 2018	District Attorney
Domagalski, Sylvia	January 9, 2019	Medical Center
Johnson, Laron	January 10, 2019	Courts
Berndtson, Theodore	January 11, 2019	Sheriff
May, Jessie	January 16, 2019	General Services
Rogers, Calvin	January 16, 2019	Mosquito
O' Neil, Jeanne	January 17, 2019	Library
Shannon, Ardale	January 19, 2019	Chope Hospital
Ashton, Charles	January 23, 2019	Library
Dean, Esther	January 24, 2019	Crystal Springs Rehab Ctr
Hardiman, Lenore	January 26, 2019	Hospital
Graham, Betty	January 28, 2019	Social Services
McMillan, Constance	January 28, 2019	Social Services
Carlson, Irma	January 29, 2019	Health Services
Pryor Johnson, Renee	February 6, 2019	BHRS



Scott Hood, Chief Executive Officer

Posted: February 20, 2019

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

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

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

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
JANUARY 29, 2019 – REGULAR BOARD MEETING MINUTES

1901.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Ms. Sandie Arnott, Chair, called the Regular Meeting of the Board of Retirement to order at 10:00 a.m.

Roll Call:

Present: Sandie Arnott, Mark Battey, Ben Bowler, Al David, Kurt Hoefer, Katherine O'Malley, Robert Raw and Alma Salas (for Paul Hackleman).

Absent: Paul Hackleman and Eric Tashman.

Alternates present: Susan Lee and Alma Salas.

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

Consultants and speakers: Max Giolitti, Jeff Maclean and John Nicolini (Verus).

1901.2.1 Oral Communications from the Board: None.

1901.2.2 Oral Communications from the Public: Ms. LeNguyen informed the Board that JulieAnne Nagal has been promoted to Senior Retirement Analyst.

1901.3.1 Approval of the Minutes: Ms. Arnott asked if there were any changes, corrections, or objections, to the meeting minutes from the Board meeting held on December 4, 2018.

Action: Mr. David moved to approve the minutes from the Board Meeting on December 4, 2018. The motion was seconded by Mr. Hoefer and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hoefer, O'Malley, Raw and Salas all in favor; Bowler abstained; none opposed.

1901.4.0 Approval of the Consent Agenda: Ms. Arnott asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed.

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

1901.4.1 Disability Retirements:

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

b) The Board: (1) Terminated the disability retirement application submitted by Paquito Lim per Article Vi, section 6.5 and 6.6 of the Board Regulation regarding Disability Retirement.

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

1901.4.2 Survivor Death Benefits: None.

1901.4.3 **Service Retirements:**

Member Name	Effective Retirement Date	Department
Adams, David	December 1, 2018	Deferred from HOS
Aguilar-Terrazas, Norma	October 5, 2018	Behavioral Health
Antrea, George	November 27, 2018	Courts
Arnaudo, Robert	October 28, 2018	Sheriff's
Ashe, Rebecca	October 20, 2018	HOS - Coastside Clinic
Bazan, Deborah	December 1, 2018	County Manager
Campos, Marco	December 1, 2018	Sheriff's
Carnock, Maryann	March 28, 2018	Deferred from Medical Center
Castillon, Monica	December 1, 2018	D.A.O.
Catalano, Rodina	October 20, 2018	Courts
Darrow, Andrew	October 30, 2018	Deferred from DPW
Drake, Ronald	October 4, 2018	Deferred from Sheriff's
Edwards, Barbara	October 5, 2018	SamCERA
Evans, Robert	November 29, 2018	Deferred from Mental Health
Ferez, Brian	November 3, 2018	Environmental Health
Garcia, Maria J.	November 1, 2018	Juvenile Probation
Gatt, Mariavictoria	November 1, 2018	Deferred from HOS
Guidotti, Karen	November 3, 2018	D.A.O.
Johnson, Joyce	October 29, 2018	Deferred from Probation
Kon, Cyrus	December 1, 2018	Courts
Konstantinidis, Manuel	October 28, 2018	Deferred from General Services
Lee, Lorraine	November 22, 2018	Deferred from HOS - Pharmacy
Maltbie, John	November 3, 2018	County Manager
Marcello, Rosa	September 29, 2018	Child Support Services
Miller, Marie	November 10, 2018	Probation
Pascual, Marilyn	November 1, 2018	HOS - Outpatient Bus Services
Pellizzer, John	December 1, 2018	Deferred from DPW
Robinson, Elonda	October 17, 2018	HOS - Acute Medical Surgery
Stevens, Barbara	October 20, 2018	Deferred from Library
Walsh, Patricia	October 6, 2018	Family Health
Williams, Nanette	October 31, 2018	D.A.O.
Wong, Mabel	October 5, 2018	SamCERA
Yu, Josephine	October 3, 2018	H.S.A.

1901.4.4 **Continuances:**

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

Survivor's Name	Beneficiary of:
Brahy, John	Brahy, Gayle
Ware, Frederica	Dobson-Ware, Gary

The Board denies the request for a continuance by the following individual:

Beneficiary's Name	Beneficiary of:
Robert Del Bianco	Nilda Del Bianco

1901.4.5 **Deferred Retirements:**

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

Member Name	Retirement Plan Type
Carvajal, Cecilia A.	G4, Vested - Reciprocity
Perez, Kristina M.	G5, Vested - Reciprocity
Santiago, Ana M.	G2, Vested - Reciprocity
Moore, Nyischa M.	G7, Non-vested - Reciprocity
Tatar, Greg	G7, Non-vested - Reciprocity
Compton, Louise M.	G7, Non-vested - Reciprocity
Mahar, Adrienne	G7, Non-vested - Reciprocity
Cardenas, Hector	G4, Vested - Reciprocity
Arrighi, Jason D.	G7, Non-vested - Reciprocity

1901.4.6 **Member Account Refunds:**

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

Member Name	Retirement Plan Type
Acosta, Maria	G7, Non-vested
Ibarra, Jose	G7, Non-vested
Izaguirre, Diana	G7, Non-vested
Malta, Luis	G4, Vested
Panduro, Maria	G7, Non-vested
Renteria, Oscar	G7, Non-vested
Thayer, Irene	G5, Non-vested

1901.4.7 **Member Account Rollovers:**

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

Member Name	Retirement Plan Type
Dub, Ana	G7, Non-vested
Turcios, Margoth	G7, Non-vested

1901.4.8 **Member Account Redeposits:** None.

1901.4.9 **Acceptance of Trustees' Reports of Educational Activities:** None.

1901.4.10 **Semi-Annual Compliance Certification Statements for SamCERA's non-alternative investment managers and investment consultant, as of December 31, 2018:** The Board accepted the semi-annual Compliance Certification Statements for SamCERA's non-alternative investment managers and investment consultant, as of December 31, 2018.

1901.4.11 **Approval of Resolution Authorizing Contract for Legal Counsel for Disability Cases:** The Board approved a resolution authorizing the CEO to execute an agreement with Byers/Richardson for disability retirement counsel services.

1901.5.1 **Consideration of Agenda Items, if any, removed from the Consent Agenda:** None.

1901.5.2 **Approval of a Resolution Adopting Cost of Living Adjustments (COLAs) for 2019:** Mr. Hood discussed Milliman's recommendation for cost of living adjustments (COLAs) for 2019. COLAs were recommended for each retiree and beneficiary recipient, who retire on or before April 1, 2019, as follows: 4% for Plan 1 General and Safety members; 3% COLA for Plan 1 Probation and Plan 2 members; and 2% COLA for Plan 4, 5, 6 and 7.

Action: Mr. David moved to approve the resolution adopting the 2019 cost of living adjustments as recommended. The motion was seconded by Mr. Bowler and carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hoefer, O'Malley, Raw and Salas all in favor; none opposed.

1901.6.1 **Report on Preliminary Monthly Portfolio Performance for the Period Ended December 31, 2018:** Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported that SamCERA's net preliminary return for December 2018 was -3.1%, while the preliminary trailing twelve-month return ending December 2018 was -4.4% net. This item was informational and for discussion only, no action was taken.

1901.6.2 **Educational Presentation on Timberland:** Mr. Nicolini provided an educational presentation on timberland. He provided an overview, discussed historical timberland performance, ESG impacts and provided a summary of the current market opportunity. This item was informational only, no action was taken.

1901.6.3 **Approval to Transition TIPs Separate Account to Commingled Fund:** Mr. Nicolini discussed Brown Brothers Herriman's (BBH) recommendation to transition SamCERA's TIPs separate account into a commingled fund to be more efficient and cost effective.

Action: Mr. Battey moved to approve the transition from SamCERA's current TIPs separate account managed by Brown Brothers Herriman to a commingled fund structure managed by BBH. The motion was seconded by Mr. David and carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hoefer, O'Malley, Raw and Salas all in favor; none opposed.

1901.6.4 **Presentation on SamCERA Risk Dashboard:** Mr. Giolitti and Mr. MacLean introduced to the Board SamCERA's new risk dashboard using index level holdings to better highlight various risk exposures of the plan. This item was informational only, no action was taken.

The meeting was adjourned for lunch at 11:47 a.m. and reconvened at 12:18 p.m.

1901.7.1 **Report on April 24 and 25, 2019 Board-Staff Retreat Planning:** Mr. Hood reviewed the proposed agenda for the upcoming Board-Staff Retreat and received feedback from Board members. This item was informational only, no action was taken.

1901.7.2 **Report on Upcoming Trustee Elections and Appointments:** Ms. Smith reported that there are three elected and two appointed seats expiring at the end of June. Ms. Smith met with the Elections Office last week 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.

1901.7.3 **Report on Staff's Strategic Plan Implementation:** Mr. Hood provided a summary of completed strategic items and ones for completion in the latter part of the fiscal year. This item was informational and for discussion only, no action was taken.

1901.8.1 **Chief Executive Officer's Report:** Mr. Hood informed the Board that in their Day of Folder, was a copy of the SamCERA Workplan detailing action and informational items as well as educational opportunities for the year ahead. The workplan is available on Dropbox and will be updated quarterly. He also called to attention that a copy of the SACRS Election Memo can be found in their Day of Folder. Mr. Hood reported to the Board regarding his attendance at the SACRS Administrator's Roundtable last week and that he will be meeting with the San Mateo County Mosquito and Vector Control District next week. Mr. Hood informed the Board that at next month's meeting, they will be provided with another draft of the Board-Staff schedule, as well as a budget report.

1901.8.2 **Assistant Executive Officer's Report:** Ms. Smith informed the Board that staff has recently hired Kammy Vong for the position of Retirement Senior Accountant. She also informed the Board that the fiduciary insurance will soon be expiring and that a \$25 non-recourse renewal check will be needed in the near future. Ms. Smith also mentioned that staff is in the midst of the RFP process for auditing services.

Ms. Trujillo shared the upcoming educational events with the Board.

1901.8.3 **Chief Investment Officer's Report:** Mr. Coultrip reported that an asset liability study will be conducted this year. Staff will likely be sending a questionnaire for the risk tolerance in May. He also informed the Board that the overlay program rebalanced at the end of last year, resulting in \$50 million of equity being purchased and \$50 million in bonds being sold. Mr. Coultrip also reported that the low volatility equity implementation was completed this past December. Lastly, Mr. Coultrip reported that staff and Verus will be working on a liquidity analysis of the plan and will be presenting it to the Board for review in the near future.

1901.8.4 **Chief Legal Counsel's Report:** Ms. Carlson reviewed an excerpt from the Trustees Manual which illustrates and describes the steps in the Board's process for determining disability applications, as well as the hearing officer review. She encouraged Board members to reach out to her with any questions. Ms. Carlson also reported on two recent court decisions addressing funding issues raised in cases involving the Orange County Employees' Retirement Association and Stanislaus County Employees' Retirement Association.

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

1901.10 **Adjournment:** Ms. Arnott adjourned the meeting at 12:42 p.m. in memory of the deceased members listed below.

Coulman, Mary	November 7, 2018	Mental Health
Sain, Grace	November 10, 2018	Library
Velasquez, Emma	November 24, 2018	District Attorney's Office
Willson, Lewis	November 30, 2018	Human Resources
Del Bianco, Nilda	December 5, 2018	Courts
Lubke, Alan	December 7, 2018	Clerk-Recorder
Mills, Moses	December 7, 2018	Health Services
Andre, Edward	December 17, 2018	Probation
Duval, Kenneth	December 23, 2018	Public Works
Schweizer, Marc	December 26, 2018	Sheriff
Orcutt, John	January 3, 2019	Sheriff

Scott Hood
Chief Executive Officer

Anne Trujillo
Retirement Executive Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board find that **Araceli Nevarez** is (1) permanently incapacitated from the performance of her usual and customary duties as a Medical Office Assistant II (2) find that her disability was the result of an injury arising out of and in the course of her employment and (3) grant her application for a service-connected disability retirement.

- b) The Board find that **Rick Tippins** is (1) not permanently incapacitated for the performance of his usual and customary duties as a Sheriff's Lieutenant, and (2) deny his application for a service-connected disability retirement.

4.2 Survivor Death Benefits

None.

4.3 Service Retirements

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

Name	Effective Retirement Date	Department
Aubry, Suzanne	December 29, 2018	Behavioral Health
Bay, Duane	November 3, 2018	Deferred from Housing
Bloomquist, Cary	December 29, 2018	Deferred from Dept of Public Works
Carlisle, Paul	December 7, 2018	Deferred from Hospital
Carman, Robert	December 29, 2018	Deferred from Sheriff's
Catalan, Jocelyn	December 29, 2018	Hospital
Chin, Margaret	December 11, 2018	Deferred from Courts
Davenport, Donald	December 17, 2018	Deferred from Sheriff's
Espera, Annie	December 9, 2018	Deferred from Hospital

Faust, Brian	January 1, 2019	Hospital
Garcia, Vicky	December 30, 2018	Hospital
Giusti, Christina	December 27, 2018	Medical Center
Gonzalez Pavez, Sergio	December 17, 2018	Behavioral Health
Green, Lynda	January 1, 2019	Deferred from County Manager
Greer, Michael	December 11, 2018	Probation
Levy, David	December 29, 2018	County Counsel
McElroy-White, Greta	December 29, 2018	Deferred from Elections
McNeal, Tasha	December 8, 2018	Aging & Adult Services
Padilla, Deborah	December 22, 2018	District Attorney's Office
Padilla, Fredrick	December 29, 2018	Sheriff's
Palomino, Jessie	December 31, 2018	Probation
Santiago, Jose	December 15, 2018	Sheriff's
Smothers, Vicki	December 29, 2018	Family Health Services
Stout, Gregory	December 31, 2019	Deferred from Hospital
Tadla-Martin, Carol	December 29, 2018	Hospital
Thorin, Andrea	December 31, 2018	Deferred from HSA
Whitlock, William	December 29, 2018	Health IT
Yang, Yuchi	December 17, 2018	Deferred from Public Health

4.4 Continuances

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

Survivor's Name	Beneficiary of:
Mills, Rosa	Mills, Moses

4.5 Deferred Retirements

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

Name	Retirement Plan Type
Gutierrez, Donaji A.	G4, Vested-Reciprocity

Rocha, Edmundo	S4, Vested
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4.6 Member Account Refunds

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

Name	Retirement Plan Type
Orantes, Rhina	G7, Non-vested
Portis, Allena	G4, Vested
Spencer, Shawna	G4, Non-vested

4.7 Member Account Rollovers

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

Name	Retirement Plan Type
Au, Monica	G7, Non-vested
Chow, Janice	G7, Non-vested
Gunning, Jodi	G7, Non-vested
Jurek, Anne	G7, Non-vested
Malig, Denise	G4, Non-vested
Perez, Victoria	G7, Non-vested
Perryman, Samuel	G7, Non-vested
Portis, Allena	G4, Vested
Salazar, Deborah	G7, Non-vested
Wong, Alton	S7, Non-vested

4.8 Member Account Redeposits

None.

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

None.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 4.10

TO: Board of Retirement

FROM: Doris Ng, Retirement Investment Analyst 

SUBJECT: Semi-Annual Compliance Certification Statement for Period Ended December 31, 2018

Recommendation

Accept the semi-annual Compliance Certification Statement for State Street Global Advisors (SSGA) as of December 31, 2018.

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 Statement was not received in time to be included in the mailing for the January Board meeting.

Discussion

The attached Compliance Certification Statement reports that SamCERA's investment manager, State Street Global Advisors, is in compliance with SamCERA's Investment Policy as of December 31, 2018. There were no reported significant developments in portfolio construction, investment approach, firm ownership or organizational structure of concern. 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.

Attachments

Compliance Certification Statement Matrix 12-2018
SSGA Compliance Certification Statement 12-2018

Compliance Certification Statement Matrix – December 31, 2018

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Real Assets					
State Street Global Advisors (Custom Real Asset Account)		<ul style="list-style-type: none"> • Oct 2018-SSGA acquired Charles River Development 	<ul style="list-style-type: none"> • Largest single counterparty: Goldman Sachs 22.3% 	No Concerns	<ul style="list-style-type: none"> • 2.64% ADRs • 30.37% Derivatives • 1.70% Rule 144A

State Street Global Advisors Custom Real Asset Account – December 31, 2018

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 14, 2019.**

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**

Please see attached Q3 and Q4 2018 Organizational Memos

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**

Please see attached Regulatory and Litigation Memo. As with any similarly regulated financial institution, State Street Global Advisors is likely to be responding to multiple inquiries, both formal and informal, from various regulators at any given time. In the normal course, various regulators also conduct periodic reviews, exams and audits of State Street Global Advisors. Our policy is that such communications are confidential.

4. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**
5. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA*?
 Yes / **No: Please explain.**
Members of the Stewardship team evaluate the proxy solicitation to determine how to vote based on facts and circumstances, and consistent with SSGA's Proxy Voting Guidelines, that seeks to maximize the value of our client accounts.
6. 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.**

Firms are registered by the applicable regulatory authorities. Counterparties are banks as opposed to broker dealers. Net Capital is a broker dealer related term.

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?
Approximately 22.3% of the fund
 - b) Please specify the name of the counter-party and the amount of exposure.
Goldman Sachs, approximately \$69 million

- c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

No

6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchange traded derivative positions.

The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index levels are quoted on Bloomberg.

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.

The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index is comprised of a diversified basket of liquid (listed) commodity futures contracts.

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

Real Asset Portfolio

1. Specify the percentage of the portfolio held in each of the following types of securities.

<i>Foreign Ordinary Shares</i>	<i>0.10%</i>
<i>ADR's</i>	<i>2.64%</i>
<i>Common Stock</i>	<i>61.42%</i>
<i>MIP Limited Partnership</i>	<i>0.0%</i>
<i>Derivatives: Futures/ Options</i>	<i>30.37%</i>
<i>Cash & Equivalents (Domestic)</i>	<i>2.38%</i>
<i>Cash & Equivalents (Foreign)</i>	<i>0.0%</i>
<i>Other (please specify)</i>	<i>3.09%</i>

2. Specify the large, mid and small capitalization exposure of the portfolios.

<i>Large-Cap</i>	<i>85.4%</i>
<i>Mid-Cap</i>	<i>13.2%</i>
<i>Small-Cap</i>	<i>1.4%</i>

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

Enav SpA – 0.18%

Aena SME SA – 1.52%

4. What is the largest percentage of the portfolio represented by a single security? Please specify the security and percentage amount. If any securities were above 5% at the time of purchase, please list and explain why.

SECURITYID	NAME	Percentage of Portfolio
BDRJLN0	Nutrien Ltd	2.17%

5. What is the largest percentage of the portfolio represented by a single issuer? Please specify the security and percentage amount. If any exposure to a single issuer was above 15% at time of purchase, please list and explain why.

US T-Bill 2.38%

6. What proportion of total AUM do the assets in this product make-up of the firm?
Real Asset Strategy as a percentage of SSGA AUM as of December 31, 2018: 0.17%

What size does SamCERA's account comprise of total product assets?

**Real Asset Strategy as a percentage of SMCERA AUM as of December 31, 2018:
5.33%**




Signed by: Melissa Lo, Officer
Dated: January 24, 2019
Name of Firm State Street Global Advisors

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 4.11

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Resolution Authorizing the Chief Executive Officer to Execute a Fifth Amendment to the Agreement with The Northern Trust Company for Global Custody Services

Recommendation

Approve a resolution authorizing the Chief Executive Officer to execute a Fifth Amendment to the Agreement with The Northern Trust Company for Global Custody Services extending the term to June 30, 2024 and increasing the fiscal cap to \$4 million.

Background

In 2014, after a Request for Proposal Process, the Board authorized the execution of a five-year global custody agreement with The Northern Trust Company ("Northern") with a fiscal cap of \$2 million. Since 2014, there have been four amendments to the agreement for minor additional services such as additional financial reporting requirements and increased access to fund portfolio information. While these amendments added some cost, the total amount has not exceeded the five-year contract cap.

Discussion

Staff is pleased with the custodial services provided by Northern. Although labor intensive, the transition period from our prior custodian was smooth. During the past five years, Northern has consistently provided reliable custodial services and responsiveness to SamCERA's needs and concerns.

The current agreement expires June 30, 2019. Northern has agreed to a five-year extension without an increase to the service rates. The proposed amendment to the agreement extends the term to June 30, 2024 and adds an additional \$2 million to the existing cap, bringing the aggregate cap to \$4 million.

To address any unknown future financial reporting requirements or other additional required services during the next five years, the attached resolution authorizes the Chief Executive Officer to execute subsequent amendments up to an aggregate of \$100,000 above the contract cap through the term of the agreement.

Attachment

Resolution Authorizing Chief Executive Officer to Execute a Fifth Amendment to the Agreement with the Northern Trust Company for Global Custody Services

RESOLUTION 2019-__

**RESOLUTION AUTHORIZING THE CHIEF EXECUTIVE OFFICER TO EXECUTE FIFTH AMENDMENT
TO AGREEMENT WITH THE NORTHERN TRUST COMPANY
FOR GLOBAL CUSTODY SERVICES**

WHEREAS, Article XVI, Section 17 of the California Constitution vests with the Board the sole and exclusive fiduciary responsibility over the assets of SamCERA; and

WHEREAS, in accordance with the provisions of Article XVI, Section 17 of the California Constitution and California Government Code Section 31596(b), SamCERA, with the approval of its Board, may employ a depository institution or a trust company, licensed under state or federal law to conduct the business of a trust company or any Federal Reserve Bank, to act as custodian of any securities or other properties beneficially owned by SamCERA; and

WHEREAS, the Board authorized the execution of a global custody agreement, with Northern Trust Company ("Agreement") with an effective date of July 1, 2014; and terminating June 30, 2019; and

WHEREAS, the during the term of the Agreement, it has been amended four times to include minor additional services such as additional financial reporting requirements and increased access to fund portfolio information, which did not modify the total not to exceed amount of \$2 million; and

WHEREAS, the Board now desires to further amend the Agreement to extend the term to June 30, 2024, without an increase to the service rates, thereby adding an additional \$2 million to the existing cap for the next five-year period, bringing the total cap to \$4 million; therefore, be it

RESOLVED, that the Chief Executive Officer is hereby authorized to execute an amendment to the Agreement extending the term to June 30, 2024, with a not to exceed amount of \$4 million.

IT IS FURTHER RESOLVED, that the Chief Executive Officer is hereby authorized and directed to execute subsequent amendments and minor modifications in an amount not to exceed \$100,000 in the aggregate over the contract cap, through the term of the agreement.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Regularly passed and adopted, by the San Mateo County Employees' Retirement Association, Board of Retirement, on February 26, 2019.

Ayes, Trustees:

Noes, Trustees:

Absent, Trustees:

Abstain, Trustees:


Al David, Board Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 5.2

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Presentation by Milliman, Inc. on SamCERA Cash Flow Projections

Recommendation

Review the presentation and provide direction to staff as needed.

Background

Like most of SamCERA's peer retirement systems, the ratio of SamCERA's non-active members to active members continues to steadily increase, resulting in a more mature plan over time. One byproduct of this trend is that more dollars are flowing out of the system than contributions are flowing in. Cash outflows greater than incoming contributions is commonly referred to as "negative cash flow." This has not been an issue for SamCERA as SamCERA employers have been aggressively paying down the unfunded liability through both supplemental contributions and an aggressive amortization of the unfunded liability. As SamCERA's unfunded liability gets paid down, the statutory contributions are expected to drop accordingly.

Discussion

At this year's Board retreat, Verus will discuss considerations for when a retirement plan matures. As background for that discussion, Milliman's presentation today will look at projections for SamCERA's future cash flows. To continue the background discussion next month, Verus will present on SamCERA's portfolio liquidity.

Attachment

Milliman, Inc. Presentation on SamCERA Cash Flow Projections

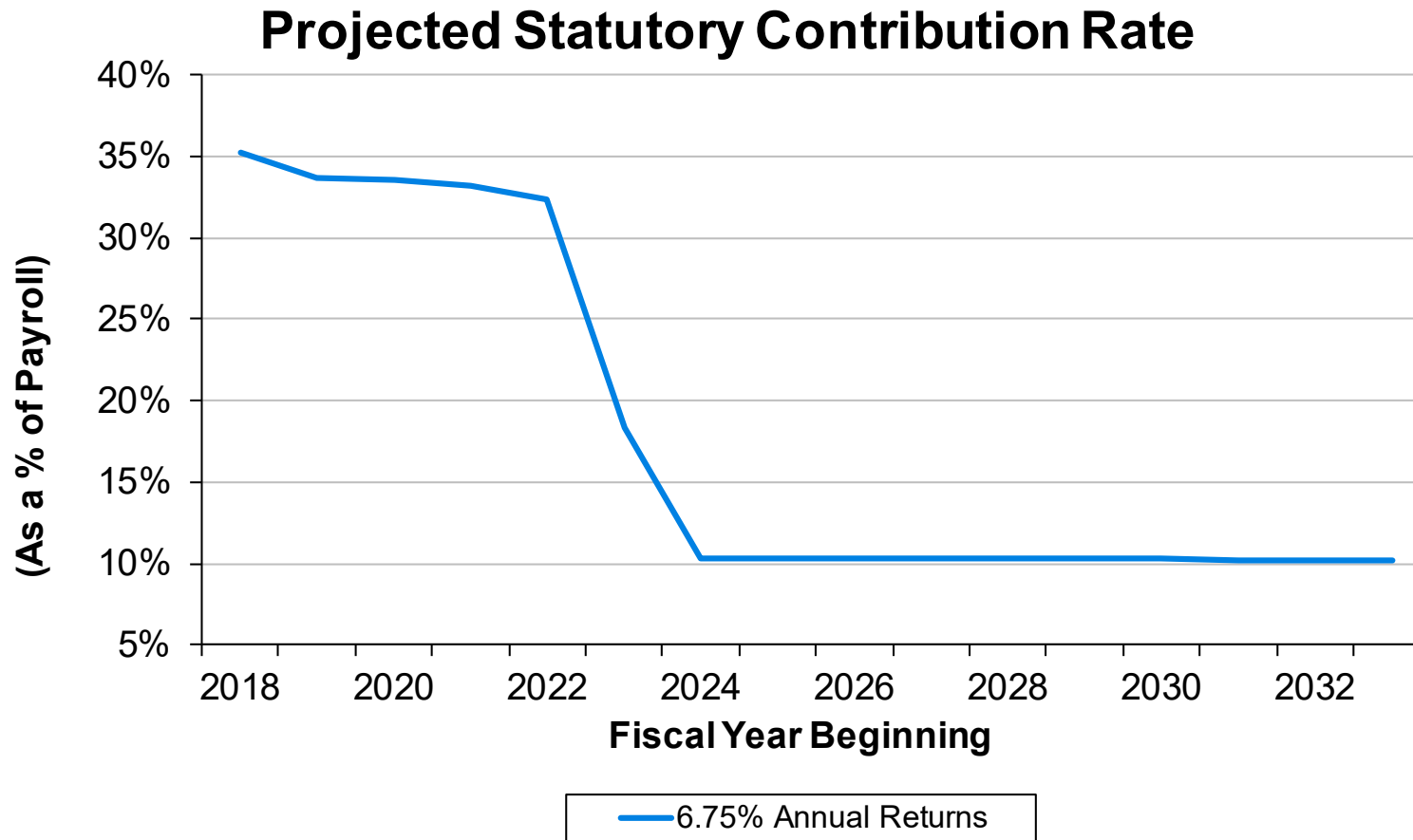
Cash Flow Projections & Other Actuarial Topics

Nick Collier

FEBRUARY 26, 2019

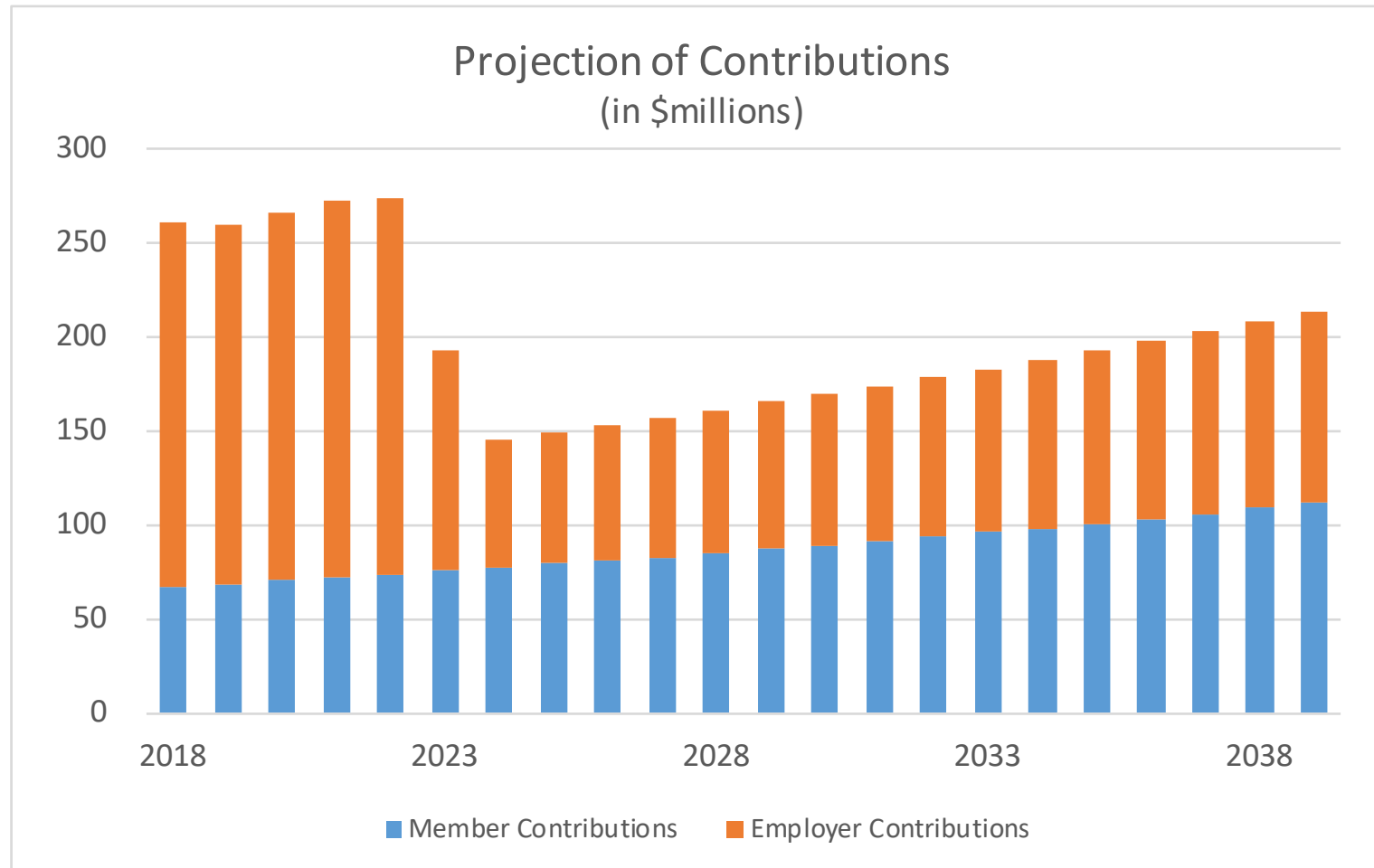
Statutory Employer Contribution Rate Projection

- Significant decrease in employer contributions projected in FYB 2023



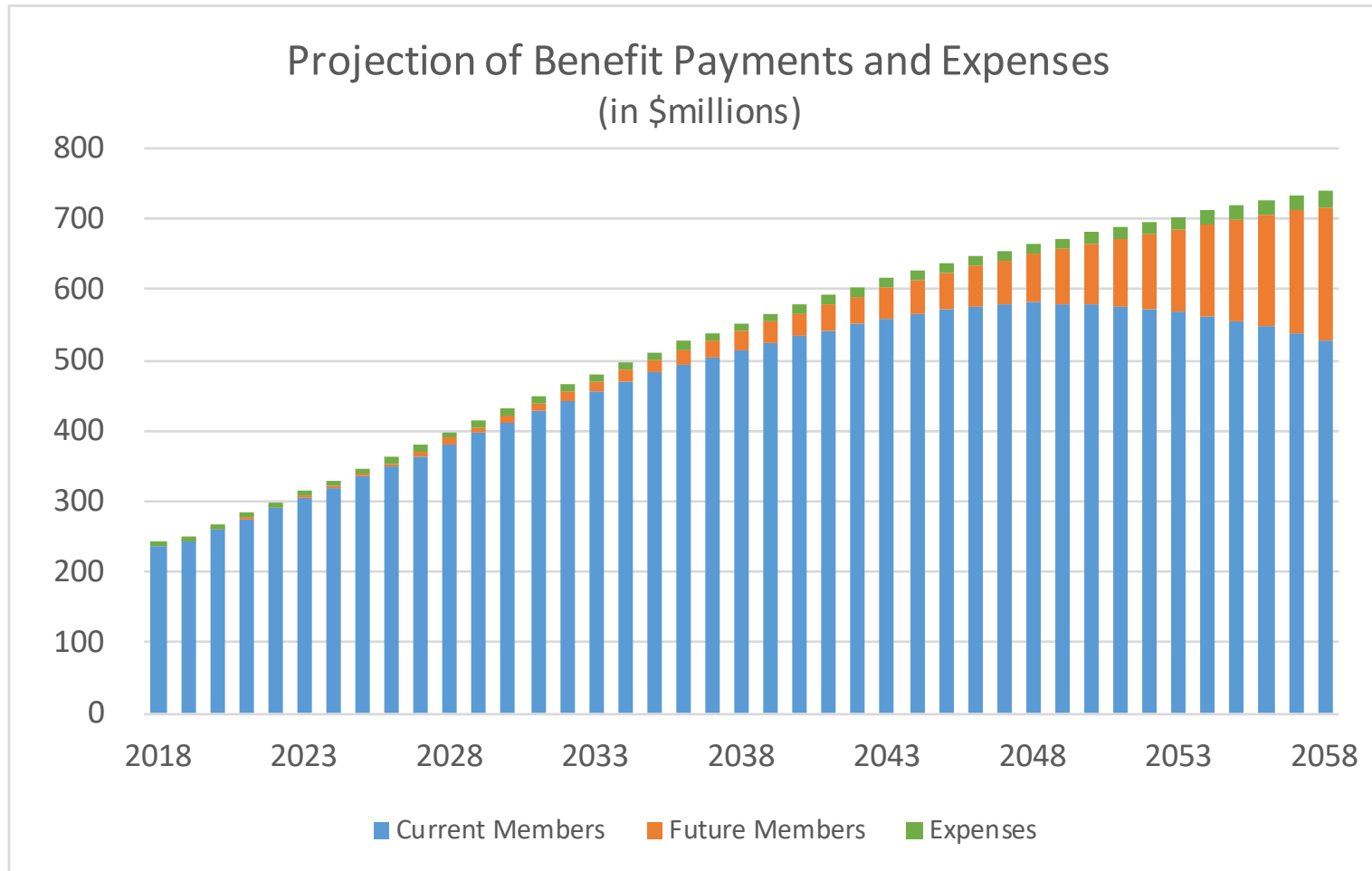
Statutory Contribution Projection in Dollars

- Adding in member contributions



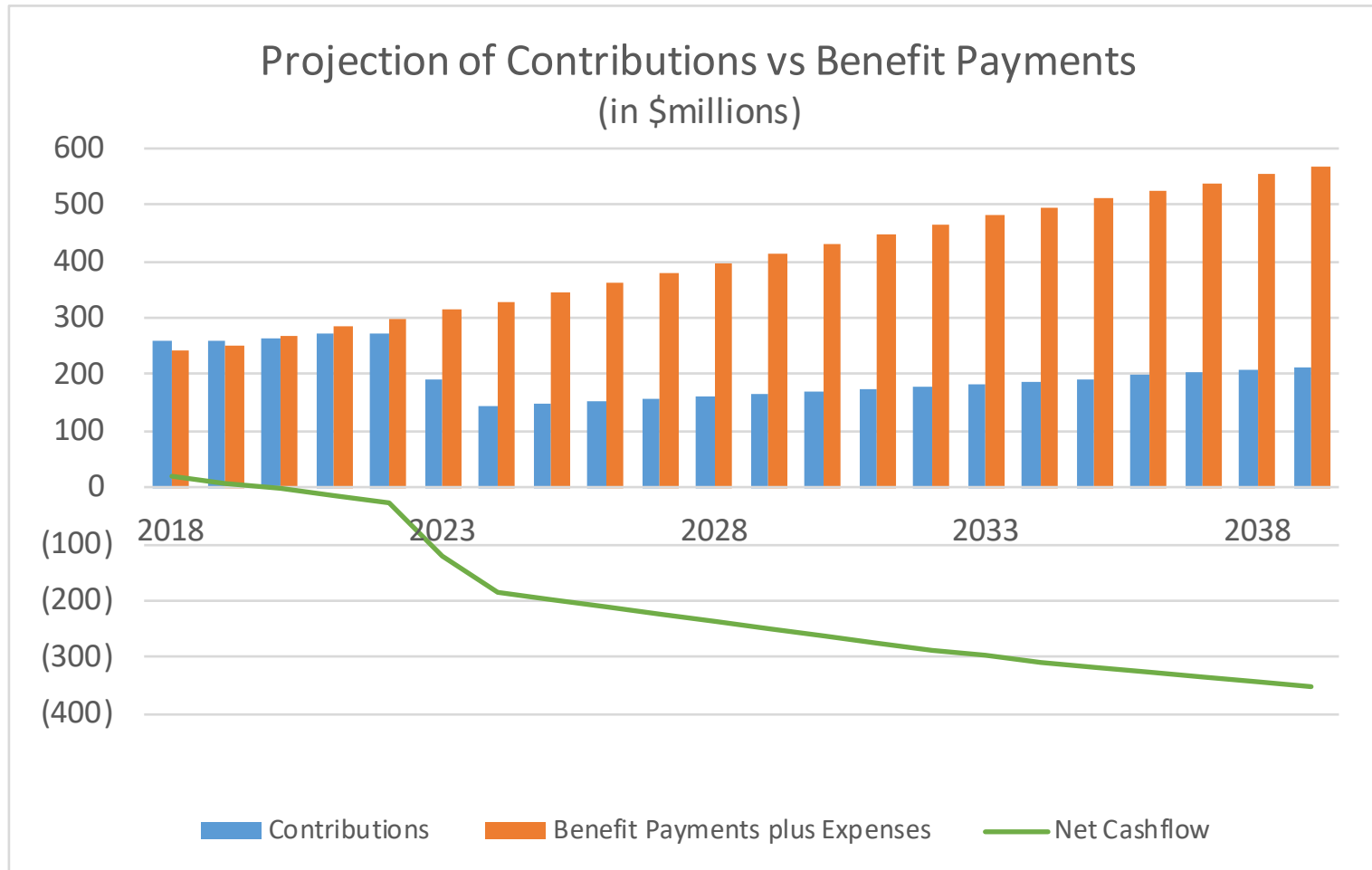
Benefit Payment Projection

- Outflows (benefit payments + expenses) are projected to increase



Cash Flow Projection

- Comparing projected contributions to benefit payments



What Does Negative Cash Flow Mean?

- Typical of a mature retirement system
- Not an issue on the actuarial side
 - Already factored into our calculations
- On the investment, it will likely require liquidation of investments at regular intervals
 - Could have a negative impact if forced to sell at the wrong time
- Other sources of positive cash flow besides contributions
 - Interest on fixed income
 - Dividends on equities
 - Maturing private equity

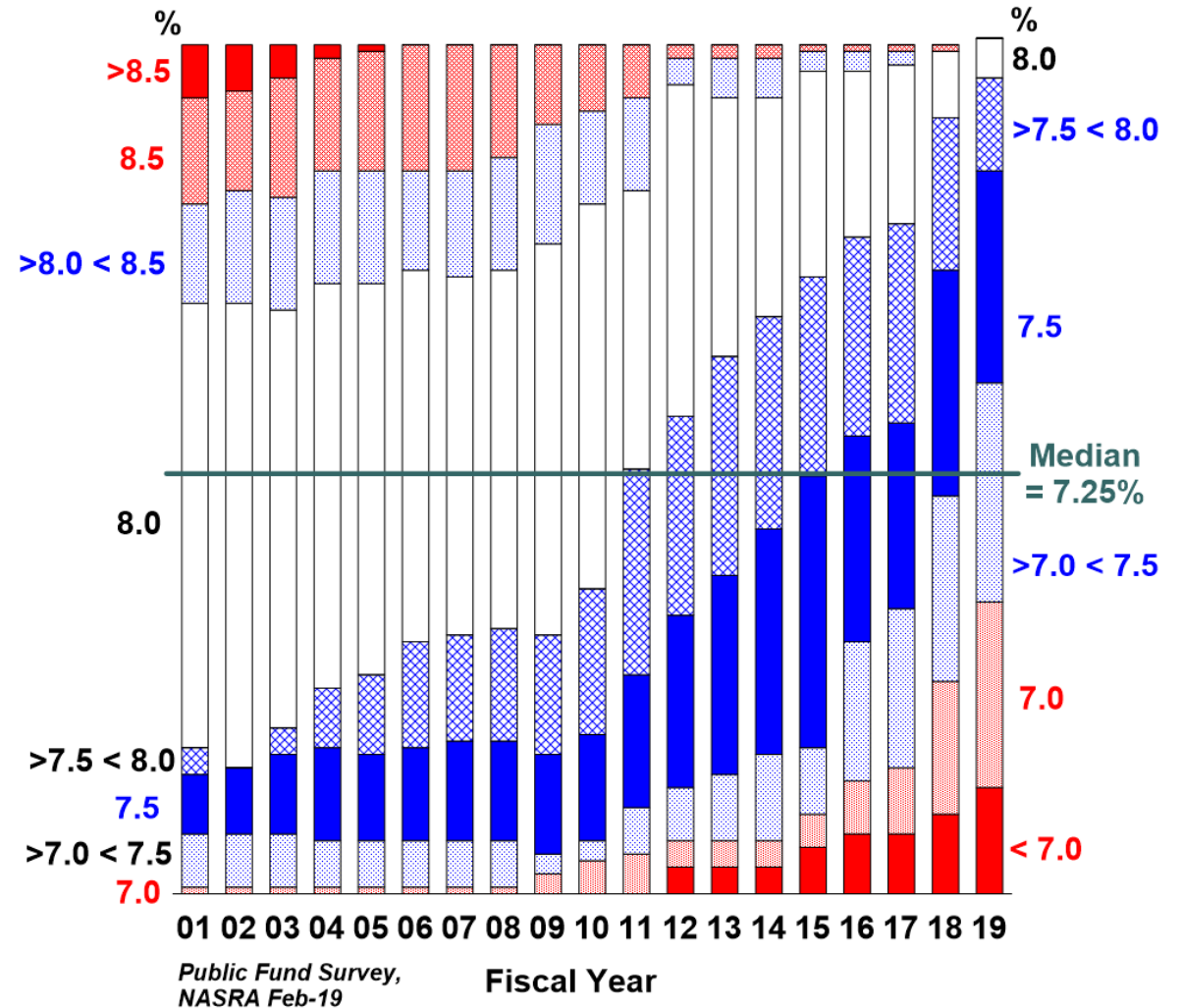
Potential Options to Offset Negative Cash Flow & Liquidation Risks

- Structure investment portfolio to generate additional non-reinvested income
 - Fixed income portfolio to provide more matching to benefit payments
- Develop a schedule to liquidate specific portions of investments at preset times
- Maintain a “cushion” of cash-like investments to reduce need to liquidate at inopportune times
 - Example: policy to target maintaining a cash cushion equal to X years of projected NCF. Develop a policy to maintain this by liquidating more assets in good investment return years than in not-so-good investment return years.

Other Topics

Investment Return Assumption

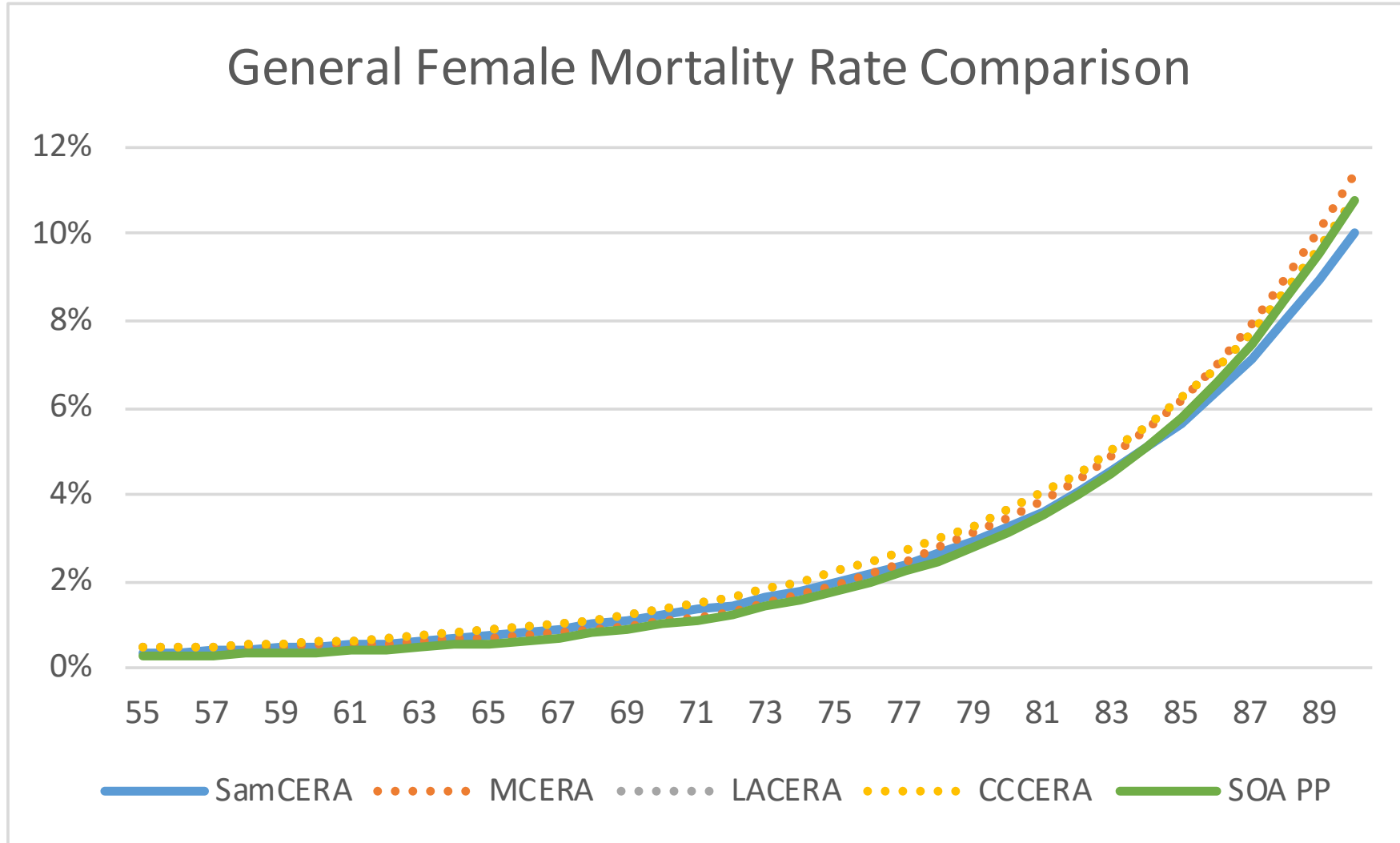
- In the Spring, we will be reviewing the assumptions to be used in the June 30, 2019 valuation
- Quick update on current environment
 - Recent NASRA Issue Brief shows continued decline in assumptions used by large public systems
 - Milliman's 2019 capital market assumptions show increase in expected return (as compared to 2018), but still less than 6.75%



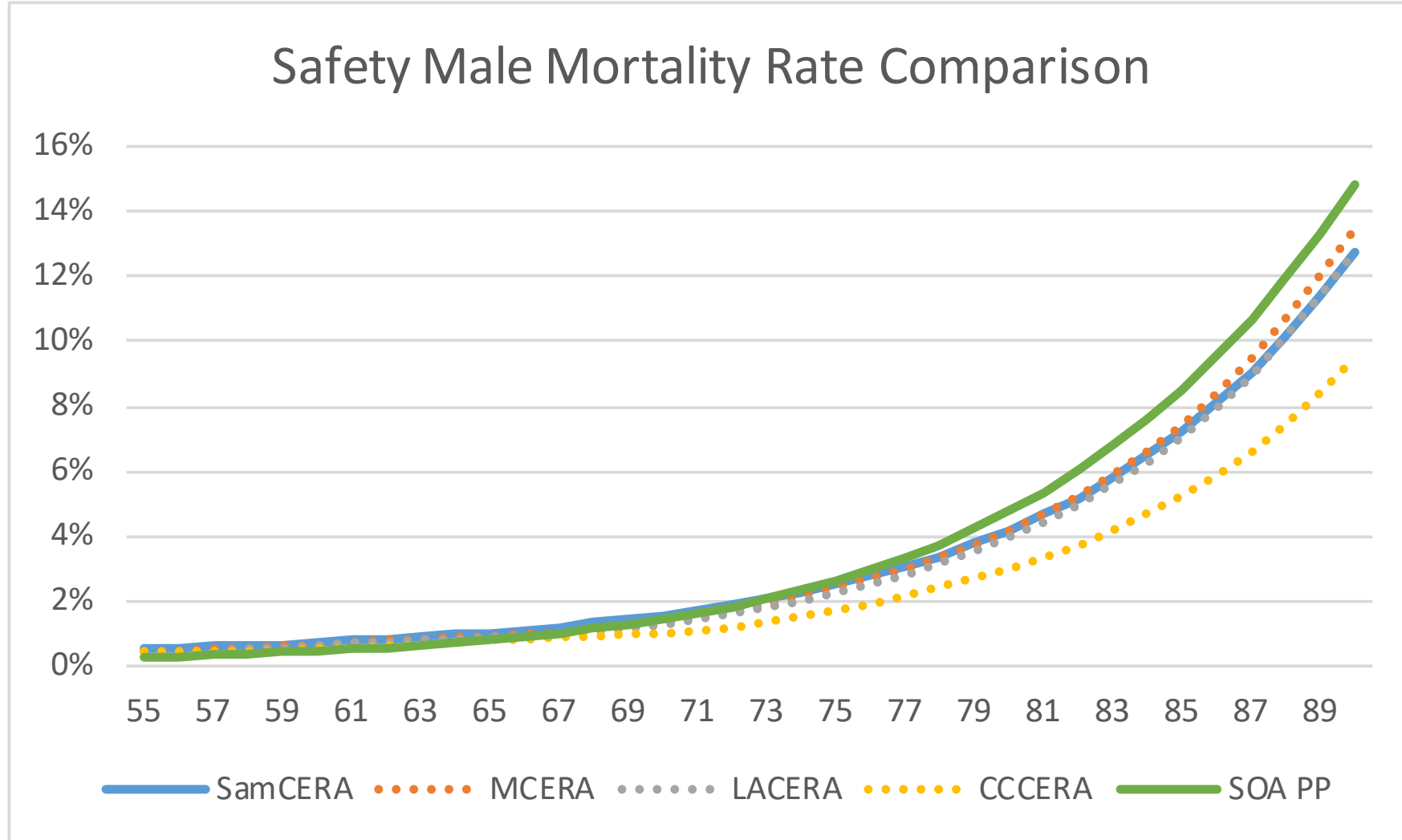
New Public Plan Mortality Tables

- Society of Actuaries has released new mortality tables specific to public sector retirement systems
 - Separate tables for General, Safety & Teachers
- New tables are not required to be used
 - Mortality tables remain at the discretion of the retirement system and its actuary
- Milliman will consider these tables at the time on next triennial experience investigation
- Our preliminary analysis shows new tables are fairly close to SamCERA's current assumptions

Example – Female General Retirees



Example – Male Safety Retirees



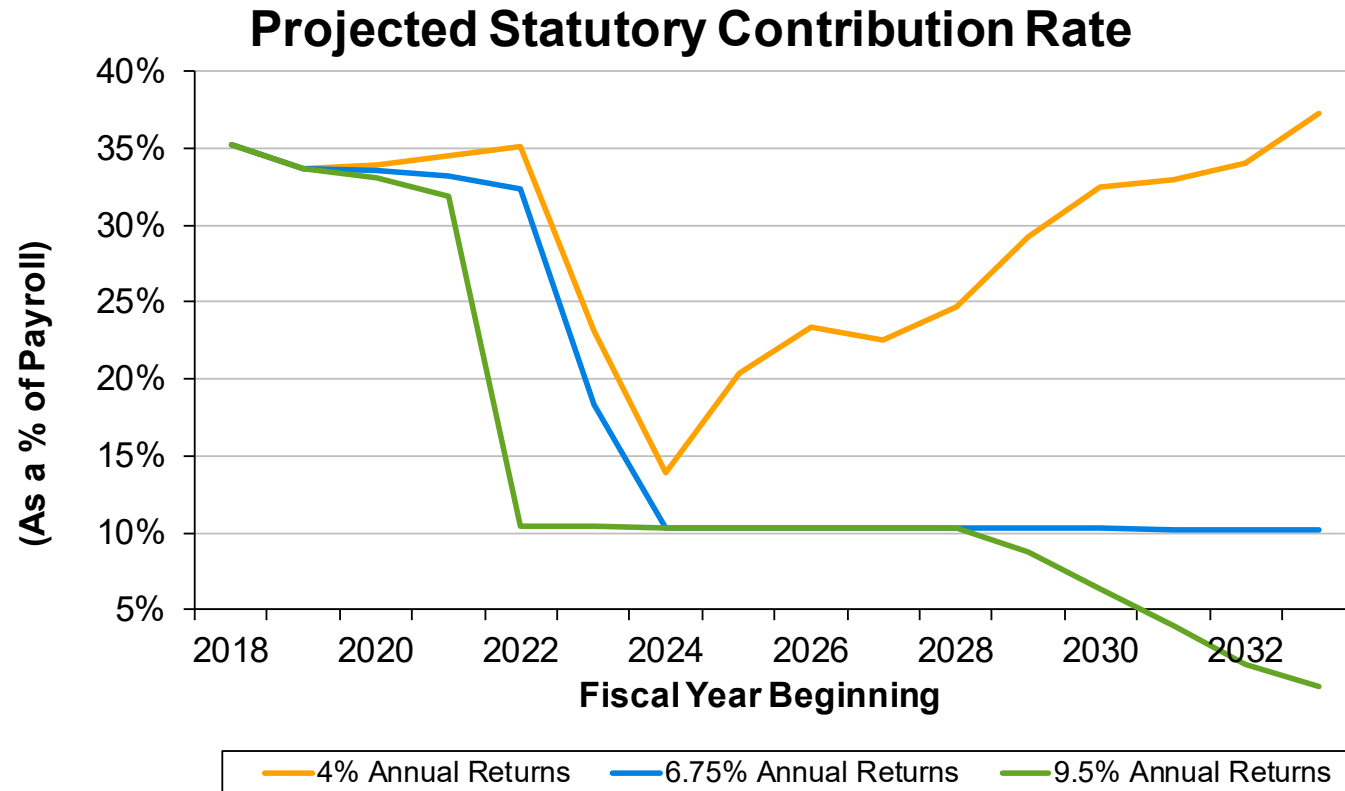
Questions



Supplemental Material

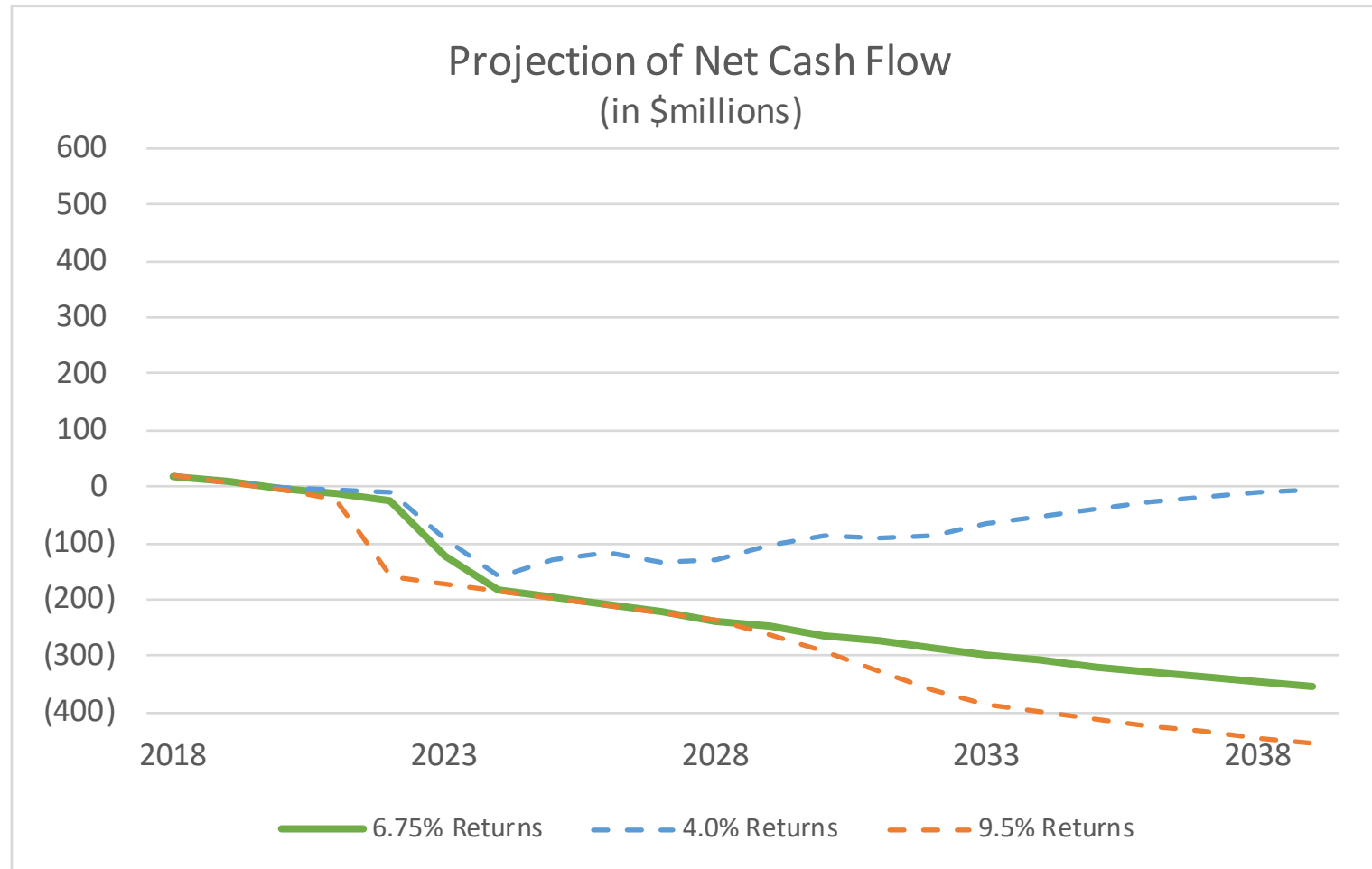
Variability in Contributions

- Actual contributions will vary due to a number of factors
 - Investment returns, assumption changes, payroll variation, etc.



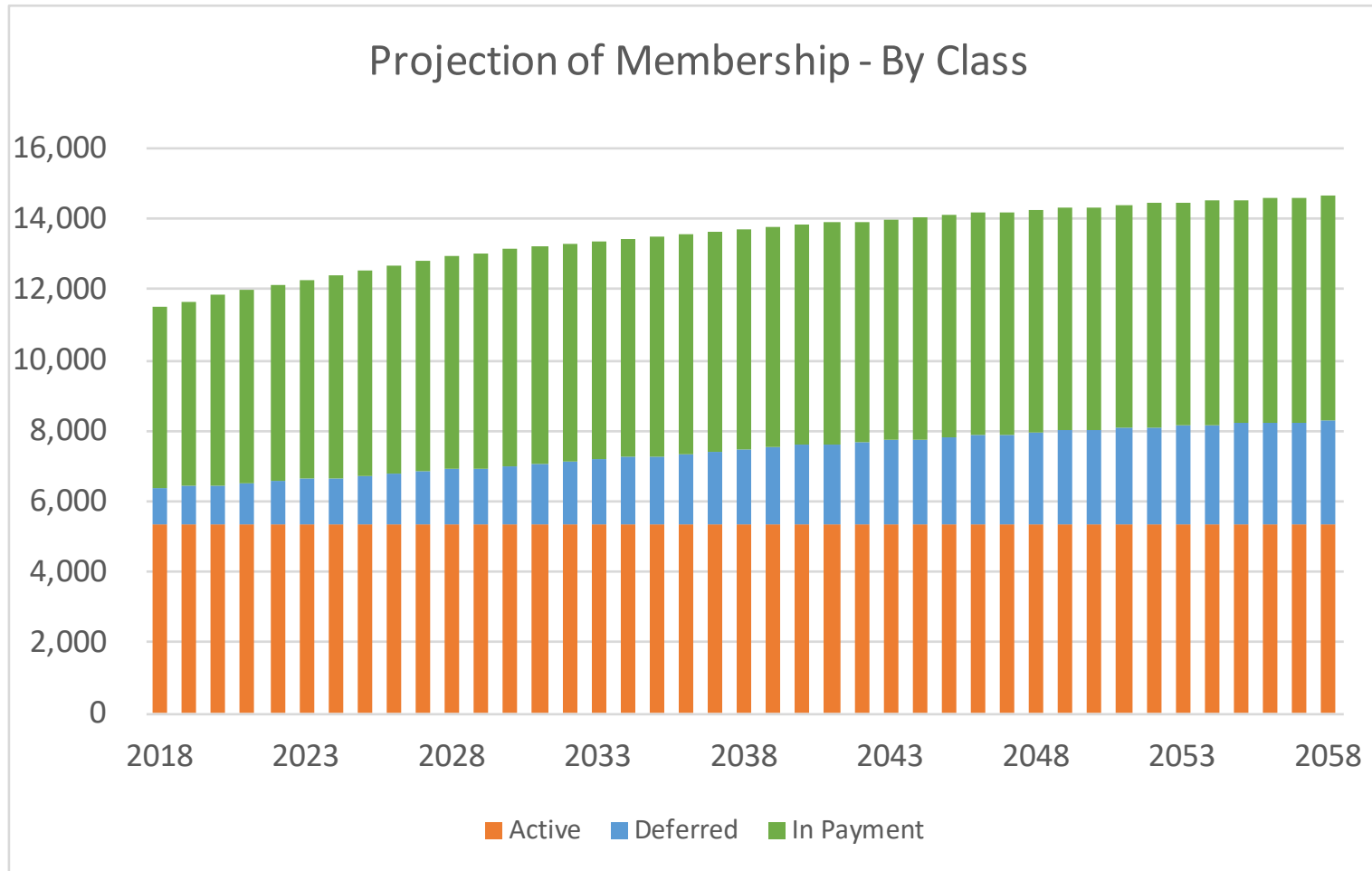
Cash Flow Projection – Alternative Return Scenario

- Cash flow expected to go negative under alternative return scenarios



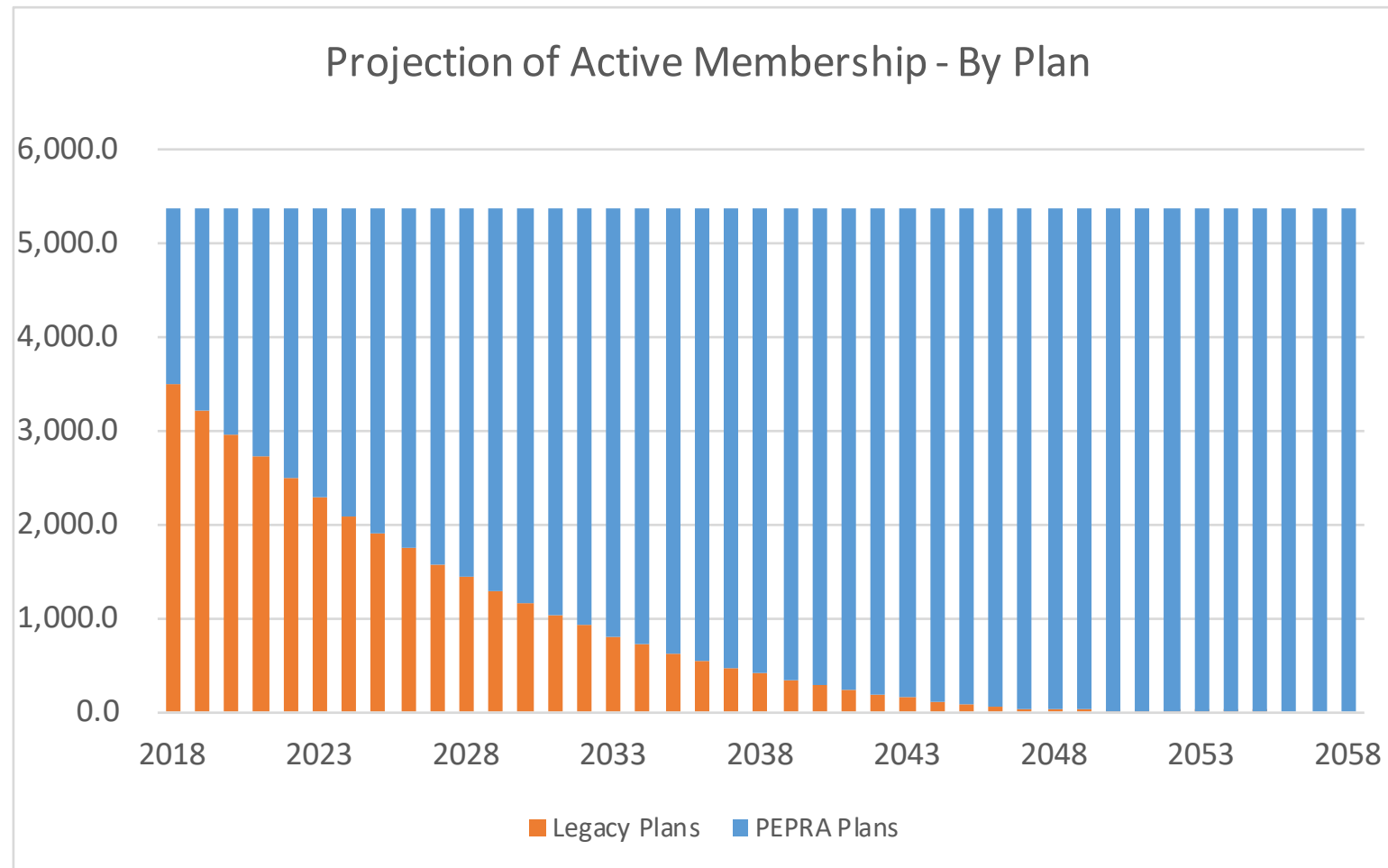
Population Projection by Status

- It is projected that there will be more members in payment than active members in a few years



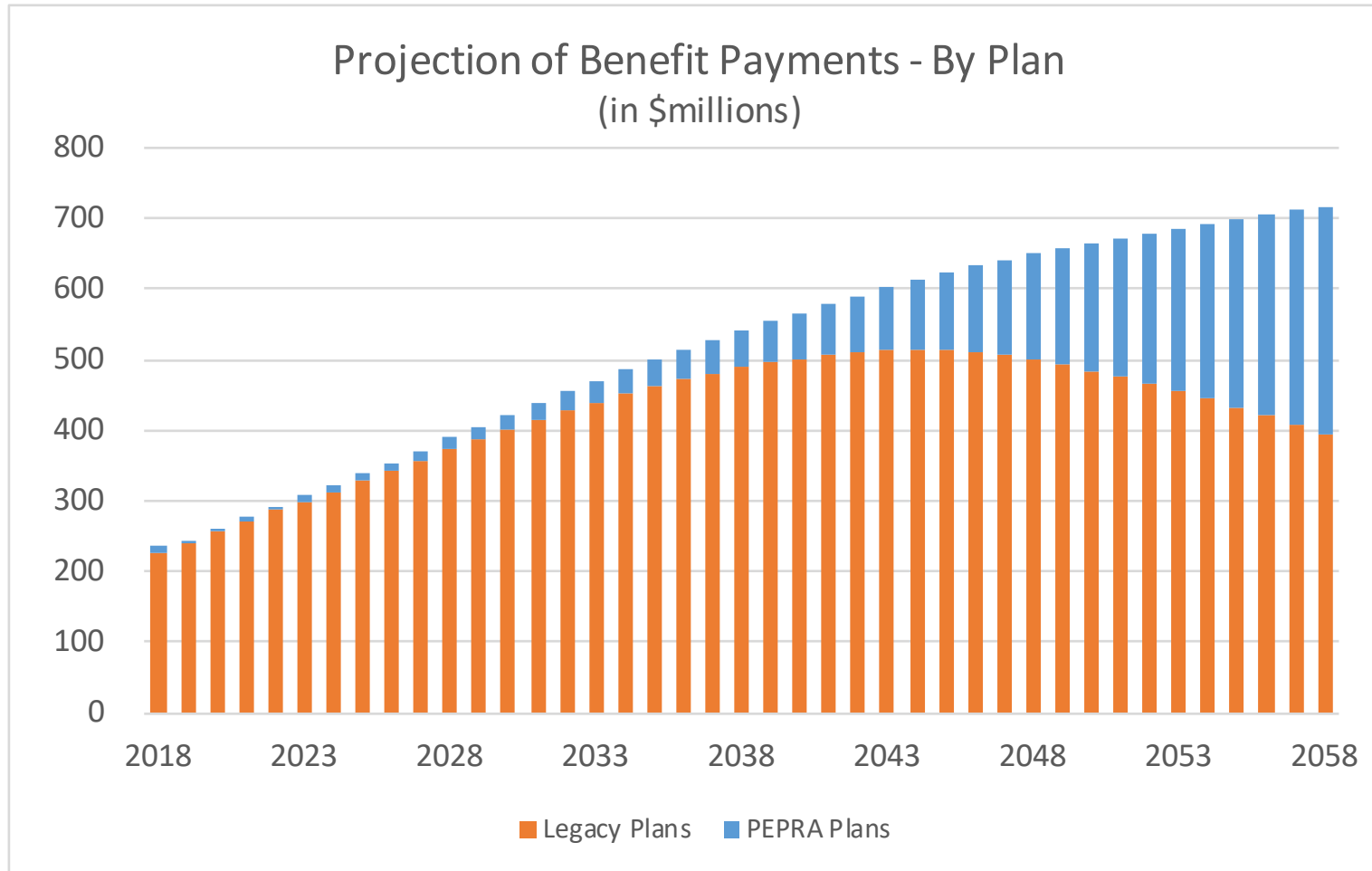
Population Projection by Plan

- Over half of active members are projected to be Plan 7 (PEPRA) in less than five years



Benefit Payment Projection – By Plan

- Outflows (benefit payments + expenses) are projected to increase



Caveats and Disclaimers

This presentation is based on the data, methods, assumptions and plan provisions described in our actuarial valuation report dated September 18, 2018. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

These statements include reliance on data provided, on actuarial certification, and the purpose of the report.

Milliman's work product was prepared exclusively for SamCERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning SamCERA's operations, and uses SamCERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 6.1

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer



SUBJECT: Preliminary Monthly Portfolio Performance Report for the Period Ended
January 31, 2019

Recommendation

Review the Verus Capital Markets Update for January 2019.

Background

The preliminary monthly performance report will not be available by the Board mailing. Staff plans to distribute the preliminary performance report in your day-of folder at the February Board meeting.

Discussion

January was a positive month for most asset classes (e.g. risk assets and defensive assets were both positive) as market sentiment abruptly reversed higher. Fed Chairman Powell reversed course from previous comments about both the outlook for future interest rate hikes and the pace and timing of the Fed's balance sheet normalization, which reassured both the equity and fixed income markets.

In U.S. equity markets, the broad U.S. equity market (as measured by the Russell 3000 Index) was up 8.6% (almost reversing the negative 9.3% return in December). International markets were also higher on the month, with developed international equity (as measured by MSCI EAFE) up 6.6%, while emerging markets were up 8.8%.

Economic data was mixed in December. Consumer confidence fell in January while the labor market continued to show strength. Manufacturing activity rose more than anticipated in January, while core inflation (CPI) rose 2.2% on an annualized basis.

The general U.S. fixed income market returned 1.1% during the month as Treasury yields were lower across the board. The 10-year U.S. Treasury yield was lower during the month, with the yield decreasing 7 basis points and ending at 2.63% by month-end.

Attachment

Verus Capital Markets Update



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

JANUARY 2019
Capital Markets Update

Market commentary

U.S. ECONOMICS

- Nonfarm payrolls rose by 304,000 in January, nearly doubling expectations of 165,000, although job gains over the last two months were revised 70,000 lower in total. Leisure and hospitality (+74,000), construction (+52,000), and healthcare (+42,000) accounted for more than half of total job creation.
- The unemployment rate edged up from 3.9% to 4.0%, partly due to an increase in the labor force participation rate from 63.1% to 63.2%. Furloughed government workers during the partial government shutdown were counted as employed – federal government payrolls (+1,000) were little changed.
- The University of Michigan consumer sentiment survey sunk from 98.3 to 91.2 in January, missing expectations of 96.8. Survey administrators noted that concerns over the government shutdown, tariffs, and Q4 equity performance contributed to consumer uncertainty.

U.S. EQUITIES

- The S&P 500 Index gained 8.0% in January, its largest monthly advance since October 2015. At month-end, the price index was at 2704, 7.7% below the September high near 2930.
- Per Factset, with 66% of companies reporting, the year-over-year Q4 2018 blended earnings and sales growth rates for the S&P 500 are 13.3% and 7.0% respectively.
- With 14/30 companies reporting, energy sector earnings are standing out. The sector's blended YoY earnings growth rate for Q4 has topped analyst estimates by 20.2%, growing 98.9%.

U.S. FIXED INCOME

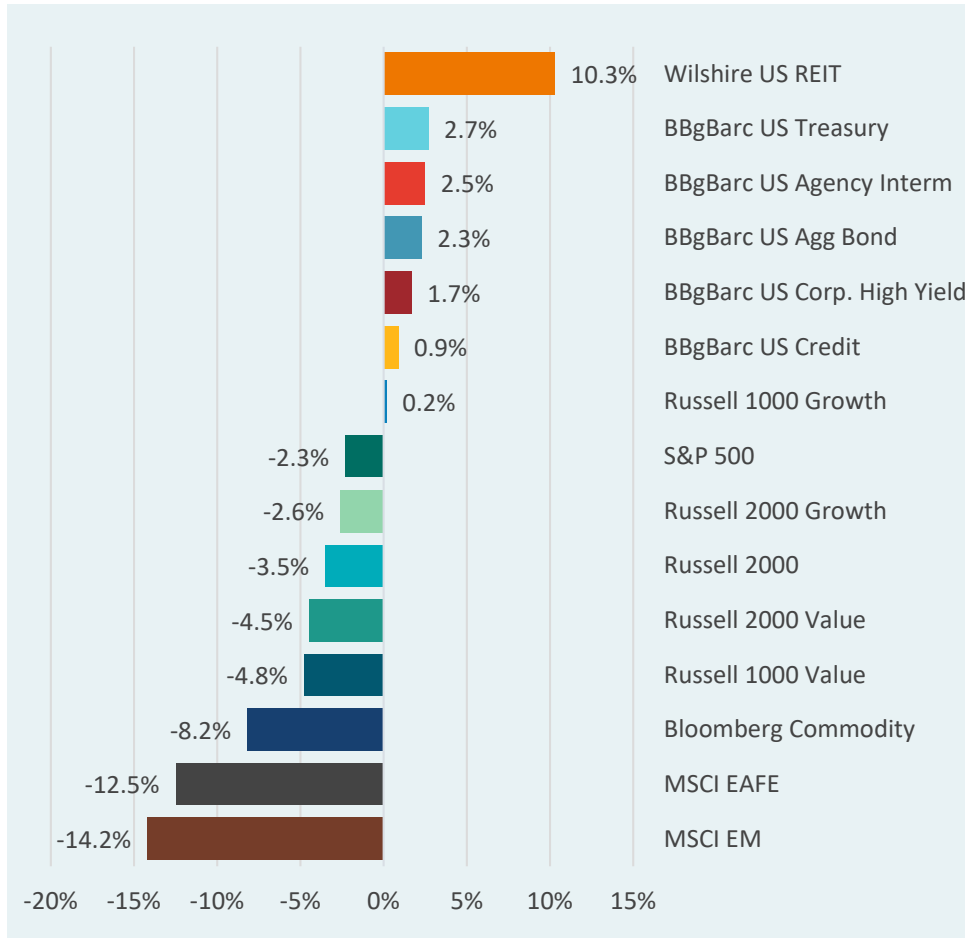
- At the January FOMC meeting, the range for the fed funds rate was left unchanged at 2.25-2.50%. Officials removed the words “further gradual increases” from their statement regarding interest rates, signaling a more patient outlook. A separate statement was released addressing the balance sheet, voicing an expectation to hold “an ample supply” of bank reserves. Analysts viewed both statements as unexpectedly dovish.
- Fed Chair Powell also walked back his December comment that the balance sheet unwind was “on autopilot”, affirming the Fed's intent to be flexible with all of its tools. The release of a separate FOMC statement addressing the balance sheet supported this shift in tone, reassuring markets.
- Credit spreads narrowed – high yield spreads fell from 5.3% to 4.2% and investment grade spreads fell from 1.5% to 1.3%.

INTERNATIONAL MARKETS

- In a strong month for global equities, emerging markets continued to outperform. The MSCI EM Index (+8.8%) outpaced the S&P 500 (+8.0%) and the MSCI EAFE Index (+6.6%).
- Industrial production prints missed across Europe. December output came in at -0.4% MoM (exp. 0.8%) in Germany, -0.8% (exp. 0.4%) in Italy, and -0.5% (exp. 0.1%) in the United Kingdom.
- Despite gloomy economic data, implied volatility in European stocks remained muted. The V2X, which normally trades at a premium to the VIX Index, spent most of January below the VIX, and ended the month at 15.1.

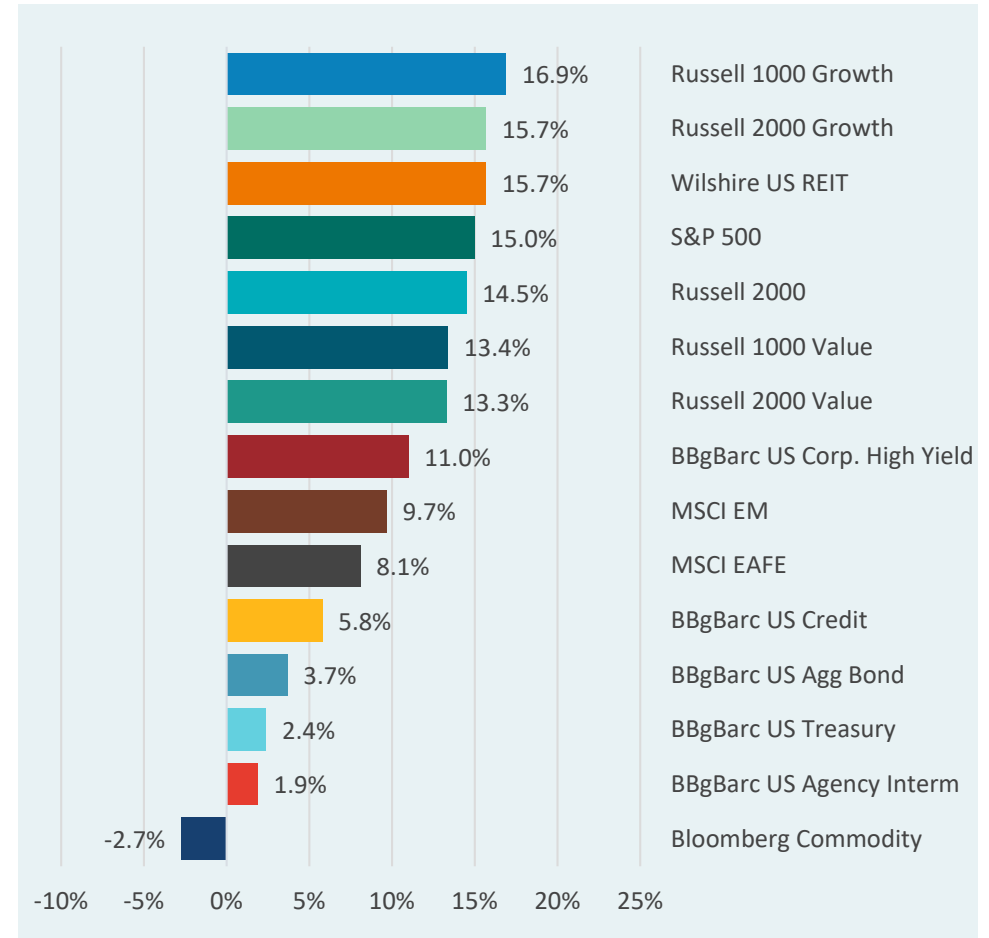
Major asset class returns

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/19

TEN YEARS ENDING JANUARY

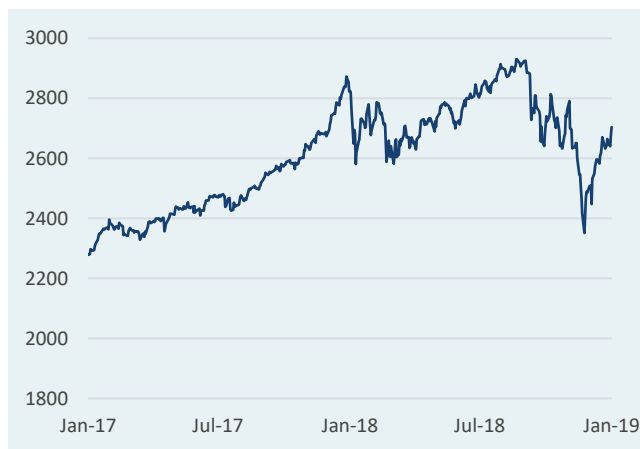


Source: Morningstar, as of 1/31/19

U.S. large cap equities

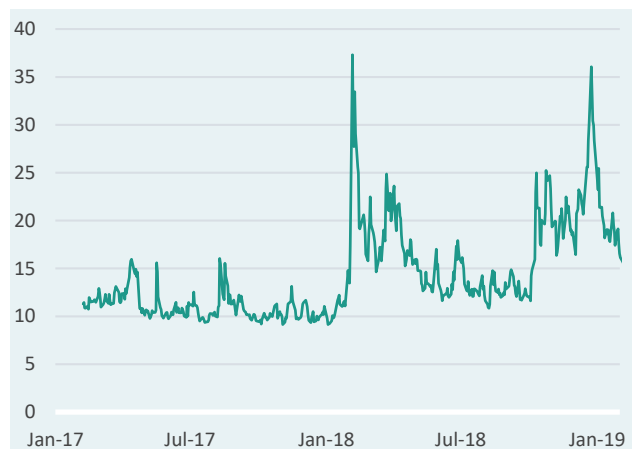
- The S&P 500 Index returned 8.0% in January. The advance was broad-based with all sectors posting positive returns. The consumer discretionary (+10.3%) and communication services (+10.4%) sectors led the overall index higher, while utilities (+3.4%) underperformed.
- The VIX Index retreated from 25.4 to 16.6, in line with its 200-day moving average. Investors' perceptions of a more flexible monetary policy from the Fed likely contributed to the more muted volatility.
- According to FactSet, estimates for S&P 500 earnings and revenue growth for the calendar year 2019 are 5.0% and 5.1%, respectively. For companies generating more than 50% of their sales domestically, same-period earnings and revenue growth estimates are 6.7% and 5.9% – for companies generating less than 50% of sales domestically, estimates are 1.9% and 3.1%.
- Over the month, the 1-year blended forward P/E ratio of the S&P 500 expanded from 14.5 to 15.8, indicating that large cap stocks are relatively more expensive.

S&P 500 PRICE INDEX



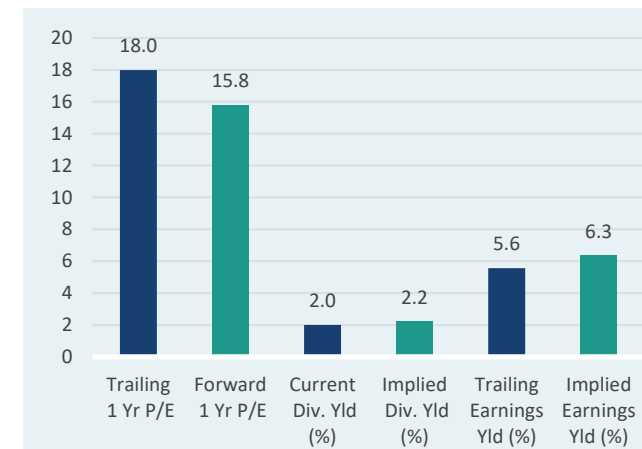
Source: Bloomberg, as of 1/31/19

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 1/31/19

S&P 500 VALUATION SNAPSHOT

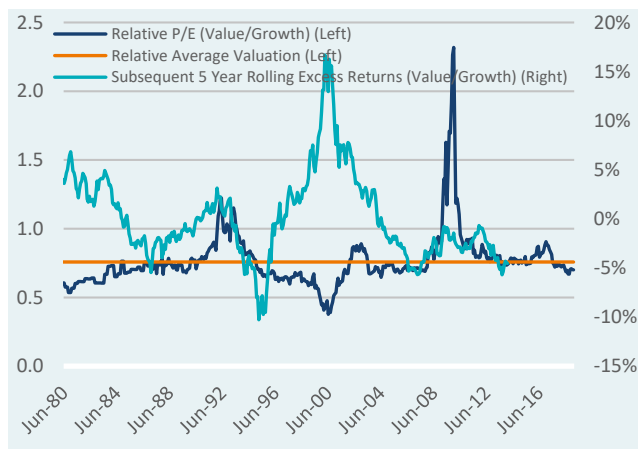


Source: Bloomberg, as of 1/31/19

Domestic equity size and style

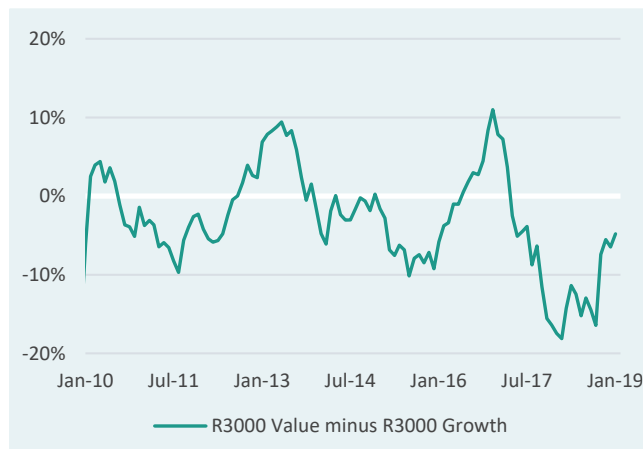
- Small cap equities outperformed large cap equities for the first month since August of last year. The Russell 2000 Index returned 11.2% while the Russell 1000 Index achieved an 8.4% return.
- Value stocks became cheaper relative to growth stocks for the second straight month. The trailing 1-year P/E ratio of the Russell 1000 Value Index moved from 14.6 to 15.7, while the Russell 1000 Growth Index saw P/E expansion from 20.6 to 22.4. The relative P/E ratio of value to growth stocks moved from 0.71 to 0.70.
- Growth outperformed value in both small cap and large cap stocks. The Russell 2000 Growth Index (+11.5%) outperformed the Russell 2000 Value Index (+10.9%), and the Russell 1000 Growth Index (+9.0%) outperformed the Russell 1000 Value Index (+7.8%).
- Utilities underperformance provided headwinds for value indexes. The Russell 3000 Value Index (+8.0%), underperformed the Russell 3000 Growth Index (+9.2%), and held a net 6.3% higher allocation to utilities.

VALUE VS. GROWTH RELATIVE VALUATIONS



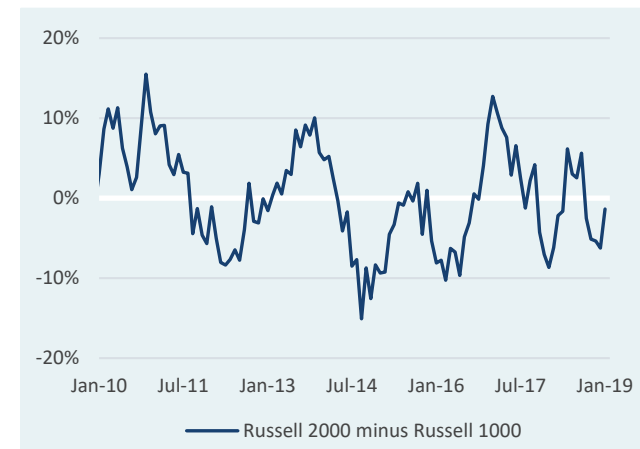
Source: Russell, Bloomberg, as of 1/31/19

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, as of 1/31/19

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, as of 1/31/19

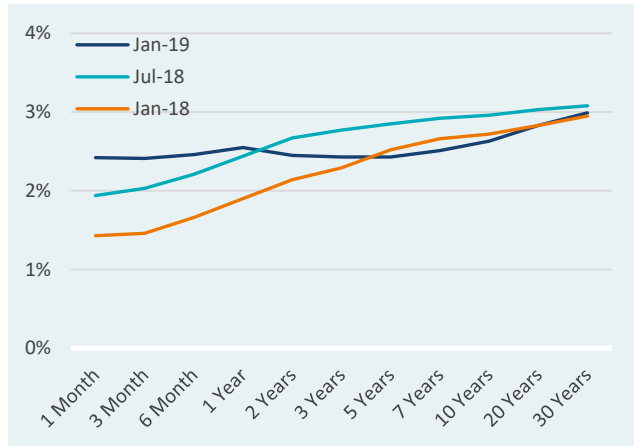
Fixed income

- Sovereign yields fell across Europe. French 10-year bond yields fell from 0.70% to 0.55%, and equivalent-maturity German yields fell from 0.24% to 0.15%.
- The European Central Bank left its deposit and refinancing rates unchanged at -0.4% and 0.0%, meeting expectations. ECB President Draghi noted a shift in economic risks towards the downside due to the “persistence of uncertainties related to geopolitical factors”.

- Emerging market debt continued to bounce back following a difficult second half of last year. Hard and local currency debt experienced gains of 4.4% and 5.5% in January, respectively.
- Treasury yields moved lower across the curve, likely impacted by a mild inflation outlook and dovish language from the Federal Reserve. The 10-year yield fell from 2.68% to 2.63% and the 2-year yield declined from 2.49% to 2.46%.

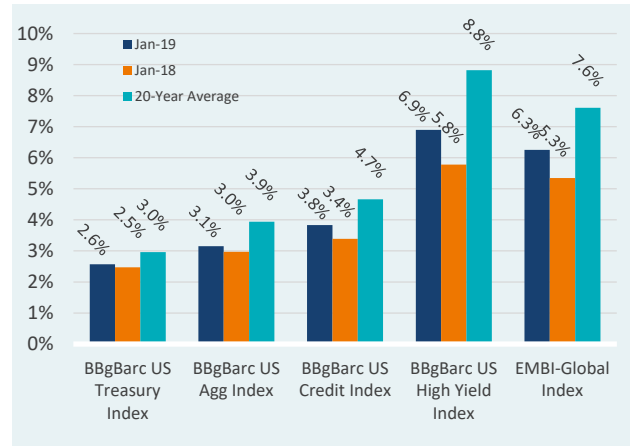
European sovereign yields fell to multi-year lows

U.S. TREASURY YIELD CURVE



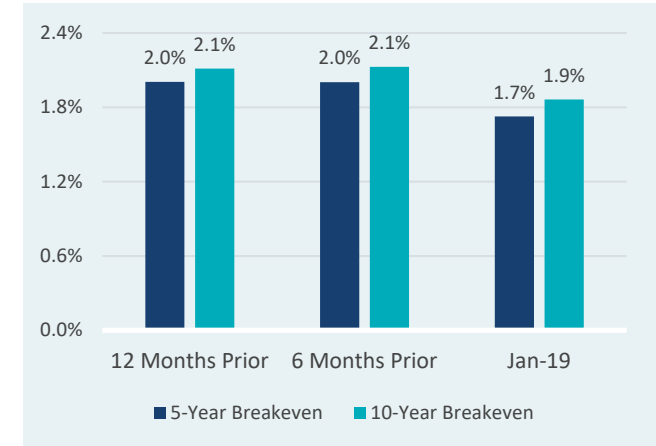
Source: Bloomberg, as of 1/31/19

NOMINAL YIELDS



Source: Morningstar, as of 1/31/19

BREAKEVEN INFLATION RATES

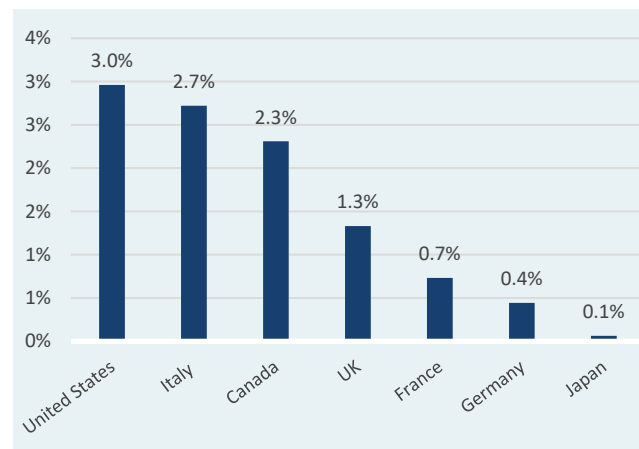


Source: Bloomberg, as of 1/31/19

Global markets

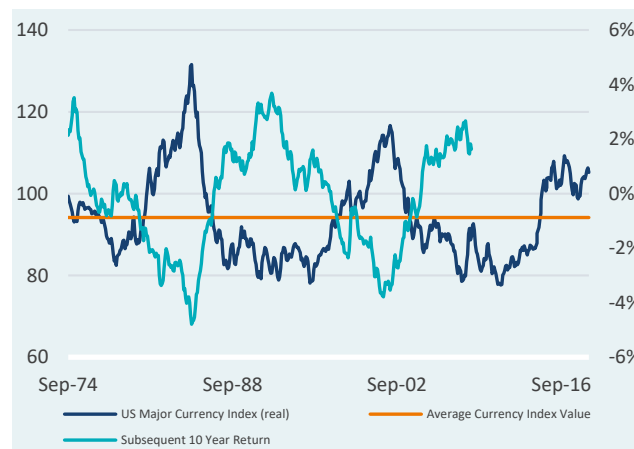
- U.S. and Chinese officials met to discuss trade relations, and both sides expressed optimism about the progress that was made. Issues such as the trade balance and technology transfers dominated the negotiations.
- The British Parliament rejected Theresa May's Withdrawal Agreement by a vote of 432-202, triggering another confidence vote, which the embattled prime minister survived. The handling of the U.K.-Irish border remained the most contentious issue.
- The Markit Eurozone Composite PMI rose from 50.7 to 51.0. Major economies underperformed; France (48.2) and Italy (48.8) exhibited contraction, while Germany (52.1) demonstrated slight expansion.
- The blended forward P/E ratio of the MSCI Emerging Markets Index increased from 10.6 to 11.7, it's highest level since last June. Earnings per share estimates for the index fell from \$91.2 to \$90.0 over the month, contributing to the forward multiple expansion.

GLOBAL SOVEREIGN 10-YEAR YIELDS



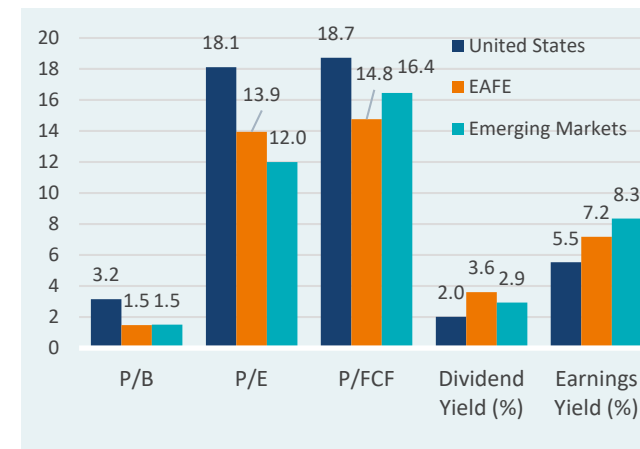
Source: Bloomberg, as of 1/31/19

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 1/31/19

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 1/31/19

Commodities

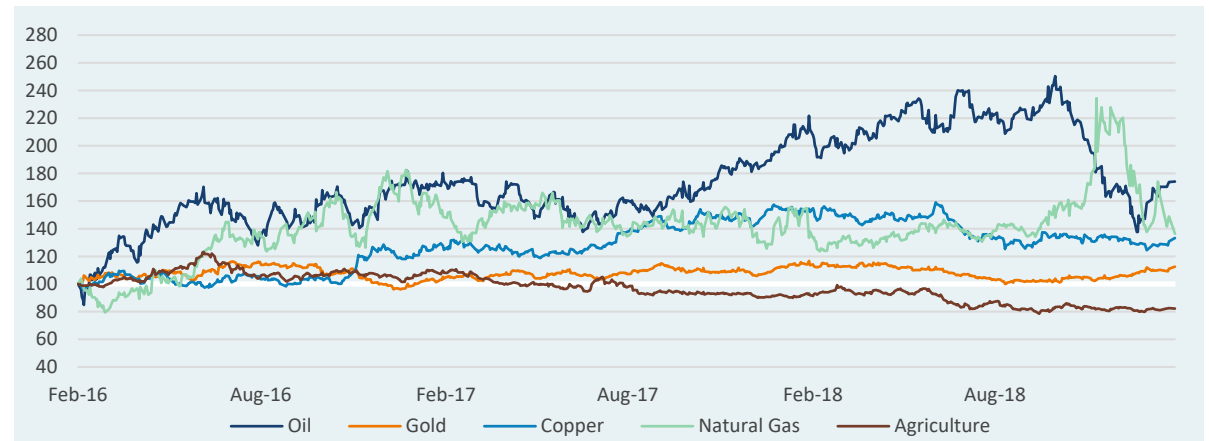
- The Bloomberg Commodity Index rose 5.4%, as all sectors except livestock advanced. Energy, the most heavily weighted sector, gained 9.2% and continued to drive overall index returns.
- The Bloomberg Petroleum sub-index gained 13.8%, its best monthly return since April 2016. Returns were bolstered by OPEC's December report, which cited crude oil supplies from OPEC+ nations fell by 751,000 barrels per day to 31.6 million. At month-end, the Petroleum sector held a 68.6% exposure to crude oil futures contracts.
- Industrial metals outperformed, gaining 8.0%. Within the sub-index, nickel (+16.8%) was the top performer. Analysts cited strong demand from alloy-makers, speculation on U.S.-China trade relations, and a benign outlook for the U.S. dollar as contributing factors.
- Gold gained 3.1% in January, its fourth consecutive monthly advance. Central bank bullion purchases swelled 74% in 2018, reaching 47-year highs. Emerging market central banks led purchases, as purported geopolitical uncertainty likely provided motivation to diversify foreign reserve assets.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	5.4	5.4	5.4	(8.2)	2.7	(7.9)	(2.7)
Bloomberg Agriculture	3.0	3.0	3.0	(9.3)	(5.6)	(8.5)	(2.5)
Bloomberg Energy	9.2	9.2	9.2	(8.8)	4.6	(17.6)	(11.2)
Bloomberg Grains	1.9	1.9	1.9	(7.7)	(7.8)	(9.9)	(4.1)
Bloomberg Industrial Metals	8.0	8.0	8.0	(13.2)	11.0	(0.7)	3.0
Bloomberg Livestock	(1.5)	(1.5)	(1.5)	(1.9)	(1.4)	(3.3)	(2.4)
Bloomberg Petroleum	13.8	13.8	13.8	(12.2)	9.3	(16.0)	(5.1)
Bloomberg Precious Metals	3.2	3.2	3.2	(3.3)	4.5	(0.6)	2.8
Bloomberg Softs	4.9	4.9	4.9	(12.3)	(4.6)	(8.8)	(2.5)

Source: Morningstar, as of 1/31/19

COMMODITY PERFORMANCE



Source: Bloomberg, as of 1/31/19

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD	5-Year	10-Year
Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	11.5	13.0	16.9
Small Cap Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	11.2	10.7	15.7
Small Cap Value	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	10.9	9.3	15.2
Large Cap Growth	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	9.0	8.3	14.5
Emerging Markets Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	8.8	7.8	13.4
Large Cap Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	8.4	7.3	13.3
Large Cap Value	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	7.8	6.6	9.7
International Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	6.6	4.8	8.1
Commodities	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	5.4	4.6	8.1
60/40 Global Portfolio	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	5.4	2.7	7.5
Hedge Funds of Funds	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	2.6	2.4	3.7
US Bonds	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	1.1	2.0	3.3
Cash	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	0.2	0.7	0.4
Real Estate	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	0.0	-7.9	-2.7

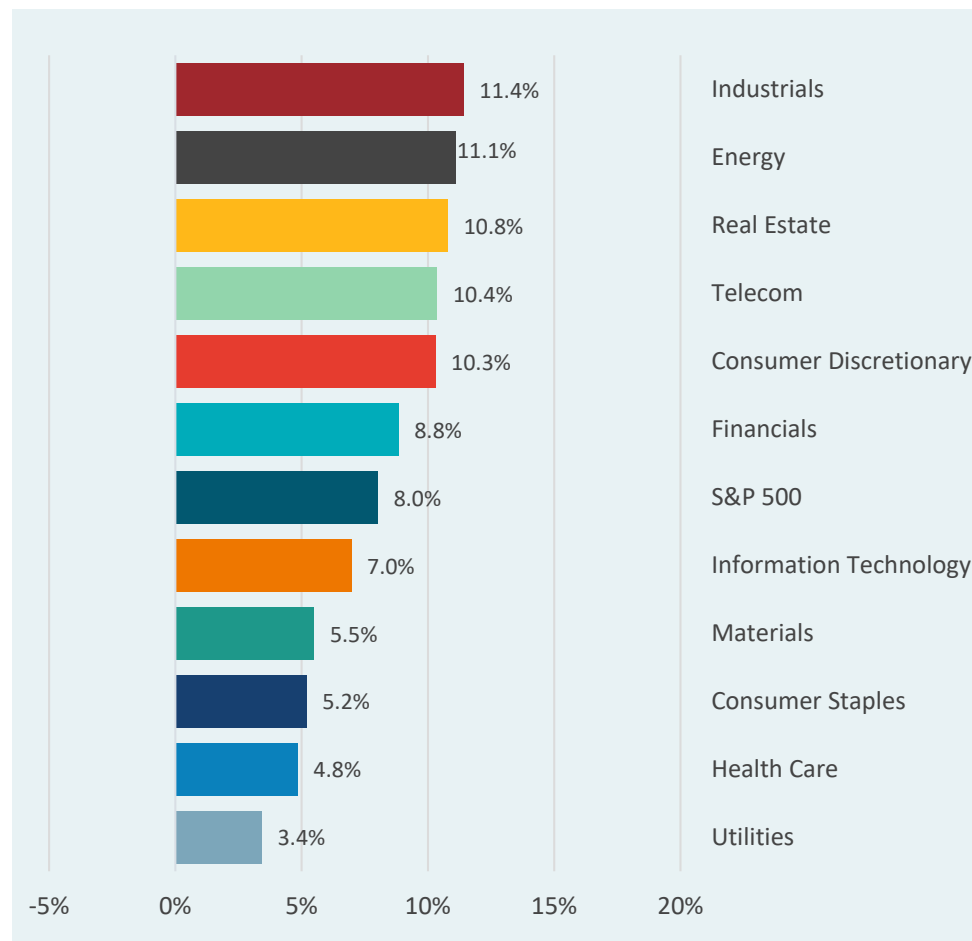
BEST
↑
↓
WORST

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

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

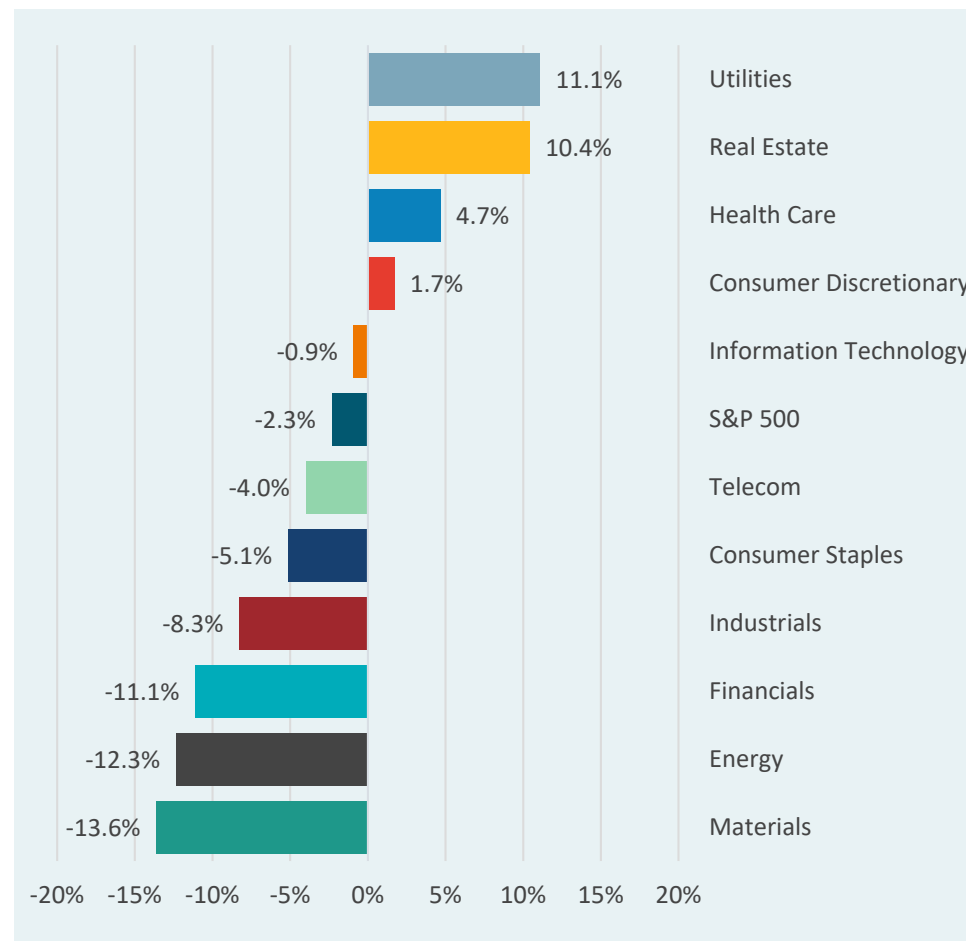
S&P 500 sector returns

QTD



Source: Morningstar, as of 1/31/19

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	8.0	8.0	8.0	(2.3)	14.0	11.0	15.0
S&P 500 Equal Weighted	9.9	9.9	9.9	(2.9)	13.6	9.8	17.0
DJ Industrial Average	7.3	7.3	7.3	(2.2)	17.8	12.4	15.0
Russell Top 200	7.5	7.5	7.5	(1.9)	14.5	11.4	14.8
Russell 1000	8.4	8.4	8.4	(2.2)	14.1	10.7	15.2
Russell 2000	11.2	11.2	11.2	(3.5)	14.7	7.3	14.5
Russell 3000	8.6	8.6	8.6	(2.3)	14.2	10.4	15.1
Russell Mid Cap	10.8	10.8	10.8	(2.9)	13.3	8.9	16.1
Style Index							
Russell 1000 Growth	9.0	9.0	9.0	0.2	16.6	13.0	16.9
Russell 1000 Value	7.8	7.8	7.8	(4.8)	11.6	8.3	13.4
Russell 2000 Growth	11.5	11.5	11.5	(2.6)	15.6	7.8	15.7
Russell 2000 Value	10.9	10.9	10.9	(4.5)	13.8	6.6	13.3

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	7.9	7.9	7.9	(7.5)	11.6	6.7	11.3
MSCI ACWI ex US	7.6	7.6	7.6	(12.6)	9.6	3.1	8.3
MSCI EAFE	6.6	6.6	6.6	(12.5)	7.7	2.7	8.1
MSCI EM	8.8	8.8	8.8	(14.2)	14.9	4.8	9.7
MSCI EAFE Small Cap	8.1	8.1	8.1	(15.6)	9.4	5.0	12.1
Style Index							
MSCI EAFE Growth	6.4	6.4	6.4	(11.3)	7.4	3.8	8.7
MSCI EAFE Value	6.7	6.7	6.7	(13.7)	8.1	1.4	7.4
Regional Index							
MSCI UK	7.1	7.1	7.1	(10.8)	6.1	0.5	8.3
MSCI Japan	6.1	6.1	6.1	(11.6)	8.5	5.1	6.7
MSCI Euro	6.4	6.4	6.4	(17.0)	6.9	1.3	6.7
MSCI EM Asia	7.3	7.3	7.3	(16.0)	14.1	6.5	11.3
MSCI EM Latin American	14.9	14.9	14.9	(5.1)	22.2	3.1	6.5

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.3	1.3	1.3	0.9	2.1	1.6	3.6
BBgBarc US Treasury Bills	0.2	0.2	0.2	2.0	1.1	0.7	0.4
BBgBarc US Agg Bond	1.1	1.1	1.1	2.3	2.0	2.4	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	0.3	0.3	0.3	2.1	0.8	0.8	1.0
BBgBarc US Treasury Long	0.7	0.7	0.7	2.1	1.1	4.9	5.1
BBgBarc US Treasury	0.5	0.5	0.5	2.7	0.8	1.8	2.4
Issuer							
BBgBarc US MBS	0.8	0.8	0.8	3.0	1.5	2.4	3.2
BBgBarc US Corp. High Yield	4.5	4.5	4.5	1.7	9.4	4.6	11.0
BBgBarc US Agency Interm	0.4	0.4	0.4	2.5	1.1	1.4	1.9
BBgBarc US Credit	2.2	2.2	2.2	0.9	3.7	3.3	5.8

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	5.4	5.4	5.4	(8.2)	2.7	(7.9)	(2.7)
Wilshire US REIT	11.5	11.5	11.5	10.3	7.3	9.4	15.7
CS Leveraged Loans	2.3	2.3	2.3	2.4	6.1	3.7	7.9
Alerian MLP	13.0	13.0	13.0	(6.1)	7.4	(4.6)	10.2
Regional Index							
JPM EMBI Global Div	4.4	4.4	4.4	0.0	6.7	5.8	8.5
JPM GBI-EM Global Div	5.5	5.5	5.5	(5.3)	7.7	1.1	4.6
Hedge Funds							
HFRI Composite	3.5	3.5	3.5	(3.5)	5.1	3.0	5.3
HFRI FOF Composite	2.6	2.6	2.6	(3.9)	3.1	2.0	3.3
Currency (Spot)							
Euro	0.4	0.4	0.4	(7.9)	2.0	(3.2)	(1.1)
Pound	3.3	3.3	3.3	(7.5)	(2.5)	(4.4)	(0.9)
Yen	0.8	0.8	0.8	0.3	3.6	(1.3)	(1.9)

Source: Morningstar, HFR, as of 1/31/19

Notices & disclosures

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 6.2

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

Michael R. Coultrip

SUBJECT: Report on Quarterly Investment Performance Report for the Period Ended
December 31, 2018

Recommendation

Accept Verus Advisory's quarterly performance report for the period ended December 31, 2018.

Discussion

The 4th quarter net total return for the SamCERA portfolio was -6.2%, which was 30 bps lower than the -5.9% policy benchmark return. As can be seen on Page 19 and 20, Alternatives was the main detractor of relative performance during the quarter, while Risk Parity was the main contributor to relative performance.

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

Attachment

Verus Quarterly Performance Report Ending 12/31/2018



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2018

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

- U.S. real GDP growth reached 3.0% in Q3, supported by fiscal stimulus which is more or less expected to fade in 2019. Growth is forecast to moderate in the U.S., in-line with the rest of the developed world.
- The U.S. and China ended their most recent round of trade negotiations during the first week of January. China indicated willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall.

PORTFOLIO IMPACTS

- The Federal Reserve raised the fed funds rate by 0.25% to a range of 2.25%-2.50%. Market expectations for future rate hikes changed dramatically in December. As of year-end, the fed funds futures market is pricing in zero hikes for 2019, and a rate cut for 2020.
- Emerging markets were the top equity performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed markets (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currencies stabilized in Q4 (JPMorgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines.

THE INVESTMENT CLIMATE

- The U.S. equity market experienced a fairly significant peak-to-trough drawdown in Q4 (S&P 500 -19.8%, Russell 1000 -20.1%), along with global equity markets. Equity corrections of this size have historically occurred roughly once per cycle.
- After reaching a cyclical high of 3.2% in November, the 10-year U.S. Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling inflation expectations as energy prices trended down.
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline.

ASSET ALLOCATION ISSUES

- Diversification has been particularly painful in recent years as most asset classes failed to keep up with a domestic 60/40 portfolio. U.S. performance exceptionalism reversed in Q4 as U.S. equities underperformed.
- Economic conditions around the world have weakened. This trend has been broad-based, from industrial production, to business sentiment, to corporate earnings expectations.

Economic conditions displayed a weaker trend in Q4

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

U.S. economics summary

- Real GDP growth reached 3.0% YoY (3.4% quarterly annualized rate) in the third quarter, the fastest pace of growth in more than three years. Consumers drove growth after bouncing back from a spending slowdown in Q1.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. The U.S. noted China’s willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall.
- U.S. inflation remained near the Federal Reserve’s 2.0% target. Headline U.S. inflation fell from 2.3% to 1.9% over the quarter, driven by lower oil prices. U.S. core CPI remained at 2.2%. Moderate inflation has likely contributed to the willingness of the Fed to keep on course with rate hikes.
- The labor market remained a bright spot in the U.S. economy. On average, nonfarm payrolls increased by 254,000 per month during the quarter, well above the expansion average of 201,000.
- The headline U-3 unemployment rate rose from 3.7% to 3.9%, in part due to an increase in labor force participation.
- Fiscal stimulus continued to support growth, although the impacts will likely subside in the first half of 2019. Stimulus may be masking a slowdown in the economy, which would be directionally in line with the rest of the developed world.
- The Federal Reserve hiked the target range for its benchmark interest rate by 25 basis points to a new range of 2.25% - 2.50%. Consistent with expectations for a “dovish hike”, central bank officials re-rated hike expectations in 2019 from three to two.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>9/30/18</i>	2.3% <i>9/30/17</i>
Inflation (CPI YoY, Core)	2.2% <i>12/31/18</i>	1.8% <i>12/31/17</i>
Expected Inflation (5yr-5yr forward)	1.8% <i>12/31/18</i>	2.0% <i>12/31/17</i>
Fed Funds Target Range	2.25 – 2.50% <i>12/31/18</i>	1.25 – 1.50% <i>12/31/17</i>
10 Year Rate	2.7% <i>12/31/18</i>	2.4% <i>12/31/17</i>
U-3 Unemployment	3.9% <i>12/31/18</i>	4.1% <i>12/31/17</i>
U-6 Unemployment	7.6% <i>12/31/18</i>	8.1% <i>12/31/17</i>

International economics summary

- Outside of the U.S., economic growth has slowed in recent quarters, most notably in Europe and Japan. Developed real GDP growth is expected to slow from 2.2% in 2018 to 2.0% in 2019, according to the World Bank.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. Officials continue to work towards an agreement, though little progress is been demonstrated thus far. On March 2nd, U.S. tariffs are scheduled to increase from 10% to 25% on \$200 billion of Chinese imports.
- China's Purchasing Managers' Index (PMI) fell to 49.7 in December. An index reading of 50 indicates economic expansion while a reading below 50 indicates contraction. This reading is in line with a string of weak economic data coming out of China.
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline. Potential resolutions include renegotiating a deal with the EU, leaving without a deal, or delaying the exit deadline.
- The U.S. dollar appreciated by 1.9% during the quarter on a trade-weighted basis. A slowing U.S. economy would likely put downside pressure on the dollar, which has been boosted recently by U.S. economic exceptionalism.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.9% <i>12/31/18</i>
Eurozone	1.6% <i>9/30/18</i>	1.8% <i>11/30/18</i>	8.1% <i>10/31/18</i>
Japan	0.0% <i>9/30/18</i>	0.8% <i>11/30/18</i>	2.5% <i>11/30/18</i>
BRICS Nations	5.6% <i>9/30/18</i>	2.4% <i>12/31/18</i>	5.4% <i>9/30/18</i>
Brazil	1.3% <i>9/30/18</i>	4.1% <i>11/30/18</i>	11.7% <i>12/31/18</i>
Russia	1.5% <i>9/30/18</i>	4.3% <i>12/31/18</i>	4.8% <i>11/30/18</i>
India	7.1% <i>9/30/18</i>	2.3% <i>11/30/18</i>	8.8% <i>12/31/17</i>
China	6.5% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.8% <i>9/30/18</i>

Equity environment

- U.S. equities experienced their worst quarter since 2008 – the S&P 500 Index returned -13.5%. The sell-off was due in part to concerns over a slowdown in global growth, and was exacerbated by low liquidity toward the end of the year.
- The drawdown from peak on the S&P 500 Index stopped just shy of 20% before equities rebounded during the last week of the year. Historically, equity drawdowns of more than 20% have been associated with an economic recession.
- Although absolute performance was also poor, international equities outperformed U.S. equities, particularly in emerging markets.
- Global equities saw a sharp drop in valuations as price declines overwhelmed small downward adjustments to earnings expectations. The 12-month forward P/E multiple for the MSCI ACWI fell by 12.1% during the quarter, falling from 14.8x to 13.0x.
- The risk-off environment hit small cap equities especially hard. The Russell 2000 Index posted a -20.2% return in the fourth quarter, compared to a decline of 13.8% on the Russell 1000 Index.
- Value equities outperformed growth equities over the quarter for the time since Q4 2016. The Russell 1000 Value Index and Russell 1000 Growth Index returned -11.7% and -15.9%, respectively.
- Equity volatility surged in what may be the beginning of a transition to a higher volatility regime. The VIX Index averaged 21 in Q4, and hit a high of 36 on December 24th.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(13.8%)		(4.8%)	
US Small Cap (Russell 2000)	(20.2%)		(11.0%)	
US Large Value (Russell 1000 Value)	(11.7%)		(8.3%)	
US Large Growth (Russell 1000 Growth)	(15.9%)		(1.5%)	
International Large (MSCI EAFE)	(12.5%)	(11.6%)	(13.8%)	(9.0%)
Eurozone (Euro Stoxx 50)	(14.1%)	(10.7%)	(16.2%)	(9.3%)
U.K. (FTSE 100)	(11.7%)	(9.1%)	(14.0%)	(7.3%)
Japan (NIKKEI 225)	(14.6%)	(16.6%)	(8.6%)	(9.6%)
Emerging Markets (MSCI Emerging Markets)	(7.5%)	(7.4%)	(14.6%)	(10.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/18

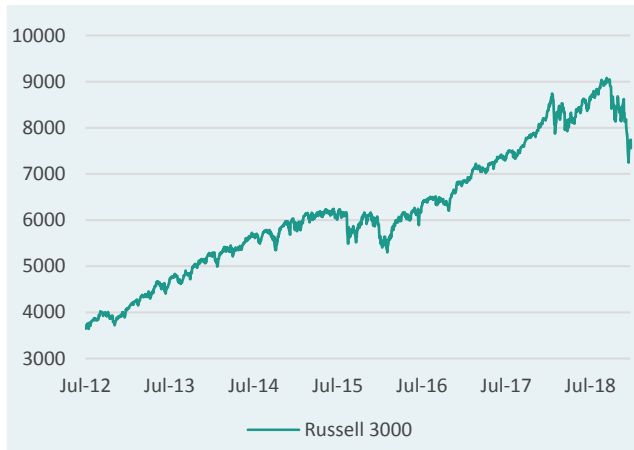
Domestic equity

U.S. equities experienced their worst quarter since 2008 as the S&P 500 Index returned -13.5%. For much of 2018, strong realized and expected earnings growth more than offset rising risk premiums (i.e. February sell-off) and discount rates as shown below in the middle chart. However, when cracks appeared in the growth story, influenced by poor economic data as well as profit warnings from companies, this support quickly vanished. The sharp drawdown, particularly in December, was also influenced by pockets of illiquidity in the market that exacerbated the move lower.

The question for investors now becomes whether the recent drawdown was a healthy reset of the pricing of earnings and risk premia, or whether it was a more urgent warning signal of a deterioration in the growth and profit cycle. We believe it to be more of the former rather than the latter, and that the market priced in an overly pessimistic view of macro conditions. However, we also recognize the growing headwinds to equities, including slowing global growth, further potential monetary tightening, and high debt levels. These conditions will likely result in sustained higher volatility, consistent with previous late cycle experiences.

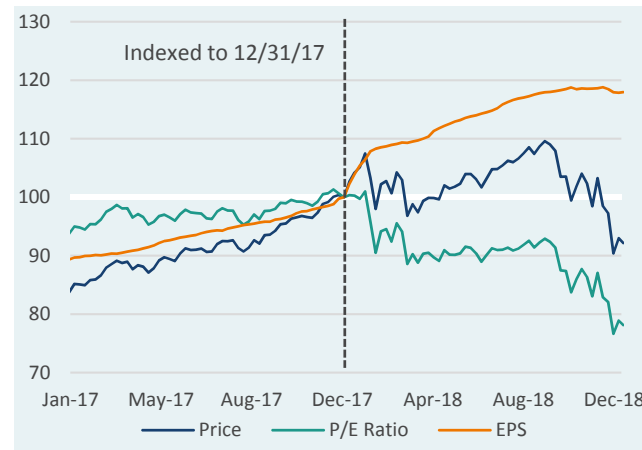
We maintain a neutral view on U.S. equities

U.S. EQUITIES



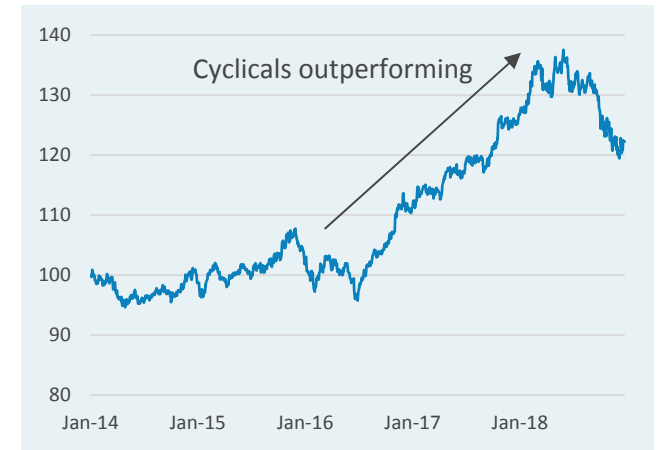
Source: Russell Investments, as of 12/31/18

S&P 500 PRICE MOVEMENT ATTRIBUTION



Source: Bloomberg, as of 12/31/18

CYCLICALS-DEFENSIVES RETURN SPREAD



Source: Bloomberg, MSCI, as of 12/31/18

Domestic equity size & style

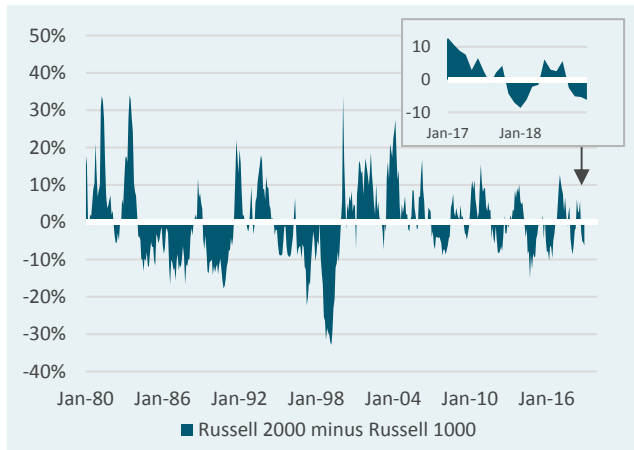
Large cap equities (Russell 1000 -13.8%) significantly outperformed small cap equities (Russell 2000 -20.2%) during the quarter. It may not be surprising that small cap equities underperformed, given the broad risk-off moves during this period. Growth stocks underperformed value stocks during the quarter (Russell 1000 Growth -15.9% vs. Russell 1000 Value -11.7%) for the first time since Q4 2016.

The sector weights in large-cap style benchmarks explain most of the recent value underperformance. Over the past

year, Energy, Materials, and Financials returned -18.1%, -14.7%, and -13.0%, respectively. These sectors are heavily weighted with value stocks, which resulted in a large drag to value. Information technology was an outperforming sector with a return of -0.3% during the period.

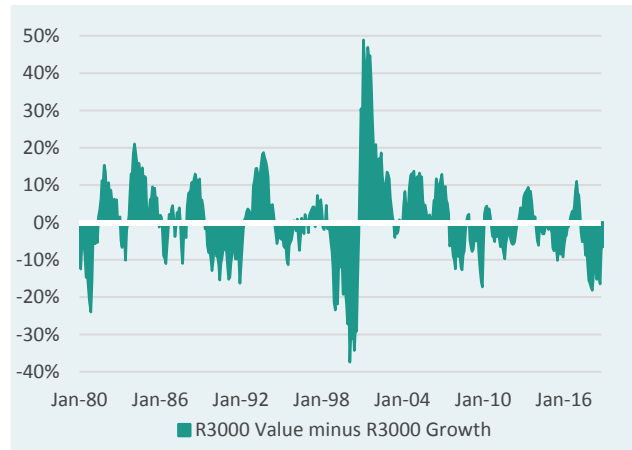
Long spans of style (size, value) underperformance is, and will always be, discouraging for investors. Similar to an investment in the broader equity market, we should expect to see rough patches of performance through time.

SMALL CAP VS LARGE CAP (YOY)



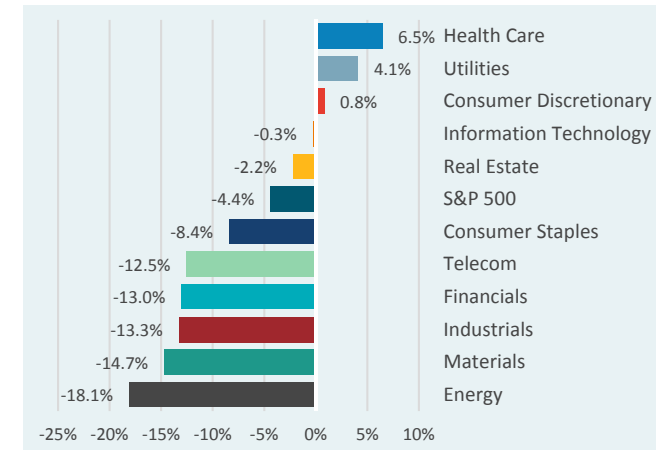
Source: FTSE, as of 12/31/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/18

1-YEAR S&P 500 SECTOR RETURNS



Source: Morningstar, as of 12/31/18

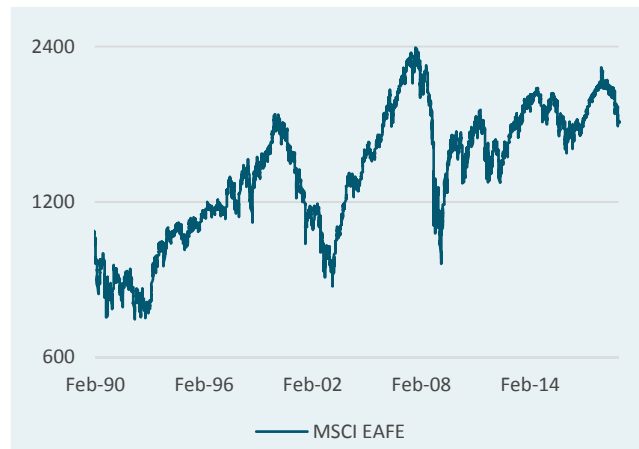
International developed equity

International developed equities sold off alongside U.S. equities. On an unhedged basis, the MSCI EAFE Index returned -12.5% in Q4 (-11.6% on a currency hedged basis). The three major equity markets in the EAFE Index – Japan, the Eurozone, and the UK – were all down more than 10%. The key factors that may have driven U.S. equities lower, most notably concerns over slowing global growth and central bank tightening, likely played an important role in non-U.S. developed markets. These concerns were particularly acute in the Eurozone where economic data routinely missed expectations, while the ECB officially

announced the end to its asset purchase program in December.

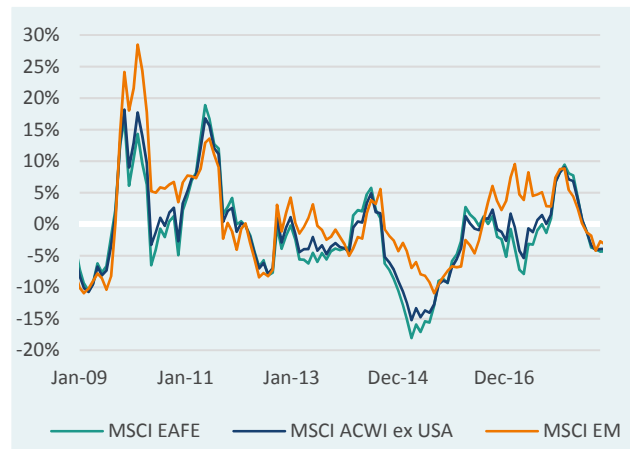
International developed equity markets are still cheap on both an absolute and relative basis at 11.9x forward earnings, but we believe there are good reasons for this pricing in certain markets. Within equity allocations, we are pessimistic on EAFE equities due to a negative view on the Eurozone. We believe slowing economic growth at the same time political risks are increasing and the ECB is unable to meaningfully ease policy present material headwinds to equity performance.

INTERNATIONAL DEVELOPED EQUITIES



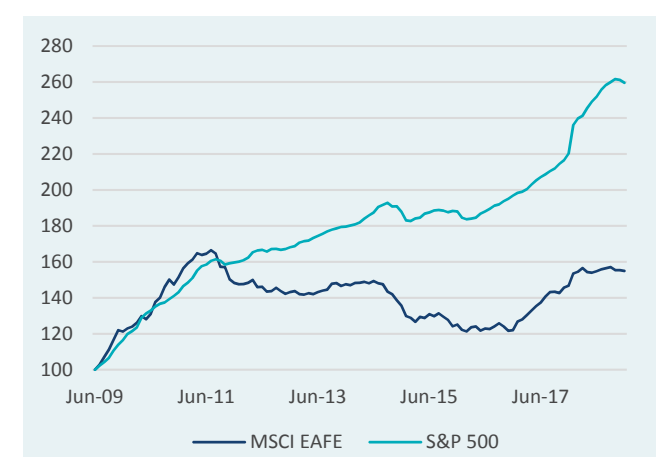
Source: MSCI, as of 12/31/18

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/18

EARNINGS PER SHARE



Source: Bloomberg, as of 12/31/18, indexed to earnings trough

Emerging market equity

Emerging market equities were the top performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currency depreciation stabilized in Q4 (JP Morgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines.

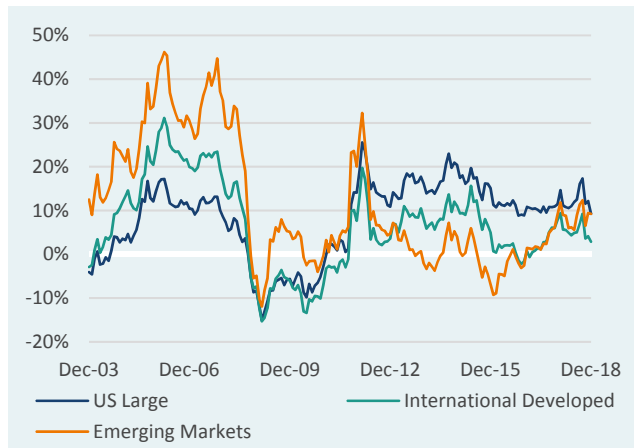
Valuations are near their long-term average, but remain much cheaper than developed market equities. Sentiment around emerging markets seems to be improving as the extreme negativity of 2018 dissipates, which creates possible

upside surprise if investors decide these fears were overblown. Very depressed currencies may also provide a performance tailwind in the event of mean reversion. Overall, we maintain our preference for the asset class.

Decelerating global growth and rising probability of recession do present unique risks to emerging markets, however, as these market typically exhibit a higher beta during market downside and upside moves. We will be watching global developments closely and will update our emerging market views as appropriate.

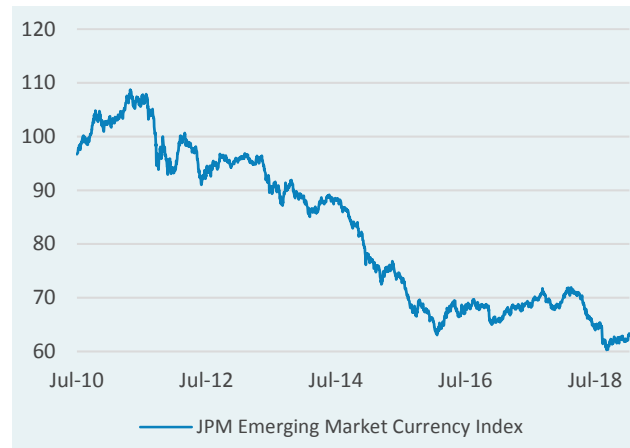
EM equities were the top performer in Q4

EQUITY PERFORMANCE (3-YR ROLLING)



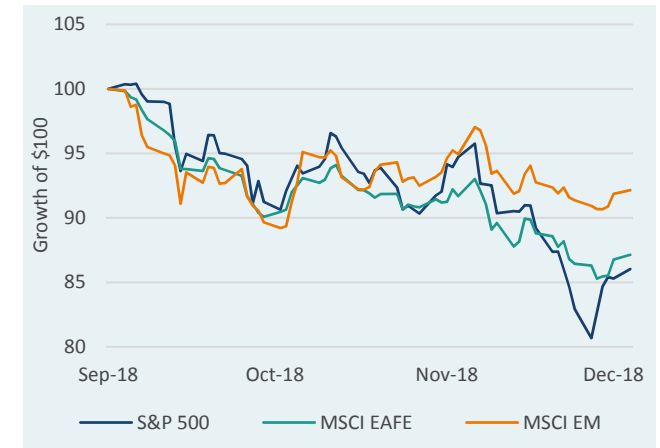
Source: Standard & Poor's, MSCI, as of 12/31/18

EMERGING MARKET CURRENCY MOVEMENT



Source: JP Morgan, as of 12/31/18

Q4 CUMULATIVE PERFORMANCE



Source: Standard & Poor's, MSCI, as of 12/31/18

Interest rate environment

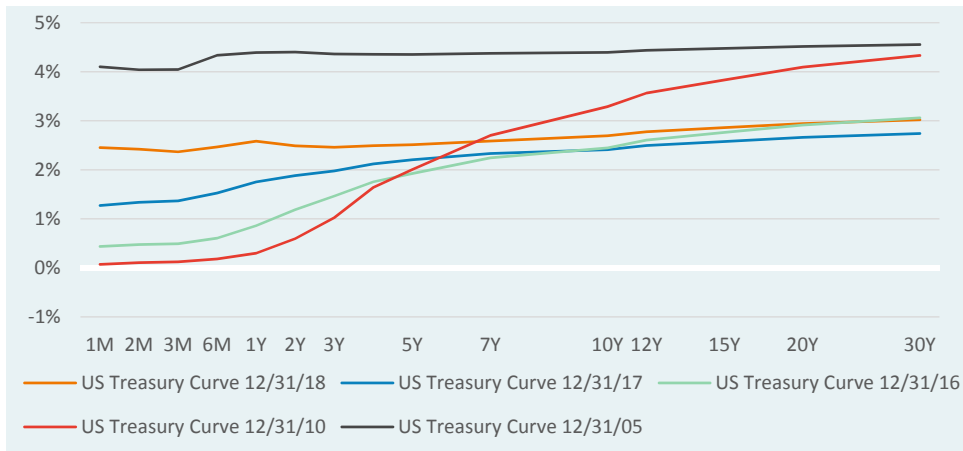
- The Federal Reserve raised the target for the fed funds rate by 0.25% in December, to a range of 2.25%-2.50%. Despite the hike, Fed officials indicated a more patient approach to future tightening, and lowered expectations for hikes in 2019 from three to two.
- The market's expectation for future rate hikes changed dramatically in December. As of year-end, the fed fund futures market is pricing zero hikes in 2019 and a rate cut priced in 2020.
- After reaching a cycle high of 3.2% in November, the 10-year Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling breakeven inflation as oil prices plunged. The 10-year breakeven inflation rate fell from 2.1% to 1.7% over the quarter.
- Although certain parts of the U.S. Treasury yield curve have inverted, there remains a 15 bps gap between the 10- and 2-year yields, which is the most widely cited measure of yield curve shape.
- Developed sovereign yields fell alongside U.S. Treasuries. The 10-year German bund yield was cut in half over the quarter to 0.24%.
- As expected, the European Central Bank officially announced the end of its asset purchase program. Beginning in January of 2019, monthly purchases will fall from €30 billion to €0. Central bank officials have said that they will fully reinvest maturing securities for the foreseeable future and keep interest rates unchanged until at least the second half of 2019.

Area	Short Term (3M)	10-Year
United States	2.36%	2.69%
Germany	(0.77%)	0.24%
France	(0.86%)	0.71%
Spain	(0.42%)	1.42%
Italy	(0.06%)	2.74%
Greece	1.30%	4.40%
U.K.	0.73%	1.28%
Japan	(0.15%)	0.00%
Australia	2.01%	2.32%
China	2.83%	3.31%
Brazil	6.48%	9.24%
Russia	7.12%	8.78%

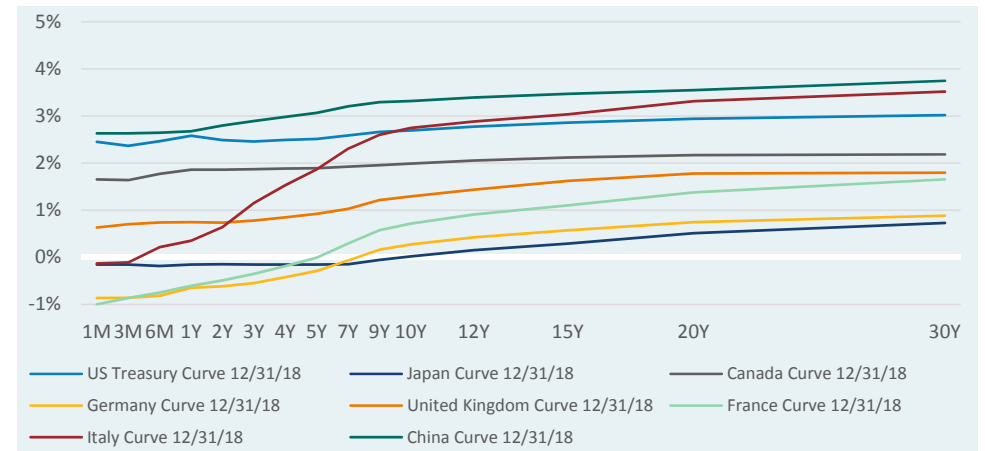
Source: Bloomberg, as of 12/31/18

Yield environment

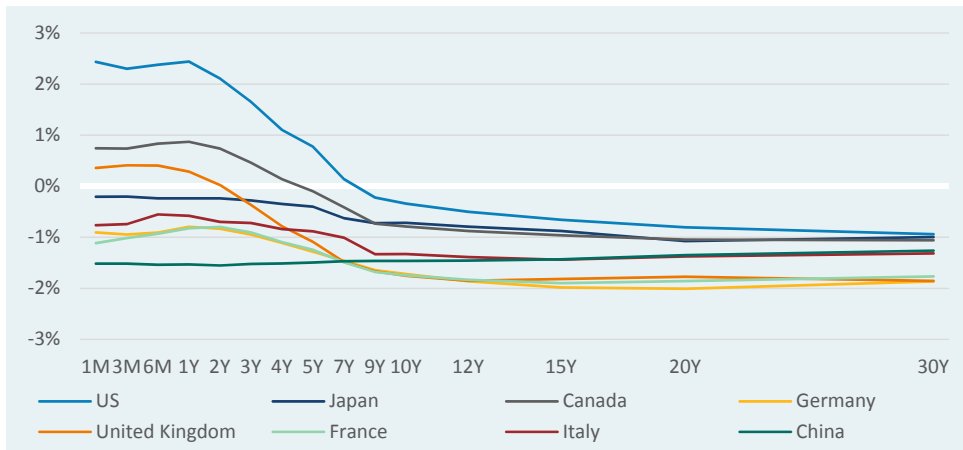
U.S. YIELD CURVE



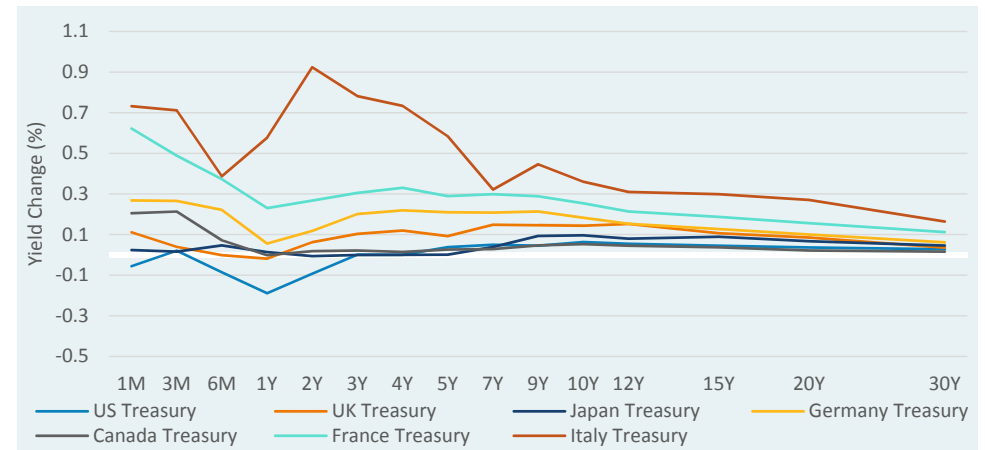
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/18

Currency

The U.S. dollar appreciated by 1.8% during the quarter, and 7.2% in 2018 based on the Broad Trade Weighted Dollar Index. The strong appreciation of the dollar last year was influenced by a number of factors, including stronger relative U.S. economic growth, higher relative interest rates, and weakness in other currencies such as the euro and British pound. The recent dollar strength in Q4 was due in part to safe haven demand amid equity market turbulence as these moves came despite the market pricing considerably less tightening from the Fed.

Emerging market currencies stabilized over the quarter, and recovered slightly from the recent drawdown in Q3. The JPMorgan Emerging Market Currency Index appreciated by 0.2% in Q4.

The U.S. dollar appreciated to a cycle high

From a value perspective (based on purchasing power parity), the U.S. dollar remains expensive, particularly versus the euro, yen, and British pound.

U.S. DOLLAR TRADE WEIGHTED INDEX



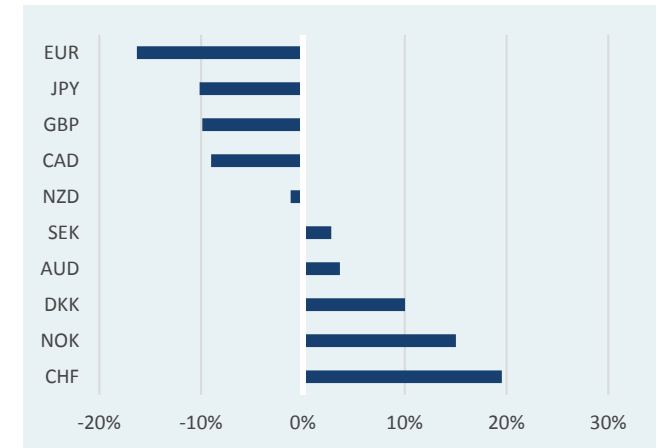
Source: Federal Reserve, as of 12/26/18

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 12/31/18

U.S. DOLLAR VALUE (PPP)



Source: Bloomberg, OECD, as of 12/31/18

- The Total Fund, net of manager fees, returned -6.2% in the fourth quarter of 2018 and in the ranked 32nd percentile among other public plans greater than \$1 billion (median of -6.9%). It lagged the policy index return of -5.9%. The Total Fund ex Overlay returned -6.3% for the quarter. The Total Fund one-year return of -4.3% lagged the policy index return of -3.5% and ranked in the 63rd percentile of its peer universe. The three-year return of 5.9% (63rd percentile) lagged the median large public plan (6.0%) and the policy index (6.7%).

- Fourth quarter results were enhanced by the following factors:
 1. Mondrian lost -8.9% beating the MSCI ACWI ex US value (-10.6%) and ranked in the top decile of its peers. The portfolio benefited from stock selection in Spain, Italy, and Japan. The portfolio also benefited from weak equity markets where defensive sectors delivered stronger returns.
 2. PanAgora Risk Parity lost -4.1% beating its index by 3.4%. Exposure to commodities and equities detracted from performance, while the investments in high grade sovereign debt had significant gains during the quarter.
 3. Parametric Core equity beat the MSCI EM index (-5.9% vs -7.4%.) The portfolio's underweight to China contributed to performance as Chinese markets fell due to signs of economic slowdown.

- Fourth quarter results were hindered by the following factors:
 1. Baillie Gifford lost -15.3% for the quarter trailing the MSCI ACWI ex US (-11.4%.) The majority of underperformance came from an overweight in the consumer discretionary, information technology and industrial sectors. These sectors were the worst three performing sectors aside from energy with -14.1%, -14.6%, and -13.6% losses respectively.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank*	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	-6.2	32	-4.4	40	-4.3	63	4.7	72	5.9	63	4.8	36	8.5	36
<i>Policy Index¹</i>	-5.9	25	-3.6	21	-3.5	36	5.6	31	6.7	23	5.1	20	9.1	23
<i>InvestorForce Public DB > \$1B Net Median</i>	-6.9		-4.8		-4.0		5.2		6.0		4.6		8.2	
Total Fund ex Overlay	-6.3	32	-4.4	39	-4.3	63	4.7	75	5.8	65	4.7	40	8.4	36
<i>Policy Index¹</i>	-5.9	25	-3.6	21	-3.5	36	5.6	31	6.7	23	5.1	20	9.1	23
<i>InvestorForce Public DB > \$1B Net Median</i>	-6.9		-4.8		-4.0		5.2		6.0		4.6		8.2	
Public Equity	-13.1	34	-9.7	45	-9.4	70	5.8	44	6.5	72	4.8	61	10.1	70
<i>Blended Public Equity Index¹</i>	-13.1	35	-9.7	46	-9.6	72	6.0	38	7.2	36	5.0	54	10.9	43
<i>InvestorForce All DB Total Eq Net Median</i>	-13.6		-9.9		-9.0		5.7		7.0		5.1		10.7	
US Equity	-14.6	45	-8.7	36	-5.6	37	6.9	32	8.3	54	7.1	49	12.7	49
<i>Blended US Equity Index¹</i>	-14.3	35	-8.2	26	-5.2	30	7.1	24	9.0	20	7.6	26	13.1	25
<i>Russell 3000</i>	-14.3	35	-8.2	26	-5.2	30	7.1	24	9.0	24	7.9	14	13.2	22
<i>InvestorForce All DB US Eq Net Median</i>	-14.7		-9.2		-6.1		6.4		8.4		7.1		12.6	
Large Cap Equity	-13.3	39	-7.0	36	-4.2	36	9.0	30	9.5	22	8.5	24	12.9	38
<i>Russell 1000</i>	-13.8	46	-7.4	41	-4.8	42	7.6	39	9.1	28	8.2	30	13.3	30
<i>eV US Large Cap Equity Net Median</i>	-14.2		-8.3		-5.8		6.7		7.8		7.1		12.3	
<i>Acadian US MGD V***</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	-13.8	51	-7.4	46	-4.8	37	--	--	--	--	--	--	--	--
<i>DE Shaw</i>	-14.1	59	-8.0	56	-4.7	34	9.0	12	10.6	6	9.4	6	--	--
<i>PanAgora Defuseq***</i>	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 1000</i>	-13.8	52	-7.4	47	-4.8	38	7.6	29	9.1	21	8.2	22	13.3	17
<i>eV US Large Cap Core Equity Net Median</i>	-13.8		-7.7		-5.8		6.7		7.8		7.3		12.2	

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

** Includes Parametric Minneapolis manager funded in August 2013.

*** Funded December 2018.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	-20.5	61	-17.8	63	-12.9	60	-1.0	59	4.7	76	2.1	84	12.2	65
<i>Russell 2000</i>	-20.2	57	-17.3	60	-11.0	50	1.0	47	7.4	47	4.4	47	12.0	69
<i>eV US Small Cap Equity Net Median</i>	-19.9		-16.5		-11.1		0.6		7.1		4.3		12.8	
QMA US Small Cap	-20.5	58	-17.8	63	-12.9	65	-1.0	68	--	--	--	--	--	--
<i>Russell 2000</i>	-20.2	53	-17.3	59	-11.0	51	1.0	44	7.4	46	4.4	50	12.0	70
<i>eV US Small Cap Core Equity Net Median</i>	-19.9		-16.7		-11.0		0.7		7.0		4.4		12.3	
International Equity	-11.4	25	-11.0	25	-13.8	21	4.6	38	4.1	51	1.3	27	5.3	81
<i>MSCI ACWI ex US IMI¹</i>	-11.9	46	-11.5	39	-14.8	44	4.6	38	4.7	28	1.2	28	7.1	32
<i>MSCI EAFE Gross</i>	-12.5	62	-11.3	33	-13.4	16	4.3	51	3.4	69	1.0	38	6.8	40
<i>InvestorForce All DB ex-US Eq Net Median</i>	-12.1		-11.9		-15.1		4.3		4.2		0.8		6.6	
Developed Markets	-12.2	54	-11.8	50	-14.1	44	4.4	51	3.7	44	1.4	41	5.5	80
<i>MSCI ACWI ex USA Gross</i>	-11.4	17	-10.7	19	-13.8	32	5.0	38	5.0	26	1.1	45	7.1	30
<i>InvestorForce All DB Dev Mkt ex-US Eq Net Median</i>	-12.1		-11.9		-14.4		4.4		3.4		1.0		6.5	
Baillie Gifford	-15.3	41	-16.4	52	-16.7	57	4.7	79	3.3	64	1.8	59	--	--
<i>MSCI ACWI ex US¹</i>	-11.4	5	-10.7	6	-13.8	37	5.0	75	5.0	33	1.1	70	--	--
<i>MSCI ACWI ex US Growth¹</i>	-12.2	10	-12.3	16	-14.1	44	6.7	42	4.6	41	2.1	55	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	-15.7		-16.3		-16.1		6.4		3.9		2.2		9.1	
BlackRock EAFE Index	-12.5	21	-11.3	25	-13.5	32	4.2	42	3.3	38	0.9	62	--	--
<i>MSCI EAFE</i>	-12.5	21	-11.4	25	-13.8	36	3.8	48	2.9	46	0.5	75	6.3	80
<i>MSCI EAFE Gross</i>	-12.5	21	-11.3	25	-13.4	31	4.3	40	3.4	35	1.0	58	6.8	67
<i>eV EAFE Core Equity Net Median</i>	-14.2		-13.6		-15.9		3.6		2.4		1.2		7.2	
Mondrian	-8.9	6	-7.6	1	-12.0	8	4.0	19	4.2	43	1.1	37	5.8	57
<i>MSCI ACWI ex USA Value Gross</i>	-10.6	16	-9.0	5	-13.4	12	3.3	32	5.4	30	0.2	60	6.6	54
<i>MSCI ACWI ex USA Gross</i>	-11.4	34	-10.7	34	-13.8	15	5.0	9	5.0	36	1.1	35	7.1	51
<i>eV ACWI ex-US Value Equity Net Median</i>	-12.9		-12.1		-15.9		1.8		2.7		0.6		7.2	

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Emerging Markets	-5.9	29	-6.1	17	-13.8	22	5.1	67	7.7	55	0.1	77	--	--
MSCI Emerging Markets Gross	-7.4	66	-8.3	44	-14.2	28	8.7	7	9.7	17	2.0	13	8.4	32
InvestorForce All DB Emg Mkt Eq Net Median	-7.0		-8.5		-15.7		5.9		7.8		1.0		7.5	
Parametric Core	-5.9	22	-6.1	19	-13.8	24	5.1	82	7.7	51	--	--	--	--
MSCI Emerging Markets Gross	-7.4	44	-8.3	30	-14.2	27	8.7	24	9.7	21	2.0	34	8.4	54
eV Emg Mkts Equity Net Median	-7.7		-10.7		-16.2		7.0		7.8		1.4		8.8	
Parametric Currency Overlay ¹	12.5	--	--	--	--	--	--	--	--	--	--	--	--	--
Fixed Income	0.3	62	1.0	43	0.3	25	2.9	14	4.6	9	3.4	22	6.3	15
Blended Fixed Income Index ¹	0.2	64	1.0	43	-0.6	55	2.1	57	3.2	49	2.7	40	3.7	81
InvestorForce All DB Total Fix Inc Net Median	0.6		0.8		-0.4		2.2		3.1		2.5		4.7	
Core Fixed	1.4	--	1.4	--	-0.2	--	2.1	--	3.0	--	3.1	--	5.6	--
BBgBarc US Aggregate TR	1.6	--	1.7	--	0.0	--	1.8	--	2.1	--	2.5	--	3.5	--
BlackRock Intermediate Govt	2.2	21	2.2	1	1.6	1	--	--	--	--	--	--	--	--
BBgBarc US Govt Int TR	2.2	28	2.1	1	1.4	1	1.3	73	1.2	73	1.5	78	1.8	85
eV US Government Fixed Inc Net Median	2.1		1.8		1.0		1.6		1.5		2.0		2.5	
FIAM Bond	1.0	75	1.2	77	-0.2	52	1.9	29	2.8	12	2.9	20	5.2	16
BBgBarc US Aggregate TR	1.6	16	1.7	21	0.0	38	1.8	52	2.1	61	2.5	57	3.5	82
Western TRU	0.7	87	0.8	94	-3.1	99	2.7	6	3.6	5	--	--	--	--
3-Month Libor Total Return USD	0.7	87	1.3	68	2.4	2	1.8	36	1.5	97	1.0	99	0.7	99
BBgBarc US Aggregate TR	1.6	16	1.7	21	0.0	38	1.8	52	2.1	61	2.5	57	3.5	82
eV US Core Fixed Inc Net Median	1.3		1.4		-0.2		1.8		2.2		2.6		4.1	
Opportunistic Credit	-1.9	--	0.0	--	1.5	--	5.0	--	8.2	--	5.6	--	--	--
BBgBarc BA Intermediate HY ¹	-2.7	--	-0.5	--	-1.9	--	2.1	--	5.2	--	3.9	--	--	--
Angelo Gordon Opportunistic**	0.5	--	5.4	--	21.4	--	19.4	--	15.2	--	--	--	--	--
Angelo Gordon STAR**	2.5	--	9.3	--	21.9	--	20.3	--	15.4	--	13.1	--	--	--
BBgBarc US Aggregate TR	1.6	--	1.7	--	0.0	--	1.8	--	2.1	--	2.5	--	3.5	--

* Funded September 2018.

** Preliminary return as of 12/31/2018.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Beach Point Select	-4.0	41	-2.3	57	0.8	14	4.6	5	8.3	7	--	--	--	--
BBgBarc BA Intermediate HY ¹	-2.7	18	-0.5	10	-1.9	43	2.1	63	5.2	74	3.9	24	--	--
eV US High Yield Fixed Inc Net Median	-4.1		-2.1		-2.2		2.2		6.0		3.3		9.6	
Brigade Capital	-5.6	88	-3.4	86	-0.9	28	3.2	14	9.4	3	3.2	57	--	--
BBgBarc BA Intermediate HY ¹	-2.7	18	-0.5	10	-1.9	43	2.1	63	5.2	74	3.9	24	--	--
50% Barclays HY/ 50% Bank Loan	-3.8	37	-1.7	33	-0.5	21	2.6	27	6.1	43	3.6	38	--	--
eV US High Yield Fixed Inc Net Median	-4.1		-2.1		-2.2		2.2		6.0		3.3		9.6	
PIMCO Diversified	-1.3	5	0.4	1	-1.0	28	--	--	--	--	--	--	--	--
Blended PIMCO Diversified Index ¹	-1.5	7	0.2	5	-2.2	50	2.4	39	4.8	81	4.0	19	7.9	96
BBgBarc BA Intermediate HY	-2.7	18	-0.5	10	-1.9	43	2.1	63	5.2	74	3.9	24	--	--
eV US High Yield Fixed Inc Net Median	-4.1		-2.1		-2.2		2.2		6.0		3.3		9.6	
Franklin Templeton	2.1	4	2.5	1	0.0	21	2.1	62	3.9	38	1.5	64	--	--
BBgBarc Multiverse TR	1.0	18	0.2	31	-1.4	33	3.1	28	3.0	61	1.2	75	2.8	85
eV All Global Fixed Inc Net Median	-0.8		-0.5		-2.2		2.4		3.4		2.1		4.9	
Private Credit	1.9	--	4.2	--	8.5	--	7.5	--	--	--	--	--	--	--
Cliffwater Direct Lending Index*	2.4	--	4.8	--	9.7	--	9.2	--	9.9	--	8.9	--	11.0	--
TCP Direct Lending VIII ¹	1.8	1	4.2	1	7.1	1	7.2	1	--	--	--	--	--	--
White Oak Yield*	2.0	1	4.3	1	10.1	1	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	2.4	1	4.8	1	9.7	1	9.2	1	9.9	2	8.9	1	11.0	11
eV US High Yield Fixed Inc Net Median	-4.1		-2.1		-2.2		2.2		6.0		3.3		9.6	
Risk Parity	-4.8	--	-5.7	--	-7.2	--	3.2	--	6.1	--	4.5	--	--	--
Blended Risk Parity Index ¹	-7.5	--	-4.8	--	-4.4	--	4.5	--	5.9	--	5.7	--	--	--
AQR GRP, 10% Volatility	-5.4	--	-5.2	--	-6.7	--	4.1	--	6.2	--	3.2	--	--	--
PanAgora	-4.1	--	-6.1	--	-7.6	--	2.5	--	6.0	--	--	--	--	--
Blended Risk Parity Index ¹	-7.5	--	-4.8	--	-4.4	--	4.5	--	5.9	--	5.7	--	--	--
Blended RP Secondary Index ¹	-8.0	--	-4.1	--	-2.9	--	5.1	--	5.5	--	4.5	--	--	--

* Preliminary return as of 12/31/2018.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Alternatives	0.8	--	2.9	--	2.4	--	5.9	--	7.0	--	6.5	--	--	--
<i>Blended Alternatives Index¹</i>	4.8	--	7.8	--	9.6	--	12.3	--	11.8	--	7.6	--	--	--
Private Equity**	4.7	14	9.9	8	17.7	27	15.6	42	15.3	20	16.4	16	--	--
<i>Blended Private Equity Index¹</i>	8.1	1	12.4	3	12.9	58	18.4	18	17.5	11	14.2	33	17.9	1
<i>InvestorForce All DB Private Eq Net Median</i>	1.7		5.1		15.6		14.7		13.1		12.2		10.9	
Hedge Fund/Absolute Return	-3.5	38	-4.5	67	-11.7	95	-3.7	95	-2.2	94	2.5	37	--	--
<i>Libor 1 month +4%</i>	1.6	2	3.2	1	6.1	3	5.6	3	5.2	8	4.8	4	--	--
<i>InvestorForce All DB Hedge Funds Net Median</i>	-4.7		-3.7		-2.2		2.3		2.4		2.0		4.4	
AQR DELTA XN	-4.3	61	-6.2	75	-15.3	87	-5.4	92	-3.1	89	2.0	67	--	--
Aberdeen Standard GARS	-2.2	43	-1.7	44	-5.7	62	-1.1	75	-1.4	81	--	--	--	--
<i>Libor 1 month +4%</i>	1.6	12	3.2	13	6.1	16	5.6	29	5.2	35	4.8	32	--	--
<i>eV Alt All Multi-Strategy Median</i>	-3.3		-2.4		-2.7		1.9		3.4		3.0		6.8	
Inflation Hedge	-3.4	--	-2.9	--	-1.4	--	3.3	--	--	--	--	--	--	--
<i>Blended Inflation Hedge Index¹</i>	-2.5	--	-1.7	--	-0.8	--	4.0	--	--	--	--	--	--	--
Real Estate	2.1	1	4.5	1	8.6	2	8.4	5	8.5	3	10.5	3	6.3	23
NCREIF ODCE	1.8	4	3.9	4	8.3	6	8.0	10	8.2	11	10.4	3	7.0	10
<i>InvestorForce All DB Real Estate Pub Net Median</i>	1.2		3.1		6.8		6.6		6.8		8.9		5.8	
Invesco	2.1	--	4.6	--	8.9	--	8.5	--	8.6	--	10.4	--	6.3	--
NCREIF ODCE	1.8	--	3.9	--	8.3	--	8.0	--	8.2	--	10.4	--	7.0	--
Invesco US Val IV	4.0	--	6.9	--	11.3	--	11.6	--	9.9	--	--	--	--	--
NCREIF ODCE	1.8	--	3.9	--	8.3	--	8.0	--	8.2	--	10.4	--	7.0	--
NCREIF CEVA 1Q Lag - NET	3.0	--	6.0	--	11.9	--	11.0	--	11.7	--	13.5	--	--	--
PGIM RE US Debt Fund	1.6	--	3.6	--	5.9	--	--	--	--	--	--	--	--	--
NCREIF ODCE	1.8	--	3.9	--	8.3	--	8.0	--	8.2	--	10.4	--	7.0	--

* Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

** Returns are one-quarter lag.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Private Real Asset**	4.2	--	4.8	--	4.5	--	0.8	--	13.7	--	--	--	--	--
<i>Blended Private Real Asset Index¹</i>	-0.1	--	4.3	--	-3.1	--	4.4	--	5.1	--	5.1	--	--	--
<i>Blended Secondary CA Private RA Index¹</i>	2.1	--	4.4	--	10.1	--	11.8	--	9.8	--	--	--	--	--
Public Real Assets	-11.2	--	-12.6	--	-12.8	--	-0.3	--	--	--	--	--	--	--
<i>Blended Public Real Asset Index¹</i>	-9.4	--	-10.8	--	-11.5	--	-0.2	--	2.0	--	3.3	--	--	--
Cushing MLP Alpha TR***	-17.8	--	--	--	--	--	--	--	--	--	--	--	--	--
<i>50% BBgBarc US TIPS/ 50% Blended PRA Index¹</i>	-5.0	--	-6.1	--	--	--	--	--	--	--	--	--	--	--
<i>Alerian MLP TR USD</i>	-17.3	--	-11.9	--	-12.4	--	-9.5	--	-1.1	--	-7.3	--	9.6	--
SSgA Custom Real Asset	-9.2	--	-10.1	--	-10.3	--	1.1	--	--	--	--	--	--	--
<i>Blended Public Real Asset Index¹</i>	-9.4	--	-10.8	--	-11.5	--	-0.2	--	2.0	--	3.3	--	--	--
TIPS	-0.8	--	-1.1	--	-0.7	--	0.9	--	2.2	--	1.3	--	--	--
<i>BBgBarc US TIPS TR</i>	-0.4	--	-1.2	--	-1.3	--	0.8	--	2.1	--	1.7	--	3.6	--
Brown Brothers Harriman	-0.8	62	-1.1	28	-0.7	19	0.9	25	2.2	30	1.3	64	--	--
<i>BBgBarc US TIPS TR</i>	-0.4	31	-1.2	35	-1.3	39	0.8	34	2.1	38	1.7	28	3.6	43
<i>eV US TIPS / Inflation Fixed Inc Net Median</i>	-0.5	--	-1.3	--	-1.4	--	0.8	--	2.0	--	1.5	--	3.4	--
Cash	0.5	--	0.6	--	1.1	--	1.0	--	1.0	--	0.9	--	0.9	--
<i>91 Day T-Bills</i>	0.5	--	1.0	--	1.9	--	1.4	--	1.0	--	0.6	--	0.4	--
General Account	2.5	--	3.3	--	4.9	--	3.3	--	2.6	--	2.0	--	1.1	--
Treasury & LAIF	0.8	--	2.1	--	4.8	--	3.0	--	2.3	--	1.7	--	1.3	--
<i>91 Day T-Bills</i>	0.5	--	1.0	--	1.9	--	1.4	--	1.0	--	0.6	--	0.4	--

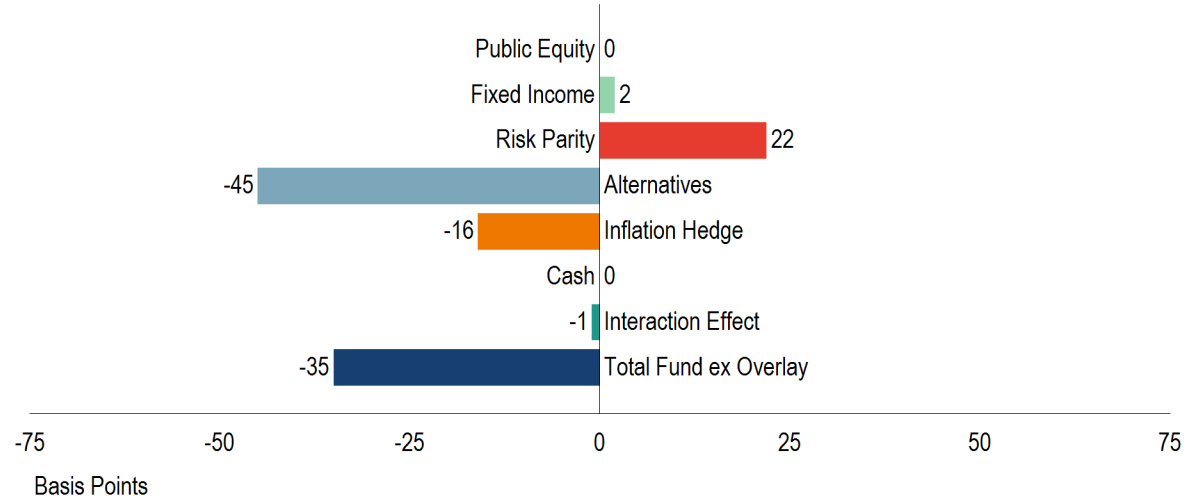
** Returns are one-quarter lag.

*** Funded July 2018

1. See Appendix for Benchmark History.

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2018

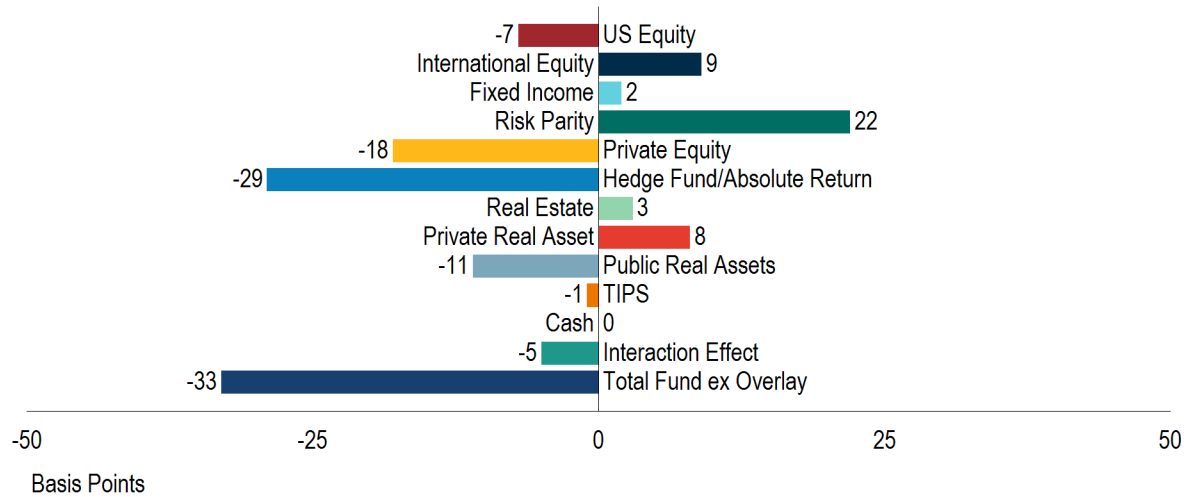


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	-13.12%	-13.13%	0.01%	0.00%	0.00%	0.00%	0.00%
Fixed Income	0.31%	0.19%	0.11%	0.02%	-0.02%	0.00%	0.00%
Risk Parity	-4.78%	-7.49%	2.70%	0.22%	0.00%	-0.01%	0.21%
Alternatives	0.82%	4.84%	-4.02%	-0.45%	-0.02%	0.00%	-0.47%
Inflation Hedge	-3.37%	-2.48%	-0.89%	-0.16%	-0.01%	0.00%	-0.17%
Cash	0.50%	0.55%	-0.05%	0.00%	0.07%	0.00%	0.07%
Total	-6.26%	-5.91%	-0.35%	-0.37%	0.03%	-0.01%	-0.35%

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, 2018

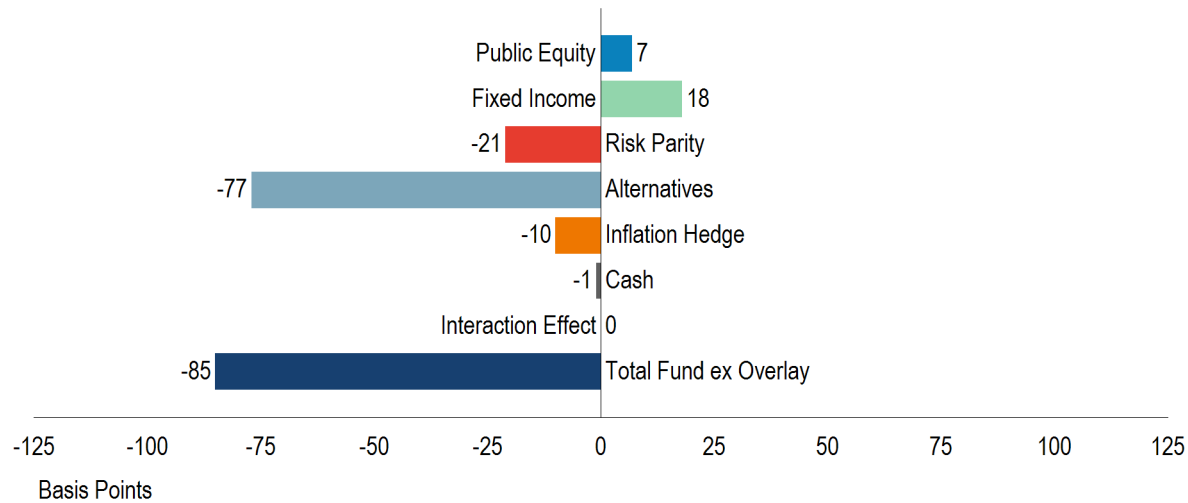


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	-14.59%	-14.30%	-0.29%	-0.07%	-0.03%	0.00%	-0.10%
International Equity	-11.39%	-11.88%	0.49%	0.09%	0.02%	0.00%	0.12%
Fixed Income	0.31%	0.19%	0.11%	0.02%	-0.02%	0.00%	0.00%
Risk Parity	-4.78%	-7.49%	2.70%	0.22%	0.00%	-0.01%	0.21%
Private Equity	4.74%	8.15%	-3.41%	-0.18%	0.04%	-0.03%	-0.16%
Hedge Fund/Absolute Return	-3.52%	1.59%	-5.11%	-0.29%	-0.04%	0.03%	-0.30%
Real Estate	2.11%	1.76%	0.35%	0.03%	0.01%	0.00%	0.04%
Private Real Asset	4.16%	-0.13%	4.29%	0.08%	-0.03%	-0.02%	0.02%
Public Real Assets	-11.23%	-9.41%	-1.83%	-0.11%	-0.04%	-0.02%	-0.17%
TIPS	-0.80%	-0.42%	-0.38%	-0.01%	-0.05%	0.00%	-0.05%
Cash	0.50%	0.55%	-0.05%	0.00%	0.07%	0.00%	0.07%
Total	-6.26%	-5.92%	-0.33%	-0.22%	-0.06%	-0.05%	-0.33%

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, 2018

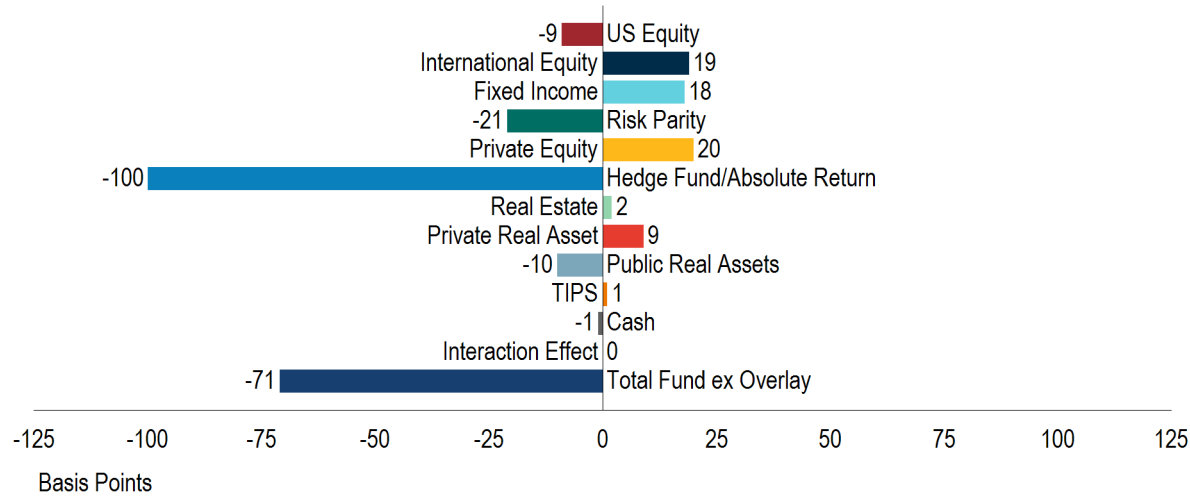


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	-9.44%	-9.61%	0.17%	0.07%	0.00%	0.00%	0.07%
Fixed Income	0.31%	-0.61%	0.92%	0.18%	0.00%	0.00%	0.18%
Risk Parity	-7.20%	-4.41%	-2.79%	-0.21%	0.00%	0.00%	-0.21%
Alternatives	2.39%	9.57%	-7.17%	-0.77%	0.00%	0.00%	-0.77%
Inflation Hedge	-1.40%	-0.83%	-0.57%	-0.10%	0.00%	0.00%	-0.10%
Cash	1.15%	1.89%	-0.75%	-0.01%	0.00%	0.00%	-0.01%
Total	-4.24%	-3.39%	-0.85%	-0.85%	0.00%	0.00%	-0.85%

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, 2018



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
US Equity	-5.63%	-5.24%	-0.38%	-0.09%	0.00%	0.00%	-0.09%
International Equity	-13.82%	-14.76%	0.94%	0.19%	0.00%	0.00%	0.19%
Fixed Income	0.31%	-0.61%	0.92%	0.18%	0.00%	0.00%	0.18%
Risk Parity	-7.20%	-4.41%	-2.79%	-0.21%	0.00%	0.00%	-0.21%
Private Equity	17.67%	12.87%	4.80%	0.20%	0.00%	0.00%	0.20%
Hedge Fund/Absolute Return	-11.74%	6.08%	-17.82%	-1.00%	0.00%	0.00%	-1.00%
Real Estate	8.58%	8.35%	0.23%	0.02%	0.00%	0.00%	0.02%
Private Real Asset	4.46%	-3.13%	7.59%	0.09%	0.00%	0.00%	0.09%
Public Real Assets	-12.78%	-11.51%	-1.26%	-0.10%	0.00%	0.00%	-0.10%
TIPS	-0.68%	-1.26%	0.58%	0.01%	0.00%	0.00%	0.01%
Cash	1.15%	1.89%	-0.75%	-0.01%	0.00%	0.00%	-0.01%
Total	-4.24%	-3.53%	-0.71%	-0.71%	0.00%	0.00%	-0.71%

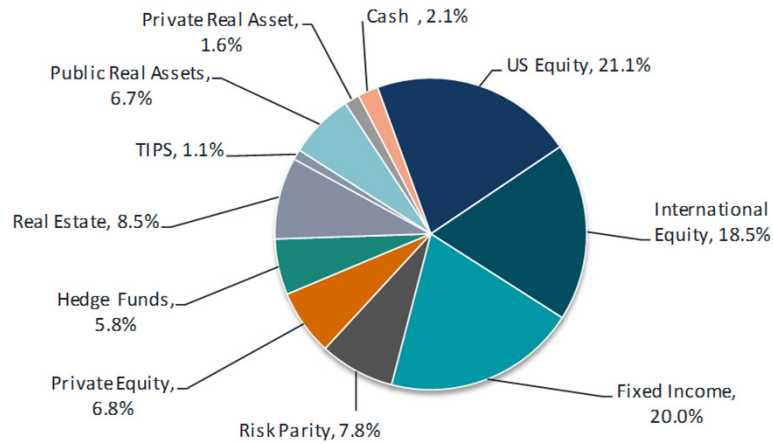
Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund

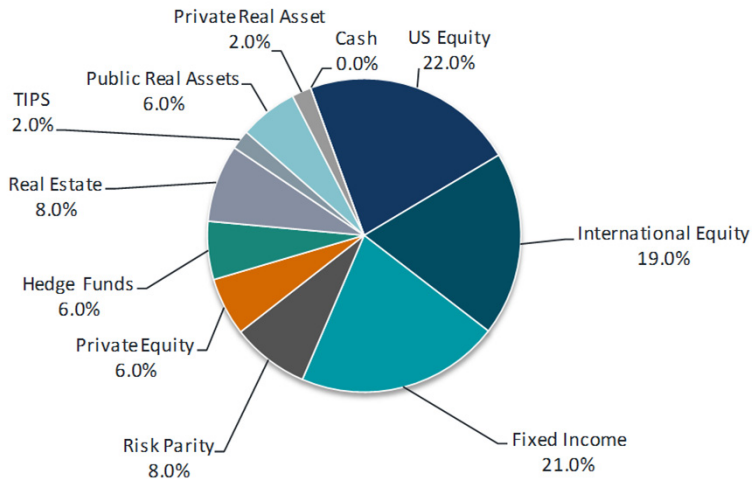
Asset Allocation Analysis

Period Ending: December 31, 2018

Current w/Overlay



Target



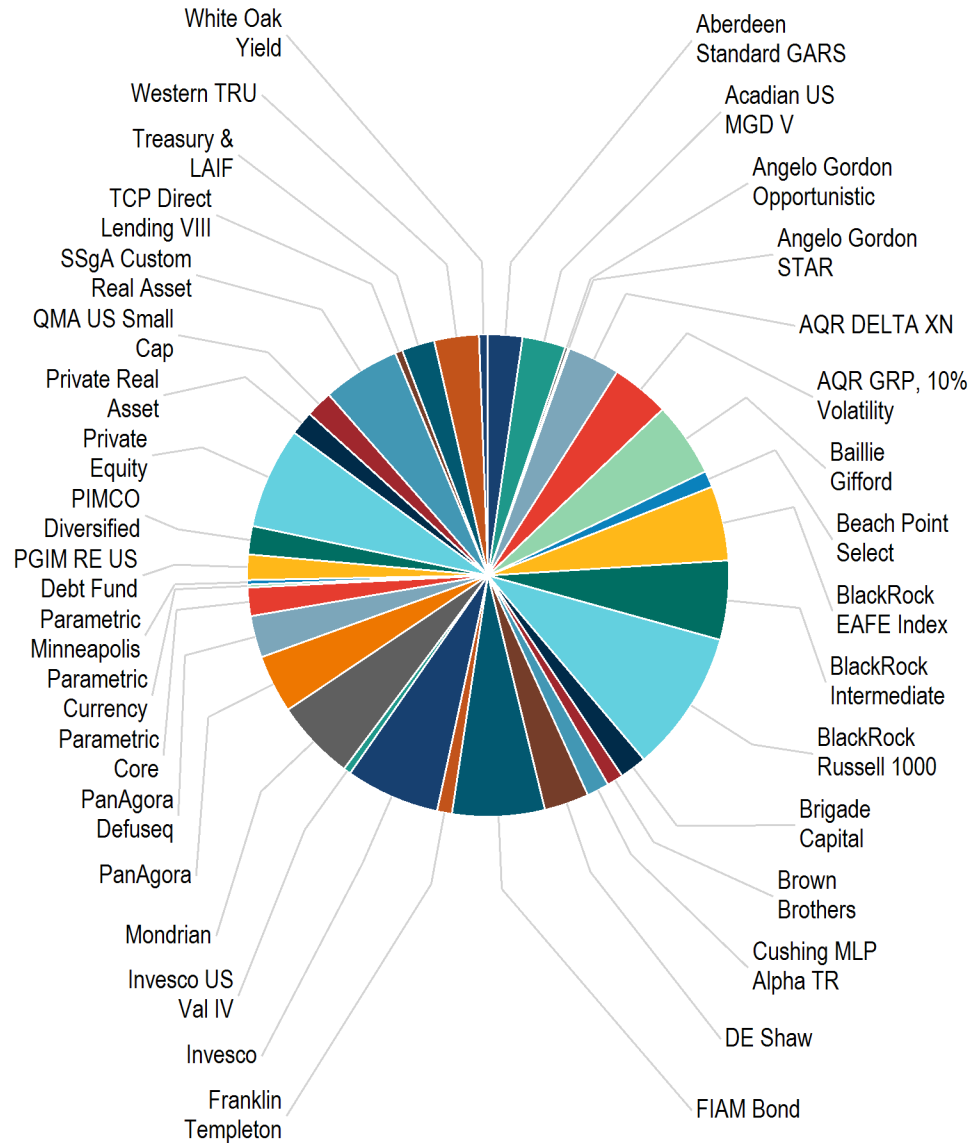
MARKET VALUE

ASSET ALLOCATION	W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	898,861,491	21.1%	20.0%
International Equity	785,690,659	18.5%	17.5%
Fixed Income	851,475,694	20.0%	21.6%
Risk Parity	331,159,429	7.8%	7.8%
Private Equity	290,757,410	6.8%	6.8%
Hedge Funds	246,587,523	5.8%	5.8%
Real Estate	361,205,384	8.5%	8.5%
TIPS	45,255,188	1.1%	1.1%
Public Real Assets	287,076,739	6.7%	6.7%
Private Real Asset	66,415,429	1.6%	1.6%
Cash	89,651,377	2.1%	2.6%
TOTAL	4,254,136,323	100.0%	100.0%

ASSET ALLOCATION	W/OVERLAY	TARGET	DIFF
US Equity	21.1%	22.0%	-0.9%
International Equity	18.5%	19.0%	-0.5%
Fixed Income	20.0%	21.0%	-1.0%
Risk Parity	7.8%	8.0%	-0.2%
Private Equity	6.8%	6.0%	0.8%
Hedge Funds	5.8%	6.0%	-0.2%
Real Estate	8.5%	8.0%	0.5%
TIPS	1.1%	2.0%	-0.9%
Public Real Assets	6.7%	6.0%	0.7%
Private Real Asset	1.6%	2.0%	-0.4%
Cash	2.1%	0.0%	2.1%
TOTAL	100.0%	100.0%	0.0%

Total Fund Manager Allocation Analysis

Period Ending: December 31, 2018



	Actual	Actual
Aberdeen Standard GARS	\$96,556,718	2%
Acadian US MGD V	\$121,771,078	3%
Angelo Gordon Opportunistic	\$6,456,000	0%
Angelo Gordon STAR	\$5,795,000	0%
AQR DELTA XN	\$150,030,805	4%
AQR GRP, 10% Volatility	\$167,213,070	4%
Baillie Gifford	\$213,761,751	5%
Beach Point Select	\$48,825,225	1%
BlackRock EAFE Index	\$214,588,077	5%
BlackRock Intermediate Govt	\$224,623,998	5%
BlackRock Russell 1000	\$405,600,329	10%
Brigade Capital	\$74,678,157	2%
Brown Brothers Harriman	\$45,255,188	1%
Cushing MLP Alpha TR	\$63,941,127	2%
DE Shaw	\$125,653,854	3%
FIAM Bond	\$263,327,350	6%
Franklin Templeton	\$41,040,245	1%
General Account	\$2,028,884	0%
Invesco	\$267,997,671	6%
Invesco US Val IV	\$23,012,456	1%
Mondrian	\$227,739,257	5%
PanAgora	\$163,946,359	4%
PanAgora Defuseq	\$121,010,273	3%
Parametric Core	\$82,916,150	2%
Parametric Currency Overlay	\$7,327,487	0%
Parametric Minneapolis Overlay	\$13,061,769	0%
PGIM RE US Debt Fund	\$70,195,257	2%
PIMCO Diversified	\$80,085,677	2%
Private Equity	\$290,757,410	7%
Private Real Asset	\$66,415,429	2%
QMA US Small Cap	\$75,330,005	2%
SSgA Custom Real Asset	\$223,135,612	5%
TCP Direct Lending VIII	\$20,301,532	0%
Transition 3	\$97,066	0%
Treasury & LAIF	\$94,976,959	2%
Western TRU	\$129,670,356	3%
White Oak Yield	\$25,012,741	1%
Total	\$4,254,136,323	100%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	5.9%	63	5.7%	45	0.9	49	-0.7	98	1.1%	50
Policy Index	6.7%	23	6.1%	60	0.9	38	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	6.0%	--	5.8%	--	0.8	--	-0.1	--	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	4.8%	36	6.1%	60	0.7	46	-0.3	70	1.0%	32
Policy Index	5.1%	20	6.5%	74	0.7	42	--	--	0.0%	1
InvestorForce Public DB > \$1B Net Median	4.6%	--	5.9%	--	0.7	--	0.0	--	1.2%	--

Statistics Summary

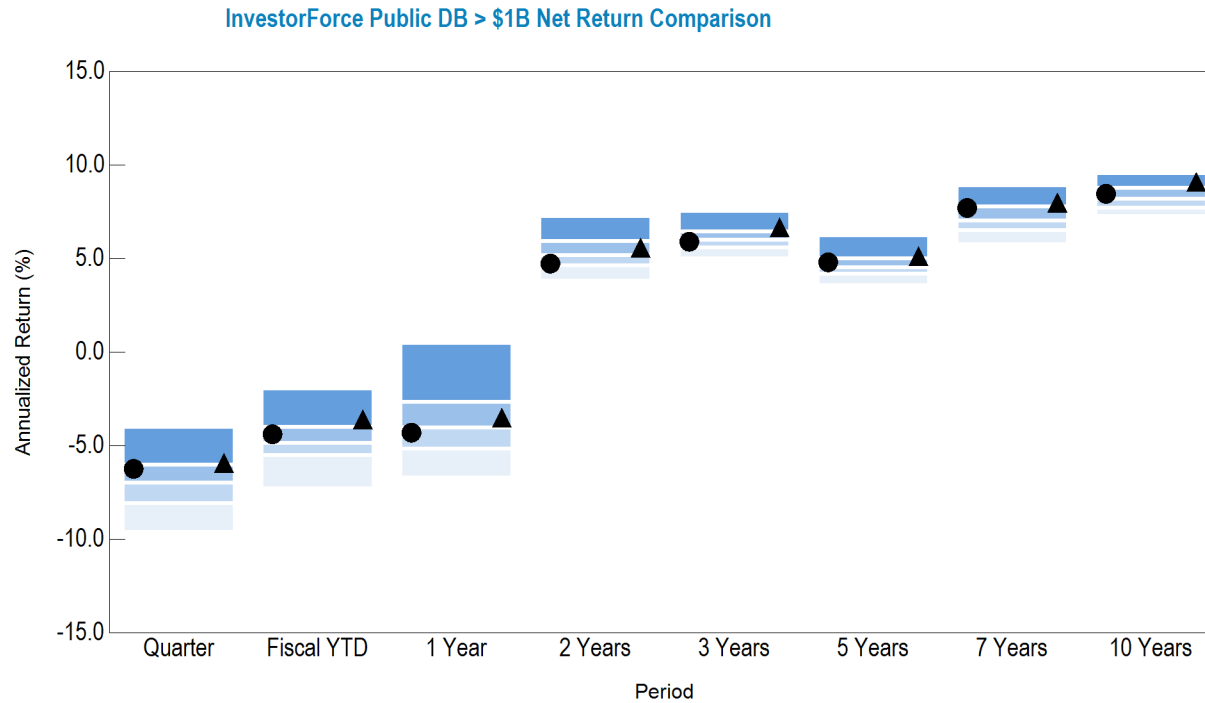
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	1.0%	0.2%	-0.5	-0.4	0.2%
91 Day T-Bills	1.0%	0.2%	0.0	--	0.0%
General Account	2.6%	1.0%	1.6	1.7	0.9%
91 Day T-Bills	1.0%	0.2%	0.0	--	0.0%
Treasury & LAIF	2.3%	1.0%	1.2	1.3	1.0%
91 Day T-Bills	1.0%	0.2%	0.0	--	0.0%

Statistics Summary

5 Years

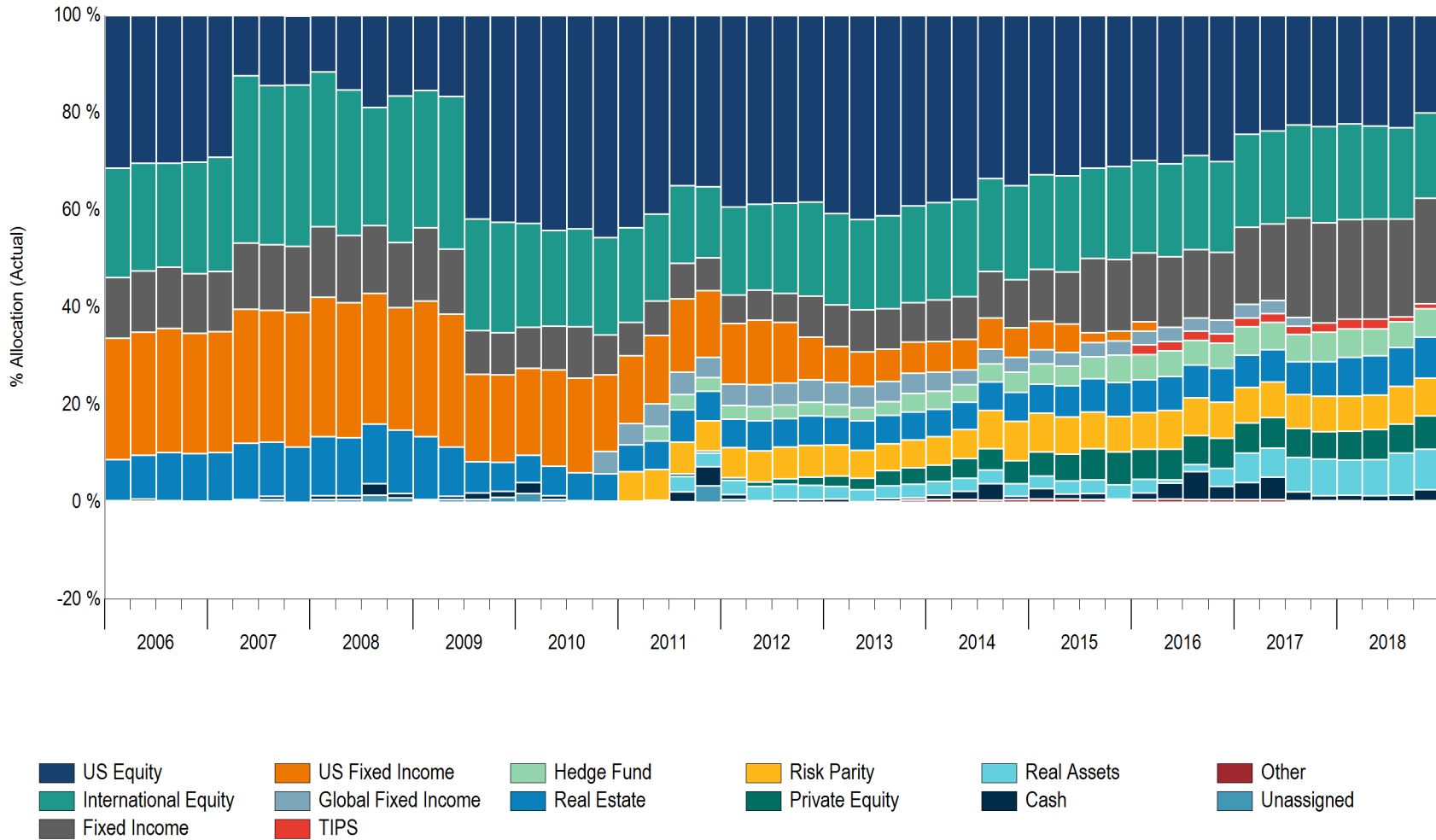
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Cash	0.9%	0.3%	0.9	0.8	0.4%
91 Day T-Bills	0.6%	0.2%	0.0	--	0.0%
General Account	2.0%	0.9%	1.6	1.7	0.8%
91 Day T-Bills	0.6%	0.2%	0.0	--	0.0%
Treasury & LAIF	1.7%	0.9%	1.2	1.3	0.8%
91 Day T-Bills	0.6%	0.2%	0.0	--	0.0%

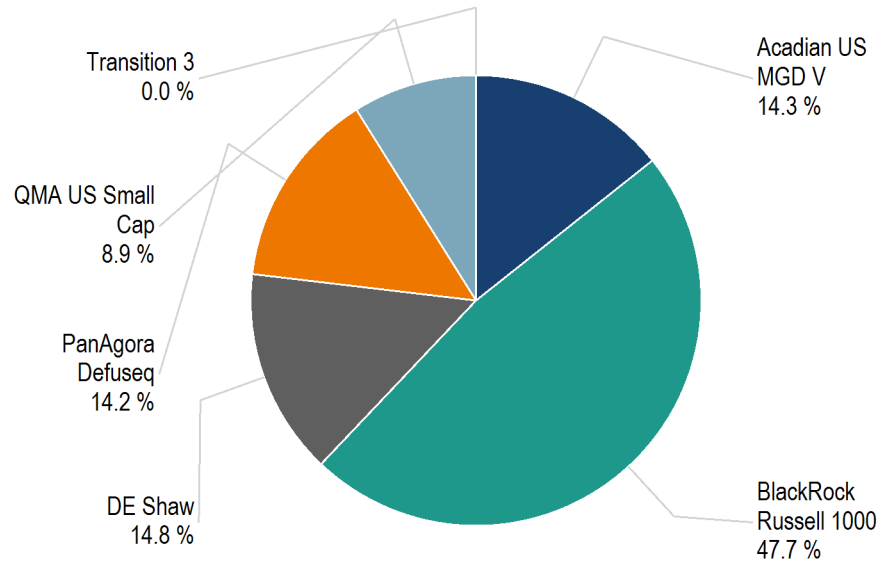


	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	-4.0	-1.9	0.5	7.3	7.5	6.2	8.9	9.5
25th Percentile	-6.0	-4.0	-2.6	6.0	6.5	5.0	7.8	8.8
Median	-6.9	-4.8	-4.0	5.2	6.0	4.6	7.1	8.2
75th Percentile	-8.1	-5.5	-5.1	4.7	5.6	4.2	6.6	7.7
95th Percentile	-9.6	-7.3	-6.7	3.9	5.0	3.6	5.8	7.3
# of Portfolios	46	46	46	46	46	45	45	42
● Total Fund	-6.2 (32)	-4.4 (40)	-4.3 (63)	4.7 (72)	5.9 (63)	4.8 (36)	7.7 (27)	8.5 (36)
▲ Policy Index	-5.9 (25)	-3.6 (21)	-3.5 (36)	5.6 (31)	6.7 (23)	5.1 (20)	8.0 (22)	9.1 (23)

Total Fund
Asset Allocation History

Period Ending: December 31, 2018





	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$121,771,078	14.3%	0.0%
BlackRock Russell 1000	\$405,600,329	47.7%	0.0%
DE Shaw	\$125,653,854	14.8%	-0.1%
PanAgora Defuseq	\$121,010,273	14.2%	0.0%
QMA US Small Cap	\$75,330,005	8.9%	0.0%
Transition Account	\$97,066	0.0%	0.0%
Actual vs. Policy Weight Difference			-0.2%
Total	\$849,462,604	100.0%	-0.3%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	8.3%	11.3%	0.6	-1.0	0.7%
Blended US Equity Index	9.0%	11.4%	0.7	--	0.0%
Russell 3000	9.0%	11.3%	0.7	-0.3	0.2%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	9.5%	10.9%	0.8	0.4	1.2%
Russell 1000	9.1%	11.1%	0.7	--	0.0%
DE Shaw	10.6%	11.0%	0.9	0.6	2.4%
Russell 1000	9.1%	11.1%	0.7	--	0.0%
Small Cap Equity	4.7%	15.5%	0.2	-0.9	2.8%
Russell 2000	7.4%	16.0%	0.4	--	0.0%

Statistics Summary

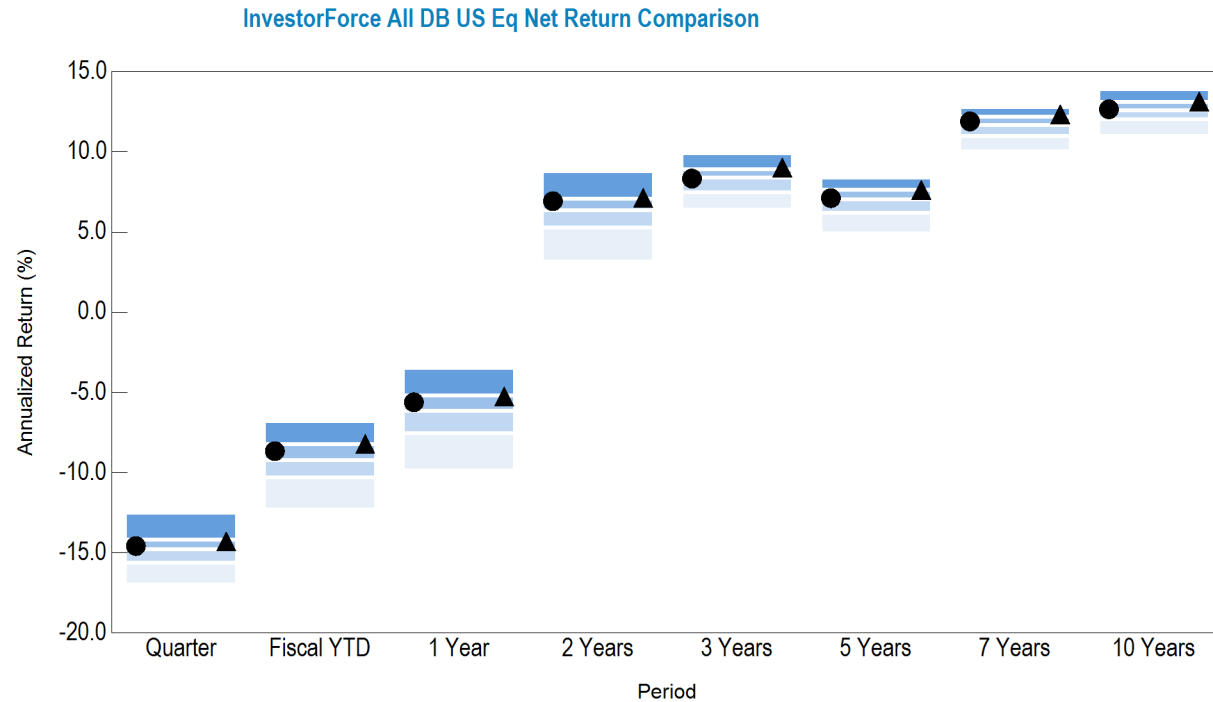
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	7.1%	11.1%	0.6	-0.7	0.7%
Blended US Equity Index	7.6%	11.3%	0.6	--	0.0%
Russell 3000	7.9%	11.2%	0.7	0.4	0.7%

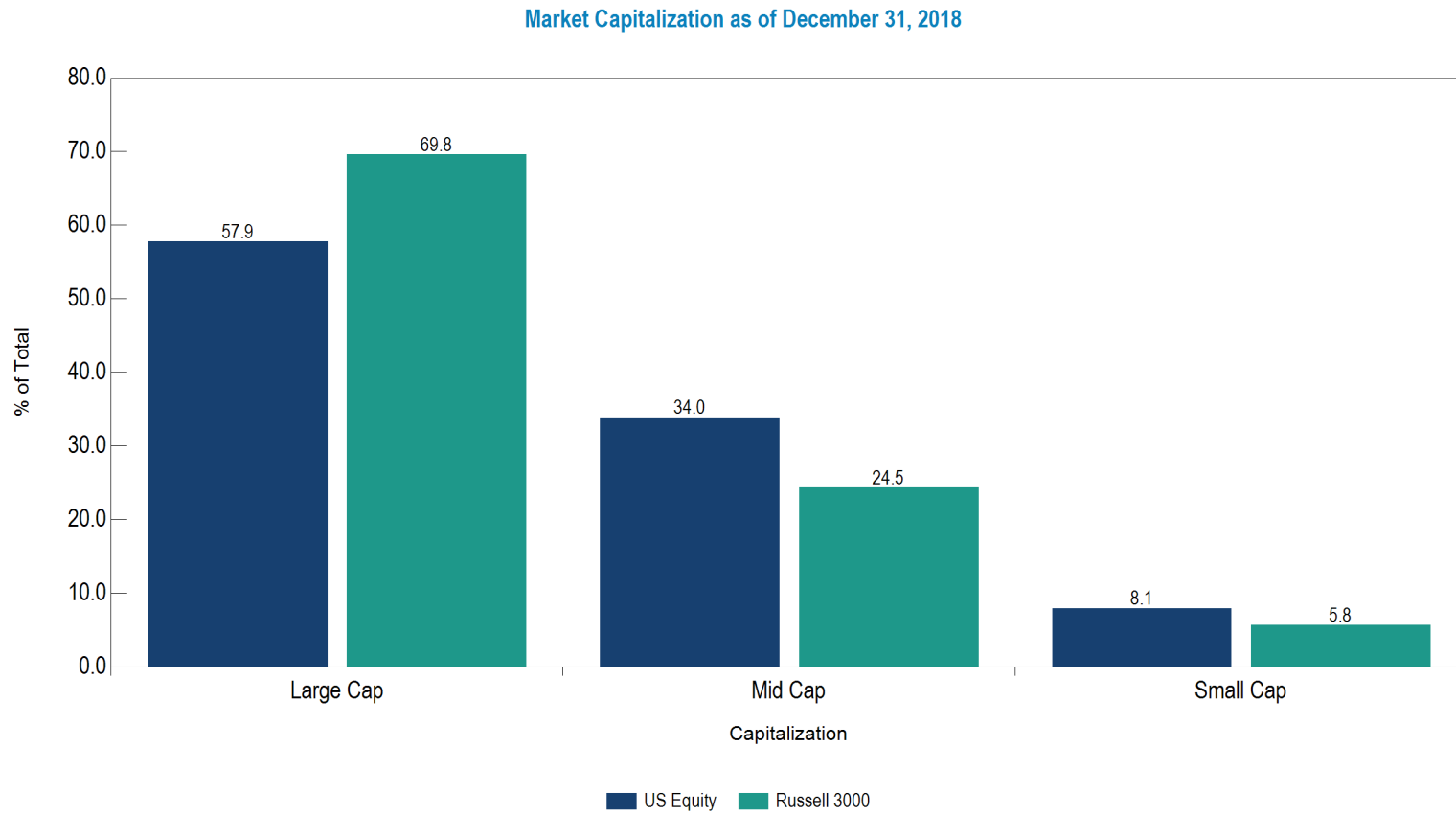
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	8.5%	10.9%	0.7	0.3	1.1%
Russell 1000	8.2%	11.0%	0.7	--	0.0%
DE Shaw	9.4%	11.1%	0.8	0.5	2.3%
Russell 1000	8.2%	11.0%	0.7	--	0.0%
Small Cap Equity	2.1%	14.7%	0.1	-0.9	2.6%
Russell 2000	4.4%	15.4%	0.2	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-12.5	-6.8	-3.5	8.8	9.9	8.4	12.8	13.9
25th Percentile	-14.2	-8.2	-5.2	7.1	9.0	7.6	12.2	13.1
Median	-14.7	-9.2	-6.1	6.4	8.4	7.1	11.7	12.6
75th Percentile	-15.6	-10.3	-7.5	5.3	7.5	6.2	11.0	12.1
95th Percentile	-17.0	-12.3	-9.8	3.2	6.4	4.9	10.0	11.0
# of Portfolios	533	533	532	521	510	480	409	310
● US Equity	-14.6 (45)	-8.7 (36)	-5.6 (37)	6.9 (32)	8.3 (54)	7.1 (49)	11.9 (41)	12.7 (49)
▲ Blended US Equity Index	-14.3 (35)	-8.2 (26)	-5.2 (30)	7.1 (24)	9.0 (20)	7.6 (26)	12.3 (19)	13.1 (25)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,788	3,015
Weighted Avg. Market Cap. (\$B)	112.8	154.7
Median Market Cap. (\$B)	2.7	1.4
Price To Earnings	21.2	22.3
Price To Book	5.0	4.2
Price To Sales	3.8	4.1
Return on Equity (%)	23.9	21.0
Yield (%)	2.2	2.1
Beta (holdings; domestic)	1.0	1.0

Top Holdings

APPLE	2.3%
MICROSOFT	2.0%
AMAZON.COM	1.3%
JOHNSON & JOHNSON	1.1%
ALPHABET A	1.0%
VERIZON COMMUNICATIONS	0.9%
PROCTER & GAMBLE	0.8%
BERKSHIRE HATHAWAY 'B'	0.8%
MERCK & COMPANY	0.8%
JP MORGAN CHASE & CO.	0.8%

Best Performers

	Return %
VTV THERAPEUTICS A (VTVT)	244.2%
TESARO (TSRO)	90.3%
ELECTRO SCIEN.INDS. (ESIO)	71.7%
AMERICAN SUPERCONDUCTOR (AMSC)	60.4%
MITEK SYSTEMS (MITK)	53.3%
ARSANIS (ASNS)	43.2%
K12 (LRN)	40.1%
INVESTMENT TECH.GROUP (ITG)	39.9%
SSR MINING (TSX) (C:SSRM)	39.1%
EIDOS THERAPEUTICS (EIDX)	37.9%

Worst Performers

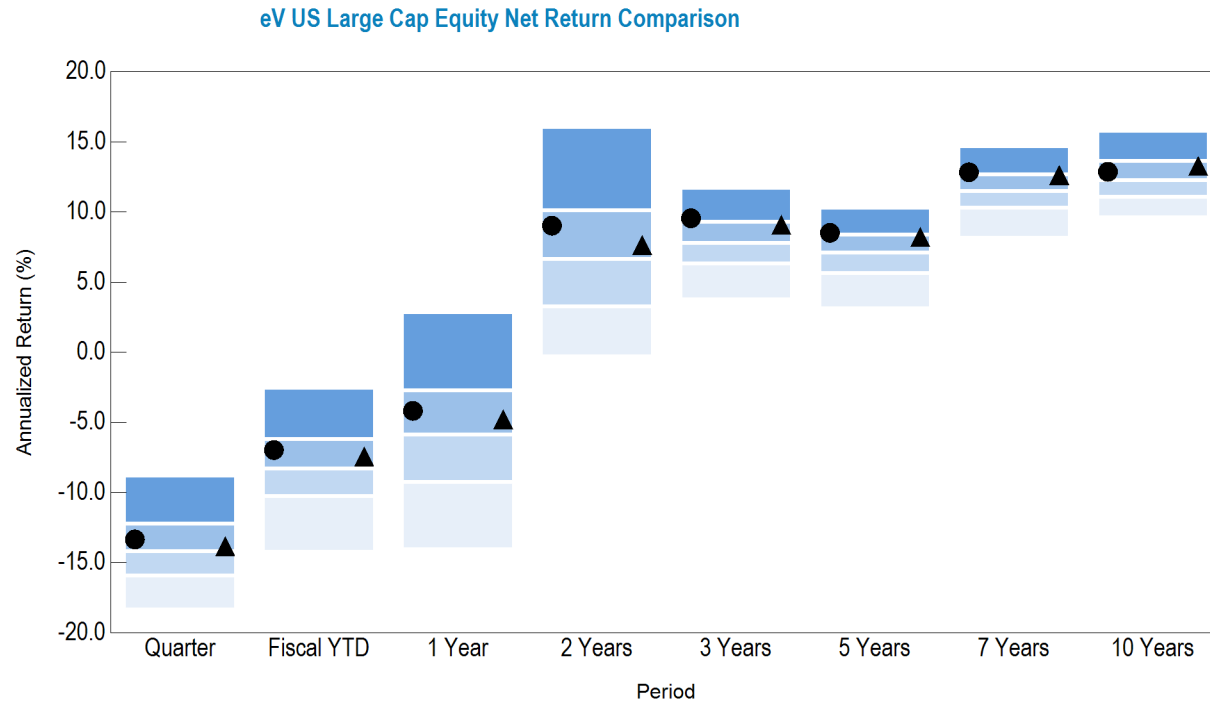
	Return %
AEGEAN MARINE PETROLEUM NETWORK (ANWWQ)	-98.0%
PARKER DRILLING (XSC) (PKDSQ)	-88.6%
REVOLUTION LTG.TECHS. (RVLT)	-85.8%
SIENNA BIOPH. (SNNA)	-84.3%
CLOUD PEAK ENERGY (CLD)	-84.1%
SELECTA BIOSCIENCES (SELB)	-82.9%
CLEARSIDE BIOMEDICAL (CLSD)	-82.6%
AAC HOLDINGS (AAC)	-81.7%
FERROGLOBE (GSM)	-80.5%
PHI NON-VOTING (PHIHK)	-80.2%

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%	-26.2%	-25.9%	5.8%	5.7%			
Materials	0.0%	0.0%	0.0%	0.0%	-16.2%	-15.6%	2.7%	2.7%			
Industrials	-0.1%	-0.1%	0.0%	0.0%	-18.9%	-18.2%	10.7%	10.4%			
Consumer Discretionary	-0.1%	-0.1%	0.0%	0.0%	-17.2%	-16.4%	11.5%	10.6%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	-5.6%	-5.5%	5.9%	6.1%			
Health Care	-0.1%	0.0%	0.0%	0.0%	-11.4%	-11.1%	14.2%	14.4%			
Financials	0.0%	0.0%	0.0%	0.0%	-13.8%	-13.5%	13.5%	13.9%			
Information Technology	-0.2%	-0.1%	0.0%	0.0%	-17.9%	-17.4%	21.6%	20.9%			
Communication Services	0.0%	0.0%	0.0%	0.0%	-13.8%	-13.3%	8.0%	9.0%			
Utilities	0.0%	0.0%	0.0%	0.0%	1.5%	0.8%	2.5%	2.8%			
Real Estate	0.0%	0.0%	0.0%	0.0%	-7.0%	-6.4%	3.5%	3.6%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	-13.5%	--	0.1%	0.0%			
Portfolio	-0.6%	=	-0.4%	+	-0.1%	+	0.0%	-15.0%	-14.4%	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	-8.8	-2.6	2.8	16.0	11.7	10.3	14.7	15.8
25th Percentile	-12.2	-6.2	-2.7	10.1	9.3	8.4	12.7	13.7
Median	-14.2	-8.3	-5.8	6.7	7.8	7.1	11.5	12.3
75th Percentile	-15.9	-10.2	-9.2	3.3	6.3	5.7	10.3	11.1
95th Percentile	-18.3	-14.2	-14.0	-0.3	3.8	3.2	8.2	9.6
# of Portfolios	574	574	573	566	555	532	479	428
● Large Cap Equity	-13.3 (39)	-7.0 (36)	-4.2 (36)	9.0 (30)	9.5 (22)	8.5 (24)	12.8 (24)	12.9 (38)
▲ Russell 1000	-13.8 (46)	-7.4 (41)	-4.8 (42)	7.6 (39)	9.1 (28)	8.2 (30)	12.6 (28)	13.3 (30)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	2,736	983
Weighted Avg. Market Cap. (\$B)	123.4	166.3
Median Market Cap. (\$B)	3.1	8.8
Price To Earnings	21.3	20.7
Price To Book	5.2	4.6
Price To Sales	3.9	4.3
Return on Equity (%)	24.7	22.3
Yield (%)	2.2	2.1
Beta (holdings; domestic)	0.9	1.0

Top Holdings

APPLE	2.6%
MICROSOFT	2.2%
AMAZON.COM	1.4%
JOHNSON & JOHNSON	1.2%
ALPHABET A	1.1%
VERIZON COMMUNICATIONS	1.0%
PROCTER & GAMBLE	0.9%
BERKSHIRE HATHAWAY 'B'	0.9%
MERCK & COMPANY	0.9%
JP MORGAN CHASE & CO.	0.9%

Best Performers

	Return %
VTV THERAPEUTICS A (VTVT)	244.2%
TESARO (TSRO)	90.3%
ELECTRO SCIEN.INDS. (ESIO)	71.7%
AMERICAN SUPERCONDUCTOR (AMSC)	60.4%
MITEK SYSTEMS (MITK)	53.3%
ARSANIS (ASNS)	43.2%
K12 (LRN)	40.1%
INVESTMENT TECH.GROUP (ITG)	39.9%
SSR MINING (TSX) (C:SSRM)	39.1%
EIDOS THERAPEUTICS (EIDX)	37.9%

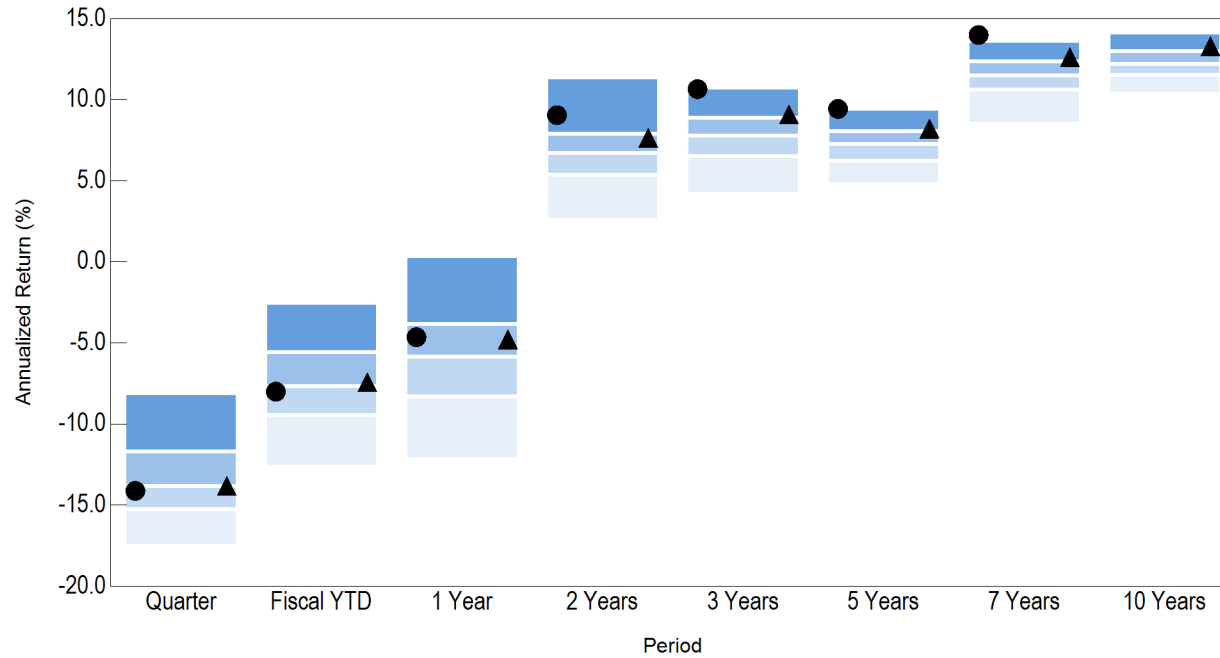
Worst Performers

	Return %
AEGEAN MARINE PETROLEUM NETWORK (ANWWQ)	-98.0%
PARKER DRILLING (XSC) (PKDSQ)	-88.6%
REVOLUTION LTG.TECHS. (RVLT)	-85.8%
SIENNA BIOPH. (SNNA)	-84.3%
CLOUD PEAK ENERGY (CLD)	-84.1%
SELECTA BIOSCIENCES (SELB)	-82.9%
CLEARSIDE BIOMEDICAL (CLSD)	-82.6%
AAC HOLDINGS (AAC)	-81.7%
FERROGLOBE (GSM)	-80.5%
PHI NON-VOTING (PHIHK)	-80.2%

Large Cap Equity Performance Attribution vs. Russell 1000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	0.0%	0.0%	0.0%	-25.4%	-24.8%	5.9%	5.7%			
Materials	0.0%	0.0%	0.0%	0.0%	-15.0%	-14.2%	2.6%	2.6%			
Industrials	0.0%	0.0%	0.0%	0.0%	-18.2%	-17.7%	10.1%	10.1%			
Consumer Discretionary	-0.1%	0.0%	0.0%	0.0%	-16.5%	-16.0%	11.4%	10.5%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	-5.3%	-5.2%	6.3%	6.3%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	-10.5%	-9.7%	14.0%	14.2%			
Financials	0.0%	0.0%	0.0%	0.0%	-13.4%	-13.2%	13.1%	13.6%			
Information Technology	-0.2%	-0.2%	0.0%	0.0%	-18.2%	-17.4%	22.3%	21.4%			
Communication Services	-0.1%	0.0%	0.0%	0.0%	-13.7%	-13.2%	8.4%	9.5%			
Utilities	0.0%	0.0%	0.0%	0.0%	1.8%	1.1%	2.5%	2.8%			
Real Estate	0.0%	0.0%	0.0%	0.0%	-5.0%	-5.1%	3.2%	3.3%			
Cash	0.0%	0.0%	0.0%	0.0%	0.5%	--	0.0%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	-13.5%	--	0.1%	0.0%			
Portfolio	-0.6%	=	-0.5%	+	-0.1%	+	0.0%	-14.5%	-13.9%	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	-8.1	-2.5	0.3	11.4	10.7	9.4	13.6	14.1
25th Percentile	-11.7	-5.6	-3.8	7.9	8.9	8.1	12.4	13.0
Median	-13.8	-7.7	-5.8	6.7	7.8	7.3	11.5	12.2
75th Percentile	-15.2	-9.4	-8.3	5.4	6.6	6.3	10.6	11.5
95th Percentile	-17.5	-12.6	-12.2	2.6	4.2	4.8	8.5	10.3
# of Portfolios	179	179	179	176	173	164	144	121
● DE Shaw	-14.1 (59)	-8.0 (56)	-4.7 (34)	9.0 (12)	10.6 (6)	9.4 (6)	14.0 (3)	-- (--)
▲ Russell 1000	-13.8 (52)	-7.4 (47)	-4.8 (38)	7.6 (29)	9.1 (21)	8.2 (22)	12.6 (20)	13.3 (17)

Characteristics

	Portfolio	Russell 1000
Number of Holdings	982	983
Weighted Avg. Market Cap. (\$B)	166.6	166.3
Median Market Cap. (\$B)	8.8	8.8
Price To Earnings	22.6	20.7
Price To Book	5.8	4.6
Price To Sales	4.3	4.3
Return on Equity (%)	24.7	22.3
Yield (%)	2.2	2.1
Beta (holdings; domestic)	1.0	1.0

Top Holdings

MICROSOFT	3.3%
APPLE	3.2%
AMAZON.COM	2.6%
BERKSHIRE HATHAWAY 'B'	1.7%
JOHNSON & JOHNSON	1.5%
JP MORGAN CHASE & CO.	1.4%
ALPHABET 'C'	1.4%
ALPHABET A	1.3%
FACEBOOK CLASS A	1.3%
EXXON MOBIL	1.2%

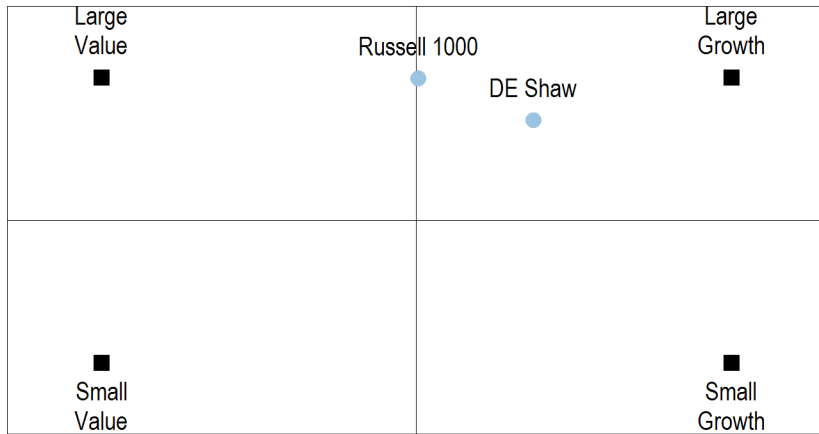
Best Performers

	Return %
TESARO (TSRO)	90.3%
RED HAT (RHT)	28.9%
VIRTU FINANCIAL CL.A (VIRT)	27.1%
TESLA (TSLA)	25.7%
SCANA (SCG)	23.2%
TRIBUNE MEDIA CL.A (TRCO)	18.9%
MARKETAXESS HOLDINGS (MKTX)	18.6%
ARRIS INTERNATIONAL (ARRS)	17.6%
UNITED STATES CELLULAR (USM)	16.1%
NEWMONT MINING (NEM)	15.2%

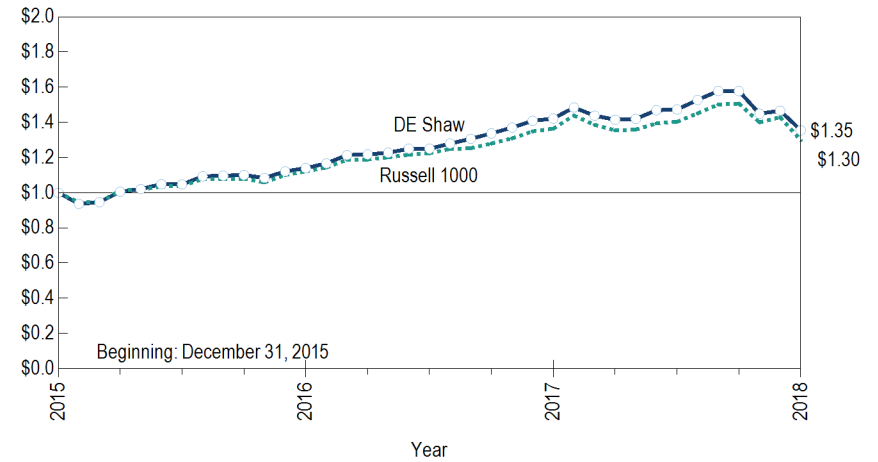
Worst Performers

	Return %
WEATHERFORD INTL. (WFT)	-79.4%
NABORS INDUSTRIES (NBR)	-66.8%
EXTRACTION OIL & GAS (XOG)	-62.0%
ADIANT (ADNT)	-61.4%
WHITING PETROLEUM (WLL)	-57.2%
KOSMOS ENERGY (KOS)	-56.5%
CHESAPEAKE ENERGY (CHK)	-53.2%
CONDUENT (CNDT)	-52.8%
NVIDIA (NVDA)	-52.4%
SM ENERGY (SM)	-50.8%

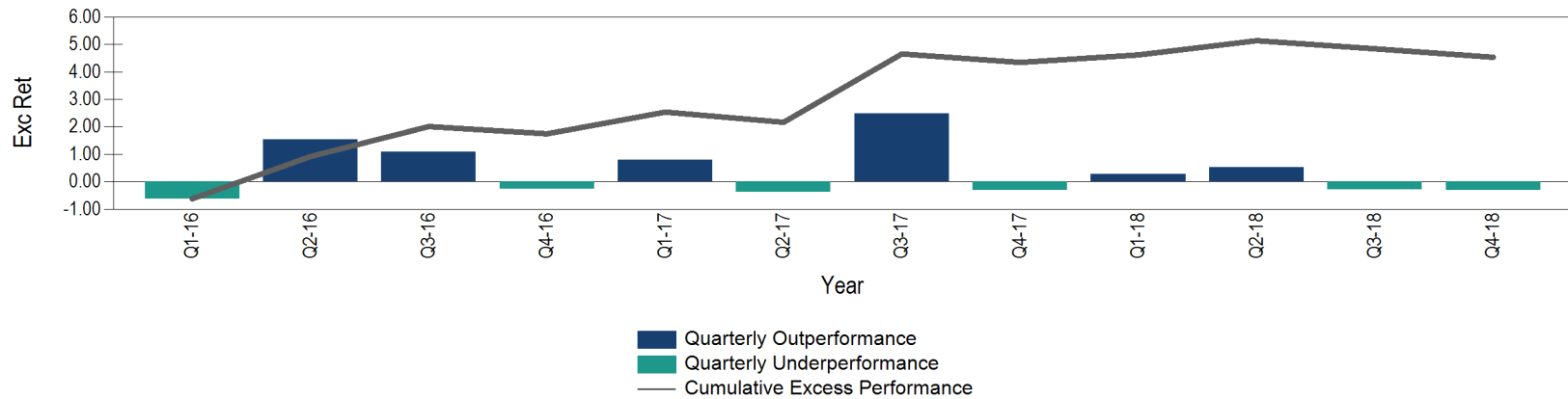
U.S. Effective Style Map



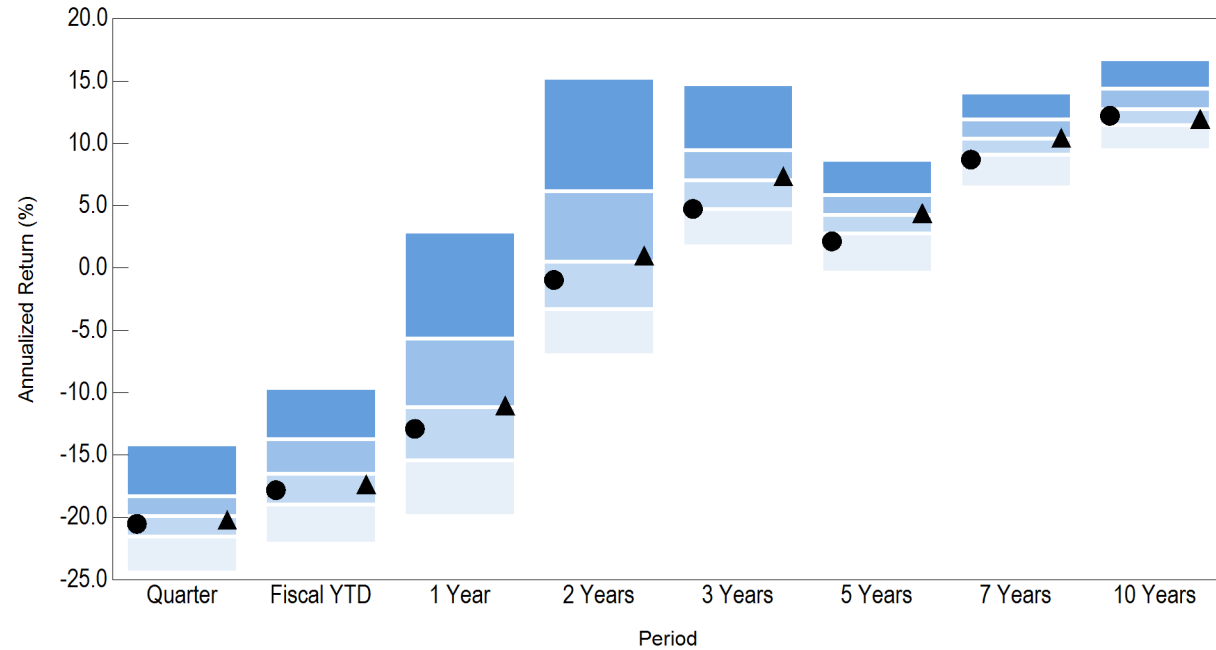
Growth of a Dollar



Quarterly and Cumulative Excess Performance



eV US Small Cap Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-14.2	-9.6	2.9	15.2	14.7	8.7	14.0	16.7
25th Percentile	-18.3	-13.7	-5.6	6.2	9.5	5.9	11.9	14.4
Median	-19.9	-16.5	-11.1	0.6	7.1	4.3	10.4	12.8
75th Percentile	-21.5	-19.0	-15.4	-3.3	4.8	2.8	9.1	11.5
95th Percentile	-24.4	-22.1	-19.9	-7.0	1.8	-0.3	6.5	9.5
# of Portfolios	392	392	392	385	376	354	324	292
● Small Cap Equity	-20.5 (61)	-17.8 (63)	-12.9 (60)	-1.0 (59)	4.7 (76)	2.1 (84)	8.7 (82)	12.2 (65)
▲ Russell 2000	-20.2 (57)	-17.3 (60)	-11.0 (50)	1.0 (47)	7.4 (47)	4.4 (47)	10.4 (50)	12.0 (69)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	345	2,032
Weighted Avg. Market Cap. (\$B)	1.9	2.0
Median Market Cap. (\$B)	1.0	0.7
Price To Earnings	19.7	14.3
Price To Book	2.7	2.6
Price To Sales	2.1	3.1
Return on Equity (%)	15.8	8.8
Yield (%)	1.7	1.4
Beta (holdings; domestic)	1.2	1.2

Top Holdings

HAEMONETICS	1.1%
HORIZON PHARMA	1.0%
SOUTHWEST GAS HOLDINGS	1.0%
PORTLAND GEN.ELEC.	0.9%
VANDA PHARMACEUTICALS	0.9%
MAXIMUS	0.9%
INSPERITY	0.9%
INTEGER HOLDINGS	0.9%
SPS COMMERCE	0.9%
FIRST BANCORP PRICO.	0.8%

Best Performers

	Return %
ESTERLINE TECHS. (ESL)	33.5%
VERACYTE (VCYT)	31.7%
CALIX NETWORKS (CALX)	20.4%
NUTRISYSTEM (NTRI)	19.2%
TRIBUNE MEDIA CL.A (TRCO)	18.9%
SHENANDOAH TELECOM. (SHEN)	14.9%
TECH DATA (TECD)	14.3%
VANDA PHARMACEUTICALS (VNDA)	13.9%
GENWORTH FINANCIAL CL.A (GNW)	11.8%
TTEC HOLDINGS (TTEC)	11.5%

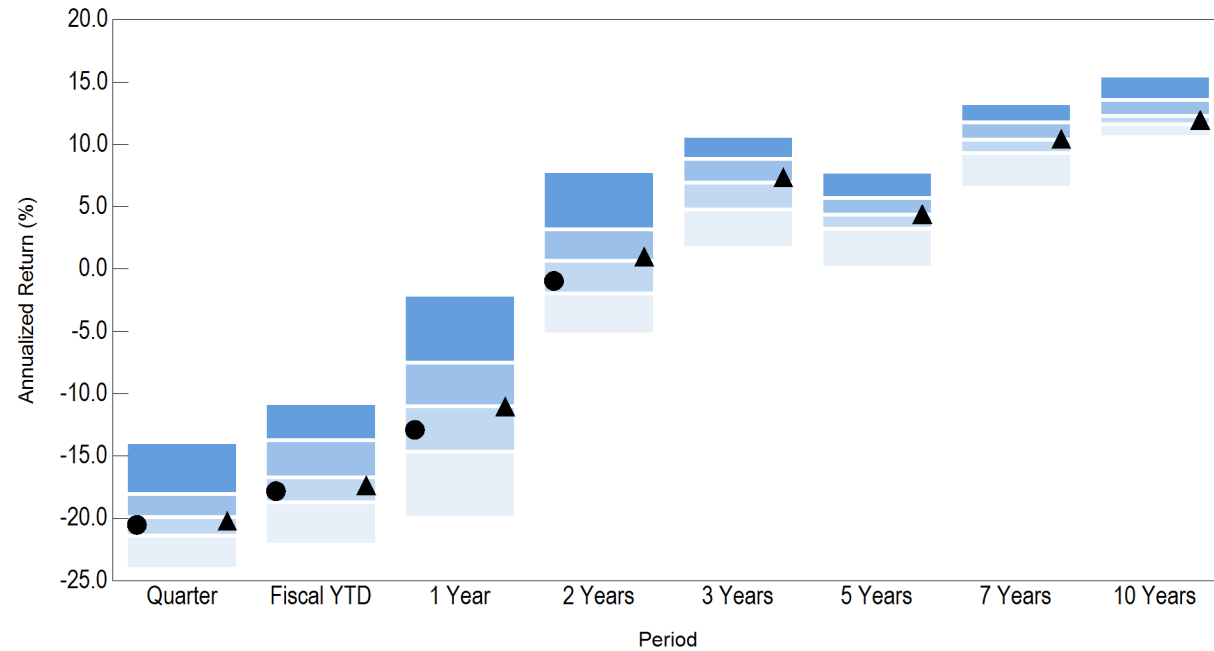
Worst Performers

	Return %
BRISTOW GROUP (BRS)	-80.0%
SUPERIOR INDS.INT. (SUP)	-71.6%
SUPERIOR ENERGY SVS. (SPN)	-65.6%
CONTAINER STORE GROUP (TCS)	-57.0%
LAREDO PETROLEUM (LPI)	-55.7%
NCI BUILDING SYS. (NCS)	-52.1%
LIGAND PHARMS.'B' (LGND)	-50.6%
TALOS ENERGY (TALO)	-50.3%
CATALYST PHARMACEUTICAL PARTNERS (CPRX)	-49.2%
INOGEN (INGN)	-49.1%

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	0.3%	0.3%	-0.1%	0.0%	-35.6%	-42.0%	4.9%	4.7%			
Materials	0.1%	0.1%	0.0%	0.0%	-25.4%	-27.1%	3.5%	4.1%			
Industrials	-0.3%	-0.2%	0.0%	0.0%	-22.9%	-21.5%	16.6%	15.2%			
Consumer Discretionary	-0.4%	-0.4%	0.0%	0.0%	-23.5%	-20.3%	12.3%	12.3%			
Consumer Staples	-0.2%	-0.2%	0.0%	0.0%	-19.1%	-13.3%	2.0%	2.6%			
Health Care	0.9%	0.9%	0.0%	0.0%	-20.4%	-26.1%	16.4%	16.5%			
Financials	-0.2%	-0.2%	0.0%	0.0%	-17.4%	-16.5%	16.9%	17.6%			
Information Technology	0.3%	0.3%	0.0%	0.0%	-14.7%	-16.9%	14.5%	13.9%			
Communication Services	0.2%	0.1%	0.0%	0.0%	-15.1%	-18.9%	3.7%	3.3%			
Utilities	0.0%	0.0%	-0.1%	0.0%	-1.0%	-2.0%	2.8%	3.2%			
Real Estate	-0.2%	-0.2%	0.0%	0.0%	-16.9%	-14.0%	6.5%	6.7%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	0.6%	=	0.7%	+	-0.1%	+	0.1%	-19.8%	-20.3%	100.0%	100.0%

eV US Small 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	-13.9	-10.8	-2.1	7.8	10.7	7.8	13.3	15.5
25th Percentile	-18.0	-13.7	-7.5	3.2	8.9	5.7	11.8	13.6
Median	-19.9	-16.7	-11.0	0.7	7.0	4.4	10.4	12.3
75th Percentile	-21.3	-18.7	-14.6	-1.9	4.8	3.3	9.3	11.6
95th Percentile	-24.0	-22.1	-19.9	-5.2	1.7	0.2	6.6	10.6
# of Portfolios	109	109	109	104	101	98	90	76
● QMA US Small Cap	-20.5 (58)	-17.8 (63)	-12.9 (65)	-1.0 (68)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 2000	-20.2 (53)	-17.3 (59)	-11.0 (51)	1.0 (44)	7.4 (46)	4.4 (50)	10.4 (50)	12.0 (70)

Characteristics

	Portfolio	Russell 2000
Number of Holdings	345	2,032
Weighted Avg. Market Cap. (\$B)	1.9	2.0
Median Market Cap. (\$B)	1.0	0.7
Price To Earnings	19.7	14.3
Price To Book	2.7	2.6
Price To Sales	2.1	3.1
Return on Equity (%)	15.8	8.8
Yield (%)	1.7	1.4
Beta (holdings; domestic)	1.2	1.2

Top Holdings

HAEMONETICS	1.1%
HORIZON PHARMA	1.0%
SOUTHWEST GAS HOLDINGS	1.0%
PORTLAND GEN.ELEC.	0.9%
VANDA PHARMACEUTICALS	0.9%
MAXIMUS	0.9%
INSPERITY	0.9%
INTEGER HOLDINGS	0.9%
SPS COMMERCE	0.9%
FIRST BANCORP PRICO.	0.8%

Best Performers

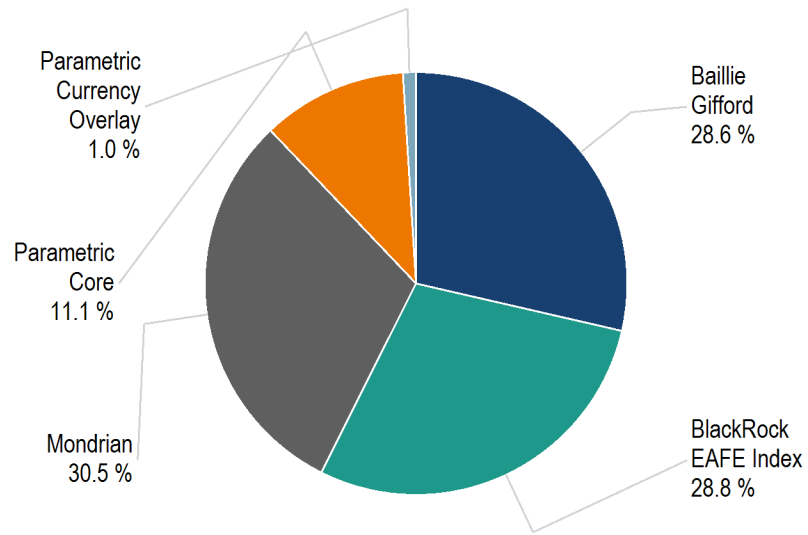
	Return %
ESTERLINE TECHS. (ESL)	33.5%
VERACYTE (VCYT)	31.7%
CALIX NETWORKS (CALX)	20.4%
NUTRISYSTEM (NTRI)	19.2%
TRIBUNE MEDIA CL.A (TRCO)	18.9%
SHENANDOAH TELECOM. (SHEN)	14.9%
TECH DATA (TECD)	14.3%
VANDA PHARMACEUTICALS (VNDA)	13.9%
GENWORTH FINANCIAL CL.A (GNW)	11.8%
TTEC HOLDINGS (TTEC)	11.5%

Worst Performers

	Return %
BRISTOW GROUP (BRS)	-80.0%
SUPERIOR INDS.INT. (SUP)	-71.6%
SUPERIOR ENERGY SVS. (SPN)	-65.6%
CONTAINER STORE GROUP (TCS)	-57.0%
LAREDO PETROLEUM (LPI)	-55.7%
NCI BUILDING SYS. (NCS)	-52.1%
LIGAND PHARMS 'B' (LGND)	-50.6%
TALOS ENERGY (TALO)	-50.3%
CATALYST PHARMACEUTICAL PARTNERS (CPRX)	-49.2%
INOGEN (INGN)	-49.1%

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	0.3%	0.3%	-0.1%	0.0%	-35.6%	-42.0%	4.9%	4.7%			
Materials	0.1%	0.1%	0.0%	0.0%	-25.4%	-27.1%	3.5%	4.1%			
Industrials	-0.3%	-0.2%	0.0%	0.0%	-22.9%	-21.5%	16.6%	15.2%			
Consumer Discretionary	-0.4%	-0.4%	0.0%	0.0%	-23.5%	-20.3%	12.3%	12.3%			
Consumer Staples	-0.2%	-0.2%	0.0%	0.0%	-19.1%	-13.3%	2.0%	2.6%			
Health Care	0.9%	0.9%	0.0%	0.0%	-20.4%	-26.1%	16.4%	16.5%			
Financials	-0.2%	-0.2%	0.0%	0.0%	-17.4%	-16.5%	16.9%	17.6%			
Information Technology	0.3%	0.3%	0.0%	0.0%	-14.7%	-16.9%	14.5%	13.9%			
Communication Services	0.2%	0.1%	0.0%	0.0%	-15.1%	-18.9%	3.7%	3.3%			
Utilities	0.0%	0.0%	-0.1%	0.0%	-1.0%	-2.0%	2.8%	3.2%			
Real Estate	-0.2%	-0.2%	0.0%	0.0%	-16.9%	-14.0%	6.5%	6.7%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	0.6%	=	0.7%	+	-0.1%	+	0.1%	-19.8%	-20.3%	100.0%	100.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$213,761,751	28.6%	-1.2%
BlackRock EAFE Index	\$214,588,077	28.8%	0.0%
Mondrian	\$227,739,257	30.5%	0.5%
Parametric Core	\$82,916,150	11.1%	0.2%
Parametric Currency Overlay	\$7,327,487	1.0%	0.0%
Actual vs. Policy Weight Difference			0.8%
Total	\$746,332,722	100.0%	0.3%

Statistics Summary

3 Years

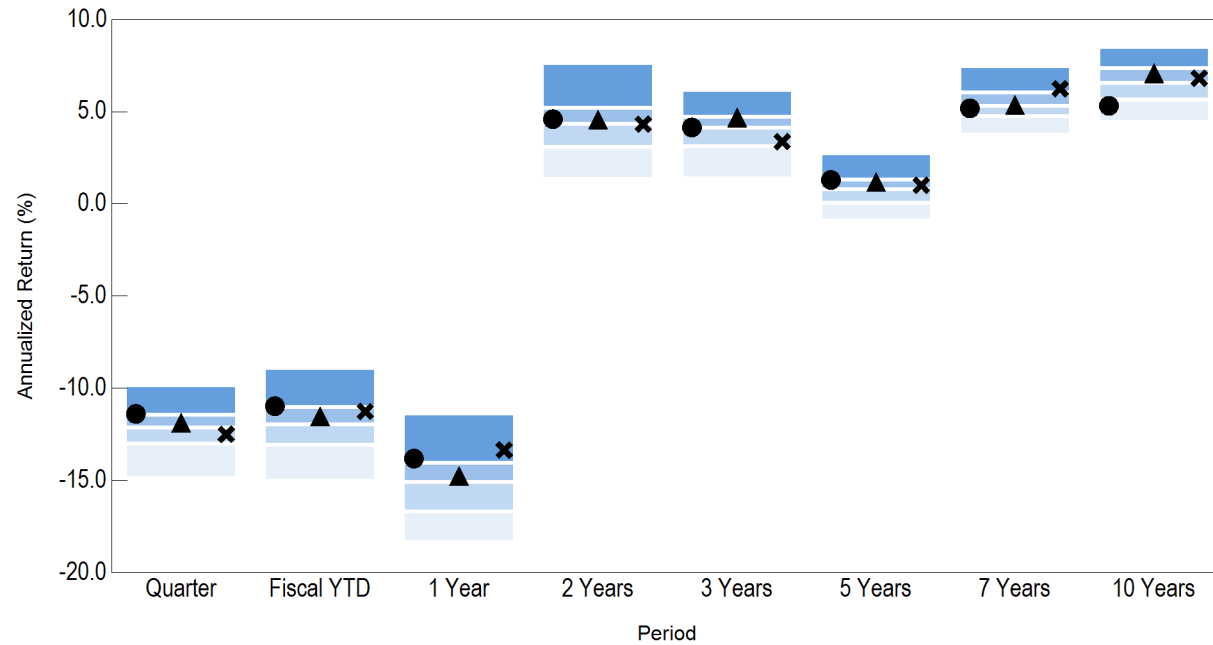
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	4.1%	11.3%	0.3	-0.3	1.6%
MSCI ACWI ex US IMI	4.7%	11.7%	0.3	--	0.0%
Developed Markets	3.7%	11.4%	0.2	-0.7	2.0%
MSCI ACWI ex USA Gross	5.0%	11.6%	0.3	--	0.0%
Baillie Gifford	3.3%	13.3%	0.2	-0.3	4.7%
MSCI ACWI ex US	5.0%	11.6%	0.3	--	0.0%
BlackRock EAFE Index	3.3%	11.5%	0.2	1.8	0.2%
MSCI EAFE	2.9%	11.4%	0.2	--	0.0%
Mondrian	4.2%	10.5%	0.3	-0.2	4.7%
MSCI ACWI ex USA Value Gross	5.4%	12.1%	0.4	--	0.0%
Emerging Markets	7.7%	13.7%	0.5	-0.5	4.0%
MSCI Emerging Markets Gross	9.7%	14.8%	0.6	--	0.0%
Parametric Core	7.7%	13.7%	0.5	-0.5	4.0%
MSCI Emerging Markets Gross	9.7%	14.8%	0.6	--	0.0%

Statistics Summary

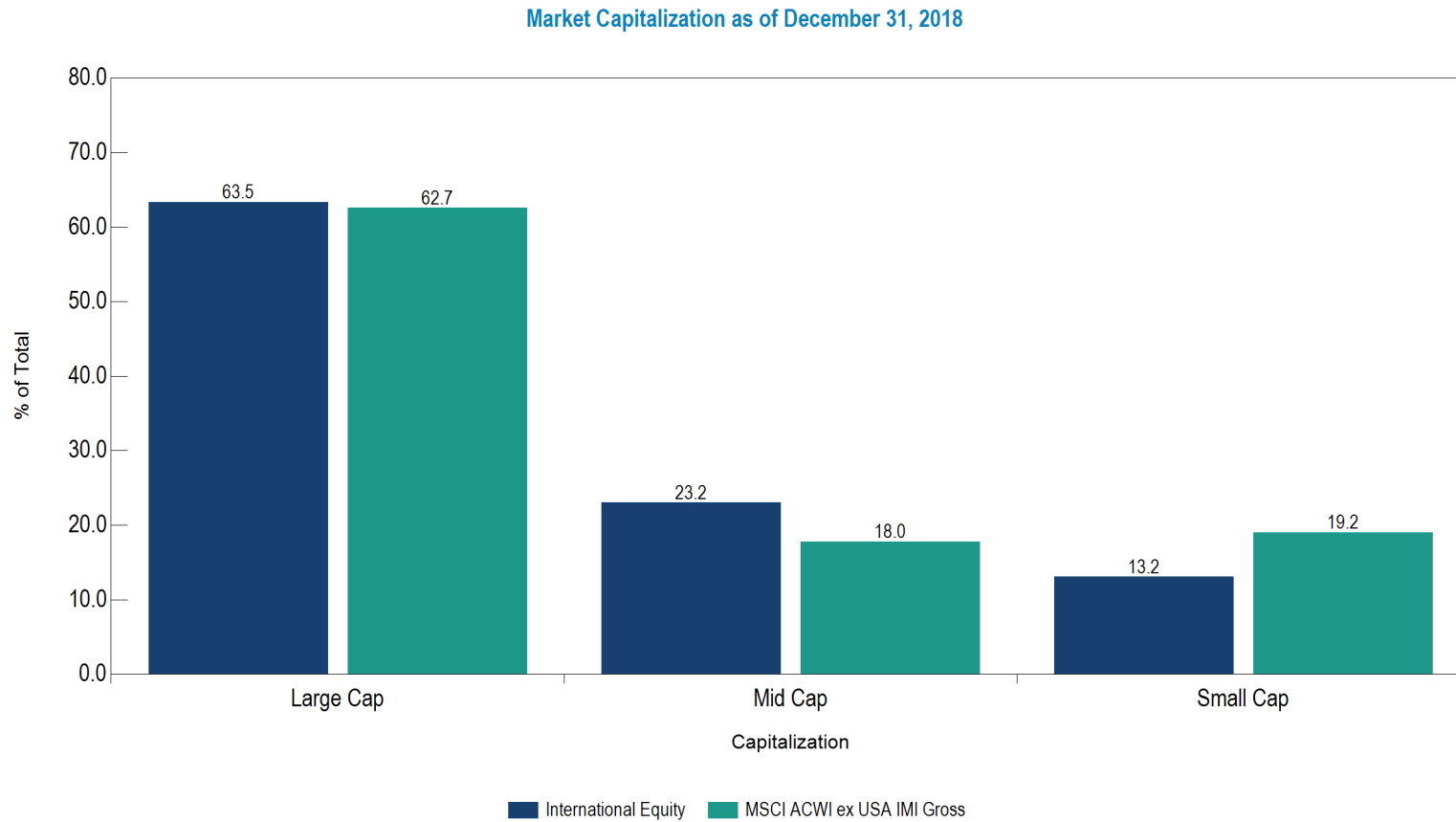
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	1.3%	11.7%	0.1	0.1	1.6%
MSCI ACWI ex US IMI	1.2%	11.9%	0.0	--	0.0%
Developed Markets	1.4%	11.8%	0.1	0.1	2.0%
MSCI ACWI ex USA Gross	1.1%	11.9%	0.0	--	0.0%
Baillie Gifford	1.8%	13.4%	0.1	0.2	4.4%
MSCI ACWI ex US	1.1%	11.9%	0.0	--	0.0%
BlackRock EAFE Index	0.9%	11.8%	0.0	1.8	0.2%
MSCI EAFE	0.5%	11.8%	0.0	--	0.0%
Mondrian	1.1%	11.3%	0.0	0.2	4.4%
MSCI ACWI ex USA Value Gross	0.2%	12.6%	0.0	--	0.0%
Emerging Markets	0.1%	13.7%	0.0	-0.5	4.0%
MSCI Emerging Markets Gross	2.0%	15.2%	0.1	--	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	-9.9	-8.9	-11.4	7.6	6.2	2.7	7.5	8.5
25th Percentile	-11.4	-11.0	-14.0	5.2	4.8	1.4	6.1	7.4
Median	-12.1	-11.9	-15.1	4.3	4.2	0.8	5.3	6.6
75th Percentile	-13.0	-13.1	-16.7	3.1	3.2	0.1	4.8	5.7
95th Percentile	-14.9	-15.0	-18.3	1.4	1.4	-0.9	3.8	4.5
# of Portfolios	361	361	354	344	340	321	267	211
● International Equity	-11.4 (25)	-11.0 (25)	-13.8 (21)	4.6 (38)	4.1 (51)	1.3 (27)	5.2 (58)	5.3 (81)
▲ MSCI ACWI ex US IMI	-11.9 (46)	-11.5 (39)	-14.8 (44)	4.6 (38)	4.7 (28)	1.2 (28)	5.4 (49)	7.1 (32)
✕ MSCI EAFE Gross	-12.5 (62)	-11.3 (33)	-13.4 (16)	4.3 (51)	3.4 (69)	1.0 (38)	6.2 (21)	6.8 (40)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	2,134	6,284
Weighted Avg. Market Cap. (\$B)	42.6	48.8
Median Market Cap. (\$B)	6.2	1.4
Price To Earnings	17.9	16.4
Price To Book	3.2	2.3
Price To Sales	3.2	2.4
Return on Equity (%)	17.9	15.2
Yield (%)	3.4	3.4
Beta (holdings; global)	1.0	1.0

Top Holdings

UNITED OVERSEAS BANK	1.4%
ENEL	1.0%
NOVARTIS 'R'	0.9%
SANOFI	0.9%
BP	0.9%
GLAXOSMITHKLINE	0.9%
IBERDROLA	0.9%
NASPERS	0.9%
HARGREAVES LANSDOWN	0.9%
AIA GROUP	0.8%

Best Performers

	Return %
ADANI POWER (IN:ANW)	122.3%
LINX ON (BR:LIX)	105.4%
CIA ENERGETICA DE MINAS GERAIS PN (BR:GP4)	101.6%
HERING TEXTIL ON (BR:3HG)	71.3%
BANCO DO BRASIL ON (BR:IO3)	64.7%
NATURA COSMETICOS ON (BR:NAT)	63.4%
CTI.ELETR BRAS- ELETROBRAS SR.B PN (BR:EL6)	55.9%
CYRELA BRAZIL REALTY ON (BR:3CY)	54.4%
MAGAZINE LUIZA ON (BR:MGZ)	52.3%
CIA PARANAENSE DE ENERGIA COPEL PN (BR:CP6)	52.2%

Worst Performers

	Return %
DISTRIBUIDORA INTNAC.DE ALIMENTACION (E:DIA)	-77.3%
BUMI ARMADA (L:ARMO)	-70.7%
CHINA SHANSHUI CMT.GROUP (K:CSCG)	-66.5%
CT ENVIRONMENTAL GROUP (K:CTEN)	-65.4%
ASOS (UKIR:ASC)	-61.4%
NAVIOS MARITIME HDG. (NM)	-61.3%
VS INDUSTRY (L:VSIN)	-57.6%
BANK OF PIRAEUS (G:PEIR)	-56.0%
NAVIOS MARITIME ACQ. (NNA)	-55.7%
BRILLIANCE CHINA AUTOMOTIVE HOLDINGS (K:CBA)	-53.5%

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%	-0.1%	0.0%	0.1%	-17.9%	-17.2%	6.3%	7.1%			
Materials	0.1%	0.0%	0.0%	0.1%	-13.1%	-13.9%	6.1%	8.3%			
Industrials	0.1%	0.1%	0.0%	0.0%	-13.2%	-14.3%	13.7%	13.1%			
Consumer Discretionary	-0.4%	-0.3%	0.0%	0.0%	-16.5%	-13.8%	12.6%	10.9%			
Consumer Staples	-0.3%	-0.3%	0.0%	0.0%	-11.0%	-7.6%	9.7%	9.0%			
Health Care	0.1%	0.1%	0.0%	0.0%	-10.2%	-11.5%	9.1%	8.4%			
Financials	0.2%	0.1%	0.0%	0.1%	-9.8%	-11.1%	18.3%	20.6%			
Information Technology	0.1%	0.0%	0.1%	0.0%	-16.0%	-16.4%	7.3%	8.7%			
Communication Services	-0.1%	-0.1%	0.1%	0.0%	-9.9%	-8.7%	9.1%	6.9%			
Utilities	0.2%	0.1%	0.1%	0.0%	3.6%	0.3%	3.7%	3.0%			
Real Estate	-0.1%	0.1%	-0.1%	0.0%	-3.2%	-3.7%	2.3%	3.9%			
Cash	0.1%	0.0%	0.1%	0.0%	0.5%	--	1.2%	0.0%			
Unclassified	0.1%	0.0%	0.1%	0.0%	4.0%	--	0.7%	0.0%			
Portfolio	0.3%	=	-0.3%	+	0.4%	+	0.2%	-11.5%	-11.9%	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	-22.0%	-19.5%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-18.4%	-16.5%	0.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	-8.2%	-9.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	-14.6%	-11.4%	1.9%	1.2%	0.0%	0.0%	0.0%	0.0%	-0.1%
Finland	-12.7%	-14.6%	0.7%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-14.5%	-15.3%	5.1%	7.0%	0.1%	0.0%	0.0%	0.0%	0.1%
Germany	-15.9%	-16.3%	6.7%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	-12.1%	-14.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	4.7%	5.7%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	-10.5%	-16.3%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	-5.0%	-12.8%	2.1%	1.8%	0.1%	0.0%	0.0%	0.0%	0.2%
Luxembourg	-16.1%	-11.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-9.2%	-11.7%	2.7%	2.3%	0.1%	0.0%	0.0%	0.0%	0.1%
Norway	-17.9%	-20.1%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	-3.3%	-2.8%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	-19.2%	-13.4%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-7.3%	-9.3%	1.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	-4.5%	-9.8%	2.9%	2.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Sweden	-9.3%	-14.1%	3.1%	2.2%	0.1%	0.0%	0.0%	0.0%	0.1%
Switzerland	-12.5%	-10.0%	5.0%	5.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
United Kingdom	-16.4%	-12.7%	14.3%	12.2%	-0.5%	0.0%	0.0%	-0.1%	-0.6%

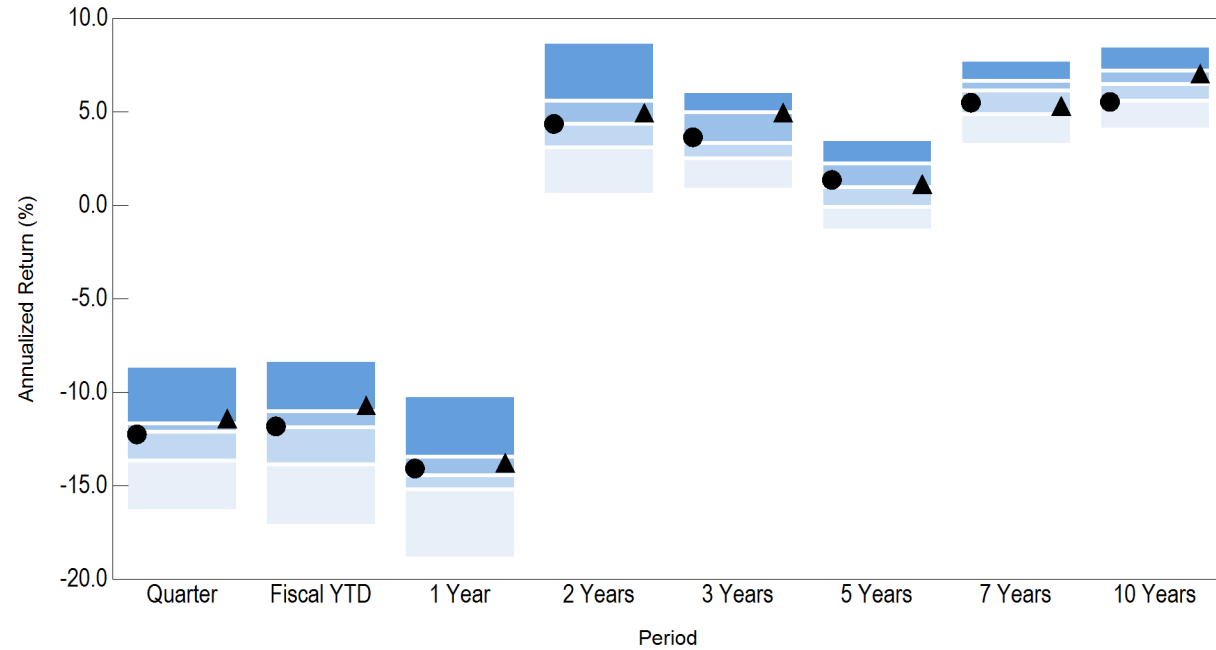
Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	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	-12.9%	-10.5%	3.7%	4.7%	-0.1%	0.0%	0.0%	0.0%	-0.1%	
China*	-16.8%	-10.5%	3.9%	6.9%	-0.4%	0.0%	0.0%	0.2%	-0.3%	
Hong Kong	-8.0%	-4.9%	4.1%	2.3%	-0.1%	0.1%	0.0%	-0.1%	0.0%	
India*	5.0%	3.2%	2.8%	2.2%	0.1%	0.1%	0.0%	0.0%	0.1%	
Indonesia*	8.1%	8.3%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
Japan	-14.2%	-14.3%	16.8%	17.6%	0.0%	0.1%	0.0%	0.0%	0.0%	
Korea*	-10.7%	-14.2%	2.8%	3.7%	0.1%	0.0%	0.0%	0.0%	0.1%	
Malaysia*	-8.5%	-6.9%	0.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	
New Zealand	-6.5%	-4.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
Pakistan*	-21.6%	-20.8%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Philippines*	0.3%	5.5%	0.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
Singapore	-6.0%	-6.3%	2.8%	0.9%	0.0%	0.1%	0.0%	0.0%	0.1%	
Taiwan*	-15.5%	-12.9%	2.6%	3.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%	
Thailand*	-7.3%	-11.9%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	
Americas										
Brazil*	5.0%	14.5%	1.8%	1.5%	-0.1%	0.1%	0.0%	0.0%	-0.1%	
Canada	-12.1%	-15.4%	1.0%	6.7%	0.1%	0.0%	0.3%	-0.1%	0.3%	
Chile*	-8.7%	-8.0%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
Colombia*	-19.2%	-19.6%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
Mexico*	-17.4%	-19.0%	1.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	
Peru*	2.9%	-3.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
United States	-20.9%	-13.8%	1.3%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	

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

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	-8.2%	-9.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	-15.4%	-13.8%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	-2.8%	-0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	5.1%	7.5%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	-11.3%	-15.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-3.1%	-3.7%	1.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	6.2%	3.3%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%
United Arab Emirates*	-3.5%	-6.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-9.2%	-10.7%	6.0%	9.4%	-0.1%	-0.1%	0.3%	0.0%	0.1%
Europe	-13.1%	-13.3%	47.5%	44.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Asia/Pacific	-11.2%	-11.1%	42.1%	43.7%	-0.1%	0.0%	0.0%	0.0%	0.0%
Other	-1.7%	-4.5%	3.1%	2.5%	0.0%	0.0%	0.0%	0.0%	0.1%
Cash	0.5%	--	1.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Total	-11.5%	-11.9%	100.0%	100.0%	-0.1%	0.1%	0.3%	0.0%	0.3%
Totals									
Developed	-13.1%	-13.3%	75.8%	76.0%	-0.1%	0.0%	0.3%	0.0%	0.1%
Emerging*	-7.1%	-7.5%	22.9%	24.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Frontier**	-5.6%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	1.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%

InvestorForce All DB Dev Mkt 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	-8.6	-8.3	-10.2	8.8	6.1	3.6	7.8	8.5
25th Percentile	-11.7	-11.0	-13.4	5.6	5.0	2.3	6.7	7.3
Median	-12.1	-11.9	-14.4	4.4	3.4	1.0	6.2	6.5
75th Percentile	-13.6	-13.8	-15.2	3.1	2.5	-0.1	4.9	5.6
95th Percentile	-16.3	-17.1	-18.9	0.6	0.9	-1.3	3.3	4.1
# of Portfolios	145	145	144	141	135	120	102	65
● Developed Markets	-12.2 (54)	-11.8 (50)	-14.1 (44)	4.4 (51)	3.7 (44)	1.4 (41)	5.5 (62)	5.5 (80)
▲ MSCI ACWI ex USA Gross	-11.4 (17)	-10.7 (19)	-13.8 (32)	5.0 (38)	5.0 (26)	1.1 (45)	5.3 (65)	7.1 (30)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	1,039	2,136
Weighted Avg. Market Cap. (\$B)	45.4	56.1
Median Market Cap. (\$B)	9.8	7.0
Price To Earnings	17.9	16.4
Price To Book	3.2	2.4
Price To Sales	3.2	2.4
Return on Equity (%)	18.1	15.5
Yield (%)	3.3	3.4
Beta (holdings; global)	1.0	1.0

Top Holdings

UNITED OVERSEAS BANK	1.5%
ENEL	1.1%
NOVARTIS 'R'	1.1%
SANOFI	1.0%
BP	1.0%
GLAXOSMITHKLINE	1.0%
IBERDROLA	1.0%
HARGREAVES LANSDOWN	1.0%
AIA GROUP	0.9%
TELIA COMPANY	0.9%

Best Performers

	Return %
CMPH.COCS. RODOVIARIAS ON (BR:CCR)	41.7%
SUMITOMO DAINIPPON PHA. (J:DPPH)	38.7%
UNITED SPIRITS (IN:MLC)	28.4%
COLRUYT (B:COL)	25.7%
ITAU UNIBANCO BANCO HLDG.ADR 1:1 (ITUB)	25.0%
ITAUSA INVESTIMENTOS ITAU PN (BR:IS4)	23.5%
PAN PACIFIC INTERNATIONAL HOLDINGS (J:DONQ)	22.9%
FAMILYMART UNY HOLDINGS (J:FAMA)	21.7%
MEIJI HOLDINGS (J:MEJH)	21.6%
TOKYO ELECTRIC POWER CO. HDG. (J:TE@N)	21.2%

Worst Performers

	Return %
DISTRIBUIDORA INTNAC.DE ALIMENTACION (E:DIA)	-77.3%
ASOS (UKIR:ASC)	-61.4%
BRILLIANCE CHINA AUTOMOTIVE HOLDINGS (K:CBA)	-53.5%
SHARP (J:SH@N)	-50.6%
U-BLOX HOLDING (S:BHOL)	-44.4%
SHOWA DENKO KK (J:SW@N)	-44.3%
SYSMEX (J:TOAF)	-44.2%
CYBERDYNE (J:DYNE)	-44.0%
ROYAL MAIL (UKIR:RMG)	-42.8%
WORLEYPARSONS (A:WORX)	-42.6%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	-0.3%	0.1%	0.1%	-19.2%	-16.2%	5.8%	7.7%			
Materials	0.1%	0.0%	0.0%	0.1%	-13.8%	-13.9%	5.5%	7.9%			
Industrials	-0.1%	-0.1%	-0.1%	0.0%	-13.9%	-13.5%	14.1%	12.0%			
Consumer Discretionary	-0.5%	-0.4%	-0.1%	-0.1%	-17.2%	-13.8%	13.2%	10.6%			
Consumer Staples	-0.4%	-0.5%	0.0%	0.0%	-11.6%	-7.3%	9.7%	9.3%			
Health Care	0.0%	0.0%	0.0%	0.0%	-10.3%	-10.8%	9.6%	8.5%			
Financials	0.1%	-0.1%	0.0%	0.2%	-10.3%	-10.8%	18.7%	22.2%			
Information Technology	0.0%	0.0%	0.0%	0.0%	-16.2%	-16.1%	7.6%	8.5%			
Communication Services	-0.2%	-0.2%	0.0%	0.0%	-10.6%	-8.3%	8.7%	7.4%			
Utilities	0.2%	0.1%	0.0%	0.0%	3.6%	0.5%	3.4%	3.0%			
Real Estate	-0.1%	0.0%	-0.1%	0.0%	-3.9%	-2.8%	1.8%	2.9%			
Cash	0.2%	0.0%	0.2%	0.0%	0.5%	--	1.4%	0.0%			
Unclassified	0.1%	0.0%	0.1%	0.0%	4.2%	--	0.7%	0.0%			
Portfolio	-0.7%	=	-1.3%	+	0.3%	+	0.3%	-12.2%	-11.5%	100.0%	100.0%

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

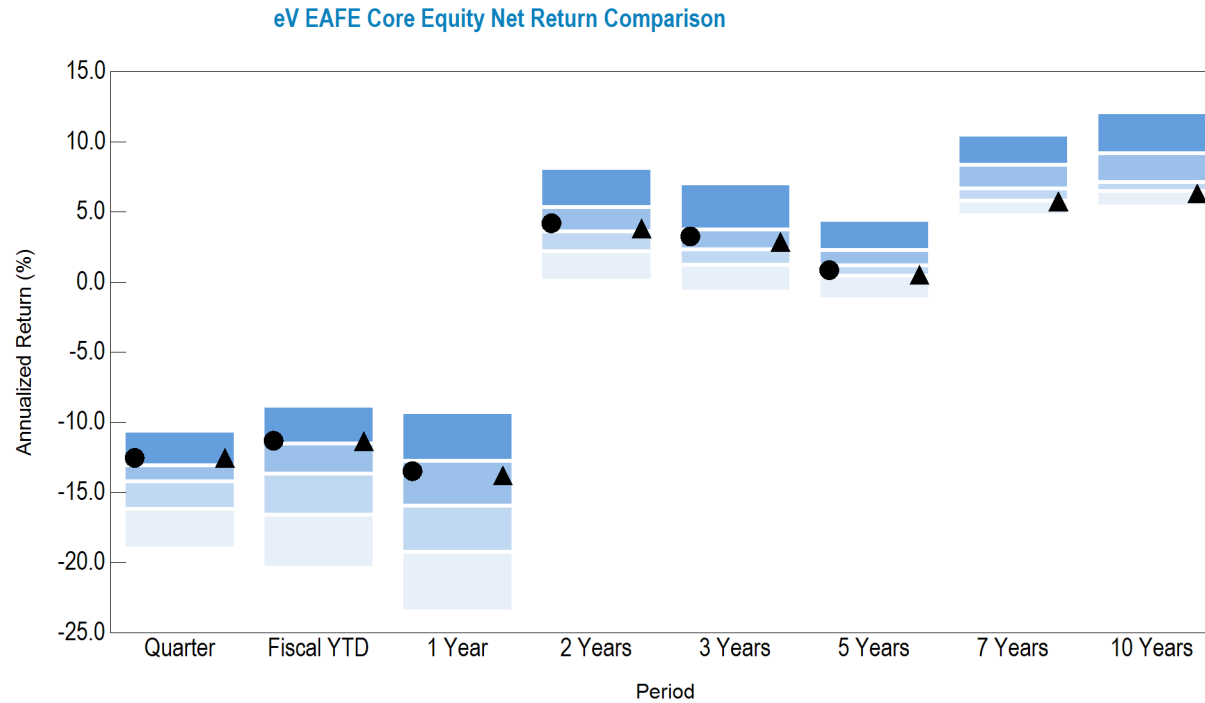
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	-22.0%	-21.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-18.4%	-18.3%	0.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	--	-8.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	-14.6%	-9.7%	2.1%	1.2%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Finland	-12.7%	-14.6%	0.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-14.5%	-14.9%	5.7%	7.7%	0.0%	0.1%	0.0%	0.0%	0.1%
Germany	-15.9%	-16.0%	7.4%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	--	-15.2%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	5.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	-10.5%	-18.1%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	-5.0%	-11.6%	2.4%	1.6%	0.1%	0.0%	0.0%	0.0%	0.2%
Luxembourg	-16.7%	-11.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-9.2%	-11.0%	3.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.1%
Norway	-17.9%	-17.8%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	--	-2.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	-19.2%	-14.2%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-4.0%	-9.2%	0.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	-4.5%	-8.7%	3.2%	2.1%	0.1%	0.0%	0.0%	0.0%	0.2%
Sweden	-9.3%	-14.1%	3.4%	1.9%	0.1%	-0.1%	0.0%	0.1%	0.1%
Switzerland	-12.5%	-9.0%	5.5%	5.7%	-0.2%	0.0%	0.0%	0.0%	-0.2%
United Kingdom	-16.4%	-11.8%	15.8%	12.0%	-0.6%	0.0%	-0.1%	-0.2%	-0.8%

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	-12.9%	-9.8%	4.1%	4.6%	-0.2%	0.0%	0.0%	0.0%	-0.1%
China*	-17.7%	-10.6%	3.6%	7.6%	-0.5%	0.0%	0.0%	0.3%	-0.3%
Hong Kong	-8.1%	-4.5%	3.9%	2.4%	-0.1%	0.1%	0.0%	-0.1%	0.0%
India*	5.6%	2.5%	2.3%	2.1%	0.1%	0.0%	0.0%	0.0%	0.1%
Indonesia*	20.4%	9.8%	0.1%	0.5%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Japan	-14.2%	-14.2%	18.6%	16.8%	0.0%	-0.1%	0.1%	0.0%	-0.1%
Korea*	-10.2%	-14.2%	2.2%	3.7%	0.1%	0.0%	0.0%	-0.1%	0.1%
Malaysia*	-8.0%	-5.8%	0.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	-6.5%	-6.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	--	-22.8%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-6.7%	5.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	-6.0%	-6.7%	3.1%	0.9%	0.0%	0.1%	0.0%	0.0%	0.1%
Taiwan*	-17.3%	-13.6%	2.1%	3.0%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Thailand*	-13.5%	-10.3%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	-0.2%	13.6%	1.3%	1.5%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Canada	-12.1%	-14.9%	1.2%	6.6%	0.1%	0.0%	0.3%	-0.1%	0.3%
Chile*	--	-8.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	-18.9%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	-14.9%	-18.7%	0.4%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	-0.6%	-2.9%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	-20.4%	-13.8%	1.3%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%

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*	--	-8.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	-15.4%	-14.8%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	5.2%	8.5%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	-11.3%	-15.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-3.3%	-3.5%	1.3%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	17.6%	4.7%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	-0.7%	-6.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-10.8%	-10.3%	4.2%	9.5%	-0.3%	-0.2%	0.3%	0.2%	-0.1%
Europe	-13.3%	-12.6%	51.3%	44.9%	-0.4%	0.0%	0.0%	-0.1%	-0.5%
Asia/Pacific	-11.8%	-11.0%	41.3%	43.2%	-0.5%	0.0%	0.1%	0.0%	-0.3%
Other	-2.1%	-3.8%	1.8%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%
Total	-12.2%	-11.5%	100.0%	100.0%	-1.1%	-0.1%	0.3%	0.1%	-0.7%
Totals									
Developed	-13.1%	-12.8%	83.4%	75.3%	-0.6%	-0.1%	0.3%	-0.1%	-0.4%
Emerging*	-8.3%	-7.5%	15.2%	24.7%	-0.3%	-0.3%	0.1%	0.1%	-0.4%
Frontier**	-11.3%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-10.6	-8.8	-9.3	8.1	7.0	4.4	10.5	12.1
25th Percentile	-13.0	-11.5	-12.7	5.4	3.8	2.3	8.4	9.2
Median	-14.2	-13.6	-15.9	3.6	2.4	1.2	6.7	7.2
75th Percentile	-16.2	-16.6	-19.2	2.2	1.3	0.5	5.8	6.5
95th Percentile	-19.0	-20.4	-23.5	0.1	-0.6	-1.2	4.8	5.4
# of Portfolios	138	138	138	136	132	114	94	78
● BlackRock EAFE Index	-12.5 (21)	-11.3 (25)	-13.5 (32)	4.2 (42)	3.3 (38)	0.9 (62)	-- (--)	-- (--)
▲ MSCI EAFE	-12.5 (21)	-11.4 (25)	-13.8 (36)	3.8 (48)	2.9 (46)	0.5 (75)	5.8 (76)	6.3 (80)

Characteristics

	Portfolio	MSCI EAFE
Number of Holdings	923	920
Weighted Avg. Market Cap. (\$B)	52.6	52.6
Median Market Cap. (\$B)	9.1	9.1
Price To Earnings	17.0	16.7
Price To Book	2.7	2.3
Price To Sales	2.6	2.4
Return on Equity (%)	16.5	14.7
Yield (%)	3.6	3.6
Beta (holdings; global)	1.0	1.0

Top Holdings

NESTLE 'R'	2.0%
NOVARTIS 'R'	1.5%
ROCHE HOLDING	1.4%
HSBC HOLDINGS	1.3%
ROYAL DUTCH SHELL A	1.1%
TOYOTA MOTOR	1.1%
TOTAL	1.0%
BP	1.0%
ROYAL DUTCH SHELL B	0.9%
AIA GROUP	0.8%

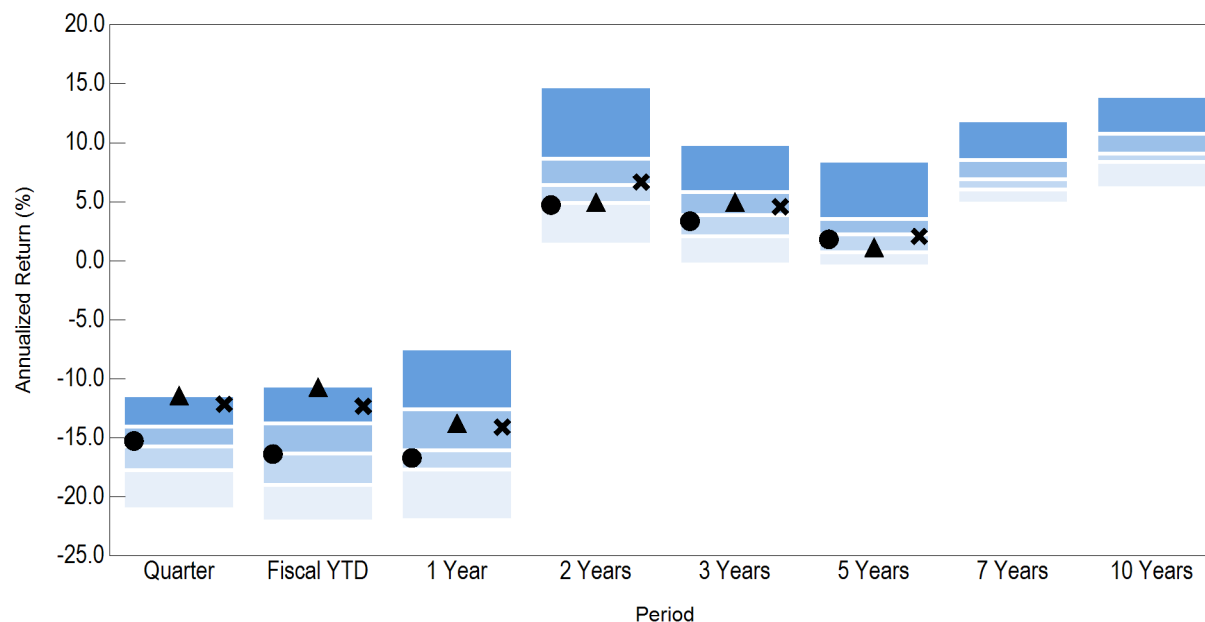
Best Performers

	Return %
SUMITOMO DAINIPPON PHA. (J:DPPH)	38.7%
COLRUYT (B:COL)	25.7%
PAN PACIFIC INTERNATIONAL HOLDINGS (J:DONQ)	22.9%
FAMILYMART UNY HOLDINGS (J:FAMA)	21.7%
MEIJI HOLDINGS (J:MEJH)	21.6%
TOKYO ELECTRIC POWER CO. HDG. (J:TE@N)	21.2%
RANDGOLD RESOURCES SUSP - SUSP 31/12/18 (UKIR:RRS)	17.3%
TOHO (J:TOHO)	15.6%
BANDAI NAMCO HDG. (J:N@MB)	15.5%
YUE YUEN INDL.HDG. (K:YUEN)	15.1%

Worst Performers

	Return %
SHARP (J:SH@N)	-50.6%
SHOWA DENKO KK (J:SW@N)	-44.3%
SYSMEX (J:TOAF)	-44.2%
CYBERDYNE (J:DYNE)	-44.0%
ROYAL MAIL (UKIR:RMG)	-42.8%
WORLEYPARSONS (A:WORX)	-42.6%
LENLEASE GROUP STAPLED UNITS (A:LLCX)	-42.4%
CONVATEC GROUP (UKIR:CTEC)	-41.6%
M3 (J:SNET)	-40.8%
HOSHIZAKI ELECTRIC (J:HSZK)	-40.5%

eV ACWI ex-US Growth Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-11.4	-10.6	-7.4	14.8	9.9	8.5	11.9	14.0
25th Percentile	-14.0	-13.8	-12.5	8.7	5.9	3.6	8.5	10.8
Median	-15.7	-16.3	-16.1	6.4	3.9	2.2	6.9	9.1
75th Percentile	-17.7	-19.0	-17.7	4.9	2.1	0.7	6.1	8.4
95th Percentile	-21.0	-22.1	-22.0	1.4	-0.3	-0.5	4.9	6.2
# of Portfolios	66	66	66	66	66	55	48	40
● Baillie Gifford	-15.3 (41)	-16.4 (52)	-16.7 (57)	4.7 (79)	3.3 (64)	1.8 (59)	-- (--)	-- (--)
▲ MSCI ACWI ex US	-11.4 (5)	-10.7 (6)	-13.8 (37)	5.0 (75)	5.0 (33)	1.1 (70)	-- (--)	-- (--)
✕ MSCI ACWI ex US Growth	-12.2 (10)	-12.3 (16)	-14.1 (44)	6.7 (42)	4.6 (41)	2.1 (55)	-- (--)	-- (--)

Characteristics

	Portfolio	MSCI ACWI ex USA Gross
Number of Holdings	85	2,136
Weighted Avg. Market Cap. (\$B)	36.2	56.1
Median Market Cap. (\$B)	13.2	7.0
Price To Earnings	25.8	16.4
Price To Book	5.7	2.4
Price To Sales	5.1	2.4
Return on Equity (%)	26.0	15.5
Yield (%)	1.8	3.4
Beta (holdings: global)	1.1	1.0

Top Holdings

HARGREAVES LANSDOWN	2.9%
NASPERS	2.7%
TAIWAN SEMICON.SPN.ADR 1:5	2.7%
ALIBABA GROUP HLDG.SPN. ADR 1:1	2.4%
SHISEIDO	2.4%
COCHLEAR	2.3%
AIA GROUP	2.1%
NOVOZYMES B	2.0%
UNITED OVERSEAS BANK	2.0%
MS&AD INSURANCE GP.HDG.	2.0%

Best Performers

	Return %
UNITED SPIRITS (IN:MLC)	28.4%
HOUSING DEVELOPMENT FINANCE CORPORATION (IN:HDF)	16.5%
JARDINE MATHESON HDG. (T:JMST)	10.9%
ASIAN PAINTS (IN:API)	10.5%
CLICKS GROUP (R:CLSJ)	7.6%
JARDINE STRATEGIC HDG. (T:JSTG)	1.1%
AUTO TRADER GROUP (UKIR:AUTO)	-0.5%
PUBLIC BANK (L:PBOM)	-0.8%
PUREGOLD PRICE CLUB (PH:PUR)	-1.8%
ADVANTEST (J:AB@N)	-2.9%

Worst Performers

	Return %
DISTRIBUIDORA INTNAC.DE ALIMENTACION (E:DIA)	-77.3%
ASOS (UKIR:ASC)	-61.4%
U-BLOX HOLDING (S:BHOL)	-44.4%
SPOTIFY TECHNOLOGY (SPOT)	-37.2%
WOOD GROUP (JOHN) (UKIR:WG.)	-35.9%
ZALANDO (D:ZAL)	-34.1%
SOFTBANK GROUP (J:SFTB)	-34.1%
BAIDU 'A' ADR 10:1 (BIDU)	-30.6%
HON HAI PRECISION INDUSTRIES DRC (UKIR:HHPD)	-29.2%
JUPITER FUND MANAGEMENT (UKIR:JUP)	-28.9%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	-1.6%	0.2%	1.5%	-35.9%	-16.1%	1.1%	7.6%			
Materials	0.2%	0.1%	0.1%	0.1%	-11.4%	-13.4%	4.8%	8.1%			
Industrials	-0.2%	0.0%	-0.1%	-0.1%	-14.1%	-13.6%	15.4%	11.9%			
Consumer Discretionary	-1.3%	-0.6%	-0.2%	-0.5%	-20.1%	-13.8%	17.0%	10.4%			
Consumer Staples	-1.0%	-0.9%	0.2%	-0.2%	-15.6%	-7.4%	13.7%	9.5%			
Health Care	-0.3%	-0.3%	0.0%	0.0%	-14.7%	-10.8%	7.4%	8.4%			
Financials	0.0%	-0.2%	-0.1%	0.3%	-10.5%	-10.6%	16.9%	22.1%			
Information Technology	-0.1%	0.0%	-0.1%	0.0%	-15.8%	-16.1%	10.4%	8.4%			
Communication Services	-0.9%	-0.7%	0.1%	-0.4%	-17.1%	-8.3%	12.0%	7.4%			
Utilities	-0.3%	--	-0.4%	--	--	0.5%	0.0%	3.0%			
Real Estate	-0.2%	--	-0.2%	--	--	-3.4%	0.0%	3.1%			
Cash	0.2%	0.0%	0.2%	0.0%	0.5%	--	1.3%	0.0%			
Portfolio	-3.8%	=	-4.2%	+	-0.3%	+	0.7%	-15.2%	-11.4%	100.0%	100.0%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	--	-21.9%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Belgium	--	-18.3%	0.0%	0.7%	--	0.0%	0.0%	--	0.1%
Czech Republic*	--	-8.6%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Denmark	-14.0%	-9.8%	3.0%	1.2%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Finland	-10.9%	-14.6%	1.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	-22.7%	-14.6%	1.5%	7.8%	-0.7%	0.2%	0.1%	0.5%	0.1%
Germany	-20.3%	-15.7%	6.3%	6.5%	-0.3%	0.0%	0.0%	0.0%	-0.3%
Greece*	--	-15.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	5.9%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	-8.4%	-18.1%	1.0%	0.4%	0.0%	0.0%	0.0%	0.1%	0.1%
Italy	--	-11.6%	0.0%	1.6%	--	0.0%	0.0%	--	0.0%
Netherlands	-16.1%	-11.0%	1.5%	2.3%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Norway	--	-17.9%	0.0%	0.5%	--	0.0%	0.0%	--	0.0%
Poland*	--	-2.7%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	-19.8%	-14.2%	1.1%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Russia*	--	-9.1%	0.0%	0.9%	--	-0.1%	0.0%	--	0.0%
Spain	-17.7%	-8.7%	2.0%	2.1%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Sweden	-12.9%	-14.1%	5.4%	1.9%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Switzerland	-23.7%	-8.9%	3.7%	5.7%	-0.9%	0.0%	0.0%	0.3%	-0.6%
United Kingdom	-20.1%	-11.7%	14.2%	12.1%	-1.0%	0.0%	0.0%	-0.2%	-1.2%

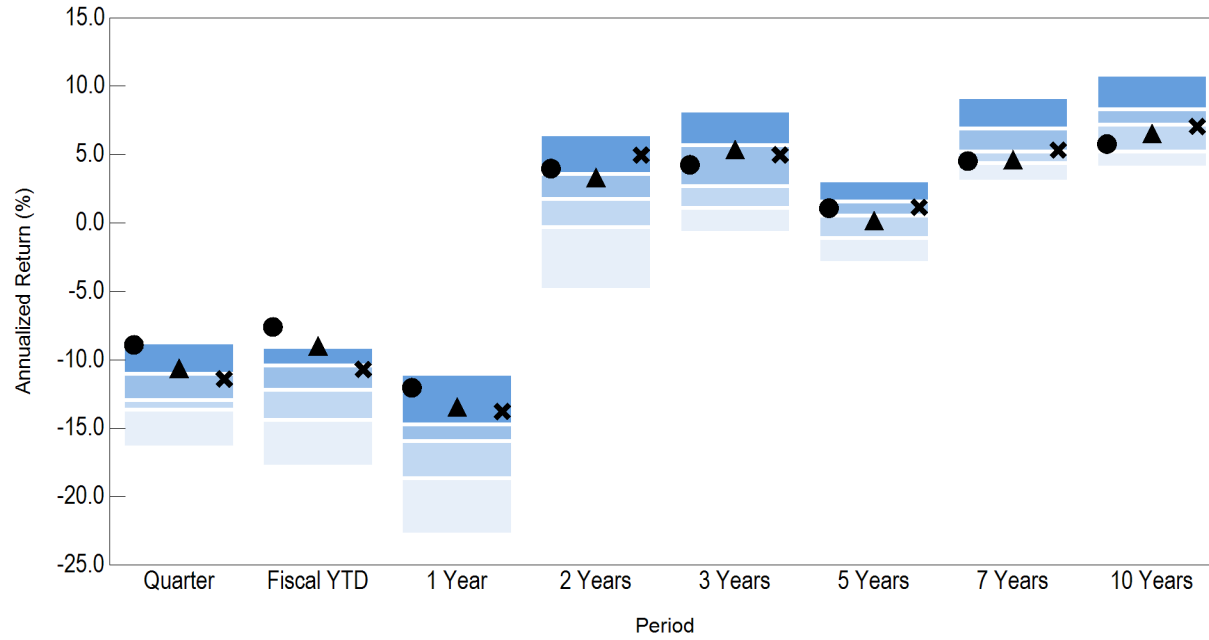
Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	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	-17.5%	-9.8%	4.7%	4.6%	-0.4%	0.0%	0.0%	0.0%	-0.4%
China*	-21.3%	-10.6%	7.4%	7.6%	-0.9%	0.0%	0.0%	0.0%	-0.8%
Hong Kong	-7.1%	-4.5%	1.9%	2.4%	0.0%	0.0%	0.0%	0.0%	-0.1%
India*	7.0%	2.6%	3.6%	2.1%	0.1%	0.2%	0.0%	0.1%	0.4%
Indonesia*	--	9.8%	0.0%	0.5%	--	-0.1%	0.0%	--	-0.1%
Japan	-16.0%	-14.2%	17.2%	16.7%	-0.3%	0.0%	0.0%	0.0%	-0.3%
Korea*	-9.0%	-14.2%	2.8%	3.7%	0.2%	0.0%	0.0%	0.0%	0.1%
Malaysia*	-0.8%	-5.8%	1.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1%
New Zealand	--	-6.4%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	-22.9%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-1.8%	5.2%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	-4.9%	-6.7%	3.6%	0.9%	0.0%	0.1%	0.0%	0.1%	0.2%
Taiwan*	-19.1%	-13.6%	3.8%	3.0%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Thailand*	--	-10.3%	0.0%	0.6%	--	0.0%	0.0%	--	0.0%
Americas									
Brazil*	-18.5%	13.8%	1.2%	1.5%	-0.5%	-0.1%	0.0%	0.1%	-0.5%
Canada	-17.2%	-14.9%	2.4%	6.6%	-0.3%	0.0%	0.3%	0.2%	0.1%
Chile*	--	-8.3%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	-19.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	-15.7%	-18.6%	0.7%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	--	-2.8%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
United States	-21.0%	-13.8%	3.4%	0.0%	0.0%	-0.1%	0.0%	-0.2%	-0.3%

Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	-8.7%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	-14.7%	0.0%	0.4%	--	0.0%	0.0%	--	0.0%
Qatar*	--	8.5%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
South Africa*	-1.9%	-3.5%	3.7%	1.5%	0.0%	0.2%	0.0%	0.0%	0.2%
Turkey*	--	4.9%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
United Arab Emirates*	--	-6.0%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Totals									
Americas	-19.0%	-10.2%	7.7%	9.4%	-1.1%	-0.1%	0.3%	0.2%	-0.7%
Europe	-18.3%	-12.5%	40.9%	45.1%	-2.8%	0.0%	0.2%	0.3%	-2.4%
Asia/Pacific	-13.4%	-11.0%	46.4%	43.0%	-1.0%	0.0%	0.1%	-0.1%	-1.1%
Other	-1.9%	-3.7%	3.7%	2.5%	0.1%	0.1%	0.0%	0.0%	0.2%
Cash	0.5%	--	1.3%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%
Total	-15.2%	-11.4%	100.0%	100.0%	-4.8%	0.1%	0.5%	0.4%	-3.8%
Totals									
Developed	-16.8%	-12.7%	74.1%	75.4%	-3.6%	0.0%	0.4%	0.1%	-3.1%
Emerging*	-11.0%	-7.5%	24.5%	24.6%	-0.9%	0.0%	0.1%	0.0%	-0.9%
Cash	0.5%	--	1.3%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%

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	-8.7	-9.1	-11.0	6.5	8.2	3.1	9.2	10.8
25th Percentile	-11.0	-10.4	-14.7	3.6	5.7	1.6	6.9	8.4
Median	-12.9	-12.1	-15.9	1.8	2.7	0.6	5.2	7.2
75th Percentile	-13.6	-14.4	-18.6	-0.3	1.1	-1.1	4.4	5.2
95th Percentile	-16.4	-17.8	-22.8	-4.9	-0.7	-2.9	3.1	4.1
# of Portfolios	34	34	34	34	31	28	21	15
● Mondrian	-8.9 (6)	-7.6 (1)	-12.0 (8)	4.0 (19)	4.2 (43)	1.1 (37)	4.5 (73)	5.8 (57)
▲ MSCI ACWI ex USA Value Gross	-10.6 (16)	-9.0 (5)	-13.4 (12)	3.3 (32)	5.4 (30)	0.2 (60)	4.6 (71)	6.6 (54)
✕ MSCI ACWI ex USA Gross	-11.4 (34)	-10.7 (34)	-13.8 (15)	5.0 (9)	5.0 (36)	1.1 (35)	5.3 (49)	7.1 (51)

Characteristics

	Portfolio	MSCI ACWI ex USA Value Gross
Number of Holdings	134	1,277
Weighted Avg. Market Cap. (\$B)	47.4	47.7
Median Market Cap. (\$B)	17.7	6.4
Price To Earnings	11.3	11.8
Price To Book	1.6	1.4
Price To Sales	1.7	1.7
Return on Equity (%)	12.3	12.0
Yield (%)	4.5	4.7
Beta (holdings: global)	0.9	0.9

Top Holdings

ENEL	2.8%
IBERDROLA	2.5%
TELIA COMPANY	2.5%
UNITED OVERSEAS BANK	2.4%
ENI	2.3%
SANOFI	2.2%
LLOYDS BANKING GROUP	2.2%
GLAXOSMITHKLINE	2.2%
CK HUTCHISON HOLDINGS	2.2%
HONDA MOTOR	2.1%

Best Performers

	Return %
CMPH.COCS. RODOVIARIAS ON (BR:CCR)	41.7%
ITAU UNIBANCO BANCO HLDG.ADR 1:1 (ITUB)	25.0%
ITAUSA INVESTIMENTOS ITAU PN (BR:IS4)	23.5%
BANK RAKYAT INDONESIA (ID:BRI)	20.4%
TURKIYE HALK BANKASI (TK:HLB)	18.5%
LARSEN & TOUBRO (IN:LST)	17.3%
TKI.GARANTI BKSI. (TK:GAR)	16.6%
HOUSING DEVELOPMENT FINANCE CORPORATION (IN:HDF)	16.5%
EMBRAER SPNS ADR 1:4 (ERJ)	13.0%
COCA-COLA BOTTLERS JAPAN HOLDINGS (J:KITK)	12.7%

Worst Performers

	Return %
BRILLIANCE CHINA AUTOMOTIVE HOLDINGS (K:CBA)	-53.5%
GENTING MALAYSIA (L:RESO)	-39.4%
WOOD GROUP (JOHN) (UKIR:WG.)	-35.9%
CHINA MED.SY.HDG.(DI) (K:CHM)	-33.1%
GPO FINANCE BANORTE (MX:GTB)	-32.8%
TONGDA GROUP HOLDINGS (K:TGDA)	-32.2%
EVONIK INDUSTRIES (D:EVK)	-29.9%
TINGYI CYMN.ISLE.HLDG. (K:CAYM)	-27.3%
SOCIETE GENERALE (F:SGE)	-25.9%
WPP (UKIR:WPP)	-25.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.5%	0.1%	0.1%	-18.4%	-14.9%	10.1%	12.5%			
Materials	0.1%	-0.1%	0.1%	0.2%	-12.6%	-13.0%	4.0%	7.8%			
Industrials	-0.3%	-0.1%	-0.1%	-0.1%	-13.0%	-10.6%	12.7%	7.7%			
Consumer Discretionary	-0.4%	-0.2%	-0.1%	-0.1%	-15.1%	-12.1%	11.5%	7.1%			
Consumer Staples	0.2%	0.2%	0.0%	0.0%	-7.9%	-13.1%	4.3%	4.0%			
Health Care	0.2%	0.1%	0.1%	0.1%	-7.2%	-9.0%	10.2%	6.8%			
Financials	1.1%	1.2%	0.1%	-0.2%	-6.8%	-11.5%	19.5%	34.3%			
Information Technology	-0.2%	-0.1%	-0.1%	0.0%	-15.2%	-12.6%	6.1%	4.4%			
Communication Services	0.3%	0.2%	0.1%	0.0%	-2.1%	-4.5%	8.8%	6.3%			
Utilities	0.6%	0.3%	0.2%	0.0%	5.3%	0.5%	7.0%	4.9%			
Real Estate	-0.1%	0.1%	-0.1%	-0.1%	-3.6%	-3.7%	2.3%	4.2%			
Cash	0.2%	0.0%	0.2%	0.0%	0.5%	--	1.8%	0.0%			
Unclassified	0.3%	0.0%	0.0%	0.3%	6.8%	-10.6%	1.7%	0.0%			
Portfolio	1.8%	=	1.1%	+	0.5%	+	0.2%	-8.8%	-10.6%	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	--	-25.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Belgium	--	-11.8%	0.0%	0.4%	--	0.0%	0.0%	--	0.0%
Czech Republic*	--	-8.3%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Denmark	-20.8%	-16.3%	1.6%	0.3%	0.0%	-0.1%	0.0%	-0.1%	-0.2%
Finland	--	-10.0%	0.0%	0.8%	--	0.0%	0.0%	--	0.0%
France	-11.9%	-15.2%	5.0%	7.0%	0.2%	0.1%	0.0%	-0.1%	0.3%
Germany	-11.6%	-12.3%	7.0%	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	--	-17.0%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Hungary*	--	2.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Ireland	--	-24.1%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Italy	-2.3%	-7.5%	4.9%	2.1%	0.1%	0.1%	0.0%	0.1%	0.3%
Netherlands	-1.6%	-17.8%	3.2%	1.2%	0.2%	-0.1%	0.0%	0.3%	0.4%
Norway	--	-21.7%	0.0%	0.6%	--	0.0%	0.0%	--	0.1%
Poland*	--	3.0%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Portugal	--	-9.5%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Russia*	-4.0%	-9.3%	1.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.1%
Spain	3.6%	-6.6%	4.8%	2.9%	0.3%	0.1%	0.0%	0.2%	0.5%
Sweden	6.1%	-12.8%	2.2%	1.4%	0.3%	0.0%	0.0%	0.1%	0.4%
Switzerland	-9.6%	-6.6%	4.9%	4.9%	-0.1%	0.0%	0.0%	0.0%	-0.1%
United Kingdom	-16.8%	-12.4%	18.1%	15.8%	-0.7%	0.0%	0.0%	-0.1%	-0.9%

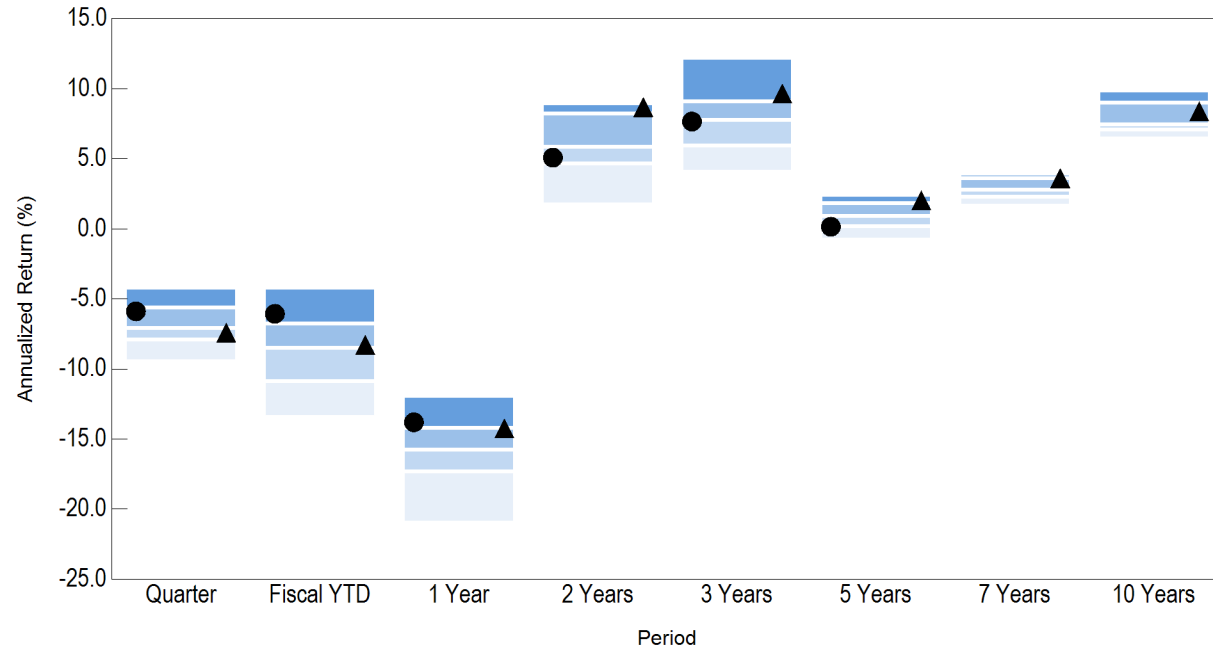
Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

	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	-11.6%	-7.6%	1.0%	4.5%	-0.2%	-0.2%	0.1%	0.1%	-0.1%
China*	-9.5%	-8.3%	3.3%	8.1%	-0.1%	-0.1%	0.0%	0.1%	-0.1%
Hong Kong	-11.0%	-5.7%	5.4%	2.5%	-0.1%	0.1%	0.0%	-0.2%	-0.2%
India*	2.9%	-1.8%	3.2%	2.3%	0.1%	0.0%	0.0%	0.0%	0.2%
Indonesia*	20.4%	11.9%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	-12.0%	-12.8%	14.3%	16.7%	0.1%	0.1%	-0.1%	0.0%	0.2%
Korea*	-9.5%	-12.8%	3.9%	3.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Malaysia*	-17.3%	-6.3%	0.9%	0.6%	-0.1%	0.0%	0.0%	0.0%	-0.1%
New Zealand	--	-3.4%	0.0%	0.2%	--	0.0%	0.0%	--	0.0%
Pakistan*	--	-22.3%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Philippines*	-14.4%	7.4%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	-7.3%	-6.2%	4.2%	0.9%	0.0%	0.1%	0.0%	0.0%	0.1%
Taiwan*	-14.5%	-13.2%	2.4%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Thailand*	-13.5%	-12.2%	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Brazil*	7.4%	15.6%	2.8%	1.6%	-0.1%	0.3%	0.0%	-0.1%	0.1%
Canada	0.0%	-15.0%	1.0%	6.7%	1.1%	0.0%	0.3%	-0.9%	0.4%
Chile*	--	-10.2%	0.0%	0.3%	--	0.0%	0.0%	--	0.0%
Colombia*	--	-12.7%	0.0%	0.1%	--	0.0%	0.0%	--	0.0%
Mexico*	-13.7%	-20.6%	0.5%	0.8%	0.1%	0.0%	0.0%	0.0%	0.1%
Peru*	-0.6%	4.6%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

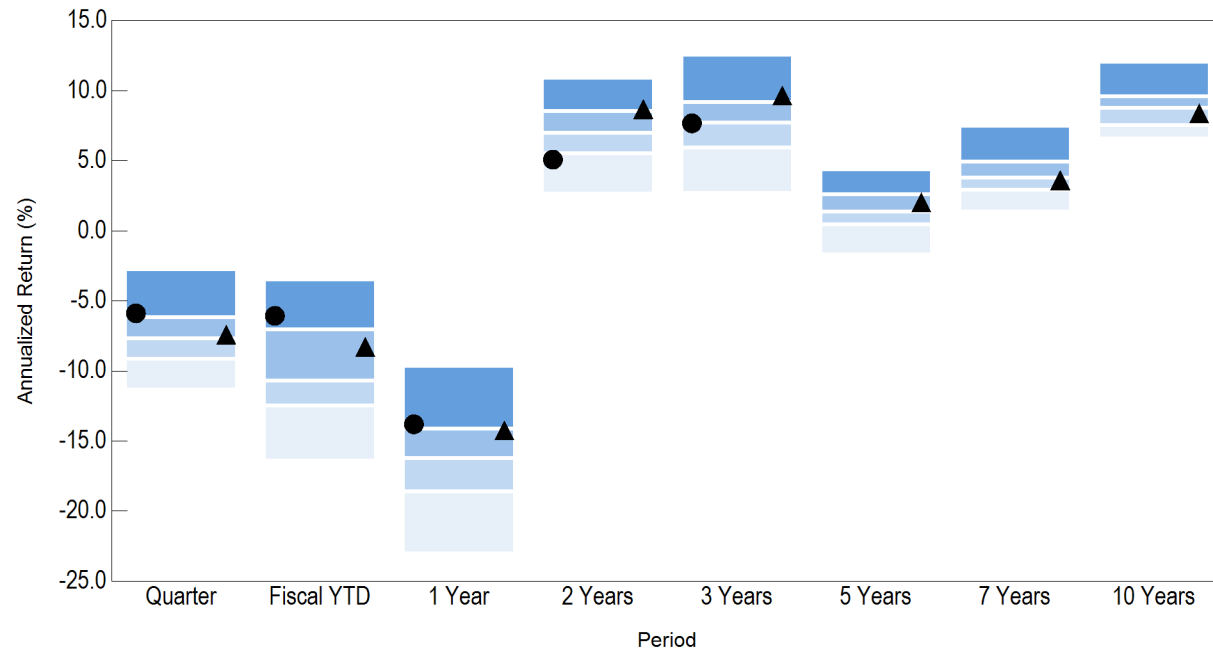
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	--	-9.2%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%
Israel	--	-19.7%	0.0%	0.4%	--	0.0%	0.0%	--	0.0%
Qatar*	5.2%	7.5%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Romania**	-11.3%	-10.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-23.6%	-3.9%	0.2%	1.6%	-0.3%	-0.1%	0.0%	0.3%	-0.1%
Turkey*	17.6%	10.8%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
United Arab Emirates*	-0.7%	-7.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	3.1%	-10.0%	4.6%	9.5%	1.0%	-0.2%	0.3%	-0.5%	0.6%
Europe	-9.8%	-11.7%	52.7%	44.2%	0.8%	0.0%	-0.1%	0.2%	0.9%
Asia/Pacific	-9.7%	-9.8%	39.7%	43.7%	-0.1%	0.0%	0.1%	0.0%	0.0%
Other	1.6%	-4.8%	1.2%	2.5%	0.1%	-0.1%	0.1%	0.0%	0.0%
Cash	0.5%	--	1.8%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%
Total	-8.8%	-10.6%	100.0%	100.0%	1.8%	0.0%	0.4%	-0.4%	1.7%
Totals									
Developed	-10.1%	-11.9%	77.4%	74.6%	1.1%	0.0%	0.2%	0.0%	1.3%
Emerging*	-4.9%	-6.8%	20.7%	25.4%	0.3%	-0.2%	0.2%	0.0%	0.2%
Frontier**	-11.3%	--	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.5%	--	1.8%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%

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	-4.2	-4.2	-12.0	8.9	12.2	2.4	3.9	9.9
25th Percentile	-5.6	-6.7	-14.2	8.3	9.1	1.8	3.7	9.1
Median	-7.0	-8.5	-15.7	5.9	7.8	1.0	2.8	7.5
75th Percentile	-7.9	-10.8	-17.3	4.7	6.0	0.2	2.3	7.1
95th Percentile	-9.4	-13.4	-20.9	1.8	4.1	-0.7	1.7	6.5
# of Portfolios	76	76	76	73	72	61	46	15
● Emerging Markets	-5.9 (29)	-6.1 (17)	-13.8 (22)	5.1 (67)	7.7 (55)	0.1 (77)	-- (--)	-- (--)
▲ MSCI Emerging Markets Gross	-7.4 (66)	-8.3 (44)	-14.2 (28)	8.7 (7)	9.7 (17)	2.0 (13)	3.6 (27)	8.4 (32)

eV Emg Mkts Equity Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-2.7	-3.5	-9.7	10.9	12.6	4.4	7.5	12.0
25th Percentile	-6.1	-7.0	-14.1	8.6	9.2	2.6	5.0	9.6
Median	-7.7	-10.7	-16.2	7.0	7.8	1.4	3.8	8.8
75th Percentile	-9.1	-12.5	-18.6	5.6	6.0	0.5	3.0	7.6
95th Percentile	-11.3	-16.4	-23.0	2.7	2.7	-1.7	1.4	6.6
# of Portfolios	197	196	194	186	179	150	113	69
● Parametric Core	-5.9 (22)	-6.1 (19)	-13.8 (24)	5.1 (82)	7.7 (51)	-- (--)	-- (--)	-- (--)
▲ MSCI Emerging Markets Gross	-7.4 (44)	-8.3 (30)	-14.2 (27)	8.7 (24)	9.7 (21)	2.0 (34)	3.6 (58)	8.4 (54)

Characteristics

	Portfolio	MSCI Emerging Markets Gross
Number of Holdings	1,161	1,125
Weighted Avg. Market Cap. (\$B)	19.5	70.0
Median Market Cap. (\$B)	3.2	4.9
Price To Earnings	18.1	16.6
Price To Book	2.7	2.9
Price To Sales	2.9	2.6
Return on Equity (%)	17.1	17.5
Yield (%)	3.5	2.9
Beta (holdings; global)	0.8	1.0

Top Holdings

CREDICORP	0.9%
SBERBANK OF RUSSIA	0.8%
LUKOIL OAO SPN.ADR 1:1	0.7%
NASPERS	0.7%
AMERICA MOVIL SAB DE CV SPN.ADR 'L' 1:20	0.7%
PJSC GAZPROM ADR (OTC) CDI 1:2	0.6%
MTN GROUP	0.6%
GPO FINANCE BANORTE	0.6%
SAMSUNG ELECTRONICS	0.5%
FOM.ECO.MEXNO.SAB DE CV SPN.ADR 1:10	0.5%

Best Performers

	Return %
ADANI POWER (IN:ANW)	122.3%
LINX ON (BR:LIX)	105.4%
CIA ENERGETICA DE MINAS GERAIS PN (BR:GP4)	101.6%
HERING TEXTIL ON (BR:3HG)	71.3%
BANCO DO BRASIL ON (BR:IO3)	64.7%
NATURA COSMETICOS ON (BR:NAT)	63.4%
CTI.ELETR BRAS- ELETROBRAS SR.B PN (BR:EL6)	55.9%
CYRELA BRAZIL REALTY ON (BR:3CY)	54.4%
MAGAZINE LUIZA ON (BR:MGZ)	52.3%
CIA PARANAENSE DE ENERGIA COPEL PN (BR:CP6)	52.2%

Worst Performers

	Return %
BUMI ARMADA (L:ARMO)	-70.7%
CHINA SHANSHUI CMT.GROUP (K:CSCG)	-66.5%
CT ENVIRONMENTAL GROUP (K:CTEN)	-65.4%
NAVIOS MARITIME HDG. (NM)	-61.3%
VS INDUSTRY (L:VSIN)	-57.6%
BANK OF PIRAEUS (G:PEIR)	-56.0%
NAVIOS MARITIME ACQ. (NNA)	-55.7%
BRILLIANCE CHINA AUTOMOTIVE HOLDINGS (K:CBA)	-53.5%
FULLSHARE HOLDINGS (K:WARD)	-52.2%
KNM GROUP (L:KNMG)	-51.5%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.2%	-0.1%	-0.1%	-0.1%	-11.8%	-10.5%	11.1%	8.1%			
Materials	0.0%	0.1%	-0.1%	0.0%	-10.1%	-10.9%	11.5%	7.9%			
Industrials	0.2%	0.0%	0.2%	0.0%	-2.9%	-3.1%	9.7%	5.5%			
Consumer Discretionary	0.6%	0.7%	0.1%	-0.2%	-5.0%	-11.6%	7.5%	10.5%			
Consumer Staples	0.0%	0.0%	0.1%	0.0%	-5.2%	-4.7%	9.8%	6.5%			
Health Care	0.2%	0.2%	-0.2%	0.2%	-9.2%	-16.0%	5.4%	3.1%			
Financials	-0.9%	-0.4%	-0.5%	0.0%	-3.7%	-1.0%	14.9%	23.1%			
Information Technology	1.0%	0.2%	0.9%	-0.2%	-13.8%	-15.7%	4.6%	15.9%			
Communication Services	0.3%	0.2%	0.0%	0.0%	-5.0%	-7.2%	11.9%	14.0%			
Utilities	0.5%	0.0%	0.5%	0.0%	3.4%	3.6%	6.7%	2.4%			
Real Estate	0.1%	-0.1%	0.3%	-0.1%	-1.5%	1.5%	6.2%	2.9%			
Cash	0.0%	--	--	--	--	--	0.0%	0.0%			
Unclassified	0.1%	0.0%	0.1%	0.0%	1.6%	--	0.6%	0.0%			
Portfolio	1.7%	=	0.9%	+	1.2%	+	-0.4%	-5.8%	-7.5%	100.0%	100.0%

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

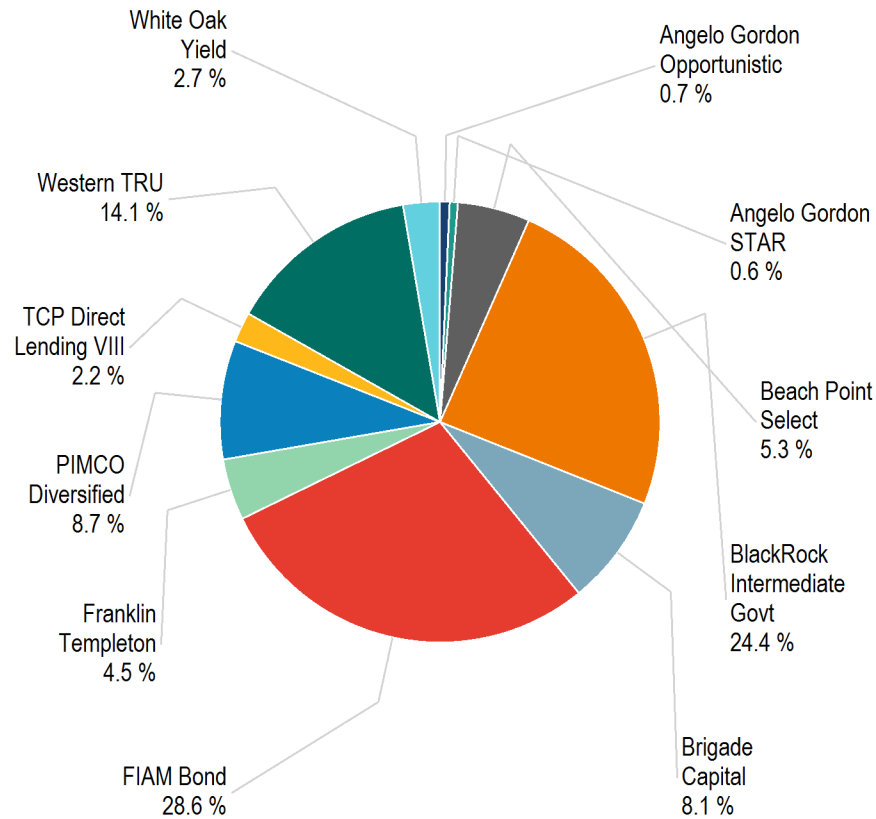
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Czech Republic*	-8.2%	-8.6%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece*	-12.1%	-15.2%	1.5%	0.3%	0.0%	-0.1%	0.0%	0.0%	0.0%
Hungary*	4.7%	5.8%	0.9%	0.3%	0.0%	0.1%	0.0%	0.0%	0.1%
Luxembourg	-12.3%	-7.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	-19.3%	-11.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	-3.3%	-2.7%	3.3%	1.2%	0.0%	0.1%	0.0%	0.0%	0.1%
Russia*	-9.0%	-9.2%	6.2%	3.6%	-0.1%	0.1%	0.0%	0.0%	0.0%
United Kingdom	-5.4%	-11.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AsiaPacific									
China*	-12.1%	-10.6%	6.6%	30.9%	-0.5%	0.7%	0.0%	0.4%	0.6%
Hong Kong	-7.6%	-4.5%	5.7%	0.0%	0.0%	0.2%	0.0%	-0.2%	0.0%
India*	3.4%	2.5%	7.0%	8.6%	0.1%	-0.1%	-0.1%	0.0%	-0.1%
Indonesia*	4.9%	9.9%	3.7%	1.9%	-0.1%	0.2%	0.1%	-0.1%	0.1%
Korea*	-12.1%	-14.2%	7.4%	14.9%	0.3%	0.5%	0.0%	-0.2%	0.7%
Malaysia*	-9.3%	-5.8%	3.6%	2.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Pakistan*	-21.6%	-22.8%	1.8%	0.1%	0.0%	-0.1%	-0.2%	0.0%	-0.2%
Philippines*	3.7%	5.2%	3.5%	1.0%	0.0%	0.3%	0.1%	0.0%	0.3%
Singapore	-5.6%	-6.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	-10.7%	-13.6%	7.4%	12.3%	0.4%	0.3%	0.0%	-0.1%	0.5%
Thailand*	-4.6%	-10.3%	3.4%	2.5%	0.1%	0.0%	0.0%	0.1%	0.2%
Americas									
Brazil*	15.0%	13.6%	6.2%	6.2%	0.1%	0.0%	0.0%	0.0%	0.1%
Chile*	-8.7%	-8.3%	3.6%	1.1%	0.0%	0.1%	-0.1%	0.0%	0.0%
Colombia*	-19.2%	-18.9%	1.8%	0.5%	0.0%	0.0%	-0.1%	0.0%	-0.2%
Mexico*	-18.6%	-18.7%	7.3%	3.2%	0.0%	-0.3%	-0.1%	-0.1%	-0.5%
Peru*	4.8%	-2.9%	1.4%	0.4%	0.0%	0.0%	0.0%	0.1%	0.2%
United States	-24.2%	-13.8%	1.6%	0.0%	0.0%	-0.1%	0.0%	-0.2%	-0.3%

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*	-8.2%	-8.6%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait**	-2.8%	-0.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	5.1%	8.5%	1.9%	0.9%	0.0%	0.2%	0.0%	0.0%	0.1%
South Africa*	-2.8%	-3.5%	6.5%	6.2%	0.0%	0.0%	0.0%	0.0%	0.1%
Turkey*	2.3%	4.7%	3.2%	0.6%	0.0%	0.0%	0.3%	-0.1%	0.2%
United Arab Emirates*	-5.1%	-6.0%	1.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	-6.5%	0.6%	22.0%	11.4%	-0.7%	0.9%	-0.3%	-0.6%	-0.7%
Europe	-6.9%	-7.3%	13.3%	5.6%	-0.1%	0.3%	-0.1%	-0.1%	0.1%
Asia/Pacific	-6.5%	-9.4%	50.2%	74.5%	2.2%	0.5%	-0.1%	-0.7%	1.9%
Other	-1.2%	-1.9%	14.5%	8.5%	-0.1%	0.4%	0.3%	-0.1%	0.4%
Total	-5.8%	-7.5%	100.0%	100.0%	1.3%	2.1%	-0.1%	-1.5%	1.7%
Totals									
Developed	-11.0%	--	8.0%	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%
Emerging*	-5.3%	-7.5%	91.6%	100.0%	2.3%	0.0%	-0.1%	-0.2%	2.0%
Frontier**	-2.8%	--	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Fixed Income
 Manager Allocation Analysis

Period Ending: December 31, 2018



	Actual \$	Actual %	Manager Contribution to Excess Return %
Angelo Gordon Opportunistic	\$6,456,000	0.7%	0.0%
Angelo Gordon STAR	\$5,795,000	0.6%	0.0%
Beach Point Select	\$48,825,225	5.3%	-0.1%
BlackRock Intermediate Govt	\$224,623,998	24.4%	0.0%
Brigade Capital	\$74,678,157	8.1%	-0.3%
FIAM Bond	\$263,327,350	28.6%	-0.2%
Franklin Templeton	\$41,040,245	4.5%	0.0%
PIMCO Diversified	\$80,085,677	8.7%	0.0%
TCP Direct Lending VIII	\$20,301,532	2.2%	0.0%
Western Asset TRU	\$129,670,356	14.1%	0.0%
White Oak Yield	\$25,012,741	2.7%	0.0%
Actual vs. Policy Weight Difference			0.6%
Total	\$919,816,282	100.0%	0.1%

Statistics Summary

3 Years

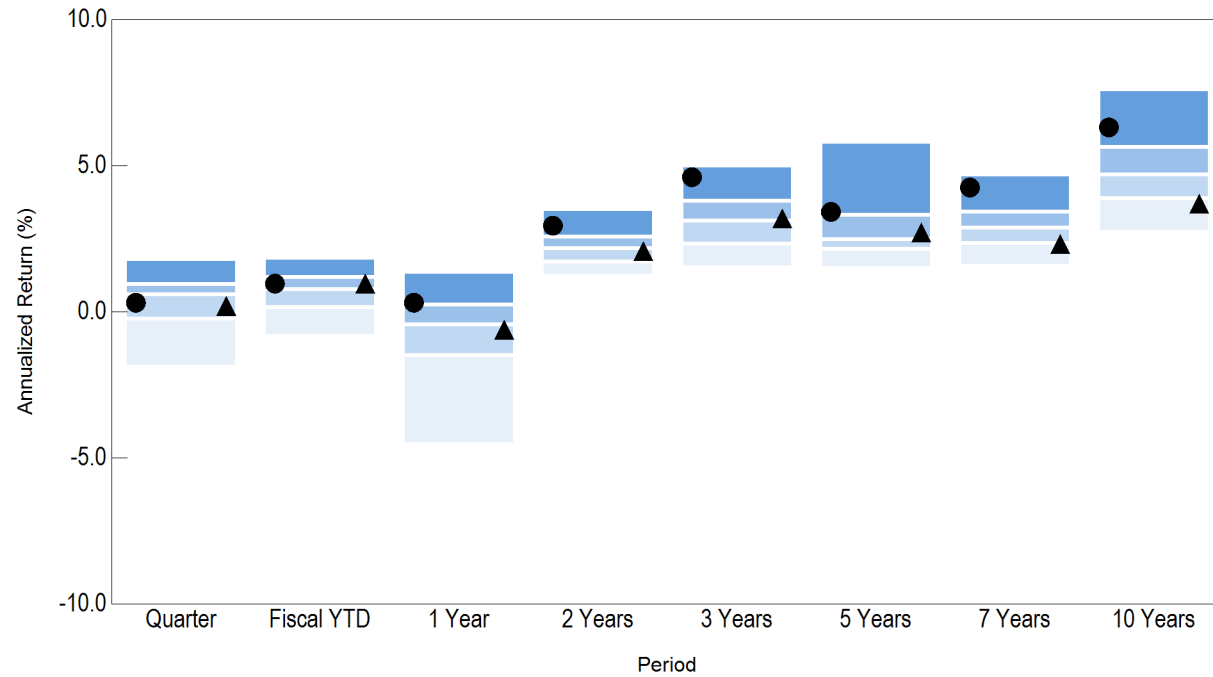
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.6%	2.4%	1.5	0.7	2.0%
Blended Fixed Income Index	3.2%	2.7%	0.8	--	0.0%
Core Fixed	3.0%	2.7%	0.7	0.5	1.7%
BBgBarc US Aggregate TR	2.1%	2.9%	0.4	--	0.0%
FIAM Bond	2.8%	2.9%	0.6	0.9	0.8%
BBgBarc US Aggregate TR	2.1%	2.9%	0.4	--	0.0%
Western TRU	3.6%	4.2%	0.6	0.5	4.3%
3-Month Libor Total Return USD	1.5%	0.2%	2.1	--	0.0%
Opportunistic Credit	8.2%	3.3%	2.2	1.3	2.4%
BBgBarc BA Intermediate HY	5.2%	3.3%	1.3	--	0.0%
Angelo Gordon Opportunistic	15.2%	8.9%	1.6	1.4	9.4%
BBgBarc US Aggregate TR	2.1%	2.9%	0.4	--	0.0%
Angelo Gordon STAR	15.4%	7.7%	1.9	1.6	8.3%
BBgBarc US Aggregate TR	2.1%	2.9%	0.4	--	0.0%
Beach Point Select	8.3%	3.8%	1.9	1.3	2.4%
BBgBarc BA Intermediate HY	5.2%	3.3%	1.3	--	0.0%
Brigade Capital	9.4%	6.0%	1.4	1.1	3.7%
BBgBarc BA Intermediate HY	5.2%	3.3%	1.3	--	0.0%
Franklin Templeton	3.9%	6.6%	0.4	0.1	8.5%
BBgBarc Multiverse TR	3.0%	4.9%	0.4	--	0.0%

Statistics Summary

5 Years

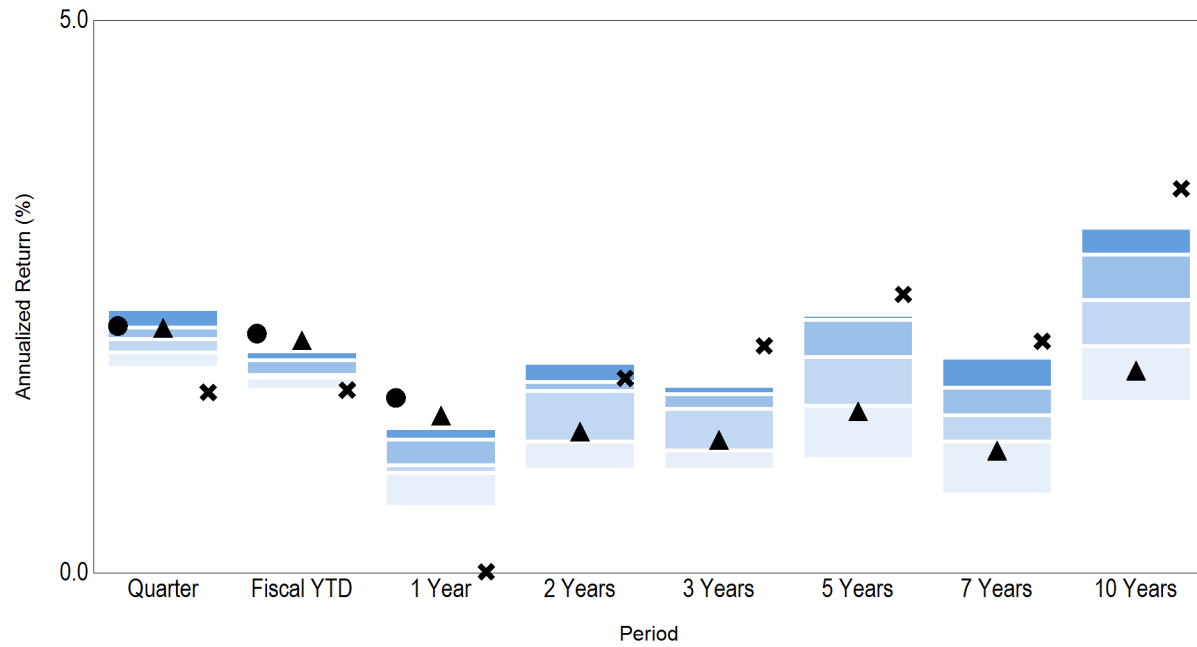
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	3.4%	2.5%	1.1	0.4	1.8%
Blended Fixed Income Index	2.7%	2.7%	0.8	--	0.0%
Core Fixed	3.1%	2.7%	0.9	0.4	1.4%
BBgBarc US Aggregate TR	2.5%	2.8%	0.7	--	0.0%
FIAM Bond	2.9%	2.9%	0.8	0.6	0.8%
BBgBarc US Aggregate TR	2.5%	2.8%	0.7	--	0.0%
Opportunistic Credit	5.6%	3.5%	1.4	0.5	3.3%
BBgBarc BA Intermediate HY	3.9%	4.1%	0.8	--	0.0%
Angelo Gordon STAR	13.1%	6.9%	1.8	1.4	7.7%
BBgBarc US Aggregate TR	2.5%	2.8%	0.7	--	0.0%
Brigade Capital	3.2%	6.2%	0.4	-0.2	4.0%
BBgBarc BA Intermediate HY	3.9%	4.1%	0.8	--	0.0%
Franklin Templeton	1.5%	6.4%	0.1	0.0	7.7%
BBgBarc Multiverse TR	1.2%	4.4%	0.1	--	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	1.8	1.8	1.4	3.5	5.0	5.8	4.7	7.6
25th Percentile	1.0	1.2	0.3	2.6	3.8	3.3	3.4	5.6
Median	0.6	0.8	-0.4	2.2	3.1	2.5	2.9	4.7
75th Percentile	-0.2	0.2	-1.5	1.7	2.4	2.2	2.4	3.9
95th Percentile	-1.9	-0.8	-4.5	1.3	1.5	1.5	1.6	2.7
# of Portfolios	309	306	305	294	286	268	241	189
● Fixed Income	0.3 (62)	1.0 (43)	0.3 (25)	2.9 (14)	4.6 (9)	3.4 (22)	4.2 (12)	6.3 (15)
▲ Blended Fixed Income Index	0.2 (64)	1.0 (43)	-0.6 (55)	2.1 (57)	3.2 (49)	2.7 (40)	2.3 (76)	3.7 (81)

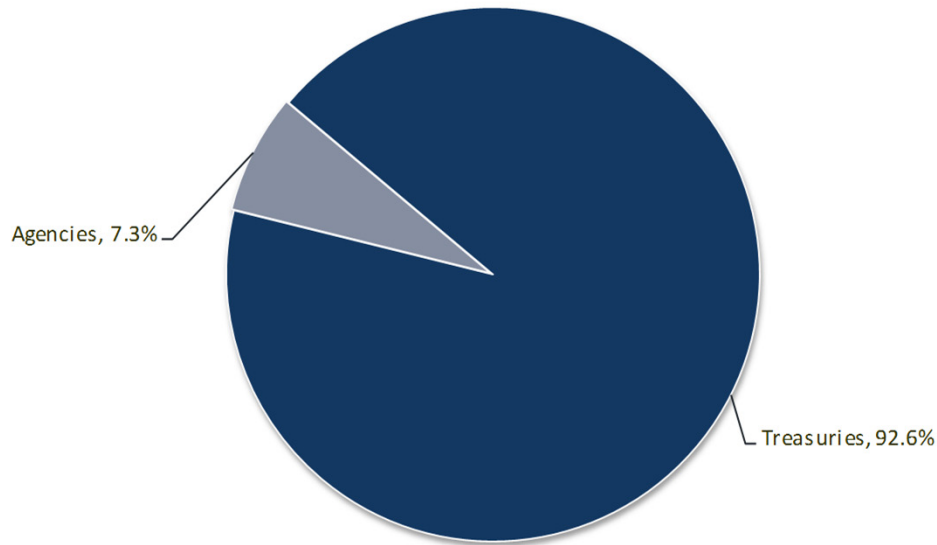
eV US Government Fixed Inc Net Return Comparison



	Return (Rank)															
	Quarter		Fiscal YTD		1 Year		2 Years		3 Years		5 Years		7 Years		10 Years	
5th Percentile	2.4	2.0	1.3	1.9	1.7	2.3	1.9	3.1	2.2	2.2	1.6	--	--	--	--	--
25th Percentile	2.2	1.9	1.2	1.7	1.6	2.3	1.7	2.9	2.2	2.1	1.4	1.3	1.2	1.5	1.1	1.8
Median	2.1	1.8	1.0	1.6	1.5	2.0	1.4	2.5	2.1	1.8	1.0	1.2	1.1	1.5	1.2	2.1
75th Percentile	2.0	1.8	0.9	1.2	1.1	1.5	1.2	2.1	2.0	1.8	0.9	1.0	0.7	1.2	1.1	1.6
95th Percentile	1.9	1.7	0.6	0.9	0.9	1.0	0.7	1.6	1.9	1.7	0.6	0.9	0.7	1.0	0.7	1.6
# of Portfolios	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
● BlackRock Intermediate Govt	2.2 (21)	2.2 (1)	1.6 (1)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	2.2 (21)	2.2 (1)	1.6 (1)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ BBgBarc US Govt Int TR	2.2 (28)	2.1 (1)	1.4 (1)	1.3 (73)	1.2 (73)	1.5 (78)	1.1 (80)	1.8 (85)	2.2 (28)	2.1 (1)	1.4 (1)	1.3 (73)	1.2 (73)	1.5 (78)	1.1 (80)	1.8 (85)
✕ BBgBarc US Aggregate TR	1.6 (99)	1.7 (96)	0.0 (99)	1.8 (18)	2.1 (1)	2.5 (1)	2.1 (1)	3.5 (1)	1.6 (99)	1.7 (96)	0.0 (99)	1.8 (18)	2.1 (1)	2.5 (1)	2.1 (1)	3.5 (1)

BlackRock Intermediate Govt Market Duration Pool
 Bond Sector Allocation

Period Ending: December 31, 2018



Sector	Account Weight	BBgBarc Intermediate	
		Govt Weight	Difference
Treasuries	92.6%	96.6%	-4.0%
Agencies	7.3%	3.4%	3.8%
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	0.1%	0.0%	0.1%
TOTAL	100.0%	100.0%	0.0%

BlackRock Intermediate Govt Market Duration Pool
 Bond Summary Statistics

Period Ending: December 31, 2018

Portfolio Characteristics		Portfolio
Total Number of Securities		284
Total Market Value	\$	224,623,998
Current Coupon		2.28
Yield to Maturity		2.55
Average Life		4.01
Duration		3.72
Quality		AA+

BBgBarc Intermediate Govt	
Current Coupon	2.21
Yield to Maturity	2.54
Average Life	4.05
Duration	3.75
Quality	AA+

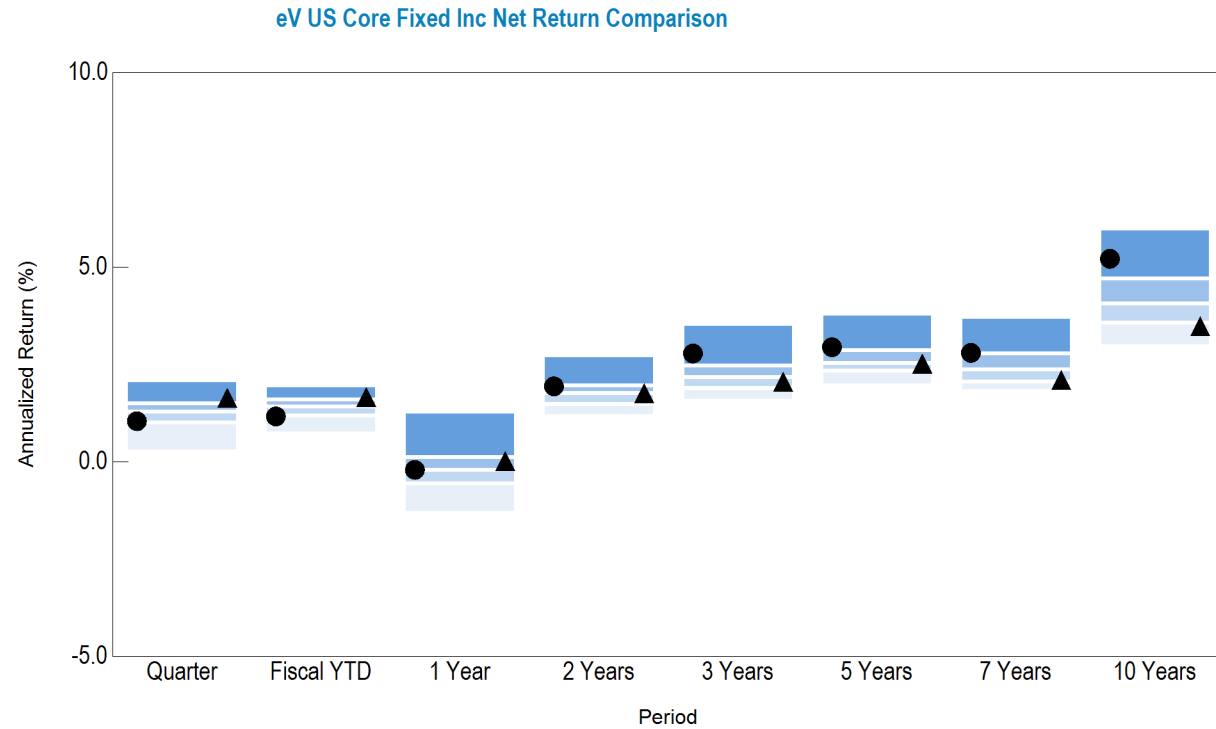
Yield to Maturity	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.0
Unclassified	0.0

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	22.0
2.0 - 4.0	38.7
4.0 - 6.0	21.5
6.0 - 8.0	16.2
8.0+	1.6
Unclassified	0.0

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

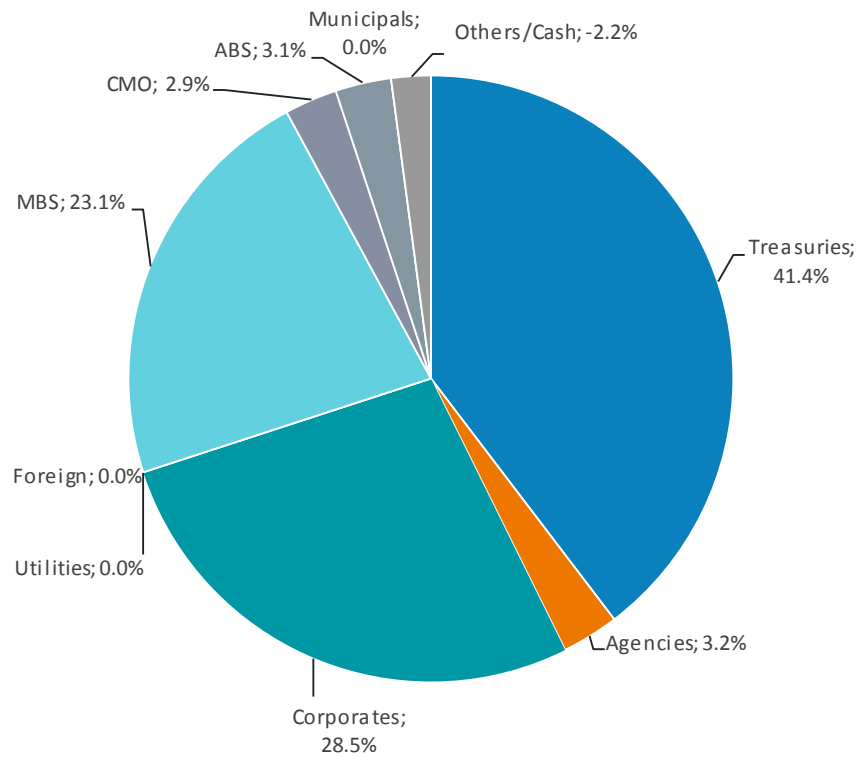
Coupon	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 10.0	0.0
10.0+	0.0
Unclassified	0.0



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	2.1	2.0	1.3	2.7	3.5	3.8	3.7	6.0
25th Percentile	1.5	1.6	0.1	2.0	2.5	2.9	2.8	4.7
Median	1.3	1.4	-0.2	1.8	2.2	2.6	2.4	4.1
75th Percentile	1.0	1.2	-0.5	1.5	1.9	2.3	2.1	3.6
95th Percentile	0.3	0.7	-1.3	1.2	1.6	2.0	1.8	3.0
# of Portfolios	144	144	143	143	140	136	131	119
● FIAM Bond	1.0 (75)	1.2 (77)	-0.2 (52)	1.9 (29)	2.8 (12)	2.9 (20)	2.8 (25)	5.2 (16)
▲ BBgBarc US Aggregate TR	1.6 (16)	1.7 (21)	0.0 (38)	1.8 (52)	2.1 (61)	2.5 (57)	2.1 (73)	3.5 (82)

FIAM Bond Market Duration Pool
Bond Sector Allocation

Period Ending: December 31, 2018



Sector	Account Weight	BBgBarc Aggregate	
		Weight	Difference
Treasuries	41.4%	38.3%	3.1%
Agencies	3.2%	6.2%	-3.0%
Corporates	28.5%	24.9%	3.7%
Utilities	0.0%	0.0%	0.0%
Foreign	0.0%	0.0%	0.0%
MBS	23.1%	28.1%	-5.0%
CMO	2.9%	0.0%	2.9%
ABS	3.1%	2.5%	0.7%
Municipals	0.0%	0.0%	0.0%
Others/Cash	-2.2%	0.0%	-2.2%
TOTAL	100.0%	100.0%	0.0%

FIAM Bond Market Duration Pool
 Bond Summary Statistics

Period Ending: December 31, 2018

Portfolio Characteristics	
	Portfolio
Total Number of Securities	860
Total Market Value	\$ 263,327,350
Current Coupon	3.17
Yield to Maturity	3.45
Average Life	8.58
Duration	5.85
Quality	AA

BBgBarc Aggregate	
Current Coupon	3.23
Yield to Maturity	3.27
Average Life	8.05
Duration	5.82
Quality	AA+

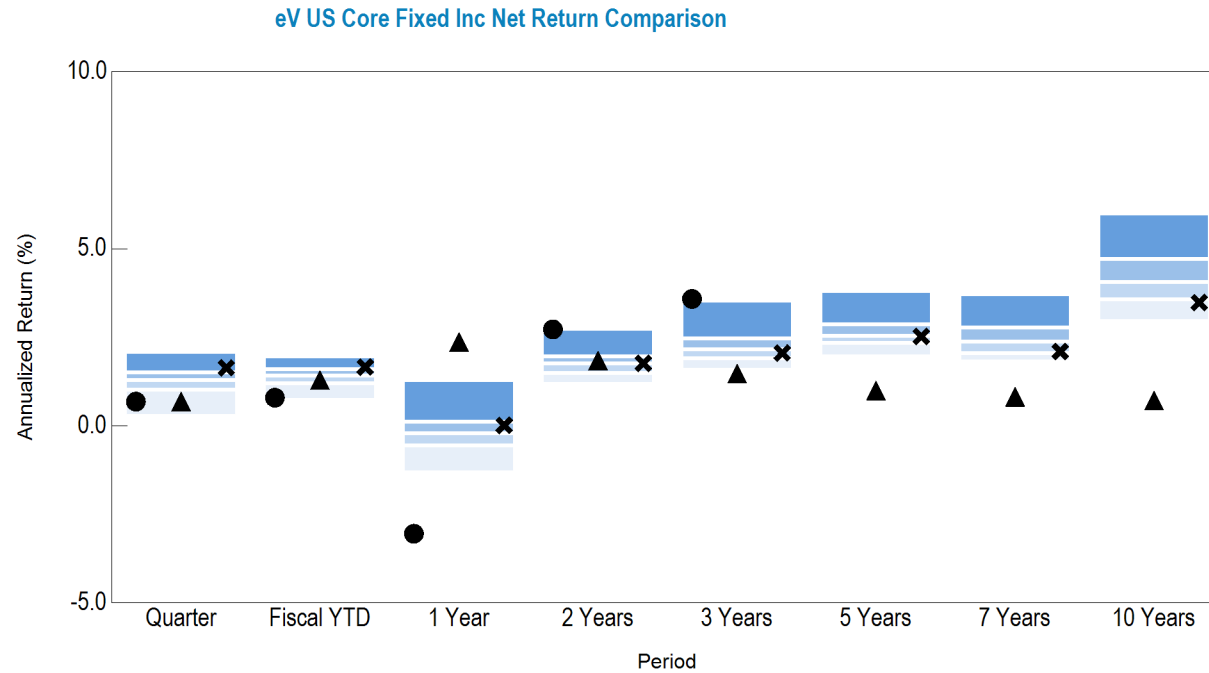
Yield to Maturity	
Range	% Held
0.0 - 5.0	92.5
5.0 - 7.0	8.8
7.0 - 9.0	1.2
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	-2.5
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 1.0	0.7
1.0 - 3.0	11.1
3.0 - 5.0	28.6
5.0 - 10.0	45.7
10.0 - 20.0	3.5
20.0+	10.5
Unclassified	0.0

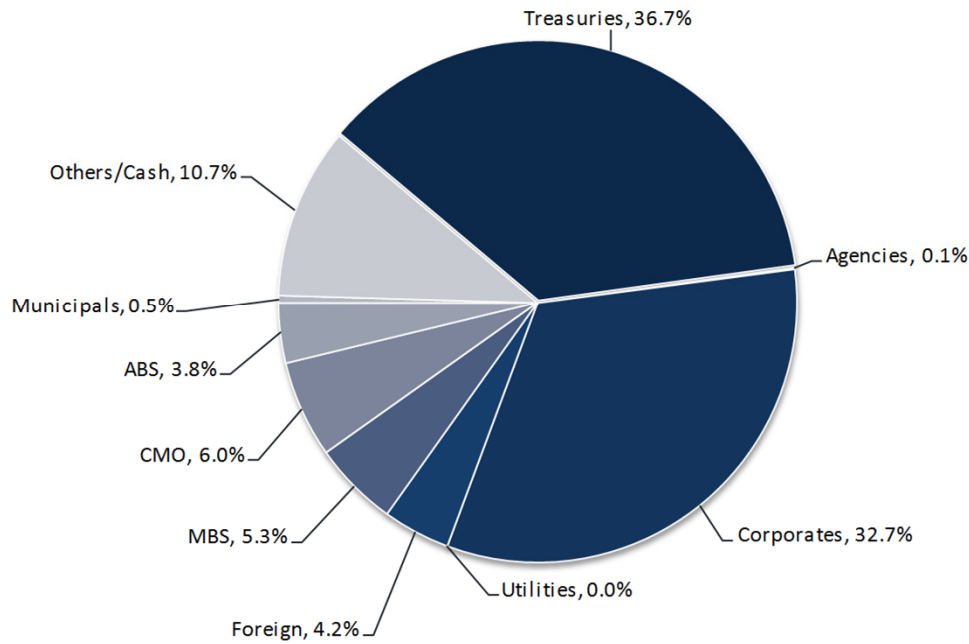
Duration	
Range	% Held
0.0 - 1.0	1.4
1.0 - 3.0	18.6
3.0 - 5.0	34.3
5.0 - 7.0	26.9
7.0 - 10.0	6.2
10.0+	12.7
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	69.1
Aaa (10)	1.3
Aa (9)	1.6
A (8)	12.8
Baa (7)	16.6
Below Baa (6-1)	0.8
Other	-2.2

Coupon	
Range	% Held
0.0 - 5.0	86.2
5.0 - 7.0	7.7
7.0 - 9.0	1.3
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	4.9
Unclassified	0.0



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	2.1	2.0	1.3	2.7	3.5	3.8	3.7	6.0
25th Percentile	1.5	1.6	0.1	2.0	2.5	2.9	2.8	4.7
Median	1.3	1.4	-0.2	1.8	2.2	2.6	2.4	4.1
75th Percentile	1.0	1.2	-0.5	1.5	1.9	2.3	2.1	3.6
95th Percentile	0.3	0.7	-1.3	1.2	1.6	2.0	1.8	3.0
# of Portfolios	144	144	143	143	140	136	131	119
● Western TRU	0.7 (87)	0.8 (94)	-3.1 (99)	2.7 (6)	3.6 (5)	-- (--)	-- (--)	-- (--)
▲ 3-Month Libor Total Return USD	0.7 (87)	1.3 (68)	2.4 (2)	1.8 (36)	1.5 (97)	1.0 (99)	0.8 (99)	0.7 (99)
✕ BBgBarc US Aggregate TR	1.6 (16)	1.7 (21)	0.0 (38)	1.8 (52)	2.1 (61)	2.5 (57)	2.1 (73)	3.5 (82)



Sector	Account Weight	BBgBarc Aggregate	
		Weight	Difference
Treasuries	36.7%	38.3%	-1.6%
Agencies	0.1%	6.2%	-6.1%
Corporates	32.7%	24.9%	7.9%
Utilities	0.0%	0.0%	0.0%
Foreign	4.2%	0.0%	4.2%
MBS	5.3%	28.1%	-22.9%
CMO	6.0%	0.0%	6.0%
ABS	3.8%	2.5%	1.3%
Municipals	0.5%	0.0%	0.5%
Others/Cash	10.7%	0.0%	10.6%
TOTAL	100.0%	100.0%	-0.1%

Portfolio Characteristics		Portfolio
Total Number of Securities		5,139
Total Market Value	\$	129,670,356
Current Coupon		4.22
Yield to Maturity		5.01
Average Life		6.64
Duration		3.30
Quality		A

BBgBarc Aggregate
3.23
3.27
8.05
5.82
AA+

Yield to Maturity	
Range	% Held
0.0 - 5.0	58.1
5.0 - 7.0	26.4
7.0 - 9.0	16.1
9.0 - 11.0	2.4
11.0 - 13.0	0.9
13.0+	3.4
Unclassified	-7.3

Average Life	
Range	% Held
0.0 - 1.0	14.6
1.0 - 3.0	13.2
3.0 - 5.0	18.6
5.0 - 10.0	20.5
10.0 - 20.0	14.5
20.0+	18.7
Unclassified	0.0

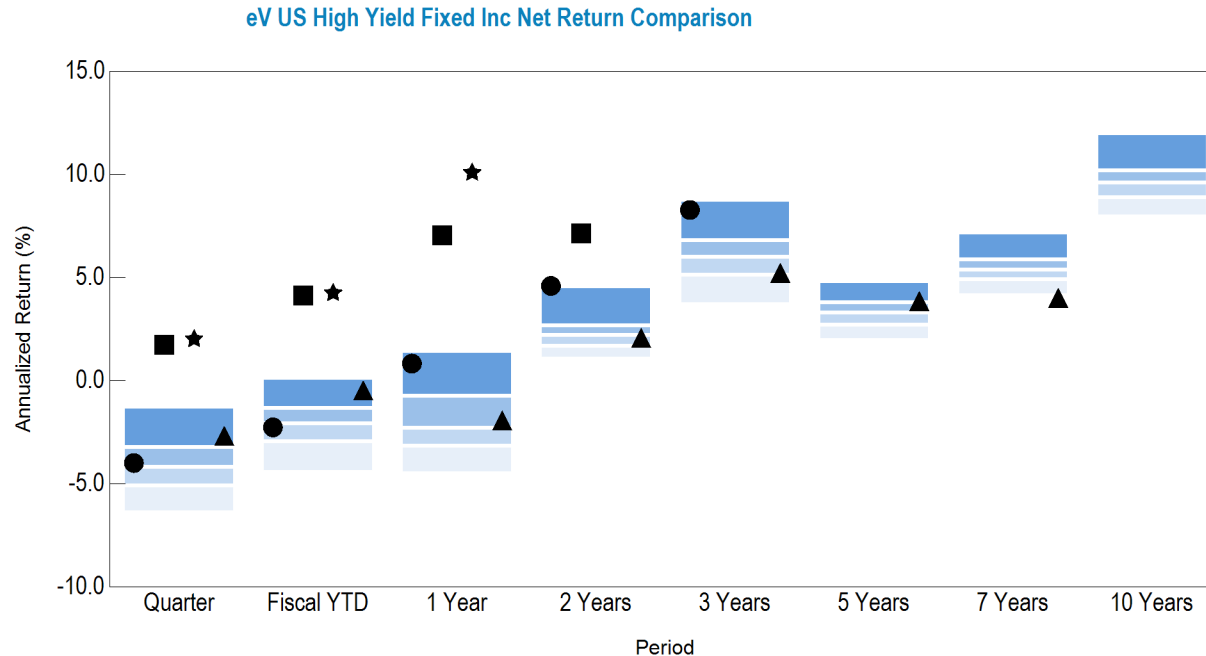
Duration	
Range	% Held
< 1.0	25.4
1.0 - 3.0	15.2
3.0 - 5.0	16.9
5.0 - 7.0	20.2
7.0 - 10.0	8.2
10.0+	14.1
Unclassified	0.0

*Unclassified includes negative YTM

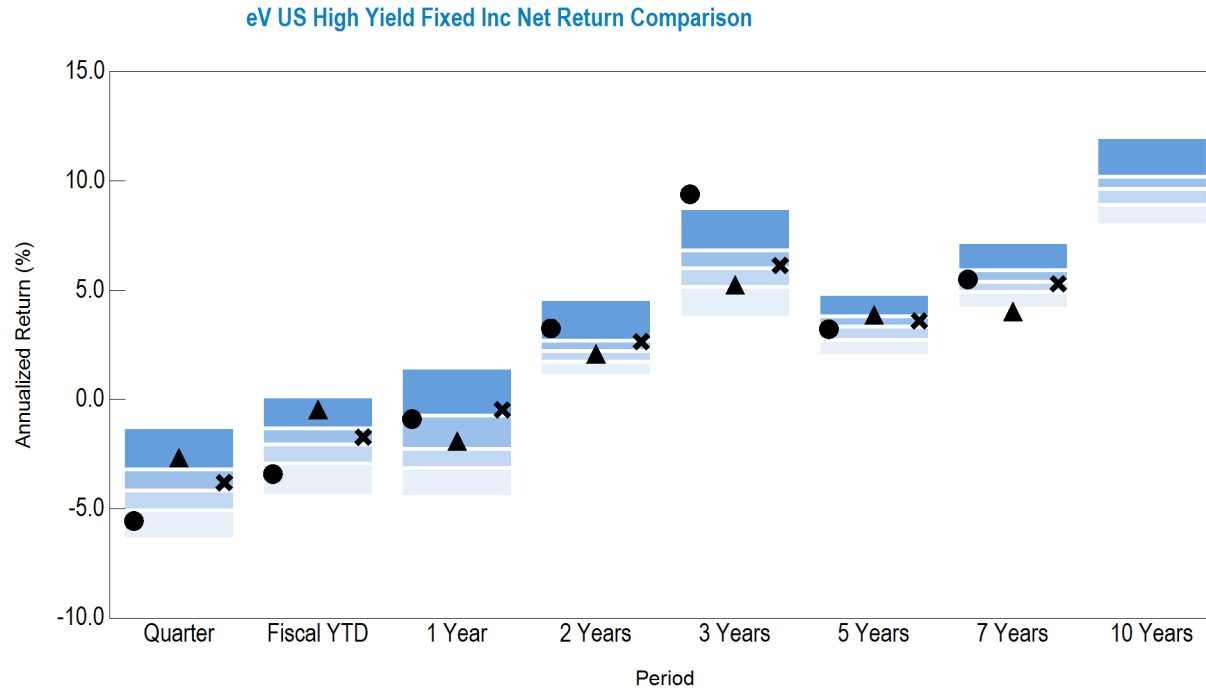
Quality	
Range	% Held
Govt* (10)	17.3
Aaa (10)	16.0
Aa (9)	2.0
A (8)	19.2
Baa (7)	24.8
Below Baa (6-1)	20.7
Other	0.0

Coupon	
Range	% Held
0.0 - 5.0	60.1
5.0 - 7.0	24.4
7.0 - 9.0	11.5
9.0 - 10.0	1.0
10.0+	3.0
Unclassified	0.0

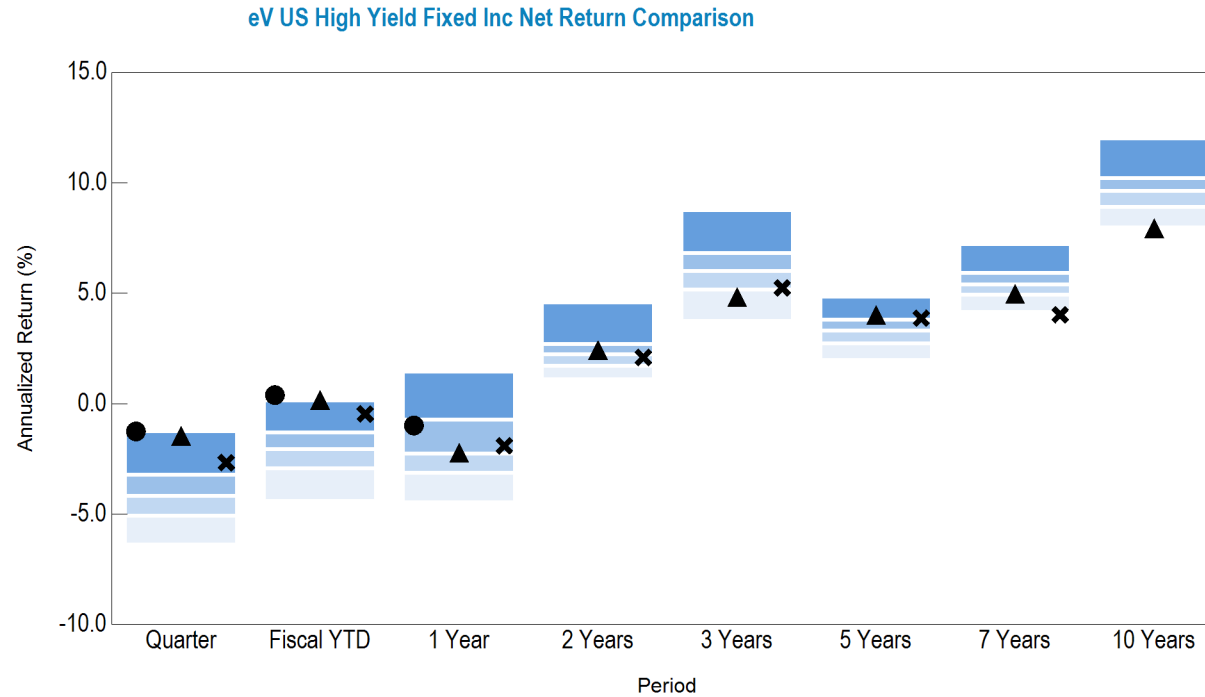
*Govt is specifically U.S Govt securities



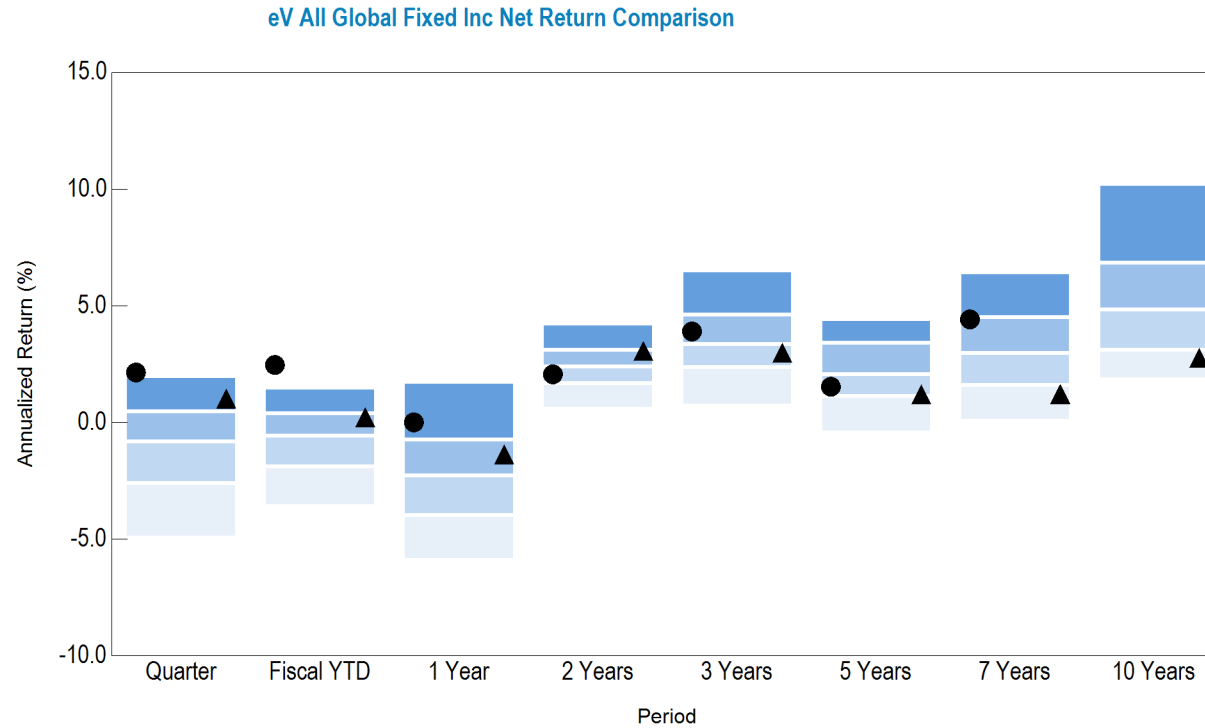
	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-1.3	0.1	1.4	4.6	8.8	4.8	7.2	12.0
25th Percentile	-3.2	-1.3	-0.7	2.7	6.8	3.8	5.9	10.2
Median	-4.1	-2.1	-2.2	2.2	6.0	3.3	5.4	9.6
75th Percentile	-5.0	-2.9	-3.1	1.7	5.2	2.7	4.9	8.9
95th Percentile	-6.4	-4.4	-4.5	1.1	3.8	2.0	4.2	8.0
# of Portfolios	132	132	131	128	122	104	89	67
● Beach Point Select	-4.0 (41)	-2.3 (57)	0.8 (14)	4.6 (5)	8.3 (7)	-- (--)	-- (--)	-- (--)
■ TCP Direct Lending VIII	1.8 (1)	4.2 (1)	7.1 (1)	7.2 (1)	-- (--)	-- (--)	-- (--)	-- (--)
★ White Oak Yield	2.0 (1)	4.3 (1)	10.1 (1)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ BBgBarc BA Intermediate HY	-2.7 (18)	-0.5 (10)	-1.9 (43)	2.1 (63)	5.2 (74)	3.9 (24)	4.0 (96)	-- (--)



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-1.3	0.1	1.4	4.6	8.8	4.8	7.2	12.0
25th Percentile	-3.2	-1.3	-0.7	2.7	6.8	3.8	5.9	10.2
Median	-4.1	-2.1	-2.2	2.2	6.0	3.3	5.4	9.6
75th Percentile	-5.0	-2.9	-3.1	1.7	5.2	2.7	4.9	8.9
95th Percentile	-6.4	-4.4	-4.5	1.1	3.8	2.0	4.2	8.0
# of Portfolios	132	132	131	128	122	104	89	67
● Brigade Capital	-5.6 (88)	-3.4 (86)	-0.9 (28)	3.2 (14)	9.4 (3)	3.2 (57)	5.5 (45)	-- (--)
▲ BBgBarc BA Intermediate HY	-2.7 (18)	-0.5 (10)	-1.9 (43)	2.1 (63)	5.2 (74)	3.9 (24)	4.0 (96)	-- (--)
✕ 50% Barclays HY/ 50% Bank Loan	-3.8 (37)	-1.7 (33)	-0.5 (21)	2.6 (27)	6.1 (43)	3.6 (38)	5.3 (56)	-- (--)



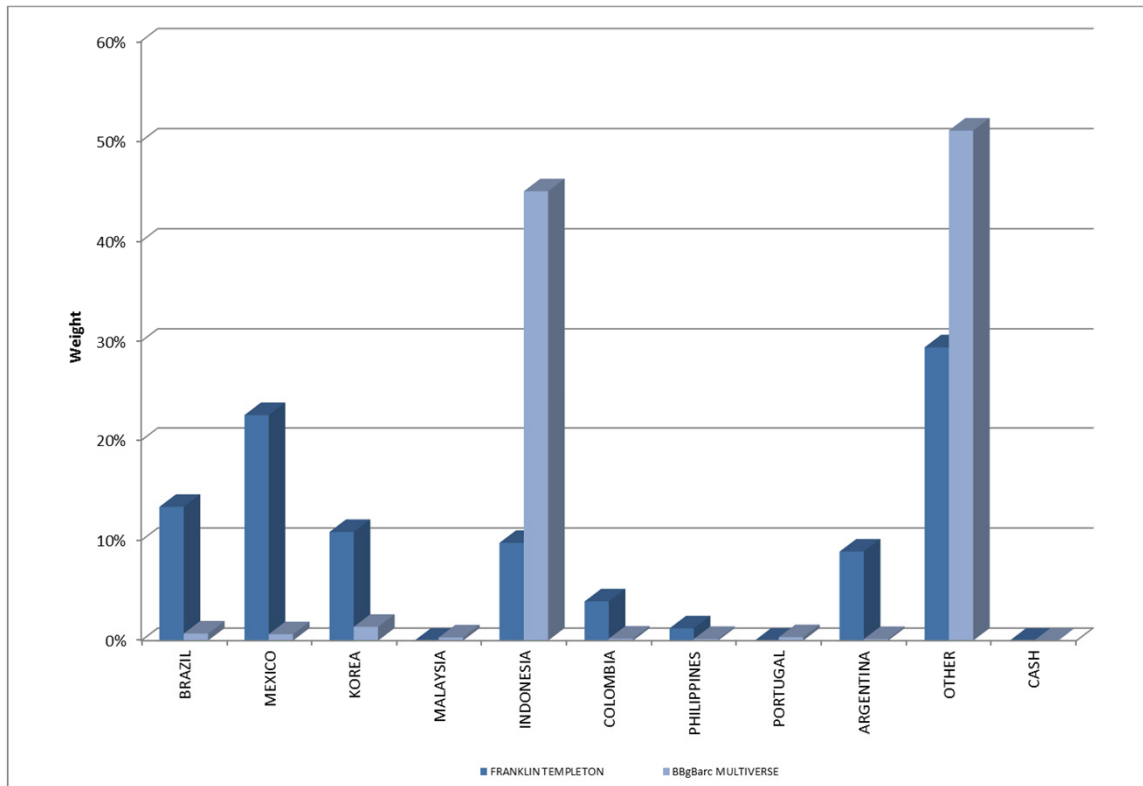
	Return (Rank)															
5th Percentile	-1.3	0.1	1.4	4.6	8.8	4.8	7.2	12.0								
25th Percentile	-3.2	-1.3	-0.7	2.7	6.8	3.8	5.9	10.2								
Median	-4.1	-2.1	-2.2	2.2	6.0	3.3	5.4	9.6								
75th Percentile	-5.0	-2.9	-3.1	1.7	5.2	2.7	4.9	8.9								
95th Percentile	-6.4	-4.4	-4.5	1.1	3.8	2.0	4.2	8.0								
# of Portfolios	132	132	131	128	122	104	89	67								
● PIMCO Diversified	-1.3	(5)	0.4	(1)	-1.0	(28)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ Blended PIMCO Diversified Index	-1.5	(7)	0.2	(5)	-2.2	(50)	2.4	(39)	4.8	(81)	4.0	(19)	5.0	(73)	7.9	(96)
✕ BBgBarc BA Intermediate HY	-2.7	(18)	-0.5	(10)	-1.9	(43)	2.1	(63)	5.2	(74)	3.9	(24)	4.0	(96)	--	(--)



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	2.0	1.5	1.7	4.2	6.5	4.4	6.4	10.2
25th Percentile	0.5	0.4	-0.7	3.1	4.6	3.4	4.5	6.9
Median	-0.8	-0.5	-2.2	2.4	3.4	2.1	3.0	4.9
75th Percentile	-2.6	-1.9	-4.0	1.7	2.4	1.1	1.6	3.1
95th Percentile	-4.9	-3.6	-5.9	0.6	0.8	-0.4	0.1	1.9
# of Portfolios	219	216	213	208	203	183	151	102
● Franklin Templeton	2.1 (4)	2.5 (1)	0.0 (21)	2.1 (62)	3.9 (38)	1.5 (64)	4.4 (27)	-- (--)
▲ BBgBarc Multiverse TR	1.0 (18)	0.2 (31)	-1.4 (33)	3.1 (28)	3.0 (61)	1.2 (75)	1.2 (81)	2.8 (85)

Franklin Templeton
Portfolio Country Weights

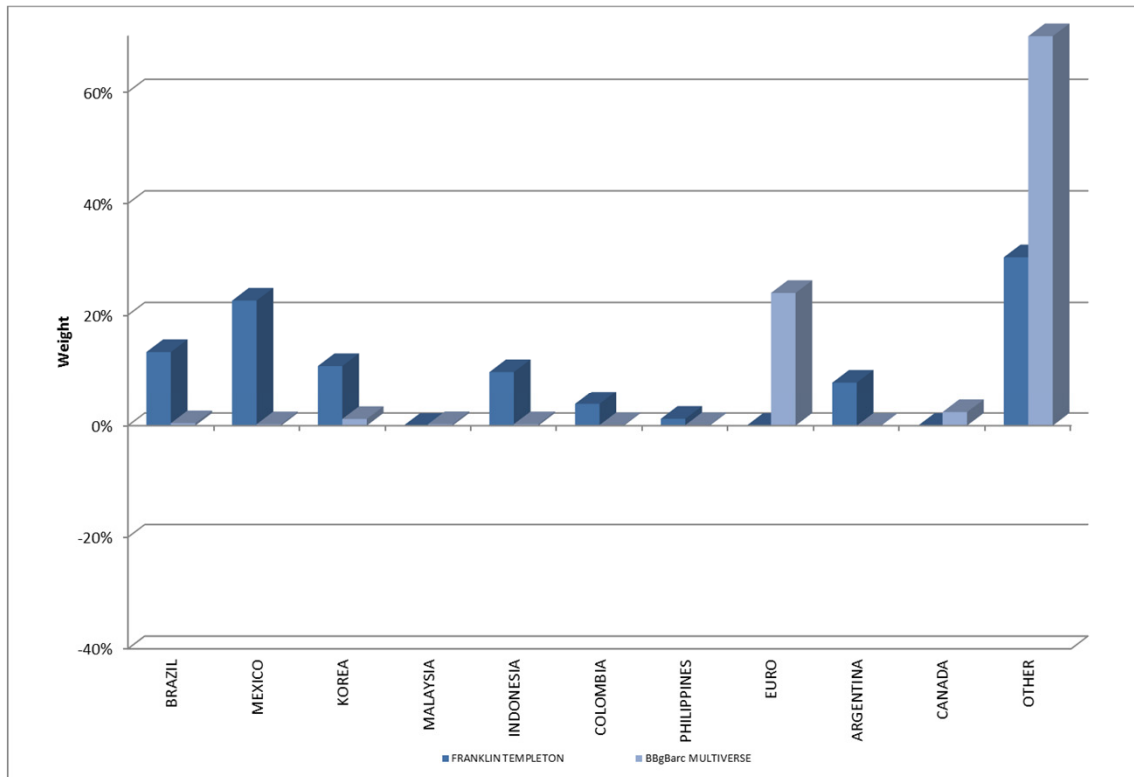
Period Ending: December 31, 2018



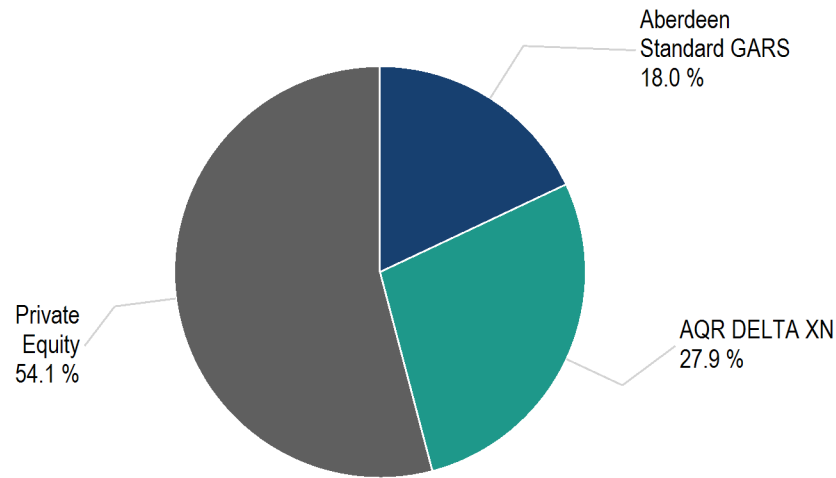
COUNTRY	MARKET VALUE	FRANKLIN TEMPLETON	BBgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,487	13.4%	0.7%	+12.7%
MEXICO	\$ 9,250	22.5%	0.6%	+21.9%
KOREA	\$ 4,457	10.9%	1.4%	+9.5%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,010	9.8%	45.0%	-35.2%
COLOMBIA	\$ 1,609	3.9%	0.2%	+3.7%
PHILIPPINES	\$ 505	1.2%	0.2%	+1.1%
PORTUGAL	\$ -	0.0%	0.4%	-0.4%
ARGENTINA	\$ 3,653	8.9%	0.2%	+8.7%
OTHER	\$ 12,070	29.4%	51.1%	-21.7%
CASH	\$ -	0.0%	0.0%	0.0%
	\$ 41,040	100.0%	100.0%	0.0%

Franklin Templeton
Portfolio Currency Exposures

Period Ending: December 31, 2018



CURRENCY	MARKET VALUE	FRANKLIN TEMPLETON	BbgBarc MULTIVERSE	DIFF
BRAZIL	\$ 5,487	13.4%	0.4%	+12.9%
MEXICO	\$ 9,275	22.6%	0.3%	+22.4%
KOREA	\$ 4,457	10.9%	1.2%	+9.7%
MALAYSIA	\$ -	0.0%	0.3%	-0.3%
INDONESIA	\$ 4,010	9.8%	0.3%	+9.5%
COLOMBIA	\$ 1,609	3.9%	0.1%	+3.8%
PHILIPPINES	\$ 505	1.2%	0.1%	+1.1%
EURO	\$ -	0.0%	24.0%	-24.0%
ARGENTINA	\$ 3,238	7.9%	0.0%	+7.9%
CANADA	\$ -	0.0%	2.4%	-2.4%
OTHER	\$ 12,460	30.4%	71.0%	-40.6%
	\$ 41,040	100.0%	100.0%	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$96,556,718	18.0%	-0.7%
AQR DELTA XN	\$150,030,805	27.9%	-1.7%
Private Equity	\$290,757,410	54.1%	-1.8%
Actual vs. Policy Weight Difference			0.2%
Total	\$537,344,933	100.0%	-4.0%

Statistics Summary

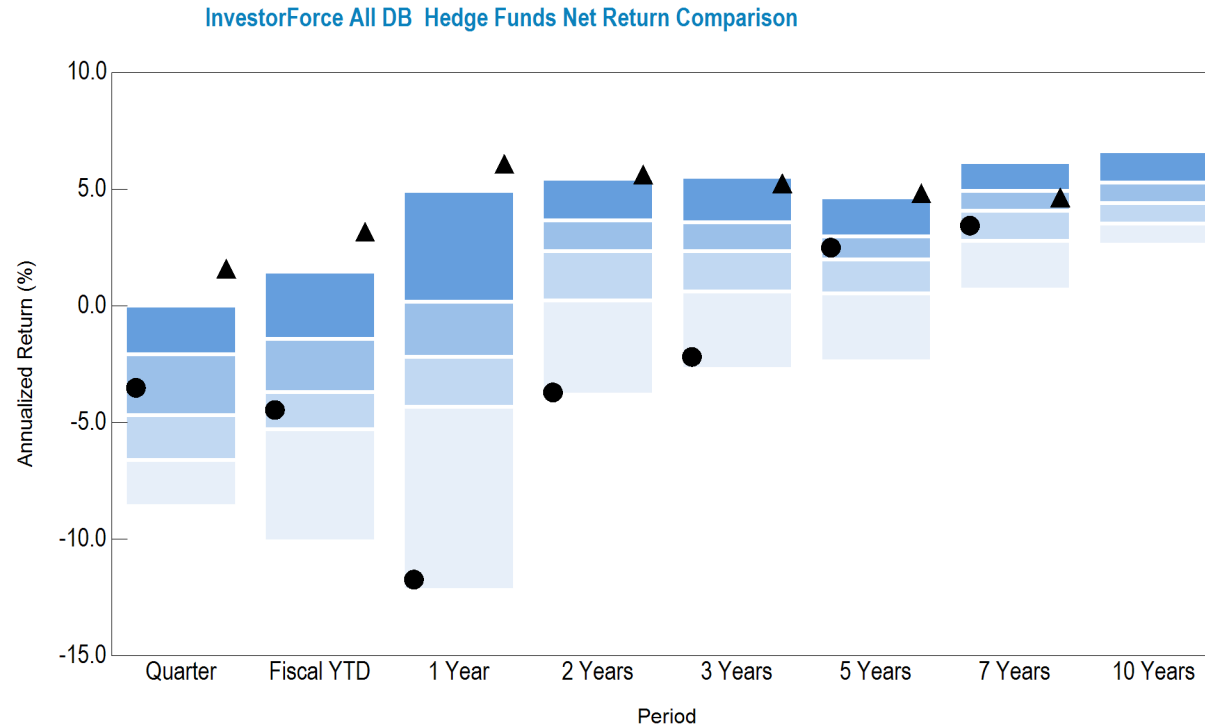
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	7.0%	5.3%	1.1	-0.9	5.6%
Blended Alternatives Index	11.8%	4.8%	2.2	--	0.0%
Private Equity	15.3%	8.8%	1.6	-0.2	11.0%
Blended Private Equity Index	17.5%	9.0%	1.8	--	0.0%
Hedge Fund/Absolute Return	-2.2%	4.4%	-0.7	-1.7	4.5%
Libor 1 month +4%	5.2%	0.2%	18.7	--	0.0%
AQR DELTA XN	-3.1%	5.7%	-0.7	-1.4	5.8%
Libor 1 month +4%	5.2%	0.2%	18.7	--	0.0%

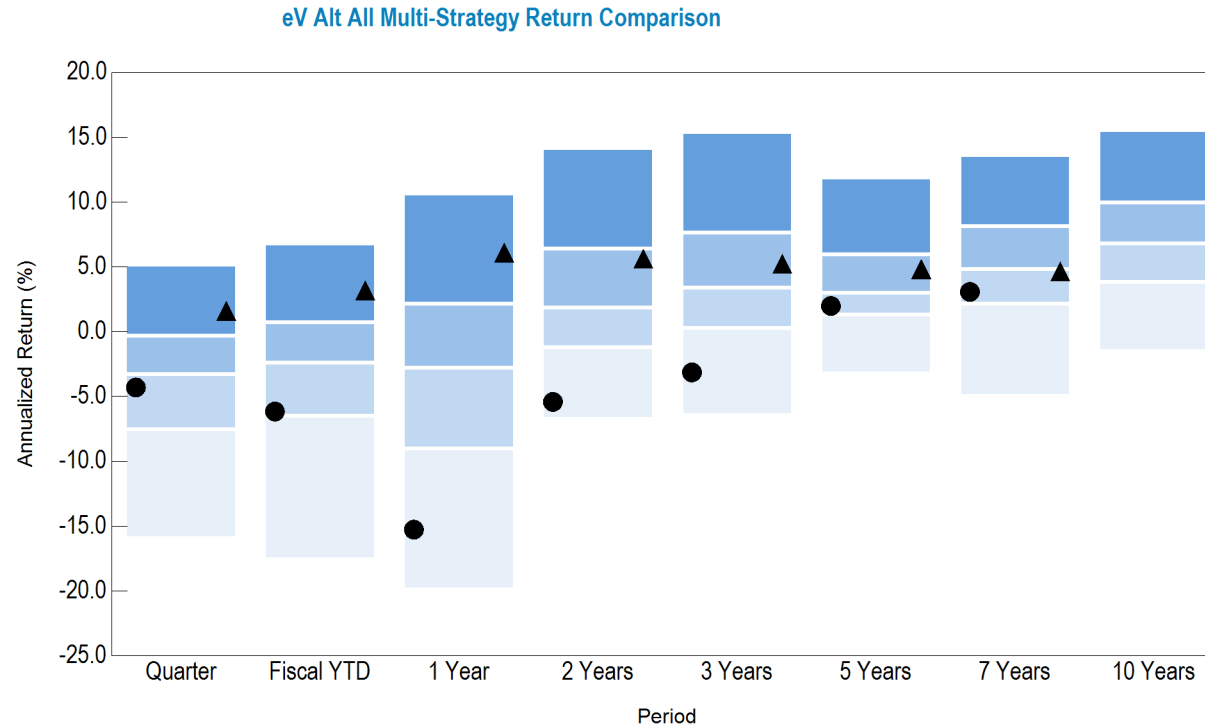
Statistics Summary

5 Years

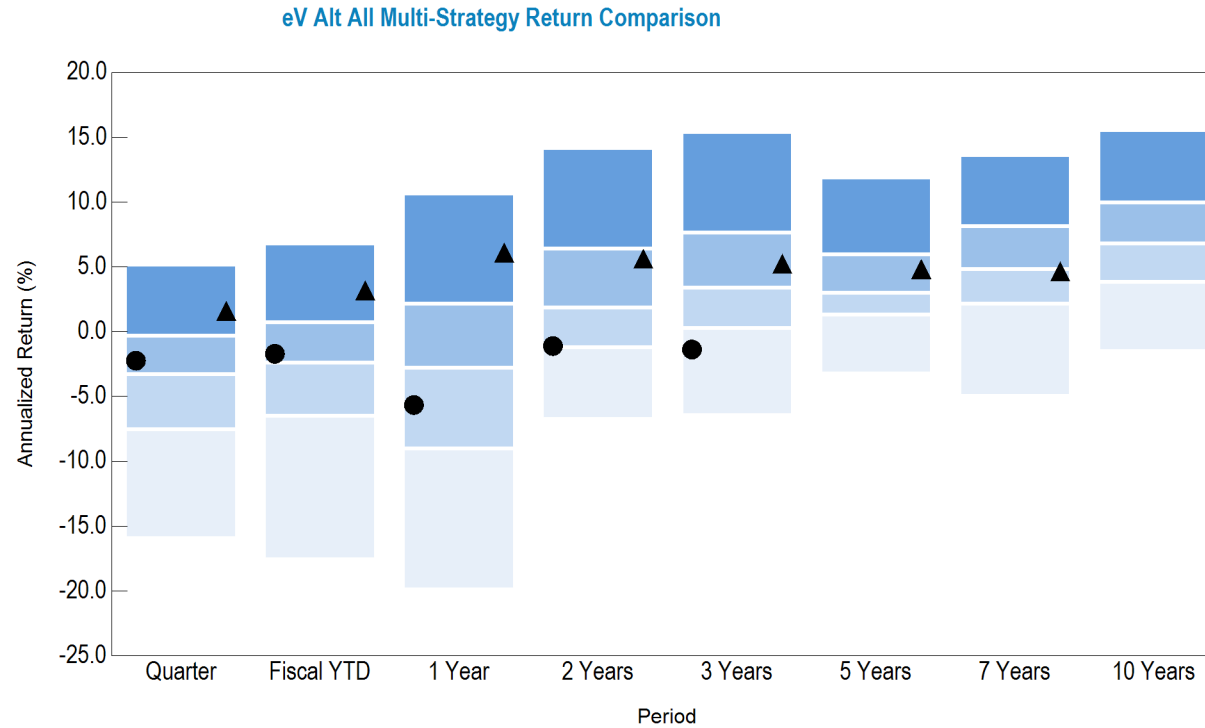
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	6.5%	4.8%	1.2	-0.2	6.1%
Blended Alternatives Index	7.6%	5.5%	1.3	--	0.0%
Private Equity	16.4%	8.6%	1.8	0.2	12.6%
Blended Private Equity Index	14.2%	9.8%	1.4	--	0.0%
Hedge Fund/Absolute Return	2.5%	5.2%	0.4	-0.4	5.2%
Libor 1 month +4%	4.8%	0.2%	18.0	--	0.0%
AQR DELTA XN	2.0%	5.9%	0.2	-0.5	6.0%
Libor 1 month +4%	4.8%	0.2%	18.0	--	0.0%



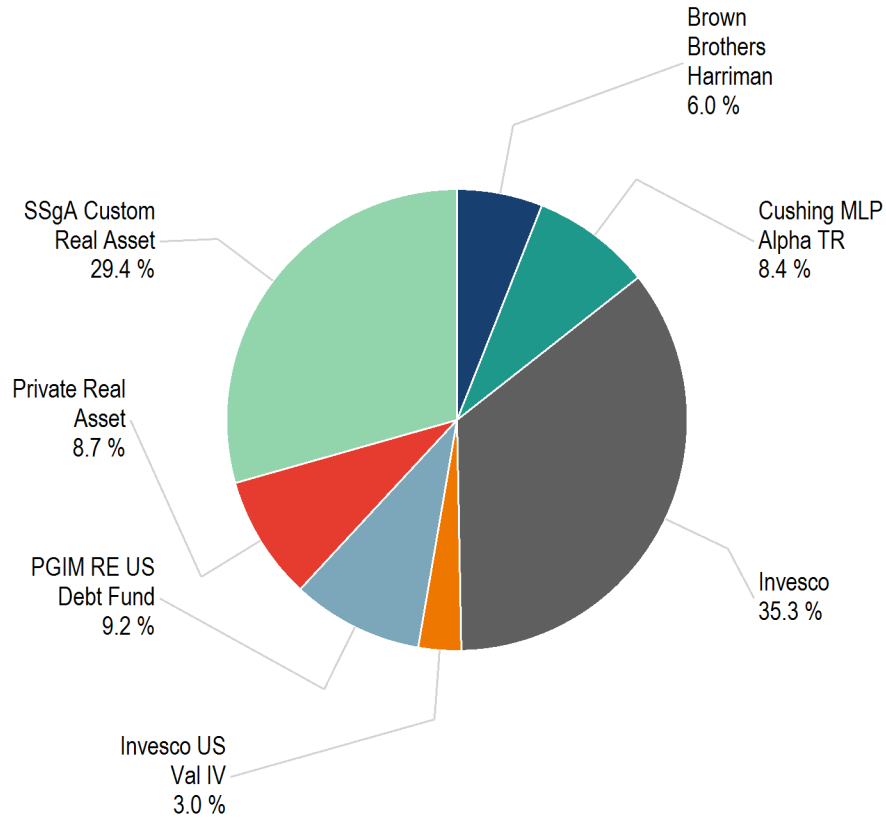
	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	0.0	1.4	4.9	5.4	5.5	4.6	6.1	6.6
25th Percentile	-2.1	-1.4	0.2	3.7	3.6	3.0	4.9	5.3
Median	-4.7	-3.7	-2.2	2.3	2.4	2.0	4.1	4.4
75th Percentile	-6.6	-5.3	-4.3	0.2	0.6	0.6	2.8	3.5
95th Percentile	-8.6	-10.1	-12.2	-3.8	-2.7	-2.4	0.7	2.6
# of Portfolios	196	196	194	192	183	178	152	95
● Hedge Fund/Absolute Return	-3.5 (38)	-4.5 (67)	-11.7 (95)	-3.7 (95)	-2.2 (94)	2.5 (37)	3.4 (63)	-- (--)
▲ Libor 1 month +4%	1.6 (2)	3.2 (1)	6.1 (3)	5.6 (3)	5.2 (8)	4.8 (4)	4.6 (37)	-- (--)



	Return (Rank)							
5th Percentile	5.1	6.8	10.6	14.1	15.4	11.9	13.6	15.5
25th Percentile	-0.3	0.8	2.2	6.4	7.7	6.0	8.2	10.0
Median	-3.3	-2.4	-2.7	1.9	3.4	3.0	4.8	6.8
75th Percentile	-7.5	-6.5	-9.0	-1.2	0.3	1.3	2.2	3.9
95th Percentile	-15.9	-17.5	-19.8	-6.7	-6.4	-3.2	-4.9	-1.5
# of Portfolios	246	246	242	223	207	170	135	95
● AQR DELTA XN	-4.3 (61)	-6.2 (75)	-15.3 (87)	-5.4 (92)	-3.1 (89)	2.0 (67)	3.1 (66)	-- (--)
▲ Libor 1 month +4%	1.6 (12)	3.2 (13)	6.1 (16)	5.6 (29)	5.2 (35)	4.8 (32)	4.6 (52)	-- (--)



	Return (Rank)							
5th Percentile	5.1	6.8	10.6	14.1	15.4	11.9	13.6	15.5
25th Percentile	-0.3	0.8	2.2	6.4	7.7	6.0	8.2	10.0
Median	-3.3	-2.4	-2.7	1.9	3.4	3.0	4.8	6.8
75th Percentile	-7.5	-6.5	-9.0	-1.2	0.3	1.3	2.2	3.9
95th Percentile	-15.9	-17.5	-19.8	-6.7	-6.4	-3.2	-4.9	-1.5
# of Portfolios	246	246	242	223	207	170	135	95
● Aberdeen Standard GARS	-2.2 (43)	-1.7 (44)	-5.7 (62)	-1.1 (75)	-1.4 (81)	-- (--)	-- (--)	-- (--)
▲ Libor 1 month +4%	1.6 (12)	3.2 (13)	6.1 (16)	5.6 (29)	5.2 (35)	4.8 (32)	4.6 (52)	-- (--)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Brown Brother Harriman	\$45,255,188	6.0%	0.0%
Cushing MLP Alpha TR	\$63,941,127	8.4%	-1.3%
Invesco	\$267,997,671	35.3%	0.1%
Invesco US Val IV	\$23,012,456	3.0%	0.1%
PGIM RE US Debt Fund	\$70,195,257	9.2%	0.0%
Private Real Asset	\$66,415,429	8.7%	0.3%
SSgA Custom Real Asset	\$223,135,612	29.4%	0.1%
Actual vs. Policy Weight Difference			-0.2%
Total	\$759,952,741	100.0%	-0.9%

Statistics Summary

3 Years

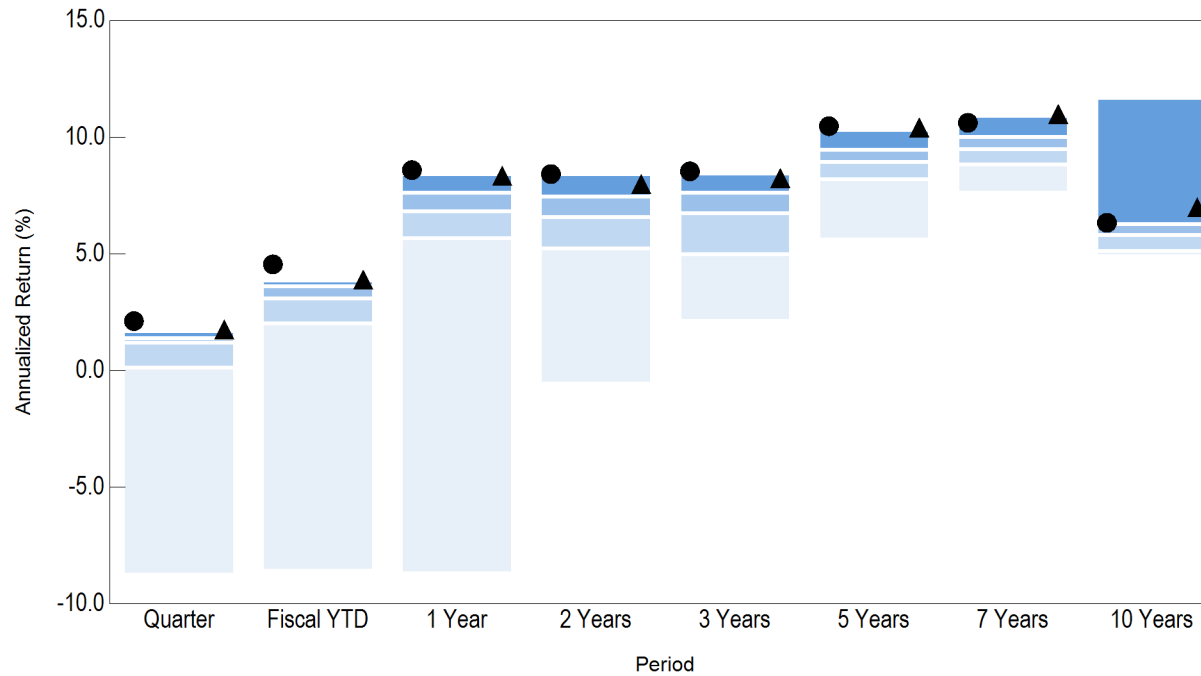
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Real Estate	8.53%	3.61%	2.07	0.26	1.12%
NCREIF ODCE	8.24%	3.33%	2.16	--	0.00%
Invesco	8.64%	3.67%	2.07	0.35	1.14%
NCREIF ODCE	8.24%	3.33%	2.16	--	0.00%
Private Real Asset	13.65%	26.75%	0.47	0.31	27.37%
Blended Private Real Asset Index	5.08%	6.97%	0.58	--	0.00%
TIPS	2.19%	2.20%	0.52	0.06	1.23%
BBgBarc US TIPS TR	2.11%	3.10%	0.35	--	0.00%
Brown Brothers Harriman	2.19%	2.20%	0.52	0.06	1.23%
BBgBarc US TIPS TR	2.11%	3.10%	0.35	--	0.00%

Statistics Summary

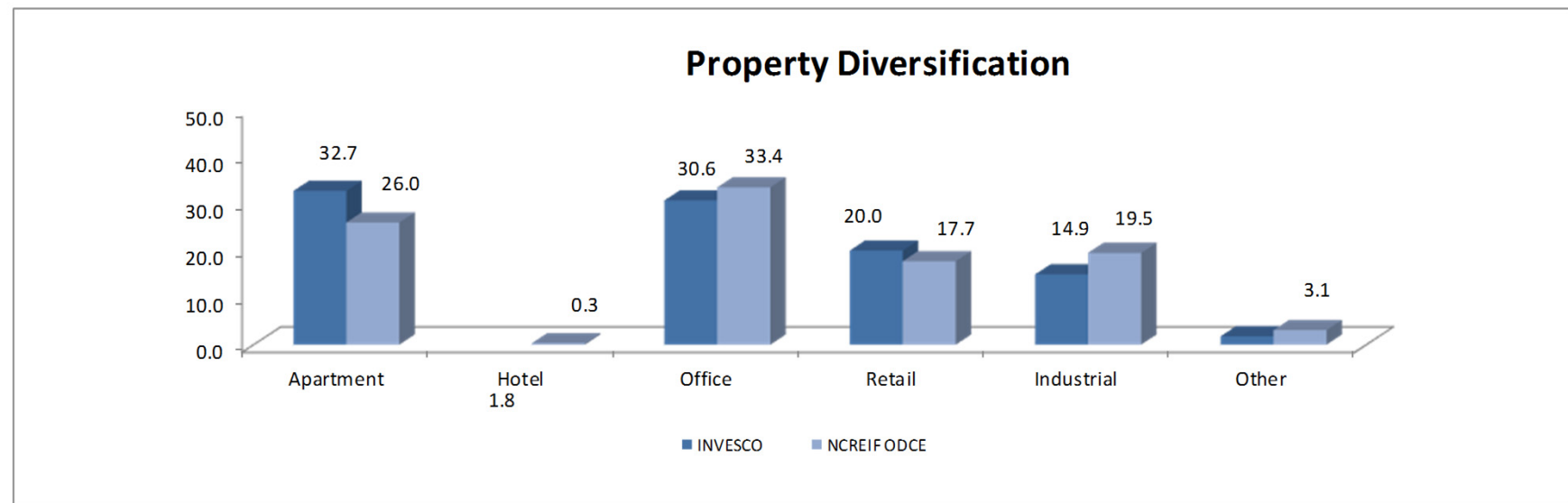
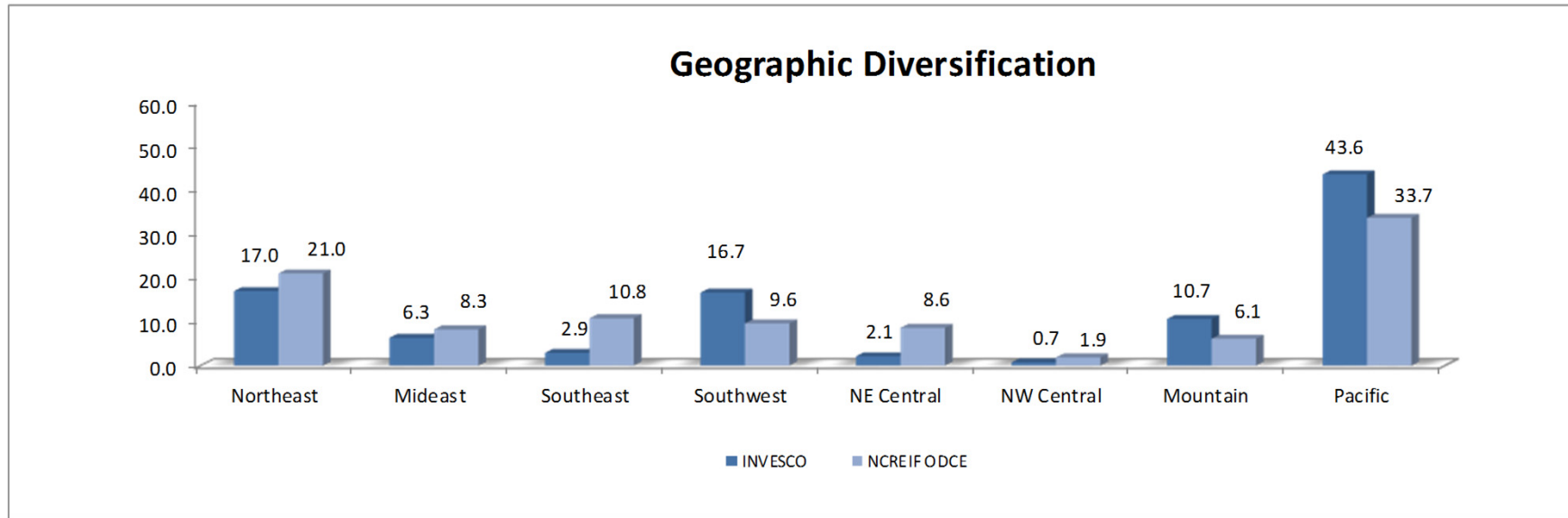
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	10.47%	4.55%	2.16	0.05	28
NCREIF ODCE	10.41%	4.35%	2.25	--	1
Invesco	10.44%	4.54%	2.16	0.02	--
NCREIF ODCE	10.41%	4.35%	2.25	--	--
TIPS	1.30%	2.63%	0.26	-0.29	--
BBgBarc US TIPS TR	1.69%	3.57%	0.30	--	--
Brown Brothers Harriman	1.30%	2.63%	0.26	-0.29	69
BBgBarc US TIPS TR	1.69%	3.57%	0.30	--	1

InvestorForce All DB Real Estate Pub Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	1.7	3.8	8.4	8.4	8.4	10.3	10.9	11.7
25th Percentile	1.4	3.6	7.6	7.5	7.6	9.5	10.0	6.3
Median	1.2	3.1	6.8	6.6	6.8	8.9	9.5	5.8
75th Percentile	0.1	2.0	5.7	5.2	5.0	8.2	8.8	5.1
95th Percentile	-8.7	-8.6	-8.7	-0.6	2.1	5.6	7.6	4.9
# of Portfolios	80	80	80	76	76	70	60	41
● Real Estate	2.1 (1)	4.5 (1)	8.6 (2)	8.4 (5)	8.5 (3)	10.5 (3)	10.6 (10)	6.3 (23)
▲ NCREIF ODCE	1.8 (4)	3.9 (4)	8.3 (6)	8.0 (10)	8.2 (11)	10.4 (3)	11.0 (2)	7.0 (10)



INVESCO Core Real Estate
Real Estate Valuation Analysis

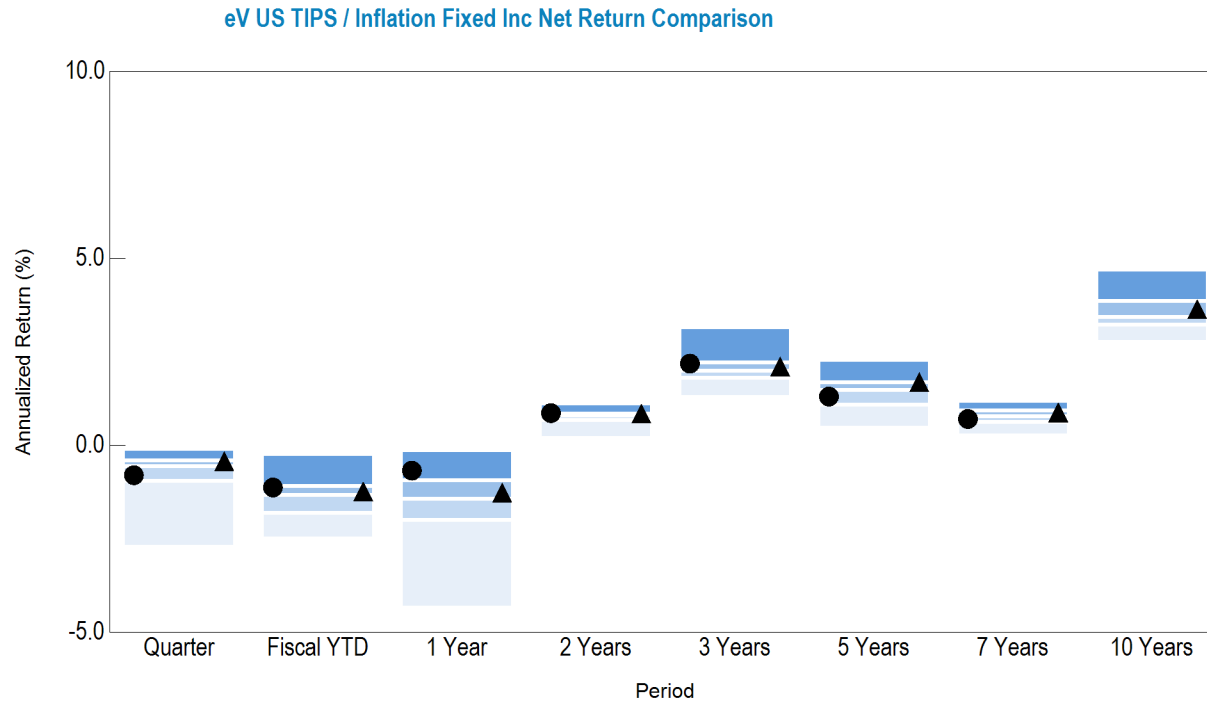
Period Ending: December 31, 2018

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 12/31/2018 2.69%
APARTMENTS							
Stoneridge Apartments	Pleasanton, CA	\$242,000,000	\$243,000,000	\$243,000,000	4Q06	December-18	\$6,533,726
Instrata Pentagon City	Arlington, VA	\$152,000,000	\$155,000,000	\$155,000,000	3Q10	December-18	\$4,167,603
Ladd Tower	Portland, OR	\$131,000,000	\$130,000,000	\$73,661,099	4Q10	December-18	\$1,980,582
Legacy Fountain Plaza	San Jose, CA	\$161,974,462	\$163,000,000	\$163,000,000	1Q11	December-18	\$4,382,705
Instrata Gramercy (fka The Elektra)	New York, NY	\$172,000,000	\$171,000,000	\$99,258,585	1Q11	December-18	\$2,668,841
Instrata Brooklyn Heights (fka 75 Clinton Street)	Brooklyn, NY	\$68,400,000	\$66,800,000	\$66,800,000	1Q12	December-18	\$1,796,102
The Artisan Laguna Beach	Orange County, CA	\$164,000,000	\$163,000,000	\$102,029,664	3Q12	December-18	\$2,743,349
The GoodWynn	Atlanta, GA	\$99,100,000	\$96,600,000	\$96,600,000	4Q12	December-18	\$2,597,358
Instrata Hell's Kitchen	New York, NY	\$194,000,000	\$184,000,000	\$184,000,000	1Q13	December-18	\$4,947,348
Sunset Vine Tower	Los Angeles, CA	\$103,000,000	\$103,000,000	\$103,000,000	2Q13	December-18	\$2,769,439
Instrata Ashton Uptown	Dallas, TX	\$123,000,000	\$121,000,000	\$64,362,777	4Q13	December-18	\$1,730,571
206 Bell	Seattle, WA	\$48,900,000	\$48,900,000	\$48,900,000	4Q13	December-18	\$1,314,812
Cadence Union Station	Denver, CO	\$92,600,000	\$94,400,000	\$57,628,499	1Q14	December-18	\$1,549,501
Joseph Arnold Lofts	Seattle, WA	\$71,400,000	\$71,700,000	\$37,781,891	2Q14	December-18	\$1,015,870
Verve	Denver, CO	\$108,000,000	\$108,000,000	\$108,000,000	3Q14	December-18	\$2,903,878
Broadstone Little Italy	San Diego CA	\$121,000,000	\$121,000,000	\$68,304,404	3Q14	December-18	\$1,836,553
33 Tehama	San Francisco, CA	\$301,179,684	\$300,708,571	\$174,015,439	3Q14	December-18	\$4,678,886
The Parker	Portland, OR	\$63,700,000	\$63,700,000	\$32,904,828	1Q15	December-18	\$884,737
Legacy West Apartments	Plano, TX	\$107,784,632	\$146,000,000	\$71,632,298	1Q15	December-18	\$1,926,032
The Royce	Irvine, CA	\$203,211,701	\$207,636,274	\$110,708,069	2Q15	December-18	\$2,976,692
Wheaton 121	Wheaton, IL	\$72,000,000	\$0	\$0	2Q15	December-18	\$0
Jefferson Marketplace	Washington, DC	\$159,000,000	\$159,000,000	\$89,253,255	4Q15	December-18	\$2,399,820
Retreat at Park Meadows	Littleton, CO	\$158,000,000	\$162,000,000	\$162,000,000	4Q15	December-18	\$4,355,817
North Water Apartments	Chicago, IL	\$265,000,000	\$266,000,000	\$266,000,000	1Q16	December-18	\$7,152,145
2270 Broadway	Oakland, CA	\$28,157,728	\$28,161,583	\$28,161,583	1Q16	December-18	\$757,202
Runway at Playa Vista Apartments	Playa Vista, CA	\$166,420,000	\$168,540,000	\$105,329,042	1Q16	December-18	\$2,832,062
Clayton Lane Apartments	Denver, CO	\$38,522,588	\$38,900,894	\$38,900,894	1Q16	December-18	\$1,045,958
Biscayne 27	Miami, FL	\$75,857,121	\$85,506,440	\$52,115,259	2Q16	December-18	\$1,401,263
Flats 8300	Washington DC	\$245,000,000	\$245,000,000	\$245,000,000	2Q16	December-18	\$6,587,502
407 1st Ave	New York, NY	\$199,000,000	\$200,000,000	\$200,000,000	4Q16	December-18	\$5,377,552
5250 Park	Miami, FL	\$34,995,368	\$38,919,500	\$26,288,633	2Q17	December-18	\$706,842
The Mason	Pleasanton, CA	\$101,000,000	\$103,000,000	\$103,000,000	3Q17	December-18	\$2,769,439
The Arnold	Austin, TX	\$0	\$102,499,500	\$102,499,500	4Q18	Acq 4Q18	\$2,755,982
		\$4,271,203,284	\$4,355,972,761	\$3,479,135,717			\$93,546,173
INDUSTRIAL							
Arjons Industrial Park	San Diego CA	\$45,600,000	\$46,500,000	\$46,500,000	2Q04	December-18	\$1,250,281
Gateway Business Park	Dallas TX	\$14,400,000	\$14,400,000	\$14,400,000	2Q04	December-18	\$387,184
Hayward Industrial	Oakland CA	\$206,900,000	\$216,900,000	\$216,900,000	3Q04-3Q07	December-18	\$5,831,956
Oakesdale Commerce Center	Seattle - Belle - Eve WA	\$62,300,000	\$65,700,000	\$65,700,000	1Q06	December-18	\$1,766,526
South Bay Industrial	Los Angeles, CA	\$60,600,000	\$60,700,000	\$60,700,000	4Q06	December-18	\$1,632,087
Steeplechase Portfolio	Capitol Heights, MD	\$106,400,000	\$107,700,000	\$107,700,000	1Q11	December-18	\$2,895,812
Airport Trade Center Portfolio	Dallas, TX	\$142,000,000	\$143,700,000	\$143,700,000	1Q11	December-18	\$3,863,771
IE Logistics	San Bernardino, CA	\$152,100,000	\$153,600,000	\$153,600,000	3Q11	December-18	\$4,129,960
Railhead Industrial	Dallas, TX	\$66,400,000	\$67,000,000	\$67,000,000	4Q11	December-18	\$1,801,480
Empire Gateway aka Chino South Logistics Center	Chino, CA	\$292,000,000	\$302,000,000	\$302,000,000	4Q12	December-18	\$8,120,104
SFO Logistics Center	San Francisco, CA	\$163,000,000	\$164,000,000	\$164,000,000	4Q13	December-18	\$4,409,593
Miami Industrial Portfolio	Various, FL	\$86,021,228	\$86,115,820	\$59,536,844	1Q16	December-18	\$1,600,812
Miami Industrial Portfolio - Fedex	Hollywood, FL	\$45,000,000	\$46,200,000	\$32,125,977	1Q16	December-18	\$863,796
OMP Burbank	Los Angeles, CA	\$71,898,228	\$102,487,311	\$102,487,311	2Q16	December-18	\$2,755,654
Pacific Commons	Freemont, CA	\$173,937,156	\$196,351,700	\$178,501,316	1Q17	December-18	\$4,799,501
Gateway 80 Business Park	Fairfield, CA	\$106,500,000	\$107,100,000	\$107,100,000	1Q18	December-18	\$2,879,679
Meridian Distribution Center II	Riverside, CA	\$52,370,000	\$52,600,000	\$52,600,000	3Q18	December-18	\$1,414,296
Bayport North Industrial Building II and III	Riverside, CA	\$0	\$58,689,024	\$58,689,024	4Q18	Acq 4Q18	\$1,578,016
		\$1,847,426,611	\$1,991,743,855	\$1,933,240,472			\$51,980,510

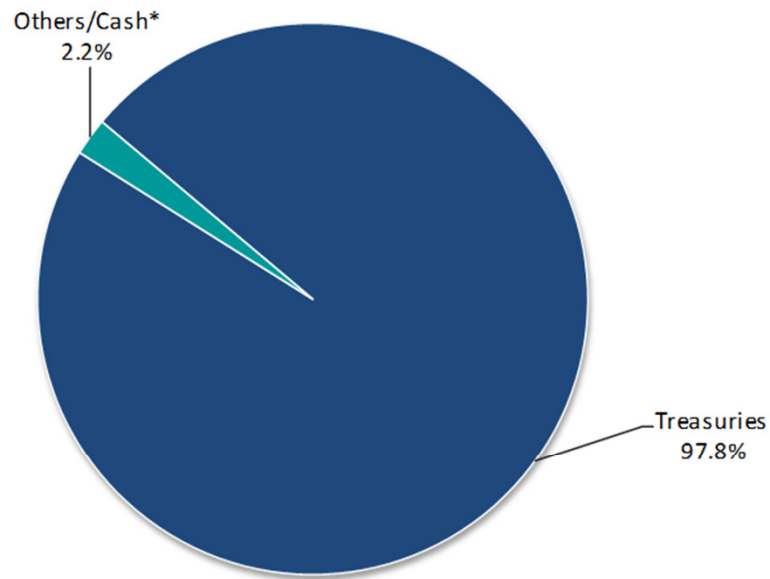
INVESCO Core Real Estate
Real Estate Valuation Analysis

Period Ending: December 31, 2018

OFFICE							
55 Cambridge Parkway	Boston MA - NH	\$346,000,000	\$356,000,000	\$356,000,000	4Q06	December-18	\$9,572,043
1111 Pennsylvania Avenue	Washington, D.C.	\$345,000,000	\$0	\$0	4Q10	December-18	\$0
1800 Larimer	Denver, CO	\$331,000,000	\$337,000,000	\$337,000,000	1Q11	December-18	\$9,061,176
Hillview Office	San Jose, CA	\$75,600,000	\$73,900,000	\$73,900,000	3Q12	December-18	\$1,987,006
Williams Tower	Houston, TX	\$602,000,000	\$611,000,000	\$428,658,987	1Q13	December-18	\$11,525,681
Westlake Park Place	Westlake Village, CA	\$109,000,000	\$109,000,000	\$109,000,000	4Q13	December-18	\$2,930,766
101 Second	San Francisco, CA	\$434,000,000	\$464,000,000	\$464,000,000	1Q14	December-18	\$12,475,922
Energy Crossing II	Houston, TX	\$104,000,000	\$104,000,000	\$104,000,000	2Q14	December-18	\$2,796,327
1776 Wilson Blvd.	Arlington, VA	\$88,300,000	\$87,700,000	\$87,700,000	3Q14	December-18	\$2,358,057
631 Howard	San Francisco, CA	\$98,100,000	\$107,000,000	\$107,000,000	3Q14	December-18	\$2,876,991
Barton Oaks	Austin, TX	\$95,000,000	\$96,000,000	\$96,000,000	3Q14	December-18	\$2,581,225
Hercules East and South Campus	Los Angeles, CA	\$184,931,042	\$185,045,739	\$185,045,739	3Q14	December-18	\$4,975,466
The Reserve	Playa Vista, CA	\$384,030,283	\$392,257,407	\$392,257,407	1Q15	December-18	\$10,546,924
Fort Point Portfolio	Boston, MA	\$259,208,664	\$271,080,816	\$271,080,816	2Q15	December-18	\$7,288,756
Summit IV	Aliso Viejo, CA	\$113,000,000	\$113,000,000	\$113,000,000	2Q15	December-18	\$3,038,317
1101 Westlake	Seattle, WA	\$137,000,000	\$145,000,000	\$145,000,000	3Q15	December-18	\$3,898,725
PearlWest	Boulder, CO	\$131,000,000	\$132,000,000	\$132,000,000	4Q16	December-18	\$3,549,185
The Mark 302	Santa Monica, CA	\$50,991,394	\$53,286,564	\$53,286,564	1Q18	December-18	\$1,432,756
430 West 15th Street	New York NY	\$160,000,000	\$162,000,000	\$162,000,000	2Q18	December-18	\$4,355,817
Ten Fawcett	Cambridge, MA	\$58,755,250	\$59,849,000	\$30,749,000	3Q18	December-18	\$826,772
Press Blocks	Portland, OR	\$4,234,440	\$10,824,106	\$10,824,106	3Q18	December-18	\$291,036
Union Tower West	Denver, CO	\$0	\$69,300,000	\$69,300,000	4Q18	Acq 4Q18	\$1,863,322
		\$4,215,982,701	\$4,084,243,632	\$3,798,669,171			\$102,137,712
RETAIL							
Chandler Pavilion	Phoenix - Mesa AZ	\$26,700,000	\$26,400,000	\$26,400,000	2Q04	December-18	\$709,837
Cityline at Tenley	Washington, D.C.	\$63,400,000	\$63,400,000	\$63,400,000	4Q05	December-18	\$1,704,684
Ridgehaven Shopping Center	Minnetonka, MN	\$42,500,000	\$42,500,000	\$42,500,000	4Q05	December-18	\$1,142,730
The Beacon Garage (units)	San Francisco, CA	\$36,526,099	\$36,905,860	\$36,905,860	1Q06	December-18	\$992,316
The Beacon Office (210 King)	San Francisco, CA	\$28,700,000	\$29,200,000	\$29,200,000	1Q15	December-18	\$785,123
Hawthorne Plaza	Overland Park, KS	\$53,150,000	\$53,000,000	\$53,000,000	4Q07	December-18	\$1,425,051
The Loop	Boston MA - NH	\$83,000,000	\$78,500,000	\$78,500,000	1Q08	December-18	\$2,110,689
Westbank Market	Austin, TX	\$63,900,000	\$64,000,000	\$64,000,000	3Q10	December-18	\$1,720,817
910 Lincoln Road	Miami, FL	\$35,200,000	\$35,200,000	\$35,200,000	4Q10	December-18	\$1,720,817
Lake Pointe Village	Houston, TX	\$87,350,000	\$87,350,000	\$87,350,000	4Q11	December-18	\$946,449
Safeway Kapahulu	Hawaii	\$94,800,000	\$95,000,000	\$59,102,715	4Q11	December-18	\$1,589,140
Safeway Burlingame	San Francisco, CA	\$58,900,000	\$59,100,000	\$36,589,792	4Q11	December-18	\$983,818
Shamrock Plaza	Oakland, CA	\$40,800,000	\$40,800,000	\$24,685,700	4Q11	December-18	\$663,743
Pavilions Marketplace	West Hollywood, CA	\$70,600,000	\$70,800,000	\$46,334,793	1Q12	December-18	\$1,245,839
130 Prince	New York, NY	\$220,000,000	\$221,000,000	\$221,000,000	2Q12	December-18	\$5,942,195
Safeway Pleasanton	Pleasanton, CA	\$82,500,000	\$86,500,000	\$86,500,000	4Q12	December-18	\$2,325,791
Liberty Wharf	Boston, MA	\$97,400,000	\$96,900,000	\$96,900,000	4Q12	December-18	\$2,605,424
Shops at Legacy	Plano, TX	\$117,547,410	\$125,000,000	\$125,000,000	3Q13	December-18	\$3,360,970
Pasadena Commons	Pasadena, CA	\$63,400,000	\$63,200,000	\$63,200,000	4Q14	December-18	\$1,699,307
Rush Street Retail	Chicago, IL	\$16,900,000	\$16,900,000	\$16,900,000	4Q14	December-18	\$454,403
Legacy West Retail	Plano, TX	\$198,589,494	\$279,000,000	\$179,608,809	1Q15	December-18	\$4,829,279
Legacy West Land	Plano, TX	\$3,955,230	\$0	\$0	2Q17	December-18	\$0
131-137 Spring Street	New York, NY	\$212,000,000	\$208,000,000	\$95,200,000	3Q15	December-18	\$2,559,715
Runway at Playa Vista - Retail	Playa Vista, CA	\$127,730,000	\$127,730,000	\$65,574,758	1Q16	December-18	\$1,763,158
139 Spring	New York, NY	\$118,992,000	\$111,059,200	\$111,059,200	1Q16	December-18	\$2,986,133
Clayton Lane	Denver, CO	\$148,760,560	\$150,961,342	\$105,602,758	1Q16	December-18	\$2,839,422
4th & Colorado	Santa Monica, CA	\$13,280,000	\$13,280,000	\$13,280,000	1Q16	December-18	\$357,069
Legacy West - Block H	Plano, TX	\$7,098,996	\$11,230,095	\$11,230,095	4Q17	December-18	\$301,952
Shops at Crystals	Las Vegas, NV	\$298,750,000	\$300,500,000	\$164,581,999	2Q16	December-18	\$4,425,242
		\$2,581,703,691	\$2,663,410,636	\$2,108,800,617			\$56,073,100
Other							
Baranof - Walden Park	San Marcos, TX	\$9,650,448	\$9,446,179	\$9,446,179	1Q18	December-18	\$253,987
Baranof - Ranch Road 620	San Marcos, TX	\$8,915,176	\$8,890,521	\$8,890,521	1Q18	December-18	\$239,046
Baranof - Glenwood Avenue	Raleigh, NC	\$9,282,812	\$9,353,569	\$9,353,569	1Q18	December-18	\$251,497
Baranof - 1-84 & 60th	Vancouver, WA	\$21,506,712	\$22,133,694	\$22,133,694	1Q18	December-18	\$595,125
Baranof - Fishers Landing Vancouver	Vancouver, WA	\$15,900,262	\$16,021,461	\$16,021,461	1Q18	December-18	\$430,781
US Storage	Compton, CA	\$10,276,649	\$13,810,156	\$11,836,125	4Q17	December-18	\$318,247
The Quad	New York NY	\$65,016,212	\$76,284,911	\$43,659,200	2Q18	December-18	\$1,173,898
Baranof - 622 Capital	Raleigh, NC	\$18,611,578	\$18,799,749	\$18,799,749	3Q18	December-18	\$505,483
51st Street Self Storage	Austin, TX	\$12,000,000	\$12,000,000	\$12,000,000	3Q18	December-18	\$322,653
Campbell Self Storage	Campbell, CA	\$17,800,000	\$17,800,000	\$17,800,000	3Q18	December-18	\$478,602
Baranof - Belmont and 7th	Portland, OR	\$0	\$17,711,586	\$17,711,586	4Q18	Acq 4Q18	\$476,225
Boston Lane Self Storage	Austin, TX	\$0	\$15,800,000	\$15,800,000	4Q18	Acq 4Q18	\$424,827
		\$188,959,848	\$238,051,825	\$203,452,084			\$5,470,371
Portfolio Total		\$13,105,276,135	\$13,333,422,710	\$11,523,298,061			\$309,207,866



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	-0.1	-0.2	-0.1	1.1	3.1	2.3	1.2	4.7
25th Percentile	-0.4	-1.1	-0.9	0.9	2.2	1.7	0.9	3.9
Median	-0.5	-1.3	-1.4	0.8	2.0	1.5	0.8	3.4
75th Percentile	-0.9	-1.8	-2.0	0.7	1.8	1.1	0.6	3.2
95th Percentile	-2.7	-2.5	-4.3	0.2	1.3	0.5	0.3	2.8
# of Portfolios	22	22	21	21	21	19	17	14
● Brown Brothers Harriman	-0.8 (62)	-1.1 (28)	-0.7 (19)	0.9 (25)	2.2 (30)	1.3 (64)	0.7 (60)	-- (--)
▲ BBgBarc US TIPS TR	-0.4 (31)	-1.2 (35)	-1.3 (39)	0.8 (34)	2.1 (38)	1.7 (28)	0.9 (37)	3.6 (43)



Sector	Account Weight	BBgBarc TIPS	
		Index	Difference
Treasuries	97.8%	100.0%	-2.2%
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*	2.2%	0.0%	2.2%
TOTAL	100.0%	100.0%	0.0%

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

Portfolio Characteristics		
		Portfolio
Total Number of Securities		12
Total Market Value	\$	45,255,188
Current Coupon		1.18
Yield to Maturity		0.98
Average Life		
Duration		6.17
Quality		AAA

BBgBarc TIPS	
Total Number of Securities	39
Total Market Value	N/A
Current Coupon	0.71
Yield to Maturity	1.11
Average Life	
Duration	7.27
Quality	AAA

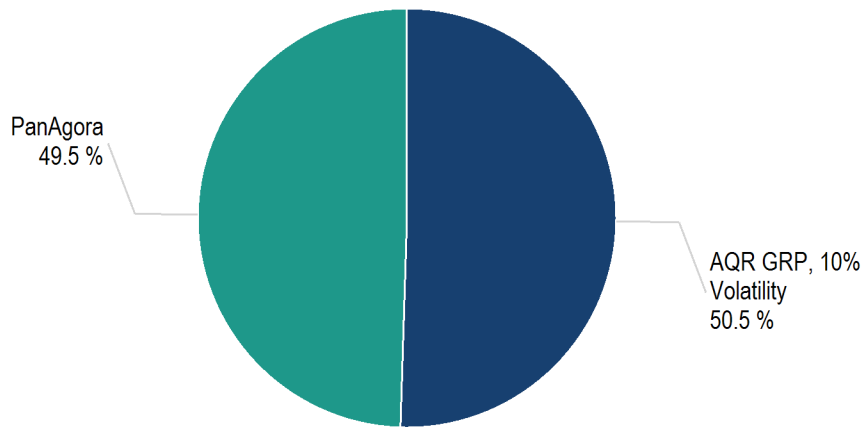
Yield to Maturity	
Range	% Held
0.0 - 5.0	100.0
5.0 - 7.0	0.0
7.0 - 9.0	0.0
9.0 - 11.0	0.0
11.0 - 13.0	0.0
13.0+	0.0
Unclassified	0.0

Average Life	
Range	% Held
0.0 - 3.0	5.5
3.0 - 5.0	27.0
5.0 - 10.0	48.5
10.0- 15.0	8.0
15.0+	11.1
Unclassified	0.0

Duration	
Range	% Held
0.0 - 3.0	5.5
3.0 - 5.0	27.0
5.0 - 10.0	48.5
10.0- 15.0	8.0
15.0+	11.1
Unclassified	0.0

Quality	
Range	% Held
Govt (10)	100.0
Aaa (10)	0.0
Aa (9)	0.0
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 - 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	\$167,213,070	50.5%	1.0%
PanAgora	\$163,946,359	49.5%	1.7%
Actual vs. Policy Weight Difference			0.0%
Total	\$331,159,429	100.0%	2.7%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	6.1%	6.9%	0.7	0.0	6.0%
Blended Risk Parity Index	5.9%	6.2%	0.8	--	0.0%
AQR GRP, 10% Volatility	6.2%	6.4%	0.8	0.0	5.3%
Blended Risk Parity Index	5.9%	6.2%	0.8	--	0.0%
PanAgora	6.0%	7.7%	0.6	0.0	7.0%
Blended Risk Parity Index	5.9%	6.2%	0.8	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Risk Parity	4.5%	7.9%	0.5	-0.2	6.0%
Blended Risk Parity Index	5.7%	6.4%	0.8	--	0.0%
AQR GRP, 10% Volatility	3.2%	7.8%	0.3	-0.4	5.9%
Blended Risk Parity Index	5.7%	6.4%	0.8	--	0.0%

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Fund	-6.2	-4.3	-4.1	4.9	6.1	5.1	8.8
<i>Policy Index</i>	-5.9	-3.6	-3.5	5.6	6.7	5.1	9.1
Total Fund ex Overlay	-6.2	-4.3	-4.1	4.9	6.1	5.0	8.7
<i>Policy Index</i>	-5.9	-3.6	-3.5	5.6	6.7	5.1	9.1
Public Equity	-13.1	-9.6	-9.2	6.1	6.8	5.1	10.5
<i>Blended Public Equity Index</i>	-13.1	-9.7	-9.6	6.0	7.2	5.0	10.9
US Equity	-14.6	-8.6	-5.5	7.1	8.6	7.4	13.0
<i>Blended US Equity Index</i>	-14.3	-8.2	-5.2	7.1	9.0	7.6	13.1
<i>Russell 3000</i>	-14.3	-8.2	-5.2	7.1	9.0	7.9	13.2
Large Cap Equity	-13.3	-6.9	-4.1	9.2	9.8	8.7	13.1
<i>Russell 1000</i>	-13.8	-7.4	-4.8	7.6	9.1	8.2	13.3
<i>Acadian US MGD V</i>	--	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	-13.8	-7.4	-4.7	--	--	--	--
<i>DE Shaw</i>	-14.0	-7.8	-4.2	9.9	11.5	10.2	--
<i>PanAgora Defuseq</i>	--	--	--	--	--	--	--
<i>Russell 1000</i>	-13.8	-7.4	-4.8	7.6	9.1	8.2	13.3
Small Cap Equity	-20.5	-17.6	-12.3	-0.4	5.5	2.8	13.0
<i>Russell 2000</i>	-20.2	-17.3	-11.0	1.0	7.4	4.4	12.0
<i>QMA US Small Cap</i>	-20.5	-17.6	-12.3	-0.4	--	--	--
<i>Russell 2000</i>	-20.2	-17.3	-11.0	1.0	7.4	4.4	12.0
International Equity	-11.3	-10.8	-13.6	4.9	4.5	1.7	5.7
<i>MSCI ACWI ex US IMI</i>	-11.9	-11.5	-14.8	4.6	4.7	1.2	7.1
<i>MSCI EAFE Gross</i>	-12.5	-11.3	-13.4	4.3	3.4	1.0	6.8
Developed Markets	-12.2	-11.7	-13.8	4.7	4.0	1.7	5.9
<i>MSCI ACWI ex USA Gross</i>	-11.4	-10.7	-13.8	5.0	5.0	1.1	7.1
<i>Baillie Gifford</i>	-15.2	-16.2	-16.3	5.2	3.8	2.2	--
<i>MSCI ACWI ex US</i>	-11.4	-10.7	-13.8	5.0	5.0	1.1	--
<i>MSCI ACWI ex US Growth</i>	-12.2	-12.3	-14.1	6.7	4.6	2.1	--
<i>BlackRock EAFE Index</i>	-12.5	-11.3	-13.4	4.2	3.3	0.9	--
<i>MSCI EAFE</i>	-12.5	-11.4	-13.8	3.8	2.9	0.5	6.3
<i>MSCI EAFE Gross</i>	-12.5	-11.3	-13.4	4.3	3.4	1.0	6.8

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mondrian	-8.8	-7.4	-11.7	4.4	4.6	1.4	6.1
<i>MSCI ACWI ex USA Value Gross</i>	-10.6	-9.0	-13.4	3.3	5.4	0.2	6.6
<i>MSCI ACWI ex USA Gross</i>	-11.4	-10.7	-13.8	5.0	5.0	1.1	7.1
Emerging Markets	-5.8	-5.9	-13.5	5.4	8.0	0.6	--
<i>MSCI Emerging Markets Gross</i>	-7.4	-8.3	-14.2	8.7	9.7	2.0	8.4
Parametric Core	-5.8	-5.9	-13.5	5.4	8.0	--	--
<i>MSCI Emerging Markets Gross</i>	-7.4	-8.3	-14.2	8.7	9.7	2.0	8.4
Parametric Currency Overlay	12.6	--	--	--	--	--	--
Fixed Income	0.3	1.0	0.4	3.1	4.8	3.7	6.6
<i>Blended Fixed Income Index</i>	0.2	1.0	-0.6	2.1	3.2	2.7	3.7
Core Fixed	1.4	1.5	0.0	2.3	3.2	3.3	5.8
<i>BBgBarc US Aggregate TR</i>	1.6	1.7	0.0	1.8	2.1	2.5	3.5
BlackRock Intermediate Govt	2.2	2.2	1.6	--	--	--	--
<i>BBgBarc US Govt Int TR</i>	2.2	2.1	1.4	1.3	1.2	1.5	1.8
FIAM Bond	1.1	1.2	-0.1	2.1	2.9	3.1	5.4
<i>BBgBarc US Aggregate TR</i>	1.6	1.7	0.0	1.8	2.1	2.5	3.5
Western TRU	0.7	0.9	-2.7	3.3	4.2	--	--
<i>3-Month Libor Total Return USD</i>	0.7	1.3	2.4	1.8	1.5	1.0	0.7
<i>BBgBarc US Aggregate TR</i>	1.6	1.7	0.0	1.8	2.1	2.5	3.5
Opportunistic Credit	-1.9	0.0	1.5	5.0	8.6	6.2	--
<i>BBgBarc BA Intermediate HY</i>	-2.7	-0.5	-1.9	2.1	5.2	3.9	--
Angelo Gordon Opportunistic	0.5	5.4	21.4	19.4	15.6	--	--
Angelo Gordon STAR	2.5	9.3	21.9	20.3	16.0	14.1	--
<i>BBgBarc US Aggregate TR</i>	1.6	1.7	0.0	1.8	2.1	2.5	3.5
Beach Point Select	-4.0	-2.3	0.8	4.6	8.6	--	--
<i>BBgBarc BA Intermediate HY</i>	-2.7	-0.5	-1.9	2.1	5.2	3.9	--
Brigade Capital	-5.6	-3.4	-0.9	3.2	9.7	3.7	--
<i>BBgBarc BA Intermediate HY</i>	-2.7	-0.5	-1.9	2.1	5.2	3.9	--
50% Barclays HY/ 50% Bank Loan	-3.8	-1.7	-0.5	2.6	6.1	3.6	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PIMCO Diversified	-1.3	0.4	-1.0	--	--	--	--
<i>Blended PIMCO Diversified Index</i>	-1.5	0.2	-2.2	2.4	4.8	4.0	7.9
<i>BBgBarc BA Intermediate HY</i>	-2.7	-0.5	-1.9	2.1	5.2	3.9	--
Franklin Templeton	2.1	2.5	0.0	2.1	3.9	1.6	--
<i>BBgBarc Multiverse TR</i>	1.0	0.2	-1.4	3.1	3.0	1.2	2.8
Private Credit	1.9	4.2	8.5	7.5	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.4	4.8	9.7	9.2	9.9	8.9	11.0
TCP Direct Lending VIII	1.8	4.2	7.1	7.2	--	--	--
White Oak Yield	2.0	4.3	10.1	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.4	4.8	9.7	9.2	9.9	8.9	11.0
Risk Parity	-4.8	-5.7	-7.2	3.2	6.1	4.5	--
<i>Blended Risk Parity Index</i>	-7.5	-4.8	-4.4	4.5	5.9	5.7	--
AQR GRP, 10% Volatility	-5.4	-5.2	-6.7	4.1	6.2	3.2	--
PanAgora	-4.1	-6.1	-7.6	2.5	6.0	--	--
<i>Blended Risk Parity Index</i>	-7.5	-4.8	-4.4	4.5	5.9	5.7	--
<i>Blended RP Secondary Index</i>	-8.0	-4.1	-2.9	5.1	5.5	4.5	--
Alternatives	0.8	2.9	2.4	5.9	7.0	6.6	--
<i>Blended Alternatives Index</i>	4.8	7.8	9.6	12.3	11.8	7.6	--
Private Equity	4.7	9.9	17.7	15.6	15.3	16.4	--
<i>Blended Private Equity Index</i>	8.1	12.4	12.9	18.4	17.5	14.2	17.9
Hedge Fund/Absolute Return	-3.5	-4.5	-11.7	-3.7	-2.2	2.5	--
<i>Libor 1 month +4%</i>	1.6	3.2	6.1	5.6	5.2	4.8	--
AQR DELTA XN	-4.3	-6.2	-15.3	-5.4	-3.1	2.0	--
Aberdeen Standard GARS	-2.2	-1.7	-5.7	-1.1	-1.4	--	--
<i>Libor 1 month +4%</i>	1.6	3.2	6.1	5.6	5.2	4.8	--
Inflation Hedge	-3.3	-2.8	-1.1	3.6	--	--	--
<i>Blended Inflation Hedge Index</i>	-2.5	-1.7	-0.8	4.0	--	--	--

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2018

	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	2 Yrs (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Real Estate	2.2	4.8	9.1	8.9	9.0	10.9	6.8
<i>NCREIF ODCE</i>	1.8	3.9	8.3	8.0	8.2	10.4	7.0
Invesco	2.2	4.8	9.3	8.9	9.0	10.8	6.7
<i>NCREIF ODCE</i>	1.8	3.9	8.3	8.0	8.2	10.4	7.0
Invesco US Val IV	4.2	7.4	12.4	12.7	11.1	--	--
<i>NCREIF ODCE</i>	1.8	3.9	8.3	8.0	8.2	10.4	7.0
<i>NCREIF CEVA 1Q Lag - NET</i>	3.0	6.0	11.9	11.0	11.7	13.5	--
PGIM RE US Debt Fund	1.8	4.0	6.6	--	--	--	--
<i>NCREIF ODCE</i>	1.8	3.9	8.3	8.0	8.2	10.4	7.0
Private Real Asset	4.2	4.8	4.5	0.8	13.7	--	--
<i>Blended Private Real Asset Index</i>	-0.1	4.3	-3.1	4.4	5.1	5.1	--
<i>Blended Secondary CA Private RA Index</i>	2.1	4.4	10.1	11.8	9.8	--	--
Public Real Assets	-11.2	-12.5	-12.6	-0.1	--	--	--
<i>Blended Public Real Asset Index</i>	-9.4	-10.8	-11.5	-0.2	2.0	3.3	--
Cushing MLP Alpha TR	-17.6	--	--	--	--	--	--
<i>50% BBgBarc US TIPS/ 50% Blended PRA Index</i>	-5.0	-6.1	--	--	--	--	--
<i>Alerian MLP TR USD</i>	-17.3	-11.9	-12.4	-9.5	-1.1	-7.3	9.6
SSgA Custom Real Asset	-9.1	-10.0	-10.2	1.3	--	--	--
<i>Blended Public Real Asset Index</i>	-9.4	-10.8	-11.5	-0.2	2.0	3.3	--
TIPS	-0.7	-1.0	-0.5	1.0	2.3	1.5	--
<i>BBgBarc US TIPS TR</i>	-0.4	-1.2	-1.3	0.8	2.1	1.7	3.6
Brown Brothers Harriman	-0.7	-1.0	-0.5	1.0	2.3	1.5	--
<i>BBgBarc US TIPS TR</i>	-0.4	-1.2	-1.3	0.8	2.1	1.7	3.6
Cash	0.5	0.6	1.1	1.0	1.0	0.9	0.9
91 Day T-Bills	0.5	1.0	1.9	1.4	1.0	0.6	0.4
General Account	2.5	3.3	4.9	3.3	2.6	2.0	1.1
Treasury & LAIF	0.8	2.1	4.8	3.0	2.3	1.7	1.3
91 Day T-Bills	0.5	1.0	1.9	1.4	1.0	0.6	0.4

Acadian Asset Management – Acadian U.S. Managed Volatility

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

Angelo, Gordon & Co. – AG STAR Fund

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

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

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

AQR Capital Management - AQR Delta

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

AQR – Risk Parity

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

Baillie Gifford – ACWI ex US Focus Equities

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

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

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

BlackRock – EAFE Index

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

BlackRock – Intermediate Government Index

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

BlackRock – Russell 1000 Index

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

Brigade – Opportunistic Credit

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

Brown Brothers Harriman – Inflation Indexed Securities

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

Cushing MLP Alpha TR

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

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

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

Eaton Vance/Parametric – Structured Emerging Markets Core Equity

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

Franklin Templeton Investments – Global Fixed Income

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

INVESCO Realty Advisors – INVESCO Core Equity, LLC

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

INVESCO Realty Advisors – INVESCO US Val IV

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

Mondrian Investment Partners – International Equity

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

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

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

Panagora – Diversified Risk Multi Asset Fund

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

Parametric Currency Overlay – Currency Hedge

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

PIMCO Diversified

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

PGIM RE Debt

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

Pyramis Global Advisors – Broad Market Duration Commingled Pool

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

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, 2018

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

Policy Index and Benchmark History

Period Ending: December 31, 2018

Public Equity Benchmark	As of:												
	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	46.3%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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 100% Hedged NR	0.0%	0.0%	0.0%	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:											
	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96
BBgBarc Aggregate	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%
BBgBarc BA Intermediate HY	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%
BBgBarc Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%
BBgBarc Multiverse	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.0%	20.5%	0.0%	0.0%	0.0%
BBgBarc TIPS	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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

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

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

Policy Index and Benchmark History

Period Ending: December 31, 2018

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

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

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

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

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

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

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

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

Policy Index and Benchmark History

Period Ending: December 31, 2018

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

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

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

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

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

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

Fee Schedule

Period Ending: December 31, 2018

Baillie Gifford

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

BlackRock-EAFE Equity Index Fund

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

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

BlackRock-Intermediate Govt Bond Index Fund

On All Assets:	0.04% per annum
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Brown Brothers Harriman

On All Assets:	0.15% per annum
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Parametric

On All Assets:	0.30% per annum
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Acadian Asset Management

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

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	

Cushing Asset Management

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

Franklin Templeton Investment

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

FIAM Bond

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

PanAgora Asset Management

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

PIMCO Diversified

On All Assets:	0.75% per annum
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QMA

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

Western Asset Management

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

Mondrian Investment Partners

Assets Below \$190 million

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

Assets Above \$190 million

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

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

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

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

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

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

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

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

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

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2018

	Oct	Nov	Dec	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference	4th Qtr. 2017	Difference
Verus	-7.07%	2.04%	-9.09%	-13.79%		7.41%		3.59%		-0.69%		6.58%	
BlackRock Russell 1000	-7.07%	2.04%	-9.09%	-13.79%	0.00%	7.41%	0.00%	3.59%	0.00%	-0.69%	0.00%	6.59%	0.00%
Russell 1000 Index	-7.08%	2.04%	-9.11%	-13.82%		7.42%		3.57%		-1.19%		4.90%	
Verus	-8.12%	1.19%	-7.54%	-14.04%		7.23%		4.31%		-0.32%		6.38%	
D.E. Shaw	-8.12%	1.19%	-7.54%	-14.04%	0.00%	7.24%	-0.01%	4.32%	-0.01%	-0.31%	-0.01%	6.39%	-0.01%
Russell 1000 Index	-7.08%	2.04%	-9.11%	-13.82%		7.42%		3.57%		-1.19%		4.90%	
Verus	-9.70%	-0.22%	-11.79%	-20.52%		3.70%		6.98%		-0.51%		2.34%	
QMA US Small Cap (Net)	-9.70%	-0.22%	-11.79%	-20.52%	0.00%	3.70%	0.00%	6.98%	0.00%	-0.51%	0.00%	2.34%	0.00%
Russell 2000 Index	-10.86%	1.59%	-11.88%	-20.20%		3.58%		7.75%		-0.08%		3.34%	
Verus	-11.70%	1.11%	-5.12%	-15.28%		-1.31%		0.36%		-0.75%		4.95%	
Baillie Gifford (Net)	-11.70%	1.11%	-5.12%	-15.28%	0.00%	-1.29%	-0.01%	0.35%	0.00%	-0.74%	-0.01%	4.92%	0.03%
MSCI ACWI ex US	-8.12%	0.96%	-4.49%	-11.41%		0.80%		-2.39%		-1.08%		5.06%	
MSCI ACWI ex US Growth	-9.35%	1.52%	-4.55%	-12.16%		-0.20%		-1.23%		-0.80%		5.81%	
Verus	-7.97%	-0.13%	-4.83%	-12.52%		1.40%		-0.83%		-1.59%		4.26%	
BlackRock EAFE Equity	-7.97%	-0.13%	-4.83%	-12.52%	0.00%	1.40%	0.00%	-0.83%	0.00%	-1.59%	0.00%	4.26%	0.00%
MSCI EAFE (Net)	-7.96%	-0.13%	-4.85%	-12.54%		1.35%		-1.24%		-1.53%		4.23%	
MSCI EAFE (Gross)	-7.95%	-0.11%	-4.83%	-12.50%		1.42%		-0.97%		-1.41%		4.27%	
Verus	-5.81%	0.54%	-3.72%	-8.82%		1.54%		-3.43%		-1.24%		4.06%	
Mondrian	-5.80%	0.55%	-3.70%	-8.79%	-0.03%	1.55%	-0.01%	-3.43%	0.00%	-1.22%	-0.02%	4.02%	0.04%
MSCI ACWI -ex US Value Index	-6.86%	0.40%	-4.43%	-10.63%		1.85%		-3.59%		-1.36%		4.31%	
MSCI ACWI -ex US	-8.12%	0.96%	-4.49%	-11.41%		0.80%		-2.39%		-1.08%		5.06%	
Verus	-6.55%	2.96%	-2.10%	-5.81%		-0.11%		-9.47%		1.51%		5.24%	
Parametric Core	-6.54%	2.97%	-2.09%	-5.77%	-0.04%	-0.06%	-0.05%	-9.42%	-0.05%	1.56%	-0.05%	5.30%	-0.06%
MSCI EM Market Index	-8.70%	4.13%	-2.60%	-7.40%		-0.95%		-7.86%		1.47%		7.50%	

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2018

	Oct	Nov	Dec	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference	4th Qtr. 2017	Difference
Verus	0.05%	0.70%	1.48%	2.24%		-0.07%		0.12%		-0.67%		-0.36%	
BlackRock Intermediate Govt	0.05%	0.70%	1.48%	2.24%	0.00%	-0.07%	0.00%	0.12%	0.00%	-0.67%	0.00%	-0.35%	-0.01%
BBgBarc US Govt Int Index	0.04%	0.68%	1.49%	2.22%		-0.11%		0.06%		-0.73%		-0.41%	
Verus	-0.88%	0.42%	1.54%	1.07%		0.15%		0.02%		-1.31%		0.47%	
FIAM Bond	-0.88%	0.42%	1.54%	1.07%	0.00%	0.15%	0.00%	0.02%	0.00%	-1.31%	0.00%	0.48%	-0.01%
BBgBarc US Aggregate Index	-0.79%	0.60%	1.84%	1.64%		0.02%		-0.16%		-1.46%		0.39%	
Verus	-1.61%	0.25%	2.13%	0.74%		0.17%		-2.90%		-0.69%		1.51%	
Western TRU	-1.61%	0.25%	2.13%	0.74%	0.00%	0.17%	0.00%	-2.90%	0.00%	-0.69%	0.00%	1.51%	0.00%
3-Month Libor Total Return USD Index	0.21%	0.23%	0.24%	0.68%		0.60%		0.59%		0.46%		0.39%	
BBgBarc US Aggregate Index	-0.79%	0.60%	1.84%	1.64%		0.02%		-0.16%		-1.46%		0.39%	
Verus (Net)				0.45%		5.35%		9.49%		5.70%		11.05%	
Angelo Gordon Opportunistic				0.45%	0.00%	5.35%	0.00%	9.49%	0.00%	5.70%	0.00%	11.05%	0.00%
BBgBarc US Aggregate Index				1.64%		0.02%		-0.16%		-1.46%		0.39%	
Verus (Net)				2.51%		6.59%		4.83%		7.54%		3.13%	
Angelo Gordon STAR Fund (Net)				2.51%	0.00%	6.59%	0.00%	4.83%	0.00%	7.54%	0.00%	3.13%	0.00%
BBgBarc US Aggregate Index				1.64%		0.02%		-0.16%		-1.46%		0.39%	
Verus	-0.86%	-0.87%	-2.30%	-3.98%		1.80%		2.01%		1.14%		1.79%	
Beach Point Select (Net)	-0.86%	-0.87%	-2.30%	-3.98%	0.00%	1.80%	0.00%	2.01%	0.00%	1.14%	0.00%	1.79%	0.00%
BBgBarc BA Intermediate HY	-1.29%	-0.13%	-1.27%	-2.67%		2.27%		0.04%		-1.49%		0.15%	
Verus	-1.26%	-1.66%	-2.74%	-5.56%		2.28%		1.53%		1.05%		0.33%	
Brigade Capital (Net)	-1.26%	-1.66%	-2.73%	-5.55%	-0.01%	2.21%	0.07%	1.56%	-0.03%	1.03%	0.02%	0.28%	0.05%
BBgBarc BA Intermediate HY	-1.29%	-0.13%	-1.27%	-2.67%		2.27%		0.04%		-1.49%		0.15%	
50% BBgBarc HY/ 50% Bank Loan	-0.80%	-0.84%	-2.22%	-3.81%		2.17%		0.91%		0.36%		0.82%	
Verus	-1.02%	-0.25%	0.01%	-1.26%		1.66%		-0.73%		-0.64%		0.82%	
PIMCO Diversified	-1.02%	-0.25%	0.01%	-1.26%	0.00%	1.66%	0.00%	-0.73%	0.00%	-0.64%	0.00%	0.82%	0.00%
Blended PIMCO Diversified Index	-1.41%	-0.45%	0.39%	-1.47%		1.65%		-1.13%		-1.26%		0.75%	
BBgBarc BA Intermediate HY	-1.29%	-0.13%	-1.27%	-2.67%		2.27%		0.04%		-1.49%		0.15%	
Verus	2.01%	0.69%	-0.56%	2.14%		0.32%		-4.32%		2.01%		-1.31%	
Franklin Templeton Investments	2.01%	0.69%	-0.56%	2.14%	0.00%	0.32%	0.00%	-4.32%	0.00%	2.01%	0.00%	-1.32%	0.01%
BBgBarc Multiverse Index	-1.10%	0.25%	1.89%	1.02%		0.00%		-2.83%		1.29%		1.06%	
Verus				1.75%		3.41%		2.15%		1.46%		4.67%	
TCP Direct Lending VIII				1.75%	0.00%	3.41%	0.00%	2.15%	0.00%	1.46%	0.00%	4.67%	0.00%
Cliffwater Direct Lending Index				2.38%		2.44%		2.18%		2.02%		1.97%	

Manager Performance Comparison (Gross of Fees)

Period Ending: December 31, 2018

	Oct	Nov	Dec	4th Qtr. 2018	Difference	3rd Qtr. 2018	Difference	2nd Qtr. 2018	Difference	1st Qtr. 2018	Difference	4th Qtr. 2017	Difference
Verus				2.03%		0.00%		0.00%		2.17%		0.51%	
White Oak Yield				2.03%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%	0.00%	0.51%	0.00%
Cliffwater Direct Lending Index				2.38%		2.44%		2.18%		2.02%		1.97%	
Verus	-4.32%	0.12%	-1.29%	-5.44%		0.30%		-0.45%		-1.21%		4.72%	
AQR GRP, 10% Volatility (Net)	-4.32%	0.12%	-1.29%	-5.44%	0.00%	0.30%	0.00%	-0.45%	0.00%	-1.21%	0.00%	4.72%	0.00%
60% R3000/ 40% BBgBarc Agg	-4.48%	0.88%	-3.98%	-7.49%		2.95%		1.12%		-0.67%		3.61%	
60% MSCI World/ 40% BBgBarc Glb	-4.73%	1.44%	-4.85%	-8.05%		4.25%		2.26%		-0.91%		3.93%	
Verus	-4.60%	1.59%	-1.05%	-4.10%		-2.11%		0.02%		-1.58%		4.38%	
PanAgora (Net)	-4.60%	1.59%	-1.05%	-4.10%	0.00%	-2.11%	0.00%	0.02%	0.00%	-1.58%	0.00%	4.38%	0.00%
60% R3000/ 40% BBgBarc Agg	-4.48%	0.88%	-3.98%	-7.49%		2.95%		1.12%		-0.67%		3.61%	
60% MSCI World/ 40% BBgBarc Glb	-4.73%	1.44%	-4.85%	-8.05%		4.25%		2.26%		-0.91%		3.93%	
Verus	-4.57%	-1.19%	1.49%	-4.31%		-1.94%		-6.09%		-3.86%		1.33%	
AQR DELTA XN (Net)	-4.57%	-1.19%	1.49%	-4.31%	0.00%	-1.94%	0.00%	-6.09%	0.00%	-3.86%	0.00%	1.33%	0.00%
Libor + 4%	0.52%	0.52%	0.54%	1.59%		1.55%		1.51%		1.29%		1.46%	
Verus	-2.15%	0.89%	-0.98%	-2.24%		0.54%		-2.18%		-1.88%		1.87%	
Aberdeen Standard GARS (Net)	-2.15%	0.89%	-0.97%	-2.25%	0.01%	0.54%	0.00%	-2.18%	0.00%	-1.88%	0.00%	1.87%	0.00%
Libor + 4%	0.52%	0.52%	0.54%	1.59%		1.55%		1.51%		1.29%		1.46%	
Verus				2.16%		2.56%		1.86%		2.42%		2.29%	
INVECO Real Estate				2.16%	0.00%	2.57%	-0.01%	1.85%	0.01%	2.46%	-0.04%	2.26%	0.00%
NCREIF NFI ODCE Index				1.76%		2.09%		2.05%		2.20%		2.07%	
Verus				4.25%		2.98%		1.97%		2.67%		2.09%	
Invesco US Val IV				4.25%	0.00%	2.98%	0.00%	1.97%	0.00%	2.67%	0.00%	2.09%	0.00%
NCREIF NFI ODCE Index				1.76%		2.09%		2.05%		2.20%		2.07%	
NCREIF CEVA 1Q Lag - NET				2.95%		2.95%		2.13%		3.41%		3.00%	
Verus (net)				1.64%		2.12%		1.25%		1.09%		2.52%	
PGIM RE US Debt Fund (net)				1.64%	0.00%	1.95%	0.17%	1.25%	0.00%	1.09%	0.00%	2.52%	0.00%
NCREIF NFI ODCE Index				1.76%		2.09%		2.05%		2.20%		2.07%	
Verus	-7.50%	-2.06%	-9.10%	-17.65%									
Cushing MLP Alpha TR (Net)	-7.50%	-2.06%	-9.10%	-17.65%									
% BBgBarc US TIPS/ 50% Blended PRA	-3.03%	-0.20%	-1.82%	-4.98%									
Alerian MLP TR USD	-7.99%	-0.83%	-9.36%	-17.30%									
Verus	-1.11%	0.29%	0.13%	-0.69%		-0.33%		0.78%		-0.25%		1.25%	
Brown Brothers Harriman	-1.11%	0.28%	0.16%	-0.67%	-0.02%	-0.33%	0.00%	0.78%	0.00%	-0.27%	0.02%	1.26%	0.00%
BBgBarc U.S Tips	-1.43%	0.48%	0.55%	-0.42%		-0.82%		0.77%		-0.79%		1.26%	

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

Number in billion USD

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

1.2 MSCI DEVELOPED AND EMERGING MARKET BREAKPOINTS

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

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

* Standard Index (Large+Mid)

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

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

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

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

Numbers are billions USD

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

2 RUSSELL US BREAKPOINTS

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

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

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

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

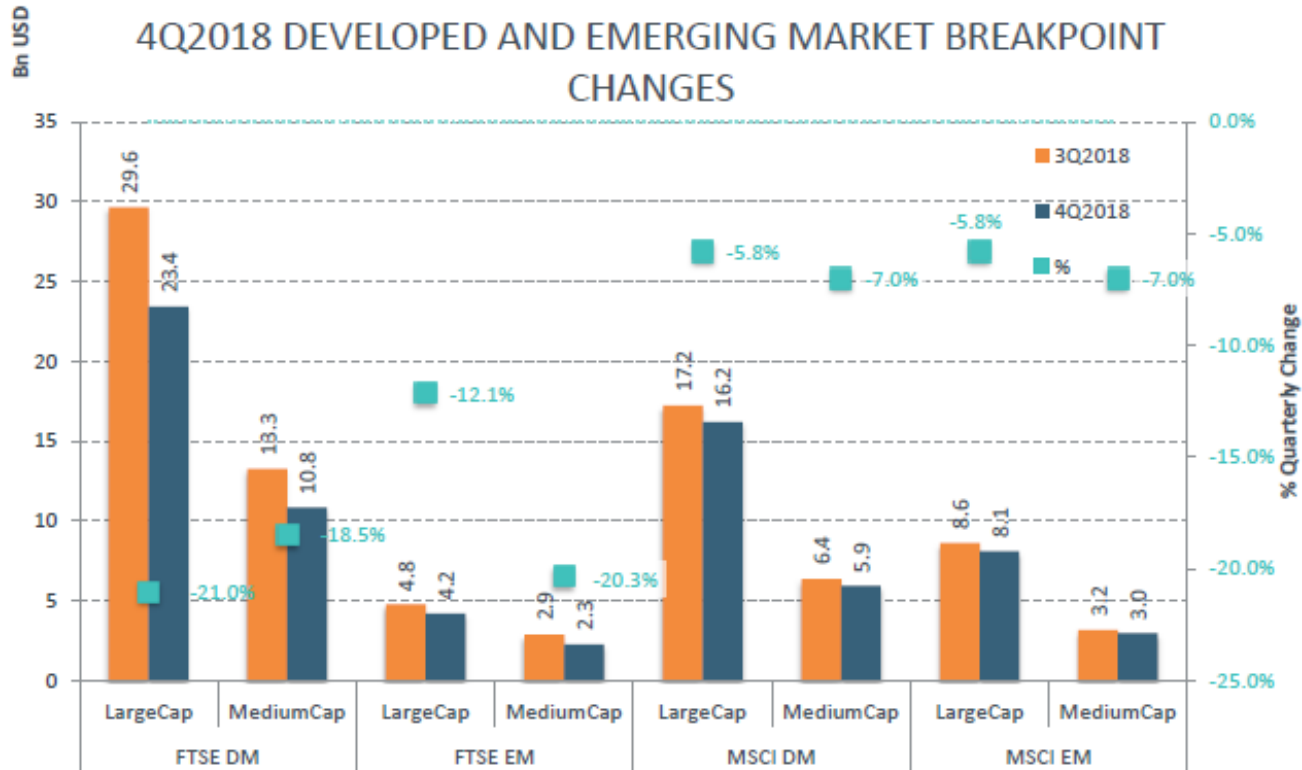
Market Capitalization Breakpoints

Period Ending: December 31, 2018

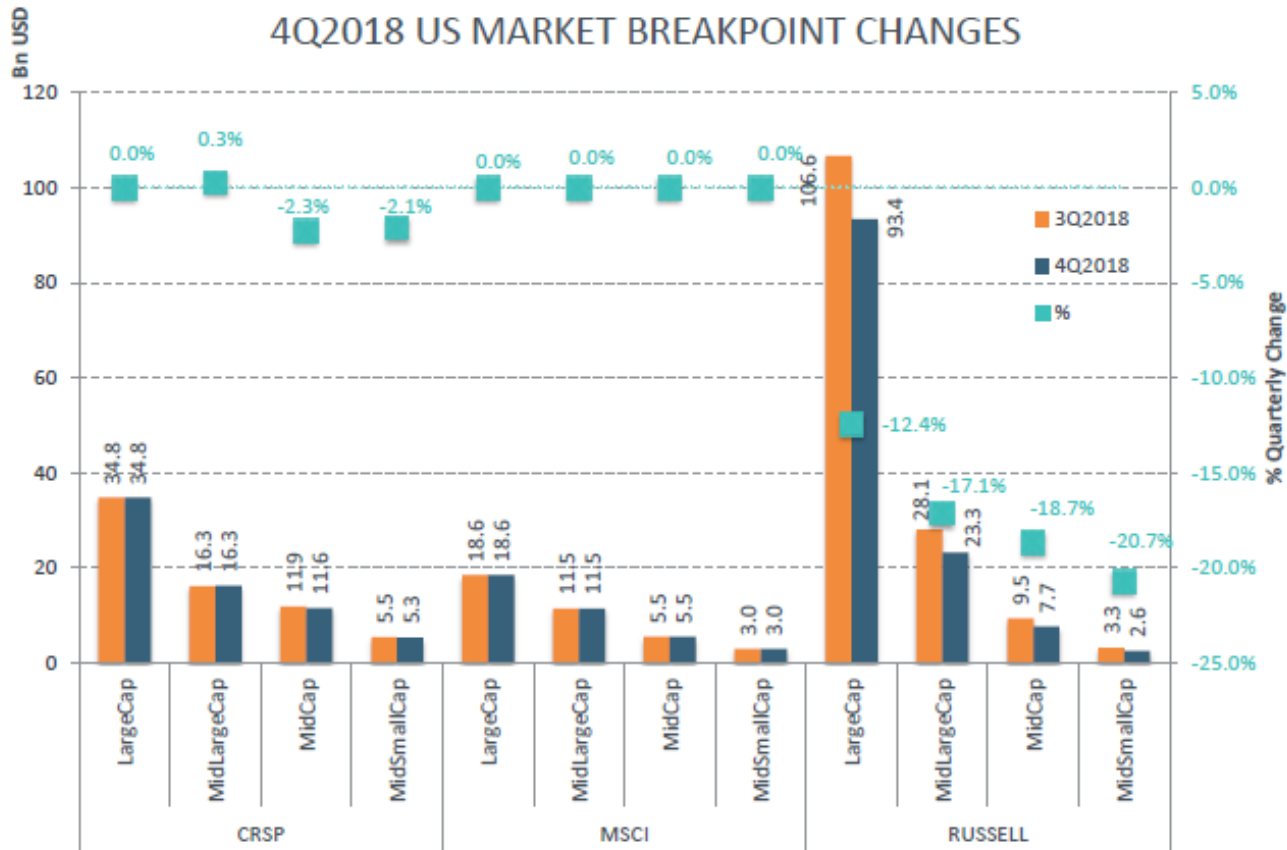
As Of	Large Cap	Medium Large Cap	Medium Cap	Medium Small Cap	Small Cap
12/31/2018	93.377	23.285	7.693	2.595	0
9/30/2018	106.633	28.088	9.457	3.273	0
6/30/2018	104.455	26.511	9.202	3.171	0
3/31/2018	101.922	26.399	8.890	2.958	0
12/31/2017	95.036	26.237	8.819	3.021	0
9/30/2017	93.539	24.882	8.344	2.935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

Numbers are billions USD

BREAKPOINT TRENDS



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



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.



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Sound thinking

PRIORITIES FOR 2019

The start of the year is a good time to consider some of the likely key issues that investors may have to deal with over the next 12 months. Our CIO, Ian Toner, identifies eight topics that are likely to be important during 2019. He also outlines ways that investors might approach each of these topics, and identifies some of the ways they might impact portfolios over the year.

Topics of interest

BUILDING EFFECTIVE PRIVATE MARKET PORTFOLIOS

Institutional sponsors often invest in private asset classes to boost the return profile of their overall plan portfolios. Yet, many fall short of achieving the desired returns. We believe that effective portfolio construction is an important component of achieving attractive return targets in private markets. Drawing on our experience over the last 20 years, we highlight the key considerations for any investor seeking to build a private markets portfolio.

PRIVATE MARKETS COMMITMENT PACING AND CASH FLOW MODELING

Private markets investors are faced with the difficulty of estimating future exposures within their portfolios over a longer time horizon. An effective pacing model designed to manage investor target allocations is a key process for managing exposures accurately. We provide an overview to commitment strategies, maintaining allocations over the long-term and monitoring liquidity risk.

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SAN FRANCISCO 415-362-3484

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4th quarter summary

THE ECONOMIC CLIMATE

- U.S. real GDP growth reached 3.0% in Q3, supported by fiscal stimulus which is more or less expected to fade in 2019. Growth is forecast to moderate in the U.S., in-line with the rest of the developed world. [p. 9](#)
- The U.S. and China ended their most recent round of trade negotiations during the first week of January. China indicated willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall. [p. 15](#)

PORTFOLIO IMPACTS

- The Federal Reserve raised the fed funds rate by 0.25% to a range of 2.25%-2.50%. Market expectations for future rate hikes changed dramatically in December. As of year-end, the fed funds futures market is pricing in zero hikes for 2019, and a rate cut for 2020. [p. 19](#)
- Emerging markets were the top equity performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed markets (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currencies stabilized in Q4 (JPMorgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines. [p. 34](#)

THE INVESTMENT CLIMATE

- The U.S. equity market experienced a fairly significant peak-to-trough drawdown in Q4 (S&P 500 -19.8%, Russell 1000 -20.1%), along with global equity markets. Equity corrections of this size have historically occurred roughly once per cycle. [p. 29](#)
- After reaching a cyclical high of 3.2% in November, the 10-year U.S. Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling inflation expectations as energy prices trended down. [p. 19](#)
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline. [p. 17](#)

ASSET ALLOCATION ISSUES

- Diversification has been particularly painful in recent years as most asset classes failed to keep up with a domestic 60/40 portfolio. U.S. performance exceptionalism reversed in Q4 as U.S. equities underperformed. [p. 6](#)
- Economic conditions around the world have weakened. This trend has been broad-based, from industrial production, to business sentiment, to corporate earnings expectations. [p. 16](#)

Economic conditions displayed a weaker trend in Q4

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

What drove the market in Q4?

“Stocks continue to fall on global growth concerns”

GLOBAL MANUFACTURING PMI

Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18
53.2	54.5	53.3	53.0	52.2	51.5

Article Source: Yahoo Finance, December 14th, 2018

“Fed seen slowing, or even stopping, rate hikes next year”

YEAR-END 2020 MARKET IMPLIED FED FUNDS RATE

Jul	Aug	Sep	Oct	Nov	Dec
2.72%	2.62%	2.82%	2.86%	2.71%	2.38%

Article Source: Reuters, December 10th, 2018

“The great cheapening of 2018: global stock valuations now at five-year lows”

MSCI ACWI FORWARD P/E RATIO

Jul	Aug	Sep	Oct	Nov	Dec
14.9x	14.9x	14.8x	13.7x	13.9x	13.0x

Article Source: Wall Street Journal, December 10th, 2018

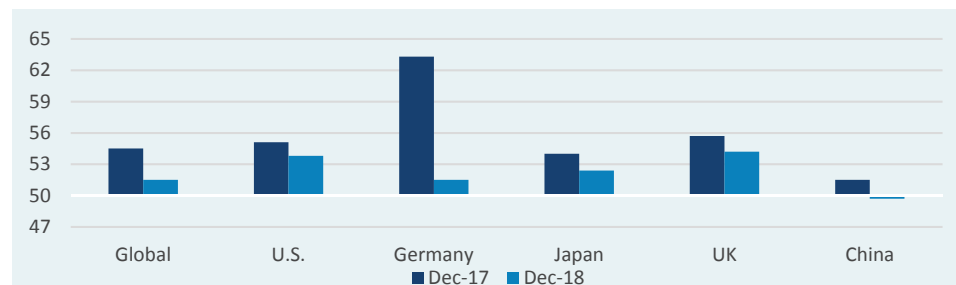
“Market volatility is surging”

DAILY AVERAGE OF S&P 500 INDEX IMPLIED VOLATILITY (VIX)

Jul	Aug	Sep	Oct	Nov	Dec
13.1	12.5	12.9	19.4	19.4	25.0

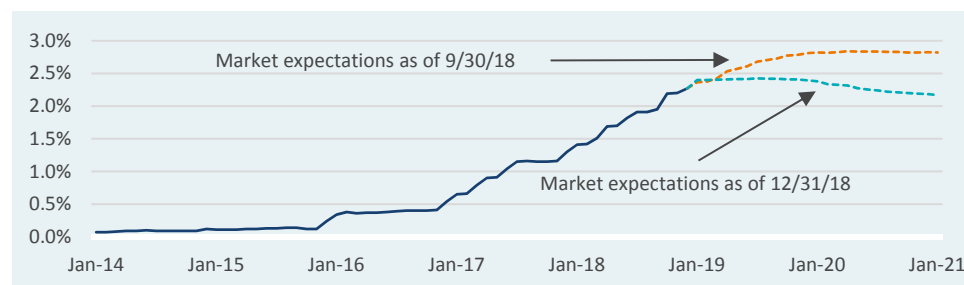
Article Source: Forbes, October 11th, 2018

GLOBAL MANUFACTURING PMIs



Source: Bloomberg, JPMorgan, Market, as of 12/31/18, 50 indicates a neutral level

MARKET PRICING OF FUTURE FED FUNDS RATE



Source: Bloomberg, as of 12/31/18

MSCI ACWI FORWARD P/E RATIO



Source: Bloomberg, as of 12/31/18, blended 12-month forward earnings

Tough years for diversification

Individual asset classes relative to a domestic 60/40

RELATIVE TO DOMESTIC 60/40	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
US Large	8.6	(7.8)	(8.0)	(12.1)	9.5	2.3	0.8	4.4	(0.5)	(14.0)	6.9	2.7	(2.4)	4.1	14.5	3.3	0.2	3.2	7.4	(1.9)
US Small	8.9	(1.7)	6.4	(10.5)	28.1	9.7	0.5	7.0	(7.6)	(10.8)	7.6	14.5	(8.7)	4.4	20.9	(5.5)	(5.6)	12.5	0.2	(8.5)
International Developed	14.6	(12.9)	(17.5)	(5.9)	19.4	11.6	9.4	14.9	5.2	(20.4)	12.2	(4.6)	(16.6)	5.4	4.9	(15.3)	(2.0)	(7.8)	10.6	(11.3)
Emerging Markets	(12.4)	1.3	1.3	3.8	36.6	17.0	29.9	20.7	33.4	(30.3)	58.9	6.5	(22.9)	6.3	(20.5)	(12.6)	(16.1)	2.4	22.9	(12.1)
US TIPS	(10.0)	14.5	11.8	26.6	(10.8)	(0.1)	(1.3)	(11.0)	5.6	20.6	(8.2)	(6.1)	9.1	(4.9)	(26.5)	(6.8)	(2.6)	(4.1)	(11.4)	1.2
US Treasury	(17.7)	16.0	10.7	24.5	(17.3)	(4.2)	(1.7)	(8.7)	4.2	41.0	(25.6)	(3.0)	11.1	(7.7)	(23.9)	(1.4)	0.4	(7.7)	(11.8)	3.4
Global Sovereign ex-US	(18.9)	(1.5)	-	31.9	(1.0)	3.5	(12.9)	(4.1)	4.9	32.4	(15.3)	(6.3)	0.7	(10.1)	(22.8)	(13.2)	(6.0)	(6.9)	(5.1)	1.6
Core Fixed Income	(13.2)	12.9	12.3	20.3	(15.1)	(4.3)	(1.7)	(7.1)	1.0	28.2	(13.7)	(5.9)	3.3	(7.7)	(19.9)	(4.4)	(0.7)	(6.2)	(10.9)	2.5
High Yield Corp. Credit	(10.0)	(4.6)	9.2	8.6	9.8	2.5	(1.4)	0.4	(4.1)	(3.2)	38.6	2.7	0.5	3.9	(10.5)	(7.9)	(5.7)	8.3	(6.9)	0.4
Bank Loans	(12.4)	1.3	3.9	10.0	(19.2)	(3.4)	1.0	(4.7)	(3.9)	(6.1)	32.0	(2.3)	(3.0)	(2.2)	(12.6)	(8.8)	(1.9)	1.4	(10.3)	3.6
Global Credit	(12.4)	1.3	7.1	23.6	(2.8)	1.4	(6.1)	(3.1)	0.6	13.5	1.4	(5.7)	(0.1)	0.2	(16.8)	(8.0)	(4.6)	(3.4)	(5.2)	(0.8)
Emerging Market Debt (Hard)	7.2	14.0	13.6	23.7	3.0	3.0	6.1	(1.5)	0.2	11.0	10.2	(0.2)	2.8	5.5	(23.2)	(3.0)	-	1.4	(4.1)	(1.8)
Emerging Market Debt (Local)	(12.4)	1.3	3.9	10.0	(19.2)	(8.6)	2.2	3.8	12.1	17.8	2.4	3.3	(6.3)	4.9	(26.9)	(16.1)	(16.1)	1.1	0.8	(3.7)
Commodities	11.9	33.1	(15.6)	35.9	4.7	0.5	17.3	(9.3)	10.2	(12.6)	(0.7)	4.4	(17.8)	(13.0)	(27.4)	(27.4)	(25.9)	3.0	(12.7)	(8.8)
Hedge Fund	14.1	5.4	6.7	11.0	(7.6)	(1.7)	3.4	(1.0)	4.3	1.6	(8.1)	(6.7)	(10.2)	(7.1)	(8.9)	(7.0)	(1.5)	(8.3)	(6.6)	(1.0)
REITs	(15.0)	32.3	16.2	13.6	17.0	24.6	9.7	24.6	(23.6)	(16.2)	9.0	16.2	4.7	5.7	(16.0)	21.4	3.0	(1.6)	(10.2)	(2.3)
Risk Parity (HFR Vol 10)	(12.4)	1.3	3.9	10.0	(19.2)	9.1	11.4	(9.1)	4.7	6.6	(3.6)	5.7	4.7	1.1	(18.4)	(2.3)	(6.3)	1.2	(0.9)	6.4
Core Real Estate (NCREIF ODCE)	0.8	15.6	9.5	15.5	(9.9)	4.5	17.3	4.9	10.0	13.0	(49.4)	4.0	11.5	(1.0)	(4.0)	2.1	13.8	-	(6.8)	7.8
Domestic 60/40 (S&P 500, BC Universal)	12.4	(1.3)	(3.9)	(10.0)	19.2	8.6	4.1	11.4	6.0	(23.0)	19.6	12.4	4.5	11.9	17.9	10.4	1.2	8.8	14.4	(2.5)
% of Assets Outperforming Domestic 60/40	39%	72%	78%	83%	44%	67%	67%	44%	72%	56%	56%	50%	50%	56%	17%	17%	22%	50%	28%	44%

Performance as of 12/31/18, NCREIF Property Index performance data as of 9/30/18

Economic environment

U.S. economics summary

- Real GDP growth reached 3.0% YoY (3.4% quarterly annualized rate) in the third quarter, the fastest pace of growth in more than three years. Consumers drove growth after bouncing back from a spending slowdown in Q1.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. The U.S. noted China's willingness to purchase more American agricultural goods, energy, and other manufactured goods, but little progress is evident overall.
- U.S. inflation remained near the Federal Reserve's 2.0% target. Headline U.S. inflation fell from 2.3% to 1.9% over the quarter, driven by lower oil prices. U.S. core CPI remained at 2.2%. Moderate inflation has likely contributed to the willingness of the Fed to keep on course with rate hikes.
- The labor market remained a bright spot in the U.S. economy. On average, nonfarm payrolls increased by 254,000 per month during the quarter, well above the expansion average of 201,000.
- The headline U-3 unemployment rate rose from 3.7% to 3.9%, in part due to an increase in labor force participation.
- Fiscal stimulus continued to support growth, although the impacts will likely subside in the first half of 2019. Stimulus may be masking a slowdown in the economy, which would be directionally in line with the rest of the developed world.
- The Federal Reserve hiked the target range for its benchmark interest rate by 25 basis points to a new range of 2.25% - 2.50%. Consistent with expectations for a "dovish hike", central bank officials re-rated hike expectations in 2019 from three to two.

	Most Recent	12 Months Prior
GDP (YoY)	3.0% <i>9/30/18</i>	2.3% <i>9/30/17</i>
Inflation (CPI YoY, Core)	2.2% <i>12/31/18</i>	1.8% <i>12/31/17</i>
Expected Inflation (5yr-5yr forward)	1.8% <i>12/31/18</i>	2.0% <i>12/31/17</i>
Fed Funds Target Range	2.25 – 2.50% <i>12/31/18</i>	1.25 – 1.50% <i>12/31/17</i>
10 Year Rate	2.7% <i>12/31/18</i>	2.4% <i>12/31/17</i>
U-3 Unemployment	3.9% <i>12/31/18</i>	4.1% <i>12/31/17</i>
U-6 Unemployment	7.6% <i>12/31/18</i>	8.1% <i>12/31/17</i>

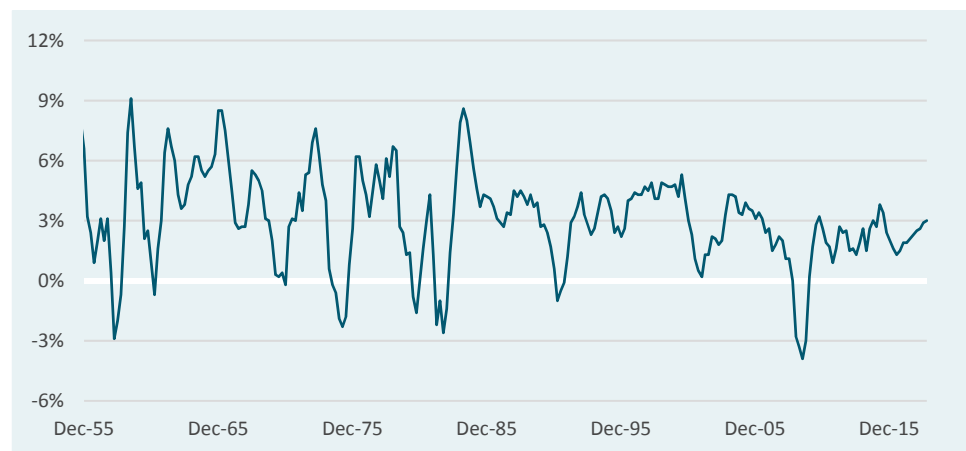
GDP growth

Real GDP growth reached 3.0% YoY (3.4% quarterly annualized rate) in the third quarter, the fastest pace in more than three years. Consumer spending was a core driver for the second straight quarter after bouncing back from a spending slowdown earlier in the year. A tight labor market, firming wage growth, and low inflation created a strong backdrop for spending, which added 2.4% to the quarterly growth rate. A build in inventories was the second biggest contributor to growth, which could be the result of pulling future growth into the current quarter as inventory builds are typically drawn down in subsequent quarters.

Fiscal stimulus continued to support growth, although its impact will likely subside in the first half of 2019. This support may be masking a slowdown in the U.S. economy, which has already started to appear in other parts of the world. More current metrics of the economy, such as PMIs, are indeed indicating that activity is slowing from recent high levels, but growth remains positive. However, fading fiscal stimulus and monetary tightening (that impacts the economy with a lag) present unique challenges to the economic outlook and increase the possibility of a more significant slowdown.

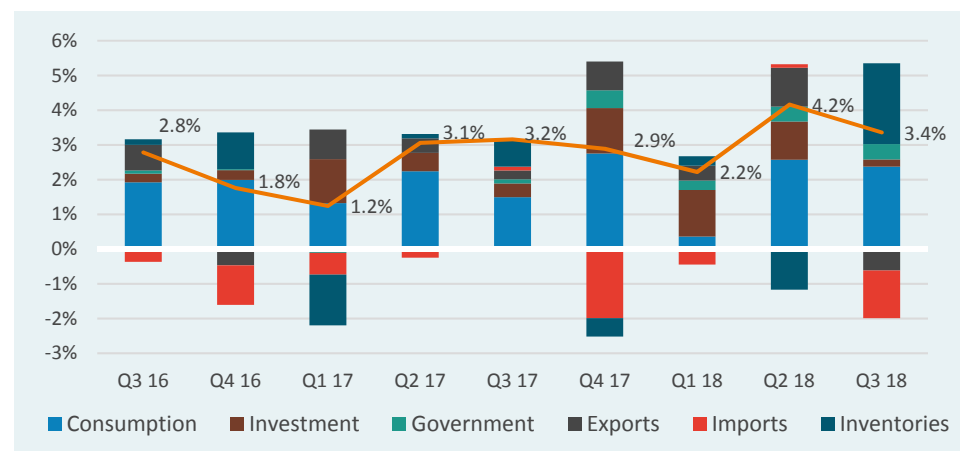
The economy appears to be slowing after a period of strong growth

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/18

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 9/30/18

Inflation

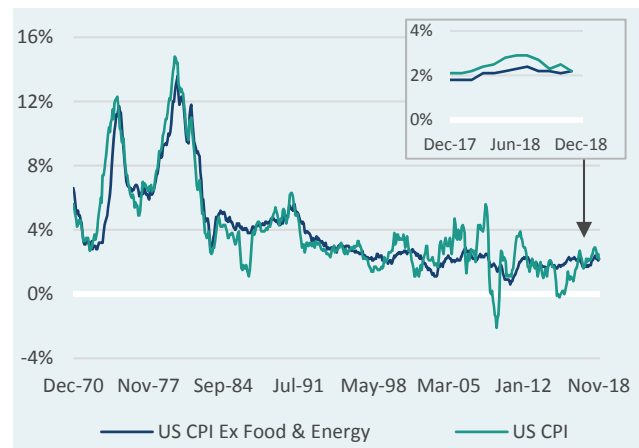
U.S. inflation remained near the Federal Reserve's 2.0% target. Headline U.S. inflation fell from 2.3% to 1.9% over the quarter, driven by lower oil prices. U.S. core CPI remained at 2.2%. Moderate inflation has likely contributed to the willingness of the Fed to keep on course with rate hikes.

Inflation fears remained muted as indicated by consumer expectations and market pricing. Breakeven inflation rates implied by U.S. 10-year Treasury pricing fell by a net 0.4% to 1.7% in the fourth quarter alongside a significant drop in

energy prices. Consumer inflation expectations moderated by a net 0.3% during that time, according to the University of Michigan consumer survey.

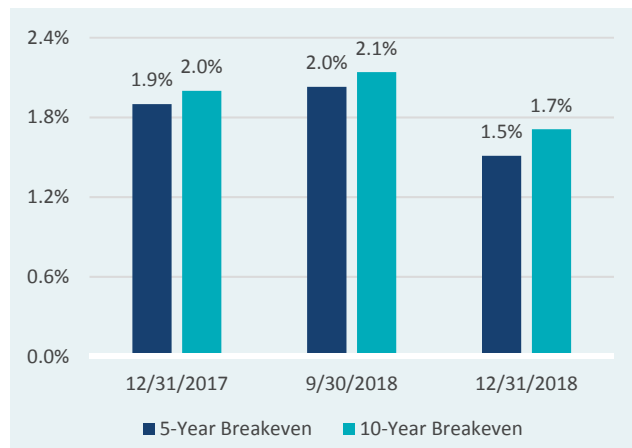
U.S.-China tariffs have recently been cited as a potential source of inflation risk. However, flow-through effects from import prices to consumer prices are complex, and the outcome may be more nuanced. We do not expect a material increase in inflation due to the tariffs that have been implemented.

U.S. CPI (YOY)



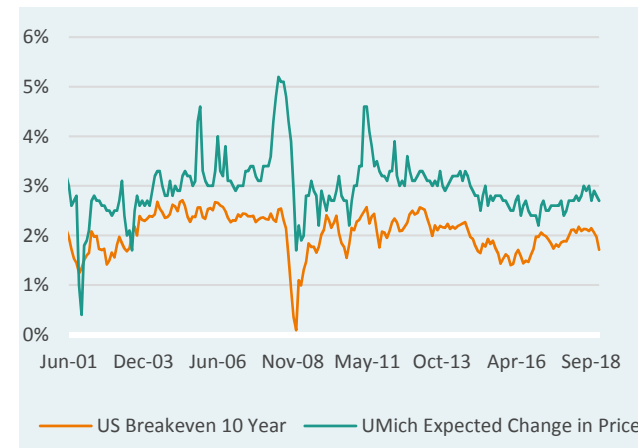
Source: Bloomberg, as of 12/31/18

BREAKEVEN INFLATION RATES



Source: FRED, as of 12/31/18

INFLATION EXPECTATIONS



Source: Bloomberg, as of 12/31/18

Labor market

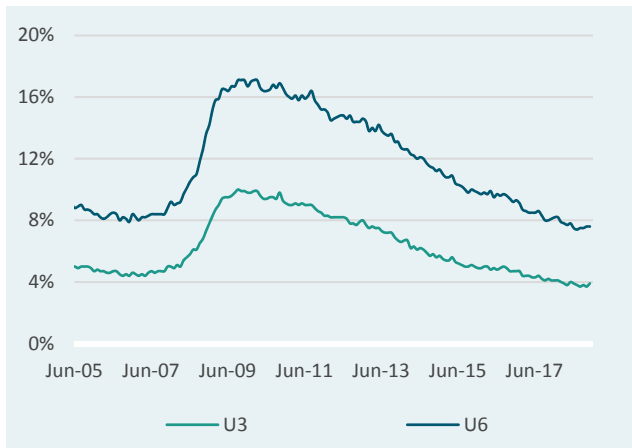
The labor market remained a bright spot in the U.S. economy, although this strength may reflect where the economy has been rather than where it is headed. Labor market conditions tend to lag the broader economy.

On average, nonfarm payrolls increased by 254,000 per month during the quarter, well above the expansion average of 201,000. The headline U-3 unemployment rate ticked up from 3.7% to 3.9%, in part due to an increase in labor force participation. Rising wages and ease of obtaining

employment may have played a role in enticing people to come back to work. Core age participation (ages 25-54) rose from 81.8% to 82.3% in the fourth quarter. This measure is up a net 1.7% (this increase roughly equates to 3.5 million more employed persons, all else equal) since hitting a secular low in late 2015.

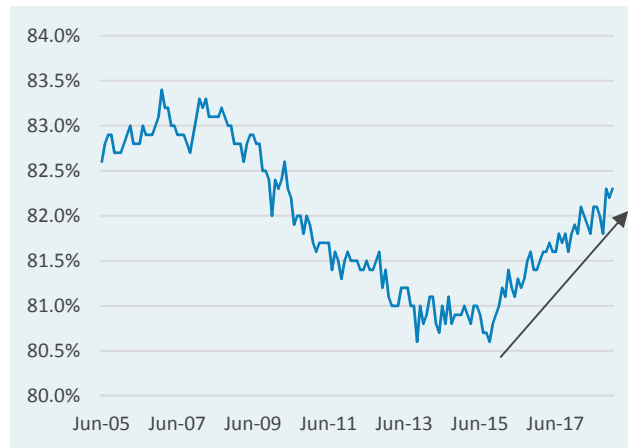
The tightness in the labor market appears to be translating to above average wage gains. In December, wage growth hit a cycle high of 3.3% from the previous year.

UNEMPLOYMENT RATE



Source: FRED, as of 12/31/18

CORE AGE PARTICIPATION RATE



Source: Bloomberg, as 12/31/18

WAGE GROWTH (YOY)



Source: Bloomberg, as of 12/31/18

The consumer

Real consumer spending rose 2.8% year-over-year, and remains a core driver of recent economic growth.

A strong job market, decent wage gains, and low interest rates have provided continued support to spending. Although conditions and sentiment are strong relative to history, U.S. consumers appear to be behaving conservatively. Overall, spending growth and debt usage has been more moderate than seen in recent expansions, perhaps partly due to memories of the 2008-2009 recession.

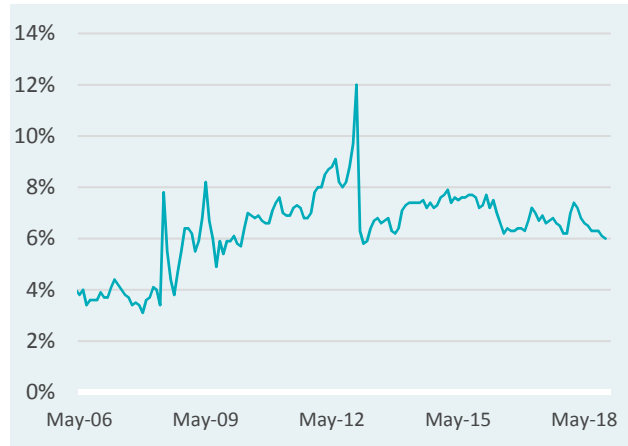
The 30-year fixed mortgage rate approached 5% towards the end of the year but tapered off as interest rates fell in December. Credit card interest rates have also risen materially. We believe further rate increases from this point will most likely be minimal, but that recent rate rises will act as a headwind to the consumer in many areas. For example, higher home values post-2009 were possible because low interest rates helped keep monthly payments within budgets. Now the reversal in interest rates, paired with additional home price appreciation, has squeezed the budget for new homeowners and contributed to a slowdown in the U.S. housing market.

REAL CONSUMER SPENDING (YOY)



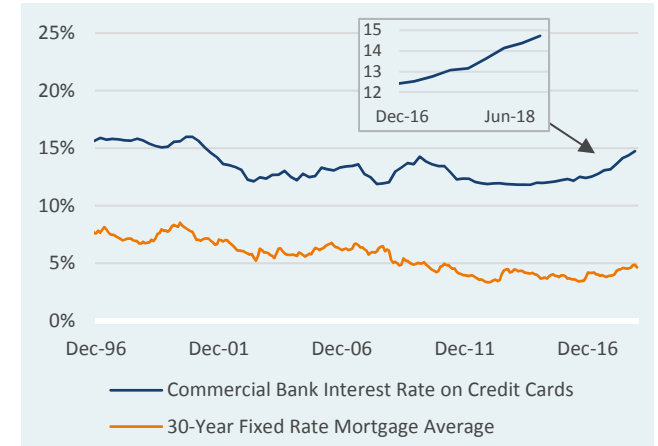
Source: Bloomberg, as of 11/30/18

PERSONAL SAVINGS RATE



Source: FRED, as of 11/30/18

CONSUMER INTEREST RATES



Source: FRED, as of 12/31/18

Sentiment

Both consumer and business sentiment indicators were resilient in the fourth quarter, holding at above average levels.

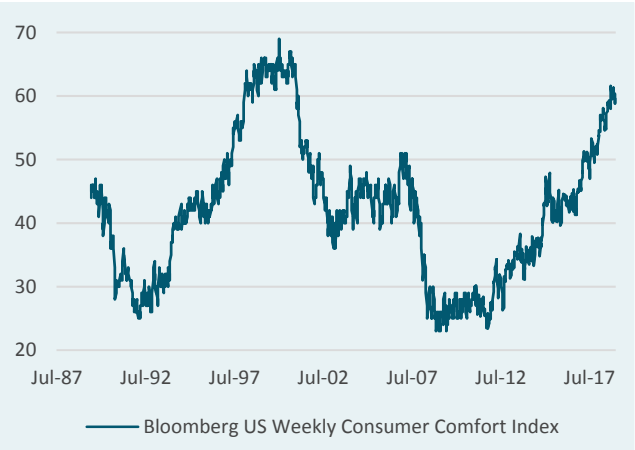
The University of Michigan Index of Consumer Sentiment fell modestly during the quarter from 100.1 to 98.3, but is still elevated relative to its own history (87th percentile since index inception in 1978). The recent plunge in stock prices was only reported by 12% of respondents as a primary economic concern. Consumers were instead

focused on positive perceptions of employment and income prospects, according to the survey administrators.

Small business sentiment drifted lower, but remained near record highs. At 104.4, the December reading for the NFIB Small Business Optimism Index was in the 92nd percentile of its own history going back to 1985.

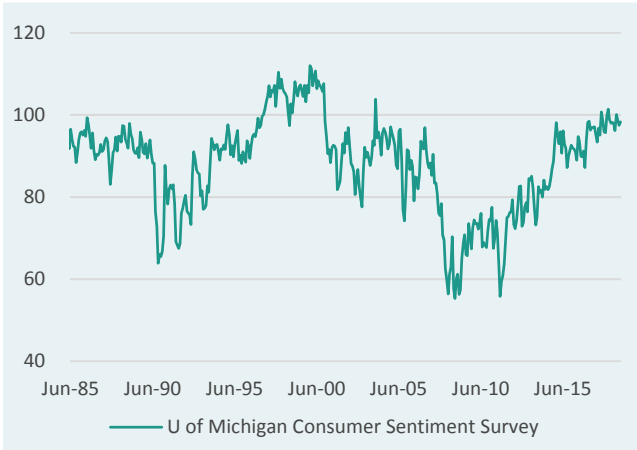
Consumers and business are confident about the future

CONSUMER COMFORT INDEX



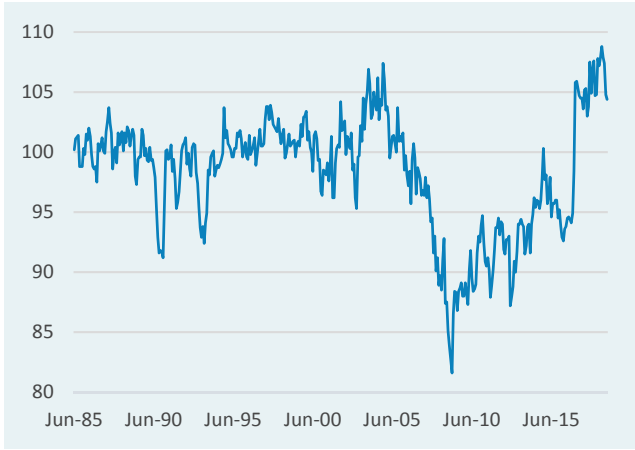
Source: Bloomberg, as of 12/31/18 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/18 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 12/31/18 (see Appendix)

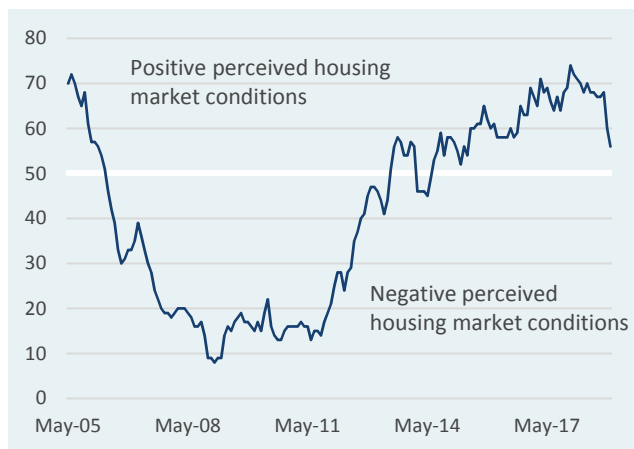
Housing

Housing market data that was released in the fourth quarter consistently came in below expectations. Monetary tightening has led to higher interest rates and likely begun to weigh on sales activity and home price appreciation. The National Association of Homebuilders (NAHB) Housing Market Index, based on a monthly survey of NAHB members designed to take the pulse of the single-family housing market, fell sharply from 67 to 56. However, the survey suggests conditions remain favorable overall, as 50 represents the neutral point for the index.

Less favorable buying conditions have flowed through to a slower pace of home sales despite a slowdown in price increases. Existing home sales, which make up the majority of national sales, fell to an annualized rate of 5.3 million in November, the slowest pace since early 2016. Home prices continue to march upward, but at a more moderate pace. In the most recent October print, the Case-Shiller National Home Price Index rose 5.5% year-over-year.

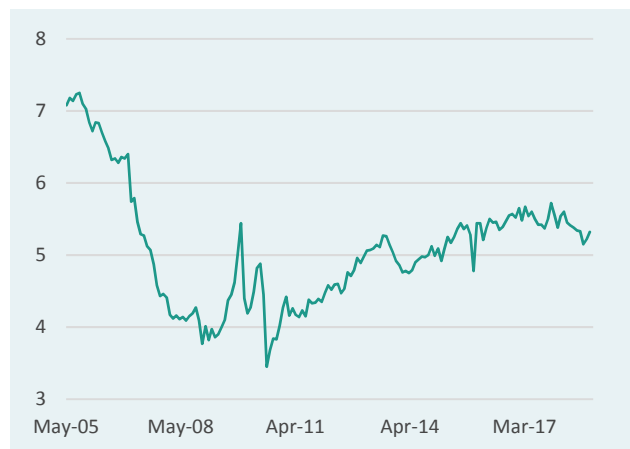
The U.S. housing market appears to be cooling off

NAHB HOUSING MARKET INDEX



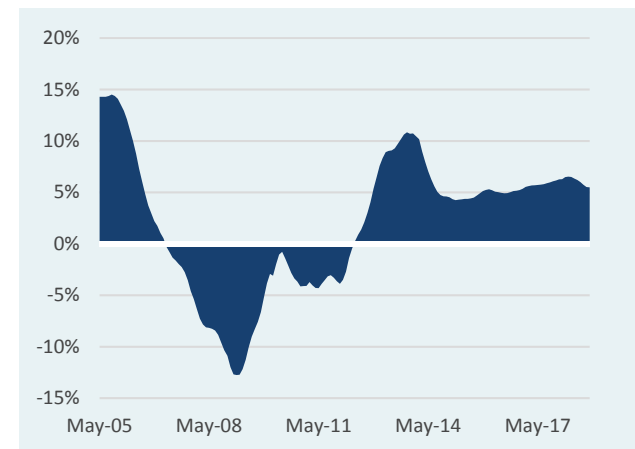
Source: Bloomberg, NAHB, as of 12/31/18 (see appendix)

EXISTING HOME SALES (MILLIONS)



Source: Bloomberg, SAAR, as of 11/30/18

NATIONAL HOME PRICE INDEX (YOY)



Source: Bloomberg, S&P/Case-Shiller, as of 10/31/18

International economics summary

- Outside of the U.S., economic growth has slowed in recent quarters, most notably in Europe and Japan. Developed real GDP growth is expected to slow from 2.2% in 2018 to 2.0% in 2019, according to the World Bank.
- The U.S. and China ended the recent round of trade negotiations during the first week of January. Officials continue to work towards an agreement, though little progress is been demonstrated thus far. On March 2nd, U.S. tariffs are scheduled to increase from 10% to 25% on \$200 billion of Chinese imports.
- China's Purchasing Managers' Index (PMI) fell to 49.7 in December. An index reading of 50 indicates economic expansion while a reading below 50 indicates contraction. This reading is in line with a string of weak economic data coming out of China.
- The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline. Potential resolutions include renegotiating a deal with the EU, leaving without a deal, or delaying the exit deadline.
- The U.S. dollar appreciated by 1.9% during the quarter on a trade-weighted basis. A slowing U.S. economy would likely put downside pressure on the dollar, which has been boosted recently by U.S. economic exceptionalism.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	3.0% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.9% <i>12/31/18</i>
Eurozone	1.6% <i>9/30/18</i>	1.8% <i>11/30/18</i>	8.1% <i>10/31/18</i>
Japan	0.0% <i>9/30/18</i>	0.8% <i>11/30/18</i>	2.5% <i>11/30/18</i>
BRICS Nations	5.6% <i>9/30/18</i>	2.4% <i>12/31/18</i>	5.4% <i>9/30/18</i>
Brazil	1.3% <i>9/30/18</i>	4.1% <i>11/30/18</i>	11.7% <i>12/31/18</i>
Russia	1.5% <i>9/30/18</i>	4.3% <i>12/31/18</i>	4.8% <i>11/30/18</i>
India	7.1% <i>9/30/18</i>	2.3% <i>11/30/18</i>	8.8% <i>12/31/17</i>
China	6.5% <i>9/30/18</i>	2.2% <i>11/30/18</i>	3.8% <i>9/30/18</i>

International economics

Outside of the U.S., economic growth slowed in recent quarters, most notably in Europe and Japan. Inflation turned lower in Q4 alongside falling energy prices. Low inflation provides greater flexibility for central banks to remain accommodative as needed.

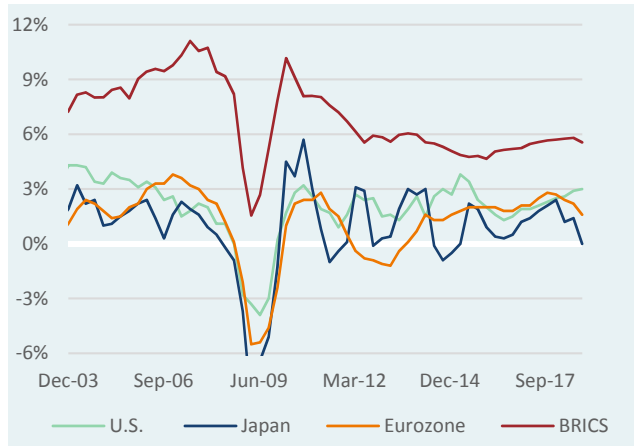
In the Eurozone, real GDP decelerated to 1.6% YoY as many economies struggled with stagnation and social unrest. European Union rules restrict the ability of member nations to fully implement fiscal and monetary stimulus to their economies, which may have contributed to Europe's uneven

economic recovery. It is possible that certain laggards of the Eurozone will eventually push for greater sovereign control of their economies if stagnation continues. This may result in standoffs such as seen recently between Italy and the EU.

The House of Commons in British Parliament overwhelmingly rejected Theresa May's Brexit deal that had been approved by the European Union. The details surrounding the terms of Great Britain's exit remain uncertain ahead of the March 30th deadline. Potential resolutions include renegotiating a deal with the EU, leaving without a deal, or delaying the exit deadline.

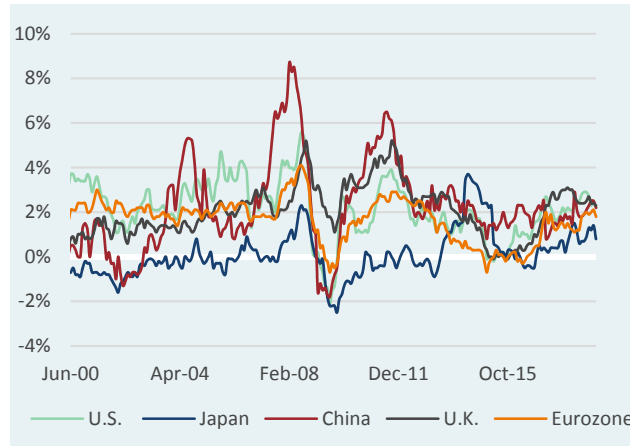
Global economic growth appears to be decelerating

REAL GDP GROWTH (YOY)



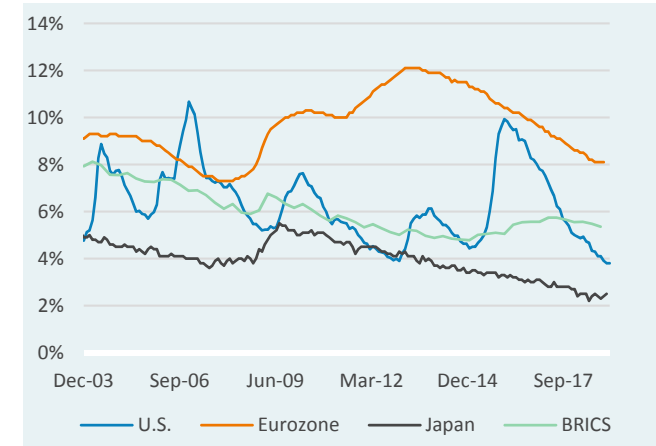
Source: Bloomberg, as of 9/30/18

INFLATION (CPI YOY)



Source: Bloomberg, as of 11/30/18

UNEMPLOYMENT RATE



Source: Bloomberg, as of 11/30/18 or most recent release

Brexit

The chaos surrounding Brexit negotiations has not yet had a large impact on markets (outside of higher volatility in the British pound), but it will likely become an increasing area of focus for global investors the closer we get to the March 2019 deadline. While most political and market commentators remain anti-Brexit, when we take a step back and think more dispassionately about the issue, a different picture emerges. Less immigration from Europe will likely be balanced by easier movement from other countries, including the U.S., India, Australia and others with historically strong links to the UK. Some businesses will likely shift to

accommodate the UK being outside of the protectionist area of the EU, but for most UK firms, much of their business is either done domestically or with non-EU countries.

There will be both gains and losses from Brexit, and yet current market pricing behavior seems to be putting little focus on the good and exaggerating the bad, which may present investment opportunity, particularly for non-consensus active managers. In the short-term, however, investors should brace for higher volatility.

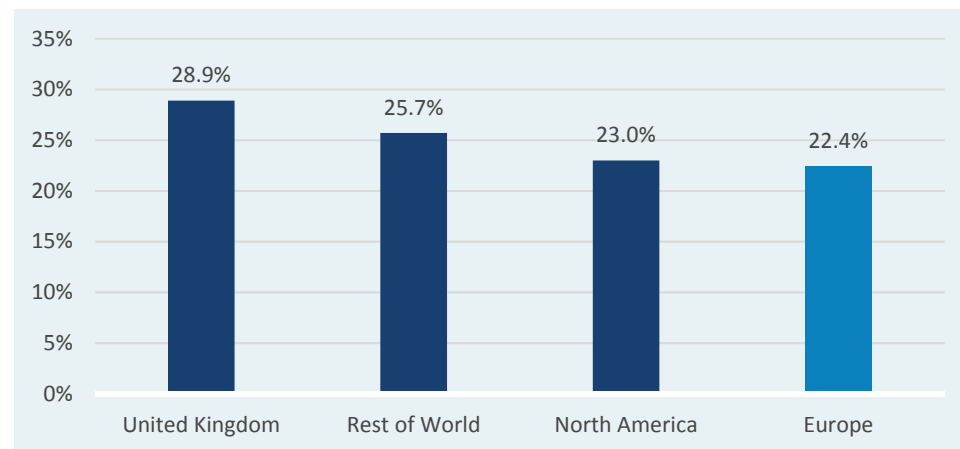
There will be both gains and losses from Brexit

3-MONTH IMPLIED VOLATILITY OF GBP/USD



Source: Bloomberg, as of 12/31/18

FTSE 100 COMPANY REVENUES BY REGION (2017)



Source: FTSE, 2017

Fixed income rates & credit

Interest rate environment

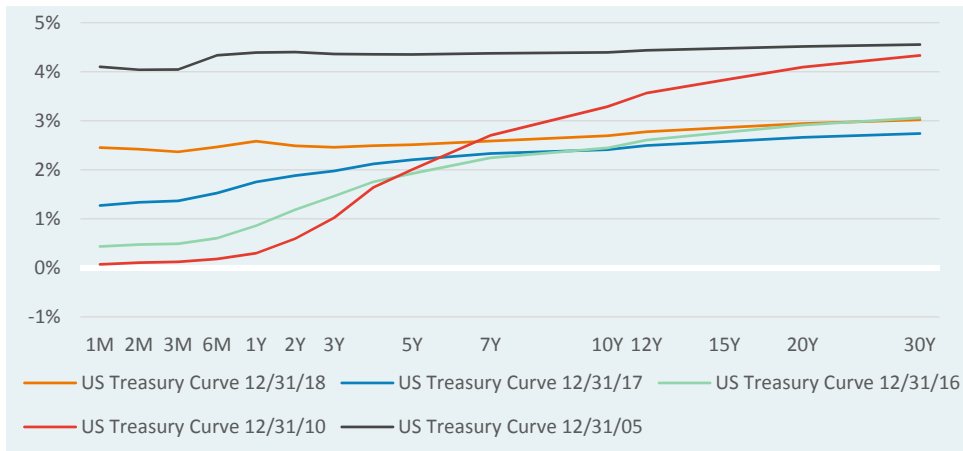
- The Federal Reserve raised the target for the fed funds rate by 0.25% in December, to a range of 2.25%-2.50%. Despite the hike, Fed officials indicated a more patient approach to future tightening, and lowered expectations for hikes in 2019 from three to two.
- The market's expectation for future rate hikes changed dramatically in December. As of year-end, the fed fund futures market is pricing zero hikes in 2019 and a rate cut priced in 2020.
- After reaching a cycle high of 3.2% in November, the 10-year Treasury yield fell sharply to end the year at 2.7%. Much of this drop was due to falling breakeven inflation as oil prices plunged. The 10-year breakeven inflation rate fell from 2.1% to 1.7% over the quarter.
- Although certain parts of the U.S. Treasury yield curve have inverted, there remains a 15 bps gap between the 10- and 2-year yields, which is the most widely cited measure of yield curve shape.
- Developed sovereign yields fell alongside U.S. Treasuries. The 10-year German bund yield was cut in half over the quarter to 0.24%.
- As expected, the European Central Bank officially announced the end of its asset purchase program. Beginning in January of 2019, monthly purchases will fall from €30 billion to €0. Central bank officials have said that they will fully reinvest maturing securities for the foreseeable future and keep interest rates unchanged until at least the second half of 2019.

Area	Short Term (3M)	10-Year
United States	2.36%	2.69%
Germany	(0.77%)	0.24%
France	(0.86%)	0.71%
Spain	(0.42%)	1.42%
Italy	(0.06%)	2.74%
Greece	1.30%	4.40%
U.K.	0.73%	1.28%
Japan	(0.15%)	0.00%
Australia	2.01%	2.32%
China	2.83%	3.31%
Brazil	6.48%	9.24%
Russia	7.12%	8.78%

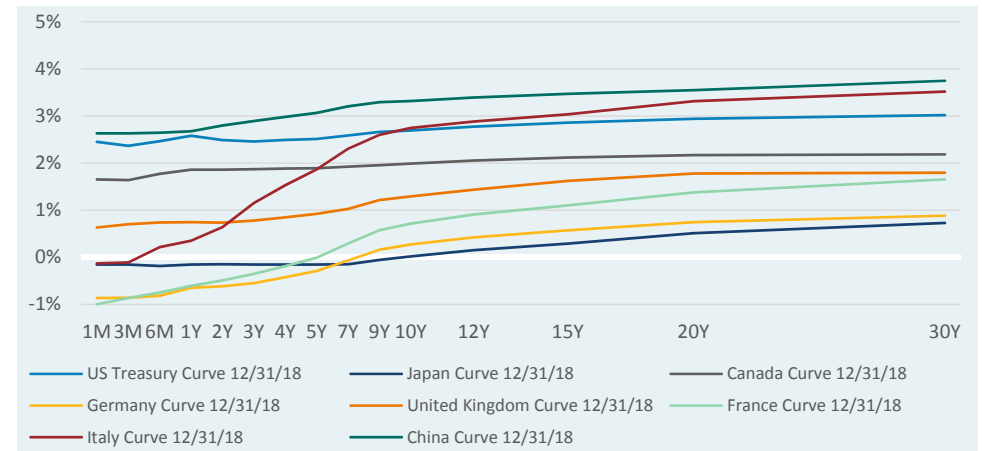
Source: Bloomberg, as of 12/31/18

Yield environment

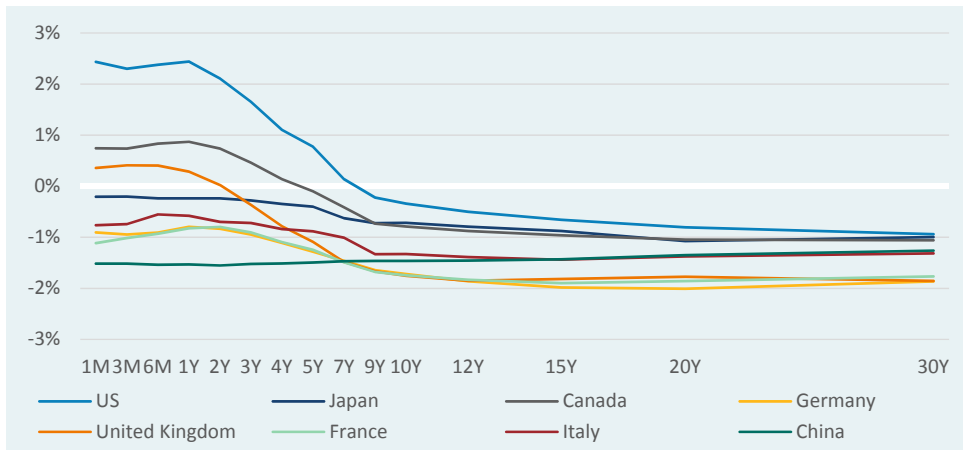
U.S. YIELD CURVE



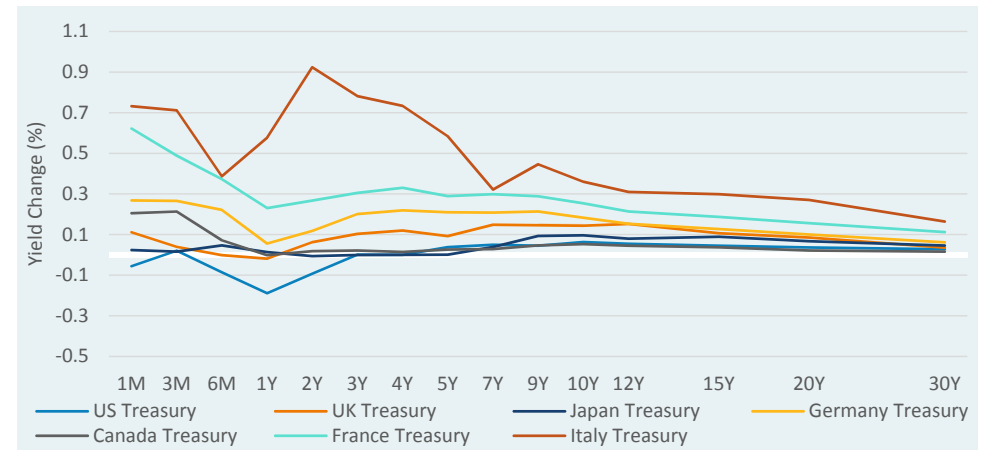
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/18

Fed pricing

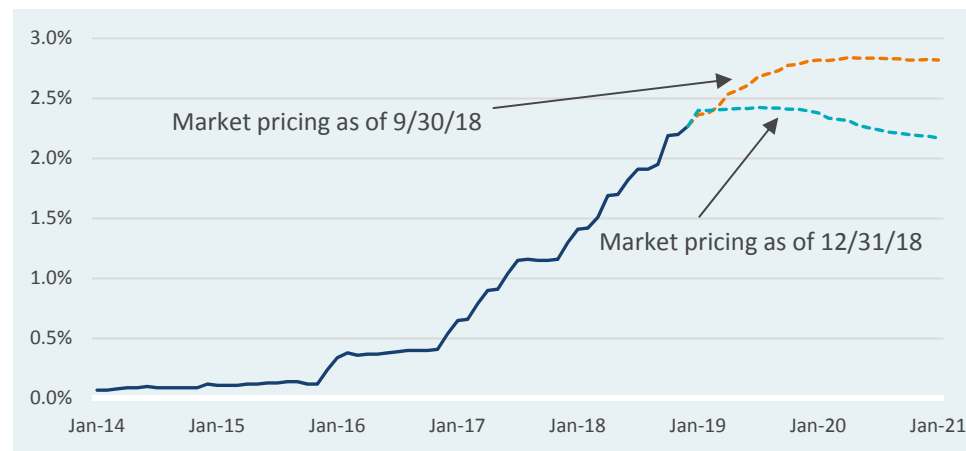
The Fed raised rates by another 25 bps in December to a target range of 2.25% to 2.50% on the fed funds rate, the fourth such hike of 2018. More important than what the Fed did, however, is what Fed officials said, and how the market reacted and adjusted its expectations for future monetary tightening. Leading up to the December meeting, Fed officials began to take a more a dovish tone amid market volatility and economic data misses, and they stressed the importance of future policy being data dependent. The Fed then acknowledged these concerns by lowering expectations for rate hikes in 2019 from three to two. Meanwhile, market expectations for future rate hikes plummeted as equity

markets sold off and volatility spiked. As of the end of the year, not only were markets priced for a Fed pause in 2019, but they were also priced for a rate cut in 2020. With such dovish market pricing, it is important to note that in order for the Fed to provide any stimulus at this point, it will likely need to cut rates or halt the balance sheet unwind.

Market pricing of future Fed policy is extremely dovish

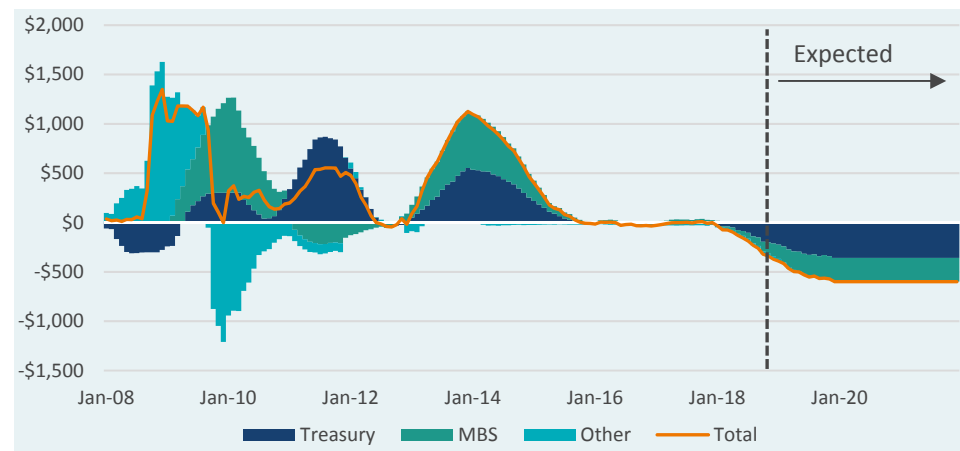
As of December, the Fed balance sheet had been reduced by around \$500 billion without any immediate issues. To this point, officials have been adamant that the balance sheet is not an active tool for tightening monetary policy, and that there are no plans to adjust the current rate of unwind.

MARKET PRICING OF THE FED FUNDS RATE



Source: Bloomberg, as of 12/31/18, dotted lines are based on futures market pricing

NET CHANGE IN FED BALANCE SHEET (YOY, \$BILLIONS)



Source: Bloomberg, Federal Reserve, as of 12/31/18

Credit environment

High yield and bank loans delivered losses during the quarter on slowing growth expectations, energy price volatility, investor outflows, and broad risk-off market sentiment (BbgBarc US Corp High Yield -4.5%, CS Leveraged Loans -3.1%).

High yield bonds returned -2.1% for 2018, which is the second lowest annual return for the asset class in the last ten years after 2015. Yields and spreads in high yield credit are at their highest since 2016, increasing to 8.0% and 526 bps, respectively.

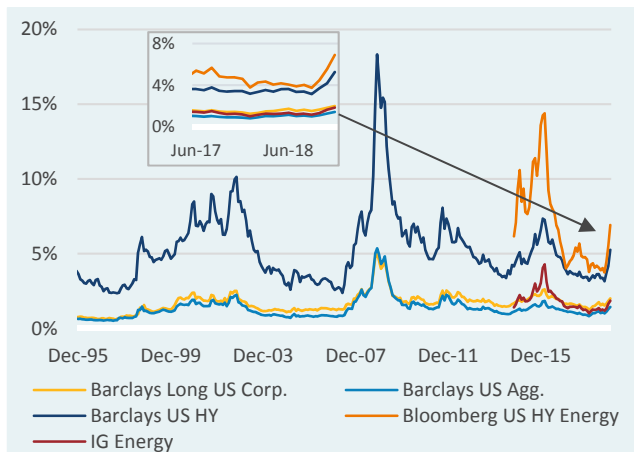
Loans were also under pressure in December as the asset class

dealt with accelerated outflows and negative press – spreads on loans increased to 505 bps from 374 bps the prior quarter. The credit quality of bank loans has deteriorated throughout the cycle as covenant-lite loans dominated new issuance.

Based on the recent behavior and heightened volatility in credit, we do not believe investors are being adequately compensated for credit risk and believe an underweight to U.S. investment grade, high yield credit, and bank loans is warranted. Within credit, we have a bias toward owning higher quality and more liquid assets.

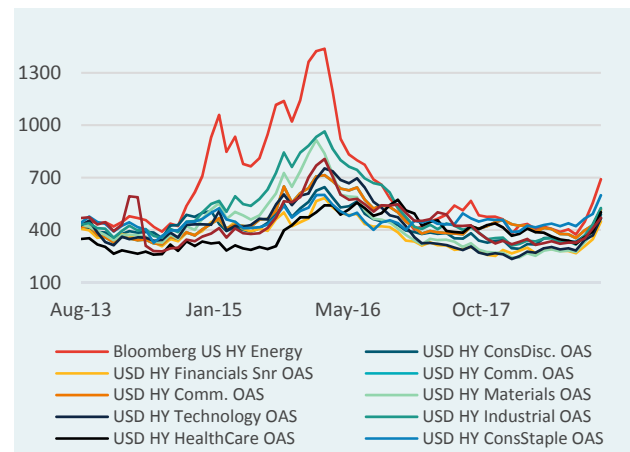
Credit spreads widened due to concerns over slowing global growth and broader risk-off behavior

SPREADS



Source: Barclays, Bloomberg, as of 12/31/18

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/18

Market	Credit Spread (OAS 12/31/18)	Credit Spread (1 Year Ago)
Long US Corporate	2.0%	1.4%
US Aggregate	1.4%	0.9%
US High Yield	5.3%	3.4%
US Bank Loans*	5.1%	4.0%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/18

*Discount margin 4-year life

Issuance and default

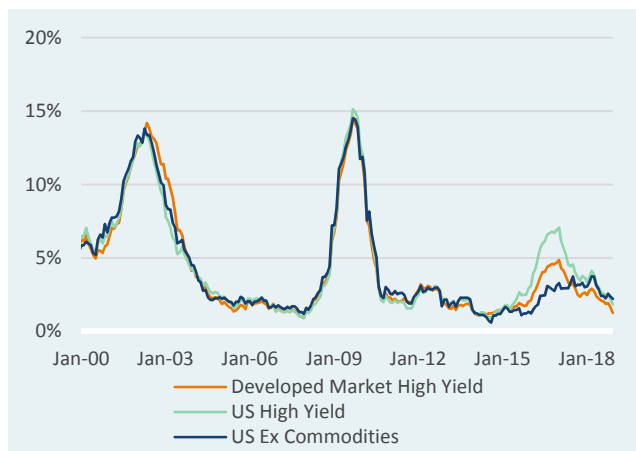
Default activity has been low and stable in the U.S. credit market, despite wider spreads. The par-weighted default rate of 1.9% remains below its long-term average of 3.0-3.5%. There were 29 defaults in 2018, affecting \$40.9 billion in bonds. iHeartRadio accounted for 40% of default volume (\$16 billion). The loan par-weighted default rate finished the year at 1.6%.

Senior loan and high yield markets have essentially recovered from a wave of defaults seen in 2015-2016 that were generated from the energy and metals/mining sectors.

Recovery rates for high yield bonds have vastly improved since that time.

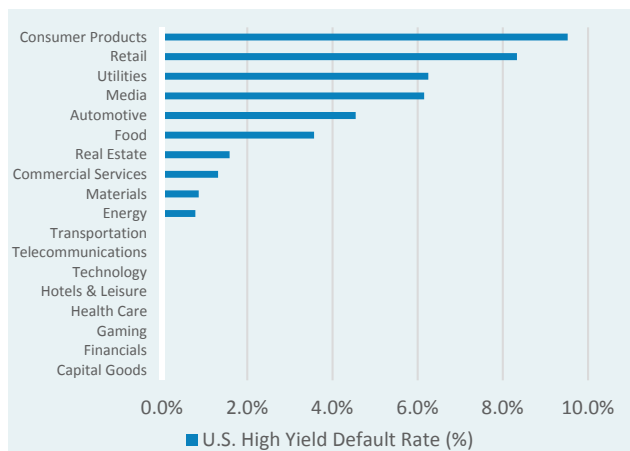
There were no high yield bonds issued in December due to market volatility – the first time this has happened since November 2008. Loan market issuance also slowed, with only \$8 billion in institutional loan volume. Gross new high yield and loan issue activity totaled \$187 billion and \$704 billion for 2018, respectively.

HY DEFAULT RATE (ROLLING 1-YEAR)



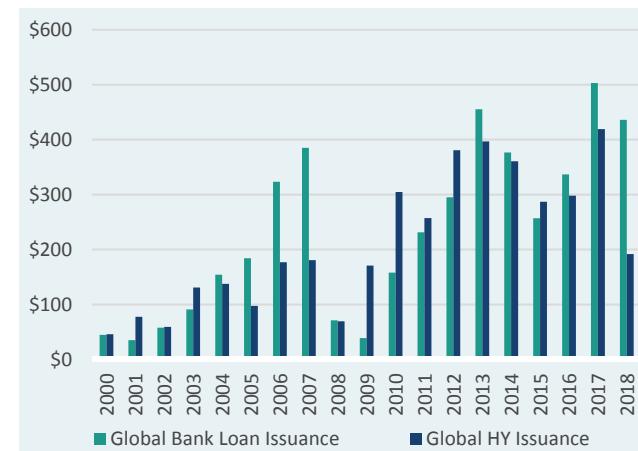
Source: BofA Merrill Lynch, as of 12/31/18

HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 12/31/18 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



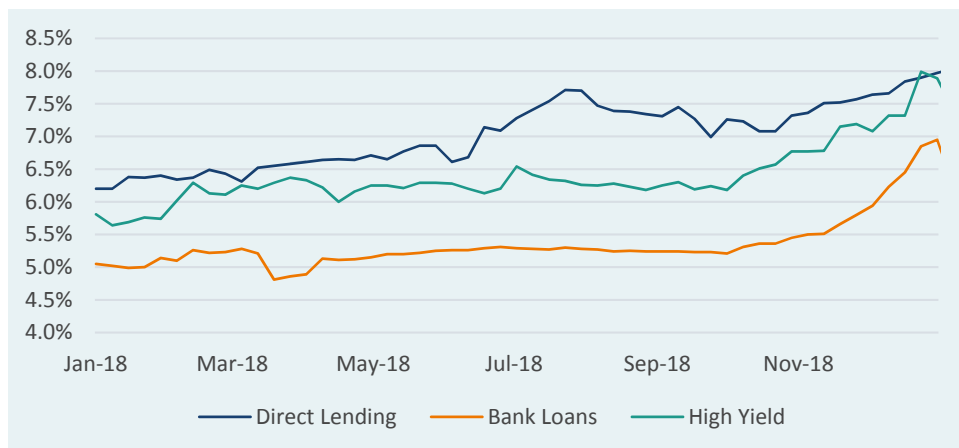
Source: Bloomberg, BofA Merrill Lynch, as of 12/31/18

Private credit

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

Yields for loans made by direct lending funds finished the year above 8% (8.04%). While yields have been aided by higher LIBOR rates,

YIELDS FOR DIRECT LENDING, BANK LOANS AND HIGH YIELD

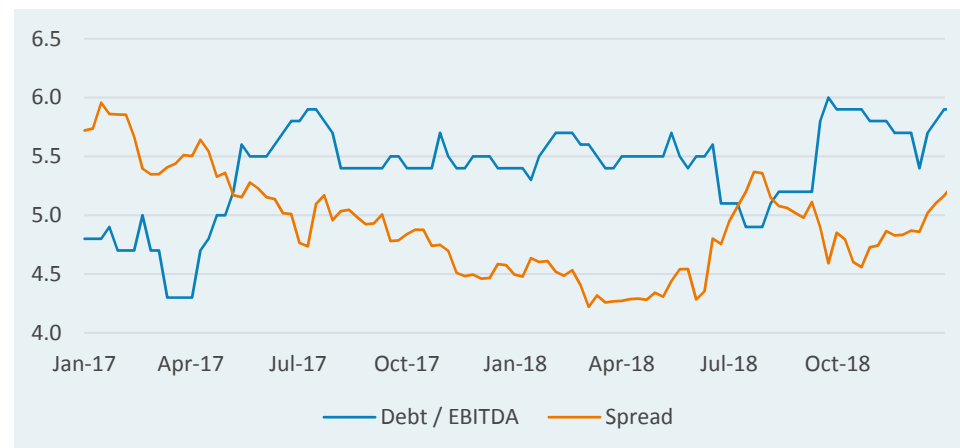


Source: The Lead Left, Middle Market, EBITDA < \$50MM; S&P LSTA US Leveraged Loan Index; ICE BofAML US High Yield Master II, as of 12/31/18

which grew from 1.7% to 2.8% during 2018, spreads increased from 4.5% to 5.35% during the year.

While credit spreads expanded in 2018, so too did the debt multiples for borrowers. Borrowers now average debt totaling 5.9x EBITDA, a 0.5x increase from January 2018-levels.

DIRECT LENDING LEVERAGE MULTIPLES (DEBT / EBITDA) & SPREAD



Source: The Lead Left, Middle Market Credit Stats, as of 12/31/18

Equity

Equity environment

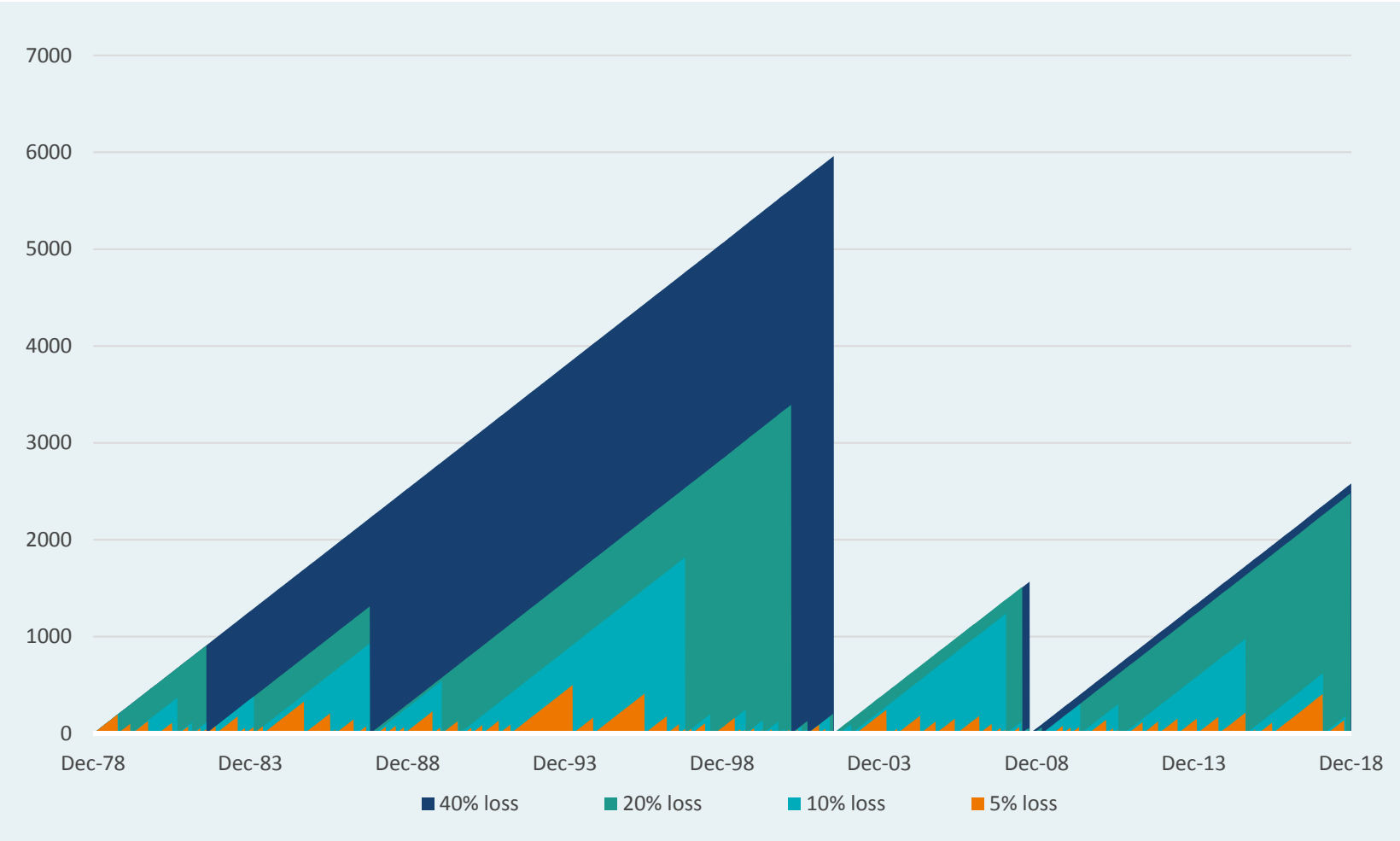
- U.S. equities experienced their worst quarter since 2008 – the S&P 500 Index returned -13.5%. The sell-off was due in part to concerns over a slowdown in global growth, and was exacerbated by low liquidity toward the end of the year.
- The drawdown from peak on the S&P 500 Index stopped just shy of 20% before equities rebounded during the last week of the year. Historically, equity drawdowns of more than 20% have been associated with an economic recession.
- Although absolute performance was also poor, international equities outperformed U.S. equities, particularly in emerging markets.
- Global equities saw a sharp drop in valuations as price declines overwhelmed small downward adjustments to earnings expectations. The 12-month forward P/E multiple for the MSCI ACWI fell by 12.1% during the quarter, falling from 14.8x to 13.0x.
- The risk-off environment hit small cap equities especially hard. The Russell 2000 Index posted a -20.2% return in the fourth quarter, compared to a decline of 13.8% on the Russell 1000 Index.
- Value equities outperformed growth equities over the quarter for the time since Q4 2016. The Russell 1000 Value Index and Russell 1000 Growth Index returned -11.7% and -15.9%, respectively.
- Equity volatility surged in what may be the beginning of a transition to a higher volatility regime. The VIX Index averaged 21 in Q4, and hit a high of 36 on December 24th.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(13.8%)		(4.8%)	
US Small Cap (Russell 2000)	(20.2%)		(11.0%)	
US Large Value (Russell 1000 Value)	(11.7%)		(8.3%)	
US Large Growth (Russell 1000 Growth)	(15.9%)		(1.5%)	
International Large (MSCI EAFE)	(12.5%)	(11.6%)	(13.8%)	(9.0%)
Eurozone (Euro Stoxx 50)	(14.1%)	(10.7%)	(16.2%)	(9.3%)
U.K. (FTSE 100)	(11.7%)	(9.1%)	(14.0%)	(7.3%)
Japan (NIKKEI 225)	(14.6%)	(16.6%)	(8.6%)	(9.6%)
Emerging Markets (MSCI Emerging Markets)	(7.5%)	(7.4%)	(14.6%)	(10.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/18

Corrections are normal

RUSSELL 1000 INDEX – CUMULATIVE TRADING DAYS SINCE LOSS OF GIVEN MAGNITUDE



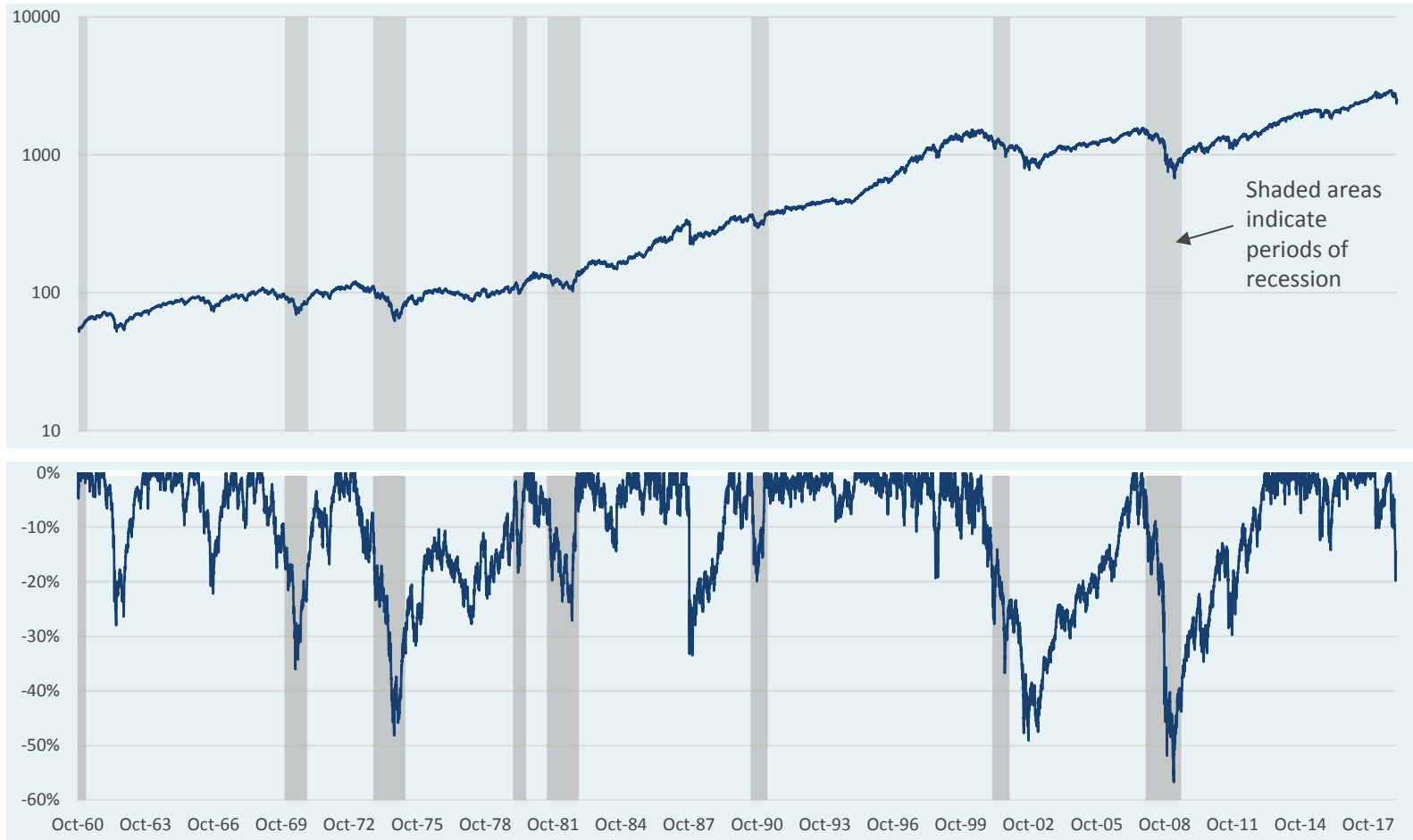
5% and 10% corrections occur regularly

The recent 20% drawdown is more notable, as equity drops of this size have happened once per cycle, on average

Source: Verus, FTSE Russell, as of 12/31/18

Drawdowns of greater than 20% occur less frequently

S&P 500 INDEX (UPPER PANEL) AND DRAWDOWN FROM PEAK (LOWER PANEL)



Drawdowns of greater than 20% have typically been associated with economic recessions

The recent drawdown appears overdone based on economic conditions

Source: Bloomberg, Verus, as of 12/31/18, recession start and end dates are from the NBER

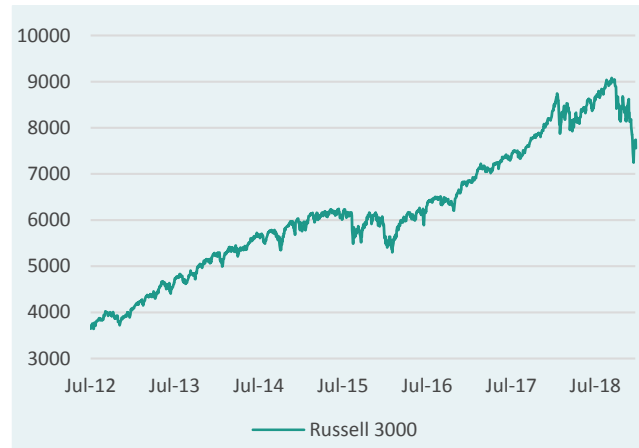
Domestic equity

U.S. equities experienced their worst quarter since 2008 as the S&P 500 Index returned -13.5%. For much of 2018, strong realized and expected earnings growth more than offset rising risk premiums (i.e. February sell-off) and discount rates as shown below in the middle chart. However, when cracks appeared in the growth story, influenced by poor economic data as well as profit warnings from companies, this support quickly vanished. The sharp drawdown, particularly in December, was also influenced by pockets of illiquidity in the market that exacerbated the move lower.

The question for investors now becomes whether the recent drawdown was a healthy reset of the pricing of earnings and risk premia, or whether it was a more urgent warning signal of a deterioration in the growth and profit cycle. We believe it to be more of the former rather than the latter, and that the market priced in an overly pessimistic view of macro conditions. However, we also recognize the growing headwinds to equities, including slowing global growth, further potential monetary tightening, and high debt levels. These conditions will likely result in sustained higher volatility, consistent with previous late cycle experiences.

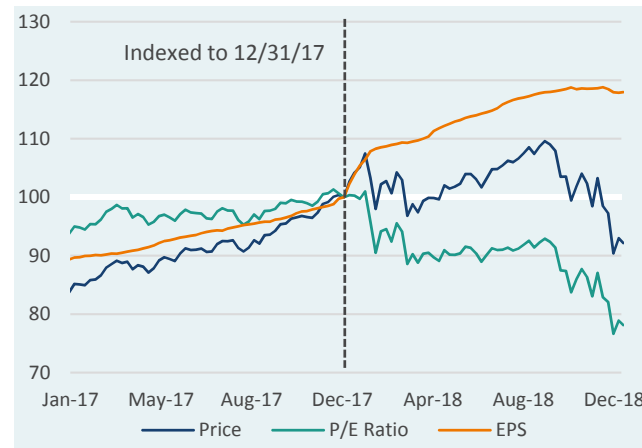
We maintain a neutral view on U.S. equities

U.S. EQUITIES



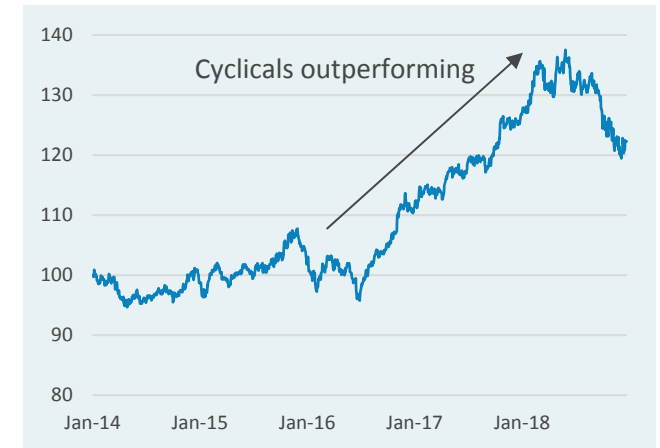
Source: Russell Investments, as of 12/31/18

S&P 500 PRICE MOVEMENT ATTRIBUTION



Source: Bloomberg, as of 12/31/18

CYCLICALS-DEFENSIVES RETURN SPREAD



Source: Bloomberg, MSCI, as of 12/31/18

Domestic equity size & style

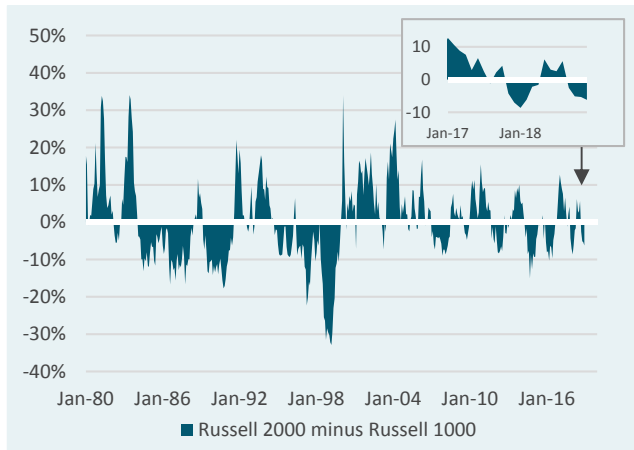
Large cap equities (Russell 1000 -13.8%) significantly outperformed small cap equities (Russell 2000 -20.2%) during the quarter. It may not be surprising that small cap equities underperformed, given the broad risk-off moves during this period. Growth stocks underperformed value stocks during the quarter (Russell 1000 Growth -15.9% vs. Russell 1000 Value -11.7%) for the first time since Q4 2016.

The sector weights in large-cap style benchmarks explain most of the recent value underperformance. Over the past

year, Energy, Materials, and Financials returned -18.1%, -14.7%, and -13.0%, respectively. These sectors are heavily weighted with value stocks, which resulted in a large drag to value. Information technology was an outperforming sector with a return of -0.3% during the period.

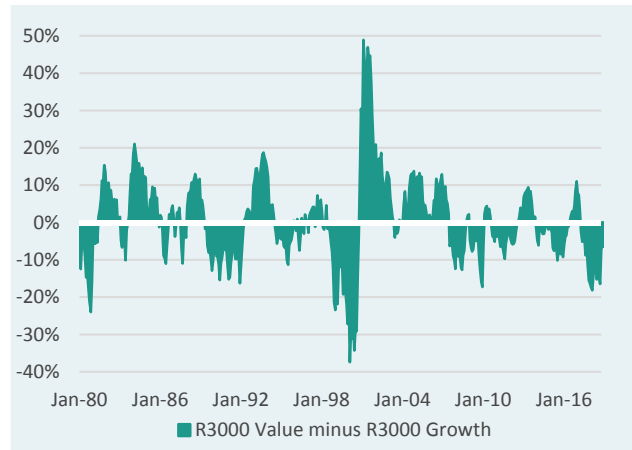
Long spans of style (size, value) underperformance is, and will always be, discouraging for investors. Similar to an investment in the broader equity market, we should expect to see rough patches of performance through time.

SMALL CAP VS LARGE CAP (YOY)



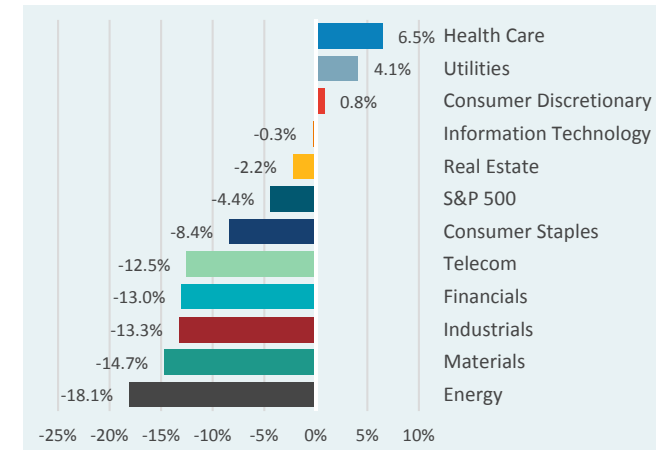
Source: FTSE, as of 12/31/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/18

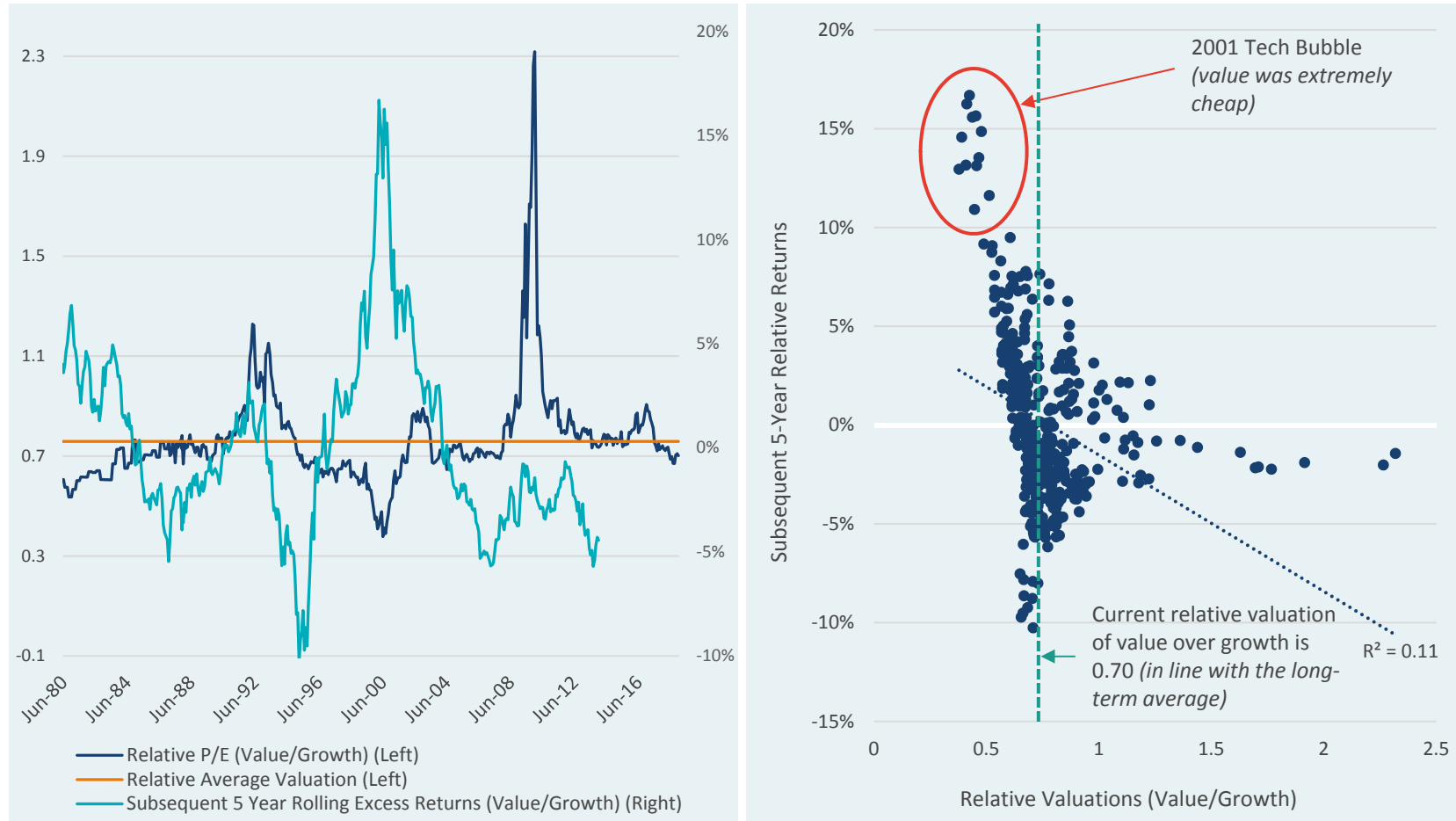
1-YEAR S&P 500 SECTOR RETURNS



Source: Morningstar, as of 12/31/18

Value – extreme prices indicate opportunity

But the price of value stocks is in-line with the long-term average



Although value has delivered an extended period of poor performance, value stocks are not cheap

Source: Verus, FTSE Russell, as of 12/31/18

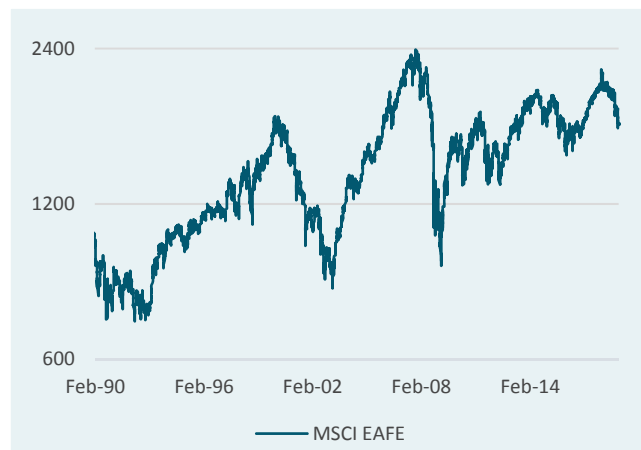
International developed equity

International developed equities sold off alongside U.S. equities. On an unhedged basis, the MSCI EAFE Index returned -12.5% in Q4 (-11.6% on a currency hedged basis). The three major equity markets in the EAFE Index – Japan, the Eurozone, and the UK – were all down more than 10%. The key factors that may have driven U.S. equities lower, most notably concerns over slowing global growth and central bank tightening, likely played an important role in non-U.S. developed markets. These concerns were particularly acute in the Eurozone where economic data routinely missed expectations, while the ECB officially

announced the end to its asset purchase program in December.

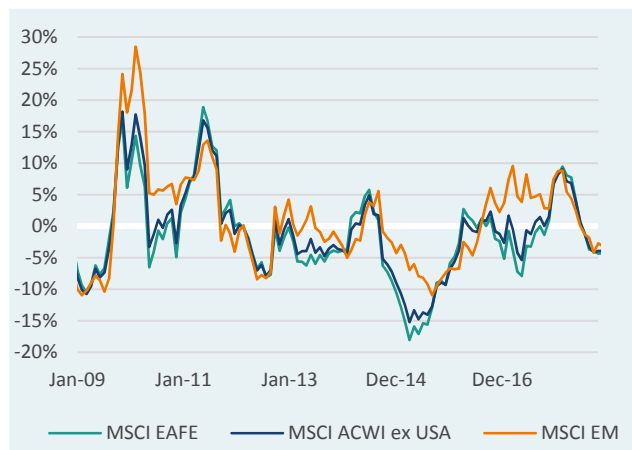
International developed equity markets are still cheap on both an absolute and relative basis at 11.9x forward earnings, but we believe there are good reasons for this pricing in certain markets. Within equity allocations, we are pessimistic on EAFE equities due to a negative view on the Eurozone. We believe slowing economic growth at the same time political risks are increasing and the ECB is unable to meaningfully ease policy present material headwinds to equity performance.

INTERNATIONAL DEVELOPED EQUITIES



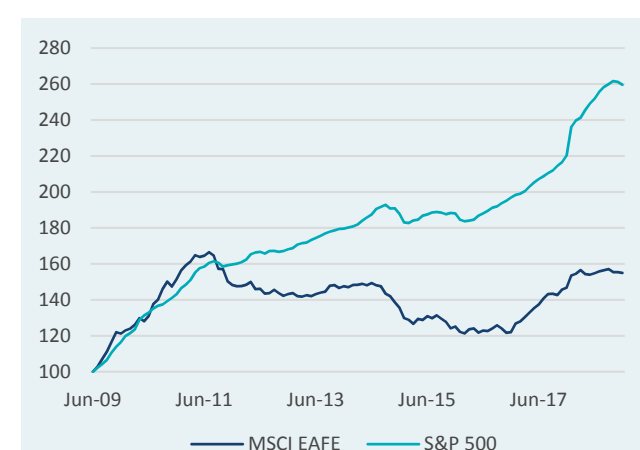
Source: MSCI, as of 12/31/18

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/18

EARNINGS PER SHARE



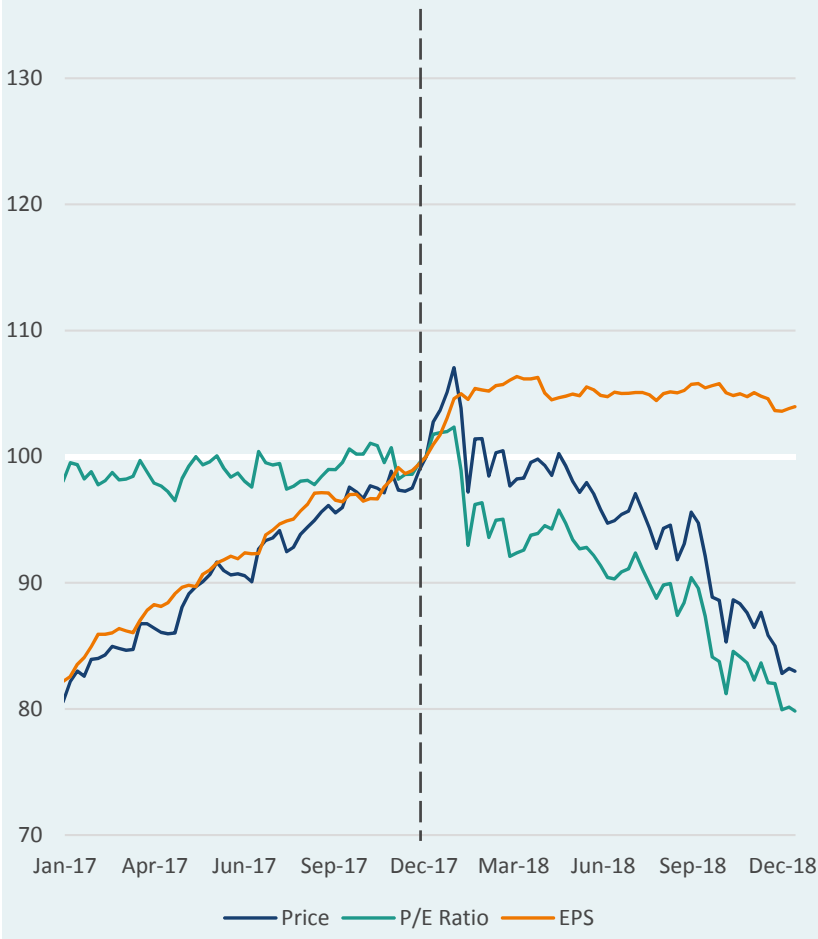
Source: Bloomberg, as of 12/31/18, indexed to earnings trough

Equity return behavior

U.S. (INDEXED TO START OF 2018)



EX U.S. (INDEXED TO START OF 2018)



U.S. and international equity prices failed to keep up with earnings growth during 2018

This has resulted in much cheaper equity valuations

Source: Bloomberg, as of 12/31/18, the U.S. and ex-U.S. equity markets are represented by the S&P 500 Index and MSCI ACWI ex U.S. Index, respectively

Emerging market equity

Emerging market equities were the top performer in Q4, as these markets (MSCI EM -7.5%) experienced much less pain than developed (S&P 500 -13.5%, MSCI EAFE -12.5%) during the equity sell-off. Currency depreciation stabilized in Q4 (JP Morgan EM Currency Index +0.2%) and emerging market crises concerns faded from the news headlines.

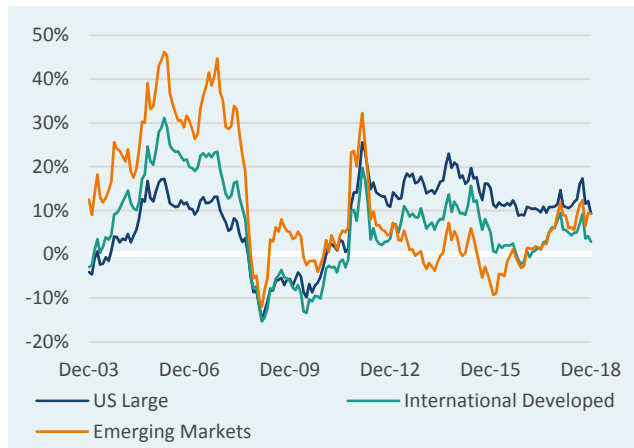
Valuations are near their long-term average, but remain much cheaper than developed market equities. Sentiment around emerging markets seems to be improving as the extreme negativity of 2018 dissipates, which creates possible

upside surprise if investors decide these fears were overblown. Very depressed currencies may also provide a performance tailwind in the event of mean reversion. Overall, we maintain our preference for the asset class.

Decelerating global growth and rising probability of recession do present unique risks to emerging markets, however, as these market typically exhibit a higher beta during market downside and upside moves. We will be watching global developments closely and will update our emerging market views as appropriate.

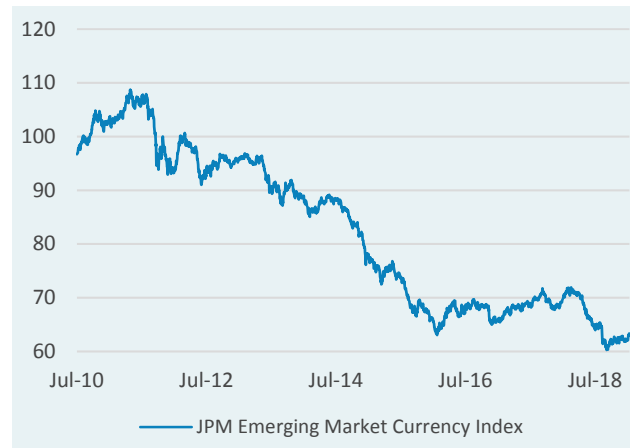
EM equities were the top performer in Q4

EQUITY PERFORMANCE (3-YR ROLLING)



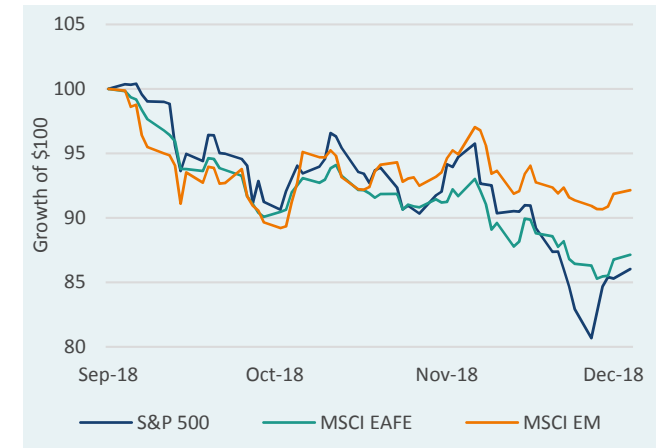
Source: Standard & Poor's, MSCI, as of 12/31/18

EMERGING MARKET CURRENCY MOVEMENT



Source: JP Morgan, as of 12/31/18

Q4 CUMULATIVE PERFORMANCE



Source: Standard & Poor's, MSCI, as of 12/31/18

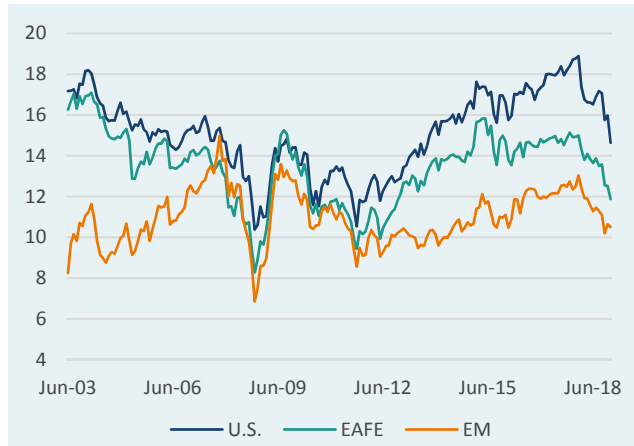
Equity valuations

The sharp drop in global equity prices overwhelmed small downward adjustments to earnings expectations, resulting in materially lower forward P/E multiples. In the U.S., EAFE, and EM regions, forward P/E ratios declined by 13.1%, 12.4%, and 5.5%, respectively in Q4. Depending on the period of analysis, many equity markets could now be considered fairly valued relative to their own history (U.S., EM) and others could be considered outright cheap (EAFE). In the U.S., the 12-month forward P/E ratio was 14.6x at the end of December, placing it below the median value of the past 15 years.

expensive is not a straightforward exercise. For one, as we have noted in the past, the broader macro environment (namely real interest rates and inflation) can strongly influence value. Higher (lower) real interest rates and inflation demand (higher) lower equity valuations, all else equal. Further, conclusions on the cheapness/richness of equities at any point in time depend on this metric. For example, trailing earnings may suffer from being backward-looking, while forward earnings are subject to forecast error and analyst bias. Particularly when looking at the forward P/E ratio, we caution against naively extrapolating recent earnings growth into the future.

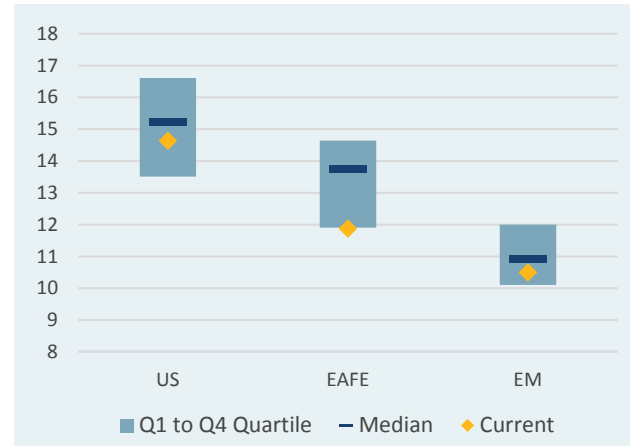
Assessing whether or not an equity market is cheap or

FORWARD P/E RATIOS



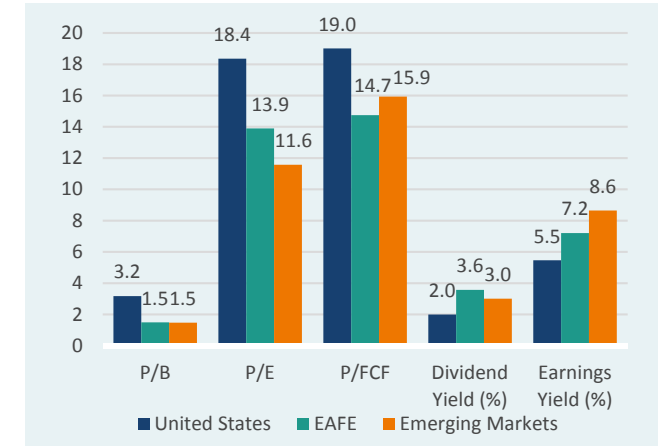
Source: MSCI, as of 12/31/18

FORWARD P/E RATIO DISTRIBUTION (15-YR)



Source: Verus, MSCI, as of 12/31/18

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, as of 12/31/18 - trailing P/E

Equity volatility

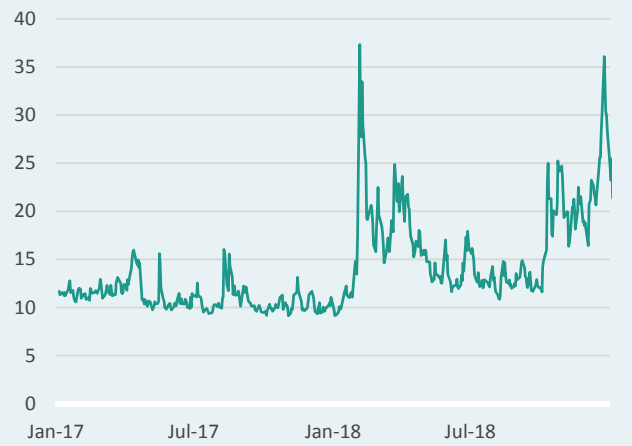
Equity volatility jumped in October, and remained elevated throughout the rest of the year. The VIX Index of implied volatility for the S&P 500 Index averaged 21 in the fourth quarter, above its long-term average of around 18, and hit a high of 36 on December 24th. Equities also experienced frequent large intra-day swings, particularly in December, that are not captured by daily volatility measures. Extremely low liquidity during the end of the year likely exacerbated market movements and augmented volatility. The increase in volatility was more acute in the U.S. than other equity markets – the trailing

one-year volatility for the S&P 500 Index was higher than both the MSCI EAFE and EM Indices for the first time since 2008.

Equity volatility rose in Q4

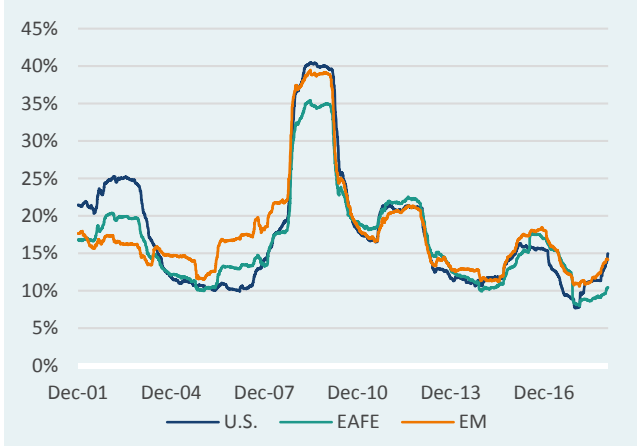
While volatility has certainly been extreme relative to the recent past, it has been much more normal when compared to a longer history. We believe investors should expect higher volatility moving forward as we continue to progress into the later stages of the cycle.

U.S. IMPLIED VOLATILITY (VIX)



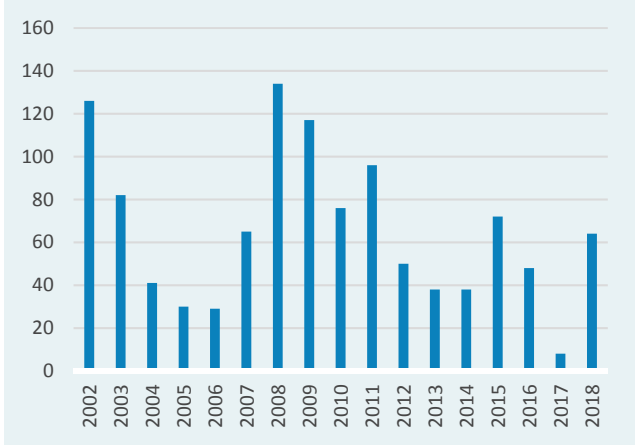
Source: CBOE, as of 12/31/18

REALIZED 1-YEAR ROLLING VOLATILITY



Source: Bloomberg, as of 12/31/18

S&P 500 – NUMBER OF >1% DAILY MOVES



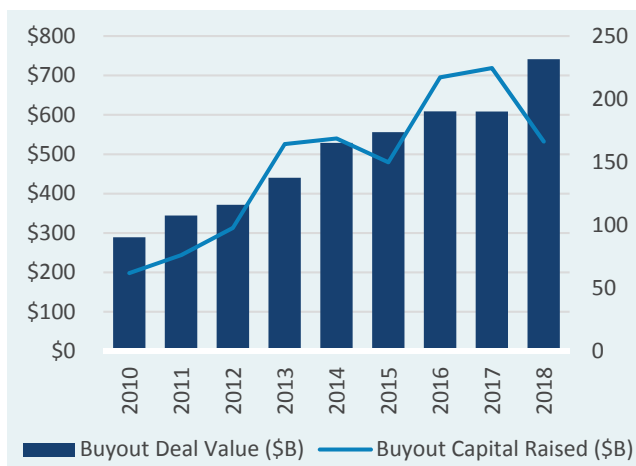
Source: Bloomberg, as of 12/31/18, includes down and up moves

Private equity

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

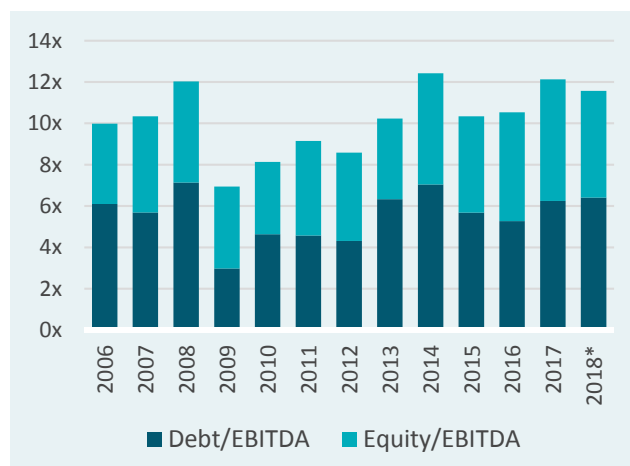
- Buyout activity has continued to increase in 2018. Through the fourth quarter buyouts are up 21.8% and 4.7% when measured by dollar value and number of transactions, respectively. The size of the average buyout, \$155.43, has increased from 2017, \$133.63. Unlike deal flow, fund capital raising has slowed from the peaks of 2017. Only 186 buyout funds representing \$166 billion closed so far this year, down from 235 funds representing a record \$225 billion in 2017.
- Buyout multiples slightly decreased from 2017. Average EV/EBITDA is 11.6x through December 31, 2018 (down from 11.9x in 2017) with debt multiples averaging 6.2x through the third quarter. Debt as a percentage of transaction value hovers around 54%.
- Venture capital fundraising and deal volumes continue to set records. \$55 billion of venture capital has been raised in the U.S. in 2018, an increase of 63% over the same period last year. Similarly, the amount of venture deals are up 57.8%. In fact, 2018 venture deal volume (\$131 billion) exceeds the record of \$82 billion that was set in 2017.
- Balancing high deal multiples and a growing number of deals against a slowdown in fundraising, we advocate selectivity in fund investments.

BUYOUTS DEAL VOLUME & CAPITAL RAISED



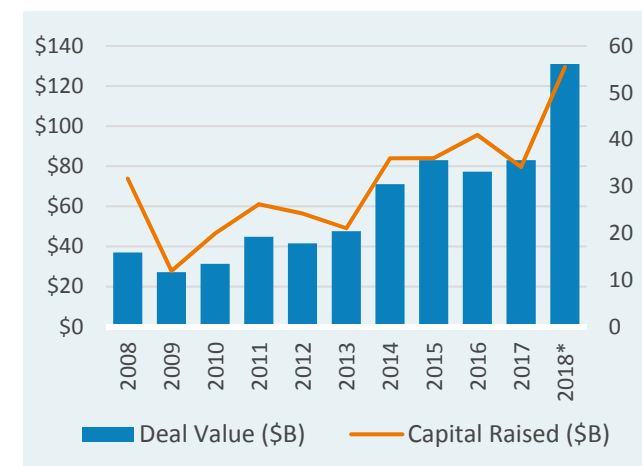
Source: PitchBook

TRANSACTION MULTIPLES



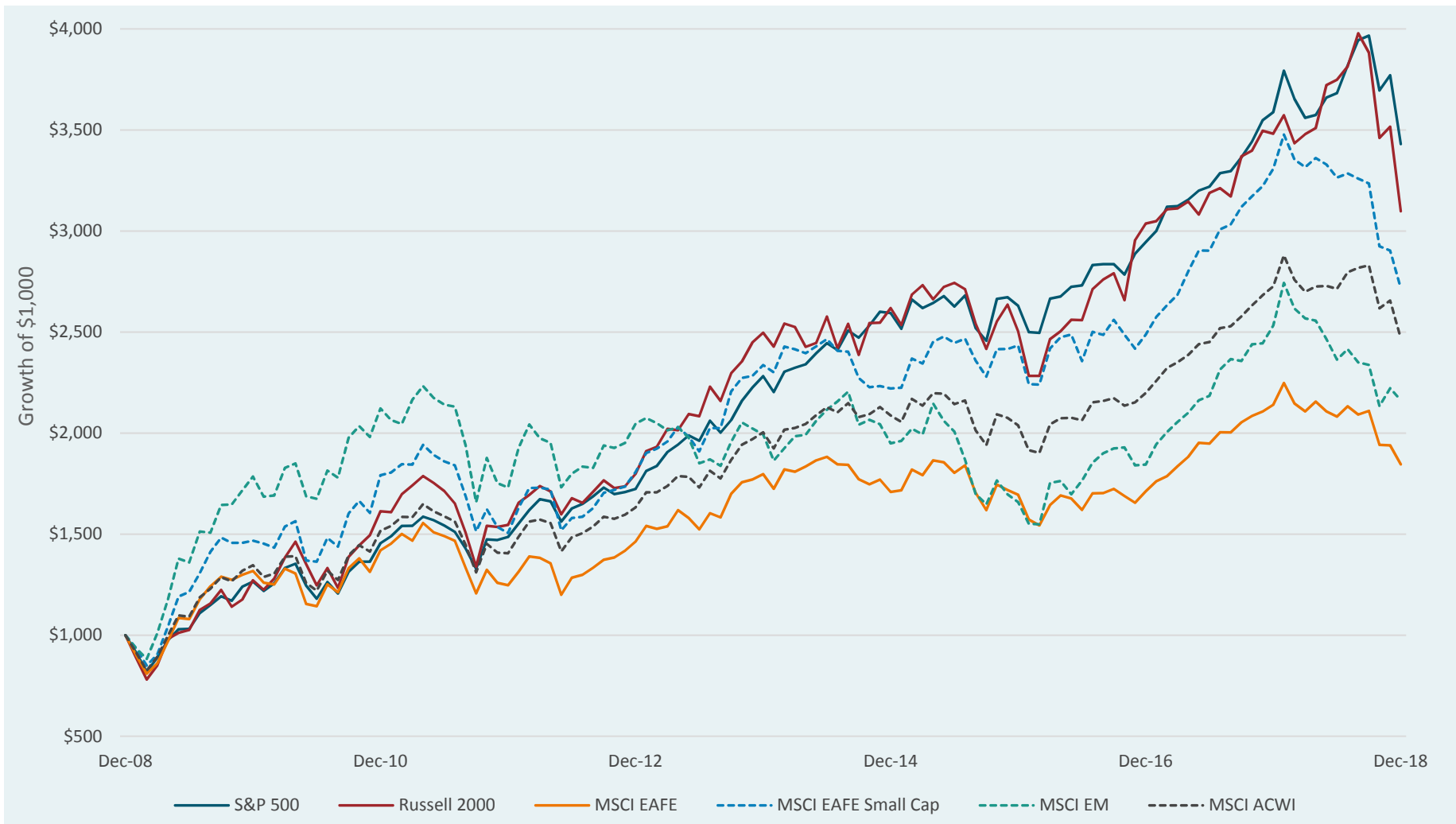
Source: PitchBook

VENTURE DEAL VOLUME & FUNDRAISING



Source: PitchBook

Long-term equity performance



Source: Morningstar, as of 12/31/18

Other assets

Currency

The U.S. dollar appreciated by 1.8% during the quarter, and 7.2% in 2018 based on the Broad Trade Weighted Dollar Index. The strong appreciation of the dollar last year was influenced by a number of factors, including stronger relative U.S. economic growth, higher relative interest rates, and weakness in other currencies such as the euro and British pound. The recent dollar strength in Q4 was due in part to safe haven demand amid equity market turbulence as these moves came despite the market pricing considerably less tightening from the Fed.

Emerging market currencies stabilized over the quarter, and recovered slightly from the recent drawdown in Q3. The JPMorgan Emerging Market Currency Index appreciated by 0.2% in Q4.

The U.S. dollar appreciated to a cycle high

From a value perspective (based on purchasing power parity), the U.S. dollar remains expensive, particularly versus the euro, yen, and British pound.

U.S. DOLLAR TRADE WEIGHTED INDEX



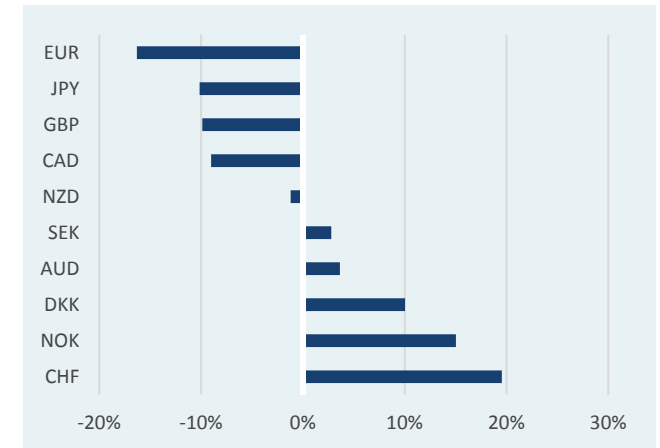
Source: Federal Reserve, as of 12/26/18

JPM EMERGING MARKET CURRENCY INDEX



Source: Bloomberg, JPMorgan, as of 12/31/18

U.S. DOLLAR VALUE (PPP)



Source: Bloomberg, OECD, as of 12/31/18

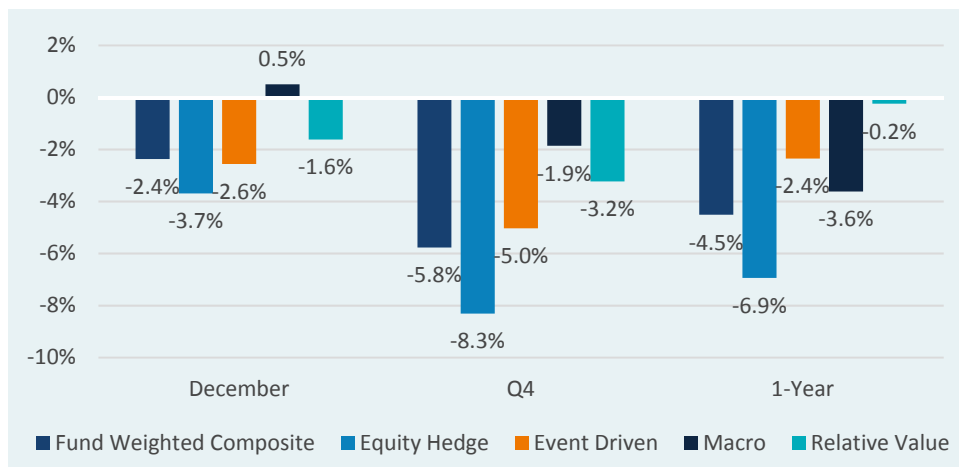
Hedge funds

Hedge funds Q4 losses pushed full-year 2018 results into negative territory (HFRI Fund Weighted Composite -5.8% in Q4; -4.5% in 2018). Most hedge funds stumbled in October as equity markets experienced a painful reversal ranging from -5% to -10%. The industry fared relatively better in December with hedge funds down -2.4% while the S&P 500 Index lost -9.0%. The approximate 6.6% performance differential was the largest observed since February 2009. As a group, macro strategies performed best in December and for the quarter. Defensively oriented discretionary macro strategies and currency strategies stood out with strong

relative performance. Equity hedge strategies lagged the universe, and products with higher beta and value exposures were hit the hardest as equity markets fell.

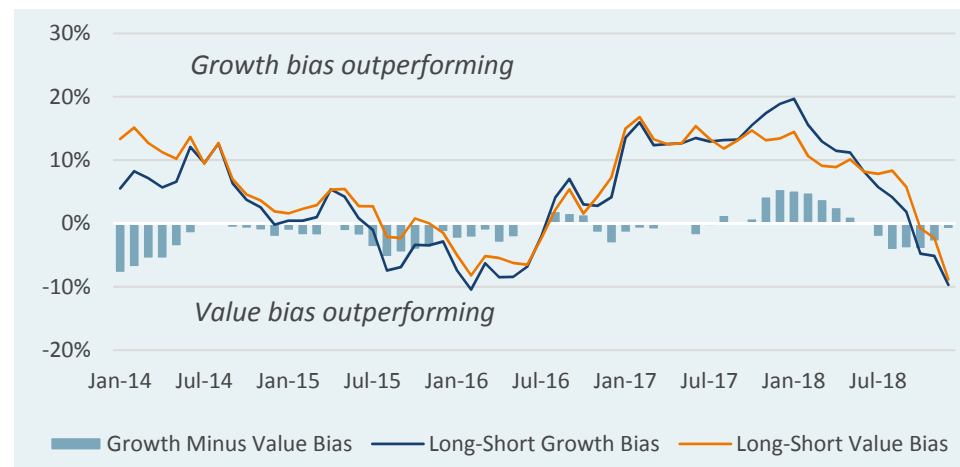
For managers trading fixed income securities, strategies focused on sovereign (-1.2%) and asset backed bonds (-1.7%) preserved capital relatively well during the market turbulence. Convertible arbitrage managers fared worse (-5.1%) due in part to greater relative sensitivity to equity market volatility.

HFRI HEDGE FUND STYLE PERFORMANCE



Source: HFRI, as of 12/31/18

GROWTH VS VALUE BIAS IN LONG-SHORT EQUITY MANAGERS (1-YR ROLLING PERFORMANCE)



Source: HFRI, as of 12/31/2018

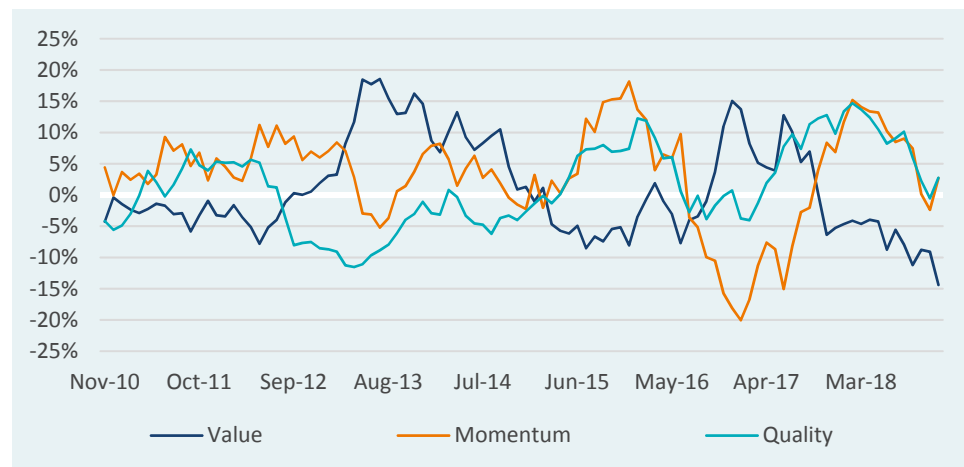
Alternative beta

Alternative beta strategy investors endured a difficult year, with many strategies performing one or two standard deviations below their historical average. While the median strategy we follow delivered negative returns during the fourth quarter, we noted dispersion across the space as a few products posted positive results. Factor exposures, particularly in the equity markets, continue to account for a meaningful portion of poor outcomes. While traditional value factors earned modestly positive results

during the quarter, this performance was offset by losses in momentum and size-related factors.

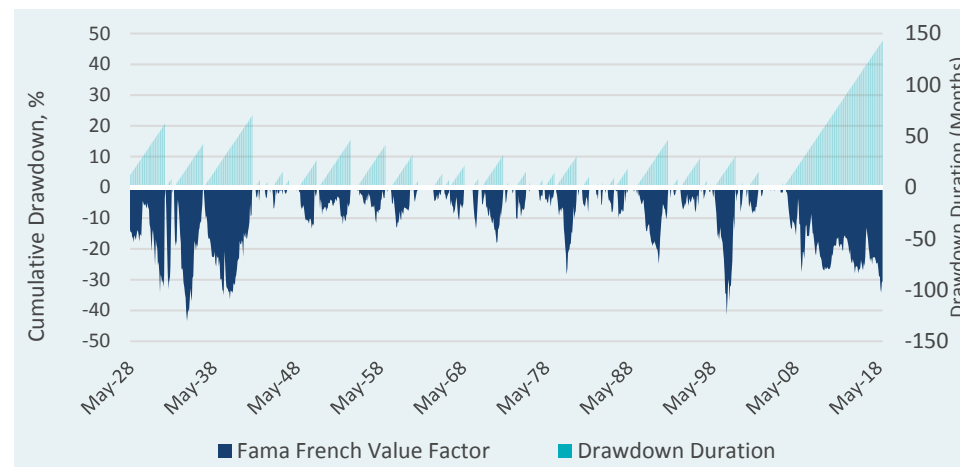
We continue to believe that alternative beta strategies are not “broken” per se, but instead have reflected extreme drawdowns in some factors and muted returns in others. We will continue to closely monitor these strategies and discuss the situation with managers in 2019.

U.S. MARKET NEUTRAL FACTOR PERFORMANCE (12-MONTH ROLLING)



Source: S&P Dow Jones, Thematic Market Neutral Indices, as of 12/31/18

VALUE FACTOR DRAWDOWN MAGNITUDE AND DURATION



Source: Kenneth French Data Library, as of 11/30/18

Appendix

Periodic table of returns

BEST

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	5-Year	10-Year
Real Estate	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	5.3	10.4	15.3
Cash	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	9.0	13.5
US Bonds	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	8.2	13.3
Large Cap Growth	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	5.9	12.0
Hedge Funds of Funds	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	5.1	11.2
Large Cap Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	4.4	10.4
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	3.6	8.0
Large Cap Value	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	3.1	7.3
Small Cap Growth	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	2.5	6.8
Small Cap Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	1.6	6.3
Commodities	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	1.5	3.5
Small Cap Value	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	0.6	3.2
International Equity	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	0.5	0.4
Emerging Markets Equity	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	-8.8	-3.8

WORST

- Large Cap Equity
- Large Cap Value
- Large Cap Growth
- Small Cap Equity
- Small Cap Value

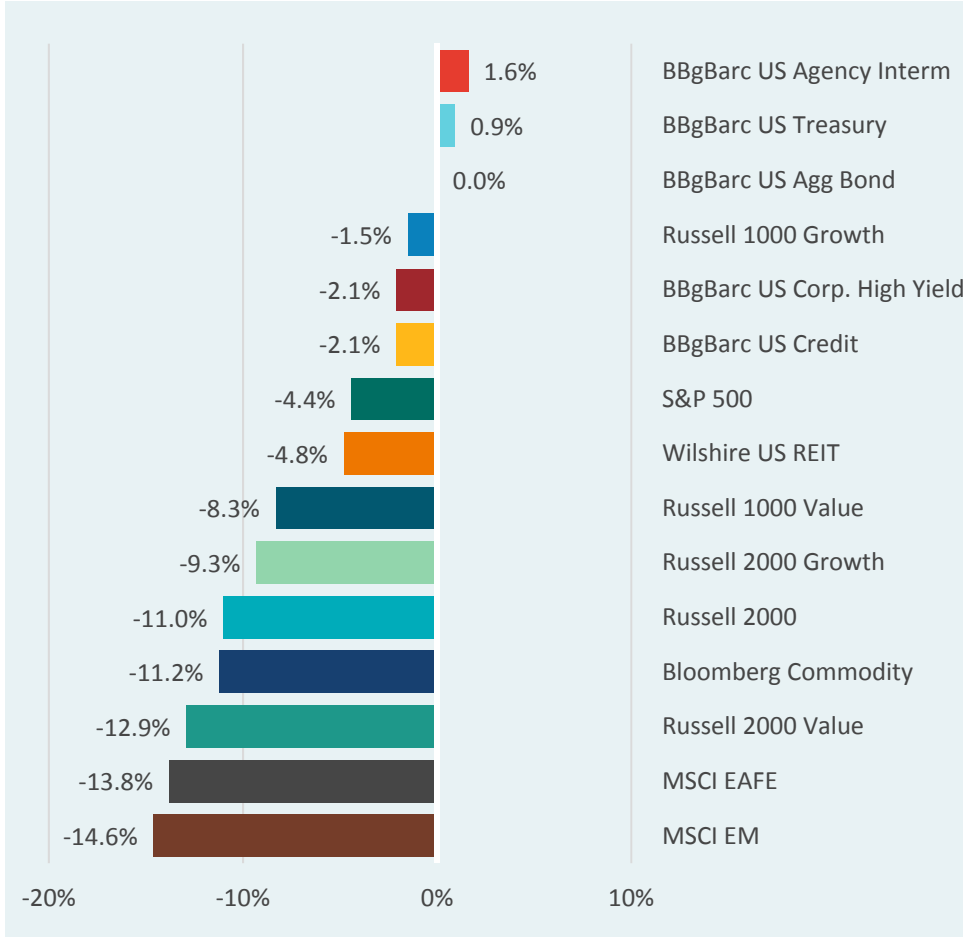
- Small Cap Growth
- International Equity
- Emerging Markets Equity
- US Bonds
- Cash

- Commodities
- Real Estate
- Hedge Funds of Funds
- 60% MSCI ACWI/40% BBgBarc Global Bond

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/18.

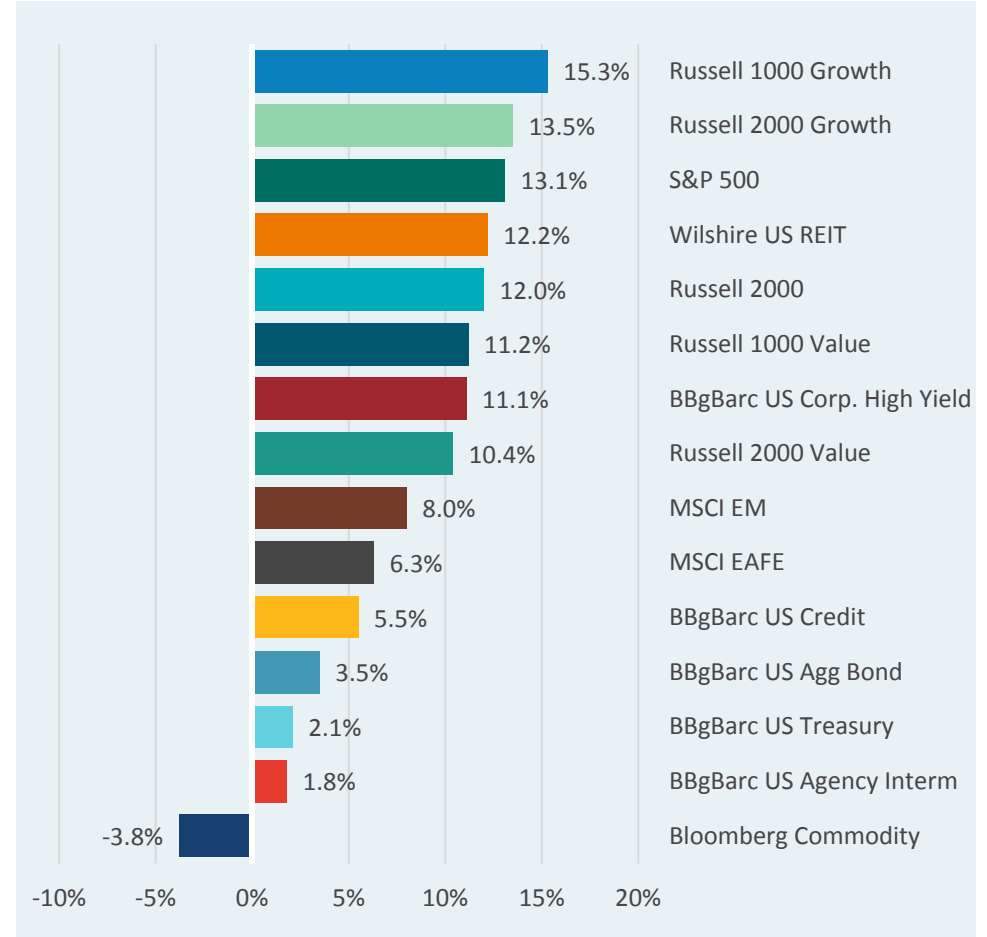
Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/18

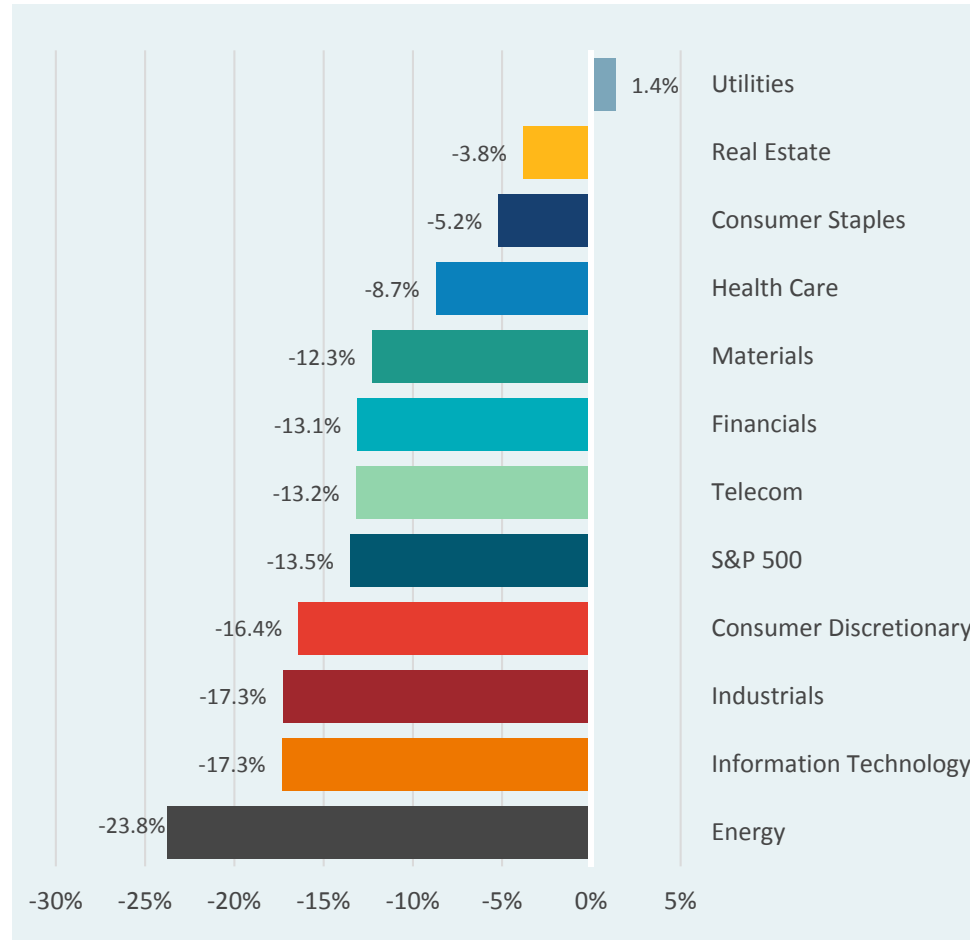
TEN YEARS ENDING DECEMBER



Source: Morningstar, as of 12/31/18

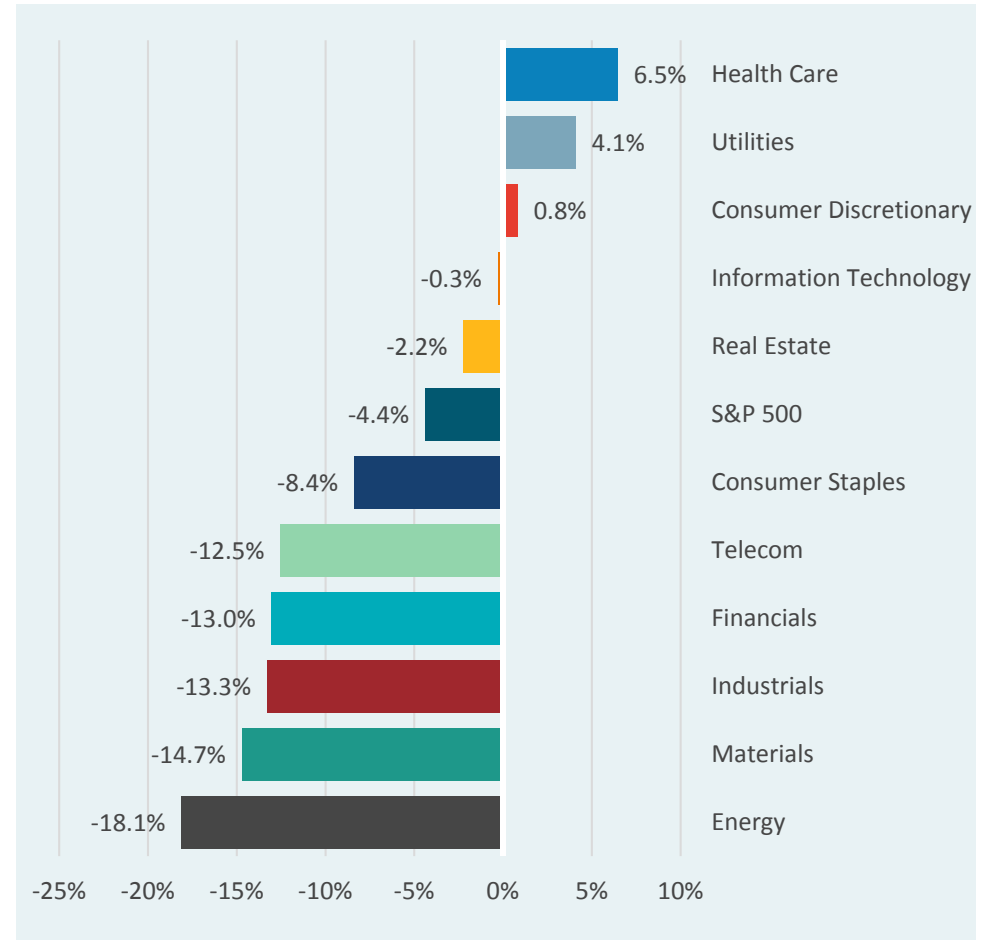
S&P 500 sector returns

Q4



Source: Morningstar, as of 12/31/18

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/18

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(9.0)	(13.5)	(4.4)	(4.4)	9.3	8.5	13.1
S&P 500 Equal Weighted	(9.7)	(13.9)	(7.6)	(7.6)	8.0	7.1	15.0
DJ Industrial Average	(8.6)	(11.3)	(3.5)	(3.5)	12.9	9.7	13.2
Russell Top 200	(8.8)	(13.2)	(3.1)	(3.1)	9.9	9.0	13.0
Russell 1000	(9.1)	(13.8)	(4.8)	(4.8)	9.1	8.2	13.3
Russell 2000	(11.9)	(20.2)	(11.0)	(11.0)	7.4	4.4	12.0
Russell 3000	(9.3)	(14.3)	(5.2)	(5.2)	9.0	7.9	13.2
Russell Mid Cap	(9.9)	(15.4)	(9.1)	(9.1)	7.0	6.3	14.0
Style Index							
Russell 1000 Growth	(8.6)	(15.9)	(1.5)	(1.5)	11.1	10.4	15.3
Russell 1000 Value	(9.6)	(11.7)	(8.3)	(8.3)	7.0	5.9	11.2
Russell 2000 Growth	(11.7)	(21.7)	(9.3)	(9.3)	7.2	5.1	13.5
Russell 2000 Value	(12.1)	(18.7)	(12.9)	(12.9)	7.4	3.6	10.4

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	(7.0)	(12.8)	(9.4)	(9.4)	6.6	4.3	9.5
MSCI ACWI ex US	(4.5)	(11.5)	(14.2)	(14.2)	4.5	0.7	6.6
MSCI EAFE	(4.9)	(12.5)	(13.8)	(13.8)	2.9	0.5	6.3
MSCI EM	(2.7)	(7.5)	(14.6)	(14.6)	9.2	1.6	8.0
MSCI EAFE Small Cap	(6.4)	(16.0)	(17.9)	(17.9)	3.7	3.1	10.5
Style Index							
MSCI EAFE Growth	(4.8)	(13.3)	(12.8)	(12.8)	2.9	1.6	7.1
MSCI EAFE Value	(4.9)	(11.7)	(14.8)	(14.8)	2.8	(0.6)	5.5
Regional Index							
MSCI UK	(3.8)	(11.8)	(14.2)	(14.2)	1.6	(1.7)	6.8
MSCI Japan	(6.7)	(14.2)	(12.9)	(12.9)	3.4	3.1	5.3
MSCI Euro	(4.8)	(13.2)	(16.4)	(16.4)	2.4	(0.9)	4.4
MSCI EM Asia	(3.2)	(9.3)	(15.5)	(15.5)	8.6	3.9	9.8
MSCI EM Latin American	(0.8)	0.4	(6.6)	(6.6)	14.9	(1.7)	5.0

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	0.5	(0.4)	(1.3)	(1.3)	2.1	1.7	3.6
BBgBarc US Treasury Bills	0.2	0.6	1.9	1.9	1.0	0.6	0.4
BBgBarc US Agg Bond	1.8	1.6	0.0	0.0	2.1	2.5	3.5
Duration							
BBgBarc US Treasury 1-3 Yr	0.8	1.3	1.6	1.6	0.9	0.8	1.0
BBgBarc US Treasury Long	5.5	4.2	(1.8)	(1.8)	2.6	5.9	4.1
BBgBarc US Treasury	2.2	2.6	0.9	0.9	1.4	2.0	2.1
Issuer							
BBgBarc US MBS	1.8	2.1	1.0	1.0	1.7	2.5	3.1
BBgBarc US Corp. High Yield	(2.1)	(4.5)	(2.1)	(2.1)	7.2	3.8	11.1
BBgBarc US Agency Interim	1.0	1.6	1.6	1.6	1.3	1.4	1.8
BBgBarc US Credit	1.5	0.0	(2.1)	(2.1)	3.2	3.2	5.5

OTHER

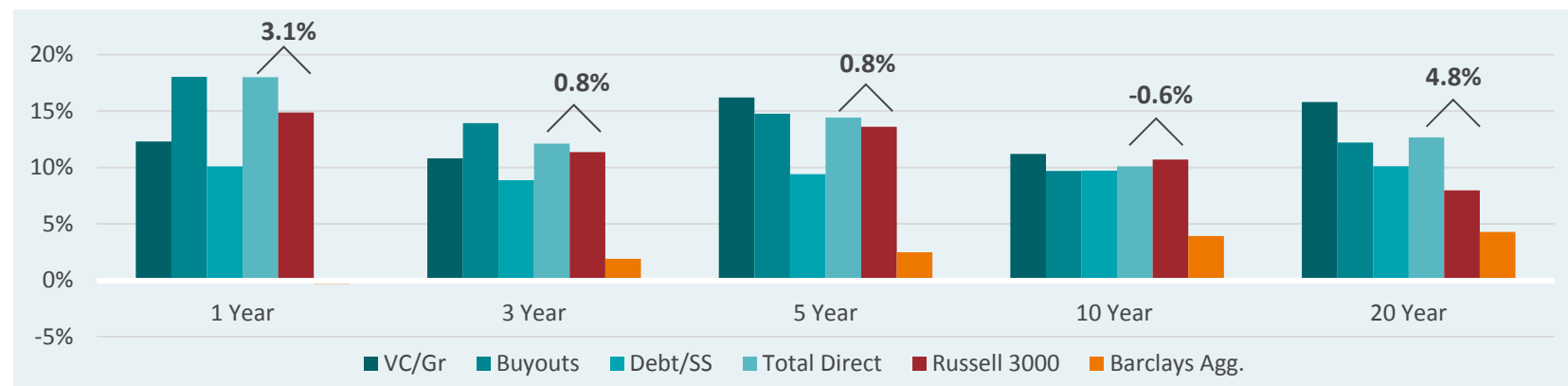
Index							
Bloomberg Commodity	(6.9)	(9.4)	(11.2)	(11.2)	0.3	(8.8)	(3.8)
Wilshire US REIT	(8.4)	(6.9)	(4.8)	(4.8)	2.1	7.9	12.2
CS Leveraged Loans	(2.3)	(3.1)	1.1	1.1	5.0	3.3	8.3
Alerian MLP	(8.3)	(16.3)	(11.9)	(11.9)	(1.6)	(6.9)	10.7
Regional Index							
JPM EMBI Global Div	1.3	(1.3)	(4.3)	(4.3)	5.2	4.8	8.2
JPM GBI-EM Global Div	1.3	2.1	(6.2)	(6.2)	5.9	(1.0)	3.5
Hedge Funds							
HFRI Composite	(2.0)	(5.4)	(4.1)	(4.1)	3.2	2.3	5.0
HFRI FOF Composite	(1.2)	(4.4)	(3.5)	(3.5)	1.5	1.5	3.2
Currency (Spot)							
Euro	1.0	(1.6)	(4.8)	(4.8)	1.7	(3.7)	(1.9)
Pound	(0.2)	(2.3)	(5.9)	(5.9)	(4.8)	(5.1)	(1.2)
Yen	3.5	3.5	2.7	2.7	3.1	(0.9)	(1.9)

Source: Morningstar, HFR, as of 12/31/18

Private vs. public performance

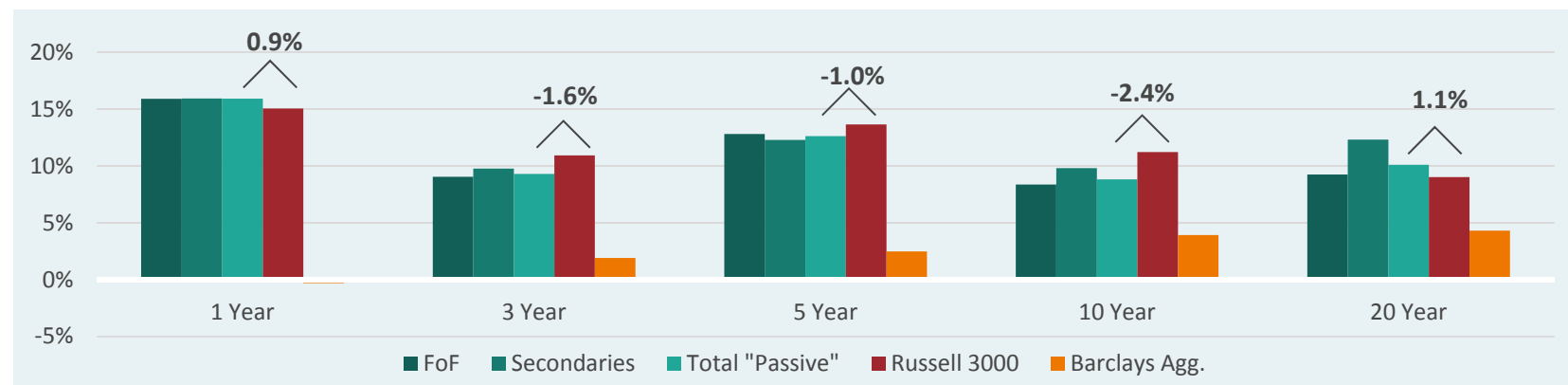
As of 6/30/2018

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct private equity outperformed public equities across most time periods

"PASSIVE" STRATEGIES



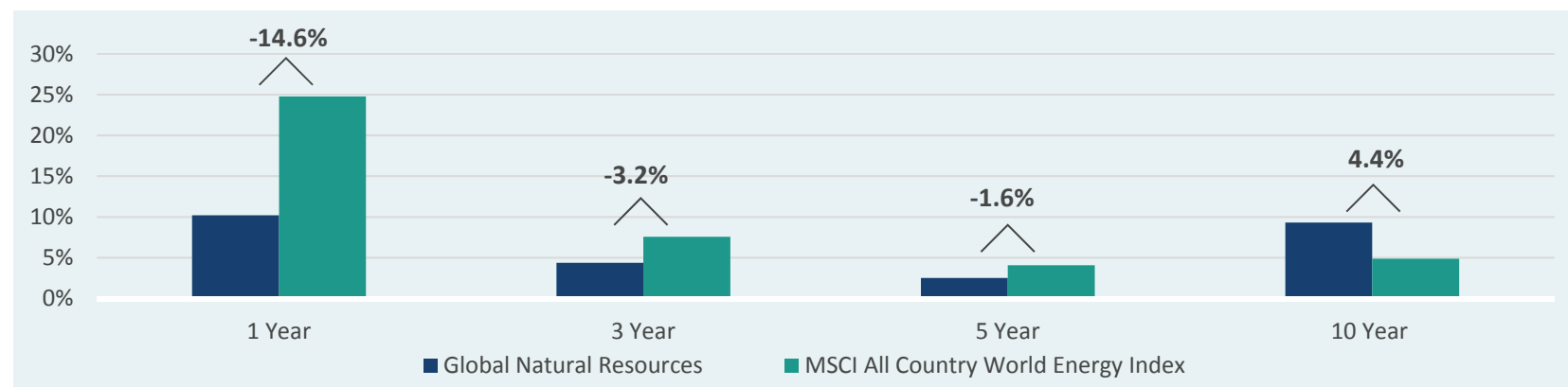
Fund-of-fund strategy performance relative to public equities has been mixed

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

Private vs. liquid real assets performance

As of 6/30/2018

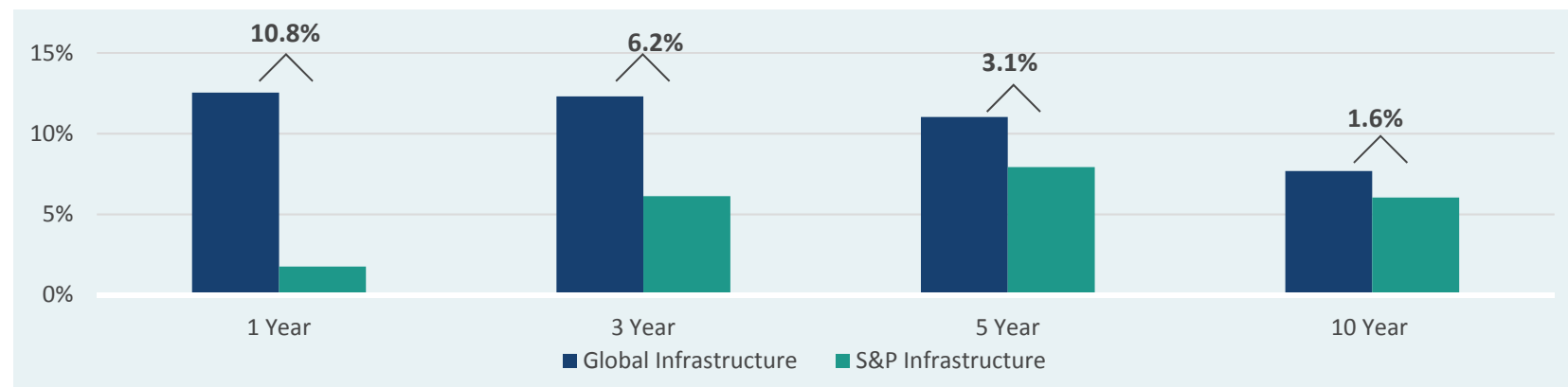
GLOBAL NATURAL RESOURCES FUNDS



Aside from the 10-year period, natural resource funds underperformed the public index

Infrastructure funds outperformed the public index across all periods

GLOBAL INFRASTRUCTURE FUNDS

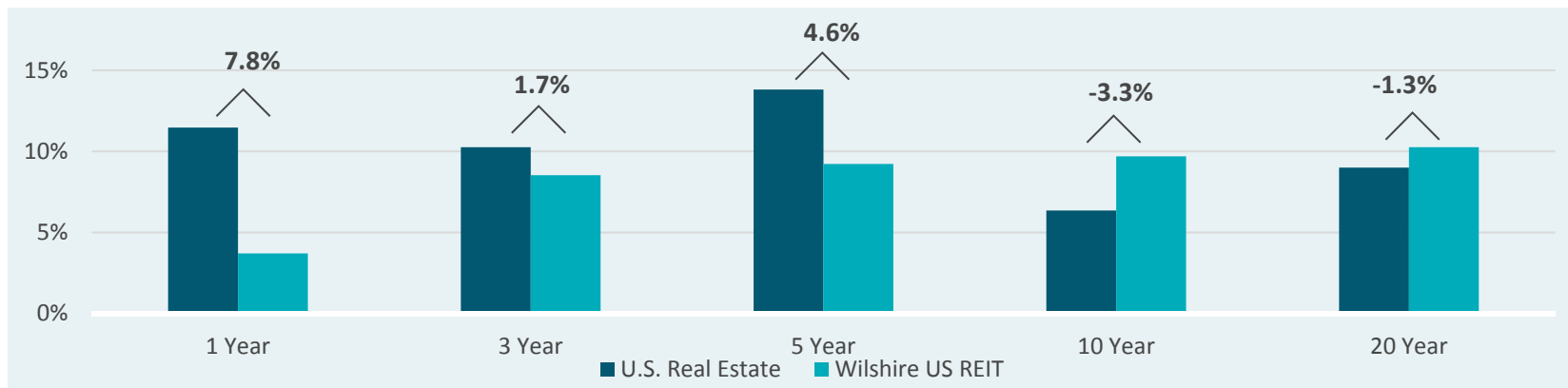


Sources: Thomson Reuters C|A PME: Global Natural Resources (vintage 2003 and later, inception of MSCI ACWI Energy benchmark) and Global Infrastructure (vintage 1996 and later, inception of S&P Infrastructure benchmark) universes as of June 30, 2018. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

Private vs. liquid & core real estate performance

As of 6/30/2018

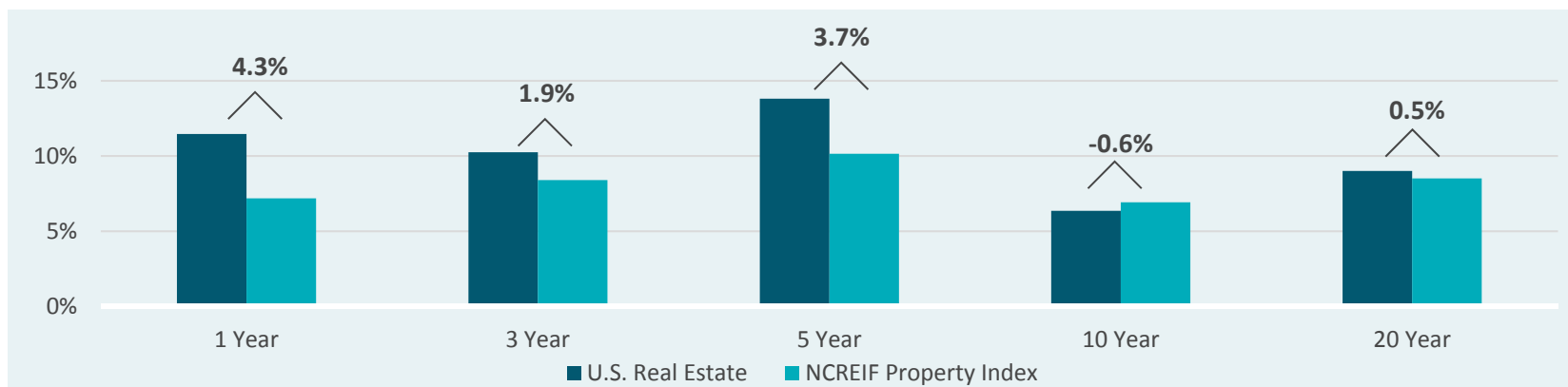
U.S PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



Private real estate performance relative to REITs has been mixed

Private real estate funds outperformed the index during most time periods

U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



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

Definitions

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

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

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

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

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Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 6.3

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Discussion of Delegation of Authority on Terminating Investment Managers

Recommendation

Provide input and direction to staff regarding potential changes to delegation of authority for terminating existing managers.

Background

In 2017, the Board reviewed various items related to the Board's fiduciary duty, delegation of authority and governance. Last year, the Board developed a strategic plan and included a strategic focus to continue to evolve the Board's governance model.

Discussion

The Board determined that certain interim steps in its public market new manager hire process should be delegated to staff. Under this approach, the Board would be updated during the process such as the development of the manager short-list and approval of staff's final recommendation. Also discussed were several potential governance model options related to private market due diligence approaches, after which the Board determined not to adjust its current process.

Also discussed was delegating to the Chief Executive Officer, under certain circumstances, the authority to terminate existing managers. The Board did not take action on this and wanted more time to consider this provision.

The current SamCERA Investment Policy Statement includes the following provision for terminating existing managers:

3. Terminating Existing Managers

The Board recognizes investments may need to be adjusted or removed from the Fund from time to time for a variety of reasons, including organization changes at the Manager, changes in Manager style, underperformance relative to expectations, and the Managers' strategy is no longer appropriate for the fund. The Board determines if a Manager should be terminated after receiving input and or recommendations from Staff and Consultant.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

The language below is the proposed language that was previously considered by the Board. Adoption of this or a similar procedure would mean adding a second paragraph after the existing paragraph in the Terminating Existing Managers section:

In situations in which developments give immediate concern that an investment with a Manager is no longer prudent for the investment program and a termination or other related investment decision should be made prior to the next regularly scheduled Board meeting, the Chief Executive Officer is authorized to terminate the Manager and or move Fund assets after consulting with the Board Chair (or Vice Chair or Secretary based on availability, in that order) and one member of the Investment Committee. Situations causing an immediate concern, include, but are not limited to, when: (1) the firm suffers the resignation or other loss of its portfolio managers, (2) the firm dissolves, ceases to exist, or is otherwise incapable of carrying out its activities in the ordinary course of its business, (3) the firm is actually or effectively shut down by a regulatory agency or is accused of theft or fraud or other serious malfeasance by a regulatory agency, or (4) the fund's investment is in jeopardy of material loss. The Board will be promptly notified of the determination by the Chief Executive Officer.

The proposed language outlines a process that is very similar to the process for hiring investment managers when action is necessary before a regularly scheduled Board meeting.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 7.1

TO: Board of Retirement

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

SUBJECT: Preliminary Financial Statements for the Six-Month Period Ended December 31, 2018.

Recommendation

Accept the Preliminary Financial Statements for the Six-Month Period Ended December 31, 2018.

Background

The preliminary financial statements provide financial information on SamCERA's financial position as of December 31, 2018, and its operating results for the six-month period ended December 31, 2018.

The *Statement of Fiduciary Net Position* (balance sheet) provides a snapshot of the account balance as of December 31, 2018. This Statement indicates the amount of assets (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, 2018. "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 retiree benefit payments, member refunds, administrative and other expenses.

Summary

SamCERA's financial position declined slightly over the six-months ended December 31, 2018. Its net position decreased \$122 million, or 3%, to approximately \$4.3 billion, mainly because the return on SamCERA's investments declined toward negative territory due mostly to concerns over a global economic slowdown.

Statement of Fiduciary Net Position

The table below shows SamCERA's preliminary Statement of Fiduciary Net Position as of December 31, 2018. Its assets and liabilities as of December 31, 2018, were compared to those as of July 1, 2018, 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)	
	12/31/18	7/1/18	Amount	Percentage
ASSETS:				
Cash and Cash Equivalents	\$ 102,590,689	\$ 53,125,429	\$ 49,465,260	93%
Cash Management Overlay	20,501,438	12,984,127	7,517,311	58%
Securities Lending Cash Collateral	1,880,084	1,486,415	393,669	26%
Subtotal - Cash and Other Cash Related Activities	<u>124,972,211</u>	<u>67,595,971</u>	<u>57,376,240</u>	85%
Receivables				
Contributions	-	9,422,510	(9,422,510)	-100%
Due from Broker for Investments Sold	63,058	4,152,241	(4,089,183)	-98%
Investment Income	7,933,268	5,930,254	2,003,014	34%
Securities Lending Income	8,680	10,453	(1,773)	-17%
Other Receivable	93,669	95,057	(1,388)	-1%
Subtotal - Receivables	<u>8,098,675</u>	<u>19,610,515</u>	<u>(11,511,840)</u>	-59%
Prepaid Expense	7,669	7,669	-	0%
Investments at Fair Value				
Fixed Income	920,989,593	892,923,149	28,066,444	3%
Equity	1,583,478,879	1,809,329,959	(225,851,080)	-12%
Alternatives	530,016,925	514,972,248	15,044,677	3%
Risk Parity	331,159,406	311,126,425	20,032,981	6%
Inflation Hedge	755,832,178	761,393,517	(5,561,339)	-1%
Subtotal - Investment at Fair Value	<u>4,121,476,981</u>	<u>4,289,745,298</u>	<u>(168,268,317)</u>	-4%
Fixed Assets	6,803,554	6,803,554	-	0%
TOTAL ASSETS	<u>4,261,359,090</u>	<u>4,383,763,007</u>	<u>(122,403,917)</u>	-3%
LIABILITIES:				
Payable - Investment Management Fees	2,047,479	1,663,178	384,301	23%
Due to Broker for Investments Purchased	5,139,619	5,408,607	(268,988)	-5%
Securities Lending Cash Collateral - Due to Borrowers	1,882,358	1,488,689	393,669	26%
Other	722,273	1,241,019	(518,746)	-42%
TOTAL LIABILITIES	<u>9,791,729</u>	<u>9,801,493</u>	<u>(9,764)</u>	0%
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 4,251,567,361</u>	<u>\$ 4,373,961,514</u>	<u>\$ (122,394,153)</u>	-3%

Assets. SamCERA's total assets decreased by \$122 million, or 3%, when compared to six months ago. Significant changes of specific items include the following:

- Cash and Cash Equivalents increased by \$49 million. The County traditionally makes its contribution prepayment in two installments, one in July and another in January. The 2nd installment came in a bit earlier in late December 2018 instead of January 2019, causing a significant surge in the cash balance.
- Cash Management Overlay increased by nearly \$8 million. SamCERA is in the process of implementing a new currency hedge program that, like the cash overlay program, requires cash to cover margins for its positions in futures contracts.

- Securities Lending Cash Collateral increased by \$0.4 million as SamCERA gradually expanded its securities lending activity. Under the securities lending program, SamCERA received cash collateral for securities on loan.
- Receivables overall decreased by about \$12 million. Most of the receivables from the prior year-end were either fully paid or reversed in July 2018. Most receivables as of December 31, 2018, represented unsettled transactions from investment income earned but not yet received.
- Investments overall decreased by \$168 million. The decrease was caused mainly by the sell-off of U.S. equities due to concerns over a slowdown in global economic growth and the underperformance in alternative assets. The overall performance of equity was down by nearly 10% in the first six months.

Liabilities. SamCERA's total liabilities is almost the same as six months ago. In December 2018, SamCERA expanded its securities lending activity causing a \$0.4 million increase in cash collateral. SamCERA is obligated to return the cash received when the agreed upon criteria are met. The increase was completely offset by the net decline in other liabilities, which arose due to the timing difference between when the liabilities were incurred and when they were settled.

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 31, 2018, 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 a negative \$8 million, which is 102% lower than the same period last year. Significant changes are discussed below.

- Employer Contributions (Regular) were \$83 million, or 107% higher than the same period last year. The County remitted its second half of the prepayment in an amount of \$80 million in late December, a month earlier than expected.
- Investment Income overall was a negative \$218 million, or 179% lower than the same period last year. SamCERA's return on investment was overshadowed by concerns over a global economic downturn. Its return on investment was a negative 4.4% during the first half of the fiscal year, down from the positive 6.6% for the same period last year.

Deductions. Total deductions from the Retirement Fund during the first half year is approximately \$114 million, which is 9% higher than the same period last year.

- The increase was mostly seen in the service retirement benefits. The number of retirees increased from 4,990 in December 2017 to 5,149 in December 2018, and the final average compensations for the new retirees were relatively higher.
- Expenses for Information Technology climbed up by nearly \$1 million, due primarily to scheduled upgrades and specific enhancements to the pension administration system.

Statement of Changes in Fiduciary Net Position


	<u>Preliminary</u>	<u>Actual</u>	<u>Increase (Decrease)</u>	
	<u>7/1/18 - 12/31/18</u>	<u>7/1/17 - 12/31/17</u>	<u>Amount</u>	<u>Percentage</u>
ADDITIONS:				
Contributions				
Employee Contribution	\$ 30,212,755	\$ 28,906,697	\$ 1,306,058	5%
Employer Contributions - Regular	159,928,950	77,091,458	82,837,492	107%
Employer Contributions - COLA	20,168,479	18,561,708	1,606,771	9%
Subtotal - Contributions	<u>210,310,184</u>	<u>124,559,863</u>	<u>85,750,321</u>	69%
Investment Income				
Interest and Dividends	24,923,736	18,395,128	6,528,608	35%
Net Appreciation (Depreciation) in fair value of investments	(226,579,166)	279,800,480	(506,379,646)	-181%
Less: Investment Expense	(16,686,062)	(21,330,409)	4,644,347	-22%
Subtotal - Investment Income	<u>(218,341,492)</u>	<u>276,865,199</u>	<u>(495,206,691)</u>	-179%
Securities Lending Income				
Earnings	36,643	21,639	15,004	69%
Rebates	-	6,763	(6,763)	-100%
Less: Securities Lending Expenses	(14,960)	(6,436)	(8,524)	132%
Subtotal - Securities Lending Income	<u>21,683</u>	<u>21,966</u>	<u>(283)</u>	-1%
Other Additions	25,139	21,581	3,558	16%
Total Additions	<u>(7,984,486)</u>	<u>401,468,609</u>	<u>(409,453,095)</u>	-102%
DEDUCTIONS:				
Benefits				
Service Retirement Allowance	96,076,189	87,846,064	8,230,125	9%
Disability Retirement Allowance	12,302,577	11,919,431	383,146	3%
Survivor, Death and Other Benefits	674,350	430,838	243,512	57%
Subtotal - Benefits	<u>109,053,116</u>	<u>100,196,333</u>	<u>8,856,783</u>	9%
Refund of Member Contributions	1,626,531	1,908,010	(281,479)	-15%
Administrative Expense	2,813,749	2,741,895	71,854	3%
Information Technology Expenses	950,438	38,898	911,540	2343%
Other Expense	(34,167)	45,987	(80,154)	-174%
Total Deductions	<u>114,409,667</u>	<u>104,931,123</u>	<u>9,478,544</u>	9%
Net Income	<u>\$ (122,394,153)</u>	<u>\$ 296,537,486</u>	<u>\$ (418,931,639)</u>	-141%

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 7.2

TO: Board of Retirement

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

SUBJECT: Preliminary Report on Budget-to-Actual for the six-month period ended December 31, 2018

Recommendation

Accept the Preliminary Report on Budget-to-Actual for the six-months ended December 31, 2018.

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. This is a good indicator that SamCERA's expenses are properly monitored and managed.

Administrative Budget. About 40% (or \$3 million) of the administrative budget are consumed during the first half of the fiscal year. The following table compares the actual expenses to the budgeted amounts with explanations for why the actual results of certain items significantly differ from anticipated.

	<u>Adopted Budget Through 6/30/19</u>	<u>Actual Expense Through 12/31/18</u>	<u>% of Budget Used</u>	<u>Under Budget</u>	<u>% of Budget Remaining</u>
Salaries and Benefits					
Salaries	\$ 3,516,800	\$ 1,371,623	39%	\$ 2,145,177	61%
Benefits	1,871,900	692,510	37%	1,179,390	63%
Total Salaries and Benefits	5,388,700	2,064,133	38%	3,324,567	62%
Services and Supplies					
Board Expense	10,000	2,300	23%	7,700	77%
Insurance	80,000	43,511	54%	36,489	46%
Medical record and hearing service	75,000	10,915	15%	64,085	85%
Member Education	63,800	27,574	43%	36,226	57%
Education and Conference	143,115	56,034	39%	87,081	61%
Transportation and Lodging	160,230	40,215	25%	120,015	75%
Property and Equipment	36,000	7,079	20%	28,921	80%
General Office Supplies	49,000	17,623	36%	31,377	64%
Postage and Printing	40,000	8,088	20%	31,912	80%
Leased Facilities	533,000	261,680	49%	271,320	51%
County Services	378,750	233,669	62%	145,081	38%
Audit Services	52,500	40,745	78%	11,755	22%
Other Administration	15,000	182	1%	14,818	99%
Total Services and Supplies	1,636,395	749,616	46%	886,779	54%
Total	\$ 7,025,095	\$ 2,813,749	40%	\$ 4,211,346	60%

Salaries and Benefits – Actual expenses are approximately 10% below the mid-year expectation. There have been three vacant positions since October 2018, mainly due to staff retirements. Plans to fill these vacant positions have been deferred to the second half of the fiscal year. This resulted in less than expected expenses in salaries and benefits.

Services and Supplies – Actual expenses are closely in line with the mid-year expectation. Significant variances of specific line items include the following:

- Medical Record and Hearing Service expenses are markedly less than expected. Only one member applying for disability was recommended by SamCERA’s medical advisor to obtain an independent medical evaluation. In addition, only one member applying for disability retirement requested for a formal hearing.
- “Education and Conference” and “Transportation and Lodging” expenses are substantially less than anticipated as attendance of conferences did not reach expected levels.
- Property and Equipment expenses are far below expectations. Plans to replace old equipment will be carried out in the months to come.
- General Office Supplies expenses are moderately below projections, as the demand for office supplies was less than anticipated.
- Postage and Printing expenses are significantly below the mid-year budget. Major outlays, such as mailing of 1099-Rs, usually occur after the mid-year in January.

- 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 settled in December 2018, leaving about 40% of the budget for non-basic services.
- Audit Services expenses are less than estimated and were fully paid before December 2018.
- The budget for Other Administration expenses is mainly for seeking legal advice from outside professionals, which was deemed unnecessary during the first half of the fiscal year.

Technology Budget. Actual expenses are closely in line with mid-year expectations. The table below compares the actual technology expenses to the budgeted amounts with explanations for why the actual outcomes of certain line items significantly differ from expected.

	Adopted Budget Through 6/30/19	Actual Expense Through 12/31/18	% of Budget Used	Under Budget	% of Budget Remaining
Computer Equipment and Software	\$ 85,000	\$ 14,554	17%	\$ 70,446	83%
Software License Maintenance	1,736,340	934,874	54%	801,466	46%
Server	100,000	995	1%	99,005	99%
Contract Services - IT Infrastructure	53,000	-	0%	53,000	100%
ISD Budget	150,000	-	0%	150,000	100%
Technology Research and Development	14,000	15	0%	13,985	100%
Total	\$ 2,138,340	\$ 950,438	44%	\$ 1,187,902	56%

- Computer Equipment and Software - Requests for new computer equipment and software are much lower than anticipated.
- Server – SamCERA has been using old servers to support various test environments. The budget sets aside funding for replacing old servers as needed.
- Contract Services – This budget puts aside funding for IT consulting services and will be depleted as needs arise.
- ISD Budget – This budget provides funding for special projects from the County’s Information Service Department, such as improving the wireless connectivity to the County, and will be depleted as needed.
- Technology Research and Development – 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. Actual professional service expenses are about \$9 million in total for the six-months ended December 31, 2018. This amount is 14% below the mid-year budget due to two factors: (1) overestimation of management fees as overall assets under management was lower than expected and (2) overestimation of performance fees associated with alternative assets. Below is a summary of actual professional services expenses versus budgeted amounts through December 31, 2018.

Investment Management & Other Professional Services					
Service	Projected Fee		Actual Fee		Percentage of Projected Fee Used
	Through 6/30/19	Through 12/31/18	Through 6/30/19	Through 12/31/18	
Investment Management	\$ 24,958,707	\$ 8,776,758	42.4		35%
Other Professional Services	941,500	486,704	2.3		52%
TOTAL	\$ 25,900,207	\$ 9,263,462	43.6		36%

- 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 Services					
Investment	Projected Fee		Actual Fee		Percentage of Projected Fee Used
	Through 6/30/19	Through 12/31/18	Through 6/30/19	Through 12/31/18	
Total Public Equity	\$ 5,304,985	\$ 1,798,578	21.8		34%
Total Fixed Income	3,596,932	1,738,970	37.8		48%
Total Risk Parity	1,370,182	633,291	38.2		46%
Total Alternative Assets	10,465,182	1,958,979	73.9		19% (1)
Total Inflation Hedge	4,036,425	2,585,701	74.7		64% (2)
Total Cash Overlay	185,000	61,239	N/A		33%
TOTAL	\$ 24,958,707	\$ 8,776,758	42.4		35%

(1) Total Alternative Assets is under budget because of the overestimation of performance fees for most funds, two funds in particular.

(2) Total Inflation Hedge is over budget due to the new allocation to Cushing MLP which was not included in the budget process as well as the underestimation of management fees for two funds.

- Other professional service charges are primarily based on contractual agreements.

Other Professional Services					
Contractor	Service	Projected Fee		Actual Fee	
		Through 6/30/19	Through 12/31/18	Through 6/30/19	Through 12/31/18
Milliman Inc.	Actuarial Consulting	\$ 91,500	\$ 81,500	0.4	89% (1)
Verus Investments	Investment Consulting	500,000	240,204	1.1	48%
Northern Trust	Custodian	350,000	165,000	0.8	47%
	TOTAL	\$ 941,500	\$ 486,704	2.3	52%

(1) Most of the actuarial consulting fees were paid in the first half of the fiscal year.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 7.3

TO: Board of Retirement
FROM: Scott Hood, Chief Executive Officer
SUBJECT: 2019 Board-Staff Retreat Topics



Recommendation

Provide direction to staff regarding the topics and schedule for the April 2019 Board-Staff Retreat.

Background

This item is to give the Board another opportunity to discuss the upcoming 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 input from the Board over the last few meetings. This version condenses the retreat to one day and starts with a shortened regular Board meeting. Our kick-off speaker, Ian Toner, from Verus will provide an overview of the global economic outlook. Mike Coultrip will then lead the Board through a deep dive of the portfolio. After lunch, Jeff MacLean from Verus will provide a presentation on moving towards a mature plan. Our last presentation will be from Verus' Paul Kreiselmaier on Absolute Return.

The 2019 SamCERA Board-Staff Retreat is scheduled along the same lines as prior years:

Days: One day
Timing: Leaves time between the presentations for discussion
Location: SamCERA Boardroom
Speakers: SamCERA's consultants and staff
Regular Business: The Board's regular monthly business will be the first scheduled event in the morning
Date: **Tuesday, April 24, 2019**
Start Time: **8:30 a.m.**

Attachment

Draft 2019 Board-Staff Retreat Agenda



Board/Staff Retreat



AGENDA & PRESENTERS


APRIL 23, 2019

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 26, 2019

Agenda Item 7.4

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Set start time of the April 23, 2019 meeting and cancel the April 24, 2019 meeting of the Board of Retirement

Recommendation

Approve a change to the time of the regularly scheduled April 23, 2019 meeting to 8:30 a.m. and cancel the April 24, 2019 meeting of the Board of Retirement.

Background

The Board's regular meetings are scheduled on the fourth Tuesday of each month at 10:00 a.m. The Board is authorized by Article III, Section 3.4 of the Board's Regulations to change its meeting times and dates.

"Regular Meetings: Regular meetings of the Board shall be held on the Fourth Tuesday of each month. Meetings shall begin at 10:00 a.m. Meetings shall be held in SamCERA's offices. The Board may cancel and or approve a change in the date, time and/or location of meetings within the County, if the proposed change is included on the agenda of a regular meeting."

Discussion

In October 2018, the Board approved the regular meeting schedule for 2019. That schedule provides that the Board would meet on both April 23 and 24 for the annual Board/staff retreat. The Board has determined that it prefers just one day for this year's retreat.

Staff recommends that Board formally change the date and time of the meeting so that staff can publish the meeting notice and reflect the new information on SamCERA's website.