Pension Trust

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www.SLOPensionTrust.org

San Luis Obispo County
Pension Trust
SLOCPT

AGENDA

Monday, November 26, 2018 9:30 AM

PENSION TRUST
BOARD OF TRUSTEES

Board of Supervisors Chambers
County Government Center
San Luis Obispo, CA 93408

Materials for the meeting may be found at
http://www.slocounty.ca.gov/Departments/Pension-Trust/Board-of-Trustees

PUBLIC COMMENT

1. Public Comment: Members of the public wishing to address the Board on matters other than scheduled items may do so when recognized by the Chair. Presentations are limited to three minutes per individual.

CONSENT

2. Minutes of the Regular Meeting of October 22, 2018 (Approve Without Correction).
3. Report of Deposits and Contributions for the month of October 2018 (Receive and File).
4. Report of Service Retirements, Disability Retirements and DROP Participants for the month of October 2018 (Receive, Approve and File).
5. Applications & Elections to participate in the Deferred Retirement Option Program (DROP) received through November 9, 2018 (Receive, Approve and File).
6. Request for Reinstatement from Retirement (Recommend Approval).

ORGANIZATIONAL

7. Resolution Number 2018–03: A Resolution Honoring James P. Erb for his service as a Trustee (Recommend Approval)

APPLICATIONS FOR DISABILITY RETIREMENT

None

OLD BUSINESS

None

NEW BUSINESS

8. Resolution Number 2018-04: A Resolution Establishing the Policy for Annual Pensionable Compensation Limits pursuant to the Public Employees Pension Reform Act (Tier 3) (Recommend Approval)

9. Resolution Number 2018–05: A Resolution Establishing the Rate of Interest to be Paid on the Normal Contributions of Members (Recommend Approval)

10. Resolution Number 2018-06: A Resolution Establishing the Rate of Interest to be Paid on the Additional Contributions of Members (Recommend Approval)

11. SLOCPT Staff Compensation and Benefit Revisions (Recommend Approval).

12. Interim adjustment to Executive Secretary and Deputy Executive Secretary Compensation and Benefits (Review, Discuss and Take Action as Appropriate).

INVESTMENTS

13. Quarterly Investment Report for the 3rd Quarter of 2018 – Verus (Receive and File).

14. Monthly Investment Report for October 2018 (Receive and File).

15. Emerging Market Bonds – Addition of Hard Currency Investments to Current Strategy - Verus (Recommend Approval).

16. Private Credit – TPG-TSSP-Capital Solutions Fund Addition – Verus (Review, Discuss, and Direct Staff as necessary).

17. Liquidity Study – Assessing Illiquidity Risk - Verus (Receive and File).

18. Rebalancing Policy and Procedures – Verus (Review, Discuss, and Direct Staff as necessary).

19. Asset Allocation - (Review, Discuss, and Direct Staff as necessary).

OPERATIONS

20. Staff Reports

21. General Counsel Reports

22. Committee Reports:

a. Audit Committee	No Report
b. Personnel Committee	Report
c. PAS Replacement Committee	No Report

23. Upcoming Board Topics (subject to change):
    a. December 17, 2018 (Room 161/162)
        i. Disability case - TBD
        ii. Actuarial Assumptions – Peer Comparisons
        iii. Elected Trustee Vacancy – Appointment

    b. January 29, 2019
        i. Disability case - TBD
        ii. Elected Trustee Replacement Appointee
        iii. Election of Officers
        iv. Board Independence
        v. Board Training Self Assessment
        vi. Organizational Planning

    c. February 25, 2019
        i. 2019 Retiree COLA
        ii. Member Portal Preview and Discussion
        iii. Quarterly Investment Report
        iv. Capital Market Expectations & Asset Allocation Policy – Verus
        v. Investment Policy Peer Comparisons

    d. March 25, 2019
        i. 2019 Actuarial Valuation Planning and Assumptions – Gabriel Roeder Smith
        ii. Employer Contributions Prefunding

24. Trustee Comments

REFERRED ITEMS

None

ADDED ITEMS

None

CLOSED SESSION

None

ADJOURNMENT

Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

OCTOBER 22, 2018
MINUTES
OF THE REGULAR MEETING OF THE PENSION TRUST BOARD OF TRUSTEES

BOARD MEMBERS PRESENT:	**Matt Janssen, President** **Will Clemens, Vice President** **Jim Erb** **Gere Sibbach** **Jim Hamilton** **Jeff Hamm** **Guy Savage**
BOARD MEMBERS ABSENT:	**none**
STAFF:	**Carl Nelson** **Amy Burke**
COUNSEL:	**Chris Waddell**
OTHERS:	**Larry Batchelder, SLOCREA** **Michael Hobbs, SLO County HR** **Jennifer Alderete, Pension Trust** **Dan Andoetoe, retiree**

The meeting was called to order by President Janssen at 9:31 AM, who presided over same.

AGENDA ITEM NO. 1: PUBLIC COMMENT.

None.

ORGANIZATIONAL:

None.

CONSENT:

AGENDA ITEM NO. 2 - 7: CONSENT.

Public comment: None

Upon the motion of Mr. Hamm, seconded by Mr. Erb, and unanimously passed, the following action was taken:

ITEM 2a: The Minutes of the Regular Meeting of September 24, 2018 were approved without correction.

ITEM 2b: The Minutes of the Strategic Planning Meeting of September 24, 2018 were approved without correction.

ITEM 3: The Report of Deposits and Contributions for the Month of September 2018, was received and filed.

ITEM 4: The Report of Service Retirements, Disability and DROP Retirements for the month of September 2018, was received, approved and filed.

ITEM 5: The Report of Applications for participation in the Deferred Retirement Option Program received through October 5, 2018 was received, approved and filed.

ITEM 6: Resolution 2018-02 Modifying and Re-affirming Investment and Banking Authority was approved.

ITEM 7: For the Pension Administration System replacement project – oversight project management, Amendment #2 to the contract with LRWL, Inc. extending the term of the contract to June 2019 was approved.

APPLICATIONS FOR DISABILITY RETIREMENT:

None.

OLD BUSINESS:

None.

NEW BUSINESS:

AGENDA ITEM NO. 8: FINANCIAL AUDITOR – SELECTION – AUDIT COMMITTEE RECOMMENDATION.

Public comment: None

Staff presented the recommendation to retain Brown Armstrong Accountancy for an additional five-year financial audit engagement as proposed by the firm. Mr. Erb reported that it was the recommendation of the Audit Committee of the Board of Trustees to concur with such recommendation. The Audit Committee recommended the five-year engagement with Brown Armstrong, particularly in light of the 2019 implementation of the new Pension Administration System and the advisability of having a consistent audit for a year with such a large change. The Audit Committee directed staff to present an evaluation of Brown Armstrong's performance after three years for the general purpose of being prudent about lengthy auditor engagements.

Upon the motion of Mr. Savage, seconded by Mr. Erb, and unanimously passed, the appointment of Brown Armstrong to an additional five-year audit engagement was approved.

INVESTMENTS:

AGENDA ITEM NO. 10: INDEMNIFICATION AUTHORIZATION.

Public comment: None

Upon the motion of Mr. Janssen, seconded by Mr. Clemens, and unanimously passed, the Board of Trustees approved indemnification pursuant to Section 16.02(j) of the Retirement Plan for the investment in the Harbourvest 2018 Global Fund, L.P.

AGENDA ITEM NO. 11: MONTHLY INVESTMENT REPORT FOR SEPTEMBER 2018.

Public comment: None

Upon the motion of Mr. Sibbach, seconded by Mr. Hamilton, and unanimously passed, the Investment Report for September 2018 was received and filed.

AGENDA ITEM NO. 11: ASSET ALLOCATION.

Staff reported the status of upcoming rebalancing transactions for Fourth Quarter 2018 liquidity needs. This was a no action item regarding investment asset allocations except to apprise the Board of rebalancing activity.

OPERATIONS:

AGENDA ITEM NO. 12: STAFF ORAL REPORTS.

A) Staff reported that a recruitment for an Administrative Assistant replacement was completed and the position filled starting October 22nd.

B) Staff reported that the SLOCPT was prepared to handle any pending retirements that may change as the result of recently imposed/approved SLO County pay changes that included retroactive increases.

C) Staff reported that the SLOCPT would be submitting a Board of Trustees item at the November meeting relative to SLOCPT staff pay and benefit modifications based on recent changes to the SLO County benchmarked positions used by the SLOCPT.

D) The Executive Secretary reported that Verus would be recommending a modification to the strategy applied by Stone Harbor in its Emerging Market Bonds investments at the November 22nd Board of Trustees meeting.

E) The Executive Secretary reported that Verus would be recommending an additional TPG-TSSP Private Credit fund be added to the existing TPG-TSSP DCA private credit fund-of-funds program at the November 22nd Board of Trustees meeting.

F) The Executive Secretary reported that an announcement of the upcoming vacancy in an Elected Trustee position was distributed to all active Plan Members via email on October 11th with a due date for Letters of Interest of November 9th.

G) The Executive Secretary reported that the inclusion of a link to the SLOCPT publication of "The Fiduciary" newsletter in the SLO County

"Inside Scoop" e-newsletter received over 500 clicks – the most of any other article in that particular edition of the e-newsletter.

H) The Executive Secretary reported that the SLOCPT website traffic from Sept. 1st through Oct. 19th was over 1,300 sessions – peaking at over 100 sessions on Oct. 11th when the announcement about an Elected Trustee vacancy was posted.

AGENDA ITEM NO. 13: GENERAL COUNSEL ORAL REPORTS.

General Counsel reported on the status of an ongoing California Supreme Court case CalFire and the purchase of "airtime" as banned by PEPRA.

AGENDA ITEM NO. 14: COMMITTEE REPORTS – AS NEEDED.

A) AUDIT COMMITTEE: Report of recommendation on Auditor selection delivered as part of Agenda Item 8.

B) PERSONNEL COMMITTEE: Counsel reported that the Personnel Committee would be meeting prior to the November Board of Trustees meeting to consider pay and benefit changes for SLOCPT staff and management.

C) PENSION ADMINISTRATION SYSTEM ADMINISTRATION (PASR) COMMITTEE: Nothing to report.

AGENDA ITEM NO. 15: UPCOMING BOARD TOPICS.

The planned topics for the next three board meetings were included in the agenda summary. This is an information item, nothing further to report.

AGENDA ITEM NO. 16: TRUSTEE COMMENTS.

Trustee Savage expressed his thanks to Staff for providing an audio recording of the September 24th meetings that he was not able to attend.

REFERRED ITEMS:

None.

ADDED ITEMS:

None.

CLOSED SESSION:

None.

ADJOURNMENT.

There being no further business, the meeting was adjourned at 10:07 AM. The next Regular Meeting was set for November 26, 2018, at 9:30 AM, in the Board of Supervisors Chambers, New County Government Center, San Luis Obispo, California 93408.

Respectfully submitted,

Carl Nelson
Executive Secretary

REPORT OF DEPOSITS AND CONTRIBUTIONS FOR THE MONTH OF OCTOBER 2018

PP 21 10/12/2018 **By Employer and Tier:**	Pensionable Salary	Employer Contributions	Employer Rate	Employee Contributions	Employer for Employee Contributions	Employee Rate	Combined Rate	Additional Contributions	Buy Backs	**TOTAL Contributions**
County Tier 1	3,750,475.09	878,376.59	23.42%	429,576.92	319,263.82	19.97%	43.39%	1,287.50	64,727.71	**1,693,232.54**
County Tier 2	952,073.06	228,692.74	24.02%	48,056.38	80,032.21	13.45%	37.47%	70.35	709.70	**357,561.38**
County Tier 3	2,522,617.98	566,259.11	22.45%	296,741.56	-	11.74%	34.19%	-	1,217.94	**864,218.61**
Superior Court Tier 1	270,949.42	68,190.80	25.17%	44,015.09	-	16.24%	41.41%	-	-	**112,205.89**
Superior Court Tier 3	76,391.74	18,304.43	23.96%	8,487.96	-	11.11%	35.07%	-	114.54	**26,906.93**
APCD Tier 1	62,190.76	13,723.61	22.07%	7,818.09	4,243.07	19.39%	41.46%	-	-	**25,784.77**
APCD Tier 3	10,196.80	2,204.01	21.61%	1,325.91	-	13.00%	34.62%	-	-	**3,529.92**
Pension Trust Staff Tier 1	7,168.55	1,647.33	22.98%	873.13	665.96	21.47%	44.45%	-	-	**3,186.42**
Pension Trust Staff Tier 2	8,332.80	1,914.88	22.98%	220.82	774.11	11.94%	34.92%	-	-	**2,909.81**
Pension Trust Staff Tier 3	9,414.42	2,117.31	22.49%	1,208.61	-	12.84%	35.33%	-	-	**3,325.92**
LAFCO Tier 1	13,227.91	3,882.79	29.35%	716.94	1,228.88	14.71%	44.06%	-	-	**5,828.61**
	7,683,038.53	1,785,313.60	23.24%	839,041.41	406,208.05	16.21%	39.44%	1,357.85	66,769.89	**$ 3,098,690.80**

PP 22 10/26/2018 **By Employer and Tier:**	Pensionable Salary	Employer Contributions	Employer Rate	Employee Contributions	Employer for Employee Contributions	Employee Rate	Combined Rate	Additional Contributions	Buy Backs	**TOTAL Contributions**
County Tier 1	3,738,233.44	875,908.22	23.43%	428,247.56	318,361.99	19.97%	43.40%	1,287.50	648.63	**1,624,453.90**
County Tier 2	943,581.77	226,849.12	24.04%	47,608.33	79,414.13	13.46%	37.50%	70.35	709.70	**354,651.63**
County Tier 3	2,541,657.57	569,378.40	22.40%	298,010.19	-	11.70%	34.11%	-	1,217.94	**868,606.53**
Superior Court Tier 1	265,626.08	66,666.46	25.10%	43,084.44	-	16.22%	41.32%	-	-	**109,750.90**
Superior Court Tier 3	75,766.30	18,163.66	23.97%	8,433.13	-	11.13%	35.10%	-	114.54	**26,711.33**
APCD Tier 1	62,725.81	13,846.57	22.07%	7,868.25	4,292.75	19.39%	41.46%	-	-	**26,007.57**
APCD Tier 3	10,196.80	2,204.01	21.61%	1,325.91	-	13.00%	34.62%	-	-	**3,529.92**
Pension Trust Staff Tier 1	7,168.55	1,647.33	22.98%	873.13	665.96	21.47%	44.45%	-	-	**3,186.42**
Pension Trust Staff Tier 2	8,332.80	1,914.88	22.98%	220.82	774.11	11.94%	34.92%	-	-	**2,909.81**
Pension Trust Staff Tier 3	9,265.98	2,083.92	22.49%	1,189.05	-	12.83%	35.32%	-	968.72	**4,241.69**
LAFCO Tier 1	13,227.91	3,882.79	29.35%	716.94	1,228.88	14.71%	44.06%	-	-	**5,828.61**
	7,675,783.01	1,782,545.36	23.22%	837,577.75	404,737.82	16.18%	39.41%	1,357.85	3,659.53	**$ 3,029,878.31**

TOTAL FOR THE MONTH	**15,358,821.54**	**3,567,858.96**	**23.23%**	**1,676,619.16**	**810,945.87**	**16.20%**	**39.43%**	**2,715.70**	**70,429.42**	**$ 6,128,569.11**
TOTAL YEAR TO DATE	**168,586,653.11**	**39,000,064.92**	**23.13%**	**18,224,464.84**	**9,239,329.11**	**16.29%**	**39.42%**	**33,764.11**	**207,393.87**	**66,705,016.85**

REPORT OF SERVICE & DISABILITY RETIREMENTS & DROP PARTICIPANTS FOR THE MONTH OF:	OCTOBER 2018

RETIREE NAME	DEPARTMENT	DATE	MONTHLY ALLOWANCE
ECKBERG, RAYDEEN	ASSESSOR	10-03-2018	2171.86
HILLSINGER, LANCE	SOCIAL SERVICES	10-06-2018	4884.51 10.26*
KESLER, CRAIG (DROP)	PUBLIC WORKS ISF	10-01-2018	5993.13 97.22*
PADIN-FUCCIO, JACQUELINE	SOCIAL SERVICES	10-13-2018	1614.51
STAGG, MONICA	BEHAVIORAL HEALTH / RECIPROCAL	10-21-2018	Awaiting calcs
STANOVICH, BETHANN	LIBRARY	10-21-2018	1620.25
YOUNG, ANNETTE	PUBLIC WORKS ISF	10-27-2018	Awaiting calcs
ADDENDUM:			
MINSK, JANNA	PLANNING & BUILDING / RECIPROCAL	06-13-2018	Option selection
DeCARLI, RONALD	PLANNING & BUILDING / RECIPROCAL	09-08-2018	Awaiting calcs
KOVAL, ANDREW B	FACILITIES MANAGEMENT	09-29-2018	Awaiting calcs
LANGO, MICHAEL	GENERAL SERVICES / RECIPROCAL	09-08-2018	Awaiting calcs

** Employee Additional Contribution Allowance (per Sections 5.07, 27.12, 28.12, 29.12, 30.12, and 31.12 of the Plan)*
*** Social Security Coordinated Temporary Annuity (per Section 13.06 of the Plan)*

Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary

Agenda Item 5: Applications & Elections to Participate in the Defered Retirement Option Program (DROP)

Recomendation:

It is recommended that you receive and approve the Application & Election to Participate in DROP for the individuals listed below.

Discussion:

The San Luis Obispo County Pension Trust has received an Application & Election to Participate in DROP from the following members listed below:

DECEMBER 1, 2018	**Don Stever, Information Technology**
DECEMBER 1, 2018	**Nikki Schmidt, Administrative Office**
JANUARY 1, 2019	**Mark Elliott, APCD**
JANUARY 1, 2019	**Brenda Dye, Assessor's Office**

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Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item Number 6: Request for Reinstatement from Service Retirement

Recommendation:

It is recommended that the Board approve the attached request for reinstatement from Regular Service Retirement submitted by retired participant, Dana Fahey.

Discussion:

Article 11 of the Retirement Plan provides that, "Section 11.01: Reinstatement. A Retired Participant may be reinstated from retirement by the Board of Trustees, and thereafter may become a County Employee in accordance with the provisions governing such service, in the same manner as a person who has not been so retired." The Plan is silent on criteria for approving a reinstatement from retirement, and as currently written, requires Board of Trustees approval.

Mr. Fahey's past service and retirement can be summarized as:

- 1989-2002 – SLO County employment (12.9 years) – Probation
- 2002-present – Reserve member (employed in Santa Barbara County)
- 2/1/18 – SLOCPT Service retirement – based on PTSC, benefit formula and average final compensation from his 2002 separation from SLO County
- 1/14/19 – Planned return to SLO County employment

Mr. Fahey has complied with the Plan's requirement by submitting:

- A request for reinstatement letter dated November 9, 2018
- A letter from the SLO County Information Technology Department dated November 7, 2018 confirming the offer of employment to Mr. Fahey

Mr. Fahey is not applying for any Reciprocity between his recent service in Santa Barbara and his Reinstated Service under the SLOCPT.

Upon reinstatement:

- The reinstated Member's Service Retirement Benefit will be canceled (last benefit payment on 12/1/2018)

- The reinstated Member will become an active Member of the Plan and their individual accrual account will be adjusted

- The reinstated Member
    - Accrues new PTSC as a **Miscellaneous Tier 3 Member**
    - Pays Employee contributions at their current age-at-entry rate based on the reinstatement date. Employer contributions are made as well.

- Upon subsequent retirement for the second time, the reinstated Member receives a revised Service Retirement benefit based on the blend of their Prior and Reinstated service:
    - **Prior service** (12.9 years, Tier 1 Probation) is recalculated with the same amount of PTSC and benefit formula, including the updated one-year Final Average Compensation based on the amount either from their prior service or their reinstated service, whichever is higher
    - **Reinstated service –** new PTSCs earned, Tier 3 Miscellaneous with a three-year Final Average Compensation amount from either their prior service or their reinstated service, whichever is higher. If Reciprocity with another retirement system was established (not applicable in this case), it would apply only to the Reinstated Service component of the Service Retirement Benefit, and only for the purposes of recognizing highest average Final Compensation.

The net result may be a higher benefit for the Prior service component of their total service retirement if the Final Average Compensation from the Reinstated Service is at a higher rate. However, the Reinstated Service is under the new Tier 3 benefit level and contribution rates are at a higher, age-related rate. Retirement benefits that would have been paid are suspended during the period of Reinstated employment. Due to a combination of these factors, the net financial impact of reinstating an employee from Retirement is subjective to estimate and could be more expensive or less expensive depending on each individual case.

Respectfully Submitted

Board of Trustees

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Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 8: Resolution No. 2018-04 – Resolution Establishing the Policy for Annual Pensionable Compensation Limits pursuant to the Public Employees Pension Reform Act (Tier 3)

Recommendation:

It is recommended that the Board approve the attached Resolution 2018-04 setting the policy for annual determination of the Tier 3 AB-340 Pensionable Compensation effective January 1, 2019 to be the amount calculated by the California Actuarial Advisory Panel for those included in the Federal Social Security system.

Discussion:

The Public Employees Pension Reform Act of 2012 established a pensionable compensation limit that applies to Tier 3 membership. This amount was specified by PEPRA to equal the January 1, 2013 Social Security maximum wage base of $113,700. PEPRA also specified that this pensionable compensation limit be adjusted annually based on changes in the Consumer Price Index for All Urban Consumers (CPI-U).

In prior years staff has calculated the PEPRA Compensation Limit and presented it to the Board of Trustees for approval. A standardized calculation of this PEPRA Compensation Limit is provided each year by the California Actuarial Advisory Panel (CAAP) (under the State Controllers Office) in late November or December. Staff agrees with a Trustee suggestion from 2017 that the annual PEPRA Compensation Limit be set by Board of Trustees approved policy, and not by annual evaluations. This resolution sets a policy for the annual setting of the PEPRA Compensation Limit by reference to the CAAP calculation. In future years, the annual PEPRA Compensation limit will be reported to the Board as a receive-and-file consent agenda item.

The tentatively approved CAAP calculation of the 2019 PEPRA compensation limits for employees who participate in Social Security is shown on the attached CAAP report. **For 2019 this limit is $124,180 or $59.70/hour.**

The history of PEPRA compensation limits for employees who participate in Social Security is shown below –

2013	$113,700	per PEPRA initial amount
2014	$115,064	+1.2%
2015	$117,020	+1.7%
2016	$117,020	0.0%
2017	$118,775	+1.5%
2018	$121,388	+2.2%
2019	$124,180	+2.3%

Respectfully Submitted

SAN LUIS OBISPO COUNTY
PENSION TRUST

RESOLUTION 2018-04

A RESOLUTION ESTABLISHING THE POLICY FOR SETTING PENSIONABLE COMPENSATION LIMITS ANNUALLY PURSUANT TO THE PUBLIC EMPLOYEES PENSION REFORM ACT EFFECTIVE JANUARY 1, 2019

WHEREAS, Plan Sections 29.03.05, 30.03.05, and 31.03.05 provide for a limitation on Tier 3 AB-340 Pensionable Compensation pursuant to the Public Employees Pension Reform Act of 2012 as amended by Senate Bill No. 13; and

WHEREAS, the limitation on Tier 3 AB-340 Pensionable Compensation was initially set as of January 1, 2013 at one hundred percent of the benefit base specified in Section 403(b) of Title 42 of the United States Code and such amount as of January 1, 2013 was $113,700; and

WHEREAS, Plan Sections 29.03.05, 30.03.05, and 31.03.05 provide for the limitation on Tier 3 AB-340 Pensionable Compensation to be adjusted annually following each actuarial valuation based on changes in the Consumer Price Index for All Urban Consumers; and

WHEREAS, the Board of Trustees on November 27, 2017 established the 2018 Tier 3 AB-340 Pensionable Compensation limit effective January 1, 2018 to be $121,388 annually or $58.36 per hour; and

WHEREAS, staff reports that the State Controllers Office - California Actuarial Advisory Panel annually publishes a calculation of the annual limitation on AB-340 Pensionable Compensation to provide a uniform compensation limit as an administrative advantage applicable to all California public retirement systems; and

WHEREAS, staff recommends that the Board of Trustees set as a matter of policy that the annual Tier 3 AB-340 Pensionable Compensation limit effective January 1st of each year be the amount calculated by the California Actuarial Advisory Panel, at the amount for those included in the Federal Social Security system.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Trustees of the San Luis Obispo County Pension Trust as follows:

1. That, effective January 1, 2019, the limitation on Tier 3 AB-340 Pensionable Compensation is hereby fixed at the amount for those included in the Federal Social Security system calculated by the California Actuarial Advisory Panel annually.

2. That implementation of this Resolution is hereby assigned to the Executive Secretary of this Pension Trust.

Aye Votes: -

No Votes: -
Abstentions: -
Absent: -

ADOPTED: November 26, 2018

Approved as to Form and Legal Effect

____
Chris Waddell
General Counsel

SIGNED: __________________________
Matt Janssen, President
Board of Trustees
San Luis Obispo County Pension Trust

ATTEST: ______________________________
Carl Nelson
Executive Secretary

STATE OF CALIFORNIA

California Actuarial Advisory Panel

Paul Angelo
Senior Vice President
and Actuary
Segal Consulting
Chairperson

John Bartel
President
Bartel Associates
Vice Chairperson

Ian Altman
Managing Partner
Altman and Cronin Benefit
Consultants, LLC

David Driscoll
Principal and Consulting Actuary
Buck Consultants

David Lamoureux
Deputy System Actuary
California State Teachers'
Retirement System

Steve Ohanian
Retired, Former Vice President
and Consultant
Segal

Graham Schmidt
Consulting Actuary
Cheiron, Inc.

Scott Terando
Chief Actuary
CalPERS

November 2, 2018 *(Tentatively Approved)*

SUBJECT: PEPRA Compensation Limit for 2019 (Code Section 7522.10)

To Whom It May Concern:

Pursuant to a request from a Public Agency, the California Actuarial Advisory Panel (the Panel) is publishing this letter to provide a calculation of the Pension Compensation Limits for the Calendar Year 2019.

Background

Pursuant to Government Code section 7507.2(b), the responsibilities of the Panel include "Replying to policy questions from public retirement systems in California" and "Providing comment upon request by public agencies." In 2013, members of the Panel received a request from a public retirement system (the San Joaquin County Employees' Retirement Association) to compute and publish the annual compensation limit prescribed by the California Public Employees' Pension Reform Act of 2013 (PEPRA), as amended by Senate Bill No. 13 (SB 13). This request was made to address a concern that minor calculation or rounding differences could result in different systems calculating slightly different pension compensation limits.

The Panel agreed to calculate the dollar amounts of the pension compensation limits for 2014 and future years, as we believe that the use of a uniform compensation limit will provide administrative benefits to California's public retirement systems. However, as the Panel is an advisory body only (Government Code section 7507.2(e) states that "The opinions of the California Actuarial Advisory Panel are nonbinding and advisory only"), the Panel encourages each system to independently review the calculation of the pension compensation limits contained in this letter.

State Controller's Office
California Actuarial Advisory Panel
c/o State Accounting and Reporting Division
P.O. Box 942850, Sacramento, CA 94250
Phone: 916-322-3702 Fax: 916-323-4807

Analysis

Section 7522.10 of the Government Code is as follows:

7522.10. (a) On and after January 1, 2013, each public retirement system shall modify its plan or plans to comply with the requirements of this section for each public employer that participates in the system.
(b) Whenever pensionable compensation, as defined in Section 7522.34, is used in the calculation of a benefit, the pensionable compensation shall be subject to the limitations set forth in subdivision (c).
(c) The pensionable compensation used to calculate the defined benefit paid to a new member who retires from the system shall not exceed the following applicable percentage of the contribution and benefit base specified in Section 430(b) of Title 42 of the United States Code on January 1, 2013:
(1) One hundred percent for a member whose service is included in the federal system.
(2) One hundred twenty percent for a member whose service is not included in the federal system.
(d) (1) The retirement system shall adjust the pensionable compensation described in subdivision (c) based on the annual changes to the Consumer Price Index for All Urban Consumers: U.S. City Average, calculated by dividing the Consumer Price Index for All Urban Consumers: U.S. City Average, for the month of September in the calendar year preceding the adjustment by the Consumer Price Index for All Urban Consumers: U.S. City Average, for the month of September of the previous year rounded to the nearest thousandth. The adjustment shall be effective annually on January 1, beginning in 2014.

The annual compensation pensionable compensation limit computed by the Panel for 2018 was $121,388 for those included in the federal Social Security system and $145,666 for those not included.

The Consumer Price Indices for All Urban Consumers (CPI-U) U.S. City Average for the months of September 2017 and 2018 are as follows[1]:

- September, 2018: 252.439
- September, 2017: 246.819

The annual change, computed by dividing the 2018 Index by the 2017 Index, rounded to the nearest thousandth is as follows:

- 252.439 ÷ 246.819 = 1.023

[1] http://data.bls.gov/timeseries/CUUR0000SA0

Applying this annual adjustment to the 2018 limits yields the following limits for calendar year 2019:

- $121,388 x 1.023 = $124,180 (included in federal system)
- $145,666 x 1.023 = $149,016 (not included in federal system)

The indexation of the maximum compensation to be used by CalSTRS using the February CPI-U, based on AB 1381 passed by the legislature in 2013, is not addressed in this letter.

Conclusion

The calculations described above indicate the compensation limit for PEPRA members for Calendar Year 2019 will increase to $124,180 for members participating in the federal system (7522.10(c)(1) limit) and $149,016 for members not participating in the federal system (7522.10(c)(2) limit). The Panel intends to provide similar calculations in future years. The contents of this letter are nonbinding and advisory only, and we encourage each public retirement system to independently evaluate these calculations.

Sincerely,

Paul Angelo
Chair, California Actuarial Advisory Panel

cc: Panel members
John Bartel, Vice Chair
Ian Altman
David Driscoll
David Lamoureux
Steve Ohanian
Graham Schmidt
Scott Terando

DRAFT

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Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 9: Resolution No. 2018-05 – Establishing the Rate of Interest to be paid on the Normal Contributions of Members

Recommendation:

It is recommended that the Board approve the attached Resolution 2018-05. This resolution establishes the rate of interest to be paid on Normal Contributions of Members for the period beginning December 16, 2018 and ending December 14, 2019 at **6.000%.** This rate can be changed at the discretion of the Board of Trustees at any time.

Discussion:

With respect to the establishment of the interest crediting rate for Normal Contribution Accounts, action is taken annually by the Board pursuant to Retirement Plan Section 5.06: Accounting for Contributions. Section 5.06 Accounting For Contributions reads as follows:

> The Normal Contributions of Members will be accounted for separately and will be credited with interest as of the last day of each pay period at an annual rate to be determined by the Board of Trustees.

The Retirement Plan is silent as to the method the Trustees use to determine the rate of interest to be credited to a Member's Normal Contribution Account. The practices of other retirement systems in setting a crediting rate for normal contributions vary widely. In the normal case where a Member proceeds to receive a service retirement benefit, the crediting rate for Normal contributions has minimal significance. This is because the retirement benefit is funded by a blending of the Member's Normal Contribution Account and the other reserves (i.e., employer contributions and investment earnings) within the Plan.

If a Member separates service and elects to take a Termination Refund of their Normal Contributions, the interest credited to that account is also paid out to the Member. The loss of the interest in the account is substantially offset by the reduction in liability that was being accrued by the former Member. However, when the interest crediting rate exceeds the rate of return generated by the investment portfolio the interest credited to the Normal Contribution Account implicitly comes from the other reserves within the Plan. The amount of impact on the Plan from Termination Refunds is expected to be minimal because actuarial experience shows that once a Member becomes vested at five years of service the probability of a refund is low.

Last year the Board set the rate of interest to be credited to the Member Normal Contribution Accounts as shown in the table below. Based on the same rationale, Staff's recommendation is to set the interest to be credited to the Member Normal Contribution Accounts at **6.000%** for 2019 as shown in the table below. **Alternative amounts for setting this rate of interest are also possible and within the discretion of the Board.**

	2018 Adopted	**2019 Recommended**
Actuarial Earnings Assumption (current year)	7.125%	**7.000%**
Less	1.000%	**1.000%**
Interest Rate on Member Normal Contributions	6.125%	**6.000%**

Also, it is important to note, that this rate can be changed at the discretion of the Board at any point which allows for further adjustments in conjunction with future considerations of actuarial assumptions to be used.

Note that the attached resolution contains an automatic setting of the rate back to 4.50% starting December 15, 2019. The intent of this provision is to establish that the rate can be reduced at the discretion of the Board. This does not bind whatever decision the Board of Trustees may make in establishing the rate of interest being paid on Member Normal Contribution Accounts for periods after 2019.

Respectfully Submitted,

SAN LUIS OBISPO COUNTY
PENSION TRUST

RESOLUTION 2018-05

A RESOLUTION ESTABLISHING THE RATE OF INTEREST TO BE PAID ON THE NORMAL CONTRIBUTIONS OF MEMBERS FOR THE PERIOD BEGINNING DECEMBER 16, 2018 AND ENDING DECEMBER 14, 2019

WHEREAS, Plan Section 5.06 provides for the crediting of interest on Member's Normal Contributions at an annual rate to be determined by this Board of Trustees; and

WHEREAS, the duties of this Board of Trustees under Plan Section 16.02 require the Board to interpret, construe and apply all provisions of the Plan, and to approve interest rates; and

WHEREAS, pursuant to the above-mentioned Plan Sections, this Board of Trustees, at the Regular Meeting of November 27, 2017, adopted Resolution 2017-07, fixing the rate of interest to be paid on Normal Contribution Accounts at six and five-eighths percent (6.125%); and

WHEREAS, this Board of Trustees has determined that for the period beginning December 16, 2018, establishing the current rate of interest at six percent (6.000%) would be a reasonable and prudent discharge of the above-mentioned duties and a prudent application of funds; and

WHEREAS, uncertainty as to current economic conditions, and volatility of interest rates constitute sufficient cause for the Board of Trustees to limit an increase in said current rate to the period specified above, by returning said rate to four and one-half percent (4.50%), commencing December 15, 2019.

NOW THEREFORE, BE IT RESOLVED by the Board of Trustees of the San Luis Obispo County Pension Trust as follows:

1. That, for the period beginning December 16, 2018, and ending December 14, 2019, the annual rate of interest to be credited to the normal contributions of Members, under Plan Section 5.06 is hereby fixed at six percent (6.000%);

2. That commencing December 15, 2019, and thereafter, the annual rate of interest to be credited to the normal contributions of Members under Plan Section 5.06 is hereby fixed at four and one-half percent (4.50%);

3. That implementation of this Resolution is hereby assigned to the Executive Secretary of this Pension Trust.

Aye Votes: -
No Votes: -
Abstentions: -
Absent: -

ADOPTED: November 26, 2018

Approved as to Form and Legal Effect

____
Chris Waddell
General Counsel

SIGNED:____________________________
Matt Janssen, President
Board of Trustees
San Luis Obispo County Pension Trust

ATTEST: ____________________________
Carl Nelson
Executive Secretary

Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 10: Resolution No. 2018-06 – Establishing the Rate of Interest to be paid on the Additional Contributions of Members

Recommendation:

It is recommended that the Board approve the attached Resolution 2018-06. This resolution reaffirms the following policy the rate of interest to be paid on Member Additional Contributions for the period beginning December 16, 2018 and ending December 14, 2019 at **2.94%.**

Discussion:

Section 5.07 of the Retirement Plan sets forth the provisions governing the Additional Contribution Accounts. The section provides that this account is designed to provide additional benefits.

Historically, there have been three sources of Additional Contributions. These are as follows:

1. Voluntary Contributions made by members.
2. "Spill-over" contributions as a result of Employer Paid for Employee Normal Contributions (also known as the "pick up") in excess of the Member's required contribution rate. This source of additional contributions has become substantially less significant due to recent contribution rate increases, as Employers have bargained for the most part with employee groups to split these required increases on a 50/50 basis.
3. Distributions of excess earnings from SLOCPT.

In order to determine an appropriate interest crediting rate for the additional Contribution Account the practice initiated in 2009 for Plan Years 2010-2017 was to use the interest crediting rate being paid by the Great-West Guaranteed Government Fund that was one of the stable value, low-risk options available in the Deferred Compensation program. With the transition of the Deferred Compensation Plan to Nationwide in 2017, this benchmark was updated in 2017 to use the yield on Five Year Treasury Bonds as of September 30th of each year.

Staff recommends for 2019 the interest to be paid on Additional Contribution Accounts be set at the September 30th yield on Five Year Treasury Bonds which is 2.94%.

This action is taken annually by the Board pursuant to Retirement Plan Section 5.07: Additional Contributions.

Respectfully Submitted,

SAN LUIS OBISPO COUNTY
PENSION TRUST

RESOLUTION NO. 2018-06

A RESOLUTION ESTABLISHING THE RATE OF INTEREST TO BE PAID ON THE ADDITIONAL CONTRIBUTIONS OF MEMBERS FOR THE PERIOD BEGINNING DECEMBER 16, 2018 AND ENDING DECEMBER 14, 2019

WHEREAS, Plan Section 5.07 provides for the crediting of interest to Member Additional Contributions at an annual rate to be determined by this Board of Trustees; and

WHEREAS, the duties of this Board of Trustees under Plan Section 16.02 require the Board to interpret, construe and apply all provisions of the Plan, and to approve interest rates; and

WHEREAS, at the Regular Meeting of the Board of Trustees held November 23, 2009, the Board of Trustees reviewed the matter of crediting Additional Contribution Accounts with appropriate rates of interest, such that participants in said Additional Contribution Accounts receive a rate of return that is consistent with the funding requirements of the Trust; and

WHEREAS, the Board of Trustees finds that portfolio performance on a year-over-year basis is potentially volatile, and that such volatility in the determination of the interest crediting rate is not desirable and, therefore a more stable and objective benchmark to determine the rate of interest credited to the Additional Contribution Accounts is preferable, and

WHEREAS, the Board of Trustees affirms the policy recommendation that the rate of interest to be determined and applied to the Additional Contribution Account be established in a range of not less than 0% and not greater than the established actuarial assumption rate; and

WHEREAS, said policy will ensure the principal amount of a Member's contributions be preserved; and

WHEREAS, the staff recommends and the Board of Trustees finds that the yield on Five Year Treasury Bonds as of September 30th of each year provides a reasonable and objective benchmark for the determination of the appropriate interest crediting rate for Additional Contribution Accounts; and

WHEREAS, based on the foregoing, the rate of interest to be credited to the Employee Additional Contribution Accounts be established for 2019 at a rate of 2.94%.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED by the Board of Trustees of the San Luis Obispo County Pension Trust as follows:

1. That, for the period beginning December 16, 2018, and ending December 14, 2019, the annual rate of interest to be credited to the Member Additional Contribution Accounts, under Plan Section 5.07 is hereby fixed at 2.94%.

2. That commencing December 15, 2019, and thereafter, the annual rate of interest to be credited to the Member Additional Contributions Account under Plan Section 5.07 shall be determined annually by action of the Board of Trustees and may be based on the yield on Five Year Treasury Bonds as of September 30th of each year or a comparable investment.

3. That implementation of this Resolution is hereby assigned to the Executive Secretary of this Pension Trust.

Aye Votes: -
No Votes: -
Abstentions: -
Absent: -

ADOPTED: November 26, 2018

Approved as to Form and Legal Effect

____
Chris Waddell
General Counsel

SIGNED: ________________________
Matt Janssen, President
Board of Trustees
San Luis Obispo County Pension Trust

ATTEST: ____________________________
Carl Nelson
Executive Secretary

Board of Trustees
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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Chris Waddell – General Counsel

Agenda Item 11: SLOCPT Staff Compensation and Benefit Revisions

The report will be distributed under separate cover following preparation.

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Board of Trustees

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San Luis Obispo County Pension Trust

SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Chris Waddell – General Counsel

<u>Agenda Item 12: Interim adjustment to Executive Secretary and Deputy Executive Secretary Compensation and Benefits</u>

The report will be distributed under separate cover following preparation.

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San Luis Obispo County Pension Trust
SLOCPT

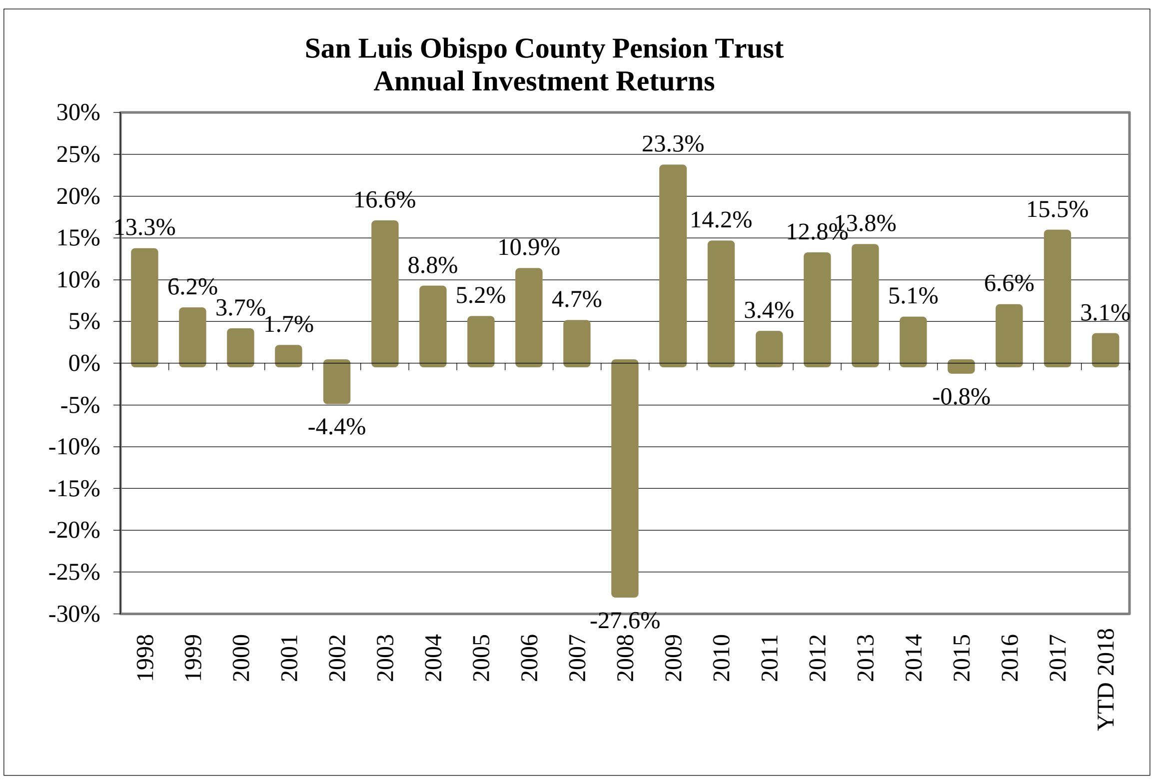
Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 13: Quarterly Investment Report for the 3rd Quarter of 2018

Attached to this memo is the 3Q18 quarterly investment report prepared by the Trust's investment consultant Verus. Scott Whalen of Verus will make a detailed presentation and discuss the quarterly report. The long-term history of the rates of return gross of fees of the Pension Trust are shown below as an extension of the data in the Verus report.



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Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: SEPTEMBER 30, 2018

Investment Performance Review for

San Luis Obispo County Pension Trust

Agenda Item 13

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Verus

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 300-297-1777
SAN FRANCISCO 415-362-3484

Verus

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

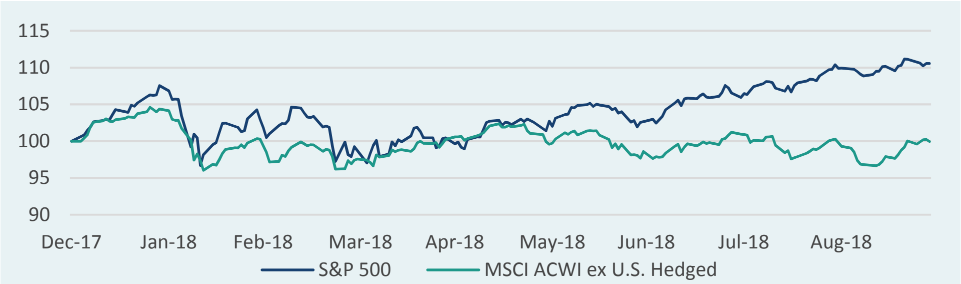
"No breakthrough in U.S.-China trade talks as new tariffs kick in"

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

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

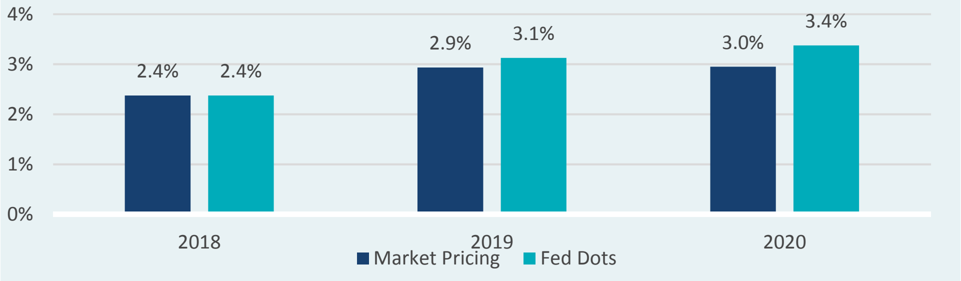
Article Source: CNBC, August 23rd, 2018

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



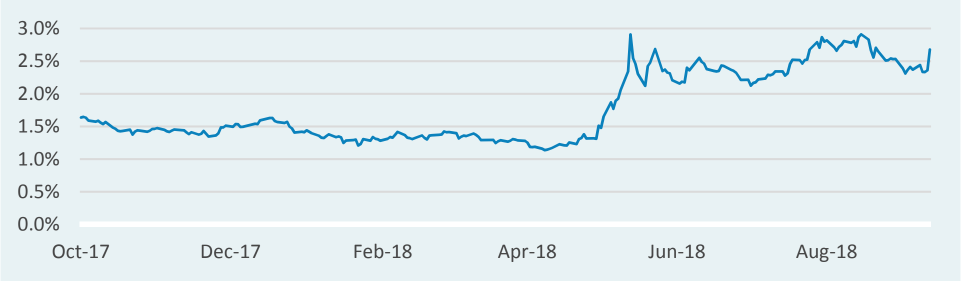
Source: Bloomberg, as of 9/30/18

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% *6/30/18*	2.1% *6/30/17*
Inflation *(CPI YoY, Core)*	2.2% *9/30/18*	1.7% *9/30/17*
Expected Inflation *(5yr-5yr forward)*	2.2% *9/30/18*	2.0% *9/30/17*
Fed Funds Target Range	2.00 – 2.25% *9/30/18*	1.00 – 1.25% *9/30/17*
10 Year Rate	3.1% *9/30/18*	2.3% *9/30/17*
U-3 Unemployment	3.7% *9/30/18*	4.2% *9/30/17*
U-6 Unemployment	7.5% *9/30/18*	8.3% *9/30/17*

GDP growth

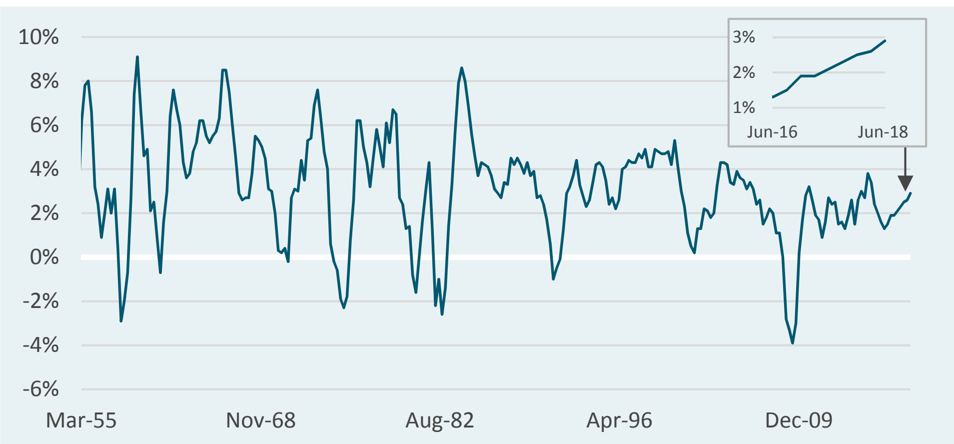
Real GDP growth accelerated to 2.9% YoY (4.2% quarterly annualized rate) in the second quarter, driven in part by fiscal stimulus. This quarterly growth rate marked the fastest pace of expansion since the third quarter of 2014.

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.

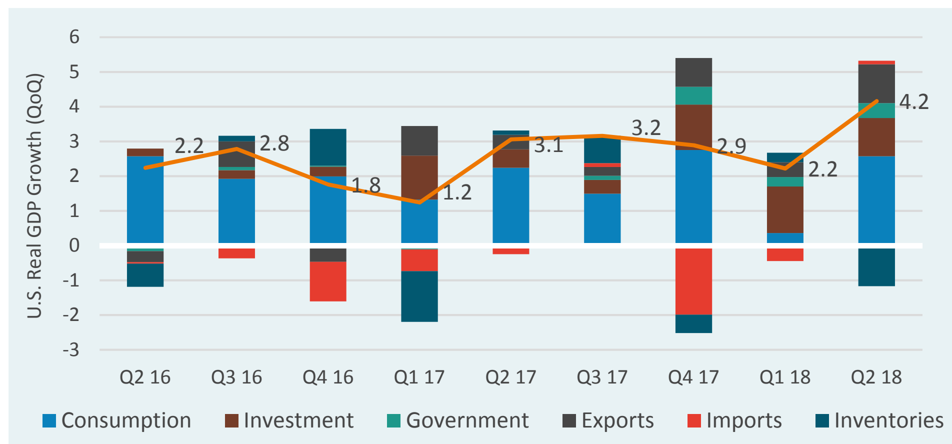
GDP growth was the highest since Q3 2014

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

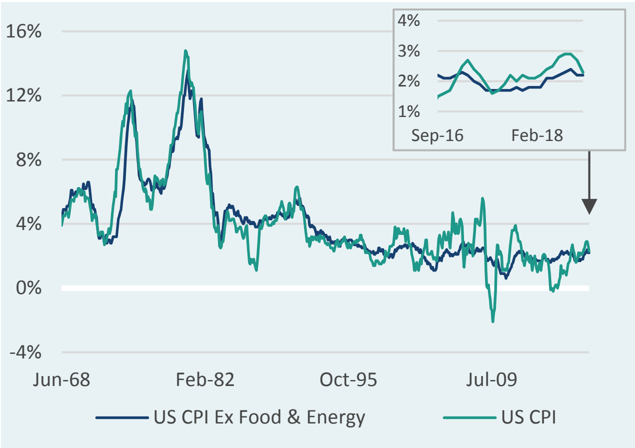
Inflation

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.

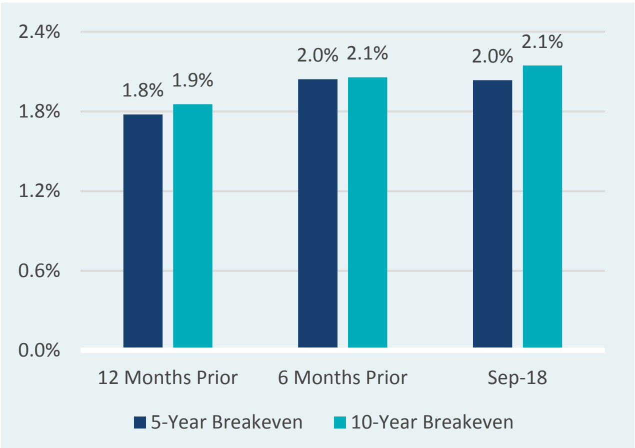
The potential impact of tariffs on inflation has been widely scrutinized, but it is important to note that the flow-through from import prices to consumer prices is ambiguous. The flow-through will depend on numerous factors including substitution effects and the price elasticity of demand. At this point,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

U.S. CPI (YOY)



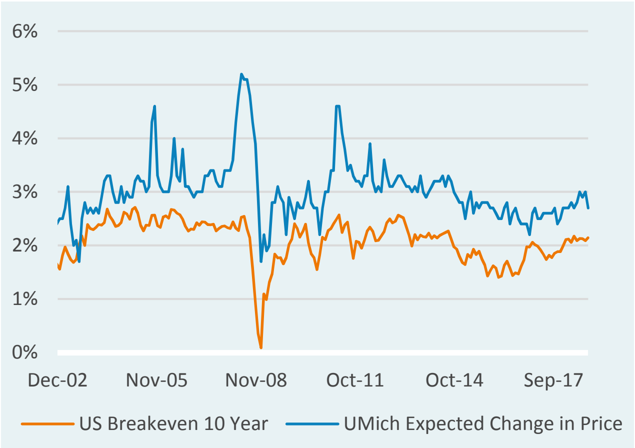
Source: Bloomberg, as of 9/30/18

BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 9/30/18

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/18

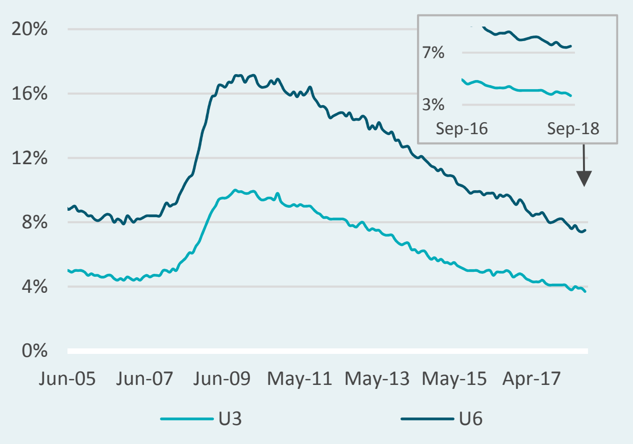
Labor market

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 suggests 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.

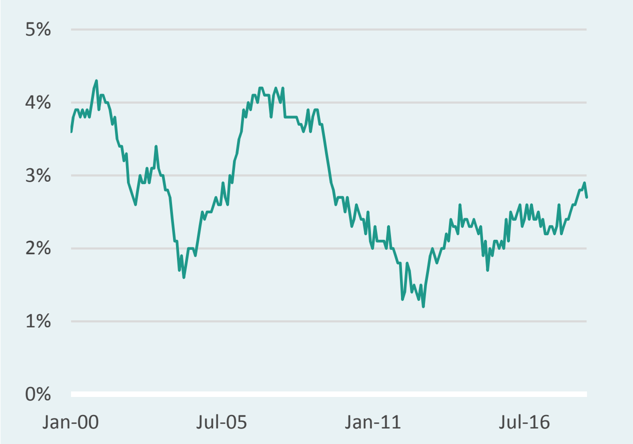
Surging job openings, along with business survey responses, suggest companies are having a difficult time finding qualified workers. As of August, there were 7.1 million job openings compared to only 6.2 million people classified as unemployed.

UNEMPLOYMENT RATE



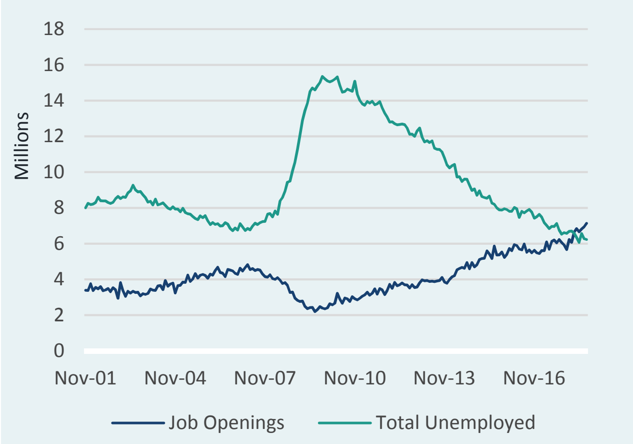
Source: FRED, as of 9/30/18

AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as 9/30/18

JOB OPENINGS VS TOTAL UNEMPLOYED



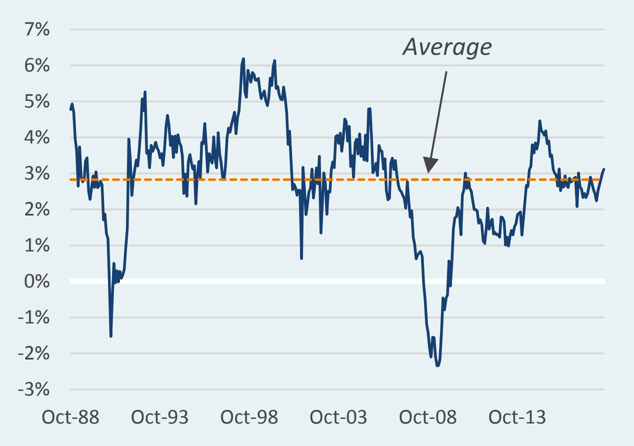
Source: Bloomberg, as of 8/31/18

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.

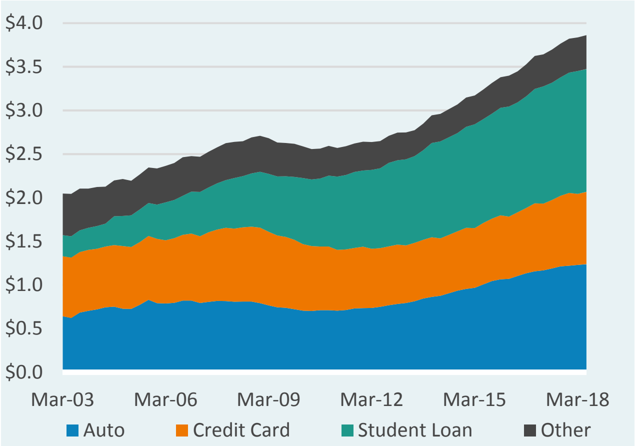
With the 30-year mortgage rate nearing 5%, there have been increasing concerns over the impact of rising rates on the cost of living. However, a rise in market interest rates will impact various types of debt in different ways. For example, nearly all U.S. mortgage debt issued since the global financial 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)



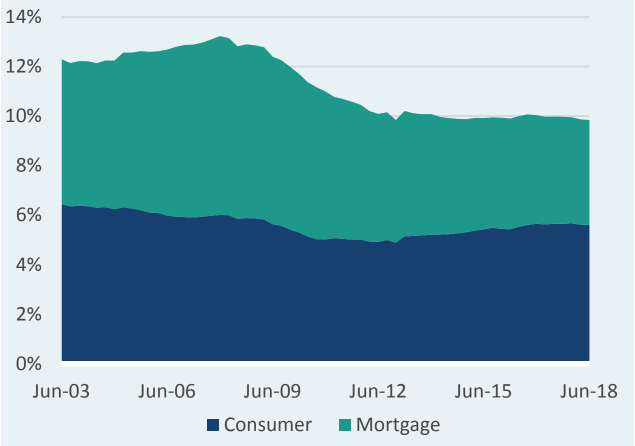
Source: Bloomberg, as of 8/31/18

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

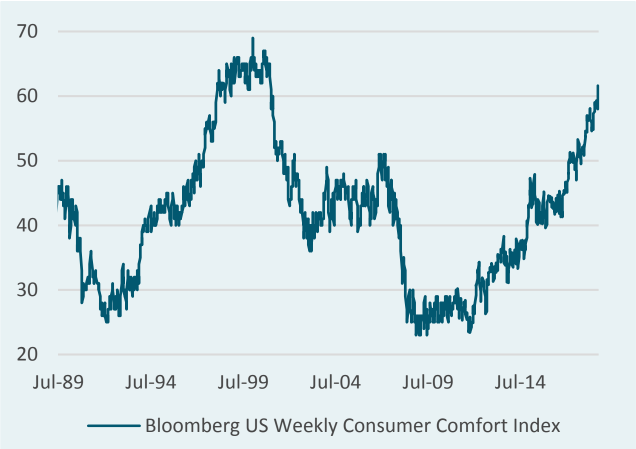
Sentiment readings from both households and businesses are incredibly strong. Americans across all income subgroups expressed optimism for the future, according to the University of Michigan Consumer Sentiment survey. The most often cited concern was U.S. tariffs, which were mentioned by one third of 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.

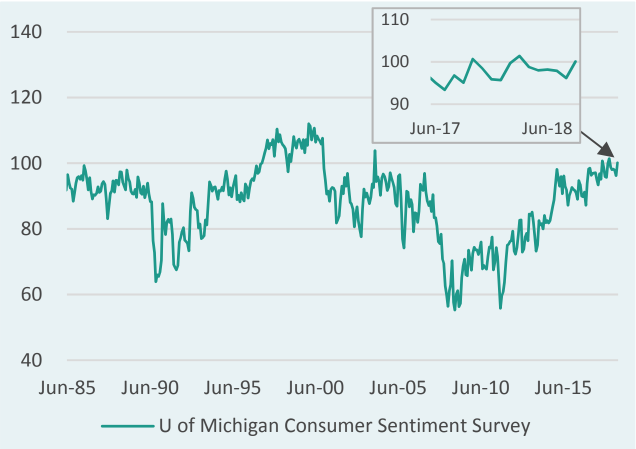
Consumers and business are confident about the future

CONSUMER COMFORT INDEX



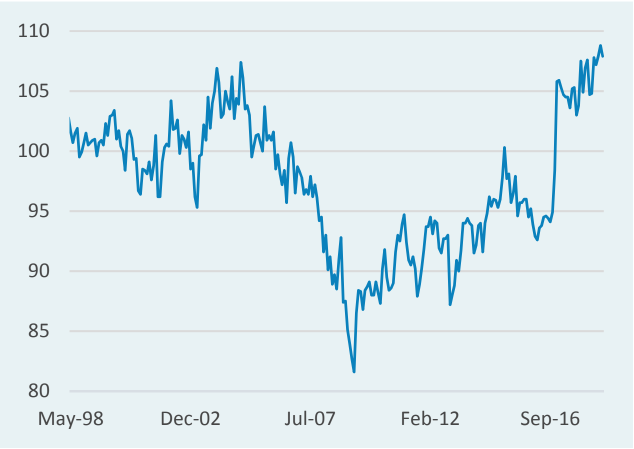
Source: Bloomberg, as of 9/30/18 (see Appendix)

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)

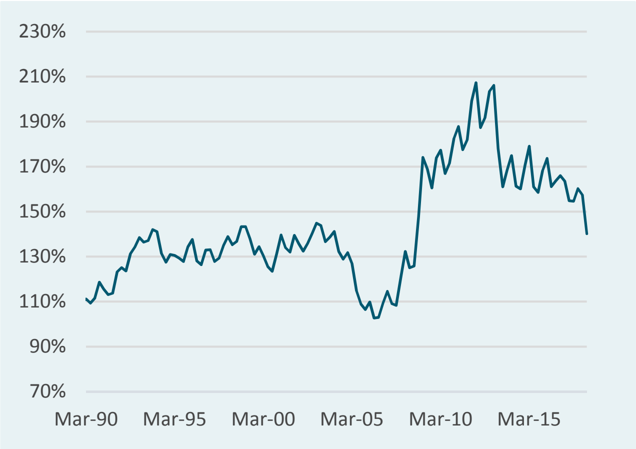
Housing

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

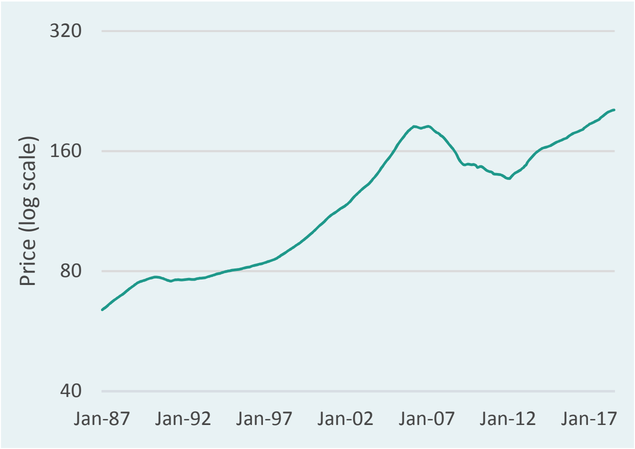


Source: Bloomberg, as of 6/30/18

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% *6/30/18*	2.7% *8/31/18*	3.8% *9/30/18*
Eurozone	2.1% *6/30/18*	2.1% *9/30/18*	8.3% *6/30/18*
Japan	1.3% *6/30/18*	1.3% *8/31/18*	2.4% *6/30/18*
BRICS Nations	5.8% *6/30/18*	2.5% *6/30/18*	5.5% *6/30/18*
Brazil	1.0% *6/30/18*	4.5% *9/30/18*	12.2% *9/30/18*
Russia	1.9% *6/30/18*	3.4% *9/30/18*	4.6% *8/31/18*
India	8.2% *6/30/18*	3.7% *8/31/18*	8.8% *12/31/17*
China	6.7% *6/30/18*	2.3% *8/31/18*	3.8% *6/30/18*

International economics

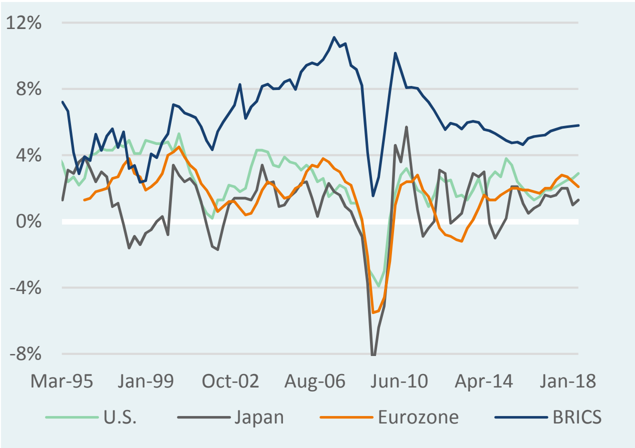
While U.S. economic growth improved, international growth remained moderate. In the Eurozone, real GDP rose 2.1% YoY in Q2, down from 2.4% in Q1. In addition to slowing growth, political uncertainty in Italy and less stimulus from the European Central Bank has clouded the economic outlook. The political 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.

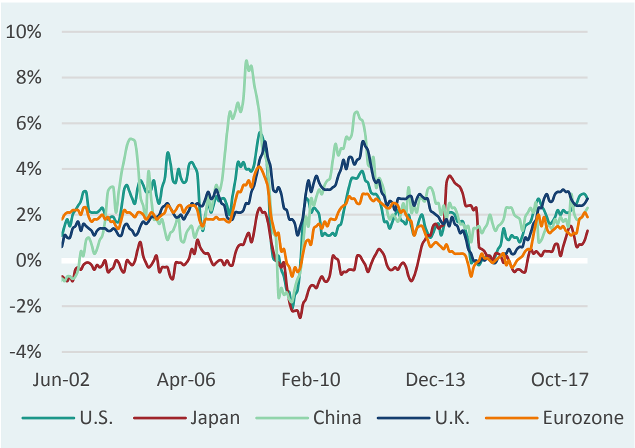
Synchronized global growth has moderated

REAL GDP GROWTH (YOY)



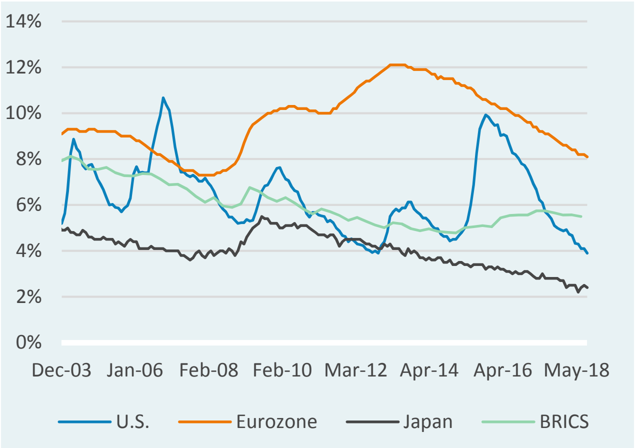
Source: Bloomberg, as of 6/30/18

INFLATION (CPI YOY)



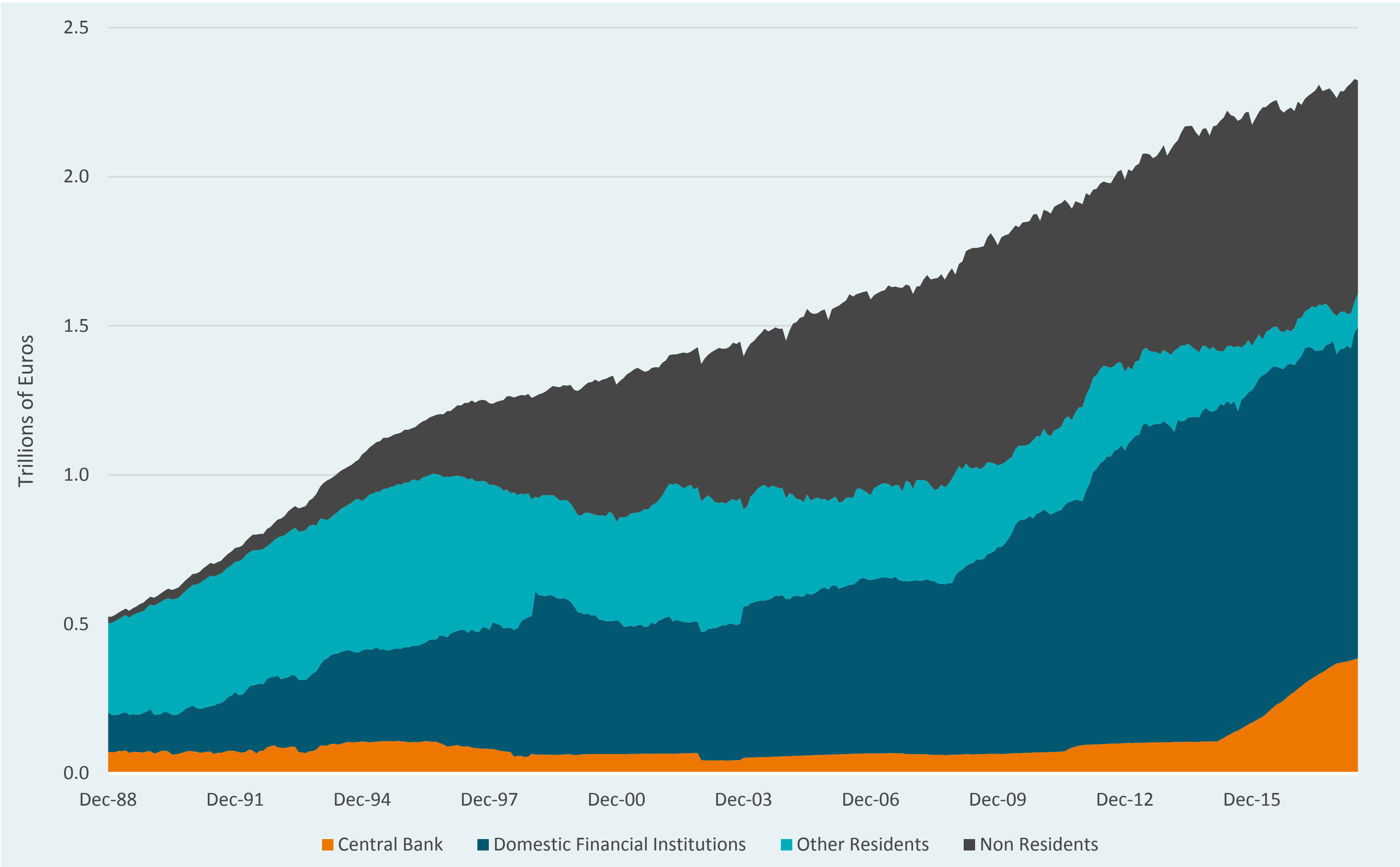
Source: Bloomberg, as of 8/31/18

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

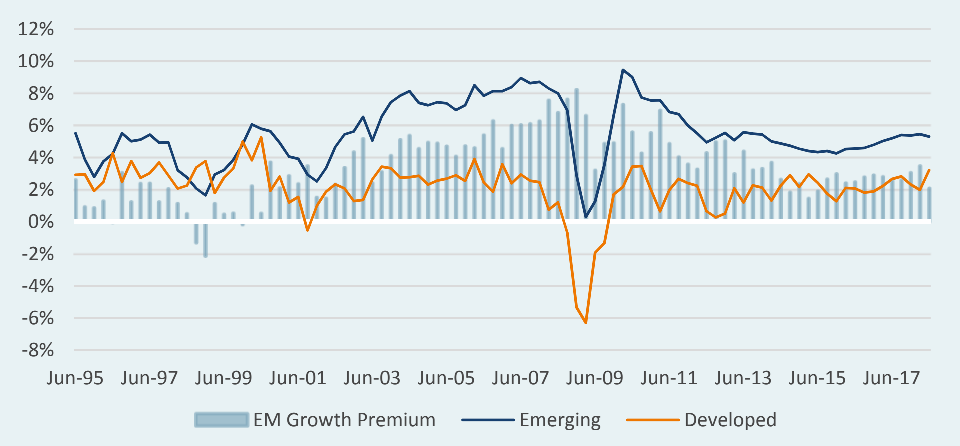
Emerging economies

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.

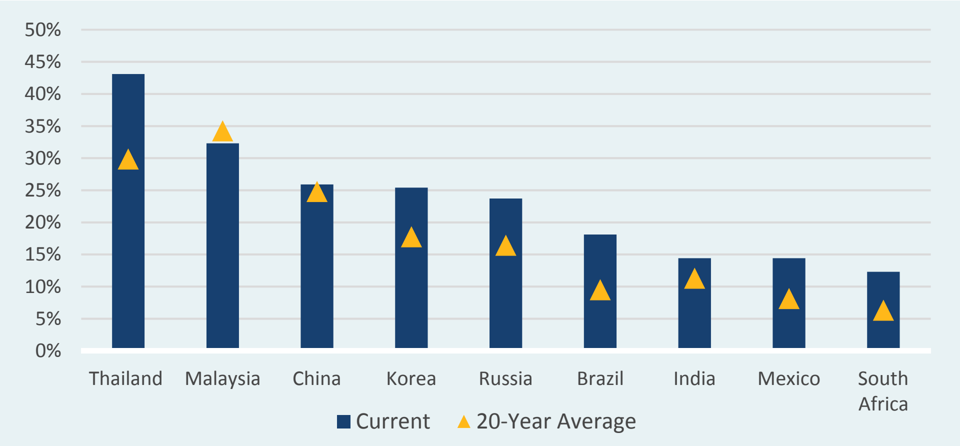
Economic contagion fears seem overblown

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

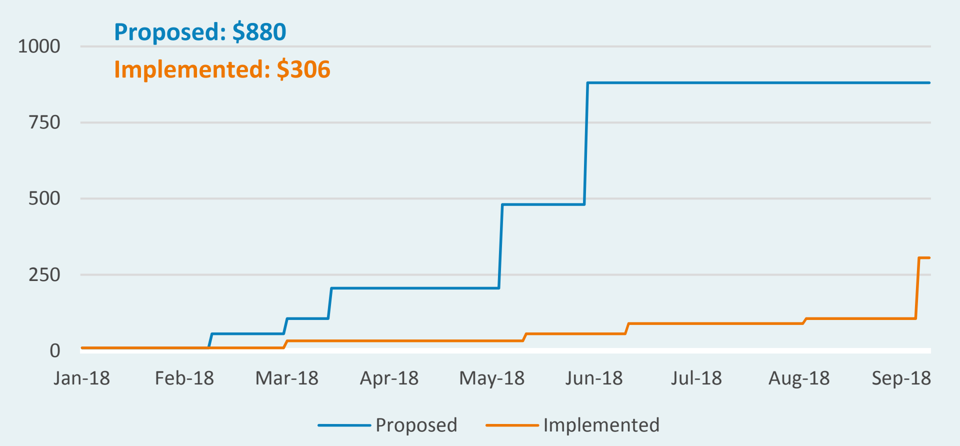
U.S.-China trade

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)



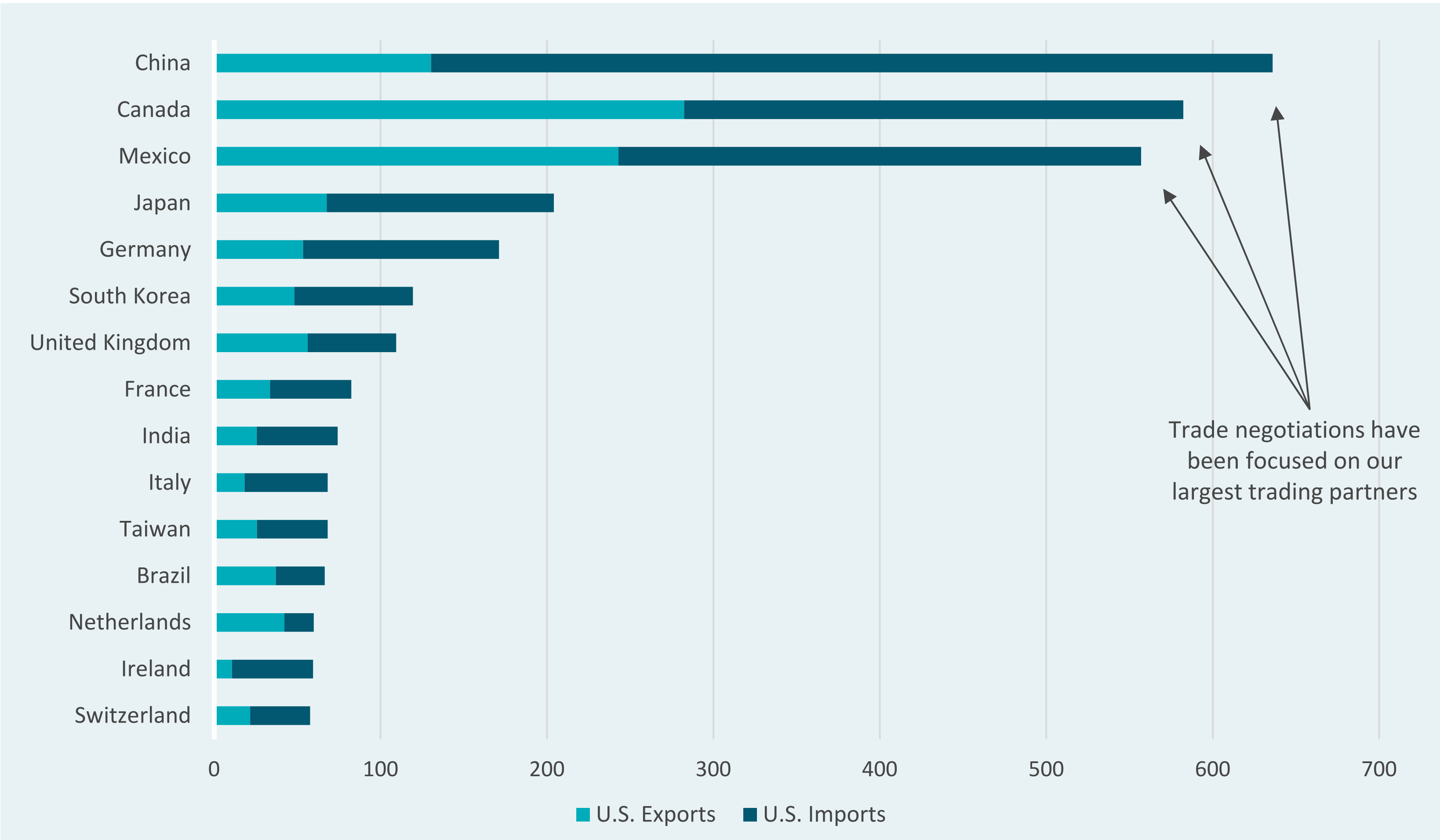
Source: Verus, as of 9/30/18, only includes recently proposed or implemented tariffs

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)



Source: U.S. Census Bureau, year 2017

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

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

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.

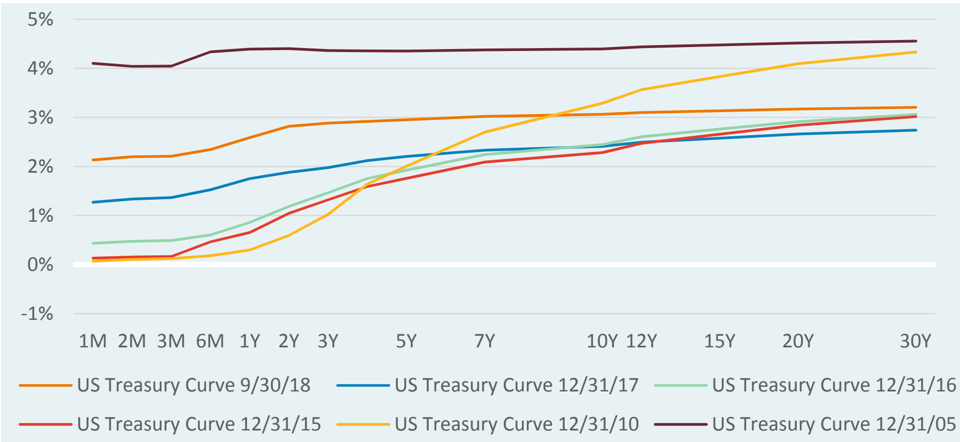
— Emerging market local and hard yields were rangebound in Q3, but remained elevated due to continued idiosyncratic risks in countries such as Turkey and Argentina.

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%

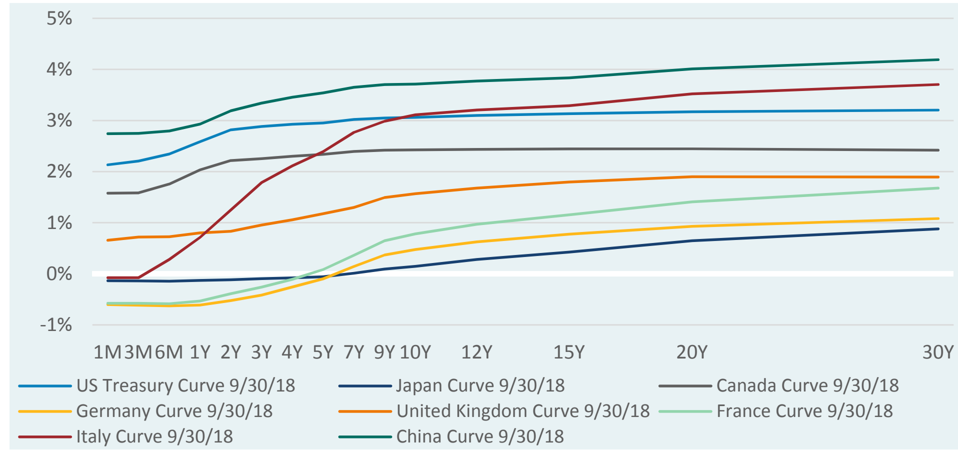
Source: Bloomberg, as of 9/30/18

Yield environment

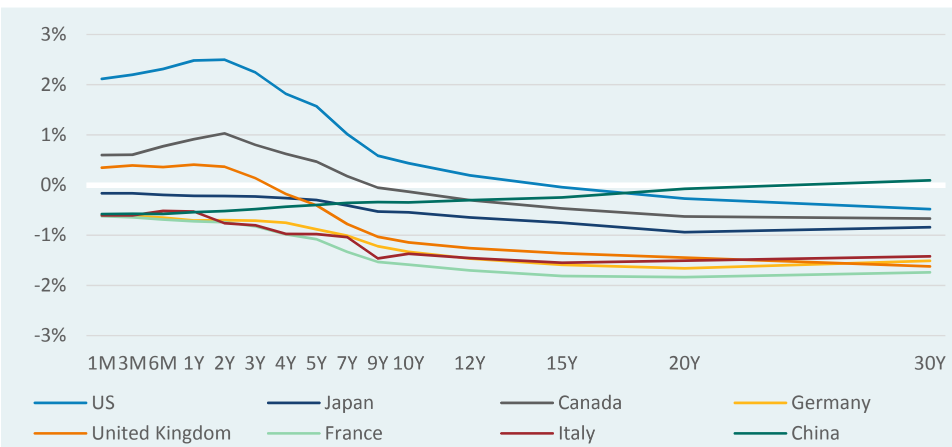
U.S. YIELD CURVE



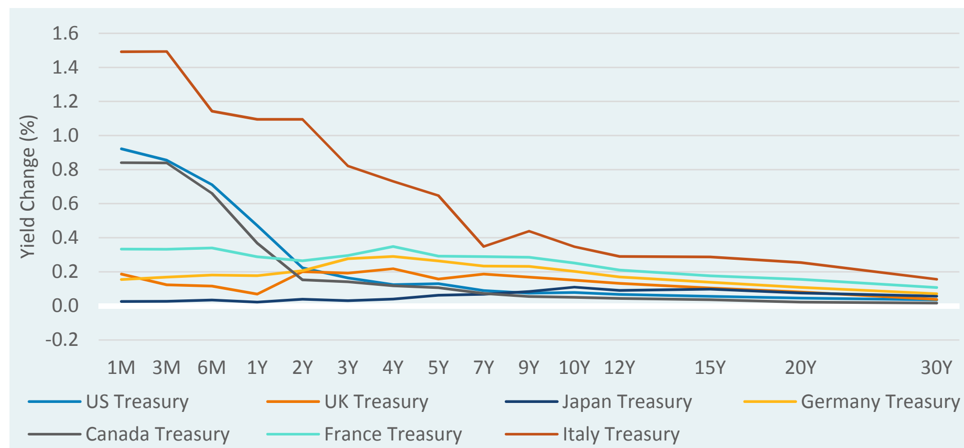
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



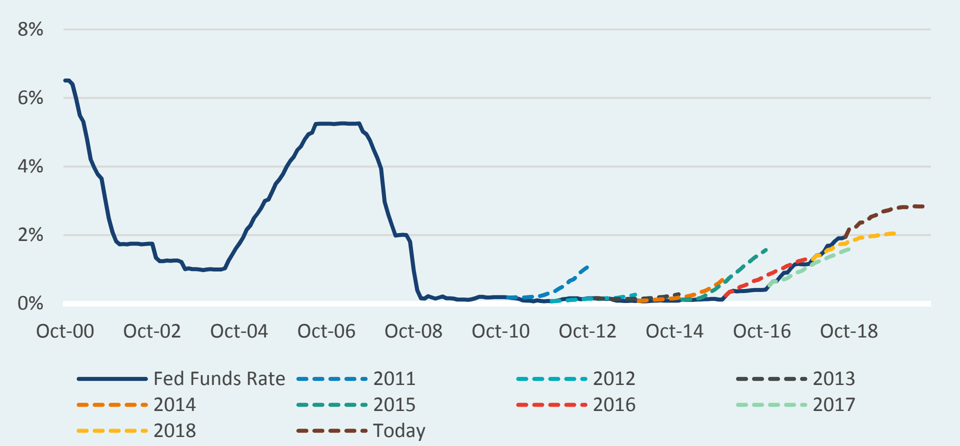
Source: Bloomberg, as of 9/30/18

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.

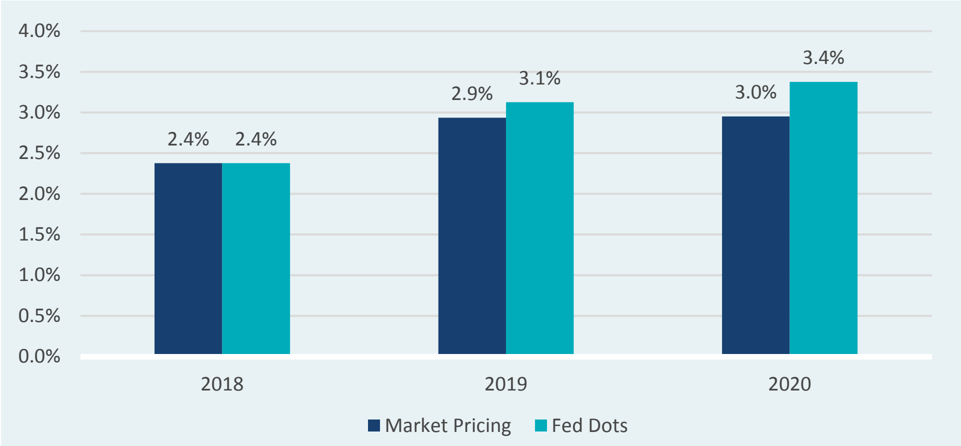
Over the past few years, there has been an interesting shift in how Fed policy has come in relative to market expectations. From 2010 to 2015, the market consistently overestimated when and by how much the Fed would hike rates. However, beginning in 2016 the Fed has been more aggressive than the market 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

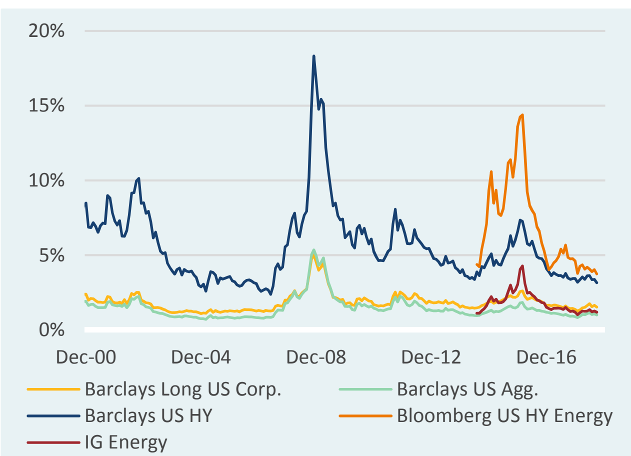
Spreads in both bank loans and high yield credit are well below their historical averages. Loans are outperforming high yield bonds for only the second time in the last 13 years. Bank loans have limited duration risk due to their floating-rate nature, which is a quality that some investors have seen 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.

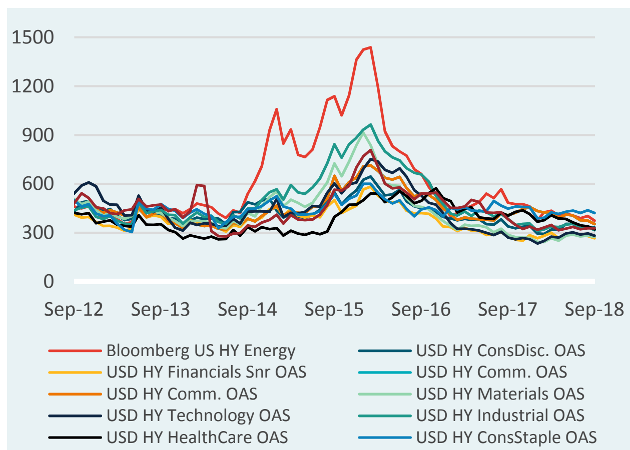
Credit spreads are tight across the capital structure

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*

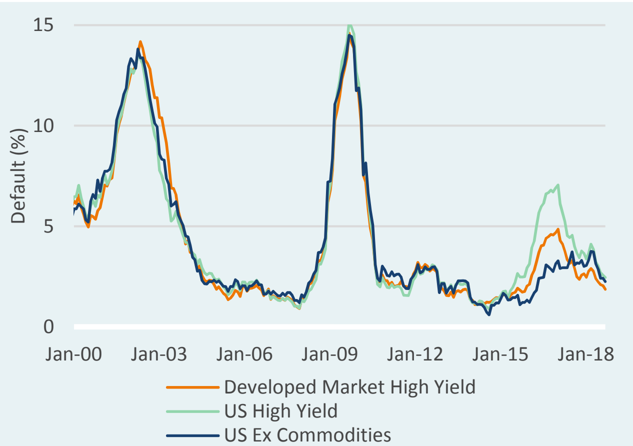
Issuance and default

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.

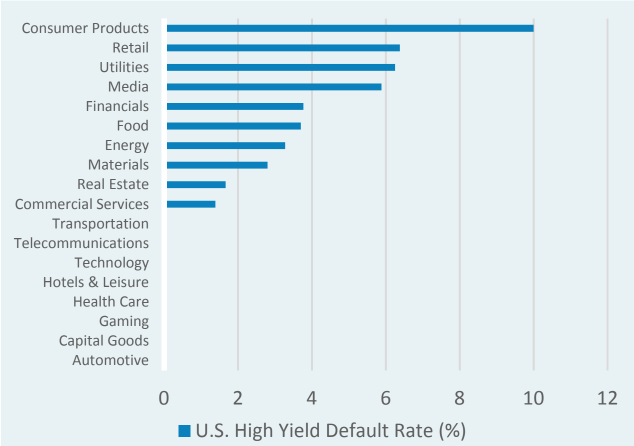
High yield new issue activity has totaled $175 billion so far this year, which is down 35% over the same period a year ago. Meanwhile, issuance in leveraged loans totaled $611 billion year-to-date. Notably, repricing activity represents 38% of total volume. New issue spreads continue to compress with 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)



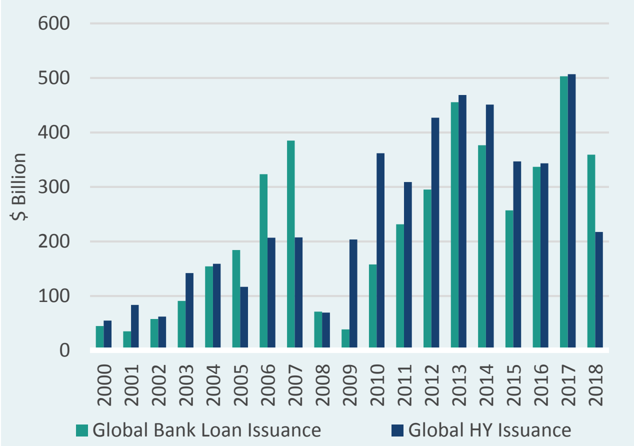
Source: BofA Merrill Lynch, as of 9/30/18

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.

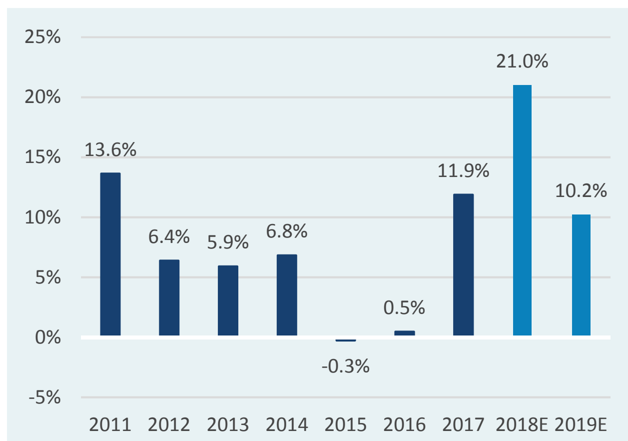
Another strong quarter of U.S. corporate earnings is expected in Q3 on both an absolute and relative basis. S&P 500 earnings and revenue growth are expected to be 19.3% and 6.9% YoY, respectively. Earnings growth in 2019 is expected to be 10.2% YoY. If analyst forecasts are as overly optimistic as they 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

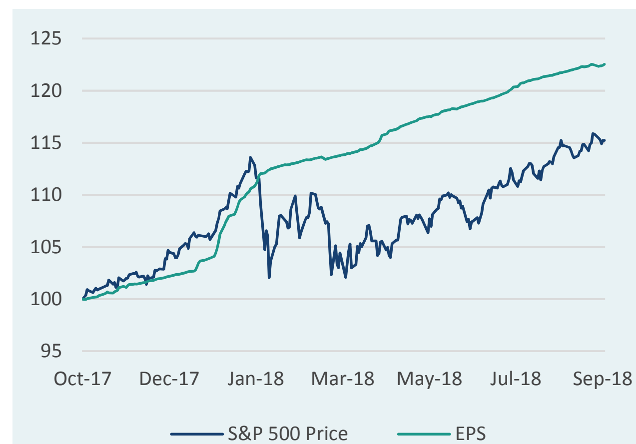
Source: Russell Investments, as of 9/30/18

CALENDAR YEAR EARNINGS GROWTH



Source: FactSet, as of 10/12/18

S&P 500 PRICE & EARNINGS



Source: Bloomberg, as of 9/30/18

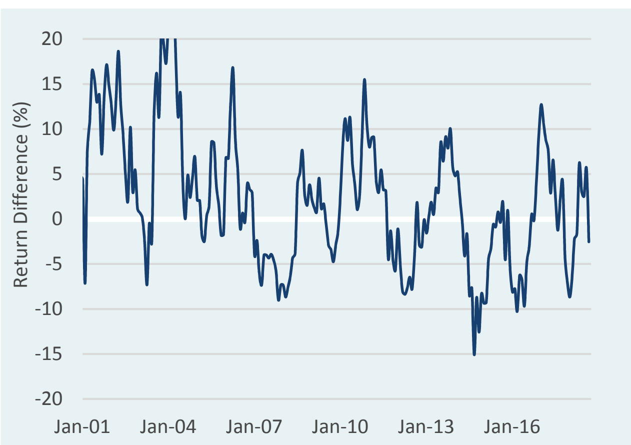
Domestic equity size & style

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.

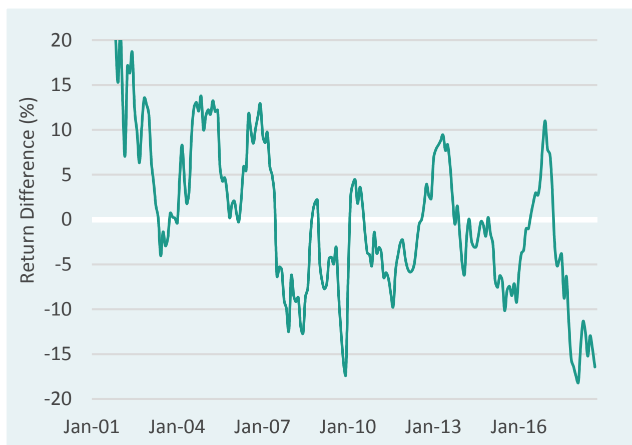
Size and value factor performance continues to frustrate investors. While the extent of underperformance is not anomalous, it may be testament to the long-term nature of factor investing. Unless an investor believes that these risk premia no longer exist, maintaining exposure and avoiding capitulation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

SMALL CAP VS LARGE CAP (YOY)



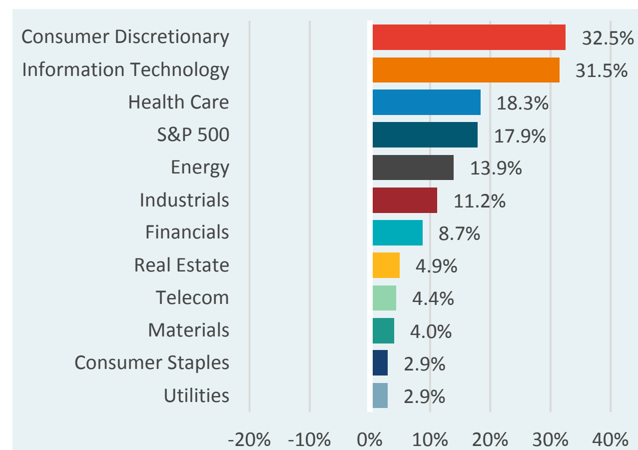
Source: FTSE, as of 9/30/18

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

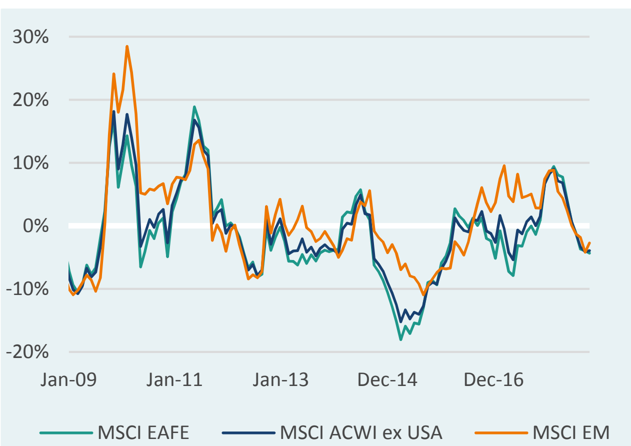
Unhedged international equities underperformed U.S. equities during Q3 (MSCI EAFE +1.4% vs. S&P 500 +7.7%). On a currency hedged basis, international equities delivered returns of 2.9%.

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.

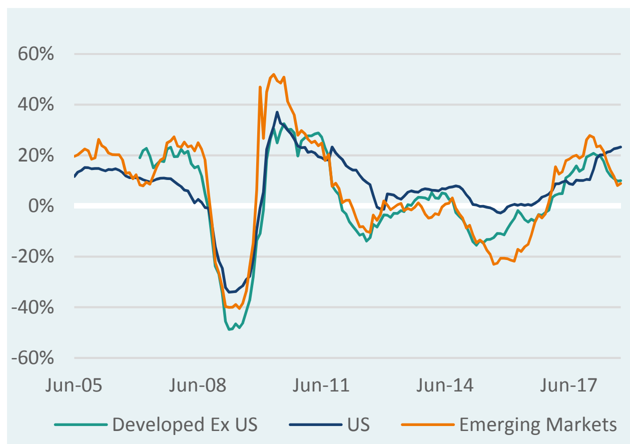
Differences in forward P/E multiples between U.S. and non-U.S. equities remained high. At quarter-end, this valuation gap relative to international developed equity ranked in the 96th percentile since 2005. The U.S.-EM valuation gap ranked in the 89th percentile over the same period.

EFFECT OF CURRENCY (1-YEAR ROLLING)



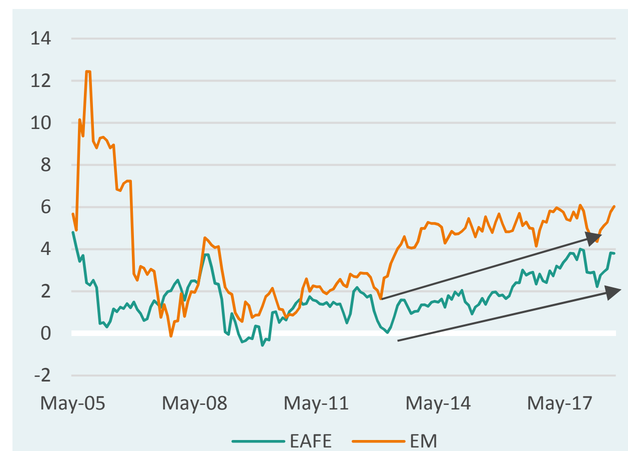
Source: MSCI, as of 9/30/18

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

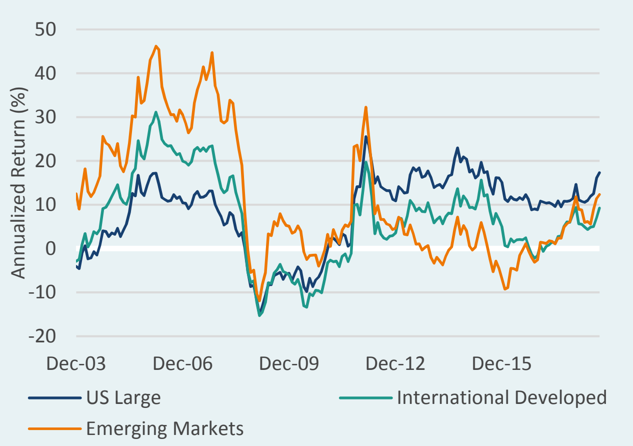
Emerging market equities delivered a slight loss in Q3 but seem to have stabilized as currency depreciation subsided (MSCI Emerging Markets Index -1.1%, JP Morgan EM Currency Index -1.6%). Many of these currencies have rebounded from their lows.

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.

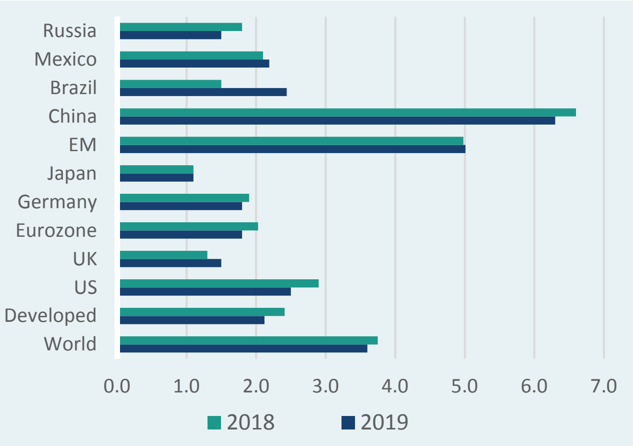
Conditions remain positive for medium-term EM equity performance, though volatility may persist

EQUITY PERFORMANCE (3YR ROLLING)



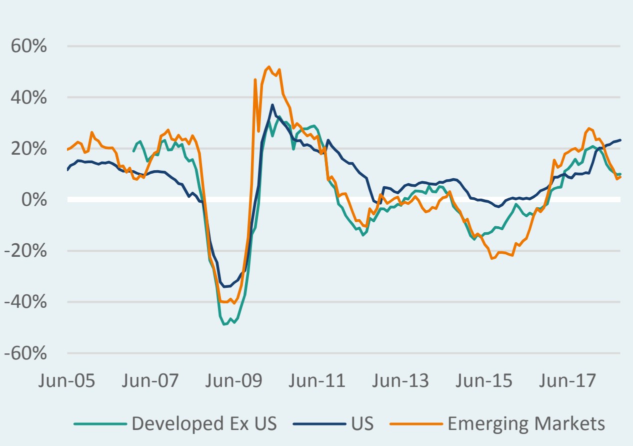
Source: Standard & Poor's, MSCI, as of 9/30/18

GDP GROWTH EXPECTATIONS (%)



Source: Bloomberg, as of 9/30/18

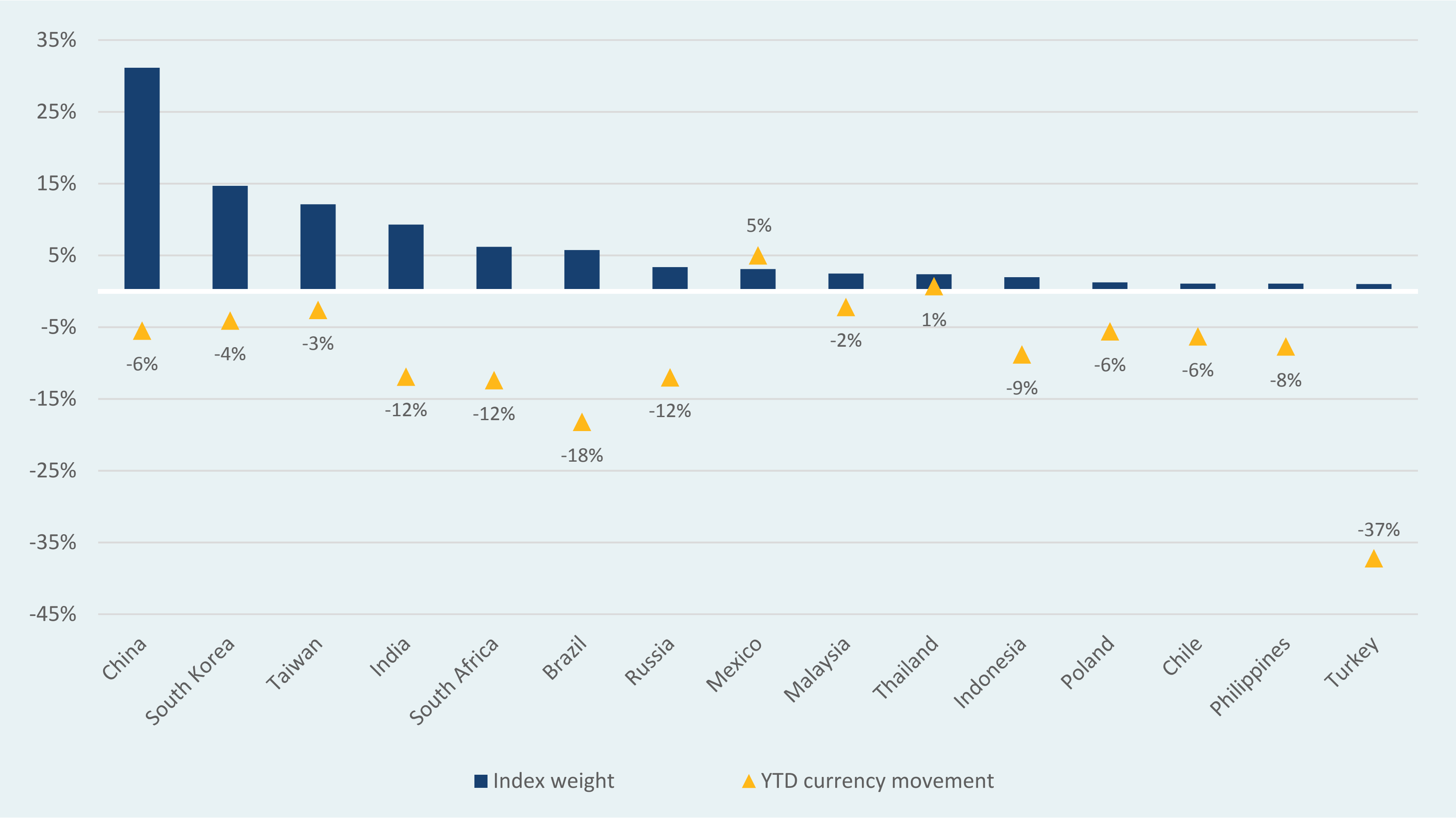
EARNINGS GROWTH (YOY)



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

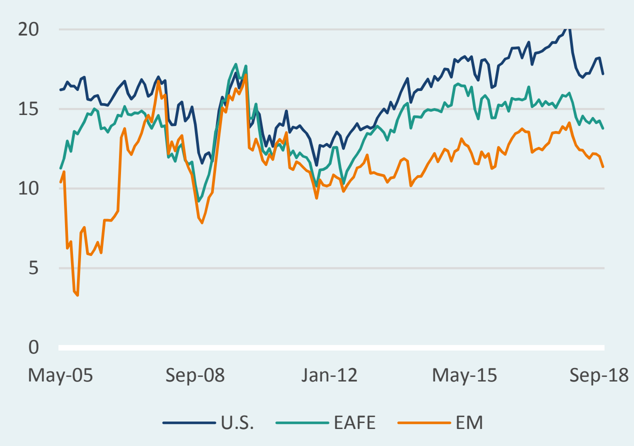
Source: MSCI, Bloomberg, as of 9/30/18

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.

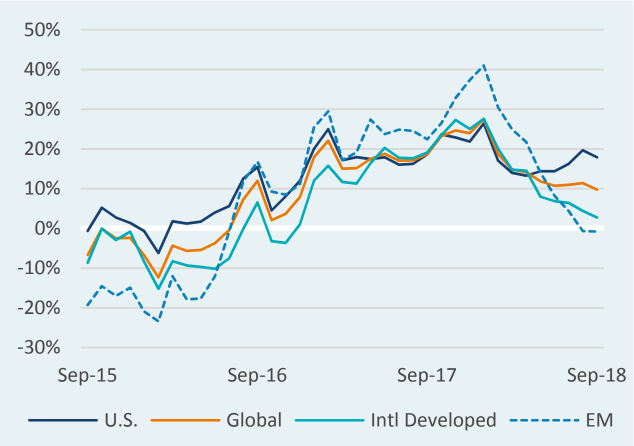
Looking at markets through our *carry, value, trend,* and *macro* lens, carry and value have improved through lower prices and higher underlying earnings. Trend has flattened out in international markets as equity performance has been rangebound year-to-date. The macro environment has weakened outside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

FORWARD P/E RATIOS



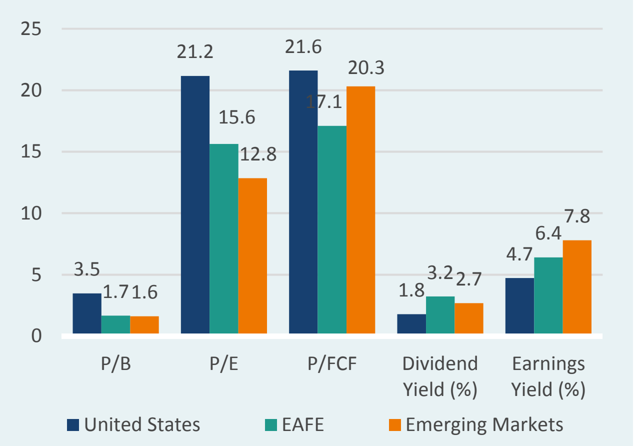
Source: MSCI, as of 9/30/18

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

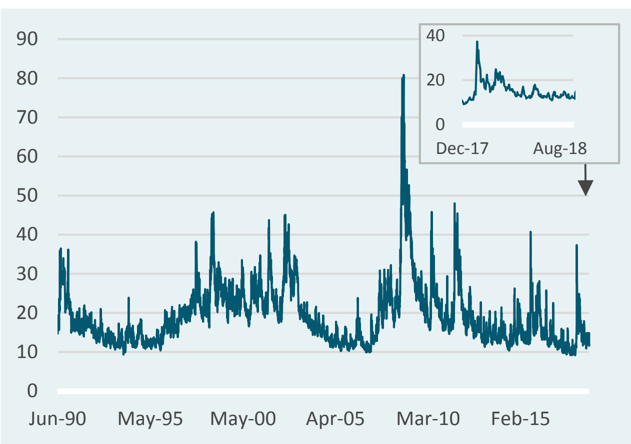
U.S. equity volatility remains muted. The VIX index ranged from 11 to 16 for the entirety of the quarter. Despite such an extended period of below-average volatility, it may be helpful to remember that the VIX Index has averaged 19.3 since 1990. Volatility has remain depressed or elevated for extended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

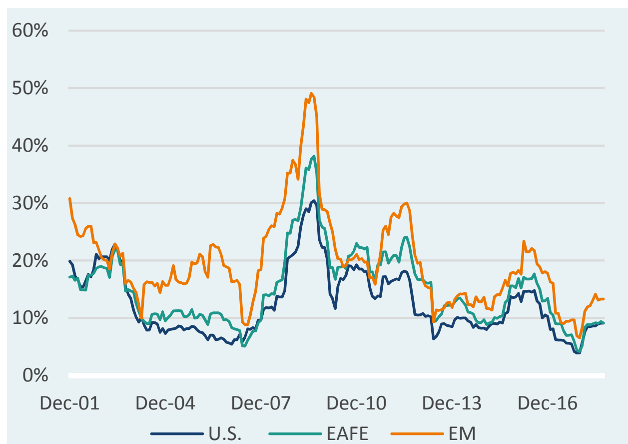
Global equity volatility remained below average

U.S. IMPLIED VOLATILITY (VIX)



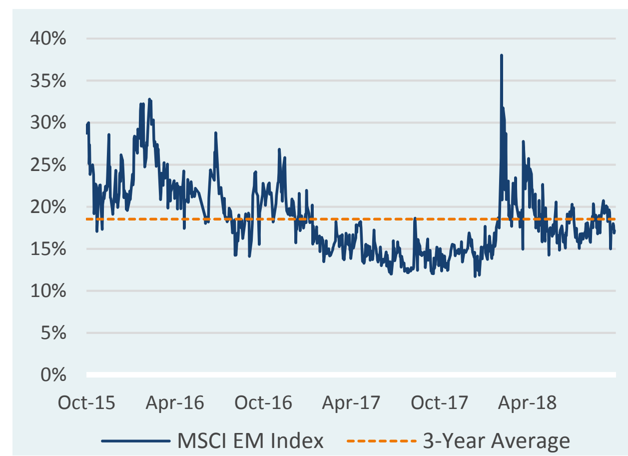
Source: CBOE, as of 9/30/18

REALIZED 1-YEAR ROLLING VOLATILITY



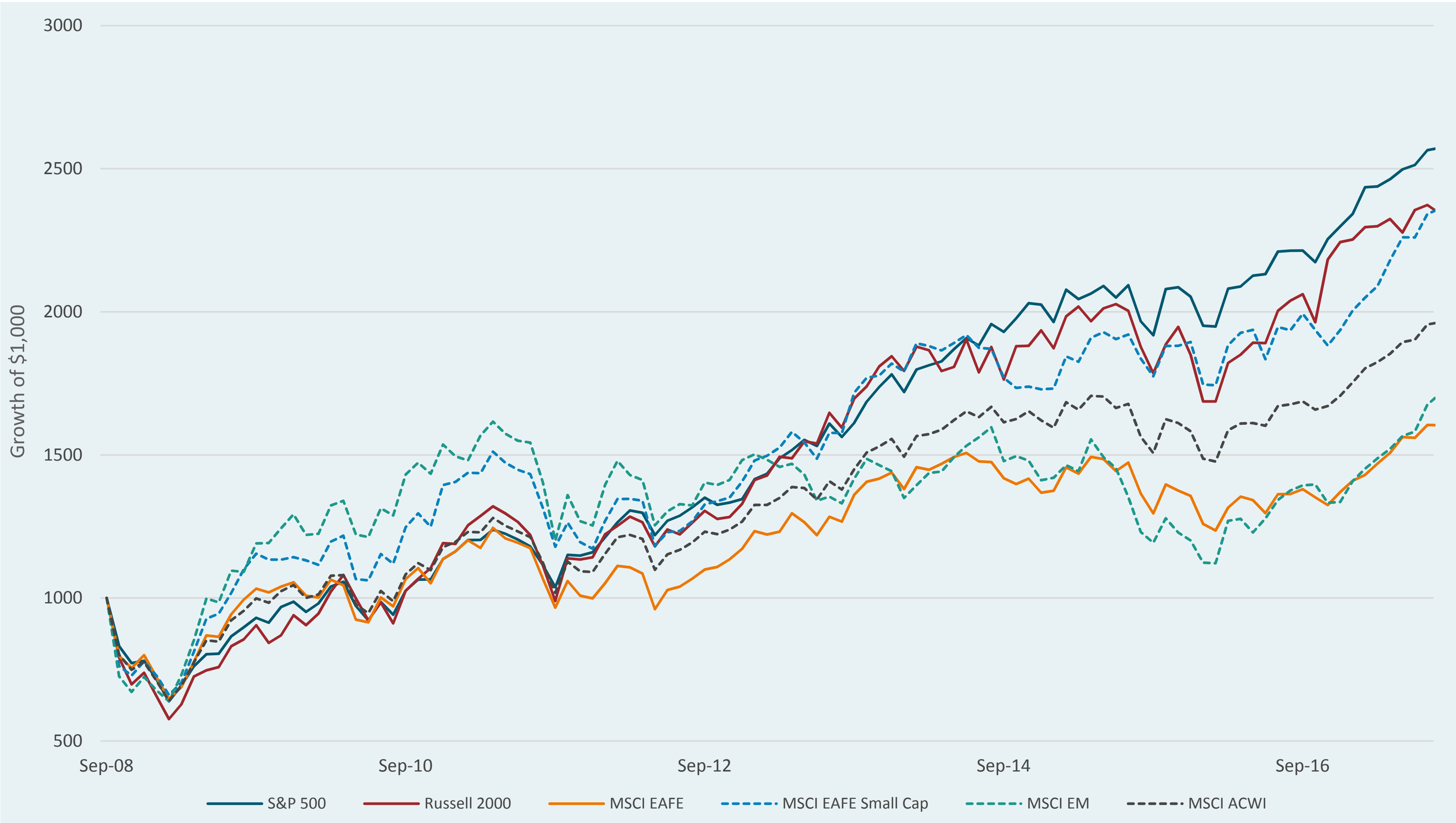
Source: Bloomberg, as of 9/30/18

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.

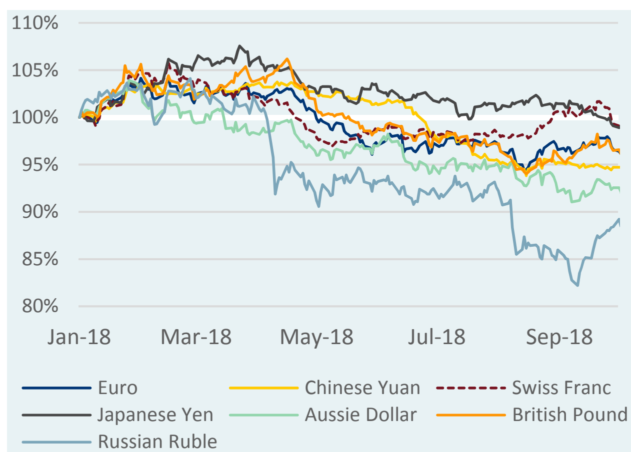
Wide short-term interest rate differentials between the U.S. and the rest of the world have created a tailwind for those hedging U.S. dollar exposures. For example, based on current FX forward pricing, an investor would lock in an annualized gain of 3.3% when hedging the euro, which is typically the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

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

U.S. DOLLAR TRADE WEIGHTED INDEX

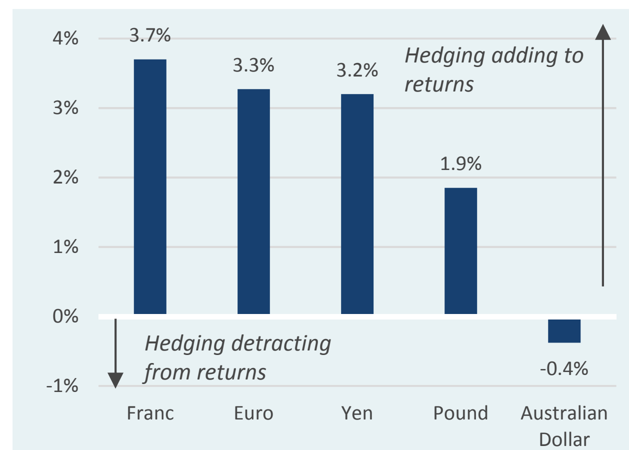
Source: Federal Reserve, as of 9/30/18

USD MOVES VS MAJOR CURRENCIES



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

ANNUALIZED FX HEDGING COSTS (GAINS)



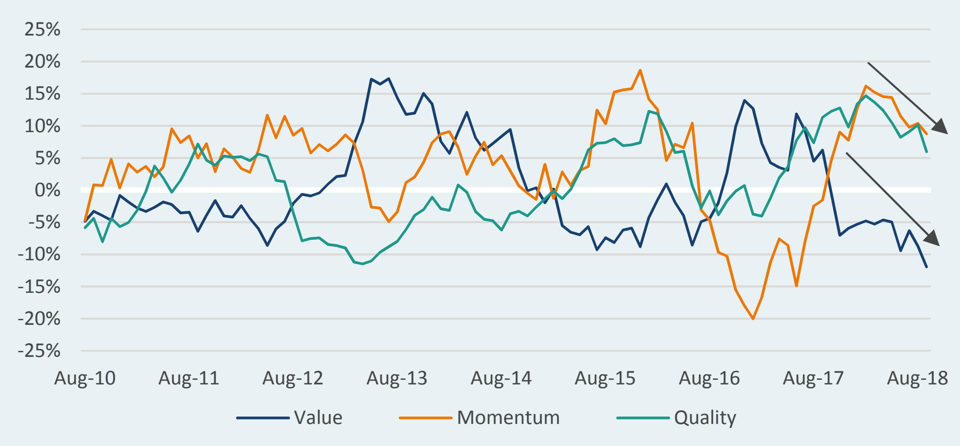
Source: Bloomberg, as of 9/30/18, based on 3-month FX forwards

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.

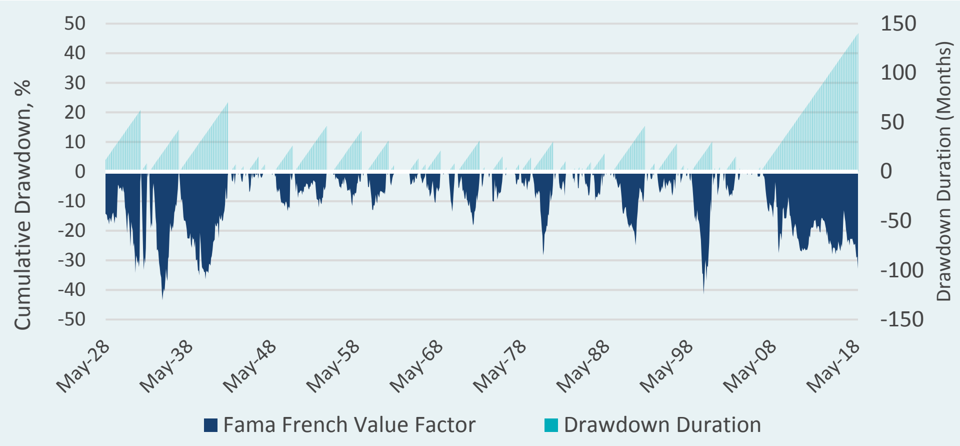
We reiterate our belief that alternative beta strategies are not "broken" per se, but instead have reflected extreme drawdowns in some factors and muted returns in others. We will continue to closely monitor these strategies and engage in frequent discussions with managers.

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



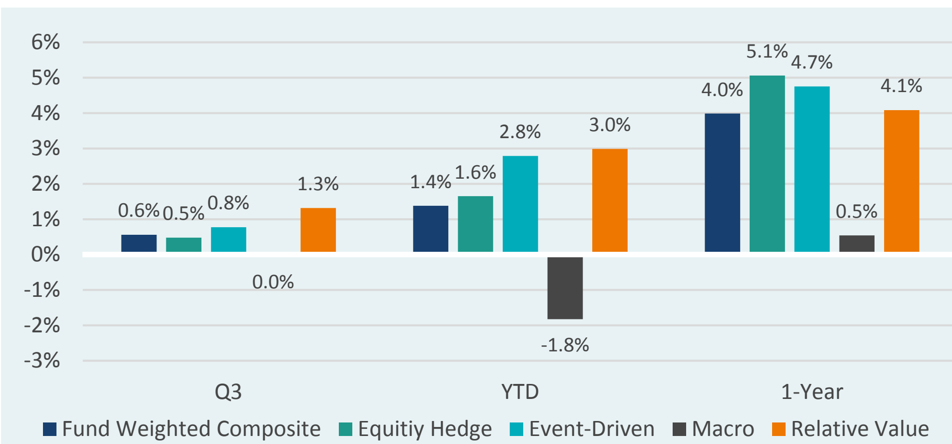
Source: Kenneth French Data Library, as of 8/31/18

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.

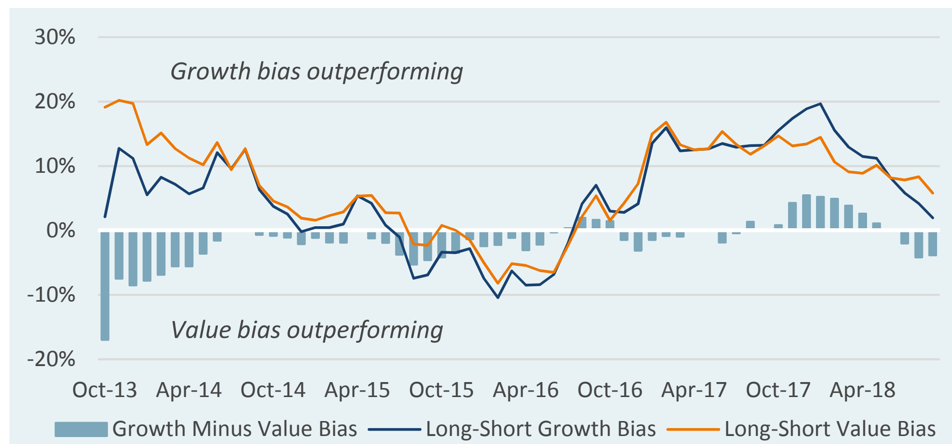
Within the fixed income markets, managers that focused on the credit and asset-backed securities sectors, in aggregate, were up about +1.5% for the quarter. Most other fixed income focused investment styles were modestly positive to flat for the period. Due to the relatively tight credit spreads, many 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

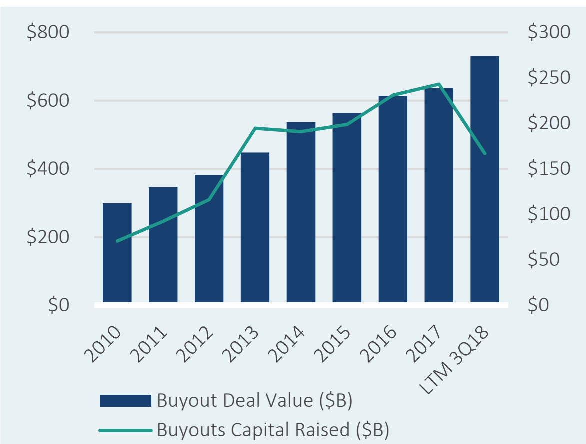
— Buyout activity has continued to increase in 2018. Through the third quarter buyouts are up 25% and 24% when measured by dollar value and number of transactions, respectively. The size of the average buyout is virtually unchanged from 2017 ($142 million). Unlike deal flow, fund capital raising has 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.

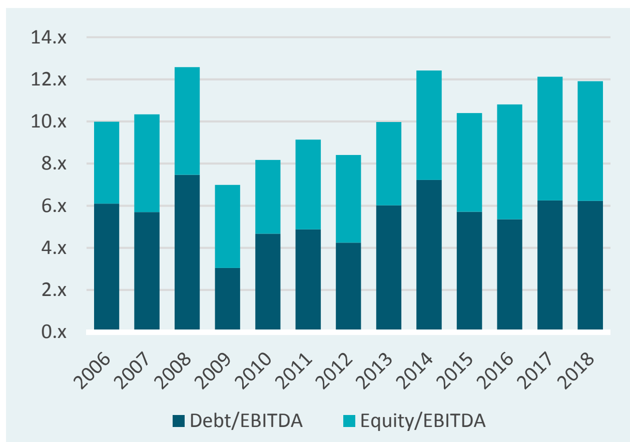
— Balancing high deal multiples and a growing number of deals against a slowdown in fundraising, we advocate selectivity in fund investments.

BUYOUTS DEAL VOLUME & CAPITAL RAISED



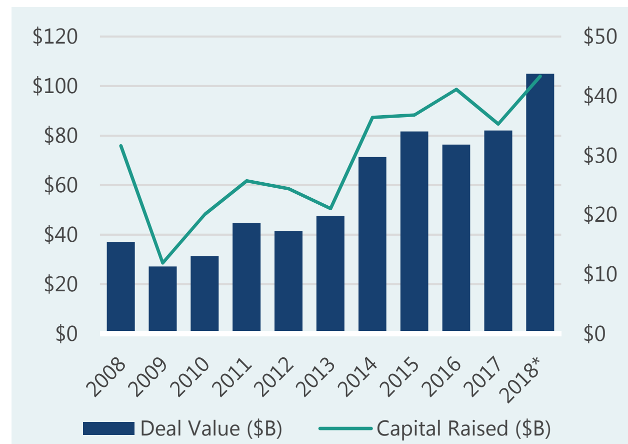
Source: PitchBook

TRANSACTION MULTIPLES



Source: PitchBook

VENTURE DEAL VOLUME & FUNDRAISING



Source: PitchBook

Appendix

Periodic table of returns

BEST

	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

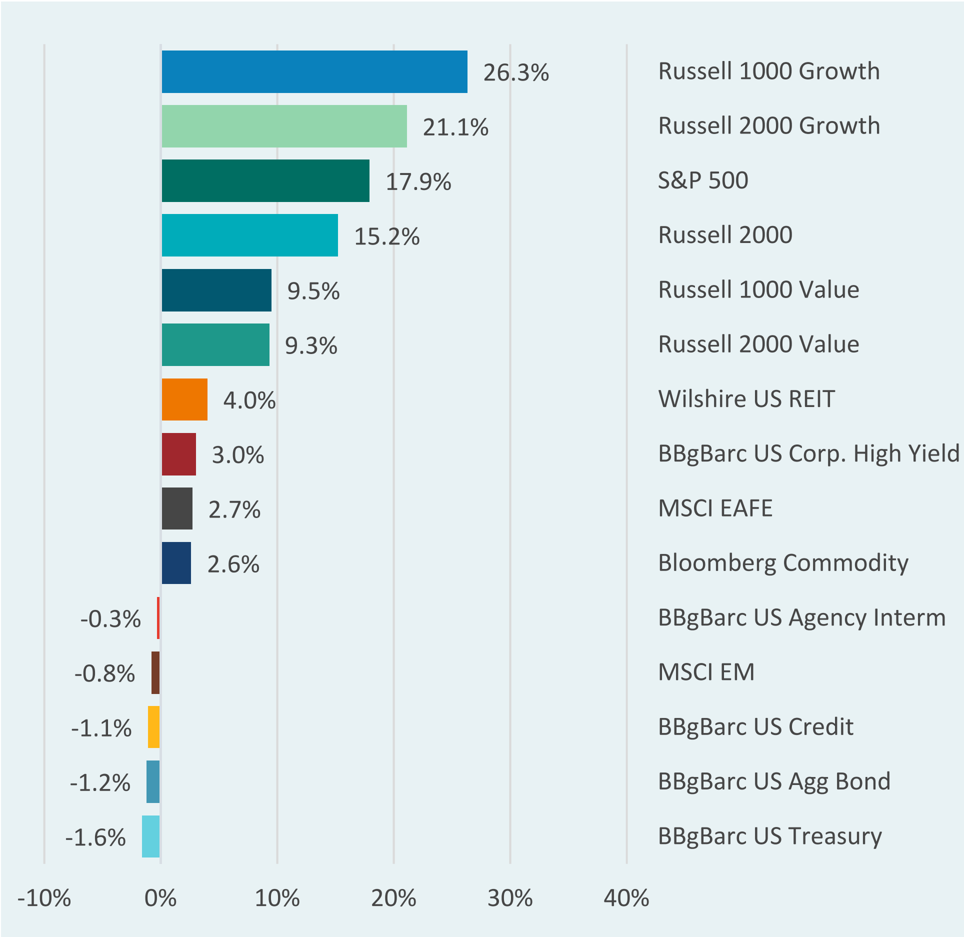
WORST

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

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 6/30/18.

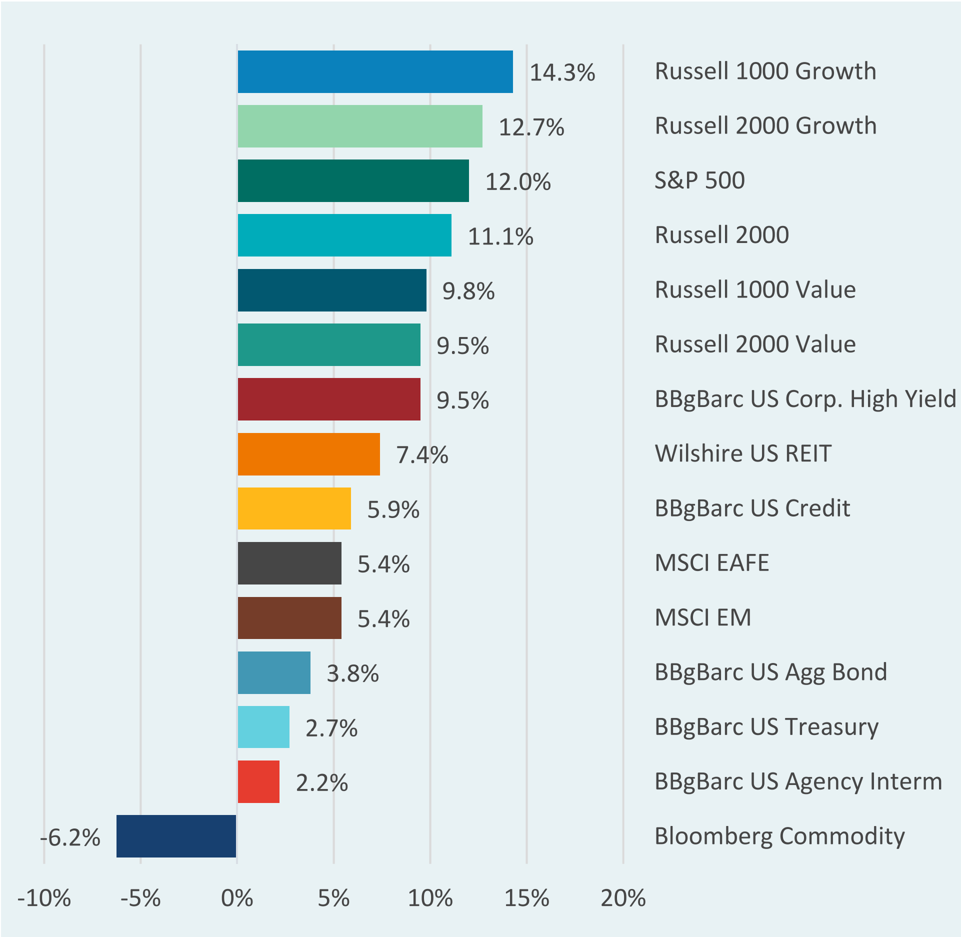
Major asset class returns

ONE YEAR ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

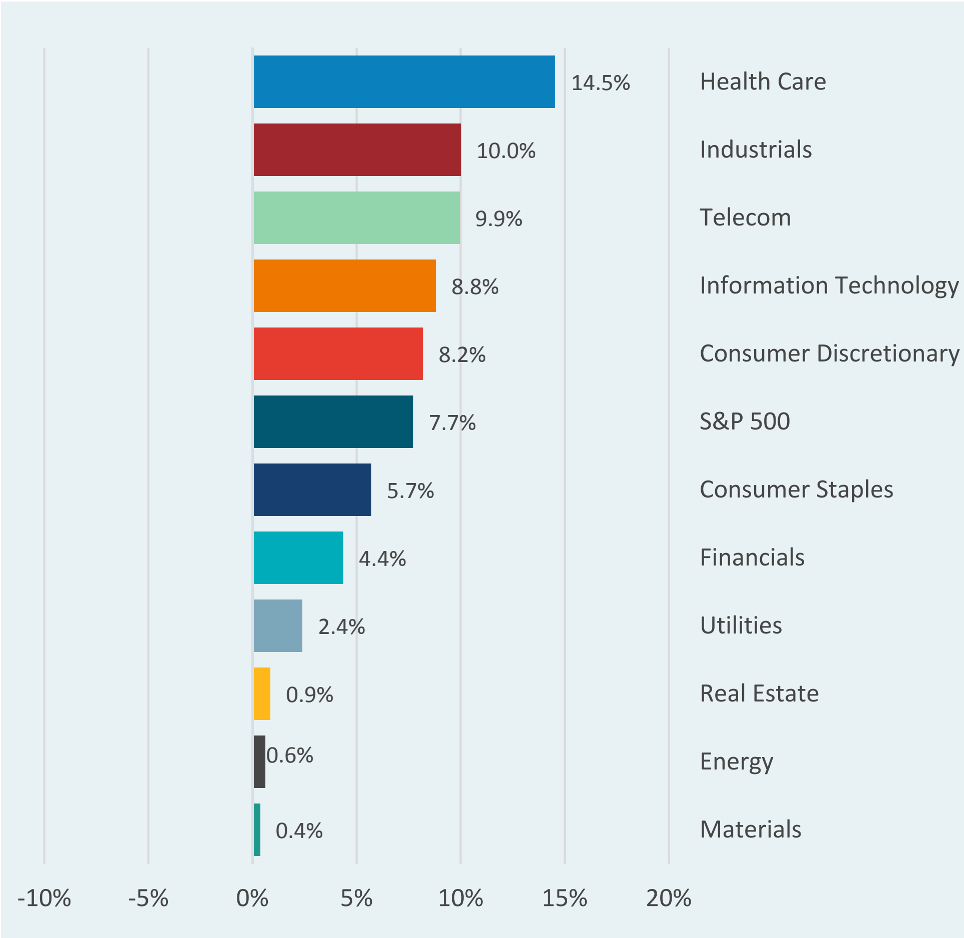
TEN YEARS ENDING SEPTEMBER



Source: Morningstar, as of 9/30/18

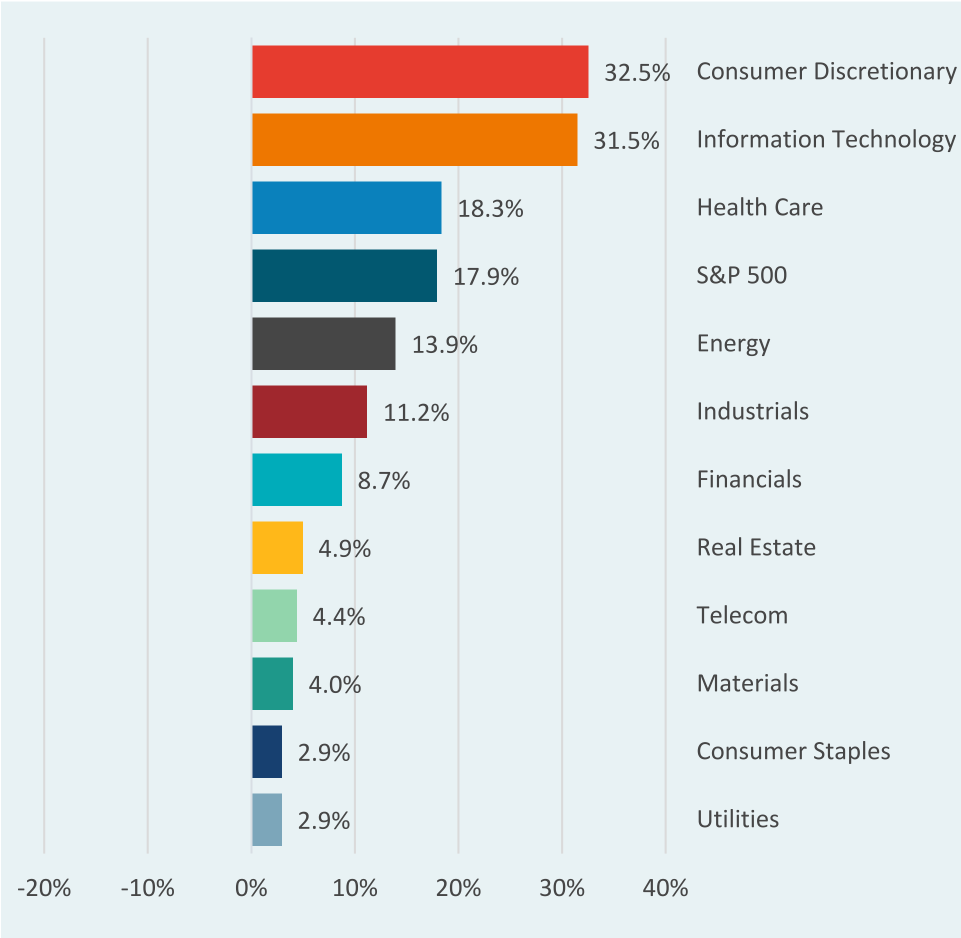
S&P 500 sector returns

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

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)

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

Definitions

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

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

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

Notices & disclosures

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San Luis Obispo County Pension Trust

Investment Performance Review

Period Ending: September 30, 2018

Verus

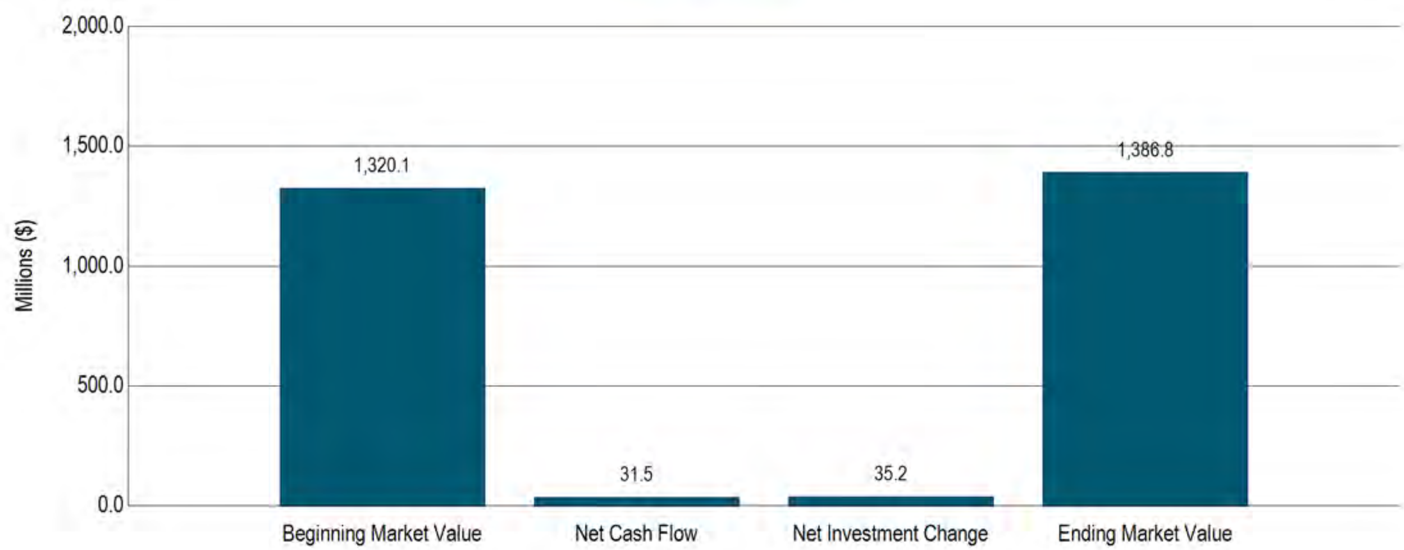
VERUSINVESTMENTS.COM

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

Portfolio Reconciliation

	Last Three Months	Year-To-Date	One Year
Beginning Market Value	$1,320,114,851	$1,350,741,282	$1,329,260,323
Net Cash Flow	$31,520,651	-$2,890,667	-$21,914,008
Net Investment Change	$35,168,142	$38,953,029	$79,457,329
Ending Market Value	$1,386,803,644	$1,386,803,644	$1,386,803,644

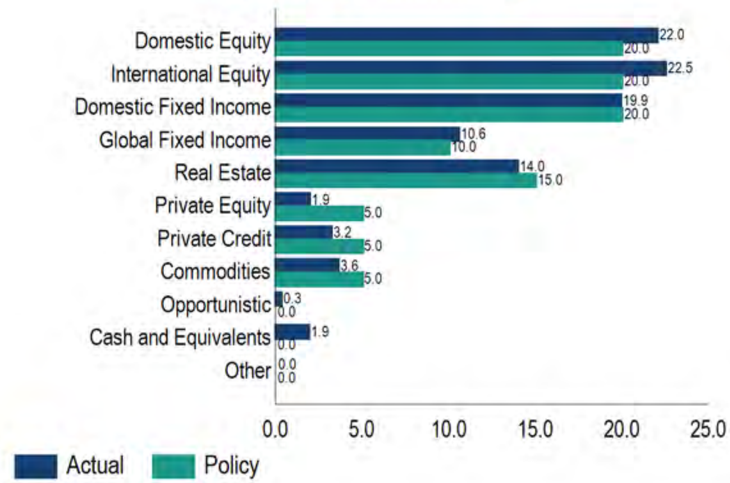
Change in Market Value
Last Three Months



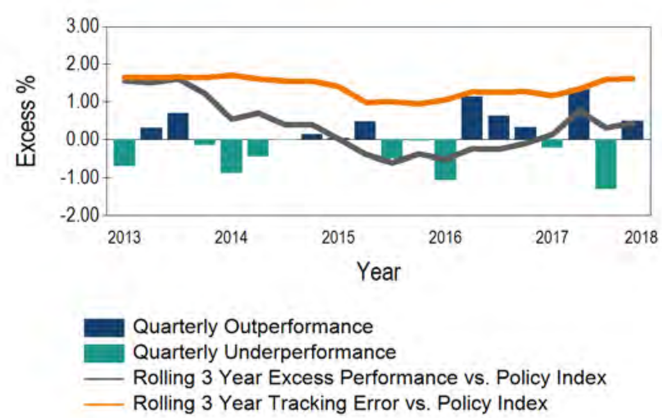
Contributions and withdrawals may include intra-account transfers between managers/funds.

	QTD	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	2.7	51	3.1	67	6.3	77	9.0	79	6.5	83
Policy Index	2.2	76	2.5	82	6.0	82	8.6	86	6.5	83
Total Fund ex Overlay	2.7	50	3.1	66	6.3	76	9.0	79	6.5	83
Policy Index	2.2	76	2.5	82	6.0	82	8.6	86	6.5	83
Total Domestic Equity	8.6	1	10.9	27	19.1	15	18.8	4	13.8	11
Russell 3000	7.1	16	10.6	40	17.6	34	17.1	27	13.5	21
Total International Equity	2.2	6	0.1	7	3.4	17	10.1	58	5.9	21
MSCI ACWI ex USA Gross	0.8	27	-2.7	45	2.3	36	10.5	43	4.6	66
Total Domestic Fixed Income	0.9	7	0.7	7	1.5	9	3.0	27	2.9	34
BBgBarc US Aggregate TR	0.0	88	-1.6	94	-1.2	96	1.3	69	2.2	62
Total Global Fixed	-1.5	99	-6.3	98	-6.2	99	4.0	79	-0.8	97
FTSE World Govt Bond Index	-1.6	99	-2.5	63	-1.5	45	1.7	99	0.2	86
Total Real Estate	1.7	--	5.8	--	7.8	--	9.0	--	10.5	--
NCREIF Property Index	1.7	--	5.3	--	7.2	--	7.8	--	9.6	--
Total Commodities	-0.8	--	0.9	--	7.5	--	2.4	--	-5.6	--
Bloomberg Commodity Index TR USD	-2.0	--	-2.0	--	2.6	--	-0.1	--	-7.2	--
Total Private Equity	3.6	--	13.0	--	16.4	--	16.5	--	18.1	--
Russell 3000 + 3%	7.9	--	13.0	--	21.1	--	20.5	--	16.8	--
Total Private Credit	3.8	--	9.2	--	10.9	--	--	--	--	--
BBgBarc High Yield +2% (Lagged)	1.5	--	2.1	--	4.7	--	--	--	--	--
Total Cash	0.0	--	1.0	--	1.3	--	0.9	--	0.6	--
91 Day T-Bills	0.5	--	1.3	--	1.6	--	0.9	--	0.5	--
Total Opportunistic	2.2	--	16.9	--	16.2	--	12.3	--	10.5	--
Russell 3000 + 3%	7.9	--	13.0	--	21.1	--	20.5	--	16.8	--

Actual vs Target Allocation (%)

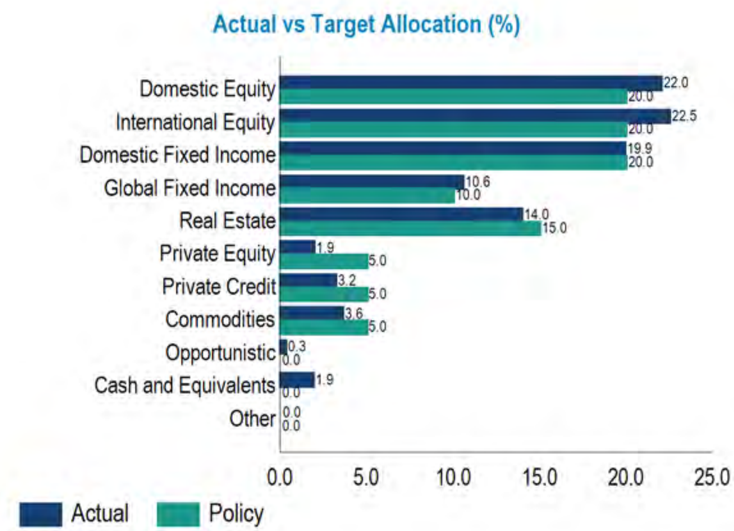


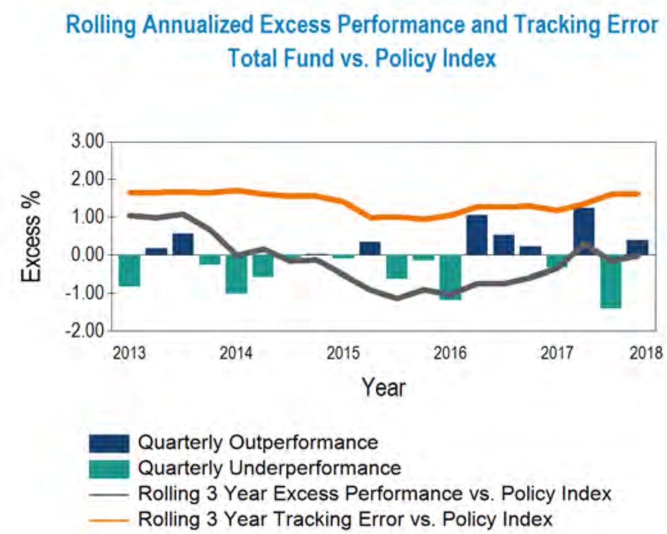
Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%, 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. Stone Harbor funded 7/9/13. Gresham TAP funded 8/30/13. Pacific Asset Corporate Loan funded 9/1/2014. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. All returns are (G) Gross of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

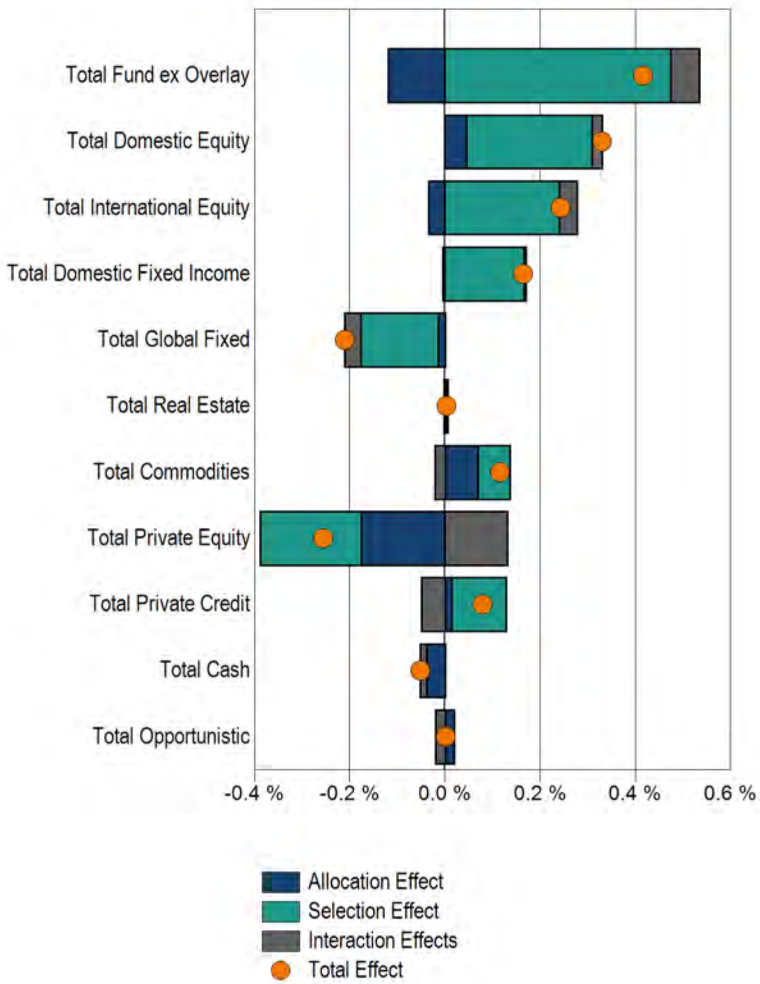
	QTD	Rank	YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	**2.6**	**53**	**2.8**	**76**	**5.9**	**83**	**8.5**	**87**	**6.0**	**92**
Policy Index	*2.2*	*76*	*2.5*	*82*	*6.0*	*82*	*8.6*	*86*	*6.5*	*83*
Total Fund ex Overlay	2.6	53	2.8	76	5.9	82	8.5	87	6.1	92
Policy Index	*2.2*	*76*	*2.5*	*82*	*6.0*	*82*	*8.6*	*86*	*6.5*	*83*
Total Domestic Equity	**8.5**	**1**	**10.5**	**41**	**18.5**	**17**	**18.3**	**6**	**13.3**	**33**
Russell 3000	*7.1*	*16*	*10.6*	*40*	*17.6*	*34*	*17.1*	*27*	*13.5*	*21*
Total International Equity	**2.0**	**7**	**-0.4**	**9**	**2.7**	**26**	**9.4**	**82**	**5.2**	**44**
MSCI ACWI ex USA Gross	*0.8*	*27*	*-2.7*	*45*	*2.3*	*36*	*10.5*	*43*	*4.6*	*66*
Total Domestic Fixed Income	**0.9**	**8**	**0.5**	**10**	**1.2**	**11**	**2.7**	**32**	**2.7**	**46**
BBgBarc US Aggregate TR	*0.0*	*88*	*-1.6*	*94*	*-1.2*	*96*	*1.3*	*69*	*2.2*	*62*
Total Global Fixed	**-1.7**	**99**	**-6.7**	**99**	**-6.8**	**99**	**3.3**	**85**	**-1.4**	**99**
FTSE World Govt Bond Index	*-1.6*	*99*	*-2.5*	*63*	*-1.5*	*45*	*1.7*	*99*	*0.2*	*86*
Total Real Estate	**1.7**	**--**	**5.8**	**--**	**7.8**	**--**	**8.5**	**--**	**9.9**	**--**
NCREIF Property Index	*1.7*	*--*	*5.3*	*--*	*7.2*	*--*	*7.8*	*--*	*9.6*	*--*
Total Commodities	**-0.8**	**--**	**0.9**	**--**	**7.5**	**--**	**2.1**	**--**	**-6.0**	**--**
Bloomberg Commodity Index TR USD	*-2.0*	*--*	*-2.0*	*--*	*2.6*	*--*	*-0.1*	*--*	*-7.2*	*--*
Total Private Equity	**3.6**	**--**	**13.0**	**--**	**16.4**	**--**	**15.6**	**--**	**16.2**	**--**
Russell 3000 + 3%	*7.9*	*--*	*13.0*	*--*	*21.1*	*--*	*20.5*	*--*	*16.8*	*--*
Total Private Credit	**3.8**	**--**	**9.2**	**--**	**10.9**	**--**	**--**	**--**	**--**	**--**
BBgBarc High Yield +2% (Lagged)	*1.5*	*--*	*2.1*	*--*	*4.7*	*--*	*--*	*--*	*--*	*--*
Total Cash	**0.0**	**--**	**1.0**	**--**	**1.3**	**--**	**0.9**	**--**	**0.6**	**--**
91 Day T-Bills	*0.5*	*--*	*1.3*	*--*	*1.6*	*--*	*0.9*	*--*	*0.5*	*--*
Total Opportunistic	**2.2**	**--**	**16.9**	**--**	**16.2**	**--**	**11.7**	**--**	**10.1**	**--**
Russell 3000 + 3%	*7.9*	*--*	*13.0*	*--*	*21.1*	*--*	*20.5*	*--*	*16.8*	*--*





New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%, 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. Stone Harbor funded 7/9/13. Gresham TAP funded 8/30/13. Pacific Asset Corporate Loan funded 9/1/2014. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. All returns are (N) Net of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Attribution Effects
3 Months Ending September 30, 2018



Performance Attribution

	Last 3 Mo.	YTD
Wtd. Actual Return	2.62%	2.78%
Wtd. Index Return *	2.20%	2.54%
Excess Return	**0.42%**	**0.24%**
Selection Effect	0.48%	0.89%
Allocation Effect	-0.12%	-0.38%
Interaction Effect	0.06%	-0.27%

*Calculated from policy benchmark returns and policy weightings of each compenent of the policy benchmark.

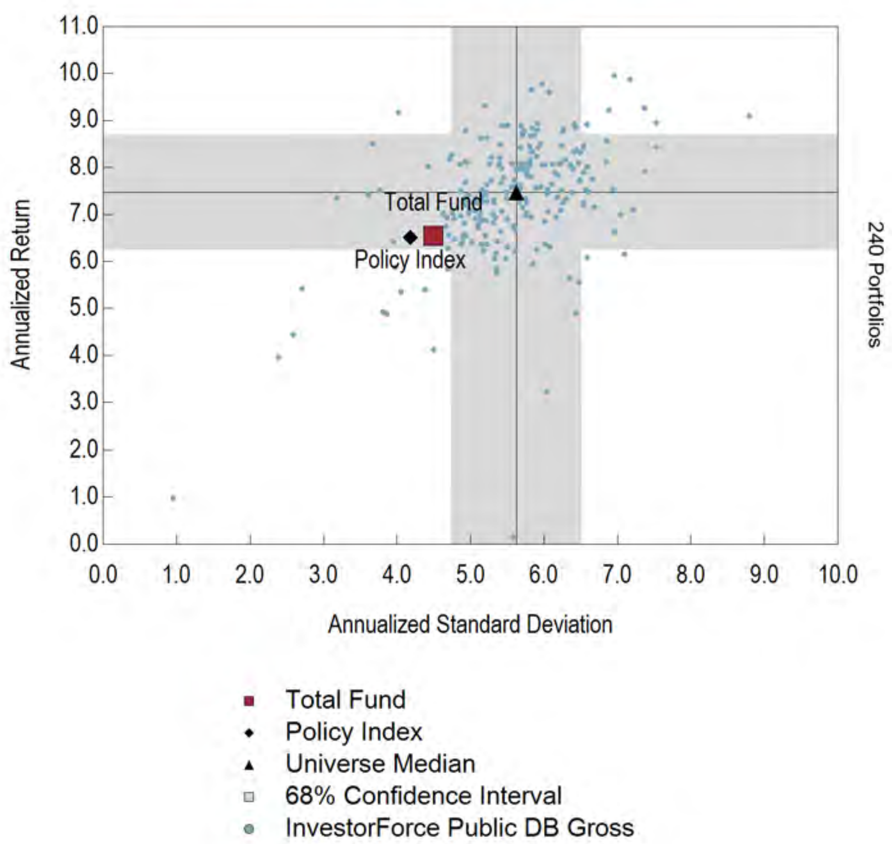
Attribution Summary
3 Months Ending September 30, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	8.51%	7.12%	1.39%	0.26%	0.05%	0.02%	0.33%
Total International Equity	2.00%	0.80%	1.20%	0.24%	-0.03%	0.04%	0.24%
Total Domestic Fixed Income	0.85%	0.02%	0.83%	0.17%	0.00%	0.00%	0.16%
Total Global Fixed	-1.71%	0.02%	-1.73%	-0.16%	-0.02%	-0.03%	-0.21%
Total Real Estate	1.67%	1.67%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Commodities	-0.76%	-2.02%	1.27%	0.07%	0.07%	-0.02%	0.12%
Total Private Equity	3.60%	7.90%	-4.30%	-0.21%	-0.18%	0.13%	-0.26%
Total Private Credit	3.75%	1.53%	2.23%	0.11%	0.01%	-0.05%	0.08%
Total Cash	0.00%	0.49%	-0.49%	0.00%	-0.04%	-0.01%	-0.05%
Total Opportunistic	2.21%	7.90%	-5.69%	0.00%	0.02%	-0.02%	0.00%
Total	**2.62%**	**2.20%**	**0.42%**	**0.48%**	**-0.12%**	**0.06%**	**0.42%**

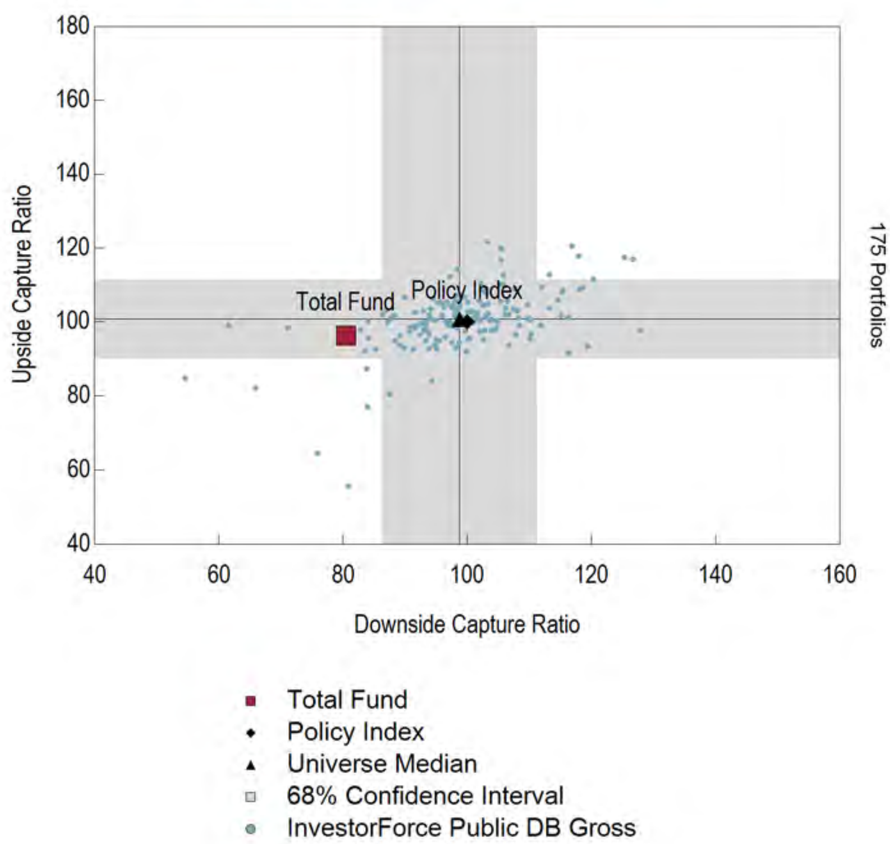
Attribution does not account for effects of overlay program. Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.

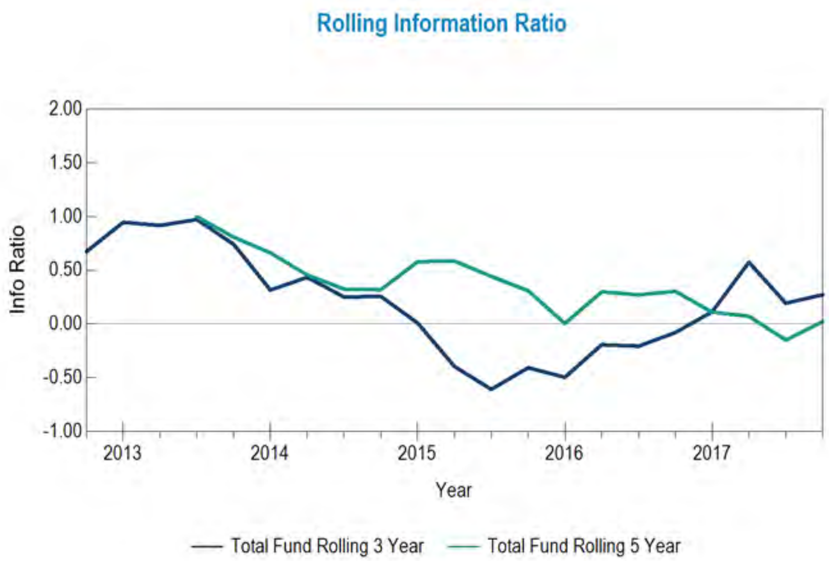
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.54%	0.03%	4.50%	-0.11%	1.02	1.41%	0.90	1.34	0.02	96.26%	80.44%

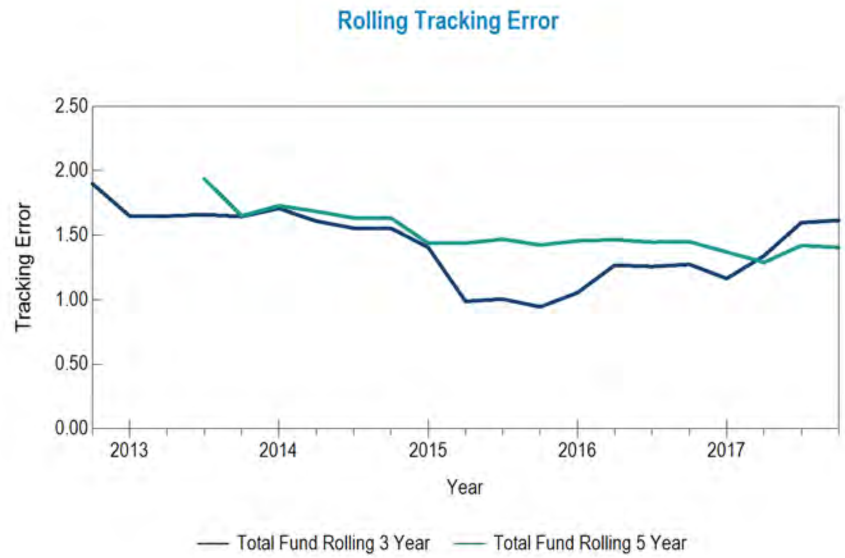
Annualized Return vs. Annualized Standard Deviation

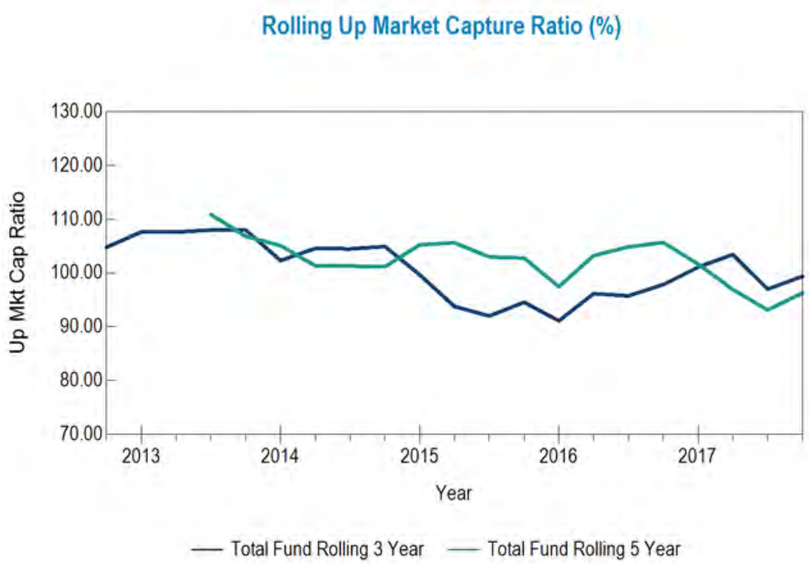


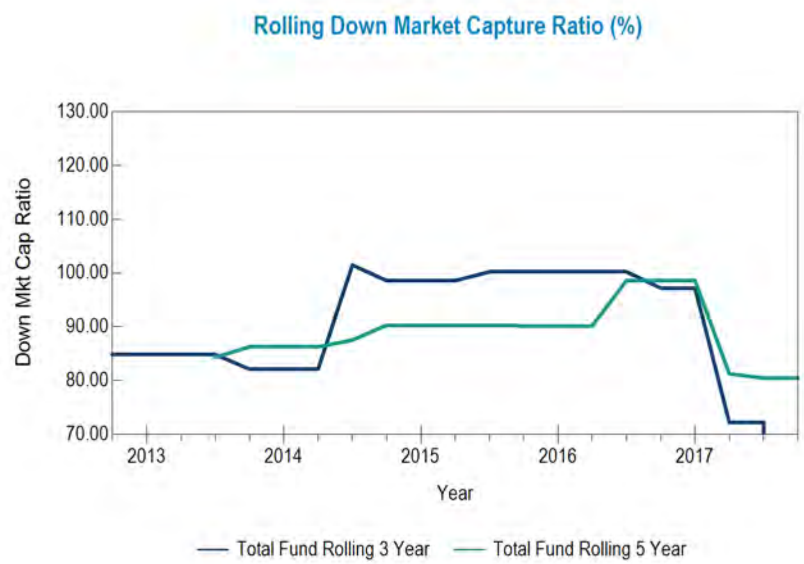
Upside Capture Ratio vs. Downside Capture Ratio




Rolling Information Ratio
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
Info Ratio
2013
2014
2015
2016
2017
Year
Total Fund Rolling 3 Year
Total Fund Rolling 5 Year


Rolling Tracking Error
2.50
2.00
1.50
1.00
0.50
0.00
Tracking Error
2013
2014
2015
2016
2017
Year
Total Fund Rolling 3 Year
Total Fund Rolling 5 Year


Rolling Up Market Capture Ratio (%)
130.00
120.00
110.00
100.00
90.00
80.00
70.00
Up Mkt Cap Ratio
2013
2014
2015
2016
2017
Year
Total Fund Rolling 3 Year
Total Fund Rolling 5 Year


Rolling Down Market Capture Ratio (%)
130.00
120.00
110.00
100.00
90.00
80.00
70.00
Down Mkt Cap Ratio
2013
2014
2015
2016
2017
Year
Total Fund Rolling 3 Year
Total Fund Rolling 5 Year

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Fund	**1,386,803,644**	**100.0**	**2.7**	**3.1**	**6.3**	**9.0**	**6.5**	**--**	**15.5**	**6.6**	**-0.8**	**5.1**	**13.8**		
InvestorForce Public DB Gross Rank			*51*	*67*	*77*	*79*	*83*	*--*	*47*	*84*	*74*	*66*	*71*		
Total Fund ex Overlay	1,386,197,220	100.0	2.7	3.1	6.3	9.0	6.5	7.5	15.3	6.6	-0.8	5.2	13.8		
Policy Index			*2.2*	*2.5*	*6.0*	*8.6*	*6.5*	*6.8*	*13.4*	*7.8*	*-0.5*	*5.2*	*13.4*		
InvestorForce Public DB Gross Rank			*50*	*66*	*76*	*79*	*83*	*57*	*51*	*83*	*75*	*64*	*72*		
Total Domestic Equity	**305,338,518**	**22.0**	**8.6**	**10.9**	**19.1**	**18.8**	**13.8**	**13.0**	**25.1**	**13.0**	**1.2**	**11.0**	**32.2**		
Russell 3000			*7.1*	*10.6*	*17.6*	*17.1*	*13.5*	*12.0*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*		
InvestorForce Public DB US Eq Gross Rank			*1*	*27*	*15*	*4*	*11*	*2*	*4*	*48*	*18*	*60*	*91*		
PIMCO RAE Fundamental PLUS Instl	64,308,277	4.6	7.1	8.6	16.5	15.6	12.3	11.9	17.0	15.9	-2.7	12.7	36.0	8.7	Nov-07
S&P 500			*7.7*	*10.6*	*17.9*	*17.3*	*13.9*	*12.0*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*	*8.8*	*Nov-07*
eV US Large Cap Core Equity Gross Rank			*56*	*65*	*57*	*64*	*78*	*51*	*89*	*6*	*86*	*58*	*22*	*69*	*Nov-07*
Loomis Sayles Large Cap Growth	87,490,198	6.3	11.0	15.3	22.8	--	--	--	34.1	--	--	--	--	28.3	Dec-16
Russell 1000 Growth			*9.2*	*17.1*	*26.3*	*--*	*--*	*--*	*30.2*	*--*	*--*	*--*	*--*	*27.3*	*Dec-16*
eV US Large Cap Growth Equity Gross Rank			*4*	*62*	*67*	*--*	*--*	*--*	*16*	*--*	*--*	*--*	*--*	*36*	*Dec-16*
Boston Partners Large Cap Value	88,122,185	6.4	7.8	6.1	13.5	--	--	--	--	--	--	--	--	15.0	Jan-17
Russell 1000 Value			*5.7*	*3.9*	*9.5*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*10.0*	*Jan-17*
eV US Large Cap Value Equity Gross Rank			*12*	*37*	*35*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*18*	*Jan-17*
Atlanta Capital Mgmt	65,417,858	4.7	8.3	13.9	24.7	20.5	15.8	--	26.6	12.6	10.4	5.8	37.8	19.4	Aug-10
Russell 2500			*4.7*	*10.4*	*16.2*	*16.1*	*11.4*	*--*	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*	*15.4*	*Aug-10*
eV US Small-Mid Cap Equity Gross Rank			*16*	*31*	*22*	*14*	*4*	*--*	*15*	*62*	*1*	*56*	*52*	*2*	*Aug-10*
Total International Equity	**311,879,216**	**22.5**	**2.2**	**0.1**	**3.4**	**10.1**	**5.9**	**7.3**	**26.6**	**2.2**	**-4.3**	**2.1**	**17.9**		
MSCI ACWI ex USA Gross			*0.8*	*-2.7*	*2.3*	*10.5*	*4.6*	*5.7*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*		
InvestorForce Public DB ex-US Eq Gross Rank			*6*	*7*	*17*	*58*	*21*	*14*	*81*	*82*	*68*	*1*	*50*		
Dodge & Cox Intl Stock	146,820,501	10.6	1.0	-5.9	-4.7	8.9	4.4	6.5	24.7	9.0	-10.8	0.7	27.1	2.7	Dec-07
MSCI EAFE Gross			*1.4*	*-1.0*	*3.2*	*9.8*	*4.9*	*5.9*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*	*2.0*	*Dec-07*
eV All EAFE Equity Gross Rank			*47*	*95*	*99*	*77*	*90*	*65*	*74*	*3*	*99*	*13*	*32*	*66*	*Dec-07*
WCM International Growth	165,058,715	11.9	3.3	6.2	12.1	--	--	--	--	--	--	--	--	18.9	Feb-17
MSCI ACWI ex USA Gross			*0.8*	*-2.7*	*2.3*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*11.1*	*Feb-17*
eV ACWI ex-US All Cap Growth Eq Gross Rank			*4*	*8*	*5*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*14*	*Feb-17*

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Direct Real Estate is lagged one quarter. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018.

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Domestic Fixed Income	**275,998,491**	**19.9**	**0.9**	**0.7**	**1.5**	**3.0**	**2.9**	**4.9**	**4.3**	**4.5**	**1.1**	**4.7**	**-2.7**		
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	*1.3*	*2.2*	*3.8*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*		
InvestorForce Public DB US Fix Inc Gross Rank			*7*	*7*	*9*	*27*	*34*	*36*	*50*	*49*	*17*	*68*	*95*		
BlackRock Core Bond	99,700,600	7.2	0.3	-0.8	-0.3	--	--	--	--	--	--	--	--	1.3	Jan-17
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--	*1.0*	*Jan-17*
eV US Core Fixed Inc Gross Rank			*27*	*16*	*15*	--	--	--	--	--	--	--	--	*36*	*Jan-17*
Dodge & Cox Income Fund	99,634,507	7.2	0.7	-0.3	0.3	--	--	--	--	--	--	--	--	2.4	Jan-17
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--	*1.0*	*Jan-17*
eV US Core Fixed Inc Gross Rank			*2*	*6*	*7*	--	--	--	--	--	--	--	--	*4*	*Jan-17*
Pacific Asset Corporate Loan	76,663,383	5.5	2.0	4.4	5.8	6.0	--	--	4.9	9.2	2.5	--	--	4.8	Sep-14
S&P/LSTA Leveraged Loan Index			*1.8*	*4.0*	*5.2*	*5.3*	--	--	*4.1*	*10.2*	*-0.7*	--	--	*4.0*	*Sep-14*
eV US Float-Rate Bank Loan Fixed Inc Gross Rank			*18*	*15*	*16*	*23*	--	--	*26*	*51*	*9*	--	--	*32*	*Sep-14*
Total Global Fixed	**146,535,338**	**10.6**	**-1.5**	**-6.3**	**-6.2**	**4.0**	**-0.8**	**3.2**	**14.4**	**5.8**	**-11.8**	**-2.2**	**-3.8**		
FTSE World Govt Bond Index			*-1.6*	*-2.5*	*-1.5*	*1.7*	*0.2*	*2.2*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*		
InvestorForce Public DB Glbl Fix Inc Gross Rank			*99*	*98*	*99*	*79*	*97*	*99*	*29*	*67*	*95*	*93*	*59*		
Brandywine Global Fixed Income	74,634,520	5.4	0.0	-2.0	-2.3	3.5	1.0	4.2	12.5	2.2	-9.3	2.9	-1.6	3.9	Nov-07
FTSE WGBI ex US TR			*-2.2*	*-3.1*	*-1.6*	*2.4*	*-0.2*	*2.0*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*	*1.9*	*Nov-07*
eV Global Fixed Inc Unhedged Gross Rank			*53*	*53*	*83*	*48*	*73*	*46*	*9*	*71*	*96*	*43*	*59*	*43*	*Nov-07*
Stone Harbor Local Markets Ins	71,900,818	5.2	-3.0	-10.5	-10.0	4.7	-2.6	--	16.4	9.9	-14.4	-7.7	--	-2.5	Jul-13
JPM GBI-EM Global Diversified TR USD			*-1.8*	*-8.1*	*-7.4*	*5.2*	*-1.7*	--	*15.2*	*9.9*	*-14.9*	*-5.7*	--	*-1.5*	*Jul-13*
eV All Emg Mkts Fixed Inc Gross Rank			*97*	*97*	*97*	*87*	*99*	--	*14*	*67*	*79*	*98*	--	*99*	*Jul-13*
Total Real Estate	**193,741,508**	**14.0**	**1.7**	**5.8**	**7.8**	**9.0**	**10.5**	**5.5**	**7.8**	**7.8**	**18.0**	**10.4**	**12.9**		
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*		
JP Morgan Core Real Estate	160,324,479	11.6	1.6	5.3	6.9	7.8	10.0	6.0	6.1	8.4	15.2	11.2	15.9	5.7	Mar-08
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*	*5.4*	*Mar-08*
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*	*6.3*	*Mar-08*
ARA American Strategic Value Realty	21,645,006	1.6	2.9	7.3	9.5	--	--	--	7.4	--	--	--	--	9.1	Jun-16
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	--	--	--	*7.6*	--	--	--	--	*8.2*	*Jun-16*
NCREIF Property Index			*1.7*	*5.3*	*7.2*	--	--	--	*7.0*	--	--	--	--	*7.1*	*Jun-16*
Direct Real Estate	11,772,024	0.8	1.3	9.0	14.9	15.3	12.8	7.1	20.6	5.5	22.9	6.1	5.2		
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*		
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*		

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Direct Real Estate is lagged one quarter. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018.

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Commodities	**50,207,126**	**3.6**	**-0.8**	**0.9**	**7.5**	**2.4**	**-5.6**	**--**	**6.2**	**12.6**	**-25.2**	**-16.0**	**-9.1**		
Bloomberg Commodity Index TR USD			*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*		
Gresham MTAP Commodity Builder	50,207,126	3.6	-0.8	0.9	7.5	2.4	-5.6	--	6.2	12.6	-25.2	-16.0	--	-5.9	Aug-13
Bloomberg Commodity Index TR USD			*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*--*	*-7.5*	*Aug-13*
Total Cash	**26,495,391**	**1.9**	**0.0**	**1.0**	**1.3**	**0.9**	**0.6**	**0.7**	**1.0**	**0.5**	**0.4**	**0.3**	**0.3**		
91 Day T-Bills			*0.5*	*1.3*	*1.6*	*0.9*	*0.5*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*		
Cash Account	26,495,391	1.9	0.0	1.0	1.3	0.9	0.6	0.7	1.0	0.5	0.4	0.3	0.3		
91 Day T-Bills			*0.5*	*1.3*	*1.6*	*0.9*	*0.5*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*		

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Direct Real Estate is lagged one quarter. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018.

Total Fund
Performance Summary (Net of Fees) Period Ending: September 30, 2018

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	**1,386,803,644**	**100.0**	**2.6**	**2.8**	**5.9**	**8.5**	**6.0**	**--**	**15.0**	**6.0**	**-1.3**	**4.6**	**13.3**
Total Fund ex Overlay	1,386,197,220	100.0	2.6	2.8	5.9	8.5	6.1	7.0	14.9	6.1	-1.3	4.7	13.2
Policy Index			*2.2*	*2.5*	*6.0*	*8.6*	*6.5*	*6.8*	*13.4*	*7.8*	*-0.5*	*5.2*	*13.4*
Total Domestic Equity	**305,338,518**	**22.0**	**8.5**	**10.5**	**18.5**	**18.3**	**13.3**	**12.7**	**24.5**	**12.7**	**0.8**	**10.5**	**31.6**
Russell 3000			*7.1*	*10.6*	*17.6*	*17.1*	*13.5*	*12.0*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
PIMCO RAE Fundamental PLUS Instl	64,308,277	4.6	7.0	8.2	16.1	15.1	11.8	11.5	16.5	15.4	-3.2	12.3	35.6
S&P 500			*7.7*	*10.6*	*17.9*	*17.3*	*13.9*	*12.0*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
Loomis Sayles Large Cap Growth	87,490,198	6.3	10.8	14.9	22.3	--	--	--	33.5	--	--	--	--
Russell 1000 Growth			*9.2*	*17.1*	*26.3*	--	--	--	*30.2*	--	--	--	--
Boston Partners Large Cap Value	88,122,185	6.4	7.7	5.8	13.1	--	--	--	--	--	--	--	--
Russell 1000 Value			*5.7*	*3.9*	*9.5*	--	--	--	--	--	--	--	--
Atlanta Capital Mgmt	65,417,858	4.7	8.1	13.3	23.8	19.5	14.9	--	25.6	11.7	9.6	5.0	37.0
Russell 2500			*4.7*	*10.4*	*16.2*	*16.1*	*11.4*	--	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*
Total International Equity	**311,879,216**	**22.5**	**2.0**	**-0.4**	**2.7**	**9.4**	**5.2**	**6.8**	**25.8**	**1.6**	**-4.9**	**1.4**	**17.0**
MSCI ACWI ex USA Gross			*0.8*	*-2.7*	*2.3*	*10.5*	*4.6*	*5.7*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
Dodge & Cox Intl Stock	146,820,501	10.6	0.8	-6.4	-5.3	8.2	3.7	5.9	23.9	8.3	-11.4	0.1	26.3
MSCI EAFE Gross			*1.4*	*-1.0*	*3.2*	*9.8*	*4.9*	*5.9*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
WCM International Growth	165,058,715	11.9	3.1	5.6	11.3	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross			*0.8*	*-2.7*	*2.3*	--	--	--	--	--	--	--	--
Total Domestic Fixed Income	**275,998,491**	**19.9**	**0.9**	**0.5**	**1.2**	**2.7**	**2.7**	**4.7**	**3.9**	**4.2**	**0.9**	**4.4**	**-3.0**
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	*1.3*	*2.2*	*3.8*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
BlackRock Core Bond	99,700,600	7.2	0.2	-1.0	-0.6	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
Dodge & Cox Income Fund	99,634,507	7.2	0.6	-0.6	-0.1	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
Pacific Asset Corporate Loan	76,663,383	5.5	2.0	4.1	5.5	5.6	--	--	4.6	8.8	2.1	--	--
S&P/LSTA Leveraged Loan Index			*1.8*	*4.0*	*5.2*	*5.3*	--	--	*4.1*	*10.2*	*-0.7*	--	--
Total Global Fixed	**146,535,338**	**10.6**	**-1.7**	**-6.7**	**-6.8**	**3.3**	**-1.4**	**--**	**13.7**	**5.1**	**-12.4**	**-2.8**	**-4.4**
FTSE World Govt Bond Index			*-1.6*	*-2.5*	*-1.5*	*1.7*	*0.2*	--	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
Brandywine Global Fixed Income	74,634,520	5.4	-0.1	-2.3	-2.7	3.0	0.5	--	12.0	1.7	-9.7	2.4	-2.3
FTSE WGBI ex US TR			*-2.2*	*-3.1*	*-1.6*	*2.4*	*-0.2*	--	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*
Stone Harbor Local Markets Ins	71,900,818	5.2	-3.3	-11.1	-10.8	3.7	-3.5	--	15.4	9.0	-15.1	-8.6	--
JPM GBI-EM Global Diversified TR USD			*-1.8*	*-8.1*	*-7.4*	*5.2*	*-1.7*	--	*15.2*	*9.9*	*-14.9*	*-5.7*	--

Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Direct Real Estate is lagged one quarter. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018.

Total Fund
Performance Summary (Net of Fees) — Period Ending: September 30, 2018

	Market Value	% of Portfolio	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	**193,741,508**	**14.0**	**1.7**	**5.8**	**7.8**	**8.5**	**9.9**	**5.0**	**7.8**	**6.8**	**16.9**	**9.6**	**12.1**
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	160,324,479	11.6	1.6	5.3	6.9	7.3	9.3	5.3	6.1	7.3	14.1	10.0	14.8
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	21,645,006	1.6	2.9	7.3	9.5	--	--	--	7.4	--	--	--	--
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	--	--	--	*7.6*	--	--	--	--
NCREIF Property Index			*1.7*	*5.3*	*7.2*	--	--	--	*7.0*	--	--	--	--
Direct Real Estate	11,772,024	0.8	1.3	9.0	14.9	15.0	12.5	7.0	20.6	4.9	22.2	6.1	5.2
NCREIF-ODCE			*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index			*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
Total Commodities	**50,207,126**	**3.6**	**-0.8**	**0.9**	**7.5**	**2.1**	**-6.0**	**--**	**6.2**	**11.8**	**-25.8**	**-16.6**	**-9.5**
Bloomberg Commodity Index TR USD			*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	--	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	50,207,126	3.6	-0.8	0.9	7.5	2.1	-6.0	--	6.2	11.8	-25.8	-16.6	--
Bloomberg Commodity Index TR USD			*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	--	*1.7*	*11.8*	*-24.7*	*-17.0*	--
Total Cash	**26,495,391**	**1.9**	**0.0**	**1.0**	**1.3**	**0.9**	**0.6**	**0.7**	**1.0**	**0.5**	**0.4**	**0.3**	**0.3**
91 Day T-Bills			*0.5*	*1.3*	*1.6*	*0.9*	*0.5*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*
Cash Account	26,495,391	1.9	0.0	1.0	1.3	0.9	0.6	0.7	1.0	0.5	0.4	0.3	0.3
91 Day T-Bills			*0.5*	*1.3*	*1.6*	*0.9*	*0.5*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*

Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Direct Real Estate is lagged one quarter. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018.

3 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
PIMCO RAE Fundamental PLUS Instl	15.13%	-2.17%	4.92%	0.86%	0.82	2.87%	0.69	2.91	-0.76	87.73%	200.47%
Atlanta Capital Mgmt	19.51%	3.38%	5.16%	16.45%	0.19	6.18%	0.03	3.63	0.55	120.87%	-446.04%
Dodge & Cox Intl Stock	8.20%	-1.57%	9.88%	-2.68%	1.11	5.41%	0.71	0.75	-0.29	92.06%	125.83%
Pacific Asset Corporate Loan	5.64%	0.32%	1.69%	2.51%	0.59	1.28%	0.85	2.82	0.25	95.72%	24.82%
Brandywine Global Fixed Income	3.04%	0.65%	9.22%	1.09%	0.82	4.28%	0.83	0.24	0.15	90.17%	80.59%
Stone Harbor Local Markets Ins	3.73%	-1.44%	12.51%	-1.97%	1.10	1.85%	0.99	0.23	-0.78	100.93%	120.43%
JP Morgan Core Real Estate	7.34%	-1.46%	0.91%	-1.91%	1.05	0.28%	0.91	7.18	-5.18	82.22%	--
Direct Real Estate	15.02%	6.22%	6.01%	-15.84%	3.51	5.66%	0.23	2.37	1.10	181.19%	--
Gresham MTAP Commodity Builder	2.10%	2.22%	11.19%	2.22%	0.99	1.96%	0.97	0.12	1.13	120.04%	89.69%

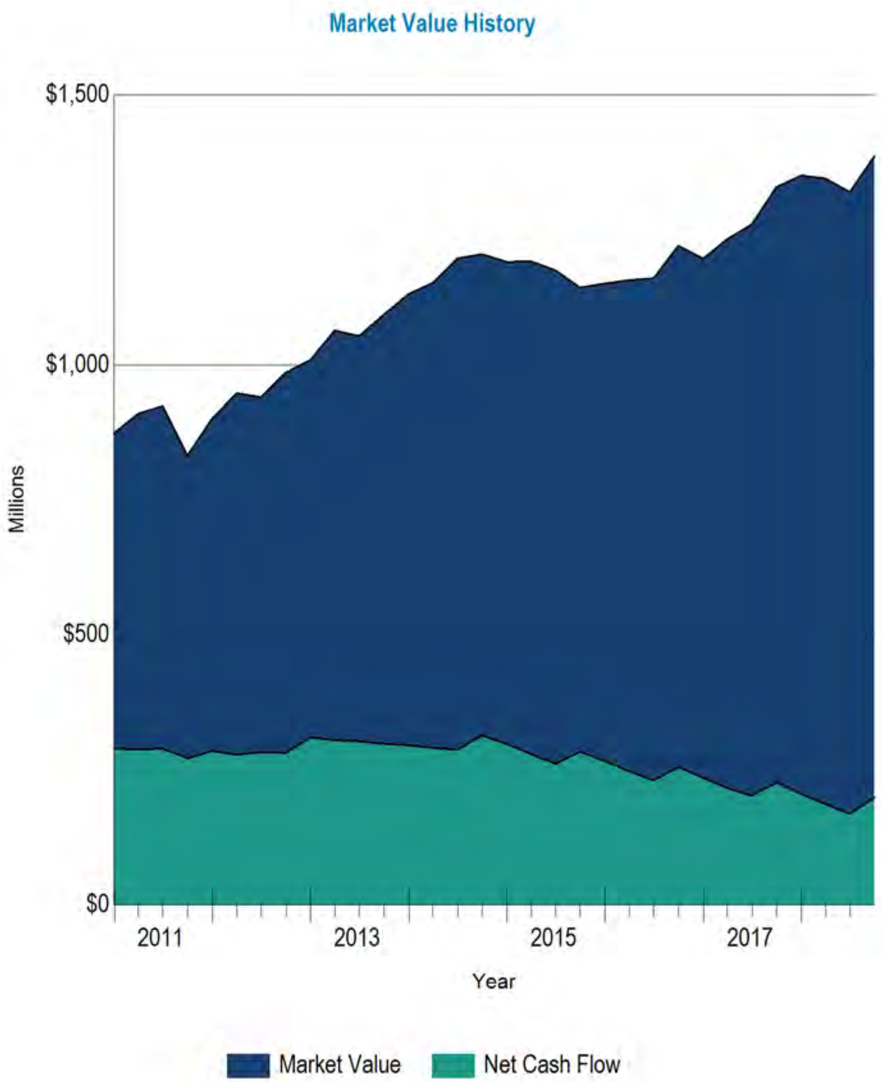
5 Years

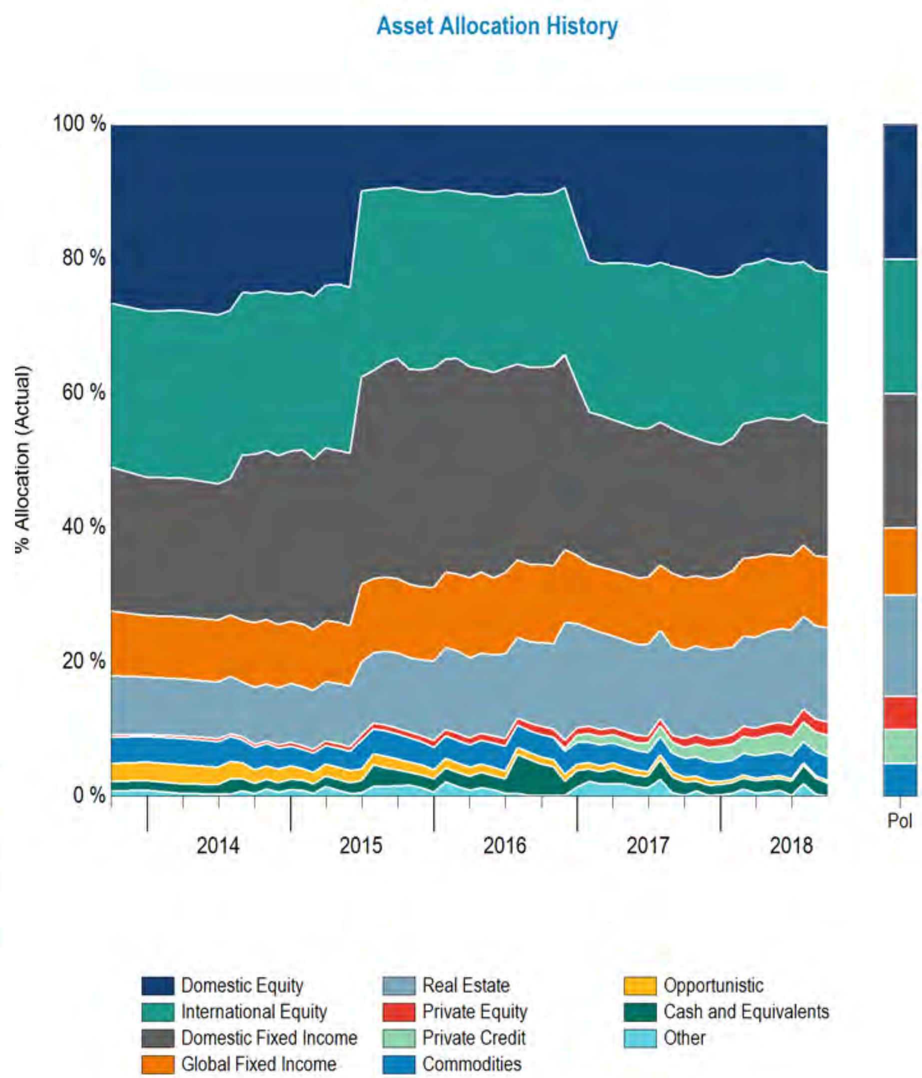
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
PIMCO RAE Fundamental PLUS Instl	11.81%	-2.13%	7.59%	-2.01%	0.99	2.43%	0.90	1.49	-0.88	85.38%	120.59%
Atlanta Capital Mgmt	14.86%	3.49%	8.19%	6.54%	0.73	5.58%	0.62	1.75	0.63	109.38%	38.35%
Dodge & Cox Intl Stock	3.74%	-1.16%	11.91%	-1.91%	1.15	5.22%	0.82	0.27	-0.22	100.64%	117.87%
Brandywine Global Fixed Income	0.53%	0.76%	7.98%	0.71%	0.77	4.61%	0.73	0.00	0.17	76.64%	73.36%
Direct Real Estate	12.53%	1.81%	6.78%	7.27%	0.49	6.79%	0.01	1.77	0.27	121.20%	--
JP Morgan Core Real Estate	9.26%	-1.46%	1.53%	-1.52%	1.01	0.65%	0.82	5.72	-2.25	83.93%	--

Vintage	Manager & Fund Name	Estimated 9/30 Market Value[3]	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI)[1]	Tot. Value/ Paid-In (TVPI)[2]	Net IRR Since Inception[5]	IRR Date
2011	HarbourVest Partners IX-Buyout Fund L.P.	$13,891,440	$20,000,000	$14,147,399	71%	$5,852,601	$8,350,123	$14,390,509	59.0%	157.2%	17.8%	6/30/18
2010	KKR Mezzanine Partners I L.P. [6]	$4,369,912	$20,000,000	$20,000,000	100%	$0	$29,566,840	$4,407,942	147.8%	169.7%	9.1%	6/30/18
2010	PIMCO Distressed Credit Fund [4]	$161,218	$20,000,000	$20,000,000	100%	$0	$27,899,650	$161,218	139.5%	140.3%	12.4%	6/30/18
2016	TPG Diversified Credit Program	$44,441,728	$75,000,000	$40,911,804	55%	$34,088,196	$486,501	$35,391,370	1.2%	109.8%	10.4%	6/30/18
2017	Pathway Private Equity Fund Investors 9 L.P.	$13,137,333	$65,000,000	$10,279,842	16%	$54,720,158	-	-	-	-	-	-
	Total Alternative Illiquids	**$76,001,631**	$200,000,000	$105,339,045	53%	$94,660,955	$66,303,113	$54,351,039	51.6%	114.5%		
	% of Portfolio (Market Value)	5.5%										

	Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense[7]
HarbourVest Partners IX-Buyout Fund L.P.	$49,805	$0	$0	$16,377	$66,182
KKR Mezzanine Partners I L.P.	$15,853	$0	$0	$0	$15,853
PIMCO Distressed Credit Fund [4]	$0	$0	$0	$4,094	$4,094
TPG Diversified Credit Program	$73,148	$0	$0	$0	$73,148
Pathway Private Equity Fund Investors 9 L.P.	-	-	-	-	-
	$138,806	$0	$0	$20,471	**$159,277**

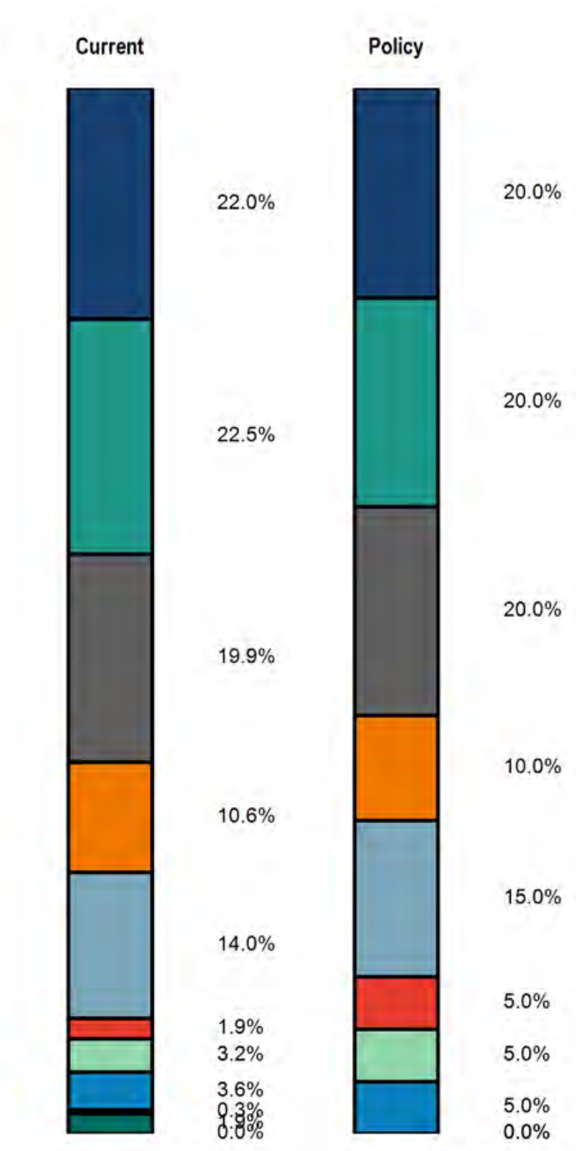
[1](DPI) is equal to (capital returned / capital called)
[2](TVPI) is equal to (market value + capital returned) / capital called
[3]Last known market value + capital calls - distributions
[4]Investment period ended, no further capital to be called.
[5]Net IRR is calculated on the cash flows of the underlying investments of the fund and is net of the underlying fund fees and carried interest
[6]KKR: As of 3Q2018, total capital called is $23,593,570, which includes recycled distributions. Unused capital commitment is $2,109,437 after including distribution proceeds available for reinvestment
[7]All fees and expenses are for 2Q 2018





*Other balance represents Clifton Group

Total Fund
Asset Allocation vs. Policy
Period Ending: September 30, 2018



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	$305,338,518	22.0%	20.0%	$27,977,789	15.0% - 30.0%	Yes
International Equity	$311,879,216	22.5%	20.0%	$34,518,488	15.0% - 30.0%	Yes
Domestic Fixed Income	$275,998,491	19.9%	20.0%	-$1,362,238	10.0% - 30.0%	Yes
Global Fixed Income	$146,535,338	10.6%	10.0%	$7,854,974	0.0% - 20.0%	Yes
Real Estate	$193,741,508	14.0%	15.0%	-$14,279,038	5.0% - 20.0%	Yes
Private Equity	$27,028,773	1.9%	5.0%	-$42,311,409	0.0% - 10.0%	Yes
Private Credit	$44,441,728	3.2%	5.0%	-$24,898,454	0.0% - 10.0%	Yes
Commodities	$50,207,126	3.6%	5.0%	-$19,133,056	0.0% - 10.0%	Yes
Opportunistic	$4,531,130	0.3%	0.0%	$4,531,130	0.0% - 10.0%	Yes
Cash and Equivalents	$26,495,391	1.9%	0.0%	$26,495,391	0.0% - 5.0%	Yes
Other	$606,424	0.0%	--	$606,424	--	No
Total	**$1,386,803,644**	**100.0%**	**100.0%**			

**Other balance represents Clifton Group*

Total Fund
Investment Fund Fee Analysis

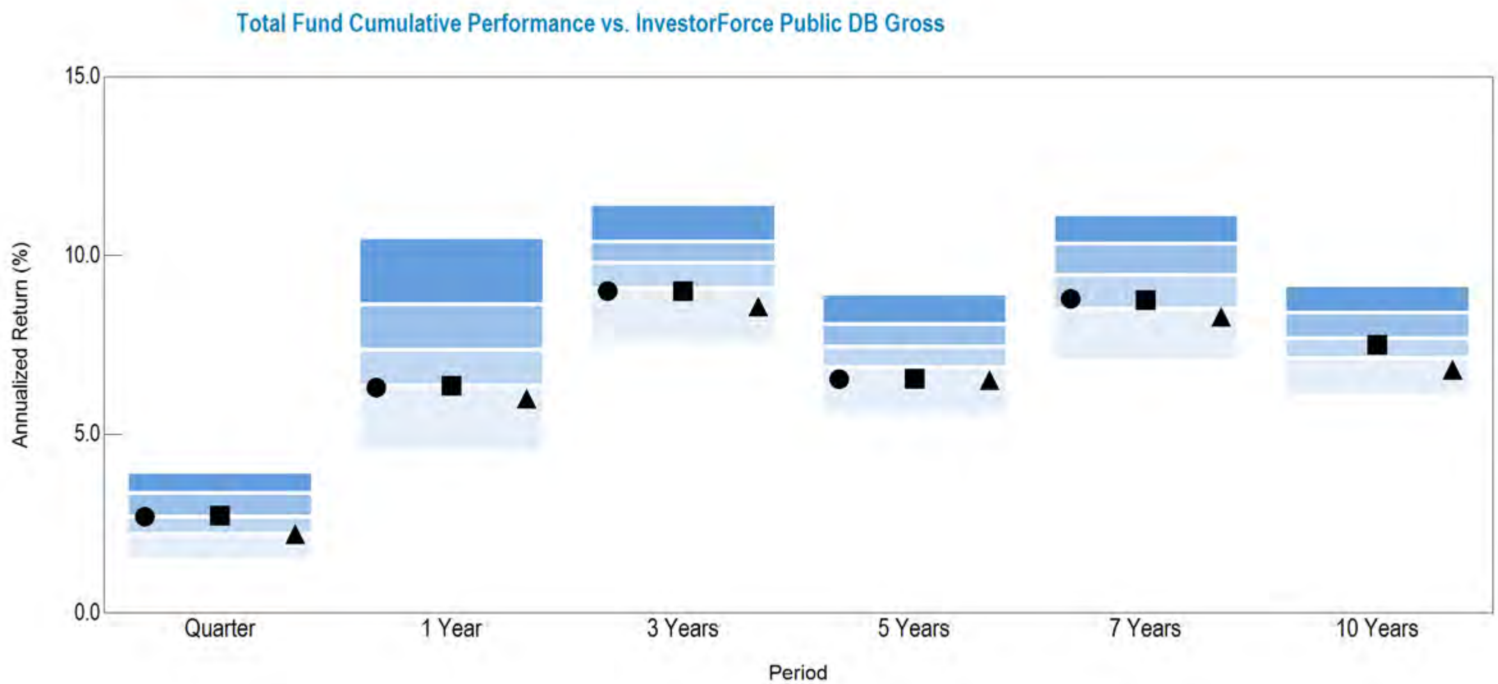
Period Ending: September 30, 2018

Account	Fee Schedule	Market Value As of 9/30/2018	% of Portfolio	Estimated Annual Fee ($)	Estimated Annual Fee (%)
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	$21,645,006	1.6%	$264,740	1.22%
Atlanta Capital Mgmt	0.80% of First 50.0 Mil, 0.70% of Next 100.0 Mil, 0.60% Thereafter	$65,417,858	4.7%	$507,925	0.78%
BlackRock Core Bond	0.28% of First 100.0 Mil, 0.26% Thereafter	$99,700,600	7.2%	$279,162	0.28%
Boston Partners Large Cap Value	0.40% of Assets	$88,122,185	6.4%	$352,489	0.40%
Brandywine Global Fixed Income	0.45% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	$74,634,520	5.4%	$323,538	0.43%
Cash Account	No Fee	$26,495,391	1.9%	--	--
Direct Real Estate	No Fee	$11,772,024	0.8%	--	--
Dodge & Cox Income Fund	0.43% of Assets	$99,634,507	7.2%	$428,428	0.43%
Dodge & Cox Intl Stock	0.64% of Assets	$146,820,501	10.6%	$939,651	0.64%
Gresham MTAP Commodity Builder	0.75% of First 50.0 Mil, 0.50% Thereafter	$50,207,126	3.6%	$376,036	0.75%
Harbourvest Partners IX Buyout Fund L.P.	200,000 Annually	$13,891,440	1.0%	$200,000	1.44%
JP Morgan Core Real Estate	1.00% of Assets	$160,324,479	11.6%	$1,603,245	1.00%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	300,000 Annually	$4,369,912	0.3%	$300,000	6.87%
Loomis Sayles Large Cap Growth	0.45% of First 100.0 Mil, 0.40% Thereafter	$87,490,198	6.3%	$393,706	0.45%
Pacific Asset Corporate Loan	0.37% of Assets	$76,663,383	5.5%	$283,655	0.37%
Pathway Private Equity Fund Investors 9 L.P.	Please see footnote	$13,137,333	0.9%	--	--
PIMCO Distressed Credit Fund	150,000 Annually	$161,218	0.0%	$150,000	93.04%
PIMCO RAE Fundamental PLUS Instl	0.40% of Assets	$64,308,277	4.6%	$257,233	0.40%
Stone Harbor Local Markets Ins	0.89% of Assets	$71,900,818	5.2%	$639,917	0.89%
The Clifton Group	50,000 Annually	$606,424	0.0%	$50,000	8.25%
TPG Diversified Credit Program	Please see footnote	$44,441,728	3.2%	--	--
WCM International Growth	0.70% of Assets	$165,058,715	11.9%	$1,155,411	0.70%
Investment Management Fee		**$1,386,803,644**	**100.0%**	**$8,505,135**	**0.61%**

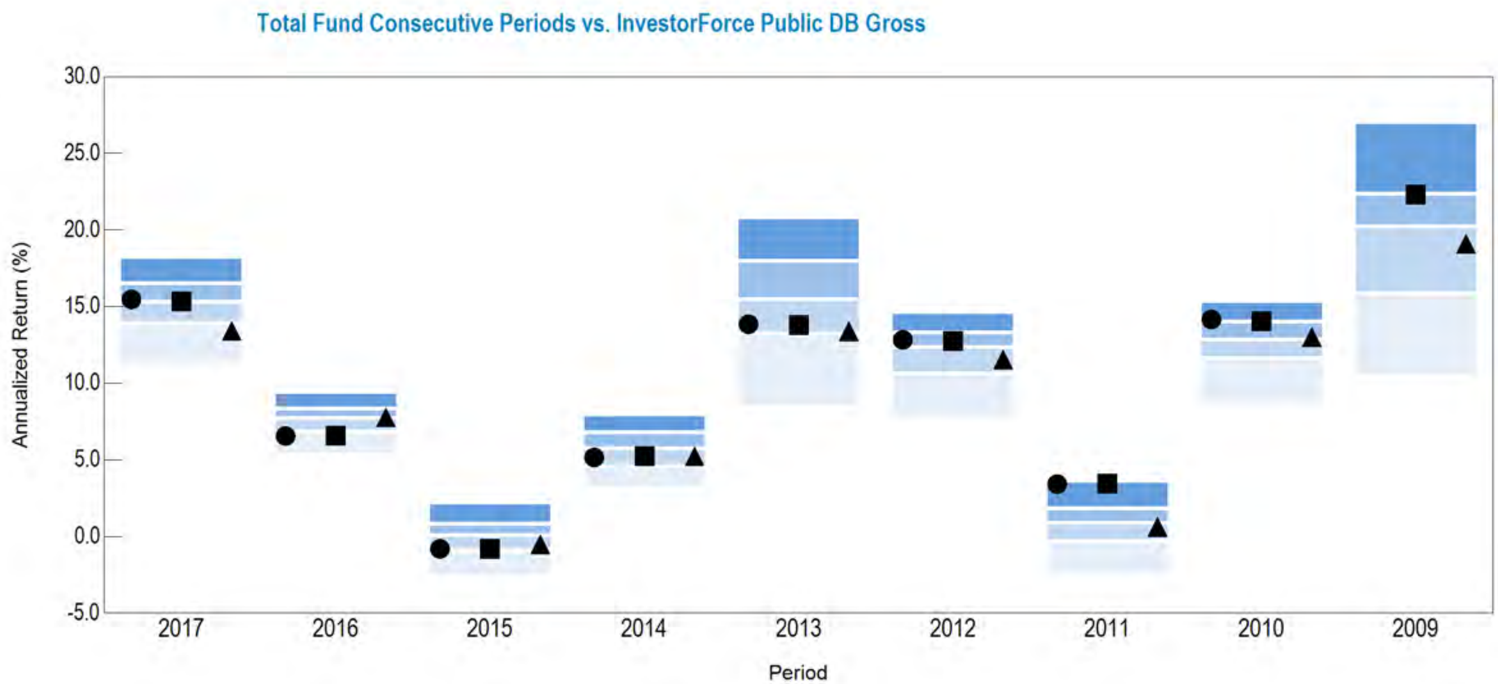
**HarbourVest, KKR and PIMCO Distressed Credit fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund. Pathway fee steps up and down over time, with an effective average of 0.71% up to $25m, 0.67% up to $50m, 0.63% up to $75m, and 0.40% above $75m.*

**Clifton Group fee schedule represents contractual minimum fee. Actual fee charged is $1,500 per month through at least 6/30/2015.*

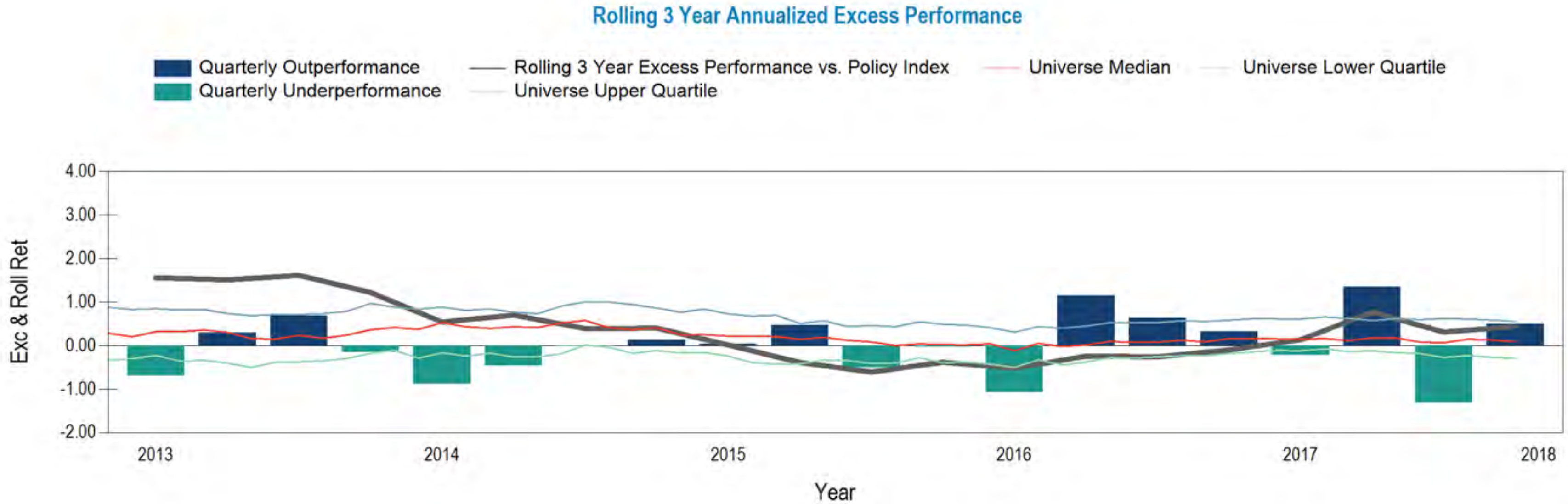
**TPG: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period (3) TICP 30bps on remaining capital contributions.*

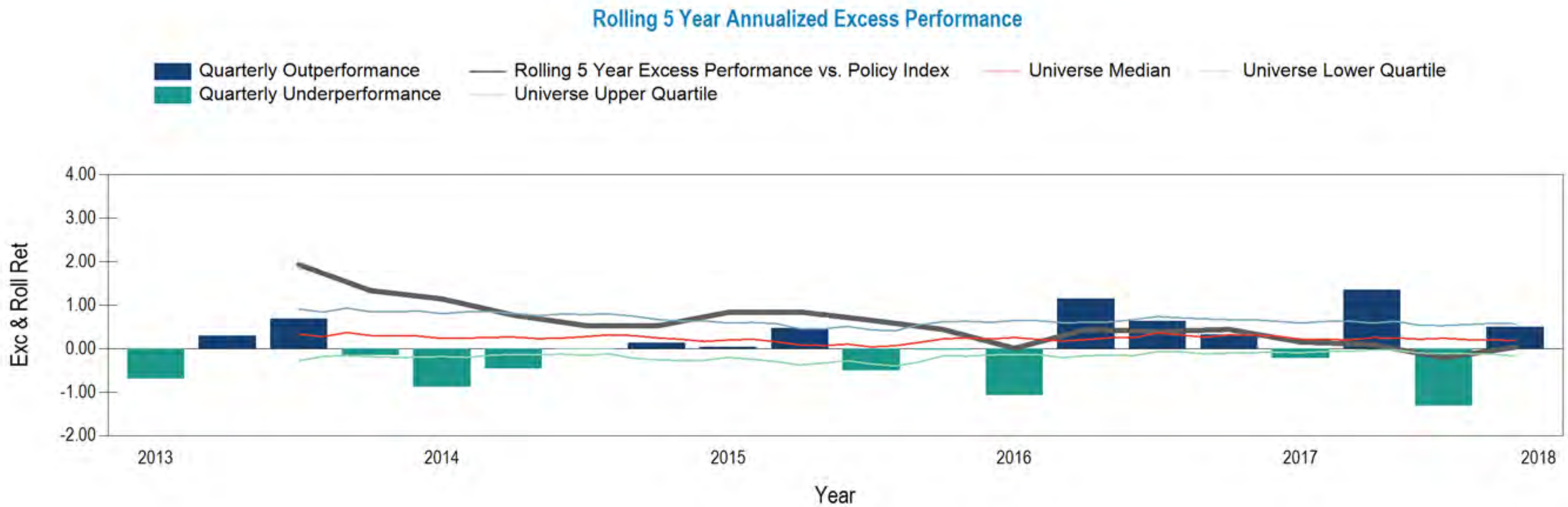


Return (Rank)	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	3.9		10.5		11.4		8.9		11.1		9.2	
25th Percentile	3.4		8.6		10.4		8.1		10.3		8.4	
Median	2.7		7.4		9.8		7.5		9.5		7.7	
75th Percentile	2.2		6.4		9.1		6.9		8.5		7.2	
95th Percentile	1.5		4.5		7.6		5.6		7.1		6.1	
# of Portfolios	267		265		255		240		226		208	
● **Total Fund**	2.7	(51)	6.3	(77)	9.0	(79)	6.5	(83)	8.8	(66)	--	(--)
■ **Total Fund ex Overlay**	2.7	(50)	6.3	(76)	9.0	(79)	6.5	(83)	8.8	(68)	7.5	(57)
▲ **Policy Index**	2.2	(76)	6.0	(82)	8.6	(86)	6.5	(83)	8.3	(80)	6.8	(85)



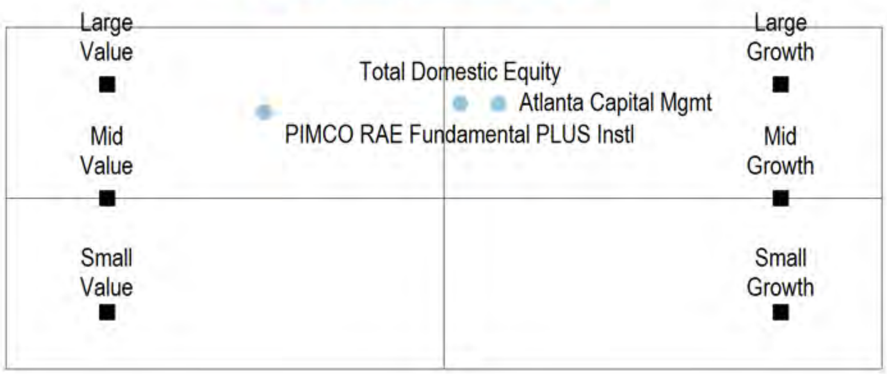
Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009	
5th Percentile	18.2		9.4		2.2		8.0		20.8		14.6		3.6		15.4		27.0	
25th Percentile	16.5		8.4		0.9		6.8		18.0		13.4		1.9		14.0		22.4	
Median	15.3		7.7		0.1		5.8		15.5		12.4		0.9		12.9		20.2	
75th Percentile	14.0		6.9		-0.9		4.6		13.3		10.7		-0.3		11.7		15.9	
95th Percentile	11.3		5.3		-2.6		3.2		8.5		7.8		-2.5		8.6		10.5	
# of Portfolios	304		305		316		248		231		236		206		188		184	
● Total Fund	15.5	(47)	6.6	(84)	-0.8	(74)	5.1	(66)	13.8	(71)	12.8	(40)	3.4	(6)	14.2	(21)	--	(--)
■ Total Fund ex Overlay	15.3	(51)	6.6	(83)	-0.8	(75)	5.2	(64)	13.8	(72)	12.7	(43)	3.5	(6)	14.1	(24)	22.3	(27)
▲ Policy Index	13.4	(86)	7.8	(49)	-0.5	(67)	5.2	(64)	13.4	(74)	11.6	(69)	0.6	(60)	13.0	(48)	19.1	(57)


Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Policy Index
Universe Upper Quartile
Universe Median
Universe Lower Quartile
Exc & Roll Ret
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
2013
2014
2015
2016
2017
2018
Year

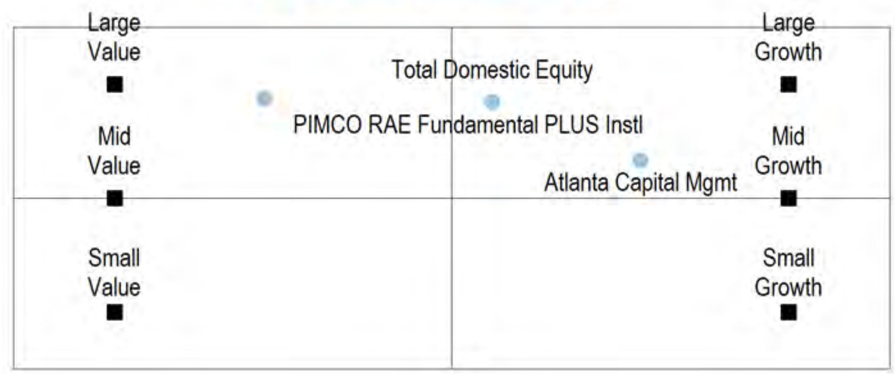

Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. Policy Index
Universe Upper Quartile
Universe Median
Universe Lower Quartile
Exc & Roll Ret
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
2013
2014
2015
2016
2017
2018
Year

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	**305,338,518**	**8.6**	**10.9**	**19.1**	**18.8**	**13.8**	**13.0**	**25.1**	**13.0**	**1.2**	**11.0**	**32.2**
Russell 3000		*7.1*	*10.6*	*17.6*	*17.1*	*13.5*	*12.0*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
InvestorForce Public DB US Eq Gross Rank		*1*	*27*	*15*	*4*	*11*	*2*	*4*	*48*	*18*	*60*	*91*
PIMCO RAE Fundamental PLUS Instl	64,308,277	7.1	8.6	16.5	15.6	12.3	11.9	17.0	15.9	-2.7	12.7	36.0
S&P 500		*7.7*	*10.6*	*17.9*	*17.3*	*13.9*	*12.0*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
eV US Large Cap Core Equity Gross Rank		*56*	*65*	*57*	*64*	*78*	*51*	*89*	*6*	*86*	*58*	*22*
Loomis Sayles Large Cap Growth	87,490,198	11.0	15.3	22.8	--	--	--	34.1	--	--	--	--
Russell 1000 Growth		*9.2*	*17.1*	*26.3*	--	--	--	*30.2*	--	--	--	--
eV US Large Cap Growth Equity Gross Rank		*4*	*62*	*67*	--	--	--	*16*	--	--	--	--
Boston Partners Large Cap Value	88,122,185	7.8	6.1	13.5	--	--	--	--	--	--	--	--
Russell 1000 Value		*5.7*	*3.9*	*9.5*	--	--	--	--	--	--	--	--
eV US Large Cap Value Equity Gross Rank		*12*	*37*	*35*	--	--	--	--	--	--	--	--
Atlanta Capital Mgmt	65,417,858	8.3	13.9	24.7	20.5	15.8	--	26.6	12.6	10.4	5.8	37.8
Russell 2500		*4.7*	*10.4*	*16.2*	*16.1*	*11.4*	--	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*
eV US Small-Mid Cap Equity Gross Rank		*16*	*31*	*22*	*14*	*4*	--	*15*	*62*	*1*	*56*	*52*

U.S. Effective Style Map
3 Years Ending September 30, 2018



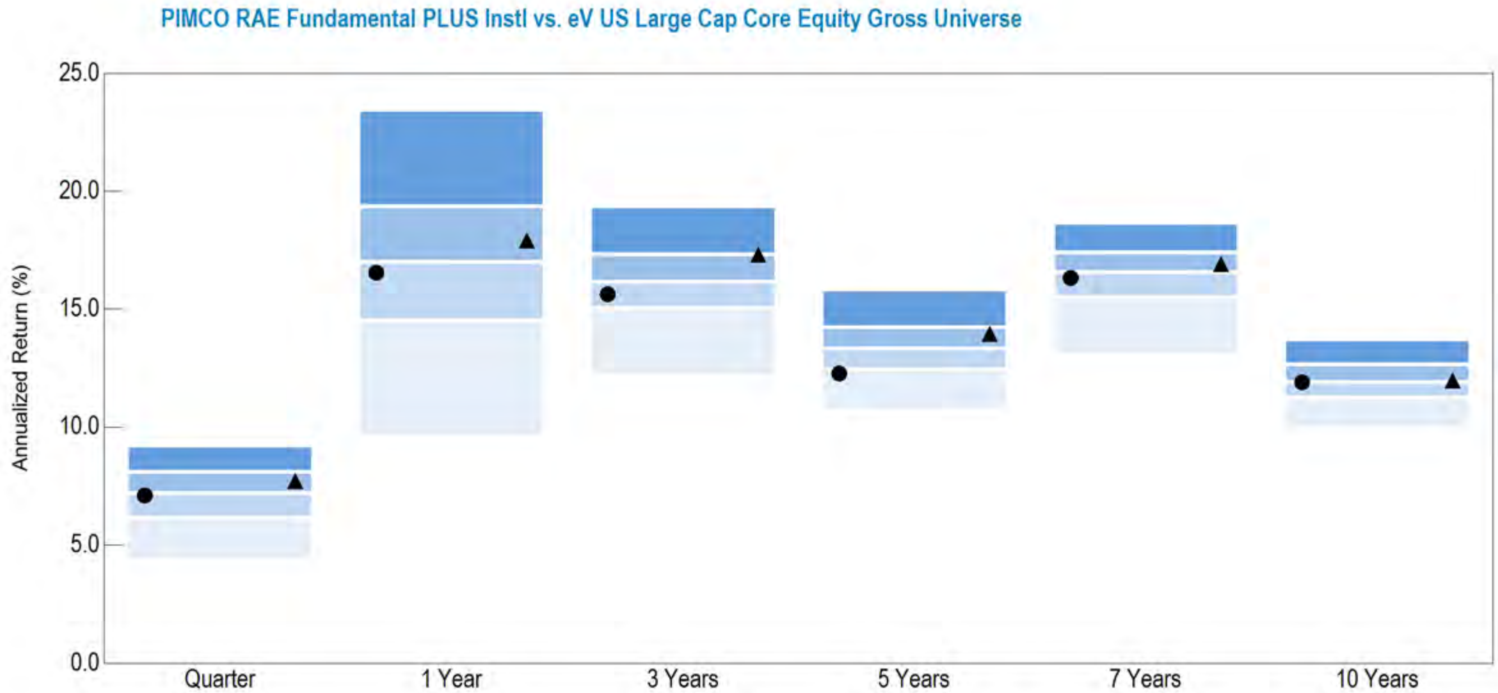
U.S. Effective Style Map
5 Years Ending September 30, 2018



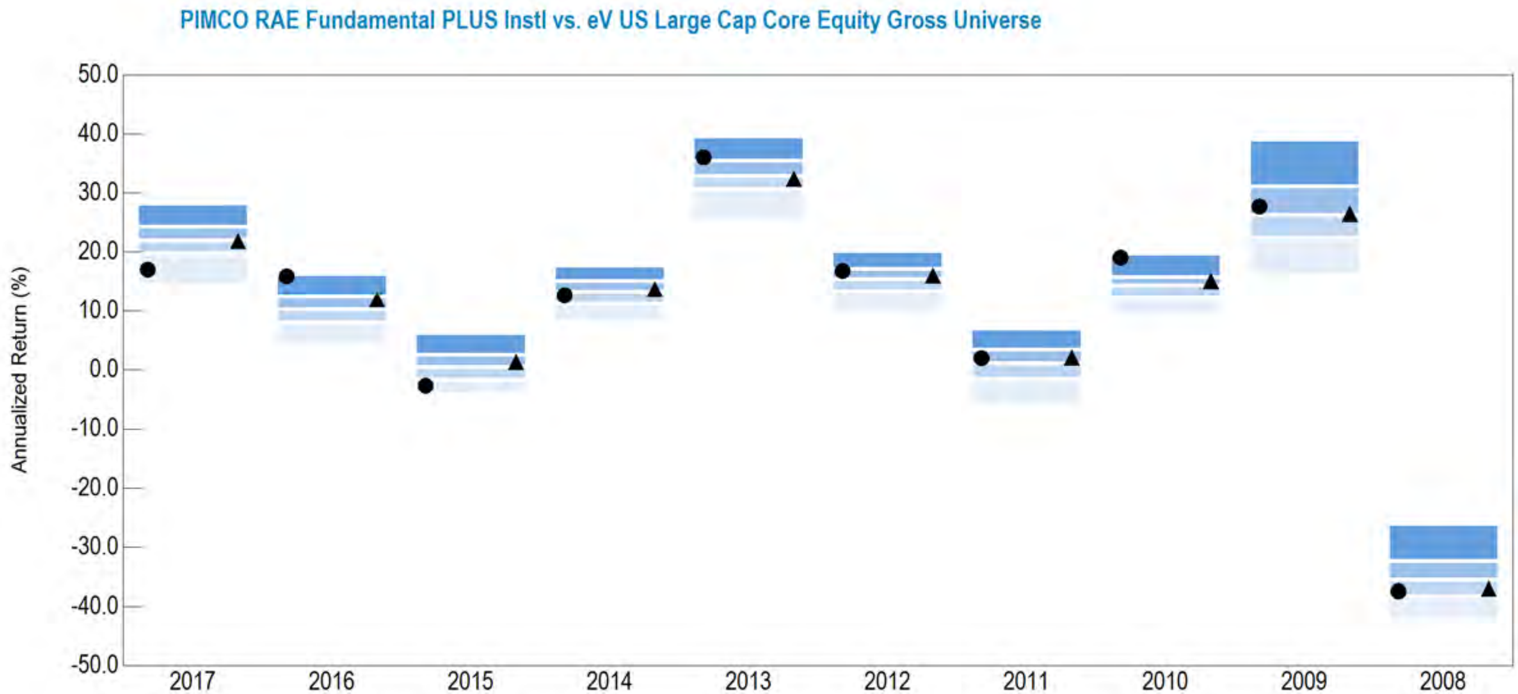
	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	**305,338,518**	**8.5**	**10.5**	**18.5**	**18.3**	**13.3**	**12.7**	**24.5**	**12.7**	**0.8**	**10.5**	**31.6**
Russell 3000		*7.1*	*10.6*	*17.6*	*17.1*	*13.5*	*12.0*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
PIMCO RAE Fundamental PLUS Instl	64,308,277	7.0	8.2	16.1	15.1	11.8	11.5	16.5	15.4	-3.2	12.3	35.6
S&P 500		*7.7*	*10.6*	*17.9*	*17.3*	*13.9*	*12.0*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
Loomis Sayles Large Cap Growth	87,490,198	10.8	14.9	22.3	--	--	--	33.5	--	--	--	--
Russell 1000 Growth		*9.2*	*17.1*	*26.3*	--	--	--	*30.2*	--	--	--	--
Boston Partners Large Cap Value	88,122,185	7.7	5.8	13.1	--	--	--	--	--	--	--	--
Russell 1000 Value		*5.7*	*3.9*	*9.5*	--	--	--	--	--	--	--	--
Atlanta Capital Mgmt	65,417,858	8.1	13.3	23.8	19.5	14.9	--	25.6	11.7	9.6	5.0	37.0
Russell 2500		*4.7*	*10.4*	*16.2*	*16.1*	*11.4*	--	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*

Correlation Matrix
Last 5 Years

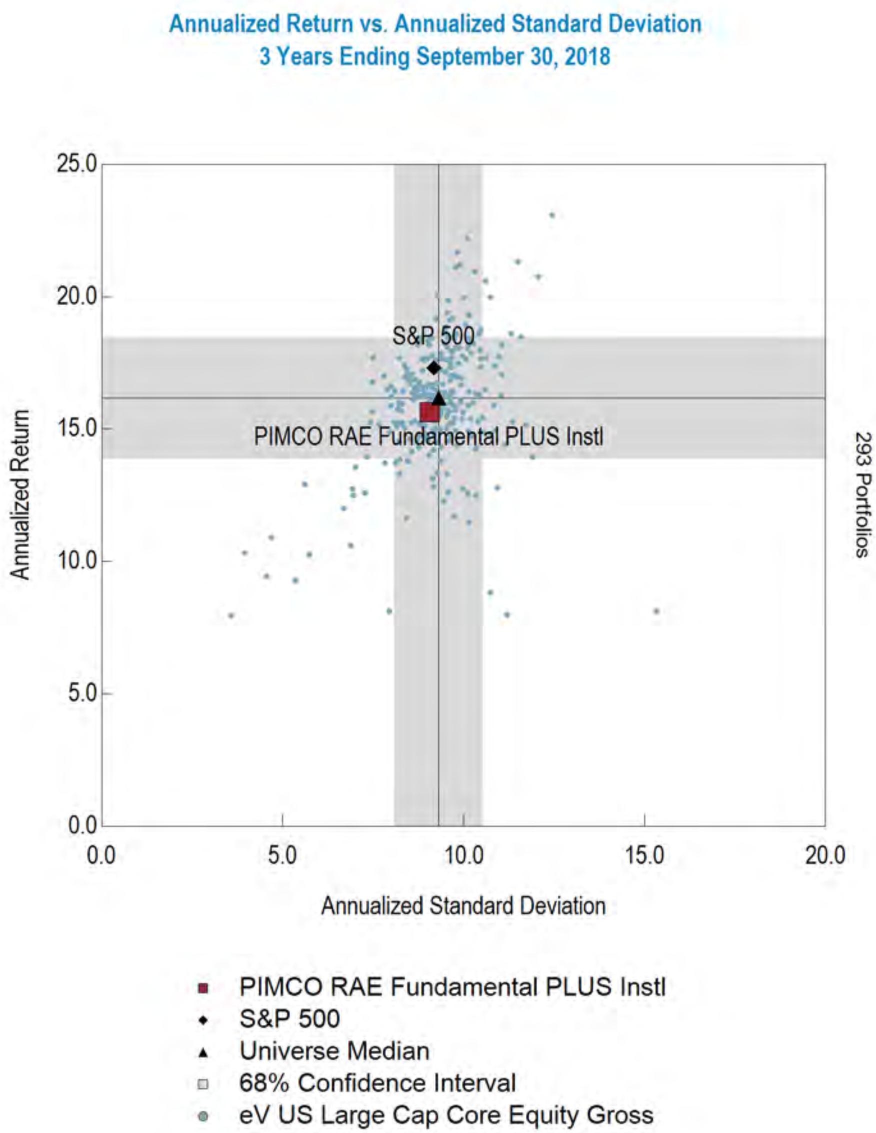
	Total Domestic Equity	PIMCO RAE Fundamental PLUS Instl	Loomis Sayles Large Cap Growth	Boston Partners Large Cap Value	Russell 3000
Total Domestic Equity	1.00	--	--	--	--
PIMCO RAE Fundamental PLUS Instl	0.92	1.00	--	--	--
Loomis Sayles Large Cap Growth	--	--	--	--	--
Boston Partners Large Cap Value	--	--	--	--	--
Russell 3000	0.96	0.95	--	--	1.00

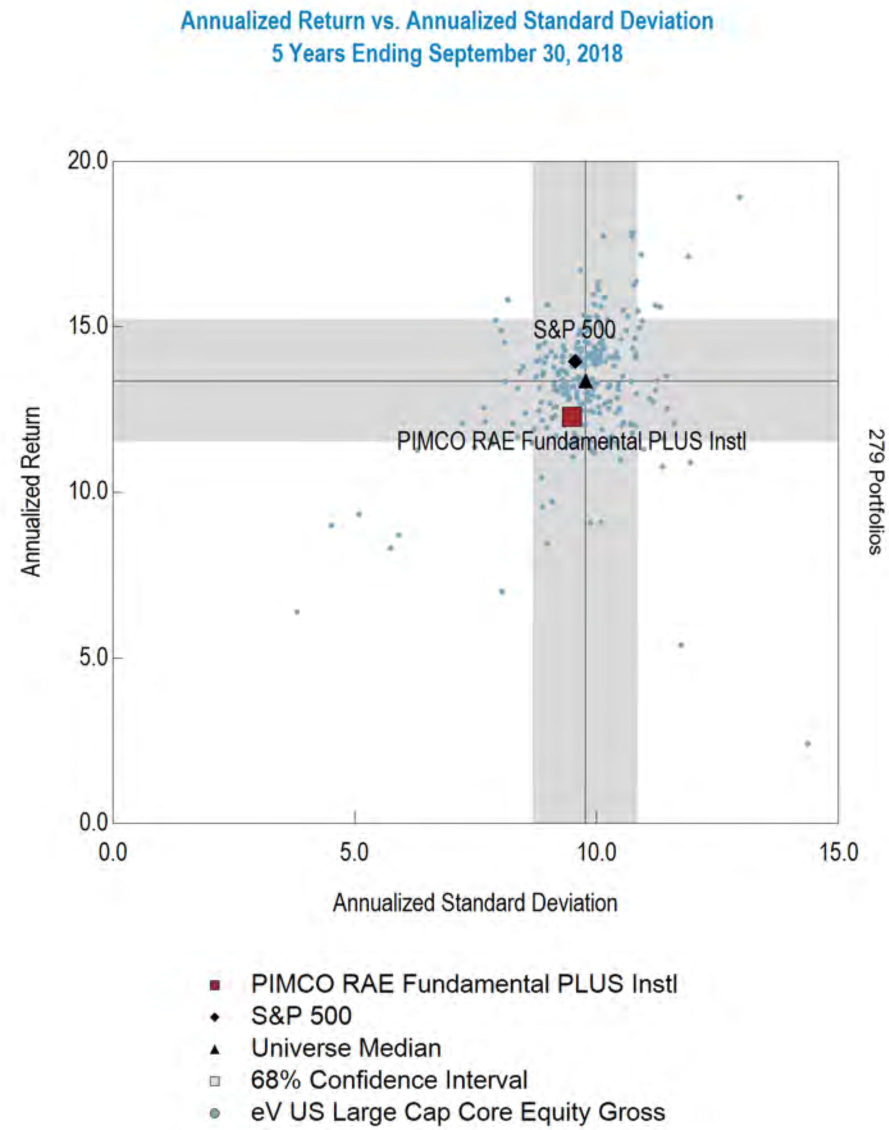


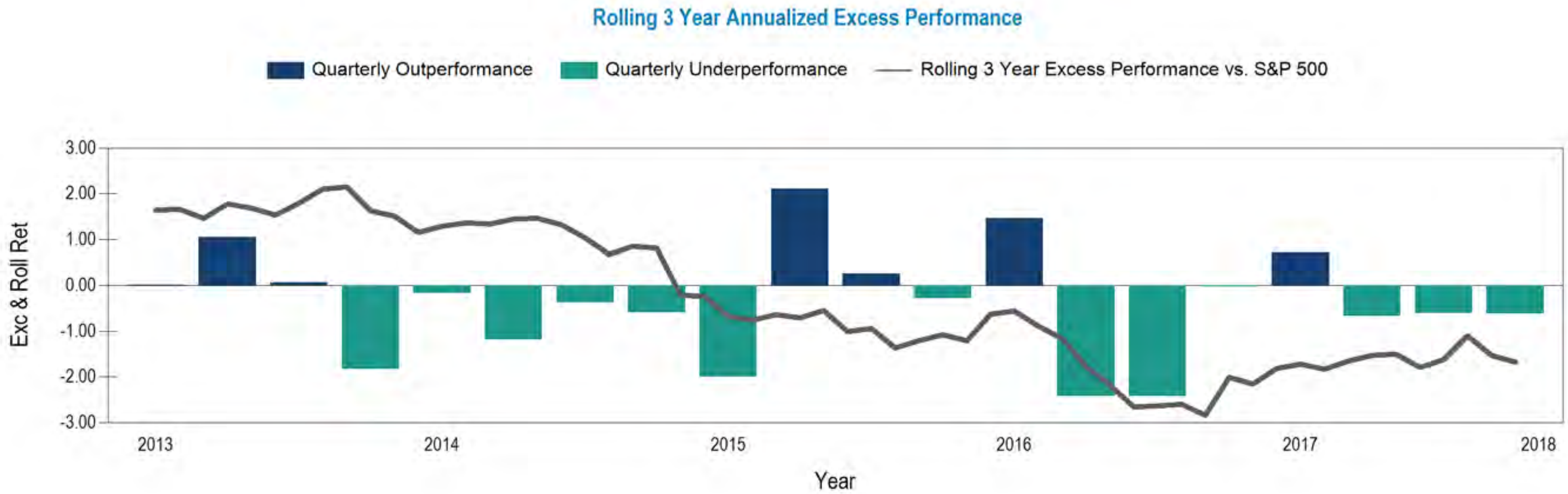
Return (Rank)	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	9.2		23.4		19.3		15.8		18.7		13.7	
25th Percentile	8.1		19.4		17.3		14.2		17.4		12.7	
Median	7.2		17.0		16.2		13.4		16.6		11.9	
75th Percentile	6.2		14.5		15.1		12.5		15.5		11.3	
95th Percentile	4.4		9.6		12.2		10.7		13.1		10.0	
# of Portfolios	305		305		293		279		251		218	
● **PIMCO RAE Fundamental PLUS Instl**	7.1	(56)	16.5	(57)	15.6	(64)	12.3	(78)	16.3	(58)	11.9	(51)
▲ **S&P 500**	7.7	(37)	17.9	(41)	17.3	(27)	13.9	(37)	16.9	(38)	12.0	(49)

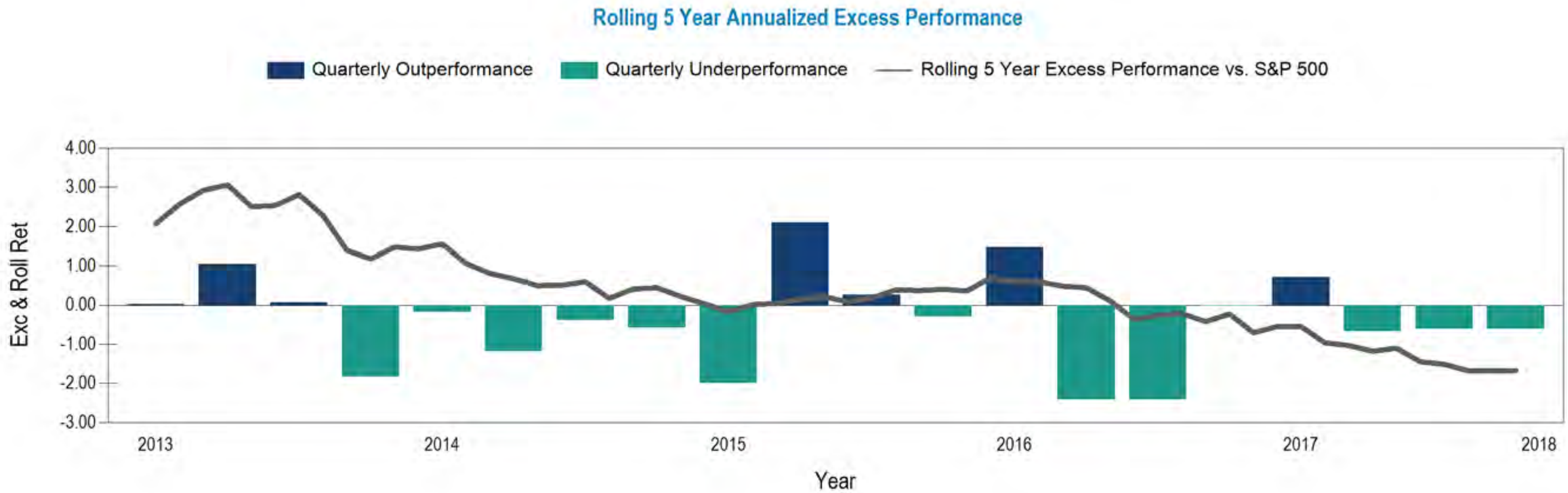


Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1		-26.1	
25th Percentile	24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2		-32.3	
Median	22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3		-35.4	
75th Percentile	19.8		8.2		-1.6		11.4		30.8		13.4		-1.5		12.3		22.6		-38.1	
95th Percentile	14.4		4.3		-4.1		8.2		25.4		9.8		-5.9		9.1		16.1		-42.3	
# of Portfolios	318		308		267		267		261		254		259		254		280		312	
● PIMCO RAE Fundamental PLUS Instl	17.0	(89)	15.9	(6)	-2.7	(86)	12.7	(58)	36.0	(22)	16.8	(29)	2.0	(41)	19.0	(7)	27.7	(42)	-37.4	(68)
▲ S&P 500	21.8	(53)	12.0	(31)	1.4	(42)	13.7	(42)	32.4	(58)	16.0	(41)	2.1	(40)	15.1	(37)	26.5	(48)	-37.0	(62)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
25.0
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
Annualized Return
Annualized Standard Deviation
S&P 500
PIMCO RAE Fundamental PLUS Instl
293 Portfolios
PIMCO RAE Fundamental PLUS Instl
S&P 500
Universe Median
68% Confidence Interval
eV US Large Cap Core Equity Gross


Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2018
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
Annualized Return
Annualized Standard Deviation
S&P 500
PIMCO RAE Fundamental PLUS Instl
279 Portfolios
PIMCO RAE Fundamental PLUS Instl
S&P 500
Universe Median
68% Confidence Interval
eV US Large Cap Core Equity Gross

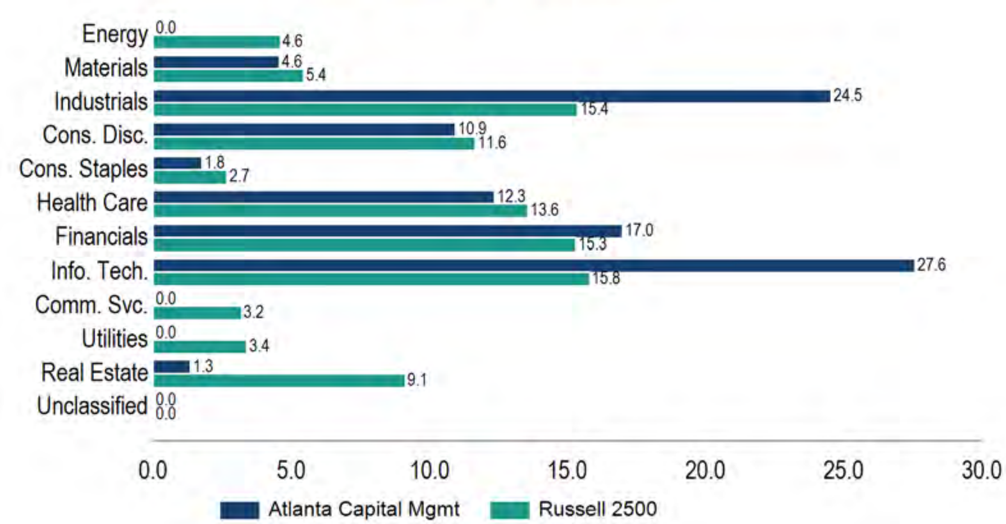

Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. S&P 500
Exc & Roll Ret
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
2013
2014
2015
2016
2017
2018
Year


Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. S&P 500
Exc & Roll Ret
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
2013
2014
2015
2016
2017
2018
Year

Characteristics

	Portfolio	Russell 2500
Number of Holdings	51	2,521
Weighted Avg. Market Cap. ($B)	9.45	5.25
Median Market Cap. ($B)	8.08	1.29
Price To Earnings	35.48	19.50
Price To Book	7.06	3.67
Price To Sales	3.65	3.32
Return on Equity (%)	23.29	11.73
Yield (%)	0.73	1.30
Beta	0.19	1.00

Sector Allocation (%) vs Russell 2500



*Unclassified includes Cash

Top Holdings

Ending Period Weight

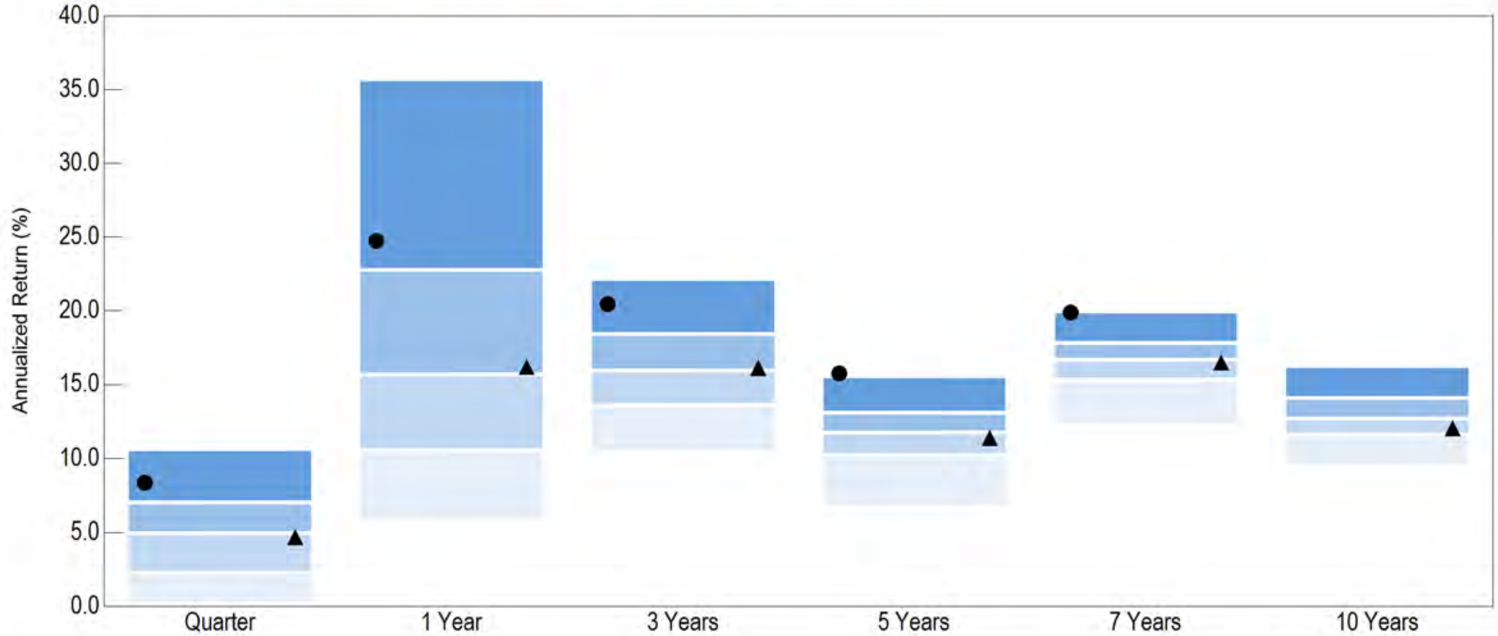
TELEFLEX	4.32%
W R BERKLEY	4.27%
TRANSUNION	4.08%
ARAMARK	3.68%
ANSYS	3.32%
CDW	3.10%
FAIR ISAAC	2.95%
WEX	2.91%
BIO-RAD LABORATORIES 'A'	2.89%
BLACKBAUD	2.78%
Total	34.29%

Top Contributors

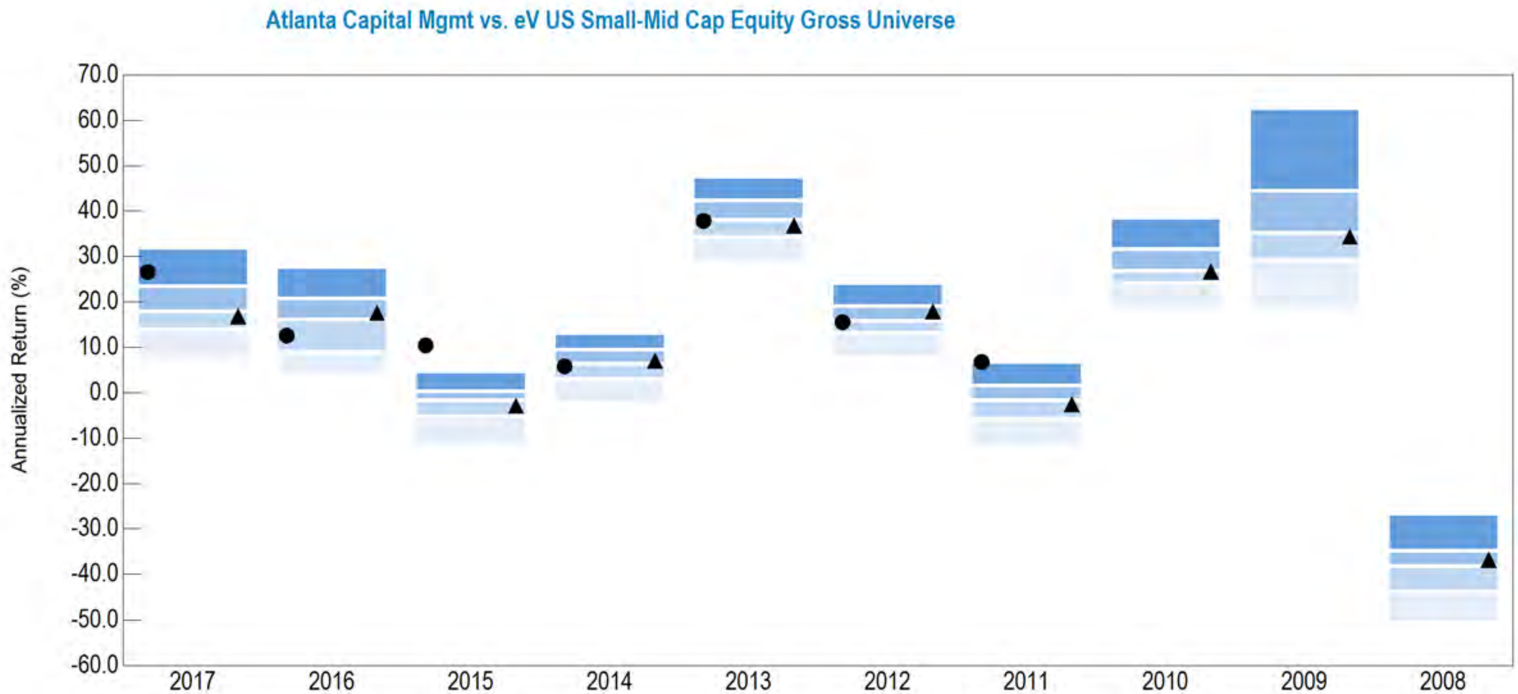
	Avg Wgt	Return	Contribution
ACUITY BRANDS	1.75	35.80	0.63
BIO-TECHNE	1.59	38.20	0.61
JACK HENRY & ASSOCS.	2.45	23.08	0.57
FAIR ISAAC	2.79	18.22	0.51
ARAMARK	3.01	16.26	0.49
GARTNER 'A'	2.34	19.26	0.45
TRIMBLE	1.28	32.34	0.41
APTARGROUP	2.58	15.76	0.41
MANHATTAN ASSOCS.	2.49	16.15	0.40
W R BERKLEY	3.19	11.29	0.36

Bottom Contributors

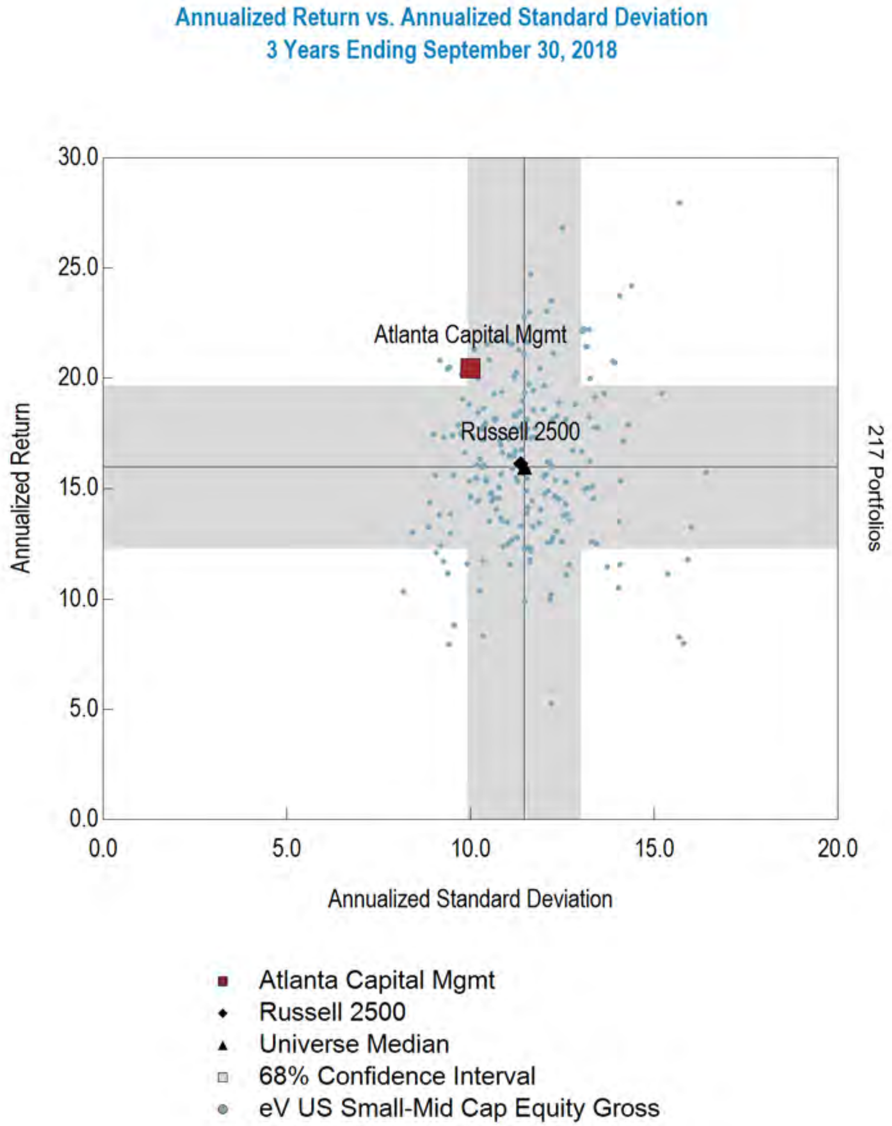
	Avg Wgt	Return	Contribution
JONES LANG LASALLE	1.69	-13.05	-0.22
DENTSPLY SIRONA	1.50	-13.58	-0.20
AFFILIATED MANAGERS	1.95	-7.86	-0.15
COPART	1.54	-8.89	-0.14
UMPQUA HOLDINGS	1.53	-6.99	-0.11
SEI INVESTMENTS	2.95	-2.27	-0.07
HUNT JB TRANSPORT SVS.	2.76	-1.96	-0.05
KIRBY	2.21	-1.61	-0.04
MORNINGSTAR	2.08	-1.64	-0.03
TELEFLEX	4.21	-0.64	-0.03

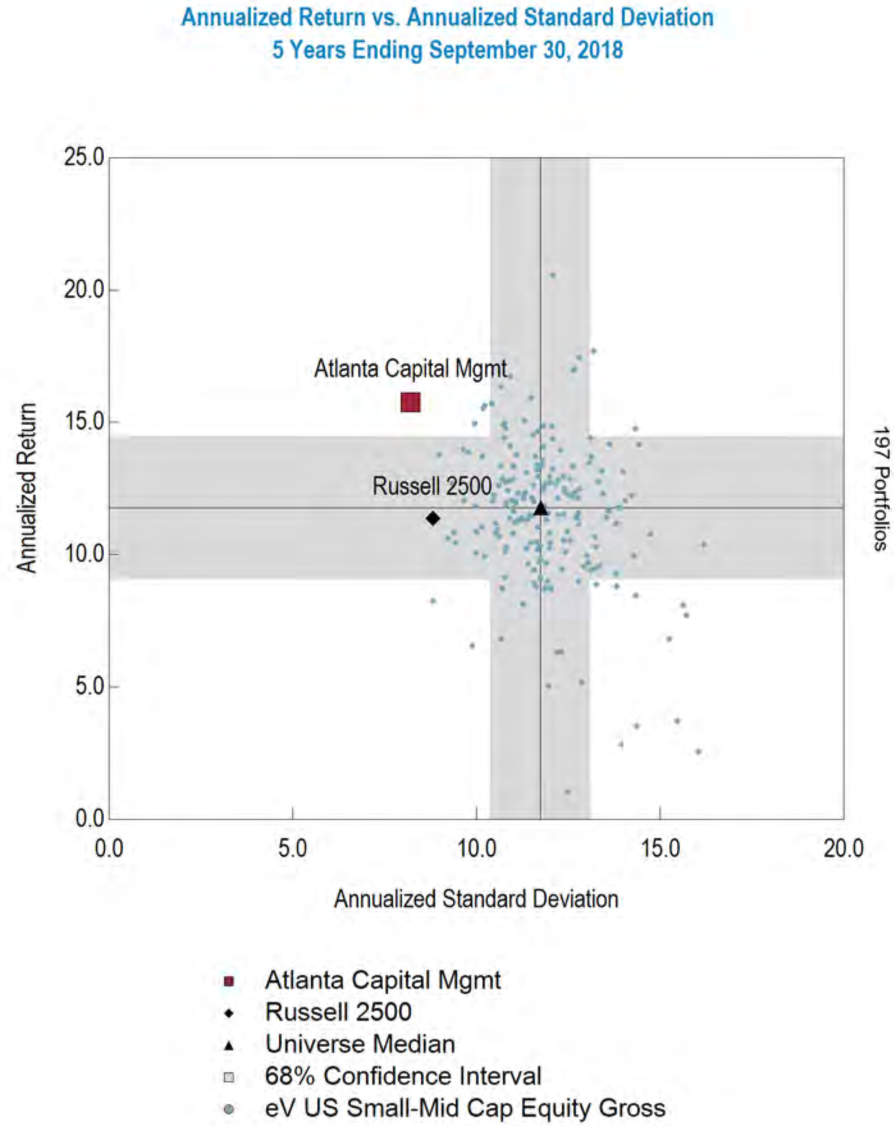


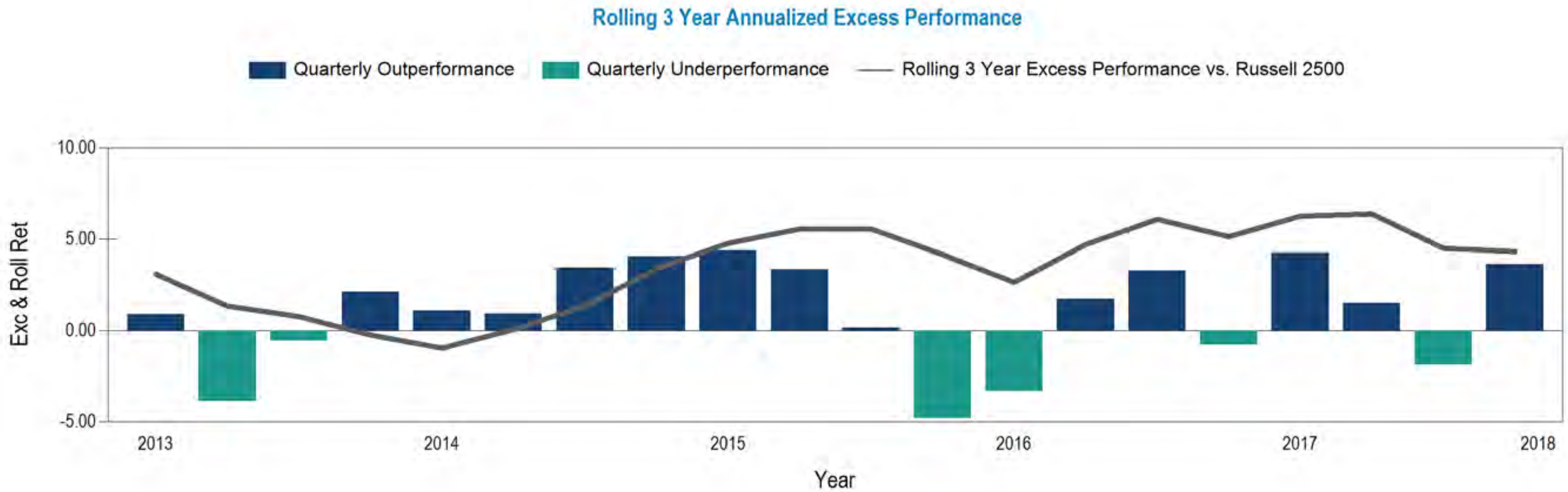
	Return (Rank)											
5th Percentile	10.6		35.7		22.2		15.6		19.9		16.3	
25th Percentile	7.0		22.8		18.5		13.1		17.8		14.1	
Median	5.0		15.7		16.0		11.8		16.7		12.7	
75th Percentile	2.3		10.6		13.7		10.2		15.4		11.6	
95th Percentile	0.2		5.8		10.5		6.8		12.3		9.5	
# of Portfolios	234		234		217		197		174		147	
● Atlanta Capital Mgmt	8.3	(16)	24.7	(22)	20.5	(14)	15.8	(4)	19.9	(6)	--	(--)
▲ Russell 2500	4.7	(55)	16.2	(48)	16.1	(48)	11.4	(57)	16.5	(57)	12.0	(70)

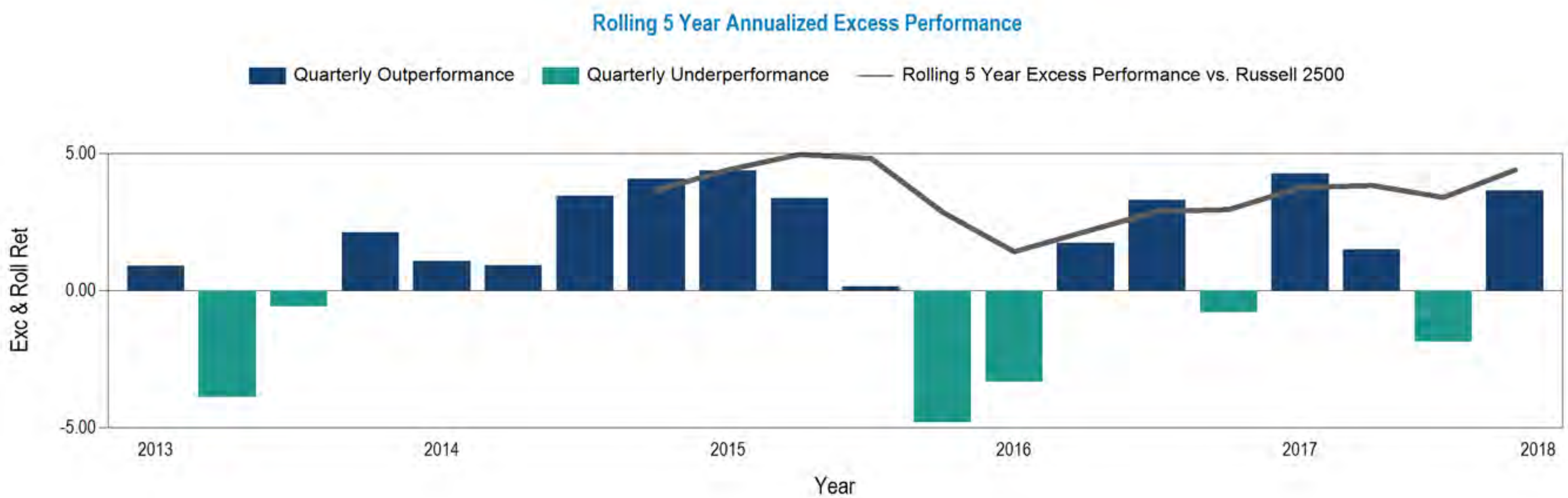


Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	31.9		27.6		4.6		13.0		47.6		24.1		6.8		38.5		62.6		-26.7	
25th Percentile	23.5		20.8		0.4		9.6		42.5		19.2		1.7		31.7		44.6		-34.7	
Median	18.1		16.1		-1.5		6.5		38.2		16.0		-1.5		26.9		35.2		-38.1	
75th Percentile	14.1		9.2		-5.0		3.1		34.4		13.3		-5.6		24.3		29.4		-43.6	
95th Percentile	7.5		3.8		-11.6		-2.3		28.7		7.8		-11.6		18.7		18.7		-50.3	
# of Portfolios	233		238		215		210		210		216		211		210		226		243	
● Atlanta Capital Mgmt	26.6	(15)	12.6	(62)	10.4	(1)	5.8	(56)	37.8	(52)	15.5	(55)	6.8	(5)	--	(--)	--	(--)	--	(--)
▲ Russell 2500	16.8	(61)	17.6	(38)	-2.9	(64)	7.1	(46)	36.8	(58)	17.9	(36)	-2.5	(56)	26.7	(52)	34.4	(55)	-36.8	(37)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
Annualized Return
Annualized Standard Deviation
Atlanta Capital Mgmt
Russell 2500
217 Portfolios
Atlanta Capital Mgmt
Russell 2500
Universe Median
68% Confidence Interval
eV US Small-Mid Cap Equity Gross


Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2018
25.0
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
Annualized Return
Annualized Standard Deviation
Atlanta Capital Mgmt
Russell 2500
197 Portfolios
Atlanta Capital Mgmt
Russell 2500
Universe Median
68% Confidence Interval
eV US Small-Mid Cap Equity Gross


Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Russell 2500
10.00
5.00
0.00
-5.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

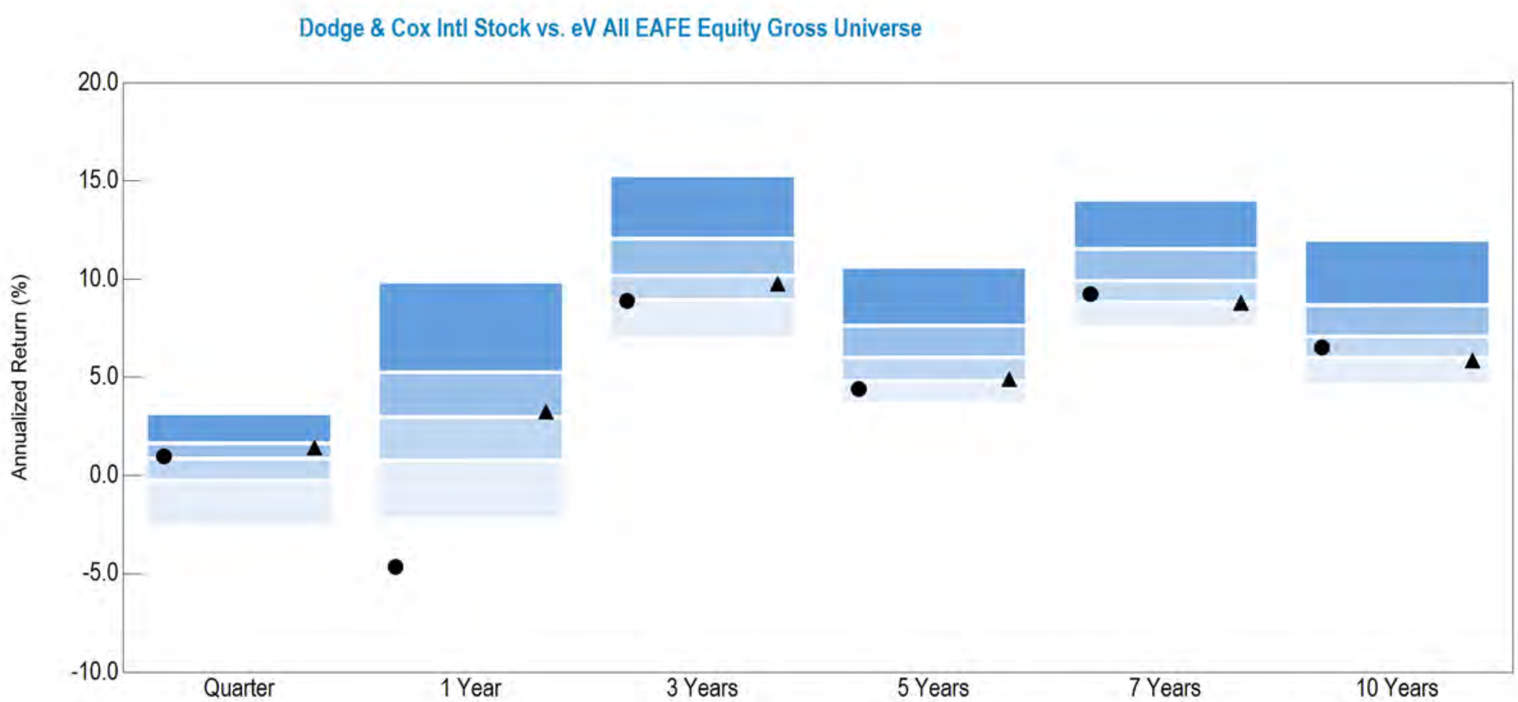

Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. Russell 2500
5.00
0.00
-5.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	**311,879,216**	**2.2**	**0.1**	**3.4**	**10.1**	**5.9**	**7.3**	**26.6**	**2.2**	**-4.3**	**2.1**	**17.9**
MSCI ACWI ex USA Gross		*0.8*	*-2.7*	*2.3*	*10.5*	*4.6*	*5.7*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
InvestorForce Public DB ex-US Eq Gross Rank		*6*	*7*	*17*	*58*	*21*	*14*	*81*	*82*	*68*	*1*	*50*
Dodge & Cox Intl Stock	146,820,501	1.0	-5.9	-4.7	8.9	4.4	6.5	24.7	9.0	-10.8	0.7	27.1
MSCI EAFE Gross		*1.4*	*-1.0*	*3.2*	*9.8*	*4.9*	*5.9*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
eV All EAFE Equity Gross Rank		*47*	*95*	*99*	*77*	*90*	*65*	*74*	*3*	*99*	*13*	*32*
WCM International Growth	165,058,715	3.3	6.2	12.1	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross		*0.8*	*-2.7*	*2.3*	--	--	--	--	--	--	--	--
eV ACWI ex-US All Cap Growth Eq Gross Rank		*4*	*8*	*5*	--	--	--	--	--	--	--	--

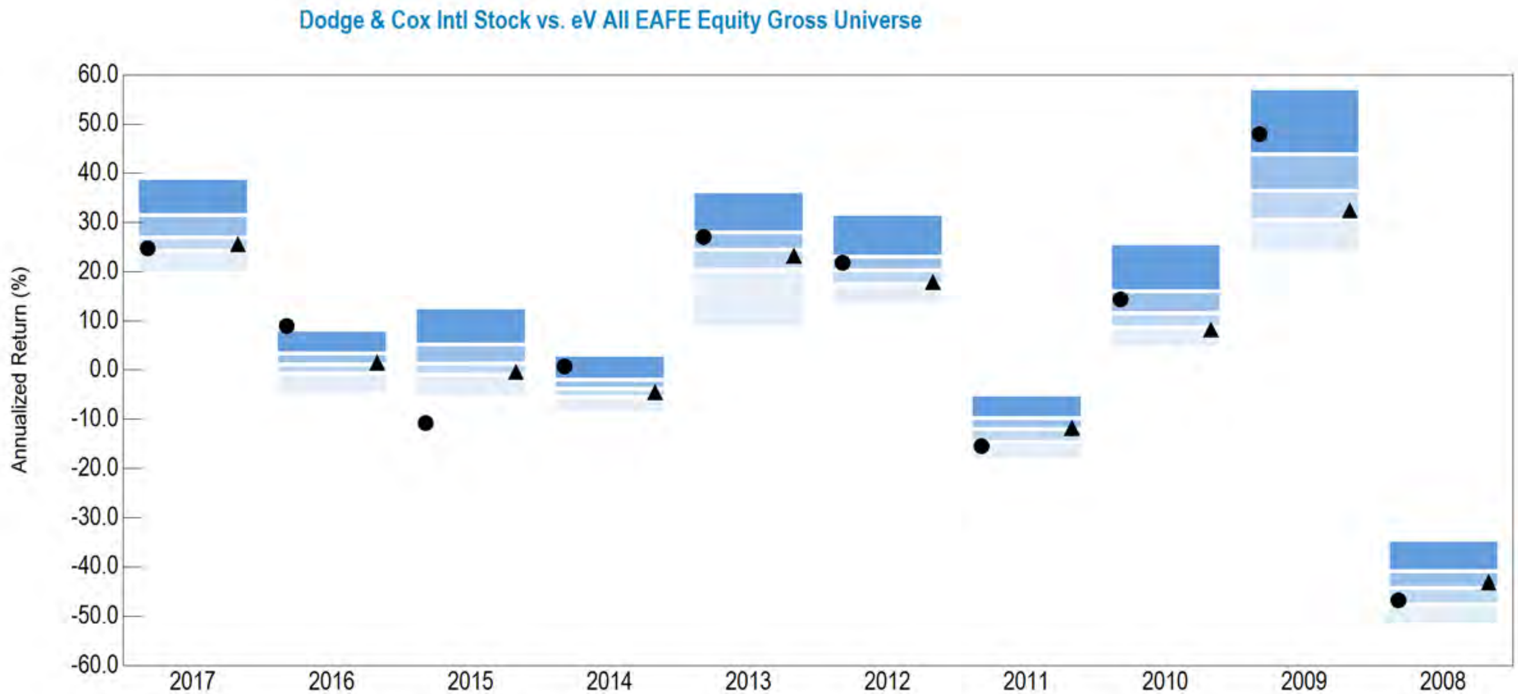
EAFE Effective Style Map
3 Years Ending September 30, 2018

EAFE Effective Style Map
5 Years Ending September 30, 2018

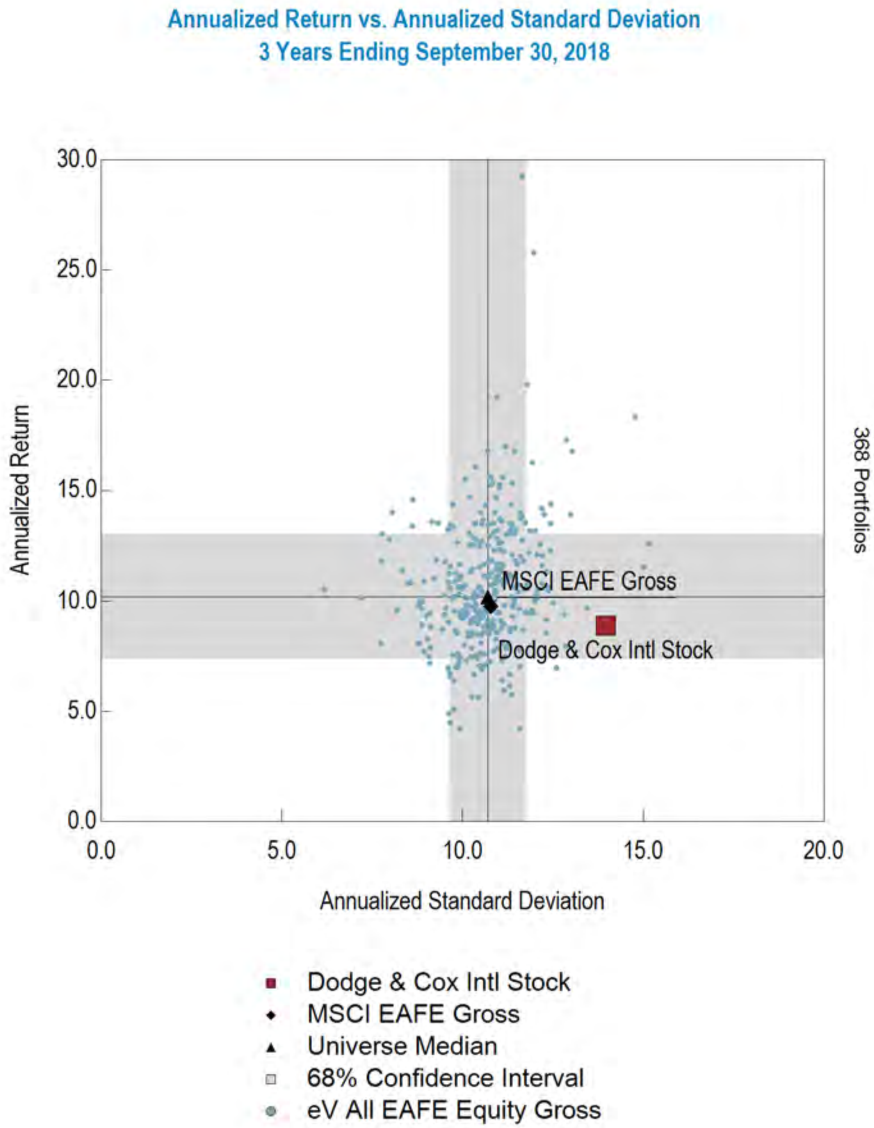
	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	**311,879,216**	**2.0**	**-0.4**	**2.7**	**9.4**	**5.2**	**6.8**	**25.8**	**1.6**	**-4.9**	**1.4**	**17.0**
MSCI ACWI ex USA Gross		*0.8*	*-2.7*	*2.3*	*10.5*	*4.6*	*5.7*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
Dodge & Cox Intl Stock	146,820,501	0.8	-6.4	-5.3	8.2	3.7	5.9	23.9	8.3	-11.4	0.1	26.3
MSCI EAFE Gross		*1.4*	*-1.0*	*3.2*	*9.8*	*4.9*	*5.9*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
WCM International Growth	165,058,715	3.1	5.6	11.3	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross		*0.8*	*-2.7*	*2.3*	--	--	--	--	--	--	--	--

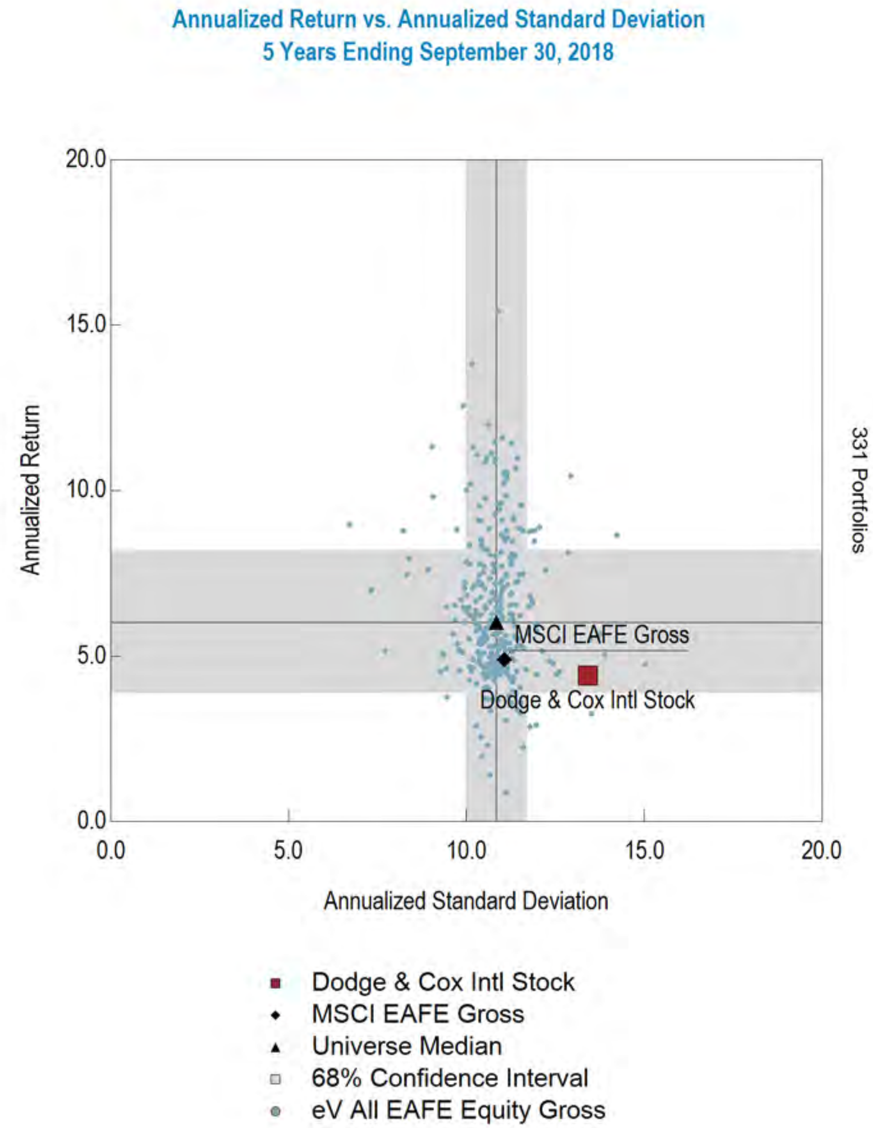


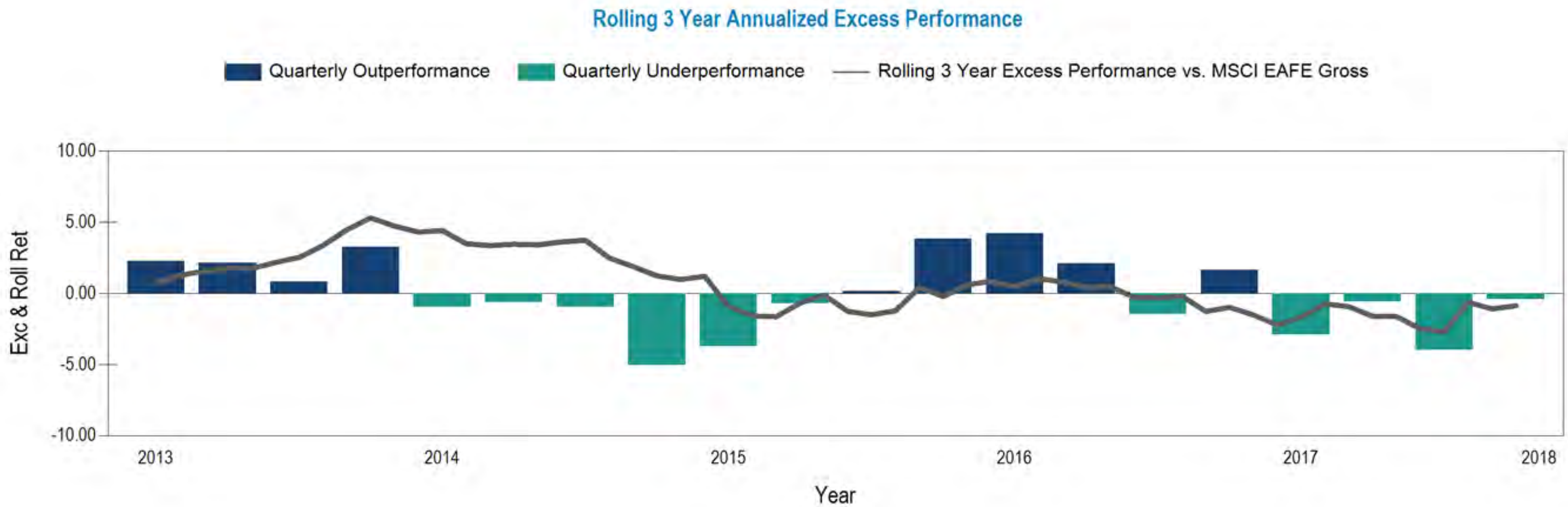
	Return (Rank)											
5th Percentile	3.2		9.9		15.3		10.6		14.0		12.0	
25th Percentile	1.7		5.3		12.1		7.6		11.6		8.7	
Median	0.9		3.0		10.2		6.0		9.9		7.1	
75th Percentile	-0.2		0.8		9.0		4.8		8.8		6.0	
95th Percentile	-2.6		-2.2		7.0		3.7		7.6		4.6	
# of Portfolios	390		388		368		331		298		264	
● Dodge & Cox Intl Stock	1.0	(47)	-4.7	(99)	8.9	(77)	4.4	(90)	9.2	(66)	6.5	(65)
▲ MSCI EAFE Gross	1.4	(32)	3.2	(45)	9.8	(58)	4.9	(73)	8.8	(76)	5.9	(79)

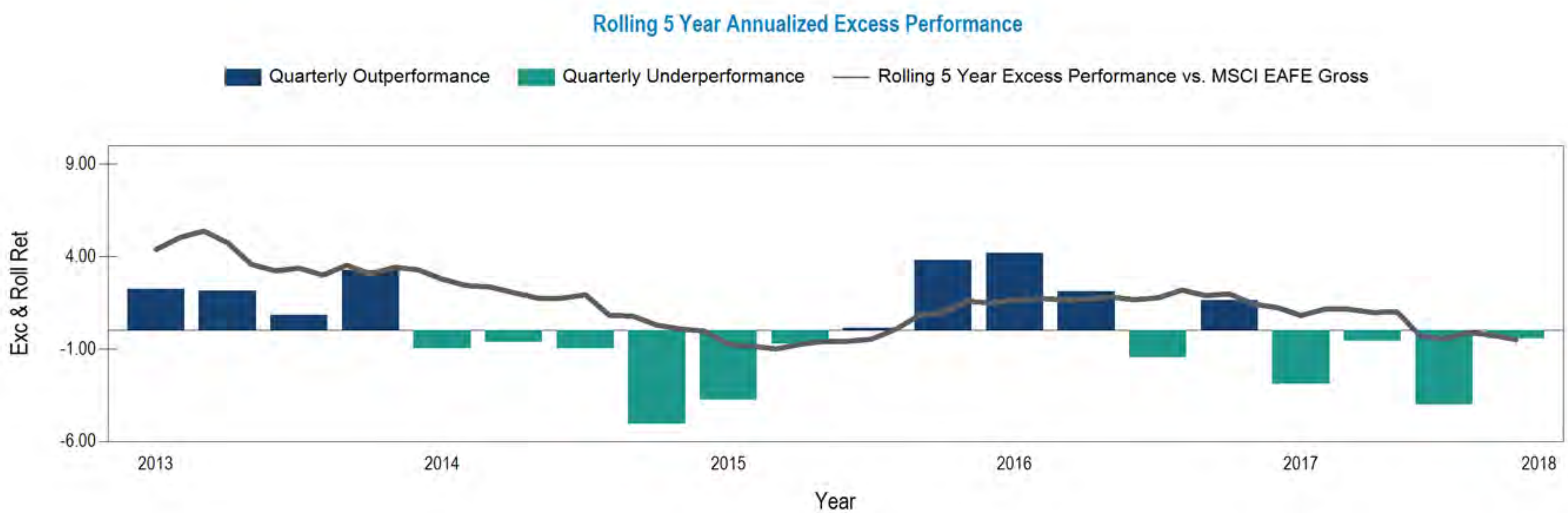


Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7		57.3		-34.5	
25th Percentile	31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1		44.0		-40.8	
Median	27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7		36.5		-44.1	
75th Percentile	24.3		-0.6		-0.9		-5.4		20.5		17.5		-14.5		8.7		30.7		-47.5	
95th Percentile	19.7		-4.9		-5.4		-8.6		8.6		13.3		-18.2		4.6		23.7		-51.5	
# of Portfolios	370		350		325		314		284		263		278		352		455		477	
● Dodge & Cox Intl Stock	24.7	(74)	9.0	(3)	-10.8	(99)	0.7	(13)	27.1	(32)	21.8	(37)	-15.5	(82)	14.4	(36)	48.0	(17)	-46.7	(69)
▲ MSCI EAFE Gross	25.6	(63)	1.5	(47)	-0.4	(66)	-4.5	(60)	23.3	(60)	17.9	(72)	-11.7	(47)	8.2	(78)	32.5	(67)	-43.1	(41)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
Annualized Return
Annualized Standard Deviation
368 Portfolios
MSCI EAFE Gross
Dodge & Cox Intl Stock
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
Dodge & Cox Intl Stock
MSCI EAFE Gross
Universe Median
68% Confidence Interval
eV All EAFE Equity Gross


Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2018
Annualized Return
Annualized Standard Deviation
331 Portfolios
MSCI EAFE Gross
Dodge & Cox Intl Stock
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
Dodge & Cox Intl Stock
MSCI EAFE Gross
Universe Median
68% Confidence Interval
eV All EAFE Equity Gross

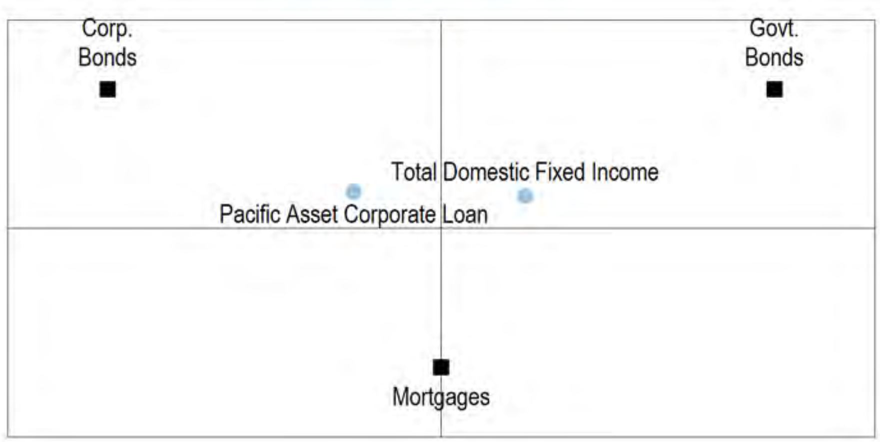

Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. MSCI EAFE Gross
Exc & Roll Ret
10.00
5.00
0.00
-5.00
-10.00
2013
2014
2015
2016
2017
2018
Year


Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. MSCI EAFE Gross
Exc & Roll Ret
9.00
4.00
-1.00
-6.00
2013
2014
2015
2016
2017
2018
Year

Total Domestic Fixed Income
Asset Class Overview (Gross of Fees) Period Ending: September 30, 2018

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Fixed Income	**275,998,491**	**0.9**	**0.7**	**1.5**	**3.0**	**2.9**	**4.9**	**4.3**	**4.5**	**1.1**	**4.7**	**-2.7**
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	*1.3*	*2.2*	*3.8*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
InvestorForce Public DB US Fix Inc Gross Rank		*7*	*7*	*9*	*27*	*34*	*36*	*50*	*49*	*17*	*68*	*95*
BlackRock Core Bond	99,700,600	0.3	-0.8	-0.3	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
eV US Core Fixed Inc Gross Rank		*27*	*16*	*15*	--	--	--	--	--	--	--	--
Dodge & Cox Income Fund	99,634,507	0.7	-0.3	0.3	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
eV US Core Fixed Inc Gross Rank		*2*	*6*	*7*	--	--	--	--	--	--	--	--
Pacific Asset Corporate Loan	76,663,383	2.0	4.4	5.8	6.0	--	--	4.9	9.2	2.5	--	--
S&P/LSTA Leveraged Loan Index		*1.8*	*4.0*	*5.2*	*5.3*	--	--	*4.1*	*10.2*	*-0.7*	--	--
eV US Float-Rate Bank Loan Fixed Inc Gross Rank		*18*	*15*	*16*	*23*	--	--	*26*	*51*	*9*	--	--

Fixed Income Effective Style Map
3 Years Ending September 30, 2018



Fixed Income Effective Style Map
5 Years Ending September 30, 2018

Total Domestic Fixed Income
Asset Class Overview (Net of Fees)

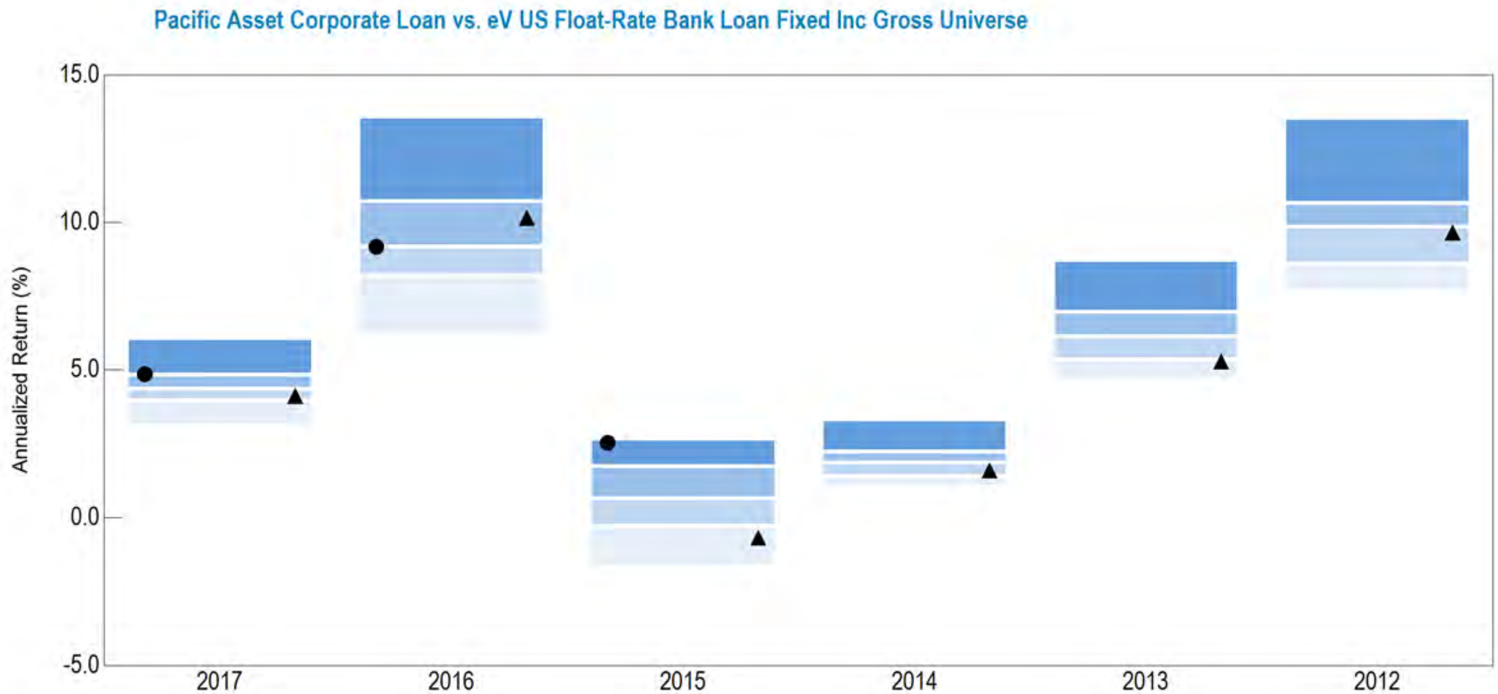
Period Ending: September 30, 2018

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Fixed Income	**275,998,491**	**0.9**	**0.5**	**1.2**	**2.7**	**2.7**	**4.7**	**3.9**	**4.2**	**0.9**	**4.4**	**-3.0**
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	*1.3*	*2.2*	*3.8*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
BlackRock Core Bond	99,700,600	0.2	-1.0	-0.6	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
Dodge & Cox Income Fund	99,634,507	0.6	-0.6	-0.1	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*0.0*	*-1.6*	*-1.2*	--	--	--	--	--	--	--	--
Pacific Asset Corporate Loan	76,663,383	2.0	4.1	5.5	5.6	--	--	4.6	8.8	2.1	--	--
S&P/LSTA Leveraged Loan Index		*1.8*	*4.0*	*5.2*	*5.3*	--	--	*4.1*	*10.2*	*-0.7*	--	--

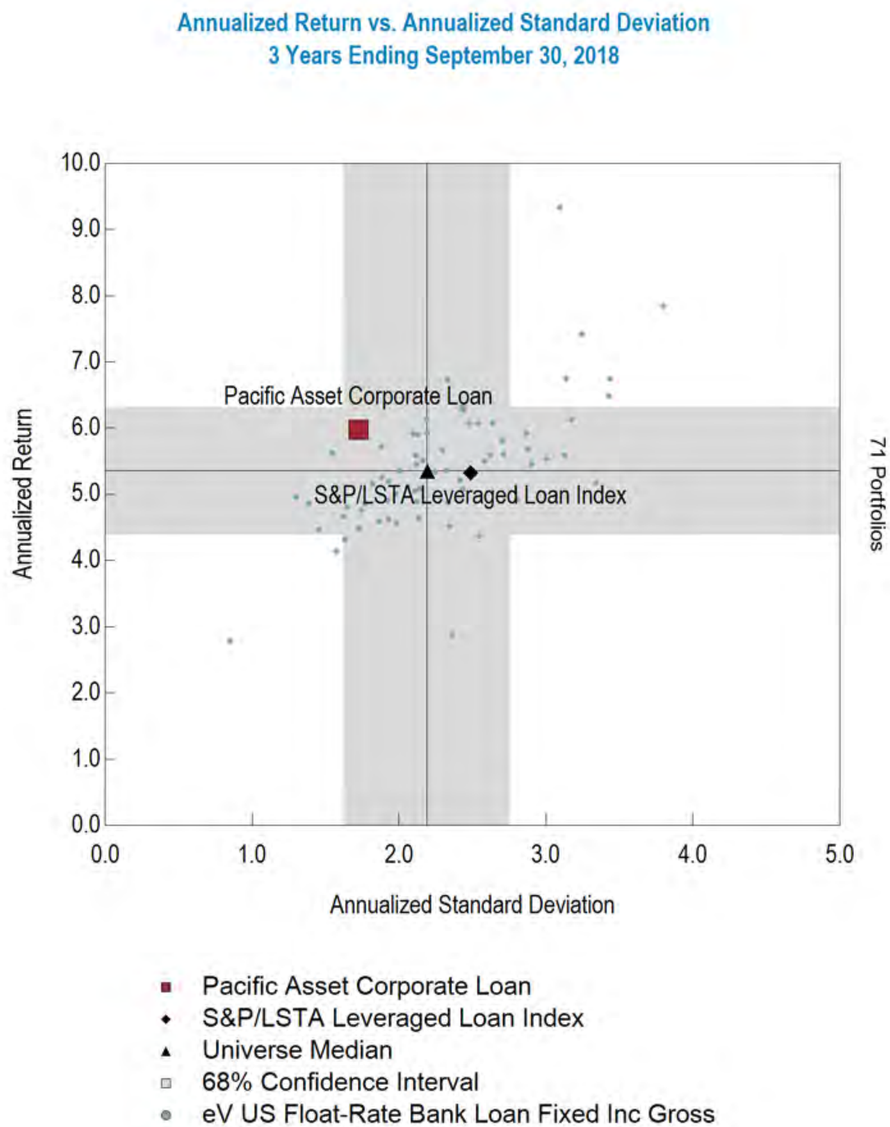
Correlation Matrix
5 Years Ending September 30, 2018

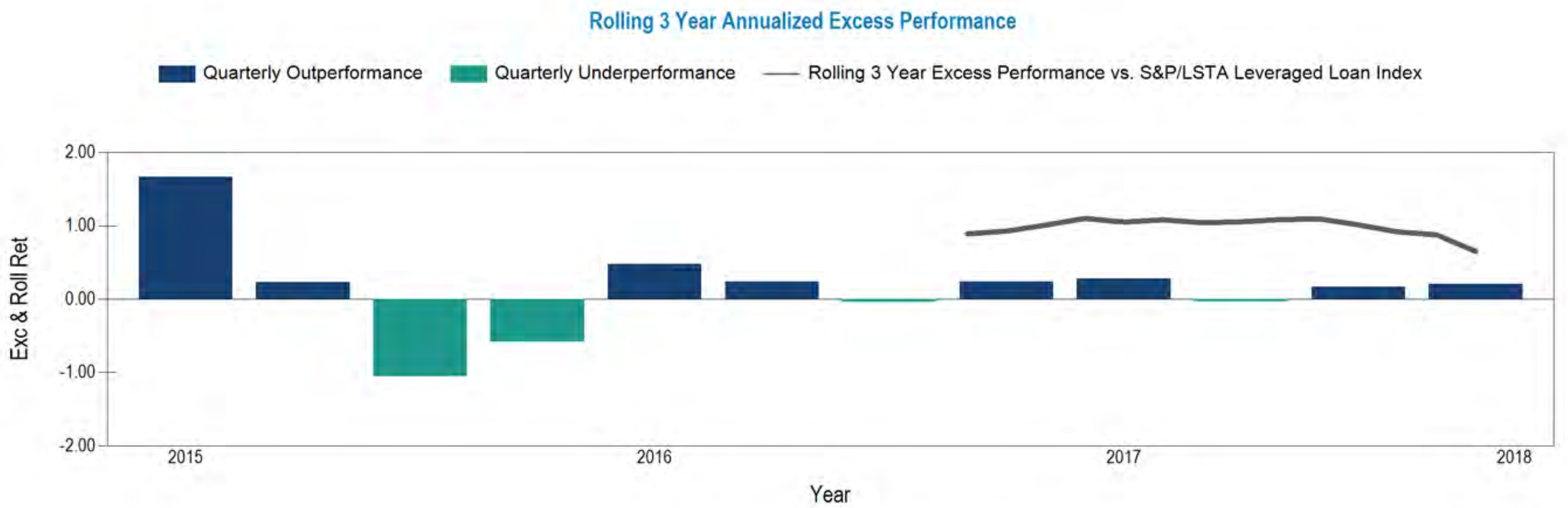
	Total Domestic Fixed Income	BlackRock Core Bond	Dodge & Cox Income Fund	Pacific Asset Corporate Loan	BBgBarc US Aggregate TR
Total Domestic Fixed Income	1.00	--	--	--	--
BlackRock Core Bond	--	--	--	--	--
Dodge & Cox Income Fund	--	--	--	--	--
Pacific Asset Corporate Loan	--	--	--	--	--
BBgBarc US Aggregate TR	0.92	--	--	--	1.00

	Return (Rank)											
5th Percentile	2.3		6.4		6.7		5.4		6.8		7.8	
25th Percentile	2.0		5.8		5.9		4.9		6.2		6.9	
Median	1.9		5.3		5.4		4.4		5.7		6.4	
75th Percentile	1.8		4.8		4.9		4.1		5.2		5.8	
95th Percentile	1.6		4.4		4.3		3.7		4.8		5.1	
# of Portfolios	72		72		71		67		59		44	
● Pacific Asset Corporate Loan	2.0	(18)	5.8	(16)	6.0	(23)	--	(--)	--	(--)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	1.8	(64)	5.2	(53)	5.3	(54)	4.1	(76)	5.2	(71)	6.1	(62)



Return (Rank)	2017		2016		2015		2014		2013		2012	
5th Percentile	6.1		13.6		2.7		3.3		8.7		13.5	
25th Percentile	4.9		10.7		1.8		2.3		7.0		10.7	
Median	4.4		9.2		0.7		1.9		6.2		9.9	
75th Percentile	4.0		8.2		-0.3		1.4		5.4		8.6	
95th Percentile	3.1		6.2		-1.7		1.1		4.7		7.7	
# of Portfolios	75		69		54		48		53		41	
● Pacific Asset Corporate Loan	4.9	(26)	9.2	(51)	2.5	(9)	--	(--)	--	(--)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	4.1	(71)	10.2	(35)	-0.7	(82)	1.6	(68)	5.3	(79)	9.7	(58)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
Pacific Asset Corporate Loan
S&P/LSTA Leveraged Loan Index
Annualized Return
Annualized Standard Deviation
71 Portfolios
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
5.0
Pacific Asset Corporate Loan
S&P/LSTA Leveraged Loan Index
Universe Median
68% Confidence Interval
eV US Float-Rate Bank Loan Fixed Inc Gross


Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. S&P/LSTA Leveraged Loan Index
2.00
1.00
0.00
-1.00
-2.00
Exc & Roll Ret
2015
2016
2017
2018
Year

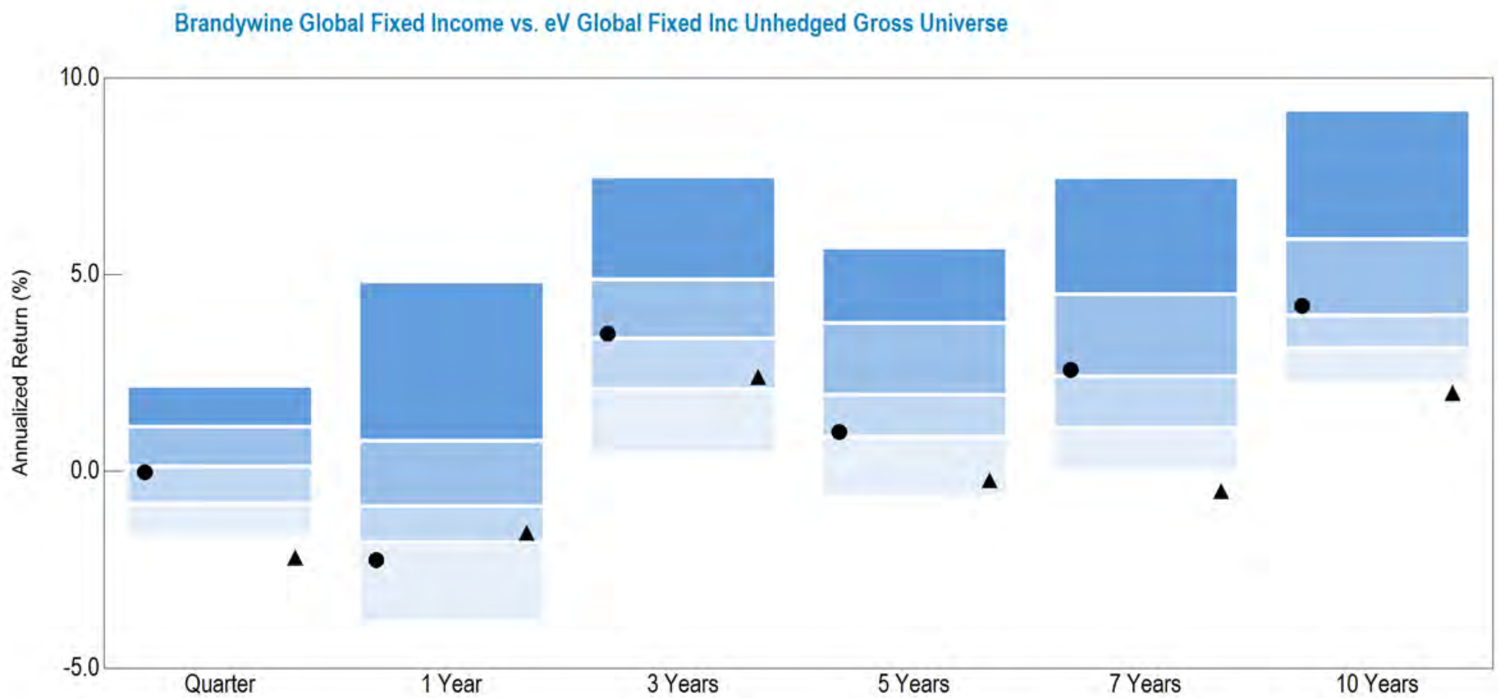
	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Global Fixed	**146,535,338**	**-1.5**	**-6.3**	**-6.2**	**4.0**	**-0.8**	**3.2**	**14.4**	**5.8**	**-11.8**	**-2.2**	**-3.8**
FTSE World Govt Bond Index		*-1.6*	*-2.5*	*-1.5*	*1.7*	*0.2*	*2.2*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
InvestorForce Public DB Glbl Fix Inc Gross Rank		*99*	*98*	*99*	*79*	*97*	*99*	*29*	*67*	*95*	*93*	*59*
Brandywine Global Fixed Income	74,634,520	0.0	-2.0	-2.3	3.5	1.0	4.2	12.5	2.2	-9.3	2.9	-1.6
FTSE WGBI ex US TR		*-2.2*	*-3.1*	*-1.6*	*2.4*	*-0.2*	*2.0*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*
eV Global Fixed Inc Unhedged Gross Rank		*53*	*53*	*83*	*48*	*73*	*46*	*9*	*71*	*96*	*43*	*59*
Stone Harbor Local Markets Ins	71,900,818	-3.0	-10.5	-10.0	4.7	-2.6	--	16.4	9.9	-14.4	-7.7	--
JPM GBI-EM Global Diversified TR USD		*-1.8*	*-8.1*	*-7.4*	*5.2*	*-1.7*	*--*	*15.2*	*9.9*	*-14.9*	*-5.7*	*--*
eV All Emg Mkts Fixed Inc Gross Rank		*97*	*97*	*97*	*87*	*99*	*--*	*14*	*67*	*79*	*98*	*--*

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Global Fixed	**146,535,338**	**-1.7**	**-6.7**	**-6.8**	**3.3**	**-1.4**	**--**	**13.7**	**5.1**	**-12.4**	**-2.8**	**-4.4**
FTSE World Govt Bond Index		*-1.6*	*-2.5*	*-1.5*	*1.7*	*0.2*	*--*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
Brandywine Global Fixed Income	74,634,520	-0.1	-2.3	-2.7	3.0	0.5	--	12.0	1.7	-9.7	2.4	-2.3
FTSE WGBI ex US TR		*-2.2*	*-3.1*	*-1.6*	*2.4*	*-0.2*	*--*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*
Stone Harbor Local Markets Ins	71,900,818	-3.3	-11.1	-10.8	3.7	-3.5	--	15.4	9.0	-15.1	-8.6	--
JPM GBI-EM Global Diversified TR USD		*-1.8*	*-8.1*	*-7.4*	*5.2*	*-1.7*	*--*	*15.2*	*9.9*	*-14.9*	*-5.7*	*--*

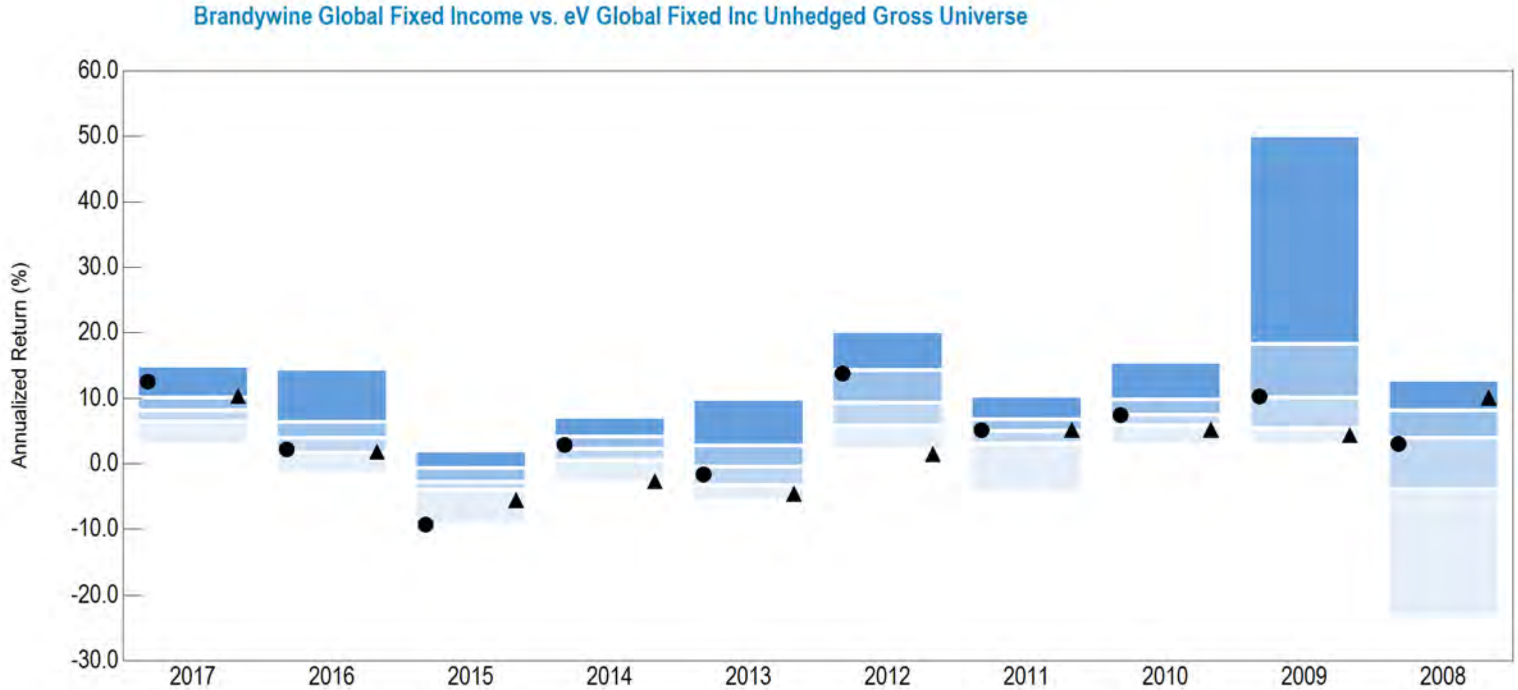
Correlation Matrix
Last 5 Years

	Total Global Fixed	Brandywine Global Fixed Income	Stone Harbor Local Markets Ins	FTSE World Govt Bond Index
Total Global Fixed	1.00	--	--	--
Brandywine Global Fixed Income	0.96	1.00	--	--
Stone Harbor Local Markets Ins	0.98	0.89	1.00	--
FTSE World Govt Bond Index	0.77	0.84	0.70	1.00

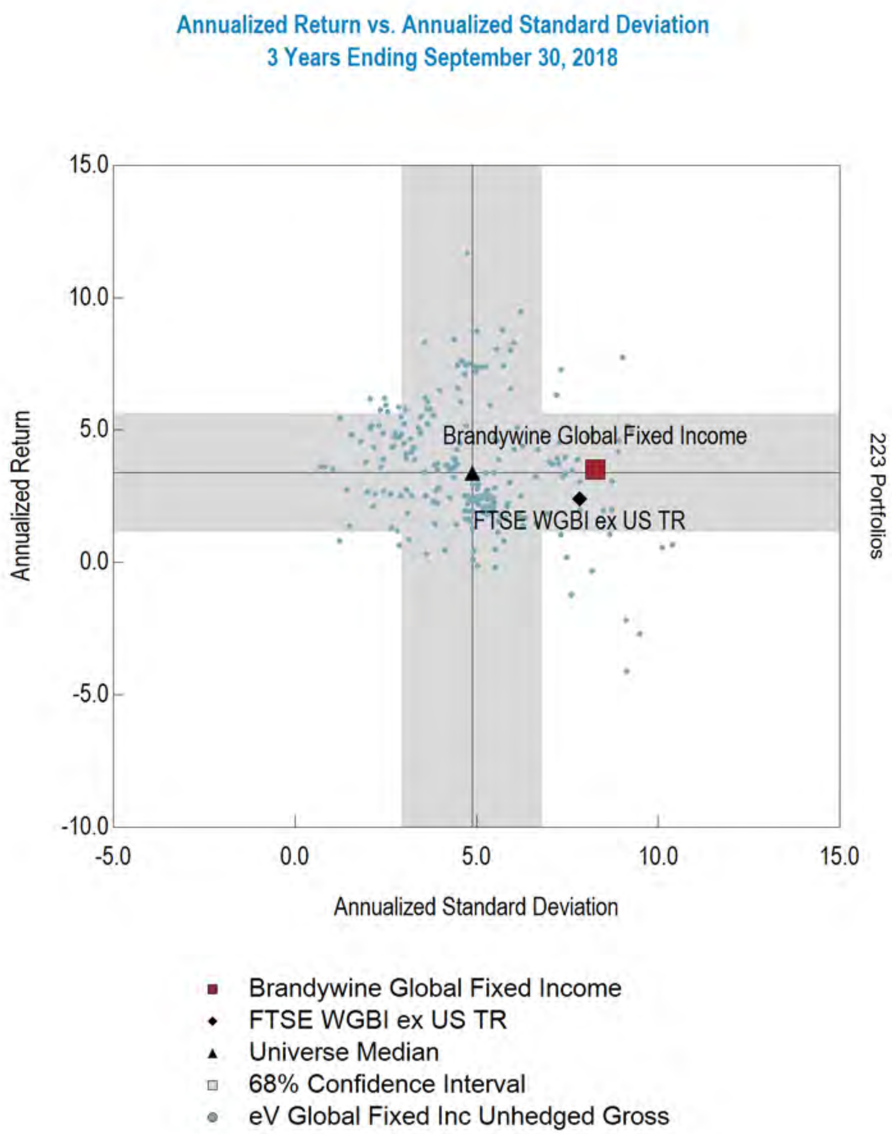
Brandywine Global Fixed Income
Cumulative Performance Comparison (Gross of Fees) Period Ending: September 30, 2018

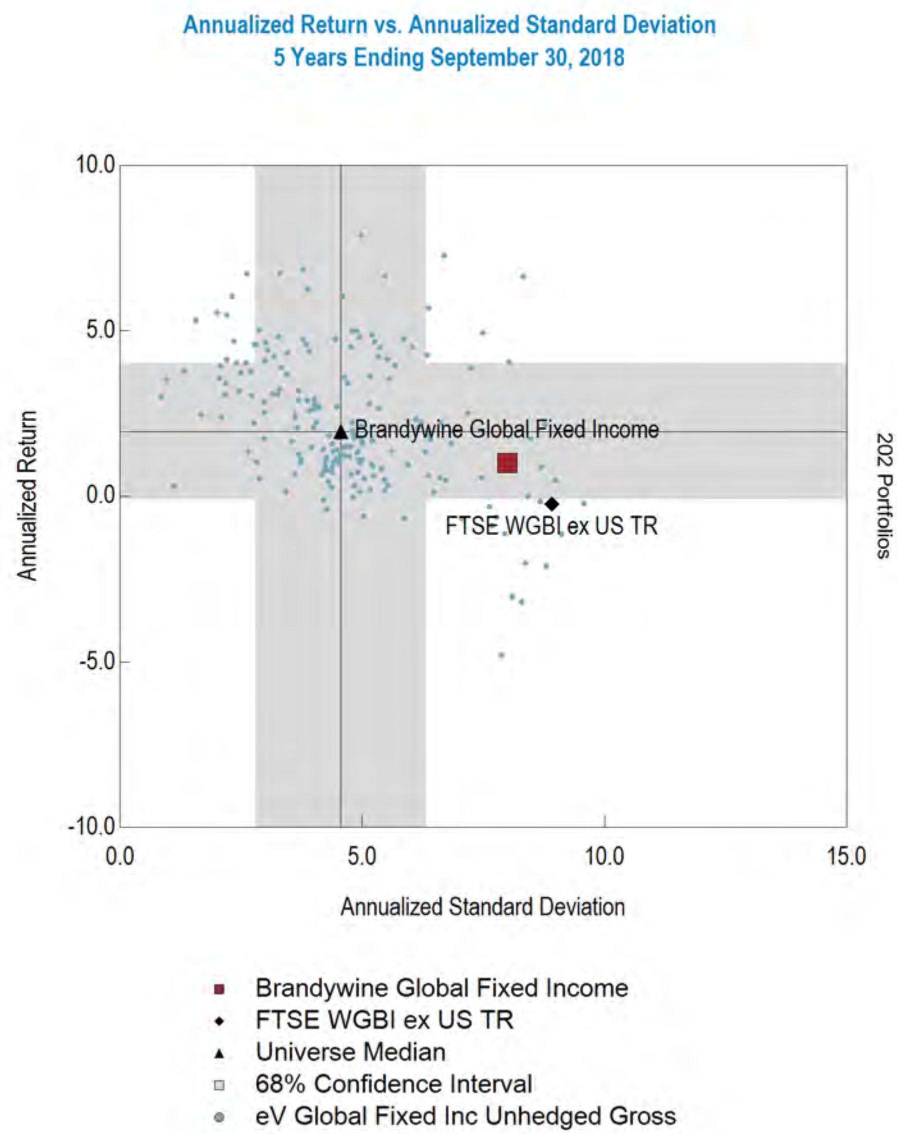


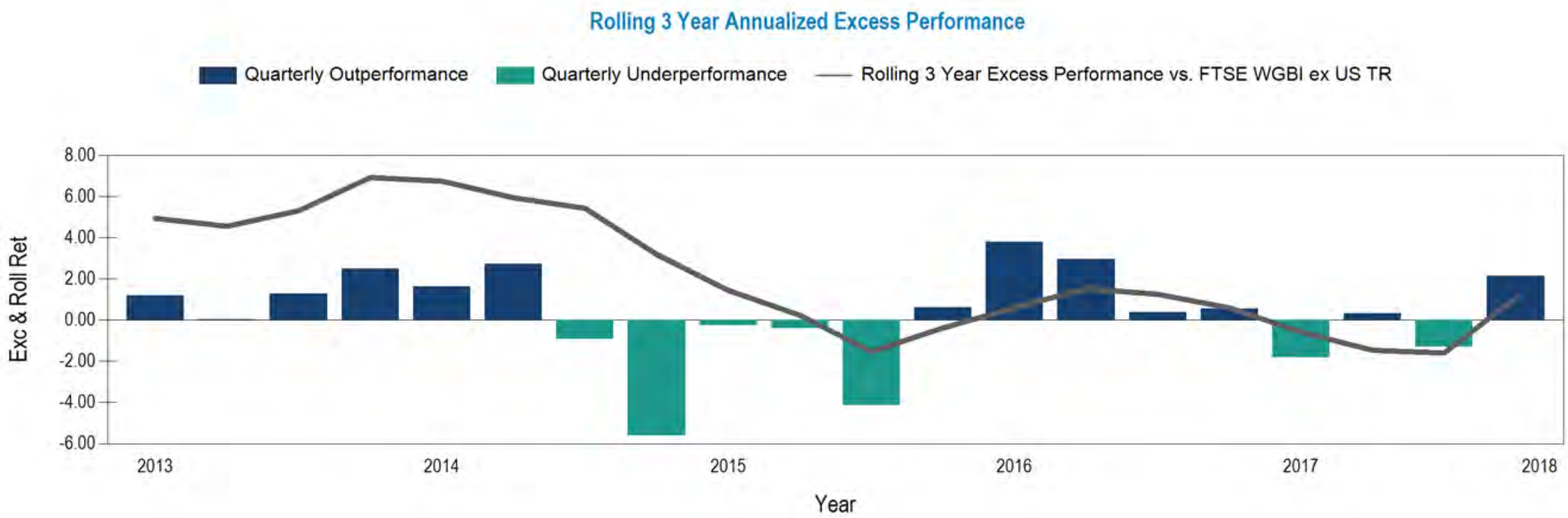
	Return (Rank)											
5th Percentile	2.2		4.8		7.5		5.7		7.5		9.2	
25th Percentile	1.1		0.8		4.9		3.8		4.5		5.9	
Median	0.1		-0.9		3.4		2.0		2.4		4.0	
75th Percentile	-0.8		-1.8		2.1		0.9		1.1		3.1	
95th Percentile	-1.6		-3.8		0.5		-0.6		0.0		2.2	
# of Portfolios	232		232		223		202		162		118	
● Brandywine Global Fixed Income	0.0	(53)	-2.3	(83)	3.5	(48)	1.0	(73)	2.6	(49)	4.2	(46)
▲ FTSE WGBI ex US TR	-2.2	(99)	-1.6	(71)	2.4	(69)	-0.2	(94)	-0.5	(99)	2.0	(96)



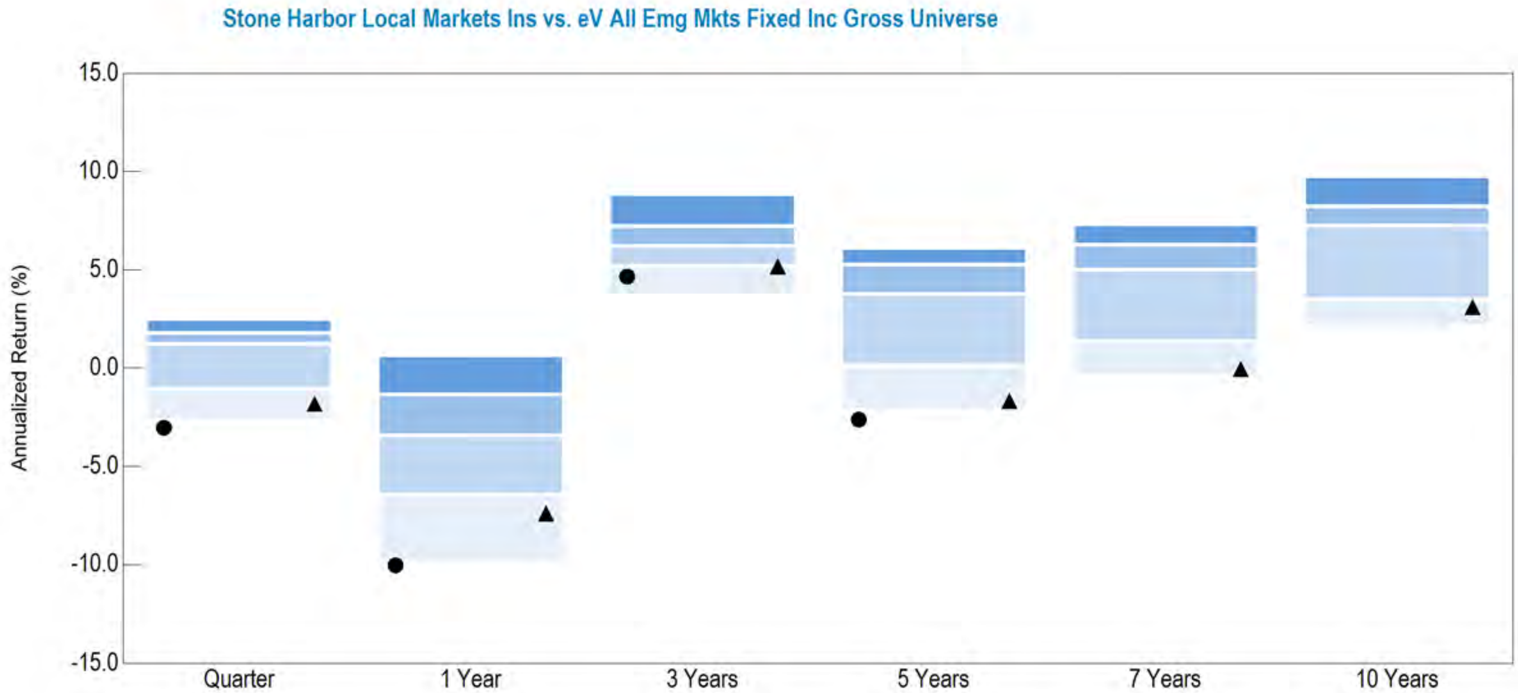
Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	15.0		14.5		2.0		7.1		9.8		20.2		10.4		15.5		50.1		12.8	
25th Percentile	10.1		6.5		-0.6		4.2		2.8		14.3		6.9		9.9		18.4		8.2	
Median	8.2		4.0		-2.7		2.3		-0.4		9.4		5.0		7.5		10.1		4.0	
75th Percentile	6.5		1.8		-4.0		0.6		-3.2		5.9		3.2		6.0		5.4		-3.8	
95th Percentile	3.0		-1.5		-9.2		-2.7		-5.6		2.2		-4.2		3.0		3.2		-23.0	
# of Portfolios	231		221		189		159		142		118		108		76		72		73	
● Brandywine Global Fixed Income	12.5	(9)	2.2	(71)	-9.3	(96)	2.9	(43)	-1.6	(59)	13.8	(30)	5.1	(49)	7.4	(52)	10.3	(49)	3.0	(53)
▲ FTSE WGBI ex US TR	10.3	(21)	1.8	(75)	-5.5	(89)	-2.7	(95)	-4.6	(89)	1.5	(98)	5.2	(48)	5.2	(87)	4.4	(84)	10.1	(14)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
Annualized Return
Annualized Standard Deviation
223 Portfolios
Brandywine Global Fixed Income
FTSE WGBI ex US TR
15.0
10.0
5.0
0.0
-5.0
-10.0
-5.0
0.0
5.0
10.0
15.0
Brandywine Global Fixed Income
FTSE WGBI ex US TR
Universe Median
68% Confidence Interval
eV Global Fixed Inc Unhedged Gross


Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2018
Annualized Return
Annualized Standard Deviation
202 Portfolios
Brandywine Global Fixed Income
FTSE WGBI ex US TR
10.0
5.0
0.0
-5.0
-10.0
0.0
5.0
10.0
15.0
Brandywine Global Fixed Income
FTSE WGBI ex US TR
Universe Median
68% Confidence Interval
eV Global Fixed Inc Unhedged Gross


Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. FTSE WGBI ex US TR
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

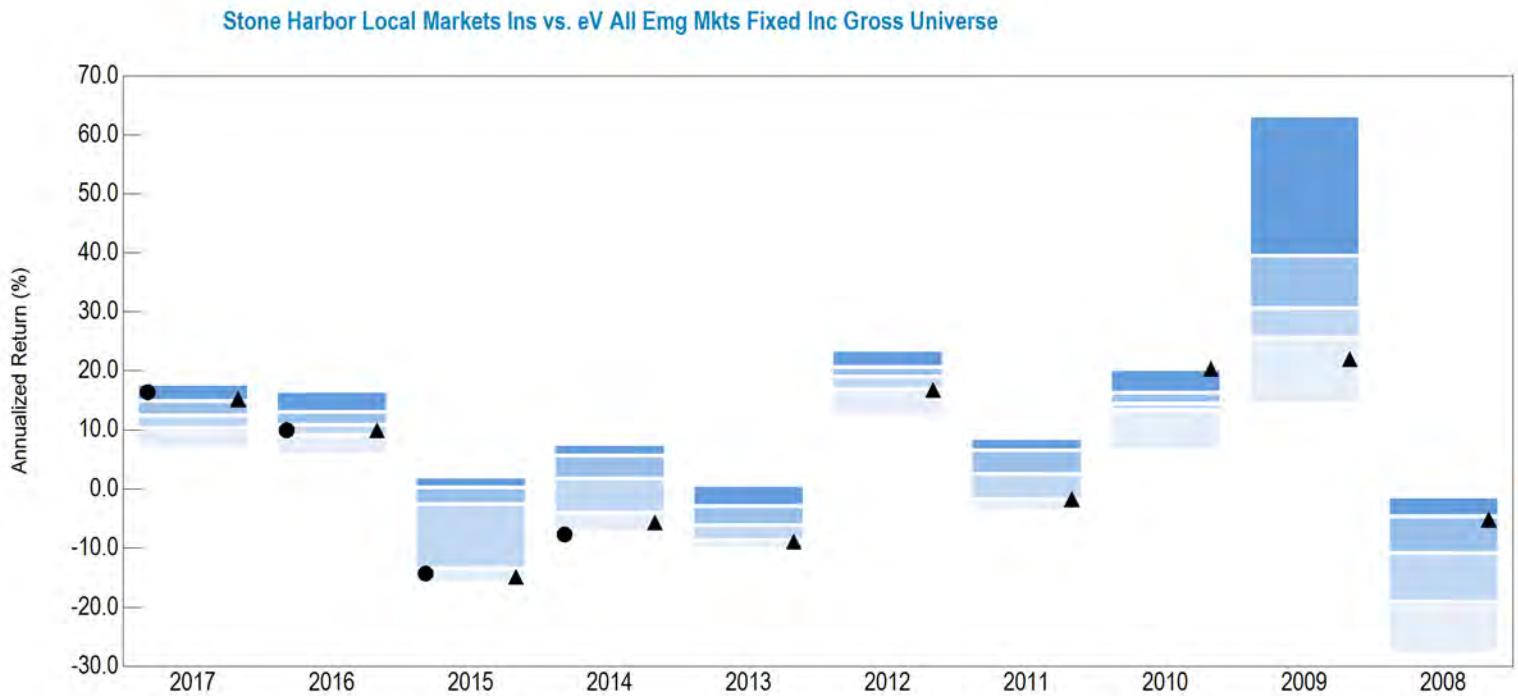

Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. FTSE WGBI ex US TR
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year



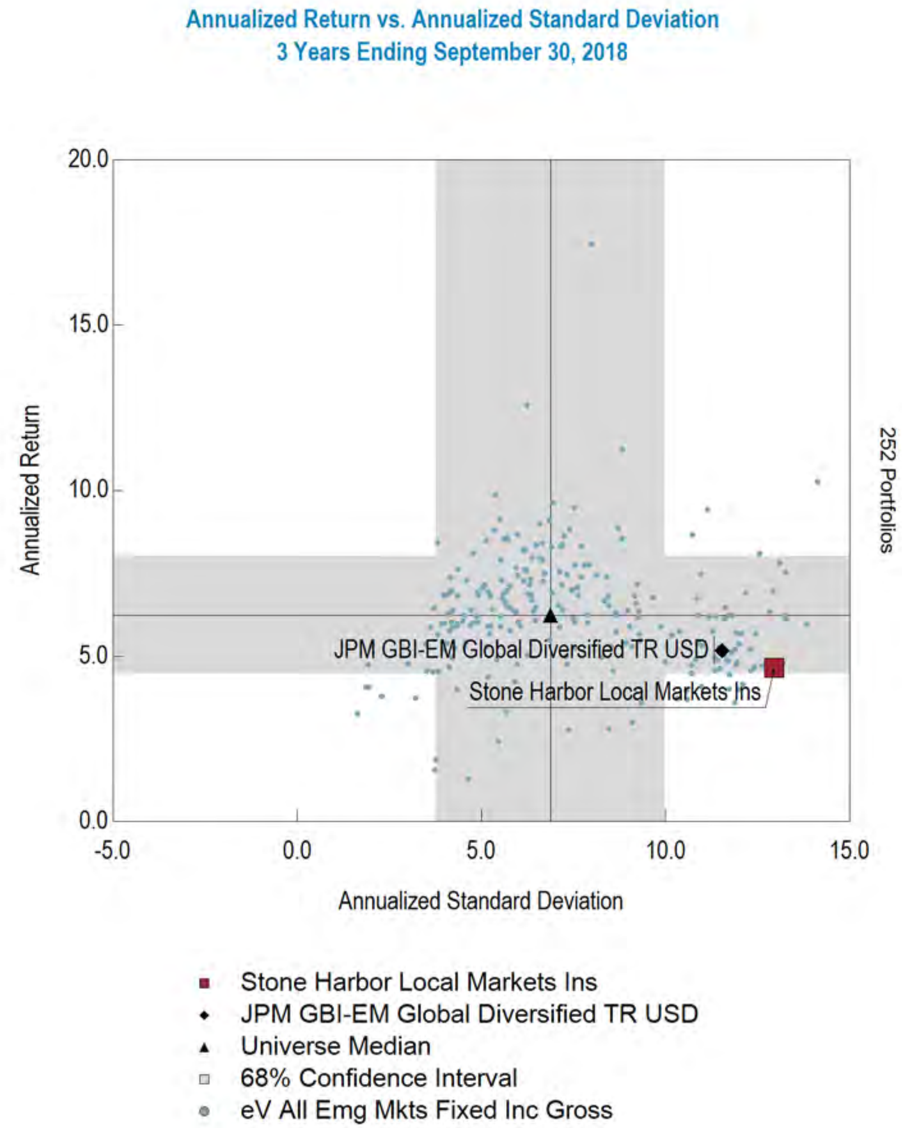
Return (Rank)	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	2.5		0.6		8.8		6.1		7.3		9.8	
25th Percentile	1.8		-1.3		7.2		5.3		6.3		8.3	
Median	1.2		-3.4		6.2		3.8		5.0		7.3	
75th Percentile	-1.0		-6.4		5.2		0.2		1.4		3.5	
95th Percentile	-2.6		-9.9		3.7		-2.1		-0.4		2.1	
# of Portfolios	267		267		252		218		164		98	
● **Stone Harbor Local Markets Ins**	-3.0	(97)	-10.0	(97)	4.7	(87)	-2.6	(99)	--	(--)	--	(--)
▲ **JPM GBI-EM Global Diversified TR USD**	-1.8	(83)	-7.4	(83)	5.2	(77)	-1.7	(91)	0.0	(92)	3.1	(81)

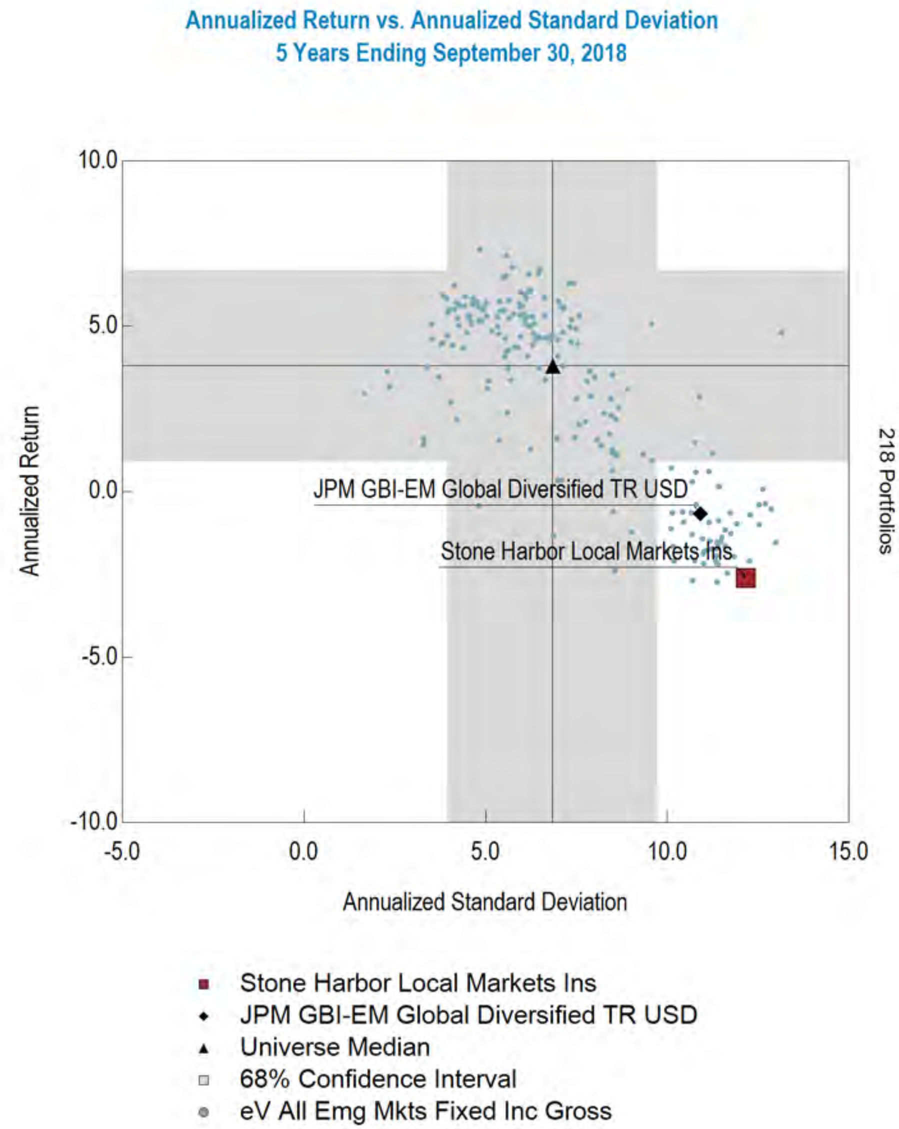
Stone Harbor Local Markets Ins

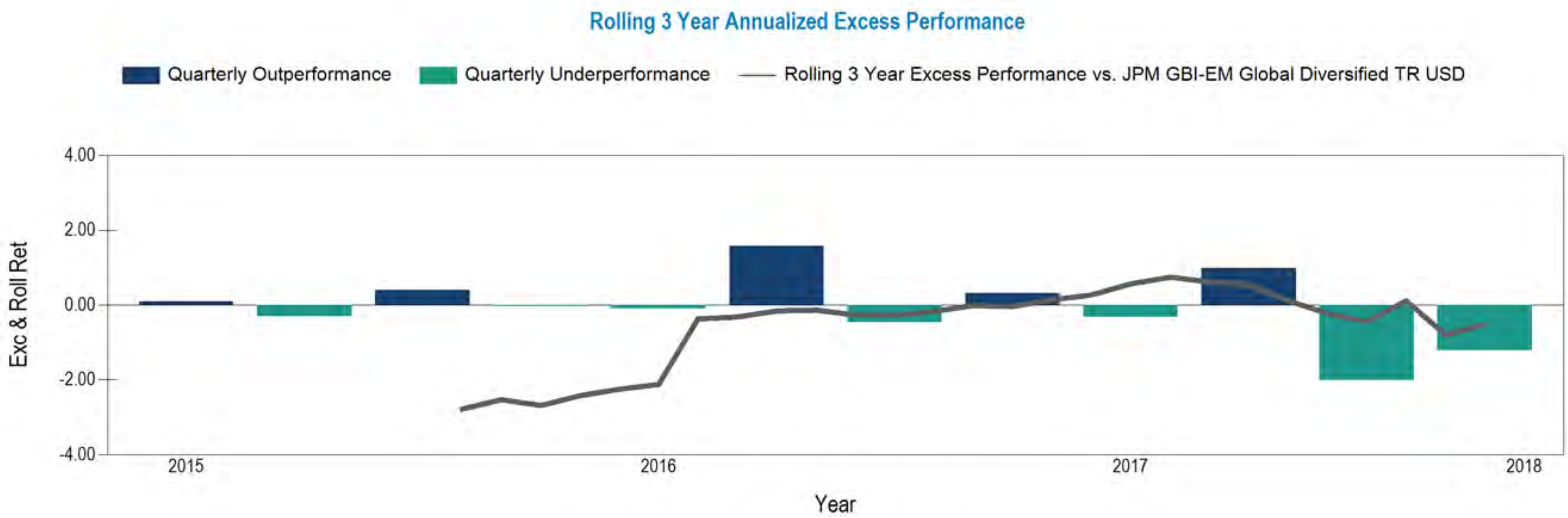
Consecutive Performance Comparison (Gross of Fees) Period Ending: September 30, 2018



Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	17.7		16.6		2.1		7.6		0.7		23.6		8.6		20.3		63.2		-1.3	
25th Percentile	15.0		13.1		0.3		5.7		-2.9		20.7		6.6		16.3		39.6		-4.6	
Median	12.6		10.9		-2.6		1.8		-6.1		19.1		2.6		14.5		30.7		-10.8	
75th Percentile	10.4		9.2		-13.4		-4.0		-8.6		17.0		-1.6		13.4		25.6		-18.9	
95th Percentile	6.9		5.9		-15.9		-7.2		-10.2		12.5		-3.6		6.6		14.4		-27.7	
# of Portfolios	257		247		159		148		129		108		75		55		27		30	
● Stone Harbor Local Markets Ins	16.4	(14)	9.9	(67)	-14.4	(79)	-7.7	(98)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ JPM GBI-EM Global Diversified TR USD	15.2	(24)	9.9	(67)	-14.9	(84)	-5.7	(91)	-9.0	(82)	16.8	(80)	-1.8	(77)	20.4	(5)	22.0	(85)	-5.2	(28)


Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2018
20.0
15.0
10.0
5.0
0.0
-5.0
0.0
5.0
10.0
15.0
Annualized Return
Annualized Standard Deviation
252 Portfolios
JPM GBI-EM Global Diversified TR USD
Stone Harbor Local Markets Ins
Stone Harbor Local Markets Ins
JPM GBI-EM Global Diversified TR USD
Universe Median
68% Confidence Interval
eV All Emg Mkts Fixed Inc Gross


Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2018
10.0
5.0
0.0
-5.0
-10.0
-5.0
0.0
5.0
10.0
15.0
Annualized Return
Annualized Standard Deviation
218 Portfolios
JPM GBI-EM Global Diversified TR USD
Stone Harbor Local Markets Ins
Stone Harbor Local Markets Ins
JPM GBI-EM Global Diversified TR USD
Universe Median
68% Confidence Interval
eV All Emg Mkts Fixed Inc Gross


Rolling 3 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. JPM GBI-EM Global Diversified TR USD
4.00
2.00
0.00
-2.00
-4.00
Exc & Roll Ret
2015
2016
2017
2018
Year

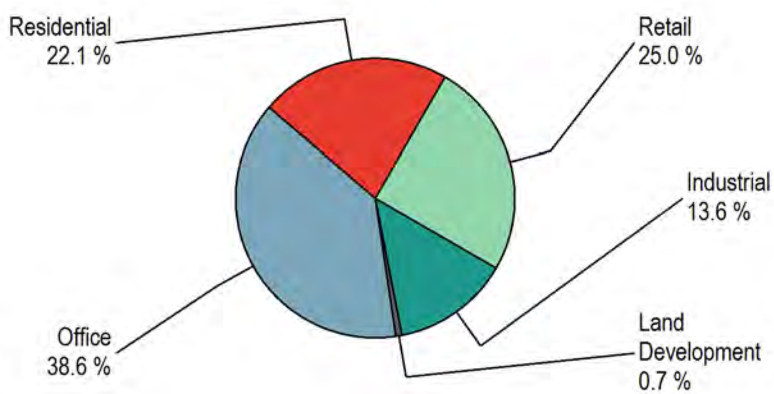

Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. JPM GBI-EM Global Diversified TR USD
4.00
2.00
0.00
-2.00
-4.00
Exc & Roll Ret
2015
2016
2017
2018
Year

Total Real Estate
Asset Class Overview (Gross of Fees)

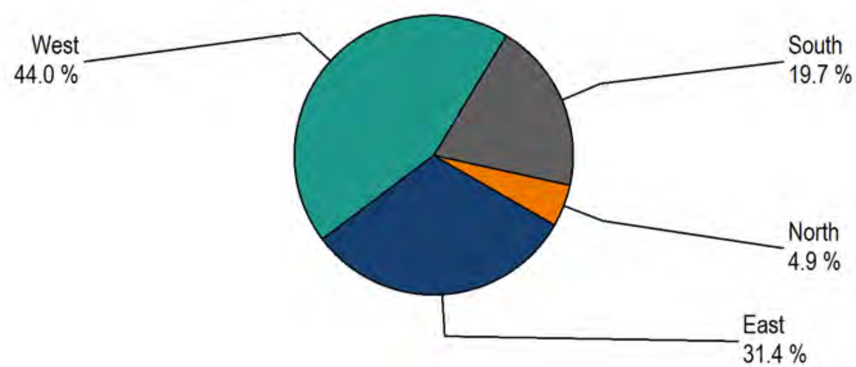
Period Ending: September 30, 2018

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	**193,741,508**	**1.7**	**5.8**	**7.8**	**9.0**	**10.5**	**5.5**	**7.8**	**7.8**	**18.0**	**10.4**	**12.9**
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	160,324,479	1.6	5.3	6.9	7.8	10.0	6.0	6.1	8.4	15.2	11.2	15.9
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	21,645,006	2.9	7.3	9.5	--	--	--	7.4	--	--	--	--
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	--	--	--	*7.6*	--	--	--	--
NCREIF Property Index		*1.7*	*5.3*	*7.2*	--	--	--	*7.0*	--	--	--	--
Direct Real Estate	11,772,024	1.3	9.0	14.9	15.3	12.8	7.1	20.6	5.5	22.9	6.1	5.2
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*

Property Type Allocation
Allocation as of September 30, 2018

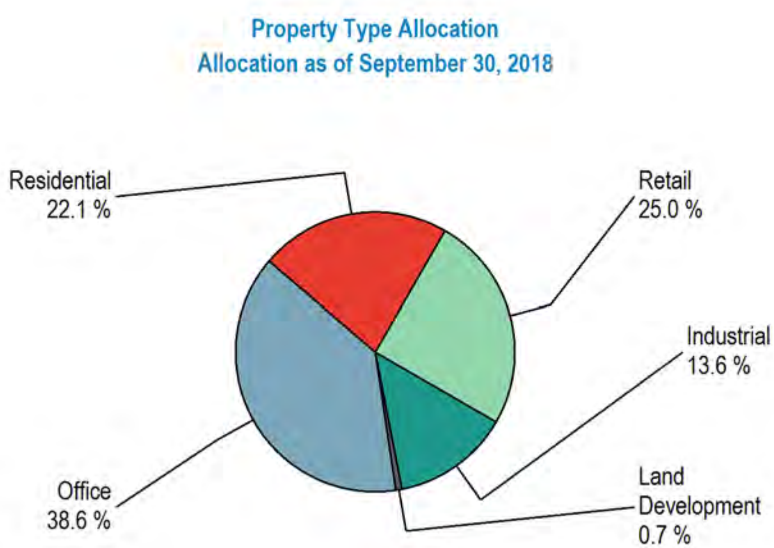


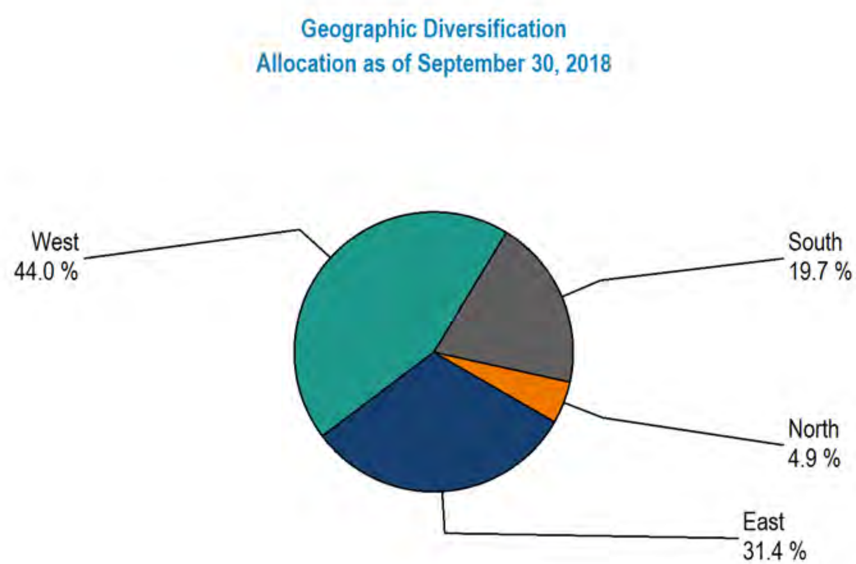
Geographic Diversification
Allocation as of September 30, 2018



Property Allocation and Geographic Diversification analytics exclude Direct Real Estate. ARA American Strategic Value Realty and Direct Real Estate are lagged one quarter.

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	**193,741,508**	**1.7**	**5.8**	**7.8**	**8.5**	**9.9**	**5.0**	**7.8**	**6.8**	**16.9**	**9.6**	**12.1**
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	160,324,479	1.6	5.3	6.9	7.3	9.3	5.3	6.1	7.3	14.1	10.0	14.8
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	21,645,006	2.9	7.3	9.5	--	--	--	7.4	--	--	--	--
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	--	--	--	*7.6*	--	--	--	--
NCREIF Property Index		*1.7*	*5.3*	*7.2*	--	--	--	*7.0*	--	--	--	--
Direct Real Estate	11,772,024	1.3	9.0	14.9	15.0	12.5	7.0	20.6	4.9	22.2	6.1	5.2
NCREIF-ODCE		*2.1*	*6.5*	*8.7*	*8.8*	*10.7*	*5.6*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*5.3*	*7.2*	*7.8*	*9.6*	*6.4*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*





Property Allocation and Geographic Diversification analytics exclude Direct Real Estate. ARA American Strategic Value Realty and Direct Real Estate are lagged one quarter.

Total Commodities
Asset Class Summary (Gross of Fees)

Period Ending: September 30, 2018

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	**50,207,126**	**-0.8**	**0.9**	**7.5**	**2.4**	**-5.6**	**--**	**6.2**	**12.6**	**-25.2**	**-16.0**	**-9.1**
Bloomberg Commodity Index TR USD		*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	50,207,126	-0.8	0.9	7.5	2.4	-5.6	--	6.2	12.6	-25.2	-16.0	--
Bloomberg Commodity Index TR USD		*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*--*

Total Commodities
Asset Class Summary (Net of Fees) Period Ending: September 30, 2018

	Market Value	3 Mo	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	**50,207,126**	**-0.8**	**0.9**	**7.5**	**2.1**	**-6.0**	**--**	**6.2**	**11.8**	**-25.8**	**-16.6**	**-9.5**
Bloomberg Commodity Index TR USD		*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	--	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	50,207,126	-0.8	0.9	7.5	2.1	-6.0	--	6.2	11.8	-25.8	-16.6	--
Bloomberg Commodity Index TR USD		*-2.0*	*-2.0*	*2.6*	*-0.1*	*-7.2*	--	*1.7*	*11.8*	*-24.7*	*-17.0*	--

Performance Return Calculations

Performance is calculated using Time Weighted Rates of Return (TWRR) methodologies. Monthly returns are geometrically linked and annualized for periods longer than one year.

Data Source

Verus is an independent third party consulting firm and calculates returns from best source book of record data. Returns calculated by Verus may deviate from those shown by the manager in part, but not limited to, differences in prices and market values reported by the custodian and manager, as well as significant cash flows into or out of an account. It is the responsibility of the manager and custodian to provide insight into the pricing methodologies and any difference in valuation.

Illiquid Alternatives

Due to the inability to receive final valuation prior to report production, closed end funds (including but are not limited to Real Estate, Hedge Funds, Private Equity, and Private Credit) performance is typically reported at a one-quarter lag. Valuation is reported at a one-quarter lag, adjusted for current quarter flow (cash flows are captured real time). Closed end fund performance is calculated using a time-weighted return methodology consistent with all portfolio and total fund performance calculations. For Private Markets, performance reports also include Verus-calculated multiples based on flows and valuations (e.g. DPI and TVPI) and manager-provided IRRs.

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
PIMCO RAE Fundamental PLUS	11/30/2007	J.P. Morgan	Direct Real Estate	-	American Realty Adv.
Loomis Sayles Large Cap Growth	12/31/2016	J.P. Morgan	JP Morgan Core Real Estate	3/6/2008	J.P. Morgan
Boston Partners Large Cap Value	1/31/2017	Boston Partners	Gresham MTAP Commodity	8/31/2013	BNY Mellon
Atlanta Capital Management	8/31/2010	J.P. Morgan	Cash Account	-	SLOCPT
Dodge & Cox Intl Stock	12/6/2007	J.P. Morgan	HarbourVest Partners IX-Buyout	2011[1]	HarbourVest
WCM International Growth	2/15/2017	WCM	KKR Mezzanine Partners	2010[1]	KKR
BlackRock Core Bond	1/19/2017	J.P. Morgan	PIMCO Distressed Credit Fund	2010[1]	Brown Brothers Harriman
Dodge & Cox Income	1/19/2017	Deutsche Bank	ARA American Strategic Value	6/22/2016	American Realty Adv.
Pacific Asset Corporate Loan	9/1/2014	Deutsche Bank	TPG Diversified Credit Progran	2016[1]	TPG
Brandywine Global Fixed	11/30/2007	J.P. Morgan	Pathway Private Equity Fund 9	2017[1]	Pathway
Stone Harbor Local Markets Ins	7/9/2013	Stone Harbor			

[1] *Represents fund vintage year.*

Policy & Custom Index Composition

Policy Index (10/1/2016-Current)	20% Russell 3000, 20% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 15% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps, 5% BBgBarc High Yield +2% (lagged).
Policy Index (7/1/2014-9/30/2016)	23% Russell 3000, 22% MSCI ACWI ex-US (Gross), 35% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (7/1/2013-6/30/2014)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (4/1/2011-6/30/2013)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 20% BBgBarc U.S. Aggregate, 5% Citi World Gov't Bond, 5% Barclays US TIPS, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.

Other Disclosures

Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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www.SLOPensionTrust.org

San Luis Obispo County
Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 14: Investment Report for October 2018

	October	**Year to Date 2018**		2017	2016	2015	2014	2013
Total Trust Investments ($ millions)	$1,323			$1,351 year end	$1,196 year end	$1,148 year end	$1,190 year end	$1,131 year end
Total Fund Return	-3.9 % Gross	**-1.0** % Gross		15.5 % Gross	6.6 % Gross	-0.8% Gross	5.1 % Gross	13.8% Gross
Policy Index Return (r)	-3.7%	-1.3 %		13.4 %	7.7 %	-0.5 %	5.2 %	13.4%

(r) Policy index as of Aug. 2016 revision to Strategic Asset Allocation Policy: 20% domestic equity, 20% international equity, 15% core bonds, 5% bank loans, 5% global bonds, 5% emerging market debt, 15% real estate, 5% commodities, 5% private equity, 5% private credit.

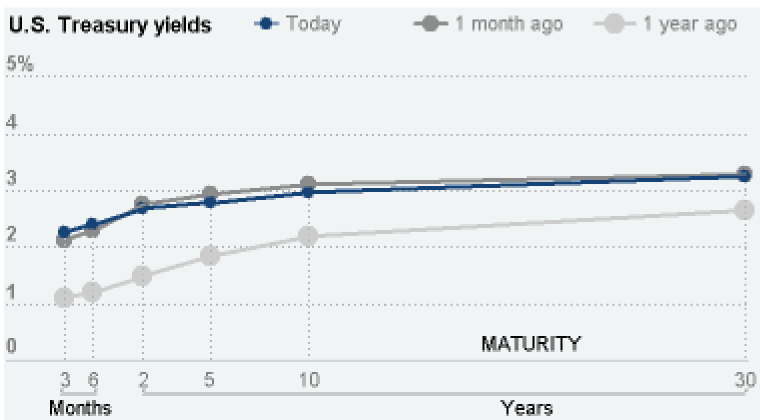
The Economy and Capital Markets:

Some significant factors in the economy for October and into mid-November have been –

- **Fed Policy –**
  - The September Fed FOMC meeting saw the predicted additional Fed Funds rate increase of 0.25% put in place to a 2.00% to 2.25% range. The capital markets appear to be forecasting one additional Fed rate increase in 2018 and two more increases in 2019. This is consistent with Fed guidance on its gradualist path towards rate normalization.

- Fed meeting minutes reflect an increasingly "hawkish" tone increasing the possibility of further rate increases.
- The Fed continues to unwind its balance sheet from years of Quantitative Easing. Combined with Fed Funds increases this constitutes a double source of Fed monetary policy tightening. This in turn raises the risk that Fed policy could push the economy over into recession in 2019. Reducing the Fed balance sheet from unprecedented levels is, of course, an unprecedented policy action that introduces new risks to monetary policy.

- **Interest Rates –**
  - The increase in interest rates in August and into October that say the 10-year Treasury near the 3.2% level appeared based on the bond market pricing in an uptick in inflation and flattening economic growth. This contributed to the equity market selloff in October and November. Interest rates continued with increased with the 10-year Treasury falling back to 3.06% on November 19th.
  - The yield curve as of November 19th is shown below.



- **GDP Growth –**
  - The October 26th advance estimate for 3Q18 Real GDP growth was reported at a 3.5% rate. This followed the revised 2Q18 GDP increase at a 4.2% rate. The Real GDP growth rate from one year ago came in at a 3.0% rate.
  - Recession Risk – Economists famously quip that "economic expansions don't die of old age – they are murdered…" The October 13th edition of *The Economist* magazine discussed "The next recession" and some key points are -
    - The synchronized global growth of recent years may be ending. As the U.S. economy continues to expand with the fiscal stimulus of tax cuts and low unemployment, its rate of growth should slow. However, other developed economies are on a lower growth rate path.
    - The aggressive fiscal stimulus of U.S. tax cuts is less likely to be acceptable internationally as the resulting budget deficits are risker for both emerging markets and developed markets that lend money to emerging markets.

- The divergence in growth rates contributes to diverging monetary policies. As the Fed normalizes interest rates with gradual increases, other central banks in Europe, Japan and China are still in a monetary easing mode.
- Increasing U.S. interest rates relative to the rest of the world leads to a stronger U.S Dollar. This in turn harms emerging market economies that pay their debts in USD terms. A strong USD also acts as a headwind to international investment for U.S. investors.
- Banking systems are by and large stronger than they were a decade ago moderating the depth of the next recession - perhaps.
- The monetary systems are less able to provide a contra-cyclical force in the face of an economic downturn given the present eased monetary policies – even in the U.S. despite recent Fed efforts at restocking the monetary toolkit.

- **Trade Protectionism, International Tensions, Economic Fallout –**
  - In September the Trump Administration added 10% tariffs on $200 billion of Chinese imports with threats of increasing tariffs to 25% next year and broadening the list of tariff-subject imports. China retaliated with its own increased tariffs.
  - The increasingly entrenched and aggressive tone of the U.S. / Chin trade war appears to be an increasingly potent source of capital market fear and volatility.

- **Oil Prices –**
  - Oil prices notched fresh multiyear highs in October as the market girded itself for the re-imposition of U.S. economic sanctions on Iran's oil industry. Subsequent to that oil prices declined precipitously form the mid $70/bbl range to $57/bbl in mid November as shown below for Light sweet crude –

  - Factors in the dramatic swings in oil prices include –
    - Uncertain and changeable U.S. positions on Iran sanctions. What had been viewed as a certain hit to Iranian supply of oil to world markets from U.S. sanctions turned to confused relief when the U.S. exempted much of Iran's oil exports from sanctions.
    - Continued strong supply from U.S. oil shale-based drilling.

- Expected declines in Chinese demand for oil related to the erratic and aggressive path of the U.S. / China trade war.

- **Employment and Wages –**
  - The October DOL report on nonfarm employment showed -
    - New jobs up 250k in September following an average month gain of 211k over the trailing 12 months.
    - Unemployment held steady at 3.7% - the lowest since 1969.
    - The California unemployment rate for October was 4.1% - down from 4.5% one year ago and the lowest on record for California. The SLO County unemployment rate was 2.8% in September.
  - Wage growth – eagerly watched for signs of an uptick in inflation – for October showed a year-over-year increase of 3.1%. However, this number is coming off of a weaker month one year ago and may not portend the imminent inflation increase that the capital markets are anxious over.

- **Economy and the markets – October "Selloff"**
  - October and into November has seen a sharp selloff in equity prices globally and volatile interest rates. The chart below shows the S&P 500 index since mid-October through November 19th –

  - The reasons for the October-November selloff are also the subject of much market commentary and speculation. Factors include –
    - Market "jitters" from high valuation levels with P/E ratios above long term averages. – Despite relatively strong corporate profit growth.
    - Fed action fears – the concern that surprises in an accelerating inflation rate could lead to the
    - Market concerns over exogenous shocks to the system such as a sustained trade war, oil price shocks, political turmoil, etc.

- Market expectations of late-cycle economic growth slowing in 2019 to well below the rapid pace of 2018. Contributors to this concern include –
  - The normal regression-to-the-mean of economic cycles.
  - The waning influence of the corporate profit “steroids” of tax cuts form 2018.
  - U.S. policy gridlock on infrastructure and immigration. Infrastructure spending is clearly needed but, may not emerge in 2019. Also, a significant slowing in the domestic workforce that is not offset by immigrations gains is a structural drag on economic growth, and therefore, profits.

SLOCPT Investment Returns:

The attached report from Verus covers the investment returns of the SLOCPT portfolio and general market conditions through the end of October. Subsequent market movements in November will be reported on in next month’s investment report.

Respectfully submitted

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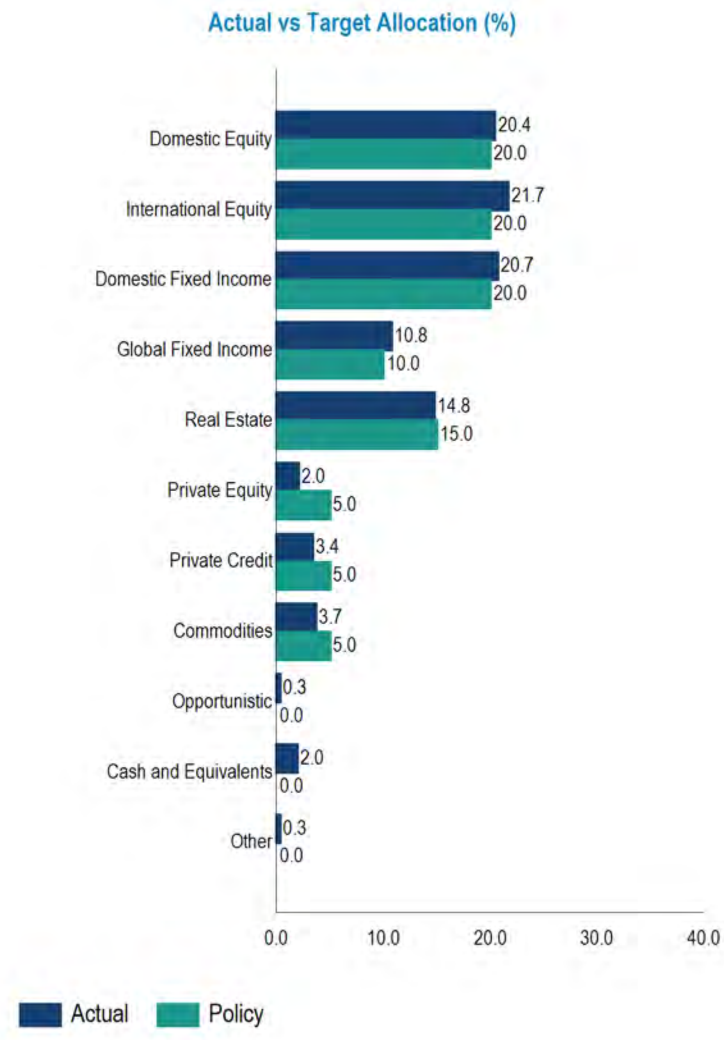
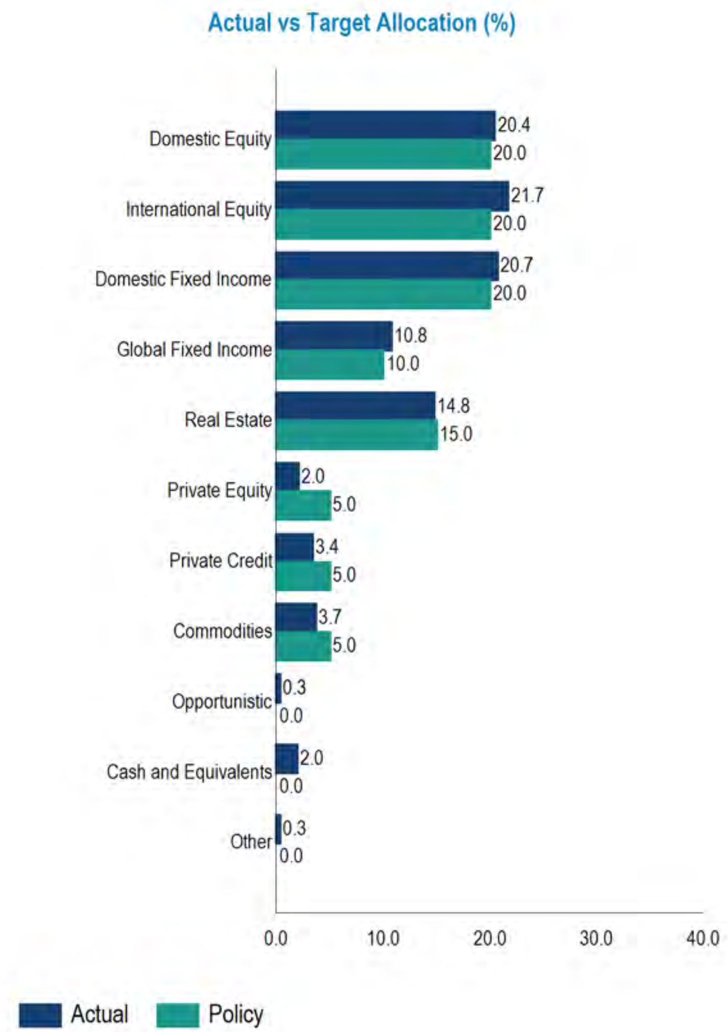
	Market Value	% of Portfolio	1 Mo	YTD
Total Fund	**1,322,756,908**	**100.0**	**-3.9**	**-1.0**
Total Fund ex Overlay	1,318,726,716	99.7	-3.9	-0.9
Policy Index			*-3.7*	*-1.3*
Total Domestic Equity	**270,087,837**	**20.4**	**-7.5**	**2.6**
Russell 3000			*-7.4*	*2.4*
PIMCO RAE Fundamental PLUS Instl	57,563,666	4.4	-5.8	2.3
S&P 500			*-6.8*	*3.0*
Loomis Sayles Large Cap Growth	77,117,576	5.8	-8.3	5.7
Russell 1000 Growth			*-8.9*	*6.6*
Boston Partners Large Cap Value	79,551,757	6.0	-6.2	-0.5
Russell 1000 Value			*-5.2*	*-1.5*
Atlanta Capital Mgmt	55,854,838	4.2	-9.9	2.7
Russell 2500			*-10.2*	*-0.8*
Total International Equity	**286,613,869**	**21.7**	**-8.0**	**-8.0**
MSCI ACWI ex USA Gross			*-8.1*	*-10.6*
Dodge & Cox Intl Stock	137,847,385	10.4	-6.1	-11.6
MSCI EAFE Gross			*-8.0*	*-8.9*
WCM International Growth	148,766,484	11.2	-9.8	-4.2
MSCI ACWI ex USA Gross			*-8.1*	*-10.6*
Total Domestic Fixed Income	**273,812,967**	**20.7**	**-0.8**	**0.0**
BBgBarc US Aggregate TR			*-0.8*	*-2.4*
BlackRock Core Bond	98,386,935	7.4	-1.3	-2.1
BBgBarc US Aggregate TR			*-0.8*	*-2.4*
Dodge & Cox Income Fund	98,888,740	7.5	-0.7	-1.0
BBgBarc US Aggregate TR			*-0.8*	*-2.4*
Pacific Asset Corporate Loan	76,537,292	5.8	-0.1	4.3
S&P/LSTA Leveraged Loan Index			*0.0*	*4.0*
Total Global Fixed	**142,301,128**	**10.8**	**-2.9**	**-9.0**
FTSE World Govt Bond Index			*-1.1*	*-3.6*
Brandywine Global Fixed Income	72,012,034	5.4	-3.5	-5.5
FTSE WGBI ex US TR			*-1.5*	*-4.5*
Stone Harbor Local Markets Ins	70,289,094	5.3	-2.2	-12.4
JPM GBI-EM Global Diversified TR USD			*-2.0*	*-9.9*



**Other balance represents Clifton Group.*

Policy Index (10/1/2016): 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity, 5% Russell 3000 + 300 bp, 5% BBgBarc High Yield + 200 bp lagged. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Boston Partners funded 2/1/2017. WCM Intl Growth replaced Vontobel on 2/15/2017. Pathway 9 funded 4/7/2017. SSGA TIPS liquidated on 12/7/2017. Fidelity Real Estate Growth III liquidated on 12/29/2017. SSGA Flagship S&P 500 liquidated 2/1/2018. Most recently reported market values for private equity/credit, opportunistic, and illiquid real estate funds adjusted for calls and distributions through 10/31/2018. All data is preliminary.

	Market Value	% of Portfolio	1 Mo	YTD
Total Real Estate	**195,370,094**	**14.8**	**0.8**	**6.6**
NCREIF Property Index			*0.0*	*5.3*
JP Morgan Core Real Estate	161,364,612	12.2	0.6	5.9
NCREIF-ODCE			*0.0*	*6.5*
NCREIF Property Index			*0.0*	*5.3*
ARA American Strategic Value Realty	22,016,296	1.7	1.7	9.1
NCREIF-ODCE			*0.0*	*6.5*
NCREIF Property Index			*0.0*	*5.3*
Direct Real Estate	11,989,186	0.9	2.4	11.6
NCREIF-ODCE			*0.0*	*6.5*
NCREIF Property Index			*0.0*	*5.3*
Total Commodities	**48,742,067**	**3.7**	**-2.9**	**-2.0**
Bloomberg Commodity Index TR USD			*-2.2*	*-4.1*
Gresham MTAP Commodity Builder	48,742,067	3.7	-2.9	-2.0
Bloomberg Commodity Index TR USD			*-2.2*	*-4.1*
Total Private Equity	**27,010,833**	**2.0**		
Harbourvest Partners IX Buyout Fund L.P.	13,178,485	1.0		
Pathway Private Equity Fund Investors 9 L.P.	13,832,348	1.0		
Total Private Credit	**44,441,728**	**3.4**		
TPG Diversified Credit Program	44,441,728	3.4		
Total Cash	**25,815,109**	**2.0**	**0.6**	**1.5**
91 Day T-Bills			*0.2*	*1.5*
Cash Account	25,815,109	2.0	0.6	1.5
91 Day T-Bills			*0.2*	*1.5*
Total Opportunistic	**4,531,084**	**0.3**		
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,369,912	0.3		
PIMCO Distressed Credit Fund	161,172	0.0		
CPI + 5%			*0.6*	*6.8*



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Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

OCTOBER 2018

Capital Markets Update

Agenda Item 14

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

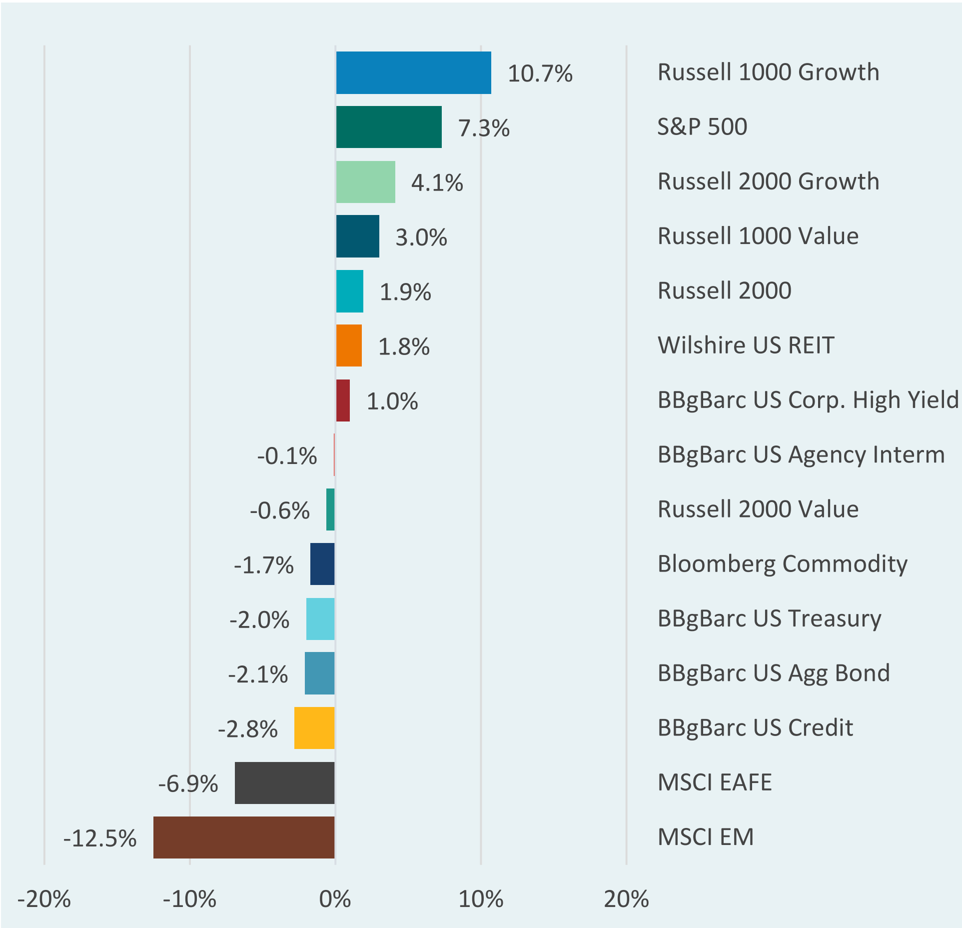
— Equities sold off globally in October. Losses were broad across equity markets – the MSCI ACWI Index fell 7.5%.

— 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.

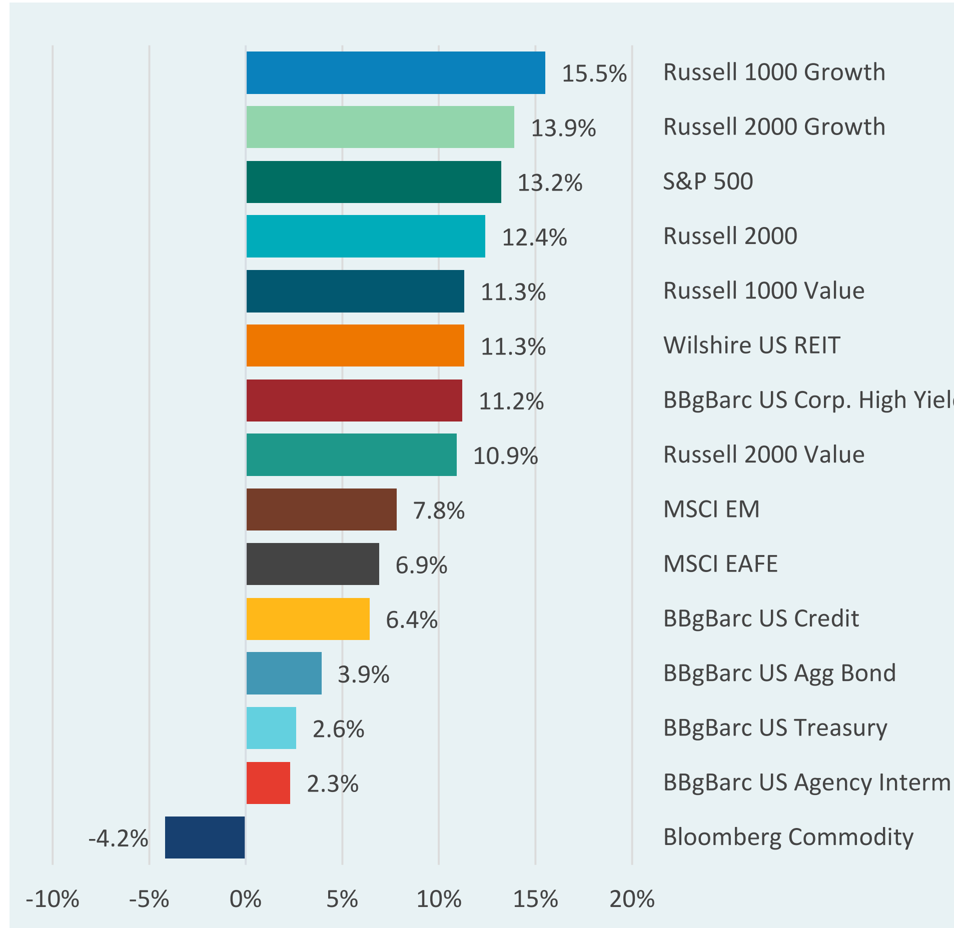
Major asset class returns

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

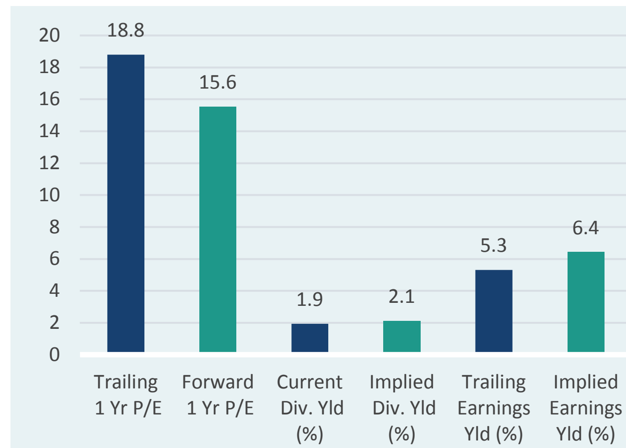
S&P 500 PRICE INDEX

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

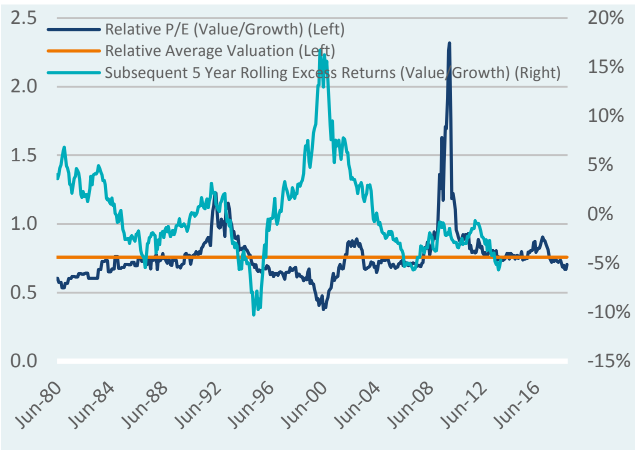
— Large cap equities outperformed small cap equities across styles over the period. The Russell 1000 Growth Index (-8.9%) outperformed the Russell 2000 Growth Index (-12.7%), and the Russell 1000 Value Index (-5.2%) outperformed the Russell 2000 Value Index (-9.0%).

— 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.

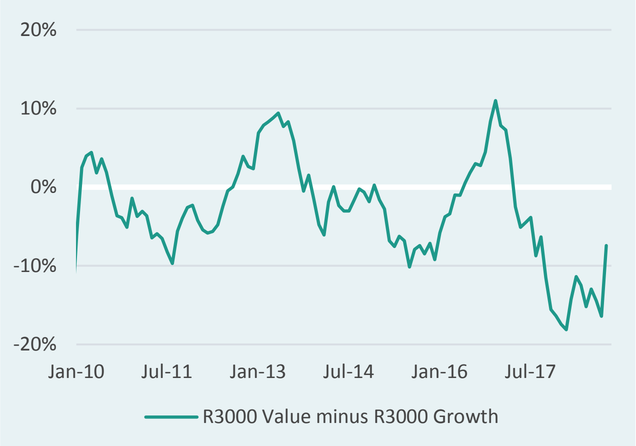
— The consumer discretionary sector in the S&P 500 Index fell 11.3%, its largest decline in ten years. Stocks linked to tourism and home improvement contributed to the decline.

VALUE VS. GROWTH RELATIVE VALUATIONS



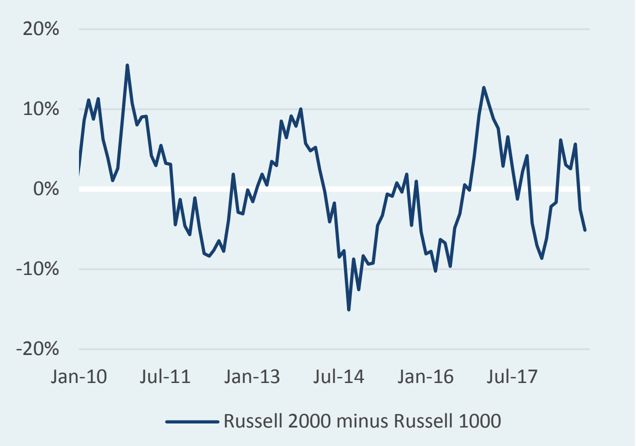
Source: Russell, Bloomberg, as of 10/31/18

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

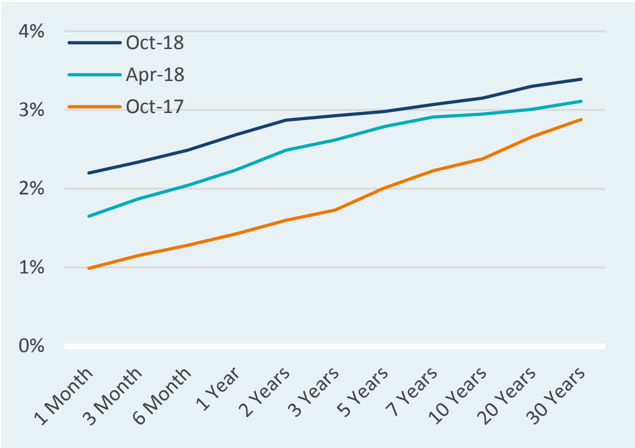
— The European Central Bank left interest rates unchanged and stood by its plan to cut asset purchases from €15 billion per month to zero by year-end. ECB President Mario Draghi commented on an expected pick-up in euro zone inflation, which some analysts interpreted as hawkish. Currently, the ECB is 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.

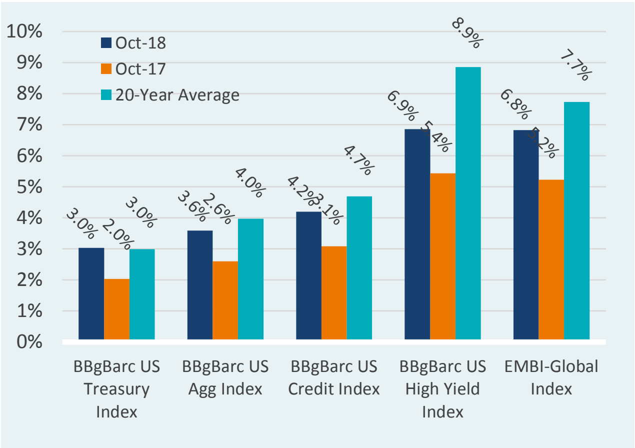
— Spreads on U.S. corporate high-yield bonds expanded from 3.16% to 3.71% over the month. Year-to-date, the average spread has been 3.38%, indicating that the move upward was not a significant deviation from its year-to-date trading range.

U.S. TREASURY YIELD CURVE



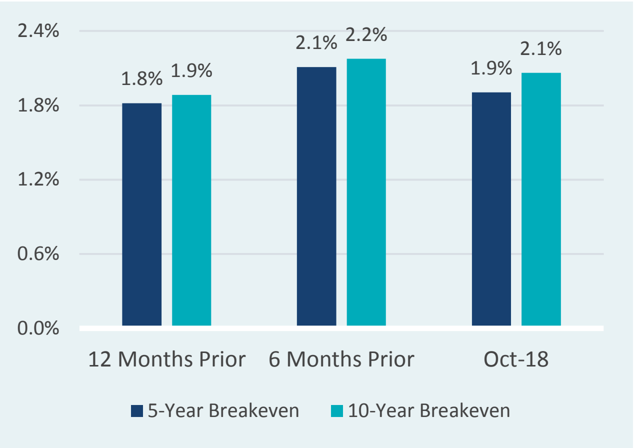
Source: Bloomberg, as of 10/31/18

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.

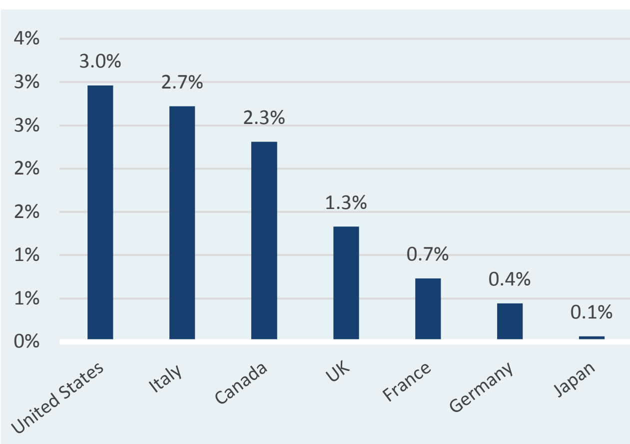
— International developed equities declined in October, and underperformed U.S. equities. The MSCI EAFE Index returned -8.0%, compared to the S&P 500 which returned -6.8%. Currency presented a headwind, as the MSCI EAFE 100% Hedged Index lost only 6.2%.

— 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.

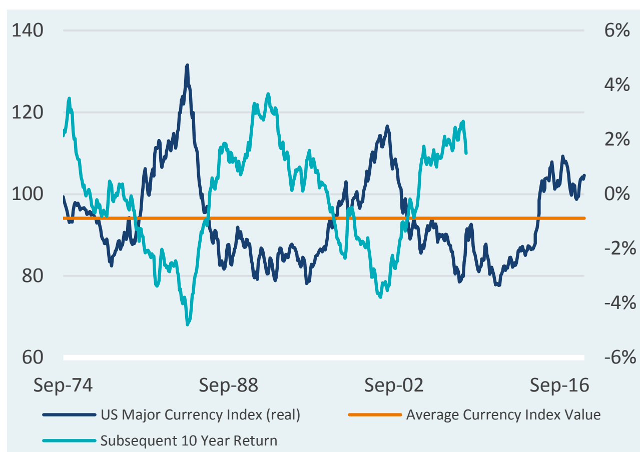
European geopolitical uncertainty weighed on equities

GLOBAL SOVEREIGN 10-YEAR YIELDS



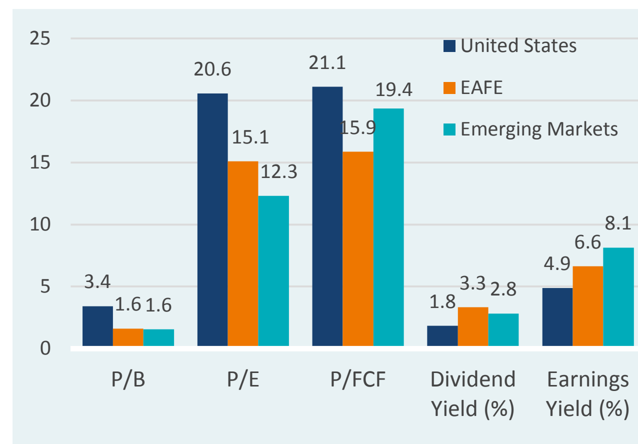
Source: Bloomberg, as of 10/31/18

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.

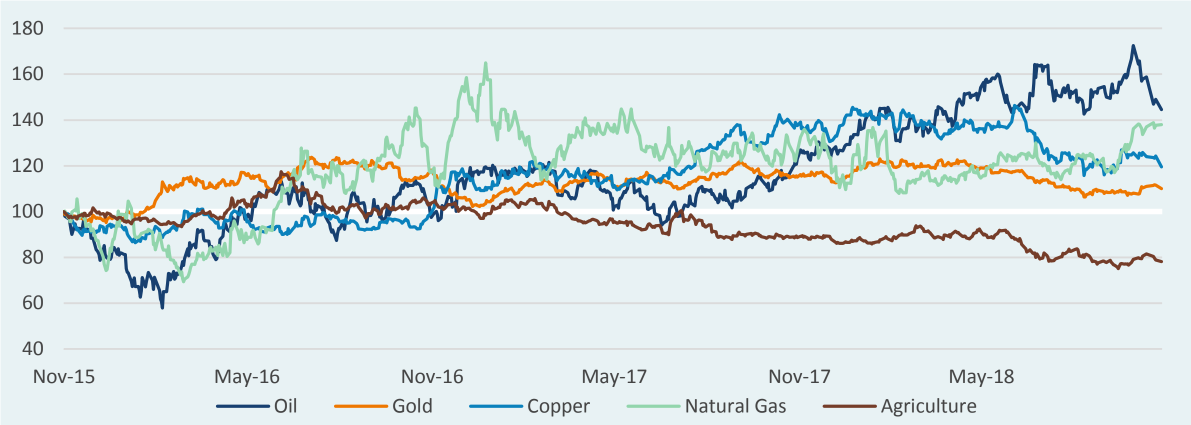
— The Bloomberg Softs sub-index returned 11.4% in October, it's best return since June of 2016. The rally of the Brazilian real following Jair Bolsonaro's election, as well as tight sugar inventories likely boosted performance.

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

BEST

	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

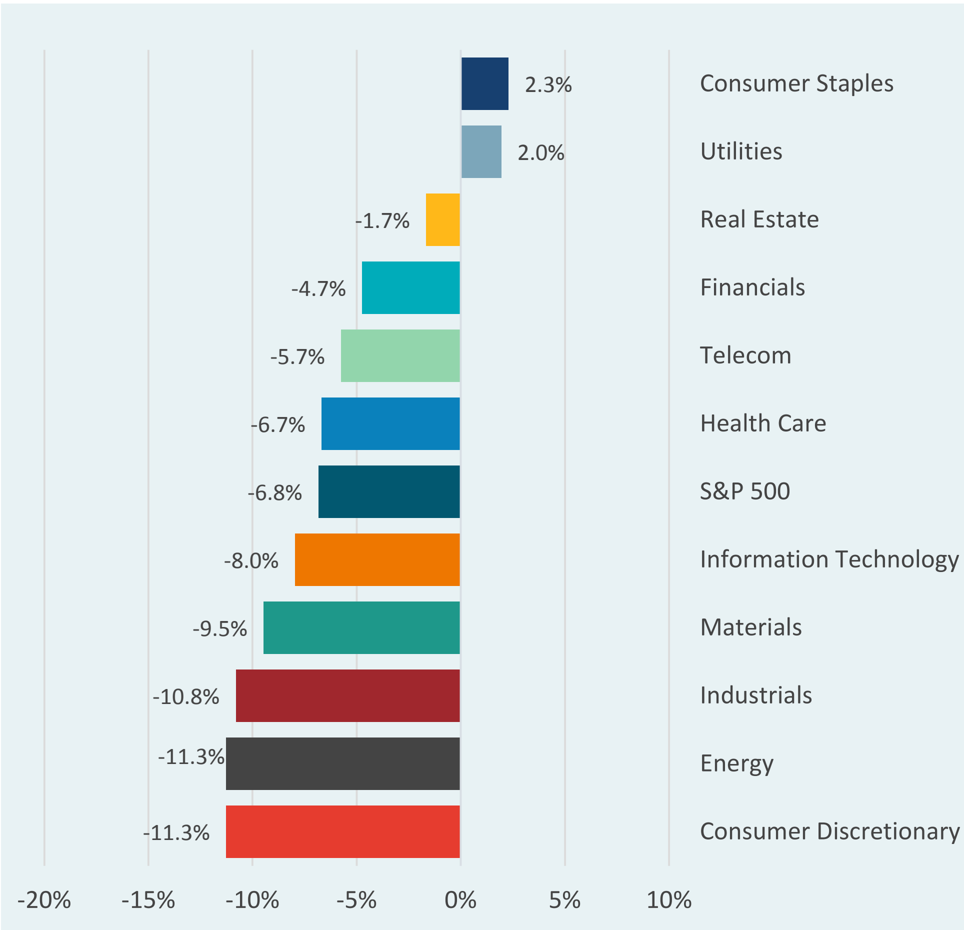
WORST

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

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

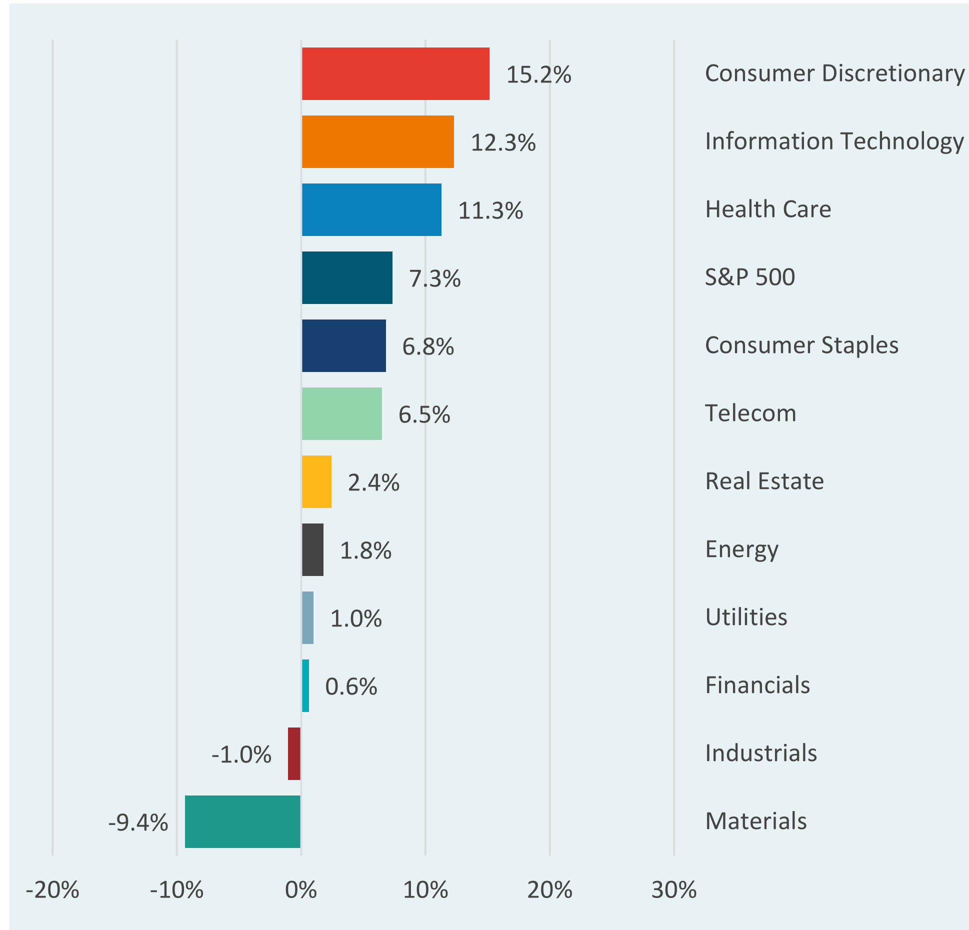
S&P 500 sector returns

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

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

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

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 Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary
Scott Whalen - Verus

Agenda Item 15: Emerging Market Bonds – Addition of Hard Currency Investments to Current Strategy - Verus

Recommendation:

Staff and Verus as the Pension Trust's investment consultant recommend that the Board of Trustees approve -

1. Emerging Markets Debt (EMD) Strategy

    a. Expansion of the EMD strategy from local currency denominated bonds only to a blend of hard currency (US Dollar denominated) bonds as well as local currency.

    b. Direct Verus to conduct an investment manager search for a blended currency EMD investment manager. This investment manager search may consider alternative funds offered by the current EMD manager (Stone Harbor) or it may consider other firms as well.

Summary:

See the attached recommendation memo from Scott Whalen of Verus, the Pension Trust's general investment consultant.

Respectfully submitted

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Memorandum

To: Board of Trustees, San Luis Obispo County Pension Trust
From: Scott J. Whalen, CFA, CAIA
Date: November 26, 2018
RE: Extending EMD Mandate to Include Hard Currency Investments

Background

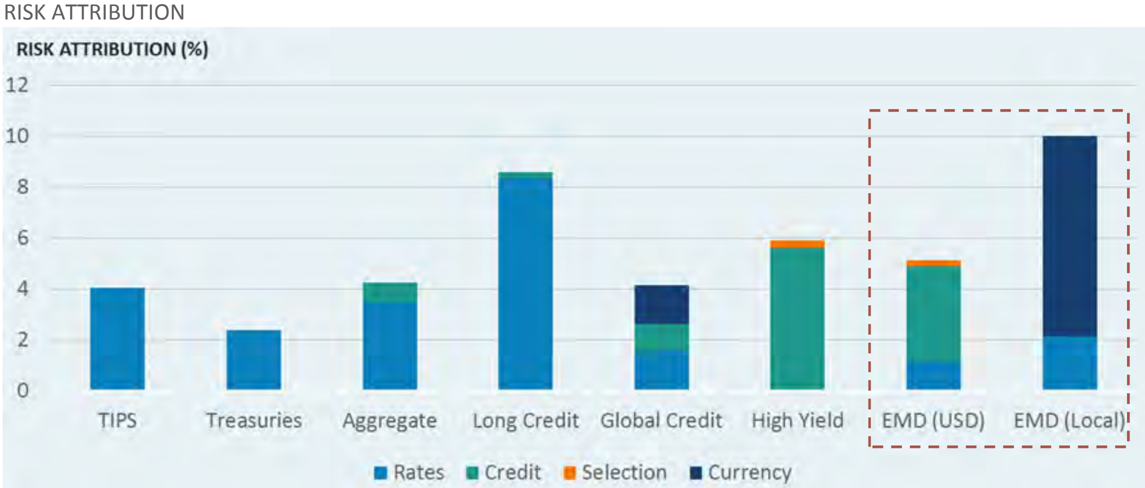
SLOCPT has been invested in Emerging Market Debt since 2013, when the Plan hired Stone Harbor to manage a dedicated local currency EMD mandate targeted at 5% of the total investment portfolio. The fundamental rationale behind the investment was to obtain further portfolio diversification by return source. While overall performance has not met expectations on a since-inception basis, largely the result of persistent central bank intervention and a strengthening US Dollar, the diversification objective has been consistently achieved. We continue to view Emerging Market Debt as a valuable tool in the construction of effective institutional investment portfolios.

Extending the Mandate

We believe there are two primary reasons for the Board to consider extending its current local currency mandate to a blended strategy that includes hard currency investments. The first is that adding hard currency debt will mitigate currency-driven volatility. The second is the broader opportunity set will increase the potential for active management to earn excess returns.

Hard and local currency EMD investments bring a diverse set of risks to an investment portfolio. As shown in the chart below, local currency debt provides exposure to a combination of interest rate and foreign exchange risks. US dollar (hard currency) debt reduces overall volatility by eliminating currency risk, but credit risk is introduced.

RISK ATTRIBUTION

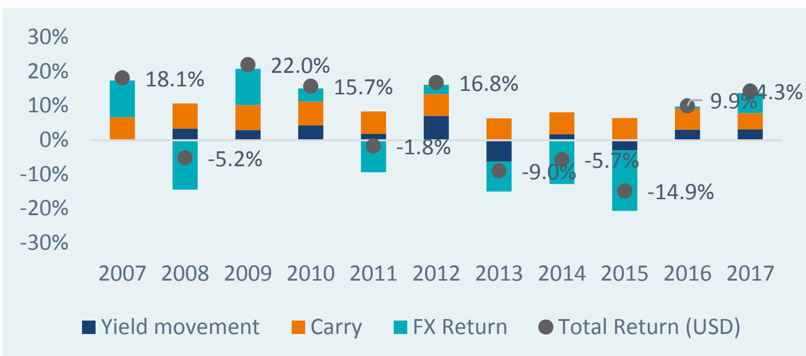


Source: Verus via Barra as of 12/31/17

While there has been some debate over whether hard currency portfolios truly protect investors from foreign currency volatility, it is clear hard currency debt places currency risk directly on the issuer, rather than the investor. The currency mismatch that occurs as issuers make payments in US Dollars derived from assets and operations denominated in their local currency would increase the cost of servicing the debt in a strengthening USD environment. This in turn could increase the risk of default. Therefore, the buyer of hard currency debt must also assess the issuers ability to repay the debt in USD, along with all the other factors required to evaluate EMD investments.

Alternatively, with local currency bonds, exchange rate risk resides solely with the investor, as they are paid in the issuer's local currency and must translate the payment back into USD. The chart below shows that over time the return associated with foreign exchange has often been the largest component of the total return from local currency portfolios.

EM LOCAL SOVEREIGN DEBT INDEX COMPONENT RETURNS



Source: PIMCO, JPMorgan as of 12/31/17

Blended strategies allow investors to extend diversification benefits provided by local rates, while limiting the volatility caused by currency movements. The table below illustrates how the presence of hard currency debt in a blended portfolio can smooth returns and create a more balanced performance profile.

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
External 10.25	**Local** 15.22	**Local** 18.11	**Local** -5.22	**Corporate** 34.88	**Local** 15.68	**External** 7.35	**External** 17.44	**Corporate** -0.60	**External** 7.43	**Corporate** 1.30	**Blend** 10.16	**Local** 15.21
Blend 8.27	**Blend** 12.58	**Blend** 12.04	**Blend** -8.62	**External** 29.82	**Blend** 14.02	**Blend** 2.79	**Blend** 17.21	**External** -5.25	**Corporate** 4.96	**External** 1.18	**External** 10.15	**Blend** 12.74
Local 6.27	**External** 9.86	**External** 6.16	**External** -12.03	**Blend** 25.99	**Corporate** 13.08	**Corporate** 2.32	**Local** 16.76	**Blend** -7.10	**Blend** 0.71	**Blend** -7.14	**Local** 9.94	**External** 10.26
Corporate 6.10	**Corporate** 6.53	**Corporate** 3.91	**Corporate** -15.86	**Local** 21.98	**External** 12.24	**Local** -1.75	**Corporate** 15.01	**Local** -8.98	**Local** -5.72	**Local** -14.92	**Corporate** 9.65	**Corporate** 7.96

Source: eVestment Alliance, JPM Indices

In addition to lower volatility, a blended strategy provides active managers with a broader opportunity set within which to identify attractive investments on a relative value basis. As emerging markets nations have modernized their financial systems and become more sophisticated market participants since the turn of the century, access to international capital has increased significantly. This has led to a commensurate increase in EM debt issuance overall and higher participation from local and corporate borrowers (see chart below). Allowing managers more flexibility to identify undervalued securities across countries, issuers, and currencies within this broader opportunity set should lead to higher excess returns.

MARKET VALUE OF EMD INDICES

Source: JPMorgan, as of 12/31/17

Implementation

If the Board agrees with our view that investing in a blended strategy is an appropriate adjustment to the Plan's EMD allocation, the next step is to identify a skilled investment manager with whom to invest. Stone Harbor, the Plan's current EMD manager, offers two strategies that could reasonably meet the expanded mandate. However, Stone Harbor has struggled to beat its benchmark on an average annualized basis since the plan hired them in mid-2013. We believe it would be prudent to take this opportunity to assess Stone Harbor relative to other managers from Verus' approved list of EMD managers.

Recommendation and Next Steps

We recommend the Board replace its current local currency EMD mandate with a blended strategy that allows hard currency investment to reduce volatility and provide more opportunity for active management. We further recommend an evaluation of Stone Harbor's blended strategies in comparison with other appropriate managers and strategies to help select the most appropriate manager for the assignment. We would be prepared to come back to the Board with a specific manager recommendation at the February Board meeting.

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Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary
Scott Whalen - Verus

Agenda Item 16: Private Credit – TPG-TSSP-Capital Solutions Fund Addition – Verus

Recommendation:

Staff and Verus as the Pension Trust's investment consultant recommend that the Board of Trustees approve -

1. Private Credit – TPG Diversified Credit Program

    a. The addition of the TPG-TSSP Capital Solutions Fund to the existing Diversified Credit Program.

    b. Increase the commitment to the TPG Diversified Credit Program from $75 million to $95 million.

Summary:

The Pension Trust has an asset allocation target of 5% to Private Credit. Private credit generally includes non-public market debt instruments (i.e., not publicly traded bonds) such as direct corporate lending, leveraged loans, structured and asset backed credit. The private credit market generally takes advantage of significantly higher yields on the credit instruments invested in due to their illiquidity, privately placed nature, and higher credit risk. Private credit debt instruments frequently are of shorter duration or of a floating rate structure limiting the interest rate fluctuation risk of longer-term bonds.

Since 2016 this allocation has been committed to the TPG Sixth Street Partners (TSSP) Diversified Credit Program. The initial commitment to the TPG Diversified Credit Program was $75 million. The commitment to TPG was deliberately sized at more than what was currently 5% of the total Pension Trust in consideration that in the ebb and flow of capital calls and distributions from Private Credit that it is reasonable to over-commit to the asset class in anticipation of bringing the actual allocation ant any point in time closer to the 5% target.

Currently, the TPG Diversified Credit Program has a value of $44 million, or about 3.2% of the total fund. Of the $75 million commitment to TPG Diversified Credit Program, about $41 million has been called.

By way of review, the TPG Diversified Credit Program is a custom "fund-of-one" Evergreen structure arranged by TPG with the advice of Verus. TPG as a large private credit firm manages a variety of closed-end Limited Partnerships (LPs) that invest in a variety of private credit investments. Closed end LPs secure commitments from investors, call the capital over several years, invest the capital in various ways, and then distribute the capital and accreted investment returns to each LP's investors. As such, each LP has a finite life. Large private equity and private credit managers like TPG frequently have multiple LPs running at any one time of varying "vintage years" of when they were formed. There are often follow-on LPs with similar strategies as one LP matures and distribute proceeds and closes, another will be starting.

In order to facilitate a steady level of investment assets to Private Credit the TPG Diversified Credit Program is an "Evergreen" structure where an overall LP for just the SLOCPT, invests at TPG's discretion in a number of TPG-run LPs. This includes the reinvestment of proceeds from distributions from the underlying LPs into successor LPs of a similar strategy. At the Pension Trust's discretion, distributions can be diverted to payouts to the Pension Trust to be used for other investments in the future.

The current TPG Diversified Credit Program and its included families of LPs can be summarized as follows.

- Overall **TPG Diversified Credit Program LP –** the Pension Trust is the only investor
    - Underlying LP – TSSP Adjacent Opportunities Fund **(TAO)**
        - Multiple LP investors
        - Invest in a flexible range of private credit opportunities
    - Underlying LP – TSSP Structured Lending Europe **(TSLE)**
        - Multiple LP investors
        - Invest in direct loans to middle market companies in Europe
    - Underlying LP – TSSP par liquid credit **(TICP II)**
        - Multiple LP investors
        - Invest in floating rate leveraged loans and structured credit opportunities

TPG is forming a new fund – the TSSP Capital Solutions Fund **(TCS)** to invest in opportunities across the capital structure for late stage growth companies. As such the TCS broadens the risk exposure of the overall group of funds in the search for higher returns. **Verus recommends expanding the TPG Diversified Credit Program for the Pension Trust to add the TCS as a fourth underlying LP investment.**

This addition will require legal review and document preparation for the TCS fund, just as was done for the TAO, TSLE and TICP II fund underlying the present TPG Diversified Credit Program structure.

See the attached recommendation memo from Scott Whalen of Verus, the Pension Trust's general investment consultant.

Respectfully submitted

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Memorandum

To: Board of Trustees, San Luis Obispo County Pension Trust
From: Scott J. Whalen, CFA, CAIA
Date: November 26, 2018
RE: Potential Addition to the TSSP Diversified Credit Program

Executive Summary

TPG Sixth Street Partners ("TSSP") recently introduced a new investment fund to their platform. The TSSP Capital Solutions Fund is designed to take advantage of investment opportunities across the capital structure for late stage growth companies. TSSP has a successful track record in this space, and they recently strengthened their capabilities with a key new hire, Michael McGinn. Mr. McGinn, who specializes in these types of deals worked with TSSP founder Alan Waxman at Goldman Sachs and joined TSSP in January of this year. We believe TSSP has many advantages in this market, including superior sourcing, underwriting, and structuring, all executed by a strong team of highly experienced investment professionals. Based on these considerations and the fact that the strategy is designed to provide downside protection while maintaining upside optionality, we are recommending SLOCPT add the TSSP Capital Solutions Fund ("the Fund") to its Diversified Credit Program with an initial commitment of $20 million.

Background

In 2016, the SLOCPT Board conducted a review of the Plan's investment strategy, which led to the initiation of a 5% target allocation to private credit. Following a manager search, the Board selected TSSP to manage the private credit mandate through a customized Diversified Credit Program ("DCP"), which utilizes funds on TSSP's investment platform. The three funds available at that time were TAO, TSLE, and TICP II, the strategies for which are summarized below:

> *TAO* focuses on the entire set of credit opportunities generated across the TSSP platform. It is TSSP's most flexible investment vehicle and can house any investment that meets the firm's broad investment criteria.
>
> *TSLE* focuses on direct loans to middle-market companies, primarily in Europe.
>
> *TICP II* focuses on investments in the floating-rate leveraged loan and structured credit markets.

SLOCPT's Diversified Credit Program was designed to be "evergreen" in nature. As the closed-end funds approach the end of their investment life and the next fund in the series is formed, SLOCPT's original commitment is automatically renewed and applied to the new fund. The DCP was designed to be flexible, and as such, the Plan may add any other fund on the TSSP platform to the DCP, as they become available.

As of June 30, 2018, more than 40% of the initial $80mm commitment made to the Diversified Credit Program has been called and invested as presented in the table below.

Fund	Targeted DCP Allocation	Committed	Called	% Called
TAO	50%	$37,500,000	$18,132,138	48.4%
TSLE	25%	$18,750,000	$6,480,231	34.6%
TICP II	25%	$18,750,000	$11,507,634	61.4%
Total	**100%**	**$75,000,000**	**$36,120,003**	**48.2%**

TPG Capital Solutions ("TCS") Fund

History

Although TSSP is just now establishing the TCS fund, the investment professionals managing the fund have been executing on the underlying strategy for many years, both together and separately. A summary of key milestones in the evolution of the strategy follows:

2000 - Bo Stanley (TCS co-lead) joins Foothill Capital, a middle-market growth company lender

2005 - Alan Waxman establishes a group within Goldman Sachs focused on growth debt and downside protected structured equity

2006 - Mike McGinn (TCS co-lead) hired by Alan Waxman at Goldman Sachs

2009 - Alan Waxman and partners establish TSSP

2010 - Bo Stanley joins TSSP

2014 - TSSP sets up dedicated growth debt effort

2018 - Mike McGinn joins TSSP; TCS fund launched

It is important to note that prior to the establishment of the TCS fund, TSSP has completed a total of 24 deals totaling nearly $1.5 billion that fit under the Capital Solutions strategy. Until now, these deals have been housed in different funds across the TSSP platform. Going forward, any new transactions will be completed within the TCS fund structure.

Strategy

The fundamental investment strategy behind TCS is to provide flexible financing solutions to growth companies (i.e., companies growing faster than the economy and that require a high level of investment capital for continued expansion). TCS will target opportunities where traditional debt, growth equity, and control-driven investors lack the flexibility and structuring experience to provide an attractive alternative.

Consistent with TSSP's broader approach to sourcing deals, TCS will focus on a combination of top-down investment themes and company-specific opportunities that yield attractive risk-adjusted returns. TCS will also target investments in companies with defensive, recurring revenue streams that are expected to grow faster than the overall economy.

The requisite funding may be provided across the capital structure, and TSSP defines three primary “hunting grounds”, or sections of a company’s capital structure, from which they will source opportunities. These are described as:

Growth Debt

Growth Debt will be comprised of loans to late-stage growth companies that choose not to access traditional lenders for any number of reasons. TSSP will utilize multiple economic and structural levers, including pay-in-kind, collateral / security interests, custom covenants, warrant coverage, and prepayment terms to preserve operating flexibility and create downside protection.

TSSP will focus on lending to businesses that have reached critical mass and are beyond the “venture lending” stage of funding. This typically means revenue-generating businesses with strong unit economics that would generate cash flow to service TSSP’s loan if not for their high investment in continued growth.

TSSP’s historical investments in Growth Debt have been underwritten to secondary forms of repayment, which are cash-driven. These include harvest value, steady state net operating cash flow, and strategic value from the sale of the entire business or separable business units.

Structured Equity

Structured Equity focuses on investments that include features consistent with TSSP’s emphasis on downside protection, including redeemable, participating, or convertible preferred equity. TSSP Structured Equity investments may be attractive to companies that are debt averse but willing to grant downside protection to mitigate dilution often required by traditional private equity investors. Downside protection levers may include liquidation preferences, dividends, conversion ratchets, board representation, or security-specific negative controls (e.g., approval over capital raises, budget approvals, and restricted payments). These tools help reduce downside risk while preserving upside potential through equity ownership.

Stapled Solutions

Stapled Solutions are hybrid financing structures that combine aspects of Growth Debt and Structured Equity and are typically most appropriate for companies in search of “one-stop” non-control financing solutions. Stapled Solutions span the full breadth of the capital structure and are attractive to borrowers because they can reduce the complexity and direct and indirect costs associated with a multi-party, multi-instrument capital raise.

The TCS fund will target these three “hunting grounds” in the following proportion of invested capital:

Hunting Ground	Expected Portfolio Allocation
Growth Debt	20-35%
Structured Equity	30-40%
Stabled Solutions	20-35%

Performance

Since inception in 2009 and through March 31, 2018, TSSP has completed 24 Capital Solutions transactions totaling $1.49 billion across the three "hunting grounds" described above. As of March 31, 2018, these transactions have generated a gross IRR of 23.7%[1] and a gross recycle-adjusted multiple of money invested ("MoM") of 1.46x.

Although past performance is no guarantee of future results and this track record represents activity through the cyclical recovery following the Global Financial Crisis, it is worth noting TSSP has experienced no losses in the 24 Capital Solutions transactions originated.

Terms

Key elements of the TCS fund's investment terms are listed below:

- *Investment Period:* 4 years from point of final close;
- *Fund Term:* 8 years from final close (with up to two 1-year extensions);
- *Management Fee:* 1.00% of committed capital; and 1.50% of invested capital
- *Carried Interest:* 20% after 8% preferred return to LP (with catch-up and clawback provisions)

Risks and Potential Mitigating Factors

While the TCS Fund will face all the traditional investment risks associated with private markets investing, the following risks warrant specific consideration.

Market conditions

Although this is a strategy that is designed to perform well through market cycles, many market observers believe we are late in the current economic cycle. The TCS Fund could be negatively affected by deteriorating economic and financial market conditions. Potential mitigants to this risk include TSSP's overall philosophy of downside protection and demonstrated underwriting capabilities.

Diversification

Given the nature of growth-company investing, much of the TCS Fund will be invested in companies in the technology sector. While the TCS Fund intends to diversify its investments geographically and by customer type and revenue source, a broad pullback in the technology sector could impact the fund's ability to meet its performance expectations.

Competition

The TCS Fund and its investors will encounter competition from other entities with similar investment objectives. Potential competitors include other investment funds, as well as financial investors such as commercial banks and insurance companies. In addition, the recent increased volume of new issuance in the high yield market may expand a target company's access to capital. These competitive forces may lead to lost opportunities if the TSSP does not match the competitive terms or decreased returns and/or increased risk of loss if they do.

[1] Because the transactions reside in different funds across the TSSP platform, a precise net IRR calculation does not exist. However, roughly speaking, there is a 500 basis point difference between gross and net.

Potential mitigants to this risk include: TSSP's internal and external sourcing network; its creativity, ability, and willingness to structure and evaluate complex transactions; and its ability to offer "one-stop" financing solutions across the capital structure.

Conclusion and Recommendation

When SLOCPT established the Diversified Credit Program with TSSP in 2016 to obtain its targeted exposure to Private Credit, it was anticipated that additional funds on the TSSP platform may become available for inclusion in the program in the future. The inception of the TCS Fund is just such an opportunity, and we believe it would make an attractive addition to SLOCPT's investment portfolio.

We recommend an initial commitment of $20 million to the TSSP TCS Fund, which will bring SLOCPT's total commitment to Private Credit to $100 million. We believe this amount is appropriate in light of the increase in Plan assets since the Diversified Credit Program was established in 2016.

Appendix: TCS Fund Key Investment Professional Bios

Robert ("Bo") Stanley – Mr. Stanley is a Partner Managing Director of TSSP, Co-Head of TSSP Capital Solutions and President of TSLX, and is based in San Francisco. From 2000 to 2011, Mr. Stanley was with Wells Fargo Capital Finance, a provider of specialized senior secured financing to companies throughout the U.S. and Canada. While at Wells Fargo, Mr. Stanley served in multiple roles in an underwriting and origination capacity. From 2006 to 2011, Mr. Stanley was a Director of Loan Originations where he was responsible for lead development and generation of commercial loans. He holds a B.S. in Business Administration with a concentration in Finance from the University of Maine.

Michael McGinn – Mr. McGinn is a Managing Director of TSSP and Co-Head of TSSP Capital Solutions, and is based in New York. Prior to joining TSSP, Mr. McGinn was a Managing Director in AmSSG at Goldman Sachs, which he joined in 2006. From 2013 through 2018, Mr. McGinn was co-head of PCI, AmSSG's growth capital business. Prior to co-heading PCI, Mr. McGinn worked in AmSSG's Multi-Strategy Investing Group and Specialty Lending Group. Before joining AmSSG, Mr. McGinn worked in Goldman Sachs Global Investment Research Division. Mr. McGinn received a B.B.A. in Finance and Business Economics, magna cum laude, from the University of Notre Dame.

Alan Waxman – Mr. Waxman is the Managing Partner and the Chief Investment Officer of TSSP based in San Francisco. He is also a member of TPG's Executive Committee. Prior to founding TSSP, he was a Partner at Goldman Sachs. During his career at Goldman Sachs, he co-headed AmSSG, which invested Goldman Sachs' capital in both the public markets and private transactions in distressed and special situations. AmSSG's investment strategy focused on investing across the capital structure in undervalued companies, distressed assets, and idiosyncratic opportunities. He also served as Chairman of the Investment Committee for AmSSG and Goldman Sachs Specialty Lending Group. From 2002-2005, Mr. Waxman authored the business plan and co-built the Goldman Sachs Specialty Lending Group, which focused on middle market hybrid lending and rescue financing transactions. In 2001, he was a Co-Portfolio Manager on the Proprietary Distressed Bank Debt Desk and was Head of the Hybrid Lending Group. Mr. Waxman began his career at Goldman Sachs in 1998. He holds a B.A. in International Relations from the University of Pennsylvania and currently serves on the Board of Overseers for the University's College of Arts and Sciences, as well as on the boards of The Tipping Point Community and the Boys and Girls Club of the Peninsula, which are focused on fighting poverty and inequality of opportunity in the San Francisco Bay Area.

Matt Dillard – Mr. Dillard is a Partner Managing Director of TSSP based in San Francisco, focusing on Corporate Special Situations opportunities. Prior to joining TSSP, Mr. Dillard worked as a distressed credit and equity analyst at Silver Point Capital. Mr. Dillard began his career in the Technology, Media and Telecom Group of Lazard. He received a B.S. in Economics, summa cum laude, from the Wharton School of the University of Pennsylvania.

Joshua Easterly – Mr. Easterly is a Partner Managing Director of TSSP and the Chief Executive Officer of TSLX based in New York. Mr. Easterly also serves as Chairman of TSLX's Board of Directors. Prior to joining TSSP, Mr. Easterly was a Managing Director at Goldman Sachs, where he worked in AmSSG with Alan Waxman and most recently held the position of AmSSG's Chief

Investment Officer. He also held the positions of Head of Distressed Principal Investing and Co-Head of Goldman Sachs Specialty Lending Group. Other leadership roles during Mr. Easterly's tenure at Goldman Sachs included Co-Head of AmSSG Asset Investing and Co-Head of AmSSG Private Equity. In such positions, Mr. Easterly served on various boards of directors of companies in which AmSSG invested. Prior to joining Goldman Sachs in March 2006, Mr. Easterly was Senior Vice President, Northeast Regional Originations Manager at Wells Fargo Capital Finance, the $8 billion commercial finance company of Wells Fargo & Co (formerly known as Wells Fargo Foothill). In this role, he was responsible for all origination and underwriting efforts in New York and Boston and was a member of the Credit Committee and Senior Management team. Mr. Easterly received a B.S. in Business Administration, magna cum laude, from California State University, Fresno.

Michael Fishman – Mr. Fishman is a Partner Managing Director of TSSP and a Director of TSLX based in San Francisco, focusing on direct lending. Mr. Fishman has over 30 years of experience in corporate lending, with senior management experience in credit, portfolio management and primary loan originations. Prior to joining TSSP, Mr. Fishman was the Executive Vice President and National Director of Loan Originations at Wells Fargo Capital Finance (formerly known as Wells Fargo Foothill). In this role, Mr. Fishman sat on the senior investment committee and was responsible for primary and secondary lending, loan distribution and syndications, strategic transactions and new lending products. Mr. Fishman has also sat on the Board of the American Bankruptcy Institute. Mr. Fishman holds a degree in Finance from Rochester Institute of Technology.

Bornah Moghbel – Mr. Moghbel is a Partner Managing Director of TSSP based in San Francisco, focusing on Corporate Special Situations opportunities. Prior to joining TSSP, Mr. Moghbel worked as a distressed credit and equity analyst at Silver Point Capital. Mr. Moghbel began his career in the Financial Sponsors Group at UBS Investment Bank. He received a B.A. in Economics, with high honors, and a minor in Business Administration from the University of California, Berkeley.

Steven Pluss – Mr. Pluss is a Partner Managing Director and Chief Risk Officer of TSSP based in Dallas. Prior to joining TSSP, Mr. Pluss was Co-Head and Chief Credit Officer of Goldman Sachs Specialty Lending Group with oversight responsibilities for all aspects of the business. He joined the Goldman Sachs Specialty Lending Group in 2004 as Chief Underwriting Officer, working with Alan Waxman, and was named Managing Director in 2006. Prior to joining Goldman Sachs, Mr. Pluss was a Founder and Managing Member of RTV Ventures, a commercial finance lending joint venture with Goldman Sachs Credit Partners, from 1999 to 2003. Mr. Pluss has 29 years of experience in credit investing, bankruptcy restructurings, banking and commercial finance, and has been involved in highly leveraged transactions providing debt and equity financing to companies undergoing a turnaround, recapitalization, or rapid growth. Mr. Pluss earned a M.B.A. from Southern Methodist University and a B.B.A. from Texas A&M University.

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary
Scott Whalen - Verus

Agenda Item 17: Liquidity Study – Assessing Illiquidity Risk - Verus

Recommendation:

Staff and Verus as the Pension Trust's investment consultant recommend that the Board of Trustees receive and discuss the presentation from Verus on Liquidity in the portfolio and the ability to take on illiquid investments. No action is recommended at this time. This is primarily an analytical and educational presentation.

Summary:

See the attached presentation materials from Verus.

Respectfully submitted

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Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

NOVEMBER 2018

Liquidity study

San Luis Obispo County Pension Trust

Liquidity Risk

1. Does the plan have sufficient liquidity to meet all liquidity needs?
2. How quickly can a plan convert non-cash assets into cash to meet these needs?

Liquidity profile

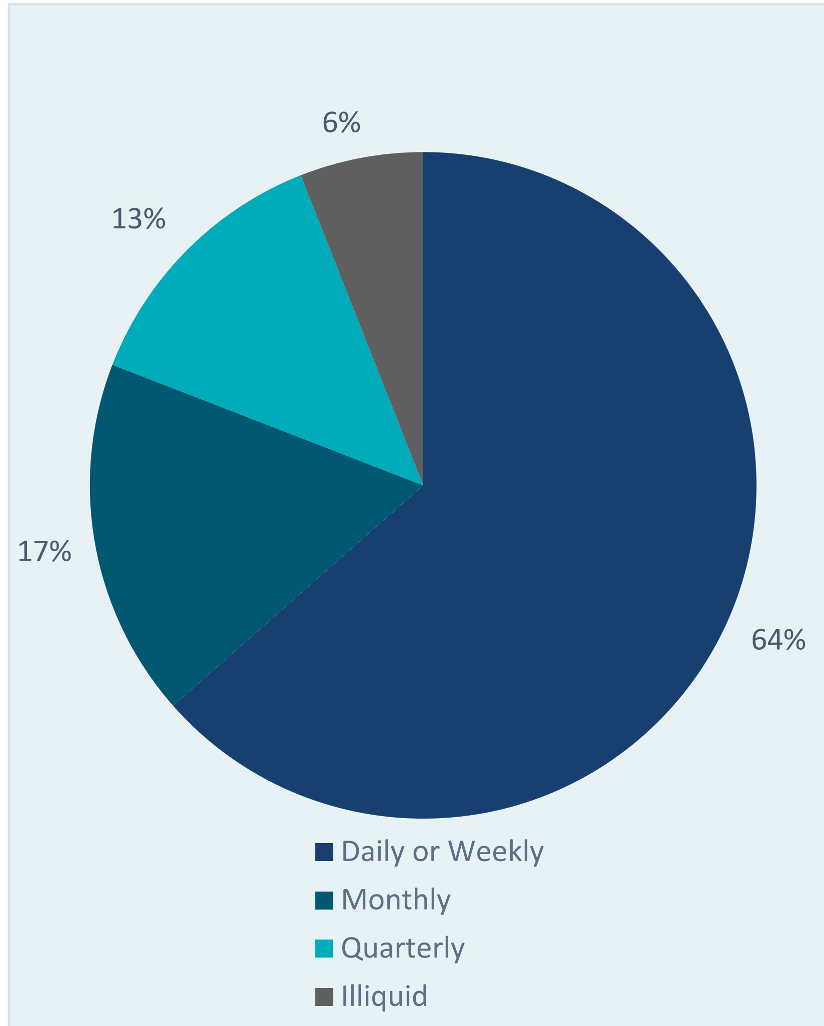
— The liquidity profile explains how quickly financial assets can be converted to cash.

— Nearly two-thirds (64%) of plan assets can be converted to cash in a week or less.

— Seventeen percent of plan assets require one month to convert to cash and ten percent can be converted in a quarter.

— Liquidity in most of the real estate portfolio can be accessed quarterly.

— The remaining 6% of the portfolio is illiquid.



Contributions and benefit payments

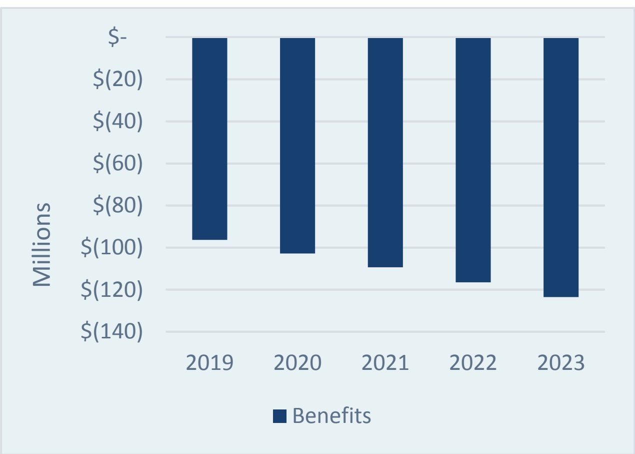
— Contributions and benefit payments are cash flows that are external to the system. Contributions come from outside the Plan and benefit payments leave the Plan.

— Additionally, benefit payments can be predicted with greater certainty than most other pension fund flows.

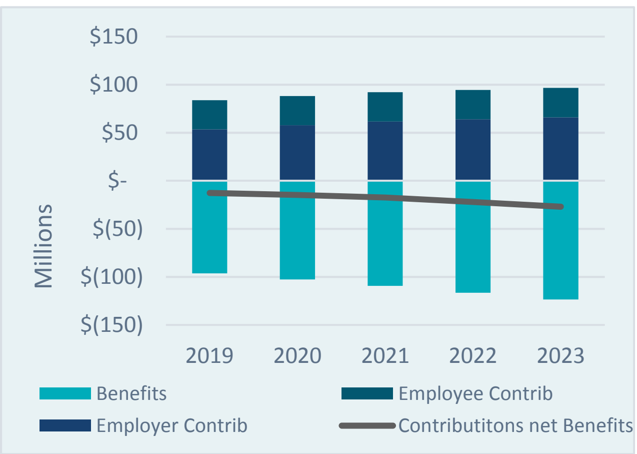
— Forecasted benefit payments outpace total contributions over coming 5 year period by an average of $18.7 million.

CONTRIBUTIONS

BENEFIT PAYMENTS



NET EFFECT



Investment income

— Investment income is generated internally by the Plan's financial assets. Investment income is typically reinvested.

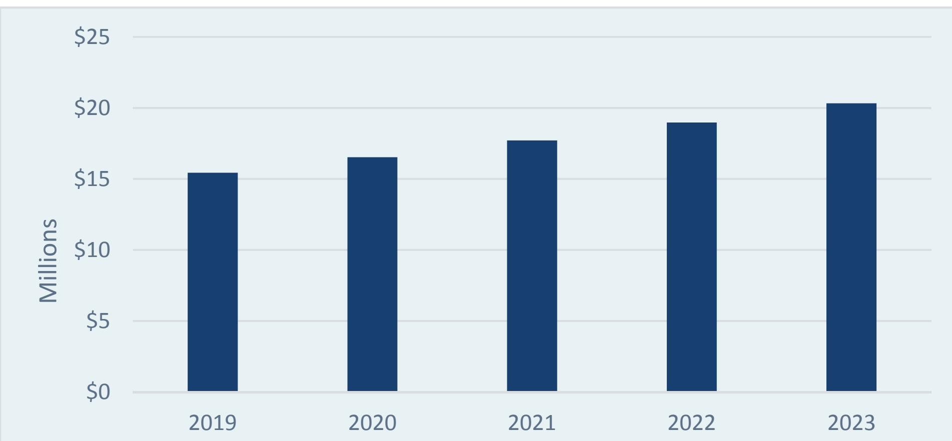
— Electing to receive investment income as a distribution, rather than reinvesting it, could be a beneficial exercise as long as it is reallocated or used to pay benefits or expense expeditiously. If it is held as cash for too long, it can be a drag on performance.

— Investment income from fixed income and real estate can be fairly dependable as a result of contractual yield and lease agreements.

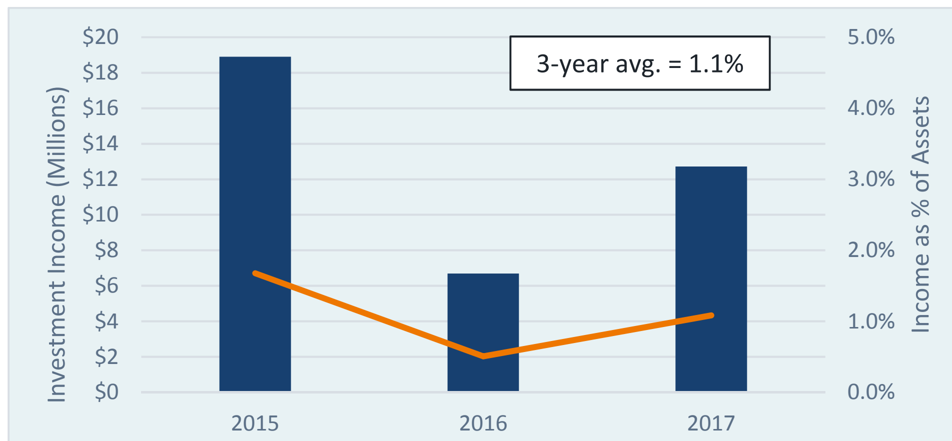
— Over the past 3 years, income from investment have averaged 1.1% of the Total Fund.

— Forecasted investment income is based on the recent three-year average

INVESTMENT INCOME FORECAST



INVESTMENT INCOME – LAST 3 YEARS



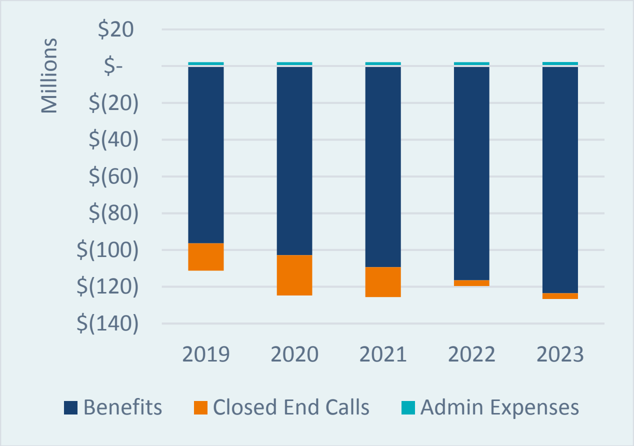
Aggregate cash flow

— Combining the several cash flows stages analyzed on the previous pages, the net effect is a positive cash flow over the coming years.

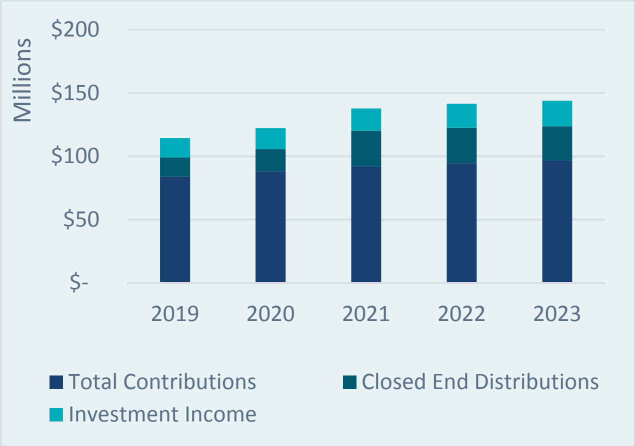
— The caveat: as the Plan adds more private investment commitments to maintain the target allocation, expected capital calls will go up and net cash flow will expectedly come down.

— Overall, the Plan maintains a favorable liquidity position. Nearly two-thirds of plan assets can be converted to cash in a week or less. Further, after accounting for investment income, the Plan projects to be cash flow positive.

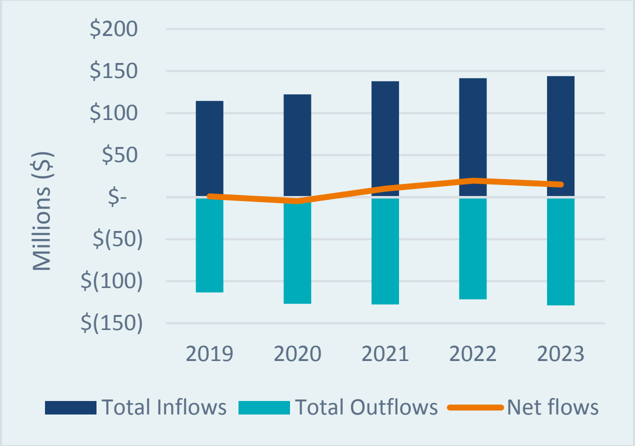
CASH USES (OUTFLOW)



CASH SOURCES (INFLOWS)



TOTAL EFFECT



Liquidity coverage ratio

$$Liquidity\ Coverage\ Ratio\ (LCR) = \frac{Liquidity\ Available}{Liquidity\ Needs}$$

LCR Value	Implication
<1	The plan does not have sufficient liquidity available to cover all cash flows
≥1	The plan has sufficient liquidity to cover all cash flows

LCR - detail

$$Liquidity\ Coverage\ Ratio\ (LCR) = \frac{\begin{array}{c} Liquid\ Financial\ Assets \\ \sum(Distributions\ from\ Illiquid\ Assets) \\ \sum(\frac{Employer}{Employee}\ Contributions) \\ \sum(State\ Appropriations) \\ \sum(Investment\ Income) \end{array}}{\begin{array}{c} \sum(Benefit\ Payments) \\ \sum(Capital\ Calls\ for\ Illiquid\ Assets) \\ \sum(Plan\ Expenses) \end{array}}$$

LCR Value	Implication
<1	The plan does not have sufficient liquidity available to cover all cash flows
≥1	The plan has sufficient liquidity to cover all cash flows

SLOCPT LCR

LCR		2019	2020	2021	2022	2023
Liquidity Available	Liquid Financial Assets	$880,499,355	$942,134,310	$1,008,083,711	$1,078,649,571	$1,154,155,041
	Distributions from illiquid assets	$15,250,000	$17,550,000	$28,050,000	$27,950,000	$26,950,000
	Employee + Employer Contributions	$83,721,704	$88,095,780	$92,016,830	$94,489,106	$96,617,371
	Investment Income	$15,411,522	$16,490,329	$17,644,652	$18,879,778	$20,201,362
Liquidity Needs	Benefit Payments	$96,394,858	$102,803,706	$109,403,724	$116,505,198	$123,575,607
	Capital Calls	$14,915,000	$22,000,000	$16,200,000	$3,100,000	$3,100,000
	Plan expenses	$2,085,782	$2,106,288	$2,126,995	$2,147,906	$2,169,023
LCR		8.77	8.39	8.97	10.02	10.07

LCR Value	Implication
<1	The plan does not have sufficient liquidity available to cover all cash flows
≥1	The plan has sufficient liquidity to cover all cash flows

Assumptions:
- Liquid financial assets grow at the actuarial assumed rate of 7.0%
- Distribution forecasts from private equity program evaluation
- Employee contribution, employer contributions, and benefit payments are from the asset-liability study
- Investment income forecast, please see appendix on investment income

MLCR

$$Modified\ Liquidity\ Coverage\ Ratio\ (MLCR) = \frac{\begin{array}{c} \cancel{Liquid\ Financial\ Assets} \\ \sum(Distributions\ from\ Illiquid\ Assets) \\ \sum(\frac{Employer}{Employee}\ Contributions) \\ \sum(State\ Appropriations) \\ \sum(Investment\ Income) \end{array}}{\begin{array}{c} \sum(Benefit\ Payments) \\ \sum(Capital\ Calls\ for\ Illiquid\ Assets) \\ \sum(Plan\ Expenses) \end{array}}$$

MLCR Value	Implication
<1	The plan will need to sell liquid assets to cover cash flows
1	The plan has sufficient liquidity to cover all cash flows
>1	The plan has excess liquidity and may consider increasing illiquid allocation

SLOCPT Modified LCR

Modified LCR		2017	2018	2019	2020	2021
Liquidity Available	Distributions from illiquid assets	$15,250,000	$17,550,000	$28,050,000	$27,950,000	$26,950,000
	Employee + Employer Contributions	$83,721,704	$88,095,780	$92,016,830	$94,489,106	$96,617,371
	Investment Income	$15,429,526	$16,528,880	$17,706,563	$18,968,155	$20,319,637
Liquidity Needs	Benefit Payments	$96,394,858	$102,803,706	$109,403,724	$116,505,198	$123,575,607
	Capital Calls	$14,915,000	$22,000,000	$16,200,000	$3,100,000	$3,100,000
	Plan expenses	$2,085,782	$2,106,288	$2,126,995	$2,147,906	$2,169,023
Modified LCR		1.01	0.96	1.08	1.16	1.12

LCR Value	Implication
<1	The plan will need to sell liquid assets to cover cash flows
1	The plan has sufficient liquidity to cover all cash flows
≥1	The plan has excess liquidity and may consider increasing illiquid allocation

— Assumptions:
— Distribution forecasts from illiquid assets from the private equity program evaluation
— Employee contribution, employer contributions, and benefit payments are from the asset-liability study
— Investment income forecast, please see appendix on investment income

Conclusions

— The liquidity position of the Plan is favorable and there is no concern of the Plan’s ability to meet its cash needs.

— The Plan has the flexibility to add additional illiquid investments should it so choose.

Appendix

Liquidity profile detail

Asset Class	Manager	Redemption Window
Large Cap Core	PIMCO RAE	daily
Large Cap Growth	Loomis Sayles	daily
Large Cap Value	Boston Partners	daily
SMID	Atlanta	daily
International	Dodge & Cox	daily
International	WCM	monthly
Fixed - Domestic	Blackrock	daily
Fixed - Domestic	Dodge & Cox	daily
Fixed - Int'l	Brandywine	daily
Fixed - EMD	Stone Harbor	daily
Fixed - Bank Loans	Pacific Asset	monthly
Real Estate	Direct RE	illiquid
Real Estate	ARA	quarterly
Real Estate	JP Morgan	quarterly
Commodities	Gresham	daily
Private Credit	TPG	illiquid
Private Equity	Pathway	illiquid
Private Equity	HarbourVest	illiquid
Distressed Credit	PIMCO DCF	illiquid
Mezannine	KKR	illiquid
Overlay	Clifton	daily
Treasury Cash	Cash	daily

Investment income forecast

Historical Data		2013	2014	2015	2016	2017
Interest		$5,829,239	$5,545,469	$5,764,598	$4,724,929	$3,492,823
Dividends		$33,848,242	$22,750,408	$10,279,835	$957,900	$8,768,901
RE Trust Income		-$111,791	$807,085	$1,538,663	$94,037	-$9,952
RE Operating Income		$1,406,219	$1,505,761	$1,313,992	$908,420	$464,978
Total Investment Income		$40,971,909	$30,608,723	$18,897,088	$6,685,286	$12,716,750
Total Investments		$1,139,609,581	$1,137,652,333	$1,127,045,708	$1,319,057,884	$1,173,848,424
Income as % of Investments		3.60%	2.69%	1.68%	0.51%	1.08%
3 year average				2.65%	1.62%	1.09%
Projections	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Actuarial Assumed Rate		7.000%	7.000%	7.000%	7.000%	7.000%
Asset projections	$1,322,675,695	$1,415,262,994	$1,514,331,403	$1,620,334,601	$1,733,758,024	$1,855,121,085
Income as % of Investments (based on recent 3 year avg)		1.09%	1.09%	1.09%	1.09%	1.09%
Investment Income projections		$15,411,522	$16,490,329	$17,644,652	$18,879,778	$20,201,362

— Historical data taken from SLOCPT CAFR
— Assets assumed to grow at the actuarial assumed rate of return
— Investment income projections assumed to be 1.1% of assets. This is based on the average of the last 3 years of income

Aggregate cash flows

Year	2019	2020	2021	2022	2023
Inflows					
Employer Contrib	$ 53,344,581	$ 57,678,047	$ 61,561,000	$ 63,922,525	$ 65,940,073
Employee Contrib	$ 30,377,123	$ 30,417,733	$ 30,455,830	$ 30,566,581	$ 30,677,298
Total Contributions	$ 83,721,704	$ 88,095,780	$ 92,016,830	$ 94,489,106	$ 96,617,371
Fund Distributions					
HarbourVest IX Buyout	$ 4,000,000	$ 5,000,000	$ 4,600,000	$ 4,500,000	$ 3,500,000
Pathway Fund 9	$ -	$ 1,300,000	$ 12,200,000	$ 12,200,000	$ 12,200,000
TPG Diversified Credit	$ 11,250,000	$ 11,250,000	$ 11,250,000	$ 11,250,000	$ 11,250,000
Closed End Distributions	$ 15,250,000	$ 17,550,000	$ 28,050,000	$ 27,950,000	$ 26,950,000
Investment Income	$ 15,411,522	$ 16,490,329	$ 17,644,652	$ 18,879,778	$ 20,201,362
Total Inflows	$ 114,383,226	$ 122,136,109	$ 137,711,482	$ 141,318,884	$ 143,768,733
Outflows					
Benefits	$ (96,394,858)	$ (102,803,706)	$ (109,403,724)	$ (116,505,198)	$ (123,575,607)
Admin Expenses	$ (2,085,782)	$ (2,106,288)	$ (2,126,995)	$ (2,147,906)	$ (2,169,023)
Fund Contributions					
HarbourVest IX Buyout	$ (2,400,000)	$ (1,000,000)	$ (600,000)	$ -	$ -
Pathway Fund 9	$ (15,000)	$ (8,500,000)	$ (3,100,000)	$ (3,100,000)	$ (3,100,000)
TPG Diversified Credit	$ (12,500,000)	$ (12,500,000)	$ (12,500,000)	$ -	$ -
Closed End Calls	$ (14,915,000)	$ (22,000,000)	$ (16,200,000)	$ (3,100,000)	$ (3,100,000)
Total Outflows	$ (113,395,640)	$ (126,909,994)	$ (127,730,719)	$ (121,753,104)	$ (128,844,630)
Net flows	**$ 987,586**	**$ (4,773,885)**	**$ 9,980,763**	**$ 19,565,779**	**$ 14,924,103**

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San Luis Obispo County Pension Trust
SLOCPT

Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary
Scott Whalen - Verus

Agenda Item 18: Rebalancing Policy and Procedures – Verus

Recommendation:

Staff and Verus as the Pension Trust's investment consultant recommend that the Board of Trustees receive and discuss the presentation from Verus on Rebalancing Policies and Procedures. No action is recommended at this time. This is primarily an analytical and educational presentation.

Summary:

See the attached presentation materials from Verus.

Respectfully submitted

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Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

NOVEMBER 2018

Introduction to Portfolio Re-balancing

San Luis Obispo County Pension Trust

Agenda Item 18

Summary

— Portfolio rebalancing processes can have significant impacts on performance, especially over the long-term

— Rebalancing process may not seem like a priority because immediate effects seem small and it is difficult to "benchmark" the effects of your chosen process

— There is no "optimal" rebalancing process. But there are "suboptimal" processes. **Success typically means avoiding suboptimal activities.**

Introduction to rebalancing

— Asset allocation is arguably the most important decision of the investment process.

- Asset price movement through time means asset allocation deviates from Policy.

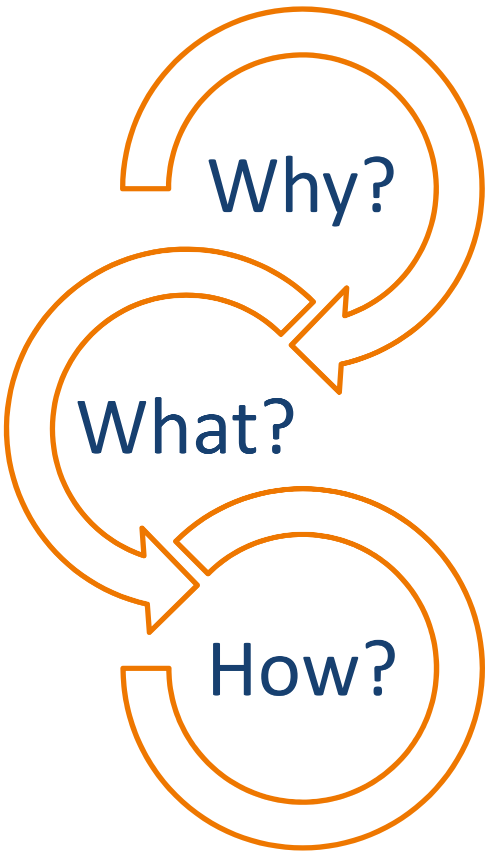
— Rebalancing is the buying/selling of assets to move the portfolio back to Policy.

— The tradeoff between *trade cost* and *the risk of deviation from Policy* typically determines an ideal rebalancing policy. For example:

- Policy target could be kept effectively constant if rebalancing is conducted daily, but daily rebalancing would involve burdensome costs.

- Costs could be reduced to zero if no rebalancing were conducted, but then the portfolio would deviate from Policy.

Rebalancing decision tree



— Why is a rebalancing policy necessary?

— What event will lead to a rebalancing decision?

- The movement of asset weights beyond a threshold
- The passage of time

— What will you rebalance?

- Assets with over/under weights
- Assets which will bring risk inline with goals
- Integration of volatility management

— How will the rebalance be implemented?

- Portfolio cash flows
- Cash securities
- Derivatives (synthetic rebalancing)

Why

Why rebalance?

Why rebalance?

— Without rebalancing, asset classes “run free”

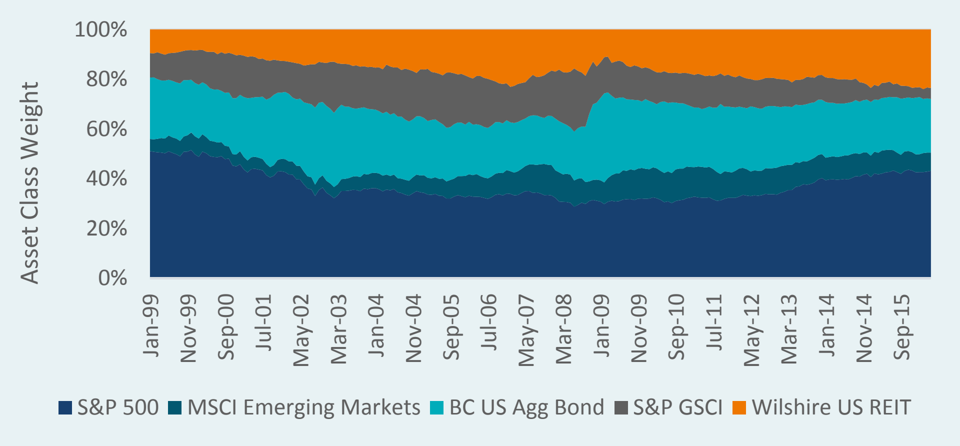
— Failing to rebalance can lead the portfolio to take on unintended risk characteristics

— Rebalancing may add value by selling asset classes which have risen in value and purchasing asset classes which have fallen - *buying low and selling high*.

— **Rebalancing helps investors avoid behavioral biases.** Investors tend to become fearful and sell when the market drops (is cheaper) and become more confident and buy when the market rises (is pricier).

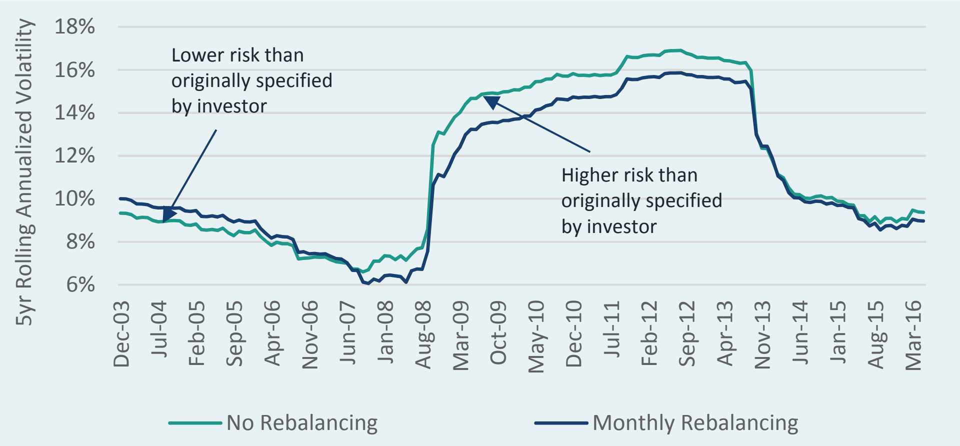
Rebalancing helps keep portfolio risk inline with an investor’s risk target

SAMPLE PORTFOLIO ASSET CLASS WEIGHTS W/ NO REBALANCING



Source: MPI, Verus

EFFECTS OF REBALANCING ON PORTFOLIO VOLATILITY



Source: MPI, Verus, experienced 5-year volatility of portfolio shown on left-hand chart

What

What determines the rebalancing decision?

What assets will be rebalanced?

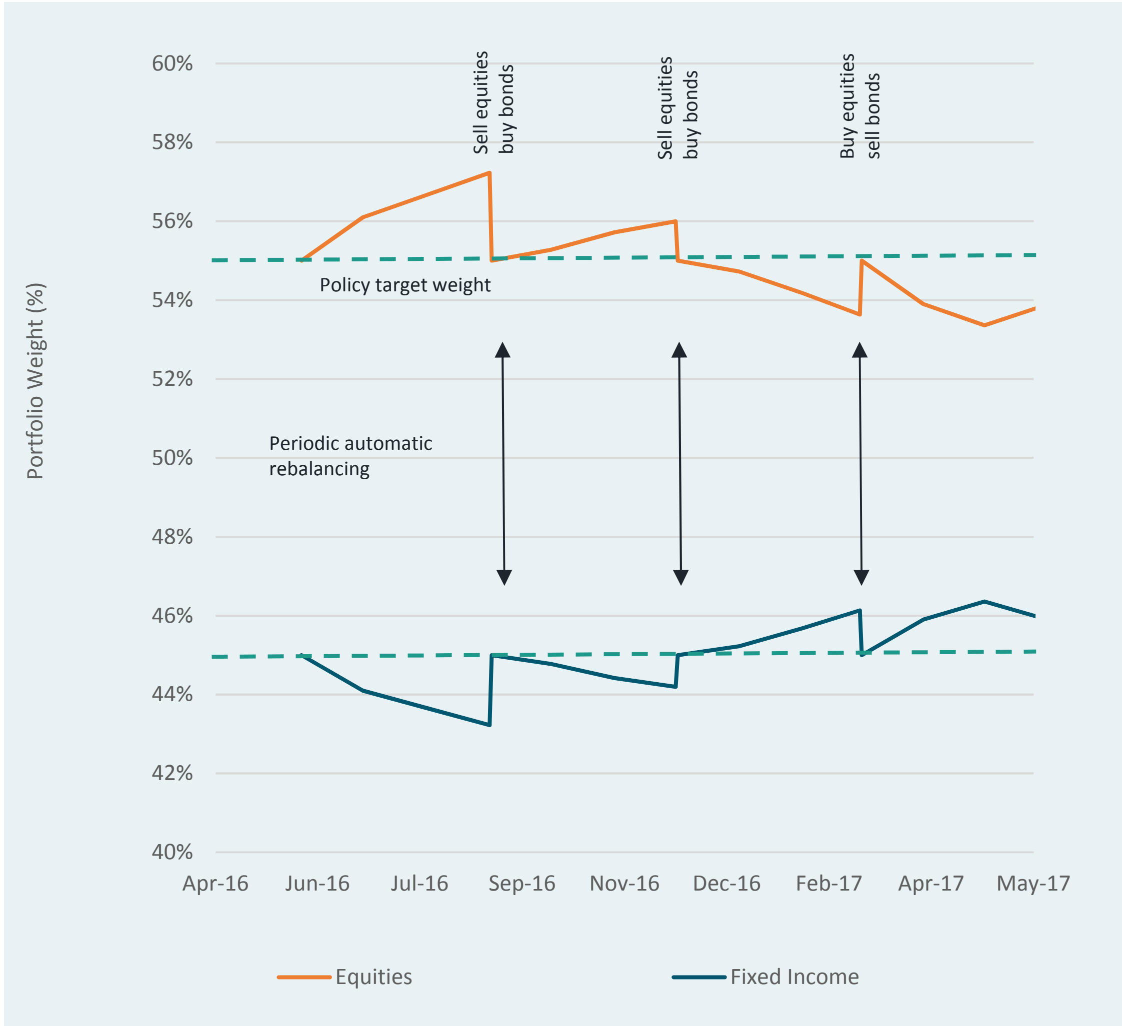
Periodic rebalancing

— Passive systematic approach.

— Portfolio is rebalanced every given period.

— Rebalancing occurs regardless of how off-target the weights are at the time. More frequent rebalancing can burden the portfolio with higher costs.

	Qualities
Complexity	○
Subjectivity	○
Skill required	○
Trading/impact costs	◐ / ●
Program management costs	○
Time commitment	○
Goal	Maintain Policy



This example assumes quarterly rebalancing back to target policy weights. Rebalancing policies often dictate monthly, quarterly, semiannual or annual rebalancing. Many other variations of periodic rebalancing exist.

Rebalancing using trigger

- Passive systematic approach.
- Portfolio is rebalanced back to the intended asset class weights only when weights deviate from the target by a specified amount. **Exposures can be monitored periodically in order to know when a trigger has been hit (not necessary to constantly monitor).**
- This approach can be cheaper because sales and purchases of asset classes occur only as needed.

	Qualities
Complexity	○
Subjectivity	○
Skill required	○
Trading/impact costs	○
Program management costs	○
Time commitment	○
Goal	Maintain Policy

This example assumes a rebalancing event occurs when an asset class deviates by 3% from a target weight and that rebalancing is conducted back to target weights. Many other variations of trigger rebalancing exist.

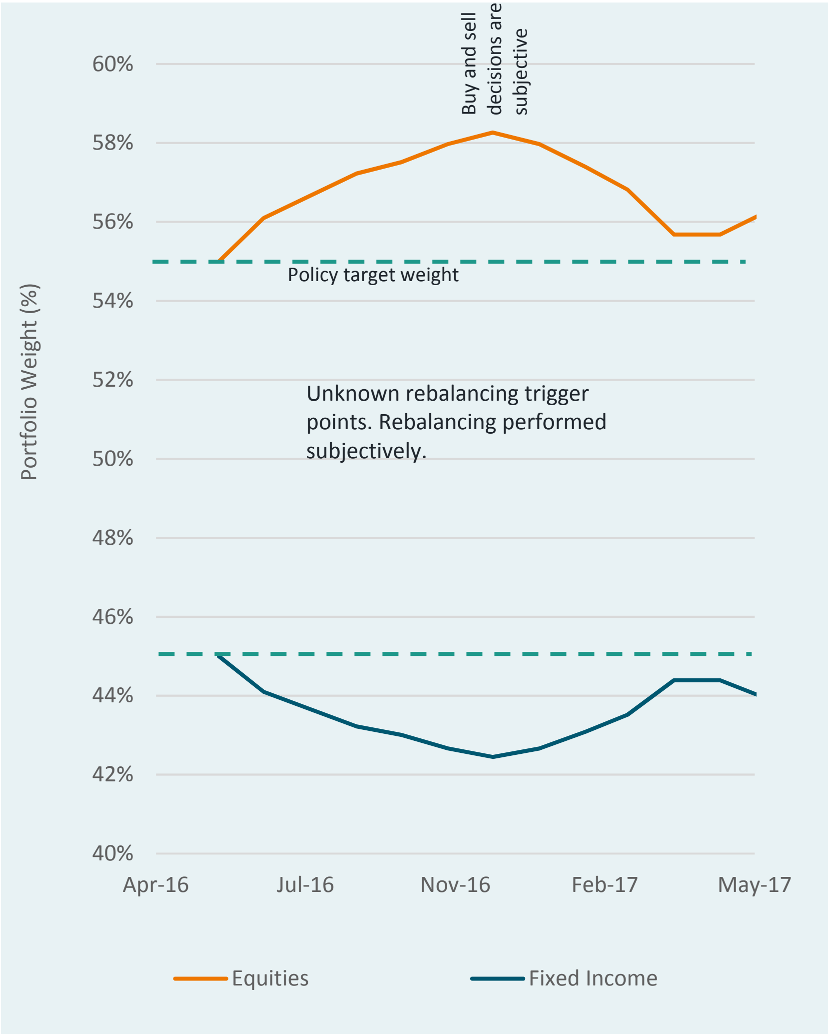
Strategic or tactical

— The decision to rebalance might also be dictated by strategic or tactical views, which are subjective in nature.

— Investors should typically separate strategic/tactical portfolio decisions from the rebalancing process. An investor may tactically or strategically alter asset class target weights, but separately maintain a systematic rebalancing policy to rebalance to the new weights.

— **This approach exposes investors to behavioral biases.**

	Qualities
Complexity	●
Subjectivity	●
Skill required	●
Trading/impact costs	?
Program management costs	●
Time commitment	●
Goal	Maintain Policy and/or improve risk-adjusted performance



Subjective rebalancing decisions may be ad-hoc, but could also involve the systematic use of rules (ex: market valuation trends) to dictate the rebalancing timing decision, as used by some rebalancing service providers

Strategic or tactical decisions should typically be separated from the rebalancing process

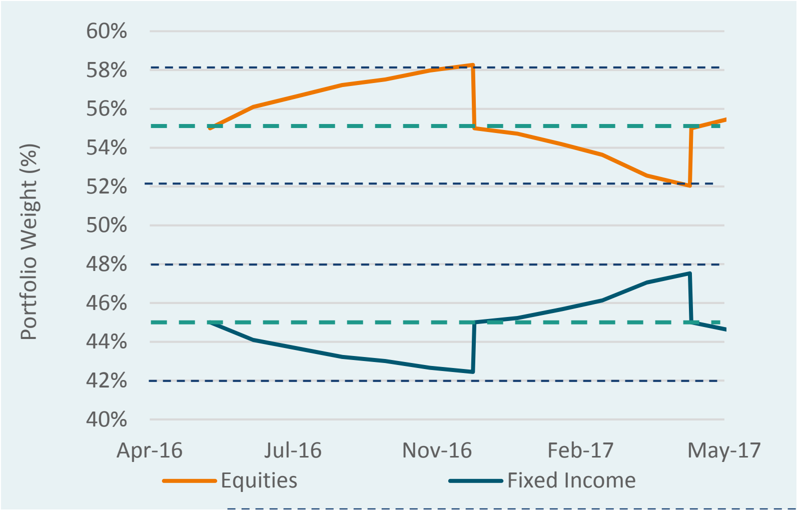
Third party managers can offer sophisticated rebalancing strategies

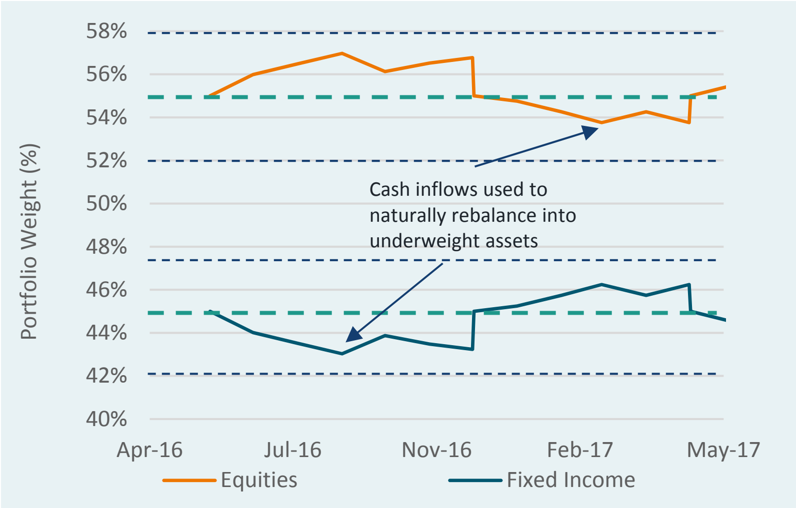
How

How will the rebalance be conducted?

Using cash flows in rebalancing

— Portfolios typically incur cash inflows and outflows on a regular basis. These flows can be used to aid partly or wholly in the rebalancing process.





Cash securities

— A traditional approach to rebalancing involves buying and selling securities to bring the portfolio inline with target exposures.

— Trading physical securities involves material costs.

— This is typically an appropriate route for institutions which are not of large enough scale to hire a third-party rebalancing manager for implementation of synthetic rebalancing.

Asset Class	**US Large Cap**	**US Small Cap**	**Developed Intl. Equity**	**Emerging Markets Equity**	**Core Fixed Income**
Instrument	S&P 500	Russell 2000	MSCI EAFE	MSCI Emerging Markets	Barclays Capital Aggregate
Physicals (cash)	3.7 bps	14.5 bps	9.1 bps	19.6 bps	7.6 bps

Source: Parametric estimates, as of 10/28/14

Synthetic rebalancing

— Synthetic rebalancing involves the use of derivatives instead of buying/selling securities.

— This approach can be implemented across the various rebalancing approaches mentioned here.

— Use of synthetics involves contracting with a rebalancing professional and is associated with management fees. This approach is typically not cost effective for institutions smaller than $250 Million; **however, institutions $250 Million or larger in size could gain considerable value from synthetic rebalancing.**

Asset Class	US Large Cap	US Small Cap	Developed Intl. Equity	Emerging Markets Equity	Core Fixed Income
Instrument	S&P 500	Russell 2000	MSCI EAFE	MSCI Emerging Markets	Barclays Capital Aggregate
Futures	0.8 bps	0.5 bps	1.7 bps	2.2 bps	0.6 bps

Source: Parametric estimates, as of 10/28/14

Synthetic rebalancing - benefits

— Typically significant cost savings by avoiding traditional costs of buying/selling securities (ex: trading & market impact costs).

— Less disruptive to investment managers since it reduces/eliminates the need to move cash securities between funds in the portfolio.

— Can be performed with much greater speed than traditional buying/selling of securities, which helps to eliminate exposure gaps.

Estimated one-way trading costs

Asset Class	US Large Cap	US Small Cap	Developed Intl. Equity	Emerging Markets Equity	Core Fixed Income
Instrument	S&P 500	Russell 2000	MSCI EAFE	MSCI Emerging Markets	Barclays Capital Aggregate
Futures	0.8 bps	0.5 bps	1.7 bps	2.2 bps	0.6 bps
Physicals (cash)	3.7 bps	14.5 bps	9.1 bps	19.6 bps	7.6 bps
Difference in cost	**Over 4x**	**Over 26x**	**Over 5x**	**Over 8x**	**Over 11x**

Synthetic rebalancing (using derivatives) can result in significant cost savings

Source: Parametric estimates, as of 10/28/14

Rebalancing best practices

Rebalancing best practices

VERUS PHILOSOPHY		WHAT TO DO
A rebalancing policy keeps the portfolio inline with the intended policy weights	**Create a rebalancing policy**	Every institution should have some form of rebalancing policy in place
A simple systematic rebalancing policy with minimal human input is ideal The asset class tilt decision should be kept separate from the rebalancing decision Subjective input opens up the board to behavioral biases, and should typically be avoided	**Keep it simple**	Trigger-based rebalancing is typically optimal because the portfolio is rebalanced when needed (and these costs are incurred only when needed) 5-10% proportional trigger bands are a good starting point, but can be adjusted based on risk tolerance *Ex: 60/40 portfolio with 5% proportional trigger bands = equity range of 57-63% and fixed income range of 38-42%* Use portfolio cash inflows and outflows to rebalance “naturally” where possible
Use synthetic rebalancing when possible due to potentially strong cost/benefit tradeoff	**Delegate when possible**	Institutions greater than $250 Million in size should consider synthetic rebalancing

Potential considerations

	<$250 Million	$250M - $1B	$1B+
Rebalancing approach	Trigger-based	Trigger-based	Trigger-based
Rebalancing bands*	5-10%	5-10%	5%**
Implementation	Physical securities, using staff or consultant	Consider synthetic, using 3rd party provider	Robust synthetic rebalancing, using 3rd party provider. Consider the value of 3rd party strategic and tactical overlay implementation, cash mgmt. and other sophisticated overlay services
Use portfolio cash inflow/outflows to naturally rebalance?	Yes	Yes	Yes

NOTE: The recommendations above are general best practice guidelines. A rebalancing approach should take into account the unique circumstances, constraints, needs, and preferences of the institution.

**Bands can be set at the broader asset class level, such as equity, fixed income, etc. or can be set at the sub asset class level. This should be decided based on the needs of the institution.*

***Synthetic rebalancing allows for tighter bands if desired, due to greatly reduced rebalancing costs*

But, which approach is "best"?

— **Studies have broadly shown that there is not a single "best" rebalancing approach.**

- Different rebalancing approaches will outperform at different times depending on the market environment.

— **One way a rebalancing approach can be "better" is by reducing costs.**

- Use trigger-based (needs-based) rebalancing, and use synthetic rebalancing implementation through a third party overlay provider.

— **Having a simple and systematic rebalancing policy in place provides a majority of the benefits.**

- Finer decisions such as whether to use 5% or 10% proportional trigger bands will likely have much smaller impacts on long-term outcomes. These finer rules should be determined by the institution's preferences or risk tolerance.

What now?

What to do now?

1) Get a rebalancing policy into place
2) Make sure the portfolio has strategic allocation bands, and also has rebalancing bands (these should be separate).
3) Give preference to systematic, trigger-based rebalancing approaches
4) Avoid subjective rebalancing. The *rebalancing decision* should be kept separate from the *tilting decision.*
    1) Tilts should be reflected in Policy Target asset class weights.
    2) Rebalancing should occur systematically back to Policy Target.
5) Consider synthetic rebalancing for clients > $250 Million

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Date: November 26, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary

Agenda Item 19: Asset Allocation November 2018

This item on the agenda provides a properly noticed opportunity for the Board of Trustees to discuss and take action if necessary regarding asset allocation and related investment matters.

No Board action is necessary at this point.

Respectfully submitted

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