



Notice of Public Meeting

The Board of Retirement of the San Mateo County Employees' Retirement Association will meet on **Tuesday, December 4, 2018, at 10:00 A.M.**

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

- 1. Call to Order, Roll Call and Miscellaneous Business**
- 2. Oral Communications**
 - 2.1 Oral Communications from the Board
 - 2.2 Oral Communications from the Public
- 3. Approval of the Minutes**
 - 3.1 Approval of Regular Board Meeting Minutes from October 30, 2018
- 4. Approval of the Consent Agenda***

| | |
|------------------------------------|--|
| 4.1 Disability Retirements | 4.6 Member Account Refunds |
| • Melvin Hinshaw | 4.7 Member Account Rollovers |
| • Suzanne Mattocks | 4.8 Member Account Redeposits |
| • Patrick McTaggart | 4.9 Acceptance of Trustees' Reports of Educational Activities |
| • Christine Pantoja | 4.10 Approval of a Resolution Reaffirming Education Policy |
| 4.2 Survivor Death Benefits (none) | 4.11 Approval of a Resolution Amending Travel Reimbursement Policy |
| 4.3 Service Retirements | |
| 4.4 Continuances | |
| 4.5 Deferred Retirements | |
- 5. Benefit & Actuarial Services**
 - 5.1 Consideration of Agenda Items, if any, removed from the Consent Agenda
- 6. Investment Services**
 - 6.1 Report on Preliminary Monthly Portfolio Performance for the Period Ended 10/31/18
 - 6.2 Report on Quarterly Investment Performance for the Period Ended 09/30/18
 - 6.3 Report on Absolute Return and Risk Parity Annual Manager Reviews
 - 6.4 Presentation of Private Asset Semi-Annual Performance Reports as of June 30, 2018
 - 6.5 Report on Investment Consultant Annual Review
 - 6.6 Approval of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2)
- 7. Board & Management Support**
 - 7.1 Approval of Resolution Authorizing CEO to Enter into an Agreement for Actuarial Services
 - 7.2 Discussion of Board/ Staff Retreat Topics
- 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

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

- C1 Consideration of Disability Items, if any, Removed from the Consent Agenda
- C2 Approval of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item 6.6)
- C3 Public Employee Performance Evaluation, in accordance with Gov. Code § 54957, Title: Chief Executive Officer (to be heard in Closed Session Confidential Under Gov. Code §54957)

9. Report on Actions Taken in Closed Session

10. Adjournment in Memory of the Following Deceased Members:

| | | |
|-----------------------|-------------------|----------------------------|
| Peyton, Michael | September 7, 2018 | Mental Health |
| Lucas, Ruby | October 5, 2018 | Courts |
| Lehto, Lila | October 12, 2018 | Social Services |
| Nill, Marya | October 17, 2018 | Social Services |
| Kodakari, Kazuyo | October 18, 2018 | Clerk Recorder's |
| Brahy, Gayle | October 25, 2018 | Information Technology |
| Eaneff, Gladys Joyce | November 3, 2018 | District Attorney's Office |
| Burdick, James | November 8, 2018 | Veteran Service Office |
| Fulton, Kiyoko | November 8, 2018 | Human Services Agency |
| Geiger, Dorothy | November 11, 2018 | Mental Health |
| Timberlake, Nathaniel | November 14, 2018 | Public Works |
| Minty, Edith | November 17, 2018 | General Services |



Scott Hood, Chief Executive Officer

Posted: November 28, 2018

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

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

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

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

OCTOBER 30, 2018 – REGULAR BOARD MEETING MINUTES

1810.1 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, Paul Hackleman, Katherine O'Malley, Robert Raw and Eric Tashman.

Absent: Kurt Hoefer and Alma Salas.

Alternates present: Susan Lee.

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

Consultants and speakers: Joe Abdou and Stephen Quirk (Verus); and Andy Paulden (Brown Armstrong).

1810.2.1 Oral Communications from the Board: Ms. Arnott congratulated Mr. Hackleman on a job well done as President of IFEBP.

1810.2.2 Oral Communications from the Public: Ms. Smith introduced SamCERA's new Communication Specialist, Natasha Jeong, to the Board.

1810.3.1 Approval of the Minutes: Ms. Arnott asked if there were any changes or corrections, or objections, to the meeting minutes from the Board meeting held on September 25, 2018.

Action: Mr. David moved to approve the minutes from the Board Meeting on September 25, 2018. The motion was seconded by Mr. Hackleman and carried with a vote of 6-0, with trustees Arnott, Battey, David, Hackleman, O'Malley and Raw all in favor; Tashman abstained; none opposed.

1810.4.0 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. Hackleman moved to approve the Consent Agenda, and the motion was seconded by Mr. Tashman. The motion carried with a vote of 6-0, with trustees Arnott, Battey, David, Hackleman, O'Malley and Raw, all in favor; none opposed.

1810.4.1 Disability Retirements:

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

b) The Board found that David Wilkinson is (1) permanently incapacitated from the performance of his usual and customary duties as a Communication Dispatcher, (2) found that his disability was the result of an injury arising out of and in the course of his employment and (3) granted his application for a service-connected disability retirement.

1810.4.2 Survivor Death Benefits: None.

1810.4.3 **Service Retirements:**

| Member Name | Effective Retirement Date | Department |
|-------------------------|----------------------------------|---------------------------------------|
| Avelar, Oscar | August 31, 2018 | Probation |
| Baldassarre, Sonia | August 28, 2018 | Public Health |
| Chenoweth, William | July 28, 2018 | Sheriff's |
| Crooks, Alleen | May 14, 2018 | Deferred from Probation |
| Delia, James | August 4, 2018 | Retired G2, starting G3 pension |
| Edralin, Susan | July 18, 2018 | Medical Center |
| Fox, Dwight | August 31, 2018 | Behavioral Health & Recovery Services |
| Gallagher, Kathleen | August 20, 2018 | Deferred from Public Works |
| Garcia Sandoval, Simon | August 31, 2018 | Environmental Services |
| Kintanar, Telly | August 25, 2018 | Tax Collector |
| Maharaj, Uma | September 1, 2018 | Medical Center |
| Mollah, Mohammed | August 16, 2018 | Deferred from Mental Health |
| Nelson, Matthew | August 4, 2018 | Probation |
| O'Brien, James | August 4, 2018 | Mosquito |
| Peralta, Emeterio | August 11, 2018 | Aging & Adult Services |
| Pitt, Morley | August 18, 2018 | District Attorney's Office |
| Rivera, Eda | August 8, 2018 | HOS Medical Surgery |
| Siat, Roseller | September 1, 2018 | HOS Medical Records |
| Toleikis, Barbara | August 22, 2018 | Deferred from Courts |
| Zall-Recorder, Michelle | September 1, 2018 | Juvenile Probation |

1810.4.4 **Continuances:**

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

| Survivor's Name | Beneficiary of: |
|------------------------|------------------------|
| Goodspeed, Ida | Goodspeed, Aldaniel |
| Rosa, Milalyn | Rosa, Samuel |

1810.4.5 **Deferred Retirements:**

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

| Member Name | Retirement Plan Type |
|-----------------------------|------------------------------|
| Wiltron, Christopher | S5, Non-vested - Reciprocity |
| Cecil, Cameron L. | G7, Non-vested - Reciprocity |
| Castro, Elvira | G4, Vested - Reciprocity |
| Balajadia, Joyce C. | G4, Vested - Reciprocity |
| Davenport, Robert L. | G7, Non-vested - Reciprocity |
| Chow, Andrea | G7, Non-vested - Reciprocity |
| Esclamado-David, Jessica A. | G7, Non-vested - Reciprocity |
| Pasillas, Bianca L. | P7, Non-vested - Reciprocity |
| Weidmann, Andrea L | G4, Vested - Reciprocity |
| Perdomo, Emilio R. | G4, Vested - Reciprocity |
| Sun, Wen Shiow | G4, Vested - Reciprocity |
| Diaz, Maria V. | G5, Vested - Reciprocity |
| Jain, Abhnandan | G4, Vested |
| Mc Cavitt, Thomas J | G4, Vested |
| Eriksson, Nirit S. | G7, Vested |
| Holeton, Miranda | G7, Vested |

Mieke, Bryant G4, Vested
Chen, Alice G4, Vested

1810.4.6 **Member Account Refunds:**

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

| Member Name | Retirement Plan Type |
|-------------------------------------|-----------------------------|
| Barringer, Gregory | G7, Non-vested |
| Duggan, Kevin (FBO: Patrick Duggan) | G4, Vested |
| Hebert, Allene | G7, Non-vested |
| Mak, Mae | G5, Non-vested |
| Marte, Arselis | G4, Vested |
| Moore-Langston, Shannon | G7, Non-vested |
| Valle, Elena | G5, Non-vested |

1810.4.7 **Member Account Rollovers:**

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

| Member Name | Retirement Plan Type |
|-------------------------------------|-----------------------------|
| Anderson, Sharon | G7, Non-vested |
| Bundy, Jessica | G7, Non-vested |
| Duggan, Kevin (FBO: Patrick Duggan) | G4, Vested |
| Leier, Kaitlynn | G7, Non-vested |
| Marte, Arselis | G4, Vested |
| Rago, Emily | G7, Non-vested |
| Rose, Judy | G5, Non-vested |

1810.4.8 **Member Account Redeposits:** None.

1810.4.9 **Acceptance of Trustees' Reports of Educational Activities:** The Board accepted the submitted reports for educational activities attended by Ms. Arnott, Mr. David, Ms. Lee and Ms. Salas.

1810.4.10 **SACRS Business Meeting November 2018:** The Board authorized SamCERA's Voting Delegate and Alternate to approve the minutes of the SACRS May 2018 Business Meeting and vote in the best interest of SAMCERA on any new action items that may be added to the November 2018 Business Meeting.

1810.5.1 **Consideration of Agenda Items, if any, removed from the Consent Agenda:** None.

1810.6.1 **Report on Preliminary Monthly Portfolio Performance for the Period Ended 9/30/18:** Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported that SamCERA's net preliminary return for September 2018 was 0.03%, while the preliminary trailing twelve-month return ending September 2018 was 5.3% net. This item was informational and for discussion only, no action was taken.

Mr. Bowler arrived at 10:07 a.m. and took his seat at the dais.

1810.6.2 **Report on Opportunistic Credit Manager Annual Reviews:** Ms. Dames reviewed the meeting notes from the annual review of SamCERA's opportunistic credit managers: Angelo Gordon, Brigade Capital Management, White Oak and Tennenbaum Capital Partners. Staff met with Angelo Gordon, Brigade Capital Management and White Oak on September 13th and Tennenbaum Capital Partners on September 26th. There were no significant concerns identified during the portfolio reviews. This item was informational only, no action was taken.

1810.6.3 **Report on Inflation Hedge Manager Annual Review-State Street Global Advisors:** Ms. Dames reviewed the meeting notes from the annual review of SamCERA's inflation hedge manager, State Street Global Advisors (SSgA). Staff met with SSgA on October 4th and there were no significant concerns identified during the portfolio review. This item was informational only, no action was taken.

1810.6.4 **Approval of Low-Volatility Equity Manager Recommendation:** Ms. Ng reported to the Board that SamCERA staff and Verus completed due diligence visits with the three short-listed candidates: Acadian Asset Management, Martingale Asset Management and PanAgora Asset Management. Based on these meetings and due diligence materials, staff and Verus recommended allocating 3% of plan assets to Acadian's U.S. Managed Low Volatility Equity strategy and 3% of plan assets to PanAgora's Defensive U.S. Equity Low Volatility strategy.

Mr. Abdou continued to discuss the due diligence process and further discussed the recommendations for both strategies.

Lastly, Ms. Ng summarized the key highlights of the two strategies.

Action: Mr. Bowler motioned to approve the recommendation to hire Arcadian Asset Management and PanAgora Asset Management for a low volatility equity mandate with an initial investment of 3% of plan assets to each manager. The motion was seconded by Mr. David and carried a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, O'Malley, Raw and Tashman.

The Board adjourned into Closed Session at 10:48 a.m. to hear item 6.5. After the Closed Session, the Board took a 10 minute break at 11:05 a.m. then reconvened in Open Session at 11:15 a.m.

1810.6.5 **Discussion of Proposed Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2):** Ms. Carlson reported that no reportable action was taken in Closed Session.

1810.7.1 **Approval of Financial Audit Management Reports for the Fiscal Year Ended June 30, 2018:** Mr. Paulden, from Brown Armstrong, reviewed the independent financial audit performed by Brown Armstrong for the fiscal year ended June 30, 2018. He discussed the details of the audit process and stated SamCERA received an unqualified (clean) opinion.

Mr. Hood thanked Mr. Paulden, Ms. Casey and their team for their great work and professionalism.

Before the Board proceeded with an approval, Ms. Arnott called on Ms. O'Malley to report on the Audit Committee Meeting that took place on October 24th, 2018. Ms. O'Malley reported they were presented with the CAFR and financial audit report. Ms. O'Malley commented there were no formal recommendations made due to the lack of a quorum, however, there were no issues or concerns that arose.

Action: Mr. Tashman motioned to approve the Brown Armstrong's Financial Audit Reports for the fiscal year ended June 30, 2018. The motion was seconded by Mr. Hackleman and carried a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, O'Malley, Raw and Tashman all in favor; none opposed.

1810.7.2 **Approval of SamCERA’s 2018 Comprehensive Annual Financial Report (CAFR):** Ms. Chow provided an oral report on the highlights of the 2018 CAFR, noting that SamCERA’s funded status has increased from 84.3% to 87.5%.

Action: Mr. David motioned to approve SamCERA’s 2018 Comprehensive Annual Financial Report. The motion was seconded by Mr. Raw and carried a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, O’Malley, Raw and Tashman all in favor; none opposed.

1810.7.3 **Approval of Board of Retirement Meeting Schedule for 2019:** Ms. Smith reviewed the proposed calendar for the 2019 Board Meetings and highlighted a few changes to next year’s schedule.

Action: Mr. Battey motioned to approve the meeting schedule of the Board of Retirement for calendar year 2019. The motion was seconded by Mr. David and carried a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, O’Malley, Raw and Tashman all in favor; none opposed.

1810.7.4 **Report on Status of Actuarial RFP Process and Direction to Staff:** Mr. Hood provided the Board with an update regarding the Actuarial RFP Process advising there were 3 proposals submitted. Mr. Hood stated staff intends to present the information at the December Board Meeting and requested further direction from the Board on how they would like to proceed with the Actuarial RFP Process. Mr. Hood was given direction to provide the Board with staff’s recommended selection for the Board’s consideration and action in December. This item was informational only, no action was taken.

1810.8.1 **Chief Executive Officer’s Report:** Mr. Hood shared with the Board a card received from Judy Dana expressing her gratitude for the “Certificate of Adjournment” of her late husband, Paul Dana. Mr. Hood mentioned two members of the SamCERA staff had retired last month so staff intends to fill those vacancies. He also informed the Board of the following topics to be reviewed at the December Board meeting: the education policy as well as reimbursement of travel expense policy, CEO Annual Review and topics for the upcoming Board/Staff retreat.

1810.8.2 **Assistant Executive Officer’s Report:** Ms. Smith informed the Board that staff held their kickoff meeting with Vitech regarding a system update. She also informed the Board that staff is in the final stages of hiring a new Retirement Analyst.

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

1810.8.3 **Chief Investment Officer’s Report:** Mr. Coultrip mentioned a copy of the Performance Pulse was placed in the trustees’ Day of Folders. He also mentioned the Private Equity and Private Real Asset Review will be the final review of the year and will be taking place on November 26, 2018 from 10:00 a.m. until 12:00 p.m. Mr. Coultrip also informed the Board that Verus will be providing a presentation on timber at the December Board meeting. Lastly, Mr. Coultrip mentioned staff will be sending out an annual review for Verus which will be sent through SurveyMonkey.

1810.8.4 **Chief Legal Counsel’s Report:** Ms. Carlson reported that the oral argument for the 5 PEPRAs related pension cases pending before California Supreme Court has not been set for November. A Trial Court in San Diego ruled that the lower formula adopted by Measure D in the County of San Diego can be implemented by SDCERA and that the PEPRAs compensation cap will be applied to that formula.

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

1810.10 **Adjournment:** Ms. Arnott adjourned the meeting at 11:50 a.m. in memory of the deceased members listed below:

| | | |
|-------------------|--------------------|--------------------------|
| Knighnten, Susie | August 14, 2018 | Medical Center |
| Dobson-Ware, Gary | August 27, 2018 | Probation |
| O' Connor, James | September 11, 2018 | Probation |
| Jarmusz, Robert | September 17, 2018 | Mental Health |
| Smith, Marlene | September 20, 2018 | Controller's |
| Pryor, Lee | September 21, 2018 | Treasurer's |
| Atesalp, Albert | September 28, 2018 | Probation |
| Preece, Barbara | September 30, 2018 | Environmental Management |
| Goerss, Mary | October 5, 2018 | Health Services |
| Yee, Jeanne | October 9, 2018 | Treasurer's |

Scott Hood
Chief Executive Officer

Anne Trujillo
Retirement Executive Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board (1) accept the proposed findings and recommendations of the Hearing Officer, George Camerlengo, (2) find that **Melvin Hinshaw** is permanently incapacitated from the performance of his usual and customary duties as a Deputy Sheriff, (3) find that his disability was the result of an injury arising out of and in the course of his employment and (4) grant his application for a service-connected disability retirement.

- b) The Board find that **Suzanne Mattocks** is (1) permanently incapacitated from the performance of her usual and customary duties as a Deputy Sheriff, (2) find that her disability was the result of an injury arising out of and in the course of her employment and (3) grant her application for a service-connected disability retirement.

- c) The Board find that **Patrick McTaggart** is (1) permanently incapacitated from the performance of his usual and customary duties as a Sheriff Sergeant, (2) find that his disability was the result of an injury arising out of and in the course of his employment and (3) grant his application for a service-connected disability retirement.

- d) The Board find that **Christine Pantoja** is (1) permanently incapacitated from the performance of her usual and customary duties as a Deputy Court Clerk Specialist, (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.

4.2 Survivor Death Benefits

None.

4.3 Service Retirements

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

| Member Name | Effective Retirement Date | Department |
|----------------|---------------------------|-----------------------|
| Aguilar, Vilma | September 6, 2018 | Human Services Agency |

| | | |
|--------------------------|--------------------|-------------------------------|
| Blanchard, Barbara | September 8, 2018 | Deferred from Library |
| Carlson, James | August 15, 2018 | Deferred from Public Health |
| Demee, Joseph | September 29, 2018 | Treasurer/Tax Collector |
| Dunsmore-Bertoni, Dinora | October 1, 2018 | Parks |
| Hogerheide, Louise | September 23, 2018 | Parks |
| Klimas, Catarina | September 28, 2018 | Public Health |
| Koenig, Douglas | September 7, 2018 | Public Works |
| Magett, Patricia | September 8, 2018 | Deferred from Courts |
| Makino, Michelle | September 29, 2018 | Aging & Adult Services |
| McLaughlin, Kathie | September 29, 2018 | Business Systems |
| McNeely, Julia | September 29, 2018 | Superior Court |
| Moala, Samisoni | September 25, 2018 | Probation |
| Okereke, Kingsley | September 28, 2018 | Deferred from Courts |
| Sandoval, Patricia | September 11, 2018 | Deferred from HOS Call Center |
| Shabatura, Sam | September 6, 2018 | Deferred from Sheriff's |
| VanderLans, Nancy | September 5, 2018 | Library |

4.4 Continuances

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

| Survivor's Name | Beneficiary of: |
|------------------------|------------------------|
| Dana, Judith | Dana, Paul |
| Morimoto, Junko | Morimoto, Fred |
| O'Connor, Mary | O'Connor, James |
| Trade, Sherry | Trade, Daniel |

4.5 Deferred Retirements

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

| Member Name | Retirement Plan Type |
|---------------------|-----------------------------|
| Lingfelder, Matthew | G7, Vested - Reciprocity |

| | |
|------------------------|--------------------------------------|
| Lopez, Teresa P. | G4, Vested – Auto Defer - Code 31700 |
| Mclaughlin, Julia M. | G4, Vested – Auto Defer - Code 31700 |
| Monheit, Juliette C. | G4, Vested |
| Murillo, Norma | G4, Vested – Auto Defer - Code 31700 |
| Ramirez, Lucy | G4, Vested |
| Ruiz-Girmay, Christina | G4, Vested – Auto Defer - Code 31700 |
| Scruggs, Shaunda | G5, Vested |
| Sparks, Marni | G4, Vested |
| Thornton, Lorna M | G4, Vested – Auto Defer - Code 31700 |
| Velez, Janet D | G4, Vested |

4.6 Member Account Refunds

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

| Member Name | Retirement Plan Type |
|---------------------------------------|-----------------------------|
| Bermudez, Corina | G4, Vested |
| Deponte, Amanda | G7, Non-vested |
| Grover, Sumit | G7, Non-vested |
| Johnson-Silk, Michael | G7, Non-vested |
| Jones, Jacob | G7, Non-vested |
| Mabry, Charice | G7, Non-vested |
| Manuel, Christopher | G7, Non-vested |
| Morton, Kevin | S7, Non-vested |
| Ogburn, Katherine | G7, Non-vested |
| Pardini, Judy | G7, Non-vested |
| Peyton, Michael (FBO: Peyton, Amelia) | G4, Vested |
| Peyton, Michael (FBO: Peyton, Ava) | G4, Vested |
| Pons, Jeremiah | G7, Non-vested |
| Price, Jessica | G5, Non-vested |
| Wilcox, Carrie | G4, Vested |
| Yazir, Melissa | G7, Non-vested |

4.7 Member Account Rollovers

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

| Member Name | Retirement Plan Type |
|--------------------------|-----------------------------|
| Ahearn-Brown, Kerry | G7, Non-vested |
| Caraotta, Lauren | G7, Non-vested |
| Jajeh, Richard | G7, Non-vested |
| Nierenberg, Sandra | G7, Non-vested |
| Li, Peng | G7, Non-vested |
| Maravilla-Rosales, Sonia | G7, Non-vested |
| Rodriguez, Alvaro | G7, Non-vested |

4.8 Member Account Redeposits

None.

4.9 Acceptance of Trustees' Reports of Educational Activities

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 4.9

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



Recommendation

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

Background

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

Discussion

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

IFEBP 2018 Annual Employee Benefits Conference

- Paul Hackleman

SACRS 2018 Fall Conference

- Susan Lee

Attachments

Trustee's Education Proof of Participation Certificates and Summaries

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



| | | |
|---|--|--|
| Trustee Name Paul Hackleman | | Date(s) of Event 10/13/18-10/17/18 |
| Education Event Name Annual Conference 2018 | | |
| Event Provider IFEBP | | |
| Type of Participation: Attended Event <input checked="" type="checkbox"/> Listened to Audio/Watched Video <input type="checkbox"/> | | Eligible Credit: Total hours for sessions you participated in: <u>15</u> <i>(Staff may adjust hours if the provider issues an education certificate that reflects different hours.)</i> |

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

Topic: (Check all that apply)

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

Summary Report

What concepts or information did you learn about?

REAL ESTATE RISKS & RETURNS, EMERGING MKT TRENDS, COMPARISON OF US AND NON-US FIXED INCOME, GLOBAL OUTLOOK, ADVANCED ALTERNATIVE INVESTMENTS, INFRASTRUCTURE INVESTING, ISSUES FOR MATURE PENSION PLANS (ESP IN ADVERSE FINANCIAL TIMES, TRENDS IN GOVERNANCE/OVERSIGHT), KEY PENSION RISKS TO AVOID.

Would you recommend this event to other trustees?

- Yes No Maybe

You may provide additional comments to SamCERA's CEO.

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

| | |
|--|-------------------------|
| Trustee Signature (print this form and sign) <i>Paul Hackleman</i> | Date 10-30-18 |
|--|-------------------------|

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

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



| | | |
|---|--|--|
| Trustee Name Susan Lee | | Date(s) of Event 11/13/18-11/16/18 |
| Education Event Name Fall Annual Conference | | |
| Event Provider SACRS | | |
| Type of Participation: Attended Event <input checked="" type="checkbox"/> Listened to Audio/Watched Video <input type="checkbox"/> | | Eligible Credit: Total hours for sessions you participated in: <u>20</u> <i>(Staff may adjust hours if the provider issues an education certificate that reflects different hours.)</i> |

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

Topic: (Check all that apply)

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

Summary Report

What concepts or information did you learn about?

Global economics, China's share in the stock market
Future / current trends
Diversity & Inclusion - cultural & business strategy
Global waste, interlocking concepts

Would you recommend this event to other trustees?

- Yes No Maybe

You may provide additional comments to SamCERA's CEO.

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

| | |
|---|-------------------------|
| Trustee Signature (print this form and sign) | Date 11/19/18 |
|---|-------------------------|

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

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 4.10

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: Reaffirmance of the Board's Education Policy

Recommendation

Reaffirm the Board's Education Policy.

Background

In 2016, the Board approved its Education Policy. The policy reflects the following core principles as stated by the Ad Hoc Education Policy Committee:

- **Fiduciary:** education must be consistent with the Board's fiduciary responsibilities.
- **Prudent:** exercising good judgment /decision making; understanding that the Board is entrusted with the Retirement Fund.
- **Relevant:** education must be relevant to Trustee's responsibilities and to individual experience and background.
- **Focus:** training/conference should focus on education not marketing
- **Cost Effective:** Board should apply the same discipline to Board travel/education as it does to all SamCERA expenses. Each Board member shall make every effort to obtain his or her education within California.
- **Optics/Perception:** location and perception of luxury are important. Board member education should be obtained in a cost-efficient manner minimizing costs wherever possible, multiple education providers provide similar educational opportunities.

Discussion

The Policy authorizes each Trustee to attend all of the following each fiscal year:

- Unlimited number of conferences and education programs within the Bay Area; and
- Any program sponsored by the State Association of County Retirement Systems (SACRS) and the California Association of Public Retirement Systems (CALAPRS) wherever located; and
- Up to two (2) approved out-of-Bay Area educational events requiring overnight stays.

The two approved out of Bay Area educational events requiring overnight stays can be from the following list of providers:

- International Foundation of Employee Benefit Plans (IFEBP)
- Wharton investment management programs
- Chartered Financial Analyst (CFA) Institute
- National Conference on Public Employee Retirement Systems (NCPERS)
- Institutional Limited Partner Association (ILPA) Institute (Educational Programs)

This list is subject to annual review and revision by the Board. Requests to attend an event not on the above list can be made by a Trustee by completing a form that is placed on the regular agenda for approval.

Attachment

Education Policy

BOARD EDUCATION POLICY

SECTION 1. BOARD MEMBER EDUCATION IS REQUIRED

- A. **Fiduciary Duty.** Consistent with the Board's fiduciary responsibility to discharge its duties with respect to the system with care, skill, prudence, and diligence, the Board acknowledges the vital importance of making informed judgments on all matters which come before it and has determined that educational activities help provide the Board with knowledge and skills to make such informed decisions. Board members come to the Board with differing backgrounds, knowledge and expertise. Each member has a duty to receive the education that best fits his or her needs. Board member education should develop the individual knowledge of the Board members and in turn, improve the knowledge of the Board as whole so that it may discharge its fiduciary duties.

- B. **Minimum Required Hours of Training.** Each Board member shall receive a minimum of 24 hours of Board member education in the topics listed in Section 3 (A) within the first two years of assuming office and for every subsequent two-year period the Board member continues to hold membership, in accordance with Government Code §31522.8.

- C. **Posting of Policy and Board Member Compliance.** Staff shall maintain a record of Board member compliance with this policy and this policy and an annual report on Board member compliance will be posted on the Board's website which shall reflect the education completed for the prior fiscal year or calendar, depending upon when the Board member's term commences, in accordance with Government Code §31522.8.

- D. **Timely Report by Board Member of Educational Participation.** Prior to the next regularly scheduled meeting of the Board following the Board member's participation in an educational activity, the Board member shall submit for inclusion on the Consent Agenda, a summary written report on the content of educational activities. The report shall substantially reflect the information contained in the attached sample report.

SECTION 2 COST EFFECTIVE EDUCATION

- A. **Limit for Attendance at Overnight Out-Of-Bay Area Educational Events.** Board member education should be obtained in a cost efficient manner minimizing costs wherever possible. Every Board member is authorized to attend conferences and education programs within the Bay Area, and programs sponsored by the State Association of County Retirement Systems (SACRS) and the California Association of Public Retirement Systems (CALAPRS). In addition, every Board member is authorized to attend up to two (2) approved out-of-Bay Area educational events requiring overnight stays per fiscal year. Multiple education providers provide similar educational opportunities and each Board member shall make every effort to obtain his or her education within California. Board members should not attend educational activities that conflict with regularly scheduled Board meetings.

- B. **Travel Expenses.** Travel expenses incurred by a Board member for education are subject to reimbursement by SamCERA in accordance with this policy and the Board’s “Policy For Reimbursement Of Travel And Other Official Expenses For Trustees.” Any international travel by a Board member must be placed on the Board’s regular agenda for the Board’s pre-approval. Costs for attendance at educational events that are not consistent with both policies will not be subject to reimbursement without Board approval.
- C. **Education through Electronic Means.** The Board further encourages members to participate to the fullest extent possible in approved taped and electronic delivery of educational opportunities.
- D. **Education Given by SamCERA Staff and Consultants.** Training provided by or arranged by the Chief Executive Officer, Chief Investment Officer, Chief Legal Counsel, and other SamCERA staff, the Board’s Medical Advisor, Actuary, Investment Consultant, Investment Managers shall satisfy the required education for the subject matters presented at such training and the required educational hours for the length of the training.
- E. **Education from Publications.** A Board member may count up to three hours towards his or her biannual education requirement by reading Pensions & Investments, the Public Retirement Journal, and/or the Wall Street Journal.
- F. **Education from On Site Visits.** A Board member may count up to three hours towards his or her biannual education requirement by accompanying staff on an onsite visit to a potential or existing investment consultant, manager or other SamCERA provider. Visits outside of the Bay Area requiring an overnight stay will count as an approved trip in accordance with Section 2 (A).

SECTION 3. APPROVED EDUCATIONAL TOPIC AREAS AND PROGRAMS

- A. **Educational Topic Areas.** Appropriate topics for Board member education, shall include two hours of Ethics Training consistent with Government Code §53234 and two hours of Sexual Harassment Prevention Training consistent with Government Code §53237.1 in a manner approved by the Chief Legal Counsel and, in accordance with Government Code §31522.8, may include but is not limited to, the following topics:
 - (1) Fiduciary responsibilities
 - (2) Ethics
 - (3) Pension fund investments and investment program management
 - (4) Actuarial matters
 - (5) Pension funding
 - (6) Benefits administration
 - (7) Disability evaluation
 - (8) Fair hearings
 - (9) Pension fund governance
 - (10) New board member orientation
- B. **Approved Educational Programs and Activities.** In addition to the SACRS and CALAPRS conferences and educational programs listed in Section 2 A, a Board member’s

attendance at and/or viewing or listening of recordings of one or more programs listed below shall satisfy the required education for the subject matters presented at such programs and the required educational hours for the length of the program. This list of programs is subject to annual review by the Board and shall be revised as determined by the Board.

- (1) International Foundation of Employee Benefit Plans (IFEBP)
- (2) Wharton investment management programs
- (3) Chartered Financial Analyst (CFA) Institute
- (4) National Conference on Public Employee Retirement Systems (NCPERS)
- (5) Institutional Limited Partner Association (ILPA) Institute (Educational Programs)

C. **Recommended Education for New Board members.** As part of a new Board member's orientation, staff will provide a recommended educational plan that best suits the Board member's educational needs for his or her first term.

D. **Special Request to attend Education Event.** In considering each request to attend a specified educational activity that is not authorized in Section 2B, the Board will consider if the overnight travel is appropriate and consistent with the intent of this policy and shall consider items such as:

- 1) Are the conference topics of current interest and importance and related to issues facing SamCERA?
- 2) Have reports from previous attendees been favorable regarding the content of the conference and the continuing value of future attendance?
- 3) Will the conference meet the educational needs of the attendee?
- 4) Can similar education be received from an already approved provider or that provider's on-line resources?
- 5) Does the cost of the event and overnight travel justify the benefits particularly if the conference is out of California?
- 6) How many overnight trips has the Board member attended and/or is planning on attending this fiscal year?

SECTION 4. EDUCATIONAL EXPENSES FOR STAFF

The Chief Executive Officer is authorized to approve the participation and associated travel of the Chief Executive Officer and staff in educational activities to the extent that the Chief Executive Officer finds that such participation will contribute to the staff member's ability to perform her or his duties and the budget provides funds for such activities.

Last amended 12/5/17

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 4.11

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: Reimbursement of Travel and Other Official Expenses for Trustees and Staff

Recommendation

Approve resolution amending the Board's "Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff."

Background

The Board's "Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff" ("Policy") sets forth the reimbursement of business expenses incurred in the performance of official duties of SamCERA's trustees and staff. Because five of the Trustees are either a County officer or employee and the performance of their Board duties is part of their regular employment, and, as SamCERA staff members are County employees, the Policy is in line with the County's ordinance governing employee reimbursement of travel expenses.

Discussion

In keeping with the Board's fiduciary duty and its expenditure of trust funds and, applicable IRS guidelines, reimbursement is made only for actual and necessary expenses. To remain consistent with IRS guidelines, the Policy makes travel related meal reimbursement contingent on an overnight stay. The Policy limits overnight stays to those outside the "local commuting area," which consists of these five counties: Alameda, Contra Costa, San Francisco, San Mateo and Santa Clara.

The Policy is up to date and no reimbursement adjustments are required. However, for clarification purposes, staff recommends that the phrase "as set forth in the Code of Federal Regulations" be inserted just after "The maximum reimbursement rate for the actual cost of meals will be limited to the Continental United States (CONUS) current rate", in paragraph 1(b) of the Policy.

Attachment

Resolution Amending the "Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff"

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

RESOLUTION 18-__

**RESOLUTION AMENDING THE BOARD OF RETIREMENT'S
"POLICY FOR REIMBURSEMENT OF TRAVEL AND OTHER OFFICIAL EXPENSES
FOR TRUSTEES AND STAFF"**

WHEREAS, Government Code §31520 vests the management of *SamCERA* in the Board; and

WHEREAS, Government Code §31522.8 requires that each Board member shall receive 24 hours of Board member education every two years; and

WHEREAS, the Board acknowledges the vital importance of making informed judgments on all matters which come before it and has adopted a *Code of Conduct* and an *Educational Policy* to guide its actions; and

WHEREAS, the Board recognizes that reimbursements should be only for those necessary, reasonable and actual expenses that have been incurred; and

WHEREAS, the Board desires to make a technical amendment to its "Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff" to confirm that the rate of reimbursement for meals and costs is as set forth in the Code of Federal Regulations along with adjustments for high cost of living areas;

Now, therefore, be it

RESOLVED, that the Board hereby amends its *Policy For Reimbursement of Travel and Other Official Expenses For Trustees and Staff* as set forth in the attachment.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 6.1

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

Michael R. Coultrip

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

Recommendation

Accept the preliminary performance report dated October 31, 2018.

Background

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

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

Discussion

The fund's net preliminary return for October was -4.0%, bringing the preliminary trailing twelve-month return ending October 2018 to -0.2% net. The preliminary twelve-month net return is below both SamCERA's Plan Benchmark return of 1.3% and SamCERA's Actuarial Assumed Earnings Rate of 6.75%.

Despite continued strong economic indicators, October was a negative month for risk assets. In U.S. equity markets, the broad U.S. equity market (as measured by the Russell 3000 Index) was down 7.4%. International markets were also down on the month, with developed international equity (as measured by MSCI EAFE) down 8.0%, while emerging markets were down 8.7%.

U.S. Real GDP grew at an annual rate of 3.5% in the 3rd quarter, beating expectations of 3.4%. Consumer confidence hit an 18-year high in October, while the labor market continued to show strength. Manufacturing activity slowed again in October due to concerns about tariffs but remained in positive territory. In addition, core inflation (CPI) rose 2.2% on an annualized basis.

The general U.S. fixed income market returned -0.8% during the month as Treasury yields were higher across the board. The 10-year U.S. Treasury yield was higher during the month, with the yield increasing 8 basis points and ending at 3.14% by month-end.

Attachments

Northern Trust Performance Report

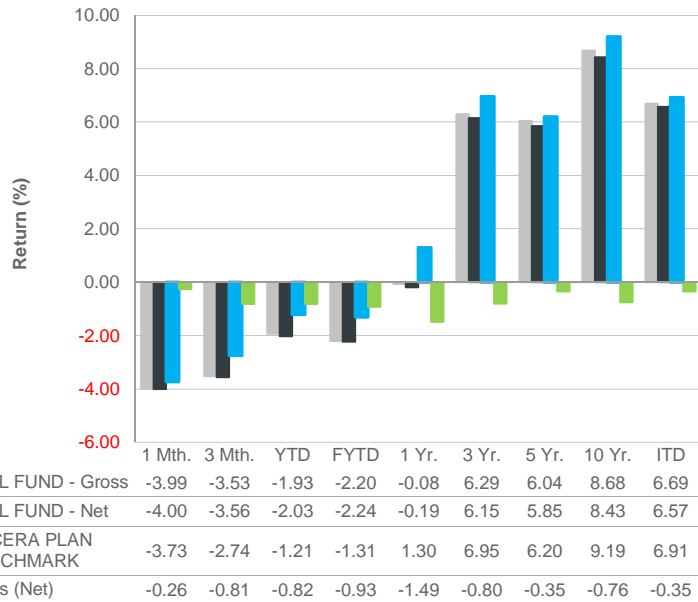
Verus Capital Markets Update

San Mateo County Composite Return Summary

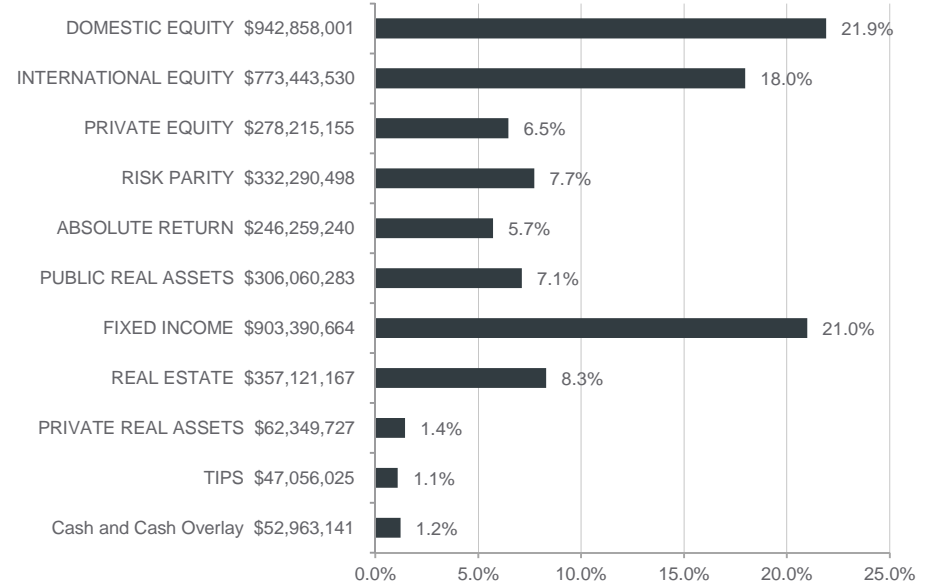
10/31/2018



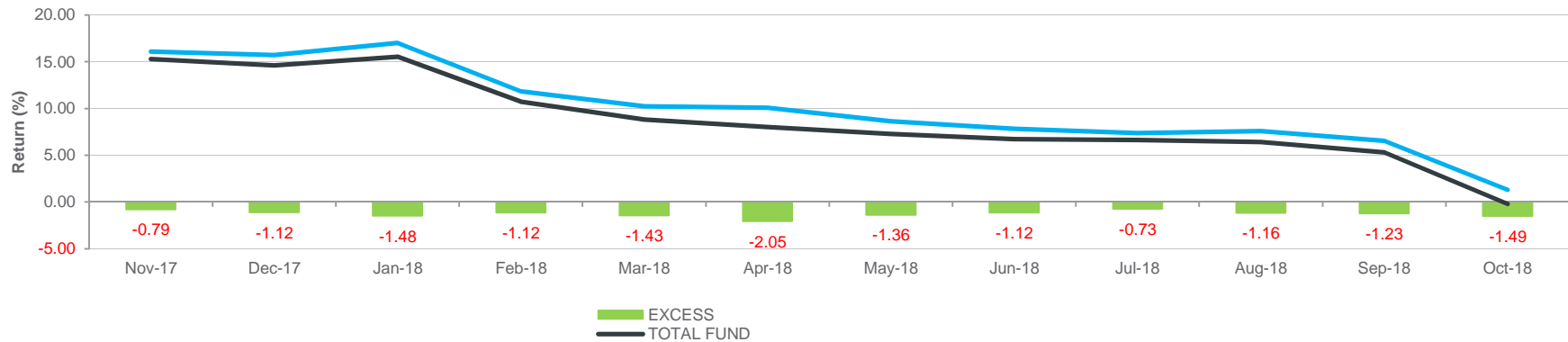
Total Fund Performance



Asset Allocation

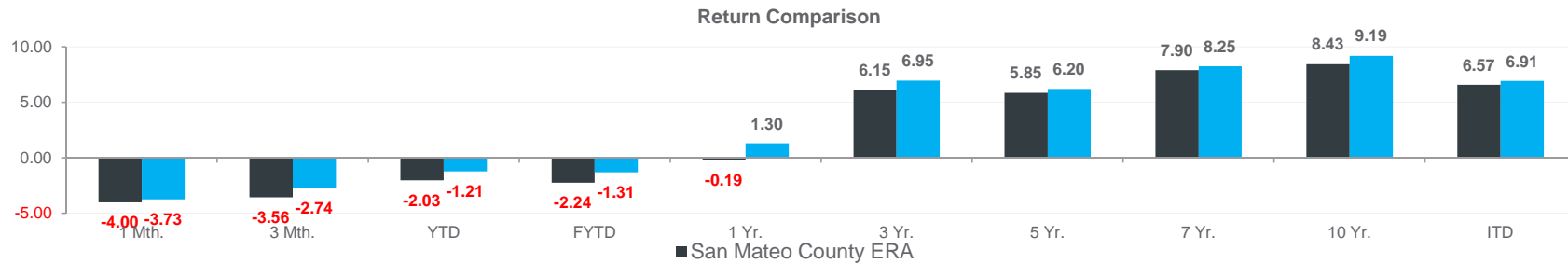


Rolling Month End Annual Returns



San Mateo County Composite Return Summary

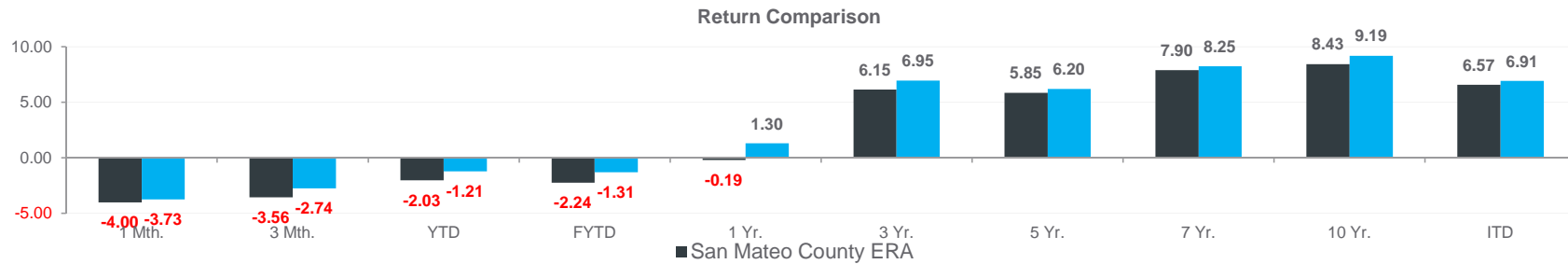
October 31, 2018



| Composite Returns (Net of Manager Fees) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|---|-------------------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|
| San Mateo County ERA | 4,302,007,429 | -4.00 | -3.56 | -2.03 | -2.24 | -0.19 | 6.15 | 5.85 | 7.90 | 8.43 | 6.57 |
| Samcera Total Plan Benchmark | | -3.73 | -2.74 | -1.21 | -1.31 | 1.30 | 6.95 | 6.20 | 8.25 | 9.19 | 6.91 |
| Excess | | -0.26 | -0.81 | -0.82 | -0.93 | -1.49 | -0.80 | -0.35 | -0.34 | -0.76 | -0.35 |
| San Mateo Ex-Clifton Overlay | 4,290,048,429 | -4.03 | -3.57 | -2.04 | -2.23 | -0.19 | 6.07 | 5.73 | 7.87 | 8.36 | 6.49 |
| Samcera Total Plan Benchmark | | -3.73 | -2.74 | -1.21 | -1.31 | 1.30 | 6.95 | 6.20 | 8.25 | 9.19 | 6.91 |
| Excess | | -0.29 | -0.83 | -0.83 | -0.92 | -1.49 | -0.89 | -0.47 | -0.38 | -0.83 | -0.42 |
| Total Equity | 1,716,301,530 | -7.78 | -6.81 | -3.85 | -4.12 | -0.73 | 8.11 | 7.05 | 10.13 | 10.29 | 7.56 |
| Samcera Total Equity Benchmark | | -7.81 | -6.67 | -3.97 | -4.07 | -0.40 | 9.31 | 8.26 | 11.16 | 11.62 | 8.17 |
| Excess | | 0.03 | -0.13 | 0.12 | -0.05 | -0.33 | -1.20 | -1.21 | -1.03 | -1.33 | -0.61 |
| Fixed Income | 903,390,664 | -0.55 | -0.36 | -0.51 | 0.13 | 0.02 | 3.82 | 3.35 | 4.20 | 6.46 | 5.42 |
| Samcera Fixed Income Benchmark | | -0.96 | -0.58 | -1.75 | -0.20 | -1.57 | 2.24 | 2.25 | 2.21 | 4.30 | 4.82 |
| Excess | | 0.41 | 0.23 | 1.24 | 0.33 | 1.59 | 1.57 | 1.10 | 1.99 | 2.16 | 0.60 |
| Risk Parity | 332,290,498 | -4.28 | -5.39 | -6.88 | -5.36 | -5.21 | 4.70 | 4.29 | 5.13 | -- | 5.10 |
| Samcera Risk Parity Benchmark | | -4.85 | -4.12 | -2.65 | -2.38 | -0.01 | 6.75 | 7.02 | 8.85 | -- | 8.00 |
| Excess | | 0.57 | -1.27 | -4.23 | -2.98 | -5.20 | -2.05 | -2.72 | -3.72 | -- | -2.89 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (Net of Manager Fees) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|---|-------------------|--------|--------|-------|-------|-------|-------|-------|-------|--------|--------|
| Alternatives | 524,474,394 | -1.31 | 0.67 | -0.01 | 1.33 | 0.74 | 4.85 | 5.31 | 5.31 | -8.39 | -2.33 |
| Samcera Alternatives Benchmark | | 2.13 | 4.76 | 6.96 | 5.36 | 10.01 | 10.23 | 7.96 | 9.40 | 9.97 | 7.83 |
| Excess | | -3.44 | -4.10 | -6.98 | -4.03 | -9.27 | -5.38 | -2.64 | -4.09 | -18.35 | -10.17 |
| Inflation Hedge | 772,587,202 | -1.06 | -1.83 | 1.03 | -1.67 | 2.09 | -- | -- | -- | -- | 7.53 |
| SamCERA Inflation Hedge Index | | -1.60 | -1.03 | 0.61 | -0.63 | 3.02 | -- | -- | -- | -- | 6.61 |
| Excess | | 0.54 | -0.80 | 0.42 | -1.04 | -0.93 | -- | -- | -- | -- | 0.92 |
| Cash | 41,004,141 | 0.21 | 0.30 | 0.81 | 0.34 | 1.01 | 0.77 | 0.67 | 0.64 | 0.79 | 1.94 |
| Samcera Cash Benchmark | | 0.17 | 0.51 | 1.48 | 0.67 | 1.68 | 0.90 | 0.55 | 0.42 | 0.35 | 1.83 |
| Excess | | 0.03 | -0.21 | -0.67 | -0.32 | -0.67 | -0.12 | 0.11 | 0.22 | 0.45 | 0.11 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|--------------------------------|-------------------|--------|--------|--------|--------|--------|-------|-------|-------|--------|-------|
| Total Equity | 1,716,301,530 | -7.78 | -6.81 | -3.85 | -4.12 | -0.73 | 8.11 | 7.05 | 10.13 | 10.29 | 7.56 |
| Samcera Total Equity Benchmark | | -7.81 | -6.67 | -3.97 | -4.07 | -0.40 | 9.31 | 8.26 | 11.16 | 11.62 | 8.17 |
| Excess | | 0.03 | -0.13 | 0.12 | -0.05 | -0.33 | -1.20 | -1.21 | -1.03 | -1.33 | -0.61 |
| Domestic Equity | 942,858,001 | -7.52 | -4.30 | 2.23 | -1.11 | 6.04 | 11.06 | 10.19 | 13.23 | 12.82 | 8.59 |
| Samcera Dom. Equity Benchmark | | -7.36 | -3.95 | 2.43 | -0.76 | 6.60 | 11.32 | 10.54 | 13.68 | 13.31 | 8.93 |
| Excess | | -0.15 | -0.34 | -0.20 | -0.34 | -0.55 | -0.25 | -0.35 | -0.45 | -0.49 | -0.34 |
| Large Cap Equity | 857,272,094 | -7.27 | -3.79 | 2.53 | -0.45 | 6.73 | 11.55 | 11.19 | 13.83 | 12.87 | 9.33 |
| Russell 1000 | | -7.08 | -3.51 | 2.67 | -0.18 | 6.98 | 11.31 | 11.05 | 13.94 | 13.42 | 9.63 |
| Excess | | -0.20 | -0.28 | -0.14 | -0.27 | -0.25 | 0.24 | 0.14 | -0.11 | -0.55 | -0.30 |
| Blackrock Russell 1000 | 702,869,532 | -7.09 | -3.52 | 2.65 | -0.20 | 6.95 | -- | -- | -- | -- | 12.44 |
| Russell 1000 | | -7.08 | -3.51 | 2.67 | -0.18 | 6.98 | -- | -- | -- | -- | 12.32 |
| Excess | | -0.01 | -0.01 | -0.01 | -0.02 | -0.03 | -- | -- | -- | -- | 0.12 |
| DE Shaw Commingled Fund | 154,402,562 | -8.13 | -5.03 | 1.99 | -1.57 | 5.74 | 12.22 | -- | -- | -- | 10.92 |
| Russell 1000 | | -7.08 | -3.51 | 2.67 | -0.18 | 6.98 | 11.31 | -- | -- | -- | 9.43 |
| Excess | | -1.06 | -1.52 | -0.68 | -1.39 | -1.24 | 0.91 | -- | -- | -- | 1.49 |
| Small Cap Equity | 85,585,906 | -9.75 | -8.69 | -0.96 | -6.69 | 0.52 | 7.80 | 5.26 | 10.37 | 12.32 | 6.35 |
| Russell 2000 | | -10.86 | -9.26 | -0.60 | -7.67 | 1.85 | 10.68 | 8.01 | 12.25 | 12.44 | 7.79 |
| Excess | | 1.11 | 0.56 | -0.36 | 0.98 | -1.34 | -2.87 | -2.75 | -1.88 | -0.11 | -1.44 |
| QMA US Small Cap | 85,585,906 | -9.75 | -8.69 | -0.96 | -6.69 | 0.52 | -- | -- | -- | -- | 11.05 |
| Russell 2000 | | -10.86 | -9.26 | -0.60 | -7.67 | 1.85 | -- | -- | -- | -- | 10.97 |
| Excess | | 1.11 | 0.56 | -0.36 | 0.98 | -1.34 | -- | -- | -- | -- | 0.08 |
| International Equity | 773,443,530 | -8.10 | -9.79 | -10.61 | -7.67 | -8.22 | 4.25 | 2.24 | 4.81 | 5.67 | 5.12 |
| MS AC WldxUS IMI Nt | | -8.36 | -9.94 | -11.35 | -8.00 | -8.44 | 4.52 | 1.86 | 4.68 | 7.37 | 4.71 |
| Excess | | 0.25 | 0.14 | 0.74 | 0.33 | 0.22 | -0.28 | 0.38 | 0.13 | -1.71 | 0.42 |
| Developed Markets Equity | 691,179,735 | -8.28 | -9.78 | -10.13 | -7.78 | -7.88 | 4.18 | 2.55 | 5.26 | 6.08 | 4.03 |
| MS AC WldxUS IMI Nt | | -8.36 | -9.94 | -11.35 | -8.00 | -8.44 | 4.52 | 1.86 | 4.68 | 7.37 | 4.47 |
| Excess | | 0.07 | 0.15 | 1.22 | 0.22 | 0.56 | -0.34 | 0.69 | 0.58 | -1.29 | -0.44 |
| Baillie Gifford | 222,509,764 | -11.70 | -14.21 | -13.20 | -12.85 | -11.18 | 4.04 | 2.99 | -- | -- | 6.14 |
| MSCI ACWI ex US Growth | | -9.35 | -11.07 | -11.36 | -9.54 | -8.42 | 4.84 | 2.99 | -- | -- | 5.23 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|--------------------------------|-------------------|--------|--------|--------|-------|--------|-------|-------|-------|--------|-------|
| Excess | | -2.34 | -3.13 | -1.84 | -3.31 | -2.76 | -0.80 | 0.01 | -- | -- | 0.91 |
| Blackrock EAFE Index Fund | 225,771,978 | -7.98 | -8.92 | -8.97 | -6.69 | -6.53 | 4.00 | -- | -- | -- | 1.94 |
| MSCI EAFE ND | | -7.96 | -8.95 | -9.28 | -6.71 | -6.85 | 3.62 | -- | -- | -- | 1.62 |
| Excess | | -0.02 | 0.03 | 0.31 | 0.02 | 0.32 | 0.38 | -- | -- | -- | 0.33 |
| Mondrian Investment Partners | 235,246,572 | -5.81 | -6.94 | -9.04 | -4.45 | -6.73 | 3.76 | 1.83 | 4.37 | 6.10 | 4.96 |
| MSCI ACWI ex US Value | | -6.86 | -8.03 | -9.79 | -5.14 | -7.17 | 4.87 | 1.17 | 4.34 | 6.99 | 4.79 |
| Excess | | 1.05 | 1.09 | 0.75 | 0.68 | 0.45 | -1.11 | 0.66 | 0.03 | -0.89 | 0.17 |
| Emerging Markets Equity | 82,263,794 | -6.55 | -9.84 | -14.41 | -6.73 | -11.03 | 4.84 | -0.47 | -- | -- | 0.67 |
| MSCI Emerging Markets ND | | -8.71 | -11.65 | -15.72 | -9.71 | -12.52 | 6.52 | 0.78 | -- | -- | 1.18 |
| Excess | | 2.16 | 1.81 | 1.31 | 2.98 | 1.49 | -1.68 | -1.25 | -- | -- | -0.52 |
| EV Parametric EM | 82,263,794 | -6.55 | -9.84 | -14.41 | -6.73 | -11.03 | 4.84 | -- | -- | -- | 3.04 |
| MSCI Emerging Markets GD | | -8.70 | -11.58 | -15.45 | -9.56 | -12.19 | 6.92 | -- | -- | -- | 4.56 |
| Excess | | 2.15 | 1.75 | 1.04 | 2.84 | 1.16 | -2.08 | -- | -- | -- | -1.52 |
| Fixed Income | 903,390,664 | -0.55 | -0.36 | -0.51 | 0.13 | 0.02 | 3.82 | 3.35 | 4.20 | 6.46 | 5.42 |
| Samcera Fixed Income Benchmark | | -0.96 | -0.58 | -1.75 | -0.20 | -1.57 | 2.24 | 2.25 | 2.21 | 4.30 | 4.82 |
| Excess | | 0.41 | 0.23 | 1.24 | 0.33 | 1.59 | 1.57 | 1.10 | 1.99 | 2.16 | 0.60 |
| Core Fixed Income | 604,694,833 | -0.70 | -0.82 | -2.19 | -0.63 | -1.83 | 2.15 | 2.71 | 3.06 | 5.69 | 5.08 |
| BB Barclays U.S. Aggregate | | -0.79 | -0.79 | -2.38 | -0.77 | -2.05 | 1.04 | 1.83 | 1.89 | 3.94 | 4.65 |
| Excess | | 0.09 | -0.03 | 0.18 | 0.14 | 0.23 | 1.11 | 0.87 | 1.17 | 1.75 | 0.42 |
| FIAM Core Bond | 258,249,098 | -0.88 | -0.89 | -2.10 | -0.76 | -1.76 | 1.83 | 2.36 | 2.63 | 5.32 | 4.28 |
| BB Barclays U.S. Aggregate | | -0.79 | -0.79 | -2.38 | -0.77 | -2.05 | 1.04 | 1.83 | 1.89 | 3.94 | 3.82 |
| Excess | | -0.09 | -0.09 | 0.27 | 0.02 | 0.29 | 0.79 | 0.53 | 0.74 | 1.38 | 0.46 |
| Western Total Return | 126,646,871 | -1.61 | -2.35 | -4.96 | -1.44 | -3.55 | 3.09 | -- | -- | -- | 2.80 |
| BB Barclays U.S. Aggregate | | -0.79 | -0.79 | -2.38 | -0.77 | -2.05 | 1.04 | -- | -- | -- | 1.13 |
| Excess | | -0.82 | -1.55 | -2.58 | -0.66 | -1.49 | 2.05 | -- | -- | -- | 1.67 |
| Blackrock Inter Gov | 219,798,864 | 0.04 | 0.16 | -0.60 | -0.03 | -0.86 | -- | -- | -- | -- | 0.29 |
| BB Barclays U.S. Aggregate | | -0.79 | -0.79 | -2.38 | -0.77 | -2.05 | -- | -- | -- | -- | 0.61 |
| Excess | | 0.83 | 0.95 | 1.78 | 0.74 | 1.19 | -- | -- | -- | -- | -0.32 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|--------------------------------|-------------------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|
| Opportunistic Credit | 298,695,831 | -0.22 | 0.62 | 3.15 | 1.74 | 4.03 | 7.47 | 6.30 | 9.13 | -- | 9.16 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | 4.57 | 4.28 | 5.74 | -- | 6.90 |
| Excess | | 1.06 | 0.78 | 3.67 | 0.79 | 4.65 | 2.90 | 2.02 | 3.39 | -- | 2.27 |
| AG Opportunistic Whole Loan | 6,545,846 | 0.00 | 10.48 | 32.53 | 10.48 | 31.67 | 16.87 | -- | -- | -- | 10.70 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | 4.57 | -- | -- | -- | 3.84 |
| Excess | | 1.29 | 10.64 | 33.05 | 9.53 | 32.30 | 12.30 | -- | -- | -- | 6.86 |
| Angelo Gordon | 6,196,963 | 7.26 | 13.02 | 28.05 | 13.02 | 37.07 | 18.25 | 15.40 | -- | -- | 14.71 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | 4.57 | 4.28 | -- | -- | 4.57 |
| Excess | | 8.55 | 13.18 | 28.57 | 12.07 | 37.69 | 13.68 | 11.12 | -- | -- | 10.14 |
| Beach Point Select Fund | 50,357,272 | -0.60 | 0.81 | 4.12 | 0.81 | 5.86 | 8.22 | -- | -- | -- | 8.38 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | 4.57 | -- | -- | -- | 4.04 |
| Excess | | 0.69 | 0.97 | 4.63 | -0.13 | 6.48 | 3.65 | -- | -- | -- | 4.33 |
| Brigade Cap Mngmt | 78,081,251 | -1.26 | -0.03 | 3.62 | 0.99 | 3.96 | 8.50 | 4.74 | 6.55 | -- | 6.77 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | 4.57 | 4.28 | 5.74 | -- | 6.18 |
| Excess | | 0.03 | 0.13 | 4.13 | 0.04 | 4.58 | 3.93 | 0.46 | 0.81 | -- | 0.59 |
| SAMCERA - White Oak Yield Spec | 19,543,902 | -0.00 | 2.53 | 7.82 | 2.53 | 11.46 | -- | -- | -- | -- | -- |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | -- | -- | -- | -- | 2.43 |
| Excess | | 1.29 | 2.69 | 8.34 | 1.58 | 12.09 | -- | -- | -- | -- | -- |
| SAMCERA-PIMCO Div. Income Fund | 80,273,970 | -1.02 | -0.49 | -0.81 | 0.62 | -0.39 | -- | -- | -- | -- | 0.77 |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | -- | -- | -- | -- | 0.37 |
| Excess | | 0.26 | -0.32 | -0.30 | -0.32 | 0.23 | -- | -- | -- | -- | 0.41 |
| TCP Direct Lending VIII | 16,709,752 | 1.62 | 3.84 | 2.92 | 4.49 | 6.70 | -- | -- | -- | -- | -- |
| BB Barc BA Intermediate HY Ind | | -1.29 | -0.16 | -0.52 | 0.95 | -0.62 | -- | -- | -- | -- | 4.55 |
| Excess | | 2.91 | 4.00 | 3.44 | 3.54 | 7.33 | -- | -- | -- | -- | -- |
| Franklin Templeton | 40,986,875 | 2.01 | -1.28 | -0.13 | 2.30 | -0.74 | 3.35 | 1.86 | 3.81 | -- | 3.81 |
| BB Barclays Multiverse Index | | -1.10 | -1.83 | -3.43 | -1.89 | -2.05 | 1.83 | 0.51 | 0.76 | -- | 1.51 |
| Excess | | 3.11 | 0.55 | 3.31 | 4.19 | 1.31 | 1.52 | 1.35 | 3.06 | -- | 2.30 |
| Risk Parity | 332,290,498 | -4.28 | -5.39 | -6.88 | -5.36 | -5.21 | 4.70 | 4.29 | 5.13 | -- | 5.10 |
| Samcera Risk Parity Benchmark | | -4.85 | -4.12 | -2.65 | -2.38 | -0.01 | 6.75 | 7.02 | 8.85 | -- | 8.00 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|--------------------------------|-------------------|--------|--------|--------|-------|--------|-------|-------|-------|--------|--------|
| Excess | | 0.57 | -1.27 | -4.23 | -2.98 | -5.20 | -2.05 | -2.72 | -3.72 | -- | -2.89 |
| AQR Global Risk III | 169,197,637 | -3.97 | -4.79 | -5.63 | -4.04 | -3.32 | 4.90 | 3.11 | 4.27 | -- | 4.32 |
| Samcera Risk Parity Benchmark | | -4.85 | -4.12 | -2.65 | -2.38 | -0.01 | 6.75 | 7.02 | 8.85 | -- | 8.00 |
| Excess | | 0.89 | -0.68 | -2.98 | -1.65 | -3.31 | -1.85 | -3.91 | -4.58 | -- | -3.68 |
| Panagora | 163,092,861 | -4.60 | -6.00 | -8.08 | -6.61 | -6.94 | 4.50 | -- | -- | -- | 3.92 |
| Samcera Risk Parity Benchmark | | -4.85 | -4.12 | -2.65 | -2.38 | -0.01 | 6.75 | -- | -- | -- | 6.02 |
| Excess | | 0.25 | -1.89 | -5.43 | -4.23 | -6.93 | -2.26 | -- | -- | -- | -2.10 |
| Alternatives | 524,474,394 | -1.31 | 0.67 | -0.01 | 1.33 | 0.74 | 4.85 | 5.31 | 5.31 | -8.39 | -2.33 |
| Samcera Alternatives Benchmark | | 2.13 | 4.76 | 6.96 | 5.36 | 10.01 | 10.23 | 7.96 | 9.40 | 9.97 | 7.83 |
| Excess | | -3.44 | -4.10 | -6.98 | -4.03 | -9.27 | -5.38 | -2.64 | -4.09 | -18.35 | -10.17 |
| Private Equity | 278,215,155 | 0.46 | 5.26 | 12.47 | 6.81 | 13.43 | 12.45 | 15.13 | 11.52 | -- | -18.34 |
| Samcera PE Benchmark | | -7.12 | -3.23 | 4.98 | 0.22 | 9.78 | 14.58 | 14.06 | 17.15 | -- | 16.38 |
| Excess | | 7.58 | 8.49 | 7.49 | 6.58 | 3.65 | -2.13 | 1.08 | -5.62 | -- | -34.72 |
| Absolute Return | 246,259,240 | -3.33 | -4.33 | -11.82 | -4.56 | -11.26 | -1.91 | 3.02 | 3.52 | -- | 2.83 |
| Samcera LIBOR + 4% | | 0.51 | 1.50 | 4.92 | 2.01 | 5.81 | 5.06 | 4.70 | 4.57 | -- | 4.55 |
| Excess | | -3.84 | -5.83 | -16.74 | -6.57 | -17.08 | -6.97 | -1.68 | -1.05 | -- | -1.72 |
| AQR Delta XN | 149,616,416 | -4.05 | -5.44 | -15.45 | -6.37 | -15.11 | -2.81 | 2.46 | 3.12 | -- | 2.45 |
| Samcera LIBOR + 4% | | 0.51 | 1.50 | 4.92 | 2.01 | 5.81 | 5.06 | 4.70 | 4.57 | -- | 4.55 |
| Excess | | -4.56 | -6.95 | -20.37 | -8.38 | -20.92 | -7.87 | -2.25 | -1.46 | -- | -2.10 |
| SamCERA-Aberdeen Std GARS | 96,642,824 | -2.15 | -2.54 | -5.58 | -1.62 | -4.52 | -1.48 | -- | -- | -- | -1.44 |
| Samcera LIBOR + 4% | | 0.51 | 1.50 | 4.92 | 2.01 | 5.81 | 5.06 | -- | -- | -- | 5.04 |
| Excess | | -2.66 | -4.04 | -10.50 | -3.63 | -10.34 | -6.54 | -- | -- | -- | -6.47 |
| Inflation Hedge | 772,587,202 | -1.06 | -1.83 | 1.03 | -1.67 | 2.09 | -- | -- | -- | -- | 7.53 |
| SamCERA Inflation Hedge Index | | -1.60 | -1.03 | 0.61 | -0.63 | 3.02 | -- | -- | -- | -- | 6.61 |
| Excess | | 0.54 | -0.80 | 0.42 | -1.04 | -0.93 | -- | -- | -- | -- | 0.92 |
| TIPS | 47,056,025 | -1.18 | -1.40 | -1.17 | -1.62 | -0.24 | -- | -- | -- | -- | 1.04 |
| BBG Barclays US TIPS | | -1.43 | -1.77 | -2.27 | -2.24 | -1.24 | -- | -- | -- | -- | 0.34 |
| Excess | | 0.25 | 0.37 | 1.09 | 0.62 | 1.01 | -- | -- | -- | -- | 0.70 |

San Mateo County Composite Return Summary

October 31, 2018



| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|--------------------------------|-------------------|--------|--------|-------|--------|-------|-------|-------|-------|--------|--------|
| Brown Brothers Harriman | 47,056,025 | -1.18 | -1.40 | -1.17 | -1.62 | -0.24 | 1.80 | 0.60 | 0.63 | -- | 2.20 |
| BBG Barclays US TIPS | | -1.43 | -1.77 | -2.27 | -2.24 | -1.24 | 1.46 | 0.97 | 0.85 | -- | 2.39 |
| Excess | | 0.25 | 0.37 | 1.09 | 0.62 | 1.01 | 0.34 | -0.36 | -0.22 | -- | -0.19 |
| Real Estate | 357,121,167 | 2.39 | 2.39 | 8.33 | 2.49 | 8.73 | -- | -- | -- | -- | 8.95 |
| Samcera NCREIF ODCE EW (gross) | | 0.00 | 2.09 | 6.53 | 2.09 | 8.82 | -- | -- | -- | -- | 8.17 |
| Excess | | 2.39 | 0.30 | 1.81 | 0.40 | -0.09 | -- | -- | -- | -- | 0.78 |
| Invesco Core Real Estate | 264,554,176 | 2.49 | 2.49 | 9.10 | 2.49 | 9.10 | 8.75 | 10.84 | 10.85 | 5.23 | 7.94 |
| Samcera NCREIF ODCE EW (gross) | | 0.00 | 2.09 | 6.53 | 2.09 | 8.82 | 9.08 | 10.86 | 11.22 | 5.36 | 7.80 |
| Excess | | 2.49 | 0.40 | 2.57 | 0.40 | 0.28 | -0.33 | -0.02 | -0.37 | -0.13 | 0.15 |
| Invesco US Val IV | 22,427,896 | 2.56 | 2.56 | 8.60 | 4.22 | 14.39 | -- | -- | -- | -- | 12.01 |
| Samcera NCREIF ODCE EW (gross) | | 0.00 | 2.09 | 6.53 | 2.09 | 8.82 | -- | -- | -- | -- | 9.35 |
| Excess | | 2.56 | 0.47 | 2.07 | 2.13 | 5.57 | -- | -- | -- | -- | 2.66 |
| PGIM Real Estate US Debt Fund | 70,139,094 | 1.98 | 1.98 | 4.96 | 1.98 | 5.07 | -- | -- | -- | -- | 3.78 |
| Samcera NCREIF ODCE EW (gross) | | 0.00 | 2.09 | 6.53 | 2.09 | 8.82 | -- | -- | -- | -- | 8.05 |
| Excess | | 1.98 | -0.11 | -1.57 | -0.11 | -3.75 | -- | -- | -- | -- | -4.27 |
| Public Real Assets | 306,060,283 | -5.31 | -6.82 | -7.03 | -6.80 | -4.29 | -- | -- | -- | -- | -- |
| SamCera Liquid Real Asset Inde | | -4.54 | -5.61 | -5.45 | -5.48 | -2.63 | -- | -- | -- | -- | 7.64 |
| Excess | | -0.77 | -1.21 | -1.58 | -1.32 | -1.65 | -- | -- | -- | -- | -- |
| CUSHING MLP ALPHA TR | 71,835,077 | -7.55 | -10.15 | -- | -10.21 | -- | -- | -- | -- | -- | -10.21 |
| 50% BC US TIPS/50% SamCERA CRA | | -3.00 | -3.69 | -- | -3.85 | -- | -- | -- | -- | -- | -3.85 |
| Excess | | -4.56 | -6.46 | -- | -6.35 | -- | -- | -- | -- | -- | -6.35 |
| SSGA CST REAL ASSET NL | 234,225,206 | -4.60 | -5.74 | -5.94 | -5.71 | -3.16 | -- | -- | -- | -- | -- |
| SamCera Liquid Real Asset Inde | | -4.54 | -5.61 | -5.45 | -5.48 | -2.63 | -- | -- | -- | -- | 5.26 |
| Excess | | -0.06 | -0.14 | -0.49 | -0.23 | -0.53 | -- | -- | -- | -- | -- |
| Private Real Assets | 62,349,727 | 1.67 | 0.32 | 6.19 | 2.10 | 1.83 | -- | -- | -- | -- | 16.18 |
| SamCERA Private Real Asset Idx | | 0.65 | 1.15 | -- | 4.93 | -- | -- | -- | -- | -- | -- |
| Excess | | 1.02 | -0.83 | -- | -2.83 | -- | -- | -- | -- | -- | -- |
| Cash | 41,004,141 | 0.21 | 0.30 | 0.81 | 0.34 | 1.01 | 0.77 | 0.67 | 0.64 | 0.79 | 1.94 |
| Samcera Cash Benchmark | | 0.17 | 0.51 | 1.48 | 0.67 | 1.68 | 0.90 | 0.55 | 0.42 | 0.35 | 1.83 |

San Mateo County Composite Return Summary

October 31, 2018

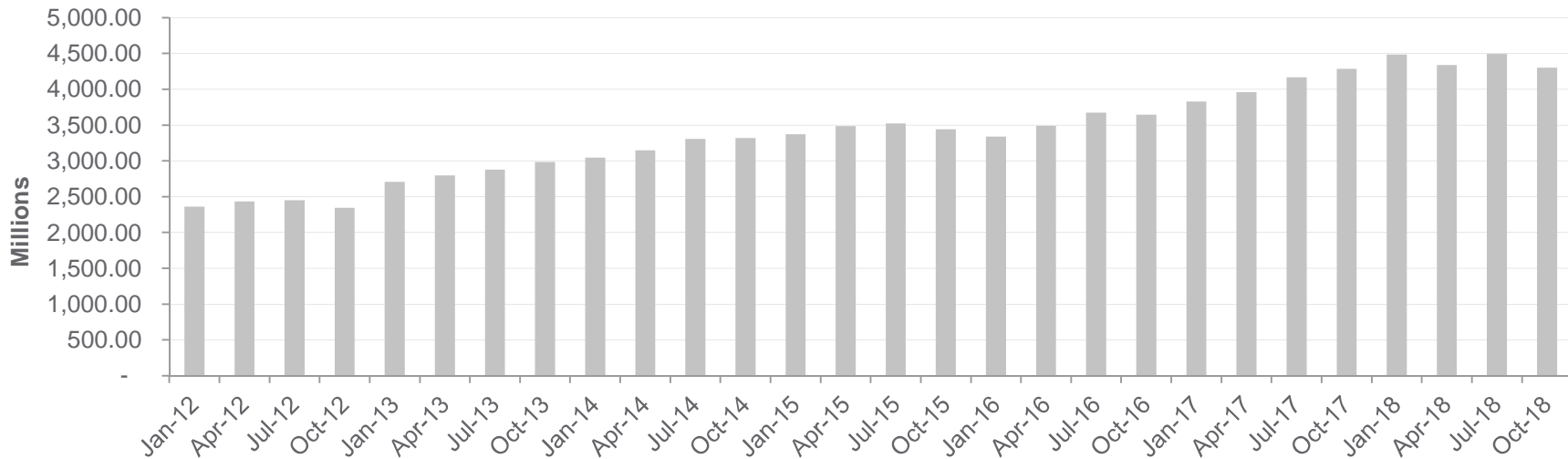


| Composite Returns (NET) | Market Value (\$) | 1 Mth. | 3 Mth. | YTD | FYTD | 1 Yr. | 3 Yr. | 5 Yr. | 7 Yr. | 10 Yr. | ITD |
|------------------------------|-------------------|--------|--------|-------|-------|-------|-------|-------|-------|--------|-------|
| Excess | | 0.03 | -0.21 | -0.67 | -0.32 | -0.67 | -0.12 | 0.11 | 0.22 | 0.45 | 0.11 |
| SamCera General Account | 7,768,646 | 0.19 | 0.56 | 1.63 | 0.74 | 1.85 | 1.11 | 0.75 | 0.57 | 0.53 | 1.98 |
| SamCera Transition Account | 99 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| County Treasury Pool | 33,235,397 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.30 | 0.59 | 2.52 |
| San Mateo County ERA | 4,302,007,429 | -4.00 | -3.56 | -2.03 | -2.24 | -0.19 | 6.15 | 5.85 | 7.90 | 8.43 | 6.57 |
| Samcera Total Plan Benchmark | | -3.73 | -2.74 | -1.21 | -1.31 | 1.30 | 6.95 | 6.20 | 8.25 | 9.19 | 6.91 |
| Excess | | -0.26 | -0.81 | -0.82 | -0.93 | -1.49 | -0.80 | -0.35 | -0.34 | -0.76 | -0.35 |

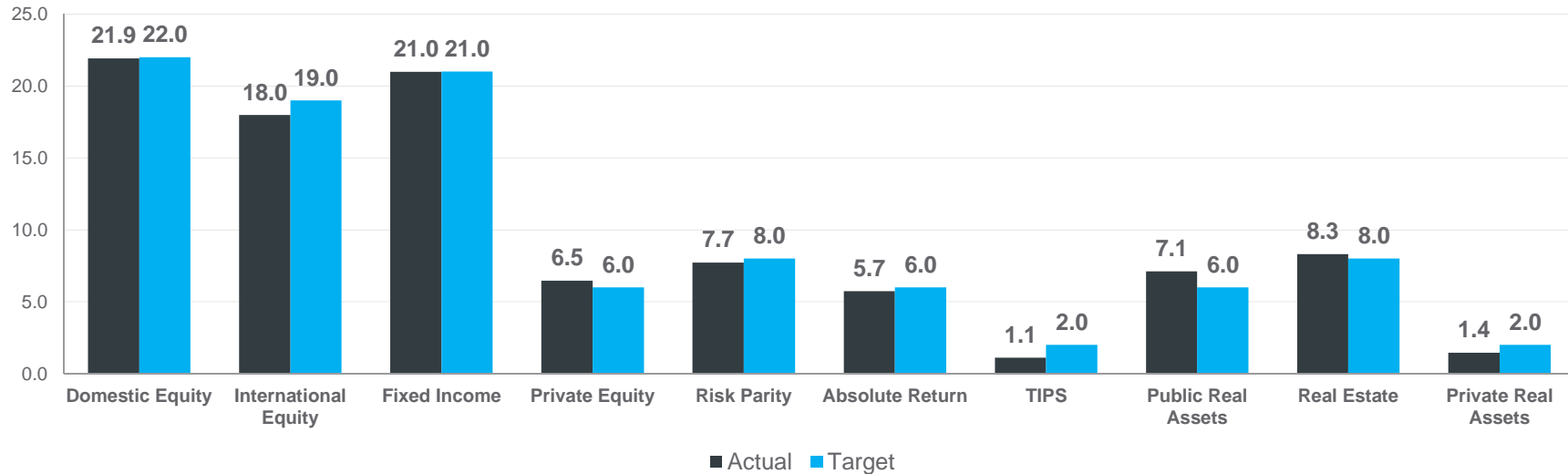
Record of Asset Growth

| | Three Months | One Year |
|------------------------|---------------|---------------|
| TOTAL FUND | | |
| Beginning Market Value | 4,493,630,928 | 4,285,253,792 |
| Contributions | 24,213,615 | 271,921,252 |
| Withdrawals | -62,707,028 | -232,719,509 |
| Income Received | 10,849,467 | 40,315,086 |
| Gain/Loss | -168,702,119 | -44,629,088 |
| Ending Market Value | 4,302,007,429 | 4,302,007,429 |

Net Asset Values Over Time (\$'000)

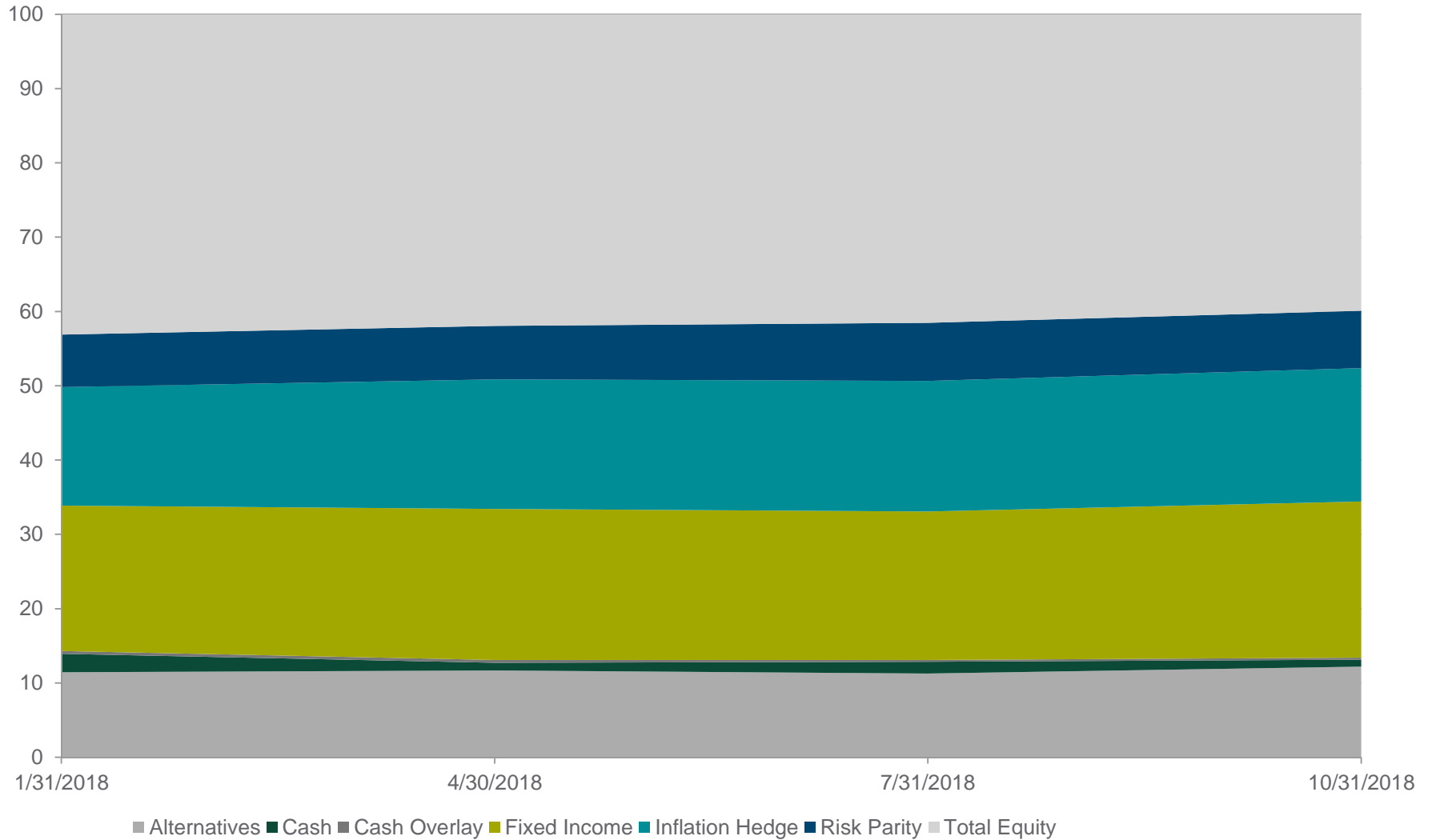


Actual vs Target Weights

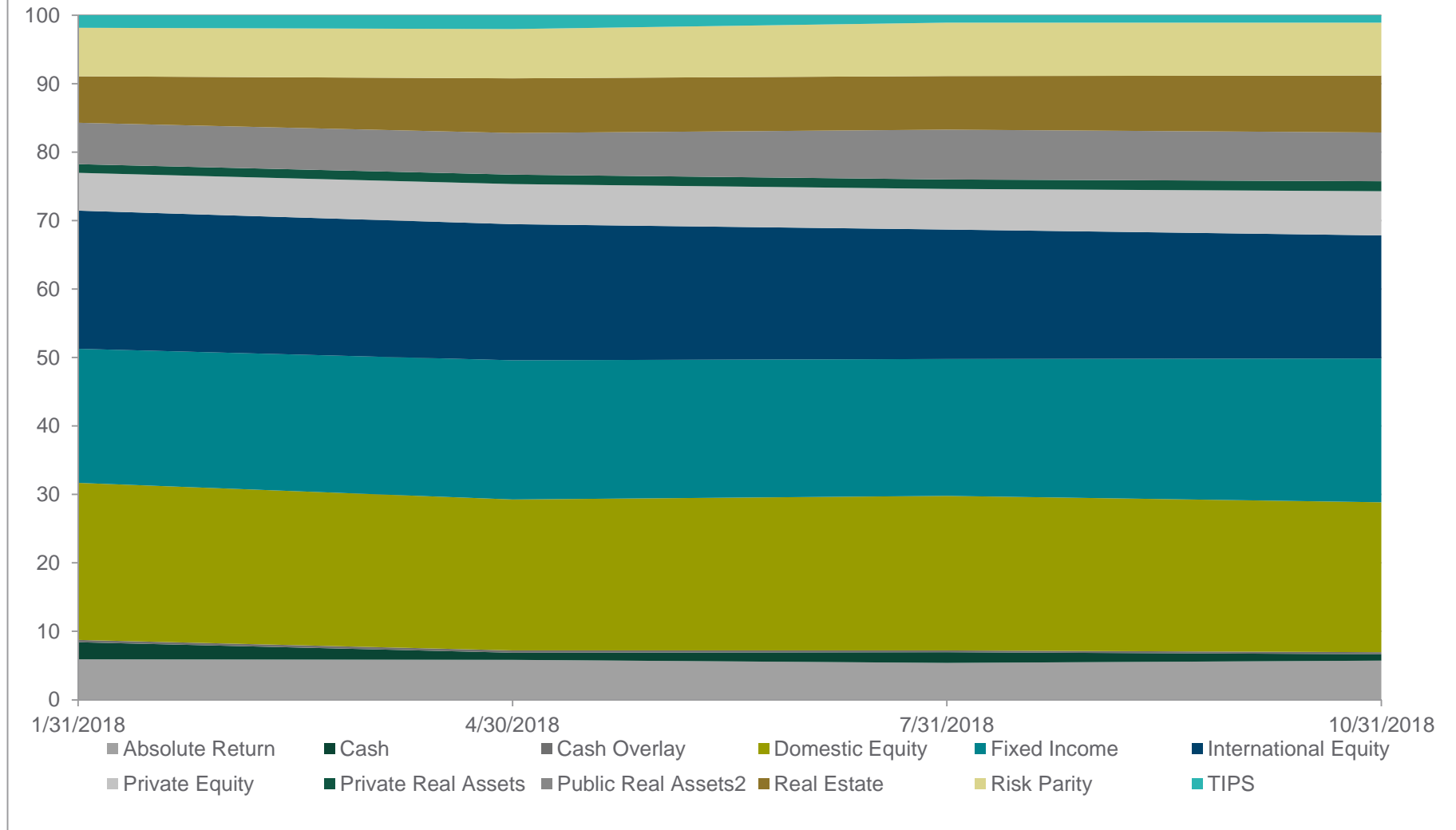


| | Min | Actual | Target | Deviation | Max |
|-----------------------------|------|--------|--------|-----------|------|
| Domestic Equity | 20.0 | 21.9 | 22.0 | -0.1 | 24.0 |
| International Equity | 17.0 | 18.0 | 19.0 | -1.0 | 21.0 |
| Fixed Income | 19.0 | 21.0 | 21.0 | 0.0 | 23.0 |
| Private Equity | 4.0 | 6.5 | 6.0 | 0.5 | 8.0 |
| Risk Parity | 6.0 | 7.7 | 8.0 | -0.3 | 10.0 |
| Absolute Return | 4.0 | 5.7 | 6.0 | -0.3 | 8.0 |
| TIPS | 0.0 | 1.1 | 2.0 | -0.9 | 4.0 |
| Public Real Assets | 4.0 | 7.1 | 6.0 | 1.1 | 8.0 |
| Real Estate | 6.0 | 8.3 | 8.0 | 0.3 | 10.0 |
| Private Real Assets | 0.0 | 1.4 | 2.0 | -0.6 | 4.0 |

Asset Allocation over Time



Sub-Asset Class Allocation Over Time



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**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

OCTOBER 2018
Capital Markets Update

Market commentary

U.S. ECONOMICS

- U.S. real GDP grew at an annualized quarterly rate of 3.5% (3.0% YoY) in Q3, beating expectations of 3.4%. The economy was supported by the strongest consumer spending growth since Q4 2014. Over the past two quarters, GDP has expanded faster than any two-quarter period since Q2-Q3 of 2014.
- Nonfarm payrolls increased by 250,000 in October, beating estimates by 50,000. The return of workers displaced by hurricane season likely contributed to the beat. The unemployment rate remained near 49-year lows at 3.7%.
- Wages grew at a rate of 3.1% year-over-year, the fastest pace since 2009. However, the month-over-month increase in wages was only 0.2%, in-line with recent readings.

U.S. EQUITIES

- U.S. equities sold off in October despite generally strong Q3 earnings reports, in-line with international equities. The S&P 500 Index fell 6.8% over the month, it's worst monthly performance since September of 2011.
- The CBOE VIX Index advanced significantly, reaching it's highest point since the February sell-off. After starting the month at 12.1, the implied volatility measure reached as high as 27.8 intra-day, and ended the month still elevated at 21.2.
- Third quarter corporate results have been very strong. As of 11/12, 90% of S&P 500 companies had reported, posting aggregate sales growth of 8.4% and earnings growth of 26.8%.

U.S. FIXED INCOME

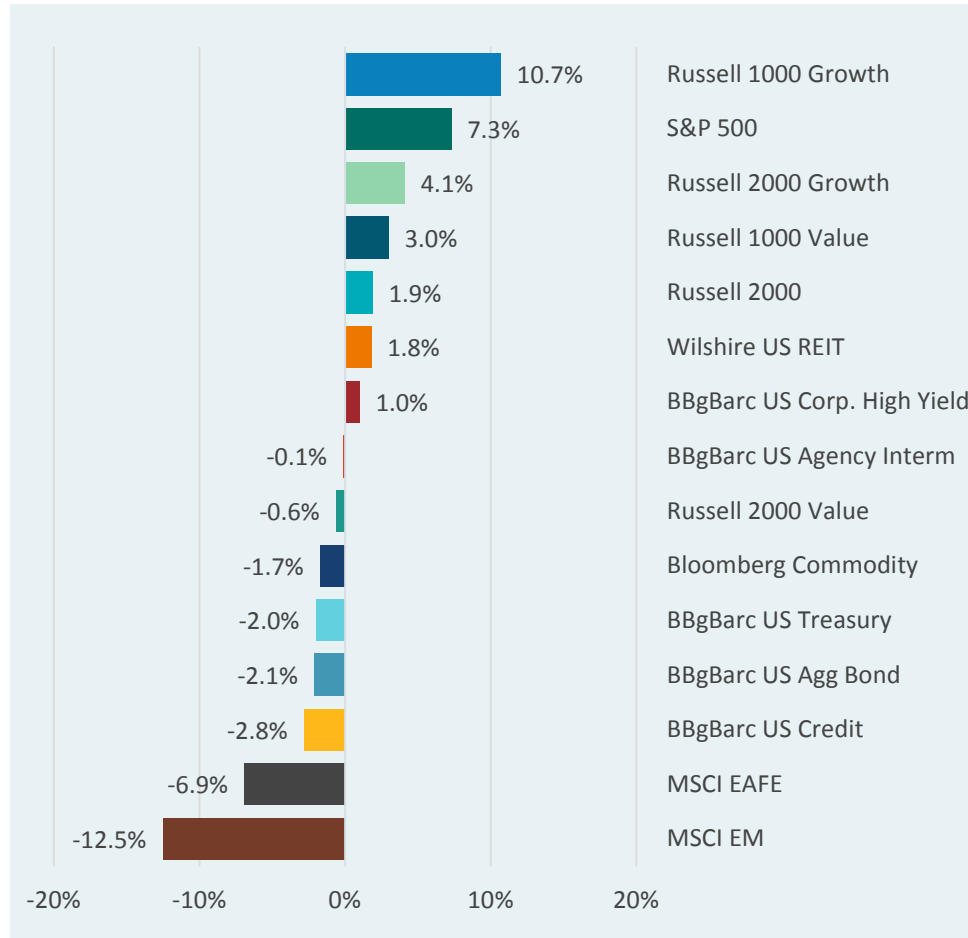
- The Federal Reserve reaffirmed its intention to gradually increase the fed funds rate above the current range of 2.00-2.25%. Hawkish September meeting minutes signaled the committee is considering raising rates above the stated "normalization rate" of about 3%. As of 11/6, the futures-implied probability of a 25 bp rate hike in December was 78%.
- 10-year Treasury yields rose from 3.06% to 3.14% over the month. Yields reached as high as 3.23%, but significant risk-off sentiment helped push yields lower to finish the month.
- The spread between 10- and 2-year Treasury yields widened from 24 bps to 28 bps, remaining within its recent range of 20-30 bps.

INTERNATIONAL MARKETS

- Equities sold off globally in October. Losses were broad across equity markets – the MSCI ACWI Index fell 7.5%.
- U.S. tensions with China remained elevated in October with further yuan depreciation, territorial disputes in the South China Sea, and trade policy standing out as key points of friction. The prospect of a meeting between Presidents Trump and Xi at the upcoming G20 Summit provided brief optimism for a trade deal, though neither country's officials have made formal proposals.
- The Markit Eurozone Composite PMI fell from 54.1 to 53.1 in October. Despite beating expectations of 52.7, the index slumped to its lowest level since September of 2016, suggesting a moderation in Eurozone economic activity.

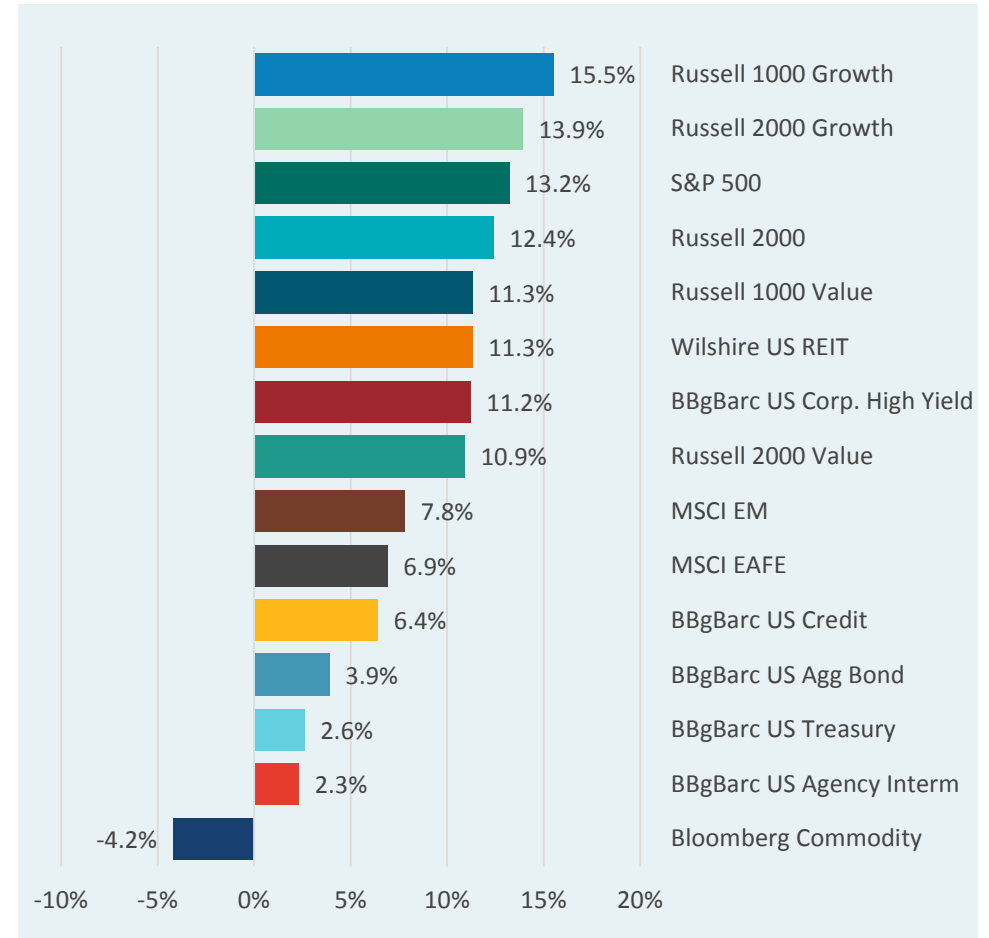
Major asset class returns

ONE YEAR ENDING OCTOBER



Source: Morningstar, as of 10/31/18

TEN YEARS ENDING OCTOBER



Source: Morningstar, as of 10/31/18

U.S. large cap equities

- The S&P 500 Index experienced a 9.4% drawdown intra-month, before rallying back the last few days of the month to end October down 6.8%. The correction spurred a pick-up in implied volatility, which reached as high as 25.2 before ending the month at 21.2, still above the long-term average of 18.0.
- Earnings in the third quarter were strong, although negative EPS guidance likely presented a headwind to performance. Per FactSet, of S&P 500 companies, 46 have issued negative guidance for Q4, while only 24 have issued positive guidance.
- The market correction in October helped drive a moderation in price/earnings ratios. The trailing P/E ratio for the S&P 500 fell from 21.1 to 18.8 over the period. According to FactSet, the forward 12-month P/E ratio for the S&P 500 is 15.6, in between its 5-year average (16.4) and its 10-year average (14.5).
- The NASDAQ Composite Index fell 9.2% in October, as many of the mega-cap tech stocks that had been leading the year-to-date advance suffered significant drawdowns. Nvidia (-25.0%), Amazon (-20.2%), and Netflix (-19.3%) substantially underperformed the overall index.

Weak guidance accompanied strong earnings

S&P 500 PRICE INDEX



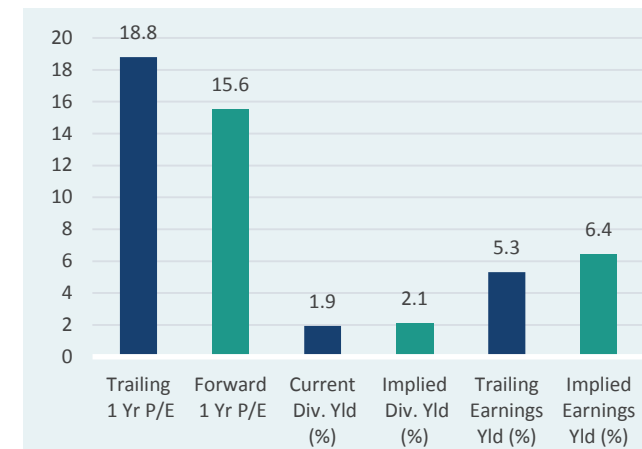
Source: Bloomberg, as of 10/31/18

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 10/31/18

S&P 500 VALUATION SNAPSHOT

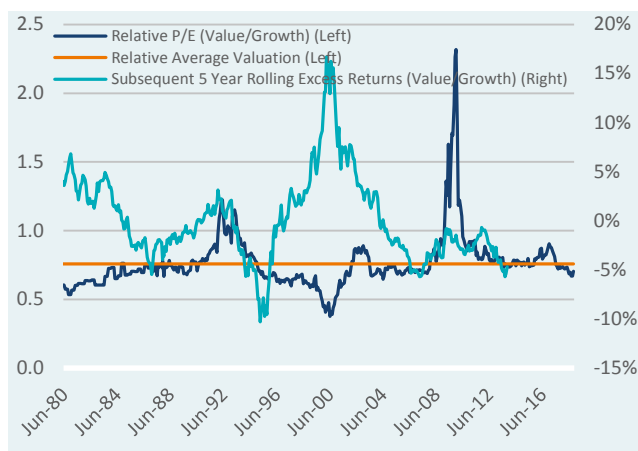


Source: Bloomberg, as of 10/31/18

Domestic equity size and style

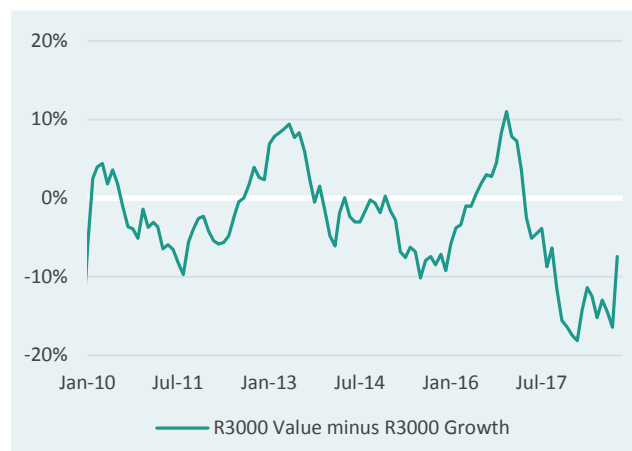
- Large cap equities outperformed small cap equities across styles over the period. The Russell 1000 Growth Index (-8.9%) outperformed the Russell 2000 Growth Index (-12.7%), and the Russell 1000 Value Index (-5.2%) outperformed the Russell 2000 Value Index (-9.0%).
- Value outperformed growth over the period. The Russell 3000 Value Index (-5.5%) outperformed the Russell 3000 Growth Index (-9.2%) by 3.8%.
- Defensive sectors outperformed cyclical sectors over the period. The MSCI USA Defensive Sectors Index lost 3.1%, while the MSCI USA Cyclical Sectors Index fell 8.0%. The defensives-cyclicals return differential of 4.9% was the largest since June of 2016.
- The consumer discretionary sector in the S&P 500 Index fell 11.3%, its largest decline in ten years. Stocks linked to tourism and home improvement contributed to the decline.

VALUE VS. GROWTH RELATIVE VALUATIONS



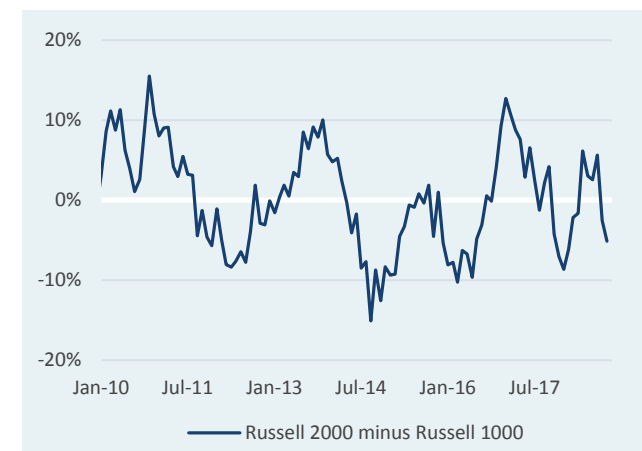
Source: Russell, Bloomberg, as of 10/31/18

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, as of 10/31/18

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

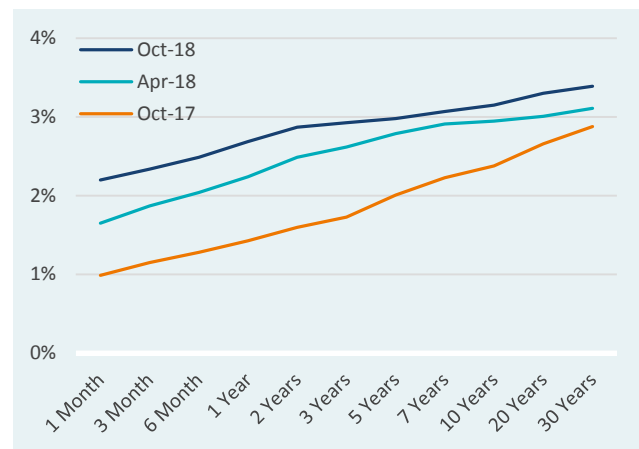


Source: FTSE, as of 10/31/18

Fixed income

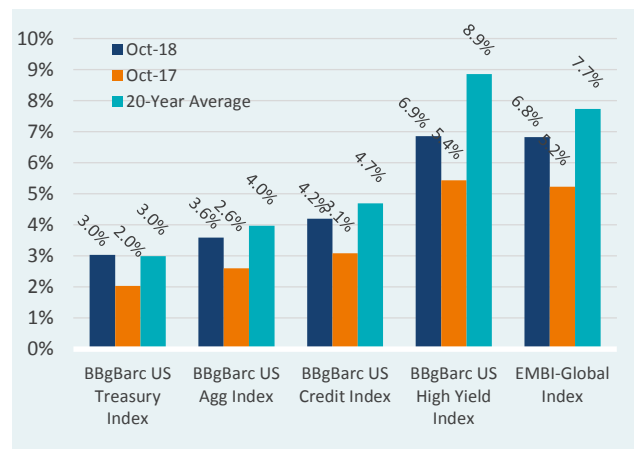
- The European Central Bank left interest rates unchanged and stood by its plan to cut asset purchases from €15 billion per month to zero by year-end. ECB President Mario Draghi commented on an expected pick-up in euro zone inflation, which some analysts interpreted as hawkish. Currently, the ECB is not expected to hike benchmark rates until late 2019.
- The yield spread between 10-year Italian bonds and German bunds continued to expand. Over the month, the spread widened 37 bps to 3.04%.
- U.S. Treasury auctions accelerated as the Treasury Department worked to meet its funding needs amidst a swelling budget deficit, which the Congressional Budget Office has projected to reach \$973 billion for fiscal 2019. At month-end, the Treasury announced an \$83 billion auction of Treasury notes and bonds.
- Spreads on U.S. corporate high-yield bonds expanded from 3.16% to 3.71% over the month. Year-to-date, the average spread has been 3.38%, indicating that the move upward was not a significant deviation from its year-to-date trading range.

U.S. TREASURY YIELD CURVE



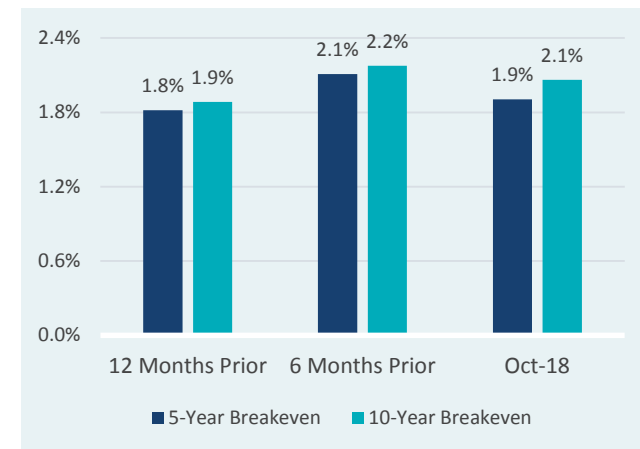
Source: Bloomberg, as of 10/31/18

NOMINAL YIELDS



Source: Morningstar, as of 10/31/18

BREAKEVEN INFLATION RATES



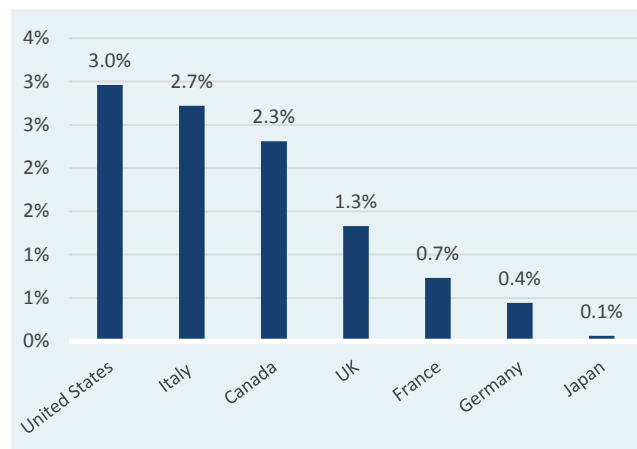
Source: Bloomberg, as of 10/31/18

Global markets

- The Italian coalition government and the European Commission reached an impasse regarding the country's fiscal deficit. Policymakers in Brussels rejected Italy's budget proposal of a 2.4% fiscal deficit for 2019, marking the first instance of the Commission sending back a member state's spending proposal.
- International developed equities declined in October, and underperformed U.S. equities. The MSCI EAFE Index returned -8.0%, compared to the S&P 500 which returned -6.8%. Currency presented a headwind, as the MSCI EAFE 100% Hedged Index lost only 6.2%.
- The Nikkei 225 Index fell 9.1%, it's worst monthly performance since June of 2016. Every sector in the index fell, though industrials (-10.9%) and consumer goods (-9.5%) led the decline.
- Jair Bolsonaro was elected President of Brazil in the country's run-off election. Brazil's regional equity index (IBOVESPA) ended the month 10.2% higher, it's best month since January, as the market reacted to the election of the candidate widely viewed as market-friendly.

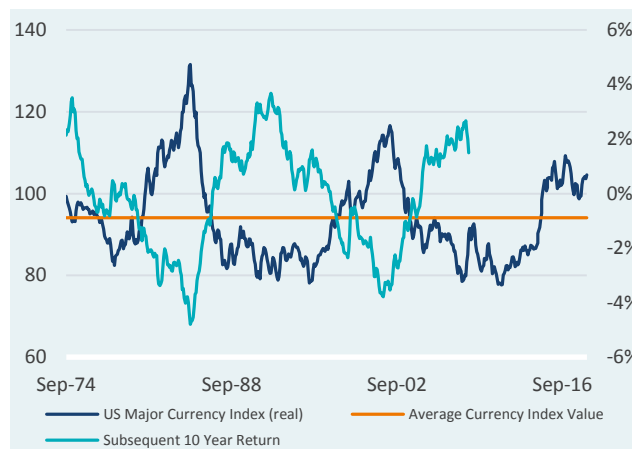
European geopolitical uncertainty weighed on equities

GLOBAL SOVEREIGN 10-YEAR YIELDS



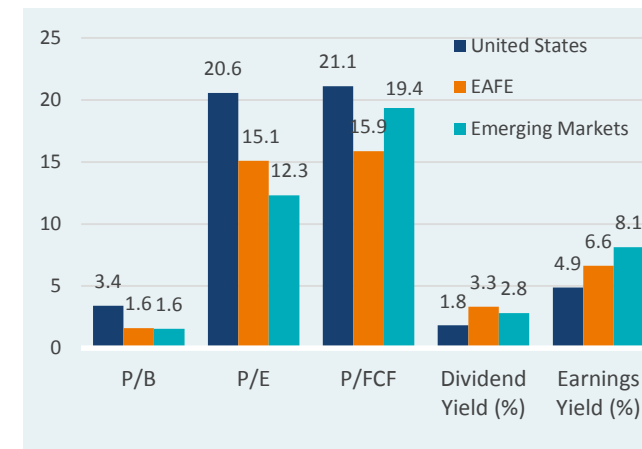
Source: Bloomberg, as of 10/31/18

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 10/31/18

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 10/31/18

Commodities

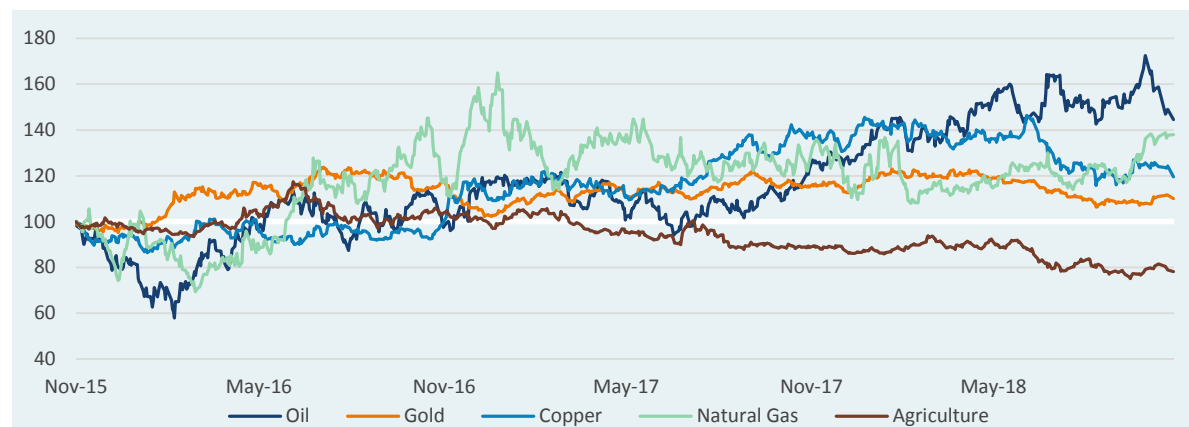
- The Bloomberg Commodity Index fell 2.2% in October, with most subsectors declining. Softs (+11.4%), and agriculture (+2.2%) outperformed, while petroleum (-9.6%) and energy (-5.5%) dragged the index lower.
- Uncertainty related to the implementation of U.S. sanctions on importers of Iranian crude oil contributed to volatility in the oil market. China, India, South Korea, Turkey, Italy, Greece, Japan, and Taiwan were granted 180-day exemptions from the sanctions, which are scheduled to take effect on November 4th. Those eight countries account for about 75% of Iran's oil exports.
- The price of a barrel of WTI crude oil fell from \$73.06 to \$65.31 over the period. The Bloomberg Petroleum sub-index fell 9.6%, notching it's worst month since July 2016. Sanction exemptions as well as building inventories likely helped pull oil prices down.
- The Bloomberg Softs sub-index returned 11.4% in October, it's best return since June of 2016. The rally of the Brazilian real following Jair Bolsonaro's election, as well as tight sugar inventories likely boosted performance.

INDEX AND SECTOR PERFORMANCE

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|-----------------------------|-------|-------|--------|--------|--------|--------|---------|
| Bloomberg Commodity | (2.2) | (2.2) | (4.1) | (1.7) | (0.7) | (7.3) | (4.2) |
| Bloomberg Agriculture | 2.2 | 2.2 | (9.0) | (10.0) | (7.3) | (9.2) | (2.6) |
| Bloomberg Energy | (5.5) | (5.5) | 11.2 | 18.2 | (0.4) | (13.2) | (14.0) |
| Bloomberg Grains | (0.0) | (0.0) | (6.2) | (8.4) | (10.0) | (11.3) | (4.5) |
| Bloomberg Industrial Metals | (5.5) | (5.5) | (16.7) | (12.8) | 6.9 | (2.5) | (0.2) |
| Bloomberg Livestock | (0.7) | (0.7) | (3.1) | (9.4) | (2.3) | (3.1) | (3.5) |
| Bloomberg Petroleum | (9.6) | (9.6) | 12.3 | 22.8 | 3.3 | (12.6) | (8.0) |
| Bloomberg Precious Metals | 0.8 | 0.8 | (10.0) | (7.5) | 0.1 | (4.0) | 4.5 |
| Bloomberg Softs | 11.4 | 11.4 | (14.0) | (10.5) | (5.1) | (8.2) | (1.6) |

Source: Morningstar, as of 10/31/18

COMMODITY PERFORMANCE



Source: Bloomberg, as of 10/31/18

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 | YTD | 5-Year | 10-Year |
|-------------------------|-------|------|-------|-------|-------|------|------|------|------|------|-------|-------|------|-------|------|------|-------|-------|------|------|-------|--------|---------|
| Large 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 | 6.6 | 13.4 | 15.5 |
| Real Estate | 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 | 5.3 | 11.1 | 13.9 |
| Large Cap Equity | 20.3 | 33.2 | 12.2 | 7.3 | 6.7 | 47.3 | 20.7 | 20.1 | 23.5 | 15.8 | -6.5 | 34.5 | 24.5 | 2.6 | 17.9 | 34.5 | 13.0 | 0.9 | 17.3 | 25.0 | 2.7 | 9.6 | 13.4 |
| Cash | 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 | 1.4 | 8.8 | 12.4 |
| Small Cap Growth | 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 | 1.1 | 8.6 | 11.3 |
| Small 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 | -0.6 | 8.0 | 10.9 |
| 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 | -1.5 | 7.2 | 7.8 |
| Hedge Funds of Funds | 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 | -1.8 | 3.9 | 7.3 |
| US Bonds | 1.2 | 13.2 | -7.3 | -9.1 | -15.5 | 25.2 | 11.4 | 4.7 | 13.3 | 7.0 | -36.8 | 19.7 | 13.1 | -4.2 | 11.5 | 11.0 | 3.4 | -2.5 | 7.1 | 7.8 | -2.4 | 2.4 | 6.9 |
| Small Cap Value | -2.5 | 11.4 | -7.8 | -9.2 | -15.7 | 23.9 | 9.1 | 4.6 | 10.4 | 5.8 | -37.6 | 18.9 | 10.2 | -5.5 | 10.5 | 9.0 | 2.8 | -3.8 | 5.7 | 7.7 | -2.5 | 2.0 | 6.4 |
| 60/40 Global Portfolio | -5.1 | 7.3 | -14.0 | -12.4 | -20.5 | 11.6 | 6.9 | 4.6 | 9.1 | 4.4 | -38.4 | 11.5 | 8.2 | -5.7 | 4.8 | 0.1 | 0.0 | -4.4 | 2.6 | 5.1 | -3.6 | 1.8 | 3.9 |
| Commodities | -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 | -4.1 | 0.8 | 2.9 |
| 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 | -9.3 | 0.6 | 0.3 |
| 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 | -15.7 | -7.3 | -4.2 |

WORST

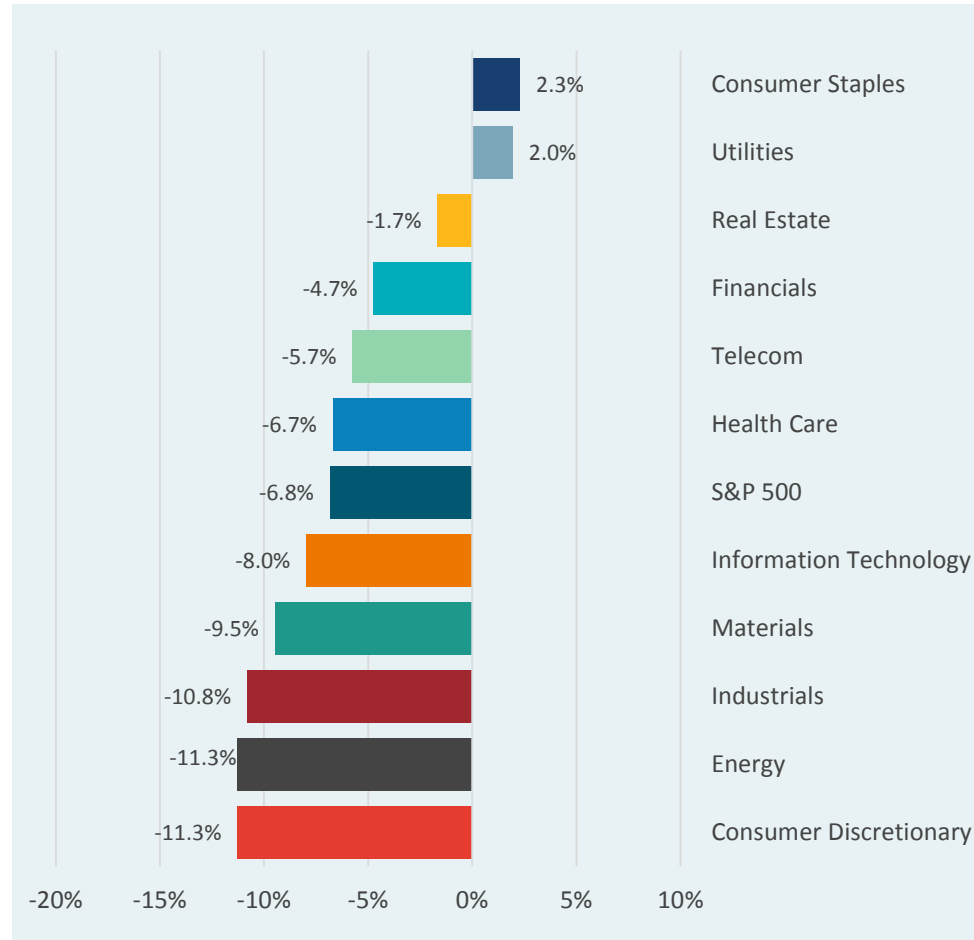
BEST

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

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

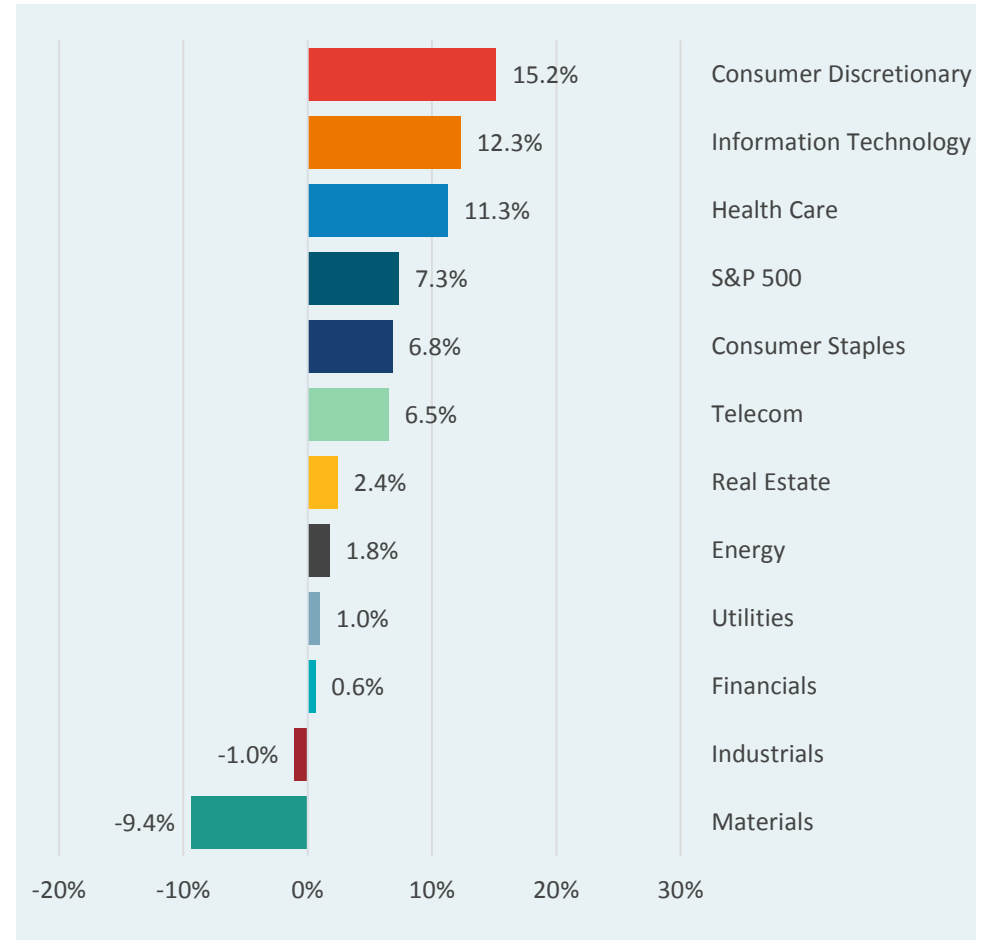
S&P 500 sector returns

QTD



Source: Morningstar, as of 10/31/18

ONE YEAR ENDING OCTOBER



Source: Morningstar, as of 10/31/18

Detailed index returns

DOMESTIC EQUITY

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|--------|--------|-------|--------|--------|--------|---------|
| Core Index | | | | | | | |
| S&P 500 | (6.8) | (6.8) | 3.0 | 7.3 | 11.5 | 11.3 | 13.2 |
| S&P 500 Equal Weighted | (7.2) | (7.2) | (0.4) | 4.6 | 10.0 | 9.9 | 15.0 |
| DJ Industrial Average | (5.0) | (5.0) | 3.4 | 9.9 | 15.2 | 12.8 | 13.3 |
| Russell Top 200 | (6.6) | (6.6) | 4.3 | 8.6 | 12.2 | 11.9 | 13.1 |
| Russell 1000 | (7.1) | (7.1) | 2.7 | 7.0 | 11.3 | 11.1 | 13.4 |
| Russell 2000 | (10.9) | (10.9) | (0.6) | 1.9 | 10.7 | 8.0 | 12.4 |
| Russell 3000 | (7.4) | (7.4) | 2.4 | 6.6 | 11.3 | 10.8 | 13.3 |
| Russell Mid Cap | (8.3) | (8.3) | (1.5) | 2.8 | 9.0 | 9.0 | 14.2 |
| Style Index | | | | | | | |
| Russell 1000 Growth | (8.9) | (8.9) | 6.6 | 10.7 | 13.7 | 13.4 | 15.5 |
| Russell 1000 Value | (5.2) | (5.2) | (1.5) | 3.0 | 8.9 | 8.6 | 11.3 |
| Russell 2000 Growth | (12.7) | (12.7) | 1.1 | 4.1 | 10.7 | 8.8 | 13.9 |
| Russell 2000 Value | (9.0) | (9.0) | (2.5) | (0.6) | 10.5 | 7.2 | 10.9 |

INTERNATIONAL EQUITY

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|--------|--------|--------|--------|--------|--------|---------|
| Broad Index | | | | | | | |
| MSCI ACWI | (7.5) | (7.5) | (4.0) | (0.5) | 7.7 | 6.1 | 9.7 |
| MSCI ACWI ex US | (8.1) | (8.1) | (11.0) | (8.2) | 4.4 | 1.6 | 6.9 |
| MSCI EAFE | (8.0) | (8.0) | (9.3) | (6.9) | 3.6 | 2.0 | 6.9 |
| MSCI EM | (8.7) | (8.7) | (15.7) | (12.5) | 6.5 | 0.8 | 7.8 |
| MSCI EAFE Small Cap | (9.6) | (9.6) | (11.6) | (7.8) | 6.6 | 5.2 | 11.6 |
| Style Index | | | | | | | |
| MSCI EAFE Growth | (9.2) | (9.2) | (8.7) | (6.0) | 4.0 | 3.1 | 7.5 |
| MSCI EAFE Value | (6.6) | (6.6) | (9.9) | (7.7) | 3.2 | 0.9 | 6.2 |
| Regional Index | | | | | | | |
| MSCI UK | (6.8) | (6.8) | (9.3) | (4.7) | 1.3 | 0.1 | 6.4 |
| MSCI Japan | (8.5) | (8.5) | (7.0) | (3.6) | 5.4 | 4.9 | 6.7 |
| MSCI Euro | (8.4) | (8.4) | (11.7) | (12.1) | 2.4 | 0.9 | 5.2 |
| MSCI EM Asia | (10.9) | (10.9) | (17.0) | (14.6) | 6.5 | 3.3 | 10.0 |
| MSCI EM Latin American | 3.5 | 3.5 | (3.7) | (2.4) | 12.7 | (2.5) | 4.9 |

FIXED INCOME

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|-----------------------------|-------|-------|-------|--------|--------|--------|---------|
| Broad Index | | | | | | | |
| BBgBarc US TIPS | (1.4) | (1.4) | (2.3) | (1.2) | 1.5 | 1.0 | 4.1 |
| BBgBarc US Treasury Bills | 0.2 | 0.2 | 1.5 | 1.6 | 0.9 | 0.6 | 0.4 |
| BBgBarc US Agg Bond | (0.8) | (0.8) | (2.4) | (2.1) | 1.0 | 1.8 | 3.9 |
| Duration | | | | | | | |
| BBgBarc US Treasury 1-3 Yr | 0.1 | 0.1 | 0.4 | 0.2 | 0.4 | 0.6 | 1.0 |
| BBgBarc US Treasury Long | (3.0) | (3.0) | (8.7) | (6.4) | (0.1) | 3.5 | 5.5 |
| BBgBarc US Treasury | (0.5) | (0.5) | (2.1) | (2.0) | 0.2 | 1.1 | 2.6 |
| Issuer | | | | | | | |
| BBgBarc US MBS | (0.6) | (0.6) | (1.7) | (1.5) | 0.7 | 1.8 | 3.4 |
| BBgBarc US Corp. High Yield | (1.6) | (1.6) | 0.9 | 1.0 | 6.6 | 4.7 | 11.2 |
| BBgBarc US Agency Interm | 0.1 | 0.1 | 0.1 | (0.1) | 0.6 | 1.0 | 2.3 |
| BBgBarc US Credit | (1.4) | (1.4) | (3.5) | (2.8) | 2.3 | 2.8 | 6.4 |

OTHER

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-------|-------|--------|--------|--------|---------|
| Index | | | | | | | |
| Bloomberg Commodity | (2.2) | (2.2) | (4.1) | (1.7) | (0.7) | (7.3) | (4.2) |
| Wilshire US REIT | (3.0) | (3.0) | (0.8) | 1.8 | 4.0 | 7.7 | 11.3 |
| CS Leveraged Loans | 0.0 | 0.0 | 4.4 | 4.9 | 5.5 | 4.2 | 7.3 |
| Alerian MLP | (8.2) | (8.2) | (3.4) | (0.5) | (2.0) | (4.9) | 9.0 |
| Regional Index | | | | | | | |
| JPM EMBI Global Div | (2.2) | (2.4) | (5.1) | (4.4) | 4.3 | 4.3 | 9.2 |
| JPM GBI-EM Global Div | (2.0) | (5.5) | (9.9) | (6.6) | 2.9 | (2.6) | 4.1 |
| Hedge Funds | | | | | | | |
| HFRI Composite | (3.0) | (3.0) | (1.7) | (0.2) | 3.7 | 3.2 | 5.0 |
| HFRI FOF Composite | (2.7) | (2.7) | (1.8) | (0.9) | 2.1 | 2.4 | 2.9 |
| Currency (Spot) | | | | | | | |
| Euro | (2.4) | (2.4) | (5.6) | (2.7) | 0.8 | (3.6) | (1.1) |
| Pound | (2.0) | (2.0) | (5.5) | (3.8) | (6.1) | (4.5) | (2.3) |
| Yen | 0.6 | 0.6 | (0.2) | 0.7 | 2.3 | (2.8) | (1.4) |

Source: Morningstar, HFR, as of 10/31/18

Notices & disclosures

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 6.2

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer



SUBJECT: Report on Quarterly Investment Performance Report for the Period Ended September 30, 2018

Recommendation

Accept Verus Advisory's quarterly performance report for the period ended September 30, 2018.

Discussion

The 3rd quarter net total return for the SamCERA portfolio was +2.0%, which was 50 bps lower than the +2.5% policy benchmark return. As can be seen on Page 19 and 20, risk parity was the main detractor of relative performance during the quarter.

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

Attachment

Verus Quarterly Performance Report Ending 9/30/2018



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: SEPTEMBER 30, 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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3rd quarter summary

THE ECONOMIC CLIMATE

- The U.S., Mexico, and Canada reached a new trade agreement. The new deal, USMCA, involves few changes to NAFTA, but may create mildly more favorable terms for U.S. businesses.
- The U.S. continued to outshine other developed economies in Q2 with its strongest quarterly growth since 2014. A few smaller emerging market economies experienced idiosyncratic weakness that led to concerns of economic contagion, but fundamentals in most countries still appear strong.

PORTFOLIO IMPACTS

- Emerging market equities delivered slight losses in Q3, but seem to have stabilized as currency depreciation recently subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). We maintain a positive outlook on emerging market equities.
- The Fed raised the target range for the fed funds rate by 0.25% to a range of 2.00%-2.25%. The probability of a December rate hike was 78%, as of October 8th.
- U.S. trade discussions have narrowed in on China. Negotiations between the two countries in recent months do not appear to have produced tangible results.

THE INVESTMENT CLIMATE

- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are forecast to be 19.3% and 6.9% YoY, respectively.
- Fixed income yields around the world rose slightly. The U.S. Treasury yield hit a 7-year high of 3.23%, reigniting investor concerns over rising interest rates.
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, which is creating doubts around the sustainability of Italy's debt.

ASSET ALLOCATION ISSUES

- Capital market returns have been largely flat-to-negative in 2018, with U.S. equities being the exception. Diversification remains important, but has been painful for investors in this environment.
- Trade conflicts between the U.S. and its trading partners appear to be mostly resolved. All eyes are on negotiations between U.S. and Chinese representatives, though it increasingly appears that these negotiations are broader in nature than trade alone.

A neutral to mild risk overweight may be warranted in today's environment

U.S. economics summary

- Real GDP growth was 2.9% year-over-year in the second quarter. Expectations for third quarter growth have risen alongside recently strengthening U.S. economic data.
- U.S. inflation fell slightly to 2.3% YoY, moving closer to the U.S. Core CPI rate of 2.2% YoY.
- Non-farm payrolls added 134,000 jobs in September, missing the consensus estimate of 185,000. Hurricane Florence likely contributed to the miss, as leisure and hospitality employment fell by 17,000, the largest drop in a year.
- The U3 unemployment rate fell from 3.9% to 3.7% in September, the lowest rate since 1969. The U6 unemployment increased from 7.4% to 7.5%.
- The United States, Mexico, and Canada reached an agreement on a new trade deal to replace NAFTA.

The new deal, USMCA, included provisions aimed towards protecting the business interests of North American auto manufacturers as well as workers' wages. The deal also partially opened the Canadian dairy market to U.S. farmers.

- The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24th. The White House claimed that the tariff rate will advance from 10% to 25% at year-end if no progress is made through negotiations in the meantime. China retaliated with tariffs of 10% on \$60 billion of U.S. imports.
- As expected, the Federal Open Market Committee raised the target range for the fed funds rate by 0.25%, moving the new range to 2.00%-2.25%. The market implied odds for an additional December rate hike were 78%, as of October 8th.

| | Most Recent | 12 Months Prior |
|---|--------------------------------|--------------------------------|
| GDP (YoY) | 2.9% <i>6/30/18</i> | 2.1% <i>6/30/17</i> |
| Inflation (CPI YoY, Core) | 2.2% <i>9/30/18</i> | 1.7% <i>9/30/17</i> |
| Expected Inflation (5yr-5yr forward) | 2.2% <i>9/30/18</i> | 2.0% <i>9/30/17</i> |
| Fed Funds Target Range | 2.00 – 2.25% <i>9/30/18</i> | 1.00 – 1.25% <i>9/30/17</i> |
| 10 Year Rate | 3.1% <i>9/30/18</i> | 2.3% <i>9/30/17</i> |
| U-3 Unemployment | 3.7% <i>9/30/18</i> | 4.2% <i>9/30/17</i> |
| U-6 Unemployment | 7.5% <i>9/30/18</i> | 8.3% <i>9/30/17</i> |

International economics summary

- The U.S., Mexico, and Canada reached an agreement on a trade deal to replace NAFTA. The new U.S.-Mexico-Canada Agreement (USMCA) involves few material changes to NAFTA, but the terms appear mildly more favorable for U.S. businesses.
- U.S. negotiations with China, its largest trading partner, continued with little apparent progress. The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24th. The White House claimed that the tariff rate will advance from 10% to 25% at year-end if no progress is made in the meantime. China responded with retaliatory tariffs of 10% on \$60 billion of U.S. imports.
- Trade negotiations with other trading partners appear to be mostly resolved, easing concerns of a global trade war.
- Developed market economies are expected to grow less quickly in the coming years, while emerging economy growth rates are expected to rise.
- PMI readings around the globe have weakened during 2018, led by the Eurozone. U.S. PMIs remain very high, indicating expansion in the manufacturing and services sectors.
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, creating doubts around the sustainability of Italy's debt.
- The U.S. dollar appreciated by 1% during the quarter. A stable dollar would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger.

| Area | GDP (Real, YoY) | Inflation (CPI, YoY) | Unemployment |
|---------------|------------------------|-------------------------|-------------------------|
| United States | 2.9% <i>6/30/18</i> | 2.7% <i>8/31/18</i> | 3.8% <i>9/30/18</i> |
| Eurozone | 2.1% <i>6/30/18</i> | 2.1% <i>9/30/18</i> | 8.3% <i>6/30/18</i> |
| Japan | 1.3% <i>6/30/18</i> | 1.3% <i>8/31/18</i> | 2.4% <i>6/30/18</i> |
| BRICS Nations | 5.8% <i>6/30/18</i> | 2.5% <i>6/30/18</i> | 5.5% <i>6/30/18</i> |
| Brazil | 1.0% <i>6/30/18</i> | 4.5% <i>9/30/18</i> | 12.2% <i>9/30/18</i> |
| Russia | 1.9% <i>6/30/18</i> | 3.4% <i>9/30/18</i> | 4.6% <i>8/31/18</i> |
| India | 8.2% <i>6/30/18</i> | 3.7% <i>8/31/18</i> | 8.8% <i>12/31/17</i> |
| China | 6.7% <i>6/30/18</i> | 2.3% <i>8/31/18</i> | 3.8% <i>6/30/18</i> |

Equity environment

- U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. We remain concerned about the large valuation difference between U.S. and international equities, though the relatively positive outlook for the domestic economy should justify some of the valuation difference.
- Emerging market equities delivered slight losses in Q3, but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many emerging market currencies have rebounded from their lows. We maintain a positive outlook on emerging market equities.
- Developed non-U.S. equities have remained range bound following the selloff in the first quarter. International equity performance outside of emerging markets has been flat (MSCI EAFE +1.4% unhedged, +2.9% hedged).
- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth is expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY.
- Large cap equities (Russell 1000 7.4%) outperformed small cap (Russell 2000 3.6%) during the quarter. Value stocks lagged growth by a similar margin (Russell 1000 Value 5.7% vs. Russell 1000 Growth 9.2%).
- The performance gap between growth and value equities widened further in Q3. The differential continued to be driven by strong returns generated by large names in the tech sector.

| | QTD TOTAL RETURN | | YTD TOTAL RETURN | | 1 YEAR TOTAL RETURN | |
|--|------------------|----------|------------------|----------|---------------------|----------|
| | (unhedged) | (hedged) | (unhedged) | (hedged) | (unhedged) | (hedged) |
| US Large Cap (Russell 1000) | 7.4% | | 10.5% | | 17.8% | |
| US Small Cap (Russell 2000) | 3.6% | | 11.5% | | 15.2% | |
| US Large Value (Russell 1000 Value) | 5.7% | | 3.9% | | 9.5% | |
| US Large Growth (Russell 1000 Growth) | 9.2% | | 17.1% | | 26.3% | |
| International Large (MSCI EAFE) | 1.4% | 2.9% | 0.1% | 2.9% | 2.7% | 7.1% |
| Eurozone (Euro Stoxx 50) | (0.2%) | 1.2% | (2.5%) | 1.6% | (4.6%) | (0.3%) |
| U.K. (FTSE 100) | (1.8%) | (0.2%) | (2.7%) | 2.0% | 3.2% | 7.4% |
| Japan (NIKKEI 225) | 6.2% | 8.7% | 6.8% | 7.4% | 19.7% | 20.7% |
| Emerging Markets (MSCI Emerging Markets) | (1.1%) | (0.2%) | (7.7%) | (3.8%) | (0.8%) | 1.9% |

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/18

Domestic equity

U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. Fears of trade conflict crowded the headlines, with the focus nearly all on China as the U.S. successfully concluded negotiations with other trading partners. Equity markets on both sides have generally rallied on news of potential resolution, though the performance gap between U.S. and Chinese equities has trended wider. Trade frictions will likely remain a headwind to performance.

Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY. If analyst forecasts are as overly optimistic as they typically are, this would put 2019 earnings growth at a more average rate of 5-6%. While average earnings growth can be conducive to moderate positive equity returns, current relatively high valuations could case concerns once growth rates decelerate.

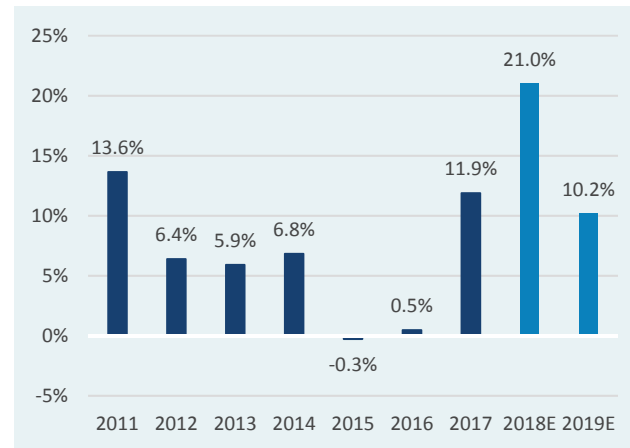
U.S. equities have risen with earnings growth and strong fundamentals, despite trade concerns

U.S. EQUITIES



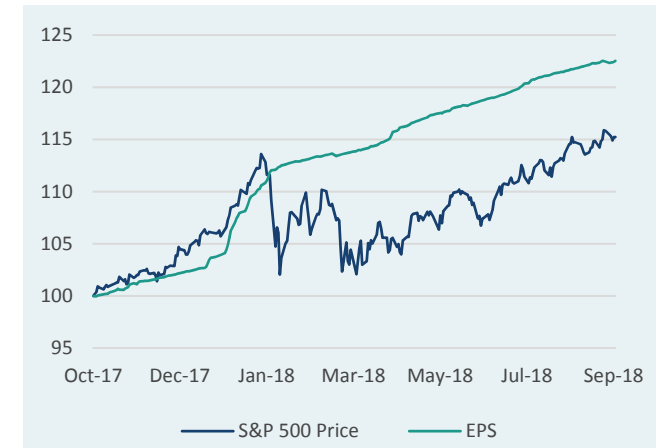
Source: Russell Investments, as of 9/30/18

CALENDAR YEAR EARNINGS GROWTH



Source: FactSet, as of 10/12/18

S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 9/30/18

Domestic equity size & style

Large cap equities (Russell 1000 7.4%) outperformed small cap equities (Russell 2000 3.6%) during the quarter.

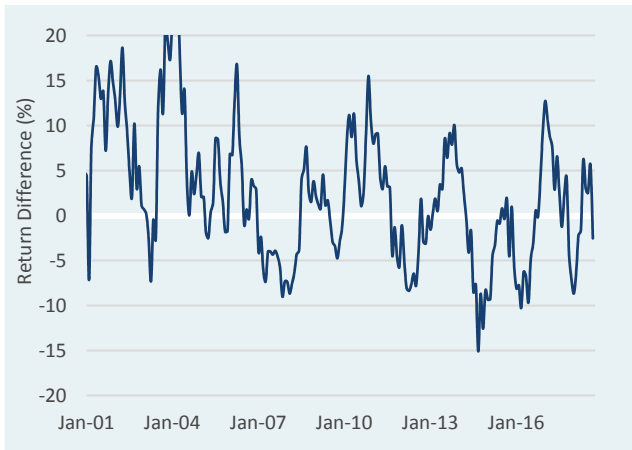
Growth stocks outpaced value stocks by a similar margin (Russell 1000 Growth 9.2% vs. Russell 1000 Value 5.7%).

Differences between sector composition in large-cap style benchmarks have explained much of the recent growth outperformance. Nearly 50% of the Russell 1000 Growth Index is in the more cyclical Information Technology and Consumer Discretionary sectors, which have been by far

and away the best performing sectors over the past year.

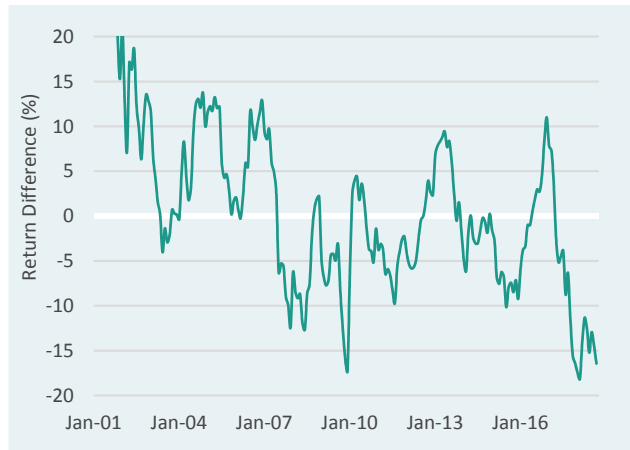
Size and value factor performance continues to frustrate investors. While the extent of underperformance is not anomalous, it may be testament to the long-term nature of factor investing. Unless an investor believes that these risk premia no longer exist, maintaining exposure and avoiding capitulation should be the primary goal.

SMALL CAP VS LARGE CAP (YOY)



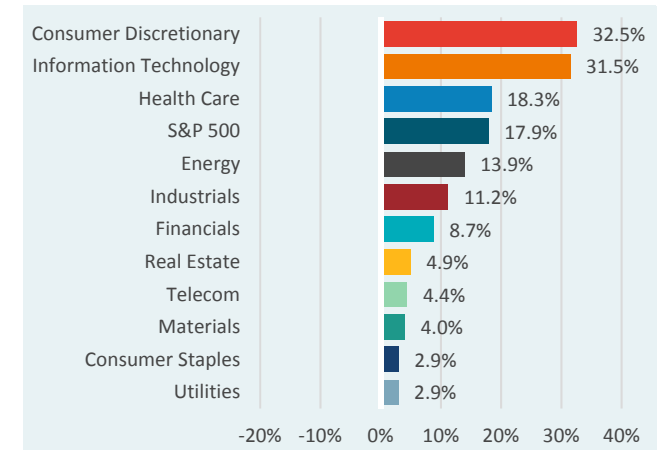
Source: FTSE, as of 9/30/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/18

1-YEAR S&P 500 SECTOR RETURNS



Source: Morningstar, as of 9/30/18

International developed equity

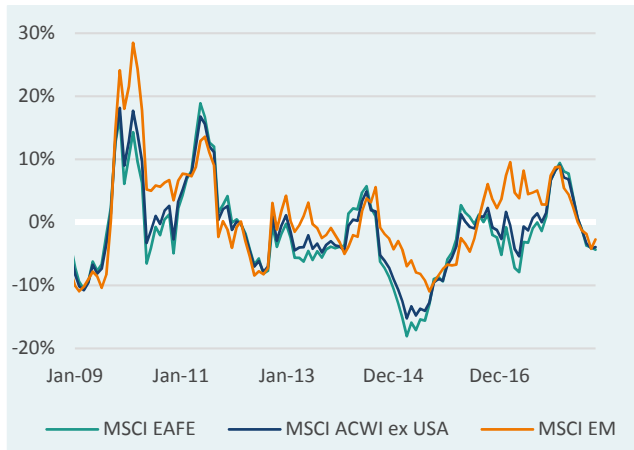
Unhedged international equities underperformed U.S. equities during Q3 (MSCI EAFE +1.4% vs. S&P 500 +7.7%). On a currency hedged basis, international equities delivered returns of 2.9%.

Currency movement continued to create losses for unhedged equity investors. U.S. investors that hedged their international equity exposure outperformed their unhedged peers by approximately 5% year-to-date (MSCI EAFE Index).

Regional divergence in earnings remained a story in Q3. Year-over-year growth in forward earnings reached 23% for U.S. equities, while estimates fell from 14% to 9% in emerging markets and from 12% to 10% in international developed markets, according to MSCI estimates.

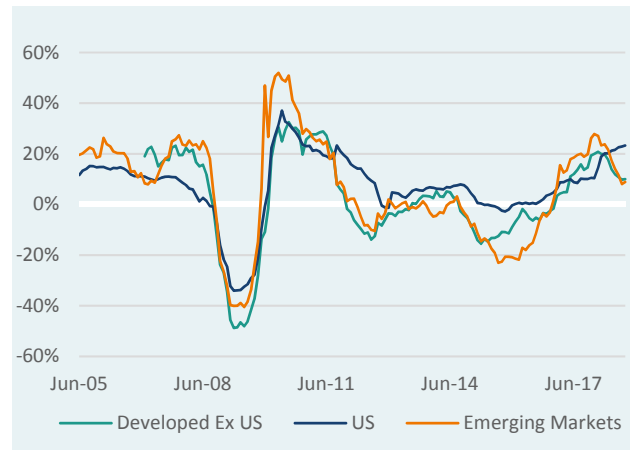
Differences in forward P/E multiples between U.S. and non-U.S. equities remained high. At quarter-end, this valuation gap relative to international developed equity ranked in the 96th percentile since 2005. The U.S.-EM valuation gap ranked in the 89th percentile over the same period.

EFFECT OF CURRENCY (1-YEAR ROLLING)



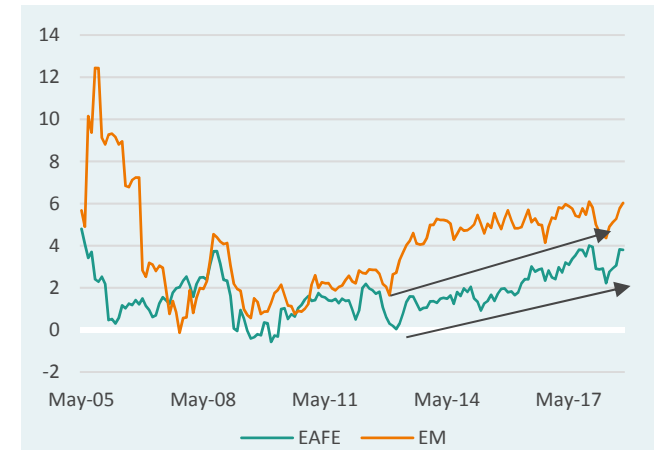
Source: MSCI, as of 9/30/18

EARNINGS GROWTH (YOY)



Source: MSCI, as of 9/30/18 – YoY growth in forward earnings

FORWARD P/E SPREADS RELATIVE TO U.S.



Source: MSCI, as of 9/30/18

Emerging market equity

Emerging market equities delivered a slight loss in Q3 but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many of these currencies have rebounded from their lows.

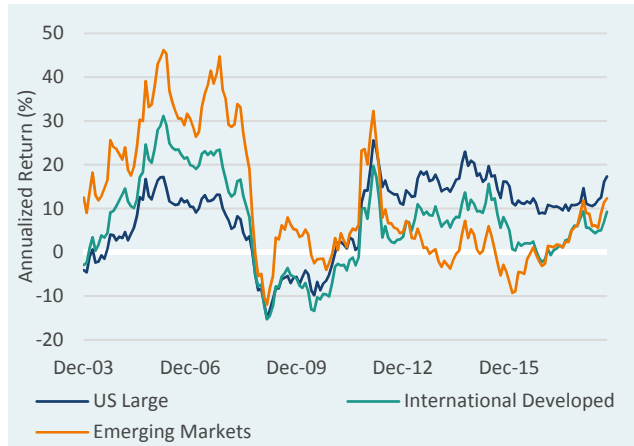
Developed markets are expected to grow less quickly in the coming years while emerging economic growth is expected to rise. A positive growth premium of emerging economies relative to developed economies has

historically acted as a tailwind for EM outperformance.

We believe positive emerging economy growth trends, attractive valuations, a strong earnings environment, and depressed currencies should provide an environment of strong relative equity performance across these markets.

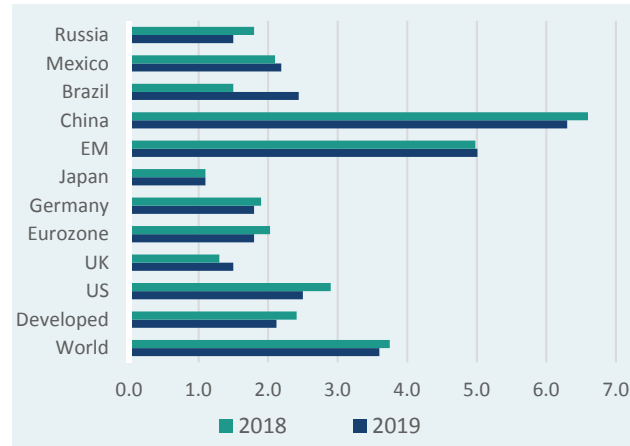
Conditions remain positive for medium-term EM equity performance, though volatility may persist

EQUITY PERFORMANCE (3YR ROLLING)



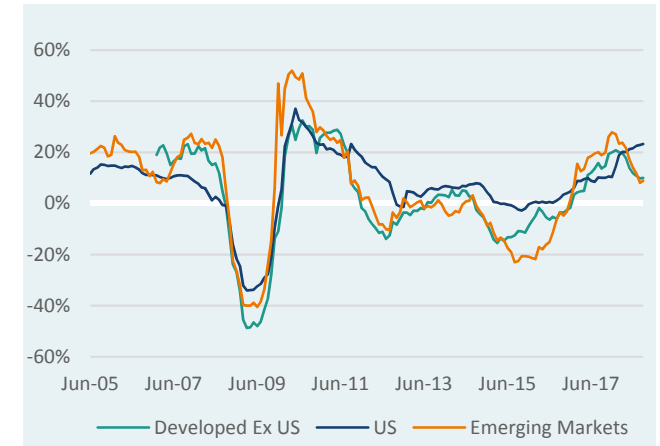
Source: Standard & Poor's, MSCI, as of 9/30/18

GDP GROWTH EXPECTATIONS (%)



Source: Bloomberg, as of 9/30/18

EARNINGS GROWTH (YOY)



Source: MSCI, as of 9/30/18 – YoY growth in forward earnings

Interest rate environment

- The Federal Reserve raised the target range for the fed funds rate by 0.25%, to a range of 2.00%-2.25%. The odds for a December rate hike were 78%, as of October 8th.
- Fixed income yields around the world moved slightly higher during the quarter. The U.S. Treasury yield rose to a 7-year high of 3.23%, reigniting investor concerns over rising interest rates. The spread between 2- and 10-year yields has remained steady at around 30 bps.
- In September, the European Central Bank left interest rates unchanged, and confirmed its intent to leave rates at current levels “at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term.” The ECB

also stated that bond purchases of \$30 billion euros per month would be cut in half beginning in October, and would stop altogether at the end of the year.

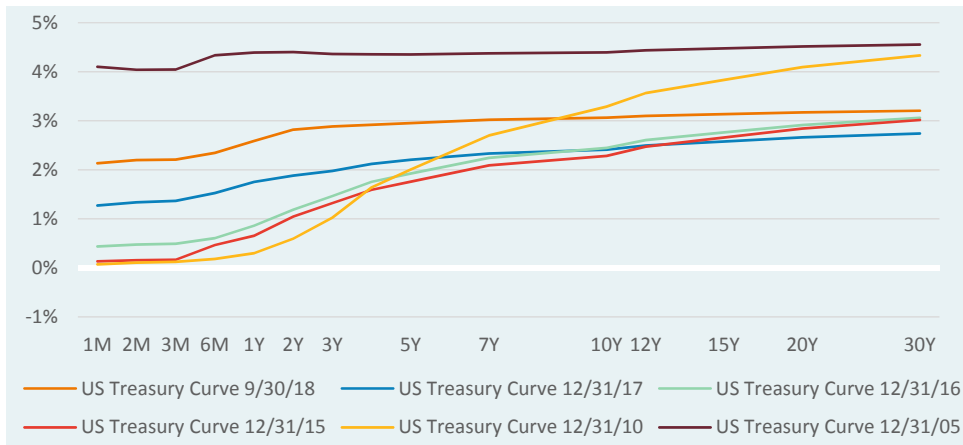
- The yield spread between Italian and German 10-year bonds has exhibited significant volatility following Italy’s political shakeup in the second quarter. Discussions around compliance with European Union budget rules, and the general fear that Italy may push either for structural monetary policy changes, or to leave the Eurozone, contributed to a tumultuous quarter.
- Emerging market local and hard yields were rangebound in Q3, but remained elevated due to continued idiosyncratic risks in countries such as Turkey and Argentina.

| Area | Short Term (3M) | 10 Year |
|---------------|-----------------|---------|
| United States | 2.19% | 3.06% |
| Germany | (0.56%) | 0.47% |
| France | (0.56%) | 0.80% |
| Spain | (0.39%) | 1.50% |
| Italy | 0.01% | 3.15% |
| Greece | 1.12% | 4.18% |
| U.K. | 0.77% | 1.57% |
| Japan | (0.13%) | 0.13% |
| Australia | 1.89% | 2.67% |
| China | 2.97% | 3.63% |
| Brazil | 6.58% | 11.76% |
| Russia | 7.02% | 8.69% |

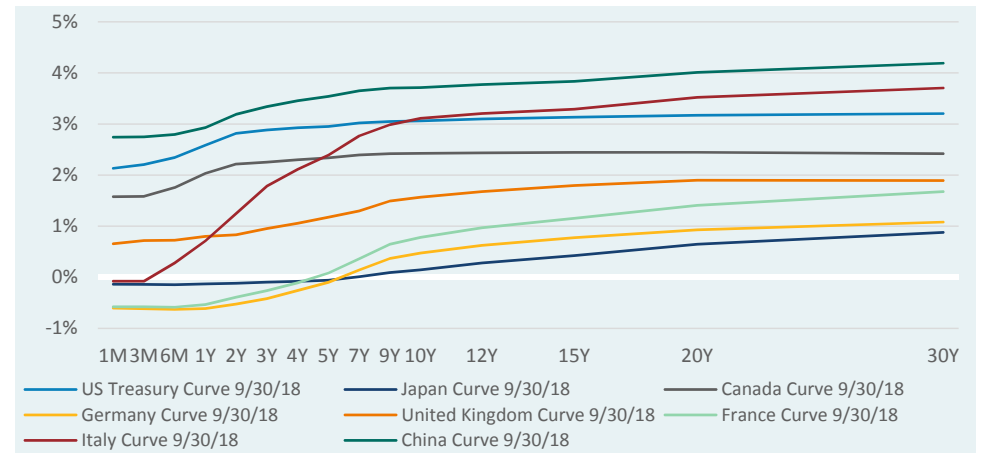
Source: Bloomberg, as of 9/30/18

Yield environment

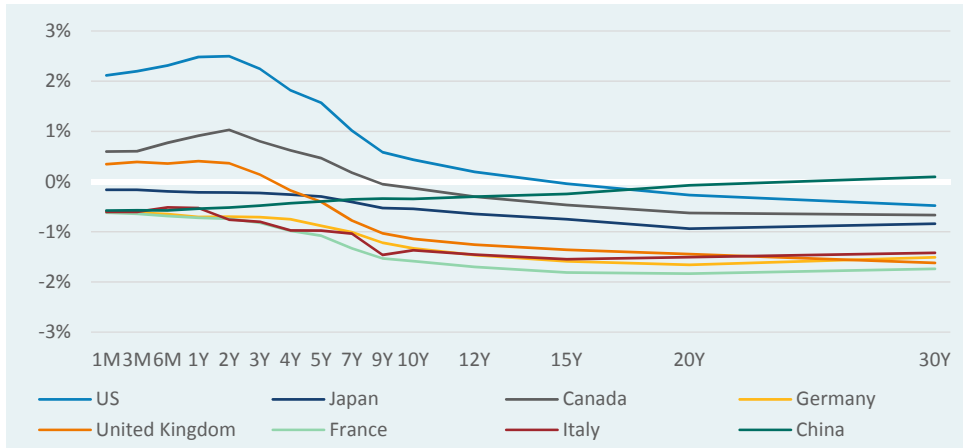
U.S. YIELD CURVE



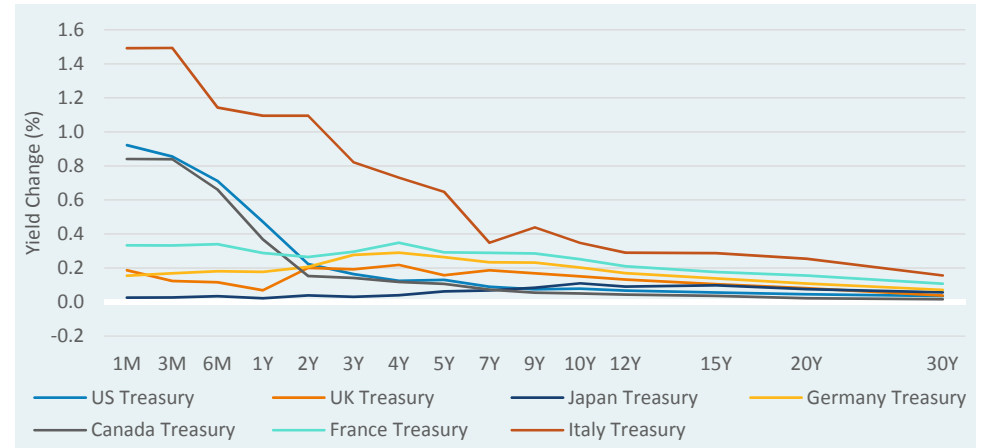
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/18

Currency

The U.S. dollar appreciated 1% during the quarter on a trade-weighted dollar basis. A stable dollar going forward would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger. Some of the worst performing emerging market currencies have partially recovered from 2nd quarter losses.

Major currencies have fluctuated widely relative to the U.S. dollar in 2018. Most currencies strengthened through the first quarter, but this trend reversed when international economic growth began to show weakness, which helped

push up the value of the dollar. Because foreign currencies have been positively correlated with equity markets, these movements have added to total volatility.

Wide short-term interest rate differentials between the U.S. and the rest of the world have created a tailwind for those hedging U.S. dollar exposures. For example, based on current FX forward pricing, an investor would lock in an annualized gain of 3.3% when hedging the euro, which is typically the biggest foreign currency exposure in portfolios.

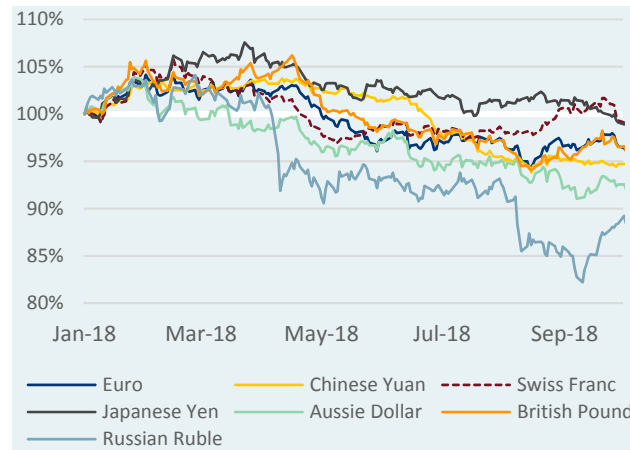
The U.S. dollar materially appreciated, reversing a multi-year downtrend

U.S. DOLLAR TRADE WEIGHTED INDEX



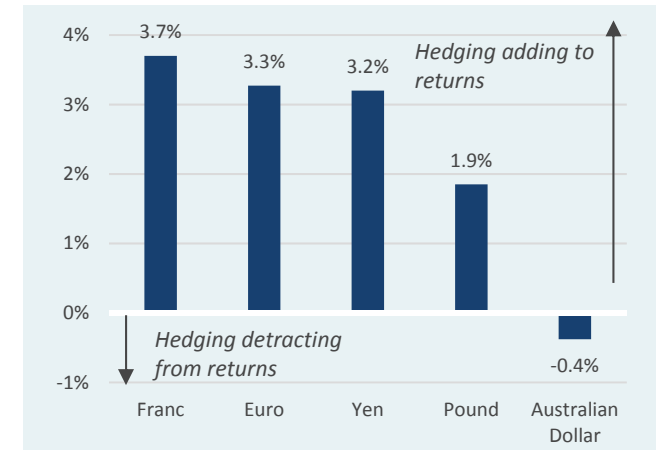
Source: Federal Reserve, as of 9/30/18

USD MOVES VS MAJOR CURRENCIES



Source: Verus, Bloomberg, as of 9/30/18

ANNUALIZED FX HEDGING COSTS (GAINS)



Source: Bloomberg, as of 9/30/18, based on 3-month FX forwards

- The Total Fund, net of manager fees, returned 2.0% in the third quarter of 2018 and ranked in the 63rd percentile among other public plans greater than \$1 billion (median of 2.1%). It lagged the policy index return of 2.5%. The Total Fund ex Overlay returned 2.0% for the quarter. The Total Fund one-year return of 5.4% lagged the policy index return of 6.5% and ranked in the 89th percentile of its peer universe. The three-year return of 9.2% (58th percentile) lagged the median large public plan (9.3%) and the policy index (10.0%).

- Third quarter results were hindered by the following factors:
 1. PanAgora lost -2.1% for the quarter. The majority of underperformance came from commodities. The energy sector has gained over 17% YTD while the remaining 5 sectors have had negative returns. The large dispersion among returns isn't favorable for a diversified approach and provided headwinds for PanAgora.
 2. Baillie Gifford lost -1.3% in the quarter, underperforming the MSCI ACWI ex US (+0.8%). The portfolio's holdings in Chinese internet stocks hurt the portfolio. This was both a function of general weakness in the Chinese market (following a period of strong performance), and the prospect of a trade war raised fears for the domestic economy.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank * | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|---|------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Total Fund** | 2.0 | 63 | 2.1 | 84 | 5.4 | 89 | 8.6 | 81 | 9.2 | 58 | 7.4 | 41 | 7.4 | 47 |
| <i>Policy Index¹</i> | 2.5 | 25 | 2.6 | 65 | 6.5 | 53 | 9.5 | 50 | 10.0 | 24 | 7.6 | 37 | 8.0 | 21 |
| <i>InvestorForce Public DB > \$1B Net Median</i> | 2.1 | | 2.9 | | 6.5 | | 9.5 | | 9.3 | | 7.1 | | 7.3 | |
| Total Fund ex Overlay | 2.0 | 59 | 2.1 | 81 | 5.4 | 87 | 8.6 | 81 | 9.1 | 65 | 7.3 | 43 | 7.3 | 48 |
| <i>Policy Index¹</i> | 2.5 | 25 | 2.6 | 65 | 6.5 | 53 | 9.5 | 50 | 10.0 | 24 | 7.6 | 37 | 8.0 | 21 |
| <i>InvestorForce Public DB > \$1B Net Median</i> | 2.1 | | 2.9 | | 6.5 | | 9.5 | | 9.3 | | 7.1 | | 7.3 | |
| Public Equity | 4.0 | 58 | 4.2 | 65 | 9.7 | 69 | 14.1 | 72 | 13.6 | 65 | 9.5 | 58 | 8.9 | 68 |
| <i>Blended Public Equity Index¹</i> | 4.1 | 53 | 4.4 | 64 | 10.5 | 59 | 15.0 | 42 | 14.3 | 35 | 9.8 | 50 | 9.6 | 40 |
| <i>InvestorForce All DB Total Eq Net Median</i> | 4.2 | | 5.3 | | 11.1 | | 14.8 | | 14.0 | | 9.7 | | 9.3 | |
| US Equity | 6.9 | 28 | 10.5 | 43 | 17.0 | 48 | 18.1 | 42 | 16.5 | 47 | 12.6 | 54 | 11.3 | 60 |
| <i>Blended US Equity Index¹</i> | 7.1 | 16 | 10.6 | 36 | 17.6 | 31 | 18.1 | 34 | 17.0 | 27 | 13.1 | 31 | 11.9 | 30 |
| <i>Russell 3000</i> | 7.1 | 16 | 10.6 | 36 | 17.6 | 31 | 18.1 | 34 | 17.1 | 23 | 13.5 | 14 | 12.0 | 22 |
| <i>InvestorForce All DB US Eq Net Median</i> | 6.6 | | 10.2 | | 17.0 | | 17.7 | | 16.4 | | 12.7 | | 11.5 | |
| Large Cap Equity | 7.4 | 35 | 10.6 | 35 | 17.8 | 37 | 19.1 | 31 | 17.4 | 24 | 13.8 | 29 | 11.6 | 43 |
| <i>Russell 1000</i> | 7.4 | 34 | 10.5 | 36 | 17.8 | 37 | 18.2 | 38 | 17.1 | 27 | 13.7 | 31 | 12.1 | 34 |
| <i>eV US Large Cap Equity Net Median</i> | 6.7 | | 8.3 | | 15.3 | | 16.5 | | 15.1 | | 12.2 | | 11.2 | |
| <i>BlackRock Russell 1000</i> | 7.4 | 34 | 10.5 | 25 | 17.7 | 32 | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>DE Shaw</i> | 7.1 | 41 | 11.0 | 21 | 18.0 | 27 | 19.8 | 14 | 18.7 | 5 | 14.9 | 6 | -- | -- |
| <i>Russell 1000</i> | 7.4 | 34 | 10.5 | 25 | 17.8 | 31 | 18.2 | 32 | 17.1 | 18 | 13.7 | 24 | 12.1 | 23 |
| <i>eV US Large Cap Core Equity Net Median</i> | 6.9 | | 8.7 | | 15.7 | | 16.5 | | 15.1 | | 12.5 | | 11.1 | |
| Small Cap Equity | 3.4 | 52 | 9.6 | 48 | 12.1 | 56 | 16.8 | 51 | 14.6 | 65 | 8.7 | 81 | 10.5 | 74 |
| <i>Russell 2000</i> | 3.6 | 50 | 11.5 | 42 | 15.2 | 44 | 18.0 | 43 | 17.1 | 41 | 11.1 | 44 | 11.1 | 65 |
| <i>eV US Small Cap Equity Net Median</i> | 3.5 | | 9.2 | | 13.4 | | 17.0 | | 16.0 | | 10.7 | | 11.8 | |

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

** Includes Parametric Minneapolis manager funded in August 2013.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|---|-------------|-----------|-------------|-----------|-------------|-----------|------------|-----------|-------------|-----------|------------|-----------|------------|-----------|
| QMA US Small Cap | 3.4 | 54 | 9.6 | 52 | 12.1 | 62 | 16.9 | 56 | -- | -- | -- | -- | -- | -- |
| <i>Russell 2000</i> | 3.6 | 53 | 11.5 | 42 | 15.2 | 43 | 18.0 | 43 | 17.1 | 37 | 11.1 | 50 | 11.1 | 66 |
| <i>eV US Small Cap Core Equity Net Median</i> | 3.8 | | 9.7 | | 13.8 | | 17.3 | | 16.5 | | 11.1 | | 11.6 | |
| International Equity | 0.5 | 38 | -2.7 | 30 | 1.6 | 38 | 9.1 | 73 | 9.9 | 42 | 4.8 | 34 | 4.5 | 76 |
| <i>MSCI ACWI ex US IMI¹</i> | 0.4 | 41 | -3.3 | 45 | 1.8 | 31 | 10.6 | 33 | 10.5 | 25 | 4.8 | 36 | 5.8 | 39 |
| <i>MSCI EAFE Gross</i> | 1.4 | 11 | -1.0 | 12 | 3.2 | 14 | 11.1 | 17 | 9.8 | 47 | 4.9 | 29 | 5.9 | 35 |
| <i>InvestorForce All DB ex-US Eq Net Median</i> | 0.1 | | -3.7 | | 0.8 | | 10.0 | | 9.7 | | 4.4 | | 5.4 | |
| Developed Markets | 0.5 | 57 | -2.1 | 47 | 2.2 | 53 | 9.4 | 72 | 10.0 | 46 | 5.1 | 49 | 4.8 | 78 |
| <i>MSCI ACWI ex USA Gross</i> | 0.8 | 48 | -2.7 | 59 | 2.3 | 52 | 10.8 | 49 | 10.5 | 31 | 4.6 | 64 | 5.7 | 53 |
| <i>InvestorForce All DB Dev Mkt ex-US Eq Net Median</i> | 0.7 | | -2.5 | | 2.3 | | 10.8 | | 9.9 | | 5.1 | | 5.8 | |
| Baillie Gifford | -1.3 | 65 | -1.7 | 70 | 3.1 | 77 | 9.7 | 85 | 11.9 | 58 | 6.2 | 60 | -- | -- |
| <i>MSCI ACWI ex US¹</i> | 0.8 | 29 | -2.7 | 82 | 2.3 | 85 | 10.8 | 75 | 10.5 | 69 | 4.8 | 93 | -- | -- |
| <i>MSCI ACWI ex US Growth¹</i> | -0.2 | 51 | -2.2 | 78 | 3.5 | 72 | 10.5 | 78 | 11.0 | 64 | 5.8 | 74 | -- | -- |
| <i>eV ACWI ex-US Growth Equity Net Median</i> | -0.2 | | 0.2 | | 5.8 | | 12.7 | | 12.3 | | 6.7 | | 8.1 | |
| BlackRock EAFE Index | 1.4 | 32 | -1.1 | 40 | 3.1 | 42 | 11.0 | 48 | 9.6 | 50 | -- | -- | -- | -- |
| <i>MSCI EAFE</i> | 1.4 | 33 | -1.4 | 43 | 2.7 | 47 | 10.6 | 52 | 9.2 | 59 | 4.4 | 79 | 5.4 | 85 |
| <i>MSCI EAFE Gross</i> | 1.4 | 31 | -1.0 | 40 | 3.2 | 41 | 11.1 | 47 | 9.8 | 48 | 4.9 | 70 | 5.9 | 72 |
| <i>eV EAFE Core Equity Net Median</i> | 0.8 | | -1.8 | | 2.4 | | 10.8 | | 9.6 | | 5.7 | | 6.5 | |
| Mondrian | 1.4 | 23 | -3.4 | 34 | 0.4 | 34 | 8.3 | 57 | 8.3 | 51 | 4.1 | 54 | 4.9 | 63 |
| <i>MSCI ACWI ex USA Value Gross</i> | 1.8 | 11 | -3.1 | 27 | 1.0 | 26 | 11.1 | 28 | 9.9 | 33 | 3.5 | 60 | 5.1 | 55 |
| <i>MSCI ACWI ex USA Gross</i> | 0.8 | 35 | -2.7 | 15 | 2.3 | 18 | 10.8 | 30 | 10.5 | 27 | 4.6 | 39 | 5.7 | 51 |
| <i>eV ACWI ex-US Value Equity Net Median</i> | 0.1 | | -4.3 | | -0.5 | | 9.6 | | 8.4 | | 4.1 | | 5.8 | |
| Emerging Markets | -0.2 | 13 | -8.4 | 27 | -3.7 | 48 | 6.9 | 63 | 9.5 | 67 | 1.9 | 77 | -- | -- |
| <i>MSCI Emerging Markets Gross</i> | -0.9 | 22 | -7.4 | 16 | -0.4 | 11 | 10.6 | 19 | 12.8 | 20 | 4.0 | 18 | 5.8 | 14 |
| <i>InvestorForce All DB Emg Mkt Eq Net Median</i> | -1.7 | | -9.2 | | -3.8 | | 7.3 | | 10.5 | | 2.8 | | 4.5 | |

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|--|------------|-----------|-------------|-----------|-------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| Parametric Core | -0.2 | 20 | -8.4 | 37 | -3.7 | 54 | 6.9 | 69 | 9.5 | 72 | -- | -- | -- | -- |
| <i>MSCI Emerging Markets Gross</i> | -0.9 | 27 | -7.4 | 23 | -0.4 | 23 | 10.6 | 26 | 12.8 | 29 | 4.0 | 40 | 5.8 | 55 |
| <i>eV Emg Mkts Equity Net Median</i> | -2.8 | | -9.5 | | -3.2 | | 8.7 | | 11.2 | | 3.7 | | 6.0 | |
| Parametric Currency Overlay* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fixed Income | 0.6 | 26 | 0.0 | 22 | 0.5 | 21 | 3.2 | 9 | 4.3 | 12 | 3.6 | 28 | 5.8 | 25 |
| <i>Blended Fixed Income Index¹</i> | 0.8 | 19 | -0.8 | 47 | -0.5 | 48 | 0.7 | 55 | 3.0 | 50 | 2.6 | 52 | 4.1 | 77 |
| <i>InvestorForce All DB Total Fix Inc Net Median</i> | 0.3 | | -0.9 | | -0.5 | | 0.9 | | 2.9 | | 2.7 | | 4.9 | |
| Core Fixed | 0.1 | -- | -1.6 | -- | -1.2 | -- | 0.6 | -- | 2.5 | -- | 2.8 | -- | 5.0 | -- |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -- | -1.6 | -- | -1.2 | -- | -0.6 | -- | 1.3 | -- | 2.2 | -- | 3.8 | -- |
| BlackRock Intermediate Govt | -0.1 | 5 | -0.6 | 6 | -1.0 | 23 | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>BBgBarc US Govt Int TR</i> | -0.1 | 16 | -0.8 | 13 | -1.2 | 65 | -0.9 | 22 | 0.2 | 68 | 0.9 | 70 | 2.2 | 79 |
| <i>eV US Government Fixed Inc Net Median</i> | -0.3 | | -1.1 | | -1.1 | | -1.0 | | 0.5 | | 1.3 | | 2.7 | |
| FIAM Bond | 0.1 | 58 | -1.2 | 26 | -0.8 | 29 | 0.0 | 25 | 2.3 | 13 | 2.8 | 19 | 5.0 | 17 |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | 77 | -1.6 | 64 | -1.2 | 67 | -0.6 | 72 | 1.3 | 69 | 2.2 | 67 | 3.8 | 80 |
| Western TRU | 0.1 | 62 | -3.7 | 99 | -2.4 | 99 | 2.8 | 1 | 3.6 | 3 | -- | -- | -- | -- |
| <i>3-Month Libor Total Return USD</i> | 0.6 | 5 | 1.7 | 1 | 2.1 | 1 | 1.6 | 3 | 1.3 | 73 | 0.9 | 99 | 0.7 | 99 |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | 77 | -1.6 | 64 | -1.2 | 67 | -0.6 | 72 | 1.3 | 69 | 2.2 | 67 | 3.8 | 80 |
| <i>eV US Core Fixed Inc Net Median</i> | 0.1 | | -1.5 | | -1.1 | | -0.3 | | 1.6 | | 2.3 | | 4.3 | |
| Opportunistic Credit | 1.8 | -- | 3.3 | -- | 4.2 | -- | 7.4 | -- | 7.8 | -- | 6.6 | -- | -- | -- |
| <i>BBgBarc BA Intermediate HY¹</i> | 2.3 | -- | 0.8 | -- | 0.9 | -- | 3.8 | -- | 6.2 | -- | 4.7 | -- | -- | -- |
| Angelo Gordon Opportunistic** | 5.3 | -- | 21.4 | -- | 32.1 | -- | 20.9 | -- | 15.0 | -- | -- | -- | -- | -- |
| Angelo Gordon STAR | 6.6 | -- | 18.9 | -- | 22.3 | -- | 19.9 | -- | 14.0 | -- | 13.4 | -- | -- | -- |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -- | -1.6 | -- | -1.2 | -- | -0.6 | -- | 1.3 | -- | 2.2 | -- | 3.8 | -- |

* Funded September 2018.

** Preliminary return as of 09/30/2018.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|--|-------------|-----------|-------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| Beach Point Select | 1.8 | 81 | 5.0 | 4 | 6.9 | 4 | 8.6 | 5 | 9.2 | 6 | -- | -- | -- | -- |
| BBgBarc BA Intermediate HY ¹ | 2.3 | 36 | 0.8 | 93 | 0.9 | 94 | 3.8 | 91 | 6.2 | 71 | 4.7 | 56 | -- | -- |
| eV US High Yield Fixed Inc Net Median | 2.1 | | 2.0 | | 2.6 | | 5.3 | | 6.8 | | 4.8 | | 8.3 | |
| Brigade Capital | 2.3 | 34 | 4.9 | 5 | 5.3 | 8 | 7.6 | 10 | 9.0 | 7 | 4.9 | 49 | -- | -- |
| BBgBarc BA Intermediate HY ¹ | 2.3 | 36 | 0.8 | 93 | 0.9 | 94 | 3.8 | 91 | 6.2 | 71 | 4.7 | 56 | -- | -- |
| 50% Barclays HY/ 50% Bank Loan | 2.2 | 46 | 3.5 | 12 | 4.3 | 13 | 5.7 | 37 | 6.8 | 50 | 5.0 | 46 | -- | -- |
| eV US High Yield Fixed Inc Net Median | 2.1 | | 2.0 | | 2.6 | | 5.3 | | 6.8 | | 4.8 | | 8.3 | |
| PIMCO Diversified** | 1.7 | 85 | 0.3 | 96 | 1.1 | 92 | -- | -- | -- | -- | -- | -- | -- | -- |
| Blended PIMCO Diversified Index ¹ | 1.6 | 86 | -0.8 | 99 | 0.0 | 99 | 2.3 | 99 | 5.5 | 86 | 4.7 | 59 | 7.4 | 86 |
| BBgBarc BA Intermediate HY | 2.3 | 36 | 0.8 | 93 | 0.9 | 94 | 3.8 | 91 | 6.2 | 71 | 4.7 | 56 | -- | -- |
| eV US High Yield Fixed Inc Net Median | 2.1 | | 2.0 | | 2.6 | | 5.3 | | 6.8 | | 4.8 | | 8.3 | |
| Franklin Templeton | 0.3 | 56 | -2.1 | 63 | -3.4 | 88 | 4.2 | 26 | 3.9 | 46 | 1.8 | 67 | -- | -- |
| BBgBarc Multiverse TR | -0.8 | 80 | -2.4 | 67 | -1.3 | 63 | -0.9 | 82 | 2.3 | 73 | 0.9 | 79 | 3.1 | 80 |
| eV All Global Fixed Inc Net Median | 0.5 | | -1.2 | | -0.5 | | 1.5 | | 3.7 | | 2.7 | | 4.7 | |
| Private Credit | 1.7 | -- | 5.8 | -- | 7.6 | -- | 6.6 | -- | -- | -- | -- | -- | -- | -- |
| Cliffwater Direct Lending Index ¹ | 2.4 | -- | 7.2 | -- | 9.4 | -- | 9.3 | -- | 8.9 | -- | 9.1 | -- | 10.0 | -- |
| TCP Direct Lending VIII* | 3.4 | 1 | 6.3 | 2 | 7.8 | 2 | 7.2 | 12 | -- | -- | -- | -- | -- | -- |
| White Oak Yield* | 0.0 | 98 | 5.6 | 3 | 6.9 | 4 | -- | -- | -- | -- | -- | -- | -- | -- |
| Cliffwater Direct Lending Index ¹ | 2.4 | 19 | 7.2 | 1 | 9.4 | 1 | 9.3 | 4 | 8.9 | 7 | 9.1 | 1 | 10.0 | 4 |
| eV US High Yield Fixed Inc Net Median | 2.1 | | 2.0 | | 2.6 | | 5.3 | | 6.8 | | 4.8 | | 8.3 | |
| Risk Parity | -0.9 | -- | -2.5 | -- | 1.9 | -- | 3.7 | -- | 7.2 | -- | 5.8 | -- | -- | -- |
| Blended Risk Parity Index ¹ | 3.0 | -- | 3.3 | -- | 7.1 | -- | 9.4 | -- | 10.0 | -- | 8.6 | -- | -- | -- |
| AQR GRP, 10% Volatility | 0.3 | -- | -1.4 | -- | 3.3 | -- | 5.7 | -- | 7.1 | -- | 4.7 | -- | -- | -- |
| PanAgora | -2.1 | -- | -3.6 | -- | 0.6 | -- | 1.9 | -- | 7.3 | -- | -- | -- | -- | -- |
| Blended Risk Parity Index ¹ | 3.0 | -- | 3.3 | -- | 7.1 | -- | 9.4 | -- | 10.0 | -- | 8.6 | -- | -- | -- |
| Blended RP Secondary Index ¹ | 4.2 | -- | 5.6 | -- | 9.8 | -- | 9.7 | -- | 9.7 | -- | 7.3 | -- | -- | -- |

* Preliminary return as of 09/30/2018.

** Funded August 2017.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|--|----------|------|---------|------|----------|------|-----------|------|-----------|------|-----------|------|------------|------|
| Alternatives | 2.1 | -- | 1.6 | -- | 3.1 | -- | 7.5 | -- | 6.5 | -- | 7.2 | -- | -- | -- |
| <i>Blended Alternatives Index¹</i> | 2.8 | -- | 4.5 | -- | 9.1 | -- | 11.5 | -- | 10.6 | -- | 7.8 | -- | -- | -- |
| Private Equity** | 4.9 | 27 | 12.3 | 34 | 13.9 | 53 | 15.8 | 34 | 13.7 | 20 | 17.7 | 7 | -- | -- |
| <i>Blended Private Equity Index¹</i> | 3.9 | 39 | 4.4 | 82 | 11.7 | 64 | 16.6 | 29 | 17.1 | 9 | 14.7 | 24 | 14.2 | 4 |
| <i>InvestorForce All DB Private Eq Net Median</i> | 3.3 | | 10.7 | | 14.5 | | 13.9 | | 10.8 | | 11.2 | | 9.1 | |
| Hedge Fund/Absolute Return | -1.0 | 93 | -8.5 | 98 | -7.1 | 98 | -0.9 | 94 | -0.3 | 89 | 4.2 | 32 | -- | -- |
| <i>Libor 1 month +4%</i> | 1.6 | 29 | 4.4 | 25 | 5.8 | 36 | 5.4 | 51 | 5.1 | 24 | 4.7 | 23 | -- | -- |
| <i>InvestorForce All DB Hedge Funds Net Median</i> | 0.6 | | 2.9 | | 4.6 | | 5.4 | | 3.7 | | 3.6 | | 3.8 | |
| AQR DELTA XN | -1.9 | 83 | -11.5 | 92 | -10.3 | 93 | -2.2 | 84 | -0.9 | 85 | 3.9 | 58 | -- | -- |
| Aberdeen Standard GARS | 0.5 | 57 | -3.5 | 74 | -1.7 | 77 | 0.9 | 74 | -- | -- | -- | -- | -- | -- |
| <i>Libor 1 month +4%</i> | 1.6 | 37 | 4.4 | 30 | 5.8 | 34 | 5.4 | 46 | 5.1 | 48 | 4.7 | 51 | -- | -- |
| <i>eV Alt All Multi-Strategy Median</i> | 0.8 | | 1.2 | | 3.3 | | 4.8 | | 4.6 | | 4.9 | | 6.9 | |
| Inflation Hedge | 0.5 | -- | 2.0 | -- | 4.7 | -- | 5.8 | -- | -- | -- | -- | -- | -- | -- |
| <i>Blended Inflation Hedge Index¹</i> | 0.8 | -- | 1.7 | -- | 4.7 | -- | 5.8 | -- | -- | -- | -- | -- | -- | -- |
| Real Estate | 2.4 | 10 | 6.3 | 20 | 8.7 | 12 | 8.4 | 15 | 8.8 | 14 | 10.7 | 6 | 5.2 | 23 |
| NCREIF ODCE | 2.1 | 27 | 6.5 | 15 | 8.7 | 12 | 8.2 | 18 | 8.8 | 15 | 10.7 | 6 | 5.9 | 10 |
| <i>InvestorForce All DB Real Estate Pub Net Median</i> | 1.9 | | 5.5 | | 7.3 | | 6.5 | | 7.5 | | 9.2 | | 4.6 | |
| Invesco | 2.5 | -- | 6.7 | -- | 9.1 | -- | 8.5 | -- | 8.8 | -- | 10.7 | -- | 5.2 | -- |
| <i>NCREIF ODCE</i> | 2.1 | -- | 6.5 | -- | 8.7 | -- | 8.2 | -- | 8.8 | -- | 10.7 | -- | 5.9 | -- |
| Invesco US Val IV | 2.7 | -- | 7.0 | -- | 9.0 | -- | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| <i>NCREIF ODCE</i> | 2.1 | -- | 6.5 | -- | 8.7 | -- | 8.2 | -- | 8.8 | -- | 10.7 | -- | 5.9 | -- |
| <i>NCREIF CEVA 1Q Lag - NET</i> | 3.0 | -- | 8.7 | -- | 12.0 | -- | 10.8 | -- | 11.7 | -- | -- | -- | -- | -- |
| PGIM RE US Debt Fund*** | 1.9 | -- | 4.2 | -- | 6.7 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>NCREIF ODCE</i> | 2.1 | -- | 6.5 | -- | 8.7 | -- | 8.2 | -- | 8.8 | -- | 10.7 | -- | 5.9 | -- |

* Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

** Returns are one-quarter lag.

*** Funded July 2017.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | Rank | YTD (%) | Rank | 1 Yr (%) | Rank | 2 Yrs (%) | Rank | 3 Yrs (%) | Rank | 5 Yrs (%) | Rank | 10 Yrs (%) | Rank |
|--|----------|------|---------|------|----------|------|-----------|------|-----------|------|-----------|------|------------|------|
| Private Real Asset** | 0.6 | -- | 0.3 | -- | -2.2 | -- | -1.3 | -- | 10.1 | -- | -- | -- | -- | -- |
| <i>Blended Private Real Asset Index¹</i> | 4.4 | -- | -3.0 | -- | 1.2 | -- | 5.0 | -- | 5.6 | -- | -- | -- | -- | -- |
| <i>Blended Secondary CA Private RA Index¹</i> | 2.2 | -- | 7.9 | -- | 11.2 | -- | 12.2 | -- | 7.9 | -- | -- | -- | -- | -- |
| Liquid Real Asset | -1.5 | -- | -1.7 | -- | 2.8 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>Blended Liquid Real Asset Index¹</i> | -1.5 | -- | -2.3 | -- | 1.9 | -- | 5.3 | -- | 5.8 | -- | -- | -- | -- | -- |
| Cushing MLP Alpha TR*** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>50% BBgBarc US TIPS/ 50% Blended LRA Index</i> | -1.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>Alerian MLP TR USD</i> | 6.6 | -- | 5.9 | -- | 4.9 | -- | 0.5 | -- | 4.4 | -- | -2.7 | -- | 9.2 | -- |
| SSgA Custom Real Asset | -1.1 | -- | -1.3 | -- | 3.2 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| <i>Blended Liquid Real Asset Index¹</i> | -1.5 | -- | -2.3 | -- | 1.9 | -- | 5.3 | -- | 5.8 | -- | -- | -- | -- | -- |
| TIPS | -0.3 | -- | 0.1 | -- | 1.3 | -- | 1.0 | -- | 2.4 | -- | 1.1 | -- | -- | -- |
| <i>BBgBarc US TIPS TR</i> | -0.8 | -- | -0.8 | -- | 0.4 | -- | -0.2 | -- | 2.0 | -- | 1.4 | -- | 3.3 | -- |
| Brown Brothers Harriman | -0.3 | 7 | 0.1 | 8 | 1.3 | 10 | 1.0 | 13 | 2.4 | 26 | 1.1 | 65 | -- | -- |
| <i>BBgBarc US TIPS TR</i> | -0.8 | 63 | -0.8 | 45 | 0.4 | 40 | -0.2 | 41 | 2.0 | 47 | 1.4 | 37 | 3.3 | 52 |
| <i>eV US TIPS / Inflation Fixed Inc Net Median</i> | -0.7 | | -0.9 | | 0.4 | | -0.2 | | 2.0 | | 1.2 | | 3.4 | |
| Cash | 0.1 | -- | 0.6 | -- | 0.9 | -- | 0.9 | -- | 1.1 | -- | 0.8 | -- | 0.9 | -- |
| <i>91 Day T-Bills</i> | 0.5 | -- | 1.3 | -- | 1.6 | -- | 1.2 | -- | 0.9 | -- | 0.5 | -- | 0.3 | -- |
| General Account | 0.8 | -- | 2.3 | -- | 3.1 | -- | 2.2 | -- | 2.2 | -- | 1.5 | -- | 0.9 | -- |
| Treasury & LAIF | 1.3 | -- | 4.0 | -- | 4.2 | -- | 2.5 | -- | 1.9 | -- | 1.6 | -- | 1.3 | -- |
| <i>91 Day T-Bills</i> | 0.5 | -- | 1.3 | -- | 1.6 | -- | 1.2 | -- | 0.9 | -- | 0.5 | -- | 0.3 | -- |

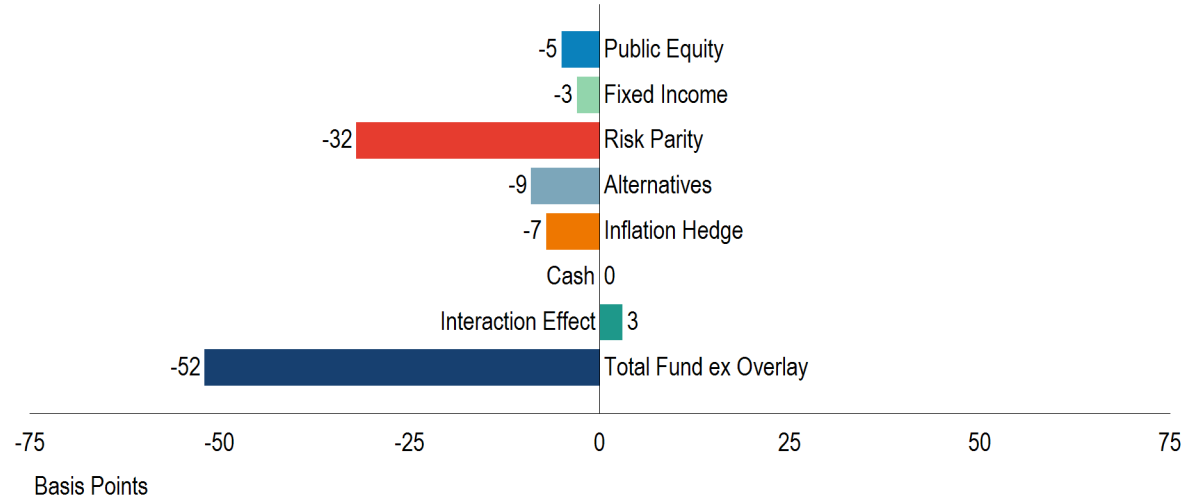
** Returns are one-quarter lag.

***Funded July 2018

1. See Appendix for Benchmark History.

Total Fund ex Overlay
Performance Attribution

Period Ending: September 30, 2018

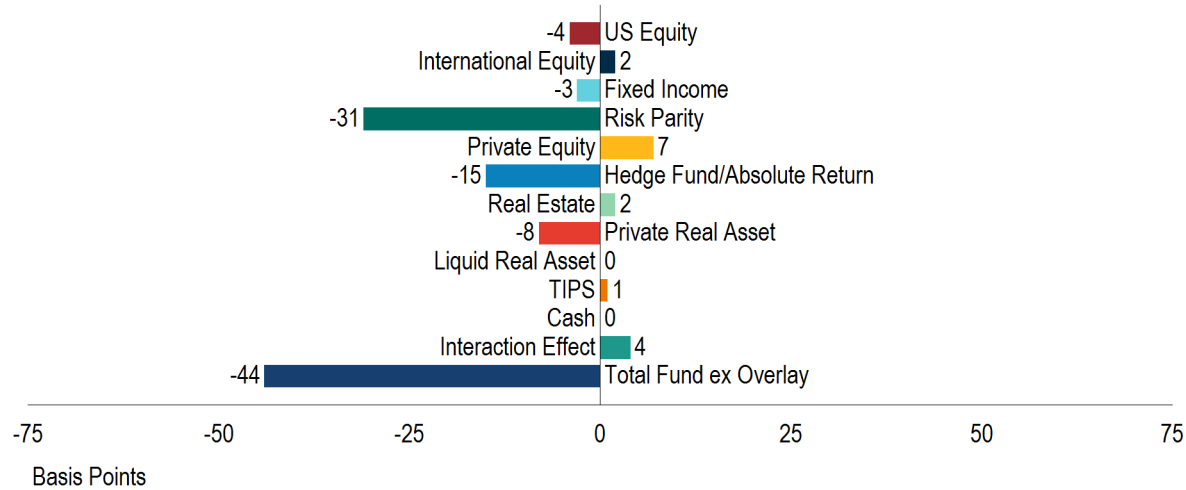


| | Wtd. Actual Return | Wtd. Index Return | Excess Return | Selection Effect | Allocation Effect | Interaction* | Total Effects |
|-----------------|--------------------|-------------------|---------------|------------------|-------------------|--------------|---------------|
| Public Equity | 3.97% | 4.11% | -0.14% | -0.05% | 0.03% | 0.00% | -0.03% |
| Fixed Income | 0.63% | 0.76% | -0.13% | -0.03% | 0.01% | 0.00% | -0.02% |
| Risk Parity | -0.94% | 2.95% | -3.89% | -0.32% | 0.00% | 0.02% | -0.30% |
| Alternatives | 2.10% | 2.82% | -0.72% | -0.09% | -0.01% | 0.01% | -0.08% |
| Inflation Hedge | 0.45% | 0.82% | -0.37% | -0.07% | 0.01% | 0.00% | -0.06% |
| Cash | 0.14% | 0.49% | -0.35% | 0.00% | -0.03% | 0.00% | -0.03% |
| Total | 2.04% | 2.55% | -0.52% | -0.56% | 0.01% | 0.03% | -0.52% |

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

Total Fund ex Overlay
Performance Attribution

Period Ending: September 30, 2018

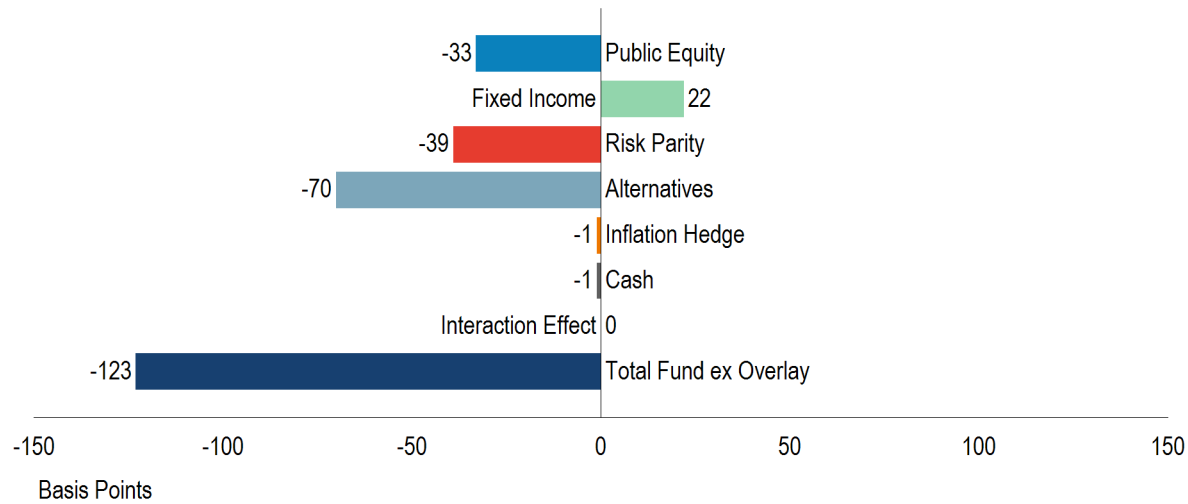


| | Wtd. Actual Return | Wtd. Index Return | Excess Return | Selection Effect | Allocation Effect | Interaction* Effects | Total Effects |
|----------------------------|-----------------------|----------------------|------------------|---------------------|----------------------|-------------------------|------------------|
| US Equity | 6.93% | 7.12% | -0.19% | -0.04% | 0.07% | 0.00% | 0.03% |
| International Equity | 0.47% | 0.39% | 0.08% | 0.02% | 0.00% | 0.00% | 0.02% |
| Fixed Income | 0.63% | 0.76% | -0.13% | -0.03% | 0.01% | 0.00% | -0.02% |
| Risk Parity | -0.94% | 2.95% | -3.89% | -0.31% | 0.00% | 0.02% | -0.30% |
| Private Equity | 4.93% | 3.91% | 1.02% | 0.07% | -0.01% | -0.01% | 0.05% |
| Hedge Fund/Absolute Return | -0.98% | 1.55% | -2.54% | -0.15% | 0.00% | 0.01% | -0.14% |
| Real Estate | 2.38% | 2.09% | 0.29% | 0.02% | 0.00% | 0.00% | 0.02% |
| Private Real Asset | 0.60% | 4.42% | -3.82% | -0.08% | -0.01% | 0.02% | -0.07% |
| Liquid Real Asset | -1.49% | -1.53% | 0.03% | 0.00% | -0.04% | 0.00% | -0.03% |
| TIPS | -0.33% | -0.82% | 0.49% | 0.01% | 0.01% | 0.00% | 0.02% |
| Cash | 0.14% | 0.49% | -0.35% | 0.00% | -0.02% | 0.00% | -0.03% |
| Total | 2.04% | 2.48% | -0.44% | -0.49% | 0.01% | 0.04% | -0.44% |

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: September 30, 2018

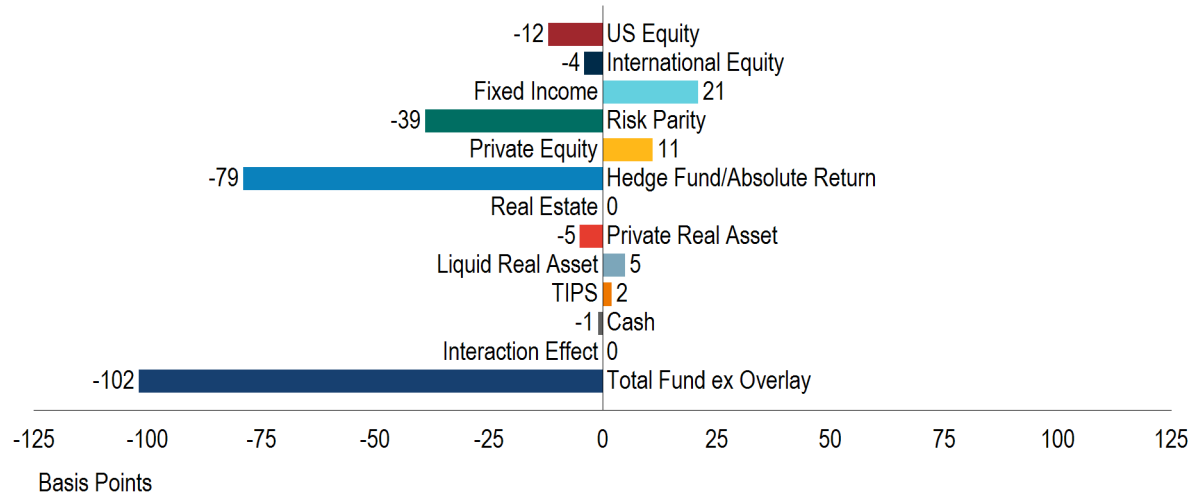


| | Wtd. Actual Return | Wtd. Index Return | Excess Return | Selection Effect | Allocation Effect | Interaction * Effects | Total Effects |
|-----------------|-----------------------|----------------------|------------------|---------------------|----------------------|--------------------------|------------------|
| Public Equity | 9.70% | 10.48% | -0.78% | -0.33% | 0.00% | 0.00% | -0.33% |
| Fixed Income | 0.50% | -0.50% | 1.00% | 0.22% | 0.00% | 0.00% | 0.22% |
| Risk Parity | 1.89% | 7.05% | -5.16% | -0.39% | 0.00% | 0.00% | -0.39% |
| Alternatives | 3.06% | 9.11% | -6.05% | -0.70% | 0.00% | 0.00% | -0.70% |
| Inflation Hedge | 4.69% | 4.72% | -0.03% | -0.01% | 0.00% | 0.00% | -0.01% |
| Cash | 0.90% | 1.64% | -0.74% | -0.01% | 0.00% | 0.00% | -0.01% |
| Total | 5.48% | 6.71% | -1.23% | -1.23% | 0.00% | 0.00% | -1.23% |

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: September 30, 2018



| | Wtd. Actual Return | Wtd. Index Return | Excess Return | Selection Effect | Allocation Effect | Interaction * | Total Effects |
|----------------------------|--------------------|-------------------|---------------|------------------|-------------------|---------------|---------------|
| US Equity | 17.05% | 17.58% | -0.53% | -0.12% | 0.00% | 0.00% | -0.12% |
| International Equity | 1.58% | 1.79% | -0.20% | -0.04% | 0.00% | 0.00% | -0.04% |
| Fixed Income | 0.50% | -0.50% | 1.00% | 0.21% | 0.00% | 0.00% | 0.21% |
| Risk Parity | 1.89% | 7.05% | -5.16% | -0.39% | 0.00% | 0.00% | -0.39% |
| Private Equity | 13.94% | 11.74% | 2.19% | 0.11% | 0.00% | 0.00% | 0.11% |
| Hedge Fund/Absolute Return | -7.15% | 5.83% | -12.97% | -0.79% | 0.00% | 0.00% | -0.79% |
| Real Estate | 8.67% | 8.68% | -0.01% | 0.00% | 0.00% | 0.00% | 0.00% |
| Private Real Asset | -2.18% | 1.23% | -3.42% | -0.05% | 0.00% | 0.00% | -0.05% |
| Liquid Real Asset | 2.77% | 1.95% | 0.82% | 0.05% | 0.00% | 0.00% | 0.05% |
| TIPS | 1.34% | 0.41% | 0.93% | 0.02% | 0.00% | 0.00% | 0.02% |
| Cash | 0.90% | 1.64% | -0.74% | -0.01% | 0.00% | 0.00% | -0.01% |
| Total | 5.48% | 6.50% | -1.02% | -1.02% | 0.00% | 0.00% | -1.02% |

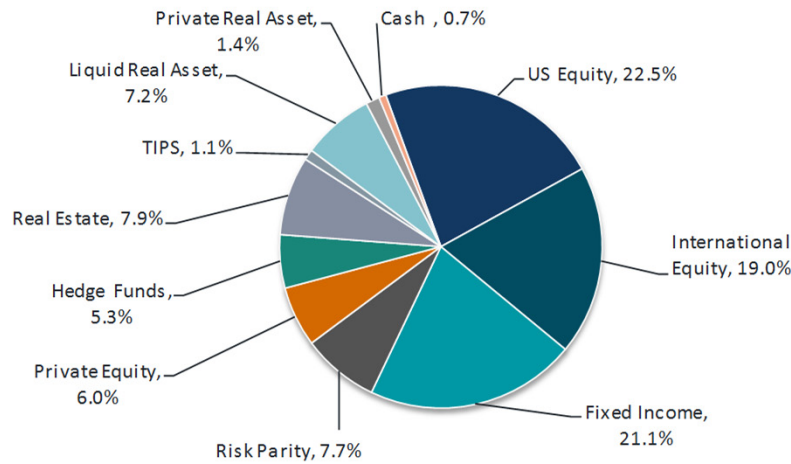
Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund

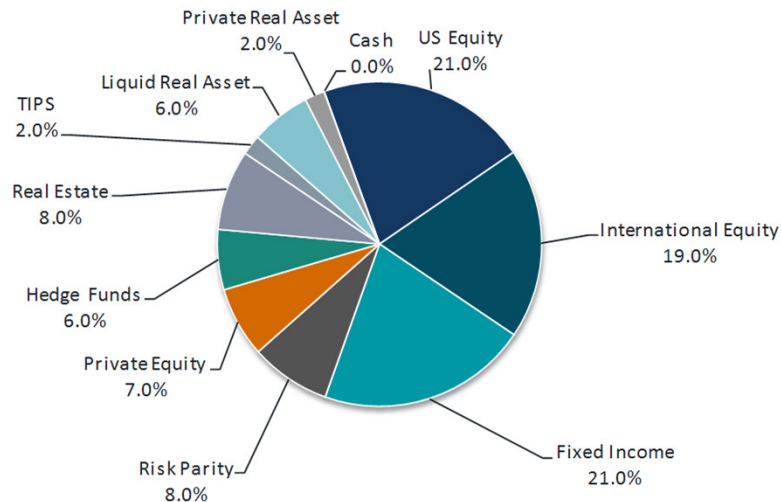
Asset Allocation Analysis

Period Ending: September 30, 2018

Current w/Overlay



Target

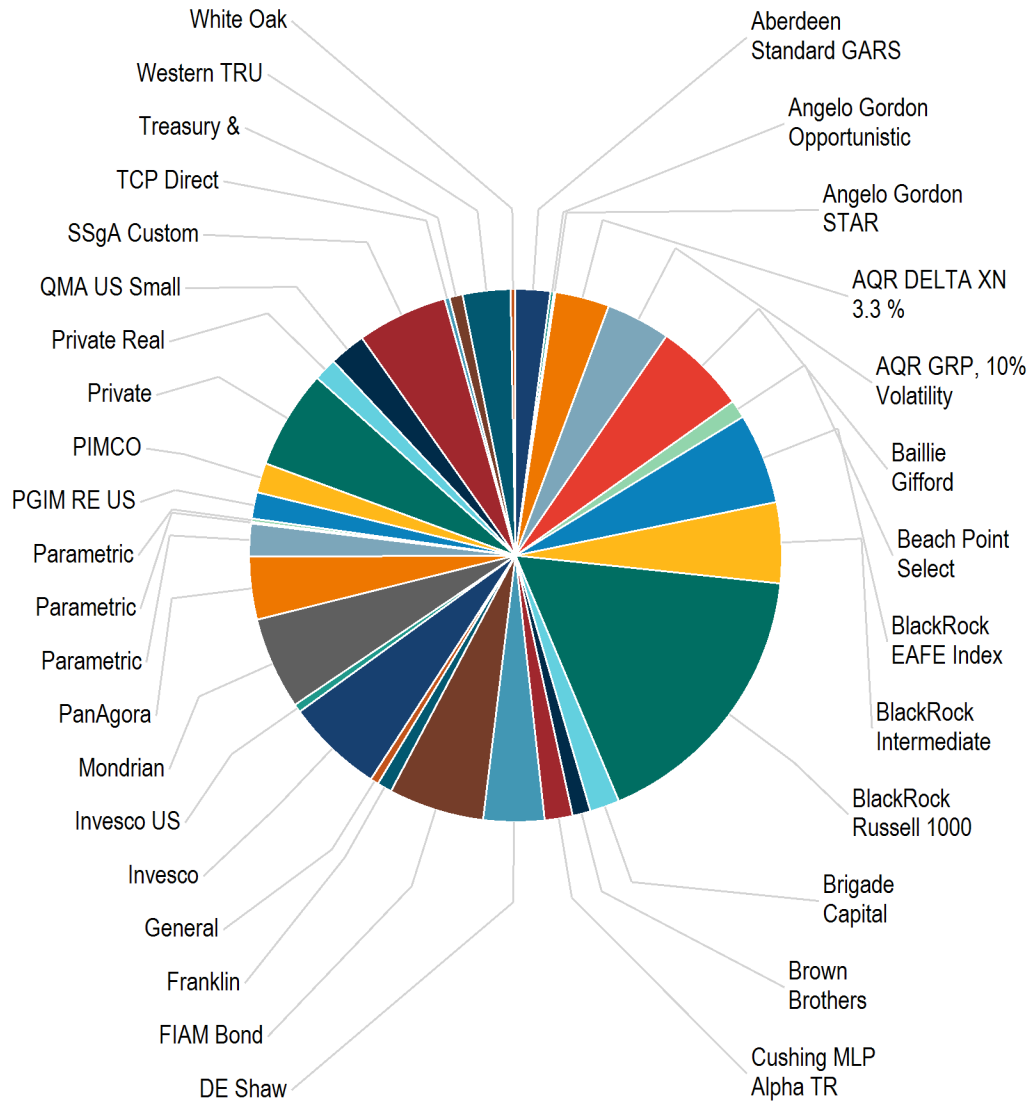


| ASSET ALLOCATION | MARKET VALUE | | |
|----------------------|----------------------|---------------|---------------|
| | W/OVERLAY | W/OVERLAY | W/O OVERLAY |
| US Equity | 1,014,443,683 | 22.5% | 23.0% |
| International Equity | 854,262,582 | 19.0% | 18.7% |
| Fixed Income | 949,352,274 | 21.1% | 20.1% |
| Risk Parity | 347,795,044 | 7.7% | 7.7% |
| Private Equity | 272,007,450 | 6.0% | 6.0% |
| Hedge Funds | 240,100,668 | 5.3% | 5.3% |
| Real Estate | 356,338,019 | 7.9% | 7.9% |
| TIPS | 47,585,201 | 1.1% | 1.1% |
| Liquid Real Asset | 323,169,064 | 7.2% | 7.2% |
| Private Real Asset | 62,171,795 | 1.4% | 1.4% |
| Cash | 31,907,671 | 0.7% | 1.5% |
| TOTAL | 4,499,133,451 | 100.0% | 100.0% |

| ASSET ALLOCATION | W/OVERLAY | TARGET | DIFF |
|----------------------|---------------|---------------|-------------|
| US Equity | 22.5% | 21.0% | 1.5% |
| International Equity | 19.0% | 19.0% | 0.0% |
| Fixed Income | 21.1% | 21.0% | 0.1% |
| Risk Parity | 7.7% | 8.0% | -0.3% |
| Private Equity | 6.0% | 7.0% | -1.0% |
| Hedge Funds | 5.3% | 6.0% | -0.7% |
| Real Estate | 7.9% | 8.0% | -0.1% |
| TIPS | 1.1% | 2.0% | -0.9% |
| Liquid Real Asset | 7.2% | 6.0% | 1.2% |
| Private Real Asset | 1.4% | 2.0% | -0.6% |
| Cash | 0.7% | 0.0% | 0.7% |
| TOTAL | 100.0% | 100.0% | 0.0% |

Total Fund Manager Allocation Analysis

Period Ending: September 30, 2018



| | Actual | Actual |
|--------------------------------|------------------------|-------------|
| Aberdeen Standard GARS | \$93,660,279 | 2% |
| Angelo Gordon Opportunistic | \$7,215,000 | 0% |
| Angelo Gordon STAR | \$6,594,100 | 0% |
| AQR DELTA XN | \$146,440,389 | 3% |
| AQR GRP, 10% Volatility | \$176,834,984 | 4% |
| Baillie Gifford | \$251,983,073 | 6% |
| Beach Point Select | \$50,850,522 | 1% |
| BlackRock EAFE Index | \$245,311,092 | 5% |
| BlackRock Intermediate Govt | \$219,692,433 | 5% |
| BlackRock Russell 1000 | \$767,050,962 | 17% |
| Brigade Capital | \$79,075,925 | 2% |
| Brown Brothers Harriman | \$47,585,201 | 1% |
| Cushing MLP Alpha TR | \$77,645,181 | 2% |
| DE Shaw | \$168,048,065 | 4% |
| FIAM Bond | \$260,531,458 | 6% |
| Franklin Templeton | \$40,180,366 | 1% |
| General Account | \$20,540,684 | 0% |
| Invesco | \$264,554,452 | 6% |
| Invesco US Val IV | \$21,644,473 | 0% |
| Mondrian | \$249,756,983 | 6% |
| PanAgora | \$170,960,060 | 4% |
| Parametric Core | \$88,032,448 | 2% |
| Parametric Currency Overlay | \$6,510,585 | 0% |
| Parametric Minneapolis Overlay | \$11,066,366 | 0% |
| PGIM RE US Debt Fund | \$70,139,094 | 2% |
| PIMCO Diversified | \$81,104,876 | 2% |
| Private Equity | \$272,007,450 | 6% |
| Private Real Asset | \$62,171,795 | 1% |
| QMA US Small Cap | \$100,394,672 | 2% |
| SSgA Custom Real Asset | \$245,523,883 | 5% |
| TCP Direct Lending VIII | \$14,893,759 | 0% |
| Transition 3 | \$99 | 0% |
| Treasury & LAIF | \$36,699,221 | 1% |
| Western TRU | \$128,715,909 | 3% |
| White Oak Yield | \$15,717,612 | 0% |
| Total | \$4,499,133,451 | 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 | 9.2% | 58 | 5.3% | 61 | 1.6 | 74 | -0.8 | 87 | 1.1% | 54 |
| Policy Index | 10.0% | 24 | 5.7% | 83 | 1.6 | 64 | -- | -- | 0.0% | 1 |
| InvestorForce Public DB > \$1B Net Median | 9.3% | -- | 5.0% | -- | 1.7 | -- | -0.1 | -- | 1.0% | -- |

Statistics Summary

5 Years

| | Anlzd Return | Anlzd Return Rank | Anlzd Standard Deviation | Anlzd Standard Deviation Rank | Sharpe Ratio | Sharpe Ratio Rank | Information Ratio | Information Ratio Rank | Tracking Error | Tracking Error Rank |
|---|--------------|-------------------|--------------------------|-------------------------------|--------------|-------------------|-------------------|------------------------|----------------|---------------------|
| Total Fund | 7.4% | 41 | 5.7% | 68 | 1.2 | 51 | -0.2 | 65 | 1.0% | 40 |
| Policy Index | 7.6% | 37 | 6.1% | 82 | 1.2 | 58 | -- | -- | 0.0% | 1 |
| InvestorForce Public DB > \$1B Net Median | 7.1% | -- | 5.4% | -- | 1.2 | -- | 0.0 | -- | 1.1% | -- |

Statistics Summary

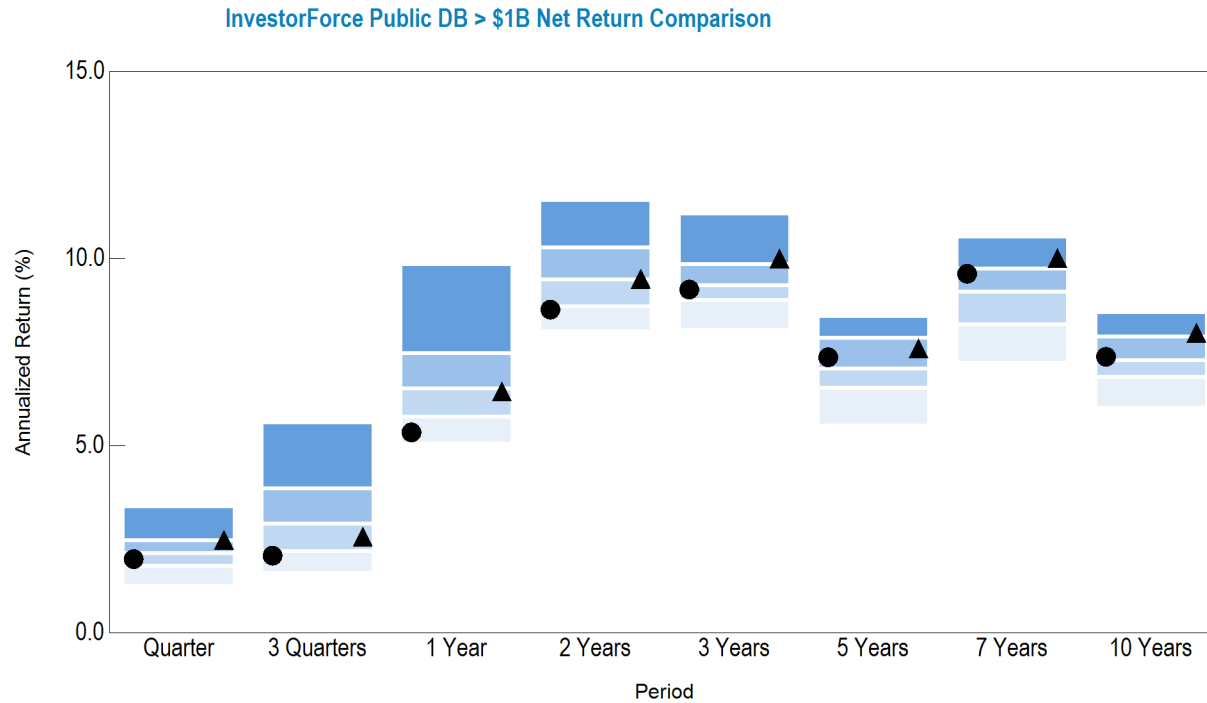
3 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|-----------------|--------------|--------------------------|--------------|-------------------|----------------|
| Cash | 1.1% | 0.4% | 0.5 | 0.5 | 0.4% |
| 91 Day T-Bills | 0.9% | 0.2% | 0.0 | -- | 0.0% |
| General Account | 2.2% | 0.7% | 2.0 | 2.0 | 0.6% |
| 91 Day T-Bills | 0.9% | 0.2% | 0.0 | -- | 0.0% |
| Treasury & LAIF | 1.9% | 1.0% | 1.0 | 1.1 | 1.0% |
| 91 Day T-Bills | 0.9% | 0.2% | 0.0 | -- | 0.0% |

Statistics Summary

5 Years

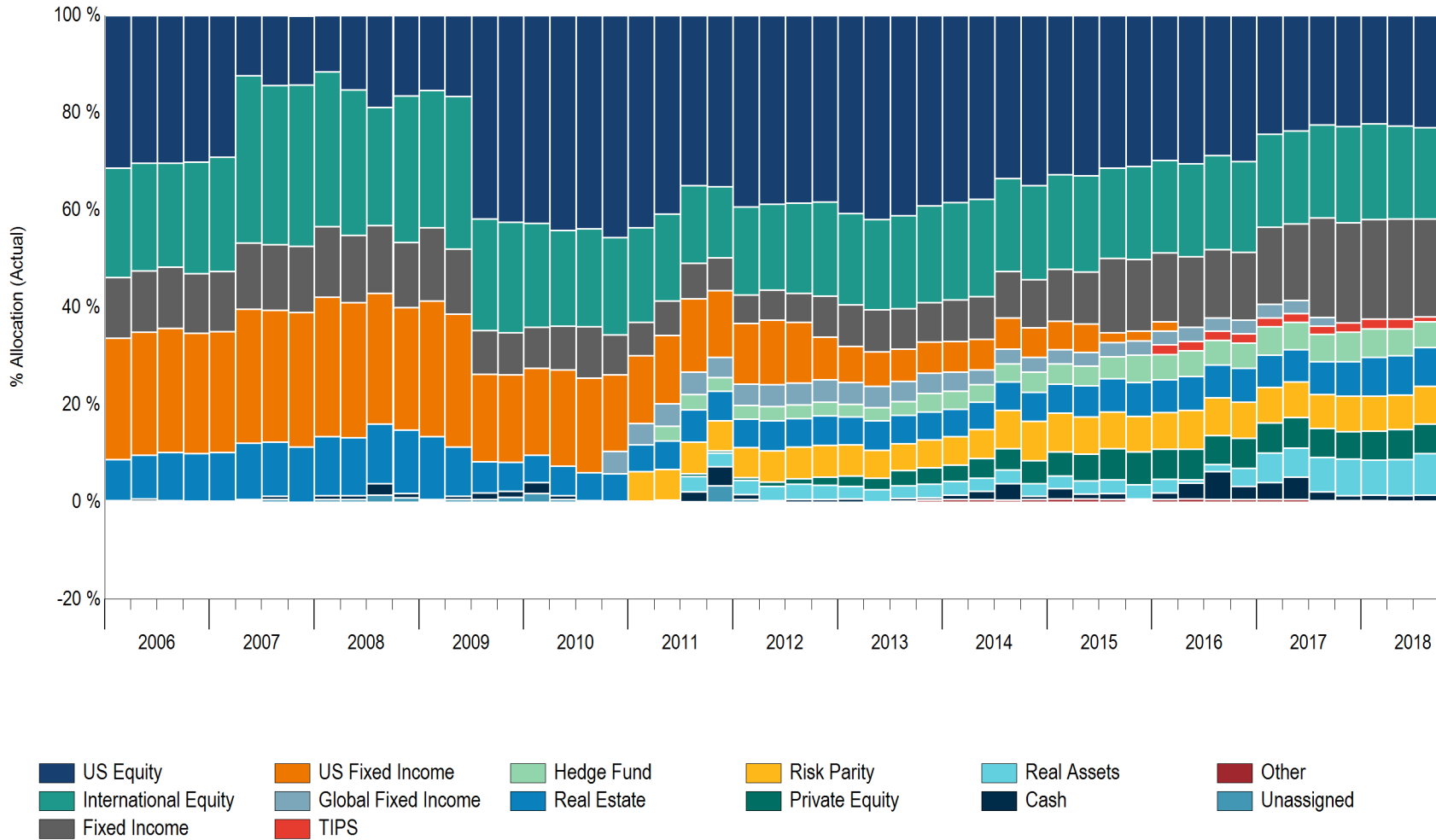
| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|-----------------|--------------|--------------------------|--------------|-------------------|----------------|
| Cash | 0.8% | 0.3% | 1.0 | 0.9 | 0.3% |
| 91 Day T-Bills | 0.5% | 0.2% | 0.0 | -- | 0.0% |
| General Account | 1.5% | 0.6% | 1.8 | 1.9 | 0.5% |
| 91 Day T-Bills | 0.5% | 0.2% | 0.0 | -- | 0.0% |
| Treasury & LAIF | 1.6% | 0.9% | 1.2 | 1.2 | 0.8% |
| 91 Day T-Bills | 0.5% | 0.2% | 0.0 | -- | 0.0% |

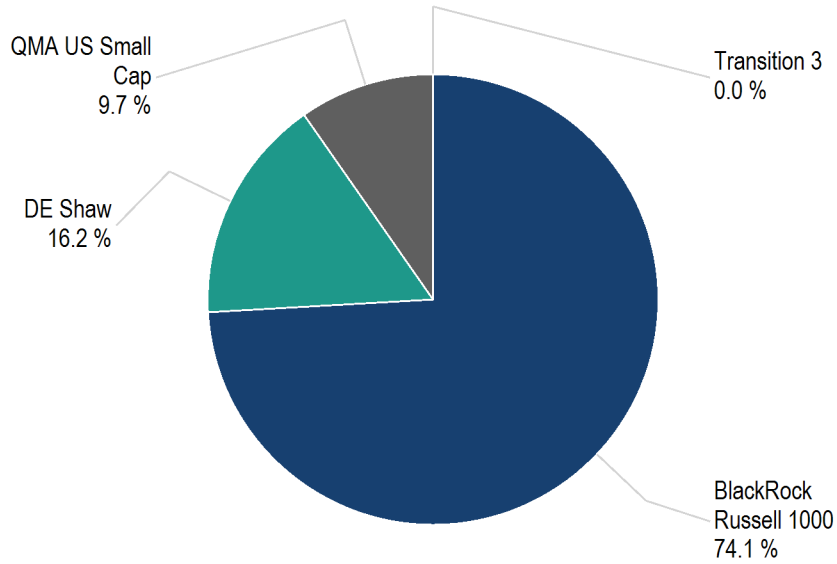


| | Return (Rank) | | | | | | | |
|------------------------|---------------|------------|----------|----------|-----------|----------|-----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 3.4 | 5.6 | 9.8 | 11.6 | 11.2 | 8.5 | 10.6 | 8.6 |
| 25th Percentile | 2.5 | 3.9 | 7.5 | 10.3 | 9.9 | 7.9 | 9.7 | 7.9 |
| Median | 2.1 | 2.9 | 6.5 | 9.5 | 9.3 | 7.1 | 9.1 | 7.3 |
| 75th Percentile | 1.8 | 2.2 | 5.8 | 8.7 | 8.9 | 6.6 | 8.2 | 6.9 |
| 95th Percentile | 1.3 | 1.6 | 5.1 | 8.1 | 8.1 | 5.5 | 7.2 | 6.0 |
| # of Portfolios | 63 | 62 | 62 | 62 | 62 | 60 | 58 | 53 |
| ● Total Fund | 2.0 (63) | 2.1 (84) | 5.4 (89) | 8.6 (81) | 9.2 (58) | 7.4 (41) | 9.6 (30) | 7.4 (47) |
| ▲ Policy Index | 2.5 (25) | 2.6 (65) | 6.5 (53) | 9.5 (50) | 10.0 (24) | 7.6 (37) | 10.0 (19) | 8.0 (21) |

Total Fund
Asset Allocation History

Period Ending: September 30, 2018





| | Actual \$ | Actual % | Manager Contribution to Excess Return % |
|-------------------------------------|------------------------|---------------|---|
| BlackRock Russell 1000 | \$767,050,962 | 74.1% | 0.0% |
| DE Shaw | \$168,048,065 | 16.2% | 0.0% |
| QMA US Small Cap | \$100,394,672 | 9.7% | 0.0% |
| Transition Account | \$99 | 0.0% | 0.0% |
| Actual vs. Policy Weight Difference | | | -0.1% |
| Total | \$1,035,493,798 | 100.0% | -0.2% |

Statistics Summary

3 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|-------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| US Equity | 16.5% | 9.2% | 1.7 | -0.7 | 0.7% |
| Blended US Equity Index | 17.0% | 9.4% | 1.7 | -- | 0.0% |
| Russell 3000 | 17.1% | 9.3% | 1.7 | 0.2 | 0.4% |

Statistics Summary

3 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Large Cap Equity | 17.4% | 9.2% | 1.8 | 0.3 | 1.1% |
| Russell 1000 | 17.1% | 9.2% | 1.8 | -- | 0.0% |
| DE Shaw | 18.7% | 9.4% | 1.9 | 0.7 | 2.2% |
| Russell 1000 | 17.1% | 9.2% | 1.8 | -- | 0.0% |
| Small Cap Equity | 14.6% | 12.8% | 1.1 | -1.0 | 2.6% |
| Russell 2000 | 17.1% | 13.1% | 1.2 | -- | 0.0% |

Statistics Summary

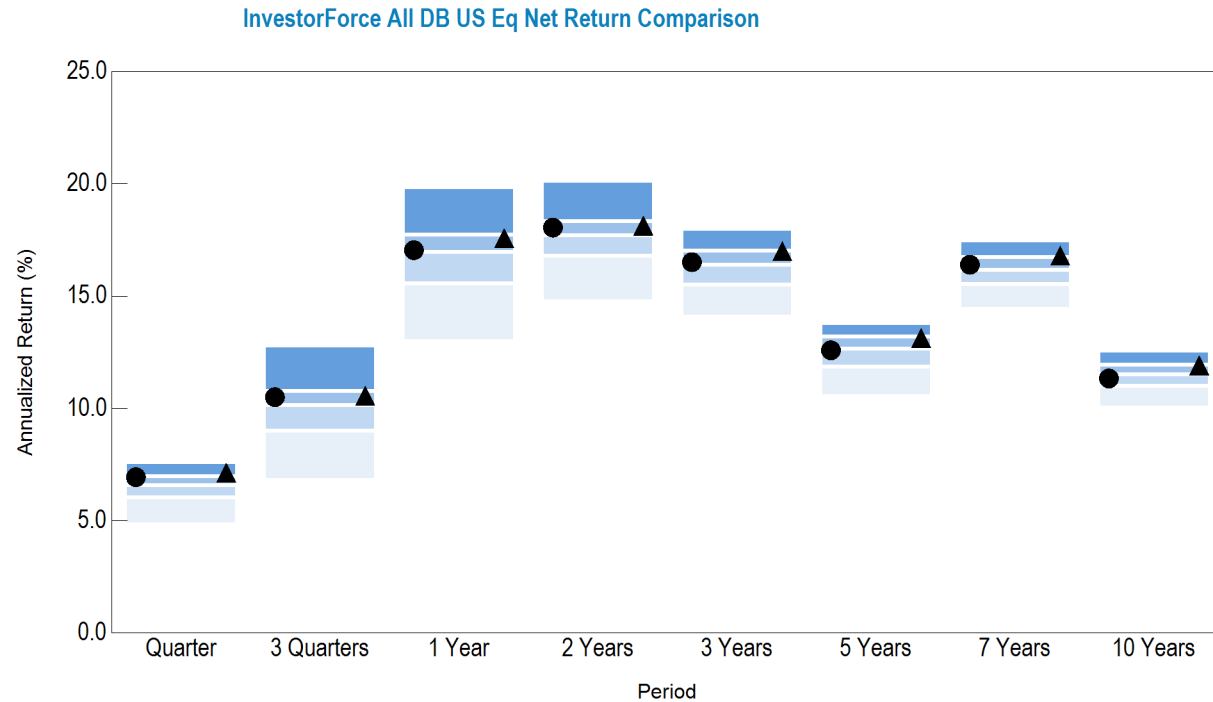
5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|-------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| US Equity | 12.6% | 9.6% | 1.3 | -0.8 | 0.7% |
| Blended US Equity Index | 13.1% | 9.8% | 1.3 | -- | 0.0% |
| Russell 3000 | 13.5% | 9.7% | 1.3 | 0.4 | 0.7% |

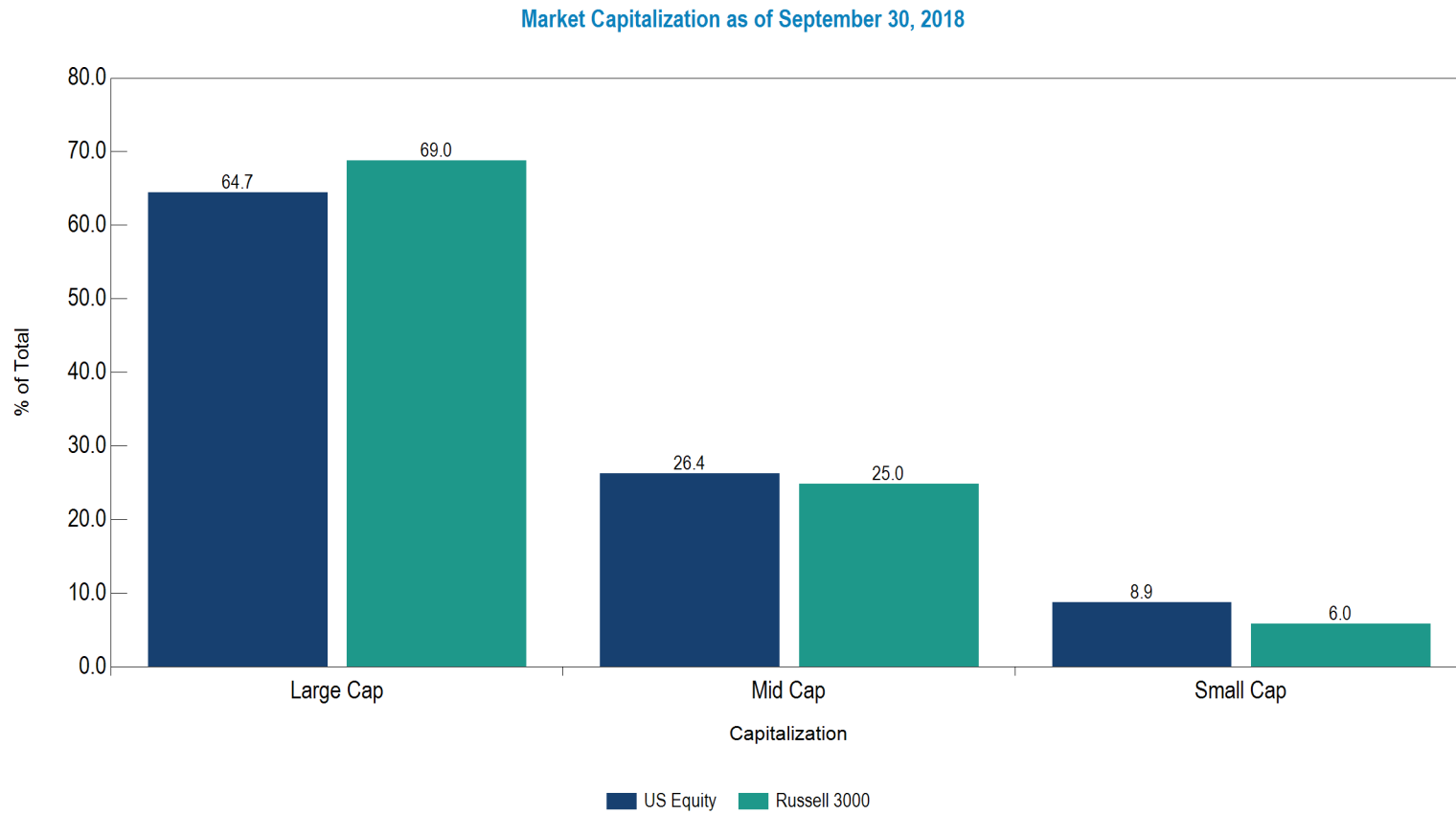
Statistics Summary

5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Large Cap Equity | 13.8% | 9.5% | 1.4 | 0.1 | 1.0% |
| Russell 1000 | 13.7% | 9.6% | 1.4 | -- | 0.0% |
| DE Shaw | 14.9% | 9.7% | 1.5 | 0.6 | 2.2% |
| Russell 1000 | 13.7% | 9.6% | 1.4 | -- | 0.0% |
| Small Cap Equity | 8.7% | 12.9% | 0.6 | -1.0 | 2.5% |
| Russell 2000 | 11.1% | 13.5% | 0.8 | -- | 0.0% |



| | Return (Rank) | | | | | | | |
|---------------------------|---------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 7.6 | 12.8 | 19.9 | 20.1 | 18.0 | 13.8 | 17.5 | 12.6 |
| 25th Percentile | 7.0 | 10.8 | 17.7 | 18.3 | 17.0 | 13.2 | 16.7 | 12.0 |
| Median | 6.6 | 10.2 | 17.0 | 17.7 | 16.4 | 12.7 | 16.2 | 11.5 |
| 75th Percentile | 6.0 | 9.0 | 15.6 | 16.8 | 15.5 | 11.9 | 15.6 | 11.0 |
| 95th Percentile | 4.9 | 6.8 | 13.0 | 14.8 | 14.1 | 10.6 | 14.5 | 10.1 |
| # of Portfolios | 619 | 616 | 612 | 597 | 590 | 538 | 452 | 346 |
| ● US Equity | 6.9 (28) | 10.5 (43) | 17.0 (48) | 18.1 (42) | 16.5 (47) | 12.6 (54) | 16.4 (42) | 11.3 (60) |
| ▲ Blended US Equity Index | 7.1 (16) | 10.6 (36) | 17.6 (31) | 18.1 (34) | 17.0 (27) | 13.1 (31) | 16.8 (23) | 11.9 (30) |



See appendix for the market capitalization breakpoints.

Characteristics

| | Portfolio | Russell 3000 |
|---------------------------------|-----------|--------------|
| Number of Holdings | 2,667 | 3,024 |
| Weighted Avg. Market Cap. (\$B) | 178.0 | 191.0 |
| Median Market Cap. (\$B) | 3.0 | 1.8 |
| Price To Earnings | 30.9 | 24.1 |
| Price To Book | 6.4 | 4.9 |
| Price To Sales | 4.1 | 4.1 |
| Return on Equity (%) | 23.0 | 20.2 |
| Yield (%) | 1.7 | 1.8 |
| Beta (holdings; domestic) | 1.1 | 1.1 |

Top Holdings

| | |
|------------------------|------|
| APPLE | 3.7% |
| AMAZON.COM | 2.8% |
| MICROSOFT | 2.4% |
| ALPHABET A | 1.2% |
| BERKSHIRE HATHAWAY 'B' | 1.1% |
| FACEBOOK CLASS A | 1.1% |
| JP MORGAN CHASE & CO. | 1.0% |
| JOHNSON & JOHNSON | 1.0% |
| ALPHABET 'C' | 1.0% |
| EXXON MOBIL | 1.0% |

Best Performers

| | Return % |
|---|----------|
| AFFIMED (AFMD) | 163.6% |
| CAREDX (CDNA) | 135.7% |
| RADISYS (RSYS) | 133.2% |
| AEGEAN MARINE PETROLEUM NETWORK (ANWWQ) | 115.8% |
| ADVANCED MICRO DEVICES (AMD) | 106.1% |
| RIGNET (RNET) | 97.6% |
| AVID BIOSERVICES (CDMO) | 96.0% |
| TANDEM DIABETES CARE (TNDM) | 94.6% |
| INSEEGO (INSG) | 91.5% |
| LSB INDUSTRIES (LXU) | 84.5% |

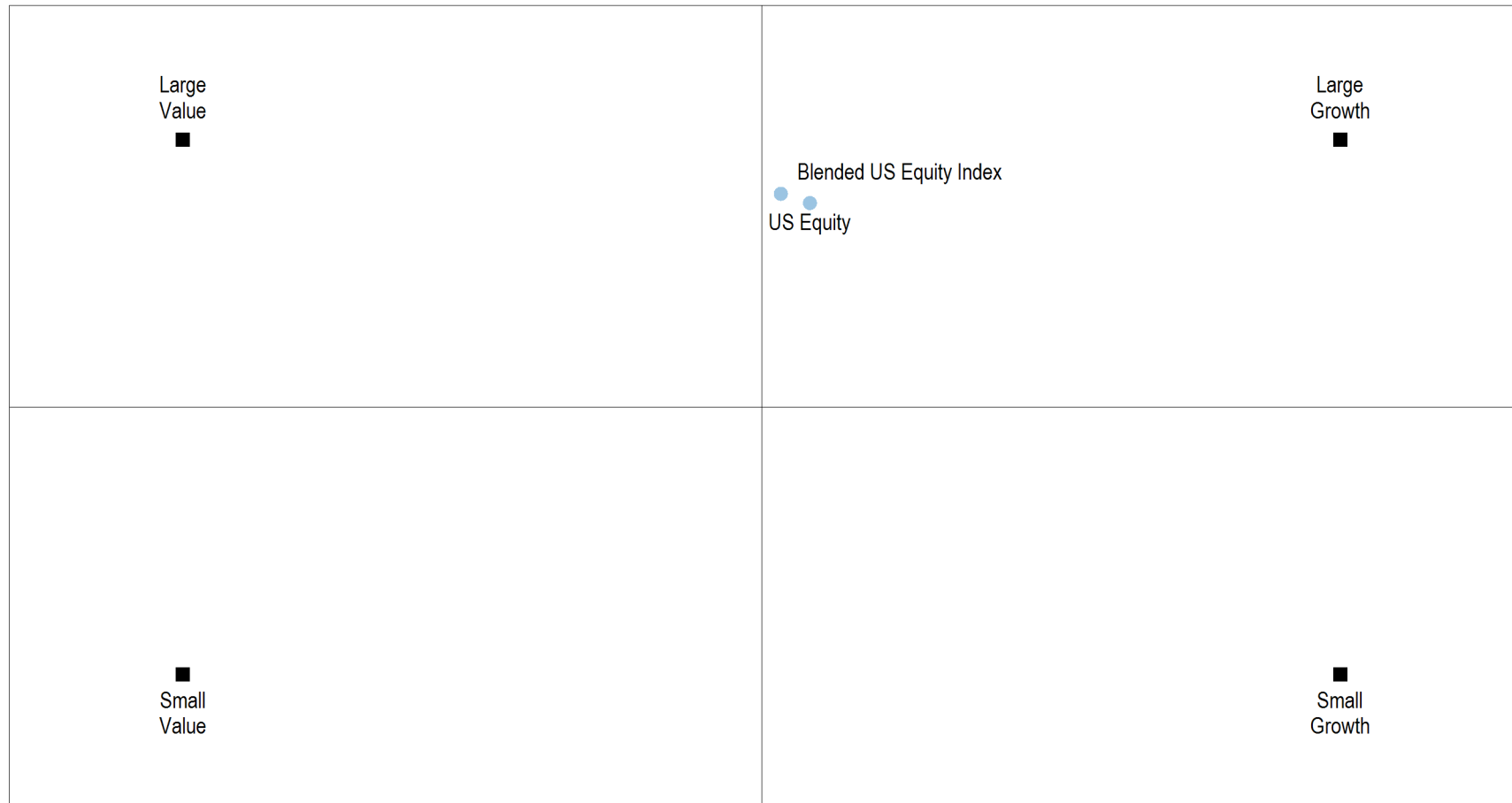
Worst Performers

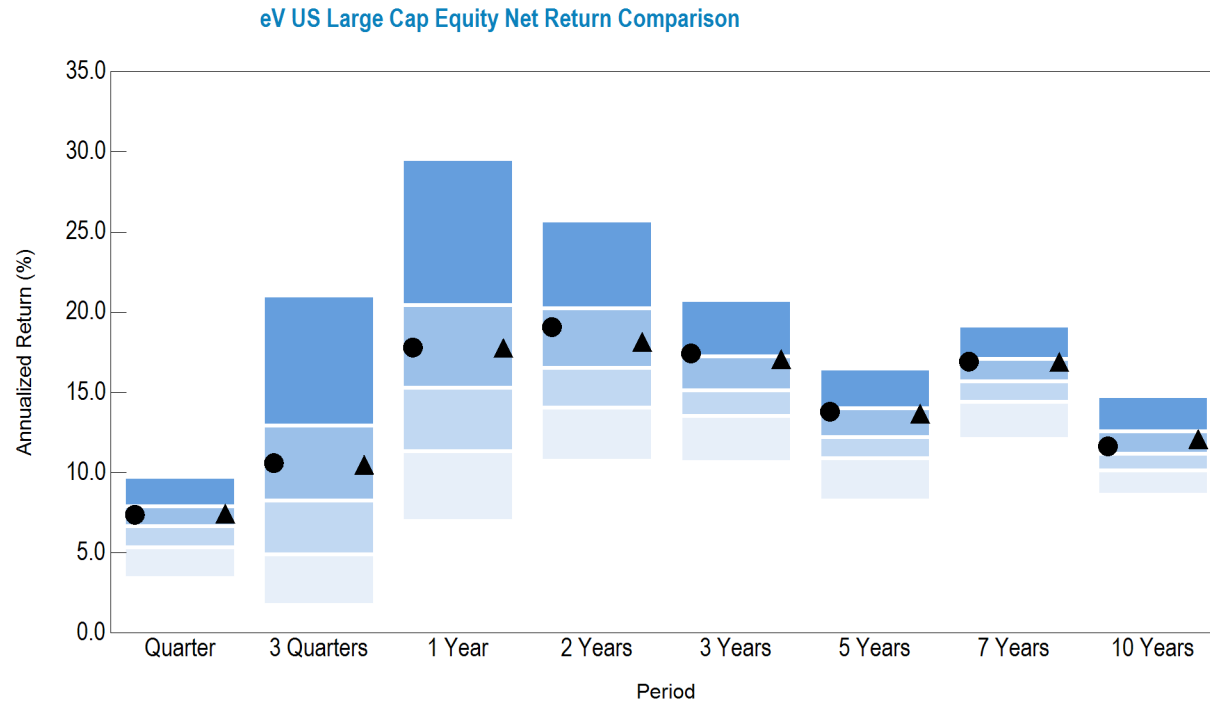
| | Return % |
|--------------------------------|----------|
| GTX (GTXI) | -89.7% |
| GASTAR EXPLORATION (GSTCQ) | -86.3% |
| EGALET (EGLTQ) | -70.6% |
| REGULUS THERAPEUTICS (RGLS) | -70.0% |
| ENDOLOGIX (ELGX) | -66.3% |
| LANNETT (LCI) | -65.1% |
| MAIDEN HOLDINGS (MHLD) | -62.6% |
| NEW GOLD (C:NGD) | -62.1% |
| PERNIX THERP.HDG. (PTX) | -60.4% |
| ROADRUNNER TRSP.SYSTEMS (RRTS) | -60.0% |

US Equity Performance Attribution vs. Russell 3000

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|-------------|-----------|----------------|-------------|-------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.0% | 0.0% | 0.0% | 0.0% | 1.1% | 0.6% | 6.1% | 5.9% | | | |
| Materials | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% | 0.1% | 3.2% | 3.1% | | | |
| Industrials | 0.0% | 0.0% | 0.0% | 0.0% | 9.0% | 9.1% | 10.7% | 10.3% | | | |
| Consumer Discretionary | -0.1% | -0.1% | 0.0% | 0.0% | 5.6% | 6.6% | 13.3% | 13.1% | | | |
| Consumer Staples | 0.0% | 0.0% | 0.0% | 0.0% | 5.3% | 5.3% | 5.9% | 6.2% | | | |
| Health Care | 0.0% | 0.0% | 0.0% | 0.0% | 13.8% | 13.7% | 13.7% | 13.8% | | | |
| Financials | 0.0% | -0.1% | 0.0% | 0.0% | 3.3% | 3.7% | 13.7% | 14.2% | | | |
| Information Technology | 0.1% | 0.0% | 0.0% | 0.0% | 9.5% | 9.3% | 25.5% | 24.8% | | | |
| Communication Services | 0.0% | 0.0% | 0.0% | 0.0% | 8.6% | 7.9% | 1.5% | 1.8% | | | |
| Utilities | 0.0% | 0.0% | 0.0% | 0.0% | 3.2% | 2.5% | 2.5% | 2.9% | | | |
| Real Estate | 0.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.4% | 3.8% | 3.8% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 0.0% | 0.0% | | | |
| Unclassified | 0.0% | 0.0% | 0.0% | 0.0% | 7.7% | -- | 0.1% | 0.0% | | | |
| Portfolio | -0.1% | = | -0.1% | + | 0.0% | + | 0.0% | 7.1% | 7.1% | 100.0% | 100.0% |

U.S. Effective Style Map





| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
|----------------------|----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Return (Rank) | | | | | | | | |
| 5th Percentile | 9.7 | 21.0 | 29.5 | 25.7 | 20.8 | 16.5 | 19.1 | 14.7 |
| 25th Percentile | 7.9 | 13.0 | 20.5 | 20.3 | 17.3 | 14.0 | 17.1 | 12.6 |
| Median | 6.7 | 8.3 | 15.3 | 16.5 | 15.1 | 12.2 | 15.7 | 11.2 |
| 75th Percentile | 5.3 | 4.9 | 11.3 | 14.1 | 13.5 | 10.9 | 14.4 | 10.1 |
| 95th Percentile | 3.4 | 1.7 | 7.0 | 10.7 | 10.7 | 8.2 | 12.1 | 8.6 |
| # of Portfolios | 584 | 583 | 582 | 575 | 562 | 537 | 476 | 428 |
| ● Large Cap Equity | 7.4 (35) | 10.6 (35) | 17.8 (37) | 19.1 (31) | 17.4 (24) | 13.8 (29) | 16.9 (29) | 11.6 (43) |
| ▲ Russell 1000 | 7.4 (34) | 10.5 (36) | 17.8 (37) | 18.2 (38) | 17.1 (27) | 13.7 (31) | 16.9 (30) | 12.1 (34) |

Characteristics

| | Portfolio | Russell 1000 |
|---------------------------------|-----------|--------------|
| Number of Holdings | 2,587 | 984 |
| Weighted Avg. Market Cap. (\$B) | 196.6 | 206.5 |
| Median Market Cap. (\$B) | 3.6 | 10.6 |
| Price To Earnings | 31.6 | 24.6 |
| Price To Book | 6.7 | 5.2 |
| Price To Sales | 4.2 | 4.3 |
| Return on Equity (%) | 23.8 | 21.6 |
| Yield (%) | 1.8 | 1.8 |
| Beta (holdings; domestic) | 1.0 | 1.0 |

Top Holdings

| | |
|------------------------|------|
| APPLE | 4.1% |
| AMAZON.COM | 3.1% |
| MICROSOFT | 2.7% |
| ALPHABET A | 1.3% |
| BERKSHIRE HATHAWAY 'B' | 1.2% |
| FACEBOOK CLASS A | 1.2% |
| JP MORGAN CHASE & CO. | 1.1% |
| JOHNSON & JOHNSON | 1.1% |
| ALPHABET 'C' | 1.1% |
| EXXON MOBIL | 1.1% |

Best Performers

| | Return % |
|---|----------|
| AFFIMED (AFMD) | 163.6% |
| CAREDX (CDNA) | 135.7% |
| RADISYS (RSYS) | 133.2% |
| AEGEAN MARINE PETROLEUM NETWORK (ANWWQ) | 115.8% |
| ADVANCED MICRO DEVICES (AMD) | 106.1% |
| RIGNET (RNET) | 97.6% |
| AVID BIOSERVICES (CDMO) | 96.0% |
| TANDEM DIABETES CARE (TNDM) | 94.6% |
| INSEEGO (INSG) | 91.5% |
| LSB INDUSTRIES (LXU) | 84.5% |

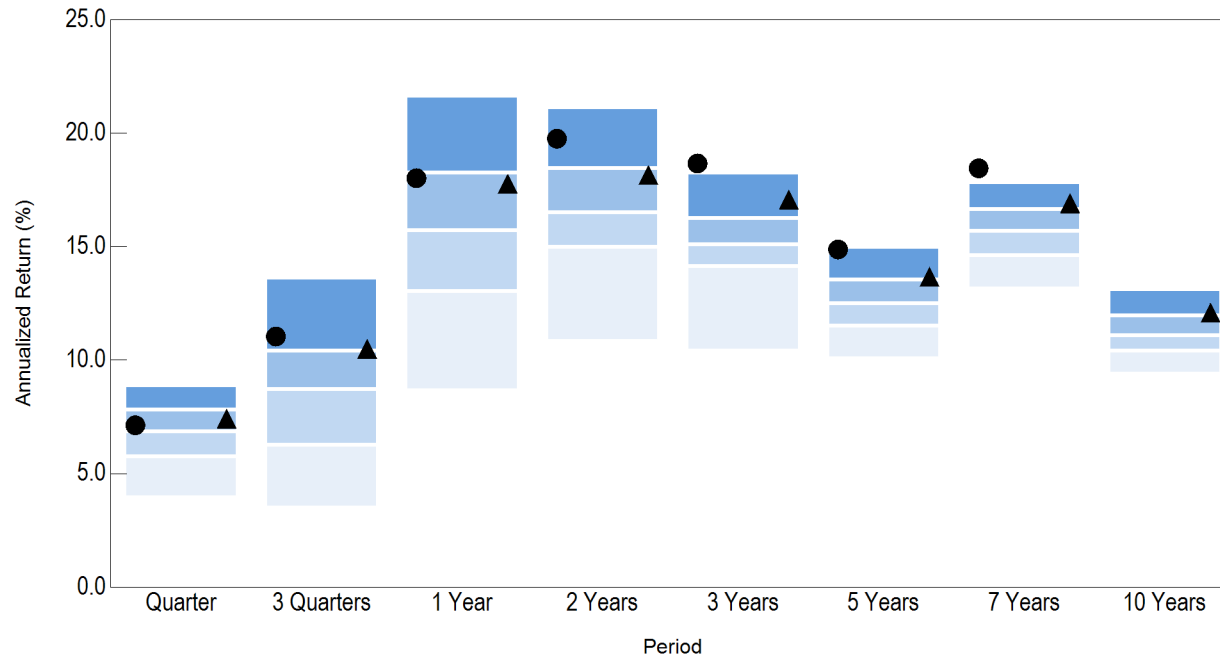
Worst Performers

| | Return % |
|--------------------------------|----------|
| GTX (GTXI) | -89.7% |
| GASTAR EXPLORATION (GSTCQ) | -86.3% |
| EGALET (EGLTQ) | -70.6% |
| REGULUS THERAPEUTICS (RGLS) | -70.0% |
| ENDOLOGIX (ELGX) | -66.3% |
| LANNETT (LCI) | -65.1% |
| MAIDEN HOLDINGS (MHLD) | -62.6% |
| NEW GOLD (C:NGD) | -62.1% |
| PERNIX THERP.HDG. (PTX) | -60.4% |
| ROADRUNNER TRSP.SYSTEMS (RRTS) | -60.0% |

Large Cap Equity Performance Attribution vs. Russell 1000

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|-------------|-----------|----------------|-------------|-------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.0% | 0.0% | 0.0% | 0.0% | 1.3% | 0.8% | 6.2% | 6.0% | | | |
| Materials | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% | 3.0% | 3.0% | | | |
| Industrials | 0.0% | 0.0% | 0.0% | 0.0% | 9.4% | 9.7% | 10.1% | 9.9% | | | |
| Consumer Discretionary | 0.0% | 0.0% | 0.0% | 0.0% | 6.5% | 6.8% | 13.3% | 13.1% | | | |
| Consumer Staples | 0.0% | 0.0% | 0.0% | 0.0% | 5.2% | 5.6% | 6.3% | 6.5% | | | |
| Health Care | 0.0% | 0.0% | 0.0% | 0.0% | 14.2% | 14.3% | 13.4% | 13.6% | | | |
| Financials | -0.1% | -0.1% | 0.0% | 0.0% | 3.5% | 4.0% | 13.3% | 13.9% | | | |
| Information Technology | 0.2% | 0.1% | 0.0% | 0.0% | 10.0% | 9.5% | 26.6% | 25.6% | | | |
| Communication Services | 0.0% | 0.0% | 0.0% | 0.0% | 8.4% | 7.5% | 1.6% | 1.9% | | | |
| Utilities | 0.0% | 0.0% | 0.0% | 0.0% | 3.1% | 2.4% | 2.5% | 2.9% | | | |
| Real Estate | 0.0% | 0.0% | 0.0% | 0.0% | 0.3% | 0.6% | 3.4% | 3.5% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 0.0% | 0.0% | | | |
| Unclassified | 0.0% | 0.0% | 0.0% | 0.0% | 7.7% | -- | 0.1% | 0.0% | | | |
| Portfolio | 0.1% | = | 0.0% | + | 0.0% | + | 0.0% | 7.5% | 7.4% | 100.0% | 100.0% |

eV US Large Cap Core Equity Net Return Comparison



| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
|----------------------|----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Return (Rank) | | | | | | | | |
| 5th Percentile | 8.9 | 13.6 | 21.6 | 21.1 | 18.2 | 15.0 | 17.8 | 13.1 |
| 25th Percentile | 7.8 | 10.4 | 18.3 | 18.5 | 16.3 | 13.6 | 16.7 | 12.0 |
| Median | 6.9 | 8.7 | 15.7 | 16.5 | 15.1 | 12.5 | 15.7 | 11.1 |
| 75th Percentile | 5.8 | 6.3 | 13.1 | 15.0 | 14.2 | 11.5 | 14.6 | 10.4 |
| 95th Percentile | 4.0 | 3.5 | 8.7 | 10.9 | 10.4 | 10.1 | 13.2 | 9.4 |
| # of Portfolios | 174 | 174 | 174 | 171 | 165 | 157 | 136 | 117 |
| ● DE Shaw | 7.1 (41) | 11.0 (21) | 18.0 (27) | 19.8 (14) | 18.7 (5) | 14.9 (6) | 18.4 (4) | -- (--) |
| ▲ Russell 1000 | 7.4 (34) | 10.5 (25) | 17.8 (31) | 18.2 (32) | 17.1 (18) | 13.7 (24) | 16.9 (20) | 12.1 (23) |

Characteristics

| | Portfolio | Russell 1000 |
|---------------------------------|-----------|--------------|
| Number of Holdings | 983 | 984 |
| Weighted Avg. Market Cap. (\$B) | 206.4 | 206.5 |
| Median Market Cap. (\$B) | 10.6 | 10.6 |
| Price To Earnings | 31.4 | 24.6 |
| Price To Book | 6.7 | 5.2 |
| Price To Sales | 4.3 | 4.3 |
| Return on Equity (%) | 23.3 | 21.6 |
| Yield (%) | 1.8 | 1.8 |
| Beta (holdings; domestic) | 1.0 | 1.0 |

Top Holdings

| | |
|------------------------|------|
| APPLE | 4.0% |
| MICROSOFT | 3.2% |
| AMAZON.COM | 3.0% |
| BERKSHIRE HATHAWAY 'B' | 1.5% |
| FACEBOOK CLASS A | 1.4% |
| JP MORGAN CHASE & CO. | 1.4% |
| JOHNSON & JOHNSON | 1.4% |
| ALPHABET 'C' | 1.3% |
| ALPHABET A | 1.3% |
| EXXON MOBIL | 1.3% |

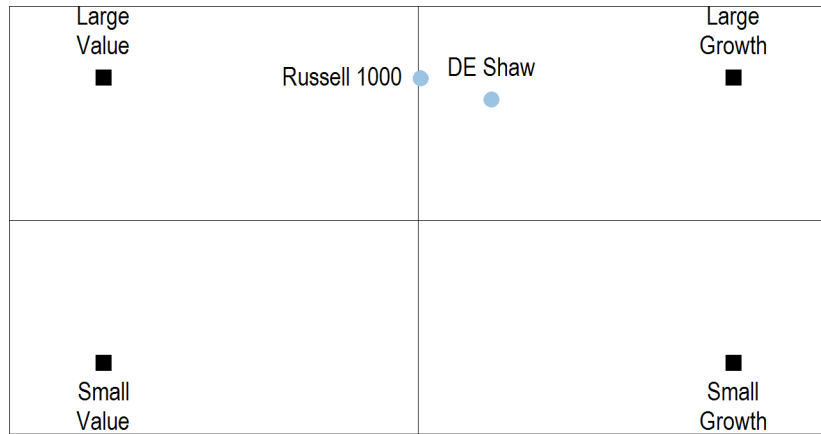
Best Performers

| | Return % |
|------------------------------|----------|
| ADVANCED MICRO DEVICES (AMD) | 106.1% |
| SQUARE CL.A (SQ) | 60.6% |
| PAYCOM SOFTWARE (PAYC) | 57.2% |
| TWILIO 'A' (TWLO) | 54.0% |
| ATLASSIAN 'A' (TEAM) | 53.8% |
| MOLINA HEALTHCARE (MOH) | 51.8% |
| DEXCOM (DXCM) | 50.6% |
| MATCH GROUP (MTCH) | 49.5% |
| FORTINET (FTNT) | 47.8% |
| IAC/INTERACTIVECORP (IAC) | 42.1% |

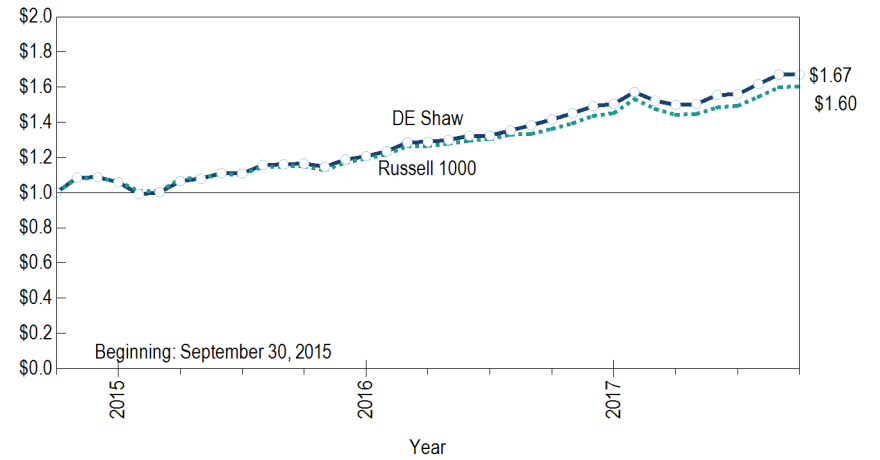
Worst Performers

| | Return % |
|----------------------------------|----------|
| FLOOR & DECOR HOLDINGS 'A' (FND) | -38.8% |
| TWITTER (TWTR) | -34.8% |
| IPG PHOTONICS (IPGP) | -29.3% |
| VISTEON (VC) | -28.1% |
| ZILLOW GROUP CLASS A (ZG) | -26.0% |
| ZILLOW GROUP CLASS C (Z) | -25.1% |
| WESTERN DIGITAL (WDC) | -23.7% |
| WYNN RESORTS (WYNN) | -23.7% |
| EXTRACTION OIL & GAS (XOG) | -23.1% |
| TESLA (TSLA) | -22.8% |

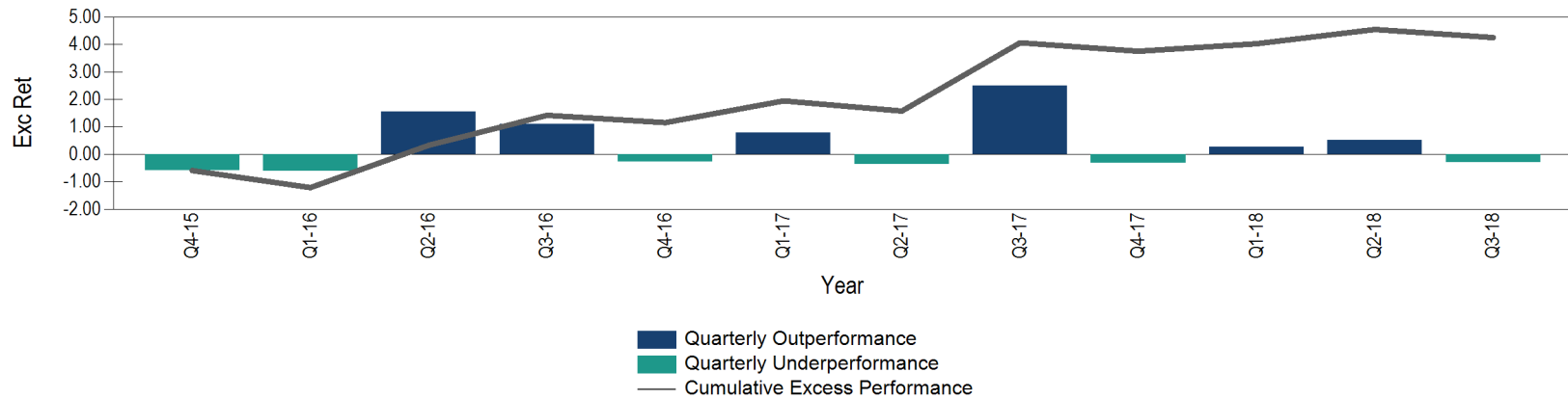
U.S. Effective Style Map



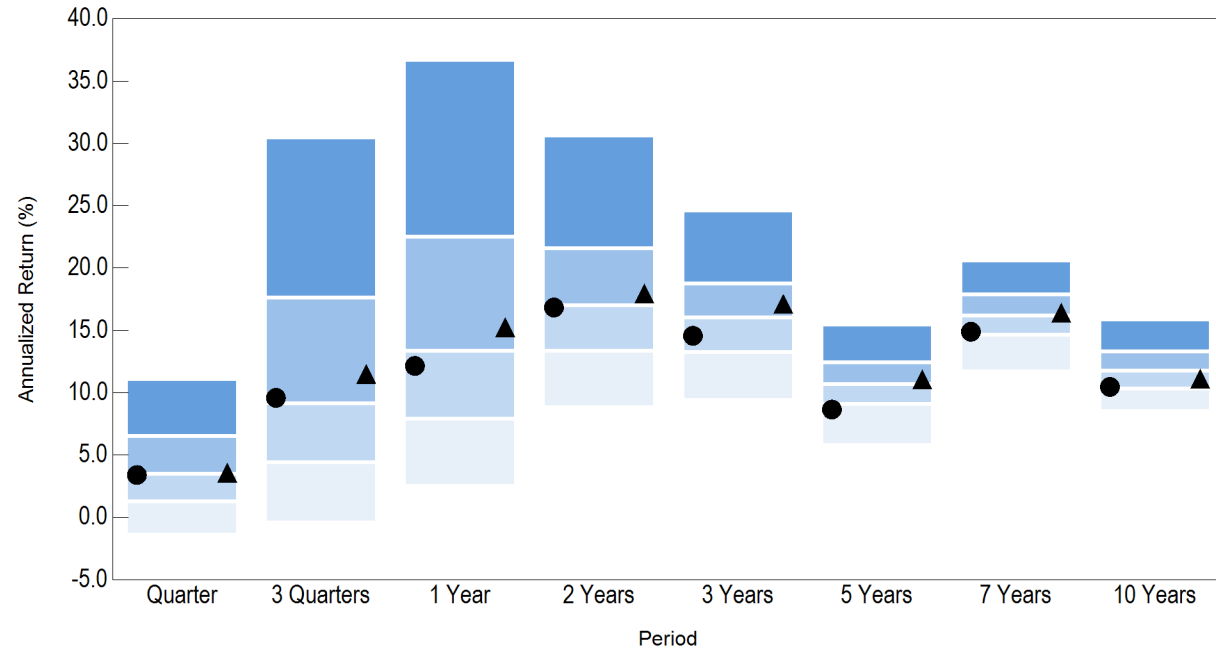
Growth of a Dollar



Quarterly and Cumulative Excess Performance



eV US Small Cap Equity Net Return Comparison



| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
|----------------------|----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Return (Rank) | | | | | | | | |
| 5th Percentile | 11.1 | 30.5 | 36.7 | 30.6 | 24.6 | 15.4 | 20.6 | 15.8 |
| 25th Percentile | 6.6 | 17.7 | 22.6 | 21.6 | 18.8 | 12.5 | 17.9 | 13.4 |
| Median | 3.5 | 9.2 | 13.4 | 17.0 | 16.0 | 10.7 | 16.2 | 11.8 |
| 75th Percentile | 1.3 | 4.5 | 7.9 | 13.4 | 13.3 | 9.1 | 14.7 | 10.4 |
| 95th Percentile | -1.4 | -0.4 | 2.5 | 8.9 | 9.4 | 5.9 | 11.7 | 8.6 |
| # of Portfolios | 400 | 400 | 399 | 394 | 384 | 361 | 333 | 296 |
| ● Small Cap Equity | 3.4 (52) | 9.6 (48) | 12.1 (56) | 16.8 (51) | 14.6 (65) | 8.7 (81) | 14.9 (73) | 10.5 (74) |
| ▲ Russell 2000 | 3.6 (50) | 11.5 (42) | 15.2 (44) | 18.0 (43) | 17.1 (41) | 11.1 (44) | 16.4 (48) | 11.1 (65) |

Characteristics

| | Portfolio | Russell 2000 |
|---------------------------------|-----------|--------------|
| Number of Holdings | 356 | 2,040 |
| Weighted Avg. Market Cap. (\$B) | 2.3 | 2.4 |
| Median Market Cap. (\$B) | 1.3 | 0.9 |
| Price To Earnings | 24.6 | 15.8 |
| Price To Book | 3.9 | 3.2 |
| Price To Sales | 2.5 | 3.1 |
| Return on Equity (%) | 16.1 | 8.8 |
| Yield (%) | 1.2 | 1.0 |
| Beta (holdings; domestic) | 1.2 | 1.2 |

Top Holdings

| | |
|-----------------------|------|
| HAEMONETICS | 1.0% |
| INSPERITY | 1.0% |
| GREEN DOT CLASS A | 0.9% |
| INOGEN | 0.9% |
| LIGAND PHARMS.'B' | 0.9% |
| SPS COMMERCE | 0.8% |
| INTEGER HOLDINGS | 0.8% |
| GENOMIC HEALTH | 0.8% |
| HORIZON PHARMA | 0.8% |
| VANDA PHARMACEUTICALS | 0.8% |

Best Performers

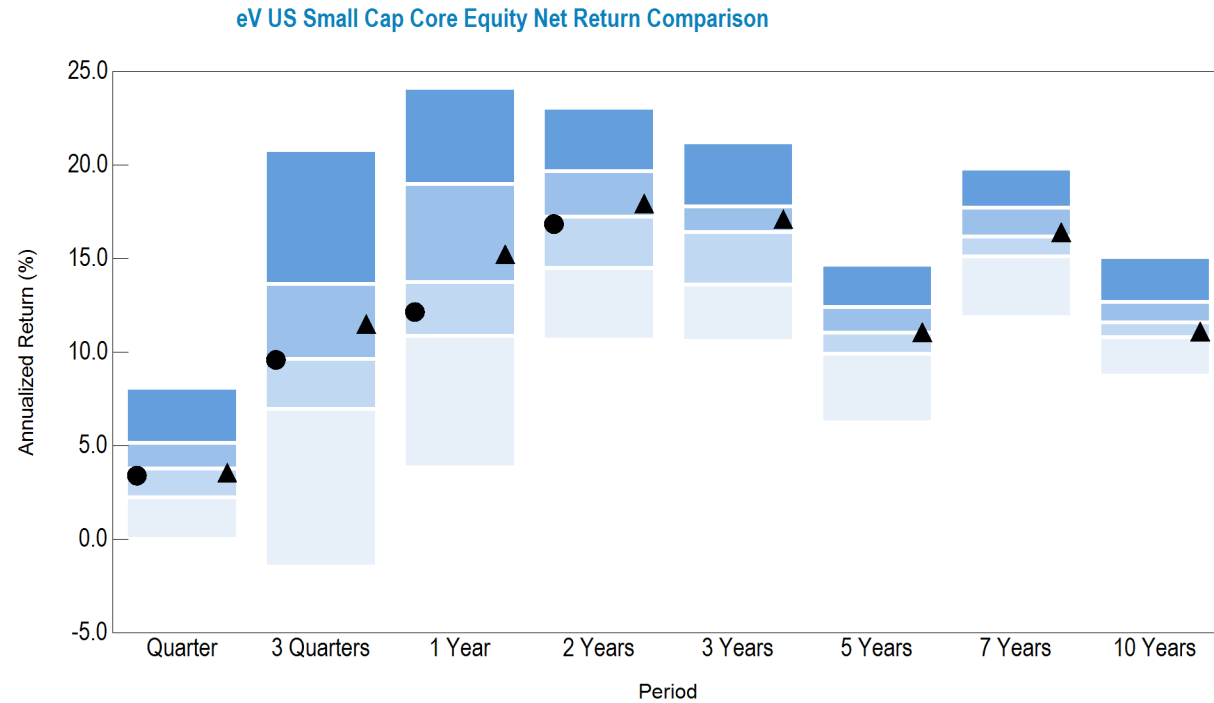
| | Return % |
|---------------------------------|----------|
| RENEWABLE ENERGY GROUP (REGI) | 61.3% |
| PAYCOM SOFTWARE (PAYC) | 57.2% |
| MALLINCKRODT (MNK) | 57.1% |
| STAAR SURGICAL (STAA) | 54.8% |
| PACIRA PHARMACEUTICALS (PCRX) | 53.4% |
| PROTAGONIST THERAPEUTICS (PTGX) | 53.1% |
| HMS HOLDINGS (HMSY) | 51.8% |
| CORE MARK HOLDING (CORE) | 50.0% |
| MEDPACE HOLDINGS (MEDP) | 39.3% |
| GENOMIC HEALTH (GHDX) | 39.3% |

Worst Performers

| | Return % |
|------------------------------------|----------|
| EGAIN (EGAN) | -46.4% |
| FTD COMPANIES (FTD) | -43.3% |
| MIDSTATES PETROLEUM (MPO) | -34.5% |
| DEL FRISCO'S RESTAURANT GP. (DFRG) | -34.1% |
| J JILL (JILL) | -33.8% |
| TECHTARGET (TTGT) | -31.6% |
| ACORDA THERAPEUTICS (ACOR) | -31.5% |
| WILLIAM LYON HOMES (WLH) | -31.5% |
| TITAN INTL.ILLINOIS (TWI) | -30.8% |
| TRAVELZOO (TZOO) | -30.7% |

Small Cap Equity Performance Attribution vs. Russell 2000

| | Total Effects | Attribution Effects | | | | Returns | | Sector Weights | | | |
|------------------------|------------------|---------------------|----------------------|------------------------|-------------|-----------|--------------|----------------|-------------|---------------|---------------|
| | | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.1% | 0.1% | 0.0% | 0.0% | -0.3% | -2.1% | 5.0% | 4.9% | | | |
| Materials | 0.1% | 0.1% | 0.0% | 0.0% | 2.5% | 1.1% | 4.6% | 4.4% | | | |
| Industrials | 0.3% | 0.3% | 0.0% | 0.0% | 6.4% | 4.4% | 15.7% | 15.2% | | | |
| Consumer Discretionary | -0.7% | -0.8% | 0.0% | 0.0% | -1.7% | 3.9% | 13.0% | 13.4% | | | |
| Consumer Staples | 0.3% | 0.3% | 0.0% | 0.0% | 10.2% | -1.7% | 2.6% | 2.8% | | | |
| Health Care | 0.4% | 0.3% | 0.0% | 0.0% | 9.9% | 7.7% | 15.7% | 15.6% | | | |
| Financials | 0.2% | 0.2% | 0.0% | 0.0% | 2.0% | 1.0% | 17.3% | 17.9% | | | |
| Information Technology | -0.7% | -0.6% | 0.0% | 0.0% | 2.1% | 6.5% | 15.5% | 14.9% | | | |
| Communication Services | -0.1% | -0.1% | 0.0% | 0.0% | 11.2% | 21.2% | 0.8% | 0.7% | | | |
| Utilities | 0.0% | 0.0% | 0.0% | 0.0% | 4.3% | 3.7% | 2.6% | 3.2% | | | |
| Real Estate | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | -0.4% | 7.2% | 7.2% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 0.1% | 0.0% | | | |
| Portfolio | -0.1% | = | -0.1% | + | 0.1% | + | -0.1% | 3.6% | 3.7% | 100.0% | 100.0% |



| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
|---------------------------|----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 5th Percentile | 8.1 | 20.8 | 24.1 | 23.0 | 21.2 | 14.7 | 19.8 | 15.1 |
| 25th Percentile | 5.2 | 13.7 | 19.0 | 19.7 | 17.8 | 12.4 | 17.8 | 12.7 |
| Median | 3.8 | 9.7 | 13.8 | 17.3 | 16.5 | 11.1 | 16.2 | 11.6 |
| 75th Percentile | 2.3 | 7.0 | 10.9 | 14.5 | 13.6 | 10.0 | 15.1 | 10.8 |
| 95th Percentile | 0.0 | -1.5 | 3.9 | 10.7 | 10.6 | 6.3 | 11.9 | 8.8 |
| # of Portfolios | 107 | 107 | 106 | 103 | 103 | 99 | 89 | 76 |
| ● QMA US Small Cap | 3.4 (54) | 9.6 (52) | 12.1 (62) | 16.9 (56) | -- (--) | -- (--) | -- (--) | -- (--) |
| ▲ Russell 2000 | 3.6 (53) | 11.5 (42) | 15.2 (43) | 18.0 (43) | 17.1 (37) | 11.1 (50) | 16.4 (50) | 11.1 (66) |

Characteristics

| | Portfolio | Russell 2000 |
|---------------------------------|-----------|--------------|
| Number of Holdings | 356 | 2,040 |
| Weighted Avg. Market Cap. (\$B) | 2.3 | 2.4 |
| Median Market Cap. (\$B) | 1.3 | 0.9 |
| Price To Earnings | 24.6 | 15.8 |
| Price To Book | 3.9 | 3.2 |
| Price To Sales | 2.5 | 3.1 |
| Return on Equity (%) | 16.1 | 8.8 |
| Yield (%) | 1.2 | 1.0 |
| Beta (holdings; domestic) | 1.2 | 1.2 |

Top Holdings

| | |
|-----------------------|------|
| HAEMONETICS | 1.0% |
| INSPERITY | 1.0% |
| GREEN DOT CLASS A | 0.9% |
| INOGEN | 0.9% |
| LIGAND PHARMS.'B' | 0.9% |
| SPS COMMERCE | 0.8% |
| INTEGER HOLDINGS | 0.8% |
| GENOMIC HEALTH | 0.8% |
| HORIZON PHARMA | 0.8% |
| VANDA PHARMACEUTICALS | 0.8% |

Best Performers

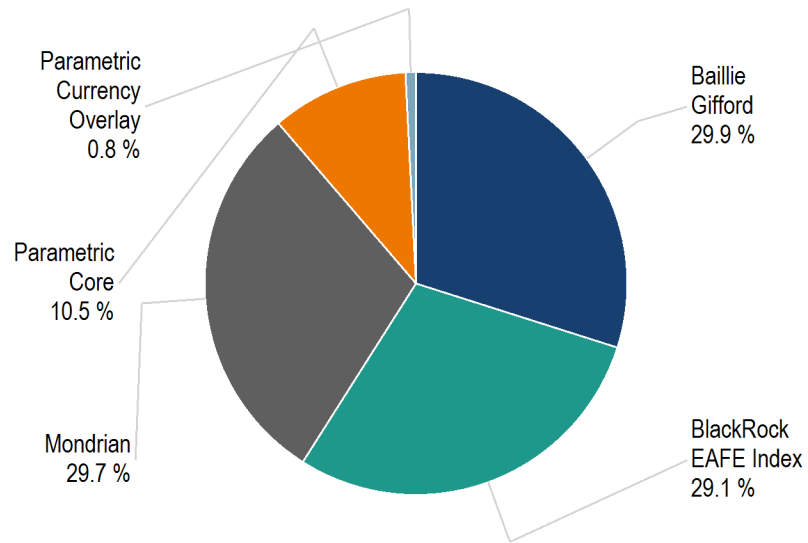
| | Return % |
|---------------------------------|----------|
| RENEWABLE ENERGY GROUP (REGI) | 61.3% |
| PAYCOM SOFTWARE (PAYC) | 57.2% |
| MALLINCKRODT (MNK) | 57.1% |
| STAAR SURGICAL (STAA) | 54.8% |
| PACIRA PHARMACEUTICALS (PCRX) | 53.4% |
| PROTAGONIST THERAPEUTICS (PTGX) | 53.1% |
| HMS HOLDINGS (HMSY) | 51.8% |
| CORE MARK HOLDING (CORE) | 50.0% |
| MEDPACE HOLDINGS (MEDP) | 39.3% |
| GENOMIC HEALTH (GHDX) | 39.3% |

Worst Performers

| | Return % |
|------------------------------------|----------|
| EGAIN (EGAN) | -46.4% |
| FTD COMPANIES (FTD) | -43.3% |
| MIDSTATES PETROLEUM (MPO) | -34.5% |
| DEL FRISCO'S RESTAURANT GP. (DFRG) | -34.1% |
| J JILL (JILL) | -33.8% |
| TECHTARGET (TTGT) | -31.6% |
| ACORDA THERAPEUTICS (ACOR) | -31.5% |
| WILLIAM LYON HOMES (WLH) | -31.5% |
| TITAN INTL.ILLINOIS (TWI) | -30.8% |
| TRAVELZOO (TZOO) | -30.7% |

QMA US Small Cap Performance Attribution vs. Russell 2000

| | Total Effects | Attribution Effects | | | | Returns | | Sector Weights | | | |
|------------------------|------------------|---------------------|----------------------|------------------------|-------------|-----------|--------------|----------------|-------------|---------------|---------------|
| | | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.1% | 0.1% | 0.0% | 0.0% | -0.3% | -2.1% | 5.0% | 4.9% | | | |
| Materials | 0.1% | 0.1% | 0.0% | 0.0% | 2.5% | 1.1% | 4.6% | 4.4% | | | |
| Industrials | 0.3% | 0.3% | 0.0% | 0.0% | 6.4% | 4.4% | 15.7% | 15.2% | | | |
| Consumer Discretionary | -0.7% | -0.8% | 0.0% | 0.0% | -1.7% | 3.9% | 13.0% | 13.4% | | | |
| Consumer Staples | 0.3% | 0.3% | 0.0% | 0.0% | 10.2% | -1.7% | 2.6% | 2.8% | | | |
| Health Care | 0.4% | 0.3% | 0.0% | 0.0% | 9.9% | 7.7% | 15.7% | 15.6% | | | |
| Financials | 0.2% | 0.2% | 0.0% | 0.0% | 2.0% | 1.0% | 17.3% | 17.9% | | | |
| Information Technology | -0.7% | -0.6% | 0.0% | 0.0% | 2.1% | 6.5% | 15.5% | 14.9% | | | |
| Communication Services | -0.1% | -0.1% | 0.0% | 0.0% | 11.2% | 21.2% | 0.8% | 0.7% | | | |
| Utilities | 0.0% | 0.0% | 0.0% | 0.0% | 4.3% | 3.7% | 2.6% | 3.2% | | | |
| Real Estate | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | -0.4% | 7.2% | 7.2% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 0.1% | 0.0% | | | |
| Portfolio | -0.1% | = | -0.1% | + | 0.1% | + | -0.1% | 3.6% | 3.7% | 100.0% | 100.0% |



| | Actual \$ | Actual % | Manager Contribution to Excess Return % |
|-------------------------------------|----------------------|---------------|---|
| Baillie Gifford | \$251,983,073 | 29.9% | -0.6% |
| BlackRock EAFE Index | \$245,311,092 | 29.1% | 0.0% |
| Mondrian | \$249,756,983 | 29.7% | -0.1% |
| Parametric Core | \$88,032,448 | 10.5% | 0.1% |
| Parametric Currency Overlay | \$6,510,585 | 0.8% | 0.0% |
| Actual vs. Policy Weight Difference | | | 0.8% |
| Total | \$841,594,181 | 100.0% | 0.1% |

Statistics Summary

3 Years

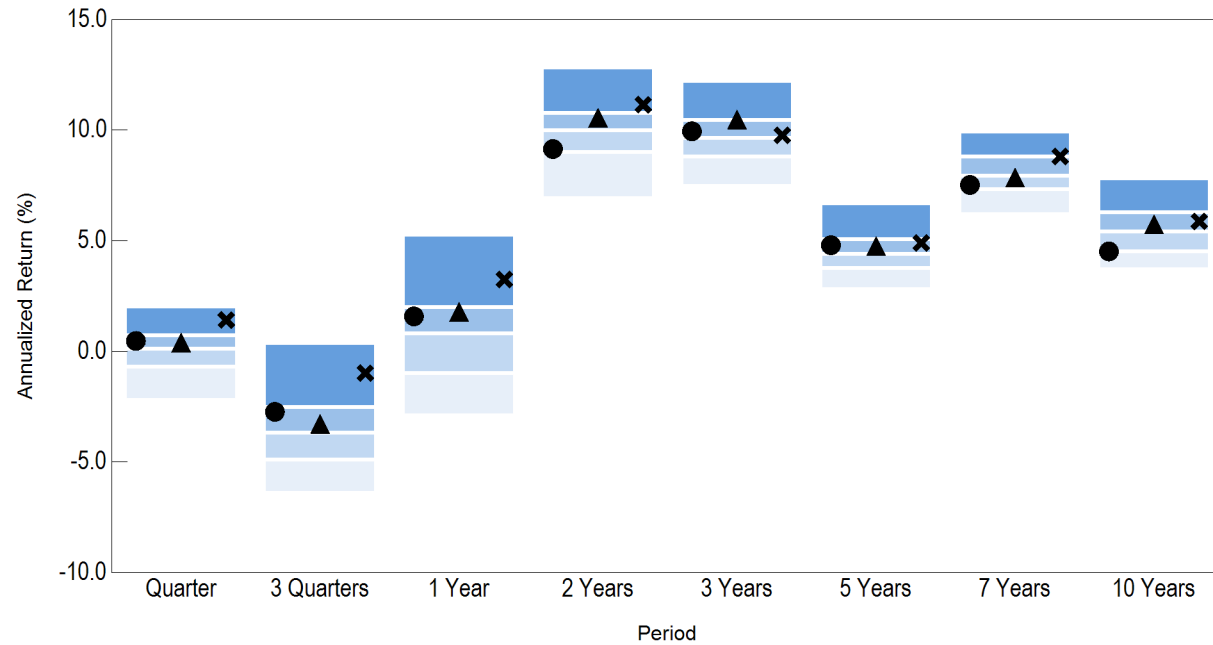
| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| International Equity | 9.9% | 10.7% | 0.8 | -0.3 | 1.7% |
| MSCI ACWI ex US IMI | 10.5% | 10.8% | 0.9 | -- | 0.0% |
| Developed Markets | 10.0% | 10.7% | 0.9 | -0.2 | 2.0% |
| MSCI ACWI ex USA Gross | 10.5% | 10.9% | 0.9 | -- | 0.0% |
| Baillie Gifford | 11.9% | 12.0% | 0.9 | 0.3 | 4.5% |
| MSCI ACWI ex US | 10.5% | 10.9% | 0.9 | -- | 0.0% |
| BlackRock EAFE Index | 9.6% | 10.8% | 0.8 | 1.9 | 0.2% |
| MSCI EAFE | 9.2% | 10.8% | 0.8 | -- | 0.0% |
| Mondrian | 8.3% | 10.5% | 0.7 | -0.3 | 4.7% |
| MSCI ACWI ex USA Value Gross | 9.9% | 11.9% | 0.8 | -- | 0.0% |
| Emerging Markets | 9.5% | 13.6% | 0.6 | -0.9 | 3.7% |
| MSCI Emerging Markets Gross | 12.8% | 14.3% | 0.8 | -- | 0.0% |
| Parametric Core | 9.5% | 13.6% | 0.6 | -0.9 | 3.7% |
| MSCI Emerging Markets Gross | 12.8% | 14.3% | 0.8 | -- | 0.0% |

Statistics Summary

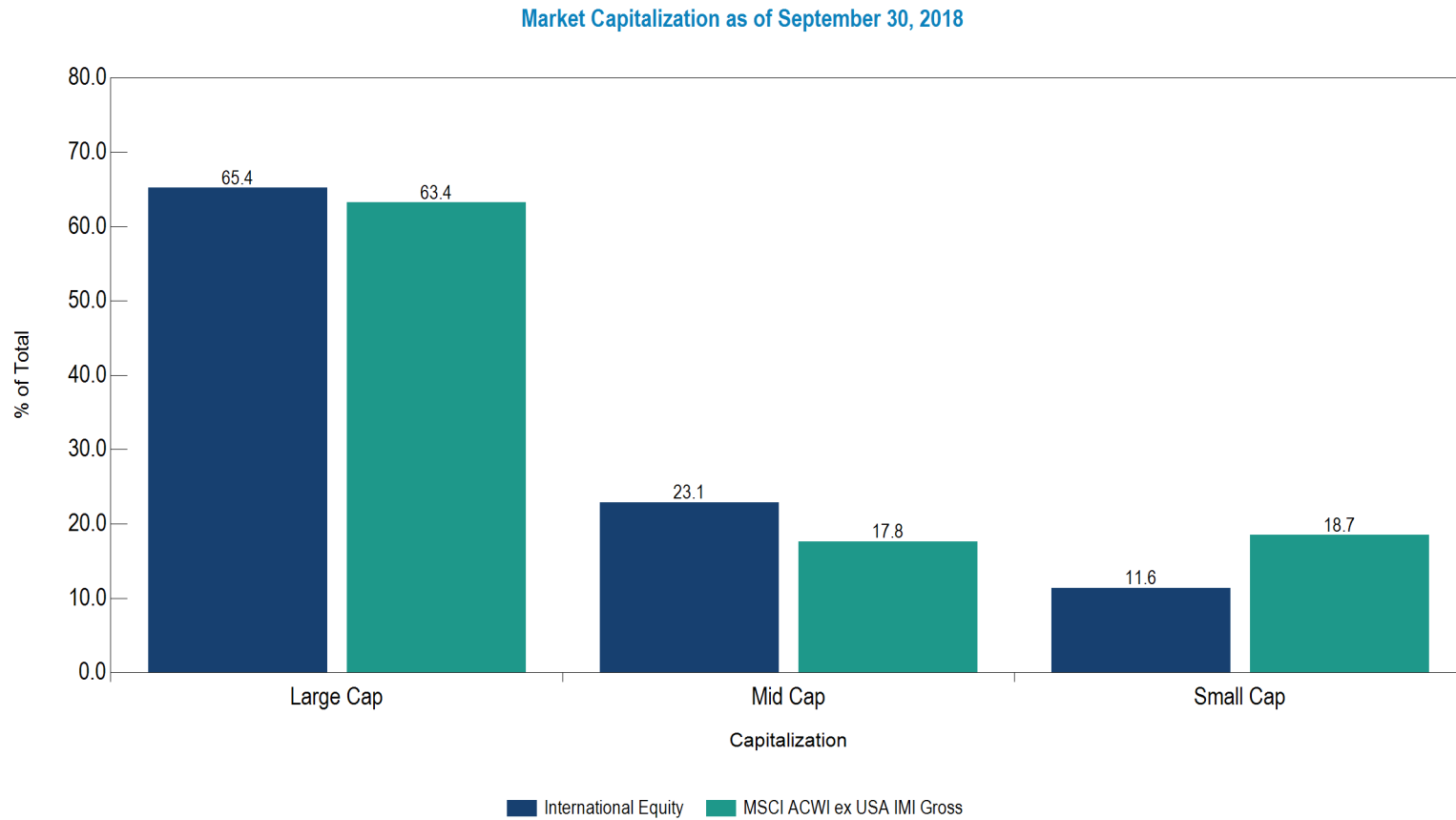
5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| International Equity | 4.8% | 11.0% | 0.4 | 0.0 | 1.6% |
| MSCI ACWI ex US IMI | 4.8% | 11.1% | 0.4 | -- | 0.0% |
| Developed Markets | 5.1% | 11.0% | 0.4 | 0.3 | 2.0% |
| MSCI ACWI ex USA Gross | 4.6% | 11.2% | 0.4 | -- | 0.0% |
| Baillie Gifford | 6.2% | 12.0% | 0.5 | 0.3 | 4.1% |
| MSCI ACWI ex US | 4.8% | 11.2% | 0.4 | -- | 0.0% |
| Mondrian | 4.1% | 11.1% | 0.3 | 0.1 | 4.4% |
| MSCI ACWI ex USA Value Gross | 3.5% | 12.1% | 0.2 | -- | 0.0% |
| Emerging Markets | 1.9% | 13.4% | 0.1 | -0.5 | 3.9% |
| MSCI Emerging Markets Gross | 4.0% | 14.7% | 0.2 | -- | 0.0% |

InvestorForce All DB ex-US Eq Net Return Comparison



| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
|-------------------------------|----------|------------|----------|-----------|-----------|----------|----------|----------|
| 5th Percentile | 2.0 | 0.4 | 5.3 | 12.8 | 12.2 | 6.7 | 9.9 | 7.8 |
| 25th Percentile | 0.8 | -2.5 | 2.0 | 10.8 | 10.5 | 5.1 | 8.8 | 6.3 |
| Median | 0.1 | -3.7 | 0.8 | 10.0 | 9.7 | 4.4 | 8.0 | 5.4 |
| 75th Percentile | -0.7 | -4.9 | -1.0 | 9.0 | 8.8 | 3.8 | 7.3 | 4.5 |
| 95th Percentile | -2.2 | -6.4 | -2.9 | 7.0 | 7.5 | 2.8 | 6.2 | 3.7 |
| # of Portfolios | 413 | 405 | 405 | 393 | 388 | 348 | 293 | 232 |
| ● International Equity | 0.5 (38) | -2.7 (30) | 1.6 (38) | 9.1 (73) | 9.9 (42) | 4.8 (34) | 7.5 (69) | 4.5 (76) |
| ▲ MSCI ACWI ex US IMI | 0.4 (41) | -3.3 (45) | 1.8 (31) | 10.6 (33) | 10.5 (25) | 4.8 (36) | 7.9 (55) | 5.8 (39) |
| ✕ MSCI EAFE Gross | 1.4 (11) | -1.0 (12) | 3.2 (14) | 11.1 (17) | 9.8 (47) | 4.9 (29) | 8.8 (26) | 5.9 (35) |



See appendix for the market capitalization breakpoints.

Characteristics

| | Portfolio | MSCI ACWI ex USA IMI Gross |
|---------------------------------|-----------|----------------------------|
| Number of Holdings | 2,161 | 6,456 |
| Weighted Avg. Market Cap. (\$B) | 49.3 | 53.9 |
| Median Market Cap. (\$B) | 6.6 | 1.5 |
| Price To Earnings | 21.4 | 18.8 |
| Price To Book | 3.6 | 2.6 |
| Price To Sales | 3.2 | 2.4 |
| Return on Equity (%) | 17.9 | 15.3 |
| Yield (%) | 2.9 | 2.9 |
| Beta (holdings; global) | 1.0 | 1.0 |

Top Holdings

| | |
|----------------------------|------|
| UNITED OVERSEAS BANK | 1.3% |
| SANOFI | 1.1% |
| BP | 1.0% |
| HARGREAVES LANSDOWN | 1.0% |
| TAIWAN SEMICON.SPN.ADR 1:5 | 0.9% |
| NOVARTIS 'R' | 0.9% |
| WOOD GROUP (JOHN) | 0.9% |
| ENI | 0.8% |
| GLAXOSMITHKLINE | 0.8% |
| NASPERS | 0.8% |

Best Performers

| | Return % |
|--|----------|
| MY EG SERVICES (L:MYEG) | 77.0% |
| GRUPO ELEKTRA (MX:ELP) | 65.6% |
| TPG TELECOM (A:TPMX) | 61.8% |
| IDEMITSU KOSAN (J:IDKO) | 49.6% |
| TATUNG (TW:TAT) | 48.5% |
| CHIN.COMMS.SVS.'H' (K:CHCM) | 47.2% |
| CONTROLADORA VUELA COMPANIA DE AVIACION (MX:VOA) | 46.3% |
| CHABIOTECH (KO:DTH) | 46.2% |
| GLOBE TELECOM (PH:GLA) | 42.7% |
| BANGKOK DUSIT MED.SVS.FB (Q:BDMF) | 42.6% |

Worst Performers

| | Return % |
|---------------------------------|----------|
| BLUE LABEL TELECOMS (R:BLUJ) | -51.2% |
| INDIABULLS REAL ESTATE (IN:IBR) | -46.9% |
| PALM HILLS DEVS.SAE (EG:PAL) | -46.3% |
| SILAM INTL.HOSPS. (ID:SIO) | -46.3% |
| TURK TELEKOMUNIKASYON (TK:TUT) | -44.4% |
| SURUGA BANK (J:SURB) | -43.1% |
| VIPSHOP HOLDINGS ADR 5:1 (VIPS) | -42.5% |
| YAPI VE KREDI BANKASI (TK:YKB) | -42.2% |
| TURKIYE IS BANKASI 'C' (TK:ISC) | -40.9% |
| DOGUS OTO SERVIS VTC. (TK:DOA) | -40.8% |

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

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|-------------|-----------|----------------|-------------|-------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.1% | 0.2% | 0.0% | 0.0% | 7.2% | 4.5% | 6.1% | 6.9% | | | |
| Materials | 0.1% | 0.2% | 0.0% | -0.1% | 1.4% | -0.2% | 6.0% | 8.5% | | | |
| Industrials | -0.2% | -0.2% | 0.0% | 0.0% | 0.7% | 2.2% | 13.3% | 12.7% | | | |
| Consumer Discretionary | -0.5% | -0.3% | -0.1% | -0.1% | -5.3% | -2.7% | 14.4% | 11.8% | | | |
| Consumer Staples | -0.1% | -0.1% | 0.0% | -0.1% | -1.8% | -0.8% | 10.3% | 9.3% | | | |
| Health Care | 0.0% | 0.0% | 0.0% | 0.0% | 4.0% | 4.3% | 8.8% | 8.0% | | | |
| Financials | 0.2% | 0.3% | 0.0% | -0.1% | 2.5% | 1.4% | 17.6% | 20.3% | | | |
| Information Technology | 0.4% | 0.4% | 0.0% | 0.0% | 0.8% | -2.6% | 11.3% | 11.9% | | | |
| Communication Services | 0.1% | 0.0% | 0.0% | 0.0% | 4.7% | 3.6% | 4.5% | 3.4% | | | |
| Utilities | -0.1% | -0.1% | 0.0% | 0.0% | -3.8% | -1.0% | 4.1% | 3.0% | | | |
| Real Estate | 0.1% | 0.0% | 0.1% | 0.0% | -2.6% | -2.5% | 2.4% | 4.2% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 1.3% | 0.0% | | | |
| Unclassified | 0.0% | 0.0% | 0.0% | 0.0% | 1.6% | -- | 0.0% | 0.0% | | | |
| Portfolio | 0.1% | = | 0.5% | + | 0.0% | + | -0.4% | 0.6% | 0.5% | 100.0% | 100.0% |

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

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|-----------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Europe | | | | | | | | | |
| Austria | 0.4% | 0.8% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Belgium | -5.2% | -4.1% | 0.3% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Czech Republic* | 3.2% | 3.5% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Denmark | 4.3% | 1.5% | 1.8% | 1.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Finland | 4.1% | 2.0% | 0.7% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| France | 3.3% | 2.5% | 5.0% | 6.8% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Germany | -1.4% | -0.6% | 7.0% | 6.1% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| Greece* | -7.1% | -12.5% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Hungary* | 4.9% | 4.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Ireland | -5.8% | -5.1% | 0.3% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Italy | -1.6% | -3.4% | 2.2% | 1.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Luxembourg | -0.1% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Netherlands | -1.6% | -1.5% | 2.8% | 2.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Norway | 6.9% | 6.3% | 0.2% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Poland* | 5.9% | 9.6% | 0.3% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Portugal | 1.8% | -1.6% | 0.4% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Russia* | 7.8% | 6.6% | 1.0% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Spain | -5.6% | -2.2% | 2.7% | 2.1% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Sweden | 7.2% | 6.1% | 3.0% | 1.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Switzerland | 7.0% | 6.4% | 4.7% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United Kingdom | -1.9% | -2.0% | 14.7% | 12.5% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |

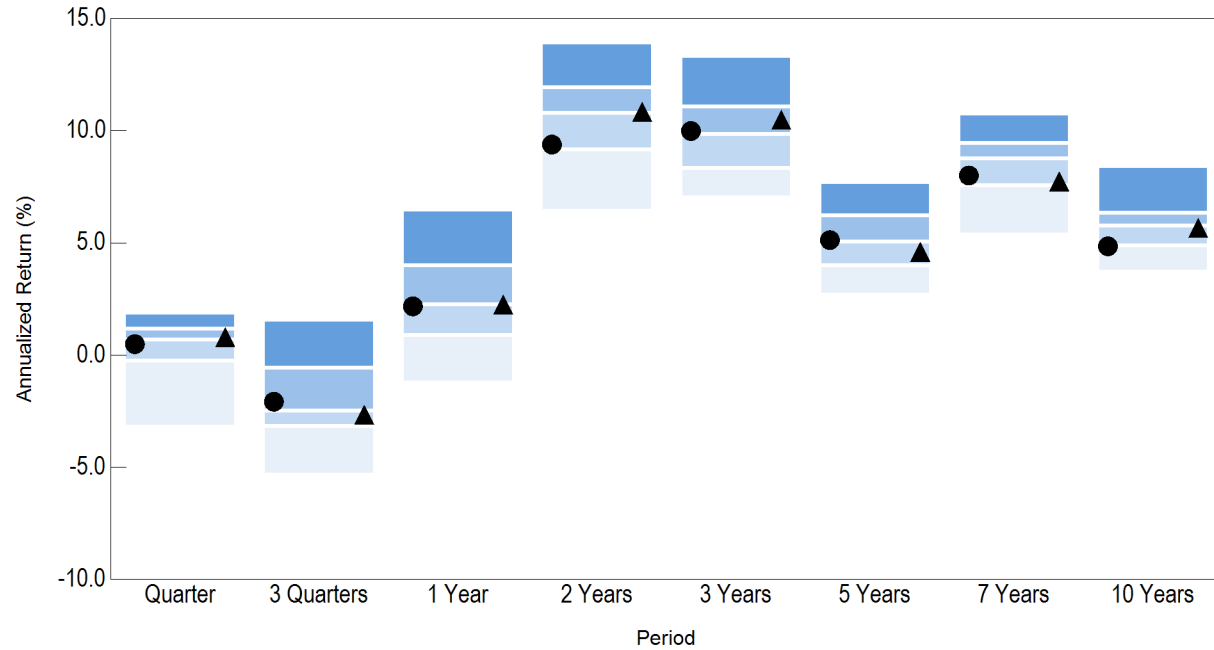
Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|--------------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| AsiaPacific | | | | | | | | | |
| Australia | -0.3% | -0.9% | 3.8% | 4.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| China* | -10.1% | -7.4% | 4.2% | 7.4% | -0.2% | 0.3% | 0.0% | 0.1% | 0.2% |
| Hong Kong | -0.7% | -1.4% | 4.0% | 2.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| India* | -7.0% | -4.3% | 3.0% | 2.3% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Indonesia* | 0.9% | 0.6% | 0.4% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Japan | 3.8% | 3.0% | 16.1% | 17.6% | 0.1% | -0.1% | 0.0% | 0.0% | 0.1% |
| Korea* | 4.9% | 0.5% | 2.5% | 3.7% | 0.2% | 0.0% | 0.0% | 0.0% | 0.1% |
| Malaysia* | 4.7% | 3.2% | 0.9% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| New Zealand | 2.5% | 2.2% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Pakistan* | -6.0% | -4.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Philippines* | 0.6% | 0.2% | 0.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Singapore | 2.3% | 2.0% | 2.8% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Taiwan* | 12.6% | 5.0% | 2.4% | 3.0% | 0.2% | 0.0% | 0.0% | -0.1% | 0.2% |
| Thailand* | 8.7% | 15.0% | 0.5% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Americas | | | | | | | | | |
| Brazil* | -1.0% | 5.2% | 2.0% | 1.4% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Canada | 4.2% | 0.8% | 1.0% | 6.7% | 0.3% | 0.1% | -0.1% | -0.2% | 0.1% |
| Chile* | -1.8% | -1.5% | 0.3% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Colombia* | -3.6% | -3.6% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Mexico* | 7.5% | 7.5% | 1.1% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Peru* | -1.2% | -2.2% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United States | -0.1% | 7.4% | 1.3% | 0.0% | 0.0% | 0.1% | 0.0% | -0.1% | 0.0% |

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

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|-----------------------|---------------------|--------------|----------------|---------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Other | | | | | | | | | |
| Egypt* | -14.5% | -11.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Israel | 1.9% | 8.5% | 0.1% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Kuwait** | 6.3% | 8.6% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Qatar* | 6.9% | 10.4% | 0.3% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Romania** | 8.5% | 6.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| South Africa* | -11.5% | -6.7% | 2.2% | 1.5% | -0.1% | 0.0% | 0.0% | 0.0% | -0.2% |
| Turkey* | -23.8% | -20.9% | 0.5% | 0.2% | 0.0% | 0.0% | -0.1% | 0.0% | -0.1% |
| United Arab Emirates* | 8.8% | 0.6% | 0.3% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Totals | | | | | | | | | |
| Americas | 1.4% | 1.8% | 6.1% | 9.3% | 0.1% | 0.0% | -0.1% | 0.0% | 0.0% |
| Europe | 0.6% | 0.6% | 47.6% | 43.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Asia/Pacific | 1.2% | 0.3% | 41.4% | 44.2% | 0.4% | 0.0% | 0.0% | 0.0% | 0.4% |
| Other | -9.1% | -3.2% | 3.7% | 2.6% | -0.1% | 0.0% | -0.1% | 0.0% | -0.3% |
| Cash | 0.5% | -- | 1.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | 0.6% | 0.5% | 100.0% | 100.0% | 0.4% | 0.0% | -0.2% | -0.1% | 0.1% |
| Totals | | | | | | | | | |
| Developed | 1.2% | 1.0% | 75.1% | 75.9% | 0.2% | 0.0% | -0.1% | 0.0% | 0.1% |
| Emerging* | -1.5% | -1.3% | 23.4% | 24.1% | 0.1% | 0.0% | -0.1% | 0.0% | 0.0% |
| Frontier** | 6.6% | -- | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cash | 0.5% | -- | 1.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

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



| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years | |
|----------------------|--------------------------|------------|-----------|----------|-----------|-----------|----------|----------|----------|
| Return (Rank) | 1.9 | 1.5 | 6.5 | 13.9 | 13.3 | 7.7 | 10.7 | 8.4 | |
| 5th Percentile | 1.2 | -0.5 | 4.0 | 11.9 | 11.1 | 6.2 | 9.5 | 6.4 | |
| 25th Percentile | 0.7 | -2.5 | 2.3 | 10.8 | 9.9 | 5.1 | 8.8 | 5.8 | |
| Median | -0.2 | -3.1 | 0.9 | 9.2 | 8.4 | 4.0 | 7.6 | 4.9 | |
| 75th Percentile | -3.2 | -5.3 | -1.2 | 6.5 | 7.1 | 2.7 | 5.4 | 3.7 | |
| 95th Percentile | 168 | 165 | 163 | 157 | 154 | 136 | 112 | 78 | |
| # of Portfolios | ● Developed Markets | 0.5 (57) | -2.1 (47) | 2.2 (53) | 9.4 (72) | 10.0 (46) | 5.1 (49) | 8.0 (67) | 4.8 (78) |
| | ▲ MSCI ACWI ex USA Gross | 0.8 (48) | -2.7 (59) | 2.3 (52) | 10.8 (49) | 10.5 (31) | 4.6 (64) | 7.7 (73) | 5.7 (53) |

Characteristics

| | Portfolio | MSCI ACWI ex USA Gross |
|---------------------------------|-----------|------------------------|
| Number of Holdings | 1,048 | 2,166 |
| Weighted Avg. Market Cap. (\$B) | 52.3 | 62.2 |
| Median Market Cap. (\$B) | 11.4 | 7.7 |
| Price To Earnings | 21.7 | 18.8 |
| Price To Book | 3.7 | 2.6 |
| Price To Sales | 3.2 | 2.4 |
| Return on Equity (%) | 18.0 | 15.6 |
| Yield (%) | 2.9 | 3.0 |
| Beta (holdings: global) | 1.1 | 1.0 |

Top Holdings

| | |
|----------------------------|------|
| UNITED OVERSEAS BANK | 1.5% |
| SANOFI | 1.2% |
| BP | 1.1% |
| HARGREAVES LANSDOWN | 1.1% |
| TAIWAN SEMICON.SPN.ADR 1:5 | 1.0% |
| NOVARTIS 'R' | 1.0% |
| WOOD GROUP (JOHN) | 1.0% |
| ENI | 0.9% |
| GLAXOSMITHKLINE | 0.9% |
| ENEL | 0.9% |

Best Performers

| | Return % |
|--|----------|
| TPG TELECOM (A:TPMX) | 61.8% |
| IDEMITSU KOSAN (J:IDKO) | 49.6% |
| SHOWA SHELL SEKIYU (J:SHSS) | 42.0% |
| SOFTBANK GROUP (J:SFTB) | 40.6% |
| ORION B (M:ORNB) | 40.5% |
| EISAI (J:ES@N) | 39.1% |
| YANGZIJIANG SHIPBUILDING (HOLDINGS) (T:YSHL) | 36.7% |
| WIRECARD (D:WDI) | 35.8% |
| ICL (IS:ICL) | 34.5% |
| LONZA GROUP (S:LONN) | 29.2% |

Worst Performers

| | Return % |
|--|----------|
| SURUGA BANK (J:SURB) | -43.1% |
| LI & FUNG (K:FUNG) | -38.2% |
| RENASAS ELECTRONICS (J:RENE) | -36.2% |
| JD.COM 'A' ADR 1:2 (JD) | -33.0% |
| COCA-COLA BOTTLERS JAPAN HOLDINGS (J:KITK) | -33.0% |
| CYBERDYNE (J:DYNE) | -32.6% |
| MGM CHINA HOLDINGS (K:MCHL) | -31.4% |
| ZALANDO (D:ZAL) | -30.5% |
| TKI.GARANTI BKSI. (TK:GAR) | -29.8% |
| ATLANTIA (I:ATL) | -29.8% |

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|--------------|-----------|----------------|-------------|-------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.0% | 0.1% | -0.1% | 0.0% | 6.2% | 4.5% | 5.7% | 7.4% | | | |
| Materials | 0.1% | 0.1% | 0.0% | 0.0% | 1.3% | 0.5% | 5.4% | 8.2% | | | |
| Industrials | -0.3% | -0.3% | 0.0% | 0.0% | 0.7% | 2.8% | 13.7% | 11.6% | | | |
| Consumer Discretionary | -0.6% | -0.3% | -0.1% | -0.2% | -5.2% | -2.6% | 15.1% | 11.3% | | | |
| Consumer Staples | -0.1% | -0.1% | 0.0% | -0.1% | -1.7% | -0.5% | 10.4% | 9.7% | | | |
| Health Care | 0.1% | 0.1% | 0.0% | 0.0% | 4.7% | 4.4% | 9.2% | 8.1% | | | |
| Financials | 0.2% | 0.3% | 0.0% | -0.1% | 2.6% | 1.6% | 18.0% | 21.8% | | | |
| Information Technology | 0.4% | 0.4% | 0.0% | 0.0% | 0.9% | -2.4% | 11.8% | 11.9% | | | |
| Communication Services | 0.1% | 0.1% | 0.0% | 0.0% | 6.3% | 3.6% | 4.0% | 3.7% | | | |
| Utilities | -0.1% | -0.1% | 0.0% | 0.0% | -4.1% | -0.9% | 3.8% | 3.0% | | | |
| Real Estate | 0.1% | 0.0% | 0.1% | 0.0% | -1.4% | -3.5% | 1.9% | 3.2% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 1.0% | 0.0% | | | |
| Unclassified | 0.0% | 0.0% | 0.0% | 0.0% | -0.6% | -- | 0.0% | 0.0% | | | |
| Portfolio | -0.1% | = | 0.4% | + | -0.1% | + | -0.4% | 0.6% | 0.8% | 100.0% | 100.0% |

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

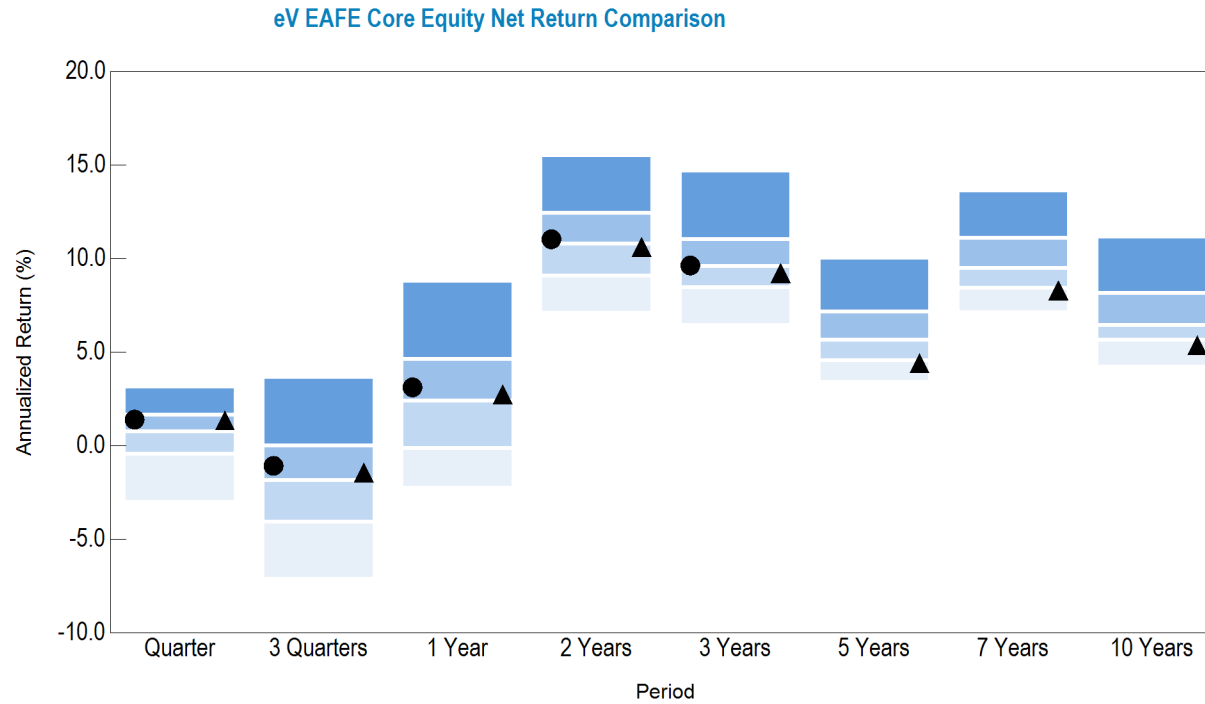
| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|-----------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Europe | | | | | | | | | |
| Austria | 0.4% | 0.4% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Belgium | -5.2% | -5.2% | 0.4% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Czech Republic* | -- | 4.0% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Denmark | 4.3% | 2.4% | 2.0% | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Finland | 4.1% | 3.2% | 0.7% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| France | 3.3% | 2.9% | 5.6% | 7.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Germany | -1.4% | -0.6% | 7.8% | 6.5% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Greece* | -- | -18.1% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Hungary* | -- | 4.7% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Ireland | -5.8% | -5.3% | 0.3% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Italy | -1.6% | -4.2% | 2.4% | 1.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Luxembourg | 2.4% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Netherlands | -1.7% | -1.6% | 3.1% | 2.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Norway | 6.9% | 6.9% | 0.2% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Poland* | -- | 11.0% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Portugal | 1.8% | -0.4% | 0.4% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Russia* | 14.9% | 7.2% | 0.4% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Spain | -5.6% | -2.4% | 3.0% | 2.1% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Sweden | 7.2% | 6.5% | 3.4% | 1.6% | 0.0% | 0.1% | 0.0% | 0.0% | 0.1% |
| Switzerland | 7.0% | 7.3% | 5.2% | 5.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United Kingdom | -1.9% | -1.6% | 16.4% | 12.4% | 0.0% | -0.1% | 0.0% | 0.0% | -0.2% |

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|--------------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| AsiaPacific | | | | | | | | | |
| Australia | -0.3% | -0.9% | 4.2% | 4.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| China* | -11.6% | -7.3% | 4.0% | 8.1% | -0.3% | 0.4% | 0.0% | 0.2% | 0.2% |
| Hong Kong | 0.2% | -0.9% | 3.9% | 2.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| India* | -8.1% | -2.3% | 2.5% | 2.1% | -0.2% | 0.0% | 0.0% | 0.0% | -0.2% |
| Indonesia* | 6.7% | 2.0% | 0.1% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Japan | 3.8% | 3.7% | 18.0% | 16.7% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Korea* | 6.0% | 0.4% | 2.1% | 3.7% | 0.2% | 0.0% | 0.0% | -0.1% | 0.1% |
| Malaysia* | 5.7% | 3.8% | 0.6% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| New Zealand | 2.5% | 2.6% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Pakistan* | -- | -4.7% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Philippines* | -0.3% | 1.0% | 0.2% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Singapore | 2.3% | 2.2% | 3.1% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Taiwan* | 15.2% | 7.2% | 1.9% | 2.9% | 0.2% | -0.1% | 0.0% | -0.1% | 0.1% |
| Thailand* | 8.6% | 13.7% | 0.2% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| Americas | | | | | | | | | |
| Brazil* | -1.4% | 6.2% | 1.4% | 1.5% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Canada | 4.2% | 0.9% | 1.1% | 6.6% | 0.3% | 0.1% | -0.1% | -0.2% | 0.1% |
| Chile* | -- | -1.9% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Colombia* | -- | -2.4% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Mexico* | 4.8% | 6.9% | 0.4% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Peru* | -0.9% | -2.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United States | 0.4% | 7.4% | 1.3% | 0.0% | 0.0% | 0.1% | 0.0% | -0.1% | 0.0% |

Developed Markets Performance Attribution vs. MSCI ACWI ex USA Gross

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|-----------------------|---------------------|--------------|----------------|---------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Other | | | | | | | | | |
| Egypt* | -- | -7.5% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Israel | 1.9% | 5.0% | 0.1% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Qatar* | 8.4% | 11.5% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Romania** | 8.5% | 6.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| South Africa* | -12.9% | -7.1% | 1.7% | 1.6% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Turkey* | -29.5% | -20.5% | 0.2% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United Arab Emirates* | 15.0% | 1.2% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Totals | | | | | | | | | |
| Americas | 1.2% | 2.0% | 4.3% | 9.3% | 0.0% | 0.0% | -0.1% | 0.0% | -0.1% |
| Europe | 0.5% | 1.0% | 51.6% | 44.4% | -0.2% | 0.0% | 0.0% | 0.0% | -0.3% |
| Asia/Pacific | 1.3% | 0.6% | 40.8% | 43.7% | 0.4% | 0.0% | 0.0% | 0.0% | 0.3% |
| Other | -10.5% | -4.3% | 2.3% | 2.5% | -0.2% | 0.0% | 0.0% | 0.0% | -0.1% |
| Cash | 0.5% | -- | 1.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | 0.6% | 0.8% | 100.0% | 100.0% | 0.1% | 0.0% | -0.1% | -0.1% | -0.1% |
| Totals | | | | | | | | | |
| Developed | 1.2% | 1.3% | 82.9% | 75.1% | 0.0% | 0.0% | -0.2% | 0.0% | -0.1% |
| Emerging* | -2.4% | -0.9% | 16.1% | 24.9% | -0.3% | 0.1% | 0.0% | 0.1% | 0.0% |
| Frontier** | 8.5% | -- | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cash | 0.5% | -- | 1.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |



| | Return (Rank) | | | | | | | |
|-------------------------------|---------------|------------|----------|-----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 3.1 | 3.7 | 8.8 | 15.5 | 14.7 | 10.0 | 13.7 | 11.2 |
| 25th Percentile | 1.7 | 0.0 | 4.6 | 12.5 | 11.1 | 7.2 | 11.1 | 8.2 |
| Median | 0.8 | -1.8 | 2.4 | 10.8 | 9.6 | 5.7 | 9.5 | 6.5 |
| 75th Percentile | -0.4 | -4.1 | -0.1 | 9.1 | 8.5 | 4.6 | 8.5 | 5.7 |
| 95th Percentile | -3.0 | -7.1 | -2.2 | 7.1 | 6.5 | 3.4 | 7.2 | 4.2 |
| # of Portfolios | 142 | 142 | 142 | 141 | 134 | 112 | 96 | 81 |
| ● BlackRock EAFE Index | 1.4 (32) | -1.1 (40) | 3.1 (42) | 11.0 (48) | 9.6 (50) | -- (--) | -- (--) | -- (--) |
| ▲ MSCI EAFE | 1.4 (33) | -1.4 (43) | 2.7 (47) | 10.6 (52) | 9.2 (59) | 4.4 (79) | 8.3 (78) | 5.4 (85) |

Characteristics

| | Portfolio | MSCI EAFE |
|---------------------------------|-----------|-----------|
| Number of Holdings | 925 | 924 |
| Weighted Avg. Market Cap. (\$B) | 57.8 | 57.8 |
| Median Market Cap. (\$B) | 10.8 | 10.8 |
| Price To Earnings | 20.5 | 19.0 |
| Price To Book | 3.0 | 2.6 |
| Price To Sales | 2.6 | 2.3 |
| Return on Equity (%) | 16.8 | 14.7 |
| Yield (%) | 3.1 | 3.1 |
| Beta (holdings: global) | 1.0 | 1.0 |

Top Holdings

| | |
|---------------------|------|
| NESTLE 'R' | 1.8% |
| NOVARTIS 'R' | 1.3% |
| HSBC HOLDINGS | 1.2% |
| ROCHE HOLDING | 1.2% |
| ROYAL DUTCH SHELL | 1.1% |
| TOTAL | 1.1% |
| BP | 1.1% |
| TOYOTA MOTOR | 1.0% |
| ROYAL DUTCH SHELL B | 0.9% |
| SAP | 0.8% |

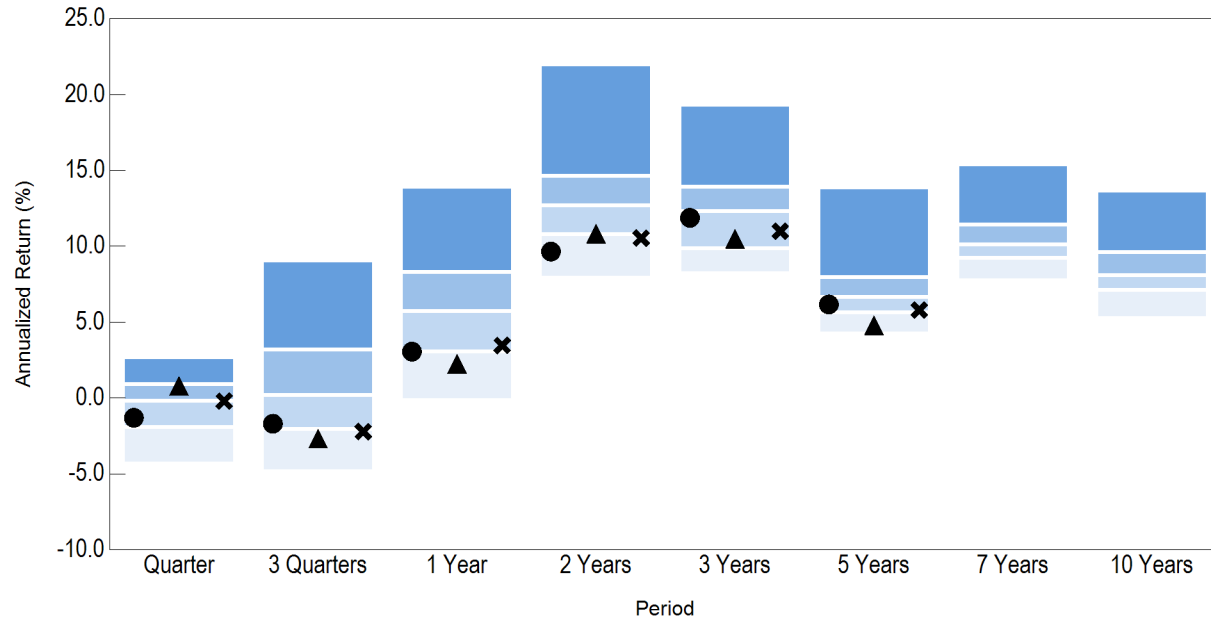
Best Performers

| | Return % |
|--|----------|
| TPG TELECOM (A:TPMX) | 61.8% |
| IDEMITSU KOSAN (J:IDKO) | 49.6% |
| SHOWA SHELL SEKIYU (J:SHSS) | 42.0% |
| SOFTBANK GROUP (J:SFTB) | 40.6% |
| ORION B (M:ORNB) | 40.5% |
| EISAI (J:ES@N) | 39.1% |
| YANGZIJIANG SHIPBUILDING (HOLDINGS) (T:YSHL) | 36.7% |
| WIRECARD (D:WDI) | 35.8% |
| ICL (IS:ICL) | 34.5% |
| LONZA GROUP (S:LONN) | 29.2% |

Worst Performers

| | Return % |
|--|----------|
| SURUGA BANK (J:SURB) | -43.1% |
| LI & FUNG (K:FUNG) | -38.2% |
| RENASAS ELECTRONICS (J:RENE) | -36.2% |
| COCA-COLA BOTTLERS JAPAN HOLDINGS (J:KITK) | -33.0% |
| CYBERDYNE (J:DYNE) | -32.6% |
| MGM CHINA HOLDINGS (K:MCHL) | -31.4% |
| ZALANDO (D:ZAL) | -30.5% |
| ATLANTIA (I:ATL) | -29.8% |
| FRESNILLO (UKIR:FRES) | -28.5% |
| SUMCO (J:UMCO) | -28.2% |

eV ACWI ex-US Growth Equity Net Return Comparison



| | Return (Rank) | | | | | | | |
|--------------------------|---------------|------------|----------|-----------|-----------|----------|---------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.7 | 9.1 | 13.9 | 22.0 | 19.3 | 13.9 | 15.4 | 13.7 |
| 25th Percentile | 1.0 | 3.2 | 8.3 | 14.7 | 13.9 | 8.0 | 11.4 | 9.6 |
| Median | -0.2 | 0.2 | 5.8 | 12.7 | 12.3 | 6.7 | 10.1 | 8.1 |
| 75th Percentile | -1.9 | -2.0 | 3.1 | 10.8 | 9.9 | 5.7 | 9.3 | 7.2 |
| 95th Percentile | -4.3 | -4.8 | -0.1 | 8.0 | 8.2 | 4.3 | 7.8 | 5.3 |
| # of Portfolios | 69 | 69 | 69 | 69 | 66 | 54 | 50 | 42 |
| ● Baillie Gifford | -1.3 (65) | -1.7 (70) | 3.1 (77) | 9.7 (85) | 11.9 (58) | 6.2 (60) | -- (--) | -- (--) |
| ▲ MSCI ACWI ex US | 0.8 (29) | -2.7 (82) | 2.3 (85) | 10.8 (75) | 10.5 (69) | 4.8 (93) | -- (--) | -- (--) |
| ✕ MSCI ACWI ex US Growth | -0.2 (51) | -2.2 (78) | 3.5 (72) | 10.5 (78) | 11.0 (64) | 5.8 (74) | -- (--) | -- (--) |

Characteristics

| | Portfolio | MSCI ACWI ex USA Gross |
|---------------------------------|-----------|------------------------|
| Number of Holdings | 87 | 2,166 |
| Weighted Avg. Market Cap. (\$B) | 44.8 | 62.2 |
| Median Market Cap. (\$B) | 15.1 | 7.7 |
| Price To Earnings | 31.4 | 18.8 |
| Price To Book | 6.7 | 2.6 |
| Price To Sales | 4.9 | 2.4 |
| Return on Equity (%) | 25.0 | 15.6 |
| Yield (%) | 1.6 | 3.0 |
| Beta (holdings; global) | 1.2 | 1.0 |

Top Holdings

| | |
|---------------------------------|------|
| HARGREAVES LANSDOWN | 3.1% |
| TAIWAN SEMICON.SPN.ADR 1:5 | 3.0% |
| NASPERS | 2.5% |
| SHISEIDO | 2.5% |
| ALIBABA GROUP HLDG.SPN. ADR 1:1 | 2.4% |
| COCHLEAR | 2.3% |
| NOVOZYMES B | 2.1% |
| MS&AD INSURANCE GP.HDG. | 2.0% |
| PIGEON | 2.0% |
| ADIDAS | 1.9% |

Best Performers

| | Return % |
|----------------------------------|----------|
| SOFTBANK GROUP (J:SFTB) | 40.6% |
| WOOD GROUP (JOHN) (UKIR:WG.) | 22.8% |
| TAIWAN SEMICON.SPN.ADR 1:5 (TSM) | 20.8% |
| PIGEON (J:PIGC) | 16.5% |
| SCHINDLER 'P' (S:SCHP) | 16.4% |
| WALMART DE MEXICO 'V' (MX:WAV) | 15.1% |
| HOMESERVE (UKIR:HSV) | 14.4% |
| HARGREAVES LANSDOWN (UKIR:HL.) | 13.5% |
| SVENSKA HANDBKN.'A' (W:SVK) | 13.4% |
| INVESTOR B (W:ISBF) | 13.2% |

Worst Performers

| | Return % |
|--|----------|
| SURUGA BANK (J:SURB) | -43.1% |
| JD.COM 'A' ADR 1:2 (JD) | -33.0% |
| ZALANDO (D:ZAL) | -30.5% |
| U-BLOX HOLDING (S:BHOL) | -27.4% |
| MAKEMYTRIP (MMYT) | -24.1% |
| CTRP.COM INTL.ADR 8:1 (CTRP) | -22.0% |
| NASPERS (R:NPNJ) | -15.0% |
| DISTRIBUIDORA INTNAC.DE ALIMENTACION (E:DIA) | -15.0% |
| SUGI HOLDINGS (J:SUGP) | -14.6% |
| CLICKS GROUP (R:CLSJ) | -13.8% |

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 | 0.0% | 1.3% | -0.2% | -1.1% | 22.8% | 4.4% | 0.9% | 7.4% | | | |
| Materials | 0.1% | 0.2% | 0.0% | -0.1% | 1.5% | 0.4% | 4.7% | 8.2% | | | |
| Industrials | -0.5% | -0.4% | 0.1% | -0.1% | -0.6% | 2.8% | 14.5% | 11.7% | | | |
| Consumer Discretionary | -1.9% | -1.0% | -0.2% | -0.7% | -10.9% | -2.7% | 18.9% | 11.3% | | | |
| Consumer Staples | -0.2% | 0.1% | -0.1% | -0.2% | -1.0% | -0.5% | 13.9% | 9.7% | | | |
| Health Care | -0.1% | 0.0% | 0.0% | 0.0% | 3.4% | 4.5% | 7.1% | 8.1% | | | |
| Financials | 0.4% | 0.6% | 0.0% | -0.2% | 4.5% | 1.6% | 16.3% | 21.9% | | | |
| Information Technology | -0.3% | 0.0% | -0.3% | 0.0% | -2.1% | -2.4% | 21.2% | 11.9% | | | |
| Communication Services | 0.2% | 1.3% | -0.1% | -1.0% | 40.6% | 3.6% | 0.8% | 3.7% | | | |
| Utilities | 0.1% | -- | 0.0% | -- | -- | -0.9% | 0.0% | 3.0% | | | |
| Real Estate | 0.2% | -- | 0.1% | -- | -- | -3.6% | 0.0% | 3.2% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 1.7% | 0.0% | | | |
| Portfolio | -1.9% | = | 2.1% | + | -0.7% | + | -3.2% | -1.2% | 0.8% | 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 | -- | 0.4% | 0.0% | 0.2% | -- | 0.0% | 0.0% | -- | 0.0% |
| Belgium | -- | -5.2% | 0.0% | 0.7% | -- | 0.0% | 0.0% | -- | 0.0% |
| Czech Republic* | -- | 4.0% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Denmark | 6.4% | 2.4% | 2.8% | 1.1% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% |
| Finland | 4.9% | 3.2% | 1.1% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| France | -0.7% | 2.9% | 1.4% | 7.5% | -0.3% | -0.1% | 0.0% | 0.2% | -0.1% |
| Germany | -6.8% | -0.6% | 6.7% | 6.4% | -0.4% | 0.0% | 0.0% | 0.0% | -0.4% |
| Greece* | -- | -18.2% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Hungary* | -- | 4.7% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Ireland | -6.6% | -5.4% | 0.6% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Italy | -- | -4.0% | 0.0% | 1.6% | -- | 0.1% | 0.0% | -- | 0.1% |
| Netherlands | -5.7% | -1.3% | 1.5% | 2.4% | -0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Norway | -- | 6.9% | 0.0% | 0.5% | -- | 0.0% | 0.0% | -- | 0.0% |
| Poland* | -- | 11.1% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Portugal | 2.0% | -0.4% | 1.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Russia* | -- | 7.1% | 0.0% | 0.9% | -- | -0.1% | 0.0% | -- | 0.0% |
| Spain | -11.9% | -2.3% | 2.4% | 2.1% | -0.2% | 0.0% | 0.0% | 0.0% | -0.2% |
| Sweden | 9.6% | 7.0% | 4.5% | 1.7% | 0.0% | 0.1% | 0.0% | 0.1% | 0.3% |
| Switzerland | 2.5% | 7.3% | 3.6% | 5.3% | -0.3% | -0.1% | 0.0% | 0.1% | -0.3% |
| United Kingdom | -0.4% | -1.6% | 14.2% | 12.3% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% |

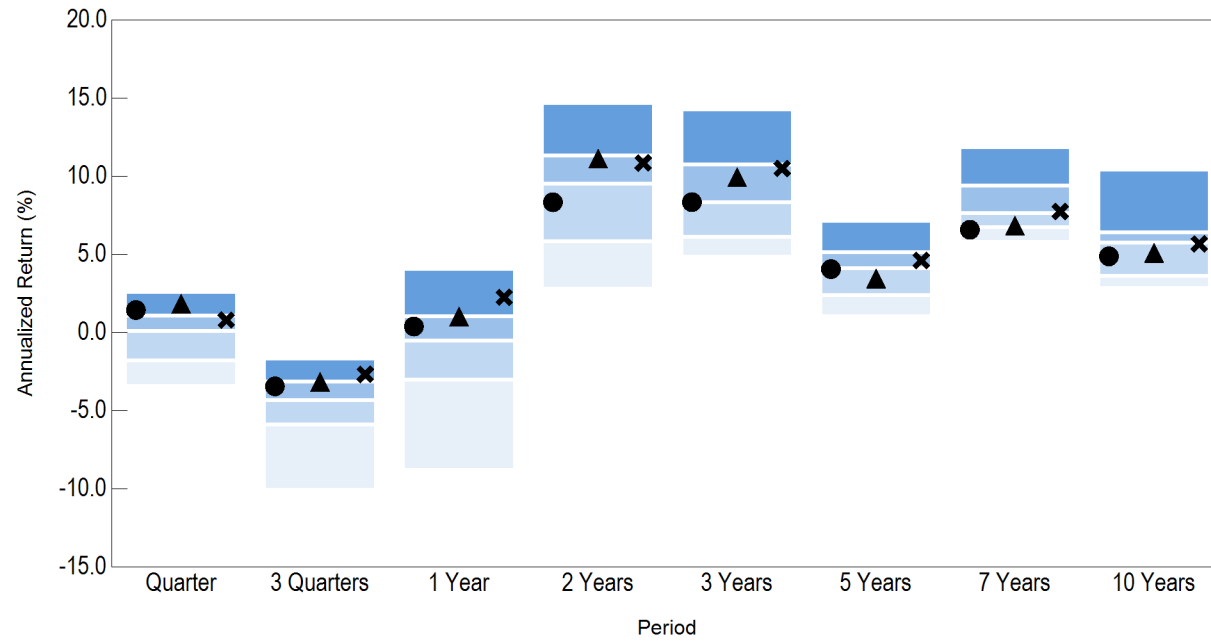
Baillie Gifford Performance Attribution vs. MSCI ACWI ex USA Gross

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|--------------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| AsiaPacific | | | | | | | | | |
| Australia | -2.2% | -0.8% | 4.7% | 4.8% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| China* | -15.6% | -7.3% | 8.6% | 8.1% | -0.7% | 0.0% | 0.0% | 0.0% | -0.7% |
| Hong Kong | 2.6% | -0.9% | 1.8% | 2.5% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% |
| India* | -8.1% | -2.3% | 3.9% | 2.1% | -0.2% | 0.1% | 0.0% | -0.1% | -0.3% |
| Indonesia* | -- | 2.0% | 0.0% | 0.5% | -- | 0.0% | 0.0% | -- | 0.0% |
| Japan | 2.2% | 3.7% | 16.6% | 16.7% | -0.2% | 0.0% | 0.0% | 0.0% | -0.2% |
| Korea* | 2.5% | 0.3% | 2.7% | 3.6% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% |
| Malaysia* | 5.8% | 3.8% | 1.0% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| New Zealand | -- | 2.6% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Pakistan* | -- | -4.8% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Philippines* | -4.6% | 1.1% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Singapore | 0.6% | 2.2% | 3.6% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Taiwan* | 15.5% | 7.1% | 3.4% | 2.9% | 0.2% | 0.0% | 0.0% | 0.0% | 0.3% |
| Thailand* | -- | 13.7% | 0.0% | 0.6% | -- | -0.1% | 0.0% | -- | -0.1% |
| Americas | | | | | | | | | |
| Brazil* | 5.3% | 6.2% | 1.1% | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Canada | 5.1% | 1.0% | 2.3% | 6.6% | 0.3% | 0.1% | -0.1% | -0.2% | 0.1% |
| Chile* | -- | -1.9% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Colombia* | -- | -2.4% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Mexico* | 15.1% | 6.9% | 0.6% | 0.7% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Peru* | -- | -2.1% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| United States | 1.7% | 7.4% | 3.3% | 0.0% | 0.0% | 0.2% | 0.0% | -0.2% | 0.0% |

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 | |
| Other | | | | | | | | | |
| Egypt* | -- | -7.5% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Israel | -- | 5.1% | 0.0% | 0.4% | -- | 0.0% | 0.0% | -- | 0.0% |
| Qatar* | -- | 11.5% | 0.0% | 0.2% | -- | 0.0% | 0.0% | -- | 0.0% |
| South Africa* | -14.6% | -7.1% | 4.3% | 1.6% | -0.1% | -0.1% | -0.1% | -0.2% | -0.5% |
| Turkey* | -- | -20.3% | 0.0% | 0.2% | -- | 0.0% | 0.0% | -- | 0.0% |
| United Arab Emirates* | -- | 1.4% | 0.0% | 0.2% | -- | 0.0% | 0.0% | -- | 0.0% |
| Totals | | | | | | | | | |
| Americas | 4.4% | 2.0% | 7.3% | 9.3% | 0.3% | 0.0% | -0.1% | -0.1% | 0.2% |
| Europe | -0.3% | 1.0% | 40.0% | 44.5% | -0.6% | 0.0% | 0.0% | 0.0% | -0.5% |
| Asia/Pacific | -1.5% | 0.5% | 46.7% | 43.6% | -0.9% | 0.0% | 0.0% | -0.1% | -1.0% |
| Other | -14.6% | -4.4% | 4.3% | 2.5% | -0.3% | 0.0% | 0.0% | -0.2% | -0.5% |
| Cash | 0.5% | -- | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | -1.2% | 0.8% | 100.0% | 100.0% | -1.4% | 0.0% | -0.2% | -0.3% | -1.9% |
| Totals | | | | | | | | | |
| Developed | 0.5% | 1.4% | 72.4% | 75.2% | -0.5% | 0.0% | -0.1% | 0.0% | -0.7% |
| Emerging* | -5.9% | -1.0% | 25.9% | 24.8% | -1.2% | 0.0% | -0.1% | 0.0% | -1.3% |
| Cash | 0.5% | -- | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

eV ACWI ex-US Value Equity Net Return Comparison



| | Return (Rank) | | | | | | | |
|--------------------------------|---------------|------------|----------|-----------|-----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.6 | -1.7 | 4.1 | 14.7 | 14.2 | 7.1 | 11.8 | 10.4 |
| 25th Percentile | 1.1 | -3.1 | 1.1 | 11.3 | 10.8 | 5.1 | 9.4 | 6.4 |
| Median | 0.1 | -4.3 | -0.5 | 9.6 | 8.4 | 4.1 | 7.7 | 5.8 |
| 75th Percentile | -1.8 | -5.9 | -3.0 | 5.9 | 6.2 | 2.4 | 6.8 | 3.6 |
| 95th Percentile | -3.4 | -10.0 | -8.7 | 2.8 | 4.9 | 1.1 | 5.8 | 2.9 |
| # of Portfolios | 38 | 38 | 38 | 38 | 34 | 30 | 22 | 17 |
| ● Mondrian | 1.4 (23) | -3.4 (34) | 0.4 (34) | 8.3 (57) | 8.3 (51) | 4.1 (54) | 6.6 (79) | 4.9 (63) |
| ▲ MSCI ACWI ex USA Value Gross | 1.8 (11) | -3.1 (27) | 1.0 (26) | 11.1 (28) | 9.9 (33) | 3.5 (60) | 6.8 (69) | 5.1 (55) |
| ✕ MSCI ACWI ex USA Gross | 0.8 (35) | -2.7 (15) | 2.3 (18) | 10.8 (30) | 10.5 (27) | 4.6 (39) | 7.7 (48) | 5.7 (51) |

Characteristics

| | Portfolio | MSCI ACWI ex USA Value Gross |
|---------------------------------|-----------|------------------------------|
| Number of Holdings | 138 | 1,274 |
| Weighted Avg. Market Cap. (\$B) | 54.7 | 58.2 |
| Median Market Cap. (\$B) | 20.7 | 7.0 |
| Price To Earnings | 13.1 | 13.7 |
| Price To Book | 1.7 | 1.5 |
| Price To Sales | 1.7 | 1.7 |
| Return on Equity (%) | 12.2 | 11.8 |
| Yield (%) | 4.1 | 4.0 |
| Beta (holdings: global) | 1.0 | 1.0 |

Top Holdings

| | |
|-----------------------|------|
| SANOFI | 2.9% |
| ENI | 2.5% |
| ENEL | 2.4% |
| UNITED OVERSEAS BANK | 2.4% |
| CK HUTCHISON HOLDINGS | 2.4% |
| LLOYDS BANKING GROUP | 2.3% |
| BP | 2.2% |
| HONDA MOTOR | 2.2% |
| TELIA COMPANY | 2.2% |
| IBERDROLA | 2.1% |

Best Performers

| | Return % |
|--|----------|
| WOOD GROUP (JOHN) (UKIR:WG.) | 22.8% |
| SK TELECOM (KO:SKT) | 21.6% |
| SAMSUNG SDI (KO:SCT) | 21.4% |
| TAIWAN SEMICON.MNFG. (TW:TSM) | 21.1% |
| ISUZU MOTORS (J:IM@N) | 19.9% |
| KROTON EDUCACIONAL ON (BR:KRO) | 19.2% |
| PJSC GAZPROM ADR (OTC) CDI 1:2 (OGZPY) | 18.9% |
| FUJITSU (J:FT@N) | 18.5% |
| FUJIFILM HOLDINGS (J:FP@N) | 16.2% |
| NOVATEK MICROELS. (TW:NOV) | 15.4% |

Worst Performers

| | Return % |
|--|----------|
| COCA-COLA BOTTLERS JAPAN HOLDINGS (J:KITK) | -33.0% |
| TKI.GARANTI BKSJ. (TK:GAR) | -29.8% |
| CHINA MED.SY.HDG.(DI) (K:CHM) | -29.5% |
| TURKIYE HALK BANKASI (TK:HLB) | -29.3% |
| INDIABULLS HOUSING FIN (IN:IEZ) | -28.6% |
| TONGDA GROUP HOLDINGS (K:TGDA) | -26.2% |
| TRAVIS PERKINS (UKIR:TPK) | -26.0% |
| MIDEA GROUP 'A' (CN:MGA) | -25.7% |
| EMBRAER SPNS ADR 1:4 (ERJ) | -21.3% |
| CMPH.COCS. RODOVIARIAS ON (BR:CCR) | -19.5% |

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|-------------|-----------|----------------|-------------|-------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.1% | 0.1% | -0.1% | 0.0% | 6.3% | 5.1% | 10.4% | 12.1% | | | |
| Materials | 0.1% | 0.2% | 0.0% | -0.1% | 3.2% | 1.5% | 3.5% | 8.0% | | | |
| Industrials | -0.2% | -0.2% | 0.1% | -0.1% | 0.6% | 2.5% | 12.6% | 7.5% | | | |
| Consumer Discretionary | -0.3% | 0.0% | -0.1% | -0.2% | -1.4% | -0.6% | 13.9% | 8.2% | | | |
| Consumer Staples | -0.4% | -0.2% | -0.1% | -0.1% | -6.4% | -0.8% | 5.9% | 4.1% | | | |
| Health Care | 0.1% | 0.1% | 0.1% | 0.0% | 4.9% | 4.1% | 10.0% | 6.6% | | | |
| Financials | 0.3% | 0.6% | 0.0% | -0.3% | 2.8% | 1.9% | 18.2% | 33.9% | | | |
| Information Technology | 0.5% | 0.3% | 0.0% | 0.2% | 10.5% | 2.8% | 7.0% | 4.4% | | | |
| Communication Services | 0.1% | 0.1% | 0.0% | 0.1% | 3.5% | 1.2% | 7.6% | 5.5% | | | |
| Utilities | -0.5% | -0.3% | -0.1% | -0.2% | -5.5% | -0.2% | 8.2% | 5.0% | | | |
| Real Estate | 0.2% | 0.1% | 0.1% | 0.0% | 0.1% | -3.6% | 2.4% | 4.6% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 0.3% | 0.0% | | | |
| Portfolio | 0.0% | = | 0.8% | + | 0.0% | + | -0.7% | 1.8% | 1.8% | 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 | -- | -0.1% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Belgium | -- | 0.3% | 0.0% | 0.4% | -- | 0.0% | 0.0% | -- | 0.0% |
| Czech Republic* | -- | 8.0% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Denmark | 2.4% | -7.6% | 1.6% | 0.3% | 0.0% | -0.1% | 0.0% | 0.1% | 0.0% |
| Finland | -- | 1.8% | 0.0% | 0.8% | -- | 0.0% | 0.0% | -- | 0.0% |
| France | 5.5% | 4.1% | 4.7% | 7.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Germany | 3.1% | -0.8% | 7.3% | 5.2% | 0.2% | -0.1% | 0.0% | 0.1% | 0.2% |
| Greece* | -- | -24.9% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Hungary* | -- | 7.7% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Ireland | -- | -3.3% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Italy | -0.4% | -4.5% | 5.1% | 2.1% | 0.1% | -0.2% | 0.0% | 0.1% | 0.0% |
| Netherlands | -2.1% | 1.1% | 3.5% | 1.2% | 0.0% | 0.0% | 0.0% | -0.1% | -0.2% |
| Norway | -- | 7.7% | 0.0% | 0.6% | -- | 0.0% | 0.0% | -- | 0.0% |
| Poland* | -- | 12.0% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Portugal | -- | -3.9% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Russia* | 14.9% | 9.8% | 1.3% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Spain | -4.0% | -3.3% | 3.6% | 3.0% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| Sweden | 4.6% | 13.6% | 3.2% | 0.9% | -0.1% | 0.2% | 0.0% | -0.2% | 0.0% |
| Switzerland | 10.1% | 8.3% | 4.6% | 4.5% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% |
| United Kingdom | -3.5% | -2.9% | 19.5% | 16.5% | -0.1% | -0.1% | 0.0% | 0.0% | -0.3% |

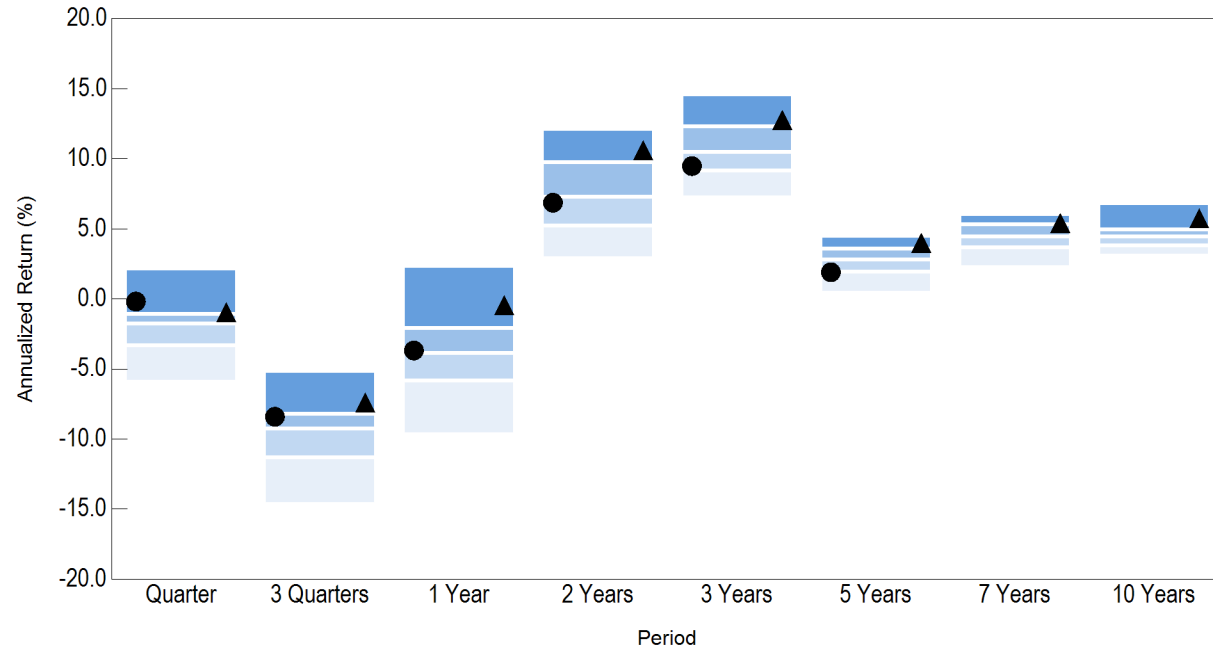
Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|--------------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| AsiaPacific | | | | | | | | | |
| Australia | 14.1% | -0.7% | 0.9% | 4.8% | 0.7% | 0.1% | 0.1% | -0.6% | 0.3% |
| China* | -0.2% | 2.1% | 3.2% | 7.9% | -0.1% | 0.0% | 0.0% | 0.1% | 0.0% |
| Hong Kong | 0.9% | -0.2% | 5.2% | 2.5% | 0.0% | -0.1% | 0.0% | 0.0% | 0.0% |
| India* | -8.1% | 4.3% | 3.6% | 2.2% | -0.3% | 0.1% | -0.1% | -0.2% | -0.4% |
| Indonesia* | 6.7% | 3.3% | 0.3% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Japan | 6.2% | 4.0% | 13.5% | 16.7% | 0.4% | -0.1% | 0.1% | -0.1% | 0.3% |
| Korea* | 8.7% | 2.5% | 3.5% | 3.6% | 0.2% | 0.0% | 0.0% | 0.0% | 0.2% |
| Malaysia* | 5.6% | 4.8% | 0.9% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| New Zealand | -- | 3.7% | 0.0% | 0.2% | -- | 0.0% | 0.0% | -- | 0.0% |
| Pakistan* | -- | -4.8% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Philippines* | 6.0% | -0.6% | 0.3% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Singapore | 4.1% | 4.1% | 4.2% | 0.9% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Taiwan* | 14.7% | 5.3% | 2.1% | 3.0% | 0.3% | 0.0% | 0.0% | -0.1% | 0.2% |
| Thailand* | 8.6% | 15.8% | 0.6% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Americas | | | | | | | | | |
| Brazil* | -3.8% | 11.0% | 3.2% | 1.5% | -0.2% | 0.2% | 0.0% | -0.3% | -0.3% |
| Canada | 2.2% | 1.2% | 1.0% | 6.7% | 0.1% | 0.2% | -0.1% | -0.1% | 0.1% |
| Chile* | -- | 0.7% | 0.0% | 0.3% | -- | 0.0% | 0.0% | -- | 0.0% |
| Colombia* | -- | -10.4% | 0.0% | 0.1% | -- | 0.0% | 0.0% | -- | 0.0% |
| Mexico* | -8.4% | 10.1% | 0.5% | 0.7% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Peru* | -0.9% | -1.1% | 0.3% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Mondrian Performance Attribution vs. MSCI ACWI ex USA Value Gross

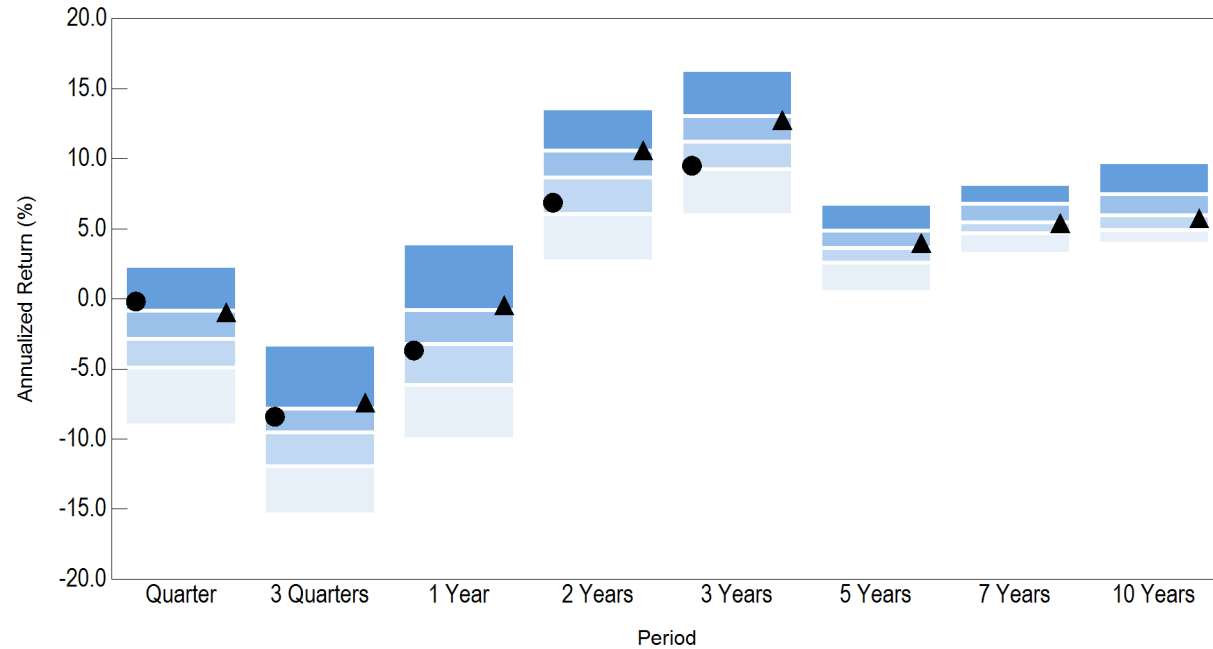
| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|-----------------------|---------------------|--------------|----------------|---------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Other | | | | | | | | | |
| Egypt* | -- | -4.0% | 0.0% | 0.0% | -- | 0.0% | 0.0% | -- | 0.0% |
| Israel | -- | -0.8% | 0.0% | 0.4% | -- | 0.0% | 0.0% | -- | 0.0% |
| Qatar* | 8.4% | 9.4% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Romania** | 8.5% | 1.8% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| South Africa* | -1.2% | -2.1% | 0.6% | 1.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Turkey* | -29.5% | -28.1% | 0.6% | 0.2% | 0.0% | 0.0% | -0.1% | 0.0% | -0.1% |
| United Arab Emirates* | 15.0% | 4.8% | 0.4% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Totals | | | | | | | | | |
| Americas | -2.9% | 3.2% | 5.0% | 9.4% | -0.4% | 0.0% | -0.1% | 0.2% | -0.3% |
| Europe | 0.7% | 0.5% | 54.5% | 44.3% | 0.1% | -0.2% | 0.0% | 0.0% | -0.1% |
| Asia/Pacific | 4.3% | 3.0% | 38.2% | 43.7% | 0.6% | -0.1% | 0.1% | -0.1% | 0.5% |
| Other | -3.9% | -2.4% | 2.0% | 2.6% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cash | 0.5% | -- | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | 1.8% | 1.8% | 100.0% | 100.0% | 0.3% | -0.2% | -0.1% | 0.1% | 0.0% |
| Totals | | | | | | | | | |
| Developed | 1.8% | 1.2% | 77.9% | 75.2% | 0.5% | 0.0% | 0.0% | 0.0% | 0.5% |
| Emerging* | 1.8% | 3.7% | 21.6% | 24.8% | -0.3% | -0.1% | -0.1% | 0.0% | -0.4% |
| Frontier** | 8.5% | -- | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Cash | 0.5% | -- | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

InvestorForce All DB Emg Mkt Eq Net Return Comparison



| | Return (Rank) | | | | | | | | | |
|-------------------------------|---------------|------------|-----------|-----------|-----------|----------|----------|----------|---------|---------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years | | |
| 5th Percentile | 2.2 | -5.1 | 2.3 | 12.1 | 14.6 | 4.5 | 6.1 | 6.8 | | |
| 25th Percentile | -1.0 | -8.2 | -2.1 | 9.8 | 12.3 | 3.6 | 5.3 | 5.0 | | |
| Median | -1.7 | -9.2 | -3.8 | 7.3 | 10.5 | 2.8 | 4.5 | 4.5 | | |
| 75th Percentile | -3.3 | -11.3 | -5.8 | 5.2 | 9.2 | 2.0 | 3.7 | 3.8 | | |
| 95th Percentile | -5.9 | -14.6 | -9.6 | 2.9 | 7.3 | 0.5 | 2.3 | 3.1 | | |
| # of Portfolios | 96 | 94 | 93 | 89 | 87 | 72 | 53 | 16 | | |
| ● Emerging Markets | -0.2 (13) | -8.4 (27) | -3.7 (48) | 6.9 (63) | 9.5 (67) | 1.9 (77) | -- (--) | -- (--) | -- (--) | -- (--) |
| ▲ MSCI Emerging Markets Gross | -0.9 (22) | -7.4 (16) | -0.4 (11) | 10.6 (19) | 12.8 (20) | 4.0 (18) | 5.4 (22) | 5.8 (14) | | |

eV Emg Mkts Equity Net Return Comparison



| | Return (Rank) | | | | | | | | | | | | | | | |
|-------------------------------|---------------|-----------|------------|-----------|-----------|----------|----------|----------|---------|--|---------|--|---------|--|----------|--|
| | Quarter | | 3 Quarters | | 1 Year | | 2 Years | | 3 Years | | 5 Years | | 7 Years | | 10 Years | |
| 5th Percentile | 2.3 | -3.3 | 3.9 | 13.6 | 16.3 | 6.8 | 8.2 | 9.8 | | | | | | | | |
| 25th Percentile | -0.8 | -7.8 | -0.8 | 10.6 | 13.1 | 4.9 | 6.8 | 7.5 | | | | | | | | |
| Median | -2.8 | -9.5 | -3.2 | 8.7 | 11.2 | 3.7 | 5.5 | 6.0 | | | | | | | | |
| 75th Percentile | -4.9 | -11.9 | -6.1 | 6.1 | 9.3 | 2.6 | 4.7 | 5.0 | | | | | | | | |
| 95th Percentile | -9.0 | -15.3 | -10.0 | 2.7 | 6.0 | 0.5 | 3.2 | 4.0 | | | | | | | | |
| # of Portfolios | 199 | 196 | 195 | 189 | 180 | 152 | 113 | 72 | | | | | | | | |
| ● Parametric Core | -0.2 (20) | -8.4 (37) | -3.7 (54) | 6.9 (69) | 9.5 (72) | -- (--) | -- (--) | -- (--) | | | | | | | | |
| ▲ MSCI Emerging Markets Gross | -0.9 (27) | -7.4 (23) | -0.4 (23) | 10.6 (26) | 12.8 (29) | 4.0 (40) | 5.4 (53) | 5.8 (55) | | | | | | | | |

Characteristics

| | Portfolio | MSCI Emerging Markets Gross |
|---------------------------------|-----------|--------------------------------|
| Number of Holdings | 1,183 | 1,151 |
| Weighted Avg. Market Cap. (\$B) | 22.3 | 79.3 |
| Median Market Cap. (\$B) | 3.2 | 5.3 |
| Price To Earnings | 19.3 | 18.6 |
| Price To Book | 2.8 | 3.1 |
| Price To Sales | 2.9 | 2.5 |
| Return on Equity (%) | 17.1 | 17.7 |
| Yield (%) | 3.3 | 2.7 |
| Beta (holdings; global) | 0.9 | 1.0 |

Top Holdings

| | |
|--|------|
| CHINA MOBILE | 1.1% |
| AMERICA MOVIL SAB DE CV SPN.ADR 'L' 1:20 | 0.9% |
| LUKOIL OAO SPN.ADR 1:1 | 0.8% |
| SBERBANK OF RUSSIA | 0.8% |
| CREDICORP | 0.8% |
| PJSC GAZPROM ADR (OTC) CDI 1:2 | 0.7% |
| NASPERS | 0.6% |
| GPO FINANCE BANORTE | 0.6% |
| PETROLEO BRASILEIRO ADR 1:2 | 0.6% |
| SAMSUNG ELECTRONICS | 0.5% |

Best Performers

| | Return % |
|--|----------|
| MY EG SERVICES (L:MYEG) | 77.0% |
| GRUPO ELEKTRA (MX:ELP) | 65.6% |
| TATUNG (TW:TAT) | 48.5% |
| CHIN.COMMS.SVS.'H' (K:CHCM) | 47.2% |
| CONTROLADORA VUELA COMPANIA DE AVIACION (MX:VOA) | 46.3% |
| CHABIOTECH (KO:DTH) | 46.2% |
| GLOBE TELECOM (PH:GLA) | 42.7% |
| BANGKOK DUSIT MED.SVS.FB (Q:BDMF) | 42.6% |
| SILLAJEN (KO:JLS) | 40.4% |
| SHDG.WEIGAO GP.MED. PLM. 'H' (K:SDW) | 39.6% |

Worst Performers

| | Return % |
|---------------------------------|----------|
| BLUE LABEL TELECOMS (R:BLUJ) | -51.2% |
| INDIABULLS REAL ESTATE (IN:IBR) | -46.9% |
| PALM HILLS DEVS.SAE (EG:PAL) | -46.3% |
| SILOAM INTL.HOSPS. (ID:SIO) | -46.3% |
| TURK TELEKOMUNIKASYON (TK:TUT) | -44.4% |
| VIPSHOP HOLDINGS ADR 5:1 (VIPS) | -42.5% |
| YAPI VE KREDI BANKASI (TK:YKB) | -42.2% |
| TURKIYE IS BANKASI 'C' (TK:ISC) | -40.9% |
| DOGUS OTO SERVIS VTC. (TK:DOA) | -40.8% |
| TKI.VAKIFLAR BANKASI (TK:TVB) | -40.3% |

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

| | Attribution Effects | | | | Returns | | Sector Weights | | | | |
|------------------------|---------------------|------------------|-------------------|---------------------|-------------|-----------|----------------|--------------|--------------|---------------|---------------|
| | Total Effects | Selection Effect | Allocation Effect | Interaction Effects | Portfolio | Benchmark | Portfolio | Benchmark | | | |
| Energy | 0.1% | -0.2% | 0.4% | -0.1% | 12.2% | 14.5% | 9.4% | 7.2% | | | |
| Materials | -0.1% | -0.2% | 0.2% | -0.1% | 2.0% | 4.6% | 10.8% | 7.6% | | | |
| Industrials | -0.1% | -0.1% | 0.2% | -0.2% | 0.7% | 2.7% | 9.5% | 5.2% | | | |
| Consumer Discretionary | 0.5% | 0.4% | 0.1% | -0.1% | -6.3% | -10.3% | 8.8% | 9.8% | | | |
| Consumer Staples | -0.1% | 0.0% | 0.0% | -0.1% | -2.8% | -2.6% | 9.7% | 6.6% | | | |
| Health Care | -0.1% | 0.0% | -0.1% | 0.0% | -6.3% | -7.0% | 5.4% | 3.2% | | | |
| Financials | -0.1% | 0.0% | -0.2% | 0.2% | 1.8% | 1.5% | 14.7% | 22.8% | | | |
| Information Technology | 1.2% | 1.0% | 1.0% | -0.8% | -1.3% | -4.5% | 6.3% | 28.0% | | | |
| Communication Services | -0.2% | -0.1% | 0.1% | -0.2% | -1.3% | 1.9% | 9.1% | 4.3% | | | |
| Utilities | -0.1% | 0.0% | 0.0% | -0.1% | -2.1% | -1.9% | 6.5% | 2.4% | | | |
| Real Estate | -0.2% | 0.0% | -0.2% | -0.1% | -5.8% | -5.6% | 6.4% | 2.8% | | | |
| Cash | 0.0% | 0.0% | 0.0% | 0.0% | 0.5% | -- | 3.2% | 0.0% | | | |
| Unclassified | 0.0% | 0.0% | 0.0% | 0.0% | 2.1% | -- | 0.1% | 0.0% | | | |
| Portfolio | 0.8% | = | 1.0% | + | 1.3% | + | -1.5% | -0.2% | -0.9% | 100.0% | 100.0% |

Parametric Core Performance Attribution vs. MSCI Emerging Markets Gross

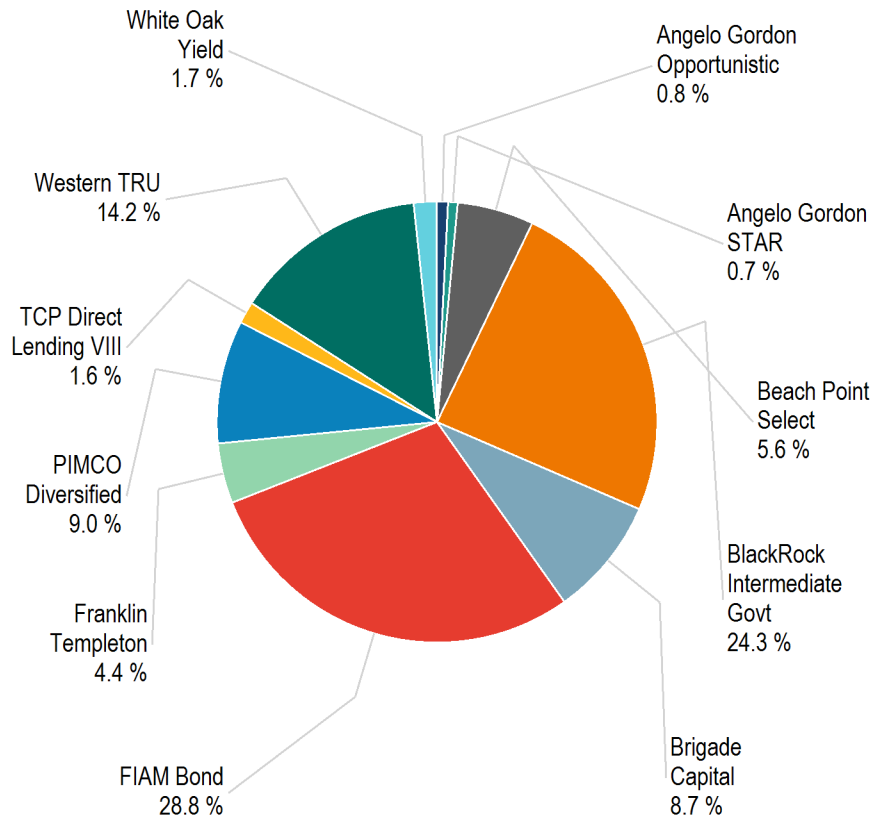
| | Returns and Weights | | | | Attribution Effects | | | | Total Effects |
|--------------------|---------------------|--------------|----------------|--------------|---------------------|-------------------|-----------------|--------------------|---------------|
| | Manager Return | Index Return | Manager Weight | Index Weight | Selection Effect | Allocation Effect | Currency Effect | Interaction Effect | |
| Europe | | | | | | | | | |
| Czech Republic* | 3.2% | 4.0% | 0.8% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Greece* | -7.1% | -18.1% | 1.4% | 0.3% | 0.0% | -0.2% | 0.0% | 0.1% | 0.0% |
| Hungary* | 4.9% | 4.7% | 0.9% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Luxembourg | -13.4% | -0.9% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Netherlands | 27.4% | -1.5% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Poland* | 5.9% | 11.0% | 3.3% | 1.1% | -0.1% | 0.2% | 0.0% | -0.1% | 0.1% |
| Russia* | 3.5% | 7.2% | 5.9% | 3.4% | -0.2% | 0.3% | 0.0% | -0.1% | 0.0% |
| United Kingdom | -6.0% | -1.7% | 0.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| AsiaPacific | | | | | | | | | |
| China* | -1.1% | -7.3% | 5.9% | 32.7% | 2.0% | 2.0% | 0.0% | -1.6% | 2.4% |
| Hong Kong | -5.8% | -0.9% | 5.4% | 0.0% | 0.0% | -0.1% | 0.0% | -0.3% | -0.3% |
| India* | -3.4% | -2.3% | 6.7% | 8.6% | -0.2% | -0.1% | 0.2% | 0.0% | 0.0% |
| Indonesia* | -0.6% | 2.0% | 3.3% | 1.9% | -0.1% | 0.1% | -0.1% | 0.0% | -0.1% |
| Korea* | 2.1% | 0.4% | 6.8% | 14.7% | 0.3% | 0.0% | 0.0% | -0.1% | 0.1% |
| Malaysia* | 3.1% | 3.8% | 3.3% | 2.3% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Pakistan* | -6.0% | -4.7% | 1.7% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| Philippines* | 1.1% | 1.0% | 3.5% | 0.9% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| Singapore | -2.9% | 2.2% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Taiwan* | 6.4% | 7.2% | 6.8% | 11.6% | -0.1% | -0.3% | 0.0% | 0.0% | -0.4% |
| Thailand* | 8.8% | 13.7% | 3.0% | 2.2% | -0.1% | 0.1% | 0.0% | 0.0% | 0.0% |
| Americas | | | | | | | | | |
| Brazil* | -0.3% | 6.2% | 6.6% | 5.9% | -0.4% | 0.1% | 0.0% | -0.1% | -0.4% |
| Chile* | -1.8% | -1.9% | 3.3% | 1.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Colombia* | -3.6% | -2.4% | 1.7% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | -0.1% |
| Mexico* | 8.7% | 6.9% | 7.1% | 2.9% | 0.1% | 0.1% | 0.1% | 0.1% | 0.4% |
| Peru* | -1.4% | -2.1% | 1.3% | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| United States | -3.8% | 7.4% | 1.6% | 0.0% | 0.0% | 0.1% | 0.0% | -0.2% | -0.1% |

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* | -14.5% | -7.5% | 0.9% | 0.1% | 0.0% | -0.1% | 0.0% | -0.1% | -0.1% |
| Kuwait** | 6.3% | 8.6% | 1.7% | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.1% |
| Qatar* | 5.9% | 11.5% | 1.7% | 0.8% | 0.0% | 0.1% | 0.0% | -0.1% | 0.0% |
| South Africa* | -8.5% | -7.1% | 6.7% | 6.4% | -0.1% | 0.0% | 0.0% | 0.0% | -0.1% |
| Turkey* | -21.2% | -20.5% | 3.6% | 0.8% | 0.0% | 0.1% | -0.7% | 0.0% | -0.6% |
| United Arab Emirates* | 3.9% | 1.2% | 1.4% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Totals | | | | | | | | | |
| Americas | 1.8% | 4.8% | 21.7% | 10.8% | -0.4% | 0.6% | 0.1% | -0.4% | -0.1% |
| Europe | 2.8% | 6.3% | 12.8% | 5.3% | -0.3% | 0.6% | 0.0% | -0.4% | 0.0% |
| Asia/Pacific | 0.5% | -1.7% | 46.3% | 75.1% | 1.9% | 0.3% | 0.0% | -0.7% | 1.5% |
| Other | -7.3% | -5.9% | 16.0% | 8.7% | 0.1% | -0.1% | -0.7% | 0.1% | -0.7% |
| Cash | 0.5% | -- | 3.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Total | -0.2% | -0.9% | 100.0% | 100.0% | 1.3% | 1.5% | -0.5% | -1.5% | 0.8% |
| Totals | | | | | | | | | |
| Developed | -5.1% | -- | 7.6% | 0.0% | 0.0% | 0.0% | 0.0% | -0.4% | -0.4% |
| Emerging* | 0.1% | -0.9% | 87.5% | 100.0% | 1.8% | 0.0% | -0.5% | -0.2% | 1.0% |
| Frontier** | 6.3% | -- | 1.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% |
| Cash | 0.5% | -- | 3.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Fixed Income
 Manager Allocation Analysis

Period Ending: September 30, 2018



| | Actual \$ | Actual % | Manager Contribution to Excess Return % |
|-------------------------------------|----------------------|---------------|---|
| Angelo Gordon Opportunistic | \$7,215,000 | 0.8% | 0.0% |
| Angelo Gordon STAR | \$6,594,100 | 0.7% | 0.1% |
| Beach Point Select | \$50,850,522 | 5.6% | 0.0% |
| BlackRock Intermediate Govt | \$219,692,433 | 24.3% | 0.0% |
| Brigade Capital | \$79,075,925 | 8.7% | 0.0% |
| FIAM Bond | \$260,531,458 | 28.8% | 0.0% |
| Franklin Templeton | \$40,180,366 | 4.4% | 0.0% |
| PIMCO Diversified | \$81,104,876 | 9.0% | 0.0% |
| TCP Direct Lending VIII | \$14,893,759 | 1.6% | 0.0% |
| Western Asset TRU | \$128,715,909 | 14.2% | -0.1% |
| White Oak Yield | \$15,717,612 | 1.7% | 0.0% |
| Actual vs. Policy Weight Difference | | | -0.2% |
| Total | \$904,571,960 | 100.0% | -0.1% |

Statistics Summary

3 Years

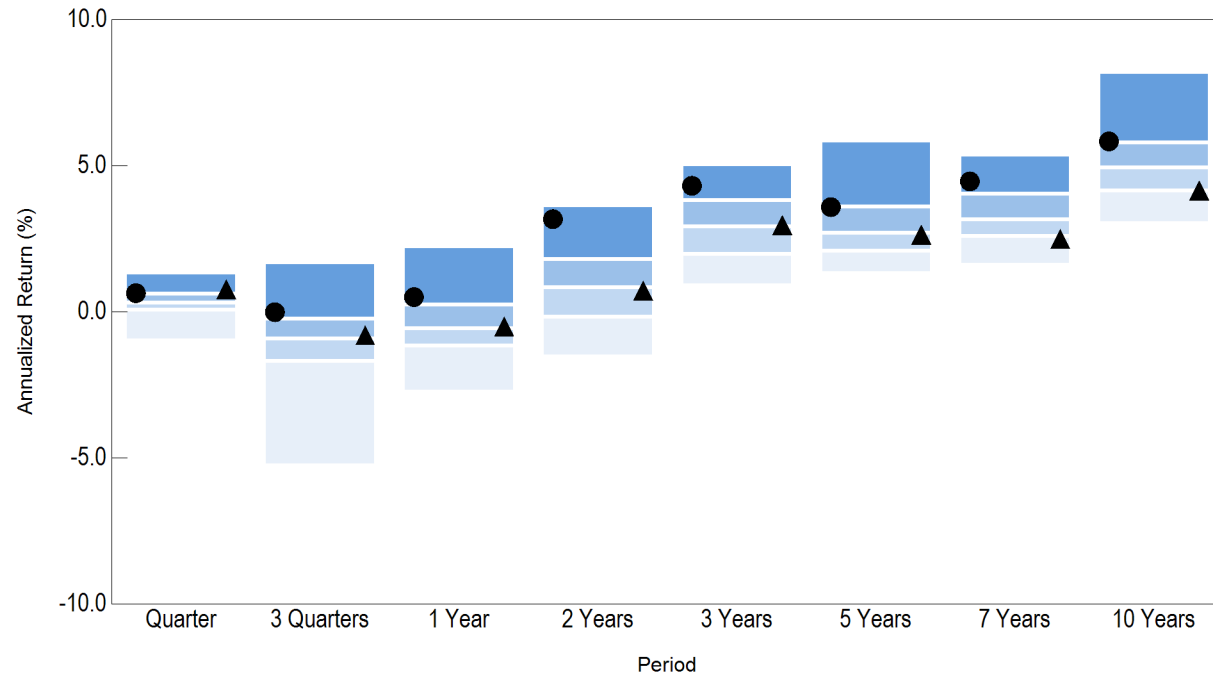
| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|-----------------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Fixed Income | 4.3% | 2.6% | 1.3 | 0.7 | 2.1% |
| Blended Fixed Income Index | 3.0% | 2.7% | 0.8 | -- | 0.0% |
| Core Fixed | 2.5% | 2.6% | 0.6 | 0.7 | 1.7% |
| BBgBarc US Aggregate TR | 1.3% | 2.7% | 0.2 | -- | 0.0% |
| FIAM Bond | 2.3% | 2.8% | 0.5 | 1.1 | 0.9% |
| BBgBarc US Aggregate TR | 1.3% | 2.7% | 0.2 | -- | 0.0% |
| Opportunistic Credit | 7.8% | 3.7% | 1.9 | 0.5 | 2.9% |
| BBgBarc BA Intermediate HY | 6.2% | 3.8% | 1.4 | -- | 0.0% |
| Angelo Gordon Opportunistic | 15.0% | 9.0% | 1.6 | 1.5 | 9.4% |
| BBgBarc US Aggregate TR | 1.3% | 2.7% | 0.2 | -- | 0.0% |
| Angelo Gordon STAR | 14.0% | 7.7% | 1.7 | 1.5 | 8.4% |
| BBgBarc US Aggregate TR | 1.3% | 2.7% | 0.2 | -- | 0.0% |
| Beach Point Select | 9.2% | 3.7% | 2.2 | 1.2 | 2.4% |
| BBgBarc BA Intermediate HY | 6.2% | 3.8% | 1.4 | -- | 0.0% |
| Brigade Capital | 9.0% | 6.4% | 1.3 | 0.7 | 4.3% |
| BBgBarc BA Intermediate HY | 6.2% | 3.8% | 1.4 | -- | 0.0% |
| Franklin Templeton | 3.9% | 7.0% | 0.4 | 0.2 | 8.7% |
| BBgBarc Multiverse TR | 2.3% | 4.9% | 0.3 | -- | 0.0% |

Statistics Summary

5 Years

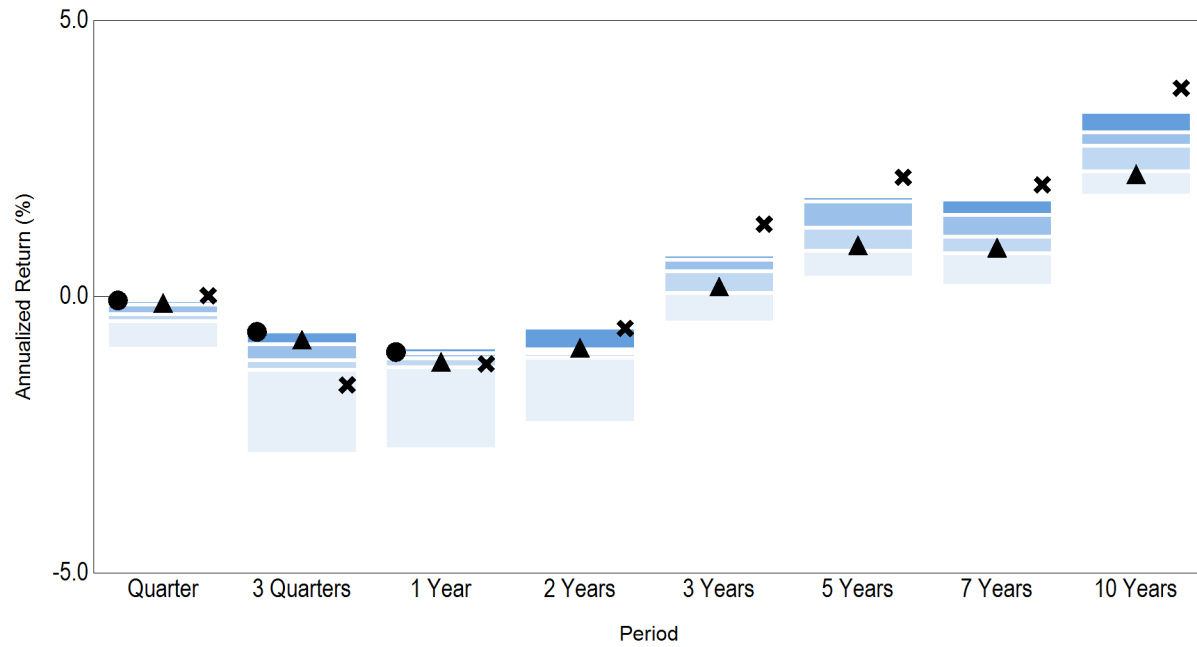
| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|----------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| Fixed Income | 3.6% | 2.5% | 1.2 | 0.5 | 1.8% |
| Blended Fixed Income Index | 2.6% | 2.7% | 0.8 | -- | 0.0% |
| Core Fixed | 2.8% | 2.7% | 0.9 | 0.5 | 1.4% |
| BBgBarc US Aggregate TR | 2.2% | 2.7% | 0.6 | -- | 0.0% |
| FIAM Bond | 2.8% | 2.8% | 0.8 | 0.8 | 0.7% |
| BBgBarc US Aggregate TR | 2.2% | 2.7% | 0.6 | -- | 0.0% |
| Opportunistic Credit | 6.6% | 3.5% | 1.7 | 0.5 | 3.4% |
| BBgBarc BA Intermediate HY | 4.7% | 4.0% | 1.0 | -- | 0.0% |
| Angelo Gordon STAR | 13.4% | 7.0% | 1.9 | 1.4 | 7.9% |
| BBgBarc US Aggregate TR | 2.2% | 2.7% | 0.6 | -- | 0.0% |
| Brigade Capital | 4.9% | 6.0% | 0.7 | 0.0 | 3.9% |
| BBgBarc BA Intermediate HY | 4.7% | 4.0% | 1.0 | -- | 0.0% |
| Franklin Templeton | 1.8% | 6.4% | 0.2 | 0.1 | 7.6% |
| BBgBarc Multiverse TR | 0.9% | 4.4% | 0.1 | -- | 0.0% |

InvestorForce All DB Total Fix Inc Net Return Comparison



| | Return (Rank) | | | | | | | |
|------------------------------|---------------|------------|-----------|----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 1.3 | 1.7 | 2.2 | 3.6 | 5.0 | 5.8 | 5.4 | 8.2 |
| 25th Percentile | 0.6 | -0.2 | 0.3 | 1.8 | 3.8 | 3.6 | 4.1 | 5.8 |
| Median | 0.3 | -0.9 | -0.5 | 0.9 | 2.9 | 2.7 | 3.2 | 4.9 |
| 75th Percentile | 0.1 | -1.7 | -1.1 | -0.2 | 2.0 | 2.1 | 2.6 | 4.2 |
| 95th Percentile | -1.0 | -5.3 | -2.7 | -1.5 | 0.9 | 1.3 | 1.6 | 3.0 |
| # of Portfolios | 312 | 311 | 310 | 297 | 293 | 271 | 237 | 191 |
| ● Fixed Income | 0.6 (26) | 0.0 (22) | 0.5 (21) | 3.2 (9) | 4.3 (12) | 3.6 (28) | 4.5 (16) | 5.8 (25) |
| ▲ Blended Fixed Income Index | 0.8 (19) | -0.8 (47) | -0.5 (48) | 0.7 (55) | 3.0 (50) | 2.6 (52) | 2.5 (80) | 4.1 (77) |

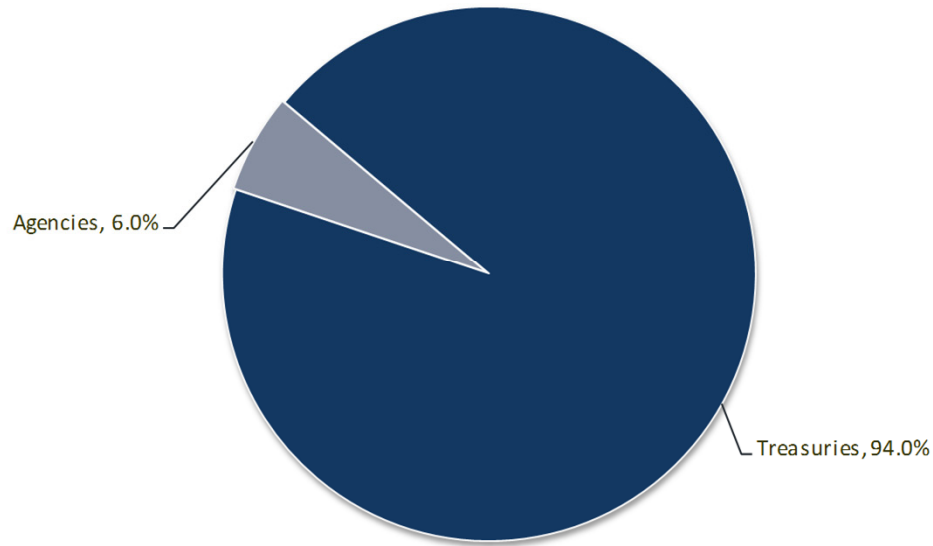
eV US Government Fixed Inc Net Return Comparison



| | Return (Rank) | | | | | | | | | | | | | | | |
|-------------------------------|---------------|------|------|------|------|------|------|------|-----|------|-----|------|-----|------|-----|------|
| 5th Percentile | -0.1 | -0.6 | -0.9 | -0.6 | 0.8 | 1.8 | 1.8 | 3.3 | | | | | | | | |
| 25th Percentile | -0.1 | -0.8 | -1.0 | -0.9 | 0.7 | 1.7 | 1.5 | 3.0 | | | | | | | | |
| Median | -0.3 | -1.1 | -1.1 | -1.0 | 0.5 | 1.3 | 1.1 | 2.7 | | | | | | | | |
| 75th Percentile | -0.4 | -1.3 | -1.3 | -1.1 | 0.1 | 0.8 | 0.8 | 2.3 | | | | | | | | |
| 95th Percentile | -0.9 | -2.8 | -2.8 | -2.3 | -0.5 | 0.4 | 0.2 | 1.8 | | | | | | | | |
| # of Portfolios | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | | | | | | | | |
| ● BlackRock Intermediate Govt | -0.1 | (5) | -0.6 | (6) | -1.0 | (23) | -- | (--) | -- | (--) | -- | (--) | -- | (--) | -- | (--) |
| ▲ BBgBarc US Govt Int TR | -0.1 | (16) | -0.8 | (13) | -1.2 | (65) | -0.9 | (22) | 0.2 | (68) | 0.9 | (70) | 0.9 | (71) | 2.2 | (79) |
| ✕ BBgBarc US Aggregate TR | 0.0 | (1) | -1.6 | (87) | -1.2 | (69) | -0.6 | (7) | 1.3 | (1) | 2.2 | (1) | 2.0 | (1) | 3.8 | (1) |

BlackRock Intermediate Govt Market Duration Pool
 Bond Sector Allocation

Period Ending: September 30, 2018



| Sector | BBgBarc Intermediate | | |
|--------------|----------------------|---------------|-------------|
| | Account Weight | Govt Weight | Difference |
| Treasuries | 94.0% | 96.2% | -2.2% |
| Agencies | 6.0% | 3.8% | 2.2% |
| Corporates | 0.0% | 0.0% | 0.0% |
| Utilities | 0.0% | 0.0% | 0.0% |
| Foreign | 0.0% | 0.0% | 0.0% |
| MBS | 0.0% | 0.0% | 0.0% |
| CMO | 0.0% | 0.0% | 0.0% |
| ABS | 0.0% | 0.0% | 0.0% |
| Municipals | 0.0% | 0.0% | 0.0% |
| Others/Cash | 0.0% | 0.0% | 0.0% |
| TOTAL | 100.0% | 100.0% | 0.0% |

BlackRock Intermediate Govt Market Duration Pool
 Bond Summary Statistics

Period Ending: September 30, 2018

| Portfolio Characteristics | | Portfolio |
|----------------------------|----|-------------|
| Total Number of Securities | | 321 |
| Total Market Value | \$ | 219,692,433 |
| Current Coupon | | 2.24 |
| Yield to Maturity | | 2.89 |
| Average Life | | 4.00 |
| Duration | | 3.71 |
| Quality | | AA+ |

| BBgBarc Intermediate Govt | |
|---------------------------|------|
| Current Coupon | 2.12 |
| Yield to Maturity | 2.90 |
| Average Life | 4.04 |
| Duration | 3.74 |
| Quality | AA+ |

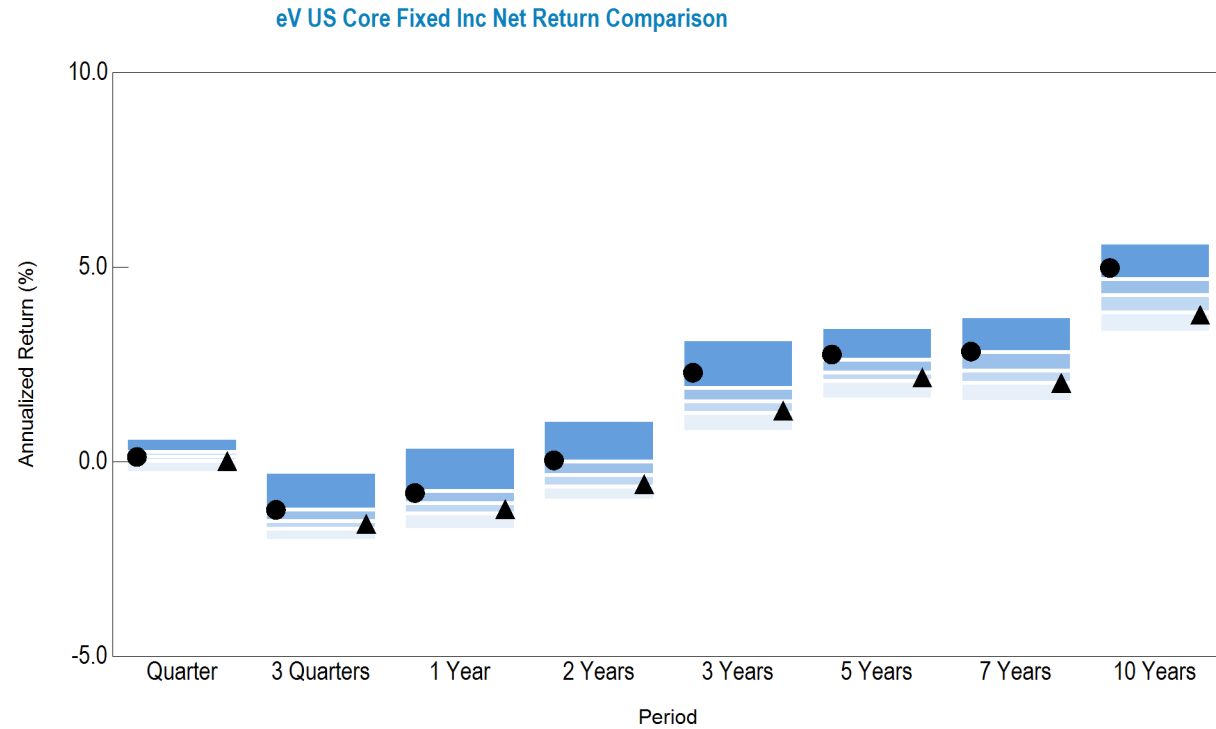
| Yield to Maturity | |
|-------------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 100.0 |
| 5.0 - 7.0 | 0.0 |
| 7.0 - 9.0 | 0.0 |
| 9.0 - 11.0 | 0.0 |
| 11.0 - 13.0 | 0.0 |
| 13.0+ | 0.0 |
| Unclassified | 0.0 |

| 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 | 21.4 |
| 2.0 - 4.0 | 39.8 |
| 4.0 - 6.0 | 21.4 |
| 6.0 - 8.0 | 15.4 |
| 8.0+ | 2.0 |
| Unclassified | 0.0 |

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

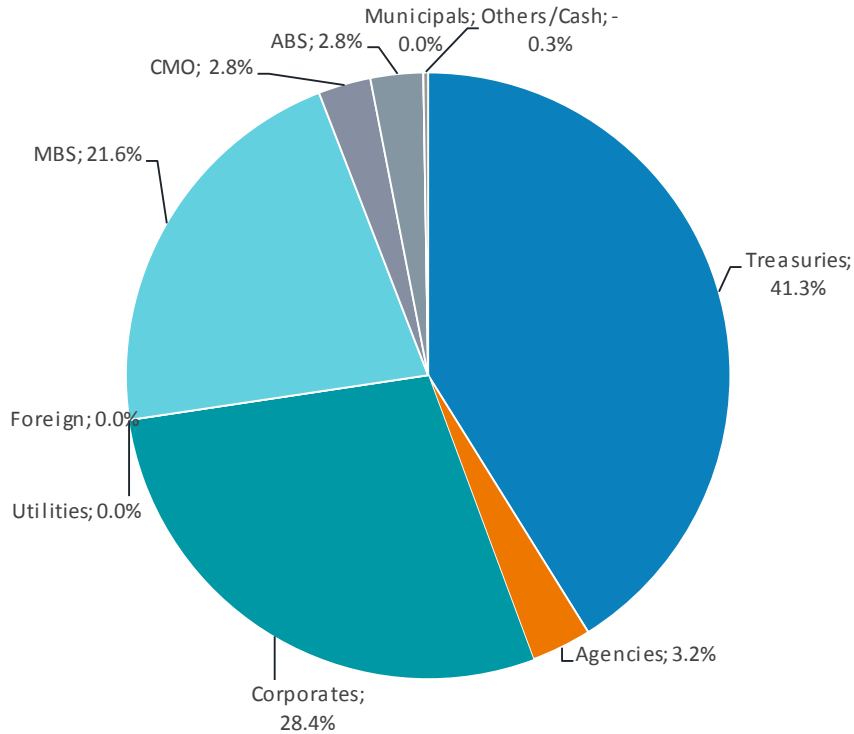
| Coupon | |
|--------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 100.0 |
| 5.0 - 7.0 | 0.0 |
| 7.0 - 9.0 | 0.0 |
| 9.0 - 10.0 | 0.0 |
| 10.0+ | 0.0 |
| Unclassified | 0.0 |



| | Return (Rank) | | | | | | | |
|---------------------------|---------------|-----------|-----------|-----------|----------|----------|----------|----------|
| 5th Percentile | 0.6 | -0.3 | 0.4 | 1.1 | 3.1 | 3.5 | 3.7 | 5.6 |
| 25th Percentile | 0.3 | -1.2 | -0.7 | 0.0 | 1.9 | 2.6 | 2.8 | 4.7 |
| Median | 0.1 | -1.5 | -1.1 | -0.3 | 1.6 | 2.3 | 2.4 | 4.3 |
| 75th Percentile | 0.0 | -1.7 | -1.3 | -0.6 | 1.3 | 2.1 | 2.0 | 3.8 |
| 95th Percentile | -0.3 | -2.0 | -1.7 | -1.0 | 0.8 | 1.6 | 1.5 | 3.3 |
| # of Portfolios | 144 | 143 | 141 | 139 | 136 | 134 | 127 | 116 |
| ● FIAM Bond | 0.1 (58) | -1.2 (26) | -0.8 (29) | 0.0 (25) | 2.3 (13) | 2.8 (19) | 2.8 (26) | 5.0 (17) |
| ▲ BBgBarc US Aggregate TR | 0.0 (77) | -1.6 (64) | -1.2 (67) | -0.6 (72) | 1.3 (69) | 2.2 (67) | 2.0 (76) | 3.8 (80) |

FIAM Bond Market Duration Pool
Bond Sector Allocation

Period Ending: September 30, 2018



| Sector | Account Weight | BBgBarc Aggregate | |
|--------------|----------------|-------------------|-------------|
| | | Weight | Difference |
| Treasuries | 41.3% | 37.9% | 3.5% |
| Agencies | 3.2% | 6.5% | -3.2% |
| Corporates | 28.4% | 25.1% | 3.4% |
| Utilities | 0.0% | 0.0% | 0.0% |
| Foreign | 0.0% | 0.0% | 0.0% |
| MBS | 21.6% | 28.1% | -6.5% |
| CMO | 2.8% | 0.0% | 2.8% |
| ABS | 2.8% | 2.5% | 0.4% |
| Municipals | 0.0% | 0.0% | 0.0% |
| Others/Cash | -0.3% | 0.0% | -0.3% |
| TOTAL | 100.0% | 100.0% | 0.1% |

FIAM Bond Market Duration Pool
Bond Summary Statistics

Period Ending: September 30, 2018

| Portfolio Characteristics | | Portfolio | BBgBarc Aggregate | |
|----------------------------|----|-------------|-------------------|--|
| Total Number of Securities | | 847 | | |
| Total Market Value | \$ | 260,531,458 | | |
| Current Coupon | | 3.07 | 3.19 | |
| Yield to Maturity | | 3.51 | 3.45 | |
| Average Life | | 8.55 | 8.17 | |
| Duration | | 5.90 | 5.97 | |
| Quality | | AA | AA | |

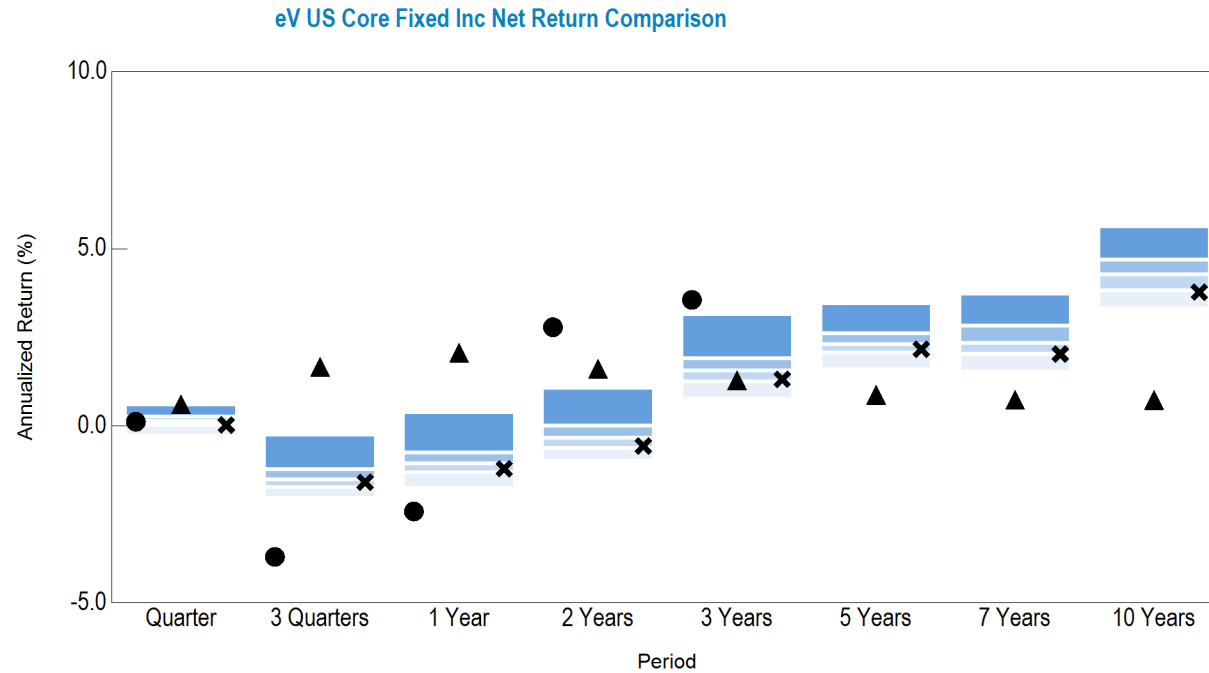
| Yield to Maturity | |
|-------------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 95.9 |
| 5.0 - 7.0 | 5.8 |
| 7.0 - 9.0 | 0.9 |
| 9.0 - 11.0 | 0.0 |
| 11.0 - 13.0 | 0.0 |
| 13.0+ | -2.7 |
| Unclassified | 0.0 |

| Average Life | |
|--------------|--------|
| Range | % Held |
| 0.0 - 1.0 | 0.6 |
| 1.0 - 3.0 | 10.1 |
| 3.0 - 5.0 | 27.6 |
| 5.0 - 10.0 | 46.7 |
| 10.0 - 20.0 | 3.4 |
| 20.0+ | 11.7 |
| Unclassified | 0.0 |

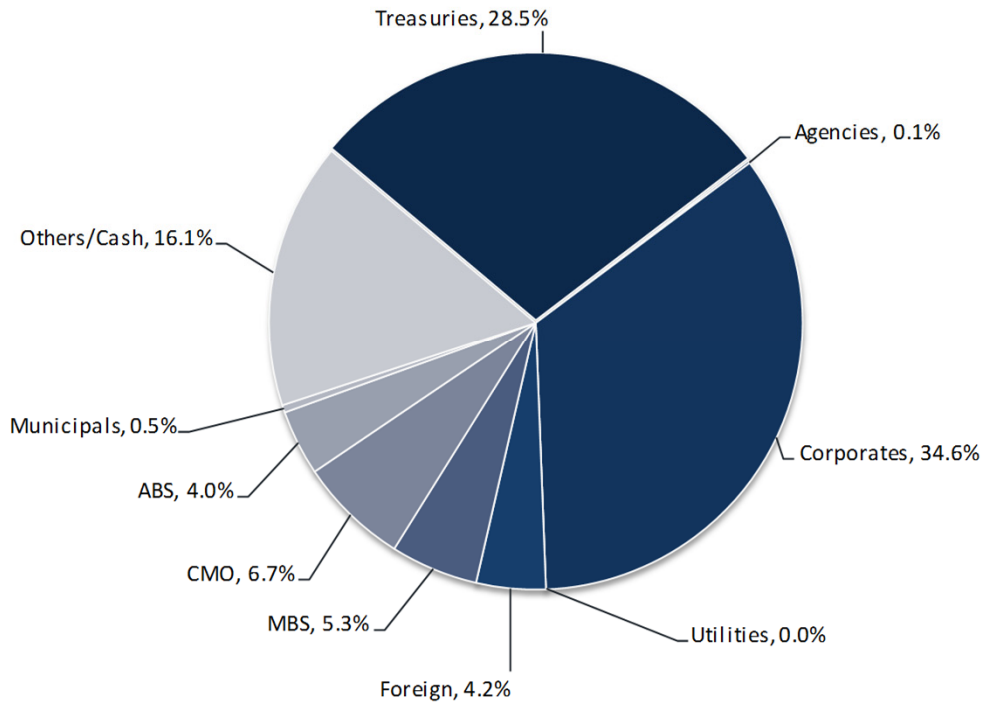
| Duration | |
|--------------|--------|
| Range | % Held |
| 0.0 - 1.0 | 2.0 |
| 1.0 - 3.0 | 14.2 |
| 3.0 - 5.0 | 35.9 |
| 5.0 - 7.0 | 28.1 |
| 7.0 - 10.0 | 5.1 |
| 10.0+ | 14.6 |
| Unclassified | 0.0 |

| Quality | |
|-----------------|--------|
| Range | % Held |
| Govt (10) | 68.3 |
| Aaa (10) | 0.7 |
| Aa (9) | 1.5 |
| A (8) | 12.4 |
| Baa (7) | 17.5 |
| Below Baa (6-1) | 0.9 |
| Other | -1.3 |

| Coupon | |
|--------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 85.6 |
| 5.0 - 7.0 | 7.9 |
| 7.0 - 9.0 | 1.4 |
| 9.0 - 11.0 | 0.0 |
| 11.0 - 13.0 | 0.0 |
| 13.0+ | 5.2 |
| Unclassified | 0.0 |



| | Return (Rank) | | | | | | | |
|---|---------------|------------|-----------|-----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 0.6 | -0.3 | 0.4 | 1.1 | 3.1 | 3.5 | 3.7 | 5.6 |
| 25th Percentile | 0.3 | -1.2 | -0.7 | 0.0 | 1.9 | 2.6 | 2.8 | 4.7 |
| Median | 0.1 | -1.5 | -1.1 | -0.3 | 1.6 | 2.3 | 2.4 | 4.3 |
| 75th Percentile | 0.0 | -1.7 | -1.3 | -0.6 | 1.3 | 2.1 | 2.0 | 3.8 |
| 95th Percentile | -0.3 | -2.0 | -1.7 | -1.0 | 0.8 | 1.6 | 1.5 | 3.3 |
| # of Portfolios | 144 | 143 | 141 | 139 | 136 | 134 | 127 | 116 |
| ● Western TRU | 0.1 (62) | -3.7 (99) | -2.4 (99) | 2.8 (1) | 3.6 (3) | -- (--) | -- (--) | -- (--) |
| ▲ 3-Month Libor Total Return USD | 0.6 (5) | 1.7 (1) | 2.1 (1) | 1.6 (3) | 1.3 (73) | 0.9 (99) | 0.7 (99) | 0.7 (99) |
| ✕ BBgBarc US Aggregate TR | 0.0 (77) | -1.6 (64) | -1.2 (67) | -0.6 (72) | 1.3 (69) | 2.2 (67) | 2.0 (76) | 3.8 (80) |



| Sector | Account Weight | BBgBarc Aggregate | |
|--------------|----------------|-------------------|-------------|
| | | Weight | Difference |
| Treasuries | 28.5% | 37.9% | -9.3% |
| Agencies | 0.1% | 6.5% | -6.3% |
| Corporates | 34.6% | 25.1% | 9.5% |
| Utilities | 0.0% | 0.0% | 0.0% |
| Foreign | 4.2% | 0.0% | 4.2% |
| MBS | 5.3% | 28.1% | -22.9% |
| CMO | 6.7% | 0.0% | 6.7% |
| ABS | 4.0% | 2.5% | 1.5% |
| Municipals | 0.5% | 0.0% | 0.5% |
| Others/Cash | 16.1% | 0.0% | 16.1% |
| TOTAL | 100.0% | 100.0% | 0.0% |

| Portfolio Characteristics | | |
|----------------------------|----|-------------|
| | | Portfolio |
| Total Number of Securities | | 5,205 |
| Total Market Value | \$ | 128,715,909 |
| Current Coupon | | 5.60 |
| Yield to Maturity | | 5.58 |
| Average Life | | 5.49 |
| Duration | | 4.23 |
| Quality | | A |

| BBgBarc Aggregate | |
|-------------------|------|
| | 3.19 |
| | 3.45 |
| | 8.17 |
| | 5.97 |
| | AA |

| Yield to Maturity | |
|-------------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 66.1 |
| 5.0 - 7.0 | 25.4 |
| 7.0 - 9.0 | 15.8 |
| 9.0 - 11.0 | 2.3 |
| 11.0 - 13.0 | 1.1 |
| 13.0+ | 2.0 |
| Unclassified | -12.7 |

| Average Life | |
|--------------|--------|
| Range | % Held |
| 0.0 - 1.0 | 20.1 |
| 1.0 - 3.0 | 13.3 |
| 3.0 - 5.0 | 16.8 |
| 5.0 - 10.0 | 16.9 |
| 10.0 - 20.0 | 16.8 |
| 20.0+ | 16.1 |
| Unclassified | 0.0 |

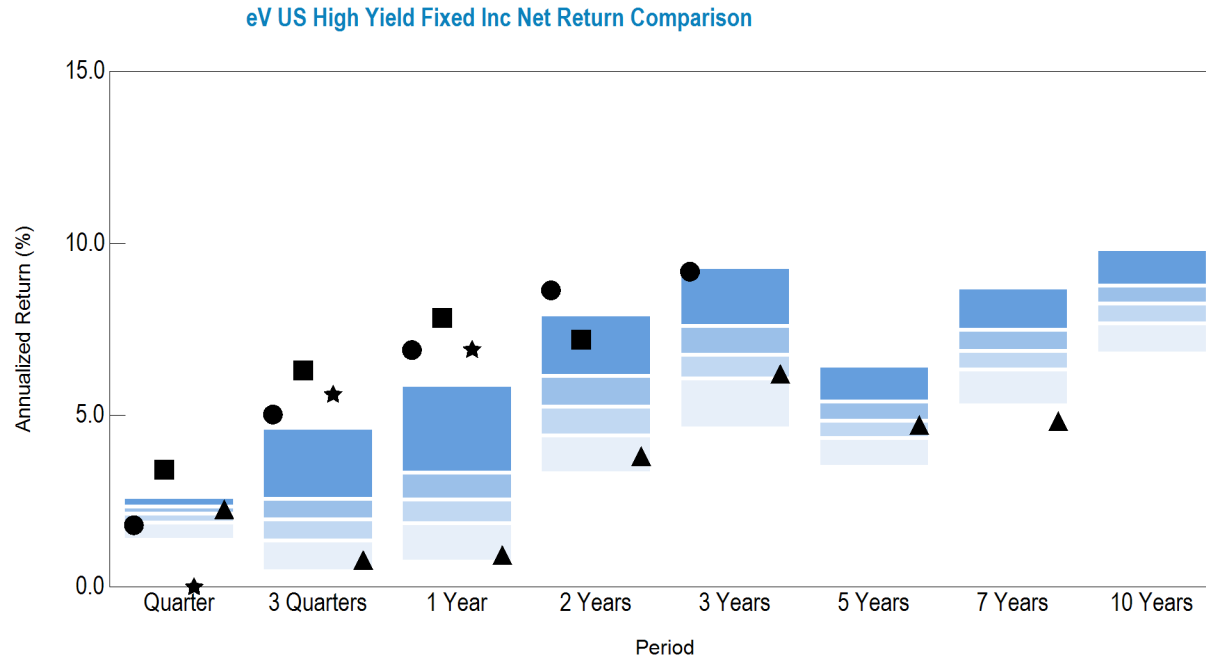
| Duration | |
|--------------|--------|
| Range | % Held |
| < 1.0 | 33.1 |
| 1.0 - 3.0 | 9.9 |
| 3.0 - 5.0 | 16.6 |
| 5.0 - 7.0 | 20.2 |
| 7.0 - 10.0 | 7.8 |
| 10.0+ | 12.4 |
| Unclassified | 0.0 |

*Unclassified includes negative YTM

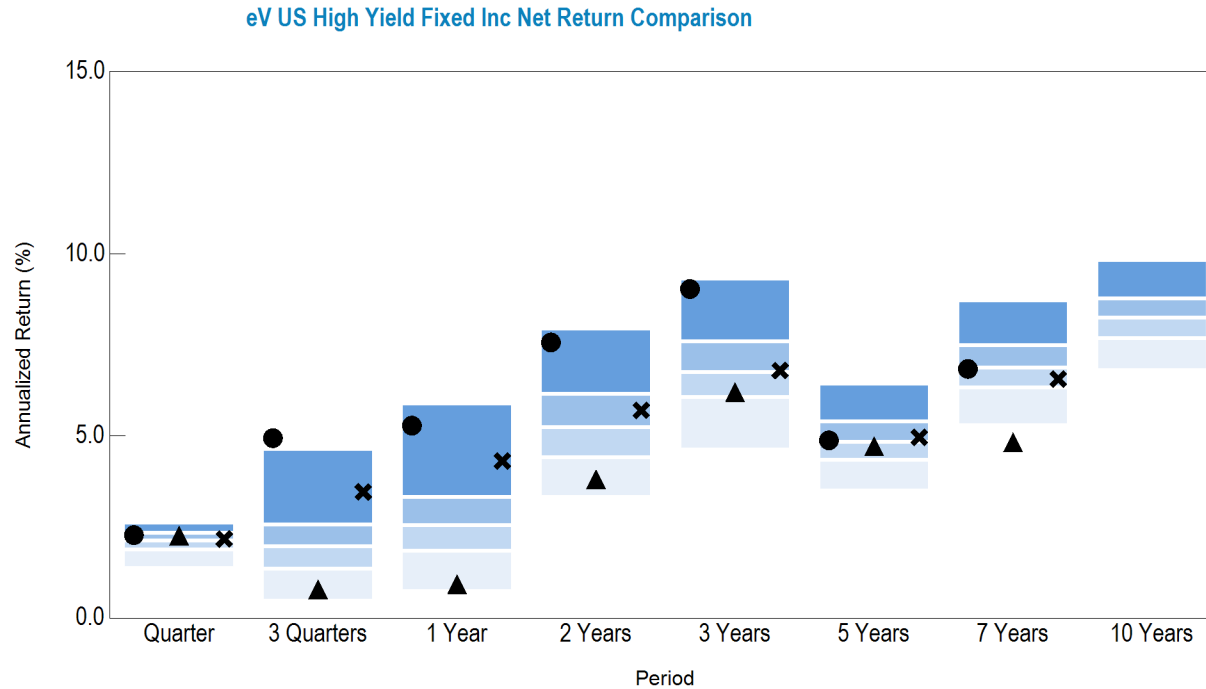
| Quality | |
|-----------------|--------|
| Range | % Held |
| Govt* (10) | 9.5 |
| Aaa (10) | 21.8 |
| Aa (9) | 2.0 |
| A (8) | 17.9 |
| Baa (7) | 26.4 |
| Below Baa (6-1) | 22.6 |
| Other | -0.1 |

| Coupon | |
|--------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 58.1 |
| 5.0 - 7.0 | 26.4 |
| 7.0 - 9.0 | 11.2 |
| 9.0 - 10.0 | 1.2 |
| 10.0+ | 3.2 |
| Unclassified | 0.0 |

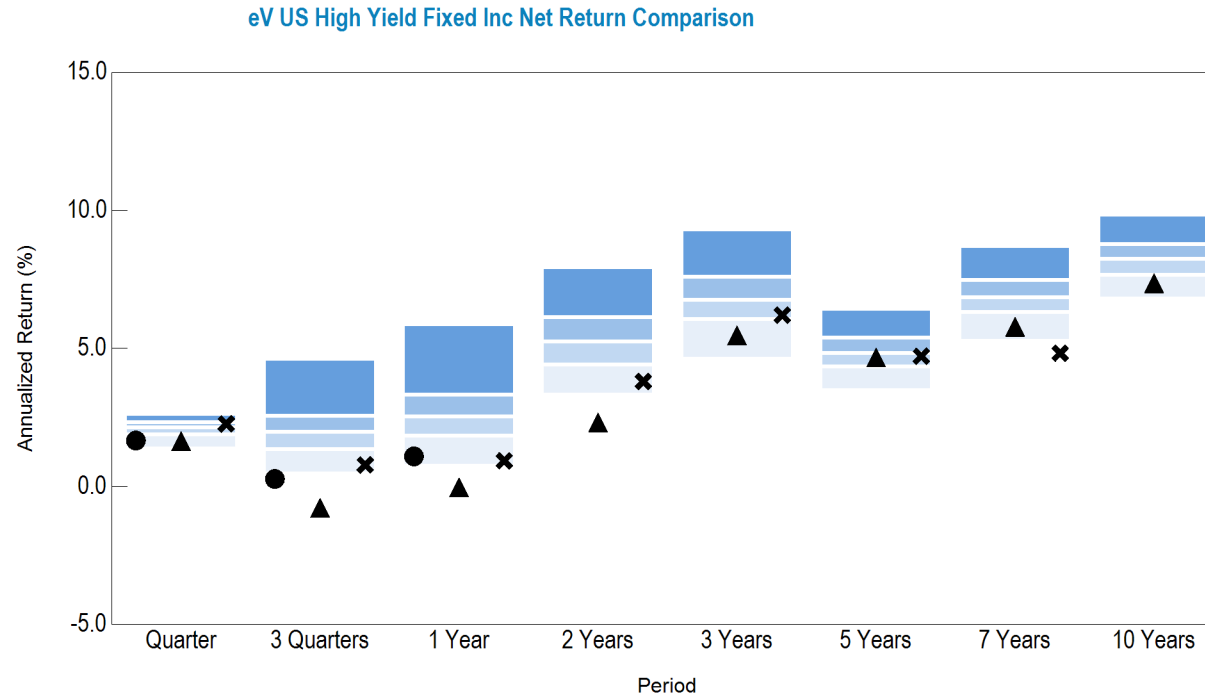
*Govt is specifically U.S Govt securities



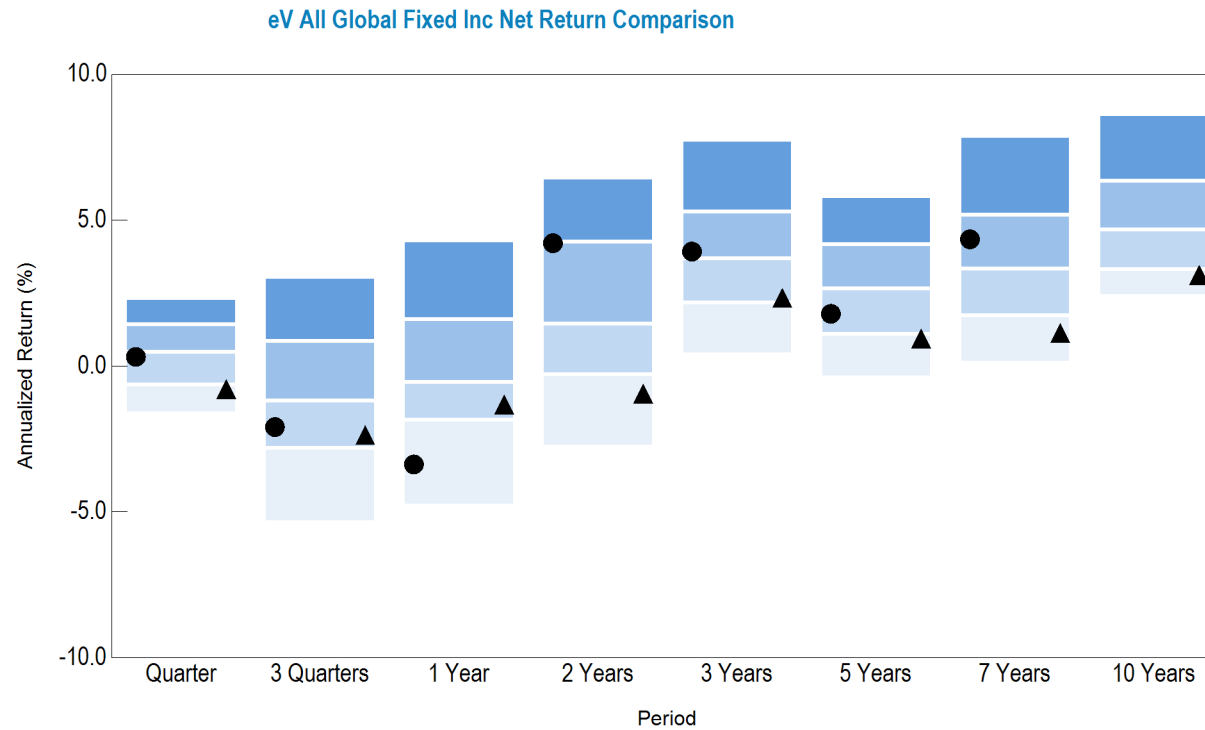
| | Return (Rank) | | | | | | | |
|------------------------------|---------------|------------|----------|----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.6 | 4.6 | 5.9 | 7.9 | 9.3 | 6.4 | 8.7 | 9.8 |
| 25th Percentile | 2.3 | 2.6 | 3.3 | 6.2 | 7.6 | 5.4 | 7.5 | 8.8 |
| Median | 2.1 | 2.0 | 2.6 | 5.3 | 6.8 | 4.8 | 6.9 | 8.3 |
| 75th Percentile | 1.9 | 1.4 | 1.9 | 4.4 | 6.1 | 4.4 | 6.3 | 7.7 |
| 95th Percentile | 1.4 | 0.5 | 0.8 | 3.3 | 4.6 | 3.5 | 5.3 | 6.8 |
| # of Portfolios | 136 | 135 | 135 | 131 | 128 | 107 | 93 | 72 |
| ● Beach Point Select | 1.8 (81) | 5.0 (4) | 6.9 (4) | 8.6 (5) | 9.2 (6) | -- (--) | -- (--) | -- (--) |
| ■ TCP Direct Lending VIII | 3.4 (1) | 6.3 (2) | 7.8 (2) | 7.2 (12) | -- (--) | -- (--) | -- (--) | -- (--) |
| ★ White Oak Yield | 0.0 (98) | 5.6 (3) | 6.9 (4) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) |
| ▲ BBgBarc BA Intermediate HY | 2.3 (36) | 0.8 (93) | 0.9 (94) | 3.8 (91) | 6.2 (71) | 4.7 (56) | 4.8 (97) | -- (--) |



| | Return (Rank) | | | | | | | |
|----------------------------------|---------------|------------|----------|----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.6 | 4.6 | 5.9 | 7.9 | 9.3 | 6.4 | 8.7 | 9.8 |
| 25th Percentile | 2.3 | 2.6 | 3.3 | 6.2 | 7.6 | 5.4 | 7.5 | 8.8 |
| Median | 2.1 | 2.0 | 2.6 | 5.3 | 6.8 | 4.8 | 6.9 | 8.3 |
| 75th Percentile | 1.9 | 1.4 | 1.9 | 4.4 | 6.1 | 4.4 | 6.3 | 7.7 |
| 95th Percentile | 1.4 | 0.5 | 0.8 | 3.3 | 4.6 | 3.5 | 5.3 | 6.8 |
| # of Portfolios | 136 | 135 | 135 | 131 | 128 | 107 | 93 | 72 |
| ● Brigade Capital | 2.3 (34) | 4.9 (5) | 5.3 (8) | 7.6 (10) | 9.0 (7) | 4.9 (49) | 6.8 (54) | -- (--) |
| ▲ BBgBarc BA Intermediate HY | 2.3 (36) | 0.8 (93) | 0.9 (94) | 3.8 (91) | 6.2 (71) | 4.7 (56) | 4.8 (97) | -- (--) |
| ✕ 50% Barclays HY/ 50% Bank Loan | 2.2 (46) | 3.5 (12) | 4.3 (13) | 5.7 (37) | 6.8 (50) | 5.0 (46) | 6.6 (65) | -- (--) |



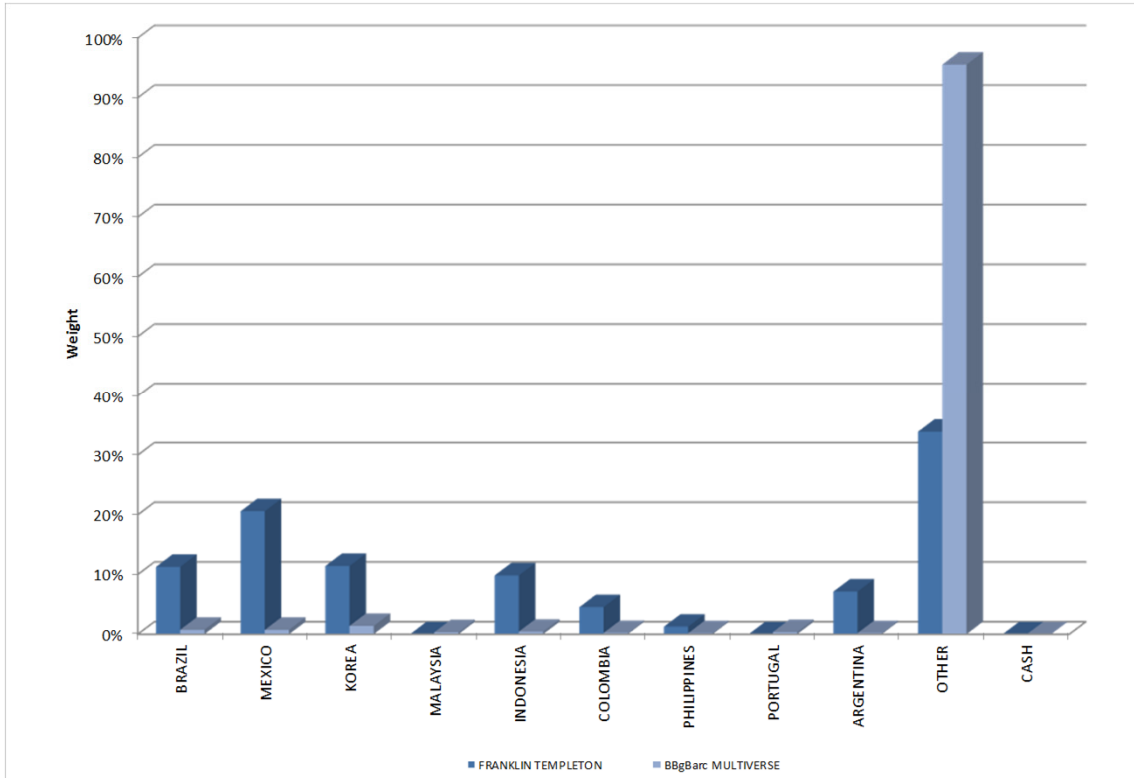
| | Return (Rank) | | | | | | | | | | | | | | | |
|-----------------------------------|---------------|-----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|--|
| 5th Percentile | 2.6 | 4.6 | 5.9 | 7.9 | 9.3 | 6.4 | 8.7 | 9.8 | | | | | | | | |
| 25th Percentile | 2.3 | 2.6 | 3.3 | 6.2 | 7.6 | 5.4 | 7.5 | 8.8 | | | | | | | | |
| Median | 2.1 | 2.0 | 2.6 | 5.3 | 6.8 | 4.8 | 6.9 | 8.3 | | | | | | | | |
| 75th Percentile | 1.9 | 1.4 | 1.9 | 4.4 | 6.1 | 4.4 | 6.3 | 7.7 | | | | | | | | |
| 95th Percentile | 1.4 | 0.5 | 0.8 | 3.3 | 4.6 | 3.5 | 5.3 | 6.8 | | | | | | | | |
| # of Portfolios | 136 | 135 | 135 | 131 | 128 | 107 | 93 | 72 | | | | | | | | |
| ● PIMCO Diversified | 1.7 (85) | 0.3 (96) | 1.1 (92) | -- (--) | -- (--) | -- (--) | -- (--) | -- (--) | | | | | | | | |
| ▲ Blended PIMCO Diversified Index | 1.6 (86) | -0.8 (99) | 0.0 (99) | 2.3 (99) | 5.5 (86) | 4.7 (59) | 5.8 (92) | 7.4 (86) | | | | | | | | |
| ✕ BBgBarc BA Intermediate HY | 2.3 (36) | 0.8 (93) | 0.9 (94) | 3.8 (91) | 6.2 (71) | 4.7 (56) | 4.8 (97) | -- (--) | | | | | | | | |



| | Return (Rank) | | | | | | | |
|-------------------------|---------------|------------|-----------|-----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.3 | 3.1 | 4.3 | 6.4 | 7.8 | 5.8 | 7.9 | 8.6 |
| 25th Percentile | 1.4 | 0.9 | 1.6 | 4.3 | 5.3 | 4.2 | 5.2 | 6.4 |
| Median | 0.5 | -1.2 | -0.5 | 1.5 | 3.7 | 2.7 | 3.4 | 4.7 |
| 75th Percentile | -0.6 | -2.8 | -1.8 | -0.3 | 2.2 | 1.1 | 1.7 | 3.3 |
| 95th Percentile | -1.6 | -5.4 | -4.8 | -2.7 | 0.4 | -0.4 | 0.1 | 2.4 |
| # of Portfolios | 227 | 223 | 223 | 217 | 207 | 190 | 150 | 102 |
| ● Franklin Templeton | 0.3 (56) | -2.1 (63) | -3.4 (88) | 4.2 (26) | 3.9 (46) | 1.8 (67) | 4.3 (35) | -- (--) |
| ▲ BBgBarc Multiverse TR | -0.8 (80) | -2.4 (67) | -1.3 (63) | -0.9 (82) | 2.3 (73) | 0.9 (79) | 1.1 (81) | 3.1 (80) |

Franklin Templeton
Portfolio Country Weights

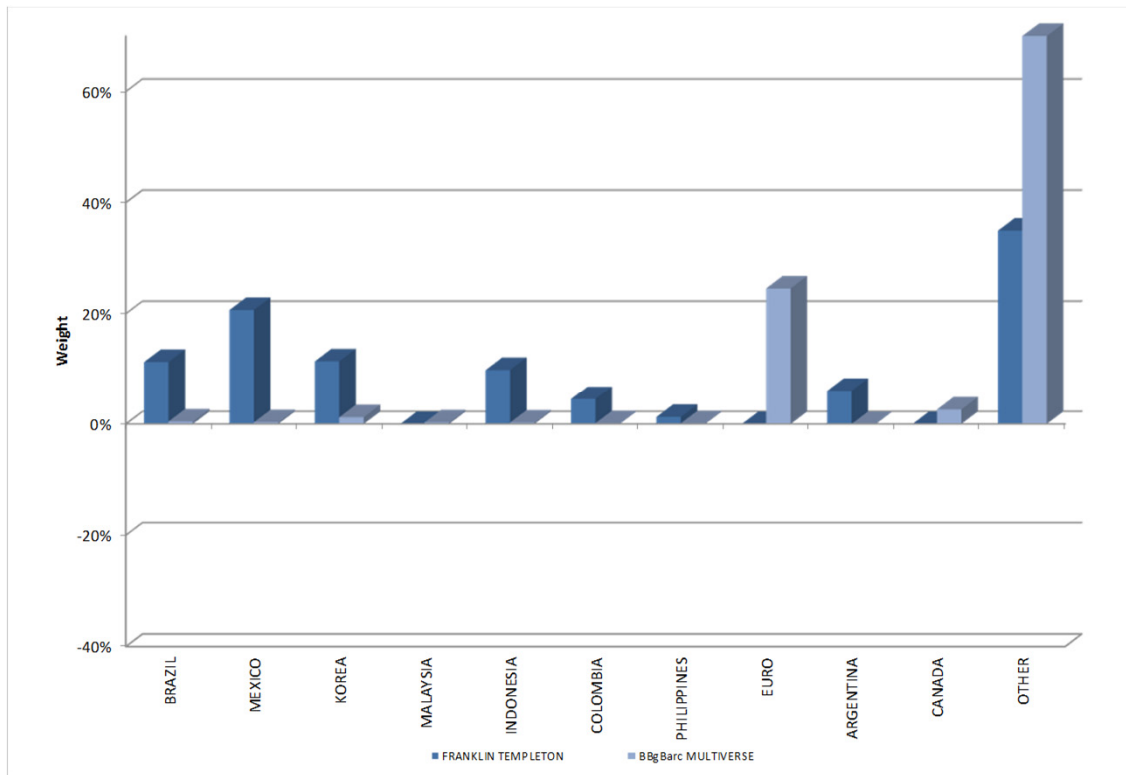
Period Ending: September 30, 2018



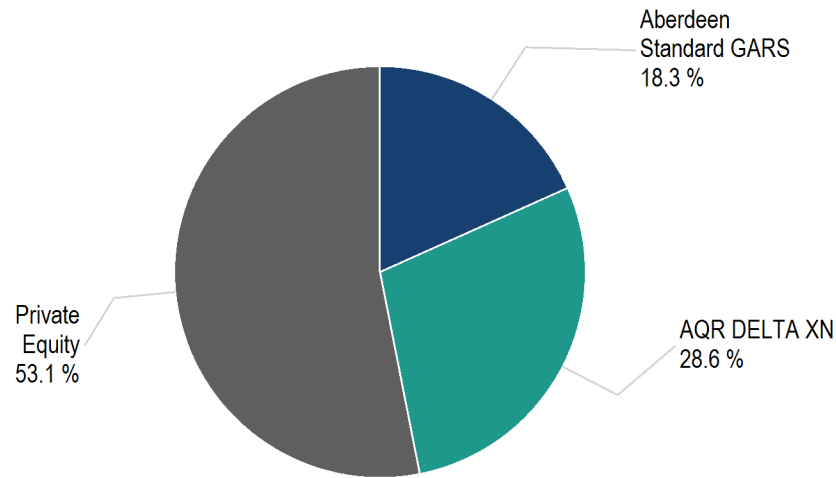
| COUNTRY | MARKET VALUE | FRANKLIN TEMPLETON | BbgBarc MULTIVERSE | DIFF |
|-------------|--------------|--------------------|--------------------|--------|
| BRAZIL | \$ 4,532 | 11.3% | 0.7% | +10.6% |
| MEXICO | \$ 8,277 | 20.6% | 0.7% | +19.9% |
| KOREA | \$ 4,589 | 11.4% | 1.4% | +10.0% |
| MALAYSIA | \$ - | 0.0% | 0.3% | -0.3% |
| INDONESIA | \$ 3,954 | 9.8% | 0.4% | +9.4% |
| COLOMBIA | \$ 1,820 | 4.5% | 0.2% | +4.3% |
| PHILIPPINES | \$ 510 | 1.3% | 0.2% | +1.1% |
| PORTUGAL | \$ - | 0.0% | 0.4% | -0.4% |
| ARGENTINA | \$ 2,869 | 7.1% | 0.2% | +7.0% |
| OTHER | \$ 13,629 | 33.9% | 95.5% | -61.6% |
| CASH | \$ - | 0.0% | 0.0% | 0.0% |
| | \$ 40,180 | 100.0% | 100.0% | 0.0% |

Franklin Templeton
Portfolio Currency Exposures

Period Ending: September 30, 2018



| CURRENCY | MARKET VALUE | FRANKLIN TEMPLETON | BbgBarc MULTIVERSE | DIFF |
|-------------|--------------|--------------------|--------------------|--------|
| BRAZIL | \$ 4,532 | 11.3% | 0.4% | +10.8% |
| MEXICO | \$ 8,301 | 20.7% | 0.3% | +20.4% |
| KOREA | \$ 4,585 | 11.4% | 1.2% | +10.2% |
| MALAYSIA | \$ - | 0.0% | 0.3% | -0.3% |
| INDONESIA | \$ 3,954 | 9.8% | 0.2% | +9.6% |
| COLOMBIA | \$ 1,820 | 4.5% | 0.1% | +4.4% |
| PHILIPPINES | \$ 510 | 1.3% | 0.1% | +1.2% |
| EURO | \$ - | 0.0% | 24.6% | -24.6% |
| ARGENTINA | \$ 2,431 | 6.1% | 0.0% | +6.1% |
| CANADA | \$ - | 0.0% | 2.6% | -2.6% |
| OTHER | \$ 14,047 | 35.0% | 70.2% | -35.2% |
| | \$ 40,180 | 100.0% | 100.0% | 0.0% |



| | Actual \$ | Actual % | Manager Contribution to Excess Return % |
|-------------------------------------|----------------------|---------------|---|
| Aberdeen Standard GARS | \$93,660,279 | 18.3% | -0.2% |
| AQR DELTA XN | \$146,440,389 | 28.6% | -1.0% |
| Private Equity | \$272,007,450 | 53.1% | 0.5% |
| Actual vs. Policy Weight Difference | | | 0.0% |
| Total | \$512,108,118 | 100.0% | -0.7% |

Statistics Summary

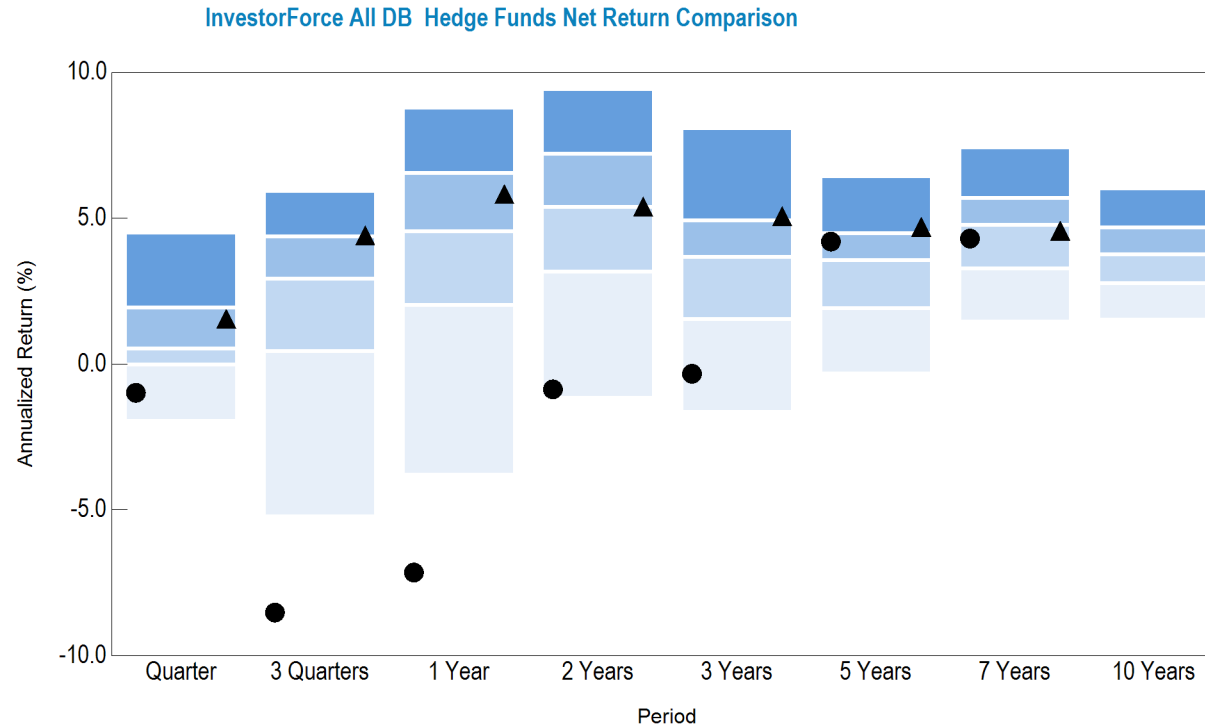
3 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Alternatives | 6.5% | 5.3% | 1.1 | -0.7 | 5.8% |
| Blended Alternatives Index | 10.6% | 5.2% | 1.9 | -- | 0.0% |
| Private Equity | 13.7% | 8.5% | 1.5 | -0.3 | 11.6% |
| Blended Private Equity Index | 17.1% | 9.7% | 1.7 | -- | 0.0% |
| Hedge Fund/Absolute Return | -0.3% | 4.0% | -0.3 | -1.3 | 4.0% |
| Libor 1 month +4% | 5.1% | 0.2% | 20.4 | -- | 0.0% |
| AQR DELTA XN | -0.9% | 5.1% | -0.3 | -1.2 | 5.2% |
| Libor 1 month +4% | 5.1% | 0.2% | 20.4 | -- | 0.0% |

Statistics Summary

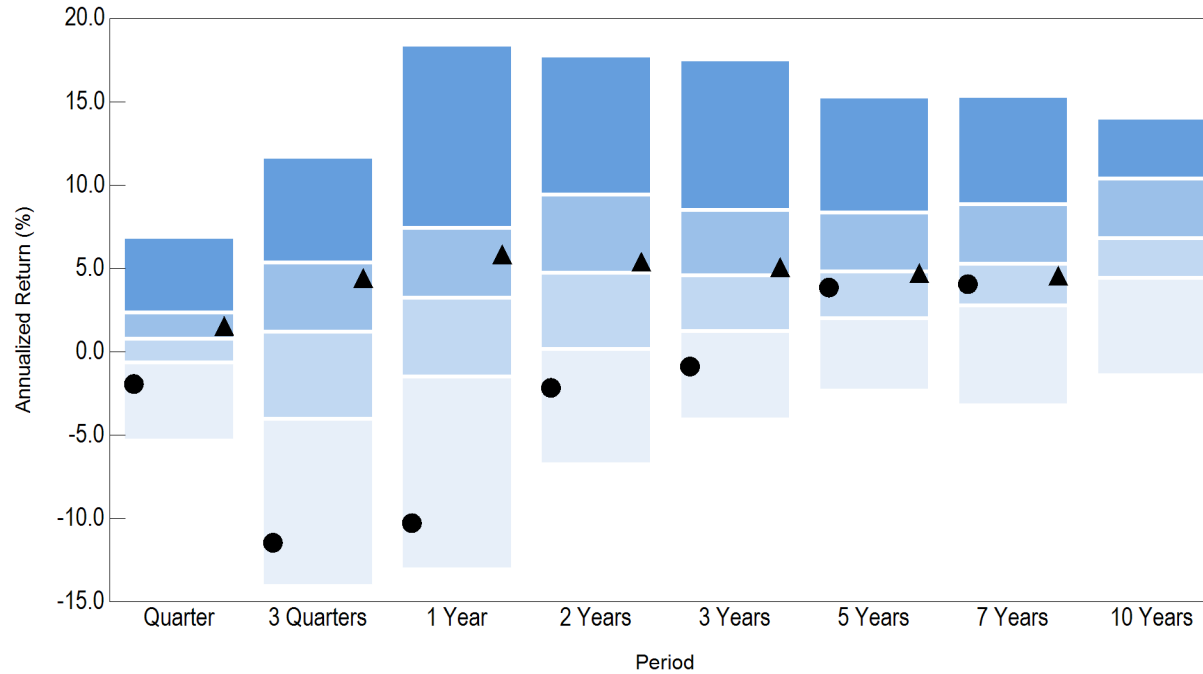
5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|------------------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Alternatives | 7.2% | 5.0% | 1.3 | -0.1 | 6.1% |
| Blended Alternatives Index | 7.8% | 5.5% | 1.3 | -- | 0.0% |
| Private Equity | 17.7% | 9.5% | 1.8 | 0.2 | 12.9% |
| Blended Private Equity Index | 14.7% | 9.8% | 1.4 | -- | 0.0% |
| Hedge Fund/Absolute Return | 4.2% | 5.0% | 0.7 | -0.1 | 5.0% |
| Libor 1 month +4% | 4.7% | 0.2% | 20.1 | -- | 0.0% |
| AQR DELTA XN | 3.9% | 5.6% | 0.6 | -0.2 | 5.6% |
| Libor 1 month +4% | 4.7% | 0.2% | 20.1 | -- | 0.0% |

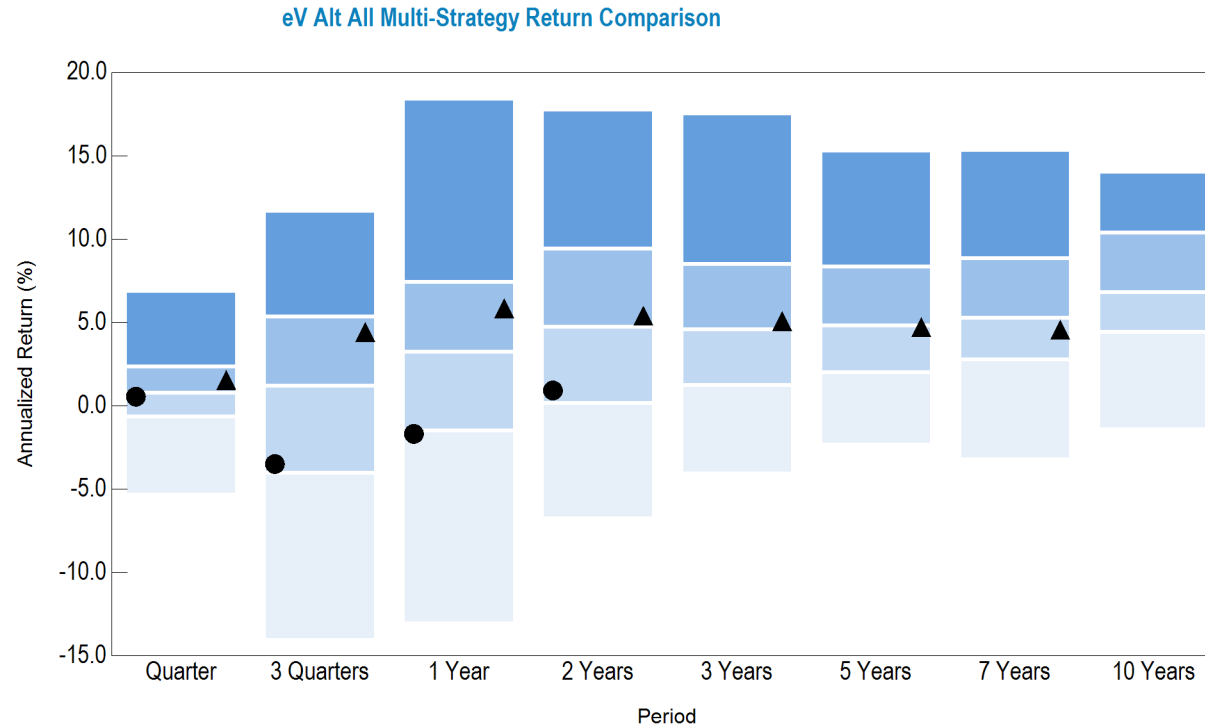


| | Return (Rank) | | | | | | | |
|------------------------------|---------------|-----------|-----------|-----------|-----------|----------|----------|---------|
| 5th Percentile | 4.5 | 5.9 | 8.8 | 9.4 | 8.1 | 6.4 | 7.4 | 6.0 |
| 25th Percentile | 2.0 | 4.4 | 6.6 | 7.2 | 4.9 | 4.5 | 5.7 | 4.7 |
| Median | 0.6 | 2.9 | 4.6 | 5.4 | 3.7 | 3.6 | 4.8 | 3.8 |
| 75th Percentile | 0.0 | 0.5 | 2.0 | 3.2 | 1.6 | 1.9 | 3.3 | 2.8 |
| 95th Percentile | -1.9 | -5.2 | -3.8 | -1.2 | -1.6 | -0.3 | 1.5 | 1.5 |
| # of Portfolios | 227 | 223 | 223 | 217 | 208 | 197 | 171 | 99 |
| ● Hedge Fund/Absolute Return | -1.0 (93) | -8.5 (98) | -7.1 (98) | -0.9 (94) | -0.3 (89) | 4.2 (32) | 4.3 (61) | -- (--) |
| ▲ Libor 1 month +4% | 1.6 (29) | 4.4 (25) | 5.8 (36) | 5.4 (51) | 5.1 (24) | 4.7 (23) | 4.6 (56) | -- (--) |

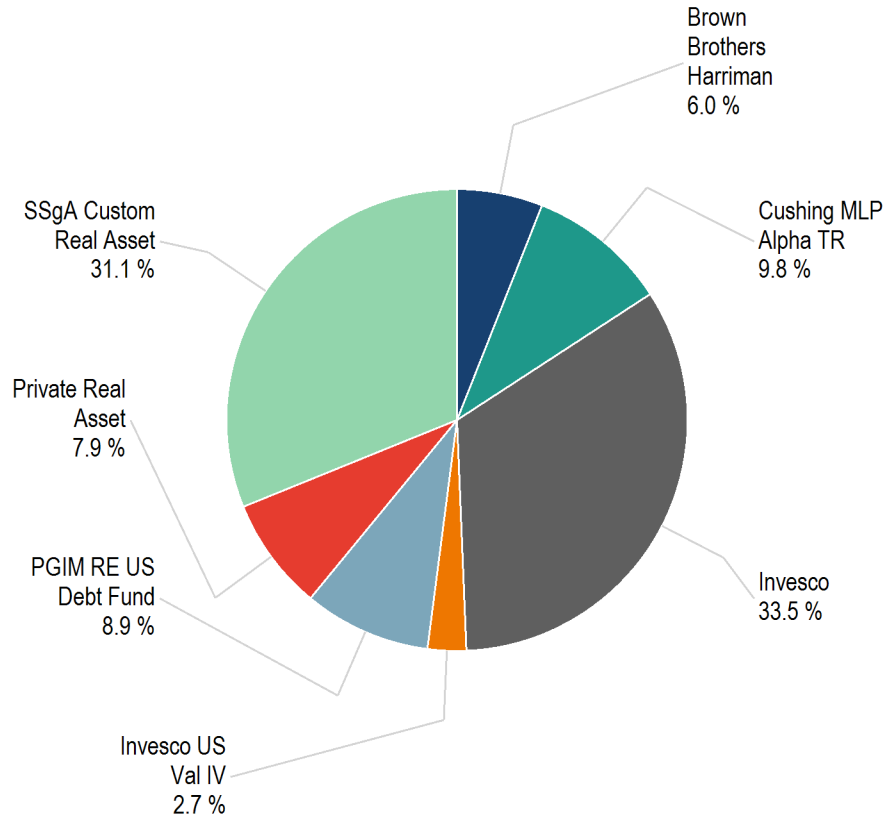
eV Alt All Multi-Strategy Return Comparison



| | Return (Rank) | | | | | | | |
|---------------------|---------------|------------|------------|-----------|-----------|----------|----------|---------|
| 5th Percentile | 6.9 | 11.7 | 18.4 | 17.7 | 17.5 | 15.3 | 15.3 | 14.0 |
| 25th Percentile | 2.4 | 5.4 | 7.4 | 9.4 | 8.5 | 8.4 | 8.9 | 10.4 |
| Median | 0.8 | 1.2 | 3.3 | 4.8 | 4.6 | 4.9 | 5.3 | 6.9 |
| 75th Percentile | -0.6 | -4.0 | -1.5 | 0.2 | 1.3 | 2.0 | 2.8 | 4.4 |
| 95th Percentile | -5.3 | -14.0 | -13.0 | -6.7 | -4.0 | -2.3 | -3.2 | -1.4 |
| # of Portfolios | 288 | 284 | 280 | 261 | 240 | 197 | 158 | 112 |
| ● AQR DELTA XN | -1.9 (83) | -11.5 (92) | -10.3 (93) | -2.2 (84) | -0.9 (85) | 3.9 (58) | 4.1 (65) | -- (--) |
| ▲ Libor 1 month +4% | 1.6 (37) | 4.4 (30) | 5.8 (34) | 5.4 (46) | 5.1 (48) | 4.7 (51) | 4.6 (59) | -- (--) |



| | Return (Rank) | | | | | | | |
|--------------------------|---------------|------------|-----------|----------|----------|----------|----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 6.9 | 11.7 | 18.4 | 17.7 | 17.5 | 15.3 | 15.3 | 14.0 |
| 25th Percentile | 2.4 | 5.4 | 7.4 | 9.4 | 8.5 | 8.4 | 8.9 | 10.4 |
| Median | 0.8 | 1.2 | 3.3 | 4.8 | 4.6 | 4.9 | 5.3 | 6.9 |
| 75th Percentile | -0.6 | -4.0 | -1.5 | 0.2 | 1.3 | 2.0 | 2.8 | 4.4 |
| 95th Percentile | -5.3 | -14.0 | -13.0 | -6.7 | -4.0 | -2.3 | -3.2 | -1.4 |
| # of Portfolios | 288 | 284 | 280 | 261 | 240 | 197 | 158 | 112 |
| ● Aberdeen Standard GARS | 0.5 (57) | -3.5 (74) | -1.7 (77) | 0.9 (74) | -- (--) | -- (--) | -- (--) | -- (--) |
| ▲ Libor 1 month +4% | 1.6 (37) | 4.4 (30) | 5.8 (34) | 5.4 (46) | 5.1 (48) | 4.7 (51) | 4.6 (59) | -- (--) |



| | Actual \$ | Actual % | Manager Contribution to Excess Return % |
|-------------------------------------|----------------------|---------------|---|
| Brown Brother Harriman | \$47,585,201 | 6.0% | 0.1% |
| Cushing MLP Alpha TR | \$77,645,181 | 9.8% | 0.0% |
| Invesco | \$264,554,452 | 33.5% | 0.1% |
| Invesco US Val IV | \$21,644,473 | 2.7% | 0.0% |
| PGIM RE US Debt Fund | \$70,139,094 | 8.9% | 0.0% |
| Private Real Asset | \$62,171,795 | 7.9% | -0.3% |
| SSgA Custom Real Asset | \$245,523,883 | 31.1% | 0.2% |
| Actual vs. Policy Weight Difference | | | -0.4% |
| Total | \$789,264,080 | 100.0% | -0.4% |

Statistics Summary

3 Years

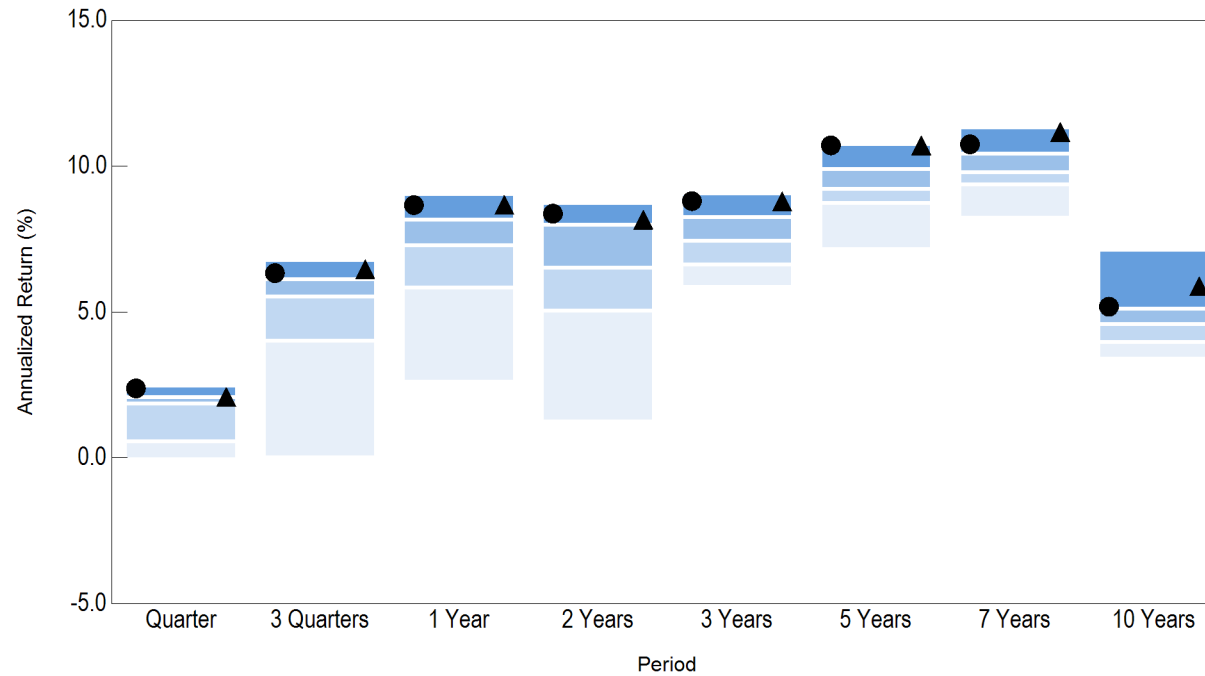
| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|----------------------------------|--------------|-----------------------------|--------------|-------------------|----------------|
| Real Estate | 8.81% | 3.74% | 2.12 | 0.00 | 1.13% |
| NCREIF ODCE | 8.80% | 3.62% | 2.19 | -- | 0.00% |
| Invesco | 8.77% | 3.72% | 2.12 | -0.03 | 1.24% |
| NCREIF ODCE | 8.80% | 3.62% | 2.19 | -- | 0.00% |
| Private Real Asset | 10.11% | 26.88% | 0.34 | 0.16 | 27.47% |
| Blended Private Real Asset Index | 5.57% | 6.72% | 0.70 | -- | 0.00% |
| TIPS | 2.39% | 2.11% | 0.72 | 0.29 | 1.19% |
| BBgBarc US TIPS TR | 2.04% | 3.00% | 0.39 | -- | 0.00% |
| Brown Brothers Harriman | 2.39% | 2.11% | 0.72 | 0.29 | 1.19% |
| BBgBarc US TIPS TR | 2.04% | 3.00% | 0.39 | -- | 0.00% |

Statistics Summary

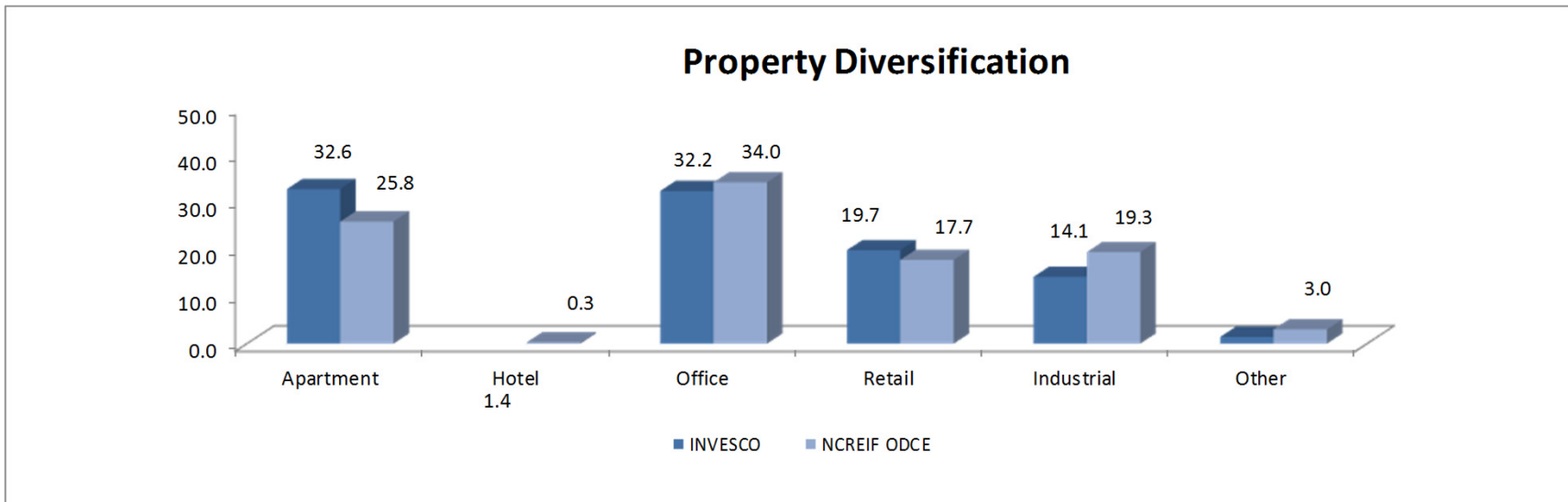
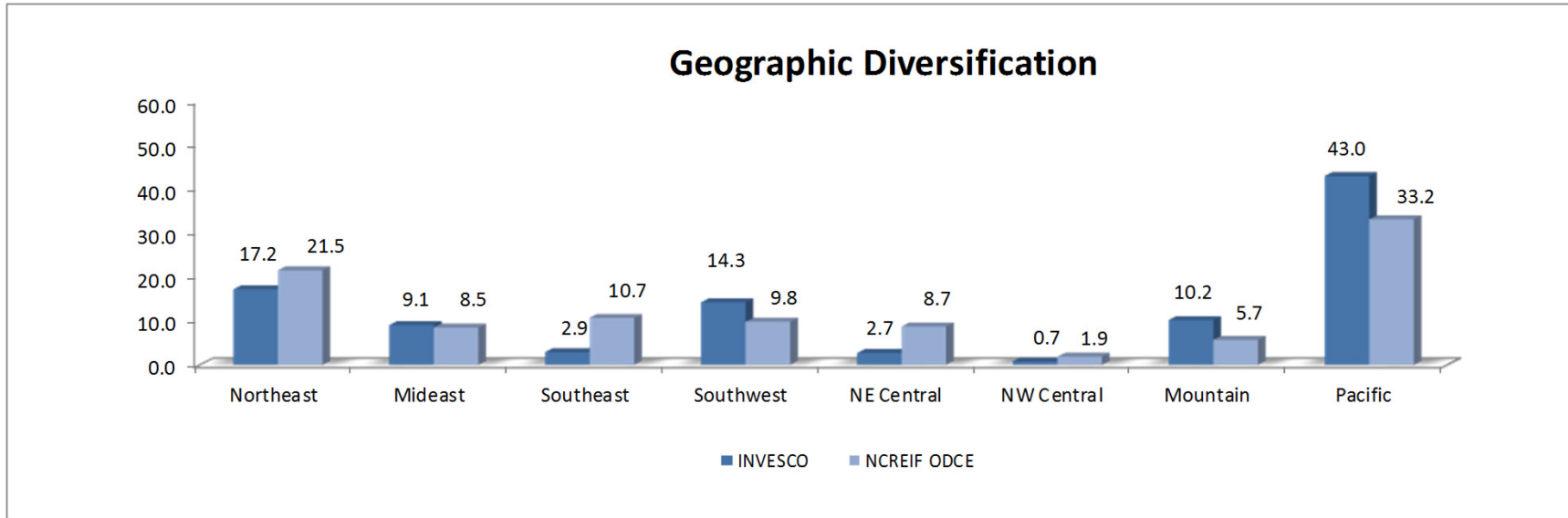
5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error Rank |
|-------------------------|--------------|--------------------------|--------------|-------------------|---------------------|
| Real Estate | 10.72% | 4.65% | 2.19 | 0.00 | 21 |
| NCREIF ODCE | 10.71% | 4.46% | 2.28 | -- | 1 |
| Invesco | 10.69% | 4.64% | 2.19 | -0.02 | -- |
| NCREIF ODCE | 10.71% | 4.46% | 2.28 | -- | -- |
| TIPS | 1.12% | 2.66% | 0.22 | -0.18 | -- |
| BBgBarc US TIPS TR | 1.37% | 3.61% | 0.23 | -- | -- |
| Brown Brothers Harriman | 1.12% | 2.66% | 0.22 | -0.18 | 73 |
| BBgBarc US TIPS TR | 1.37% | 3.61% | 0.23 | -- | 1 |

InvestorForce All DB Real Estate Pub Net Return Comparison



| | Return (Rank) | | | | | | | |
|-----------------|---------------|------------|----------|----------|----------|----------|-----------|----------|
| | Quarter | 3 Quarters | 1 Year | 2 Years | 3 Years | 5 Years | 7 Years | 10 Years |
| 5th Percentile | 2.5 | 6.8 | 9.0 | 8.7 | 9.1 | 10.8 | 11.3 | 7.1 |
| 25th Percentile | 2.1 | 6.1 | 8.2 | 8.0 | 8.3 | 9.9 | 10.4 | 5.1 |
| Median | 1.9 | 5.5 | 7.3 | 6.5 | 7.5 | 9.2 | 9.8 | 4.6 |
| 75th Percentile | 0.6 | 4.0 | 5.9 | 5.1 | 6.6 | 8.8 | 9.4 | 4.0 |
| 95th Percentile | 0.0 | 0.0 | 2.6 | 1.3 | 5.9 | 7.2 | 8.2 | 3.4 |
| # of Portfolios | 96 | 96 | 95 | 91 | 90 | 84 | 74 | 49 |
| ● Real Estate | 2.4 (10) | 6.3 (20) | 8.7 (12) | 8.4 (15) | 8.8 (14) | 10.7 (6) | 10.8 (15) | 5.2 (23) |
| ▲ NCREIF ODCE | 2.1 (27) | 6.5 (15) | 8.7 (12) | 8.2 (18) | 8.8 (15) | 10.7 (6) | 11.2 (6) | 5.9 (10) |



INVESCO Core Real Estate
Real Estate Valuation Analysis

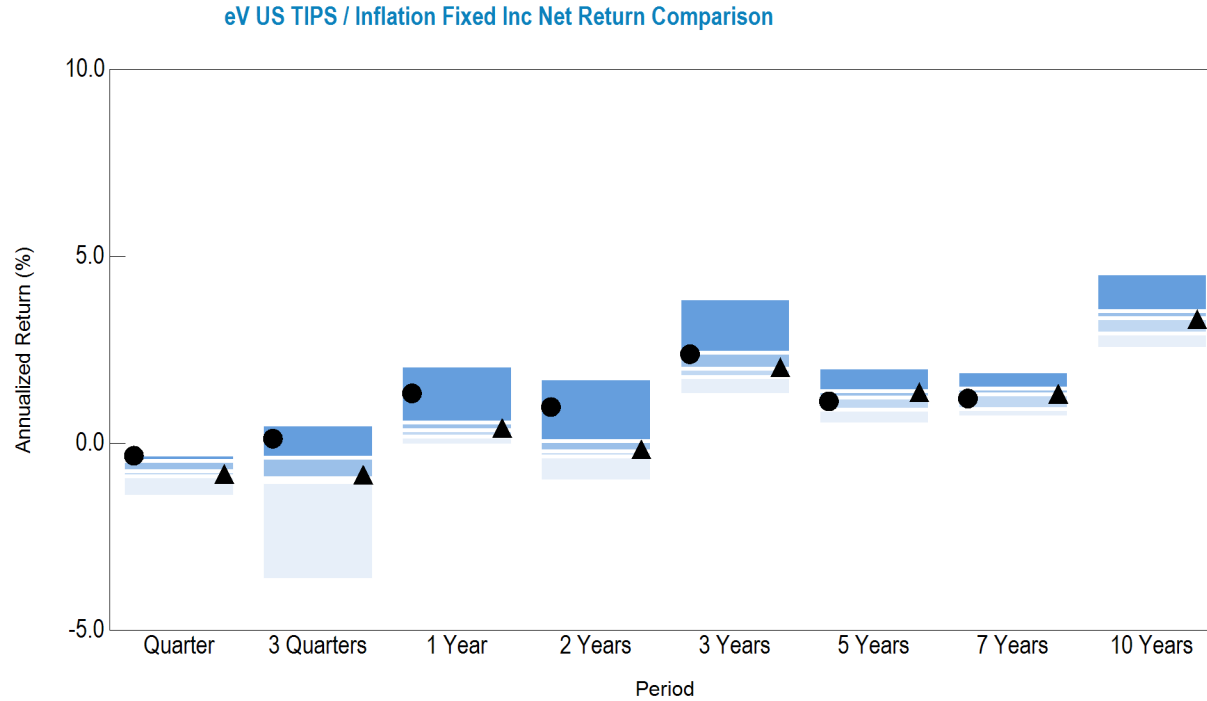
Period Ending: September 30, 2018

| 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 09/30/2018 2.69% |
|---|--------------------------|---------------------------|-----------------------------|------------------------|--------------------|---------------------|--|
| APARTMENTS | | | | | | | |
| Stoneridge Apartments | Pleasanton, CA | \$239,000,000 | \$242,000,000 | \$242,000,000 | 4Q06 | September-18 | \$6,513,164 |
| Instrata Pentagon City | Arlington, VA | \$152,000,000 | \$152,000,000 | \$152,000,000 | 3Q10 | September-18 | \$4,090,913 |
| Ladd Tower | Portland, OR | \$132,000,000 | \$131,000,000 | \$74,752,441 | 4Q10 | September-18 | \$2,011,880 |
| Legacy Fountain Plaza | San Jose, CA | \$159,972,508 | \$161,974,462 | \$161,974,462 | 1Q11 | September-18 | \$4,359,365 |
| Instrata Gramercy (fka The Elektra) | New York, NY | \$171,000,000 | \$172,000,000 | \$100,021,518 | 1Q11 | September-18 | \$2,691,969 |
| Instrata Brooklyn Heights (fka 75 Clinton Street) | Brooklyn, NY | \$68,300,000 | \$68,400,000 | \$68,400,000 | 1Q12 | September-18 | \$1,840,911 |
| The Artisan Laguna Beach | Orange County, CA | \$164,000,000 | \$164,000,000 | \$103,128,515 | 3Q12 | September-18 | \$2,775,591 |
| The GoodWynn | Atlanta, GA | \$98,600,000 | \$99,100,000 | \$99,100,000 | 4Q12 | September-18 | \$2,667,168 |
| Instrata Hell's Kitchen | New York, NY | \$194,000,000 | \$194,000,000 | \$194,000,000 | 1Q13 | September-18 | \$5,221,297 |
| Sunset Vine Tower | Los Angeles, CA | \$102,000,000 | \$103,000,000 | \$103,000,000 | 2Q13 | September-18 | \$2,772,132 |
| Instrata Ashton Uptown | Dallas, TX | \$123,000,000 | \$123,000,000 | \$66,454,602 | 4Q13 | September-18 | \$1,788,553 |
| 206 Bell | Seattle, WA | \$48,500,000 | \$48,900,000 | \$48,900,000 | 4Q13 | September-18 | \$1,316,090 |
| Cadence Union Station | Denver, CO | \$90,700,000 | \$92,600,000 | \$55,888,116 | 1Q14 | September-18 | \$1,504,167 |
| Joseph Arnold Lofts | Seattle, WA | \$71,400,000 | \$71,400,000 | \$37,536,882 | 2Q14 | September-18 | \$1,010,264 |
| Verve | Denver, CO | \$108,000,000 | \$108,000,000 | \$108,000,000 | 3Q14 | September-18 | \$2,906,701 |
| Broadstone Little Italy | San Diego CA | \$121,000,000 | \$121,000,000 | \$68,389,839 | 3Q14 | September-18 | \$1,840,637 |
| 33 Tehama | San Francisco, CA | \$297,123,440 | \$301,179,684 | \$180,310,259 | 3Q14 | September-18 | \$4,852,852 |
| The Parker | Portland, OR | \$63,700,000 | \$63,700,000 | \$32,839,928 | 1Q15 | September-18 | \$883,851 |
| Legacy West Apartments | Plano, TX | \$108,382,915 | \$107,784,632 | \$52,934,629 | 1Q15 | September-18 | \$1,424,677 |
| The Royce | Irvine, CA | \$191,803,121 | \$203,211,701 | \$113,973,225 | 2Q15 | September-18 | \$3,067,464 |
| Wheaton 121 | Wheaton, IL | \$77,100,000 | \$72,000,000 | \$72,000,000 | 2Q15 | September-18 | \$1,937,801 |
| Jefferson Marketplace | Washington, DC | \$155,000,000 | \$159,000,000 | \$89,373,697 | 4Q15 | September-18 | \$2,405,395 |
| Retreat at Park Meadows | Littleton, CO | \$148,000,000 | \$158,000,000 | \$158,000,000 | 4Q15 | September-18 | \$4,252,396 |
| North Water Apartments | Chicago, IL | \$265,000,000 | \$265,000,000 | \$265,000,000 | 1Q16 | September-18 | \$7,132,184 |
| 2270 Broadway | Oakland, CA | \$28,165,174 | \$28,157,728 | \$28,157,728 | 1Q16 | September-18 | \$757,834 |
| Runway at Playa Vista Apartments | Playa Vista, CA | \$163,770,000 | \$166,420,000 | \$103,016,636 | 1Q16 | September-18 | \$2,772,580 |
| Clayton Lane Apartments | Denver, CO | \$37,963,551 | \$38,522,588 | \$38,522,588 | 1Q16 | September-18 | \$1,036,793 |
| Biscayne 27 | Miami, FL | \$68,022,592 | \$75,857,121 | \$53,377,996 | 2Q16 | September-18 | \$1,436,610 |
| Flats 8300 | Washington DC | \$242,000,000 | \$245,000,000 | \$245,000,000 | 2Q16 | September-18 | \$6,593,906 |
| 407 1st Ave | New York, NY | \$197,000,000 | \$199,000,000 | \$199,000,000 | 4Q16 | September-18 | \$5,355,866 |
| 5250 Park | Miami, FL | \$26,131,258 | \$34,995,368 | \$25,483,650 | 2Q17 | September-18 | \$685,864 |
| The Mason | Pleasanton, CA | \$100,000,000 | \$101,000,000 | \$101,000,000 | 3Q17 | September-18 | \$2,718,304 |
| | | \$4,212,634,557 | \$4,271,203,284 | \$3,441,536,709 | | | \$92,625,177 |
| INDUSTRIAL | | | | | | | |
| Arjons Industrial Park | San Diego CA | \$45,300,000 | \$45,600,000 | \$45,600,000 | 2Q04 | September-18 | \$1,227,274 |
| Gateway Business Park | Dallas TX | \$13,500,000 | \$14,400,000 | \$14,400,000 | 2Q04 | September-18 | \$387,560 |
| Hayward Industrial | Oakland CA | \$195,800,000 | \$206,900,000 | \$206,900,000 | 3Q04-3Q07 | September-18 | \$5,568,486 |
| Oakesdale Commerce Center | Seattle - Belle - Eve WA | \$61,300,000 | \$62,300,000 | \$62,300,000 | 1Q06 | September-18 | \$1,676,736 |
| South Bay Industrial | Los Angeles, CA | \$58,400,000 | \$60,600,000 | \$60,600,000 | 4Q06 | September-18 | \$1,630,982 |
| Steeplechase Portfolio | Capitol Heights, MD | \$105,500,000 | \$106,400,000 | \$106,400,000 | 1Q11 | September-18 | \$2,863,639 |
| Airport Trade Center Portfolio | Dallas, TX | \$135,500,000 | \$142,000,000 | \$142,000,000 | 1Q11 | September-18 | \$3,821,774 |
| IE Logistics | San Bernardino, CA | \$150,000,000 | \$152,100,000 | \$152,100,000 | 3Q11 | September-18 | \$4,093,604 |
| Railhead Industrial | Dallas, TX | \$66,200,000 | \$66,400,000 | \$66,400,000 | 4Q11 | September-18 | \$1,787,083 |
| Empire Gateway aka Chino South Logistics Center | Chino, CA | \$282,000,000 | \$292,000,000 | \$292,000,000 | 4Q12 | September-18 | \$7,858,859 |
| SFO Logistics Center | San Francisco, CA | \$163,000,000 | \$163,000,000 | \$163,000,000 | 4Q13 | September-18 | \$4,386,966 |
| Miami Industrial Portfolio | Various, FL | \$85,466,334 | \$86,021,228 | \$59,511,427 | 1Q16 | September-18 | \$1,601,685 |
| Miami Industrial Portfolio - Fedex | Hollywood, FL | \$43,700,000 | \$45,000,000 | \$30,827,352 | 1Q16 | September-18 | \$829,684 |
| OMP Burbank | Los Angeles, CA | \$72,305,480 | \$71,898,228 | \$71,898,228 | 2Q16 | September-18 | \$1,935,062 |
| Pacific Commons | Freemont, CA | \$154,973,874 | \$173,937,156 | \$156,597,248 | 1Q17 | September-18 | \$4,214,643 |
| Gateway 80 Business Park | Fairfield, CA | \$106,600,000 | \$106,500,000 | \$106,500,000 | 1Q18 | September-18 | \$2,866,330 |
| Meridian Distribution Center II | Riverside, CA | \$0 | \$52,370,000 | \$52,370,000 | 3Q18 | Acq 3Q18 | \$1,409,481 |
| | | \$1,739,545,687 | \$1,847,426,611 | \$1,789,404,254 | | | \$48,159,848 |

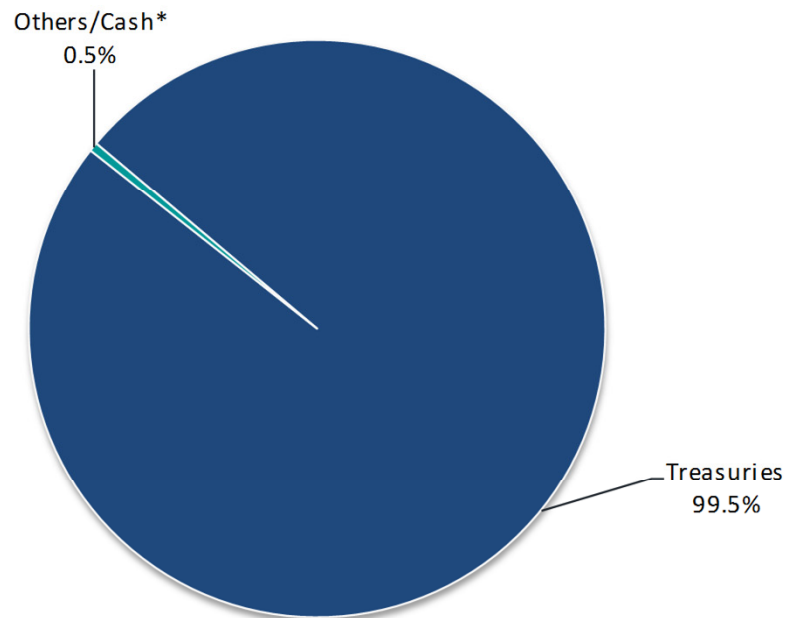
INVESCO Core Real Estate
Real Estate Valuation Analysis

Period Ending: September 30, 2018

| OFFICE | | | | | | | |
|-------------------------------------|----------------------|-------------------------|-------------------------|-------------------------|------|--------------|----------------------|
| 55 Cambridge Parkway | Boston MA - NH | \$308,000,000 | \$346,000,000 | \$346,000,000 | 4Q06 | September-18 | \$9,312,210 |
| 1111 Pennsylvania Avenue | Washington, D.C. | \$345,000,000 | \$345,000,000 | \$345,000,000 | 4Q10 | September-18 | \$9,285,296 |
| 1800 Larimer | Denver, CO | \$330,000,000 | \$331,000,000 | \$331,000,000 | 1Q11 | September-18 | \$8,908,501 |
| Hillview Office | San Jose, CA | \$79,600,000 | \$75,600,000 | \$75,600,000 | 3Q12 | September-18 | \$2,034,691 |
| Williams Tower | Houston, TX | \$600,000,000 | \$602,000,000 | \$419,753,355 | 1Q13 | September-18 | \$11,297,200 |
| Westlake Park Place | Westlake Village, CA | \$109,000,000 | \$109,000,000 | \$109,000,000 | 4Q13 | September-18 | \$2,933,615 |
| 101 Second | San Francisco, CA | \$416,000,000 | \$434,000,000 | \$434,000,000 | 1Q14 | September-18 | \$11,680,633 |
| Energy Crossing II | Houston, TX | \$104,000,000 | \$104,000,000 | \$104,000,000 | 2Q14 | September-18 | \$2,799,046 |
| 1776 Wilson Blvd. | Arlington, VA | \$89,500,000 | \$88,300,000 | \$88,300,000 | 3Q14 | September-18 | \$2,376,497 |
| 631 Howard | San Francisco, CA | \$95,600,000 | \$98,100,000 | \$98,100,000 | 3Q14 | September-18 | \$2,640,254 |
| Barton Oaks | Austin, TX | \$94,200,000 | \$95,000,000 | \$95,000,000 | 3Q14 | September-18 | \$2,556,821 |
| Hercules East and South Campus | Los Angeles, CA | \$182,150,051 | \$184,931,042 | \$184,931,042 | 3Q14 | September-18 | \$4,977,216 |
| The Reserve | Playa Vista, CA | \$383,747,471 | \$384,030,283 | \$384,030,283 | 1Q15 | September-18 | \$10,335,753 |
| Fort Point Portfolio | Boston, MA | \$247,336,511 | \$259,208,664 | \$259,208,664 | 2Q15 | September-18 | \$6,976,316 |
| Summit IV | Aliso Viejo, CA | \$113,000,000 | \$113,000,000 | \$75,540,875 | 2Q15 | September-18 | \$2,033,100 |
| 1101 Westlake | Seattle, WA | \$136,000,000 | \$137,000,000 | \$137,000,000 | 3Q15 | September-18 | \$3,687,204 |
| PearlWest | Boulder, CO | \$127,000,000 | \$131,000,000 | \$131,000,000 | 4Q16 | September-18 | \$3,525,721 |
| The Mark 302 | Santa Monica, CA | \$50,528,109 | \$50,991,394 | \$50,991,394 | 1Q18 | September-18 | \$1,372,377 |
| 430 West 15th Street | New York NY | \$158,500,000 | \$160,000,000 | \$160,000,000 | 2Q18 | September-18 | \$4,306,224 |
| Ten Fawcett | Cambridge, MA | \$0 | \$58,755,250 | \$58,755,250 | 3Q18 | Acq 3Q18 | \$1,581,333 |
| Press Blocks | Portland, OR | \$0 | \$4,234,440 | \$4,234,440 | 3Q18 | Acq 3Q18 | \$113,965 |
| | | \$4,069,693,140 | \$4,215,982,701 | \$3,941,599,867 | | | \$106,083,827 |
| RETAIL | | | | | | | |
| Chandler Pavilion | Phoenix - Mesa AZ | \$26,400,000 | \$26,700,000 | \$26,700,000 | 2Q04 | September-18 | \$718,601 |
| Cityline at Tenley | Washington, D.C. | \$61,000,000 | \$63,400,000 | \$63,400,000 | 4Q05 | September-18 | \$1,706,341 |
| Ridgehaven Shopping Center | Minnnetonka, MN | \$42,500,000 | \$42,500,000 | \$42,500,000 | 4Q05 | September-18 | \$1,143,841 |
| The Beacon Garage (units) | San Francisco, CA | \$36,249,909 | \$36,526,099 | \$36,526,099 | 1Q06 | September-18 | \$983,060 |
| The Beacon Office (210 King) | San Francisco, CA | \$28,500,000 | \$28,700,000 | \$28,700,000 | 1Q15 | September-18 | \$772,429 |
| Hawthorne Plaza | Overland Park, KS | \$53,425,000 | \$53,150,000 | \$53,150,000 | 4Q07 | September-18 | \$1,430,474 |
| The Loop | Boston MA - NH | \$83,000,000 | \$83,000,000 | \$83,000,000 | 1Q08 | September-18 | \$2,233,854 |
| Westbank Market | Austin, TX | \$63,000,000 | \$63,900,000 | \$63,900,000 | 3Q10 | September-18 | \$1,719,798 |
| 910 Lincoln Road | Miami, FL | \$35,100,000 | \$35,200,000 | \$35,200,000 | 4Q10 | September-18 | \$1,719,798 |
| Lake Pointe Village | Houston, TX | \$86,950,000 | \$87,350,000 | \$87,350,000 | 4Q11 | September-18 | \$947,369 |
| Safeway Kapahulu | Hawaii | \$95,100,000 | \$94,800,000 | \$58,937,747 | 4Q11 | September-18 | \$1,586,245 |
| Safeway Burlingame | San Francisco, CA | \$58,600,000 | \$58,900,000 | \$36,411,952 | 4Q11 | September-18 | \$979,988 |
| Shamrock Plaza | Oakland, CA | \$40,700,000 | \$40,800,000 | \$24,701,401 | 4Q11 | September-18 | \$664,811 |
| Pavilions Marketplace | West Hollywood, CA | \$70,600,000 | \$70,600,000 | \$46,159,317 | 1Q12 | September-18 | \$1,242,327 |
| 130 Prince | New York, NY | \$218,000,000 | \$220,000,000 | \$220,000,000 | 2Q12 | September-18 | \$5,921,058 |
| Safeway Pleasanton | Pleasanton, CA | \$82,600,000 | \$82,500,000 | \$82,500,000 | 4Q12 | September-18 | \$2,220,397 |
| Liberty Wharf | Boston, MA | \$97,300,000 | \$97,400,000 | \$67,962,583 | 4Q12 | September-18 | \$1,829,138 |
| Shops at Legacy | Plano, TX | \$115,588,287 | \$117,547,410 | \$117,547,410 | 3Q13 | September-18 | \$3,163,659 |
| Pasadena Commons | Pasadena, CA | \$61,900,000 | \$63,400,000 | \$63,400,000 | 4Q14 | September-18 | \$1,706,341 |
| Rush Street Retail | Chicago, IL | \$16,900,000 | \$16,900,000 | \$16,900,000 | 4Q14 | September-18 | \$454,845 |
| Legacy West Retail | Plano, TX | \$193,969,026 | \$198,589,494 | \$125,283,218 | 1Q15 | September-18 | \$3,371,860 |
| Legacy West Land | Plano, TX | \$917,929 | \$3,955,230 | \$3,955,230 | 2Q17 | September-18 | \$106,451 |
| 131-137 Spring Street | New York, NY | \$224,000,000 | \$212,000,000 | \$99,200,000 | 3Q15 | September-18 | \$2,669,859 |
| Runway at Playa Vista - Retail | Playa Vista, CA | \$127,200,000 | \$127,730,000 | \$65,385,564 | 1Q16 | September-18 | \$1,759,781 |
| 139 Spring | New York, NY | \$126,924,800 | \$118,992,000 | \$118,992,000 | 1Q16 | September-18 | \$3,202,539 |
| Clayton Lane | Denver, CO | \$146,689,047 | \$148,760,560 | \$103,277,713 | 1Q16 | September-18 | \$2,779,606 |
| 4th & Colorado | Santa Monica, CA | \$13,280,000 | \$13,280,000 | \$13,280,000 | 1Q16 | September-18 | \$357,417 |
| Legacy West - Block H | Plano, TX | \$6,713,845 | \$7,098,996 | \$7,098,996 | 4Q17 | September-18 | \$191,062 |
| Shops at Crystals | Las Vegas, NV | \$293,750,000 | \$298,750,000 | \$162,970,929 | 2Q16 | September-18 | \$4,386,183 |
| | | \$2,575,607,934 | \$2,581,703,691 | \$2,023,664,061 | | | \$53,833,563 |
| Other | | | | | | | |
| Baranof - Walden Park | San Marcos, TX | \$9,664,361 | \$9,650,448 | \$9,650,448 | 1Q18 | September-18 | \$259,731 |
| Baranof - Ranch Road 620 | San Marcos, TX | \$8,928,029 | \$8,915,176 | \$8,915,176 | 1Q18 | September-18 | \$239,942 |
| Baranof - Glenwood Avenue | Raleigh, NC | \$9,112,112 | \$9,282,812 | \$9,282,812 | 1Q18 | September-18 | \$249,837 |
| Baranof - 1-84 & 60th | Vancouver, WA | \$20,893,429 | \$21,506,712 | \$21,506,712 | 1Q18 | September-18 | \$578,830 |
| Baranof - Fishers Landing Vancouver | Vancouver, WA | \$15,370,937 | \$15,900,262 | \$15,900,262 | 1Q18 | September-18 | \$427,938 |
| US Storage | Compton, CA | \$8,679,384 | \$10,276,649 | \$10,018,596 | 4Q17 | September-18 | \$269,639 |
| The Quad | New York NY | \$71,566,306 | \$65,016,212 | \$29,879,142 | 2Q18 | September-18 | \$804,164 |
| Baranof - 622 Capital | Raleigh, NC | \$0 | \$18,611,578 | \$18,611,578 | 3Q18 | Acq 3Q18 | \$500,910 |
| 51st Street Self Storage | Austin, TX | \$0 | \$12,000,000 | \$12,000,000 | 3Q18 | Acq 3Q18 | \$322,967 |
| Campbell Self Storage | Campbell, CA | \$0 | \$17,800,000 | \$17,800,000 | 3Q18 | Acq 3Q18 | \$479,067 |
| | | \$144,214,559 | \$188,959,848 | \$153,564,724 | | | \$4,133,026 |
| Portfolio Total | | \$12,741,695,877 | \$13,105,276,135 | \$11,349,769,615 | | | \$304,835,441 |



| | Return (Rank) | | | | | | | |
|---------------------------|---------------|-----------|----------|-----------|----------|----------|----------|----------|
| 5th Percentile | -0.3 | 0.5 | 2.1 | 1.7 | 3.9 | 2.0 | 1.9 | 4.5 |
| 25th Percentile | -0.5 | -0.4 | 0.6 | 0.1 | 2.4 | 1.4 | 1.5 | 3.5 |
| Median | -0.7 | -0.9 | 0.4 | -0.2 | 2.0 | 1.2 | 1.3 | 3.4 |
| 75th Percentile | -0.9 | -1.0 | 0.2 | -0.3 | 1.8 | 0.9 | 0.9 | 2.9 |
| 95th Percentile | -1.4 | -3.6 | -0.1 | -1.0 | 1.3 | 0.5 | 0.7 | 2.5 |
| # of Portfolios | 21 | 20 | 20 | 20 | 20 | 18 | 16 | 13 |
| ● Brown Brothers Harriman | -0.3 (7) | 0.1 (8) | 1.3 (10) | 1.0 (13) | 2.4 (26) | 1.1 (65) | 1.2 (57) | -- (--) |
| ▲ BBgBarc US TIPS TR | -0.8 (63) | -0.8 (45) | 0.4 (40) | -0.2 (41) | 2.0 (47) | 1.4 (37) | 1.3 (49) | 3.3 (52) |



| Sector | Account Weight | BBgBarc TIPS | |
|--------------|----------------|---------------|-------------|
| | | Index | Difference |
| Treasuries | 99.5% | 100.0% | -0.5% |
| Agencies | 0.0% | 0.0% | 0.0% |
| Corporates | 0.0% | 0.0% | 0.0% |
| Utilities | 0.0% | 0.0% | 0.0% |
| Foreign | 0.0% | 0.0% | 0.0% |
| MBS | 0.0% | 0.0% | 0.0% |
| CMO | 0.0% | 0.0% | 0.0% |
| ABS | 0.0% | 0.0% | 0.0% |
| Municipals | 0.0% | 0.0% | 0.0% |
| Others/Cash* | 0.5% | 0.0% | 0.5% |
| TOTAL | 100.0% | 100.0% | 0.0% |

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

Brown Brothers Harriman
Bond Summary Statistics

Period Ending: September 30, 2018

| Portfolio Characteristics | | Portfolio |
|----------------------------|----|------------|
| Total Number of Securities | | 10 |
| Total Market Value | \$ | 47,585,201 |
| Current Coupon | | 1.09 |
| Yield to Maturity | | 0.86 |
| Average Life | | |
| Duration | | 5.82 |
| Quality | | AAA |

| BBgBarc TIPS |
|--------------|
| 39 |
| N/A |
| 0.71 |
| 0.90 |
| |
| 7.44 |
| AAA |

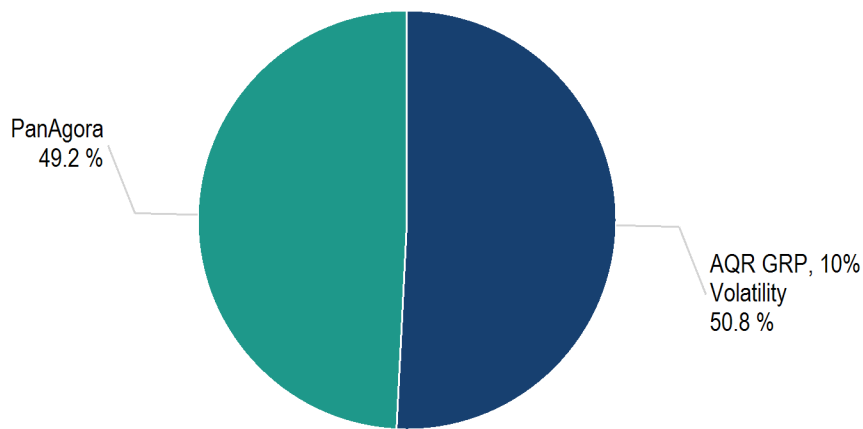
| Yield to Maturity | |
|-------------------|--------|
| Range | % Held |
| 0.0 - 5.0 | 100.0 |
| 5.0 - 7.0 | 0.0 |
| 7.0 - 9.0 | 0.0 |
| 9.0 - 11.0 | 0.0 |
| 11.0 - 13.0 | 0.0 |
| 13.0+ | 0.0 |
| Unclassified | 0.0 |

| Average Life | |
|--------------|--------|
| Range | % Held |
| 0.0 - 3.0 | 18.0 |
| 3.0 - 5.0 | 28.3 |
| 5.0 - 10.0 | 35.2 |
| 10.0 - 15.0 | 6.4 |
| 15.0+ | 12.1 |
| Unclassified | 0.0 |

| Duration | |
|--------------|--------|
| Range | % Held |
| 0.0 - 3.0 | 18.1 |
| 3.0 - 5.0 | 28.3 |
| 5.0 - 10.0 | 35.2 |
| 10.0 - 15.0 | 6.4 |
| 15.0+ | 12.1 |
| 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 | \$176,834,984 | 50.8% | -1.2% |
| PanAgora | \$170,960,060 | 49.2% | -2.7% |
| Actual vs. Policy Weight Difference | | | 0.0% |
| Total | \$347,795,044 | 100.0% | -3.9% |

Statistics Summary

3 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|---------------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Risk Parity | 7.2% | 6.8% | 0.9 | -0.5 | 6.0% |
| Blended Risk Parity Index | 10.0% | 5.4% | 1.7 | -- | 0.0% |
| AQR GRP, 10% Volatility | 7.1% | 6.5% | 1.0 | -0.5 | 5.5% |
| Blended Risk Parity Index | 10.0% | 5.4% | 1.7 | -- | 0.0% |
| PanAgora | 7.3% | 7.5% | 0.9 | -0.4 | 6.9% |
| Blended Risk Parity Index | 10.0% | 5.4% | 1.7 | -- | 0.0% |

Statistics Summary

5 Years

| | Anlzd Return | Anlzd Standard Deviation | Sharpe Ratio | Information Ratio | Tracking Error |
|---------------------------|--------------|--------------------------|--------------|-------------------|----------------|
| Risk Parity | 5.8% | 7.7% | 0.7 | -0.5 | 6.0% |
| Blended Risk Parity Index | 8.6% | 5.7% | 1.4 | -- | 0.0% |
| AQR GRP, 10% Volatility | 4.7% | 7.6% | 0.5 | -0.7 | 5.9% |
| Blended Risk Parity Index | 8.6% | 5.7% | 1.4 | -- | 0.0% |

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | YTD (%) | 1 Yr (%) | 2 Yrs (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|------------------------------------|-------------|-------------|-------------|--------------|--------------|--------------|---------------|
| Total Fund | 2.0 | 2.2 | 5.5 | 8.9 | 9.4 | 7.6 | 7.7 |
| <i>Policy Index</i> | 2.5 | 2.6 | 6.5 | 9.5 | 10.0 | 7.6 | 8.0 |
| Total Fund ex Overlay | 2.0 | 2.2 | 5.6 | 8.8 | 9.3 | 7.5 | 7.7 |
| <i>Policy Index</i> | 2.5 | 2.6 | 6.5 | 9.5 | 10.0 | 7.6 | 8.0 |
| Public Equity | 4.0 | 4.4 | 10.0 | 14.4 | 14.0 | 9.8 | 9.3 |
| <i>Blended Public Equity Index</i> | 4.1 | 4.4 | 10.5 | 15.0 | 14.3 | 9.8 | 9.6 |
| US Equity | 7.0 | 10.7 | 17.3 | 18.3 | 16.8 | 12.9 | 11.7 |
| <i>Blended US Equity Index</i> | 7.1 | 10.6 | 17.6 | 18.1 | 17.0 | 13.1 | 11.9 |
| <i>Russell 3000</i> | 7.1 | 10.6 | 17.6 | 18.1 | 17.1 | 13.5 | 12.0 |
| Large Cap Equity | 7.4 | 10.7 | 17.9 | 19.3 | 17.7 | 14.0 | 11.9 |
| <i>Russell 1000</i> | 7.4 | 10.5 | 17.8 | 18.2 | 17.1 | 13.7 | 12.1 |
| BlackRock Russell 1000 | 7.4 | 10.5 | 17.8 | -- | -- | -- | -- |
| DE Shaw | 7.2 | 11.5 | 18.6 | 20.7 | 19.6 | 15.6 | -- |
| <i>Russell 1000</i> | 7.4 | 10.5 | 17.8 | 18.2 | 17.1 | 13.7 | 12.1 |
| Small Cap Equity | 3.7 | 10.4 | 12.9 | 17.6 | 15.4 | 9.4 | 11.3 |
| <i>Russell 2000</i> | 3.6 | 11.5 | 15.2 | 18.0 | 17.1 | 11.1 | 11.1 |
| QMA US Small Cap | 3.7 | 10.4 | 12.9 | 17.6 | -- | -- | -- |
| <i>Russell 2000</i> | 3.6 | 11.5 | 15.2 | 18.0 | 17.1 | 11.1 | 11.1 |
| International Equity | 0.5 | -2.5 | 1.9 | 9.5 | 10.3 | 5.2 | 4.9 |
| <i>MSCI ACWI ex US IMI</i> | 0.4 | -3.3 | 1.8 | 10.6 | 10.5 | 4.8 | 5.8 |
| <i>MSCI EAFE Gross</i> | 1.4 | -1.0 | 3.2 | 11.1 | 9.8 | 4.9 | 5.9 |
| Developed Markets | 0.6 | -1.9 | 2.5 | 9.8 | 10.4 | 5.5 | 5.2 |
| <i>MSCI ACWI ex USA Gross</i> | 0.8 | -2.7 | 2.3 | 10.8 | 10.5 | 4.6 | 5.7 |
| Baillie Gifford | -1.2 | -1.4 | 3.5 | 10.1 | 12.4 | 6.6 | -- |
| <i>MSCI ACWI ex US</i> | 0.8 | -2.7 | 2.3 | 10.8 | 10.5 | 4.8 | -- |
| <i>MSCI ACWI ex US Growth</i> | -0.2 | -2.2 | 3.5 | 10.5 | 11.0 | 5.8 | -- |
| BlackRock EAFE Index | 1.4 | -1.1 | 3.2 | 11.1 | 9.7 | -- | -- |
| <i>MSCI EAFE</i> | 1.4 | -1.4 | 2.7 | 10.6 | 9.2 | 4.4 | 5.4 |
| <i>MSCI EAFE Gross</i> | 1.4 | -1.0 | 3.2 | 11.1 | 9.8 | 4.9 | 5.9 |

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | YTD (%) | 1 Yr (%) | 2 Yrs (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---------------------------------------|-------------|-------------|-------------|--------------|--------------|--------------|---------------|
| Mondrian | 1.5 | -3.2 | 0.8 | 8.7 | 8.7 | 4.4 | 5.2 |
| <i>MSCI ACWI ex USA Value Gross</i> | 1.8 | -3.1 | 1.0 | 11.1 | 9.9 | 3.5 | 5.1 |
| <i>MSCI ACWI ex USA Gross</i> | 0.8 | -2.7 | 2.3 | 10.8 | 10.5 | 4.6 | 5.7 |
| Emerging Markets | -0.1 | -8.2 | -3.4 | 7.2 | 9.8 | 2.4 | -- |
| <i>MSCI Emerging Markets Gross</i> | -0.9 | -7.4 | -0.4 | 10.6 | 12.8 | 4.0 | 5.8 |
| Parametric Core | -0.1 | -8.2 | -3.4 | 7.2 | 9.8 | -- | -- |
| <i>MSCI Emerging Markets Gross</i> | -0.9 | -7.4 | -0.4 | 10.6 | 12.8 | 4.0 | 5.8 |
| Parametric Currency Overlay | -- | -- | -- | -- | -- | -- | -- |
| Fixed Income | 0.7 | 0.1 | 0.6 | 3.4 | 4.6 | 3.9 | 6.1 |
| <i>Blended Fixed Income Index</i> | 0.8 | -0.8 | -0.5 | 0.7 | 3.0 | 2.6 | 4.1 |
| Core Fixed | 0.1 | -1.5 | -1.1 | 0.8 | 2.7 | 3.0 | 5.2 |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -1.6 | -1.2 | -0.6 | 1.3 | 2.2 | 3.8 |
| BlackRock Intermediate Govt | -0.1 | -0.6 | -1.0 | -- | -- | -- | -- |
| <i>BBgBarc US Govt Int TR</i> | -0.1 | -0.8 | -1.2 | -0.9 | 0.2 | 0.9 | 2.2 |
| FIAM Bond | 0.2 | -1.1 | -0.7 | 0.2 | 2.4 | 2.9 | 5.1 |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -1.6 | -1.2 | -0.6 | 1.3 | 2.2 | 3.8 |
| Western TRU | 0.2 | -3.4 | -1.9 | 3.5 | 4.1 | -- | -- |
| <i>3-Month Libor Total Return USD</i> | 0.6 | 1.7 | 2.1 | 1.6 | 1.3 | 0.9 | 0.7 |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -1.6 | -1.2 | -0.6 | 1.3 | 2.2 | 3.8 |
| Opportunistic Credit | 1.8 | 3.3 | 4.2 | 7.5 | 8.2 | 7.3 | -- |
| <i>BBgBarc BA Intermediate HY</i> | 2.3 | 0.8 | 0.9 | 3.8 | 6.2 | 4.7 | -- |
| Angelo Gordon Opportunistic | 5.3 | 21.4 | 32.1 | 21.1 | 15.5 | -- | -- |
| Angelo Gordon STAR | 6.6 | 18.9 | 22.3 | 20.2 | 14.8 | 14.5 | -- |
| <i>BBgBarc US Aggregate TR</i> | 0.0 | -1.6 | -1.2 | -0.6 | 1.3 | 2.2 | 3.8 |
| Beach Point Select | 1.8 | 5.0 | 6.9 | 8.8 | 9.6 | -- | -- |
| <i>BBgBarc BA Intermediate HY</i> | 2.3 | 0.8 | 0.9 | 3.8 | 6.2 | 4.7 | -- |
| Brigade Capital | 2.3 | 4.9 | 5.3 | 7.7 | 9.4 | 5.4 | -- |
| <i>BBgBarc BA Intermediate HY</i> | 2.3 | 0.8 | 0.9 | 3.8 | 6.2 | 4.7 | -- |
| <i>50% Barclays HY/ 50% Bank Loan</i> | 2.2 | 3.5 | 4.3 | 5.7 | 6.8 | 5.0 | -- |

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | YTD (%) | 1 Yr (%) | 2 Yrs (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|--|-------------|-------------|-------------|--------------|--------------|--------------|---------------|
| PIMCO Diversified | 1.7 | 0.3 | 1.1 | -- | -- | -- | -- |
| <i>Blended PIMCO Diversified Index</i> | 1.6 | -0.8 | 0.0 | 2.3 | 5.5 | 4.7 | 7.4 |
| <i>BBgBarc BA Intermediate HY</i> | 2.3 | 0.8 | 0.9 | 3.8 | 6.2 | 4.7 | -- |
| Franklin Templeton | 0.3 | -2.1 | -3.4 | 4.2 | 3.9 | 1.8 | -- |
| <i>BBgBarc Multiverse TR</i> | -0.8 | -2.4 | -1.3 | -0.9 | 2.3 | 0.9 | 3.1 |
| Private Credit | 1.7 | 5.8 | 7.6 | 6.6 | -- | -- | -- |
| <i>Cliffwater Direct Lending Index</i> | 2.4 | 7.2 | 9.4 | 9.3 | 8.9 | 9.1 | 10.0 |
| TCP Direct Lending VIII | 3.4 | 6.3 | 7.8 | 7.2 | -- | -- | -- |
| White Oak Yield | 0.0 | 5.6 | 6.9 | -- | -- | -- | -- |
| <i>Cliffwater Direct Lending Index</i> | 2.4 | 7.2 | 9.4 | 9.3 | 8.9 | 9.1 | 10.0 |
| Risk Parity | -0.9 | -2.5 | 1.9 | 3.7 | 7.2 | 5.9 | -- |
| <i>Blended Risk Parity Index</i> | 3.0 | 3.3 | 7.1 | 9.4 | 10.0 | 8.6 | -- |
| AQR GRP, 10% Volatility | 0.3 | -1.4 | 3.3 | 5.7 | 7.1 | 4.7 | -- |
| PanAgora | -2.1 | -3.6 | 0.6 | 1.9 | 7.3 | -- | -- |
| <i>Blended Risk Parity Index</i> | 3.0 | 3.3 | 7.1 | 9.4 | 10.0 | 8.6 | -- |
| <i>Blended RP Secondary Index</i> | 4.2 | 5.6 | 9.8 | 9.7 | 9.7 | 7.3 | -- |
| Alternatives | 2.1 | 1.6 | 3.1 | 7.5 | 6.5 | 7.3 | -- |
| <i>Blended Alternatives Index</i> | 2.8 | 4.5 | 9.1 | 11.5 | 10.6 | 7.8 | -- |
| Private Equity | 4.9 | 12.3 | 13.9 | 15.8 | 13.7 | 17.7 | -- |
| <i>Blended Private Equity Index</i> | 3.9 | 4.4 | 11.7 | 16.6 | 17.1 | 14.7 | 14.2 |
| Hedge Fund/Absolute Return | -1.0 | -8.5 | -7.1 | -0.9 | -0.3 | 4.2 | -- |
| Libor 1 month +4% | 1.6 | 4.4 | 5.8 | 5.4 | 5.1 | 4.7 | -- |
| AQR DELTA XN | -1.9 | -11.5 | -10.3 | -2.2 | -0.9 | 3.9 | -- |
| Aberdeen Standard GARS | 0.5 | -3.5 | -1.7 | 0.9 | -- | -- | -- |
| Libor 1 month +4% | 1.6 | 4.4 | 5.8 | 5.4 | 5.1 | 4.7 | -- |
| Inflation Hedge | 0.5 | 2.2 | 5.0 | 6.1 | -- | -- | -- |
| <i>Blended Inflation Hedge Index</i> | 0.8 | 1.7 | 4.7 | 5.8 | -- | -- | -- |

Total Fund
Performance Summary (Gross of Fees)

Period Ending: September 30, 2018

| | 3 Mo (%) | YTD (%) | 1 Yr (%) | 2 Yrs (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) |
|---|-------------|-------------|-------------|--------------|--------------|--------------|---------------|
| Real Estate | 2.5 | 6.7 | 9.1 | 8.8 | 9.2 | 11.1 | 5.6 |
| <i>NCREIF ODCE</i> | 2.1 | 6.5 | 8.7 | 8.2 | 8.8 | 10.7 | 5.9 |
| Invesco | 2.6 | 7.0 | 9.4 | 8.9 | 9.1 | 11.1 | 5.6 |
| <i>NCREIF ODCE</i> | 2.1 | 6.5 | 8.7 | 8.2 | 8.8 | 10.7 | 5.9 |
| Invesco US Val IV | 3.0 | 7.8 | 10.1 | 11.1 | -- | -- | -- |
| <i>NCREIF ODCE</i> | 2.1 | 6.5 | 8.7 | 8.2 | 8.8 | 10.7 | 5.9 |
| <i>NCREIF CEVA 1Q Lag - NET</i> | 3.0 | 8.7 | 12.0 | 10.8 | 11.7 | -- | -- |
| PGIM RE US Debt Fund | 2.1 | 4.7 | 7.3 | -- | -- | -- | -- |
| <i>NCREIF ODCE</i> | 2.1 | 6.5 | 8.7 | 8.2 | 8.8 | 10.7 | 5.9 |
| Private Real Asset | 0.6 | 0.3 | -2.2 | -1.3 | 10.8 | -- | -- |
| <i>Blended Private Real Asset Index</i> | 4.4 | -3.0 | 1.2 | 5.0 | 5.6 | -- | -- |
| <i>Blended Secondary CA Private RA Index</i> | 2.2 | 7.9 | 11.2 | 12.2 | 7.9 | -- | -- |
| Liquid Real Asset | -1.5 | -1.6 | 3.0 | -- | -- | -- | -- |
| <i>Blended Liquid Real Asset Index</i> | -1.5 | -2.3 | 1.9 | 5.3 | 5.8 | -- | -- |
| Cushing MLP Alpha TR | -- | -- | -- | -- | -- | -- | -- |
| <i>50% BBgBarc US TIPS/ 50% Blended LRA Index</i> | -1.2 | -- | -- | -- | -- | -- | -- |
| <i>Alerian MLP TR USD</i> | 6.6 | 5.9 | 4.9 | 0.5 | 4.4 | -2.7 | 9.2 |
| SSgA Custom Real Asset | -1.0 | -1.2 | 3.5 | -- | -- | -- | -- |
| <i>Blended Liquid Real Asset Index</i> | -1.5 | -2.3 | 1.9 | 5.3 | 5.8 | -- | -- |
| TIPS | -0.3 | 0.2 | 1.4 | 1.1 | 2.5 | 1.3 | -- |
| <i>BBgBarc US TIPS TR</i> | -0.8 | -0.8 | 0.4 | -0.2 | 2.0 | 1.4 | 3.3 |
| Brown Brothers Harriman | -0.3 | 0.2 | 1.4 | 1.1 | 2.5 | 1.3 | -- |
| <i>BBgBarc US TIPS TR</i> | -0.8 | -0.8 | 0.4 | -0.2 | 2.0 | 1.4 | 3.3 |
| Cash | 0.1 | 0.6 | 0.9 | 0.9 | 1.1 | 0.8 | 0.9 |
| 91 Day T-Bills | 0.5 | 1.3 | 1.6 | 1.2 | 0.9 | 0.5 | 0.3 |
| General Account | 0.8 | 2.3 | 3.1 | 2.2 | 2.2 | 1.5 | 0.9 |
| Treasury & LAIF | 1.3 | 4.0 | 4.2 | 2.5 | 1.9 | 1.6 | 1.3 |
| 91 Day T-Bills | 0.5 | 1.3 | 1.6 | 1.2 | 0.9 | 0.5 | 0.3 |

Angelo, Gordon & Co. – AG STAR Fund

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

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

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

AQR Delta

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

AQR – Risk Parity

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

Baillie Gifford – ACWI ex US Focus Equities

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

Beach Point Select Fund

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

BlackRock – EAFE Index

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

BlackRock – Intermediate Government Index

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

BlackRock – Russell 1000 Index

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

Brigade – Opportunistic Credit

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

Brown Brothers Harriman – Inflation Indexed Securities

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

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 – Diversified Risk Multi Asset Fund

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

PGIM RE Debt

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

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).

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: September 30, 2018

| Total Plan Policy Index | As of | | | | | | | | | | | | | | | | | |
|--|--------|---------|--------|--------|---------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|
| | 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% | 8.0% | 10.0% | 10.0% |
| 60/40 MSCI World/BBgBarc Global Aggregate (RP) | 8.0% | 8.0% | 8.0% | 8.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 60/40 Russell 3000/BBgBarc US Aggregate (RP) | 0.0% | 0.0% | 0.0% | 0.0% | 8.0% | 8.0% | 8.0% | 8.0% | 8.0% | 6.0% | 6.0% | 6.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| BBgBarc Aggregate | 14.0% | 14.0% | 12.0% | 10.0% | 10.0% | 10.0% | 10.0% | 10.0% | 9.3% | 11.0% | 11.0% | 12.9% | 27.0% | 27.0% | 29.0% | 25.0% | 21.0% | 21.0% |
| BBgBarc BA Intermediate HY | 7.0% | 7.0% | 6.0% | 6.0% | 6.0% | 5.0% | 5.0% | 5.0% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| BBgBarc BBB | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 1.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| BBgBarc Credit BAA | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 3.5% | 3.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| BBgBarc Multiverse | 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% |
| BBgBarc TIPS | 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% |
| Bloomberg Commodity | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| FTSE 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% | 5.0% | 9.0% | 9.0% |
| CPI + 5% (RA) | 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% |
| Blended Liquid Real Asset | 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% |
| Blended Private Real Asset | 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% |
| Libor +4% (HF) | 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% |
| MSCI ACWI ex-US | 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% |
| MSCI ACWI ex-US IMI | 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% |
| MSCI ACWI ex-US IMI (Net) | 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% |
| 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% | 20.0% | 20.0% | 20.0% |
| NCREIF ODCE | 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% |
| 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% | 6.0% | 6.0% | 0.0% | 0.0% | 0.0% |
| Russell 1000 | 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% |
| 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% | 5.0% | 5.0% | 0.0% |
| Russell 2000 | 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% |
| Russell 3000 | 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% |
| Russell 3000 +3% (PE) | 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% |
| Russell 3000 +3% 1Q Lag (PE) | 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% |
| 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% | 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% |

Policy Index and Benchmark History

Period Ending: September 30, 2018

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

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

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

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

Policy Index and Benchmark History

Period Ending: September 30, 2018

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

| Liquid Real Asset Benchmark | As of: | |
|---|---------------|---------------|
| | 10/1/16 | 1/1/14 |
| Bloomberg Roll Select Commodity | 34.0% | 0.0% |
| S&P Global Large-MidCap Commodity and Resources | 33.0% | 0.0% |
| S&P Global Infrastructure | 33.0% | 0.0% |
| CPI + 5% | 0.0% | 100.0% |
| | 100.0% | 100.0% |

| Private Real Asset Benchmark | As of: | | |
|---|---------------|---------------|---------------|
| | 4/1/18 | 10/1/16 | 1/1/14 |
| Bloomberg Roll Select Commodity | 0.0% | 34.0% | 0.0% |
| S&P Global Large-MidCap Commodity and Resources | 0.0% | 33.0% | 0.0% |
| 50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL | 100.0% | 0.0% | 0.0% |
| S&P Global Infrastructure | 0.0% | 33.0% | 0.0% |
| CPI + 5% | 0.0% | 0.0% | 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% |

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

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

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

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

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

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

Baillie Gifford

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

BlackRock-EAFE Equity Index Fund

| | |
|----------------|-----------------|
| On All Assets: | 0.05% per annum |
|----------------|-----------------|

BlackRock-Russell 1000 Index Fund

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

BlackRock-Intermediate Govt Bond Index Fund

| | |
|----------------|-----------------|
| On All Assets: | 0.04% per annum |
|----------------|-----------------|

Brown Brothers Harriman

| | |
|----------------|-----------------|
| On All Assets: | 0.15% per annum |
|----------------|-----------------|

Parametric

| | |
|----------------|-----------------|
| On All Assets: | 0.30% 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 |

PIMCO Diversified

| | |
|----------------|-----------------|
| On All Assets: | 0.75% per annum |
|----------------|-----------------|

QMA

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

Western Asset Management

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

Mondrian Investment Partners

Assets Below \$190 million

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

Assets Above \$190 million

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

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

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

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

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

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

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

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

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

Manager Performance Comparison (Gross of Fees)

Period Ending: September 30, 2018

| | Jul | Aug | Sep | 3rd Qtr. 2018 | Difference | 2nd Qtr. 2018 | Difference | 1st Qtr. 2018 | Difference | 4th Qtr. 2017 | Difference | 3rd Qtr. 2017 | Difference |
|------------------------------|-------|--------|--------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| Verus | 3.43% | 3.45% | 0.38% | 7.41% | | 3.59% | | -0.69% | | 6.58% | | 4.49% | |
| BlackRock Russell 1000 | 3.43% | 3.45% | 0.38% | 7.41% | 0.00% | 3.59% | 0.00% | -0.69% | 0.00% | 6.59% | 0.00% | 4.49% | 0.00% |
| Russell 1000 Index | 3.45% | 3.45% | 0.38% | 7.42% | | 3.57% | | -1.19% | | 4.90% | | 4.48% | |
| Verus | 3.72% | 3.39% | -0.01% | 7.23% | | 4.31% | | -0.32% | | 6.38% | | 7.60% | |
| D.E. Shaw | 3.73% | 3.39% | -0.01% | 7.24% | -0.01% | 4.32% | -0.01% | -0.31% | -0.01% | 6.39% | -0.01% | 7.60% | 0.00% |
| Russell 1000 Index | 3.45% | 3.45% | 0.38% | 7.42% | | 3.57% | | -1.19% | | 4.90% | | 4.48% | |
| Verus | 2.49% | 4.03% | -2.74% | 3.70% | | 6.98% | | -0.51% | | 2.34% | | 5.94% | |
| QMA US Small Cap (Net) | 2.49% | 4.03% | -2.74% | 3.70% | 0.00% | 6.98% | 0.00% | -0.51% | 0.00% | 2.34% | 0.00% | 5.95% | -0.01% |
| Russell 2000 Index | 1.74% | 4.31% | -2.41% | 3.58% | | 7.75% | | -0.08% | | 3.34% | | 5.67% | |
| Verus | 1.58% | -1.35% | -1.51% | -1.31% | | 0.36% | | -0.75% | | 4.95% | | 5.14% | |
| Baillie Gifford (Net) | 1.57% | -1.29% | -1.55% | -1.29% | -0.01% | 0.35% | 0.00% | -0.74% | -0.01% | 4.92% | 0.03% | 5.12% | 0.02% |
| MSCI ACWI ex US | 2.42% | -2.07% | 0.50% | 0.80% | | -2.39% | | -1.08% | | 5.06% | | 6.25% | |
| MSCI ACWI ex US Growth | 1.73% | -1.11% | -0.80% | -0.20% | | -1.23% | | -0.80% | | 5.81% | | 6.39% | |
| Verus | 2.45% | -1.93% | 0.91% | 1.40% | | -0.83% | | -1.59% | | 4.26% | | 5.47% | |
| BlackRock EAFE Equity | 2.45% | -1.93% | 0.91% | 1.40% | 0.00% | -0.83% | 0.00% | -1.59% | 0.00% | 4.26% | 0.00% | 5.47% | 0.00% |
| MSCI EAFE (Net) | 2.46% | -1.93% | 0.87% | 1.35% | | -1.24% | | -1.53% | | 4.23% | | 5.40% | |
| MSCI EAFE (Gross) | 2.47% | -1.92% | 0.91% | 1.42% | | -0.97% | | -1.41% | | 4.27% | | 5.47% | |
| Verus | 2.67% | -2.02% | 0.93% | 1.54% | | -3.43% | | -1.24% | | 4.06% | | 5.05% | |
| Mondrian(Net) | 2.68% | -2.02% | 0.94% | 1.55% | -0.01% | -3.43% | 0.00% | -1.22% | -0.02% | 4.02% | 0.04% | 5.08% | -0.03% |
| MSCI ACWI -ex US Value Index | 3.15% | -3.06% | 1.86% | 1.85% | | -3.59% | | -1.36% | | 4.31% | | 6.11% | |
| MSCI ACWI -ex US | 2.42% | -2.07% | 0.50% | 0.80% | | -2.39% | | -1.08% | | 5.06% | | 6.25% | |
| Verus | 3.45% | -3.60% | 0.17% | -0.11% | | -9.47% | | 1.51% | | 5.24% | | 6.91% | |
| Parametric Core | 3.46% | -3.58% | 0.18% | -0.06% | -0.05% | -9.42% | -0.05% | 1.56% | -0.05% | 5.30% | -0.06% | 6.96% | -0.05% |
| MSCI EM Market Index | 2.28% | -2.67% | -0.50% | -0.95% | | -7.86% | | 1.47% | | 7.50% | | 8.04% | |

Manager Performance Comparison (Gross of Fees)

Period Ending: September 30, 2018

| | Jul | Aug | Sep | 3rd Qtr. 2018 | Difference | 2nd Qtr. 2018 | Difference | 1st Qtr. 2018 | Difference | 4th Qtr. 2017 | Difference | 3rd Qtr. 2017 | Difference |
|--------------------------------------|--------|--------|--------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| Verus | -0.18% | 0.61% | -0.49% | -0.07% | | 0.12% | | -0.67% | | -0.36% | | 0.40% | |
| BlackRock Intermediate Govt | -0.18% | 0.61% | -0.49% | -0.07% | 0.00% | 0.12% | 0.00% | -0.67% | 0.00% | -0.35% | -0.01% | 0.41% | -0.01% |
| BBgBarc US Govt Int Index | -0.20% | 0.59% | -0.51% | -0.11% | | 0.06% | | -0.73% | | -0.41% | | 0.85% | |
| Verus | 0.13% | 0.50% | -0.48% | 0.15% | | 0.02% | | -1.31% | | 0.47% | | 1.13% | |
| FIAM Bond | 0.13% | 0.50% | -0.48% | 0.15% | 0.00% | 0.02% | 0.00% | -1.31% | 0.00% | 0.48% | -0.01% | 1.13% | 0.00% |
| BBgBarc US Aggregate Index | 0.02% | 0.64% | -0.64% | 0.02% | | -0.16% | | -1.46% | | 0.39% | | 0.85% | |
| Verus | 0.93% | -1.27% | 0.53% | 0.17% | | -2.90% | | -0.69% | | 1.51% | | 2.09% | |
| Western TRU | 0.93% | -1.27% | 0.53% | 0.17% | 0.00% | -2.90% | 0.00% | -0.69% | 0.00% | 1.51% | 0.00% | 2.09% | 0.00% |
| 3-Month Libor Total Return USD Index | 0.20% | 0.20% | 0.20% | 0.60% | | 0.59% | | 0.46% | | 0.39% | | 0.34% | |
| BBgBarc US Aggregate Index | 0.02% | 0.64% | -0.64% | 0.02% | | -0.16% | | -1.46% | | 0.39% | | 0.85% | |
| Verus (Net) | | | | 5.35% | | 9.49% | | 5.70% | | 11.05% | | -0.59% | |
| Angelo Gordon Opportunistic | | | | 5.35% | 0.00% | 9.49% | 0.00% | 5.70% | 0.00% | 11.05% | 0.00% | -0.59% | 0.00% |
| BBgBarc US Aggregate Index | | | | 0.02% | | -0.16% | | -1.46% | | 0.39% | | 0.85% | |
| Verus (Net) | | | | 6.59% | | 4.83% | | 7.54% | | 3.13% | | 4.96% | |
| Angelo Gordon STAR Fund (Net) | | | | 6.59% | 0.00% | 4.83% | 0.00% | 7.54% | 0.00% | 3.13% | 0.00% | 4.96% | 0.00% |
| BBgBarc US Aggregate Index | | | | 0.02% | | -0.16% | | -1.46% | | 0.39% | | 0.85% | |
| Verus | 0.80% | 0.61% | 0.38% | 1.80% | | 2.01% | | 1.14% | | 1.79% | | 2.07% | |
| Beach Point Select (Net) | 0.80% | 0.61% | 0.38% | 1.80% | 0.00% | 2.01% | 0.00% | 1.14% | 0.00% | 1.79% | 0.00% | 2.07% | 0.00% |
| BBgBarc BA Intermediate HY | 1.11% | 0.87% | 0.27% | 2.27% | | 0.04% | | -1.49% | | 0.15% | | 1.72% | |
| Verus | 1.03% | 0.09% | 1.15% | 2.28% | | 1.53% | | 1.05% | | 0.33% | | 1.40% | |
| Brigade Capital (Net) | 1.02% | 0.07% | 1.11% | 2.21% | 0.07% | 1.56% | -0.03% | 1.03% | 0.02% | 0.28% | 0.05% | 1.44% | -0.04% |
| BBgBarc BA Intermediate HY | 1.11% | 0.87% | 0.27% | 2.27% | | 0.04% | | -1.49% | | 0.15% | | 1.72% | |
| 50% BBgBarc HY/ 50% Bank Loan | 0.96% | 0.57% | 0.62% | 2.17% | | 0.91% | | 0.36% | | 0.82% | | 1.52% | |
| Verus | 1.11% | -0.25% | 0.79% | 1.66% | | -0.73% | | -0.64% | | 0.82% | | | |
| PIMCO Diversified | 1.11% | -0.25% | 0.79% | 1.66% | 0.00% | -0.73% | 0.00% | -0.64% | 0.00% | 0.82% | 0.00% | | |
| Blended PIMCO Diversified Index | 1.26% | -0.26% | 0.65% | 1.65% | | -1.13% | | -1.26% | | 0.75% | | | |
| BBgBarc BA Intermediate HY | 1.11% | 0.87% | 0.27% | 2.27% | | 0.04% | | -1.49% | | 0.15% | | | |
| Verus | 3.66% | -4.52% | 1.36% | 0.32% | | -4.32% | | 2.01% | | -1.31% | | 1.25% | |
| Franklin Templeton Investments | 3.66% | -4.52% | 1.36% | 0.32% | 0.00% | -4.32% | 0.00% | 2.01% | 0.00% | -1.32% | 0.01% | 1.25% | 0.00% |
| BBgBarc Multiverse Index | 0.00% | 0.00% | 0.00% | 0.00% | | -2.83% | | 1.29% | | 1.06% | | 1.88% | |
| Verus | | | | 3.41% | | 2.15% | | 1.46% | | 4.67% | | 2.69% | |
| TCP Direct Lending VIII | | | | 3.41% | 0.00% | 2.15% | 0.00% | 1.46% | 0.00% | 4.67% | 0.00% | 2.69% | 0.00% |
| Cliffwater Direct Lending Index | | | | 2.44% | | 2.18% | | 2.02% | | 1.97% | | 1.72% | |

Manager Performance Comparison (Gross of Fees)

Period Ending: September 30, 2018

| | Jul | Aug | Sep | 3rd Qtr. 2018 | Difference | 2nd Qtr. 2018 | Difference | 1st Qtr. 2018 | Difference | 4th Qtr. 2017 | Difference | 3rd Qtr. 2017 | Difference |
|---------------------------------|--------|--------|--------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|------------------|------------|
| Verus | | | | 0.00% | | 0.00% | | 2.17% | | 0.51% | | -4.64% | |
| White Oak Yield | | | | 0.00% | 0.00% | 0.00% | 0.00% | 2.17% | 0.00% | 0.51% | 0.00% | -4.64% | 0.00% |
| Cliffwater Direct Lending Index | | | | 2.44% | | 2.18% | | 2.02% | | 1.97% | | 1.72% | |
| Verus | 0.80% | -0.86% | 0.37% | 0.30% | | -0.45% | | -1.21% | | 4.72% | | 4.47% | |
| AQR GRP, 10% Volatility (Net) | 0.80% | -0.86% | 0.37% | 0.30% | 0.00% | -0.45% | 0.00% | -1.21% | 0.00% | 4.72% | 0.00% | 4.47% | 0.00% |
| 60% R3000/ 40% BBgBarc Agg | 1.88% | 0.87% | 0.18% | 2.95% | | 1.12% | | -0.67% | | 3.61% | | 3.21% | |
| 60% MSCI World/ 40% BBgBarc Glb | 2.00% | 2.36% | -0.16% | 4.25% | | 2.26% | | -0.91% | | 3.93% | | 3.08% | |
| Verus | -0.65% | 0.00% | -1.47% | -2.11% | | 0.02% | | -1.58% | | 4.38% | | 2.98% | |
| PanAgora (Net) | -0.65% | 0.00% | -1.47% | -2.11% | 0.00% | 0.02% | 0.00% | -1.58% | 0.00% | 4.38% | 0.00% | 2.98% | 0.00% |
| 60% R3000/ 40% BBgBarc Agg | 1.88% | 0.87% | 0.18% | 2.95% | | 1.12% | | -0.67% | | 3.61% | | 3.21% | |
| 60% MSCI World/ 40% BBgBarc Glb | 2.00% | 2.36% | -0.16% | 4.25% | | 2.26% | | -0.91% | | 3.93% | | 3.08% | |
| Verus | -0.95% | -1.44% | 0.44% | -1.94% | | -6.09% | | -3.86% | | 1.33% | | 3.99% | |
| AQR DELTA XN (Net) | -0.95% | -1.44% | 0.44% | -1.94% | 0.00% | -6.09% | 0.00% | -3.86% | 0.00% | 1.33% | 0.00% | 3.99% | 0.00% |
| Libor + 4% | 0.52% | 0.50% | 0.53% | 1.55% | | 1.51% | | 1.29% | | 1.46% | | 1.22% | |
| Verus | 0.95% | -0.51% | 0.11% | 0.54% | | -2.18% | | -1.88% | | 1.87% | | 0.34% | |
| Aberdeen Standard GARS (Net) | 0.95% | -0.51% | 0.11% | 0.54% | 0.00% | -2.18% | 0.00% | -1.88% | 0.00% | 1.87% | 0.00% | 0.34% | 0.00% |
| Libor + 4% | 0.52% | 0.50% | 0.53% | 1.55% | | 1.51% | | 1.29% | | 1.46% | | 1.22% | |
| Verus | | | | 2.56% | | 1.86% | | 2.42% | | 2.29% | | 1.48% | |
| INVESCO Real Estate | | | | 2.57% | -0.01% | 1.85% | 0.01% | 2.46% | -0.04% | 2.26% | 0.00% | 1.46% | 0.02% |
| NCREIF NFI ODCE Index | | | | 2.09% | | 2.05% | | 2.20% | | 2.07% | | 1.87% | |
| Verus | | | | 2.98% | | 1.97% | | 2.67% | | 2.09% | | 5.56% | |
| Invesco US Val IV | | | | 2.98% | 0.00% | 1.97% | 0.00% | 2.67% | 0.00% | 2.09% | 0.00% | 5.56% | 0.00% |
| NCREIF NFI ODCE Index | | | | 2.09% | | 2.05% | | 2.20% | | 2.07% | | 1.87% | |
| NCREIF CEVA 1Q Lag - NET | | | | 2.95% | | 2.13% | | 3.41% | | 3.00% | | 2.61% | |
| Verus (net) | | | | 2.12% | | 1.25% | | 1.09% | | 2.52% | | | |
| PGIM RE US Debt Fund (net) | | | | 1.95% | 0.17% | 1.25% | 0.00% | 1.09% | 0.00% | 2.52% | 0.00% | | |
| NCREIF NFI ODCE Index | | | | 2.09% | | 2.05% | | 2.20% | | 2.07% | | | |
| Verus | -0.11% | 0.56% | -0.77% | -0.33% | | 0.78% | | -0.25% | | 1.25% | | 0.76% | |
| Brown Brothers Harriman | -0.11% | 0.56% | -0.77% | -0.33% | 0.00% | 0.78% | 0.00% | -0.27% | 0.02% | 1.26% | 0.00% | 0.76% | 0.00% |
| BBgBarc U.S Tips | -0.48% | 0.72% | -1.05% | -0.82% | | 0.77% | | -0.79% | | 1.26% | | 0.86% | |

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 |
|------------|-----------|------------------|------------|------------------|-----------|
| 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 |
|------------|--------------|--------------|---------------|---------------|-----------|
| 9/30/2018 | 17.201 | 8.6005 | 6.374 | 3.187 | |
| 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.

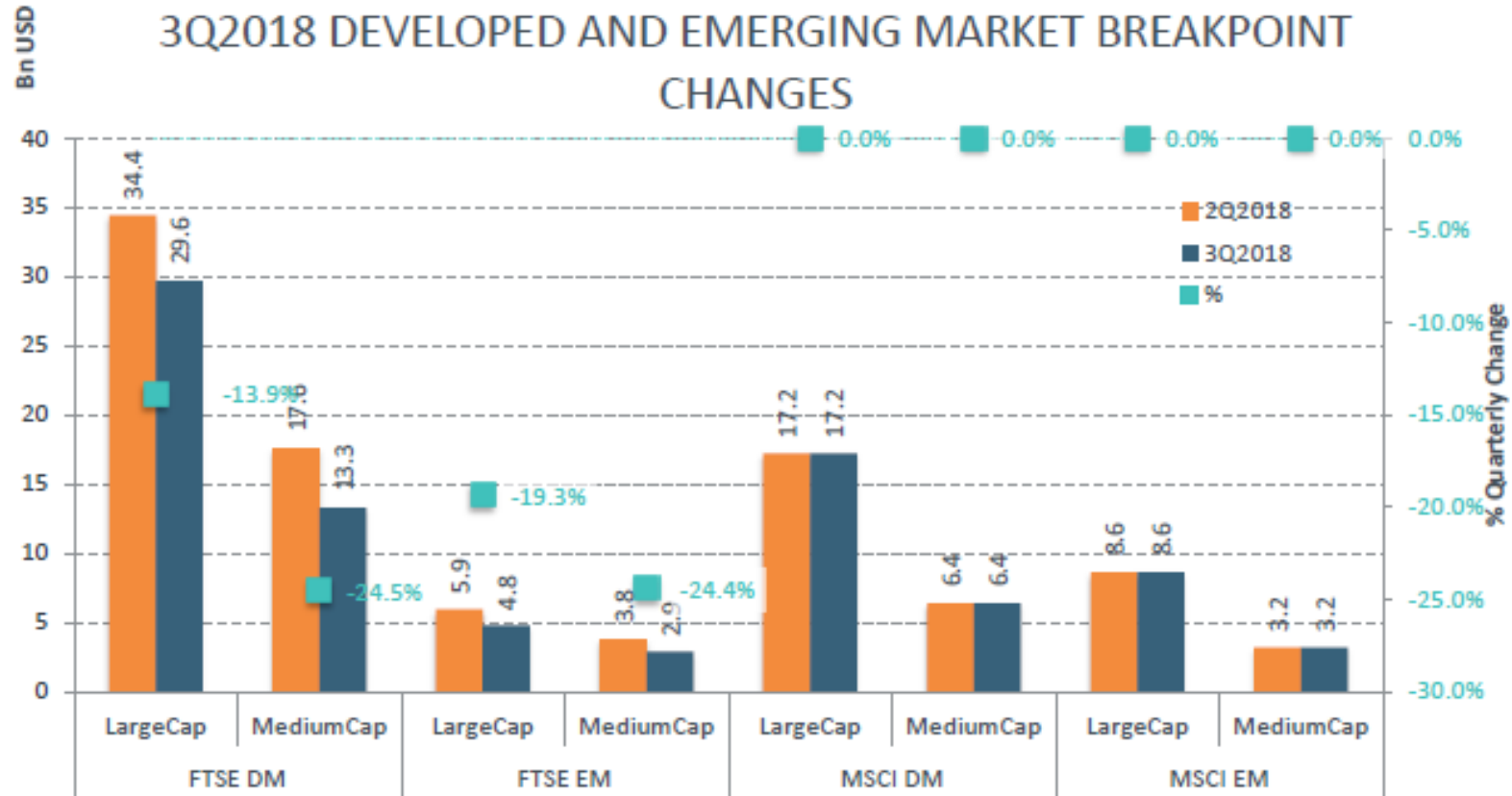
Market Capitalization Breakpoints

Period Ending: September 30, 2018

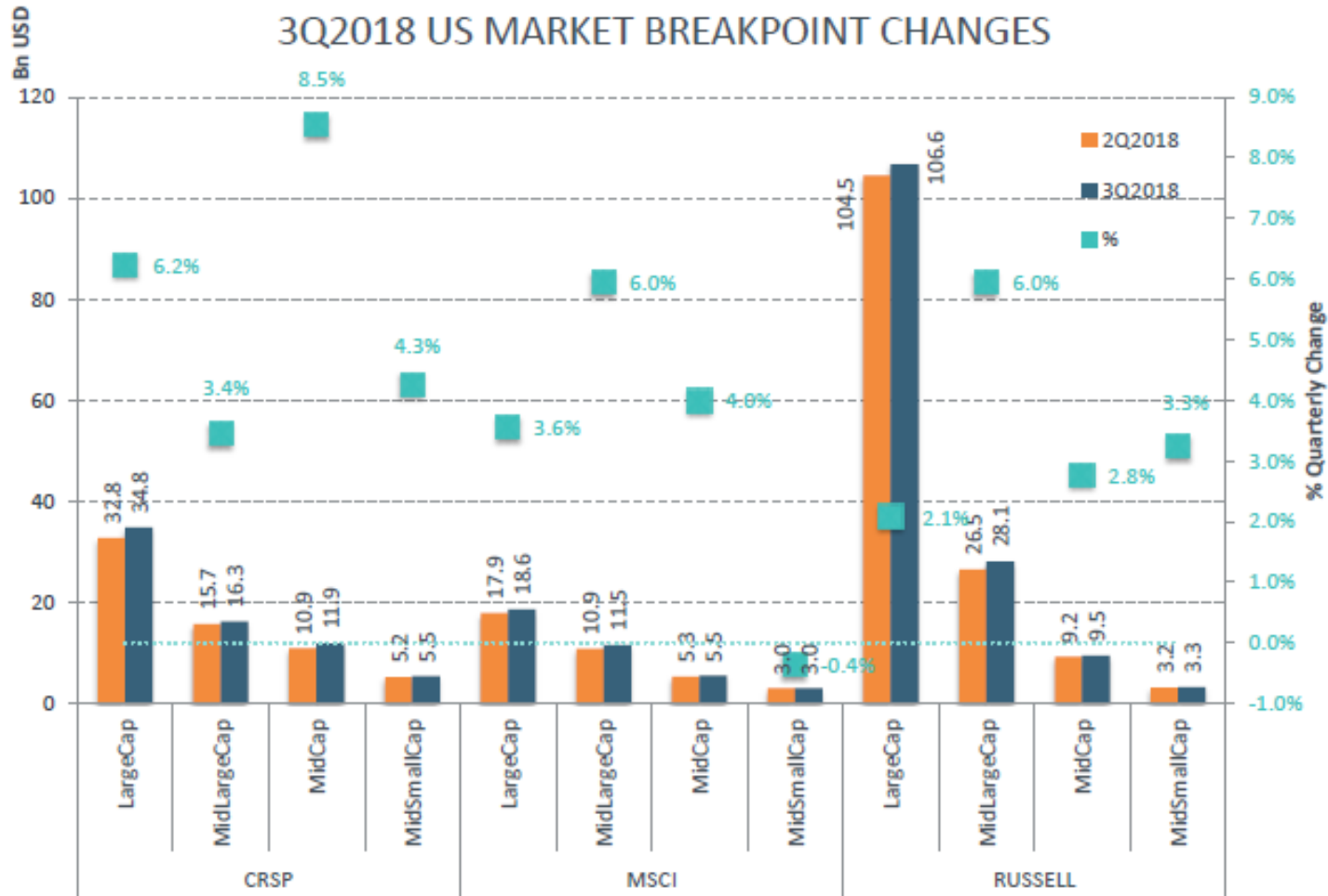
| As Of | Large Cap | Medium Large Cap | Medium Cap | Medium Small Cap | Small Cap |
|------------|-----------|------------------|------------|------------------|-----------|
| 9/30/2018 | 106.633 | 28.088 | 9.457 | 3.273 | 0 |
| 6/30/2018 | 104.455 | 26.511 | 9.202 | 3.171 | 0 |
| 3/31/2018 | 101.922 | 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.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

4TH QUARTER 2018
Investment Landscape

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3rd quarter summary

THE ECONOMIC CLIMATE

- The U.S., Mexico, and Canada reached a new trade agreement. The new deal, USMCA, involves few changes to NAFTA, but may create mildly more favorable terms for U.S. businesses. [p. 13](#)
- The U.S. continued to outshine other developed economies in Q2 with its strongest quarterly growth since 2014. A few smaller emerging market economies experienced idiosyncratic weakness that led to concerns of economic contagion, but fundamentals in most countries still appear strong. [p. 14, 16](#)

PORTFOLIO IMPACTS

- Emerging market equities delivered slight losses in Q3, but seem to have stabilized as currency depreciation recently subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). We maintain a positive outlook on emerging market equities. [p. 30](#)
- The Fed raised the target range for the fed funds rate by 0.25% to a range of 2.00%-2.25%. The probability of a December rate hike was 78%, as of October 8th. [p. 20, 22](#)
- U.S. trade discussions have narrowed in on China. Negotiations between the two countries in recent months do not appear to have produced tangible results. [p. 17](#)

THE INVESTMENT CLIMATE

- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are forecast to be 19.3% and 6.9% YoY, respectively. [p. 27](#)
- Fixed income yields around the world rose slightly. The U.S. Treasury yield hit a 7-year high of 3.23%, reigniting investor concerns over rising interest rates. [p. 20](#)
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, which is creating doubts around the sustainability of Italy's debt. [p. 14, 15](#)

ASSET ALLOCATION ISSUES

- Capital market returns have been largely flat-to-negative in 2018, with U.S. equities being the exception. Diversification remains important, but has been painful for investors in this environment. [p. 26](#)
- Trade conflicts between the U.S. and its trading partners appear to be mostly resolved. All eyes are on negotiations between U.S. and Chinese representatives, though it increasingly appears that these negotiations are broader in nature than trade alone. [p. 17](#)

A neutral to mild risk overweight may be warranted in today's environment

What drove the market in Q3?

“Bullish U.S. stocks leave the rest of the world trailing”

S&P 500 VS. MSCI ACWI EX U.S. RELATIVE MONTHLY PERFORMANCE

| Apr | May | Jun | Jul | Aug | Sep |
|-------|------|------|------|------|-------|
| -3.1% | 3.2% | 1.4% | 1.4% | 4.6% | -0.1% |

Article Source: Financial Times, September 13th, 2018

“Traders take Fed’s cues, pile on bets on U.S. rate hikes”

YEAR-END 2020 MARKET IMPLIED FED FUNDS RATE

| Apr | May | Jun | Jul | Aug | Sep |
|-------|-------|-------|-------|-------|-------|
| 2.70% | 2.55% | 2.65% | 2.72% | 2.62% | 2.82% |

Article Source: Reuters, September 17th, 2018

“Fitch cuts Italy’s credit outlook on debt and governance concerns”

10-YEAR ITALIAN-GERMAN YIELD SPREAD

| Apr | May | Jun | Jul | Aug | Sep |
|-----|-----|-----|-----|-----|-----|
| 123 | 245 | 238 | 228 | 291 | 268 |

Article Source: Financial Times, August 31st, 2018

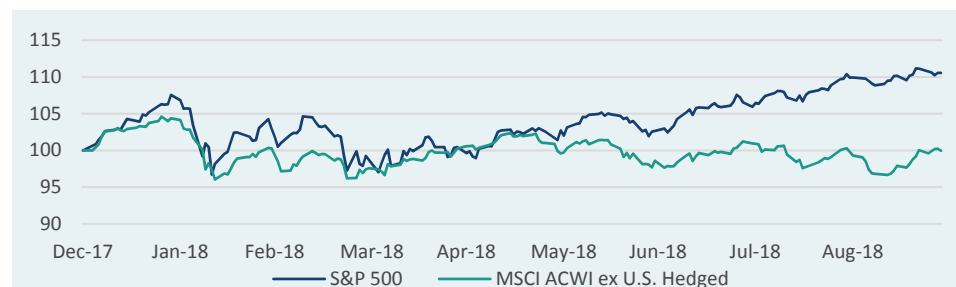
“No breakthrough in U.S.-China trade talks as new tariffs kick in”

U.S. IMPORTS SUBJECT TO RECENTLY ENACTED TARIFFS (\$ BILLIONS)

| Apr | May | Jun | Jul | Aug | Sep |
|-----|-----|-----|-----|-----|-----|
| 33 | 33 | 56 | 90 | 106 | 306 |

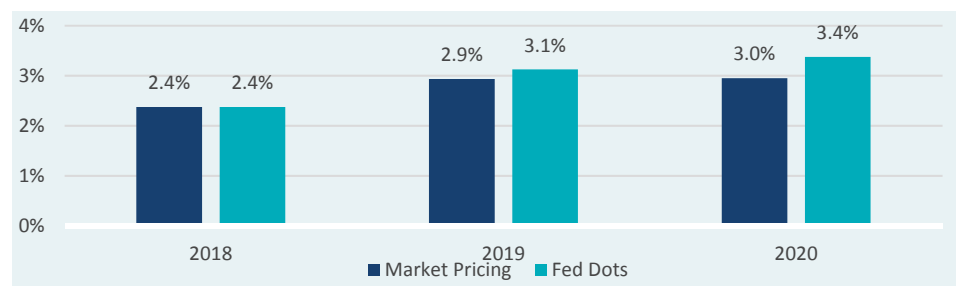
Article Source: CNBC, August 23rd, 2018

U.S. VS. NON-U.S. EQUITY YTD PERFORMANCE



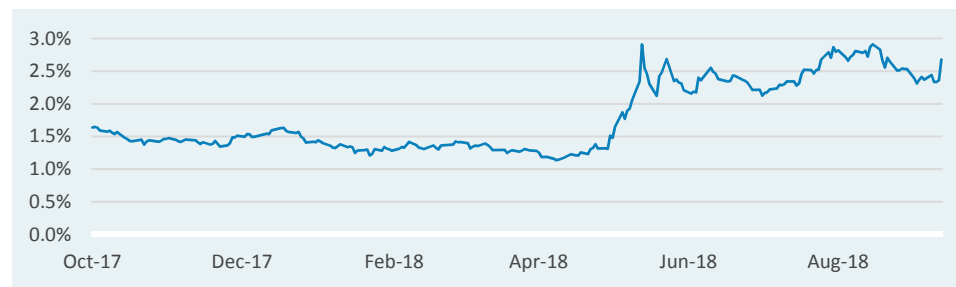
Source: Bloomberg, as of 9/30/18

MARKET IMPLIED FED FUNDS PRICING VS. FED DOTS (YEAR-END)



Source: Bloomberg, Federal Reserve, as of 10/8/18

10-YEAR ITALIAN-GERMAN SOVEREIGN YIELD SPREAD



Source: Bloomberg, as of 9/30/18

Economic environment

U.S. economics summary

- Real GDP growth was 2.9% year-over-year in the second quarter. Expectations for third quarter growth have risen alongside recently strengthening U.S. economic data.
- U.S. inflation fell slightly to 2.3% YoY, moving closer to the U.S. Core CPI rate of 2.2% YoY.
- Non-farm payrolls added 134,000 jobs in September, missing the consensus estimate of 185,000. Hurricane Florence likely contributed to the miss, as leisure and hospitality employment fell by 17,000, the largest drop in a year.
- The U3 unemployment rate fell from 3.9% to 3.7% in September, the lowest rate since 1969. The U6 unemployment increased from 7.4% to 7.5%.
- The United States, Mexico, and Canada reached an agreement on a new trade deal to replace NAFTA.

The new deal, USMCA, included provisions aimed towards protecting the business interests of North American auto manufacturers as well as workers' wages. The deal also partially opened the Canadian dairy market to U.S. farmers.

- The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24th. The White House claimed that the tariff rate will advance from 10% to 25% at year-end if no progress is made through negotiations in the meantime. China retaliated with tariffs of 10% on \$60 billion of U.S. imports.
- As expected, the Federal Open Market Committee raised the target range for the fed funds rate by 0.25%, moving the new range to 2.00%-2.25%. The market implied odds for an additional December rate hike were 78%, as of October 8th.

| | Most Recent | 12 Months Prior |
|---|--------------------------------|--------------------------------|
| GDP (YoY) | 2.9% <i>6/30/18</i> | 2.1% <i>6/30/17</i> |
| Inflation (CPI YoY, Core) | 2.2% <i>9/30/18</i> | 1.7% <i>9/30/17</i> |
| Expected Inflation (5yr-5yr forward) | 2.2% <i>9/30/18</i> | 2.0% <i>9/30/17</i> |
| Fed Funds Target Range | 2.00 – 2.25% <i>9/30/18</i> | 1.00 – 1.25% <i>9/30/17</i> |
| 10 Year Rate | 3.1% <i>9/30/18</i> | 2.3% <i>9/30/17</i> |
| U-3 Unemployment | 3.7% <i>9/30/18</i> | 4.2% <i>9/30/17</i> |
| U-6 Unemployment | 7.5% <i>9/30/18</i> | 8.3% <i>9/30/17</i> |

GDP growth

Real GDP growth accelerated to 2.9% YoY (4.2% quarterly annualized rate) in the second quarter, driven in part by fiscal stimulus. This quarterly growth rate marked the fastest pace of expansion since the third quarter of 2014.

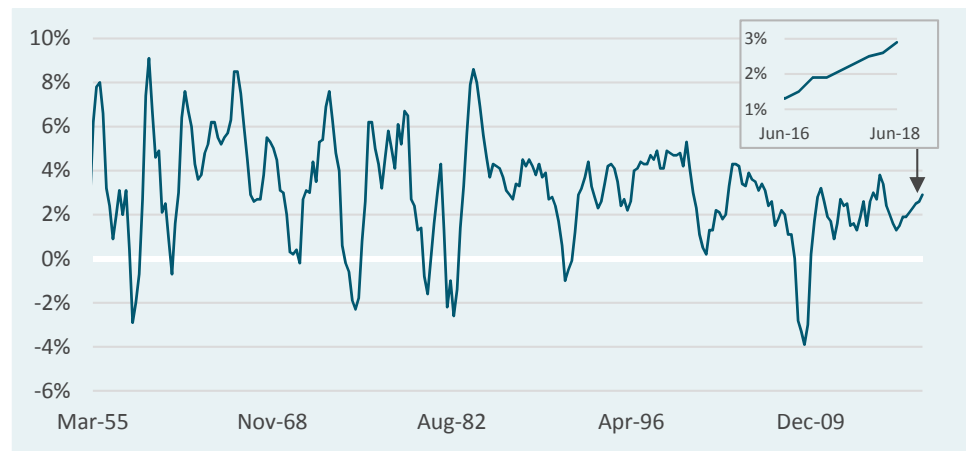
The consumer was once again the biggest contributor to growth after a slowdown in the previous quarter. Consumer spending added 2.6% to the quarterly growth rate. Exports and business investment also boosted growth – each contributed 1.1% to GDP growth. However, some of the increase in exports may have been a result of businesses

attempting to ship goods ahead of pending tariffs, pulling future growth into the current quarter.

Although the current expansion is near the longest on record, it still appears the economy is on solid footing without many typical signs of late-cycle overheating. While we are cautious about a potential prolonged economic war between the U.S. and China, we do not believe the tariffs that have been implemented thus far will in themselves create a material drag on the domestic economy. We remain watchful for any indirect effects on consumer and business confidence that could lead to a slowdown in activity.

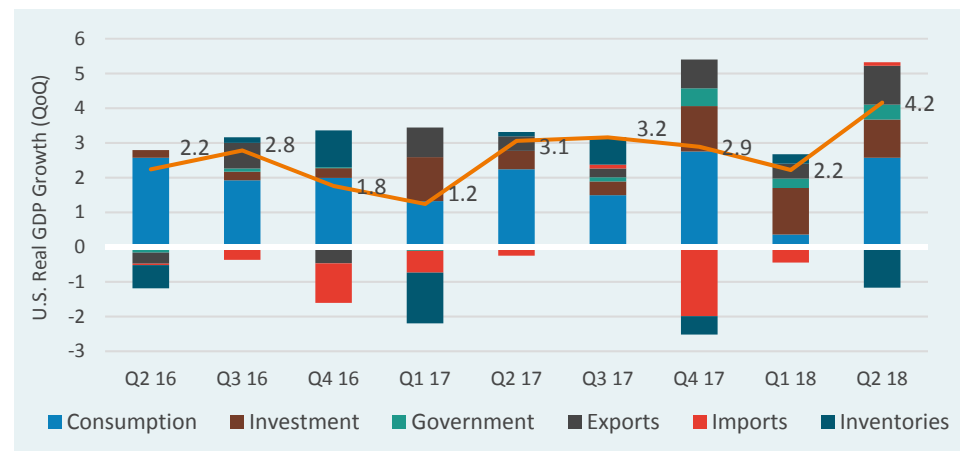
GDP growth was the highest since Q3 2014

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 6/30/18

U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 6/30/18

Inflation

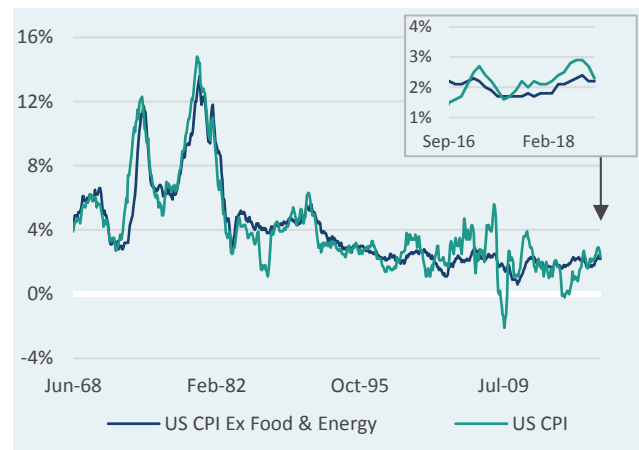
Inflation has remained relatively muted throughout the current economic cycle. Headline and core CPI rose 2.2% and 2.3%, respectively over the 12 months ending in September.

Although there has been some occasional concern in the market over a potential spike in inflation, we have yet to see any sustained pressure on consumer prices. This effect has not been confined to the current cycle. In fact, secular disinflation caused in part by automation and

globalization has contributed to stable core inflation of around 1-3% per annum since the early 1990s.

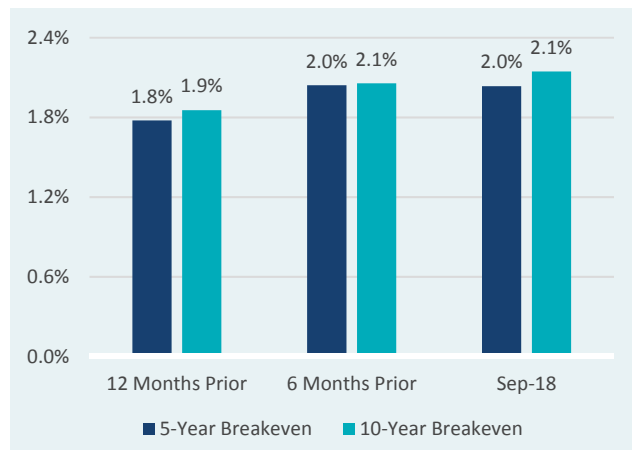
The potential impact of tariffs on inflation has been widely scrutinized, but it is important to note that the flow-through from import prices to consumer prices is ambiguous. The flow-through will depend on numerous factors including substitution effects and the price elasticity of demand. At this point, we do not expect a material increase in inflation due to tariffs.

U.S. CPI (YOY)



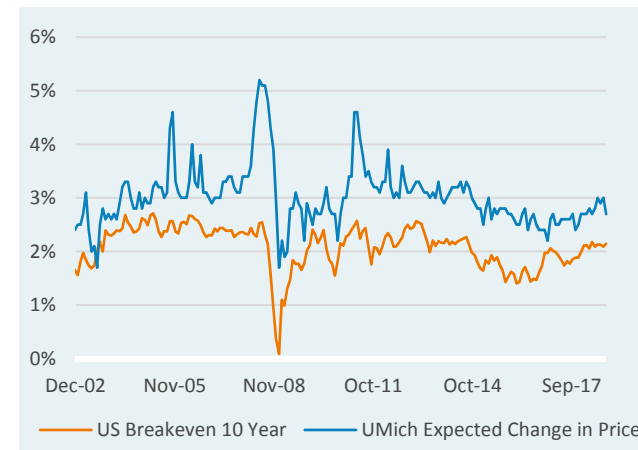
Source: Bloomberg, as of 9/30/18

BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 9/30/18

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/18

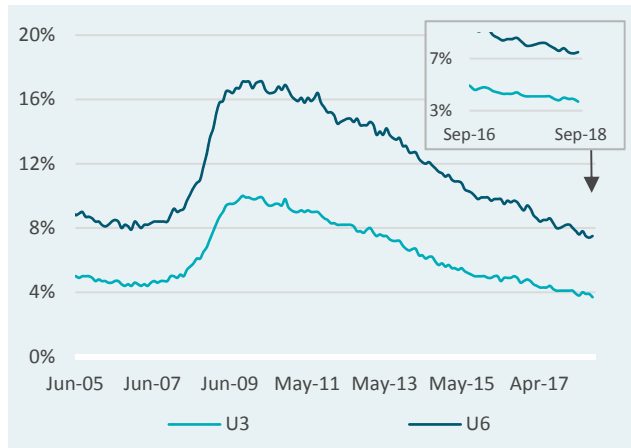
Labor market

Labor market trends were largely unchanged over the quarter. The economy continued to add jobs at a fairly steady pace and the U-3 unemployment rate fell further from 4.0% to 3.7% in September. The broader U-6 unemployment rate also tightened, dropping from 7.8% to 7.5%. This measure has finally recovered to below its pre-global financial crisis level, indicating that there may be fewer pockets of labor market slack as potential workers increasingly search for and find employment. However, looking at the broadest measure of employment – the percentage of Americans currently employed, we are currently at 60%, compared to 63% prior in 2006. This seems to suggest that labor slack remains.

Wage growth remained moderate as average hourly earnings for private workers rose 2.7% from the previous year in September. On a real basis, however, wages rose 0.7% YoY, in-line with the long-term average since 1970.

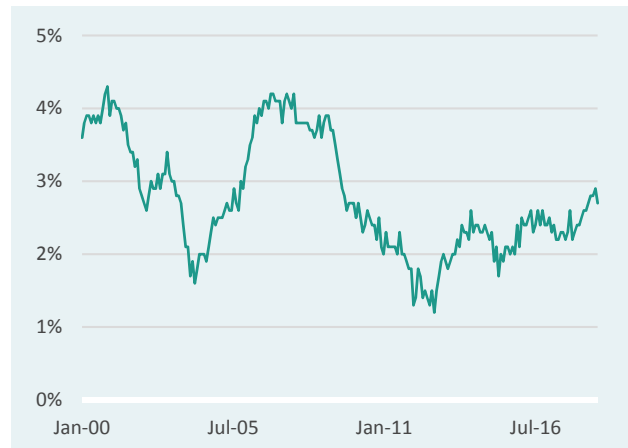
Surging job openings, along with business survey responses, suggest companies are having a difficult time finding qualified workers. As of August, there were 7.1 million job openings compared to only 6.2 million people classified as unemployed.

UNEMPLOYMENT RATE



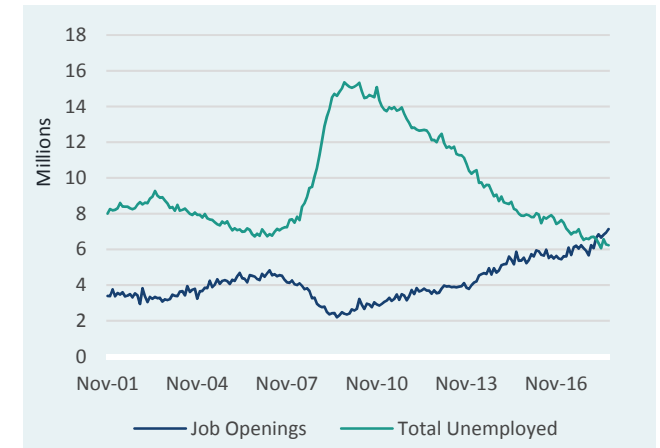
Source: FRED, as of 9/30/18

AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as 9/30/18

JOB OPENINGS VS TOTAL UNEMPLOYED



Source: Bloomberg, as of 8/31/18

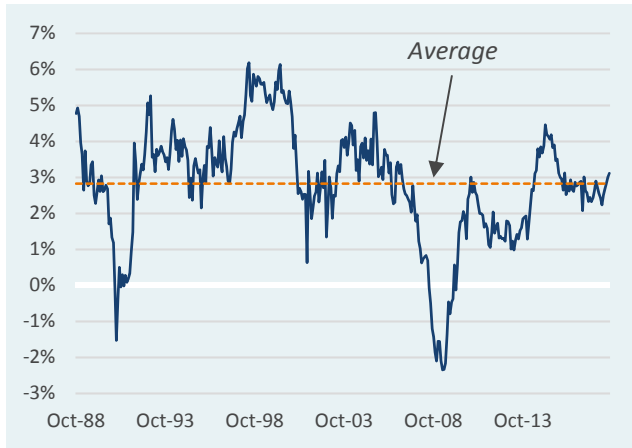
The consumer

Real consumer spending rose 3.1% from the previous year in August, in-line with the long-term average over the past 30 years. Conditions facing consumers, including moderate income gains, a tight labor market, and low interest rates are still supportive of spending. Despite some evidence that the U.S. is moving into the later stages of the economic cycle, we have yet to see big increases in consumer spending, which is often indicative of overconfidence.

With the 30-year mortgage rate nearing 5%, there have been increasing concerns over the impact of rising rates on the

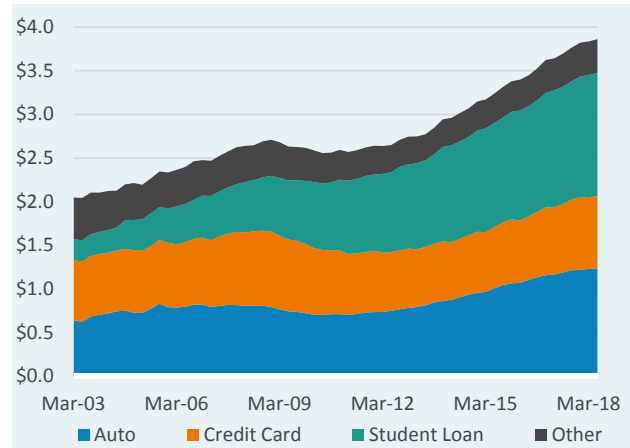
cost of living. However, a rise in market interest rates will impact various types of debt in different ways. For example, nearly all U.S. mortgage debt issued since the global financial crisis has been with fixed interest rates. Higher mortgage rates will have a greater impact on new home buyers, rather than all homeowners. In fact, household mortgage debt service fell to a cycle low of 4.2% of disposable income in the second quarter. On the other hand, interest rates on shorter-term debt, such as auto and credit card loans, will be much quicker to reflect changes in market rates.

REAL CONSUMER SPENDING (YOY)



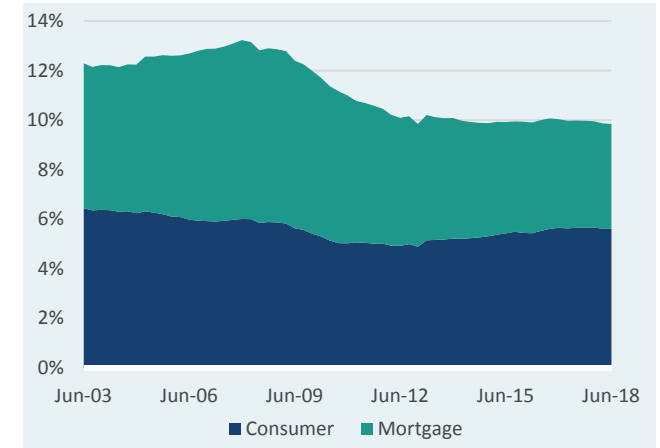
Source: Bloomberg, as of 8/31/18

NON-HOUSING DEBT BALANCE (TRILLIONS)



Source: FRBNY, as of 6/30/18

DEBT SERVICE AS % OF DISPOSABLE INCOME



Source: Federal Reserve, as of 6/30/18

Sentiment

Sentiment readings from both households and businesses are incredibly strong. Americans across all income subgroups expressed optimism for the future, according to the University of Michigan Consumer Sentiment survey. The most often cited concern was U.S. tariffs, which were mentioned by one third of respondents. Those surveyed were optimistic about their personal financial situation, continued economic growth, and low inflation.

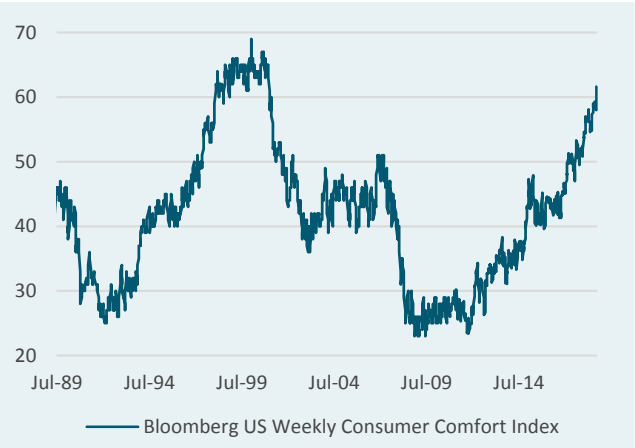
The Bloomberg U.S. Weekly Consumer Confidence Index has surpassed its 17-year high of 59.3, reflecting a rosy outlook

for personal finances, wages, and the economy.

The NFIB Small Business Optimism Index reached 107.9 in September – the third strongest reading in the 45-year history of the index. NFIB commented, “In the small business half of the economy, 2018 has produced 45-year record high measures of job openings, hiring plans, actual job creation, compensation increases (actual and planned), profit growth, and inventory investment.” The positive outlook of small business owners is likely supportive of continued economic growth.

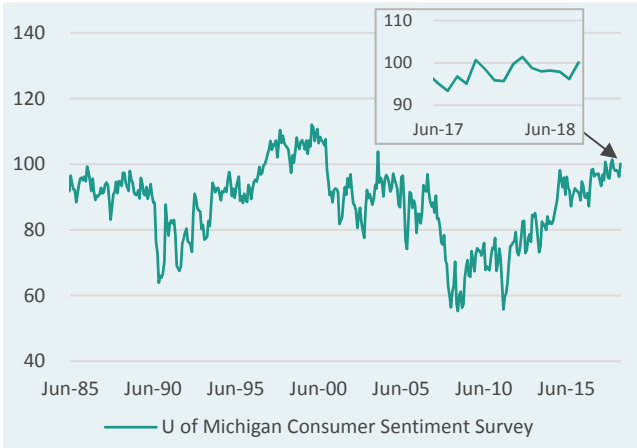
Consumers and business are confident about the future

CONSUMER COMFORT INDEX



Source: Bloomberg, as of 9/30/18 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 9/30/18 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 9/30/18 (see Appendix)

Housing

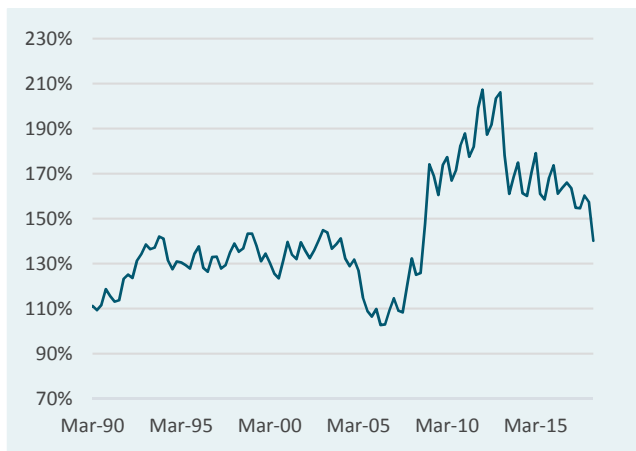
Single-family home prices appreciated at a strong pace. As of July, the Case-Shiller National Home Price Index was up 4.7% year-to-date. Over the past 5 years home prices have risen 5.3% per annum, outpacing wage growth and likely creating difficulties for those planning new purchases.

Nationwide home prices are now 11% above the previous high reached in mid-2006. Lower interest rates have partially offset rising prices, though this effect is fading as

borrowing rates have moved back towards pre-2008 levels.

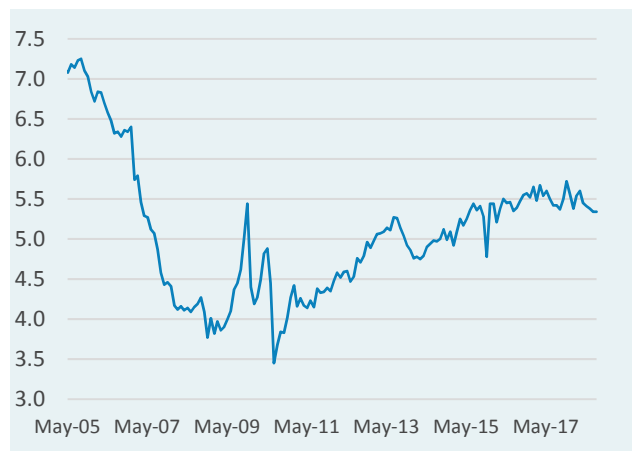
U.S. home affordability has dropped materially in 2018 and is now back to a level not seen since late 2008. The 30-year fixed mortgage interest rate rose from 4.0% in January to more than 4.7% through the end of September. Home sales have recently slowed - perhaps a result of less buyer-friendly conditions.

HOUSING AFFORDABILITY INDEX



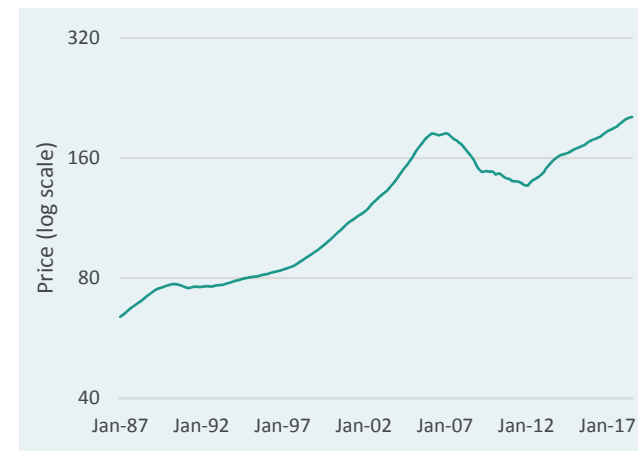
Source: Bloomberg, as of 6/30/18

EXISTING HOME SALES (MILLIONS)



Source: Bloomberg, SAAR, as of 8/31/18

U.S. HOME PRICE INDEX



Source: Case-Shiller National Home Price Index, as of 7/31/18

International economics summary

- The U.S., Mexico, and Canada reached an agreement on a trade deal to replace NAFTA. The new U.S.-Mexico-Canada Agreement (USMCA) involves few material changes to NAFTA, but the terms appear mildly more favorable for U.S. businesses.
- U.S. negotiations with China, its largest trading partner, continued with little apparent progress. The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on September 24th. The White House claimed that the tariff rate will advance from 10% to 25% at year-end if no progress is made in the meantime. China responded with retaliatory tariffs of 10% on \$60 billion of U.S. imports.
- Trade negotiations with other trading partners appear to be mostly resolved, easing concerns of a global trade war.
- Developed market economies are expected to grow less quickly in the coming years, while emerging economy growth rates are expected to rise.
- PMI readings around the globe have weakened during 2018, led by the Eurozone. U.S. PMIs remain very high, indicating expansion in the manufacturing and services sectors.
- The Italian coalition government sparred with the European Commission over its fiscal spending plans. Fading ECB stimulus will likely lift interest rates on European bonds, creating doubts around the sustainability of Italy's debt.
- The U.S. dollar appreciated by 1% during the quarter. A stable dollar would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger.

| Area | GDP (Real, YoY) | Inflation (CPI, YoY) | Unemployment |
|---------------|------------------------|-------------------------|-------------------------|
| United States | 2.9% <i>6/30/18</i> | 2.7% <i>8/31/18</i> | 3.8% <i>9/30/18</i> |
| Eurozone | 2.1% <i>6/30/18</i> | 2.1% <i>9/30/18</i> | 8.3% <i>6/30/18</i> |
| Japan | 1.3% <i>6/30/18</i> | 1.3% <i>8/31/18</i> | 2.4% <i>6/30/18</i> |
| BRICS Nations | 5.8% <i>6/30/18</i> | 2.5% <i>6/30/18</i> | 5.5% <i>6/30/18</i> |
| Brazil | 1.0% <i>6/30/18</i> | 4.5% <i>9/30/18</i> | 12.2% <i>9/30/18</i> |
| Russia | 1.9% <i>6/30/18</i> | 3.4% <i>9/30/18</i> | 4.6% <i>8/31/18</i> |
| India | 8.2% <i>6/30/18</i> | 3.7% <i>8/31/18</i> | 8.8% <i>12/31/17</i> |
| China | 6.7% <i>6/30/18</i> | 2.3% <i>8/31/18</i> | 3.8% <i>6/30/18</i> |

International economics

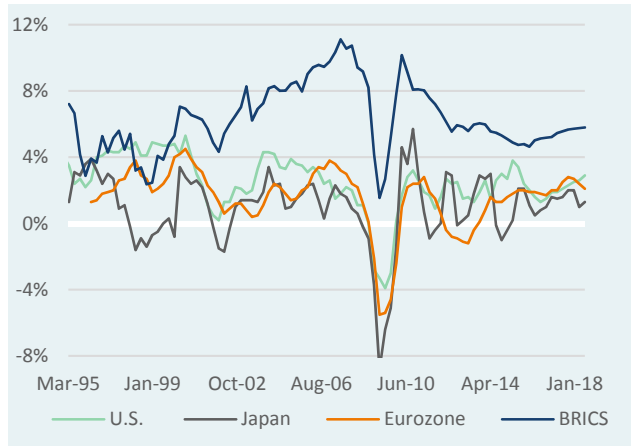
While U.S. economic growth improved, international growth remained moderate. In the Eurozone, real GDP rose 2.1% YoY in Q2, down from 2.4% in Q1. In addition to slowing growth, political uncertainty in Italy and less stimulus from the European Central Bank has clouded the economic outlook. The political situation in Italy highlights the problems caused by an uneven recovery across the Eurozone. While the French and German economies may be in a position to withstand monetary tightening, it does not appear that this is the case in places such as Italy, Spain, and Portugal.

Political issues have also created much uncertainty in the United Kingdom with the March 2019 deadline for a Brexit deal fast approaching. Theresa May's initial plan was rejected by the European Union, and it appears both sides have at least considered how to move forward without a deal.

Developed international inflation remains well below central bank targets, which may provide greater flexibility for management of these economic imbalances.

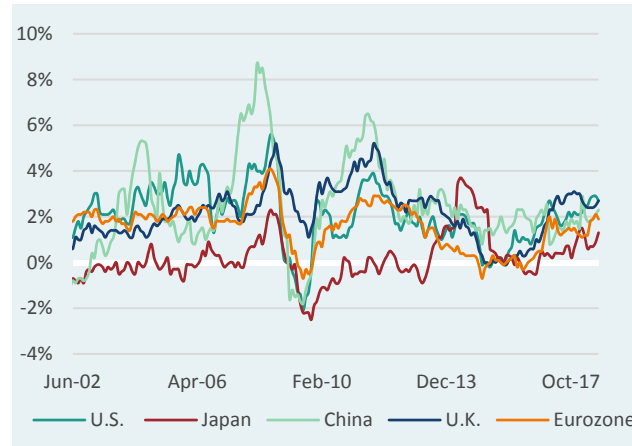
Synchronized global growth has moderated

REAL GDP GROWTH (YOY)



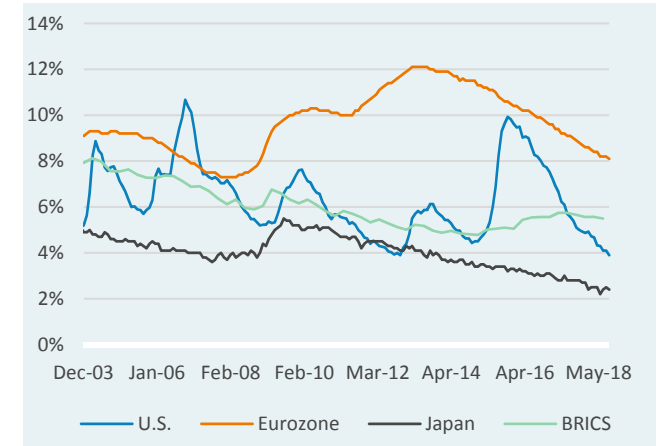
Source: Bloomberg, as of 6/30/18

INFLATION (CPI YOY)



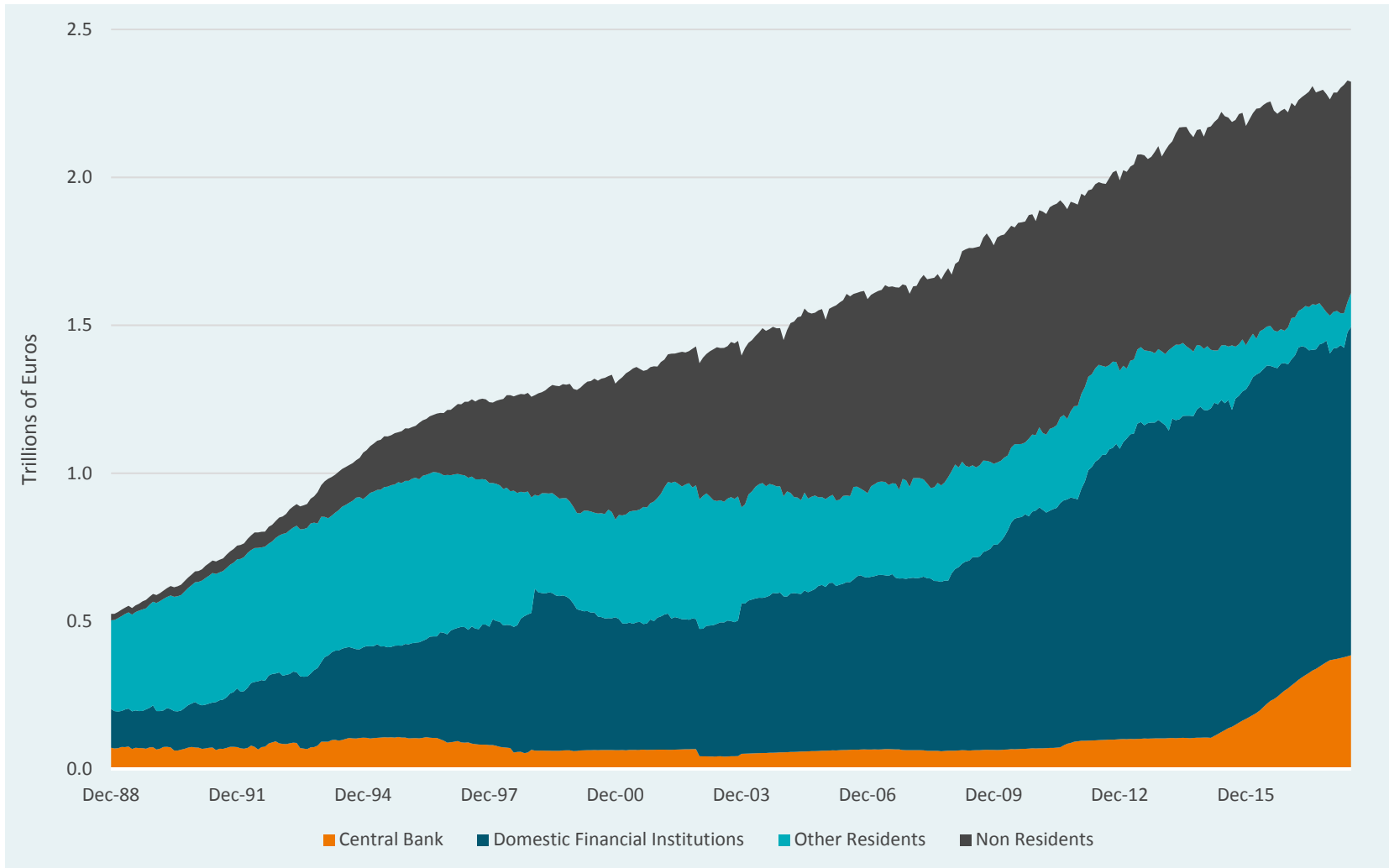
Source: Bloomberg, as of 8/31/18

UNEMPLOYMENT RATE



Source: Bloomberg, as of 8/31/18 or most recent release

Italian debt ownership



European banks have helped suppress Italian bond yields

This support may be dwindling as central bank stimulus ends

Source: Bank of Italy, as of 6/30/18

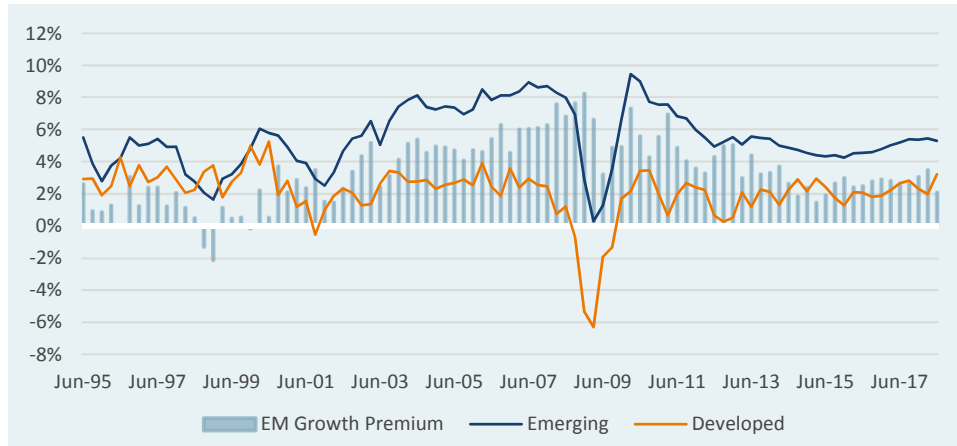
Emerging economies

Several events over the quarter helped lead to broad weakness in emerging markets assets and to investor concerns about contagion, including a 25% plunge in the Turkish lira in August and Argentina securing a \$50 billion bailout from the IMF. Contagion events in EM economies, such as the Asian financial crisis in the 1990s, have been characterized by a trigger event that caused mass capital outflows, currency depreciation, rising domestic interest rates, and eventually recession. These economies have withstood multiple recent shocks, but the last serious emerging market contagion occurred nearly 20 years ago. This likely reflects material changes in these economies that have made them more resilient to exogenous events.

First, the development of local savings institutions has created a marginal buyer of debt when foreign investors sell that has helped combat interest rate shocks. Second, more emerging economies have moved to flexible exchange rate systems and accumulated significant FX reserves, which gives them more control to slow currency depreciation. Third, many emerging markets have trimmed their reliance on foreign capital, particularly in terms of hard currency debt. Overall, we believe emerging economies remain on solid footing, and provide investors with opportunities in both the short- and long-term.

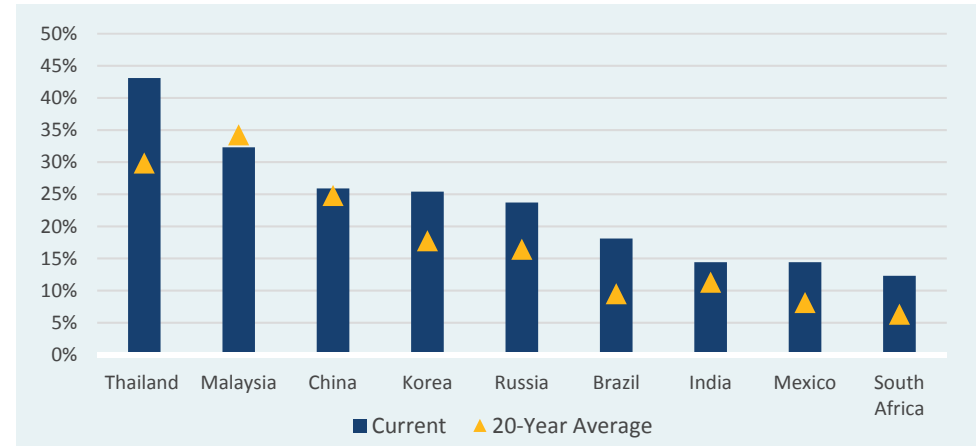
Economic contagion fears seem overblown

EMERGING VS. DEVELOPED ECONOMY REAL GDP GROWTH (YOY)



Source: IMF, as of 6/30/18

FX RESERVES (% OF GDP)



Source: IMF, GDP as of 6/30/18, FX reserves as of 8/31/18

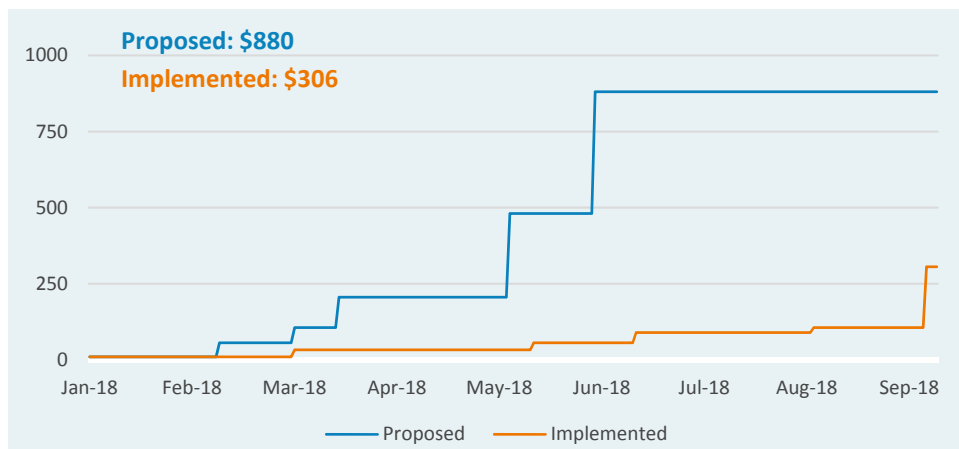
U.S.-China trade

Following the successful renegotiation of NAFTA, the Trump Administration has clearly focused in on U.S. and China trade terms. The U.S. implemented 10% tariffs on an additional \$200 billion of Chinese imports that may rise to a 25% rate at the beginning of next year if no progress is made in the meantime. China responded with retaliatory tariffs of 5-10% on \$60 billion of U.S. imports. Based on equity market reactions to this point, and the growing divide between U.S. and China market performance, it appears investors may be more concerned with the impact of trade on China. Chinese equities are down more than 30% from their recent peak in January, while U.S. equities have moved steadily higher.

As the conflict between the two side continues to drag on, it appears that this may be more than just a trade war. Recent developments, including U.S. sanctions on Chinese military leaders and naval run-ins in the South China Sea, point towards a much broader struggle centered around global hegemony. U.S. policy focused on confronting China's rise as a world power would represent a marked break from the past and widen the potential outcomes. If this is the case, the chances of a trade deal may be lower, and even the conclusion of a successful trade deal may not be a safe indicator of a return to stable relations between the two countries.

The U.S.-China conflict appears to be about more than just trade

U.S. IMPORTS SUBJECT TO TARIFFS (\$ BILLIONS)



Source: Verus, as of 9/30/18, only includes recently proposed or implemented tariffs

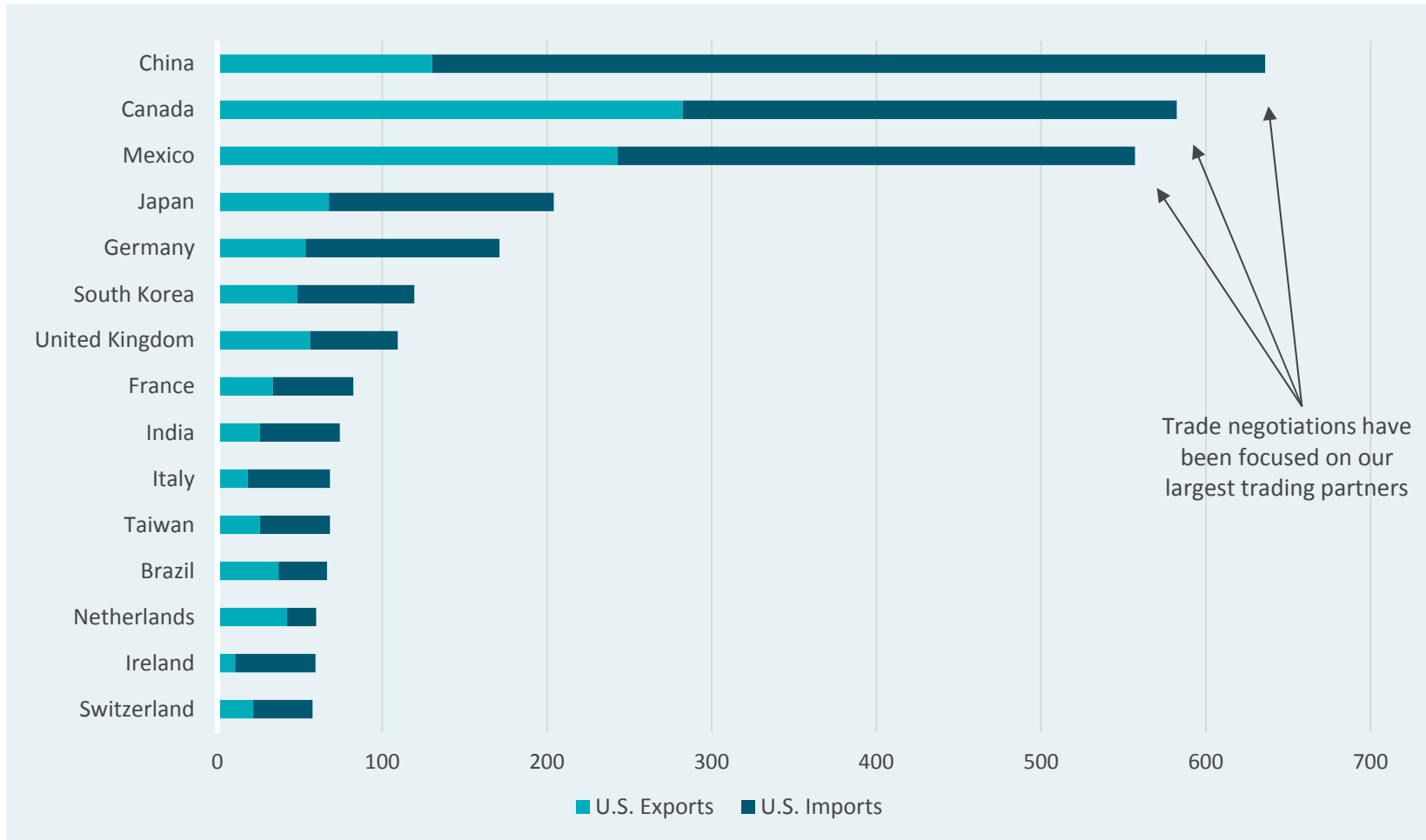
1-YEAR EQUITY PRICE MOVEMENT (INDEXED TO 100)



Source: Bloomberg, as of 9/30/18, China A shares are represented by the CSI 300 Index

U.S. trade

U.S. TRADING PARTNERS (\$BILLIONS)



U.S. negotiations have focused on our largest trade partners

NAFTA will be replaced by the U.S.-Mexico-Canada Agreement (USMCA)

Trade negotiations have been focused on our largest trading partners

Source: U.S. Census Bureau, year 2017

Fixed income rates & credit

Interest rate environment

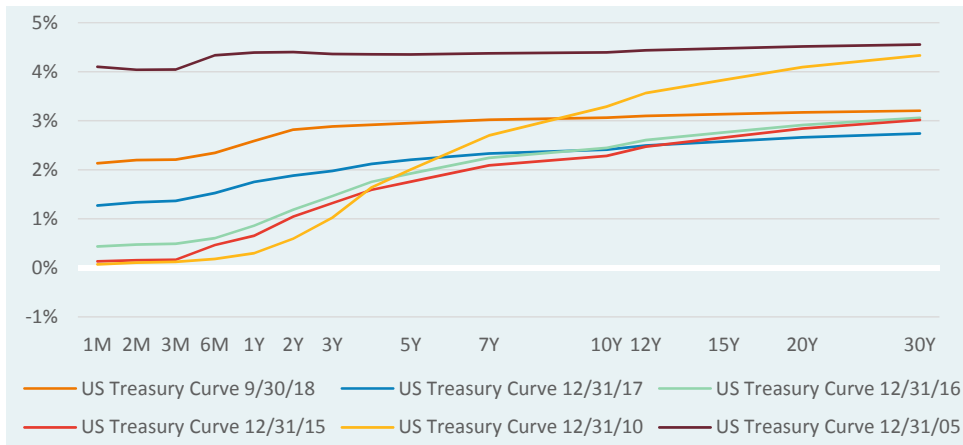
- The Federal Reserve raised the target range for the fed funds rate by 0.25%, to a range of 2.00%-2.25%. The odds for a December rate hike were 78%, as of October 8th.
- Fixed income yields around the world moved slightly higher during the quarter. The U.S. Treasury yield rose to a 7-year high of 3.23%, reigniting investor concerns over rising interest rates. The spread between 2- and 10-year yields has remained steady at around 30 bps.
- In September, the European Central Bank left interest rates unchanged, and confirmed its intent to leave rates at current levels “at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term.” The ECB also stated that bond purchases of \$30 billion euros per month would be cut in half beginning in October, and would stop altogether at the end of the year.
- The yield spread between Italian and German 10-year bonds has exhibited significant volatility following Italy’s political shakeup in the second quarter. Discussions around compliance with European Union budget rules, and the general fear that Italy may push either for structural monetary policy changes, or to leave the Eurozone, contributed to a tumultuous quarter.
- Emerging market local and hard yields were rangebound in Q3, but remained elevated due to continued idiosyncratic risks in countries such as Turkey and Argentina.

| Area | Short Term (3M) | 10 Year |
|---------------|-----------------|---------|
| United States | 2.19% | 3.06% |
| Germany | (0.56%) | 0.47% |
| France | (0.56%) | 0.80% |
| Spain | (0.39%) | 1.50% |
| Italy | 0.01% | 3.15% |
| Greece | 1.12% | 4.18% |
| U.K. | 0.77% | 1.57% |
| Japan | (0.13%) | 0.13% |
| Australia | 1.89% | 2.67% |
| China | 2.97% | 3.63% |
| Brazil | 6.58% | 11.76% |
| Russia | 7.02% | 8.69% |

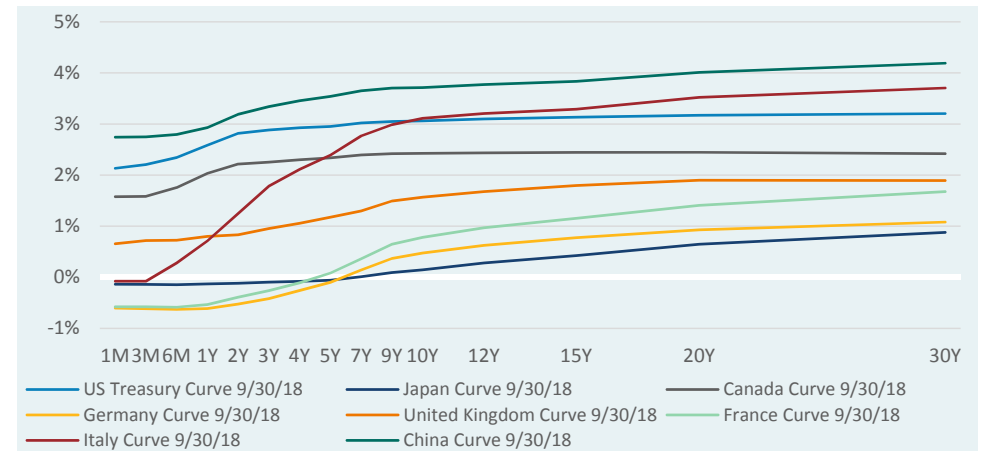
Source: Bloomberg, as of 9/30/18

Yield environment

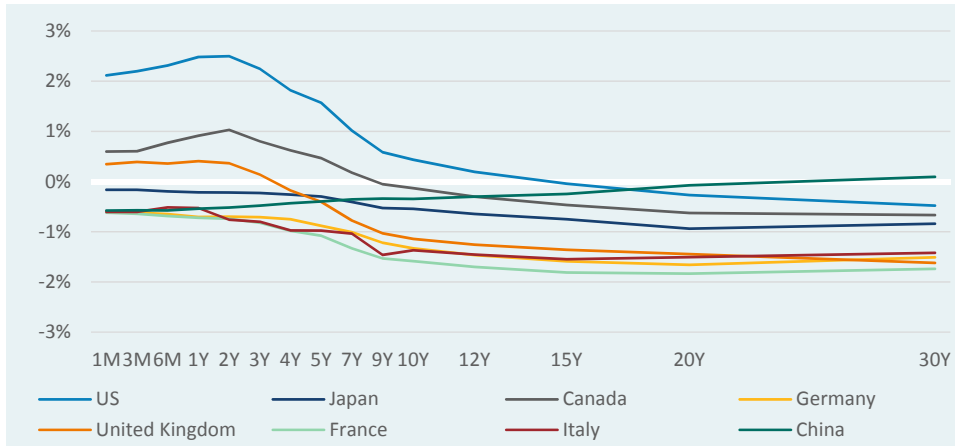
U.S. YIELD CURVE



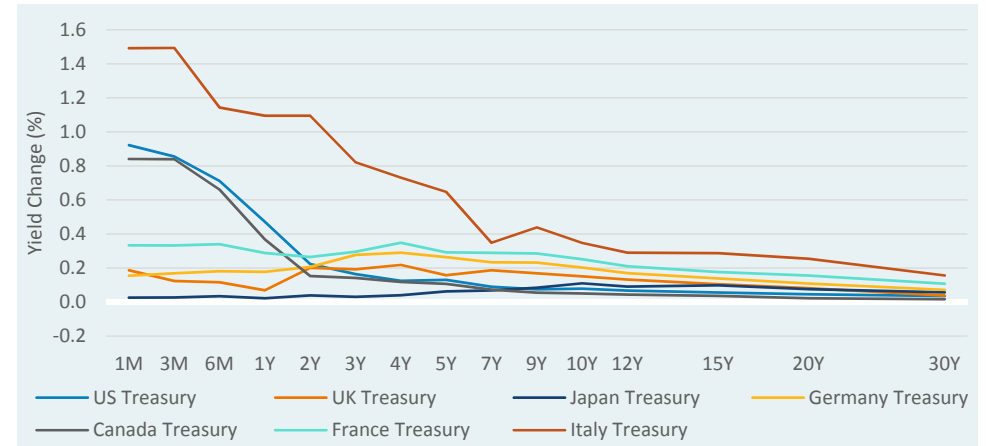
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 9/30/18

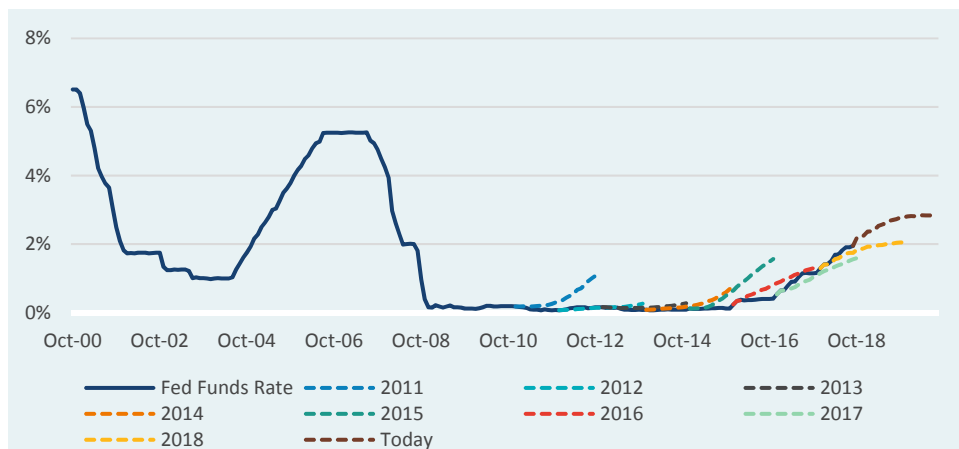
Fed tightening vs. expectations

The market raised its expectations for further Fed tightening during the quarter. Investors are now pricing in a fourth rate hike in December, but only two more through the end of 2020, which would bring the fed funds rate to near 3%. Meanwhile, Fed officials have communicated a slightly more aggressive path of tightening with expectations to increase the benchmark interest rate to 3.4% by the end of 2020.

Over the past few years, there has been an interesting shift in how Fed policy has come in relative to market

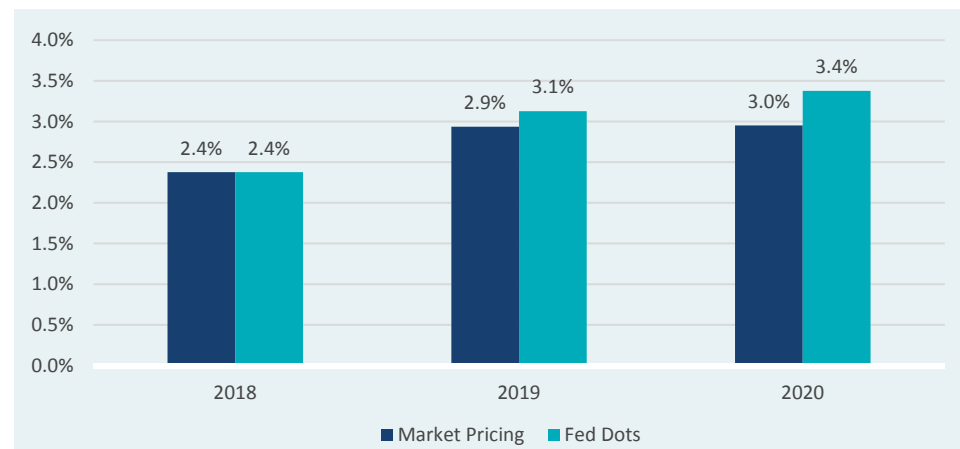
expectations. From 2010 to 2015, the market consistently overestimated when and by how much the Fed would hike rates. However, beginning in 2016 the Fed has been more aggressive than the market expected. Given the current differences between market pricing and Fed expectations, this trend has the potential to continue, which would likely act as a headwind to financial asset prices. However, it is important to remember that official guidance from the Fed dot plot assumes that economic conditions unfold as expected. Based on the uncertain future state of the economy, the Fed may be cautious relative its current expectations.

FED FUNDS RATE VS. MARKET EXPECTATIONS



Source: Bloomberg, as of 9/30/18, dotted lines are forward pricing at the start of the year

FED FUNDS EXPECTATIONS AT YEAR-END



Source: Bloomberg, Federal Reserve, as of 10/8/18

Credit environment

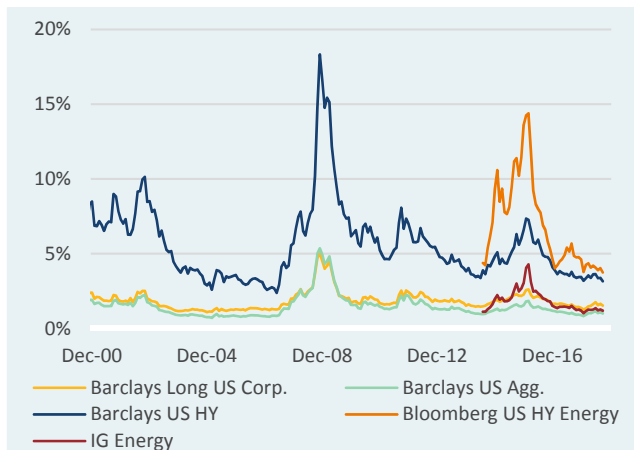
Spreads in both bank loans and high yield credit are well below their historical averages. Loans are outperforming high yield bonds for only the second time in the last 13 years. Bank loans have limited duration risk due to their floating-rate nature, which is a quality that some investors have seen as attractive due to the rising rate story. However, credit quality in bank loans has deteriorated throughout the cycle as covenant-lite loans have dominated new issuance. While bank loans offer interest rate protection and a small spread premium over high yield, investors may be paying for this by taking greater downside risk.

U.S. high yield option-adjusted spreads tightened to a decade low in September, despite concerns over a global growth slowdown, rising U.S. Treasury yields, and a volatile landscape in emerging markets. The asset class generated a 2.4% total return over the quarter.

Based on low interest rates and tight spreads, we do not believe investors are being properly compensated for credit risk and recommend an underweight to U.S. investment and high yield credit.

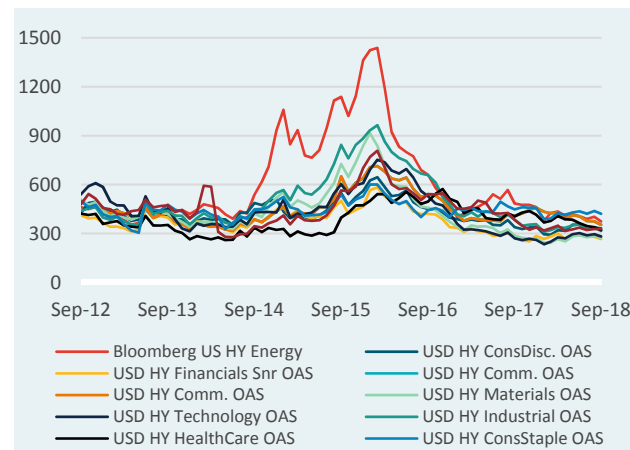
Credit spreads are tight across the capital structure

SPREADS



Source: Barclays, Bloomberg, as of 9/30/18

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 9/30/18

| Market | Credit Spread (OAS 9/30/18) | Credit Spread (1 Year Ago) |
|-------------------|-----------------------------|----------------------------|
| Long US Corporate | 1.5% | 1.5% |
| US Aggregate | 1.0% | 1.0% |
| US High Yield | 3.2% | 3.5% |
| US Bank Loans* | 3.7% | 4.2% |

Source: Barclays, Credit Suisse, Bloomberg, as of 9/30/18

*Discount margin 4-year life

Issuance and default

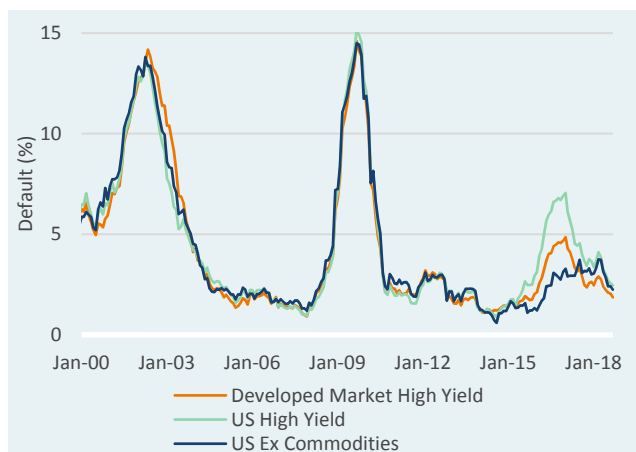
Default activity has been low and stable in the U.S. credit market. The par-weighted default rate remains below its long-term average of 3.0-3.5%, currently at 2.0% for high yield bonds. Total default activity in the last six months encompassed five defaults and \$3.8 billion in affected bonds and loans, the lightest volume over a six-month period since June 2011.

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

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

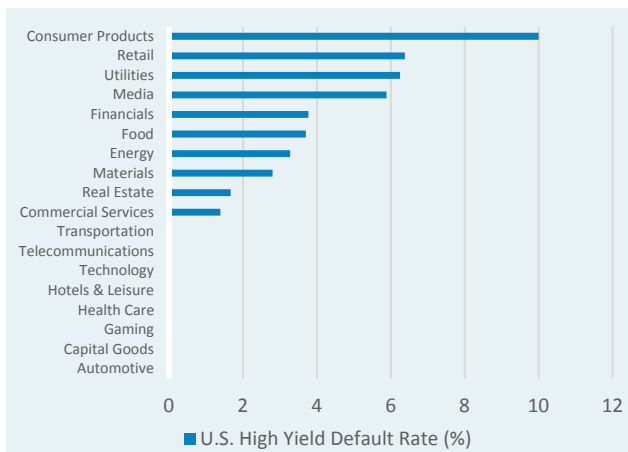
High yield new issue activity has totaled \$175 billion so far this year, which is down 35% over the same period a year ago. Meanwhile, issuance in leveraged loans totaled \$611 billion year-to-date. Notably, repricing activity represents 38% of total volume. New issue spreads continue to compress with strong demand supported by significant retail and institutional inflows into both high yield and senior loan asset classes, as well as CLO formation.

HY DEFAULT TRENDS (ROLLING 1 YEAR)



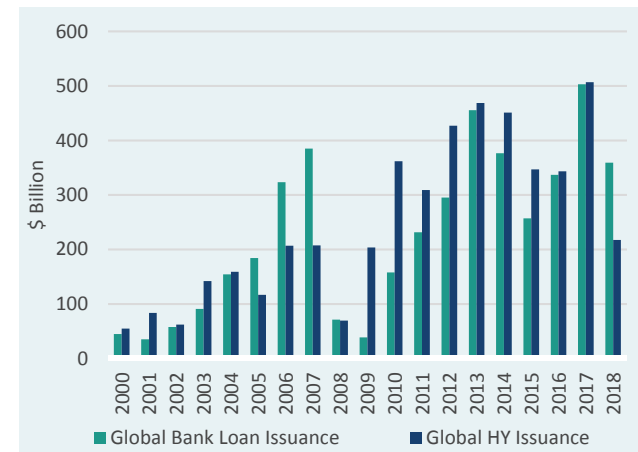
Source: BofA Merrill Lynch, as of 9/30/18

HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 9/30/18 – par weighted

GLOBAL ISSUANCE (BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 9/30/18

Equity

Equity environment

- U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. We remain concerned about the large valuation difference between U.S. and international equities, though the relatively positive outlook for the domestic economy should justify some of the valuation difference.
- Emerging market equities delivered slight losses in Q3, but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many emerging market currencies have rebounded from their lows. We maintain a positive outlook on emerging market equities.
- Developed non-U.S. equities have remained range bound following the selloff in the first quarter. International equity performance outside of emerging markets has been flat (MSCI EAFE +1.4% unhedged, +2.9% hedged).
- Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth is expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY.
- Large cap equities (Russell 1000 7.4%) outperformed small cap (Russell 2000 3.6%) during the quarter. Value stocks lagged growth by a similar margin (Russell 1000 Value 5.7% vs. Russell 1000 Growth 9.2%).
- The performance gap between growth and value equities widened further in Q3. The differential continued to be driven by strong returns generated by large names in the tech sector.

| | QTD TOTAL RETURN | | YTD TOTAL RETURN | | 1 YEAR TOTAL RETURN | |
|--|------------------|----------|------------------|----------|---------------------|----------|
| | (unhedged) | (hedged) | (unhedged) | (hedged) | (unhedged) | (hedged) |
| US Large Cap (Russell 1000) | 7.4% | | 10.5% | | 17.8% | |
| US Small Cap (Russell 2000) | 3.6% | | 11.5% | | 15.2% | |
| US Large Value (Russell 1000 Value) | 5.7% | | 3.9% | | 9.5% | |
| US Large Growth (Russell 1000 Growth) | 9.2% | | 17.1% | | 26.3% | |
| International Large (MSCI EAFE) | 1.4% | 2.9% | 0.1% | 2.9% | 2.7% | 7.1% |
| Eurozone (Euro Stoxx 50) | (0.2%) | 1.2% | (2.5%) | 1.6% | (4.6%) | (0.3%) |
| U.K. (FTSE 100) | (1.8%) | (0.2%) | (2.7%) | 2.0% | 3.2% | 7.4% |
| Japan (NIKKEI 225) | 6.2% | 8.7% | 6.8% | 7.4% | 19.7% | 20.7% |
| Emerging Markets (MSCI Emerging Markets) | (1.1%) | (0.2%) | (7.7%) | (3.8%) | (0.8%) | 1.9% |

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/18

Domestic equity

U.S. equities delivered strong returns during the quarter (S&P 500 +7.7%), and have outperformed year-to-date. Fears of trade conflict crowded the headlines, with the focus nearly all on China as the U.S. successfully concluded negotiations with other trading partners. Equity markets on both sides have generally rallied on news of potential resolution, though the performance gap between U.S. and Chinese equities has trended wider. Trade frictions will likely remain a headwind to performance.

Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY. If analyst forecasts are as overly optimistic as they typically are, this would put 2019 earnings growth at a more average rate of 5-6%. While average earnings growth can be conducive to moderate positive equity returns, current relatively high valuations could case concerns once growth rates decelerate.

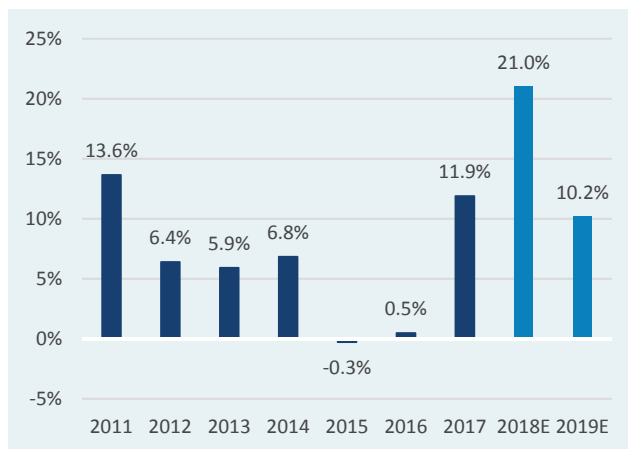
U.S. equities have risen with earnings growth and strong fundamentals, despite trade concerns

U.S. EQUITIES



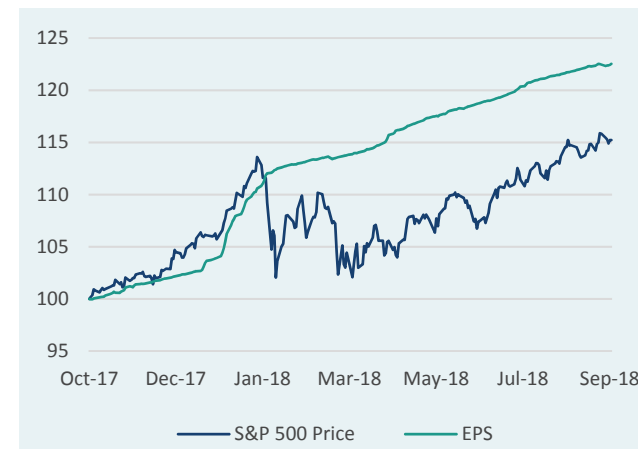
Source: Russell Investments, as of 9/30/18

CALENDAR YEAR EARNINGS GROWTH



Source: FactSet, as of 10/12/18

S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 9/30/18

Domestic equity size & style

Large cap equities (Russell 1000 7.4%) outperformed small cap equities (Russell 2000 3.6%) during the quarter.

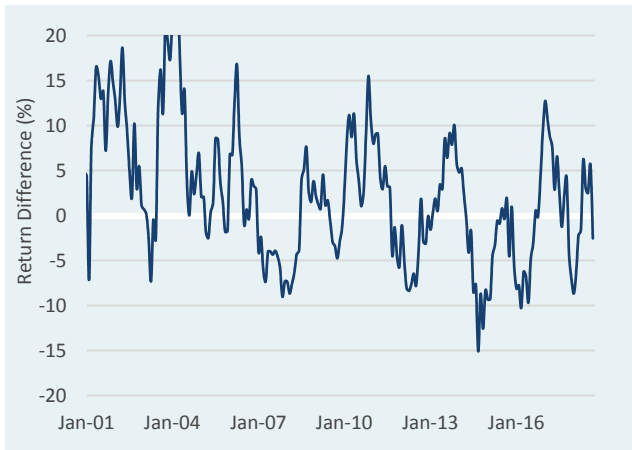
Growth stocks outpaced value stocks by a similar margin (Russell 1000 Growth 9.2% vs. Russell 1000 Value 5.7%).

Differences between sector composition in large-cap style benchmarks have explained much of the recent growth outperformance. Nearly 50% of the Russell 1000 Growth Index is in the more cyclical Information Technology and Consumer Discretionary sectors, which have been by far

and away the best performing sectors over the past year.

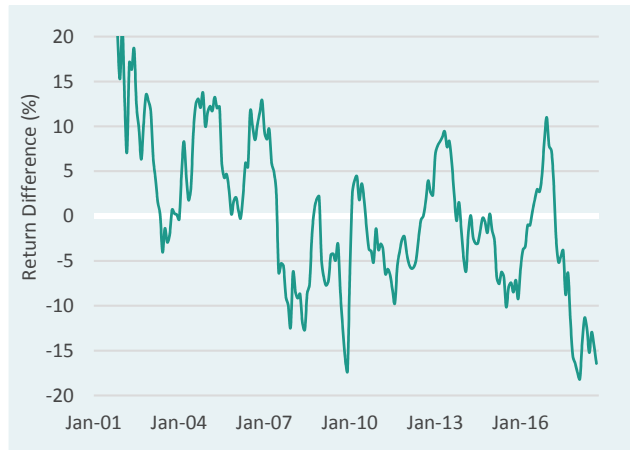
Size and value factor performance continues to frustrate investors. While the extent of underperformance is not anomalous, it may be testament to the long-term nature of factor investing. Unless an investor believes that these risk premia no longer exist, maintaining exposure and avoiding capitulation should be the primary goal.

SMALL CAP VS LARGE CAP (YOY)



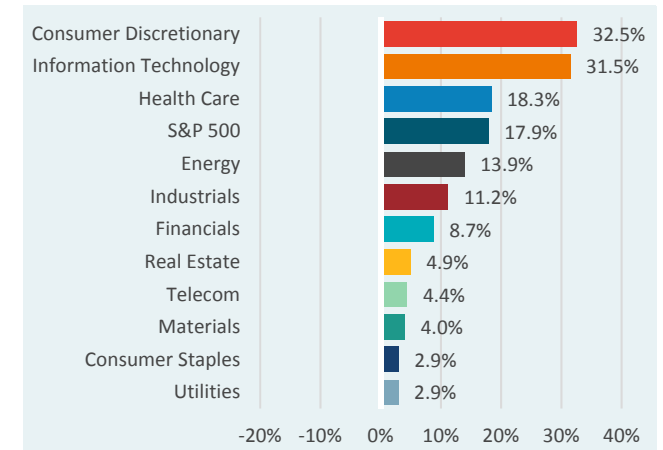
Source: FTSE, as of 9/30/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 9/30/18

1-YEAR S&P 500 SECTOR RETURNS



Source: Morningstar, as of 9/30/18

International developed equity

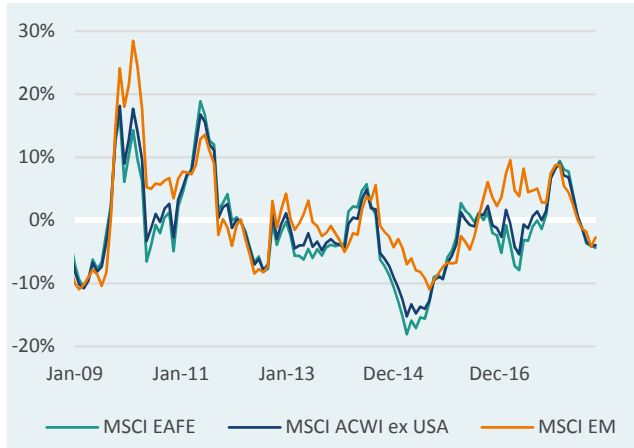
Unhedged international equities underperformed U.S. equities during Q3 (MSCI EAFE +1.4% vs. S&P 500 +7.7%). On a currency hedged basis, international equities delivered returns of 2.9%.

Currency movement continued to create losses for unhedged equity investors. U.S. investors that hedged their international equity exposure outperformed their unhedged peers by approximately 5% year-to-date (MSCI EAFE Index).

Regional divergence in earnings remained a story in Q3. Year-over-year growth in forward earnings reached 23% for U.S. equities, while estimates fell from 14% to 9% in emerging markets and from 12% to 10% in international developed markets, according to MSCI estimates.

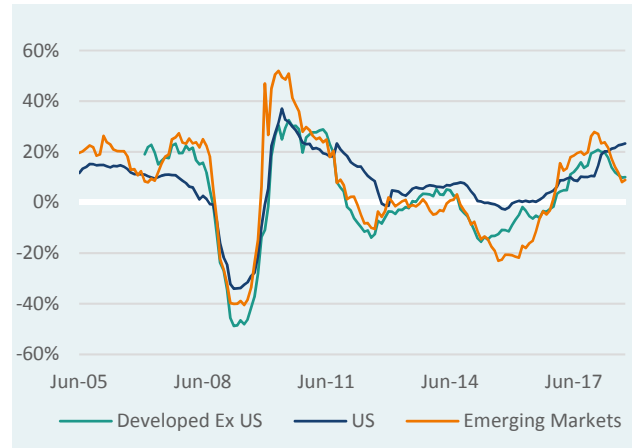
Differences in forward P/E multiples between U.S. and non-U.S. equities remained high. At quarter-end, this valuation gap relative to international developed equity ranked in the 96th percentile since 2005. The U.S.-EM valuation gap ranked in the 89th percentile over the same period.

EFFECT OF CURRENCY (1-YEAR ROLLING)



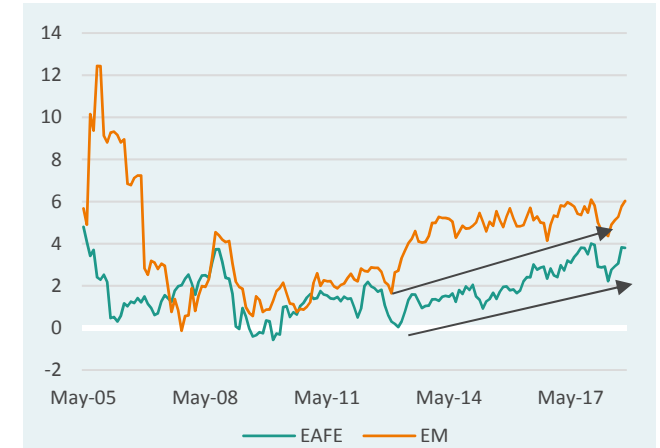
Source: MSCI, as of 9/30/18

EARNINGS GROWTH (YOY)



Source: MSCI, as of 9/30/18 – YoY growth in forward earnings

FORWARD P/E SPREADS RELATIVE TO U.S.



Source: MSCI, as of 9/30/18

Emerging market equity

Emerging market equities delivered a slight loss in Q3 but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many of these currencies have rebounded from their lows.

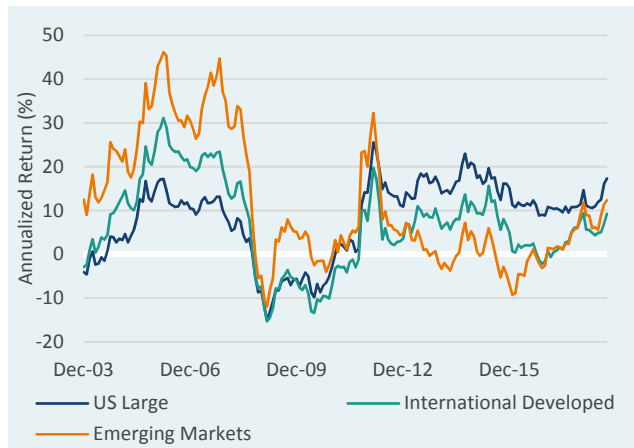
Developed markets are expected to grow less quickly in the coming years while emerging economic growth is expected to rise. A positive growth premium of emerging economies relative to developed economies has

historically acted as a tailwind for EM outperformance.

We believe positive emerging economy growth trends, attractive valuations, a strong earnings environment, and depressed currencies should provide an environment of strong relative equity performance across these markets.

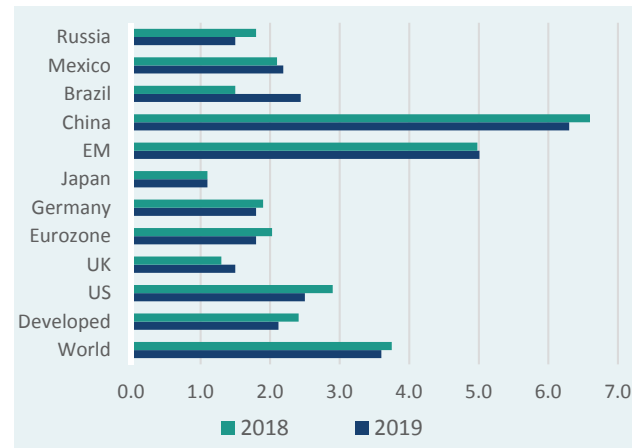
Conditions remain positive for medium-term EM equity performance, though volatility may persist

EQUITY PERFORMANCE (3YR ROLLING)



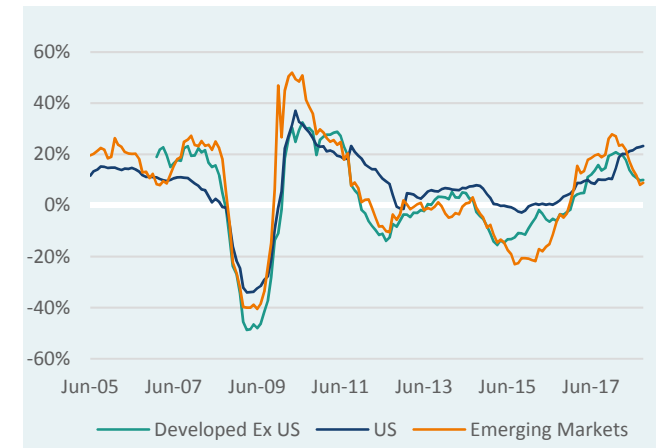
Source: Standard & Poor's, MSCI, as of 9/30/18

GDP GROWTH EXPECTATIONS (%)



Source: Bloomberg, as of 9/30/18

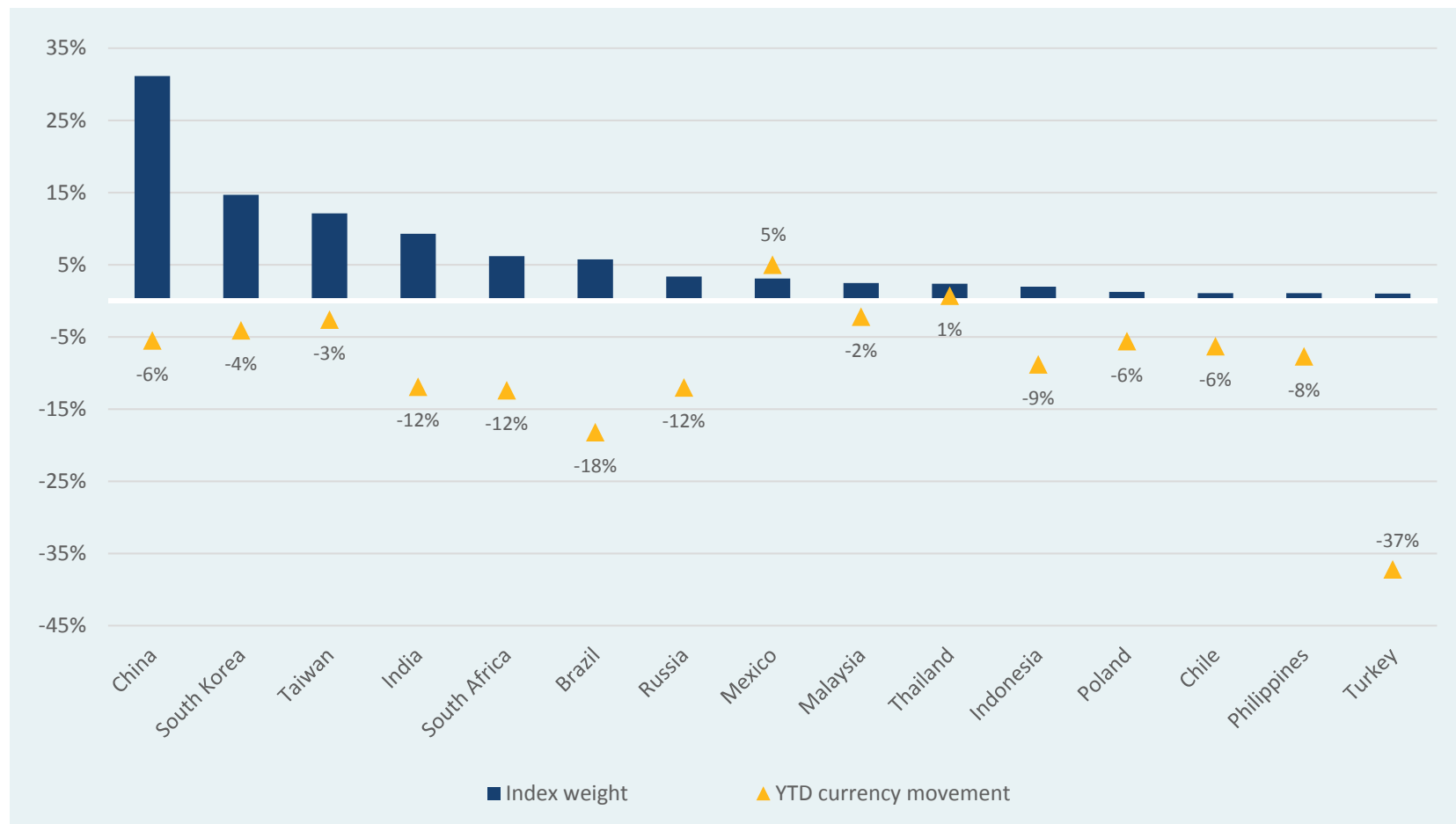
EARNINGS GROWTH (YOY)



Source: MSCI, as of 9/30/18 – YoY growth in forward earnings

Emerging market currency movement

Currency moves across most of EM are in-line with DM (~5% depreciation)



South Africa, Brazil, and Russia are causing greater currency pain in EM

Many of these currencies have recovered some of their losses

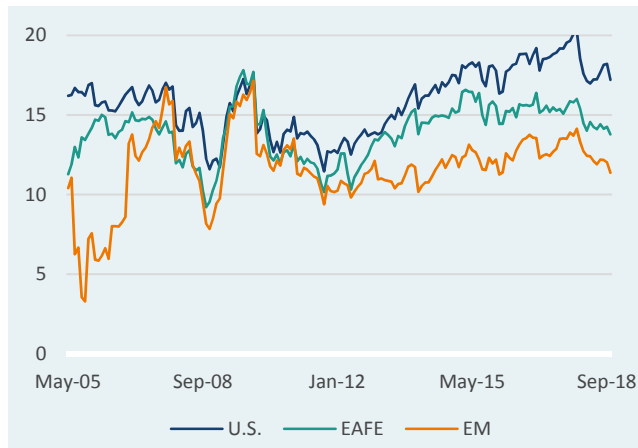
Source: MSCI, Bloomberg, as of 9/30/18

Equity valuations

Forward equity P/E multiples moved lower during the quarter and year-to-date as strong earnings growth expectations came to fruition. We remain concerned about the large valuation difference between U.S. and international equities, though the relatively positive domestic economic outlook and strong expected earnings growth through year-end should justify some of the valuation difference. However, because a significant portion of U.S. earnings outperformance has been due to a one-time tax cut, it may become more difficult to justify the valuation disparity beyond 2018.

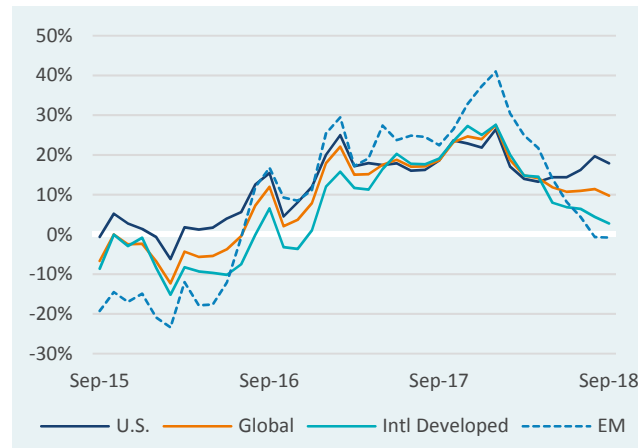
Looking at markets through our *carry, value, trend, and macro* lens, carry and value have improved through lower prices and higher underlying earnings. Trend has flattened out in international markets as equity performance has been rangebound year-to-date. The macro environment has weakened outside the U.S., with economic data indicating a more average backdrop.

FORWARD P/E RATIOS



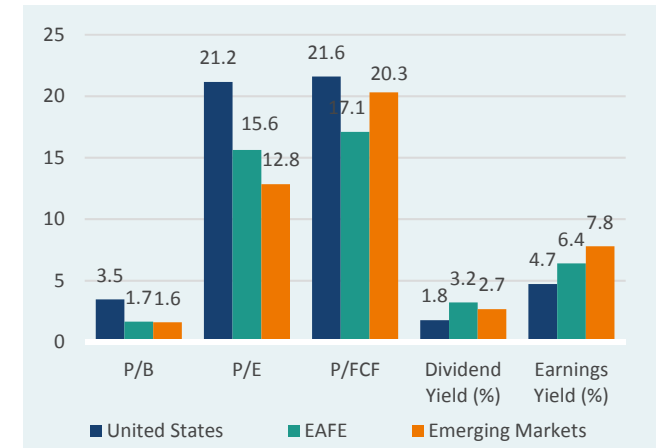
Source: MSCI, as of 9/30/18

MOMENTUM (1YR)



Source: Standard & Poor's, MSCI, as of 9/30/18

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, as of 9/30/18 - trailing P/E

Equity volatility

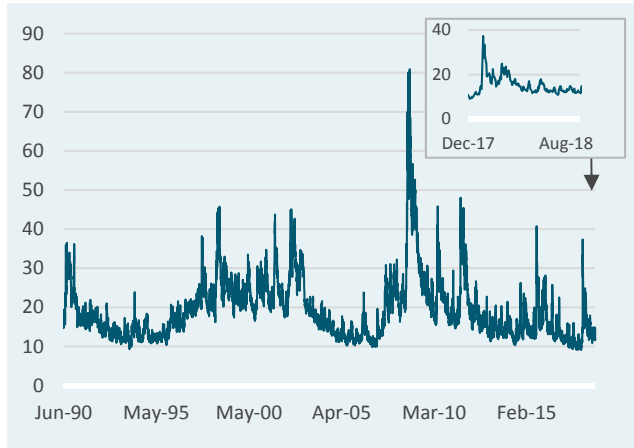
U.S. equity volatility remains muted. The VIX index ranged from 11 to 16 for the entirety of the quarter. Despite such an extended period of below-average volatility, it may be helpful to remember that the VIX Index has averaged 19.3 since 1990. Volatility has remain depressed or elevated for extended periods of time.

Realized volatility of the S&P 500 was below average at 9.1%. International equities have also exhibited muted volatility (MSCI EAFE 9.1%, MSCI Emerging Markets 13.3%).

Stories of idiosyncratic emerging market crises dominated news headlines over the quarter. However, emerging market equity volatility is at an average level (MSCI EM). At the end of the third quarter, the one-month implied volatility of the index was 17.1%, slightly below its three-year average of 18.5%. In Q3, the MSCI EM Index fell 1.1%, bringing the year-to-date decline to 7.7%.

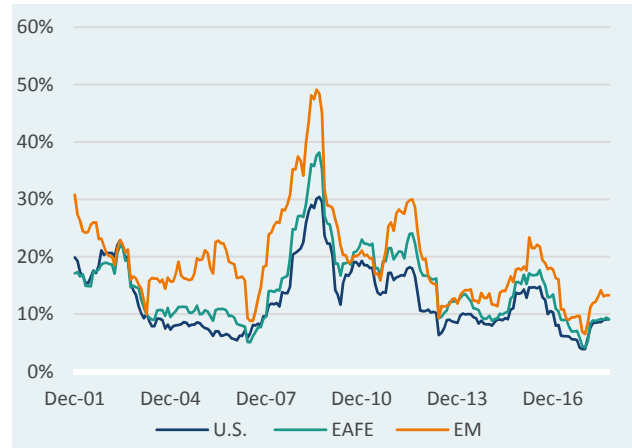
Global equity volatility remained below average

U.S. IMPLIED VOLATILITY (VIX)



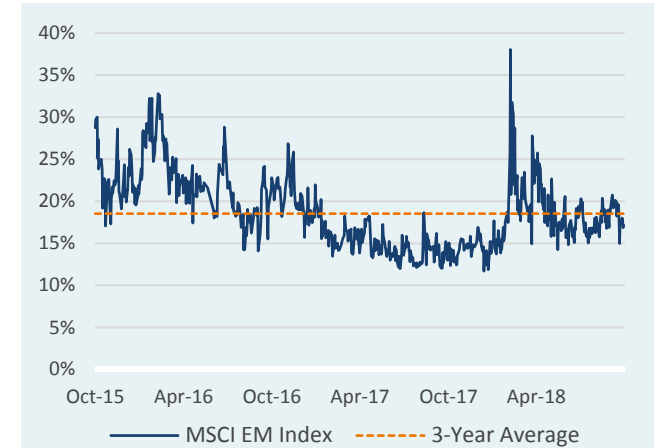
Source: CBOE, as of 9/30/18

REALIZED 1-YEAR ROLLING VOLATILITY



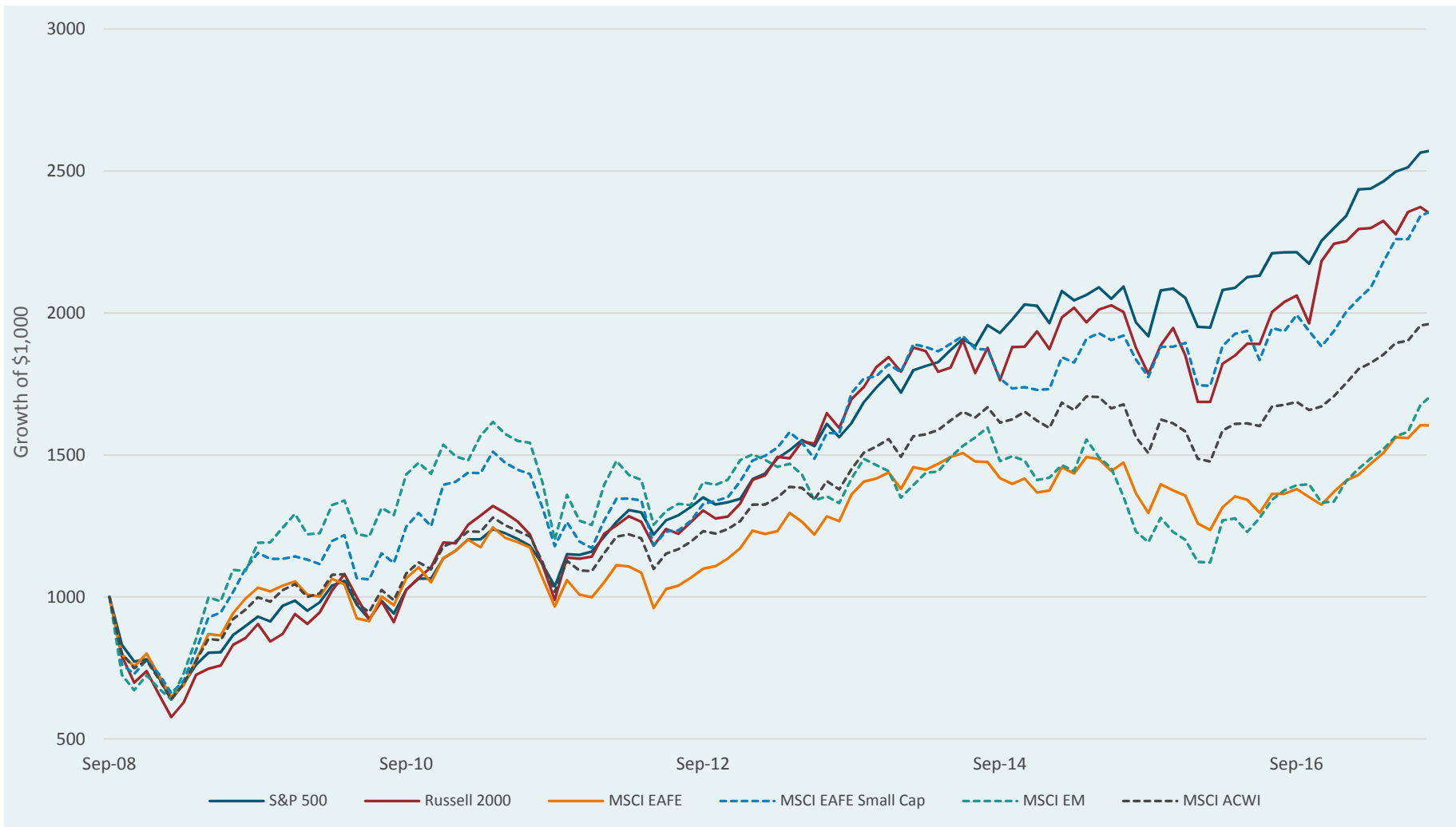
Source: Bloomberg, as of 9/30/18

MSCI EM INDEX 1-MONTH IMPLIED VOLATILITY



Source: Bloomberg, as of 9/30/18

Long-term equity performance



Source: Morningstar, as of 9/30/18

Other assets

Currency

The U.S. dollar appreciated 1% during the quarter on a trade-weighted dollar basis. A stable dollar going forward would help dampen the volatility of unhedged equity investments, particularly in emerging markets where currency moves have been larger. Some of the worst performing emerging market currencies have partially recovered from 2nd quarter losses.

Major currencies have fluctuated widely relative to the U.S. dollar in 2018. Most currencies strengthened through the first quarter, but this trend reversed when international economic growth began to show weakness, which helped

push up the value of the dollar. Because foreign currencies have been positively correlated with equity markets, these movements have added to total volatility.

Wide short-term interest rate differentials between the U.S. and the rest of the world have created a tailwind for those hedging U.S. dollar exposures. For example, based on current FX forward pricing, an investor would lock in an annualized gain of 3.3% when hedging the euro, which is typically the biggest foreign currency exposure in portfolios.

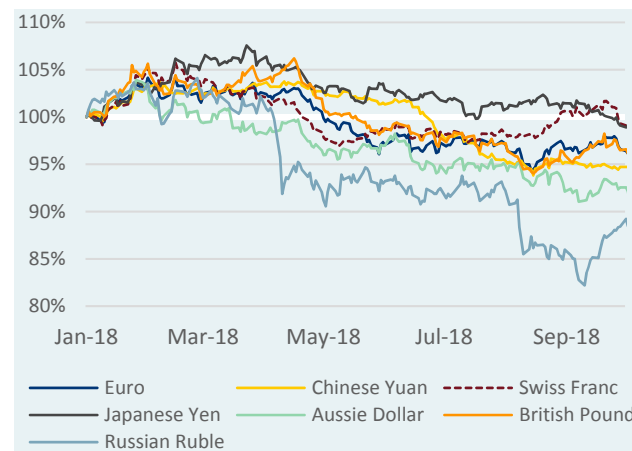
The U.S. dollar materially appreciated, reversing a multi-year downtrend

U.S. DOLLAR TRADE WEIGHTED INDEX



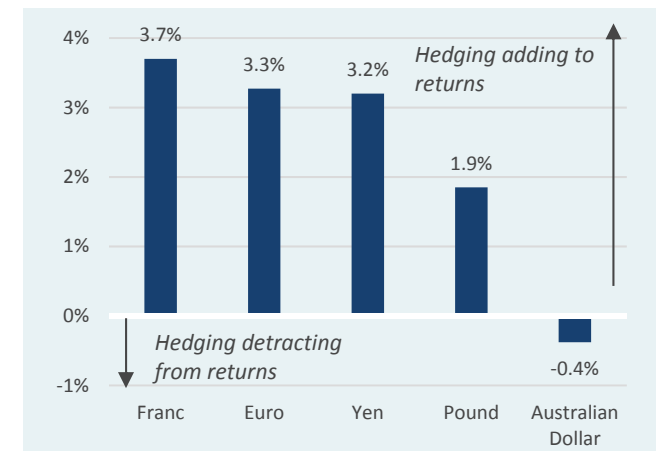
Source: Federal Reserve, as of 9/30/18

USD MOVES VS MAJOR CURRENCIES



Source: Verus, Bloomberg, as of 9/30/18

ANNUALIZED FX HEDGING COSTS (GAINS)



Source: Bloomberg, as of 9/30/18, based on 3-month FX forwards

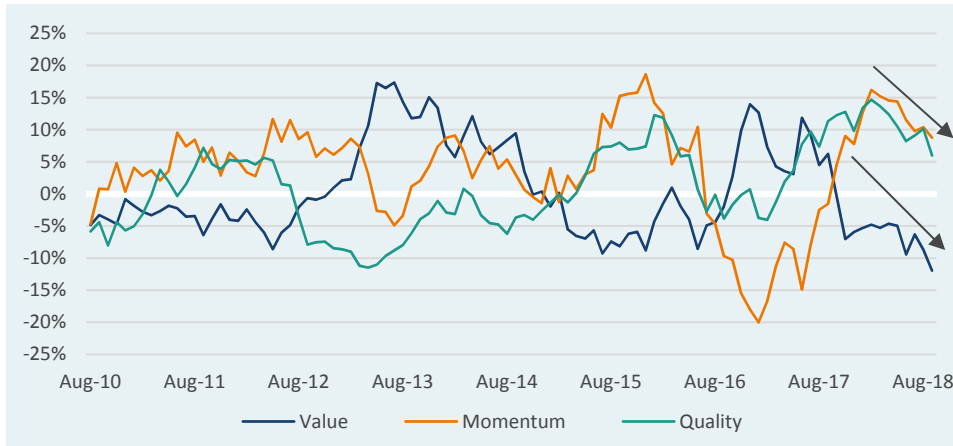
Alternative beta

Alternative beta strategies have suffered sharp losses so far this year, near a two standard deviation downside event for many strategies based on historical returns and volatility. Returns from managers we follow were better in the third quarter, but most strategies are still digging out of a hole created in the first two quarters of the year. Factor exposure, in particular equity value, can help explain some of the poor performance. The long drawdown in the value factor has come at a time when other factors that are often relied on in alt beta strategies, including trend-following and short volatility, have also experienced losses. The magnitude of the

drawdown in the value factor is within normal bounds based on history, but it has been the longest on record. Momentum in U.S. equities has performed well, but this has not been enough to offset negative value returns.

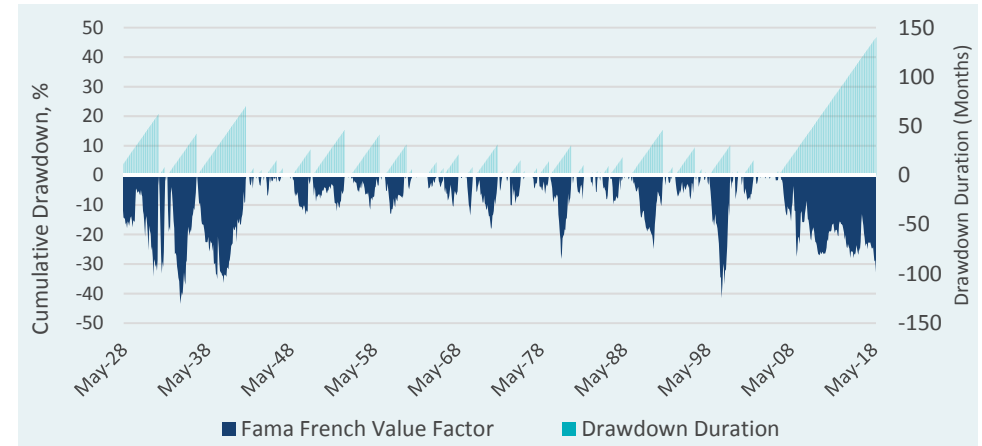
We reiterate our belief that alternative beta strategies are not “broken” per se, but instead have reflected extreme drawdowns in some factors and muted returns in others. We will continue to closely monitor these strategies and engage in frequent discussions with managers.

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



Source: S&P Dow Jones, Thematic Market Neutral Indices, as of 9/30/18

VALUE FACTOR DRAWDOWN MAGNITUDE AND DURATION



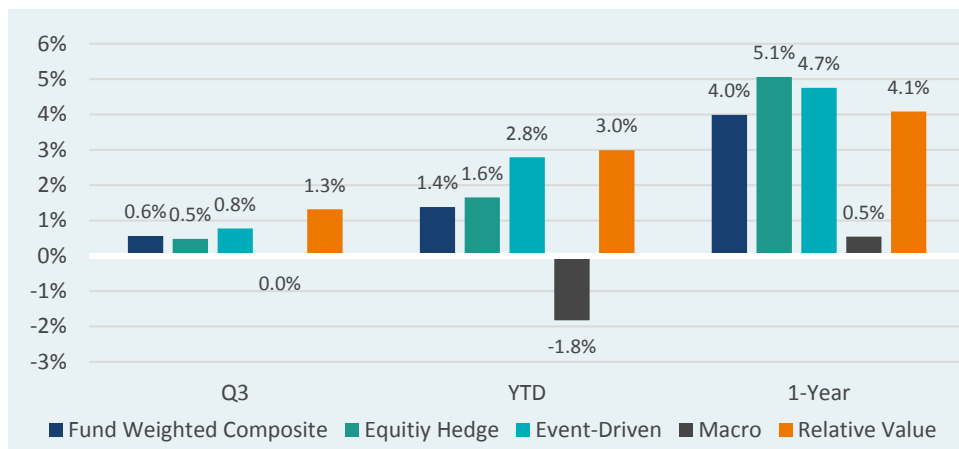
Source: Kenneth French Data Library, as of 8/31/18

Hedge funds

Hedge funds delivered modestly positive results across strategies in Q3 (HFRI Fund Weighted Composite +0.6%). Equity-focused managers had mixed results. Funds specializing in health care (+5.0%) stood out as strong performers. At the beginning of the quarter, growth-oriented managers had enjoyed a run of favorable results relative to value-oriented peers dating back to Q4 2017. Growth manager results relative to peers suffered as a narrow set of high growth equity names sold off in the quarter. Many other equity-focused managers were marginally positive or flat. Emerging market fund results ranged from small losses in Latin America to significant losses in China and India.

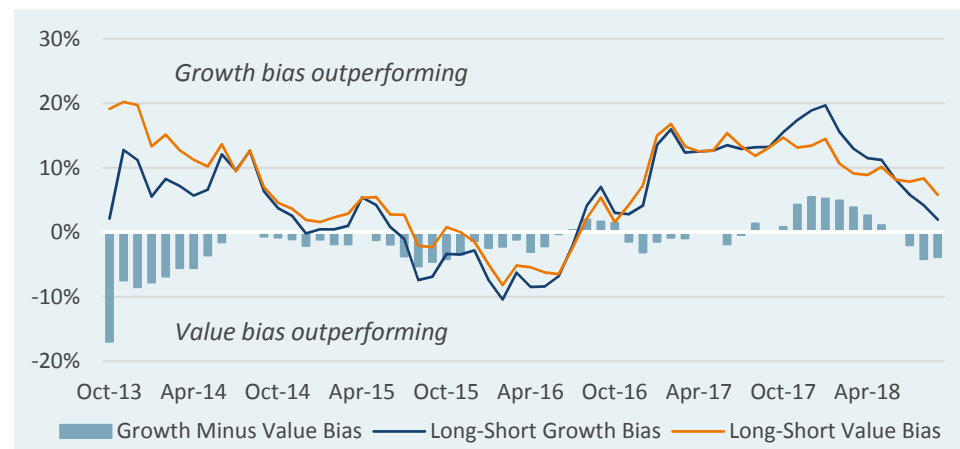
Within the fixed income markets, managers that focused on the credit and asset-backed securities sectors, in aggregate, were up about +1.5% for the quarter. Most other fixed income focused investment styles were modestly positive to flat for the period. Due to the relatively tight credit spreads, many credit-oriented managers are now carefully allocating capital to idiosyncratic long positions to protect against downside losses from a potential increase in spreads.

HFRI HEDGE FUND STYLE PERFORMANCE



Source: HFRI, as of 9/30/18

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



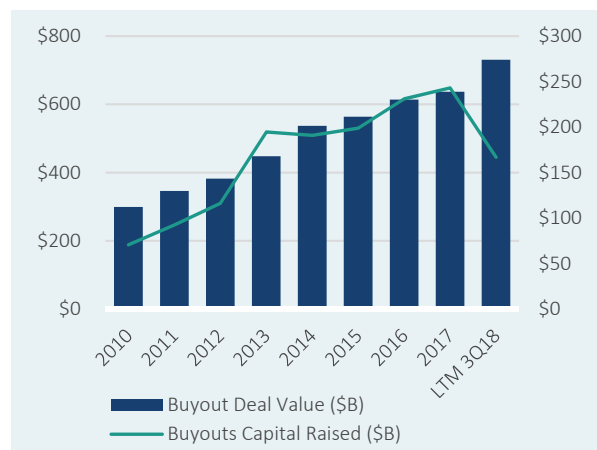
Source: HFRI, as of 9/30/18

Private markets

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

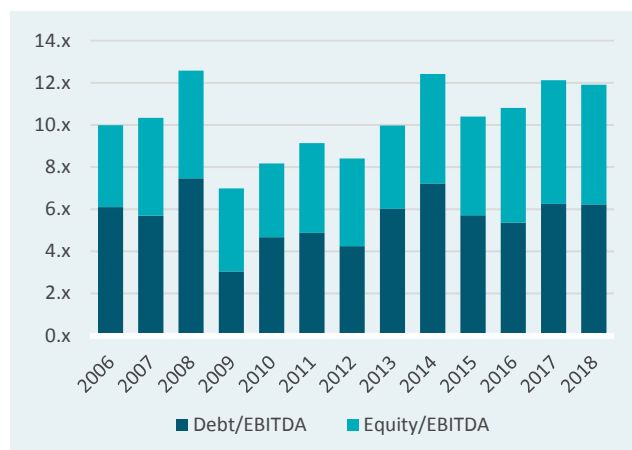
- Buyout activity has continued to increase in 2018. Through the third quarter buyouts are up 25% and 24% when measured by dollar value and number of transactions, respectively. The size of the average buyout is virtually unchanged from 2017 (\$142 million). Unlike deal flow, fund capital raising has slowed from the peaks of 2017. Only 143 buyout funds representing \$121 billion closed so far this year, down from 184 funds representing \$178 billion through the same period last year. Trailing-twelve-month funds raised is down 25% from a record \$224 billion in 2017.
- Buyout multiples are largely unchanged from 2017. Average EV/EBITDA is 11.9x through September 30, 2018 (down from 12.1x in 2017) with debt multiples averaging 5.7x through the third quarter. Debt as a percentage of transaction value remains at 50%, which is down from 60% in 2013.
- Venture capital fundraising and deal volumes continue to set records. \$32 billion of venture capital has been raised in the U.S. through the first 9 months of 2018, an increase of 33% over the same period last year. Similarly, venture deals are up 37%. In fact, year-to-date venture deal volume (\$84 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



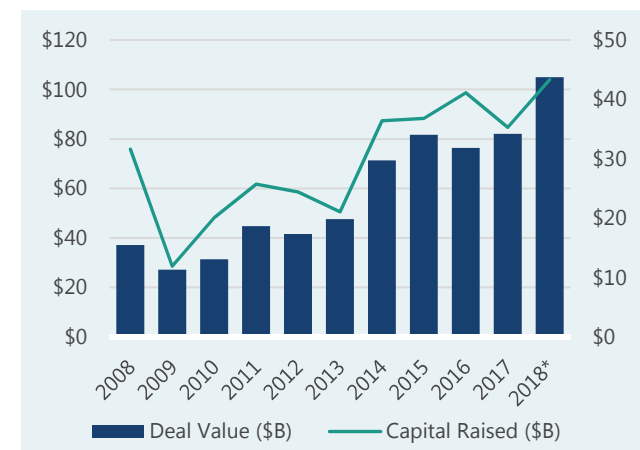
Source: PitchBook

TRANSACTION MULTIPLES



Source: PitchBook

VENTURE DEAL VOLUME & FUNDRAISING



Source: PitchBook

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 | YTD | 5-Year | 10-Year |
|-------------------------|-------|------|-------|-------|-------|------|------|------|------|------|-------|-------|------|-------|------|------|-------|-------|------|------|------|--------|---------|
| Large 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 | 17.1 | 16.6 | 14.3 |
| Small Cap Growth | 27.0 | 43.1 | 22.8 | 8.4 | 10.3 | 48.5 | 22.2 | 21.4 | 26.9 | 16.2 | 1.4 | 37.2 | 26.9 | 7.8 | 18.1 | 38.8 | 13.2 | 5.7 | 21.3 | 30.2 | 15.8 | 13.7 | 12.7 |
| Small Cap Equity | 20.3 | 33.2 | 12.2 | 7.3 | 6.7 | 47.3 | 20.7 | 20.1 | 23.5 | 15.8 | -6.5 | 34.5 | 24.5 | 2.6 | 17.9 | 34.5 | 13.0 | 0.9 | 17.3 | 25.0 | 11.5 | 12.1 | 12.1 |
| Large Cap Equity | 19.3 | 27.3 | 11.6 | 3.3 | 1.6 | 46.0 | 18.3 | 14.0 | 22.2 | 11.8 | -21.4 | 32.5 | 19.2 | 1.5 | 17.5 | 33.5 | 11.8 | 0.6 | 12.1 | 22.2 | 10.5 | 11.1 | 11.1 |
| Small Cap Value | 16.2 | 26.5 | 7.0 | 2.8 | 1.0 | 39.2 | 16.5 | 7.5 | 18.4 | 11.6 | -25.9 | 28.4 | 16.8 | 0.4 | 16.4 | 33.1 | 6.0 | 0.0 | 11.8 | 21.7 | 7.1 | 10.7 | 9.8 |
| Large Cap Value | 15.6 | 24.3 | 6.0 | 2.5 | -5.9 | 30.0 | 14.5 | 7.1 | 16.6 | 10.9 | -28.9 | 27.2 | 16.7 | 0.1 | 16.3 | 32.5 | 5.6 | -0.4 | 11.3 | 17.1 | 3.9 | 9.9 | 9.5 |
| Real Estate | 8.7 | 21.3 | 4.1 | -2.4 | -6.0 | 29.9 | 14.3 | 6.3 | 15.5 | 10.3 | -33.8 | 23.3 | 16.1 | -2.1 | 15.3 | 23.3 | 4.9 | -0.8 | 11.2 | 14.6 | 3.5 | 9.2 | 6.3 |
| 60/40 Global Portfolio | 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 | 1.4 | 5.6 | 6.2 |
| Cash | 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 | 1.3 | 4.4 | 5.4 |
| Hedge Funds of Funds | -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 | 1.2 | 3.6 | 5.4 |
| International Equity | -5.1 | 7.3 | -14.0 | -12.4 | -20.5 | 11.6 | 6.9 | 4.6 | 9.1 | 4.4 | -38.4 | 11.5 | 8.2 | -5.7 | 4.8 | 0.1 | 0.0 | -4.4 | 2.6 | 5.1 | -1.4 | 3.2 | 3.8 |
| US Bonds | -6.5 | 4.8 | -22.4 | -19.5 | -21.7 | 9.0 | 6.3 | 4.2 | 4.8 | -0.2 | -38.5 | 5.9 | 6.5 | -11.7 | 4.2 | -2.0 | -1.8 | -7.5 | 1.0 | 3.5 | -1.6 | 2.2 | 2.6 |
| Commodities | -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 | -2.0 | 0.5 | 0.3 |
| 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 | -7.7 | -7.2 | -6.2 |

WORST

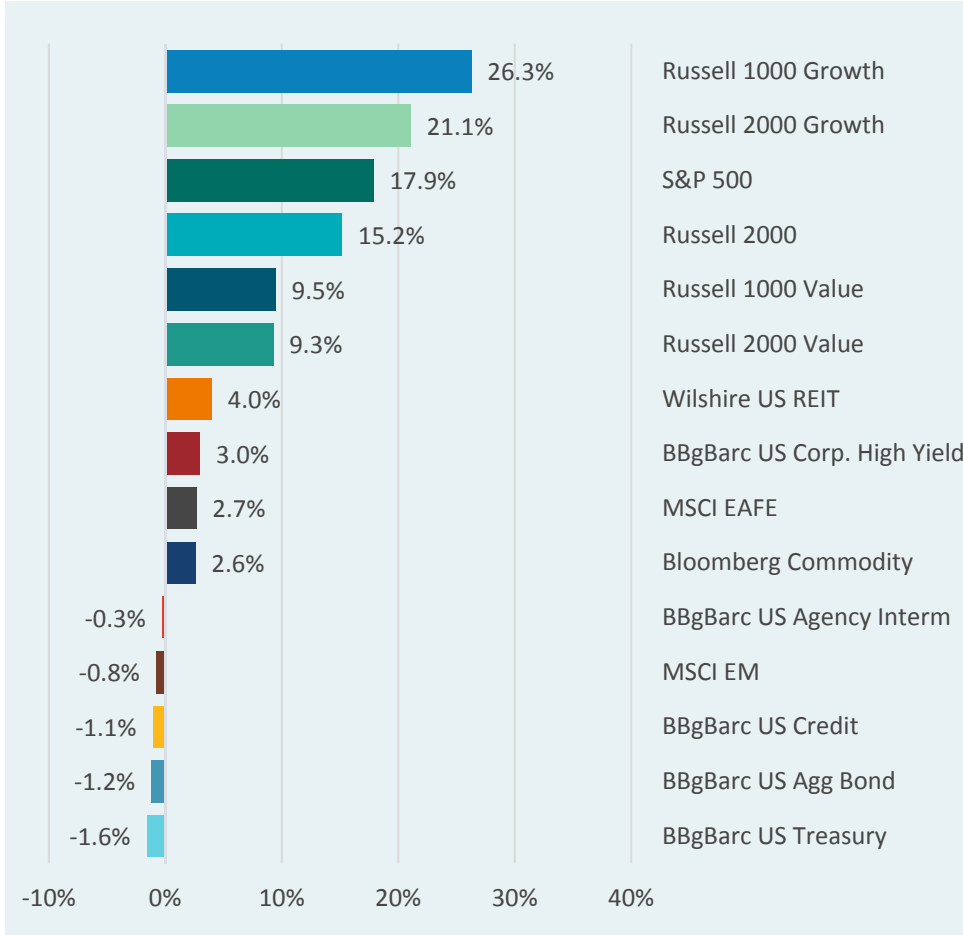
BEST

| | | |
|---|--|--|
| ■ Large Cap Equity | ■ Small Cap Growth | ■ Commodities |
| ■ Large Cap Value | ■ International Equity | ■ Real Estate |
| ■ Large Cap Growth | ■ Emerging Markets Equity | ■ Hedge Funds of Funds |
| ■ Small Cap Equity | ■ US Bonds | ■ 60% MSCI ACWI/40% BBgBarc Global Bond |
| ■ Small Cap Value | ■ 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 6/30/18.

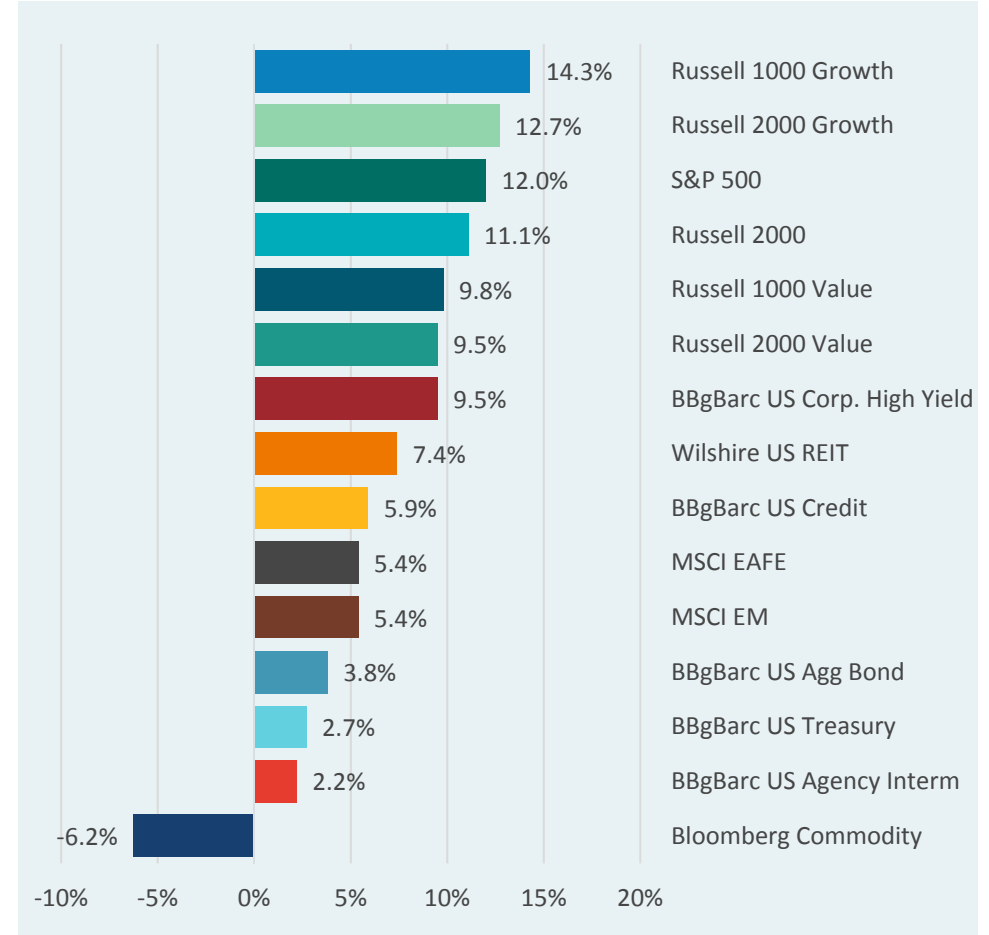
Major asset class returns

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

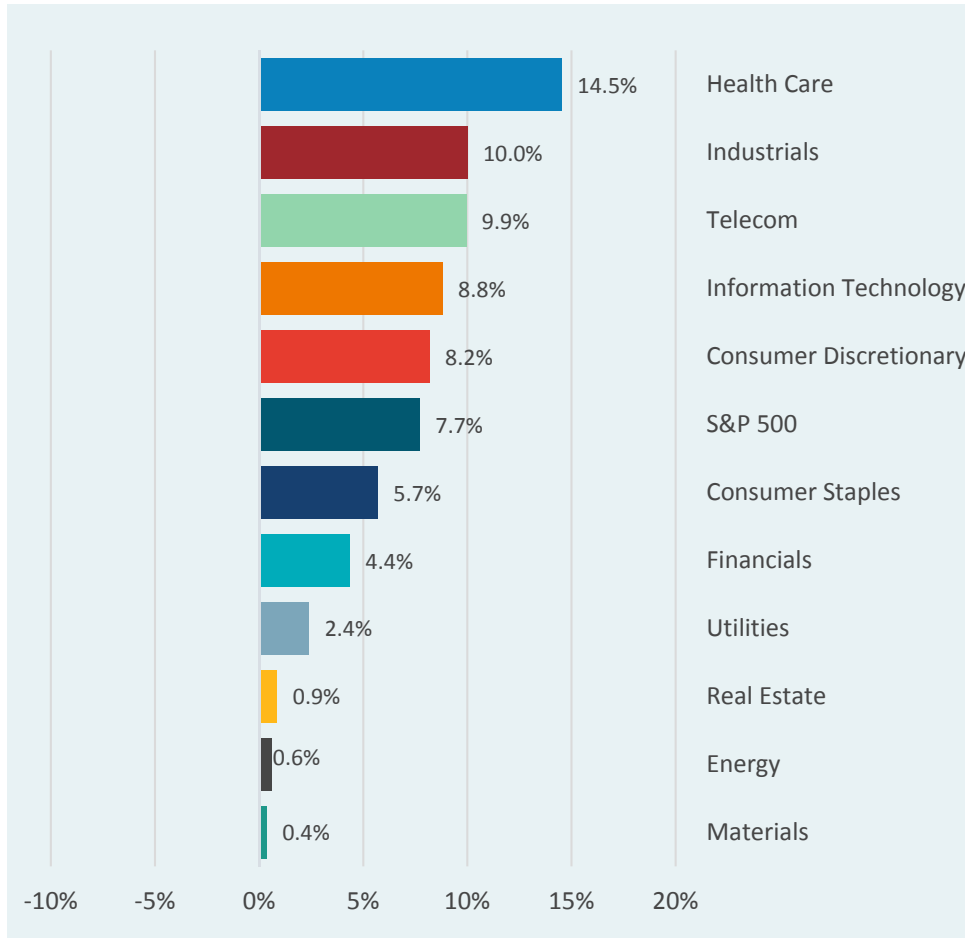
TEN YEARS ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

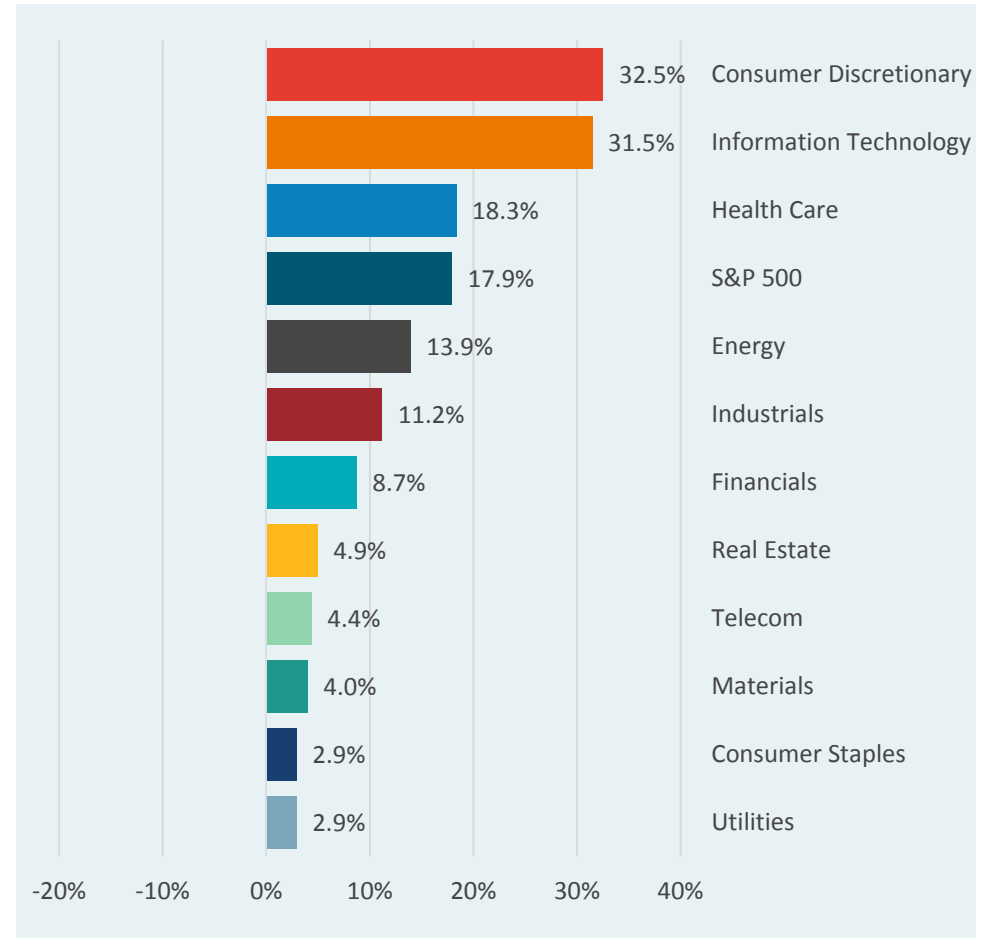
S&P 500 sector returns

THIRD QUARTER



Source: Morningstar, as of 9/30/18

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

Detailed index returns

DOMESTIC EQUITY

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-----|------|--------|--------|--------|---------|
| Core Index | | | | | | | |
| S&P 500 | 0.6 | 7.7 | 10.6 | 17.9 | 17.3 | 13.9 | 12.0 |
| S&P 500 Equal Weighted | 0.1 | 5.4 | 7.3 | 13.9 | 15.4 | 12.5 | 13.1 |
| DJ Industrial Average | 2.0 | 9.6 | 8.8 | 20.8 | 20.5 | 14.6 | 12.2 |
| Russell Top 200 | 0.8 | 8.4 | 11.7 | 19.3 | 18.1 | 14.5 | 12.0 |
| Russell 1000 | 0.4 | 7.4 | 10.5 | 17.8 | 17.1 | 13.7 | 12.1 |
| Russell 2000 | (2.4) | 3.6 | 11.5 | 15.2 | 17.1 | 11.1 | 11.1 |
| Russell 3000 | 0.2 | 7.1 | 10.6 | 17.6 | 17.1 | 13.5 | 12.0 |
| Russell Mid Cap | (0.6) | 5.0 | 7.5 | 14.0 | 14.5 | 11.7 | 12.3 |
| Style Index | | | | | | | |
| Russell 1000 Growth | 0.6 | 9.2 | 17.1 | 26.3 | 20.6 | 16.6 | 14.3 |
| Russell 1000 Value | 0.2 | 5.7 | 3.9 | 9.5 | 13.6 | 10.7 | 9.8 |
| Russell 2000 Growth | (2.3) | 5.5 | 15.8 | 21.1 | 18.0 | 12.1 | 12.7 |
| Russell 2000 Value | (2.5) | 1.6 | 7.1 | 9.3 | 16.1 | 9.9 | 9.5 |

INTERNATIONAL EQUITY

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-------|-------|--------|--------|--------|---------|
| Broad Index | | | | | | | |
| MSCI ACWI | 0.4 | 4.3 | 3.8 | 9.8 | 13.4 | 8.7 | 8.2 |
| MSCI ACWI ex US | 0.5 | 0.7 | (3.1) | 1.8 | 10.0 | 4.1 | 5.2 |
| MSCI EAFE | 0.9 | 1.4 | (1.4) | 2.7 | 9.2 | 4.4 | 5.4 |
| MSCI EM | (0.5) | (1.1) | (7.7) | (0.8) | 12.4 | 3.6 | 5.4 |
| MSCI EAFE Small Cap | (0.7) | (0.9) | (2.2) | 3.7 | 12.4 | 8.0 | 9.7 |
| Style Index | | | | | | | |
| MSCI EAFE Growth | (0.2) | 1.5 | 0.6 | 5.8 | 10.3 | 5.6 | 6.2 |
| MSCI EAFE Value | 2.1 | 1.2 | (3.5) | (0.4) | 8.1 | 3.1 | 4.5 |
| Regional Index | | | | | | | |
| MSCI UK | 1.8 | (1.7) | (2.7) | 2.9 | 6.2 | 2.2 | 4.9 |
| MSCI Japan | 3.0 | 3.7 | 1.6 | 10.2 | 12.1 | 6.8 | 6.0 |
| MSCI Euro | (0.1) | (0.4) | (3.6) | (3.2) | 8.5 | 3.9 | 3.4 |
| MSCI EM Asia | (1.7) | (1.8) | (6.8) | 1.0 | 13.5 | 6.7 | 8.2 |
| MSCI EM Latin American | 4.7 | 4.8 | (6.9) | (9.1) | 13.7 | (2.3) | 0.7 |

Source: Morningstar, HFR, as of 9/30/18

FIXED INCOME

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|-----------------------------|-------|-------|-------|--------|--------|--------|---------|
| Broad Index | | | | | | | |
| BBgBarc US TIPS | (1.1) | (0.8) | (0.8) | 0.4 | 2.0 | 1.4 | 3.3 |
| BBgBarc US Treasury Bills | 0.2 | 0.5 | 1.3 | 1.5 | 0.8 | 0.5 | 0.4 |
| BBgBarc US Agg Bond | (0.6) | 0.0 | (1.6) | (1.2) | 1.3 | 2.2 | 3.8 |
| Duration | | | | | | | |
| BBgBarc US Treasury 1-3 Yr | (0.1) | 0.2 | 0.2 | (0.0) | 0.4 | 0.6 | 1.1 |
| BBgBarc US Treasury Long | (3.0) | (2.9) | (5.8) | (3.6) | 0.7 | 4.4 | 5.5 |
| BBgBarc US Treasury | (0.9) | (0.6) | (1.7) | (1.6) | 0.2 | 1.3 | 2.7 |
| Issuer | | | | | | | |
| BBgBarc US MBS | (0.6) | (0.1) | (1.1) | (0.9) | 1.0 | 2.0 | 3.3 |
| BBgBarc US Corp. High Yield | 0.6 | 2.4 | 2.6 | 3.0 | 8.1 | 5.5 | 9.5 |
| BBgBarc US Agency Interm | (0.2) | 0.2 | 0.0 | (0.3) | 0.6 | 1.1 | 2.2 |
| BBgBarc US Credit | (0.3) | 0.9 | (2.1) | (1.1) | 3.0 | 3.4 | 5.9 |

OTHER

| | Month | QTD | YTD | 1 Year | 3 Year | 5 Year | 10 Year |
|------------------------|-------|-------|-------|--------|--------|--------|---------|
| Index | | | | | | | |
| Bloomberg Commodity | 1.9 | (2.0) | (2.0) | 2.6 | (0.1) | (7.2) | (6.2) |
| Wilshire US REIT | (2.8) | (5.4) | 2.2 | 4.0 | 7.1 | 9.2 | 7.4 |
| CS Leveraged Loans | 0.7 | 4.4 | 4.4 | 5.6 | 5.4 | 4.4 | 5.8 |
| Alerian MLP | (2.0) | 7.0 | 5.2 | 3.3 | 3.9 | (2.8) | 10.0 |
| Regional Index | | | | | | | |
| JPM EMBI Global Div | 1.5 | 2.3 | (3.0) | (1.9) | 6.0 | 5.4 | 7.5 |
| JPM GBI-EM Global Div | 2.6 | (1.8) | (8.1) | (7.4) | 5.2 | (1.7) | 2.7 |
| Hedge Funds | | | | | | | |
| HFRI Composite | (0.2) | 0.6 | 1.5 | 4.1 | 5.4 | 4.1 | 4.6 |
| HFRI FOF Composite | (0.0) | 0.4 | 1.2 | 3.3 | 3.4 | 3.2 | 2.6 |
| Currency (Spot) | | | | | | | |
| Euro | (0.2) | (0.5) | (3.3) | (1.8) | 1.3 | (3.0) | (1.9) |
| Pound | 0.3 | (1.2) | (3.6) | (2.8) | (4.9) | (4.2) | (3.1) |
| Yen | (2.4) | (2.5) | (0.8) | (0.9) | 1.8 | (2.9) | (0.7) |

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/>)

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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: $\text{excess return} / \text{tracking error}$.

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

December 4, 2018

Agenda Item 6.3

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst



SUBJECT: Report on Absolute Return and Risk Parity Annual Manager Reviews

Recommendation

Accept and review the report on the annual review of SamCERA's Absolute Return and Risk Parity managers.

Background

On October 11th, SamCERA staff and consultant held annual review meetings in SamCERA's office for our absolute return managers (Aberdeen Standard and AQR) and risk parity managers (AQR and PanAgora).

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

Discussion

The Aberdeen Standard Global Absolute Return Strategies (GARS) product was reviewed first. GARS is a multi-strategy fundamentally-driven approach that targets absolute returns with significantly less volatility than equity investments.

AQR's Global Risk Premium fund, which is a strategy that balances risk among four main asset classes, was reviewed next. AQR's Delta XN Fund, a multi-strategy return fund that seeks to provide systematic exposure to a diversified set of hedge fund premia, was also reviewed. AQR discussed the recent drawdown and underperformance over the last few quarters in the Delta XN Fund.

Lastly, SamCERA reviewed PanAgora's Diversified Risk Multi Asset fund, a complementary strategy to AQR's risk parity fund. PanAgora employs a strategic risk allocation between equities, nominal fixed income and inflation-protection.

Attached you will find meeting notes from Verus summarizing the findings from these annual reviews.

Attachments

- A. Aberdeen Standard GARS Annual Review Meeting Notes (Confidential)
- B. AQR Global Risk Premium Annual Review Meeting Notes (Confidential)
- C. AQR Delta Fund Annual Review Meeting Notes (Confidential)
- D. PanAgora Diversified Risk Multi Asset Fund Meeting Notes (Confidential)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 6.4

TO: Board of Retirement

FROM: Lilibeth Dames, Investment Analyst



SUBJECT: Presentation of Private Asset Semi-Annual Performance Reports as of June 30, 2018

Recommendation

Accept and review Verus' semi-annual private equity and private real assets performance reports as of June 30, 2018.

Background

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

Discussion

Private Equity

As of June 30, 2018, SamCERA's private equity portfolio had a total market value of \$278.3 million (6.4% of SamCERA's total fund). SamCERA's target allocation for Private Equity as of June 30 was 7.0%. In September, the Board approved changes to SamCERA's Investment Policy that included a new long-term target allocation to Private Equity of 6.0%.

The Private Equity portfolio has a 17.33% net IRR since inception. For the six-month period from January 1, 2018 through June 30, 2018, SamCERA committed to two new funds for a total of \$43.3 million. This brought the sum of private equity funds in the portfolio to twenty-four with \$408.8 million in committed capital across sixteen private equity managers.

Private Real Assets

As of June 30, 2018, SamCERA's private real assets portfolio had a total reported value of \$61.3 million (1.4% of SamCERA's total fund). SamCERA's current target asset allocation to private real assets is 2.0%. Our new long-term target allocation is 4.0%.

The private real assets portfolio has a 0.61% net IRR since inception. For the six-month period from January 1, 2018 through June 30, 2018, SamCERA committed to one new fund for a total

of \$20 million. As of June 30, 2018, there were nine private asset funds in the portfolio with \$149.8 million in committed capital across eight private real asset managers.

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

Attachments

- A. Verus Semi-Annual Private Equity Performance Report for Period Ending 6/30/2018
- B. Verus Semi-Annual Private Real Assets Performance Report for Period Ending 6/30/2018



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PERIOD ENDING: JUNE 30, 2018

Private Equity Review

San Mateo County Employees' Retirement Association

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DEBT RELATED

- **HY and leveraged/syndicated loan issuance were down.** During the first half of 2018, US high yield issuance of \$108 billion¹ was down 30% and leveraged loan volume of \$737 billion¹ was down 4.4%, both versus 1H 2017.
- **Spreads tightened across the board except for US HY index.** US HY Credit Index loosened by 7 bps or 2.0%² versus the same period last year. BB, B and CCC index tightened by 22 bps, 27 bps and 221 bps respectively, a 7.4%², 6.0%² and 17.7%² decrease versus the same period last year.
- **Slight decline in LBO debt levels.** US total leverage (Debt / EBITDA) for 1H 2018 at 5.7x³ down 1.7% from the same time last year. Interest coverage ratio (EBITDA / Cash Interest) ended Q2'18 at 2.9x³, down 6.2% from 3.1x³ at the end of 2017.

GLOBAL

- **Investment activity up.** During 1H 2018, PE firms globally invested in \$322.6 billion^{6&13} worth of deals, up 29.9% from the same time prior year and closed on 9,446 transactions^{6&13}, up 15.6% from the first half of 2017.
- **Global purchase price multiples increased slightly.** As of June 30, 2018, global median purchase price multiples (Enterprise Value / EBITDA) was 10.4x¹, a 0.97% increase from the same time last year. This was driven by a 5.1% decrease in US purchase multiples at 9.8x⁷, a 5.3% increase in purchase price multiples in Europe at 10.6x¹¹, and a 12.0% decrease in the rest of the world at 9.5x¹¹.
- **Moderate decrease in dry powder in all regions, offset by significant growth in Asia.** For Q1 2018, global total PE dry powder was at \$1.31 trillion⁴, up slightly (+0.6%) from Q1 2017. Total PE dry powder was: down in the US 10.8% to \$674.6 billion⁴; down in Europe by 5.6% to \$280.8 billion⁴; significantly up in Asia by 58.2% to \$309.1 billion⁴; and down the rest of world by 12.8% to \$44.8 billion⁴.

US BUYOUTS

- **Fundraising down significantly.** In the first 6 months of 2018, US buyout firms raised \$31.5 billion⁵, down by 62.1% from same time prior year. Both the number of funds closed and average fund size decreased from 1H 2017 to 1H 2018, 53⁵ to 42⁵ and \$1.57 billion⁵ to \$0.75 billion⁵, respectively.
- **Decline in LBO price multiples.** As of June 30, 2018, US LBO purchase price multiples (Enterprise Value / EBITDA) were at 9.8x⁷, a 5.2% decrease from the first half of 2017.

- **Investment activity up.** During 1H 2018, US buyout firms invested in \$157.4 billion⁶ worth of deals, up 95.2% from the same time last year and closed on 1,221 transactions⁶, up 13.9% versus the same time in 2017. Envision Healthcare Corporation (\$9.9 billion⁶), BMC Software (\$8.3 billion⁶), Inc. and Cotiviti, LLC (\$4.9 billion⁶) contributed to the increase in capital deployed.
- **Dry powder down slightly.** For Q1 2018, US buyout dry powder was \$348.3 billion⁴, down by 5.4% from the same time in 2017.
- **Exits down marginally, but from larger deals.** During 1H 2018, US buyout firms exited 365 companies⁶, representing \$83.6 billion⁶ in total transaction value. This represented a 0.3% decrease in the number of exits and a 36.1% increase in total transaction value compared to the same time last year.

US VENTURE CAPITAL

- **Dry powder up.** As of Q1 2018, US VC dry powder was at \$81.3 billion⁴, up 10% from the last year.
- **Investment activity up sharply from last year.** US VC firms deployed \$44.1 billion¹² in capital during the first half of 2018, a 32.9% increase from 1H 2017. The number of rounds closed at 2,516¹², a 33.7% increase from the same time last year. The average investment per deal decreased slightly to \$17.5 million¹², a 0.6% decrease from prior year.
- **All stages valuations were up.** Compared to 1H 2017, the average pre-money valuations increased across all stages in the first half of 2018: up 13.5% at \$7.0 million⁸ for Seed stage, 26.6% at \$20.0 million⁸ for Series A, 42.6% at \$55.0 million for Series B, 49.6% at \$115.0 million⁸ for Series C, and 11.2% at \$278.0 million⁸ for Series D. Over the past 3 years, the average pre-money valuations of Seed stage, Series A, Series B, Series C and Series D investments were up 15.3%, 32.8%, 32.9%, 39.4% and 51.1%, respectively⁹.
- **Exits down moderately, but notably larger.** US VC firms exited 292 companies¹² in 1H 2018, down by 9.3% from the same period last year, representing \$39.8 billion¹² in transaction value, up 62.7% from the same period last year.
- **Fundraising slowed.** US VC firms raised \$15.3 billion⁵ during 1H 2018, a 9.5% decrease from the same period last year. 127 funds⁵ closed in 1H 2018, a 19.8% increase from the same period last year. The average US VC fund size decreased by 24.5% at \$120.4 million⁵ versus the same period last year.

EX-US

- **Fundraising up, except in Asia.** For 1H 2018, Ex-US fundraising was up 19.7% to \$96.6 billion⁵ compared to same time prior year. The increase was led by European funds which raised \$63.8 billion⁵, up 41.9% from same time last year. The increase was offset by a decrease in funds in Asia which raised \$26.5 billion⁵, down 15.4% from 1H 2017. Fundraising in the rest of the world was up 44.3% to \$6.3 billion⁵ compared to 1H 2017.
- **Ex-US dry powder grew, but less than dry powder in the US.** PE dry powder outside the US grew to \$636.6 billion⁴ for Q1 2018, a 16.3% increase versus last year. However, dry powder outside the US was still slightly less than dry powder in the US (\$674.6 billion⁴) by 5.6%.
 - **Dry powder of buyout, VC and growth equity in Asia increased significantly.** At the end of Q1 2018, Asia buyout dry power was \$81.0 billion⁴, up by 41.4% from last year. VC dry powder in Asia increased to \$83.5 billion⁴, up by 50.5% from prior year. Growth equity dry powder grew to \$123.2 billion⁴, a 115.0% increase from 2017.
 - **Europe buyout and VC dry powders up.** For Q1 2018, Europe buyout dry power was \$189.1 billion⁴, up marginally by 2.1% from last year. Same time, VC dry powder in Europe grew to \$26.4 billion⁴, a 14.3% increase from prior year.
- **Investments up in all key sectors and geographies, except for Asia buyout.** Number of deals and aggregate deal volume increased in the first half of 2018 in European buyout and venture capital and Asia venture capital.
 - **Europe buyout and VC investments increased.** In 1H 2018, Europe buyout firms transacted on \$57.9 billion⁶ in aggregate value, up by 63.7% from 1H 2017. VC investment activity was up from \$8.0 billion during 1H 2017 to \$11.3 billion¹² during the first half of 2018, an increase of 40.9%.
 - **Asia buyout activity was down, while VC investment activities was up.** During 1H 2018, Asia VC investment activity was \$60.8 billion¹², up from \$31.5 billion during 1H 2017, an increase of 92.3%. Buyout firms closed on \$14.3 billion⁶ in aggregate value, down by 20.5% from the same time of last year's \$18.0 billion⁶.
- **Leverage multiples in Europe moved up.** European LBO leverage multiples (Debt / EBITDA) have averaged $5.4x^{10}$ during 1H 2018, an increase of 7.1% from the same time last year and a 11.1% decrease from the peak ($6.1x^{11}$) in 2007. European LBO Loan volume at \$46.6 billion¹¹ is up 19.7% versus 1H 2017, a decrease of 56.6% versus the peak of \$107.26 billion¹¹ in the first half of 2007.
- **Exit activity stronger in Europe and Asia.** During the first half of 2018, Europe PE firms aggregate exit value amounted to \$66.3 billion^{6&12}, a 89.7% increase from the same time last year, while Asia PE firms' exits were up 329.0% from 1H 2017 to \$48.0^{6&12} billion in the same time.

Outlook

- **PE allocations likely to increase slightly.** A recent survey of institutional investors conducted on June 30, 2018 indicated that 29%¹³ intend to increase their allocation for private equity compared to 39%¹³ during the same period last year. 57%¹³ intend to maintain their allocation for private equity compared to 56%¹³ during the same period last year. 77%¹³ plan to commit to a private equity fund in the second half of 2018, and 16%¹³ expect to commit to a private equity fund in 2019.
- **Institutional investors most interested in investing in North America and like small- to mid-market buyouts.** Based on the survey conducted on June 30, 2018, Institutional investors view North America as the most attractive location to invest in the current economic climate with 55%¹³ choosing it as their preferred investment destination. This compares favorably versus Europe (35%¹³) and Asia (23%¹³). In the same survey, 44%¹³ of institutional investors also cited the small to mid-market buyout strategy as presenting the best opportunities in the current financial climate. venture capital strategy was mentioned next with 25%¹³ of institutional investors believing it presented the best opportunities.

Notes

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

| Investment Type | Policy Target | Policy Range | Market Value % | Market Value \$(000) | Unfunded Commitment \$(000) | Market Value + Unfunded \$(000) |
|---|---------------|---------------|----------------|----------------------|-----------------------------|---------------------------------|
| SamCERA - Total Plan | | | 100.0% | 4,347,472 | | |
| Buyout (60% +/- 20%) | 4.2% | 2.8%-5.6% | 4.1% | 180,297 | 108,728 | 289,025 |
| Venture Capital (20%, 0%-30%) | 1.4% | 0.0%-2.1% | 1.7% | 72,871 | 9,885 | 82,756 |
| Debt-Related/Special Situations (20% +/- 10%) | 1.4% | 0.7%-2.1% | 0.6% | 25,117 | 53,961 | 79,078 |
| Total Private Equity* | 7.0% | 6%-10% | 6.4% | 278,285 | 172,574 | 450,859 |

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

Portfolio Summary

- As of June 30, 2018, the Private Equity Portfolio had a total market value of \$278.3 million, with \$180.3 million in Buyout, \$72.9 million in Venture Capital, and \$25.1 million in Debt-Related/Special Situations. Total market value is the current reported value of investments, excluding the remaining amount of unfunded commitments.
- SamCERA has contributed \$270.0 million toward its Private Equity commitments. Unfunded commitments total \$172.6 million.
- The portfolio exposure at 6.4% is at the lower end of its target range. All sub-asset classes, except Debt-Related/Special Situations which is below its target range, are within the policy range while commitments continue to be made to new managers at a slower pace.

Portfolio Activity

- SamCERA committed \$20.0 million to Sycamore Partners III and €20.0 million (approximately \$23.3 million) to CapVest Equity Partners IV in the first half of 2018.

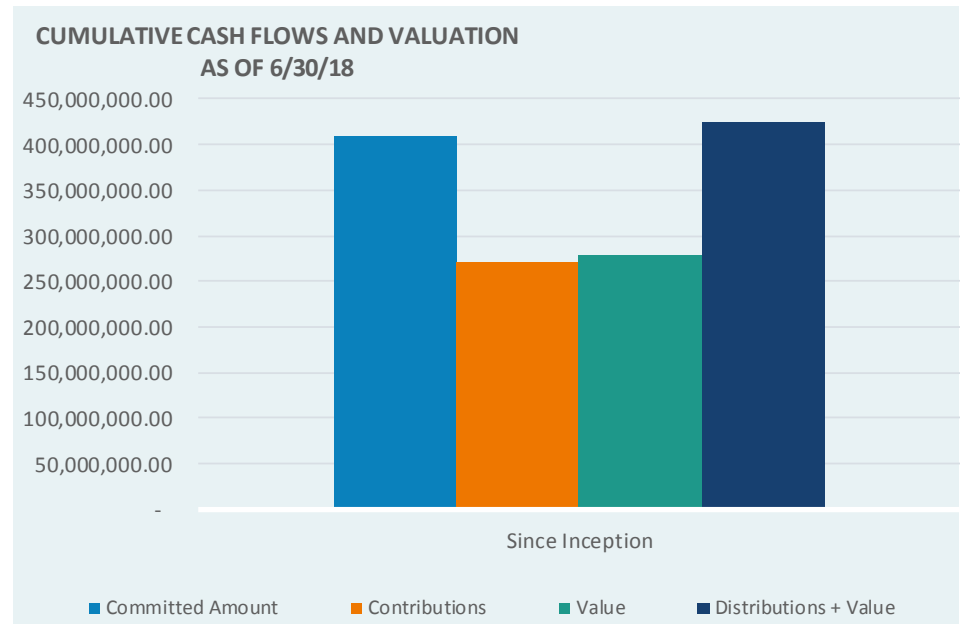
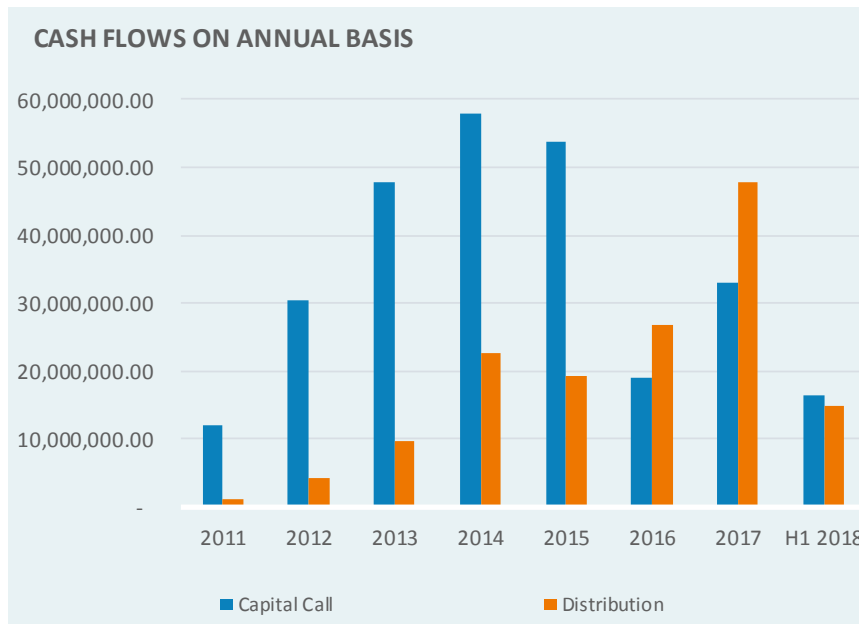
PE Performance

Period Ending: June 30, 2018

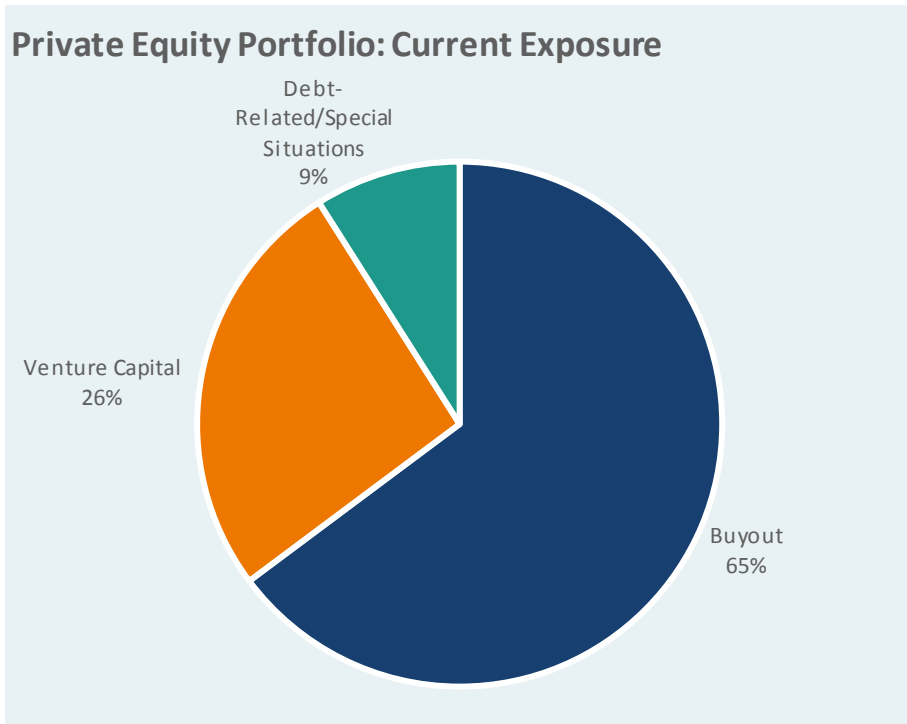
Performance

- The Private Equity portfolio’s performance, as measured by net IRR, is 17.33%, 416 bps above the same cash flow invested in Russell 3000 TR index of 13.17% and 116 bps above Russell 3000 + 3% SamCERA PE benchmark. Capital weighted average investment age of the portfolio is 3.6 years.
- The portfolio is currently valued at \$278.3 million. Together with \$146.1 million in realized distributions, the Total Value at \$424.4 million is approximately \$154.4 million above \$270.0 million total capital contributions, resulting in a total value multiple of 1.57x and a distribution multiple of 0.54x.
- Distributions surpassed contributions in 2016 and 2017 by a ratio of (1.4:1.0) in aggregate, but lagged with a ratio of (0.9:1.0) in 1H’18.

- Attribution of returns:
 - Buyouts up \$92.64 million / +55.6% versus cost (Sycamore and ABRY VII leading), with 47.4% of called capital realized and distributed;
 - Venture Capital up \$47.39 million / +97.8% versus cost (General Catalyst VI, Emergence Capital III, NEA 14, and Third Rock III leading), with 47.4% of called capital realized and distributed; and
 - Debt-related/Special Situations up \$17.61 million / +34.1% versus cost (ABRY Advanced Securities II and III leading), with 85.5% of called capital realized and distributed.
- Within Private Equity, the current allocation of invested capital is 64.8% to Buyout, 26.2% to Venture Capital, and 9.0% to Debt-Related/Special Situations.



| Investment Type | Commitment | Reported Value | Current Exposure as % of Private Equity |
|---------------------------------|--------------------|--------------------|---|
| Buyout | 255,298,000 | 180,297,285 | 64.8% |
| Venture Capital | 59,000,000 | 72,871,469 | 26.2% |
| Debt-Related/Special Situations | 94,500,000 | 25,116,552 | 9.0% |
| Total Private Equity | 408,798,000 | 278,285,306 | 100.0% |

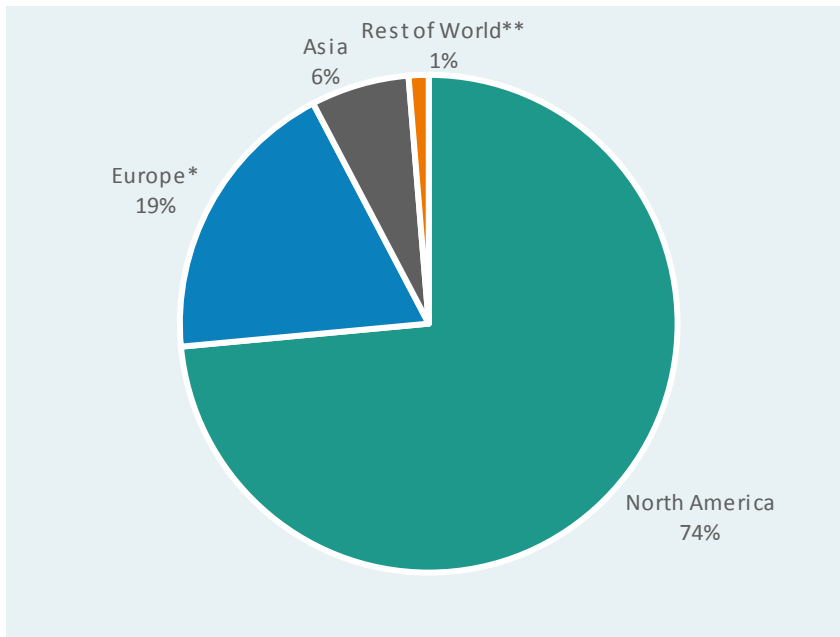


Geography

Portfolio Diversification

Period Ending: June 30, 2018

| Geography | Current Exposure |
|-----------------------------|--------------------|
| North America | 191,955,980 |
| Europe* | 48,939,443 |
| Asia | 16,565,794 |
| Rest of World** | 3,414,845 |
| Total Private Equity | 260,876,062 |



Based on the value of portfolio companies as of June 30, 2018, if provided by the partnerships. Differences between reported value and the total portfolio valuation is due to temporary cash funds, fees, other expenses, and holdings with undisclosed geography breakdown.

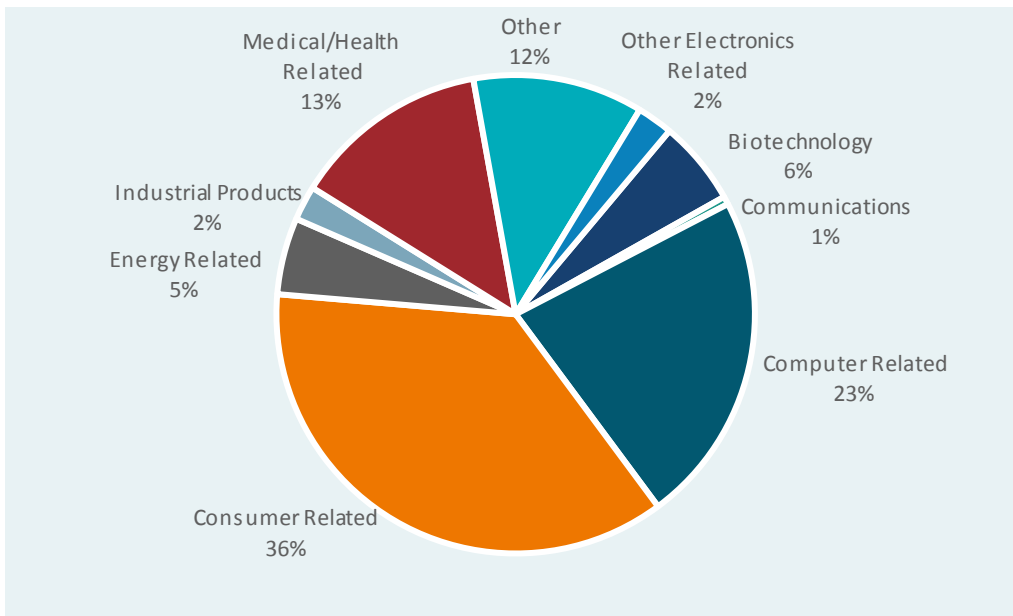
* Europe includes 100% market value from Cevian II.

** Rest of World includes Chile and Australia.

Industry Portfolio Diversification

Period Ending: June 30, 2018

| Industry | Current Exposure |
|-----------------------------|--------------------|
| Biotechnology | 12,747,899 |
| Communications | 1,200,417 |
| Computer Related | 50,053,524 |
| Consumer Related | 81,224,265 |
| Energy Related | 11,580,452 |
| Industrial Products | 5,183,016 |
| Medical/Health Related | 29,609,677 |
| Other | 25,649,776 |
| Other Electronics Related | 5,403,290 |
| Total Private Equity | 222,652,316 |

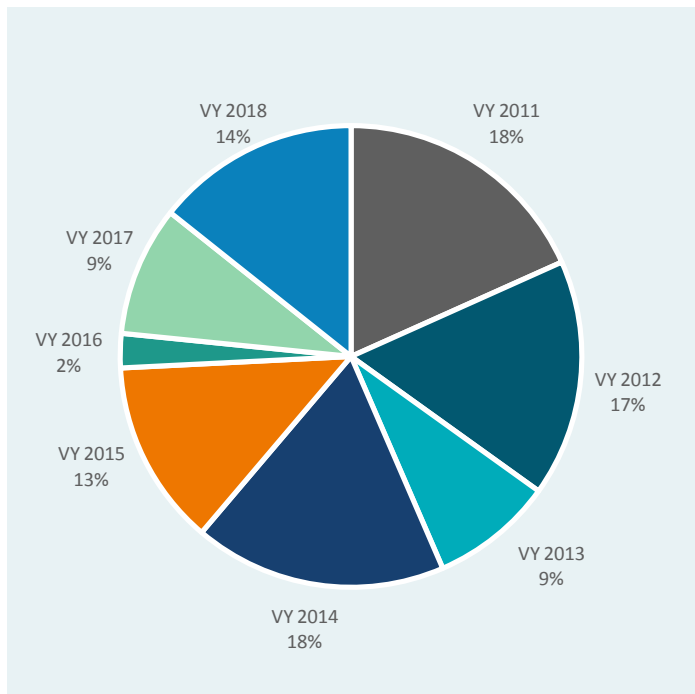


Based on the value of portfolio companies as of June 30, 2018, if provided by the partnerships. Differences between reported value and the total portfolio valuation is due to temporary cash funds, fees, other expenses, and holdings with undisclosed geography breakdown.

Vintage Year Portfolio Diversification

Period Ending: June 30, 2018

| Vintage Year | Commitment as of 6/30/18 | % of Portfolio Commitment | Reported Value as of 6/30/18 |
|-----------------------------|--------------------------|---------------------------|------------------------------|
| 2011 | 75,000,000 | 18.3% | 42,394,953 |
| 2012 | 68,000,000 | 16.6% | 87,123,592 |
| 2013 | 35,000,000 | 8.6% | 49,562,067 |
| 2014 | 72,500,000 | 17.7% | 59,792,717 |
| 2015 | 53,000,000 | 13.0% | 32,426,511 |
| 2016 | 10,000,000 | 2.4% | 879,963 |
| 2017 | 37,000,000 | 9.1% | 6,105,503 |
| 2018 | 58,298,000 | 14.3% | 0 |
| Total Private Equity | 408,798,000 | 100% | 278,285,305 |



- As of June 30, 2018, the Private Equity Portfolio is at the lower end of its target allocation, with exposures within target diversification bands.
- The Private Equity policy target will be reduced from 7.0% to 6.0% effective October 1, 2018.



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PERIOD ENDING: JUNE 30, 2018

Real Assets Review

San Mateo County Employees' Retirement Association

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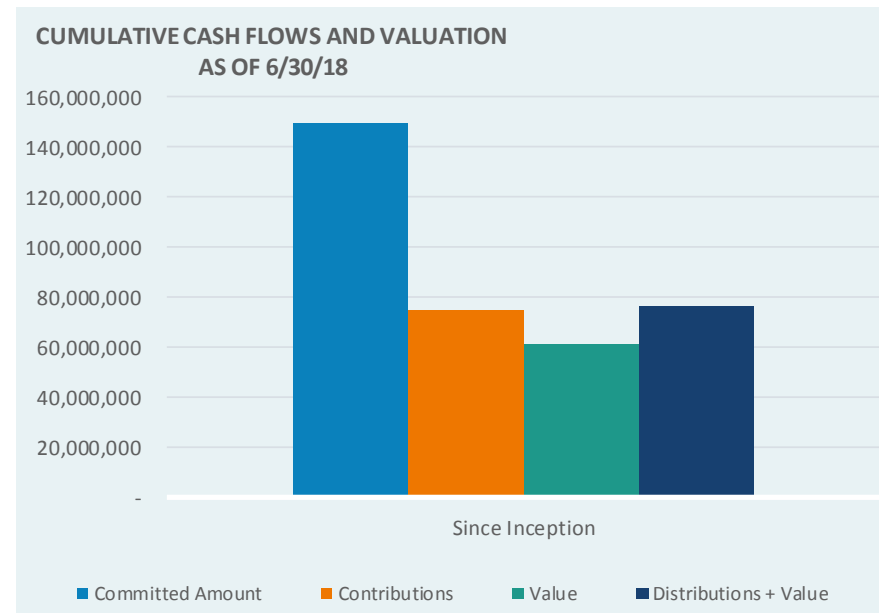
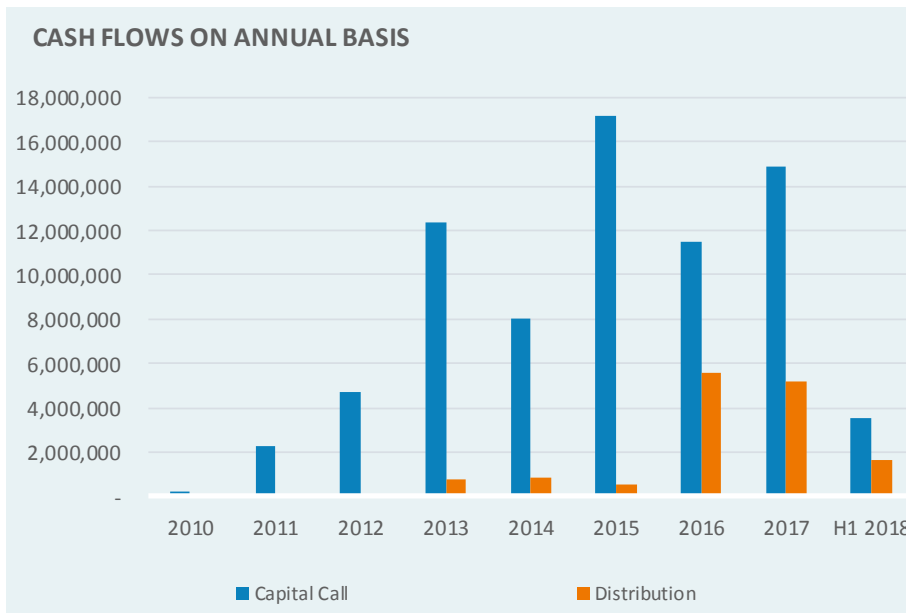
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Performance

- The portfolio is currently valued at \$61.3 million. Together with \$14.6 million in realized distributions, the Total Value at \$75.9 million is approximately \$1.2 million above \$74.6 million total capital contributions, resulting in a total value multiple of 1.02x and a net IRR of 0.61%. Capital weighted average investment age of the portfolio is 3.05 years.
- SamCERA funded a liquid real asset pool in 2016 that seeks to proxy many of the risk exposures targeted in private real assets. SSgA is managing the pool in a mix of passive exposures to infrastructure, natural resource equities and commodities.
- Within Private Real Assets, the current allocation of invested capital is 12.7% to Agriculture, 35.5% to Energy, 18.3% to Mining, and 33.5% to Infrastructure. The Portfolio is expected to be diversified over a period of 3 to 5 years.



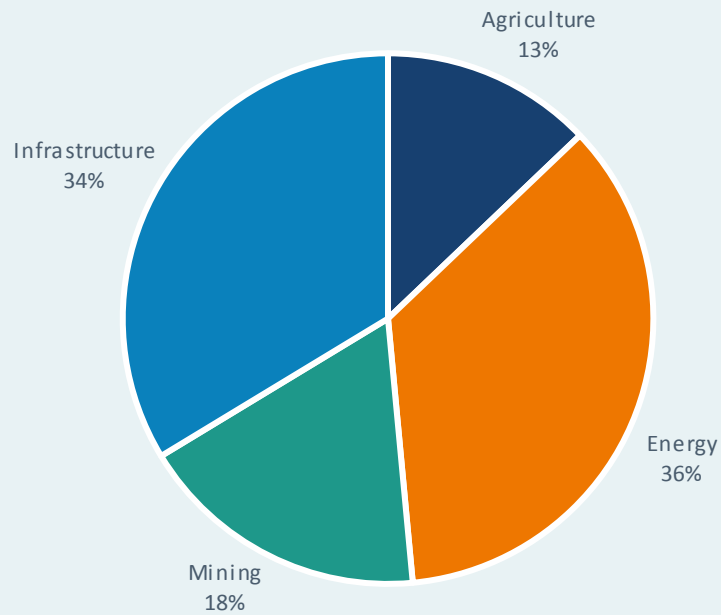
Strategy

Portfolio Diversification

Period Ending: June 30, 2018

| Investment Type | Commitment | Current Exposure | Current Exposure as % of Portfolio |
|------------------------|--------------------|-------------------|------------------------------------|
| Agriculture | 15,000,000 | 7,777,668 | 12.7% |
| Energy | 49,800,000 | 21,761,465 | 35.5% |
| Mining | 30,000,000 | 11,240,131 | 18.3% |
| Infrastructure | 55,000,000 | 20,509,193 | 33.5% |
| Total Portfolio | 149,800,000 | 61,288,457 | 100.0% |

REAL ASSETS PORTFOLIO: CURRENT EXPOSURE

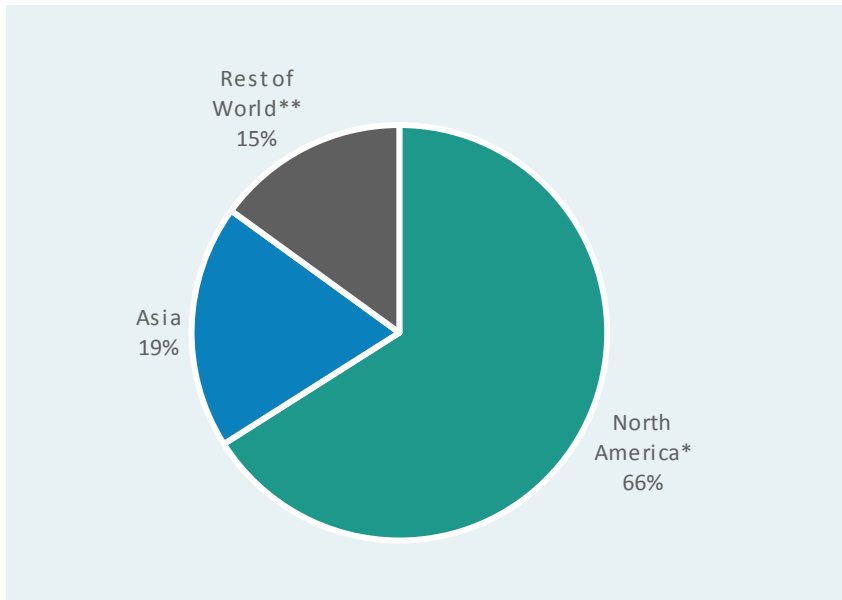


Geography

Portfolio Diversification

Period Ending: June 30, 2018

| Geography | Reported Fair Value |
|------------------------|---------------------|
| North America* | 40,459,383 |
| Asia | 11,565,455 |
| Rest of World** | 9,263,618 |
| Total Portfolio | 61,288,456 |



Based on invested capital as of June 30, 2018, if provided by the partnerships. The portfolio is expected to be US-biased given the mandate to hedge domestic inflation.

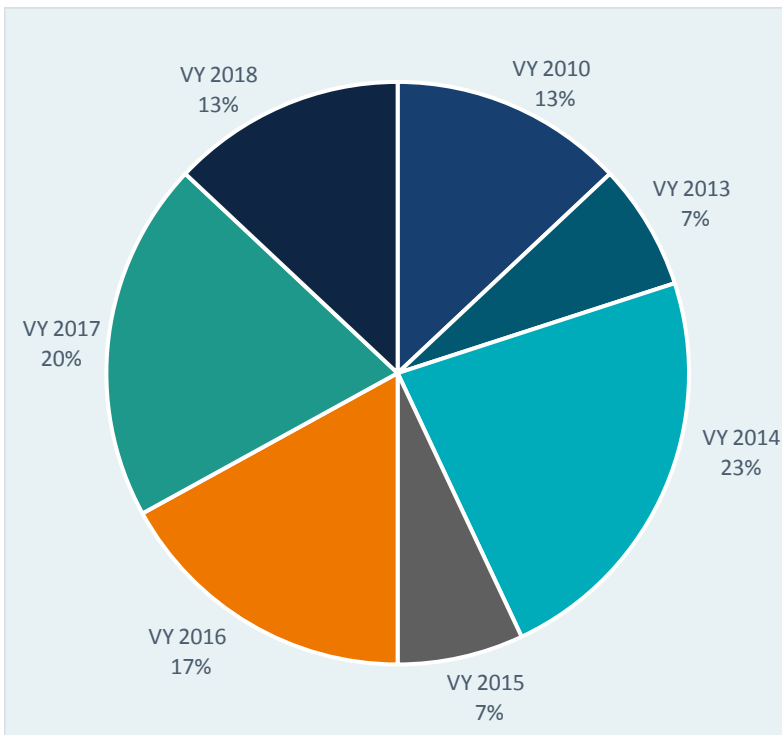
* North America includes 100% market value from Sheridan II-B.

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

Vintage Year Portfolio Diversification

Period Ending: June 30, 2018

| Vintage Year | Commitment as of 6/30/18 | % of Portfolio Commitment | Reported Value as of 6/30/18 |
|------------------------|--------------------------|---------------------------|------------------------------|
| 2010 | 20,000,000 | 13.4% | 9,153,000 |
| 2013 | 10,000,000 | 6.7% | 7,521,141 |
| 2014 | 35,000,000 | 23.4% | 16,378,708 |
| 2015 | 10,000,000 | 6.7% | 13,668,525 |
| 2016 | 25,000,000 | 16.7% | 6,840,668 |
| 2017 | 29,800,000 | 19.9% | 7,726,415 |
| 2018 | 20,000,000 | 13.4% | 0 |
| Total Portfolio | 149,800,000 | 100% | 61,288,457 |



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

- SamCERA committed \$20.0 million to LS Power in April 2018 which will focus on natural gas/renewable power producing assets
- Verus and Staff will be recommending a global infrastructure fund to the Board in December, which if approved will be the fourth infrastructure investment in the private real assets portfolio
- Looking forward, we will be exploring opportunities in non-energy natural resources, re-ups with existing managers in mining finance and a further build-out of the infrastructure portfolio

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 6.5

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer



SUBJECT: Report on Investment Consultant Annual Review

Recommendation

Review the information below summarizing Verus' annual performance evaluation and comment accordingly during the agenda item.

Background

The annual evaluation of SamCERA's investment consultant has three parts:

1. A survey completed by trustees and staff
2. Responses to an annual questionnaire submitted to the consultant
3. A discussion at the Board meeting to present the findings of the survey and questionnaire responses

The survey was provided online, and results were collected from seven trustees and three staff members. There was a total of 19 questions in the survey with each question scored on a range of 1 to 5, with 5 being the highest rating (High). Questions were asked about the general consulting team, the private equity consulting team, and the real assets consulting team. In addition, the survey prompted the Board to provide strategic and educational topics that they would like Jeff MacLean / Verus to cover in 2019.

Discussion

Please refer to the summary of the survey scores below. For each question the responses are broken out and grouped by trustee and staff scores. Within each of these sections the minimum, maximum, and average scores are presented for each question as well.

Both the Board and staff generally marked the components of the evaluation as above average/high, with the Board marking the effectiveness of 'big picture' and strategic advice a bit higher than staff.

In addition, the Board provided the following strategic and educational topics they would like Jeff MacLean/Verus to cover with the Board this upcoming year:

- 1) "Asset allocation in a more protectionist world."
- 2) "Review/confirmation that we are appropriately structured to meet our financial requirements and efforts to be 100% funded. If not, what he recommends."
- 3) "Would like a presentation on what moves we might have to consider during a future market correction, if any. I understand playing the long game and not being over reactive to market corrections, but are there moves we should consider and what might that look like."
- 4) "I am interested in approaches SamCERA can take to remove a little risk as we get 100% or more funded."
- 5) "Discuss the tradeoffs in balancing portfolio simplicity and transparency with accessing private equity, real assets, and alternatives."

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

2018 Survey

| Question | Trustees | | | Staff | | |
|--|----------|-----|-----|-------|-----|-----|
| | Min | Avg | Max | Min | Avg | Max |
| General Consulting | | | | | | |
| 1) How would you rate the general consulting team's ability to effectively convey concise and useful information during Board meetings? | 3 | 4.4 | 5 | 4 | 4.7 | 5 |
| 2) How would you rate the general consulting team's responsiveness to questions and requests? | 3 | 4.3 | 5 | 4 | 4.7 | 5 |
| 3) How would you rate the general consulting team's analytical sophistication? | 4 | 4.5 | 5 | 4 | 4 | 4 |
| 4) How would you rate the effectiveness of the general consulting team's ability to lead strategic initiatives/projects and provide strategic advice (e.g. Asset-Liability Studies, Asset AllocationR eviews, Risk Management)? | 4 | 4.7 | 5 | 3 | 3.3 | 4 |
| 5) How would you rate the effectiveness of the general consulting team's ability to assist and guide the Board on "big-picture" total Fund investment policy and structure on an on-going basis? | 3 | 4.3 | 5 | 3 | 3.7 | 5 |
| 6) How would you rate the quality and/or clarity of the general consulting team's reports (e.g. Monthly Capital Markets Updates, Quarterly Performance Reports, Manager Review Notes, New Manager Investment Recommendations, etc.)? | 4 | 4.6 | 5 | 4 | 4.7 | 5 |
| 7) How would you rate the effectiveness of the general consulting team's educational presentations (e.g. Risk Parity, Currency Hedging, Low Volatility, etc.)? | 4 | 4.3 | 5 | 4 | 4.3 | 5 |
| 8) How would you rate the general consulting team's knowledge of institutional investment practices? | 4 | 4.6 | 5 | 4 | 4.7 | 5 |
| Private Equity | | | | | | |
| 9) How would you rate the private equity consulting team's ability to effectively convey concise and useful information during Board meetings? | 3 | 4.3 | 5 | 4 | 4.7 | 5 |
| 10) How would you rate the quality and/or clarity of the private equity program's reports (e.g. Semi- Annual Private Equity Performance Reports, Private Equity Investment Recommendations)? | 3 | 4.3 | 5 | 4 | 4.7 | 5 |
| 11) How would you rate the private equity consulting team's analytical sophistication? | 4 | 4.6 | 5 | 4 | 4.7 | 5 |
| 12) How would you rate the overall effectiveness of the firm's private equity program? | 4 | 4.3 | 5 | 4 | 4.3 | 5 |
| Real Assets | | | | | | |
| 13) How would you rate the real asset consulting team's ability to effectively convey concise and useful information during Board meetings? | 3 | 4.3 | 5 | 3 | 4 | 5 |
| 14) How would you rate the quality and/or clarity of the real asset program's reports (e.g. Semi- Annual Private Real Asset Performance Reports, Real Asset Investment Recommendations)? | 3 | 4.3 | 5 | 4 | 4.7 | 5 |
| 15) How would you rate the real asset consulting team's analytical sophistication? | 4 | 4.7 | 5 | 4 | 4.7 | 5 |
| 16) How would you rate the overall effectiveness of the firm's real assets program? | 3 | 4.1 | 5 | 4 | 4.3 | 5 |

Attachment

Verus Annual Review Questionnaire



PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS

2018 Annual Review Questionnaire

San Mateo County Employees' Retirement Association

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

Ms. Margaret Jadallah
Managing Director and Senior Consultant

Mr. Stephen Quirk, CFA
Consultant

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Organizational Update

1) Provide an update on Verus' organization, with particular emphasis on

(a) changes to your structure

We do not anticipate significant changes in the next twelve months, except for the possibility of modest changes to ownership as we add new employee shareholders or increase the shareholdings of current owners. The history of our firm has been a steady movement towards broadening the breadth of ownership among our key employees, with the number of shareholders increasing from seven in 2006 to 17 today. We will continue to use equity ownership as a means for attracting and retaining talent and, more importantly, for aligning the interests of our employees with those of our clients.

In June 2017, Verus sold its Strategic Partnership Program (SPP) to Goldman Sachs Asset Management. The SPP was a segment of our discretionary line of business involving two large clients for whom we provided portfolio management services. The sale had no impact on traditional consulting services.

(b) growth of assets/accounts under consultation

Since our last due diligence submission in 2016, assets under consultation have grown by 19.8%.

(c) breakdown by client type, and

| | Number | Assets (\$M) | Average (\$M) | Median (\$M) |
|-----------------------|--------|--------------|---------------|--------------|
| Public | 22 | \$368,709 | \$16,759 | \$8,286 |
| Not-for-Profits | 48 | 37,733 | 787 | 111 |
| Corporate | 22 | 21,570 | 980 | 326 |
| Taft-Hartley | 55 | 18,932 | 344 | 130 |
| Private Wealth Trusts | 8 | 1,821 | 228 | 119 |
| Total | 155 | \$448,765 | \$2,895 | \$197 |

(d) clients gained or lost in the past year

Verus gained 19 clients and lost 8 clients from January 2017 through November 2018 as shown in the tables below. Client confidentiality policies prohibits us from disclosing the names of non-governmental clients.

| Client gained | Assets (\$000) | Date hired |
|----------------------------|----------------|------------|
| Taft-Hartley trust | \$740,850 | 1/2017 |
| Corporate DB plan | \$50,000 | 3/17 |
| San Jose Retirement System | \$5,283,155 | 3/17 |
| Taft-Hartley trust | \$126,363 | 3/17 |
| Taft-Hartley trust | \$49,125 | 4/2017 |
| Educational endowment | \$111,000 | 5/2017 |
| Corporate healthcare | \$1,500,000 | 7/2017 |
| Taft-Hartley trust | \$17,500 | 11/2017 |

| Client gained | Assets (\$000) | Date hired |
|---|----------------|------------|
| Charitable foundation | \$20,525 | 12/2017 |
| Taft-Hartley trust | \$290,000 | 1/2018 |
| Public School Retirement System of Missouri | \$42,000,000 | 1/2018 |
| Taft-Hartley trust | \$155,600 | 1/2018 |
| Taft-Hartley trust | \$381,000 | 5/2018 |
| Education endowment | \$97,500 | 4/2018 |
| Florida Department of Treasury | \$23,000,000 | 6/2018 |
| Missouri State Employees Retirement System | \$11,320,000 | 4/2018 |
| Taft-Hartley trust | \$309,900 | 6/2018 |
| Taft-Hartley Trust | \$200,680 | 6/2018 |

Following is a list of clients that were lost during the same period

| Year | Client Type | Assets \$M | Reason |
|------|--|------------|--|
| 2017 | Not-for-profit | \$259.0 | Chose another provider in RFP process |
| 2017 | Corporate | \$55.6 | Annuitized and closed plan |
| 2017 | Corporate | \$13.6 | Stopped using a consultant |
| 2017 | Taft-Hartley | \$2,653.0 | Stopped using a consultant |
| 2017 | Taft-Hartley | \$3.6 | Plan's declining assets could not justify consulting fees so Verus resigned |
| 2017 | Corporate | \$4.1 | Chose another provider in RFP process |
| 2018 | North Carolina Dept of State Treasurer | \$4,468.4 | Verus served as private markets consultant and the client suspended its private equity program |
| 2018 | Merced County ERA | \$750.0 | Chose another provider in RFP process |

- 2) Please provide a breakdown of the number of clients (and \$AUM) for the past 5 years by the type of service provided (i.e., general consulting, special consulting, OCIO, or other). If any clients have increased or narrowed scope of services, please explain.

| | 2014 | 2015 | 2016* | 2017** | YTD 2018 |
|-------------------------|----------|----------|-----------|-----------|-----------|
| Non-Discretionary (\$M) | \$83,498 | \$97,707 | \$333,083 | \$403,395 | \$439,032 |
| Number | 119 | 123 | 142 | 148 | 150 |
| Discretionary (\$M) | \$20,514 | \$19,870 | \$22,016 | \$3,177 | \$3,536 |
| Number | 4 | 4 | 5 | 7 | 10 |

* The Verus merger with Strategic Investment Solutions, which closed on 12/31/2015, combined the non-discretionary client base and AUA of both firms.

** The loss of discretionary AUM is attributable to the sale of the Strategic Partnership Program, a segment of our discretionary business, to Goldman Sachs Asset Management.

3) **What services does your firm offer in addition to pension fund investment consulting?**

Verus offers the full range of consulting services to pension plans in the DB and DC arenas that are provided by many of our top tier competitors. Three specialty services offered by Verus, which are backed by dedicated resources, specialists and research teams, are not offered by some of our competitors, and are distinguishing capabilities of our firm. These include:

- Private markets consulting
- Risk advisory and monitoring
- Outsourced CIO discretionary services

4) **What percentage of your firm's income comes from pension fund investment consulting (provide breakdown between general, discretionary/OCIO and specialty)?**

| % of Total Revenue | |
|--------------------|-----|
| Non-Discretionary | 95% |
| Discretionary | 5% |

5) **Describe your plans for managing the future growth of your firm. Do you have limitations on the number of clients you intend to accept?**

With respect to client loads, the assignment of new client responsibilities is determined primarily by the fit of the client with the consultant and the consultant’s capacity to take on new relationships. Firm leadership manages consultant workload and maintains excess capacity for new relationships. We do not set limits on consultants’ books of business but assess capacity individually. On average, consultants maintain about seven to ten client relationships. Consultants servicing large, sophisticated clients with complex portfolios and monthly meetings tend to have fewer relationships.

What is the number of clients for the lead and secondary general consultant?

Margaret Jadallah has five clients as lead consultant, and Stephen Quirk has one client as lead consultant and four clients as secondary consultant.

Provide the number of clients for the specialty consultants, Faraz Shooshani and John Nicolini, for the past 5 years. Describe your policies for controlling the workload of the investment consultants (and in particular Faraz Shooshani)?

During the past five years, Faraz Shooshani has served as private markets consultant to seven clients, four of which are currently active. John Nicolini has served as lead and/or real assets consultant to five clients, four of which are active.

Firm leadership is primarily responsible for managing consultants’ workloads. Although we do not set limits on a consultant’s book of business, workload is managed by factors that include (1) a consultant’s seniority and level of experience, (2) the complexity of services required by his or her client accounts, and (3) overall capacity for new relationships. The current client-to-consultant ratio is 7-to-1. Verus’ firm infrastructure supports the firm’s consultants and consulting clients with resources

across all asset classes. Faraz Shooshani heads the firm’s private markets consulting practice and has a team of nine assisting him with research resources across the private market spectrum (venture, buyout, debt-related, real assets, private credit). The private markets team also has dedicated reporting analysts to assist in performance reporting.

Please specify the individuals (up to five) who you feel are key to the success of your firm.

The success of the firm in general and client relationships in particular depends on the efforts of every participant working as a team to achieve the firm’s strategic goals. In this context, every employee is important and has a role to play in engendering success. From a client’s perspective, the lead consultant would be the key to a successful relationship, coordinating and deploying resources and serving as the face of our firm to its organization. The firm’s Management Committee is primarily responsible for setting strategic goals and the future direction of the firm. In view of this high level role, we are naming five of its members as key to the firm’s success.

| | |
|-------------------------|--------------------|
| Jeffrey MacLean | CEO |
| Shelly Heier, CFA, CAIA | President and COO |
| Ian Toner, CFA | CIO |
| Kraig McCoy, CFA | CFO |
| Max Giolitti | Chief Risk Officer |

6) Please specify the individuals (up to five) who you feel are key to the success of Verus’ account relationship with SamCERA.

| | |
|--------------------|----------------------------|
| Margaret Jadallah | Lead consultant |
| Faraz Shooshani | Private markets consultant |
| John Nicolini, CFA | Real assets consultant |
| Joe Abdou, CFA | Consulting associate |
| Stephen Quirk, CFA | Backup consultant |

7) Has your firm been involved in any regulatory or litigation events in the past year?

No.

8) Summarize the coverage for errors and omissions, professional liability, fiduciary insurance or fidelity bonds held by your firm (i.e., amounts and respective carriers) and e-mail the certificates of insurance to investments@samcera.org.

| Type of Insurance | Coverage Amount | Description of Insurance | Company | Rating |
|---|---------------------------|---|--|----------------|
| E & O (Investment Advisor Professional Liability) | \$10m (\$500k deductible) | Insurances against losses caused by breaches of fiduciary responsibilities; protects those that give advice, educated recommendations when doing something they should not have | Allianz Underwriters Insurance Company | A+ by A.M Best |

SAMCERA 2018 ANNUAL REVIEW QUESTIONNAIRE

| Type of Insurance | Coverage Amount | Description of Insurance | Company | Rating |
|---|--|--|--|------------------|
| | | done (error), or neglecting something they should have done (omission). | | |
| D & O (Investment Advisor Management Liability) | \$10m (\$500k deductible) | Provides insurance for negligent acts, omissions or misleading statements by directors and officers of company that result in lawsuits against the company. It reimburses the company when they indemnify Officers and Directors or to reimburse company for claim paid. | Allianz Underwriters Insurance Company | A+ by A.M Best |
| Cyber Policy | \$2m (100k deductible) | Network and information security liability, regulatory defense, multimedia content liability, breach response, crisis management, cyber extortion, business interruption, digital asset restoration, funds transfer fraud. | Coalition Insurance Solutions | A+ by A.M. Best |
| Employment Practices Liability | \$7.5m (100k deductible) | Covers against claims by workers that their legal rights as employees of the company have been violated. | Allianz Underwriters Insurance Company | A+ by A.M Best |
| Financial Institution / Crime Bond | \$1m (\$50k deductible) | Protects against loss from employee, trade, loan, or partner dishonesty, forgery, counterfeit, or loss of property. | Chubb-Federal Insurance Company | A++ by A.M Best |
| ERISA Fidelity Bond | 10% plan assets or \$500k (\$1m if plan holds employer securities per ERISA 407(d)(1)) | Protects against loss from theft or fraud | Hartford Insurance Company | A+ by A.M. Best |
| Commercial General Liability | \$1m per occurrence | Protects from financial loss if liable for property damage or personal and advertising injury caused by our services, business operations, or employees | Travelers | A++ by A.M. Best |

- 9) Update all personnel changes to the Verus team. Indicate the turnover of professional staff (senior management and key professionals) over the past two years (9/2016-9/2018).

| Employee gained | Title | Date hired | Reason |
|--------------------|---------------------------------------|------------|---------------------------------------|
| Eileen Neill, CFA | Managing Director | 9/2017 | Joined LA Office as senior consultant |
| Francis Griffin | Sr Associate Director Private Markets | 4/2017 | Joined Private Markets Team |
| Florentina Furtuna | Associate Director Private Markets | 10/2018 | Joined Private Markets Team |

| Employee lost | Title | Date lost | Reason |
|---------------|---------------------------------------|-----------|---------------------|
| DeWitt Miller | Risk Consultant | 9/2016 | Performance related |
| Teresa Cutter | Consultant | 12/2016 | Care for newborn |
| Derek Kong | Associate Director | 12/2017 | Relocation to NY |
| Ping Zhu | Sr Associate Director Private Markets | 9/2018 | Relocation to NY |

Importantly, SamCERA’s Verus consulting team remains the same as three years ago and was augmented by ongoing strategic input from Verus’ CEO Jeff MacLean and head of consulting Scott Whalen.

- 10) Describe any new potential services/improvements to your existing services being considered.

We are currently working on creating a risk dashboard for SamCERA. We don’t recommend any additional services aside from enhancing the risk management service we provide.

- 11) Describe the relative strength and longevity of your back-office (performance and risk analytics) staff. Please provide a list of the Support Personnel for general consulting and specialty consulting services.

Verus’ 14-person Performance Analytics Group is dedicated to data calculation, reconciliation, and performance evaluation. The group is supervised by Mr. Justin Hatley, Director of Performance Analytics, who reports to the President of the firm. Mr. Hatley has 14 years of experience. SamCERA’s performance analyst, Augienette Castillo, has 21 years of investment experience and has been with Verus for five years.

The risk advisory team, led by the chief risk officer Max Giolitti, provides risk analytics, monitoring and education, and delivers end-to-end services to help clients develop a comprehensive framework for risk management that analyzes and communicates risk in every aspect of their investment program. Mr. Giolitti has over 21 years of industry experience and sits on the Verus investment committee and management committee. Danny Sullivan, FRM, CAIA began his career with Verus in 2011 and Vance Creekpaum, ASA was an actuarial analyst for 4 years prior to joining Verus in 2016.

Verus' senior consultants are supported by consulting associates. The firm's San Francisco office also has an experienced internal consultant, Stephen Quirk, who provides senior level support to clients, including SamCERA, but doesn't travel often.

| Support Personnel for General Consulting and Specialty Consulting | Longevity | Years of experience |
|---|-----------|---------------------|
| Riley Dennison | 8 Years | 9 Years |
| Eric Crowder | 5 Years | 6 Years |
| Kiran Malik, CFA | 5 Years | 6 Years |
| John Crosbie | 3 Years | 3 Years |
| Philip Thomas | 3 Years | 3 Years |
| Stephen Quirk | 7 Years | 23 Years |
| Joseph Abdou, CFA | 3 Years | 11 Years |

- 12) What are the current technologies utilized in supporting the back-office processes? What performance measurement system do you use? Also what risk systems do you utilize in producing ex-post and ex-ante risk reports for clients? Please summarize your maintenance and upgrade policy/plan.

Performance measurement resources

Our main tool for performance measurement and reporting is the InvestorForce Performance Reporting Network (iPRN). InvestorForce clients represent roughly \$3.4 trillion in assets under advisement with over 6,000 institutional plans and 3,000 investment managers. The InvestorForce universe aggregates data submitted by institutional investment consulting organizations using institutional and custodial statements for separate accounts, and investment managers for privately-held or commingled funds. The databases contain at least twenty-five years of performance data on each of the major asset classes. The database is updated monthly. Following is the composition of the InvestorForce performance measurement database:

| Plan Type | Number of Observations | Total Market Value |
|--------------------------|------------------------|--------------------|
| All Plans | 2,037 | \$3.4 Trillion |
| All DB Plans | 974 | \$2.7 Trillion |
| Corporate DB Plans | 291 | \$592.9 Billion |
| Public DB Plans | 296 | \$1.9 Trillion |
| Taft-Hartley DB Plans | 265 | \$176.5 Billion |
| Endowments & Foundations | 581 | \$463.0 Billion |

The InvestorForce platform is distinguished by how it drives greater operational efficiencies in data aggregation, performance calculation, real-time analysis into client, manager and market movement, and timely, automated production of performance reports.

We supplement the InvestorForce with the following tools that we use for alternative investments, style analysis, risk analysis, and other types of portfolio analytics:

| | |
|-------------------------------------|---|
| eVestment Alliance | Public markets database |
| MPI Stylus | Returns-based style analysis, regression analysis |
| MSCI BarraOne | Risk analysis |
| Morningstar Direct | Mutual fund information, analytics, index information |
| Aksia | Hedge fund database |
| Solovis | Private markets analytics and performance platform |
| Preqin | Private markets database |
| Thomson Reuter Cambridge Associates | Private markets database |
| Thomson One VentureXpert | Private equity database |
| Private Informant | Private equity database |
| Preqin | Private equity database |

Risk monitoring and analysis

We evaluate risk/return characteristics of the total portfolio using our proprietary risk allocation system, which interacts with MSCI BarraOne, and the Risk modules built into the InvestorForce platform. Our standard performance reporting delivers deep returns-based risk analytics, which includes ex-post risk metrics at the total fund, asset class composite, and individual manager level, such as standard deviation, tracking error, up-side/down-side capture, alpha, beta, r-squared, information ratio, and Sharpe ratio. In addition, we can offer a full suite of ex-ante, holdings-based risk analytics through our Risk Team.

InvestorForce is continually maintaining its system and upgrading its platform to respond to clients' needs. InvestorForce has a Consultant's Collaborative where InvestorForce's clients get together and agree on initiatives to help guide the platform's improvements and development. This is mutually beneficial in that it saves InvestorForce time tapping each client individually to learn about needs; instead they receive the information from the collaborative. For clients it allows us to streamline requests, allowing InvestorForce to focus on a handful of improvements and enabling positive change more quickly. Verus is an active participant in the Consultant Collaborative.

- 13) **What are your mission critical systems? Has your firm experienced any problems with these systems in the past eighteen months? When were these systems implemented and when were they last upgraded? Do you anticipate any changes to these systems in the next eighteen months?**

Technology is an integral part of our consulting practice. We have an in-house IT group composed of three technology specialists who assist our consulting staff in monitoring, testing and evaluating the tools of our trade. We have spent, on average, 10% of revenue on systems and technology in the last three years and anticipate technology investments to stay roughly between 9-12% of revenue over the next three years. We evaluate all IT systems on an annual basis for feature deficiency. We use automated software to apply operating system security patches as soon as they are available from the manufacturer, and continuously upgrade all internal IT systems to insure we maintain long-term support availability with our various vendors and partners. During the past 12 months we successfully migrated our data center to a new location with improved physical security and environmental controls. In addition to improving our physical server presence, we will be moving several systems to Microsoft Cloud solutions to mitigate our physical on-site disaster footprint.

Our technology infrastructure is a Linux and Windows-based network that allows for secure centralized management of all firewalls, switches and IPS devices as well as endpoint protection. It includes built-

in fail over clustering as well as redundant data replication to safeguard data sets as well as the overall infrastructure that personnel utilize to accomplish necessary business tasks.

- Infrastructure Items
- Redundant Internet Service Providers
- Centrally managed Cisco Firewalls
- Intrusion Prevention System at all points of entry
- Centrally-managed Network Switches
- Centrally-managed Video Security Cameras
- Application and Management Servers
- Linux and Windows based operating system (OS)
- Virtual environment with built in clustering for fail over redundancy
- Fully replicated data sets for additional fail over redundancy
- Fully encrypted cloud-based storage for additional layer of redundancy
- Network Attached Storage (NAS)

We currently employ the following software and databases in aid of our consulting practice:

| | |
|---------------------------------|--|
| InvestorForce | Performance measurement platform |
| Portfolio Risk Dashboard | Internally developed risk management system |
| Asset allocation modeling tools | Proprietary stochastic model, scenario, stress test and risk factor evaluation tools |
| eVestment Alliance | Public markets database |
| MPI Stylus | Returns-based style analysis, regression analysis |
| MSCI BarraOne | Risk analysis |
| Morningstar Direct | Mutual fund information, analytics, index information |
| Aksia | Hedge funds database |
| Solovis | Private markets analytics and performance |
| Preqin | Private markets database |
| Cambridge Associates | Private markets database |
| Thomson One VentureXpert | Private equity database |
| Private Informant | Private equity database |
| Preqin | Private equity database |
| Winklevoss Technologies ProVal | Liability simulation software |

We maintain a secured web portal that allows retrieval of our performance reports and research documents. The portal includes access to daily market value information (if the client’s custodian bank participates) and the ability for clients to run some basic on-the-fly reporting such as performance-to-date at the total fund or individual manager level. This portal will also provide an archive of reports and presentations.

With respect to leveraging information resources across the firm and with our clients, Verus employs several key technologies to drive communication capabilities which include but are not limited to the following:

| | |
|---------------------------|---|
| Skype for Business | Utilized largely for its capabilities which include recording meetings, the sharing of co-worker’s screens and ability to annotate PowerPoint for real-time collaboration among Verus employees. The Skype for Business technologies also include whiteboarding, polling, and built in Instant Messaging for fast and efficient instant |
|---------------------------|---|

| | |
|-------------------------|--|
| | collaboration capabilities across all offices. This technology is also largely utilized for its ability to support HD quality video/audio feeds for fast and efficient communications amongst teams and co-workers. |
| Microsoft Teams | Integrated directly into Office 365 applications, Teams allows for a robust platform which includes many communications features for a team. The Teams platform runs as an “always on” application on Verus employees’ computers and allows for connectivity across multiple hardware device platforms. Committee work and many departments utilize Teams for more efficient collaboration on work products, reducing the use of email. |
| Email | Industry standard email housed in the Office 365 platform is utilized for many day to day communications between Verus Investment employees as well as for outside company communications. |
| SharePoint | Various internal company SharePoint portals are utilized for the collection and distribution of company related content, including finalized marketing and research materials. |
| VPN | Verus has incorporated key security technology that allows for both point-to-point VPN connectivity between all offices and further allows for client VPN connectivity to all offices. The Virtual Private Network protocols allow for an always available secure communications between all offices. This also allows approved employees to securely connect to any/all offices via a secure communications channel. |
| VOIP | Voice over IP has been implemented through all Verus Investments offices to allow for instant and seamless voice communications via 3-digit dial and directory lookup. Although offices are geographically dispersed the integrated VOIP technology allows internal phone calls to route and handle as though all offices act as a single office. |
| CRM | Microsoft Dynamics CRM is utilized as a robust tool for managing client, prospect and manager communications amongst other available tooling. Verus Investments utilizes CRM Online which is a secure cloud-based offering where all backend processes are managed by Microsoft. This also allows for greater flexibility for remote availability and support of multiple hardware devices such as different mobile devices and tablets. |
| Conference Rooms | Each Verus office has multiple conference rooms of varying sizes that support video conferencing, audio conferencing, Skype, Zoom.us as well as GoToMeeting. Each conference room is outfitted with large format HDTVs, high quality external microphones as well as VOIP enabled conference phones. |

Has your firm experienced any problems with these systems in the past eighteen months?

Outside of normal maintenance and sporadic and minimal vendor outages, no significant problems have occurred in the last 18 months.

When were these systems implemented and when were they last upgraded?

Microsoft's Office 365 is the technology driving most of our communication resources. We implemented O365 in the spring of 2014, since then Microsoft has upgraded these systems on a consistent and reliable basis.

Our internal database system was implemented in the summer of 2013 and has been upgraded to stay current with the vendors long term support release.

Our server infrastructure has gone through a complete overhaul that was completed in the fall of 2015. All internal systems are hosted and run on a virtual machine and clustered system with local and offsite redundancy. The specific hardware stack is built upon Dell's VRTX framework.

Do you anticipate any changes to these systems in the next eighteen months?

No.

14) Provide an overview of your firm's business continuity plan.

Verus maintains a written "Business Continuity and Disaster Recovery Plan" that is distributed to all employees. We participated in a comprehensive disaster recovery/business continuity audit in November of 2014. The audit was completed by an independent third party firm and included scenario testing and cyber security response readiness. In the event of business interruption, the current BCDR plan provides for alternative work sites, geographic and service provider diversity, remote access to critical systems, secure laptops with VPN access, and data retention enforcement for data recovery. Verus will continue to conduct DR/BCP testing exercises on a regularly scheduled basis to ensure that this plan is still valid, viable, and can be executed in a timely manner. We were able to live-test certain elements of our BCDR plan during a recent power failure in downtown Seattle. The BCDR plan worked exactly as expected, allowing minimal disruption immediate resumption of our business operations.

Performance

15) Detail your perspective of SamCERA's performance expectations, as spelled out in the contract and SamCERA's Investment Policy Statement, and how your firm is doing relative to those expectations.

The actuarial rate for SamCERA is 6.75%. Based on our current expectations and risk level of the portfolio, Verus forecasts a 5.8% return for the SamCERA portfolio. We believe that return, based on the Plan's strategic asset allocation, incorporates asset allocation that properly reflects the Board and Staff's risk tolerance for the portfolio based on our most recent asset/liability study. We believe that SamCERA's portfolio is well-structured to meet its performance expectations over the long-run.

We acknowledge that over the near-term, the Plan lagged the policy benchmark during a period where equity markets were particularly strong. Risk parity's comparative benchmark, comprised of 60% MSCI World/40% Bloomberg Barclays Aggregate, performed well in recent years and provided a particularly tough opportunity benchmark for a risk-balanced approach. Private equity is compared to a Russell 3000 + 3% 1Q lag benchmark (changed from Russell 3000 + 3% on 4/1/18) which has provided unusually high returns and, similarly, has been difficult to beat.

- 16) Discuss the domestic equity, international equity, fixed income, alternatives, and real estate markets and SamCERA's relative success or failure in the current market.

U.S. Equities

- Outside of emerging markets, equities have remained fairly range bound following the February selloff. As corporate earnings rise and prices stay flat, equity valuations have been pushed down to more attractive levels closer in line with the historical average.
- Concerns over global trade contributed to a choppy month for equities, although no major breakthroughs or setbacks occurred. Global equities were up +2.9% on a hedged basis but currency depreciation acted as a drag (+0.5% unhedged).
- The value premium has delivered anomalously poor performance – the worst 10-year return on record (since 1926). However, because performance differences were due to earnings growth disparity rather than moves in valuation, the price difference between value and growth stocks has remained fairly normal. A tactical opportunity to overweight value is not yet apparent - we believe investors should stay the course.

U.S. Fixed Income

- As expected, the Federal Open Market Committee raised the target range for the fed funds rate by 0.25%, moving the new range to 2.00%-2.25%. The market implied odds for an additional December rate hike are 78% as of October 8th.
- The 10-year U.S. Treasury yield advanced 20 basis points in September, ending the month at 3.06%, just under the year-to-date high of 3.11%. The Fed raised interest rates in June for the second time this year to a target range of 1.8-2.0%. The balance sheet unwind continued as planned with approximately \$18 billion in Treasuries and \$12 billion in MBS coming off each month during the quarter.
- According to the Fed dot plot, officials are expecting two additional rate hikes this year, while market pricing suggests only one more hike. Quicker than expected Fed tightening would represent a key risk to the economy and asset prices.
- The 10-year U.S. Treasury yield ticked up modestly during the quarter to 2.9% while the short-end of the curve rose further. The spread between the 2- and 10-year yields fell to a cycle low of 33 bps at quarter end. By another measure of curve shape, the 10-year yield minus 3-month yield, the curve remains at a level of steepness closer to the longer-term average (92 bps vs. 184 bps average).
- Historically, an inverted yield curve has preceded recessions, but the timing between inversion and recession has been anywhere from one to three years.

International Markets

- The United States, Mexico, and Canada reached an agreement on a new trade deal to replace NAFTA. The new deal, USMCA, included provisions aimed towards protecting the business interests of North American auto manufacturers as well as the wages of their laborers. In addition, the deal opened the Canadian dairy market to U.S. farmers.

- The U.S. imposed 10% tariffs on \$200 billion of Chinese goods on 9/24. The White House claimed that the tariff rate will advance from 10% to 25% at year-end if no progress is made in the meantime. China responded with retaliatory tariffs of 10% on \$60 billion of U.S. imports.'
- Currency volatility has frequently been greater than equity market volatility in recent years, causing return disparity for investors with unhedged international assets. A hedging program could allow investors to significantly reduce or eliminate this uncompensated risk. The J.P. Morgan Emerging Markets Currency Index gained 1.6%, its largest monthly advance since January.

U.S. Real Estate

- Fundamentals remain strong with declining vacancies, increasing NOI growth and moderate new supply. Valuations are getting expensive, especially for high quality core assets in gateway markets. Returns have moderated to normal levels and income has become a larger portion of total returns.
- We remain broadly favorable on real estate given continued strong fundamentals, modest new supply and favorable interest rate environment. Given we are potentially late in the cycle, we would recommend remaining cautious with the use of leverage, excess illiquidity, lower quality assets or strategies with a long time horizon to execute such as complex distress or construction.

Private Equity

- Recent tax legislation is expected to have a positive, though transitory, impact on private equity; key near-term impacts include increased transaction activity fueled by higher free cash flow and increased pricing effect
- Buyout activity in Europe has remained strong; however exits declined as firms continue to focus on deployment of capital
- Investor demand continues to support strong capital flows into private debt, resulting in record levels of U.S. and Europe "dry powder"— defined as committed capital not yet deployed; in Europe, private lenders have to compete with entrenched traditional lenders

In the current market SamCERA has ranked in the 2nd quartile of its peer group for US Equity and International Equity for the 1-year time period ending 9/30/2018. SamCERA ranked in the top quartile in fixed income for the 1-year period ending 9/30/2018. We view the Plan's private equity and real estate returns for the past year to be competitive, whereas absolute return and private real asset returns have lagged over that time period.

At the total plan level, we believe SamCERA is performing in line with expectations in the current market environment and given its relatively conservative strategic asset allocation. Near-term performance has benefited plans with greater equity allocations over those that are more risk balanced.

Investment Consulting Philosophy

- 17) Describe your investment consulting philosophy, including (a) what are your firm's consulting specialties, strengths and limitations (b) your assessment of the value added by your investment philosophy and (c) what sets your services apart from other pension consultants' services?

Our investment advice follows a consistent and research-driven approach that is governed by the following principles:

- Enterprise objectives and risk tolerance guide all decisions.
- Asset allocation and risk exposures drive portfolio results.
- Economic factors and valuations drive long-term asset class returns. This is the rationale behind the tremendous resources that we invest in scenario analyses, macroeconomic research, capital market valuations, and risk and trend analysis.
- Risk and diversification must be viewed through multiple lenses. We view strategic allocation beyond mean variance analysis, and account for the many facets of portfolio risk in our asset allocation modeling.
- Fees and costs impact on long-term performance and must be minimized and justified.
- We act as a true extension of our clients' staff and an advocate for their interests.

We serve as an ERISA §3(21) fiduciary to our non-discretionary clients and an ERISA §3(38) fiduciary to our discretionary clients. We view our role as an extension of our client's staff in the service of the Board or Investment Committee. With respect to investment managers, brokers and other third-party providers, we act as an advocate on behalf of our clients ensuring that providers perform in accordance with guidelines and charge competitive fees.

Risk-based services permeate our entire service offering, an approach that differentiates us from the rest of the industry. Our professional teams have decades of experience applying risk management techniques to create thoughtful, targeted, and customized results. We believe that risk management is a culture, not a system. We, therefore, emphasize education, improved communication, enterprise risk tolerance, policy development; and seek a level of commitment from all parties to enhance the traditional returns seeking approach with a risk-aware mindset.

Lastly, we believe that among independently-owned, generalist consulting firms, Verus has an especially experienced and tenured private markets team which has been in place since 1994. Current Verus clients who incorporate private markets into their retainer relationships work closely and directly with senior professionals on the private markets team.

- 18) Describe and explain your firm's brokerage relationships, money management activities, fee relationships and soft dollar relationships. Include the amount of income derived in the last calendar year from investment managers.

Verus does not have any brokerage arrangement and does not accept soft dollars.

- 19) Provide your assessment of the risks associated with SamCERA's portfolio and describe your firm's risk management capabilities and the tools employed in risk assessment.

The most important risk to pension funds is unfunded liability. The plan's number one priority is to ensure future obligations are met. The two levers that can be pulled to reduce the unfunded liability are: increasing contributions and changing the risk/return profile of the investment portfolio. Comprehensive risk management and a careful determination of an appropriate risk level is especially important in the current low return environment. Chasing returns can result in a risk level that is beyond a Plan's enterprise risk tolerance.

SamCERA's portfolio is structured in alignment with its risk tolerance and considers important factors such as the MOU (County's overfunding) and the financial strength of San Mateo County which enables the Plan to have 6.75% actuarial expected return and a relatively conservative strategic asset allocation compared with many peers. We view the biggest risk in the SamCERA portfolio as peer risk or the risk of being different from peers. Verus is comfortable with this difference and believes that the portfolio is prudently structured, well diversified and well positioned for the future. Moreover, Verus believes that SamCERA would not capitulate and abandon a well-conceived plan at an inopportune time.

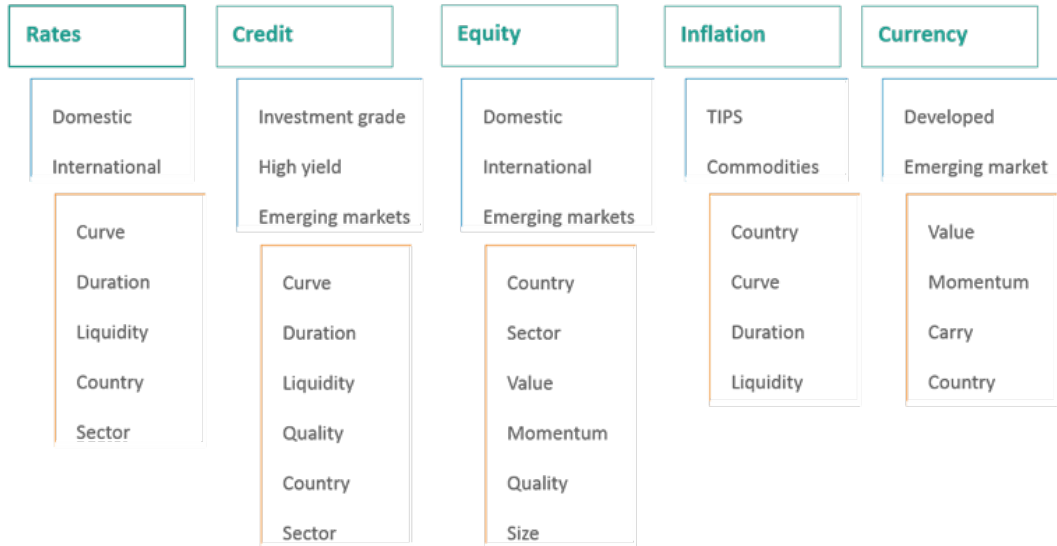
Verus has a risk advisory team that is dedicated to research and delivery of risk advisory services and portfolio analytics. The Risk Advisory Group is headed by Chief Risk Officer Max Giolitti and composed of three professionals who dedicate 100% of their time to risk analysis and monitoring activities. We use MSCI BarraOne software as the backbone of our risk platform and deliver risk analysis through Verus' proprietary Risk Dashboards. This is combined with tools that we have developed to accurately load daily holdings into BarraOne, and efficiently pull risk analytics out of BarraOne for our reporting. The risk team has also developed tools for trend line analysis and daily portfolio risk monitoring. We also use RiskManager, FINCAD, and MPI Stylus Pro. Portfolio construction is driven by our Risk Allocation system, which interacts with MSCI BarraOne, to construct index-based portfolios and download risk data to evaluate the risk and return characteristics of various asset allocation decisions. We can also employ R scripts to power risk-based rebalancing and optimization algorithms.

Verus' Risk Advisory Service has the capability to consolidate all underlying positions and quantify where concentrated risks lie in the portfolio. Our risk advisory service pulls data from custodians and loads it into MSCI BarraOne's risk system. We work directly with MSCI to monitor and direct the implementation and ongoing maintenance of data in the risk system, and provide monthly Risk Dashboard reports, if desired by the client. At this time, SamCERA has opted for index-based analysis which is much more cost effective.

Risk assessment in portfolio construction

Risk factor evaluation is an integral part of our asset allocation methodology to incorporate the impact of absolute and relative risk in portfolio construction. Risk factor evaluation tools allow us to gain deeper insight into portfolio risks. We examine the asset allocation structure relative to five prominent risk factors found in most all asset classes – equity risk, interest rate risk, credit risk, inflation risk, and currency risk – and attribute anticipated volatility, active risk, value at risk, and scenario profit and loss.

Risk premia encompass *primary*, *secondary*, and *tertiary* factors that need to be managed



Our risk-centric approach to modeling takes the following issues into account:

- Liquidity requirements
- Scenario analysis and stress testing
- Downside risk protection
- Tail risk protection strategies
- Risk budgeting

Risk monitoring in manager evaluation

With respect to manager evaluation, we consider risk in several ways. First, we analyze risk historically over different time periods. We monitor both the risk and return of a manager and compare each of them to peers and various benchmarks. Risk can also be ranked against custom peer groups. Second, we measure style and active risk exposure using a regression-like, return-based methodology. We identify where and how much active and style risk is being taken, quantified in terms of the degree to which additional uncertainty (standard deviation) is being added to the asset class through active management. Third, we measure point-in-time exposure to various risk indicators. In domestic equities, we monitor sector and issue concentrations, beta, style drift, price to earnings ratio, price to book ratio, yield, market cap, and growth exposure.

Risk advisory services

The Portfolio Risk Dashboard was designed to communicate risk metrics simply and meaningfully. The dashboard provides clients with a thoughtful risk monitoring framework for oversight of the following:

- Risk allocation – Allocations by risk buckets and asset class analysis
- Risk diversification – Diversification risk factors, geographic, economic sensitivity and ex-ante returns
- Active risk budgeting – What and where are the active risks?
- Primary risk factor analysis – Attributes of rates, credit, equity, inflation and currency risk buckets
- Performance review – Did the portfolio meet the objectives?
- Performance attribution – Positive and negative contributions to absolute and relative returns

20) **What are your recommendation(s) regarding categories of managers appropriate to implement SamCERA's Investment Policy Statement?**

We believe the managers currently in the portfolio, both public and private, are capable of implementing guidelines outlined in SamCERA's Investment Policy Statement. SamCERA has added categories of managers as appropriate as market conditions have evolved. We as a firm advocate for currency hedging and selective incorporation of low volatility approaches, two recent additions to the SamCERA portfolio.

While we are not recommending changes at this time, SamCERA's absolute return managers warrant closer monitoring for near-term underperformance.

21) **Please provide your philosophy around incorporating ESG issues in the management of the pension plan. Do any of your clients currently incorporate ESG issues in their investment process? If so, how?**

The Verus manager research approach seeks to identify products that can add value over the appropriate benchmark and can contribute meaningfully within a total portfolio context. When researching products, we are looking for those that can produce repeatable investment performance. While attention to ESG factors may be part of the approach for an individual product, we do not prioritize it over other factors we assess when assessing investment products. In general, ability to identify companies paying close attention to good governance principles in particular is often part of a strong investment product, while management according to environmental and social factors may not be as strongly integrated by many investment managers.

Nevertheless, we consult on ESG issues and support the ESG values and objectives of approximately 18 clients representing 36 accounts and \$52 billion in assets. Additionally, we have been actively involved in organizing and serving as resource persons for trustee education seminars regarding ESG issues. Moreover, we have designated research into ESG managers and strategies as a high priority initiative in the 2018-2019 time period. Should SamCERA wish to further develop its ESG policy, we are able and eager to help.

- 22) Please discuss any enhancements currently under research or contemplation, such as in the areas of asset liability studies or risk management.

We are currently in the process of setting our research agenda for 2019. A series of TOIs (topics of interest papers) on risk management is a likely addition to the 2019 research agenda. Further research into LDI is another research topic that may be prioritized for the coming year. Verus' actuary is continuing to expand scenario testing on the liability side which can be incorporated into future asset-liability studies.

- 23) Given SamCERA's current plan governance structure, do you recommend any changes in the way the Board/staff/consultant work together in managing and overseeing the plan assets?

We do not recommend any changes to the current governance structure.

Outlook

- 24) What is Verus' outlook for the capital markets? Provide your firm's Capital Market Assumptions.

Our current 10-year risk and return assumptions are as follows:

| Asset Class | Index Proxy | Ten Year Return Forecast | | Standard Deviation Forecast | Sharpe Ratio Forecast (g) | Sharpe Ratio Forecast (a) | 10-Year Historical Sharpe Ratio (g) | 10-Year Historical Sharpe Ratio (a) |
|---------------------------------|--|--------------------------|------------|-----------------------------|---------------------------|---------------------------|-------------------------------------|-------------------------------------|
| | | Geometric | Arithmetic | | | | | |
| Equities | | | | | | | | |
| U.S. Large | S&P 500 | 4.5% | 5.6% | 15.7% | 0.15 | 0.22 | 0.50 | 0.56 |
| U.S. Small | Russell 2000 | 4.4% | 6.5% | 21.5% | 0.10 | 0.20 | 0.36 | 0.44 |
| International Developed | MSCI EAFE | 8.6% | 10.1% | 18.1% | 0.35 | 0.44 | 0.11 | 0.2 |
| International Developed Hedged | MSCI EAFE Hedged | 8.6% | 9.8% | 16.2% | 0.40 | 0.47 | 0.21 | 0.28 |
| International Small | MSCI EAFE Small Cap | 7.9% | 10.2% | 22.7% | 0.25 | 0.35 | 0.24 | 0.33 |
| International Small Hedged | MSCI EAFE Small Cap Hedged | 7.9% | 9.7% | 20.1% | 0.28 | 0.37 | 0.36 | 0.43 |
| Emerging Markets | MSCI EM | 7.3% | 10.4% | 26.6% | 0.19 | 0.31 | 0.17 | 0.28 |
| Global Equity | MSCI ACWI | 6.3% | 7.7% | 17.5% | 0.23 | 0.31 | 0.27 | 0.35 |
| Private Equity | Cambridge Private Equity | 6.4% | 9.3% | 25.8% | 0.16 | 0.28 | 0.93 | 0.92 |
| Fixed Income | | | | | | | | |
| Cash | 30 Day T-Bills | 2.2% | 2.2% | 1.2% | - | - | - | - |
| U.S. TIPS | BBgBarc U.S. TIPS 5 - 10 | 2.6% | 2.7% | 5.5% | 0.07 | 0.09 | 0.57 | 0.59 |
| U.S. Treasury | BBgBarc Treasury 7-10 Year | 2.4% | 2.6% | 6.8% | 0.03 | 0.06 | 0.68 | 0.70 |
| Global Sovereign ex U.S. | BBgBarc Global Treasury ex U.S. | 2.7% | 3.2% | 9.9% | 0.05 | 0.10 | 0.30 | 0.33 |
| Global Sovereign ex U.S. Hedged | BBgBarc Global Treasury ex U.S. Hedged | 2.7% | 2.8% | 3.3% | 0.15 | 0.18 | 1.23 | 1.22 |
| Core Fixed Income | BBgBarc U.S. Aggregate Bond | 2.9% | 3.1% | 6.4% | 0.11 | 0.14 | 1.09 | 1.08 |
| Core Plus Fixed Income | BBgBarc U.S. Corporate IG | 3.3% | 3.6% | 8.4% | 0.13 | 0.17 | 0.81 | 0.81 |
| Short-Term Gov't/Credit | BBgBarc U.S. Gov't/Credit 1 - 3 year | 2.5% | 2.6% | 3.7% | 0.08 | 0.11 | 1.36 | 1.34 |
| Short-Term Credit | BBgBarc Credit 1-3 Year | 2.4% | 2.5% | 3.7% | 0.05 | 0.08 | 1.05 | 1.05 |
| Long-Term Credit | BBgBarc Long U.S. Corporate | 3.5% | 3.9% | 9.4% | 0.14 | 0.18 | 0.64 | 0.67 |
| High Yield Corp. Credit | BBgBarc U.S. Corporate High Yield | 3.7% | 4.3% | 11.6% | 0.13 | 0.18 | 0.64 | 0.67 |
| Bank Loans | S&P/LSTA | 4.9% | 5.4% | 10.5% | 0.26 | 0.30 | 0.48 | 0.51 |
| Global Credit | BBgBarc Global Credit | 1.7% | 2.0% | 7.6% | -0.07 | -0.03 | 0.59 | 0.61 |
| Global Credit Hedged | BBgBarc Global Credit Hedged | 1.7% | 1.8% | 5.0% | -0.10 | -0.08 | 1.01 | 1.00 |
| Emerging Markets Debt (Hard) | JPM EMBI Global Diversified | 5.1% | 5.9% | 12.8% | 0.23 | 0.29 | 0.74 | 0.76 |
| Emerging Markets Debt (Local) | JPM GBI EM Global Diversified | 5.8% | 6.5% | 12.1% | 0.30 | 0.36 | 0.31 | 0.37 |
| Private Credit | Bank Loans + 200 bps | 6.9% | 7.5% | 10.5% | 0.45 | 0.50 | - | - |
| Other | | | | | | | | |
| Commodities | Bloomberg Commodity | 4.3% | 5.5% | 15.9% | 0.13 | 0.21 | -0.33 | -0.25 |
| Hedge Funds | HFRI Fund of Funds | 4.0% | 4.8% | 7.9% | 0.23 | 0.33 | 0.21 | 0.23 |
| Hedge Fund of Funds | HFRI Fund of Funds | 3.0% | 3.8% | 7.9% | 0.10 | 0.20 | 0.21 | 0.23 |

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| Asset Class | Index Proxy | Ten Year Return Forecast | | Standard Deviation Forecast | Sharpe Ratio Forecast (g) | Sharpe Ratio Forecast (a) | 10-Year Historical Sharpe Ratio (g) | 10-Year Historical Sharpe Ratio (a) |
|------------------------------|----------------------------|--------------------------|------------|-----------------------------|---------------------------|---------------------------|-------------------------------------|-------------------------------------|
| | | Geometric | Arithmetic | | | | | |
| Hedge Funds - Equity Hedge | HFRI Equity Hedge | 4.2% | 5.5% | 11.1% | 0.18 | 0.30 | 0.36 | 0.39 |
| Hedge Funds - Event Driven | HFRI Event Driven | 4.5% | 5.6% | 9.9% | 0.22 | 0.34 | 0.55 | 0.57 |
| Hedge Funds - Relative Value | HFRI Relative Value | 3.9% | 4.5% | 6.8% | 0.25 | 0.34 | 0.89 | 0.89 |
| Hedge Funds - Macro | HFRI Macro | 3.3% | 4.7% | 8.5% | 0.12 | 0.29 | 0.43 | 0.44 |
| Core Real Estate | NCREIF Property | 6.0% | 6.7% | 12.7% | 0.30 | 0.35 | 0.77 | 0.75 |
| Value-Add Real Estate | NCREIF Property + 200bps | 8.0% | 9.7% | 19.5% | 0.30 | 0.38 | - | - |
| Opportunistic Real Estate | NCREIF Property + 400bps | 10.0% | 12.9% | 26.0% | 0.30 | 0.41 | - | - |
| REITs | Wilshire REIT | 6.0% | 7.7% | 19.5% | 0.19 | 0.28 | 0.16 | 0.28 |
| Infrastructure | S&P Global Infrastructure | 7.1% | 8.7% | 18.9% | 0.26 | 0.34 | 0.27 | 0.34 |
| Risk Parity | Risk Parity | 7.2% | 7.7% | 10.0% | 0.50 | 0.55 | - | - |
| Currency Beta | Russell Conscious Currency | 2.2% | 2.3% | 4.4% | 0.00 | 0.02 | 0.23 | 0.24 |
| Inflation | | 2.1% | - | - | - | - | - | - |

Our correlation assumptions are as follows:

| | Cash | US Large | US Small | Intl Large | Intl Large Hdg | Intl Small | Intl Small Hdg | EM | Global Equity | PE | US TIPS | US Treasury | Global Sovereign ex US | Global Sovereign ex US Hdg | US Core | US Core Plus | ST Govt/Credit | Short-Term Credit | Long-Term Credit | US HY | Bank Loans | Global Credit | Global Credit Hdg | EMD USD | EMD Local | Commodities | Hedge Funds | Real Estate | REITs | Infra-structure | Risk Parity | Currency Beta | Inflation | | | |
|----------------------------|------|----------|----------|------------|----------------|------------|----------------|------|---------------|------|---------|-------------|------------------------|----------------------------|---------|--------------|----------------|-------------------|------------------|-------|------------|---------------|-------------------|---------|-----------|-------------|-------------|-------------|-------|-----------------|-------------|---------------|-----------|--|--|--|
| Cash | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| US Large | -0.3 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| US Small | -0.2 | 0.9 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intl Large | -0.3 | 0.9 | 0.8 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intl Large Hdg | -0.4 | 0.9 | 0.8 | 0.9 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intl Small | -0.3 | 0.9 | 0.8 | 1.0 | 0.9 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intl Small Hdg | -0.4 | 0.8 | 0.8 | 0.9 | 1.0 | 0.9 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EM | -0.3 | 0.8 | 0.7 | 0.9 | 0.8 | 0.9 | 0.8 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Global Equity | -0.3 | 1.0 | 0.9 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PE | -0.2 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.7 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| US TIPS | 0.0 | 0.2 | 0.1 | 0.3 | 0.1 | 0.3 | 0.2 | 0.4 | 0.3 | 0.1 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | | |
| US Treasury | 0.1 | -0.3 | -0.3 | -0.2 | -0.3 | -0.2 | -0.3 | -0.2 | -0.2 | -0.2 | 0.6 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| Global Sovereign ex US | 0.1 | 0.3 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | 0.4 | 0.0 | 0.6 | 0.5 | 1.0 | | | | | | | | | | | | | | | | | | | | | | | |
| Global Sovereign ex US Hdg | 0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.1 | -0.2 | -0.1 | 0.4 | 0.8 | 0.4 | 1.0 | | | | | | | | | | | | | | | | | | | | | | |
| US Core | 0.0 | 0.0 | -0.1 | 0.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.1 | -0.1 | 0.8 | 0.9 | 0.6 | 0.7 | 1.0 | | | | | | | | | | | | | | | | | | | | | |
| US Core Plus | -0.2 | 0.4 | 0.3 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.1 | 0.7 | 0.5 | 0.5 | 0.4 | 0.8 | 1.0 | | | | | | | | | | | | | | | | | | | |
| ST Govt/Credit | 0.3 | -0.1 | -0.1 | 0.1 | -0.1 | 0.1 | -0.1 | 0.1 | 0.0 | -0.1 | 0.6 | 0.6 | 0.5 | 0.5 | 0.7 | 0.6 | 1.0 | | | | | | | | | | | | | | | | | | | |
| Short-Term Credit | -0.1 | 0.3 | 0.3 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 | 0.1 | 0.6 | 0.2 | 0.4 | 0.2 | 0.5 | 0.8 | 0.7 | 1.0 | | | | | | | | | | | | | | | | | | |
| Long-Term Credit | -0.2 | 0.3 | 0.2 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.0 | 0.6 | 0.5 | 0.5 | 0.5 | 0.8 | 1.0 | 0.5 | 0.6 | 1.0 | | | | | | | | | | | | | | | | | |
| US HY | -0.3 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.4 | 0.5 | -0.2 | 0.3 | -0.2 | 0.2 | 0.6 | 0.2 | 0.6 | 0.5 | 1.0 | | | | | | | | | | | | | | | | |
| Bank Loans | -0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.4 | 0.3 | -0.4 | 0.0 | -0.3 | 0.0 | 0.4 | -0.1 | 0.5 | 0.3 | 0.9 | 1.0 | | | | | | | | | | | | | | | |
| Global Credit | -0.2 | 0.6 | 0.5 | 0.8 | 0.6 | 0.8 | 0.6 | 0.8 | 0.7 | 0.2 | 0.7 | 0.2 | 0.7 | 0.2 | 0.6 | 0.8 | 0.5 | 0.7 | 0.8 | 0.8 | 0.5 | 1.0 | | | | | | | | | | | | | | |
| Global Credit Hdg | -0.2 | 0.5 | 0.4 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.2 | 0.7 | 0.3 | 0.5 | 0.4 | 0.7 | 1.0 | 0.5 | 0.8 | 0.9 | 0.8 | 0.6 | 0.9 | 1.0 | | | | | | | | | | | | | |
| EMD USD | -0.2 | 0.6 | 0.5 | 0.7 | 0.6 | 0.7 | 0.6 | 0.7 | 0.7 | 0.3 | 0.7 | 0.3 | 0.5 | 0.2 | 0.6 | 0.8 | 0.4 | 0.7 | 0.7 | 0.8 | 0.6 | 0.9 | 0.9 | 1.0 | | | | | | | | | | | | |
| EMD Local | 0.0 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.7 | 0.3 | 0.6 | 0.2 | 0.7 | 0.1 | 0.5 | 0.6 | 0.4 | 0.5 | 0.6 | 0.7 | 0.4 | 0.8 | 0.7 | 0.8 | 1.0 | | | | | | | | | | | |
| Commodities | -0.1 | 0.5 | 0.4 | 0.6 | 0.4 | 0.6 | 0.4 | 0.7 | 0.6 | 0.3 | 0.4 | -0.2 | 0.4 | -0.3 | 0.1 | 0.3 | 0.2 | 0.4 | 0.2 | 0.5 | 0.5 | 0.6 | 0.4 | 0.5 | 0.6 | 1.0 | | | | | | | | | | |
| Hedge Funds | -0.4 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.5 | 0.3 | -0.3 | 0.1 | -0.2 | 0.0 | 0.4 | -0.1 | 0.5 | 0.3 | 0.7 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 1.0 | | | | | | | | | |
| Real Estate | -0.1 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.1 | -0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.4 | 1.0 | | | | | | | | |
| REITs | -0.1 | 0.7 | 0.7 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 | 0.7 | 0.4 | 0.3 | 0.0 | 0.4 | 0.1 | 0.3 | 0.5 | 0.1 | 0.3 | 0.4 | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.3 | 0.4 | 0.6 | 1.0 | | | | | | | |
| Infrastructure | -0.3 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.2 | 0.4 | -0.1 | 0.5 | -0.1 | 0.2 | 0.5 | 0.1 | 0.5 | 0.5 | 0.7 | 0.5 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.1 | 0.6 | 1.0 | | | | | | |
| Risk Parity | -0.1 | 0.5 | 0.4 | 0.6 | 0.4 | 0.6 | 0.5 | 0.6 | 0.6 | 0.3 | 0.7 | 0.3 | 0.6 | 0.3 | 0.6 | 0.7 | 0.5 | 0.6 | 0.6 | 0.6 | 0.3 | 0.8 | 0.7 | 0.7 | 0.7 | 0.6 | 0.5 | -0.1 | 0.5 | 0.7 | 1.0 | | | | | |
| Currency Beta | -0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | -0.2 | -0.2 | -0.2 | -0.1 | 0.0 | -0.1 | -0.1 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | -0.1 | 0.0 | 0.1 | 0.0 | 1.0 | | | | |
| Inflation | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | -0.3 | 0.0 | -0.3 | -0.2 | -0.1 | -0.2 | 0.0 | -0.2 | 0.3 | 0.4 | 0.1 | 0.0 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | -0.1 | 1.0 | | | |

Include an explanation of how Verus arrives at its Capital Market Assumptions.

Verus' 10-year capital market assumptions use long-term premiums adjusted for recent market dynamics and consensus financial forecasts and expectations. The assumptions are developed internally by our Strategic Research Group and serve as the foundation of our asset allocation modeling approach. We use a 10-year outlook instead of a shorter time frame for two reasons: (1) capital markets tend to exhibit volatility and irrational investor behavior over the short-term as prices diverge from fair value; and (2) mean reversion may occur over the long-run as prices converge to underlying fundamentals due to long-term investor rationality. The building blocks of our inputs include those elements that historically have been central to performance such as inflation, earnings growth, and cash flow, among others. Within each asset class, the selection of building blocks is made to reflect the appropriate market.

SAMCERA 2018 ANNUAL REVIEW QUESTIONNAIRE

The building blocks of our inputs to the asset allocation model include those elements that historically have been central to performance such as inflation, earnings growth, and cash flow, among others. Within each asset class, the selection of building blocks is made to reflect the appropriate market.

| Asset | Return Methodology | Volatility Methodology |
|---------------------------------|---|--|
| Inflation | 25% weight each to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the TIPS breakeven rate | |
| Cash | Real yield estimate + inflation forecast | Last 10 years of realized volatility |
| Bonds | Nominal bonds: current annualized yield Real bonds: real yield + inflation forecast | Last 10 years of realized volatility |
| International Bonds | Current yield + implied currency effect | Last 10 years of realized volatility |
| Credit | Current option-adjusted-spread + U.S. 10-year Treasury – default rate | Last 10 years of realized volatility |
| International Credit | Current option-adjusted-spread + foreign 10-year Treasury – default rate + implied currency effect | Last 10 years of realized volatility |
| Private Credit | High yield forecast + 2% illiquidity premium | Last 10 years of realized volatility |
| Equity | Dividends (current yield) + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change | Last 10 years of realized volatility |
| International Developed Equity* | Dividends (current yield) + real earnings growth (historical average) + inflation on earnings (international inflation forecast) + expected P/E change + implied currency effect | Last 10 years of realized volatility |
| Private Equity | Small-cap domestic equity forecast + 3% illiquidity premium | 1.2 * last 10 years of realized U.S. small-cap volatility |
| Commodities | Cash + inflation forecast | Last 10 years of realized volatility |
| Hedge Funds | Return coming from traditional betas + 3% (alternative beta and alpha) | 1.65 * last 10 years of realized volatility |
| Hedge Funds (Fund-of-Funds) | Return coming from traditional betas + 3% (alternative beta and alpha) – 1% expected fund of funds management fee | 1.65 * last 10 years of realized volatility |
| Core Real Estate | Cap rate – capex + Inflation forecast | 50% of REIT volatility |
| REITs | Core real estate | Last 10 years of realized volatility |
| Value-Add Real Estate | Core real estate + 2% | Volatility to produce Sharpe Ratio (g) equal to core real estate |
| Opportunistic Real Estate | Core real estate + 4% | Volatility to produce Sharpe Ratio (g) equal to core real estate |

| Asset | Return Methodology | Volatility Methodology |
|-------------|---|------------------------|
| Risk Parity | Expected Sharpe Ratio * target volatility + cash rate | Target volatility |

Non-traditional assets are incorporated into our asset allocation model in an analogous way to traditional asset classes. Expected returns are modeled in the asset allocation process using a “building blocks” approach, meaning we identify the fundamental drivers of return for each asset class and forecast the return for each building block based on data from the current market environment relative to historical movements. Forecasting volatility across these assets is less straightforward due to lack of transparency regarding pricing (appraisal-based, and infrequent valuation). Forecasting correlations of these assets is difficult, due also to infrequent and less dependable pricing. Verus uses the correlation forecasts of BarraOne when forecasting Private Equity and Private Real Estate. Other asset class correlations are forecast using the experienced annualized volatility of the past 10 years as the expected volatility of the coming 10 years. We do not produce an annual forecast for Timber due to the significant difficulties involved in defining the underlying drivers of returns of these assets. We are in the process of publishing an annual forecast for Infrastructure and are currently using the drivers of Core Real Estate as a rough proxy.

25) **What other issues or concerns have been brought up by your other clients in regards to products, markets, risk management, education and governance?**

There have been ongoing concerns about the impact of trade wars on the economy. So far, Verus believes trade is being used as a negotiation tactic as much of the over \$800 billion in tariffs have not been implemented yet.

Currency hedging, low volatility, 130/30 and alt beta strategies are approaches that have been explored for several Verus clients.

Risk management and liquidity analyses are other noteworthy concerns where we are conducting studies for more clients.

Conclusion

26) **Is there any information that would be timely per SamCERA’s Investment Policy Statement or relative to this review?**

We think that SamCERA’s Investment Policy is comprehensive and clear. We have no suggestions for improvement.

Over the past year, Verus assisted a client in revamping its IPS into functional categories (growth, diversifying, real return), and we will be developing an ESG policy for another client in 2019. Should these ideas be of interest to SamCERA, we will assist in enhancing and/or revamping SamCERA’s IPS.

- 27) Are your clients making significant changes in their asset mixes? Please describe these changes. Do you see any trends in asset allocation?

Verus' clients are long-term investors. As such, clients maintain their asset mixes for an extended period of time with incremental changes. Recent trends include modest increases to private equity and increases to and further diversification within real assets. Increases to non-US equity as a percentage of total equity is another trend as valuations in U.S. equity have become stretched.

- 28) What market opportunities should SamCERA be considering?

We have reviewed currency risk with the SamCERA Board, and SamCERA has implemented a half hedge on the international portfolio. We believe there is a benefit to exploring ways to add alpha through currency management (through currency beta or active currency management) as a potential next step in managing currency risk.

- 29) Please provide a preliminary recommendation of what your work plan for the next 12 months should look like given SamCERA's current plan structure and long-term policy targets.

Over the next 12 months, we will be incorporating a risk dashboard review into SamCERA's ongoing workplan so that the Board will regularly view the SamCERA portfolio through a risk lens, looking the risk drivers of the portfolio structure. The first risk dashboard review will take place in December or January. We would also like to add a portfolio liquidity review as an additional item to the work plan in the coming year. As Plans have matured, Verus has enhanced its liquidity analysis capabilities to better measure liquidity in a robust fashion. Lastly, as mentioned above, we would like to explore additional ways to manage currency risk with the SamCERA Board.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 6.6

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

Michael R. Coultrip

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

Recommendation

Approve a commitment of \$30 million to EQT Infrastructure IV, LP, as part of SamCERA's Infrastructure portfolio within private real assets.

Approve a commitment of \$40 million to the PIMCO Private Income Fund within the opportunistic credit sub-asset class within fixed income.

Discussion

In closed session, John Nicolini of Verus will present the potential investment in EQT Infrastructure IV LP, including a review of the firm and investment process.

In closed session, Verus and staff will present the potential investment in the PIMCO Private Income Fund. The investment recommendation will be emailed to the Board prior to the December Board meeting.

Attachments

- A. Verus Memo EQT Infrastructure IV LP (Confidential)
- B. Verus Recommendation EQT Infrastructure IV LP (Confidential)
- C. EQT Infrastructure IV LP Investor Presentation (Confidential)
- D. PIMCO Private Income Fund Presentation (Confidential)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 7.1

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: Agreement with Milliman, Inc. for Actuarial Services

Recommendation

Approve a Resolution Authorizing the Chief Executive Officer to Execute Agreement with Milliman, Inc. for actuarial services not to exceed \$650,000.

Background

SamCERA issued a Request for Proposal (RFP) for actuarial services on August 30, 2018. The RFP solicited proposals from qualified and experienced actuarial firms to serve as an independent actuary to perform services including:

- An annual Actuarial Valuation and review of the Retirement Fund (commencing with the actuarial valuation for the year ending June 30, 2019);
- An annual Disclosure Report pursuant to Governmental Accounting Standards Board (GASB) Statement No. 67 and GASB Statement No. 68 (commencing with the actuarial valuation for the year ending June 30, 2019);
- A Triennial Experience Study (for the year ending June 30, 2020).

SamCERA received responses from our incumbent actuary, Milliman, Inc. along with Segal Consulting, and Cheiron. An Evaluation Committee comprised of Scott Hood, Chief Executive Officer, Gladys Smith, Assistant Executive Officer and Tat-Ling Chow, Finance Officer reviewed the RFP responses and focused on the following evaluation criteria:

- Experience (both quality and quantity) of the proposing organization and its proposed SamCERA Team of actuaries in providing services comparable to SamCERA's needs.
- Expertise in all aspects of actuarial consulting services, preferably as it relates to public defined benefit plans, the County Employees Retirement Law, and the Public Employees' Pension Reform Act.
- Ability to serve as an actuary with respect to required services (e.g. time commitments, number of other clients assigned to proposed SamCERA actuarial team.)
- Proposal quality, conciseness and completeness.
- Sample reports and educational presentation materials.

- Fees.
- Reference checks.

Discussion

After thoroughly reviewing the above information, the Evaluation Committee recommends that the Chief Executive Officer to enter into contract negotiations with Milliman Inc. While all three proposers are all excellent, highly professional and experienced actuarial consulting firms, the Committee decided that Milliman Inc. best fits SamCERA's needs for the following primary reasons:

- **Reliable Work Product:** Milliman has provided SamCERA accurate calculations based on reasonable assumptions as confirmed by our auditing actuary. It has delivered services in a timely fashion and has been responsive to SamCERA's changing needs.
- **Proactive Actuarial Recommendations:** Milliman is proactive and a leader in its analyses and recommendations for critical assumption changes. They were also among the first to recommend generational mortality and reductions in the investment return assumption to reflect the current environment.
- **Strong Client-Service Focus:** For our plan size, Milliman has the right "client to consulting actuary" ratio to ensure its service to SamCERA is not compromised.
- **Strong SamCERA Team:** Nick Collier would be Principal and Consulting actuary and Craig Glyde would be Consulting actuary. Both have worked 25 and 20 years respectively and together for 15 years, with an eye toward succession planning.
- **Reasonable Fees:** Over the five-year term of the agreement, it is projected that Milliman's total fees would fall between those proposed by Cheiron and Segal. This is primarily due to Milliman's lower hourly billing rate for anticipated special projects requested by SamCERA or by our employers.

Contract negotiations will be concluded by December 31, with a start date of January 1, 2019. The resulting agreement will be for an amount not to exceed \$650,000 for a term of five years, with the standard 30-day termination clause. This dollar limit includes estimated costs for special projects throughout the term. The costs for the 2019 annual valuation, GASB 67/68 reports and retainer will be about 5% more than for 2018. These fixed-rate costs increase about 2.5% each year thereafter.

Attachment

Resolution Authorizing Chief Executive Officer to Execute an Agreement with Milliman, Inc. for Actuarial Services

RESOLUTION __

**RESOLUTION AUTHORIZING THE CHIEF EXECUTIVE OFFICER TO EXECUTE AN AGREEMENT
WITH MILLIMAN, INC. FOR THE PROVISION OF ACTUARIAL SERVICES**

- WHEREAS**, pursuant to Government Code Section 31453 and other applicable provisions, the Board of Retirement has a duty to engage the services of an actuary; and
- WHEREAS**, SamCERA staff developed and issued a Request for Proposals (RFP) for actuarial services and three proposals were received; and
- WHEREAS**, an Evaluation Committee evaluated proposal documentation and checked references and recommended to the Chief Executive Officer that contract negotiations commence with Milliman, Inc. ("Milliman"); and
- WHEREAS**, the Chief Executive Officer has accepted that recommendation and believes Milliman best meets the needs of SamCERA and that an agreement be entered into for such services; and
- WHEREAS**, this Board has determined that it is in the best interest of SamCERA to enter into an agreement with Milliman and for the Chief Executive Officer to execute an agreement not to exceed \$650,000.00 with Milliman for the provision of actuarial services.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

December 4, 2018

Agenda Item 7.2

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: 2019 Board-Staff Retreat Topics

Recommendation

Provide direction for staff regarding the topics and schedule for the April 23 and 24, 2019, Board-Staff Retreat.

Background

The annual Board retreat is scheduled for April 23 and 24, 2019. The Board assists on setting the topics to be addressed at the retreat and provides input regarding the proposed presenters. This agenda item gives trustees its first opportunity to discuss retreat topics. We will bring this back to Board again prior to finalizing the agenda.

Discussion

Last year's retreat was condensed to one day. We had the regular meeting early at 8:30 a.m. and then commenced the retreat topics at 9:00 a.m. The retreat featured only 4 major topics: the first was a high-level look at the economy from Sonal Desai from Franklin-Templeton followed by Mike Coultrip and Verus doing the deep dive into the portfolio. In the afternoon we had Jeff MacClean from Verus talk about risk and the retreat ended with a workshop on Strategic Planning with Tom Ianucci from Cortex Applied Research.

The Board should discuss if the retreat should revert to the two-day format or keep the one-day format.

Some suggested topics are included in the following list:

- High level-look at the economy
- Deep Dive into the portfolio
- Addressing liquidity and other issues raised by a maturing benefit plan and the increase in PEPRAs plan membership
- Discussion on the tradeoffs in balancing portfolio simplicity and transparency with accessing private equity, real assets, and alternatives
- Defining what is and preparing for a fully funded status
- Discussion on reducing portfolio risk
- Update on current actuarial topics