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San Luis Obispo County
Pension Trust
SLOCPT

AGENDA

PENSION TRUST
BOARD OF TRUSTEES

Monday, May 21, 2018 9:30 AM
Room 161/162
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.

ORGANIZATIONAL

None

CONSENT

2. Minutes of the Regular Meeting of April 23, 2018 (Approve Without Correction).

3. Report of Deposits and Contributions for the month of April 2018 (Receive and File).

4. Report of Service Retirements, Disability Retirements and DROP Participants for the month of April 2018 (Receive, Approve and File).

5. Applications & Elections to participate in the Deferred Retirement Option Program (DROP) received through May 4, 2018 (Receive, Approve and File).

APPLICATIONS FOR DISABILITY RETIREMENT

6. Application for Ordinary Disability Retirement – Case 2017-07 (Recommend Approval).

OLD BUSINESS

None

NEW BUSINESS

7. January 1, 2018 Experience Study - Preliminary Results and Alternative Actions to be Considered - Presentation by Leslie Thompson, EA, FSA (Discuss, Direct Actuary and Staff as necessary).

8. Actuarial Valuation – Actuarial Assumptions Approval - (Discuss, Direct Actuary and Staff as necessary – Recommend Approval).

9. Administrative Budget for Fiscal Year 2018-2019 - Proposed – (Recommend Approval).

INVESTMENTS

10. Indemnification – Authorization pursuant to Section 16.02(j) of the Retirement Plan (Recommend approval).

11. Quarterly Investment Report for the 1st Quarter of 2018 – Presentation by Scott Whalen, Verus (Receive and File).

12. Monthly Investment Report for April 2018 (Receive and File).

13. Private Equity Program Review – Scott Whalen, Verus (Review, Discuss, Direct Staff as necessary).

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

OPERATIONS

15. Staff Reports

16. General Counsel Reports

17. Committee Reports:
    a. Audit Committee No Report
    b. Personnel Committee No Report
    c. PAS Replacement Committee Report

18. Upcoming Board Topics (subject to change):

    a. June 25, 2018
       i. Disability case(s)
       ii. Audit Report – 2017 – Brown Armstrong
       iii. CAFR – 2017
       iv. 2018 Actuarial Valuation and Contribution Rates
       v. Prefunding Employer Contributions FY18-19

    b. July 23, 2018
       i. Disability case
       ii. Auditor Engagement 2018-2023
       iii. Alternative Investment Fee Disclosures
       iv. FPI – Recommendation on 1000 Mill St.
       v. Private Equity – additional commitments

    c. August 27, 2018
       i. Mid-year financial statements
       ii. 2Q18 Quarterly Investment Report
       iii. Verus – organizational and research process update
       iv. Investment educational presentations

19. Trustee Comments

REFERRED ITEMS

None

ADDED ITEMS

None

CLOSED SESSION

None

ADJOURNMENT

Board of Trustees

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APRIL 23, 2018
MINUTES
OF THE REGULAR MEETING OF THE PENSION TRUST BOARD OF TRUSTEES

BOARD MEMBERS PRESENT:	**Matt Janssen, President** **Will Clemens, Vice President** **Gere Sibbach** **Jim Hamilton** **Guy Savage** **Jeff Hamm**
BOARD MEMBERS ABSENT:	**Gere Sibbach** **Jim Erb**
STAFF:	**Carl Nelson** **Amy Burke**
COUNSEL:	**Chris Waddell, Esq.**
CONSULTANTS:	**Scott Whalen, Verus (via phone)**
OTHERS:	**Larry Batchelder, SLOCREA**

The meeting was called to order by President Janssen at 9:35 AM, who presided over same.

AGENDA ITEM NO. 1: PUBLIC COMMENT.

None.

ORGANIZATIONAL:

None.

CONSENT:

AGENDA ITEM NO. 2 - 5 CONSENT.

Public comment: None

Upon the motion of Mr. Savage, seconded by Mr. Hamm, and unanimously passed with Trustee Clemens abstaining, the following action was taken:

ITEM 2: The Minutes of the Regular Meeting of March 26, 2018 were approved without correction.

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

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

ITEM 5: The Report of Applications for participation in the Deferred Retirement Option Program received through April 6, 2018 was received, approved and filed.

ITEM 6: Resolution 2018-01 modifying and affirming Investment and Banking authority was approved.

ITEM 7: Conflict of Interest Policy was reviewed and approved.

APPLICATIONS FOR DISABILITY RETIREMENT:

None

OLD BUSINESS:

None.

NEW BUSINESS:

INVESTMENTS:

The following agenda item was considered out-of-sequence on the approval of President Janssen due to the availability of Scott Whalen of Verus who presented the topic via teleconference.

AGENDA ITEM NO. 11: TAO CONTINGENT FUND – OPPORTUNISTIC – APPROVAL.

Mr. Scott Whalen, Investment Consultant from Verus and Staff recommended a final approval for the TPG/TSSP TAO Contingent opportunistic private credit fund. A preliminary recommendation had been presented at the March 26, 2018 Board of Trustees meeting. The Board further discussed the TAO Contingent Fund at length and asked questions of Mr. Whalen and Staff.

Public comment: Mr. Batchelder, SLOCREA, inquired about the $60 million commitment and its investment while pending activation of the TAO Contingent Fund. Staff reported that the committed capital would remain invested per normal practice until the TAO Contingent Fund is activated and would then be transferred.

Upon the motion of Mr. Hamm, seconded by Mr. Janssen and unanimously passed, a $60 million commitment to the TPG/TSSP TAO Contingent opportunistic private credit fund was approved subject to legal documents acceptable to Staff and Counsel.

AGENDA ITEM NO. 9: ADMINISTRATIVE BUDGET FOR FY2018-2019 - PROPOSED.

The proposed SLOCPT Administrative Budget for FY18-19 was presented and discussed.

Public comment: None

No action necessary, no additional directions to Staff from the Board of Trustees.

AGENDA ITEM NO. 10: BOARD EDUCATIONAL PRESENTATION – FIDUCIARY RESPONSIBILITIES REFRESHER.

SLOCPT's General Counsel, Chris Waddell, presented an extensive presentation on fiduciary responsibilities. The Board of Trustees engaged in a thorough discussion with Counsel on the topic.

11:05 AM – President Janssen called for a short break
11:10 AM – meeting reconvened

Continued discussion of Agenda Item 10 continued. No action necessary.

INVESTMENTS:

AGENDA ITEM NO. 12: INDEMNIFICATION AUTHORIZATION PURSUANT TO SECTION 16.02(j) OF THE RETIREMETN PLAN.

This item in relation to the approved commitment to TPG/TSSP TAO Contingent opportunistic private credit fund was deferred to the May 21, 2018 meeting.

AGENDA ITEM NO. 13: MONTHLY INVESTMENT REPORT FEBRUARY 2018.

Public comment: None

Upon the motion of Mr. Hamm, seconded by Mr. Janssen, and unanimously passed, the Investment Report for March 2018 was received and filed.

AGENDA ITEM NO. 14: ASSET ALLOCATION.

Public comment: None

Staff reported that no action regarding investment asset allocations were necessary at this time apart from routine rebalancing for liquidity purposes.

OPERATIONS:

AGENDA ITEM NO. 15: STAFF ORAL REPORTS.

A) The Executive Secretary complimented staff for weekend work on software testing. He also complimented staff on pulling together to cover customer service work load while Andrea Paley was out of the office ill for multiple weeks. The staff and the SLOCPT members are universally glad to have Andrea back.

B) Staff reported on that the vacant Administrative Assistant position at the SLOCPT had been filled with the promotion of the part time temporary Office Assistant.

C) Staff noted the upcoming election for a Trustee position. Trustee Janssen's elected position for the next term of 2018-2021 is slated for an election being coordinated by the Clerk & Recorder's Office. Candidate designations are due by May18th for the June 5th election day.

D) Staff reported that the FPI owned property on McMillan Street had been sold for $2.9 million versus its most recent appraisal at $2.28 million. Staff also reported that the remaining two FPI properties for sale will be listed with a national real estate broker after the expiration of their listing with a local firm.

AGENDA ITEM NO. 16: GENERAL COUNSEL ORAL REPORTS.

None

AGENDA ITEM NO. 17: COMMITTEE REPORTS – AS NEEDED.

A) AUDIT COMMITTEE: Nothing to report

B) PERSONNEL COMMITTEE: Ms. Burke reported on the annual financial audit entrance meeting of the Audit Committee and Brown Armstrong. A quorum was not available, but the necessary briefing was provided by Brown Armstrong to Mr. Sibbach.

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

AGENDA ITEM NO. 18: 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. 19: TRUSTEE COMMENTS.

Trustees Clemens and Hamilton reported on their attendance at the CALAPRS Advanced Principles for Trustees course held in late March..

REFERRED ITEMS: None.

ADDED ITEMS: None.

CLOSED SESSION: None

ADJOURNMENT.

There being no further business, the meeting was adjourned at 12:10 PM. The next Regular Meeting was set for May 21, 2018, at 9:30 AM, in the Room 161/162, New County Government Center, San Luis Obispo, California 93408.

Respectfully submitted,

Carl Nelson
Executive Secretary

REPORT OF DEPOSITS AND CONTRIBUTIONS FOR THE MONTH OF APRIL 2018

PP 8 4/13/2018 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	3,946,350.23	922,526.19	23.38%	450,880.89	336,509.98	19.95%	43.33%	1,763.82	21,086.75	**1,732,767.63**
County Tier 2	949,993.44	226,591.46	23.85%	45,426.84	80,042.23	13.21%	37.06%	67.90	709.70	**352,838.13**
County Tier 3	2,307,641.74	512,879.53	22.23%	268,576.08	-	11.64%	33.86%	-	832.64	**782,288.25**
Superior Court Tier 1	267,930.63	67,075.01	25.03%	43,457.72	-	16.22%	41.25%	-	-	**110,532.73**
Superior Court Tier 3	62,265.64	14,806.67	23.78%	6,770.68	-	10.87%	34.65%	-	114.54	**21,691.89**
APCD Tier 1	69,465.77	15,294.53	22.02%	8,870.43	4,646.31	19.46%	41.48%	-	-	**28,811.27**
APCD Tier 3	11,948.00	2,599.68	21.76%	1,508.89	-	12.63%	34.39%	-	-	**4,108.57**
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	7,936.80	1,823.87	22.98%	210.33	737.33	11.94%	34.92%	-	-	**2,771.53**
Pension Trust Staff Tier 3	8,688.12	1,953.97	22.49%	1,115.18	-	12.84%	35.33%	-	-	**3,069.15**
LAFCO Tier 1	12,494.29	3,378.46	27.04%	677.19	1,448.97	17.02%	44.06%	-	-	**5,504.62**
	7,651,883.21	1,770,576.70	23.14%	828,367.36	424,050.78	16.37%	39.51%	1,831.72	22,743.63	**$ 3,047,570.19**

PP 9 4/27/2018 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	3,929,294.24	919,391.01	23.38%	449,998.00	335,806.23	19.98%	43.36%	1,261.18	504.83	**1,706,961.25**
County Tier 2	958,196.21	230,288.27	24.03%	47,867.57	81,261.35	13.48%	37.51%	67.90	709.70	**360,194.79**
County Tier 3	2,312,050.20	516,844.22	22.35%	270,159.83	-	11.68%	34.04%	-	883.66	**787,887.71**
Superior Court Tier 1	266,400.27	66,710.08	25.04%	43,164.00	-	16.20%	41.24%	-	-	**109,874.08**
Superior Court Tier 3	64,137.95	15,228.13	23.74%	6,929.67	-	10.80%	34.55%	-	114.54	**22,272.34**
APCD Tier 1	69,465.79	15,294.53	22.02%	8,870.43	4,646.31	19.46%	41.48%	-	-	**28,811.27**
APCD Tier 3	11,948.00	2,599.68	21.76%	1,508.89	-	12.63%	34.39%	-	-	**4,108.57**
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	9,578.42	2,201.11	22.98%	230.52	889.84	11.70%	34.68%	-	-	**3,321.47**
Pension Trust Staff Tier 3	8,880.52	1,997.24	22.49%	1,139.09	-	12.83%	35.32%	-	-	**3,136.33**
LAFCO Tier 1	12,494.29	3,378.46	27.04%	677.19	1,448.97	17.02%	44.06%	-	-	**5,504.62**
	7,649,614.44	1,775,580.06	23.21%	831,418.32	424,718.66	16.42%	39.63%	1,329.08	2,212.73	**$ 3,035,258.85**

TOTAL FOR THE MONTH	**15,301,497.65**	**3,546,156.76**	**23.18%**	**1,659,785.68**	**848,769.44**	**16.39%**	**39.57%**	**3,160.80**	**24,956.36**	**$ 6,082,829.04**
TOTAL YEAR TO DATE	**68,804,803.15**	**15,848,557.13**	**23.03%**	**7,376,009.43**	**3,848,656.59**	**16.31%**	**39.35%**	**15,099.97**	**57,154.49**	**27,145,477.61**

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

RETIREE NAME	DEPARTMENT	DATE	MONTHLY ALLOWANCE
BALANAY, ELIZABETH	GENERAL HOSPITAL / RESERVE	04-18-2018	1202.91
BROOKINS, LEWIS	SUPERIOR COURT / RECIPROCAL	04-30-2018	Awaiting calcs
CLODFELTER, WENDY	BEHAVIORAL HEALTH	04-07-2018	2316.01
FORSMANN, JODYNE	PROBATION DEPARTMENT	04-07-2018	3507.98 116.39**
GARRISON, LISA	SHERIFF-CORONER / ALTERNATE PAYEE	04-29-2018	353.80
HAMM, JEFFREY	PUBLIC HEALTH DEPARTMENT	04-08-2018	17914.58
LOMELI, ROBERT (Industrial Disability)	SHERIFF-CORONER	04-11-2018	Option selection
ORR, SUSAN	ASSESSOR / RESERVE	04-01-2018	Option selection
ADDENDUM:			
OLSON, DEBBIE	SHERIFF-CORONER / ALTERNATE PAYEE	09-01-2017	Option selection
ACKER, STEPHANIE	DISTRICT ATTORNEY / RECIPROCAL	12-30-2017	Option selection
FAHEY, DANA	PROBATION / RESERVE	02-01-2018	Option selection
OLIVIERI, DANIEL	MENTAL HEALTH / RECIPROCAL	02-10-2018	Option selection
HANAN, TERESA	SOCIAL SERVICES / RECIPROCAL	03-01-2018	Option selection
BURGESON, ROBERT	SHERIFF-CORONER	03-09-2018	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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Date: May 21, 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:

JUNE 1, 2018 **Michele Gorey, Morro Bay Library (date correction)**

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Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 7: January 1, 2018 Experience Study - Preliminary Results and Alternative Actions to be Considered - Presentation by Leslie Thompson, EA, FSA

Recommendation:

Receive and discuss the recommendations of the Pension Trust's actuary, Leslie Thompson of Gabriel Roeder Smith, on the 2018 Experience Study. The Board of Trustees may direct the Actuary relative to specific components of the 2018 Experience Study.

Staff recommends that the Board of Trustees receive and file the 2018 Experience Study after such discussion.

The specific direction to the Actuary on assumptions to use in finalizing the 2018 Annual Actuarial Valuation will be covered in a separate agenda item at this meeting.

Discussion:

It is the policy of the Pension Trust to have an annual Actuarial Valuation to set the total level of contributions necessary to fund the retirement system – the Total Combined Annually Required Contribution (Total ARC). In support of that annual Actuarial Valuation, the Pension Trust has performed a biennial Actuarial Experience Study. In these Experience Studies the actuary analyzes the trailing five years of Plan demographic and financial experience to inform the actuary on what actuarial assumptions to recommend to the Board of Trustees to use in the annual Actuarial Valuation.

The attached presentation and draft Experience Study report summarizes the findings of the January 1, 2018 Experience Study. The key points of focus include –

- **Inflation** – lower inflation experience and future expectations reduce the key assumptions recommended for Salary Growth, Payroll Growth, Retiree COLAs and the Earnings Assumption. The actuary recommends a change in the Inflation Assumption from 2.625% to 2.500%. See pages 3, 12 and 35 of the attached draft 2018 Experience Study.

- **Earnings Assumption (EA) -** The actuary recommends a reduction in the EA from 7.125% to an EA of **7.000%**. In comparison to other retirement systems, the SLOCPT's EA is below median even at 7.125%. Comparisons of the EA relative to other retirement systems were discussed at the December 16, 2017 Board of Trustees in a peer comparisons report. See pages 3, 17 and 35 of the attached draft 2018 Experience Study.

- **Salary Increase -** The actuary recommends a reduction in the Salary Assumption from 2.875% (plus merit increases) to 2.750% (plus merit increases). The reduction in the Salary Assumption is attributable to the reduction in the Inflation Assumption discussed above from 2.625% to 2.500%. Inflation is the fundamental building block of Salary Increase Assumptions. See pages 3, 18 and 35 of the attached draft 2018 Experience Study. The % total increases in salaries in the upcoming year would change as follows:

Years of Service	Current Salary increase assumption	Proposed Salary increase assumption
1	8.125%	8.00%
2	7.875%	7.75%
3	6.875%	6.75%
4	5.875%	5.75%
5	4.875%	4.75%
6	3.875%	3.75%
7	3.375%	3.25%
8+	2.875%	2.75%

- **Payroll Growth (PG) –** The actuary recommends a reduction in the PG Assumption from 3.375% to 2.750%. The reduction in the PG Assumption is attributable to two factors. The first is the reduction in the Inflation Assumption discussed above from 2.625% to 2.500%. Inflation is the fundamental building block of PG. The second is the discontinuance of the estimated 0.500% geographic differential that has been included in the PG Assumption during the 2016 and 2017 Valuations. This geographic difference assumption was used in response to the prior periods' actual experience of overall growth in payroll. This adjustment for regional experience was higher in Valuations prior to 2016. The use of a PG Assumption without this historical upward adjustment now appears to better match actual experience results. In addition, a lower PG Assumption, while increasing contribution rates, is expected to keep the charged rate closer to the Total ARC as the underlying population shifts between tiers. See pages 3, 19 and 35 of the attached draft 2018 Experience Study.

- **Mortality –** the mortality table update recommended by the actuary is the second phase of updates started with the 2016 Valuation. Subsequent iterations of the relevant mortality tables by the Society of Actuaries reflect slightly subdued expectations for improvements in mortality for future generations relative to two years ago. This reflects the influence of two more years of nationwide mortality experience that has seen slight decreases in life expectancy in the entire population. This update reflects a better measure of the mortality experience of the SLOCPT population. See pages 3, 20 and 36 of the attached draft 2018 Experience Study.

    - SLOCPT members are living notably longer than expected. While retirees living longer - and hopefully active, healthy lives - is good news, it increases the Total ARC needed to fund the Plan.

    - However, the actuary cautions that the SLOCPT population is still relatively small so minor variations in actual mortality experience can cause this data to change significantly.

    - The actuary recommends moving to the RP2014 base table and the MP2017 projection scale. The table and the projection scale are the latest released mortality tables and projection scales from the Society of Actuaries.

- **Interest on member contributions –** the current assumption for future interest earnings on the member contributions is 6.125% per year. The actuary recommends decreasing that assumption to 6.00% per year. The Interest on member contributions rate is determined annually in November by the Board of Trustees. Recent practice has been to base the interest earnings on member contributions on the Earnings Assumption less 1.00%, although this rate is at the discretion of the Board of Trustees. See pages 3 and 35 of the attached draft 2018 Experience Study.

Expected Results:

In the attached draft 2018 Experience Study in the "Summary of Recommendations" section on page 31 –

- The results of the <u>preliminary</u> 2018 Valuation are shown under the "Baseline" column heading.
- The results of the <u>preliminary</u> 2018 Valuation with the Actuary's recommended assumption changes are shown under the "New Assumptions" column heading.

The contribution rate impacts forecast based on the assumptions noted below are –

Total Combined Annually Required Contribution (combined aggregate)	Total ARC	Increase
2017 Valuation (1/1/17) Adj. for delayed implementation 1/1/18 2017 Total ARC to be collected	40.32% +0.45% 40.77%	
2018 Est. Valuation 1/1/18 2017 Total ARC at 1/1/17 Net 2017-2018 change in Total ARC 2018 Baseline Total ARC without assumption changes	 40.32% +0.63% **40.95%**	
2018 Est. Valuation 1/1/18 Baseline with new assumptions 2018 Baseline Mortality update Economic Assumptions Payroll Growth Assumption Est. 2018 Total ARC	 40.95% +0.61% +0.15% +0.97% **42.68%**	 1.73% from 2018 Baseline

Change in Contribution Rates (combined aggregate)	Charged Rate	Increase
2017 Total ARC to be collected 1/1/18 Demographic net change to rate **Actual Charged Rate at 1/1/18**	40.77% -1.09% **39.68%**	
2018 Total ARC at 1/1/18	**42.68%**	**3.00%**
Adjustment for delayed implementation to 1/1/19 (anticipated)	TBD	TBD

It is important to note that results shown (Liabilities, Funded Ratios, Total Annual Required Contributions, Charged Rate and Contribution Rate Increases) are –

- **Assuming all the recommended assumption changes are approved by the Board of Trustees.**

- **Based on preliminary 2018 Actuarial Valuation results including actuarial gains/losses.**

- **Subject to change upon final evaluation in the 2018 Actuarial Valuation to be presented at the June 25, 2018 Board of Trustees meeting.**

- **Contribution Rate increases shown are in aggregate and as of January 1, 2018. Any increases adopted will: a) differ by class of member (Miscellaneous, Probation, Safety); and, b) be adjusted upward to reflect the anticipated implementation date of January 1, 2019 (versus the 1/1/18 date of the Valuation).**

Attachments:

1. Presentation – 2018 Experience Study
2. Report – draft 2018 Experience Study

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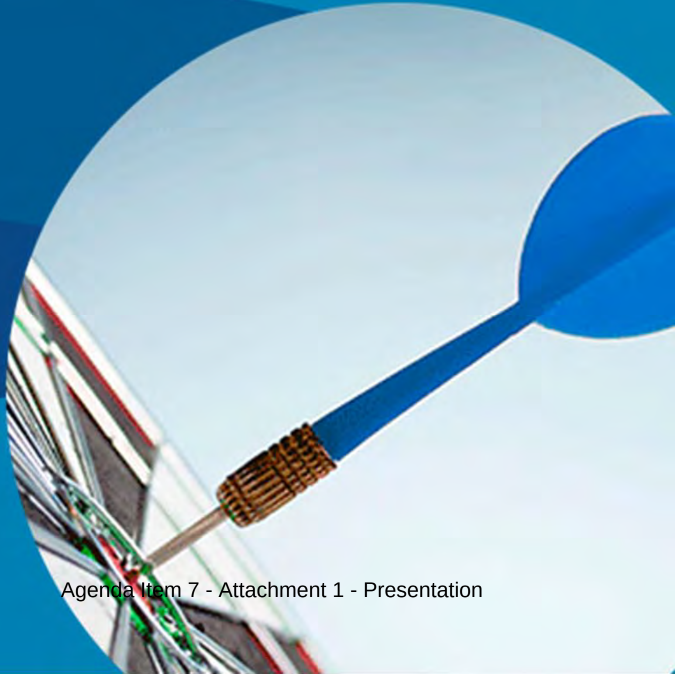
San Luis Obispo County Pension Trust

Actuarial Experience Study for the Five-Year Period Ending December 31, 2017

Leslie Thompson, FSA, FCA, EA, MAAA

May 21, 2018



Agenda Item 7 - Attachment 1 - Presentation

Data Used

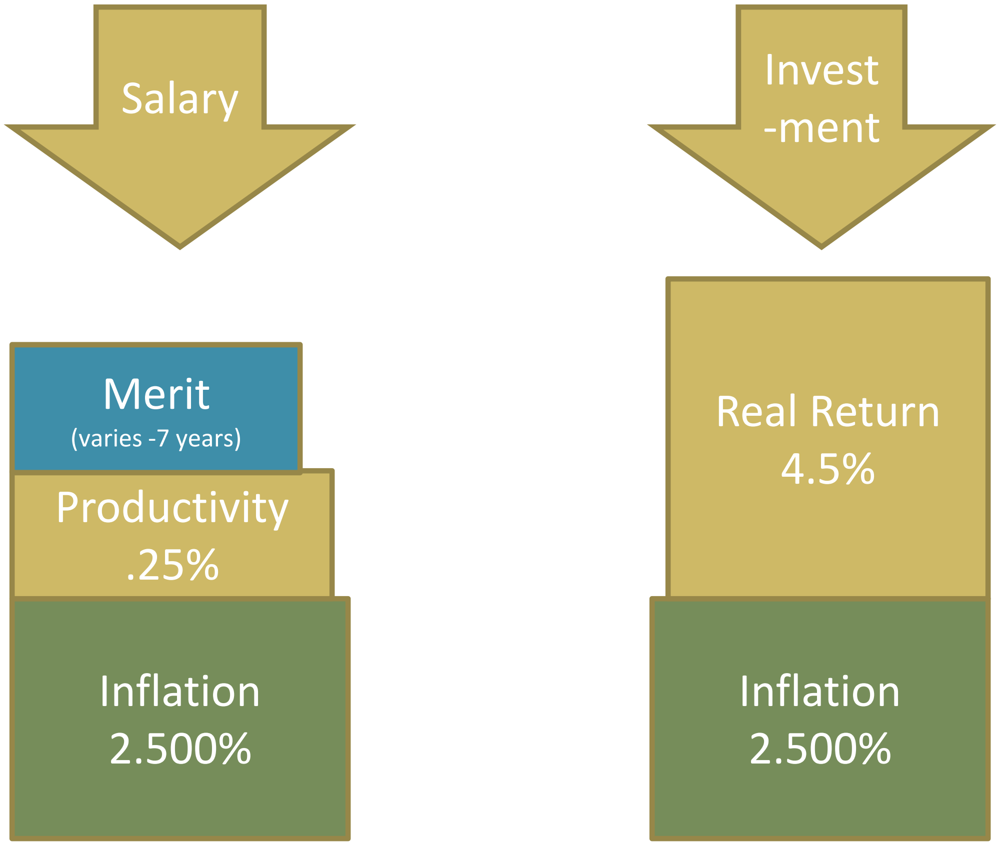
- We analyzed experience data from the last five years from January 1, 2013 through December 31, 2017
- Surveyed seven investment firms for capital market assumptions
- Used local and national indicators for inflation

Building Internally Consistent Assumptions

- Economic assumptions tie together through the common denominator of inflation
- Salary increases are usually a rate above inflation and;
- Investments grow at a rate equal to inflation PLUS a real rate of return.

GRS Retirement Consulting

Inflation-the building block for economic assumptions



Inflation

- The assumed inflation rate is not used directly in the actuarial valuation, but it impacts the development of:
  - Investment return assumption
  - Salary increase assumptions
  - Payroll growth rate
- The COLAs and the salary increases are based on local inflation while investments are driven more by national rate of inflation

Inflation

- Long-range forecasts are predicting lower inflation in the next 20 years:
  - Relationship of long term bonds to Treasury Inflation-Protected Securities (TIPS) gives market expected inflation of less than 1.97%
  - Social Security Administration is projecting long-term inflation of 2.60%
  - Public Funds Survey shows most public systems use 3.0% assumption (but data for many plans more than 1 year old)
  - Verus is predicting 2.10% over next 10 years (*February 2018 Capital Market Assumptions*)

Inflation history-local and national

Calendar Year	CPI (LA and SF)-used for COLAs and partially for wages	CPI (National-Urban)-
2017	2.8%	2.1%
2016	2.1%	2.1%
2015	2.6%	0.7%
2014	1.7%	0.8%
2013	1.9%	1.5%
2012	2.1%	1.7%
2011	2.6%	3.0%
2010	1.4%	1.5%
2009	2.2%	2.7%

GRS Retirement Consulting

Inflation Summary and Recommendation

- Social Security has recently decreased its long term inflation assumption to 2.60%
- The average inflation assumption for public sector plans is below 3.00%
- Investment consultants have lowered their inflation assumptions
  - And their short term inflation assumptions will be lesser than the longer term assumption
- Recommend the inflation assumption be decreased from 2.625% to 2.50%

Investment Return

- The investment return rate is used to discount future expected cash flows (benefits and refunds), in order to determine the actuarial present values (liabilities)
- This is a critical assumption, since even small changes in the assumption, say 25 basis points on the real return, will usually change the required contribution rate by 1-2 percentage points (100-200 basis points)
- The current assumption is 7.125%
  - This is intended to be the return, net of all administrative and investment expenses
  - Expenses reduce the Trust's return
  - Current assumption equals 2.625% inflation plus 4.50% net real return

Analysis of Return from Survey

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return	Actuary Inflation Assumption	Expected Nominal Return	Plan Incurred Administrative Expenses	Expected Nominal Return Net of Expenses
1	5.83%	2.20%	3.63%	2.50%	6.13%	0.25%	5.88%
2	6.14%	2.00%	4.14%	2.50%	6.64%	0.25%	6.39%
3	6.85%	2.50%	4.35%	2.50%	6.85%	0.25%	6.60%
4	6.74%	2.26%	4.48%	2.50%	6.98%	0.25%	6.73%
5	7.04%	2.50%	4.54%	2.50%	7.04%	0.25%	6.79%
6	7.02%	2.25%	4.77%	2.50%	7.27%	0.25%	7.02%
7	7.28%	2.21%	5.06%	2.50%	7.56%	0.25%	7.31%
8	7.68%	2.25%	5.43%	2.50%	7.93%	0.25%	7.68%
Average	**6.82%**	**2.27%**	**4.55%**	**2.50%**	**7.05%**	**0.25%**	**6.80%**
2015 Exp. Study	**6.78%**	**2.29%**	**4.49%**	**2.75%**	**7.24%**	**0.20%**	**7.04%**
2013 Exp. Study	**7.32%**	**2.59%**	**4.73%**	**2.75%**	**7.48%**	**0.25%**	**7.23%**

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Recent History of Market Returns

(Net of Investment and Administrative Expenses)

Year ending December 31	Market Value Rate of Return
2017	15.25%
2016	6.13%
2015	-1.44%
2014	4.58%
2013	13.07%
2012	12.02%

Investment Return Recommendation

- Current 7.125% is below the median assumption for large public plans
  - Public sector average is coming down and is 7.50% in the 2016 Public Fund Survey.
  - A reasonable range to be considered is 6.25% to 7.00%
- Verus February 2018 report estimates a 6.0% portfolio nominal return
- Real return still within a reasonable range at 4.50%
- Based on the declining inflation predictions we recommend a decrease in the return assumption from 7.125% to 7.00%
- This assumption is comprised of an inflation component of 2.50% and a real return net of expenses of 4.50%

COLA Assumption

- COLA assumption of 2.625% for Tier 1 and 2.00% for Tier 2 and Tier 3
  - Plan allows COLAs up to 3.00% for Tier 1
  - Tiers 2 and 3 have a maximum of 2.00%
  - The COLA increases are based on the CPI in San Francisco and Los Angeles areas
- The COLA assumption ties into the expected inflation assumption which is used as the underlying basis for the investment return assumption and salary scale
- Based on the review of inflation for the local and national levels, we recommend the Tier 1 COLA assumption be decreased from 2.625% to 2.50%

COLA recommendation summary

Although the price inflation basis for the COLA's and pay may differ from the inflation basis for investments, it would appear over time and in periods of higher inflation these may reverse position. Thus, for the assumptions, we recommend that the inflation rate for investments and salary scale be the same (at 2.50%)

Salary Scale (Annual Pay Increases)

- Assumption is based on 3 components:
  - (Price) Inflation
  - Productivity (together with inflation equals wage inflation)
  - Merit/Promotion
- Current assumption 2.875% wage inflation (2.625% inflation + 0.25% productivity) with merit increases during 1st 7 years
- Overall salary increases slightly higher than expected

Salary Scale-Merit Increase Analysis

- Merit increases are based on years of service and actual results are close to expected,
- A large increase in 2017 is pushing up actual rates, but this type of increase is not expected in the future
- No change recommended to merit based increases

Service Year	Actual Merit Increases	Expected Merit Increases	Proposed Merit Increases
1	6.45%	5.25%	5.25%
2	6.85%	5.00%	5.00%
3	6.68%	4.00%	4.00%
4	5.42%	3.00%	3.00%
5	3.70%	2.00%	2.00%
6	2.31%	1.00%	1.00%
7	1.02%	0.50%	0.50%
8	0.43%	0.00%	0.00%

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Salary Scale Recommendations

- Recommendation- inflation to decrease by 1/8th of a percent to 2.50% while productivity and merit remains unchanged

Payroll Growth recommendation

- Used in amortizing unfunded liability, not in projecting benefits
- Current assumption is 3.375%
- Actual increase in payroll for last ten years has been 2.39%
  - Adjusted for membership growth, payroll growth rate is 2.00%
  - Recent low growth and expected short-term low growth due to economy
  - Want consistency with long-term wage inflation assumption
- We recommend a decrease in the payroll growth assumption from 3.375 % to 2.75%

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Demographic Assumption Analysis

- In looking at demographic assumptions (the assumptions about what people do) we look at the comparison of actual occurrences to expected occurrences.
  - (A/E ratio)
- Mortality slowly improves over time and new actuarial standards require that we disclose the future improvement assumed in life expectancies.
- Board adopted new mortality tables effective December 31, 2015 using generational mortality assumption; automatically builds in improvement in future years.

Post Retirement Mortality

- Includes age/service retirees and survivors, excludes beneficiaries, joint annuitants and disabled retirees
  - Females
    - Expected number of deaths 129
    - Actual number of deaths 120
    - Ratio 93%
  - Males
    - Expected number of deaths 72
    - Actual number of deaths 79
    - Ratio 110%
  - Total
    - Expected number of deaths 201
    - Actual number of deaths 199
    - Ratio 101%
- Ratios in last study were 86% for females, 72% for males, 81% for combined

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Post Retirement Mortality

- Current mortality table is RP-2014 Combined Healthy Mortality with generational mortality improvements using a modified scale MP-2015 (gender-distinct with 105% multiplier and white collar adjustment)
  - Current assumption allows for future improvement
    - But projections scales have been updated by the SOA
  - Recommend no change to the base table, however we recommend using the new projection tables MP-2017

Disabled Mortality Rates

- Disabled mortality rates differ from the general population
  - Females
    - Expected number of deaths 5
    - Actual number of deaths 5
    - Ratio 100%
  - Males
    - Expected number of deaths 11
    - Actual number of deaths 9
    - Ratio 83%
  - Total
    - Expected number of deaths 16
    - Actual number of deaths 14
    - Ratio 88%
- The small sample size makes the conclusion drawn from the results less predictive

Active Mortality Rates

- Pre-retirement mortality is a small liability (and low impact) within the overall plan
- Not enough information to reliably analyze the mortality rates for active members (6 deaths vs 14 expected)
- Recommend no change to the base table, however we recommend using the new projection tables MP-2017

Rates of Disability

- Disability is an assumption with minimal impact on liabilities
- The current assumption is unisex and assumes 100% of Safety disabilities are duty-related and 100% of Misc and Probation are non-duty-related
- Male and female disability counts are combined (since the rates are the same and the counts are small) but are broken down by duty (Safety) versus non-duty (Misc & Probation)

	Safety	Misc/Prob.
– Expected number of disabilities	5	8
– Actual number of disabilities	4	7
– Ratio	80%	75%

- Due to small sample size, recommend retaining current disability assumption

Rates of Retirement

- Current retirement rates look at all members age 50 and over; with five years of service.

	Misc. under age 70	Misc.	Probation	Safety
Expected	502	549	14	43.5
Actual	500	508	18	71
Ratio of actual to expected	99.6%	92.5%	129%	163%
Prior exp. Study ratios-2015	93.5%	89.2%	142.9%	140.0%

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Rates of Retirement

- Recommend no change to this assumption

Rates of Termination

- Termination rates reflect members who leave for reasons other than retirement, death or disability
- Current termination rates vary between Misc/Probation and Safety members
- There are three main categories of termination with different assumed rates:
  1. Vested members who leave with more than five years of service;
  2. Members who take a refund and who have less than five years of service and;
  3. Members who take a refund and who have five or more years of service.
- Vested Terminations (greater than 5 years of service)
  - Expected number 55
  - Actual number 47
  - Ratio 85% (95% last study)
- Ordinary withdrawal (refund rates, all years of service)
  - Expected number 281
  - Actual number 347
  - Ratio 123% (99% last study)

Rates of Termination

- Ratio greater than 100% are considered conservative
- We recommend no change to the termination rates.

Experience Study Summary

- Changes recommended:
  - Decrease inflation from 2.625% to 2.50%
  - Decrease the assumed rate of return from 7.125% to 7.00%
  - Decrease the total payroll growth assumption from 3.375% to 2.75%
  - Decrease the salary increase assumption by 1/8ths%
  - Realign mortality assumptions using the latest projection scales
  - Decrease interest rate crediting on employee accounts assumption from 6.125% to 6.00%

- We recommend no changes to these other assumptions and methods
  - Retirement Rates
  - Termination Rates
  - Marriage assumptions
  - Age difference between husbands and wives (3 years)
  - Entry age normal cost method
  - Decrement timing assumption (all are mid year)
  - 40% of new deferred vested members are assumed to become Reciprocal members (40% actually became reciprocal members in last 5 years)
  - Assumed retirement age for deferred vested of age 57 for Reciprocal and Reserve members
  - 100% of safety plan active deaths are assumed to be duty related

ARC Impact Estimates-on 2018 data

- To change all assumptions, the total Annually Required Contribution would increase, from 40.95% to 42.68%
- This is a 1.73% total increase

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Charged Rate Impact Estimates-on 2018 data

- Charged rate is 39.68%
  - Includes the 2.38% increase effective January 1, 2018
  - Note that the 2018 Charged Rate is the actual rate being collected as of 1/1/18 including the demographic shifts that take place in the active membership during the course of the year
- Required rate is 42.68%
- Rate difference (proposed increase) is 3.00%

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Cost impact by category of change

Assumption Change (as %)	Change	Total ARC (starting from 40.95%)*
Mortality	0.61%	41.56%
Economic	0.15%	41.71%
Payroll growth	0.97%	42.68%
Total	**1.73%**	**42.68%**

the 40.95% is the required contribution based on 1/1/2018 data

GRS Retirement Consulting

San Luis Obispo Couny Pension Trust

Actuarial Experience Study
As of December 31, 2017

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GRS Retirement Consulting
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May 8, 2018

Board of Trustees
San Luis Obispo County Pension Trust
1000 Mill Street
San Luis Obispo, CA 93408

Members of the Board:

Subject: **Results of the Actuarial Experience Study for the Five-Year Period ending December 31, 2017**

We are pleased to present our report on the results of the 2017 Experience Study for the San Luis Obispo County Pension Trust (SLOCPT). We have reviewed each of the actuarial assumptions and compared them to actual experience over a five-year period ending December 31, 2017. This report summarizes the findings. It is our recommendation that changes be made to the actuarial assumptions and methods used for the SLOCPT actuarial valuations.

This experience investigation study was conducted in accordance with generally accepted actuarial principles and practices, and in full compliance with the Actuarial Standards of Practice as issued by the Actuarial Standards Board. Ms. Thompson is a member of and meets the Qualification Standards of the American Academy of Actuaries. She has extensive experience performing experience investigations for public sector retirement systems.

We wish to thank the SLOCPT staff for their assistance in providing data for this study.

Sincerely,

Leslie L. Thompson

Leslie L. Thompson, FSA, FCA, MAAA, EA
Senior Consultant

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SECTION I

EXECUTIVE SUMMARY

Executive Summary

The purpose of this report is to review actual experience for the five-year period of January 1, 2013 to December 31, 2017 and to compare this to the current actuarial assumptions and methods. If the actual experience shows significant deviations from the assumptions, or our expectations for future experience have changed significantly, we offer recommendations for changes in the assumptions or methods.

Following is a brief summary of the current assumptions and recommended changes. The actuarial impact of these changes will be shown later in the report.

Actuarial Assumption	Current	Proposed	Comments*
Inflation	**2.625%**	**2.50%**	
Investment Return	**7.125%**	**7.00%**	
Salary Increase-			
Inflation component	**2.625%**	**2.50%**	
Productivity component	**0.25%**	**0.25%**	
Merit component	**5.25%- 0.00%**	**5.25%- 0.00%**	
Payroll growth	**3.375%**	**2.75%**	
Interest Credit Rate on Member Contributions	**6.125%**	**6.00%**	
Post Retirement Mortality- Base table	**RP 2014**	**RP 2014**	**With modifications**
Post Retirement Mortality- projection scale	**MP 2015**	**MP 2017**	
Active member mortality- Base table	**RP 2014**	**RP 2014**	**With modifications**
Active member mortality- projection scale	**MP 2015**	**MP 2017**	
Disabled member mortality- Base table	**RP 2014- disabled table**	**RP 2014- disabled table**	**With modifications**
Active member mortality- projection scale	**MP 2015**	**MP 2017**	
Retirement Rates	**SLOCPT rates**	**SLOCPT rates**	**No change**
Vested termination	**SLOCPT rates**	**SLOCPT rates**	**No change**
Disability rates	**SLOCPT rates**	**SLOCPT rates**	**No change**
Refunds	**SLOCPT rates**	**SLOCPT rates**	**No change**
Percent married	**80% males 60% females**	**80% males 60% females**	**No change**
COLA – Tier 1	**2.625%**	**2.50%**	
COLA – Tier 2 & 3	**2.00%**	**2.00%**	**No change**

**Modifications to tables explained more fully later in this study*

SECTION II

INTRODUCTION

Introduction

In determining liabilities, contribution rates and funding periods for retirement plans, actuaries must make assumptions about the future. Among the assumptions that must be made are:

- Retirement rates
- Mortality rates
- Turnover rates
- Disability rates
- Investment return rate
- Salary increase rates
- Inflation rate

For some of these assumptions, such as the mortality rates, past experience provides important evidence about the future. For other assumptions, such as the investment return rate, the link between past and future results is much weaker. In either case, though, actuaries review the assumptions periodically and determine whether these assumptions are consistent with actual past experience and with anticipated future experience.

In conducting experience studies, actuaries generally use data over a period of several years. This is necessary to gather enough data so that the results are statistically significant. In addition, if the study period is too short, the impact of the current economic conditions may lead to misleading results. It is known, for example, that the health of the general economy can influence salary increase rates and withdrawal rates. Using results gathered during a short-term boom or bust will not be representative of the long-term trends in these assumptions. In addition, the adoption of legislation, such as plan improvements or changes in salary schedules, will sometimes cause a short-term distortion in the experience. For example, if an early retirement window opened during the study period, we would usually see a short-term spike in the number of retirements followed by a dearth of retirements for the following two-to-four years. Using a longer period prevents giving too much weight to such short-term effects. On the other hand, using a much longer period would water down real changes that may be occurring, such as mortality improvement or a change in the ages at which members retire. In our view, using a five-year period is reasonable.

In an experience study, we first determine the number of deaths, retirements, etc. that occurred during the period. Then we determine the number expected to occur, based on the current actuarial assumptions. The number “expected” is determined from using the probability of the occurrence at the given age, times the “exposures” at that same age. For example, for a rate of retirement of 50% at age 55, the number of exposures can only be those members who are age 55 and eligible for retirement at that time. Thus, they are considered “exposed” to that assumption. Finally, we calculate the A/E ratio, where "A" is the actual number (of retirements, for example) and "E" is the expected number. If the current assumptions were "perfect", the A/E ratio would be 100%. For some assumptions (e.g. termination), an A/E ratio greater than 100% is conservative (i.e. generates actuarial gains for the System) while for other assumptions (e.g. retirement) an A/E ratio less than 100% is conservative. When the A/E ratio varies much from 100%, it is a sign that new assumptions may be needed. Additionally, each assumption is reviewed for how well it fits the actual results by sex, by age, and by service.

Finally, the actuary "graduates" or smoothes the results since the raw results can be quite uneven from age to age or from service year to service year.

Please bear in mind that while the recommended assumptions represent our best estimate, there are other reasonable assumptions sets that could be supported. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

Structure of This Report

Section III contains our findings and recommendations for each actuarial assumption. The impact of adopting our recommendations on liabilities and contribution rates is shown in Section IV. Section V summarizes the recommended changes. Section VI presents a summary of all the actuarial assumptions and methods, including the recommended changes.

SECTION III

ANALYSIS OF EXPERIENCE AND RECOMMENDATION

Analysis of Experience and Recommendations

This section begins by discussing the economic assumptions: inflation, the investment return rate, the salary increase assumption, and the payroll growth rate. Next, the discussion will turn to the demographic assumptions: mortality, disability, retirement and termination. Finally, the analysis will include a review of the actuarial methods used in the valuation.

Economic Assumptions

Actuarial Standards of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, provides guidance to actuaries on giving advice on selecting economic assumptions for measuring obligations for defined benefit plans. In September 2013, the Actuarial Standard Board adopted changes to ASOP No. 27, which significantly reduced the reasonable range for an acceptable investment return assumption. Generally, the revised version indicates that economic assumptions should be based on the actuary's estimate of future experience and no longer includes the "best-estimate range" standard.

Generally, the economic assumptions are much more subjective in nature than the demographic assumptions. As no one knows what the future holds, it is necessary for the actuary to estimate possible future economic outcomes. These estimates are based on a mixture of experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data.

Inflation rate

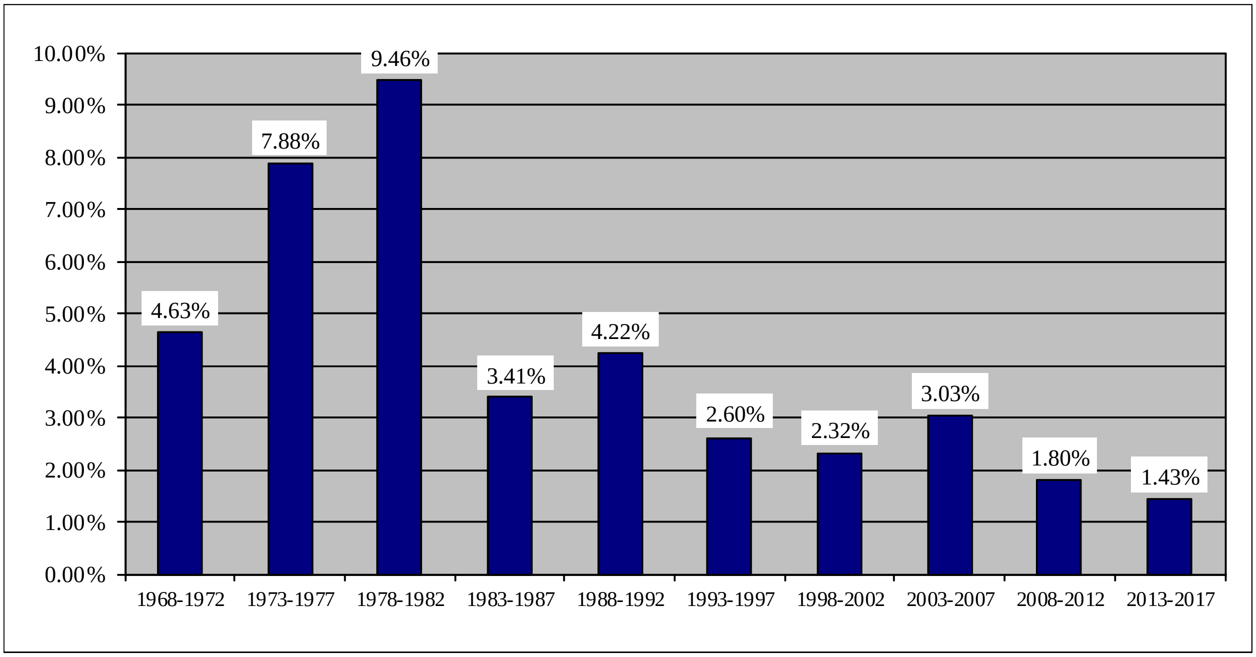
By "inflation", we mean price inflation, as measured by annual increases in the national Consumer Price Index (CPI). This inflation assumption underlies all of the other economic assumptions used in an actuarial valuation, including the investment return, individual salary increases, payroll growth and COLA assumptions.

San Luis Obispo County Pension Trust currently assumes a 2.625% price inflation rate. The last time the inflation assumption was changed was in 2016 when the assumption was decreased from 2.750% to 2.625%.

Over the five-year period from January 1, 2013 through December 31, 2017, the CPI-U has increased at an average rate of 1.43%. However, the assumed inflation rate is only weakly tied to past results, and this has been a period of relatively low inflation.

The chart below shows the average annual inflation in each of the ten consecutive five-year periods ending December 31 over the last fifty years.

Average Annual Inflation (CPI-U) over 5 year periods



The table below shows the average inflation over various periods, ending December 2017:

Periods Ending December 2017	Average Annual Increase in CPI-U
Last five (5) years	1.43%
Last ten (10) years	1.61%
Last fifteen (15) years	2.08%
Last twenty (20) years	2.14%
Last thirty (30) years	2.56%
Since 1913 (first available year)	3.13%

Source: Bureau of Labor Statistics, CPI-U, all items, not seasonally adjusted

As shown above, inflation has been relatively low over the last 25 years, compared to prior periods. There has been a steady decline in inflation statistics over the last 30 years.

However, the assumed inflation rate is only weakly tied to past results, so it is helpful to use other sources of information to gain insight into expectations for the future. Inflation trends run in economic cycles, experiencing periods of relatively high rates and periods of relatively lower rates of increase.

Investment Consulting Firms

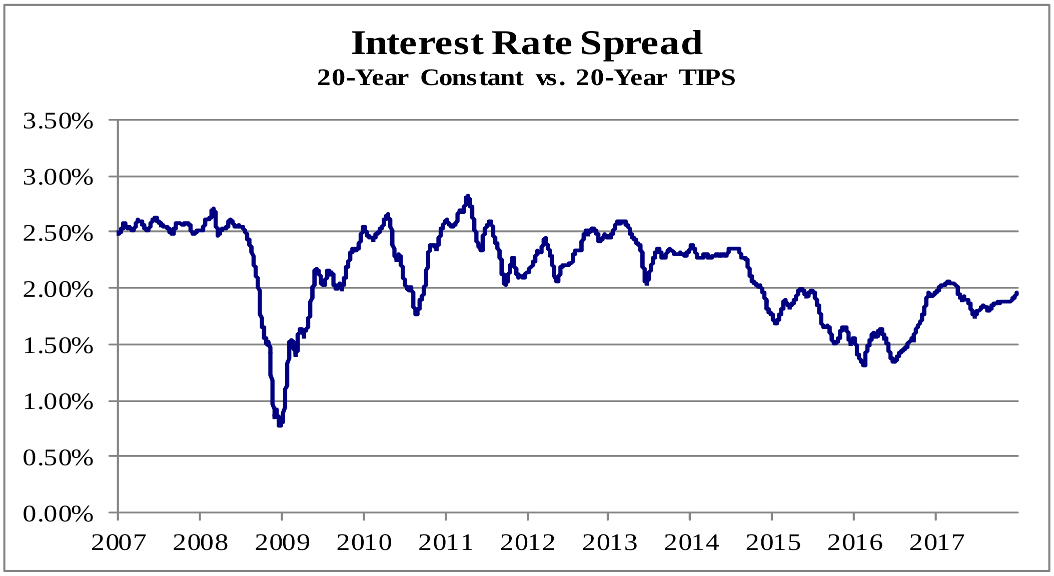
Most investment-consulting firms develop an underlying inflation assumption for their forecasting and derivation of forward-looking capital market assumptions. The 2017 capital market assumption sets for seven investment-consulting firms were examined, including New England Pension Consulting (NEPC), Hewitt Ennis Knupp, J. P. Morgan, Mercer, Pension Consulting Alliance (PCA), RV Kuhns and BNY Mellon. The average assumption for short-term inflation among these firms was 2.27%, with a range of 2.00% to 2.50%. Verus Associates, the plan's investment consultant, assume 2.10% inflation over the next 10 years (*February 2018 Capital Market Assumptions*). It should be noted that investment-consulting firms typically set their assumptions based on a five to ten year outlook, while actuaries must make projections encompassing a longer time period. This horizon difference may create a difference between the inflation assumption in the valuation and the inflation assumption used by the investment consultant.

Bond Market

Another source of information about future inflation is the market for US Treasury bonds. Comparing the yields for conventional Treasury securities and Treasury Inflation-Protected Securities (TIPS) provides a useful measure of the market's expectation of future inflation. Conventional Treasury securities compensate its holders by providing a nominal yield with two components, the real rate of interest plus inflation compensation. Since TIPS already adjust for inflation, the yield only includes the real rate of interest. Therefore, the difference roughly reflects the inflation expectation for that maturity horizon.

For example, the December 29, 2017 yield for 20-year TIPS was 0.61% plus actual inflation. The yield for 20-year non-indexed US Treasury bonds was 2.58%. Simplistically, this means that on that day the bond market was predicting that inflation over the next twenty years would average 1.97% (2.58% – 0.61%) per year. However, this analysis is known to be imperfect. It ignores the inflation risk premium that buyers of US Treasury bonds should ask for, and it ignores the differences in liquidity between US Treasury bonds and TIPS.

Below is a chart with the historical spread between 20-year constant and 20-year inflation protected Treasury bonds.



The historical spread between the constant and inflation protected securities was relatively constant from 2007 up to the beginning of the crisis in the credit market. The decrease in the spread during the collapse of the US investment markets and the subsequent volatility reflect differences in liquidity and the risk premiums that buyers of US Treasury securities require.

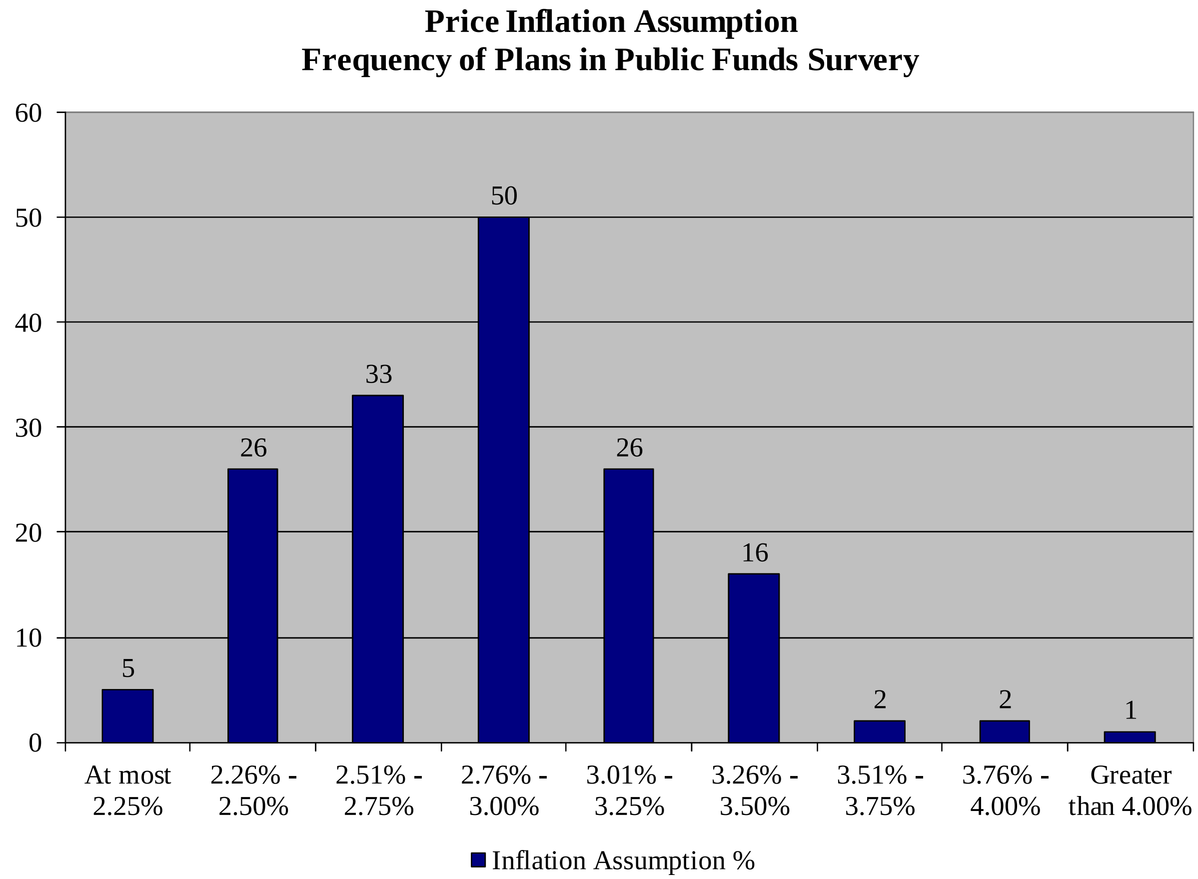
The Federal Reserve Bank of Cleveland has developed a model that combines information from a number of sources to address the shortcomings of the "break-even" rate illustrated above. Based on the results of its model, the Federal Reserve Bank of Cleveland reported in April 2018 that it estimates the 10-year expected inflation to be 1.98%, which implies expectations for inflation to be less than 2.00% on average for the next decade.

Other Sources of Inflation Forecasts

In the Social Security Administration's 2017 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.60% under the intermediate cost assumption. (The inflation assumptions are 2.00% and 3.20% respectively in the low cost and high cost projection scenarios.) These inflation assumptions were lowered slightly in recent years.

The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. Its most recent forecast (first quarter of 2018) was for inflation over the next five ten years to average 2.25%.

Another source of information about this assumption is the Public Funds Survey that is prepared on behalf of the National Association of State Retirement Administrators (NASRA) and the National Council on Teacher Retirement (NCTR). This report surveys about 126 plans, including all of the largest public funds covering state employees or teachers.



Source: http://www.publicfundsurvey.org/

The current survey shows that the median inflation rate assumed for large public retirement systems in the U.S. is 3.00%, with the most prevalent assumption also at 3.00%. Approximately 71% of the surveyed systems use an assumption of 3.00% or less. The information in the Public Funds Survey for many of the systems is more than a year old and it is possible that some systems have subsequently updated their assumptions. In fact, several statewide public retirement systems have lowered this assumption in recent years.

Recommendation

Based on all of this information, we believe a reasonable long-term inflation assumption range is between 2.00% and 2.75%. The recommendation to the Board is to decrease the inflation assumption from 2.625% to 2.50%. While the 2.50% assumption is slightly higher than the expected rates of inflation for many of the various sources above, it is within a reasonable range of acceptable long-term assumptions. In addition, since the cost-of-living increase for Tier 1 retirees is tied to local inflation results, we also recommend that the COLA assumption for Tier 1 be decreased from 2.625% to 2.50%.

Investment return rate

Currently, San Luis Obispo County Pension Trust assumes an investment return rate of 7.125%, net of investment and administrative expenses. This is the rate used in discounting future payments and in calculating the actuarial present value of those payments. The current assumption assumes inflation of 2.625% per annum and an annual real rate of return of 4.50% net of expenses. This assumption was last changed in 2016 when it was decreased from 7.25% to 7.125%.

Expenses

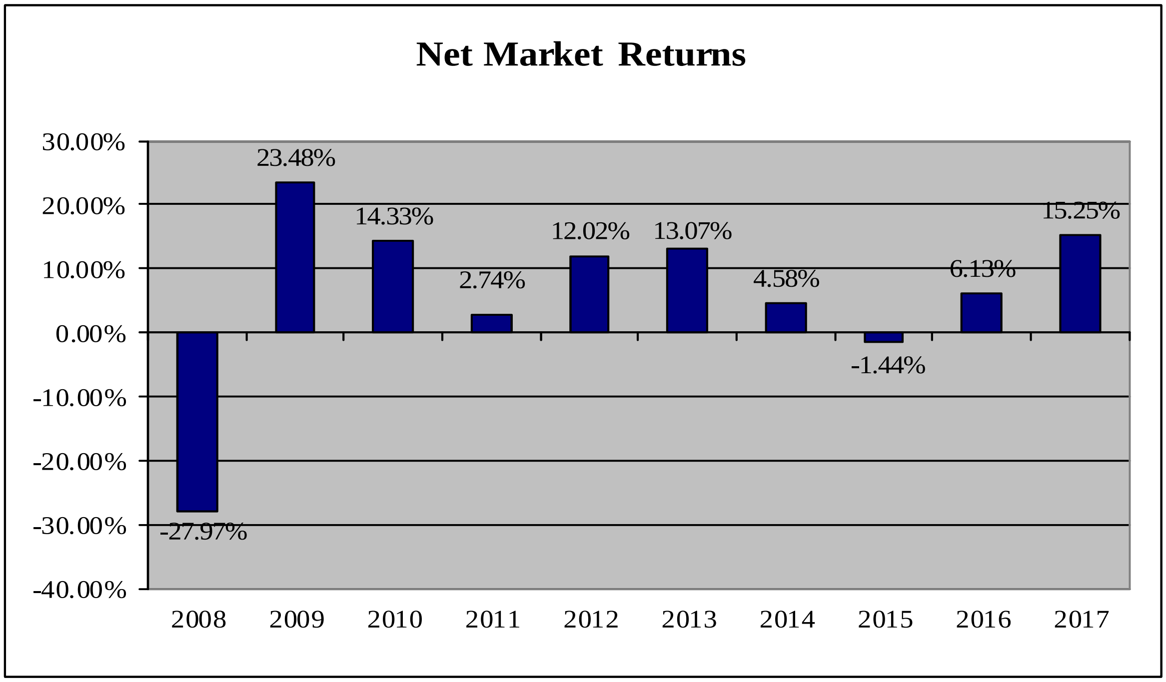
There are two primary types of expenses that are paid from the trust. First, administrative expenses are those expenses associated with running the retirement system (e.g., custodial fees, audit fees, actuarial fees, etc.). The other primary type of expense is investment expenses that are paid from the trust (transaction costs, investment consultants, etc.). Since the trust fund pays these expenses from plan assets, it is necessary to incorporate the expected expenses into the actuarial valuation

There are two common approaches to incorporating these expenses into the actuarial valuation. Plan expenses may be explicitly assumed as a direct increase to the annual recommended contribution or implicitly assumed by developing an investment return assumption that is expected to meet the return target after paying plan expenses from the investment earnings. Our past practice has been to set the investment return assumption as the net return after payment of both investment and administrative expenses (implicit assumption for all expenses). We believe that an implicit expense assumption is still appropriate.

We developed an estimate of the administrative expense assumption of 0.25% used in the analysis below by reviewing the past five years of expenses in relation to total pension assets. The market returns assumed for the various asset classes discussed below are already assumed to be net of investment expenses.

Historical Information

The following chart shows the year-by-year returns, net of investment and administrative expenses, since 2008.



For the last five years, the average market return, net of investment and administrative expenses, has been 7.35% and over the last 10 years has been 5.25%. However, for this assumption, past performance, even averaged over five years or longer, is not a reliable indicator of future performance.

Asset Allocation

The actual asset allocation of the trust fund will significantly influence the overall performance, so returns achieved under a different allocation are not meaningful. More importantly, the real rates of return for many asset classes, especially equities, vary so dramatically from year to year that even a ten-year period is not long enough to provide reasonable guidance. There are reasons to believe the next twenty years will be different from the last twenty, in large part because current bond yields are significantly lower than they were 20 years ago.

The current target asset allocation, as established by the Board, is shown below, with subcategories of assets allocated based on benchmark weights.

Investment	Policy Target %
US Equity – Large Cap	16%
US Equity – Small Cap	4%
International Equity – Developed	13%
International Equity – Emerging	7%
Core Bonds	15%
Bank Loans	5%
Global Bonds	5%
Emerging Market Bonds	5%
Real Estate	15%
Commodities	5%
Private Equity	5%
Private Credit	5%
Total Allocation	**100%**

Source: SLOCPT Investment Policy Statement, February 2018

Capital Market Assumptions

The allocation of assets within the universe of investment options will significantly impact the overall performance. Therefore, it is meaningful to identify the range of expected returns based on the fund's targeted allocation of investments and an overall set of capital market assumptions.

Because GRS is a benefits consulting firm and does not provide investment advice, we reviewed capital market assumptions developed and published by the following eight independent investment-consulting firms:

- BNY Mellon
- JP Morgan
- R.V. Kuhns
- NEPC
- PCA
- Hewitt Ennis Knupp
- Mercer Consulting
- VOYA

These investment-consulting firms periodically issue reports that describe their capital market assumptions, that is, their estimates of expected returns, volatility, and correlations. While these assumptions are developed based upon historical analysis, many of these firms also incorporate forward-looking adjustments to better reflect near-term expectations. The estimates for core investments (i.e. fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds that are net of investment related fees. Investment return expectations for the alternative asset class such as private equity and hedge funds are net of investment expenses. Therefore, we did not make any additional adjustments to account for investment related expenses. Please note that the actuarial standards generally do not allow us to consider alpha that may be generated by active management.

Using capital market assumptions for 2017 from these eight large investment consulting entities and using the above asset allocation targets for the Plan, the following range for assumptions was developed, net of investment and administrative expenses.

The following analysis assumes an inflation assumption of 2.50%, which is the recommended inflation rate assumption from the prior section of this report.

Investment Consultant (1)	Investment Consultant Expected Nominal Return (2)	Investment Consultant Inflation Assumption (3)	Expected Real Return (2)–(3) (4)	Actuary Inflation Assumption (5)	Expected Nominal Return (4)+(5) (6)	Plan Incurred Administrative Expenses (7)	Expected Nominal Return Net of Expenses (6)-(7) (8)
1	5.83%	2.20%	3.63%	2.50%	6.13%	0.25%	5.88%
2	6.14%	2.00%	4.14%	2.50%	6.64%	0.25%	6.39%
3	6.85%	2.50%	4.35%	2.50%	6.85%	0.25%	6.60%
4	6.74%	2.26%	4.48%	2.50%	6.98%	0.25%	6.73%
5	7.04%	2.50%	4.54%	2.50%	7.04%	0.25%	6.79%
6	7.02%	2.25%	4.77%	2.50%	7.27%	0.25%	7.02%
7	7.28%	2.21%	5.06%	2.50%	7.56%	0.25%	7.31%
8	7.68%	2.25%	5.43%	2.50%	7.93%	0.25%	7.68%
Average	**6.82%**	**2.27%**	**4.55%**	**2.50%**	**7.05%**	**0.25%**	**6.80%**

We have determined for each firm the expected nominal return rate, then subtracted that firm's expected inflation to arrive at their expected real return in col. (4). Then we added 2.50% for the plan's inflation assumption and 0.25% for expenses to get the expected nominal return, net of administrative and investment expenses. As the table shows, the average net one-year real return of the seven firms is 4.55% and the average expected nominal return net of expenses is 6.80%, compared to the plan's assumptions of 4.50% and 7.125%, respectively.

Expected volatility plays a key role in building future return expectations. For example, no volatility over a four-year period, with a return of exactly 8% in each of those four years will show a return of 8%. However, a four-year return pattern of 4%, 12%, 4%, 12% will return only 7.926%. The increasing volatility decreases the long-term actual return.

In addition to examining the expected one-year return, it is important to review anticipated volatility of the investment portfolio and understand the range of long-term net return that could be expected to be produced by the investment portfolio. Therefore, the following table provides the 40th, 50th, and 60th percentiles of the 20-year geometric average of the expected nominal return, net of investment expenses.

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return 40th	50th	60th	Probability of exceeding 7.125%*
(1)	(2)	(3)	(4)	(5)
1	4.49%	5.18%	5.87%	23.8%
2	5.33%	5.90%	6.48%	29.6%
3	5.21%	5.90%	6.59%	32.7%
4	5.70%	6.26%	6.83%	35.0%
5	5.42%	6.10%	6.79%	35.3%
6	5.63%	6.32%	7.01%	38.4%
7	5.86%	6.57%	7.28%	42.2%
8	6.72%	7.26%	7.80%	52.5%
Average	**5.55%**	**6.19%**	**6.83%**	**36.2%**

**Plan's current return assumption net of expenses.*

Finally, the current investment consultant for SLOCPT, Verus Associates, has calculated an expected 10-year return of 6.0%.

Recommendation

Based on all of this information, we believe a reasonable investment return assumption range is between 6.25 % and 7.00%. The recommendation to the Board is to retain the real rate of return assumption of 4.50% but to decrease the investment return assumption based on the recommended decrease in the inflation assumption. Therefore, the recommendation to the Board is to decrease the investment return assumption from 7.125% to 7.00% net of investment and administrative expenses.

Salary increase rates

The current salary increase rates assumed for the valuation vary by service. The assumed increase rates range from 8.125% for new members to 2.875% for members with eight or more years of service.

Generally, the salary scale assumption consists of a wage inflation assumption that represents the increases for long-service employees plus a component for merit and promotion increases for members early in their career. Historically, wage inflation usually exceeds price inflation. This is because wage inflation is in theory the result of (a) price inflation, and (b) productivity gains being passed through to wages. Since 1951, wage inflation has been about 1.00% a year larger than price inflation but has been trending down in recent years.

Salary increases for governmental employees can vary significantly from year to year, especially for groups such as SLOCPT where many members participate in unions and are subject to labor-negotiated contracts. Our experience across many governmental plans shows several occasions in which salary increases will be low for a period of several years followed by a significant increase in one year, for instance when a new contract goes into effect. Therefore, for this assumption in particular, we sometimes will also look at data over a longer period in establishing our assumptions. For this analysis, we also looked at a ten-year period but ultimately based the conclusions on the five-year analysis.

Wage Inflation

Salary increases for longer-service employees are almost entirely driven by wage inflation. Many of the factors that result in pay increases are largely inapplicable or have diminished importance for longer-service employees. Thus, longer service employees' wages are assumed to grow at the overall rate of wage inflation, which is currently assumed 2.875% (2.625% price inflation plus 0.25% productivity increases). Actual experience observed in the study indicates productivity increases of about 0.47% above the observed price inflation over the last five years. Since we recommended a decrease to the price inflation assumption and productivity increases have been decreasing, we recommend a decrease to the wage inflation assumption from 2.875% to 2.75% based on the recommended decrease in the inflation assumption.

Merit and Promotion

Salary increases for shorter-service employees typically include wage inflation and a component for merit and promotion increases. The current assumption includes merit increases during the first seven years of employment of up to 5.25% above wage inflation. Data observed in the study indicate merit increases were generally in line with the current assumptions, as shown below:

Service Index Index	Actual Merit Increase	Expected Merit Increase
1	6.45%	5.25%
2	6.85%	5.00%
3	6.68%	4.00%
4	5.42%	3.00%
5	3.70%	2.00%
6	2.31%	1.00%
7	1.02%	0.50%
>7	0.43%	0.00%

For example, active members with one year of service received an average merit increase of 6.45% compared to our current assumption of 5.25%. And merit increases for member with seven years of service were 1.02% compared to the assumption of 0.50%. The increases for members with one to four years of service are slightly higher than the current assumption but the ten-year data showed slightly smaller differences. We have noticed an upward trend in merit rates, but it has not been sufficient to justify a change. The actual increases for members with five to seven years of service were generally in line with the current assumptions. Furthermore, there may be some salary pressures in the short term that may keep future increases at a minimum. Therefore, we recommend no change to the assumption regarding merit increases for the first seven years.

Payroll growth rate

The salary increase rates discussed above are assumptions applied to individuals. These rates are used in projecting future benefits. A separate payroll growth assumption, currently 3.375% is used in determining the charge needed to amortize the unfunded actuarial accrued liability. The amortization payments are calculated to be a level percentage of payroll, so as payroll increases over time, these charges also increase. The amortization payment is dependent on the rate at which payroll is assumed to increase.

Payroll can grow at a rate different from the average pay increase for individual members. There are two reasons for this. First, when older, longer-service members terminate, retire or die, they are generally replaced with new members who have a lower salary. Because of this, in most populations that are not growing in size, the growth in total payroll will be smaller than the average pay increase for members. Second, payroll can grow due to an increase in the size of the group. We recommend a decrease in the payroll growth assumption to 2.75%. This decrease is represents the decrease in the wage inflation assumption and the underlying inflation assumption.

DEMOGRAPHIC ASSUMPTIONS

As previously mentioned, actuaries are guided by the Actuarial Standards of Practice (ASOP) adopted by the Actuarial Standards Board (ASB). One of these standards is ASOP No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations. This standard provides guidance to actuaries giving advice on selecting noneconomic assumptions for measuring obligations under defined benefit plans. We believe the recommended assumptions in this report were developed in compliance with this standard.

Post-retirement mortality rates

When choosing an appropriate mortality assumption, actuaries typically use standard mortality tables, unlike when choosing other demographic assumptions. They may choose to adjust these standard mortality tables, however, to reflect various characteristics of the covered group, and to provide for expectations of future mortality improvement (both up to and after the measurement date). If the plan population has sufficient credibility to justify its own mortality table, then the use of such a table also could be appropriate. Factors that may be considered in selecting and/or adjusting a mortality table include the demographics of the covered group, the size of the group and the statistical credibility of its experience, and future mortality improvement.

The mortality table currently being used for non-disabled retirees and beneficiaries receiving benefits is a standard table published by the Society of Actuaries (SOA) called the RP-2014 Combined Mortality table, a 105% multiplier, and a modified projection scale of MP-2015. This type of table (or series of tables) is called generational mortality. By doing this, future mortality rates will be projected to continually decrease each year in the future. Therefore, the life expectancy at age 60 for someone reaching 60 now will not be as long as the life expectancy for someone reaching 60 in 2020, and her life expectancy will not be as long as someone reaching 60 in 2040, etc. The table has separate rates for males and females.

The issue of future mortality improvement is one that the governing bodies of our profession have recently become more concerned about. This has resulted in recent changes to the relevant Actuarial Standard of Practice, ASOP 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations. The standard now requires pension actuaries to make and disclose an assumption as to expected mortality improvement after the valuation date. In particular, the Internal Revenue Service now requires the use of generational mortality for plans in the private sector that are covered under the provisions of the Pension Protection Act of 2006 (PPA).

The generational improvements are currently modelled by using a modified MP-2015 scale. Scale MP-2015 has been updated twice by the SOA publishing MP-2016 and MP-2017. Both the new projection scales have dampened the expect increase in future mortality improvements.

There were 79 deaths among the male retirees and 120 deaths among female retirees during the last five years. (These figures exclude deaths among beneficiaries and disabled retirees.) Based on the current tables, we expected 72 and 129 deaths respectively. This produced A/E ratios of 110% for males and 93% for females. Unlike a static mortality table where an A/E ratio between 110% and 120% is generally desired to allow for a margin, an A/E ratio of 100% is desirable when using generational mortality because the margin is built into future mortality improvement rates. Therefore, we recommend no change to the RP-2014 Healthy Annuitant tables, with a white-collar adjustment; however, we do recommend using the MP-2017 table for the projection scale.

The following tables illustrate the impact of future generational improvements under the current assumption if we assume the same set of exposures and actual deaths for the next five years.

Post-Retirement Mortality (non-disabled) – Males					
RP-2014 White Collar with Modified Scale MP-2015					
		Based on last 5 years		**Based on next 5 years***	
Age	Actual deaths	Expected deaths	A/E ratio	Expected deaths	A/E ratio
50 - 54	0	1	0%	1	0%
55 - 59	3	2	150%	2	158%
60 - 64	4	6	70%	6	73%
65 - 69	12	11	108%	11	114%
70 - 74	11	10	106%	10	112%
75 - 79	8	9	93%	8	100%
80 - 84	9	11	82%	10	88%
85 - 89	22	13	165%	13	176%
90 and	10	9	110%	9	116%
Totals	**79**	**72**	**110%**	**68**	**117%**

* Assumed based on the same group of exposures and actual deaths

Post-Retirement Mortality (non-disabled) – Females					
RP-2014 White Collar with Modified Scale MP-2015					
		Based on last 5 years		**Based on next 5 years***	
Age	Actual deaths	Expected deaths	A/E ratio	Expected deaths	A/E ratio
50 - 54	2	0	500%	0	667%
55 - 59	2	3	80%	2	83%
60 - 64	9	8	120%	7	127%
65 - 69	12	15	81%	14	86%
70 - 74	15	15	97%	14	104%
75 - 79	8	14	56%	13	60%
80 - 84	17	16	104%	16	110%
85 - 89	23	22	105%	21	112%
90 and	32	36	89%	34	94%
Totals	**120**	**129**	**93%**	**122**	**99%**

* Assumed based on the same group of exposures and actual deaths

Disabled mortality rates

This is a minor assumption, and it has little impact on the total plan liabilities. There were 9 male deaths and 5 female deaths among the disabled retirees during the five-year study period. This produced A/E ratios of 83% and 104% respectively. The current assumption is a generational table using the standard RP-2014 Disabled Mortality Table, with MP-2015 modified projection scale. For similar reasons as discussed for the post-retirement assumption, the modified projection scale is no longer appropriate and therefore we recommend changing the assumptions scale to MP-2017. The results of this analysis are shown below:

Disability Mortality – Males			
		RP-2014 Disabled with Modified Scale MP-2015	
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	1	0%
55 - 59	0	2	0%
60 - 64	2	1	174%
65 - 69	3	2	158%
70 - 74	3	1	252%
75 - 79	0	1	0%
80 - 84	0	1	0%
85 - 89	1	0	238%
90 and over	0	1	0%
Totals	**9**	**11**	**83%**

Disability Mortality – Females			
		RP-2014 Disabled with Modified Scale MP-2015	
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	0	0%
55 - 59	1	1	93%
60 - 64	2	1	177%
65 - 69	1	1	133%
70 - 74	1	1	130%
75 - 79	0	0	0%
80 - 84	0	0	0%
85 - 89	0	0	0%
90 and over	0	0	0%
Totals	**5**	**5**	**104%**

Active mortality rates

A separate mortality table is used for active members. The results of this analysis are shown below:

		RP-2014 with Scale MP-2015	
	Actual Deaths	Expected Deaths	A/E ratio
Males	4	10	40%
Females	2	4	50%
Total	**6**	**14**	**43%**

The current assumption is a static table based on the standard RP-2014 Employee Mortality Tables, with generational improvements using scale MP-2015, setback one year with a 105% multiplier for males, and setback two years with a 50% multiplier for females, applied to RP-2014. Since the counts are so small and the credibility of actual experience is not statistically significant, we recommend no change to the table, but we recommend updating the projection scale to MP-2017.

Disability rates

Disability is an assumption with a minor impact on the liabilities of the trust. The A/E ratio on a combined basis for Miscellaneous and Probation members (combined since these are all assumed to be non-duty disabilities) was 88% and 80% for Safety members (assumed to be all duty-related). This assumption is based on actual plan experience instead of a standard table since experience can differ significantly for each population based on various factors such as occupation, local culture, plan requirements for meeting the definition of disability, etc. The Board adopted significant decreases to this assumption as of the 2012 experience study and we recommend no new changes to this assumption. The results of this analysis are shown below:

		Current Assumption	
	Actual Disabilities	Expected Disabilities	A/E ratio
Miscellaneous	6	8	75%
Probation	1	0	N/A
Safety	4	5	80%

Retirement rates

Retirement rates vary by age and for this assumption A/E ratios under 100% are conservative (fewer actual retirements generally leads to a retirement gain for the Plan). There were 508 retirements during the five-year period for Miscellaneous members, 18 retirements for Probation members, and 71 retirements for Safety members. This includes only members who retired from active status. It excludes those who were inactive for over a year before retiring.

The analysis shows A/E ratios of 93% for Miscellaneous members, 129% for Probation members, and 163% for Safety members. In the last study, the A/E was 89% for Miscellaneous, 147% for Probation, and 138% for Safety. The Board adopted changes to this assumption as of the 2012 experience study (decrease Miscellaneous rates and increase Probation and Safety rates). The results of the current analysis are shown below:

Retirement (Current Assumption)*									
	Miscellaneous			Probation			Safety		
Age	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 50	0	0	N/A	0	0.0	N/A	0	0.0	N/A
50	8	11	75%	2	1.3	154%	16	11.4	140%
51	3	11	27%	0	1.4	0%	5	5.7	88%
52	8	11	71%	1	1.4	71%	7	4.1	171%
53	6	12	51%	1	1.1	91%	6	3.9	154%
54	8	12	67%	3	0.8	375%	7	4.1	171%
55	12	19	65%	4	0.7	571%	10	4.3	233%
56	25	20	126%	1	0.5	200%	6	2.3	261%
57	16	27	60%	0	0.6	0%	6	1.7	353%
58	23	26	89%	1	0.7	143%	0	1.1	0%
59	36	26	140%	0	0.6	0%	2	1.6	125%
60	38	32	120%	1	0.6	167%	3	1.3	231%
61	45	29	158%	1	0.3	333%	1	0.6	167%
62	67	51	132%	1	0.6	167%	1	0.4	250%
63	41	41	100%	0	0.6	0%	0	0.0	N/A
64	32	33	96%	0	0.8	0%	0	0.0	N/A
65	51	60	86%	1	1.6	63%	1	1.0	100%
66	36	27	135%	1	0.4	250%	0	0.0	N/A
67	18	14	129%	0	0.0	N/A	0	0.0	N/A
68	17	11	157%	0	0.0	N/A	0	0.0	N/A
69	6	6	100%	0	0.0	N/A	0	0.0	N/A
70	4	26	15%	0	0.0	N/A	0	0.0	N/A
Over 70	8	47	17%	0	0.0	N/A	0	0.0	N/A
Total	**508**	**549**	**93%**	**18**	**14.0**	**129%**	**71**	**43.5**	**163%**

The experience reflects retirements only within Tier 1 (depending on the bargaining unit of each member, Miscellaneous members began entering Tier 2 as early as December 2010 and Safety members began entering Tier 2 as early as September 2011). Since Tier 2 is still relatively new, there is virtually no experience yet on which to base a retirement assumption. Tier 3 was also recently implemented for all members hired after January 1, 2013. Although there was no experience available yet, the retirement assumption for Tier 2 members was changed slightly as of the last study to match the Tier 3 rates reflecting the lower value of their benefits. We continue to believe this is appropriate and we recommend no change to the retirement assumption for Tier 2 and Tier 3 members.

The data shows the expected retirements were greater than the number of actual retirements, but we believe many members may have been delaying retirement recently as they worked to reestablish their retirement nest egg. Stagnant wage growth may also have contributed to this trend as the economy continued to recover from the recession. For these reasons, we are recommending no change in the assumed retirement rates.

We also reviewed the retirement experience of sworn Safety vs. non-sworn Safety members between the ages of 50 to 55 since the non-sworn members retire with smaller benefits at these ages. We continue to see some evidence that the sworn members are retiring at an earlier age but the counts are not statistically significant enough to recommend a separate set of rates for these two groups. We recommended no change this assumption. We will continue to monitor this pattern in the future and may recommend a change if the different retirement patterns persist.

Termination rates

Termination rates reflect members who leave for any reason other than death, disability or service retirement. They apply whether the termination is voluntary or involuntary, and whether the member takes a refund or keeps his/her account balance on deposit in the Pension Trust. The current termination rates reflect the member's age and service, and we want to continue this practice. Rates are currently broken down into three distinct subgroups:

- Rates for members who withdraw with less than five years of service and are assumed to take a refund
- Rates for members who withdraw with five or more years of service and are assumed to take a refund
- Rates for members who withdraw with five or more years of service and are assumed to leave their contributions on deposit and receive a deferred vested retirement benefit

Taken together for all three-withdrawal decrements, the current assumptions produce an A/E ratio for Miscellaneous members of 125%, for Probation members of 214%, and for Safety members of 54%. For this assumption, A/E ratios over 100% are conservative (when there are more terminations than expected, the Plan usually experiences a gain).

During the study period, the plans saw about the expected about of terminations for all members. Since the Probation and Safety use the same rate and the combined A/E is close to 100%. No change is recommended for that group. The Board adopted changes to this assumption as of the 2012 experience study but no changes were made in the 2014 experience study. We recommend no change to all three sets of assumptions again. The results are shown on the following tables:

Refunds with Less Than 5 Years of Service – Males and Females									
	Miscellaneous			Probation			Safety		
Age	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20									
20 - 24	12	8	150%	1	0	N/A	1	1	100%
25 - 29	59	54	109%	5	3	167%	2	5	40%
30 - 34	69	66	105%	5	2	250%	1	4	25%
35 - 39	50	46	109%	2	1	200%	1	2	50%
40 - 44	42	25	168%	1	1	100%	1	1	100%
45 - 49	28	18	156%	1	0	N/A	0	0	N/A
50 - 54	18	16	113%	0	0	N/A	0	0	N/A
55 - 59	18	16	113%	0	0	N/A	1	0	N/A
60 and over	29	12	242%	0	0	N/A	0	0	N/A
Totals	**325**	**261**	**125%**	**15**	**7**	**214%**	**7**	**13**	**54%**

Refunds with 5 or More Years of Service – Males and Females									
	Miscellaneous			Probation			Safety		
Age	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	0	0	N/A	0	0	N/A	0	0	N/A
25 - 29	2	4	50%	0	1	0%	0	0	N/A
30 - 34	5	15	33%	1	2	50%	0	1	0%
35 - 39	5	13	38%	5	1	500%	2	1	200%
40 - 44	4	10	40%	1	1	100%	0	1	0%
45 - 49	7	5	140%	0	0	N/A	1	0	N/A
50 - 54	3	0	N/A	0	0	N/A	0	0	N/A
55 - 59	4	0	N/A	0	0	N/A	1	0	N/A
60 and over	6	0	N/A	0	0	N/A	0	0	N/A
Totals	**36**	**47**	**77%**	**7**	**5**	**140%**	**4**	**3**	**133%**

Vested Terminations – Males and Females									
	Miscellaneous			Probation			Safety		
Age	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	0	0	N/A	0	0	N/A	0	0	N/A
25 - 29	11	3	397%	1	1	183%	2	1	385%
30 - 34	23	16	145%	1	2	47%	6	2	320%
35 - 39	29	20	146%	2	2	86%	2	2	82%
40 - 44	25	25	102%	1	2	55%	4	3	136%
45 - 49	30	35	87%	0	2	0%	3	4	72%
50 - 54	21	34	63%	0	2	0%	1	0	N/A
55 - 59	16	0	N/A	0	0	N/A	0	0	N/A
60 and over	9	0	N/A	0	0	N/A	0	0	N/A
Totals	**164**	**131**	**125%**	**5**	**11**	**47%**	**18**	**12**	**151%**

Most of these results are consistent with our expectation that there have been fewer terminations during this period as the economy begins to recover. We recommend no changes to the termination assumption for any of the groups.

Aggregate Terminations – Males and Females									
	Miscellaneous			Probation			Safety		
Age	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	12	8	150%	1	0	N/A	1	1	100%
25 - 29	72	61	118%	6	5	132%	4	6	72%
30 - 34	97	97	100%	7	6	114%	7	7	102%
35 - 39	84	79	107%	9	4	208%	5	5	92%
40 - 44	71	60	119%	3	4	78%	5	5	101%
45 - 49	65	58	113%	1	2	51%	4	4	96%
50 - 54	42	50	85%	0	2	0%	1	0	N/A
55 - 59	38	16	238%	0	0	N/A	2	0	N/A
60 and over	44	12	367%	0	0	N/A	0	0	N/A
Totals	**525**	**439**	**120%**	**27**	**23**	**120%**	**29**	**28**	**104%**

Other assumptions and refunds

There are other assumptions made in the course of a valuation, such as the percentage of members who are married, the age difference between husbands and wives, the retirement age for vested terminations, the number of vested terminations who become Reserve members vs Reciprocal members, decrement timing, amortization period, etc. We reviewed these, and believe the current assumptions are generally realistic or conservative. We recommend no changes to the other assumptions.

Actuarial methods

We have reviewed the actuarial cost method being used—the Entry Age Normal cost method—and we continue to believe that this is the method of choice for this plan, since this method usually does the best job of keeping costs level as a percentage of payroll. We also believe the method used to determine the actuarial value of assets (AVA) is appropriate, since it phases in the recognition of asset gains and losses over a five-year period (with the exception of the 2008 asset loss that was smoothed over a ten year period), and reduces fluctuations in the funding period and the contribution rate. Both of these methods are very common in the public sector retirement community and meet the Model practices definition under the California Actuarial Advisory Panel (CAAP) Guidelines that were issued in March 2013. Therefore, we recommend no change to these methods.

The current funding policy is a level-percent-of-pay amortization using a closed period of 30 years from January 1, 2010 (22 years remaining as of the January 1, 2018 valuation). The level-percent-of-pay is a CAAP Model practice and the single fixed period is deemed a CAAP Acceptable practice. To meet their Model practice, CAAP recommends using multiple layers of amortization with a new layer created each year to amortize any new unfunded or surplus liability over a 20 year closed period. We recommend no change in the amortization policy at this time but recommend that the change be considered once the 2008 asset loss is fully recognized. At that point, the current amortization period will be down to 21 years and any increased volatility from the new policy would be insignificant. In fact, once the current period drops to under 20 years, the new policy would start to decrease volatility as the new layers are amortized over longer periods.

SECTION IV

SUMMARY AND ACTUARIAL IMPACT OF RECOMMENDATIONS

Summary of Recommendations

We recommend changes to the following assumptions:

- Decrease the assumed rate of investment return from 7.125% to 7.00%
- Decrease inflation from 2.625% to 2.50%
- Decrease the cost-of-living assumption for Tier 1 members from 2.625% to 2.50%
- Decrease the wage inflation component of the salary increase assumption from 2.875% to 2.75% (0.125% decrease in inflation)
- Decrease the total payroll growth assumption from 3.375% to 2.75%
- Update all mortality projection scales based on the latest SOA tables

The total impact of these changes is shown below based on the January 1, 2018 valuation results. The required rate expected to increase 3.00%, of which 1.73% is due to the assumption changes. Results shown here are based on the most recent census and asset data as of January 1, 2018. The January 1, 2018 results are calculated under both the old assumption set and the newly proposed assumption set.

	New Assumptions	Baseline	Impact
	(1)	(2)	(3)
Actuarial Liabilities and Funded Ratio			
• Actuarial Accrued Liability (000s)			
- Active Members	$ 627,112	$ 621,630	$ 5,482
- Retirees and Beneficiaries	1,252,333	1,249,985	2,348
- Inactive, Vested	66,235	65,558	677
- Total	$1,945,681	$1,937,173	$ 8,508
• Actuarial Value of Assets (000s)	$1,328,750	$1,328,750	$ -
• Unfunded Actuarial Accrued Liability (UAAL) (000s)	$ 616,931	$ 608,423	$ 8,508
• Funded Ratio	68.3%	68.6%	-0.3%
Annual Required Contribution			
• Total Normal Cost	21.15%	20.68%	0.47%
• Member Contributions	16.41%	16.41%	0.00%
• County Normal Cost	4.74%	4.27%	0.47%
• Amortization Payment	21.53%	20.27%	1.26%
• Total County Cost (ARC)	26.27%	24.54%	1.73%
• Total Combined ARC	42.68%	40.95%	1.73%
Impact on Charged Rate			
• Total Charged Rate*	39.68%	39.68%	0.00%
• Total Required Rate	42.68%	40.95%	1.73%
• Rate Difference	3.00%	1.27%	1.73%

** Includes 2.38% increase to charged rate effective January 1, 2018*

The impact of the individual changes is shown in the table below. All of the assumptions interplay with each other, therefore they are not independent and the impacts shown should be considered as estimates only since the order in which the assumptions are changed can affect the relative impacts.

	Valuation Results as of January 1, 2018											
	UAAL ($ in 000s)		Funded Ratio		County Normal Cost %		Amort %		County ARC %		Total ARC %	
Baseline	$ 608,423		68.6%		4.27%		20.27%		24.54%		40.95%	
Assumption Updated:	Change	Total	Change	Total	Change	Total	Change	Total	Change	Total	Change	Total
Mortality	$ 8,539	$ 616,962	-0.3%	68.3%	0.32%	4.59%	0.28%	20.55%	0.60%	25.14%	0.61%	41.56%
Economic	(32)	616,930	0.0%	68.3%	0.15%	4.74%	0.01%	20.56%	0.16%	25.30%	0.15%	41.71%
Payroll Growth	-	616,930	0.0%	68.3%	0.00%	4.74%	0.97%	21.53%	0.97%	26.27%	0.97%	42.68%
Using Recommended Assumptions	$ 616,930		68.30%		4.74%		21.53%		26.27%		42.68%	

In addition to updating the assumptions used in the actuarial valuations (beginning with the valuation as of January 1, 2018), it is our recommendation that all actuarial factors be updated to reflect these new assumptions including benefit option factors and military service purchase programs.

SECTION IV

SUMMARY OF ASSUMPTIONS AND METHODS INCORPORATING THE RECOMMENDED ASSUMPTIONS

Summary of Assumptions and Methods
Incorporating the Recommended Assumptions

I. Valuation Date

The valuation date is December 31st of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an individual entry age actuarial cost method having the following characteristics:

(i) the annual normal costs for each active member, payable from the date of entry into the system to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

<u>Deferred and Reciprocal Member Actuarial Accrued Liability</u>. Data provided includes date of birth, service credit, reciprocal status, and hourly pay rates at termination. The estimated benefit was used to compute the liabilities for reserve members. For reciprocal members, the estimated benefits were projected with 2.75% inflation from their date of termination to their assumed retirement date to compute those liabilities.

<u>Amortization of Unfunded Actuarial Accrued Liabilities</u> is done as a level percent of payroll over a closed 30 year period (22 years as of January 1, 2018) for funding computations.

III. Actuarial Value of Assets

The funding value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. The asset losses that occurred in 2008 are smoothed over a ten-year period with recognition accelerated if a positive contribution margin develops. Expected investment income is determined using the assumed investment return rate and the actuarial value of assets (adjusted for receipts and disbursements during the year). Returns are measured net of all administrative expenses.

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 7.00%, compounded annually, net of administrative expenses. This is made up of a 2.50% inflation rate and a 4.50% real rate of return.

2. Salary increase rate: Inflation rate of 2.50% plus productivity increase rate of 0.25% plus an additional service-related merit component as shown below:

% Merit Increases in Salaries Next Year		% Total Increases in Salaries Next Year	
Service Index	Rate	Service Index	Rate
1	5.25%	1	8.00%
2	5.00%	2	7.75%
3	4.00%	3	6.75%
4	3.00%	4	5.75%
5	2.00%	5	4.75%
6	1.00%	6	3.75%
7	0.50%	7	3.25%
8 +	0.00%	8 +	2.75%

3. Cost-of-living increases:

   Assumed to increase the full 2.50% each year (2% for Tier 2 and Tier 3)

4. Payroll growth:

   2.75% per year (Inflation 2.50%, productivity of 0.25%)

5. Increase to maximum earnings limit for Tier 3 members:

   2.50% per year

6. Contribution accumulation: Contributions are credited with 6.125% interest, compounded biweekly.

B. <u>Demographic Assumptions</u>

1. Mortality projection – The projection calculation for MP-2017

2. Mortality after termination or retirement -

   a. Healthy males – RP-2014 with generational mortality improvements using modified scale MP-2017, and a 105% multiplier

   b. Healthy females - RP-2014 with generational mortality improvements using modified scale MP-2017, and a 115% multiplier

   See sample rates below:

	% Dying Within Next Year Retirees	
Ages	**Men**	**Women**
45	0.19%	0.18%
50	0.28%	0.24%
55	0.41%	0.32%
60	0.55%	0.45%
65	0.80%	0.75%
70	1.29%	1.19%
75	2.19%	1.98%
80	3.85%	3.45%
85	7.07%	6.23%

3. Mortality rates of active members – RP-2014 Employee Mortality Tables, with generational improvements using scale MP-2017, setback one year with a 105% multiplier for males, and setback two years with a 50% multiplier for females, applied to RP-2014, as shown below for selected ages:

Ages	% of Active Members Dying Within Next Year	
	Men	Women
30	0.05%	0.01%
35	0.06%	0.01%
40	0.06%	0.02%
45	0.09%	0.03%
50	0.16%	0.04%
55	0.26%	0.07%
60	0.45%	0.11%
65	0.78%	0.15%
70	1.30%	0.25%

4. Disability mortality after termination or retirement- RP-2014 Disabled Mortality Tables, with generational improvements using scale MP-2017, with setback of one year and a 100% multiplier for males, and setback one year with a 75% multiplier for females, applied to RP-2014, as shown below for selected ages:

Ages	% of Disabled Members Dying Within Next Year	
	Men	Women
30	0.43%	0.15%
35	0.81%	0.30%
40	1.21%	0.46%
45	1.57%	0.64%
50	1.92%	0.84%
55	2.26%	1.06%
60	2.61%	1.25%
65	3.06%	1.48%
70	3.78%	1.93%

5. Retirement –

   a. As shown below for Tier 1 members for selected ages (rates are only applied to members eligible for retirement):

Age	Percent of Eligible Active Members Retiring Within Next Year		
	Miscellaneous	**Probation**	**Safety**
50	4.0%	7.5%	20.0%
51	4.0%	7.5%	14.0%
52	4.0%	7.5%	10.0%
53	4.0%	7.5%	10.0%
54	4.0%	7.5%	12.0%
55	6.0%	10.0%	15.0%
56	6.0%	12.0%	12.0%
57	8.0%	12.0%	12.0%
58	8.0%	12.0%	12.0%
59	8.0%	12.0%	18.0%
60	10.0%	15.0%	25.0%
61	10.0%	15.0%	30.0%
62	20.0%	20.0%	40.0%
63	20.0%	20.0%	50.0%
64	20.0%	20.0%	75.0%
65	40.0%	40.0%	100.0%
66	30.0%	20.0%	
67	25.0%	20.0%	
68	25.0%	40.0%	
69	25.0%	50.0%	
70	100.0%	100.0%	

Current Reciprocal and Reserve members are assumed to retire at the later of age 60 (age 55 for Tier 1 Reserve Members) or attained age.

b. As shown below for Tier 2 and future Tier 3 members for selected ages (rates are only applied to members eligible for retirement):

Age	Percent of Eligible Active Members Retiring Within Next Year		
	Miscellaneous	Probation	Safety
50	3.0%	7.5%	9.0%
51	3.0%	7.5%	9.0%
52	3.0%	7.5%	10.0%
53	3.0%	7.5%	10.0%
54	3.0%	7.5%	10.0%
55	6.0%	7.5%	10.0%
56	6.0%	7.5%	10.0%
57	6.0%	7.5%	10.0%
58	6.0%	9.0%	11.0%
59	6.0%	9.0%	15.0%
60	8.0%	10.0%	20.0%
61	8.0%	10.0%	25.0%
62	20.0%	20.0%	30.0%
63	20.0%	20.0%	40.0%
64	20.0%	20.0%	60.0%
65	40.0%	40.0%	100.0%
66	30.0%	20.0%	
67	25.0%	20.0%	
68	25.0%	40.0%	
69	25.0%	50.0%	
70	100.0%	100.0%	

6. Rates of separation from active membership (for causes other than death or retirement) - As shown below for selected ages:

Sample Ages	% of Active Members Separating Within Next Year Miscellaneous Members Disability	Withdrawal < 5 years	Withdrawal >= 5 years	Vested Termination
20	0.00%	12.50%	8.50%	0.00%
25	0.00%	11.00%	7.75%	3.50%
30	0.01%	9.50%	3.75%	4.00%
35	0.04%	8.00%	2.00%	3.50%
40	0.06%	7.00%	1.25%	3.00%
45	0.09%	6.00%	0.50%	3.00%
50	0.11%	6.00%	0.00%	2.50%
55	0.14%	6.00%	0.00%	2.00%
60	0.16%	6.00%	0.00%	0.00%
64	0.18%	6.00%	0.00%	0.00%
GRS Table No.	762			1188

Sample Ages	% of Active Members Separating Within Next Year Safety and Probation Members Disability	Withdrawal < 5 years	Withdrawal >= 5 years	Vested Termination
20	0.00%	5.20%	1.50%	3.00%
25	0.03%	5.00%	1.50%	2.00%
30	0.13%	4.70%	1.00%	1.50%
35	0.23%	4.00%	0.50%	1.50%
40	0.33%	3.50%	0.50%	1.50%
45	0.43%	2.50%	0.00%	1.50%
50	0.53%	1.50%	0.00%	1.50%
55	0.63%	0.00%	0.00%	0.00%
60	0.73%	0.00%	0.00%	0.00%
64	0.81%	0.00%	0.00%	0.00%
GRS Table No.	761			1189

Vested termination rates and disability rates are applied after the member is eligible for reduced or unreduced retirement benefits. 100% of the Safety disabilities and 0% of the Miscellaneous and Probation disabilities are duty-related.

40% of Vested Terminations are assumed to be Reciprocal.

Based on Member Contribution Totals provided by Pension Trust, we are assuming that 10% of members' contribution account balances are for supplemental/additional benefits.

C. Other Assumptions

Member Refunds. All or part of the employee contribution rate is subject to potential "Pick Up" by the employer. Our understanding is that “Pick Ups”, and related interest, are subject to refund.

Deferral Age. The assumed retirement age for future Reserve and Reciprocal members is age 57.

Active Death. 100% of active deaths are assumed to be duty related.

Survivor Benefits. Marital status and spouses' census data were imputed with respect to active and deferred members.

Marital Status. 80% of men and 60% of women were assumed married at retirement.

Spouse Census. Women were assumed to be 3 years younger than men for active employees.

Disability Benefits. Benefits are not assumed to be offset by Social Security benefits.

IRC Section 415 Limits. We are assuming that IRC Section 415 limits, although applicable to this plan, will not impact any individual benefits.

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San Luis Obispo County Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 8: Actuarial Valuation – Actuarial Assumptions Approval

Recommendation:

Following the receipt and discussion of the Pension Trust actuary's findings from the 2018 Actuarial Experience Study (Item 7 on the agenda), direct the actuary to use the following changes in Actuarial Assumptions in the preparation of the 2018 annual Actuarial Valuation -

	2016 & 2017 Valuations	2018 Valuation
Inflation Real Rate of Return **Earnings Assumption**	**2.625%** 4.500% **7.125%**	**2.500%** 4.500% **7.000%**
Retiree COLAs Tier 1 Tiers 2 & 3	 **2.625%** 2.000%	 **2.500%** 2.000%
Salary Growth	**2.875% + merit**	**2.750% + merit**
Payroll Growth	**3.375%** Inflation (2.625%) +0.25% productivity +0.50% geographic diff.	**2.750%** Inflation (2.500%) +0.25% productivity +0.00% geographic diff.

	2016 & 2017 Valuations	2018 Valuation
Mortality – Post Retirement	RP 2014 & MP2015 Generational **** Adjusted by actuary to transition to full update to current mortality tables by the 2018 Experience Study***	RP 2014 base table & MP2017 projection scale (Generational mortality)
Mortality – Disability	RP 2014 (disabled) & MP2015 Generational Calibrated to actual experience	RP 2014 (disabled) base table & MP2017 projection scale (Generational mortality- Calibrated to actual experience)
Mortality – Active Service	RP 2014 & MP2015 Generational Calibrated to actual experience	RP 2014 base table & MP2017 projection scale (Generational mortality- Calibrated to actual experience)
Rates of Retirement	Misc. Tier 1 = 4% ages 51, 52, 53 Safety Tier 1 = 20% age 50 All other rates - no change	No change
Rates of Termination	Set Probation rates to match Safety	No change
Married at retirement	80% males 60% females	No change
Interest crediting rate on member accounts	6.125%	6.00%

	2016 & 2017 Valuations	2018 Valuation
All other assumptions		No change

Discussion:

It is the policy of the Pension Trust to have an annual Actuarial Valuation to set the total level of contributions necessary to fund the retirement system – the Total Combined Annually Required Contribution (Total ARC). In support of that annual Actuarial Valuation, the Pension Trust has performed a biennial Actuarial Experience Study. In these Experience Studies the actuary analyzes the trailing five years of Plan demographic and financial experience to inform the actuary on what actuarial assumptions to recommend to the Board of Trustees to use in the annual Actuarial Valuation.

It has been the policy of the Pension Trust to change major actuarial assumptions (if change is warranted) on a biennial basis in conjunction with the Actuarial Experience Study and in a coordinated manner. For example, changes in expected inflation have an impact on multiple assumptions – Earnings, Payroll Growth, Salary Growth, Retiree COLAs – so logically those changes should be made at the same time.

Based on the 2018 Experience Study, the Pension Trust's actuary recommends the changes to major assumptions noted above.

During the 2016 Experience Study and the 2016 Valuation the large impact of the update of the post-retirement mortality assumptions led to a decision to phase in the mortality updates across the 2016 and the 2018 Valuations. This phased approach was agreed to by the actuary, staff and the Board. For 2018 the actuary will apply the updated RP2014 base table and the MP2017 projection scale to determine liabilities and contribution rates based on the latest available mortality tables.

Expected Results:

As discussed in Agenda Item 7 – Experience Study, the adoption of the recommended changes if applied to the results of the preliminary 2018 Valuation are estimated to –

- **Increase the Total Combined Annually Required Contribution (Total ARC) to 42.68% of pay. When compared to the 2018 Charged Rate of pension contribution of 39.68% at 1/1/18 this leads to a 3.00% increase in aggregate contribution rates** (assuming a 1/1/18 implementation date). Note that the 2018 Charged Rate is the actual rate being collected as of 1/1/18 including the demographic shifts that take place in the active membership during the course of the year.

- Increase the Unfunded Actuarial Accrued Liability (UAAL) to $617 million for a Funded Ratio of 68.3% on an AVA basis.

The exact calculation of the change in Total ARC, its allocation to different classes (Miscellaneous, Probation, Safety), adjustments for delayed implementation of the rate change to January 1, 2019, and revised long-term projections of the Total ARC and the UAAL will be part of the 2018 Actuarial Valuation.

These results are subject to change upon final evaluation in the 2018 Actuarial Valuation to be presented at the June 25, 2018 Board of Trustees meeting.

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San Luis Obispo County
Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 9: Administrative Budget for Fiscal Year 2018-2019

Recommendation:

It is recommended that the Board of Trustees ("BoT") approve the attached Administrative Budget for FY18-19 for the SLOCPT.

Discussion:

Minor revisions have been incorporated in the proposed budget based on BoT feedback at the April 23, 2018 meeting.

The expense categories presented in the attached Proposed Administrative Budget for the FY18/19 have been updated based upon varied assumptions, prior year experiences and staff's best estimates of future events. **Overall staff believes a 6.2% decrease in the total budgeted amount when compared to the Fiscal Year 2017-2018 budget is appropriate. This represents around a $180,000 decrease compared to prior year from $2.91 million to $2.73 million.**

Staff's basis for components of this change are further detailed in the sections bellow. This proposed amount represents 0.20% of the total unaudited Net Position of SLOCPT as of December 31, 2017.

- **Investment Expense (custody & consultant) –** Expense includes Investment Consultant (Verus) and Custodian Bank (JP Morgan) fees (does not include Investment Management fees) which are based on contracts and largely determined by quarterly market values of investment assets. Prediction is based on the unaudited market value of investment assets as of 12/31/2017, adding the assumption of a 6.00% investment return that was taken from Verus' Capital Market Expectations report presented earlier this year. The budget for investment consulting with Verus includes a proposed fee reduction from Verus that will be addressed with the Board at the May 2018 meeting.

- **Personnel Services –** (see Attachment B) Includes all expenses related to SLOCPT's staff. Assumes the following: 1) 3% increase in salaries for FY18-19 to accommodate possible County adopted increases, 2) payroll tax rates will stay consistent with 2018 rates currently in place, 3) cafeteria benefit of $11,700 annually per eligible employee (benchmarked to County positions in Bargain Units 7 & 11), 4) employer pension rate increase of 1.5% effective with the pay period that includes 12/31/2018, and 5) applicable salary increases and promotions for staff members determined to be eligible based on annual review cycles. **The $120,100 decrease in budgeted expense is consistent with the previously Board approved staffing changes adopted in February 2018.**

- **Professional Services –**

  - <u>Accounting & Auditing</u>: Based on quoted price from 2013 engagement letter with Brown Armstrong (SLOCPT's annual financial statement audit firm) and increased based on expectation of new 5 year engagement. The 2017 Audit is the last of the current 5 year engagement letter with Brown Armstrong. Staff will be discussing with the Board about continuing with the current auditor or issuing an RFP later in the year.

  - <u>Actuarial</u>: Based on 2018 engagement letter with Gabriel, Roeder, Smith (SLOCPT's Actuary). Also includes estimate of expected costs relating to additional Actuarial services performed throughout the year. The decrease in expense is attributable to the lack of associated Actuarial Audit and Experience Study costs, that are expected, due to their biennium and lustrum nature respectively.

  - <u>Legal</u>: Based on General Counsel Retainer and legal consultation relating to investment contracts, taxes and disability hearings. Budgeted legal expenses have been reduced by $25,000 with the dismissal of pending litigation regarding contribution rate increase allocation. Future unforeseen legal expense will be handled with either a Board approved budget amendment or the use of contingency funds.

  - <u>Medical Evaluations – Disabilities</u>: Assumes costs associated with medical review services to be performed by MMRO.

  - <u>Human Resources Consulting</u>: Based on estimated costs associated with services provided by the County's Human Resources Department.

  - <u>Information Technology Services</u>: Includes expenses relating to RAD software system maintenance (per contract) and County IT's services. Budgeted expense have decreased based on County supplied FY 2018-2019 Key Financials.

- Banking & Payroll: Includes estimated banking fees for SLOCPT's two banking relationships (Union Bank and Pacific Premier) and fees associated with payroll services provided by Paychex.

- Other Professional Services: Based on estimated expense for professional services not related to categories listed above.

- **Other Expenses –**

  - Trustee Election Expenses: County Clerk Recorder fees relating to annual Trustee elections. Actual cost will be lower if there is an uncontested candidacy.

  - Insurance: Includes Fiduciary, General and Cyber liability coverages. Estimate is based on current year expense plus 5%.

  - Building & Maintenance: Estimate based on current year expenses.

  - Office Expense: Expense includes general office supplies, printing and mailing services provided by ASAP Reprographics, and document destruction services provided by Docuteam. Increase attributed estimated price increases.

  - Memberships & Publications: Includes industry specific memberships and publications.

  - Postage: Estimate based on FY16/17 experience.

  - Communications: Includes cost associated with telephone services provided by County IT. Estimate is based on County supplied budget document.

  - Training & Travel: (see Attachment C) Based on current year actual costs.

  - Information Technology: Expense includes all purchases relating to tangible IT equipment. Assumes staggered four year replacement cycle for office computers.

  - Equipment: Includes expenses associated with copier lease and office furniture purchases. Decrease associated with furniture purchases in prior budget cycle.

- **Contingencies –** 5% of total budget to be used for unexpected expenses.

Attachments:

Attachment A – Proposed Administrative Budget for Fiscal Year 2018-2019

Attachment B – Proposed Staffing

Attachment C – Proposed Training & Travel

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San Luis Obispo County Pension Trust
PROPOSED ADMINISTRATIVE BUDGET:

Fiscal Year 2018-2019	FY16-17 Actual Expenses	FY17-18 Estimated Expenses	FY17-18 Adopted Budget	FY18-19 Proposed Budget	Increase/ Decrease From PY
INVESTMENT EXPENSE:					
Invest. Exp. (Custody, Consultant)	**$ 445,053**	**$ 530,000**	**$ 461,000**	**$ 481,000**	**$ 20,000**
ADMINISTRATIVE EXPENSE:					
Personnel Services	**$ 1,236,397**	**$ 1,113,000**	**$ 1,340,500**	**$ 1,220,400**	**$ (120,100)**
Professional Service					
Accounting & Auditing	62,006	61,000	61,000	65,000	4,000
Actuarial	108,292	185,000	170,000	100,000	(70,000)
Legal	213,540	256,000	231,400	220,500	(10,900)
Medical Evaluations - Disabilities	22,500	20,000	21,500	21,500	-
Human Resources Consulting	5,000	5,000	5,000	5,000	-
Information Technology Services	173,531	166,000	175,000	166,000	(9,000)
Banking and Payroll	19,912	21,000	22,500	22,500	-
Other Professional Services	4,004	3,000	2,500	2,500	-
Total Professional Services	**$ 608,785**	**$ 717,000**	**$ 688,900**	**$ 603,000**	**$ (85,900)**
Other Expenses					
Trustee Election Expenses	-	6,000	6,000	6,000	-
Insurance	116,423	119,000	123,000	126,000	3,000
Building Maintenance	30,489	29,000	33,500	31,500	(2,000)
Office Expense	18,699	20,000	27,000	28,500	1,500
Memberships & Publications	4,723	5,000	5,100	5,100	-
Postage	24,242	26,000	27,000	27,000	-
Communications	3,441	5,000	5,000	5,000	-
Training & Travel	24,303	30,000	49,000	53,500	4,500
Information Technology	4,372	4,000	4,500	4,500	-
Equipment	7,816	12,000	13,000	8,000	(5,000)
Total Other Expenses	**$ 234,508**	**$ 256,000**	**$ 293,100**	**$ 295,100**	**$ 2,000**
Contingencies	**$ -**	**$ -**	**$ 126,000**	**$ 130,000**	**$ 4,000**
TOTAL ADMINISTRATIVE	**$ 2,079,690**	**$ 2,086,000**	**$ 2,448,500**	**$ 2,248,500**	**$ (200,000)**
ADMIN. + INVESTMENT	**$ 2,524,743**	**$ 2,616,000**	**$ 2,909,500**	**$ 2,729,500**	**$ (180,000)**
Increase from Prior Year Budget				-6.2%	

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San Luis Obispo County Pension Trust
PROPOSED STAFFING:

	FY16-17 Actual	FY17-18 Amended Budget	FY17-18 Actual	FY18-19 Proposed Budget	Increase / (Decrease) From PY	Projected FY19-20	Projected FY20-21	Projected FY21-22	Projected FY22-23
Positions (FTEs):									
Executive Secretary	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Deputy Executive Secretary	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
System Coordinator	1.00	1.00	-	-	(1.00)	-	-	-	-
Retirement Programs Spec. III	1.00	1.00	1.00	1.00	-	3.00	2.00	2.00	2.00
Retirement Programs Spec. II	1.00	3.00	2.00	2.00	(1.00)	-	-	-	-
Retirement Programs Spec. I	2.00	-	-	-	-	-	-	-	-
Retirement Analyst Aide	-	-	-	-	-	-	1.00	1.00	1.00
Retirement Technician	-	-	-	1.75	1.75	2.00	2.00	2.00	2.00
Financial Accountant/Auditor I/II/III	-	-	-	-	-	0.80	0.80	0.80	0.80
Financial Accountant III	0.80	0.80	0.80	0.80	-	-	-	-	-
Financial Accountant II	-	-	-	-	-	-	-	-	-
Financial Accountant I	-	-	-	-	-	-	-	-	-
Accounting Technician	0.75	0.75	0.75	-	(0.75)	-	-	-	-
Administrative Asst. III	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Administrative Asst. II	-	-	-	-	-	-	-	-	-
Part-Time Temporary Office Asst.	0.63	1.00	0.63	1.00	-	1.00	1.00	1.00	1.00
TOTAL POSITIONS	**10.18**	**10.55**	**8.18**	**9.55**	**(1.00)**	**9.80**	**9.80**	**9.80**	**9.80**

PROPOSED SALARY & BENEFIT BENCHMARKS:

***Note: SLOCPT compensation benchmarks would be updated in concurrence with any County enacted wage adjustments (i.e. prevailing wage etc.).*

FY 17-18	Step 1	Step 2	Step 3	Step 4	Step 5	Benefits: (health, pension, other)
Executive Secretary *Subject to change per Contract Approval*	67.47	70.82	74.37	78.10	81.99	Benchmarked to County BU 7 + $450/month auto allowance (not pensionable)
Deputy Executive Secretary *80% of Executive Secretary*	53.98	56.66	59.50	62.48	65.59	Benchmarked to County BU 7
Retirement Programs Spec. III *#9663 Risk Mgmt. Analyst III*	40.92	42.97	45.12	47.38	49.75	Benchmarked to County BU 7

PROPOSED SALARY & BENEFIT BENCHMARKS: (continued)

FY 17-18	Step 1	Step 2	Step 3	Step 4	Step 5	Benefits: (health, pension, other)
Retirement Programs Spec. II *#9658 Risk Mgmt. Analyst II*	34.98	36.73	38.57	40.50	42.53	Benchmarked to County BU 7
Retirement Programs Spec. I *#9657 Risk Mgmt. Analyst I*	30.17	31.68	33.26	34.92	36.67	Benchmarked to County BU 7
Financial Accountant III *#907 Accountant III*	34.40	36.12	37.93	39.83	41.82	Benchmarked to County BU 7
Financial Accountant II *#906 Accountant II*	29.70	31.19	32.75	34.39	36.11	Benchmarked to County BU 7
Financial Accountant I *#905 Accountant I*	25.35	26.62	27.95	29.35	30.82	Benchmarked to County BU 7
Retirement Technician *#913 Accounting Technician - Conf.*	21.81	22.90	24.05	25.25	26.51	Benchmarked to County BU 11
Administrative Asst. III *#2203 Administrative Asst. III - Conf.*	18.85	19.79	20.78	21.82	22.91	Benchmarked to County BU 11
Administrative Asst. II *#2222 Administrative Asst. II - Conf.*	17.13	17.99	18.89	19.83	20.82	Benchmarked to County BU 11
Administrative Asst. I *#2221 Administrative Asst. I - Conf.*	15.54	16.32	17.14	18.00	18.90	Benchmarked to County BU 11
Part-Time Temporary Office Assistant *#911 Account Clerk*	17.12	17.98	18.88	19.82	20.81	N/A

San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:

	FY16-17 Actual	Current FY17-18 YTD	FY17-18 Amended Budget	FY18-19 Proposed Budget	Increase / (Decrease) From PY Budget
CALAPRS General Assembly					
Attendees - Board	2	2	3	3	-
Attendees - Staff	2	2	2	2	-
Total Expense	3,602	3,831	5,500	6,000	500
CALAPRS Advanced Trustee Institute (UCLA)					
Attendees - Board	2	2	1	-	(1)
Attendees - Staff	-	-	-	-	-
Total Expense	6,410	6,200	3,450	-	(3,450)
CALAPRS Trustees Training- New					
Attendees - Board	-	-	-	1	1
Attendees - Staff	-	-	-	-	-
Total Expense	181	-	-	2,800	2,800
Wharton Portfolio Concepts (new BoT members)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	-	-	-
Wharton West / IFEBP or similar seminar					
Attendees - Board	-	-	1	1	-
Attendees - Staff	-	-	1	1	-
Total Expense	-	-	9,150	9,150	-
SACRS Trustees Training- Berkeley (new)					
Attendees - Board	1	1	1	1	-
Attendees - Staff	-	-	-	1	1
Total Expense	6,538	1,096	4,150	8,300	4,150
SACRS Semi-Annual Conferences					
Attendees - Board	-	-	1	1	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	1,650	1,650	-

San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:

	FY16-17 Actual	Current FY17-18 YTD	FY17-18 Amended Budget	FY18-19 Proposed Budget	Increase / (Decrease) From PY Budget
Nossaman Fiduciaries Forum					
Attendees - Board	-	1	-	1	1
Attendees - Staff	-	-	-	-	-
Total Expense	-	887	-	1,125	1,125
CALAPRS Administrators Institute					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	1	1	1	-
Total Expense	1,348	1,406	1,925	1,950	25
CALAPRS Trustees Roundtables (2/yr)					
Attendees - Board	-	-	2	2	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	1,200	1,200	-
CALAPRS Administrators Roundtables (2/yr)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	-	2	2	-
Total Expense	306	-	1,200	1,200	-
CALAPRS Investment Officers Roundtables (2/yr)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	1	1	-
Total Expense	-	-	600	625	25
CALAPRS Attorneys Roundtables (3/yr)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	2	2	2	-
Total Expense	100	250	250	250	-
CALAPRS Operations Roundtables (4/yr)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	14	5	8	8	-
Total Expense	3,136	1,216	4,760	5,000	240

San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:

	FY16-17 Actual	Current FY17-18 YTD	FY17-18 Amended Budget	FY18-19 Proposed Budget	Increase / (Decrease) From PY Budget
CALAPRS Disability training					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	1	1	-
Total Expense	-	-	1,725	625	(1,100)
CALAPRS Overview Course (3 class series)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	2	2	2	2	-
Total Expense	1,544	2,222	2,500	2,500	-
CALAPRS - Board, Faculty, and related travel					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	3	4	4	-
Total Expense	552	1,105	1,900	1,900	-
Investment Seminars					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	2	2	-
Total Expense	-	-	3,200	3,200	-
Investment Due Diligence On-site visits (combined w/other travel if possible)					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	-	-	-
Software Training					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	2	2	-
Total Expense	-	-	4,400	4,400	-
Misc. Board and Staff Training					
Total Expense	587	724	1,440	1,625	185
Subtotal Training and Travel					
Training	14,237	10,750	19,475	20,650	1,175
Travel (air, hotel, food)	5,928.63	5,073	19,815	22,150	2,335
Mileage Reimb.	3,343	2,696	9,260	10,000	740
Misc. Travel	795	418	450	700	250
Total Training and Travel	**24,304**	**18,937**	**49,000**	**53,500**	**4,500**

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Board of Trustees

1000 Mill Street
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www.SLOPensionTrust.org

San Luis Obispo County Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

From: Carl Nelson – Executive Secretary
Amy Burke – Deputy Executive Secretary
Chris Waddell – General Counsel

Agenda Item 10: Indemnification – Authorization pursuant to Section 16.02(j) of the Retirement Plan

Recommendation:

It is recommended that the Board of Trustees ("BoT") make findings relative to and approve indemnification pursuant to Section 16.02(j) of the Retirement Plan for the following contract:

- Investment Management Agreement – TPG/TSSP Adjacent Opportunities Partners (D), L.P.

Discussion:

From 2007 until May, 2016, the Retirement Plan contained in Section 16.02(i) a blanket prohibition on the Pension Trust indemnifying any party. This prohibition became increasingly problematic in the limits it placed on the Pension Trust to enter into contracts, including those for investment management services and commercial banking. On May 10, 2016, the Retirement Plan was amended by the Board of Supervisors for certain technical and housekeeping amendments as recommended by the BoT. These Plan amendments included the following modification of Section 16.02 dealing with indemnification:

> **Article 16: Administrations and Operation – Section 16.02 excerpt –**
> …
> "(h) Except as provided in section 16.02 (j), it shall have no power to, and shall not, authorize the Pension trust to act as surety for any person or entity, or as guarantor for the debt or obligations of any person or entity. (11-20-2007)

(i) Except as provided in section 16.02 (j), It shall have no power to, and shall not, authorize the Pension Trust to indemnify any person or entity. (11-20-2007)

(j) ***Notwithstanding sections 16.02 (h) and/or 16.02(i), the Board of Trustees may authorize the Pension Trust to: 1) act as surety for; 2) act as guarantor for; or 3) indemnify any person or entity if the Board of Trustees makes all of the following findings:***

(i) Based upon the assessment of the Executive Secretary, that it is not possible to obtain comparable services at comparable costs from service providers without having to agree to a surety, guarantor, or indemnification relationship;

(ii) Based upon the assessment of the Executive Secretary, that if a surety, guarantor or indemnification relationship is required to obtain comparable services at comparable costs, such relationship is not available from another service provide under contractual provisions that would provide greater protection to the Pension Trust;

(iii) Based upon the assessment of the Executive Secretary and General Counsel, that all potential risks of loss and costs to the Pension Trust resulting from the surety, guarantor or indemnification relationship have been identified and that all available actions to minimize such risks have been considered and, where appropriate, taken;

(iv) Based upon the assessment of the General Counsel, the process used to evaluate the surety, guarantor or indemnification relationship fulfills the fiduciary duties of the members of the Board of Trustees and Pension Trust staff."

The purpose of this recommended Board of Trustees approval is to make the necessary findings relative to and approve indemnification for the Pension Trust's contingent private credit investment with the TPG/TSSP Adjacent Opportunities Partners (D), L.P. (hereinafter "TPG/TSSP Adjacent". This investment (referred to as the "TPG/TSSP TAO Contingent Fund") was previously approved by the BoT at its April 23, 2018 meeting, subject to negotiation of acceptable deal terms.

The fund documents provide for the following indemnification provisions:

1) The Subscription Documents for this investment require the Pension Trust to indemnify the General Partner, the Partnership, and all of the associated individuals and entities against any losses, liabilities, claims, damages, and expenses arising out of any failure by the Pension Trust to comply with any representation, warranty, covenant or agreement made by it in connection with the investment.
2) The Global Contingent Agreement requires that the Pension Trust indemnify, on a pro-rata basis and subject to exceptions, specified individuals and entities for claims arising out of their services to TPG/TSSP Adjacent.
3) The Global Contingent Agreement requires that the Pension Trust to indemnify the Fund, other LPs, and others with respect to any tax liabilities attributable to the Pension Trust.
4) Although not representing a direct indemnification obligation of the Pension Trust, there are separate indemnification provisions in the Fund documents that provide for the

indemnification by the Fund of specified individuals and entities in the event of claims against them arising from their services to the Fund.

(j)(i-ii): It is the assessment of the Executive Secretary that comparable investment managers with investment management agreements that do not contain indemnification provisions similar to those described above or contain indemnification provisions that provide greater protection to the Pension Trust are unavailable, and that the indemnification provisions in the TPG/TSSP Adjacent fund documents reflect normal terms in the investment management industry.

(j)(iii): The Executive Secretary and the General Counsel believe that all potential risks of loss and costs to the Pension Trust resulting from these indemnifications have been identified and that all available actions to minimize such risks have been considered and, where appropriate, taken.

(j)(iv): It is the assessment of the General Counsel that the process used to evaluate the indemnification relationship as outlined above fulfills the fiduciary duties of the members of the BoT and Pension Trust staff.

We recommend that the Board adopt the findings and approve the indemnification provisions with the service provider described above.

Respectfully Submitted,

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Board of Trustees

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San Luis Obispo, CA 93408
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www.SLOPensionTrust.org

San Luis Obispo County Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 11: Quarterly Investment Report for the 1st Quarter of 2018

Attached to this memo is the 1Q18 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.

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

PERIOD ENDING: MARCH 31, 2018

Investment Performance Review for

San Luis Obispo County Pension Trust

Agenda Item 11

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VERUSINVESTMENTS.COM

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SAN FRANCISCO 415-362-3484


Verus
PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS
2ND QUARTER 2018
Investment Landscape
Agenda Item 11

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VERUSINVESTMENTS.COM

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1st quarter summary

THE ECONOMIC CLIMATE

— The U.S. economy is expected to grow at around 2.2% in Q1. Economists expect a slightly quicker rate of growth throughout the year. We believe that this *middle-of-the-road* expansion – characterized as not too fast and not too slow – may allow the U.S. economy to continue expanding for longer than expected. ***p. 8***

— The U.S. has enacted a 25% tariff on steel and a 10% tariff on aluminum, which went into effect on March 23rd. The U.S. also engaged with China over allegations of asymmetrical trade policies and intellectual property theft. ***p. 18, 19***

PORTFOLIO IMPACTS

— Global economic growth has improved – low inflation, strong employment, and accommodative foreign central bank policies have been supportive of equity prices. In the U.S., monetary tightening has yet to have a major impact on equities. ***p. 17***

— Concerns over increasing trade protectionism weighed on financial markets. The tariffs placed on steel and aluminum are not likely to have a material impact on asset prices, but escalating tensions and retaliatory measures could have a negative impact on global growth. ***p. 18, 19***

THE INVESTMENT CLIMATE

— Excitement and optimism over tax cuts helped lead equities higher to begin the year. However, markets stumbled in February – falling roughly 10%. Equities recovered much of the losses throughout the quarter, but then fell back to their lows at the end of March. ***p. 29***

— 2018 is expected to be a banner year for U.S. corporate profits. Earnings for the calendar year are forecast to grow 17.3%, with 7.3% revenue growth. These 2018 expectations may already be priced in. ***p. 29***

— February's market correction appeared isolated to the equity markets. "Risk-off" selling that often accompanies market drawdowns was not apparent – credit spreads, U.S. Treasuries, and gold, reacted minimally. ***p. 28***

ASSET ALLOCATION ISSUES

— Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact. We believe a neutral or mild risk overweight is warranted in this environment. ***p. 32***

— Equity volatility spiked in February, ending the period of extreme calm that investors experienced since the beginning of 2017. The VIX Index averaged 20.7 during the last two months of the quarter. ***p. 35, 36***

Changing market dynamics suggest a neutral or mild risk overweight may be warranted

What drove the market in Q1?

"Record high increase in S&P 500 EPS estimates for Q1 2018"

CHANGE IN EPS ESTIMATE DURING THE QUARTER (NET)

Q4 16	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18
-2%	-4%	-2%	-4%	0%	+7%

Article Source: FactSet, March 29th, 2018

"U.S. stocks sell off on concerns about trade"

U.S. TRADE DEFICIT BY COUNTRY ($ BILLIONS)

China	Japan	Germany	Italy	S. Korea	India
-375	-69	-64	-32	-23	-23

Article Source: WSJ, March 23rd, 2018

"Volatility index spikes by largest-ever [one day] amount"

VIX Index (Average)

Oct	Nov	Dec	Jan	Feb	Mar
10.1	10.5	10.2	11.1	22.5	19.0

Article Source: Bloomberg, February 5th, 2018

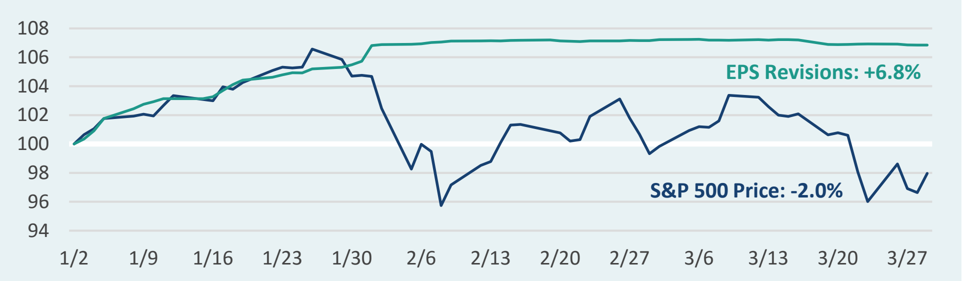
"U.S. Treasury yields rise to a new 4-year high as inflation concerns drag on"

U.S. 10-Year Treasury Yield

Oct	Nov	Dec	Jan	Feb	Mar
2.38%	2.41%	2.41%	2.71%	2.86%	2.74%

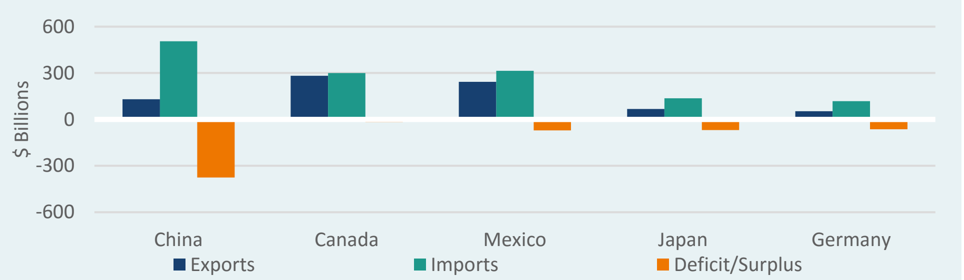
Article Source: USA Today, February 12th, 2018

S&P 500 PRICE INDEX AND Q1 EPS ESTIMATES (INDEXED TO 100)



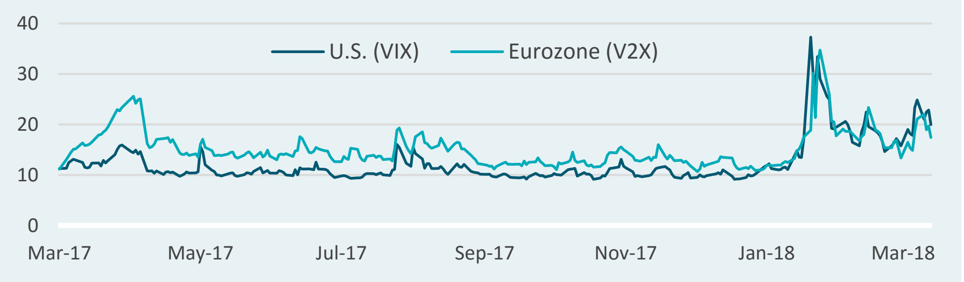
Source: Bloomberg, as of 3/29/18

U.S. TRADE DEFICIT BY COUNTRY



Source: U.S. Census Bureau, 2017

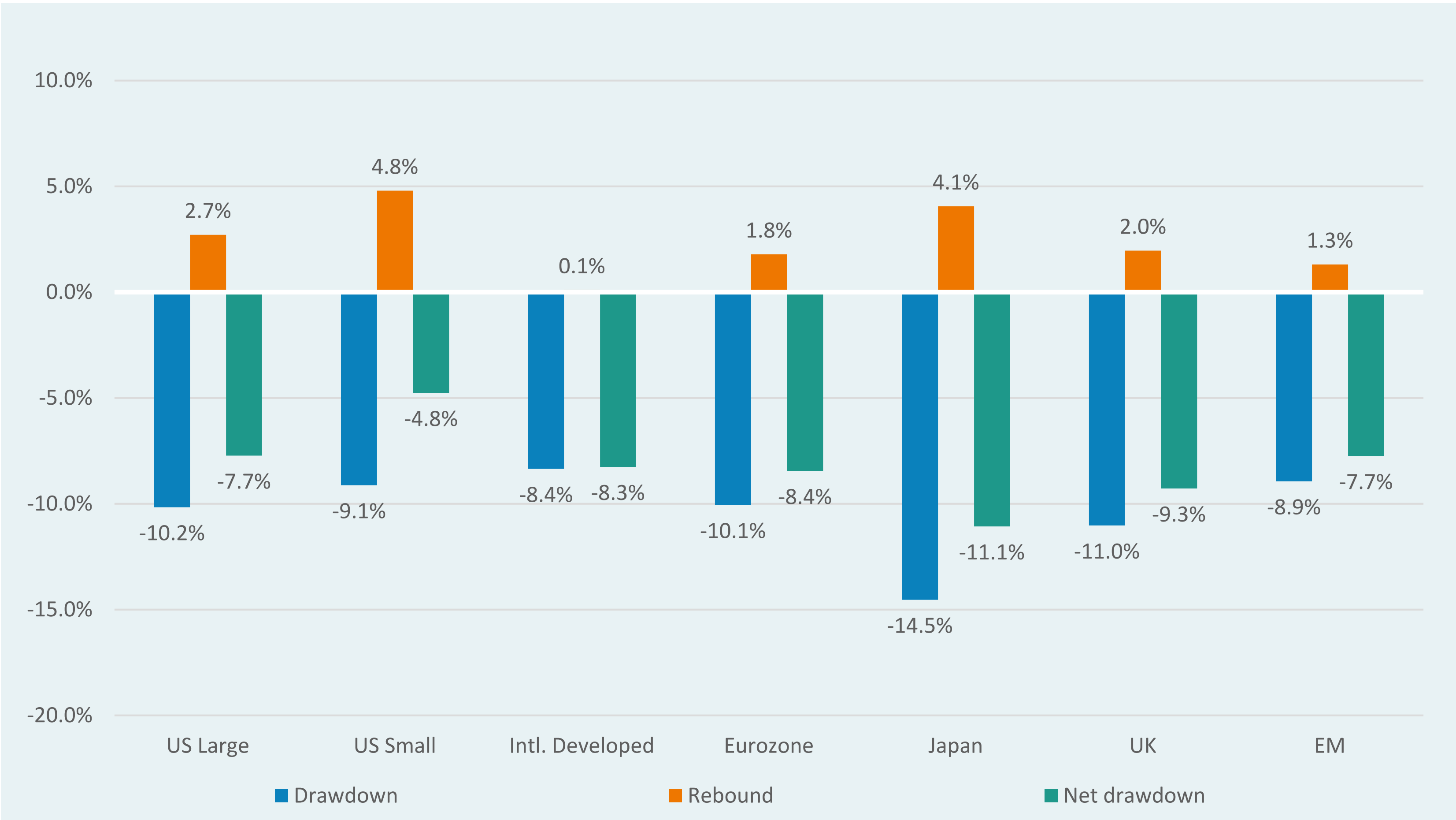
IMPLIED VOLATILITY



Source: Bloomberg, as of 3/29/18

The return of volatility

PEAK TO TROUGH (LOCAL RETURNS)



Timeframe includes the February drawdown and subsequent "bottom" of each market, then recovery through 3/31/18

Economic environment

U.S. economics summary

— Economic growth remained near expansion highs in the fourth quarter. U.S. real GDP growth was 2.6% from the previous year. Consumer spending and investment pushed the economy ahead, while falling exports were a drag on growth.

— The U.S. enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23rd. The U.S. has engaged with China over allegations of asymmetrical trade policies and intellectual property theft, creating concerns over the risks of a trade war.

— Additions to U.S. payrolls averaged 202,000 per month in the first quarter, above the expansion average.

— In recent years, the U.S. has seen discouraged and part-time workers drawn back to full-time employment. This effect can be quantified by the shrinking difference between U-6 and U-3 unemployment figures. The difference between these two measures fell to 3.9%, matching expansion lows.

— Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.

— The Fed raised interest rates on March 21st to 1.50-1.75%. Comments made during the March meeting suggest the FOMC expects continued moderate economic activity, spending, and business investment. Unsurprisingly, the Committee stated that the U.S. inflation rate is expected to stabilize at the 2% target over the near-term.

	Most Recent	**12 Months Prior**
GDP *(YoY)*	2.6% *12/31/17*	1.8% *12/31/16*
Inflation *(CPI YoY, Core)*	2.1% *3/31/18*	2.0% *3/31/17*
Expected Inflation *(5yr-5yr forward)*	2.2% *3/31/18*	2.2% *3/31/17*
Fed Funds Target Range	1.50 – 1.75% *3/31/18*	0.75 – 1.00% *3/31/17*
10 Year Rate	2.8% *3/31/18*	2.4% *3/31/17*
U-3 Unemployment	4.1% *3/31/18*	4.5% *3/31/17*
U-6 Unemployment	8.0% *3/31/18*	8.8% *3/31/17*

GDP growth

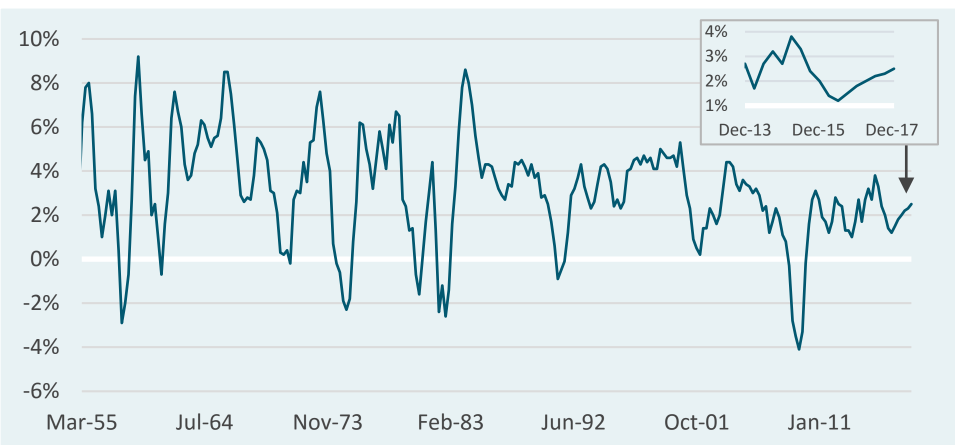
Economic growth accelerated further in the fourth quarter of 2017. Real GDP increased 2.6% from the previous year (2.9% annualized quarterly rate), driven by consumer spending. The pace of growth was faster than the expansion average of 2.2%. Consumer spending contributed 2.8% to the quarterly growth rate, partly due to a strong holiday retail season. Corporate capex spending slowed in Q4, but was still the second largest contributor to the overall growth rate at 1.3%. As discussed last quarter, changes to the tax code could reinforce the current positive trend in fixed business investment.

The economy is expected to experience slower but still moderate growth in the first quarter – the consensus estimate is 2.2%, according to Bloomberg. First quarter growth has underwhelmed the past few years, which may occur again this year. However, expectations for 2018 calendar growth remain robust at 2.8%.

While we continue to see mild pressures building, such as firming inflation, rising interest rates, and tightening in the labor market, there do not appear to be clear signs of economic overheating.

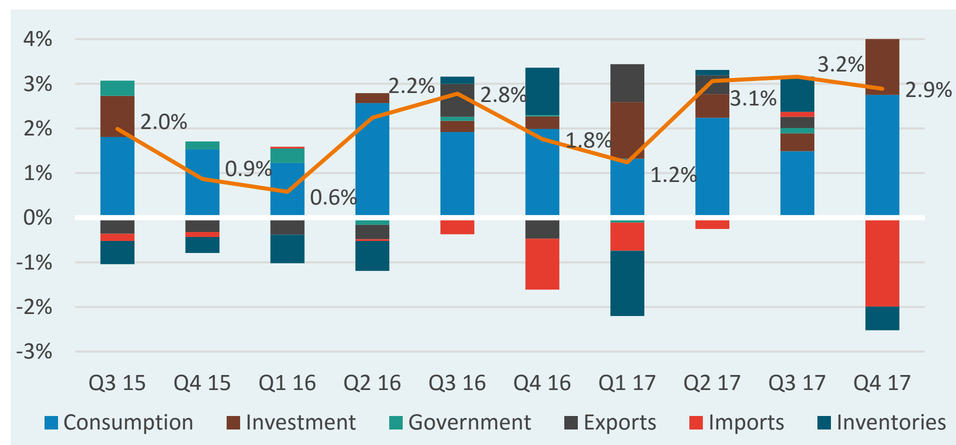
The economy experienced above-trend growth in 2017

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 12/31/17

U.S. GDP COMPONENTS



Source: BEA, annualized quarterly rate, as of 12/31/17

Inflation

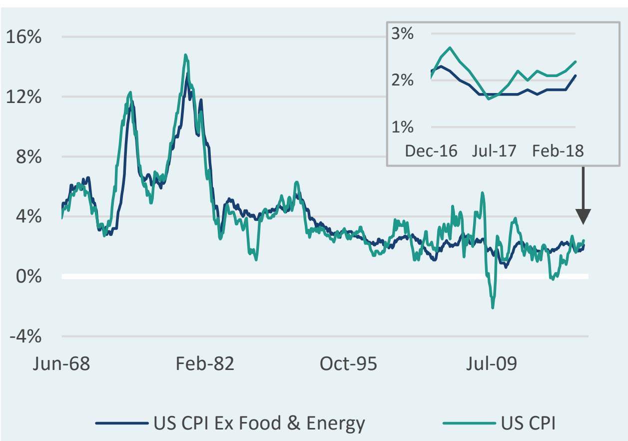
Core CPI inflation moved from 1.8% to 2.1% YoY during the quarter, the highest rate in more than a year. Prices jumped in March primarily due to the low base effect from an unexpected drop in wireless telecom prices one year ago.

Market inflation expectations have recovered a bit since the deflation scare in 2015 that coincided with an energy driven slump in inflation figures. The 10-year TIPS breakeven inflation rate moved marginally from 2.0% to 2.1%. Investors expect inflation to stay relatively muted over the longer-term – recent mild rises in inflation may not be indicative of a trend.

While inflation does not actually appear to be bubbling up in most global economies, it is interesting to note that investors are generally expecting higher inflation. Sentiment has transitioned from fear of deflation to fear of inflation, which has broad implications for the markets – central bank confidence in raising rates, and pricing across the fixed income markets, to name a few.

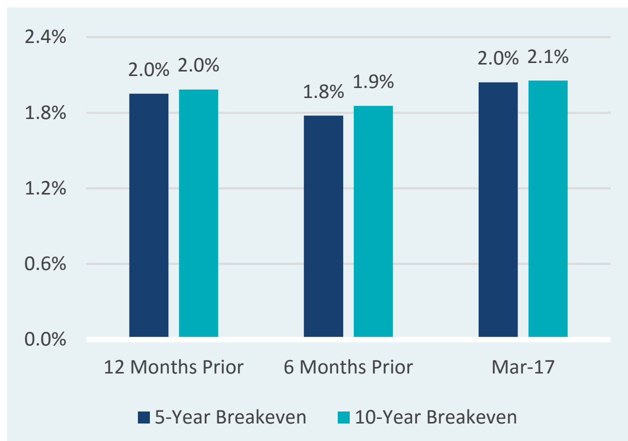
Fears of rising inflation emerged during the quarter

U.S. CPI (YOY)



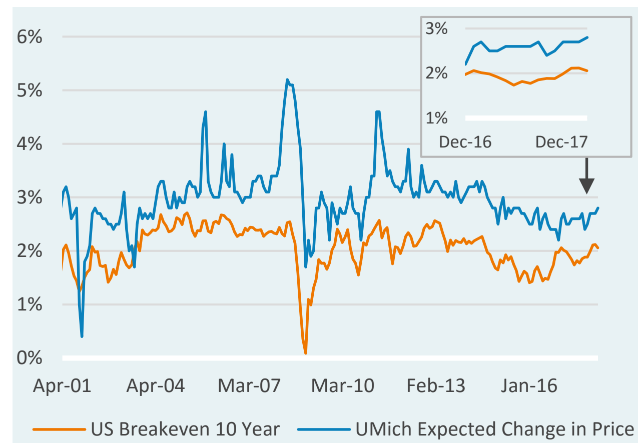
Source: FRED, as of 3/31/18

U.S. TIPS BREAKEVEN RATES



Source: Bloomberg, as of 3/31/18

INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/18

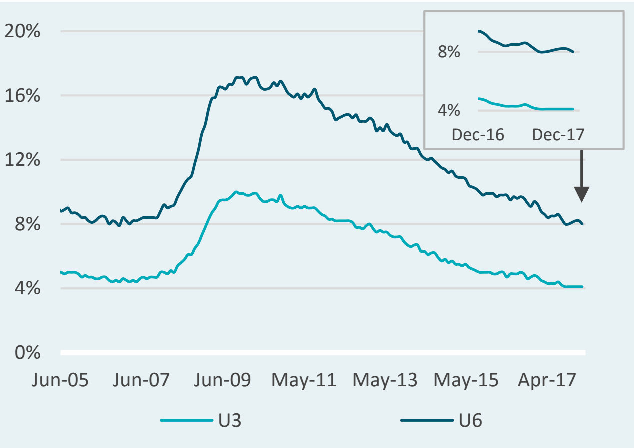
Labor market

Conditions in the U.S. labor market tightened slightly in Q1. Unemployment kept steady at 4.1%, while the unemployment rate that includes discouraged and part time workers fell to 8.0% from 8.2%. In Q1, 202,000 jobs were created per month - slightly stronger than the expansion average.

As we have discussed in recent years, continued labor market slack, not captured in the popular U-3 unemployment figure, has contributed to slower wage gains. Another key contributor to modest wage gains has been weak improvements in business productivity.

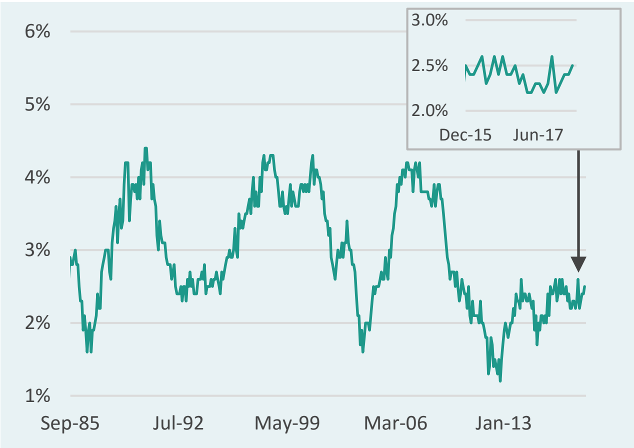
The degree to which U.S. businesses are able to become more efficient has an impact on U.S. employee wages through time. Efficiency is also referred to as *productivity*. As businesses realize productivity gains they are able to pass on some of these gains to employees in the form of higher wages, since output per employee has increased. If businesses are not becoming more productive, this makes it difficult to sustainably raise employee pay. In the current economic expansion, businesses have realized minimal productivity growth, which is likely a contributor to tepid wage growth.

UNEMPLOYMENT RATE



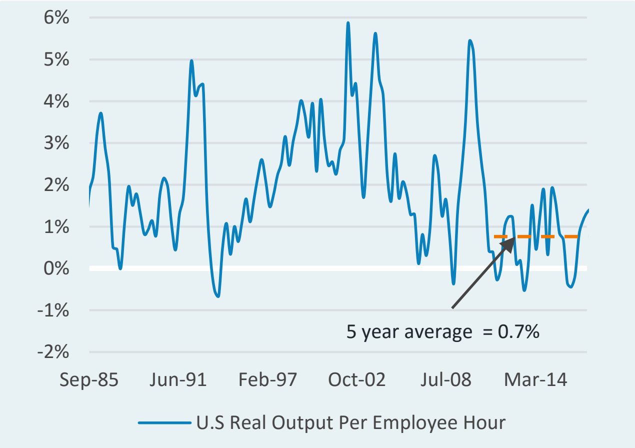
Source: FRED, as of 3/31/18

AVERAGE HOURLY EARNINGS (YOY)



Source: Bloomberg, as 2/28/18

U.S. PRODUCTIVITY GROWTH



Source: FRED, as of 12/31/17

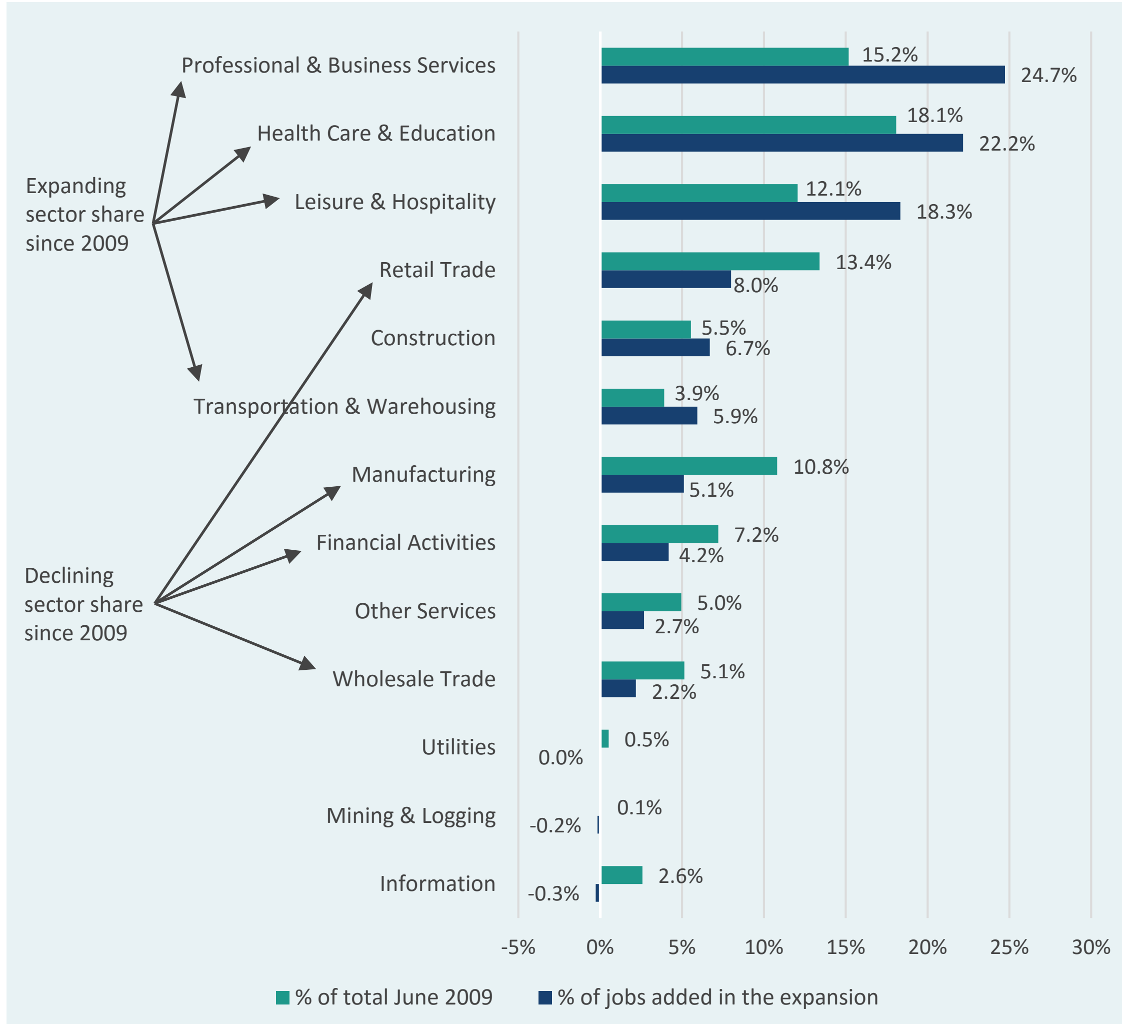
Job creation since the financial crisis

Since the end of the global financial crisis, the U.S. has added more than 17 million workers to the labor force and the unemployment rate has fallen from 9.9% to 4.1%. During this time the composition of the workforce has changed.

Three broad sectors have experienced outsized gains in employment compared to their sizes in June of 2009: Professional and Business Services, Health Care & Education, and Leisure & Hospitality.

Disproportionate gains in the last two sectors have led some to question the quality of jobs that are being added because they are typically low paid positions. On average, Leisure & Hospitality jobs receive $15.74 per hour, compared to the national average of $26.75. The changing sector composition is likely one of many structural factors (i.e. globalization and automation) limiting wage growth in the current cycle.

This exercise also created a useful lens to view recent employment trends in terms of the cyclicality of each sector. Manufacturing and construction have historically been the most cyclical sectors and are both growing above trend over the past year, indicating a recent pickup in hiring. This data confirms acceleration in manufacturing surveys, such as PMIs.



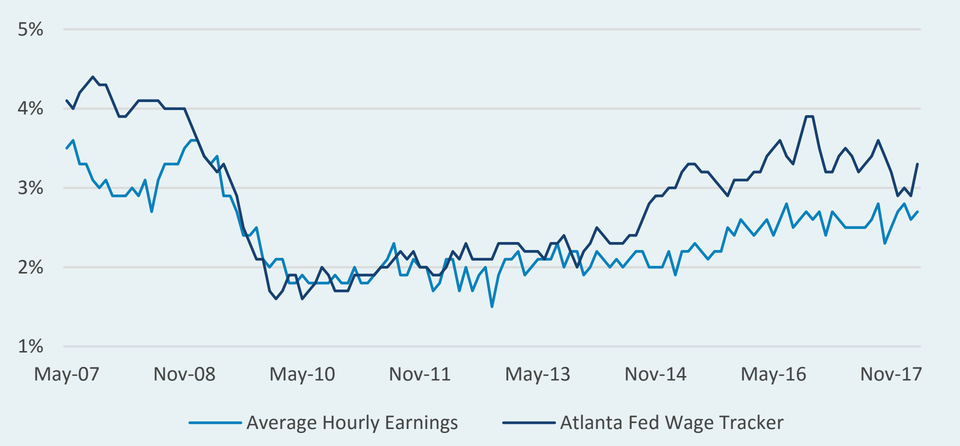
Source: FRED, as of 2/28/18

Wages

Muted wage growth has been heavily scrutinized during the expansion due to its historically strong relationship with the unemployment rate. Although wage growth has accelerated over the past few years, we have yet to experience a material rise in wages that would be consistent with a tight labor market. The broad unemployment rate (U-6, 8.0%) implies wage growth of around 4.5% versus actual wage growth of 3.3% based on a historical regression analysis. Much like our view on overall inflation, we believe cyclical forces may place modest upward pressures on wages, but at a gradual pace.

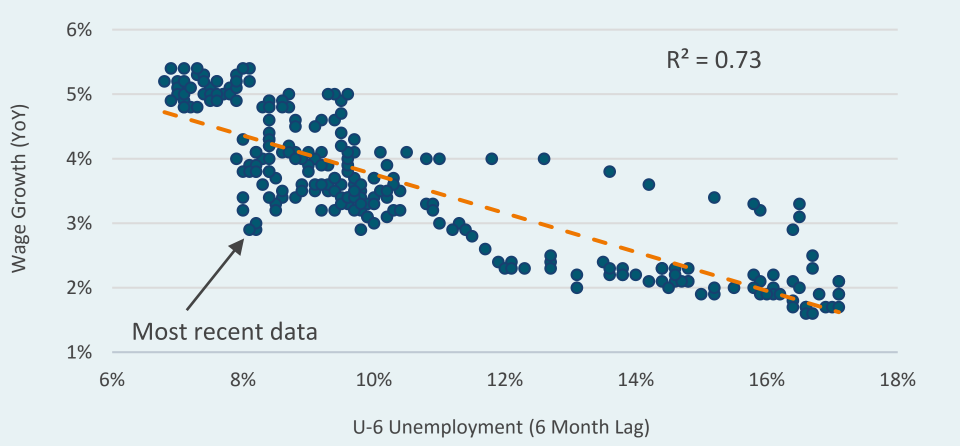
An interesting development during the quarter was a shift in the market narrative surrounding wage growth. In January, a positive surprise in average hourly earnings (mainly caused by a fall in aggregate hours worked during the month) sparked concerns that a faster rate of growth might result in quicker-than-expected monetary tightening. The surprise coincided with a material increase in Treasury yields, although many factors likely influenced these moves. Earlier in the expansion, many market participants voiced concerns that low wage growth was a potential indicator of economic weakness.

WAGE GROWTH (YOY)



Source: Bloomberg, Atlanta Fed, as of 3/31/18 (see appendix)

RELATIONSHIP BETWEEN WAGES AND UNEMPLOYMENT



Source: Bloomberg, Atlanta Fed, Verus, as of 3/31/18

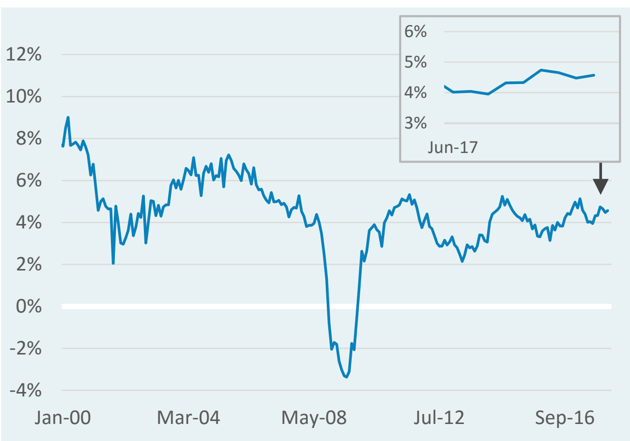
The consumer

The U.S. continues to be in a *middle-of-the-road* expansion – characterized as not too fast and not too slow. Moderate improvements in wages and employment, conservative spending and borrowing trends, and rising wealth, indicate a sustainable environment going forward for the American consumer.

Current U.S. spending trends appear in-line, or a bit more conservative, than previous economic expansions. Behavior may be partly explained by a more timid pace of employee wage growth, as well as not-too-distant memories of hardships experienced during the U.S. housing bubble.

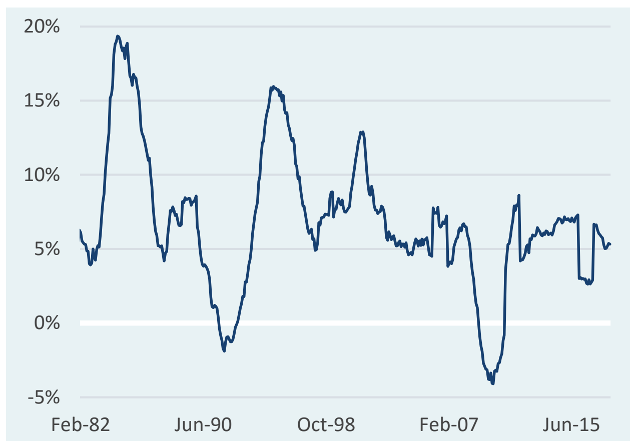
If interest rates continue to rise, this will likely act as a headwind to consumer spending as it becomes more expensive to borrow. Historically, spending patterns tend to ebb and flow through the economic cycle largely through the use of credit (i.e. credit cards, auto loans, home loans).

CONSUMER SPENDING (YOY GROWTH)



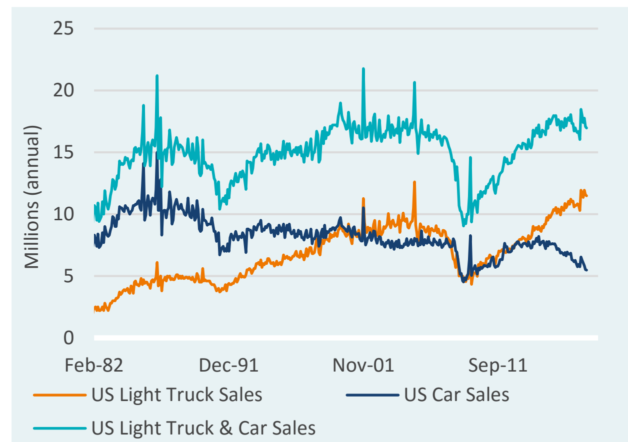
Source: Bloomberg, as of 2/28/18

CONSUMER CREDIT GROWTH (YOY)



Source: FRED, as of 1/31/18

AUTO SALES



Source: Bloomberg, as of 2/28/18

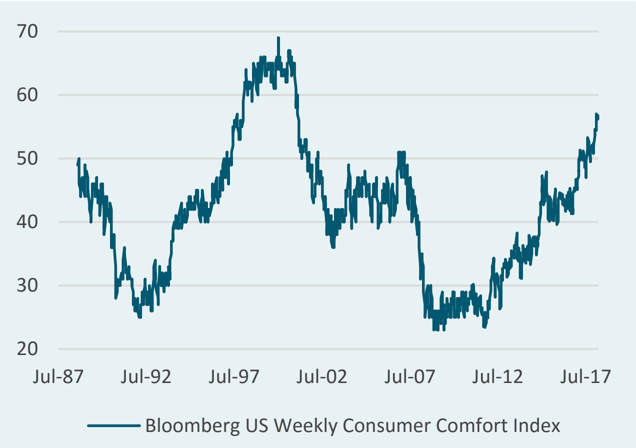
Sentiment

Consumer and business sentiment surveys further improved over the quarter and are now at or above levels of the latest 2001-2007 U.S. economic cycle. The University of Michigan Consumer Sentiment Index now sits at 101.4, which places it in the 91st percentile relative to its own history, since 1978. Consumers' perception of current economic conditions (employment and wage prospects) are at their highest level since the late 1990s. The Bloomberg Consumer Comfort Index has risen to levels last seen in 2001.

The NFIB Small Business Optimism Index was 107.4 at the end of the quarter – near a record high, although there was a significant drop in businesses' expectations for the economy. The net number of firms that expect the economy to improve fell from 43% to 32% in March, but this figure was still near historical highs.

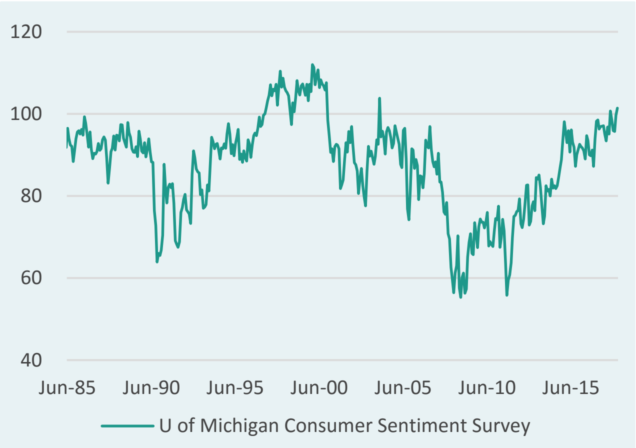
Consumers and small businesses have a positive outlook on the U.S. economy

CONSUMER COMFORT INDEX



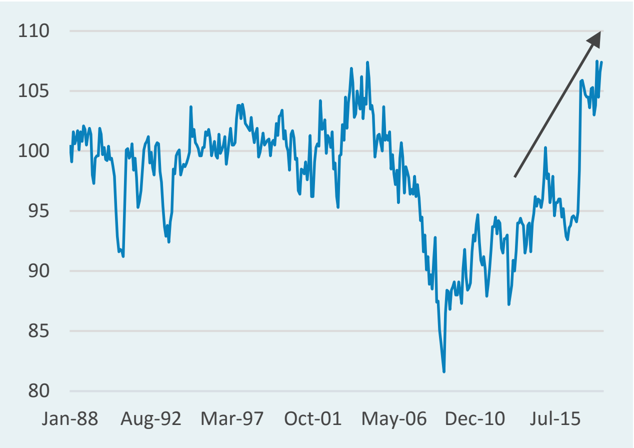
Source: Bloomberg, as of 3/25/18 (see Appendix)

CONSUMER SENTIMENT



Source: University of Michigan, as of 3/31/18 (see Appendix)

NFIB SMALL BUSINESS OPTIMISM INDEX



Source: NFIB, as of 2/28/18 (see Appendix)

Housing

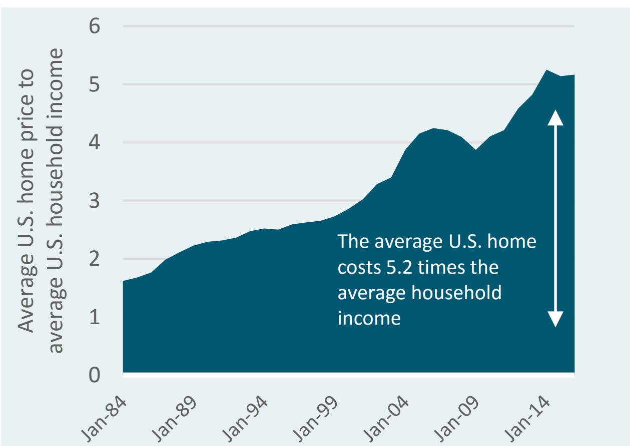
U.S. home prices rose 6.2% YoY, as of January, according to the Case-Shiller National Home Price Index.

Following the U.S. 2008 housing crisis, a combination of lower home prices and ultra-low interest rates made home ownership very affordable. These conditions eventually helped to bring back demand for homes and supported a rise in prices. Today, the price of an American home has returned to, and surpassed, pre-crisis levels. The average U.S. home costs more than 5 times the average household income, which has made purchasing a home increasingly difficult.

This affordability problem could be compounded further if interest rates rise and push mortgage interest rates upward.

Rising home prices have lopsided effects on consumers. Higher prices add to the wealth of existing homeowners and land owners initially, but also lead to higher property taxes. For prospective homeowners, higher prices translate to a larger required down payment, greater mortgage payments, higher property taxes, and therefore a greater overall drag on standard of living.

HOME PRICE RELATIVE TO HOUSEHOLD INCOME

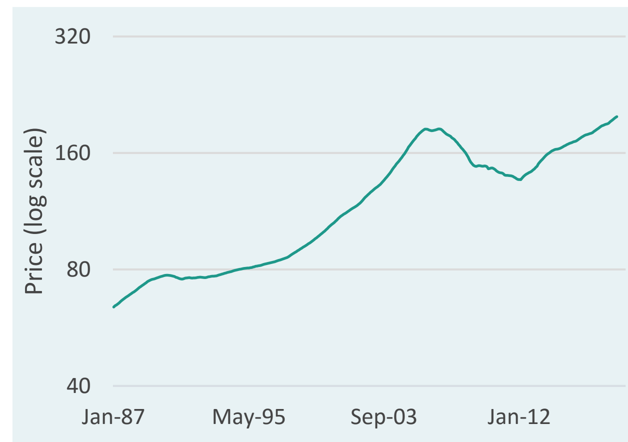


Source: FRED, 2016 census data

HOUSING AFFORDABILITY

Source: National Association of Realtors, as of 12/31/17

U.S. HOME PRICE INDEX



Source: Case-Shiller National Home Price Index, as of 2/28/18

International economics summary

— International economic growth was strong across countries in the fourth quarter, but a combination of recent economic data coming in below expectations and trade concerns created risks to the synchronized global growth narrative.

— The U.S. implemented 25% and 10% tariffs on steel and aluminum imports, respectively. When the tariffs were initially announced the White House pushed for all countries to be subject to them. However, many countries, such as Canada and Mexico, were given exemptions to allow for ongoing negotiations.

— In April, concerns over trade shifted to escalating tensions between the U.S. and China.

— The Eurozone experienced above-trend growth in the fourth quarter at 2.7% YoY, driven by contributions from household spending and fixed capital investment.

— Economic data out of the Eurozone consistently missed expectations in the first quarter. Industrial production was particularly disappointing – the year-over-year rate fell from 5.2% in December to 2.9% in February.

— Global PMIs remained above 50, indicating expansion in the manufacturing sector, although several countries experienced a decline. The Eurozone PMI fell from 60.8 to 56.6 during the quarter.

— The populist Five Star Movement performed better than expected in the Italian general election in March, winning the most seats of any party. However, no party won a majority in Parliament, resulting in the need to form a coalition government. Increasing support for populist governments (i.e. Hungary and Poland) across Europe remains a risk to investors.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.5% *12/31/17*	2.4% *3/31/18*	4.1% *3/31/18*
Western Europe	2.5% *12/31/17*	1.3% *3/31/18*	7.4% *12/31/17*
Japan	2.0% *12/31/17*	1.5% *2/28/18*	2.5% *2/28/18*
BRICS Nations	6.2% *12/31/17*	2.6% *3/31/18*	5.6% *12/31/17*
Brazil	2.1% *12/31/17*	2.7% *3/31/18*	12.4% *3/31/18*
Russia	0.9% *12/31/17*	2.4% *3/31/18*	5.0% *2/28/18*
India	7.2% *12/31/17*	4.4% *2/28/18*	8.8% *12/31/17*
China	6.8% *12/31/17*	2.1% *3/31/18*	3.9% *12/31/17*

International economics

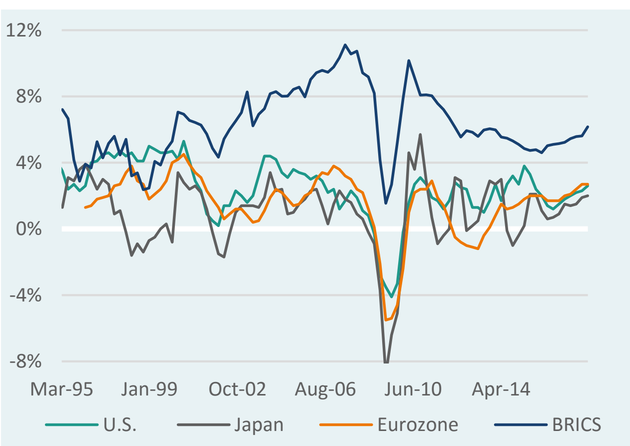
International economic growth continued its upward trend, particularly in emerging countries, where a weaker dollar, higher commodity prices, and stronger external demand has been supportive. Additionally, inflation in emerging economies decelerated to 3.0% in 2017, allowing central banks to cut interest rates. Collectively, the BRICS countries grew by 6.2% in the fourth quarter, the fastest pace since 2012.

The narrative on international developed economies did not materially change during the quarter – growth accelerated, inflation remained low, and central banks provided support, but contemplated exit strategies. While inflation is starting to show modest signs of life in the U.S., the Eurozone and Japan are still experiencing inflation well below 2%. In February, year-over-year core CPI growth was 1.0% in both economies.

The European Central Bank continues to express plans to end asset purchases in September and begin raising interest rates sometime next year. The pace of interest rate hikes will likely be heavily dependent on inflation and market reaction to tightening.

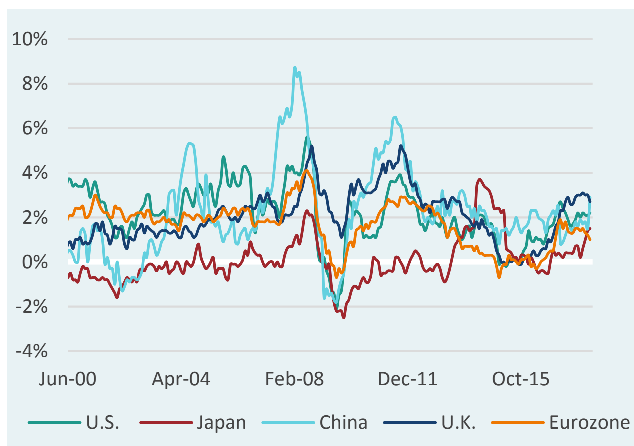
Economic growth improved, especially in emerging markets

REAL GDP GROWTH (YOY)



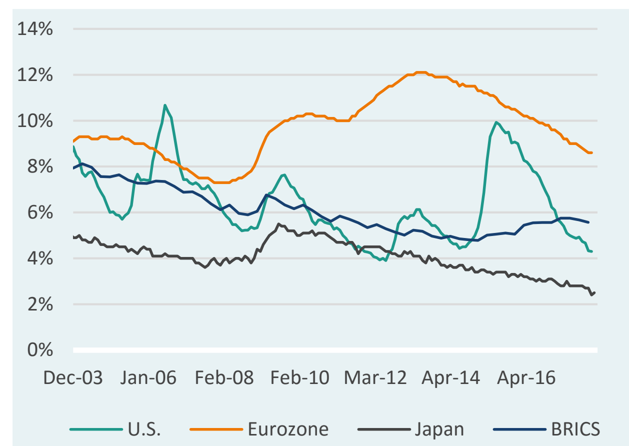
Source: Bloomberg, as of 12/31/17

INFLATION (CPI)



Source: Bloomberg, as of 2/28/18

UNEMPLOYMENT



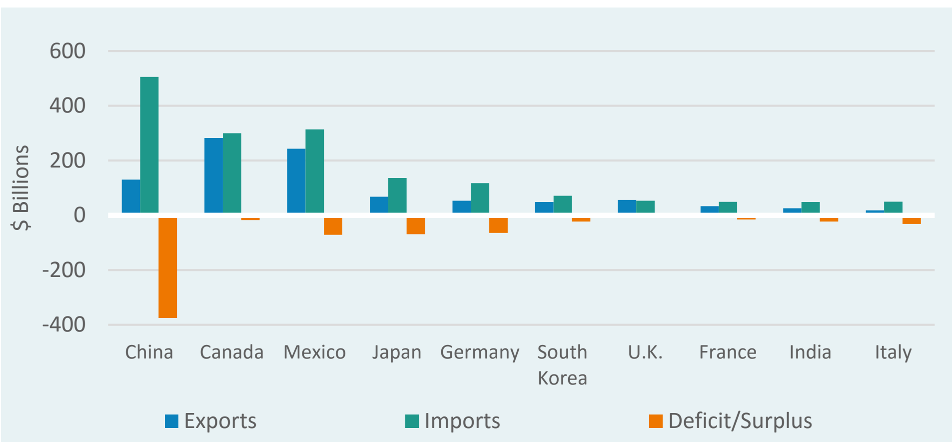
Source: Bloomberg, as of 1/31/18 or most recent release

International trade

The U.S. has enacted a 25% tariff on steel and 10% tariff on aluminum, which went into effect March 23rd, though many U.S. trade partners have been exempted. The U.S. is engaged with China over the significant U.S.-China trade deficit, allegations of China's asymmetrical trade barriers, and the long-term issue of theft of U.S. intellectual property by Chinese companies. The actions of the U.S. administration have stoked fears of a global trade war. While it is broadly agreed that tariffs have a net negative impact on global growth, many hold the view that the U.S. should address these long-running trade issues with China. The motivations and strategy behind the U.S. administration's actions are not yet fully known, but it should not be assumed that the outcome of this process will be negative for the U.S. or the global economy.

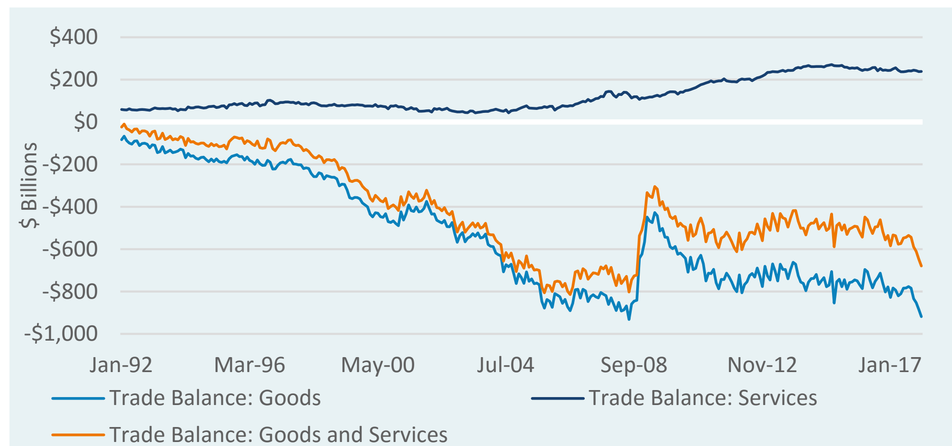
Steel and aluminum represent a small portion of total U.S. imports. On a standalone basis, the economic impact of these tariffs will likely be small. The risk of escalation seems to be the market's primary concern. China-U.S. trade amounts to approximately $650 Billion annually.

U.S. TRADE BALANCE



Source: U.S. Census Bureau, 2017

U.S. TRADE – GOODS & SERVICES (ANNUALIZED)

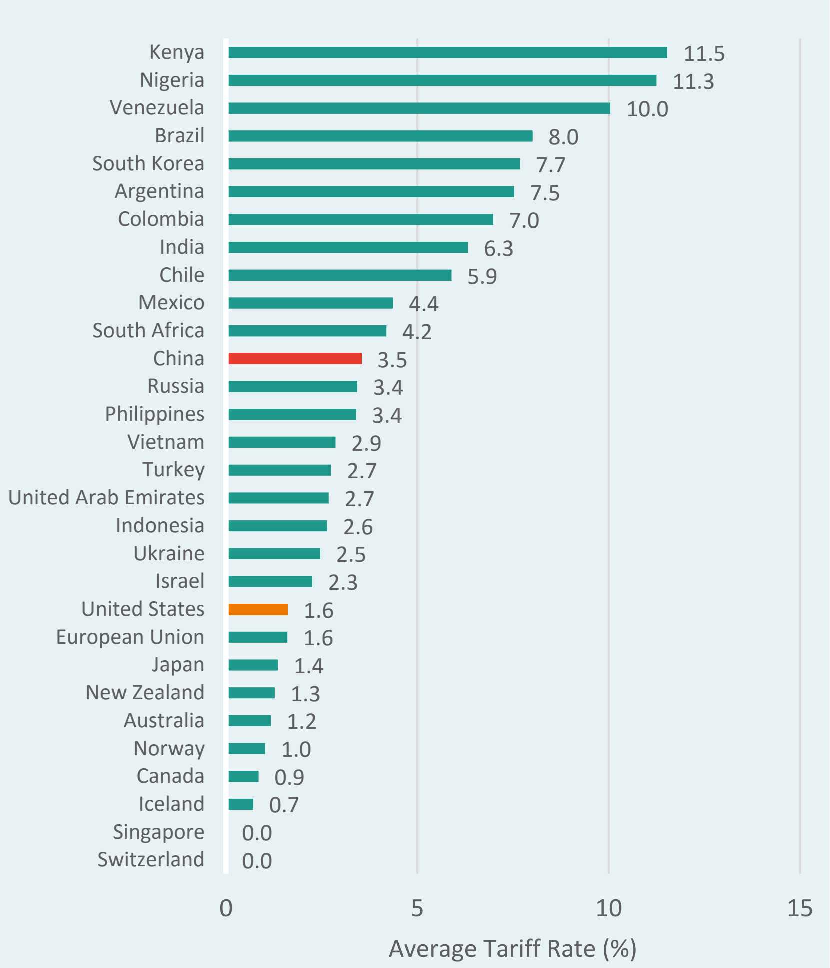


Source: FRED

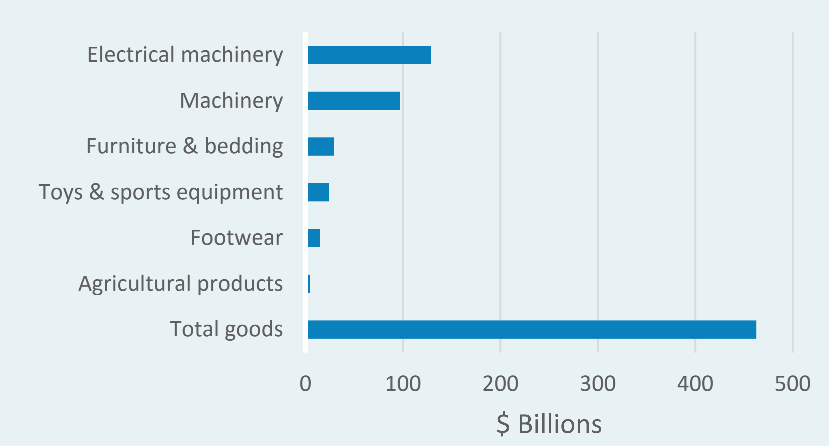
Verus

International trade

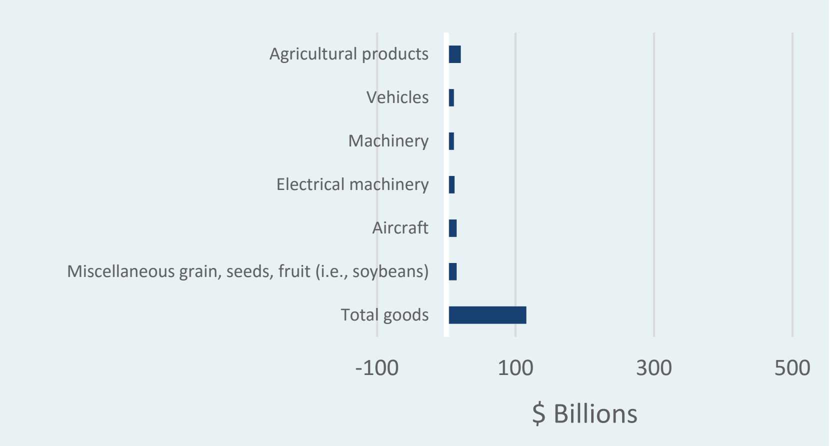
GLOBAL TARIFFS



CHINA EXPORTS TO U.S.



U.S. EXPORTS TO CHINA



Source: World Trade Organization, 2016

Fixed income rates & credit

Interest rate environment

— The Fed raised interest rates by 25 bps to a target range of 1.50% - 1.75% in March, as expected. In his first public comments since taking over as Fed chairman, Jerome Powell's views appeared to support a continuation of gradual monetary tightening.

— According to the Fed dot plot, officials are expecting two additional rate hikes this year, on par with market pricing.

— Long-term Treasury yields rose at the beginning of the year, likely influenced by increasing growth and inflation expectations. The 10-year yield peaked at 2.95% in late February, up 55 bps from year-end. Yields failed to hold these levels, however, and finished the quarter at 2.74%.

— Short-term borrowing costs continued to rise during the quarter, especially in debt tied to Libor. The 3-month USD Libor rate moved steadily higher from 1.7% to 2.3%. Much of this increase was likely mechanical due to record high Treasury bill issuance and repatriation of foreign profits.

— Sovereign yields in developed Europe also ticked up in January, coinciding with yield increases in U.S. Treasuries, but came back down in the last two months of the quarter. German 10-year yields peaked at a two year high of 0.77% in early February before finishing the quarter at 0.50%.

— Developed international central banks remain accommodative compared to the Fed, but they have increasingly hinted towards policy normalization. The ECB is likely next in line to begin monetary tightening by ending asset purchases and raising rates sometime next year. The BOJ has yet to provide any details on ending its stimulus program, but officials have noted internal discussions have begun.

Area	Short Term (3M)	10 Year
United States	1.70%	2.74%
Germany	(0.75%)	0.50%
France	(0.58%)	0.72%
Spain	(0.50%)	1.16%
Italy	(0.43%)	1.79%
Greece	1.31%	4.32%
U.K.	0.49%	1.35%
Japan	(0.17%)	0.04%
Australia	2.03%	2.60%
China	3.12%	3.77%
Brazil	6.31%	9.50%
Russia	6.01%	7.16%

Source: Bloomberg, as of 3/31/18

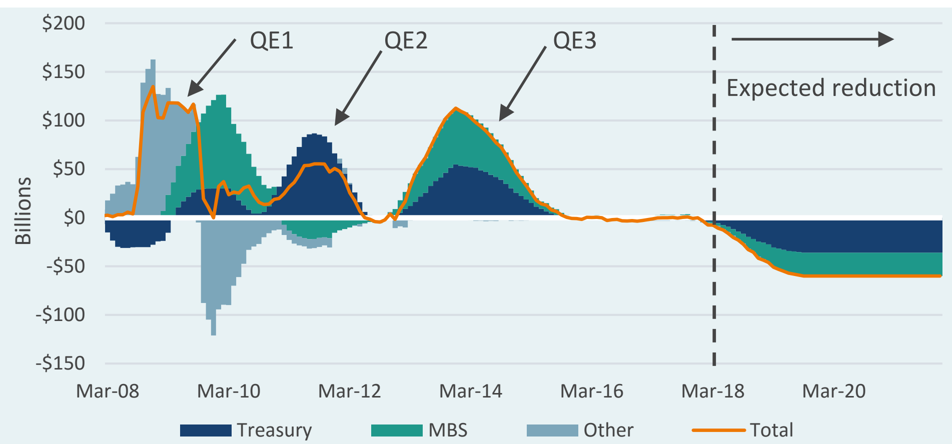
Fed tightening

In Jerome Powell's first meeting as chairman, the Fed hiked interest rates by 25 bps to a target range of 1.50% - 1.75%, as expected. The Fed's forecast for future hikes shifted up slightly based on the dot plot, but Powell's messaging appeared to be similar to the precedent set by Yellen – slow and gradual rate increases coinciding with firming inflation that will eventually reach the 2% target. Markets priced in 25 bps of additional tightening for 2018 during the quarter, and pricing is now on par with Fed expectations of two more rate rises this year. The balance sheet reduction has gone as planned, but we are likely too early in the process to gain insight into its market impact.

The Fed has intentionally tightened slowly, and markets have been able to digest the 150 bps of rate increases thus far. This is consistent with the beginning of past Fed tightening cycles where economic fundamentals were strong. As we move further down this path, additional increases in discount rates will have an increasing impact on the economy and risk assets. However, we believe the Fed will continue to be patient, barring a material change in the inflation environment.

Fed tightening has gone as expected

FED BALANCE SHEET FLOW (12-MONTH CHANGE)



Source: Federal Reserve, as of 3/31/18

FED FUND EXPECTATIONS

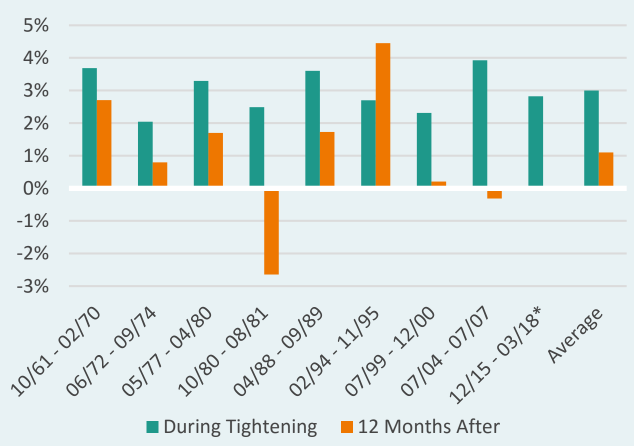
Source: Bloomberg, Federal Reserve as of 3/31/18

The history of monetary tightening

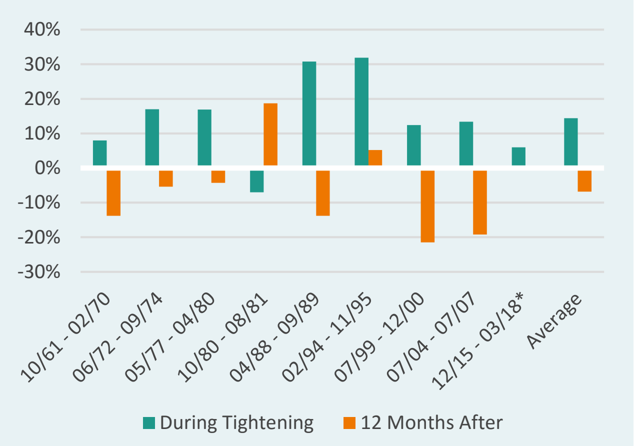
The difficulty of assessing the potential effect of monetary tightening lies in the fact that there are relatively few historical observations to analyze. Since 1959, the Fed has only tightened policy nine times, including the current period which began in December of 2015. There are also unique circumstances in each period, such as the balance sheet reduction coinciding with interest rate increases in this cycle. We looked at three variables: GDP growth, equity earnings growth, and equity performance to get a better understanding of how Fed tightening has historically impacted the economy and financial markets.

As one might expect, GDP growth has been stronger during Fed tightening than in the 12 months following. The same relationship has occurred with equity earnings. This is most likely because the Fed is reacting to underlying economic data rather than driving it. When the economy heats up, the Fed hikes interest rates to avoid overheating, and then stops when things turn over. Equity returns reveal a much more interesting, but muddier picture. On average, equity returns have been higher in the 12 months after tightening than during, although in three of the eight previous periods, equities have experienced a 10% correction.

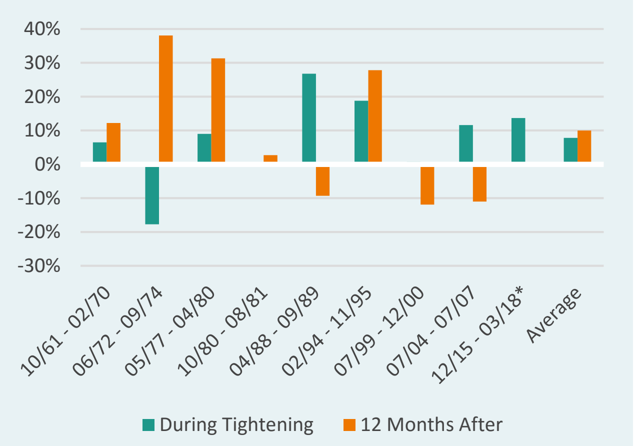
REAL GDP GROWTH



S&P 500 EARNINGS GROWTH



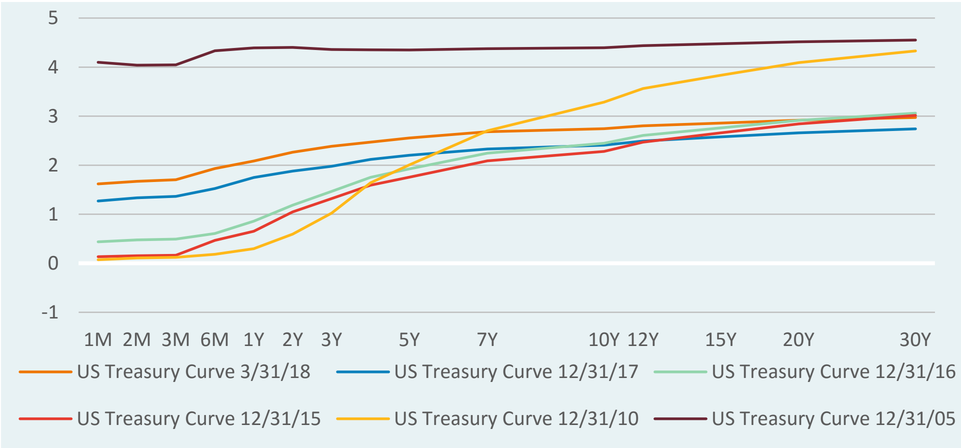
S&P 500 PERFORMANCE



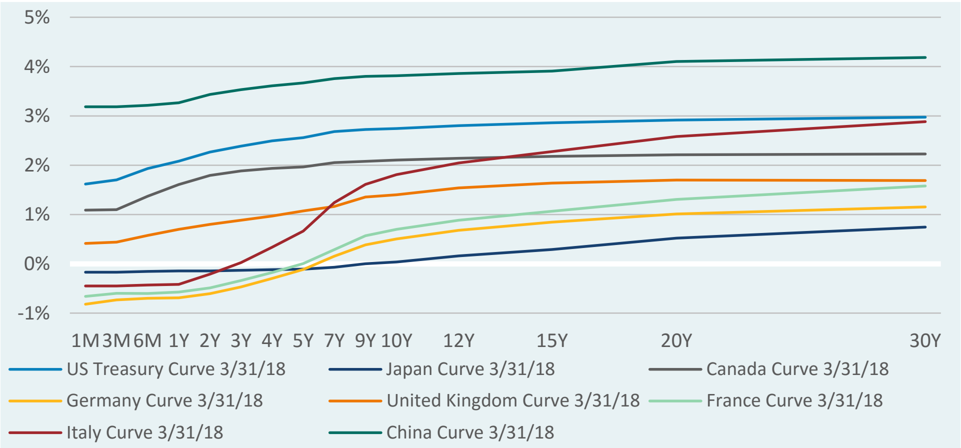
Source: Bloomberg, Verus, analysis started in 1959, all growth calculations are annualized using monthly (earnings/equity performance) or quarterly (GDP) data

Yield environment

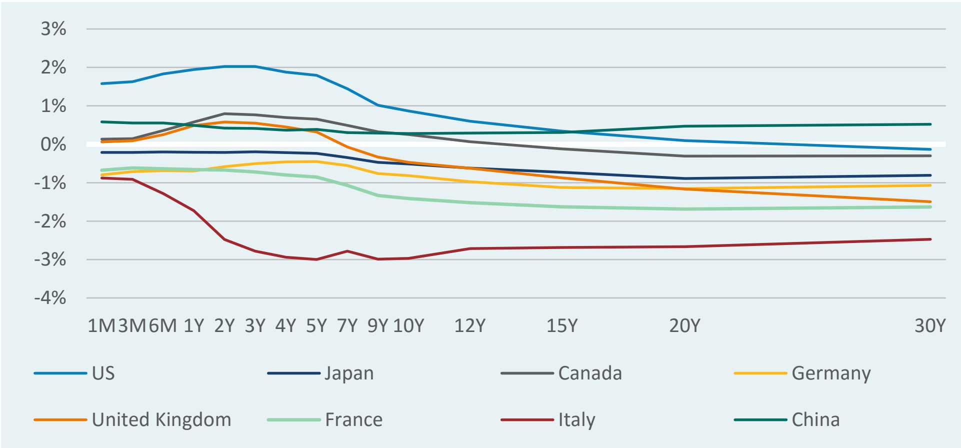
U.S. YIELD CURVE



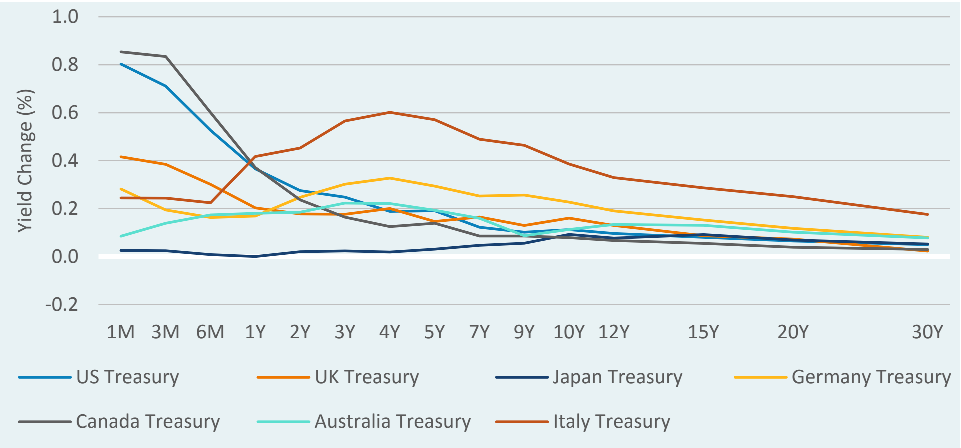
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/18

Credit environment

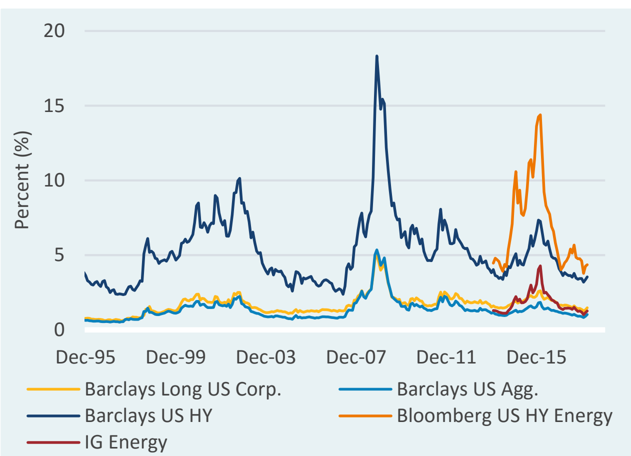
Credit spreads in both leveraged loans and high yield have continued to be tight, sitting well below their historic averages. Leveraged loan prices were relatively immune to equity volatility in February. Loans have outperformed high yield year-to-date with an absolute return of 1.6%, driven by strong issuance and demand. LIBOR has steadily risen since 2016, surpassing the LIBOR floors that exist in senior loans, causing them to be fully floating-rate instruments.

U.S. high yield option-adjusted spreads widened slightly in the first quarter to 3.5%, with the asset class generating a -0.9% total return for the quarter. Tight credit spreads in both high yield and loans have been driven by strong corporate fundamentals, manageable debt maturities and general macroeconomic improvement. Credit spreads have historically been a good indicator of future performance relative to Treasuries.

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

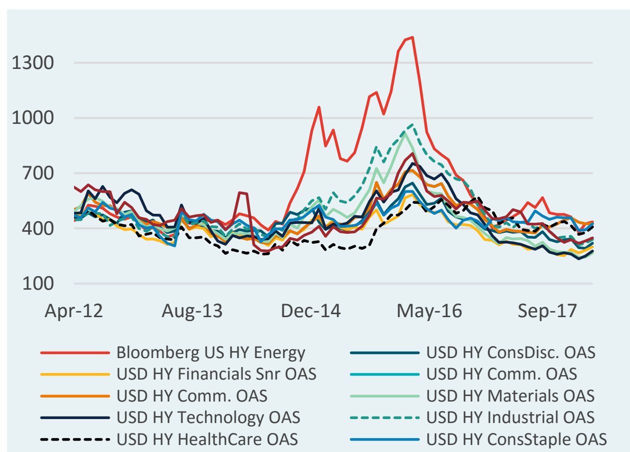
Credit spreads are tight across the capital structure

SPREADS



Source: Barclays, Bloomberg, as of 3/31/18

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/18

Market	Credit Spread (3/31/18)	Credit Spread (1 Year Ago)
Long US Corporate	1.5%	1.1%
US Aggregate	1.0%	1.1%
US High Yield	3.5%	3.8%
US Bank Loans	3.5%	3.8%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/18

Issuance and default

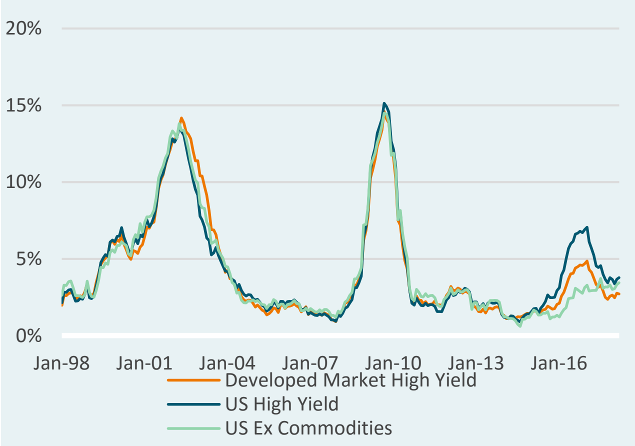
Default activity remains low and stable in the U.S. and international credit markets. The par-weighted U.S. default rate remains below its long-term average of 3.0-3.5% and is currently at 2.4%. In the first quarter, 27% of total defaults have been in the retail sector, followed by energy and broadcasting.

Senior loan and high yield markets are recovering from a wave of defaults that were generated from energy and metals/mining sectors in 2015-2016. Recovery rates for high yield bonds have vastly improved since year-end 2016.

Issuance in bonds and loans both increased in 2017. New issue spreads continue to compress with strong demand supported by significant retail and institutional inflows into the both high yield and senior loan asset class, as well as CLO formation.

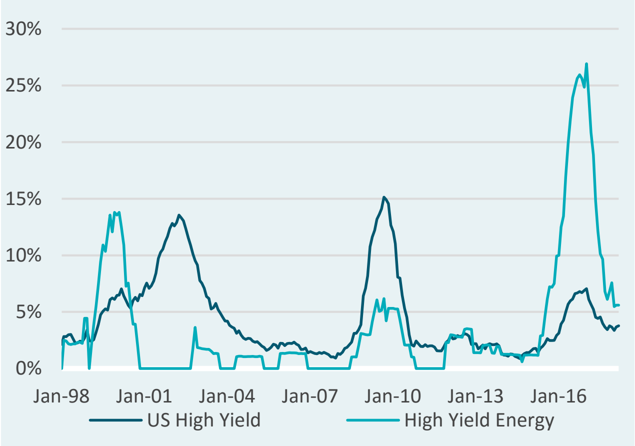
Default volume remains below long-term averages

HY DEFAULT TRENDS (ROLLING 1 YEAR)



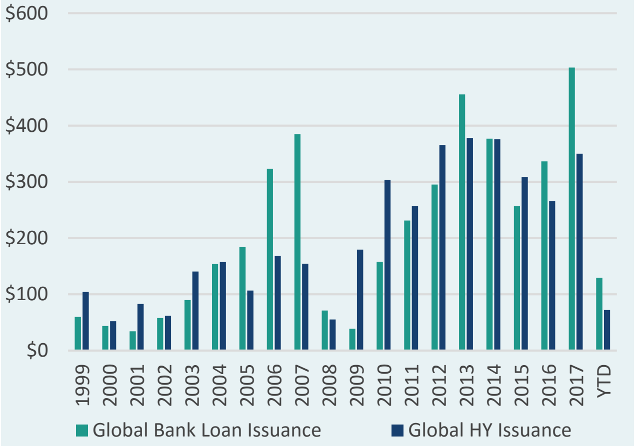
Source: BofA Merrill Lynch, as of 3/31/18

ENERGY DEFAULT TRENDS



Source: BofA Merrill Lynch, as of 3/31/18

GLOBAL ISSUANCE (BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/18

Equity

Equity environment

- We maintain an overweight position to equities primarily due to enthusiasm for emerging markets. Though the February market correction dampened investor excitement, it is helpful to remind ourselves that 10% equity drawdowns are fairly common.
- Upward price momentum in equities has diminished following the February market correction. Investor sentiment is less positive, but the global economic and earnings backdrop remains intact.
- 2018 is expected to be a banner year for U.S. corporate profits. Earnings for the year are forecast to grow 17.3%, with revenue growth of 7.3% according to Factset - a rare and impressive year for U.S. businesses. A continuation of this trend would be supportive of equity performance.
- Equity valuations (price-to-earnings multiples) fell to more attractive levels in Q1 due to the combination of lower equity prices and strong earnings growth.
- Equity volatility has remained extremely low since the beginning of 2017. However, the equity drawdown and volatility spike in February appears to have ended this period of calm. Investors might expect a more normal volatility environment going forward.
- Currency movement has contributed to volatility and great return disparity for investors with unhedged investments in international assets. A hedging program could allow investors to reduce or eliminate uncompensated currency risk.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	(2.0%)		(2.0%)		12.4%	
US Small Cap (Russell 2000)	(1.1%)		(1.1%)		10.5%	
US Large Value (Russell 1000 Value)	(4.0%)		(4.0%)		5.6%	
US Large Growth (Russell 1000 Growth)	(0.1%)		(0.1%)		19.3%	
International Large (MSCI EAFE)	(1.6%)	(3.8%)	(1.6%)	(3.8%)	14.4%	7.1%
Eurozone (Euro Stoxx 50)	(0.5%)	(3.2%)	(0.5%)	(3.2%)	18.0%	0.3%
U.K. (FTSE 100)	(3.8%)	(6.9%)	(3.8%)	(6.9%)	11.9%	1.2%
Japan (NIKKEI 225)	0.6%	(5.3%)	0.6%	(5.3%)	20.9%	15.2%
Emerging Markets (MSCI Emerging Markets)	1.2%	0.4%	1.2%	0.4%	23.1%	20.4%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/18

Domestic equity

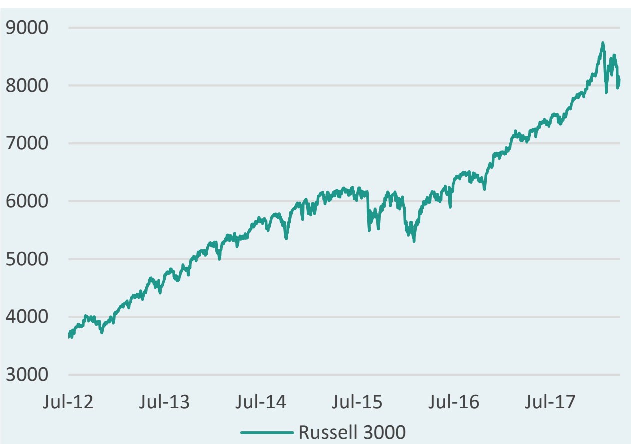
U.S. equities delivered a loss in Q1 (Russell 1000 -2.0%) - a change of pace from steady and strong gains in 2017. Equity indexes around the world fell between 8-12% in early February as the recent bull run was interrupted. Since the selloff, most markets have been rangebound but relatively flat overall. Volatility seems to have returned to the markets as sizable day-to-day swings have been the norm.

While large price movements tend to naturally cause investor fear, it is not apparent that the attractive macro picture has changed – i.e. positive economic growth, very strong earnings gains, and healthy sentiment. Equity prices typically follow growth and corporate profit trends over the medium and long-term term, which likely provides some support against larger downside equity movement.

However, the February selloff has dampened recent positive upward price momentum. Momentum is now more neutral as market prices flatten out.

Fundamentals appear unchanged despite falling prices

U.S. EQUITIES



Source: Russell Investments, as of 3/31/18

EARNINGS GROWTH

Source: S&P 500, as of 3/31/18

S&P 500 PRICE & EARNINGS

Source: Bloomberg, as of 3/31/18

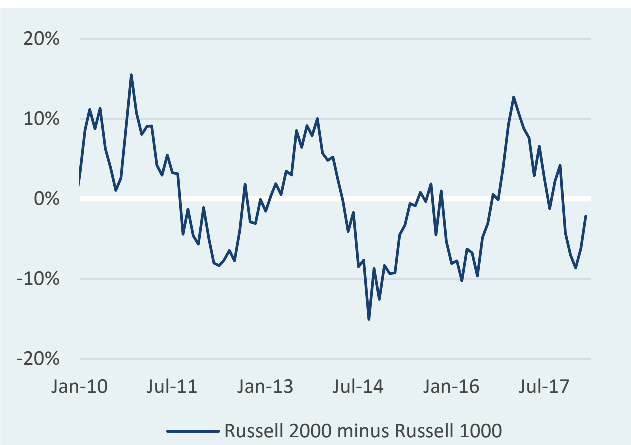
Domestic equity size & style

Large cap equities (Russell 1000 -2.0%) lagged small cap equities (Russell 2000 -1.1%) during the quarter. Value stocks delivered exceptionally poor performance in Q1 (Russell 1000 Value -4.0% vs. Russell 1000 Growth -0.1%), dragged down by the energy and materials sectors, which are heavily tilted towards value. Despite a sell-off in mega-cap tech stocks in March due mainly to company-specific issues, such as a data breach at Facebook and President Trump targeting Amazon over its relationship with the U.S. Postal Service, tech was still the best performing sector in the first quarter.

Traditional style factors – small cap and value in particular – have hit a rough patch since the 2008-2009 global financial crisis. It may be helpful to remember that these periods do occur. In fact, there are multiple points in history where the equity small-cap and value premiums delivered negative returns over more than a 10 year period.

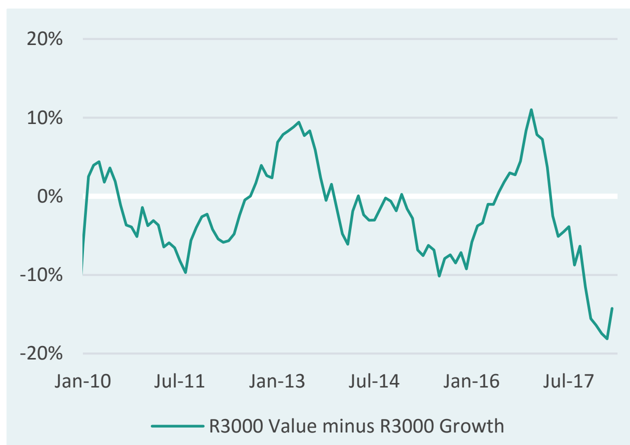
In U.S. equities, value has continued to underperform in recent years, while momentum delivered outperformance alongside the bull market rally.

SMALL CAP VS LARGE CAP (YOY)



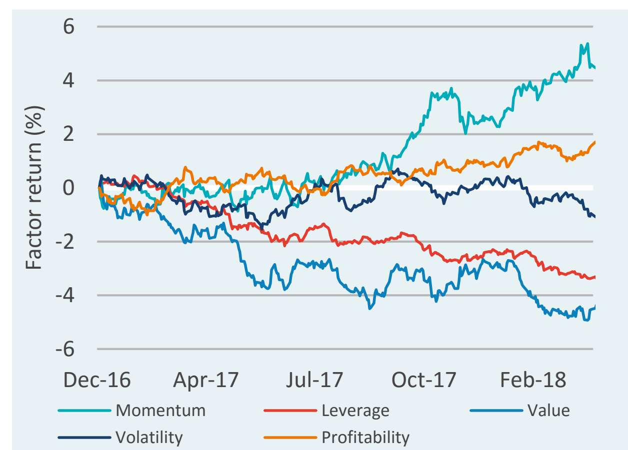
Source: FTSE, as of 3/31/18

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/18

BLOOMBERG FACTOR PERFORMANCE



Source: Bloomberg, as of 3/31/18

Hard times for value investing

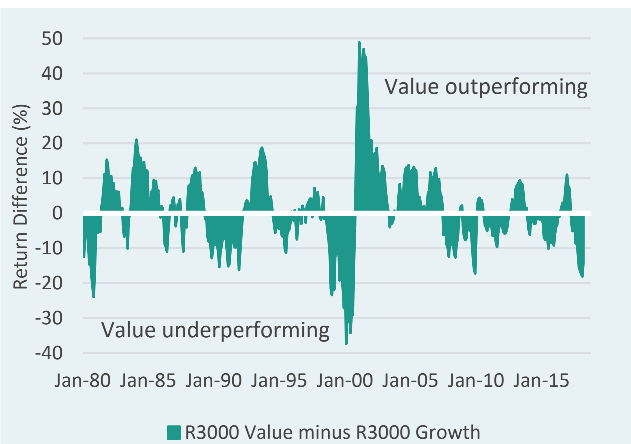
Value equities have underperformed growth equities over the past 10 years. This has occurred only two other times since the 1920's - both periods were followed by a rapid bounce-back in value performance. Is a turning point is on the horizon?

Value stocks are concentrated in the financial sector, and growth stocks are concentrated in the technology sector. The global financial crisis led to extreme underperformance of financial stocks, which hurt value. At the same time, technology stocks have fared exceptionally well. These two effects compounded value's underperformance.

The current price difference between value and growth stocks is near the historical average, which is notably different from the most recent bout of value underperformance – the 2001 tech bubble. At that time, growth stocks were anomalously expensive relative to value stocks, which helped explain how value stocks roared back to life after the tech bubble burst.

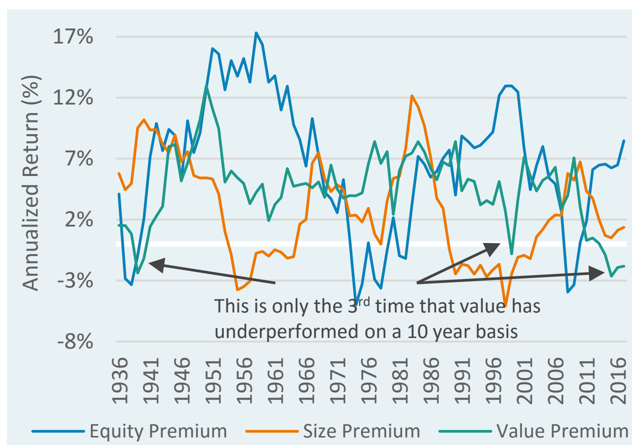
We do not yet see a catalyst for a value comeback. Prices are fairly normal, and the economic environment is positive (growth often performs well during later stages of economic expansions). We recommend that value investors stay the course. Timing factors over the short term is and will always be difficult.

U.S. VALUE PERFORMANCE (1YR ROLLING)



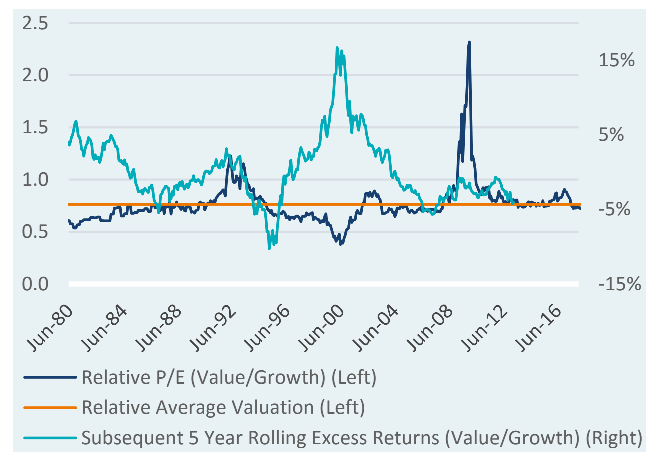
Source: FTSE, as 3/31/18

U.S. VALUE PERFORMANCE (10YR ROLLING)



Source: Fama French Library, as of 2/28/18

VALUE VS GROWTH - P/E MULTIPLES



Source: FTSE Russell, Bloomberg, as of 3/31/18

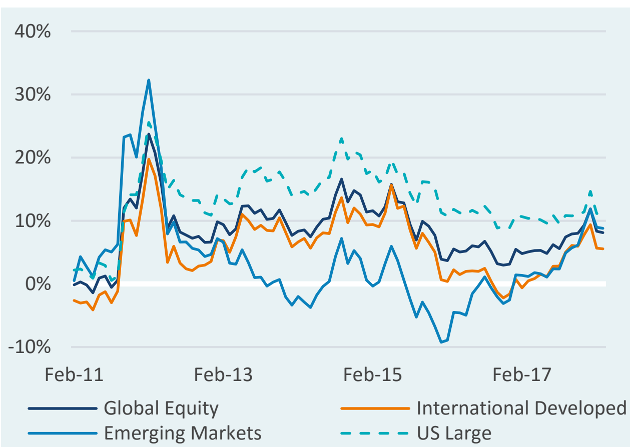
International developed equity

Unhedged International equities were in line with U.S. equities during Q1, delivering slightly negative performance. The MSCI EAFE Index returned -1.5%. Positive currency returns masked underperformance of local developed market equities. On a hedged basis, the MSCI EAFE Index posted a -3.8% return. Looking forward, accelerating corporate earnings, and more attractive valuations following the February fall in equity prices, may be supportive for another positive year in 2018. Forward one year earnings growth is expected to be around 15%.

Along with the U.S., most developed markets also experienced an approximate 10% drawdown in February, but were not as quick to recover. Most regional benchmarks finished the quarter still 7-10% below recent peaks.

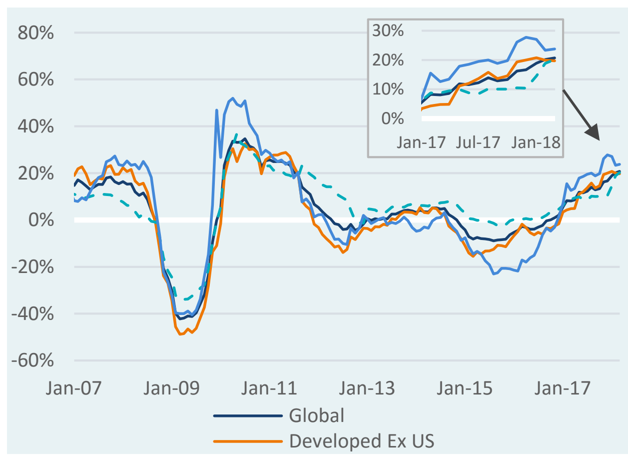
Trailing P/E ratios for the EAFE Index have moved to below average, providing a possible value opportunity. However, downside risks to these markets, including political issues and reliance on central bank support may be a justification for low valuations.

EQUITY PERFORMANCE (3-YEAR ROLLING)



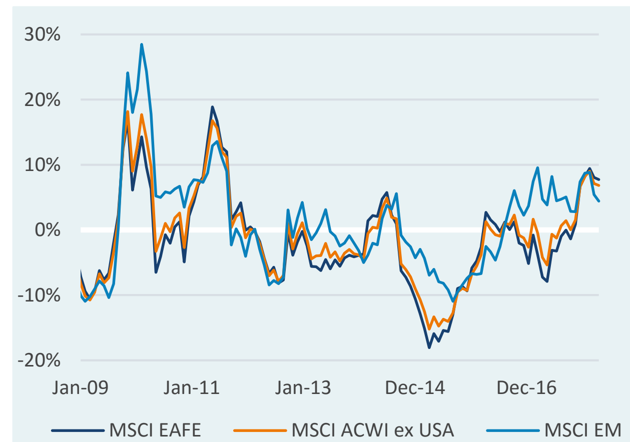
Source: Bloomberg, as of 3/31/18

EARNINGS GROWTH (YOY)



Source: MSCI, as of 3/31/18 – YoY growth in forward earnings

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 3/31/18

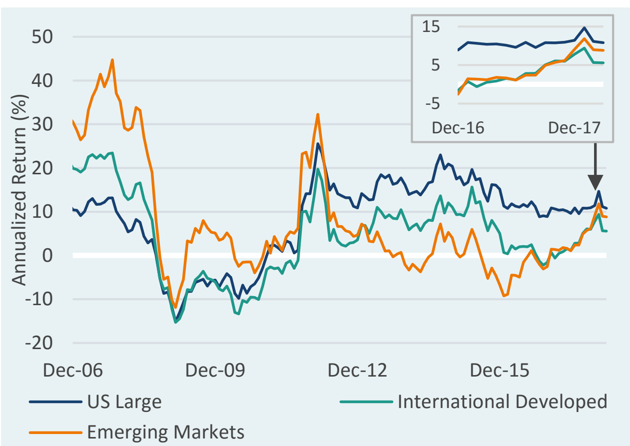
Emerging market equity

We maintain an overweight to emerging market equities. Emerging market equities have exhibited more modest valuations relative to developed markets such as the U.S., while these economies in aggregate continue to outpace developed economies by a wide margin. Furthermore, emerging market currencies remain depressed relative to history. Cheaper valuations, much stronger economic growth, and a currency tailwind may bode well for future performance.

Emerging economies have led the way over the past year in terms of economic growth, earnings, and equity performance. Emerging market equities have delivered positive performance year-to-date despite the February sell-off (MSCI Emerging Markets +1.2%) while developed markets were in negative territory to end the first quarter.

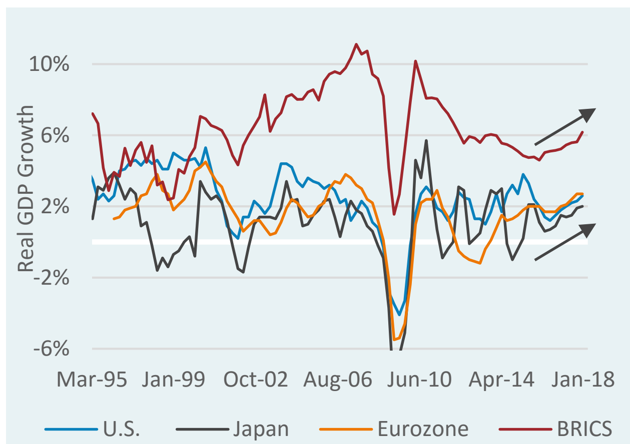
Coordinated global growth has helped propel emerging market equities forward

EQUITY PERFORMANCE (3YR ROLLING)



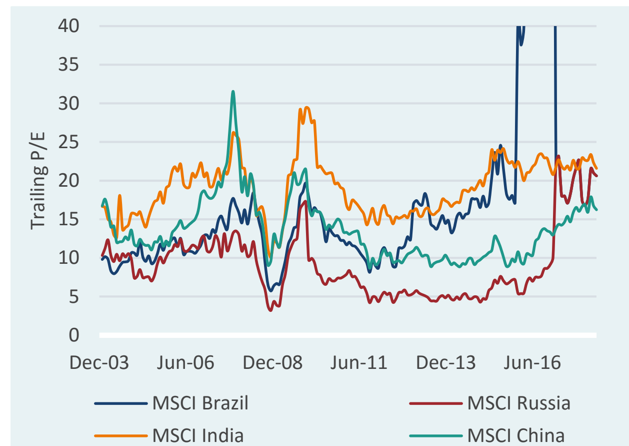
Source: Standard & Poor's, MSCI, as of 3/31/18

ECONOMIC MOMENTUM



Source: Bloomberg, as of 12/31/18

BRIC VALUATIONS



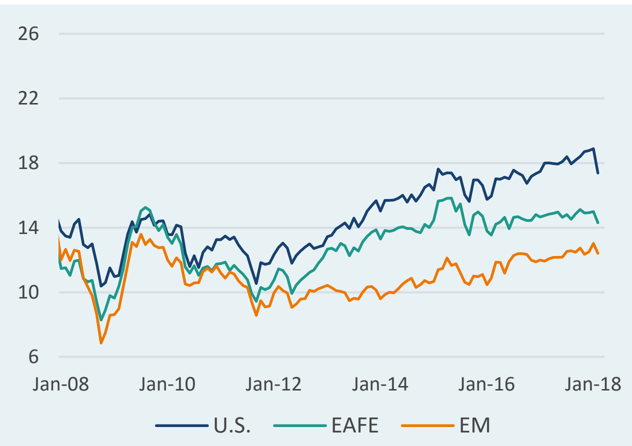
Source: MSCI, as of 3/31/18

Equity valuations

Equity valuations fell over the quarter due to both a decrease in price and an increase in earnings. International developed equities experienced the biggest contraction in valuations and the trailing P/E ratio (16.5) is now below the median multiple since 1995 (20.0). Price-to-earnings multiples also came down in the U.S., although they remain above average. The trailing 12-month P/E ratio for the S&P 500 Index was 21.3 at the end of March, compared to the 30-year median value of 18.3. After strong price gains over the past year, emerging market equity valuation metrics are near their long-term averages.

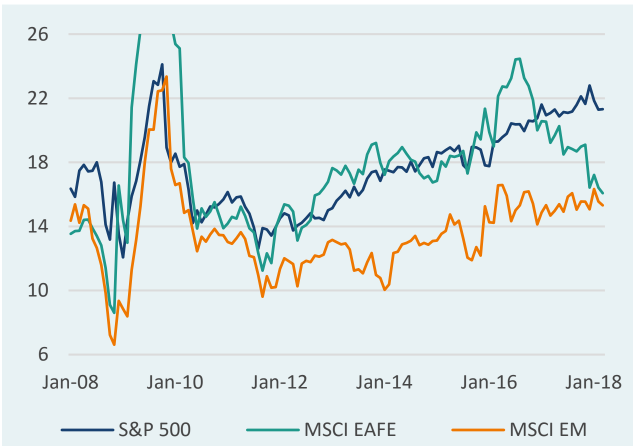
Although most equity markets experienced a 10% correction during the quarter, momentum in earnings growth remained strong. A continuation of this trend may result in further normalization of valuations without a significant drop in equity prices.

FORWARD P/E RATIOS



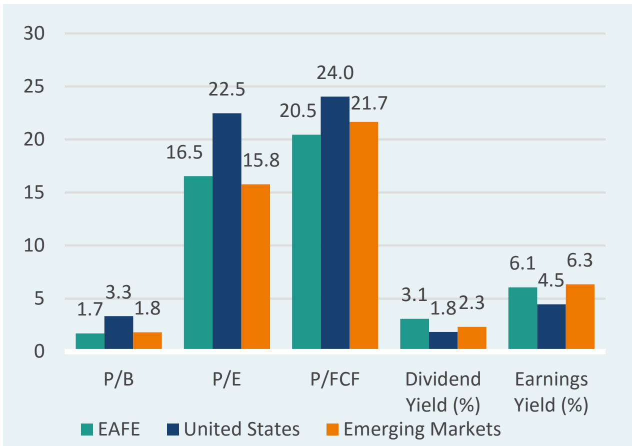
Source: MSCI, as of 3/31/2018

TRAILING P/E RATIOS



Source: Bloomberg, as of 3/31/18

VALUATION METRICS



Source: Bloomberg, as of 3/31/18 - trailing P/E

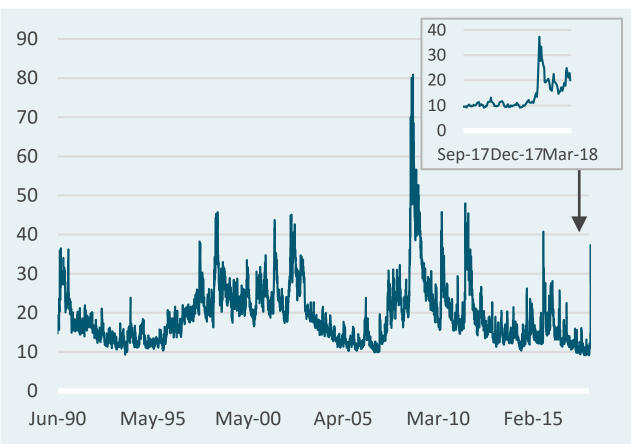
Equity volatility

Volatility in U.S. equities spiked in February and stayed elevated. The VIX Index of implied volatility on the S&P 500 Index registered its largest one-day increase on February 5th, jumping from 17.3 to 37.3. The well-documented period of low volatility that markets experienced in 2017 was broken rather suddenly. Volatility remained high with the VIX averaging 20.7 in the last two month of the quarter, compared to 11.0 during the previous 12 months. The increase in volatility was a U.S. focused event, rather than a global phenomenon – volatility was relatively benign in international developed and emerging markets.

One of the likely drivers of the spike in volatility that occurred in February was the unwinding of the "short vol" trade. The low volatility environment that began in 2016 created an opportunity to profit from selling volatility in the futures market, which is similar to selling insurance. Speculators selling volatility receive a premium for taking on risk from those looking to hedge, and are able to capture this premium when volatility remains low. When volatility increases, however, losses can be catastrophic. An index tracking this strategy lost 96% of its value during one day of trading, which likely reinforced the increase in volatility.

Equity volatility spiked in February and remained at heightened levels

U.S. IMPLIED VOLATILITY (VIX)



Source: CBOE, as of 3/31/18

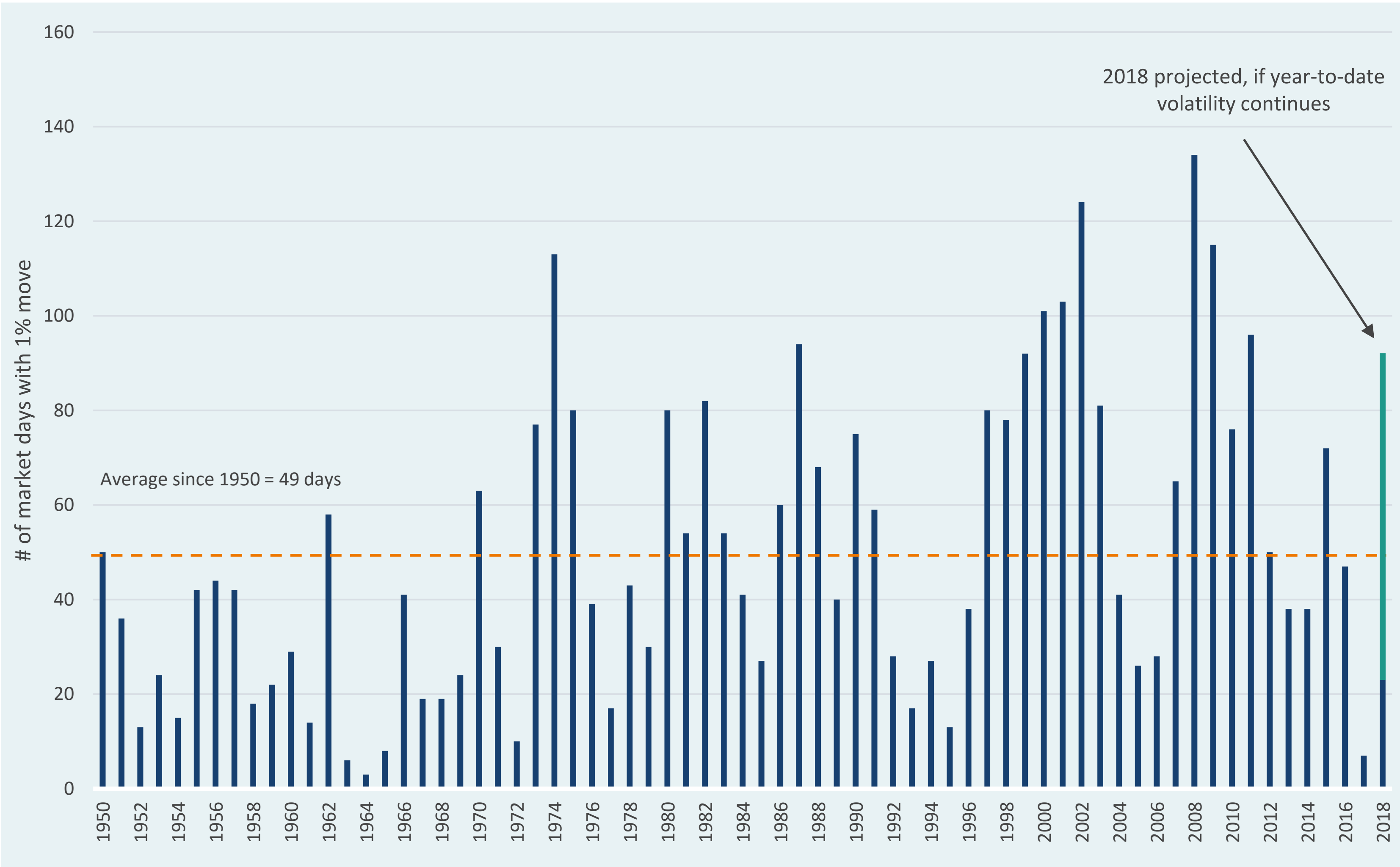
REALIZED 1-YEAR ROLLING VOLATILITY

Source: Bloomberg, as of 3/31/18

S&P INVERSE VIX FUTURES INDEX

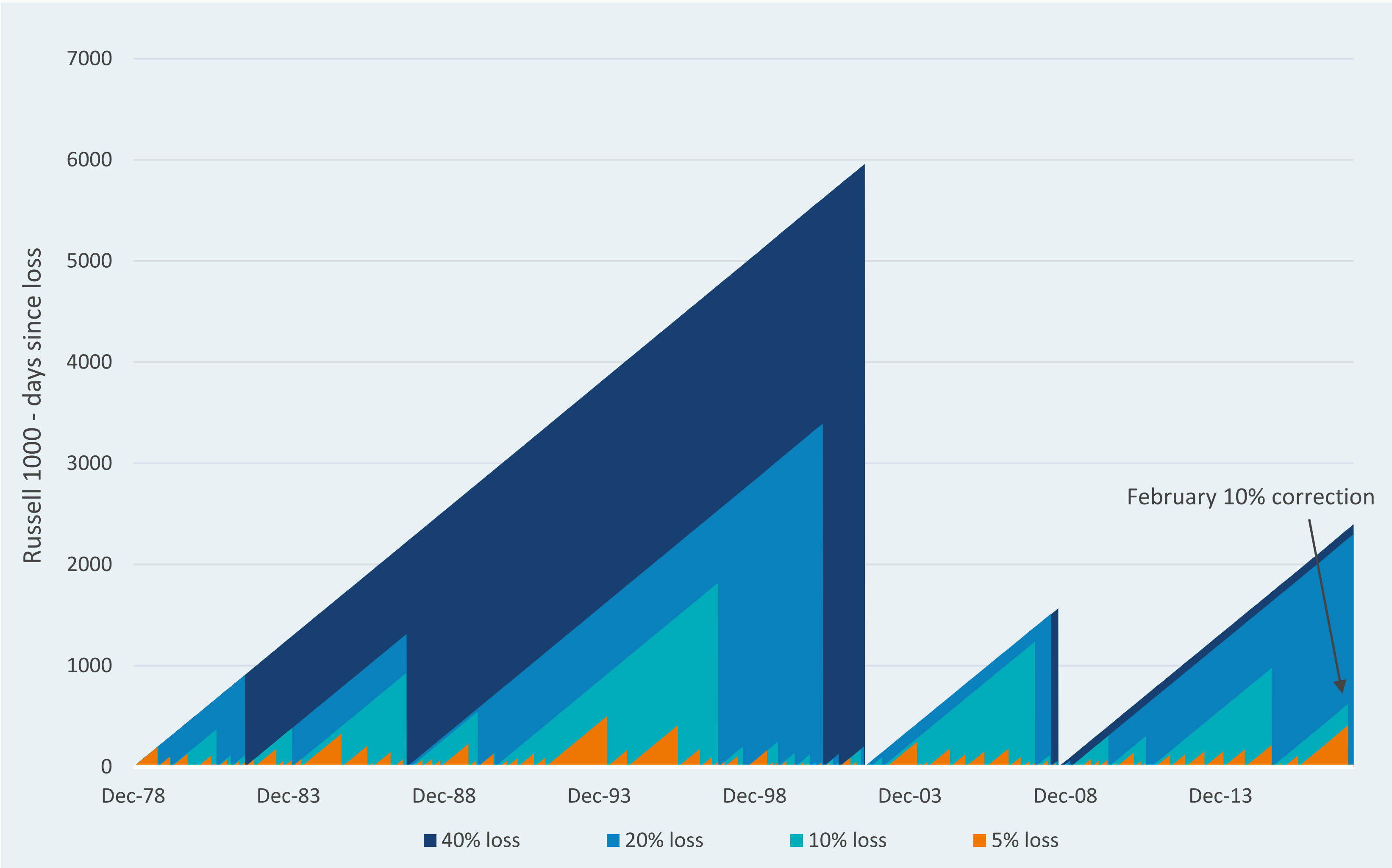
Source: Bloomberg, as of 3/31/18

Equity volatility



Source: S&P 500, as of 3/31/18

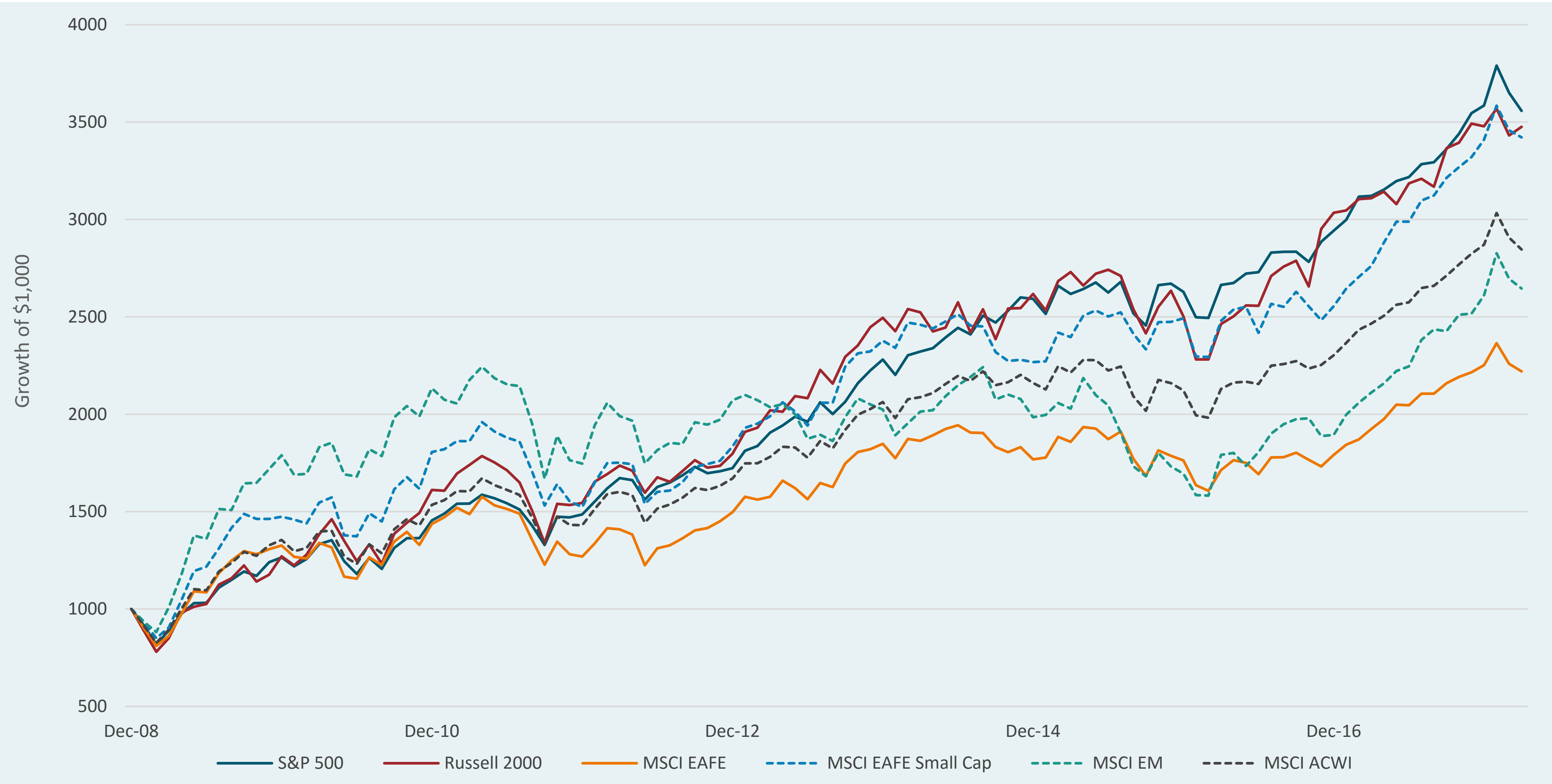
Expect the unexpected



Equities experienced a 10% correction for the first time in more than two years

Source: FTSE Russell, Bloomberg, as of 4/11/18

Long-term equity performance



Source: MPI, as of 3/31/18

Other assets

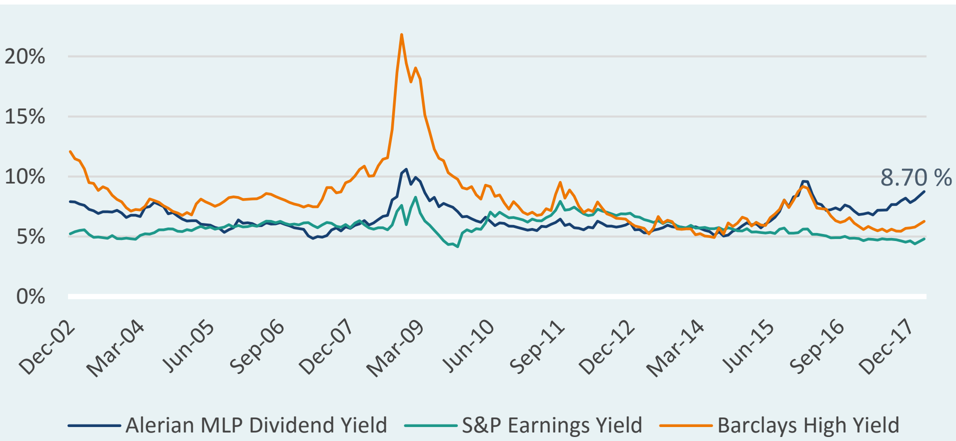
Opportunity in MLPs

MLP valuations look attractive across a number of historical metrics, including enterprise value-to-EBITDA and price-to-distributable cash flow. We believe there is opportunity to allocate to MLPs for a short to medium holding period (2-4 years).

MLP yields have steadily climbed since mid-2016 on the back of a sell-off in the sector and recovery in distributions following the energy price collapse. Balance sheets across the industry are in better shape today than before the oil crisis. Debt-to-cash flow levels have improved since peaking at 6.4x in 2015. Furthermore, the U.S. is expected to surpass Russia in 2018 to be the largest oil producer in the world, which is important because midstream companies grow through volume increases rather than commodity price appreciation.

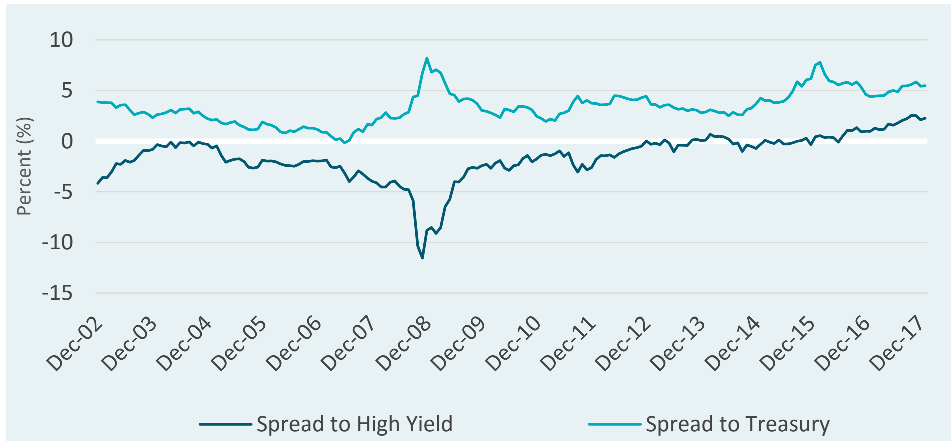
A decision to invest in MLPs, however, is one that should be considered carefully, and after detailed analysis, as it remains a specialist asset class.

MLP YIELDS



Source: Bloomberg, as of 12/31/17

MLP SPREADS VS HIGH YIELD AND TREASURY RATES



Source: Bloomberg, as of 12/31/17

Currency

The U.S. dollar declined further to begin the quarter, but recovered slightly over the past two months. The broad U.S. trade weighted index fell 1.9% in the first quarter. This index was down 8.5% since peaking at the end of 2016.

Dollar depreciation has occurred despite widening short-term interest rate differentials between the U.S. and the rest of the developed world. Typically, higher interest rate differentials result in currency appreciation as investors take advantage of the yield, at least in the short-term.

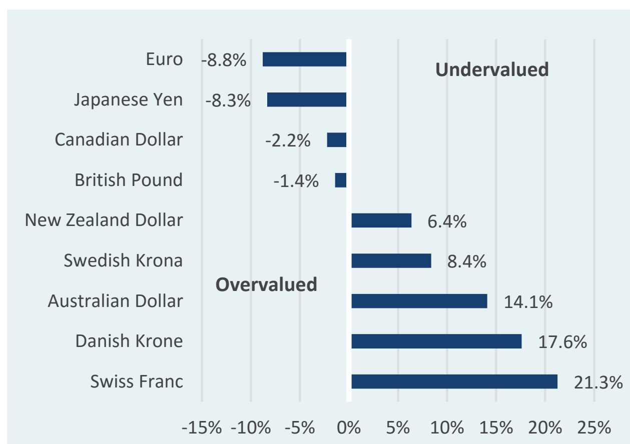
Based on purchasing power parity (PPP), the dollar is overvalued against the currencies with the biggest weights in international equity benchmarks: the euro, yen, and pound.

Unhedged foreign currency exposure added to equity returns over the past year, especially in developed markets. Although currency exposure has been positive lately, it has historically tended to experience large swings that add volatility to portfolios.

U.S. DOLLAR TRADE WEIGHTED INDEX

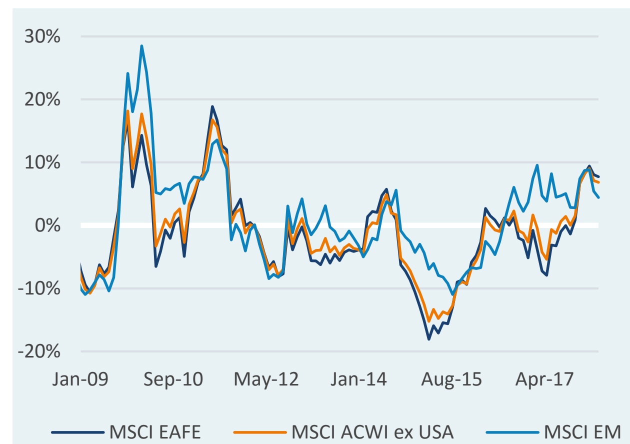
Source: Federal Reserve, as of 3/28/18

CURRENCY VALUATIONS VS USD (PPP)



Source: OECD, as of 3/31/2018 (see appendix)

EFFECT OF CURRENCY (1-YR ROLLING)



Source: MSCI, as of 3/31/18

Appendix

Periodic table of returns

BEST ↑ … ↓ WORST

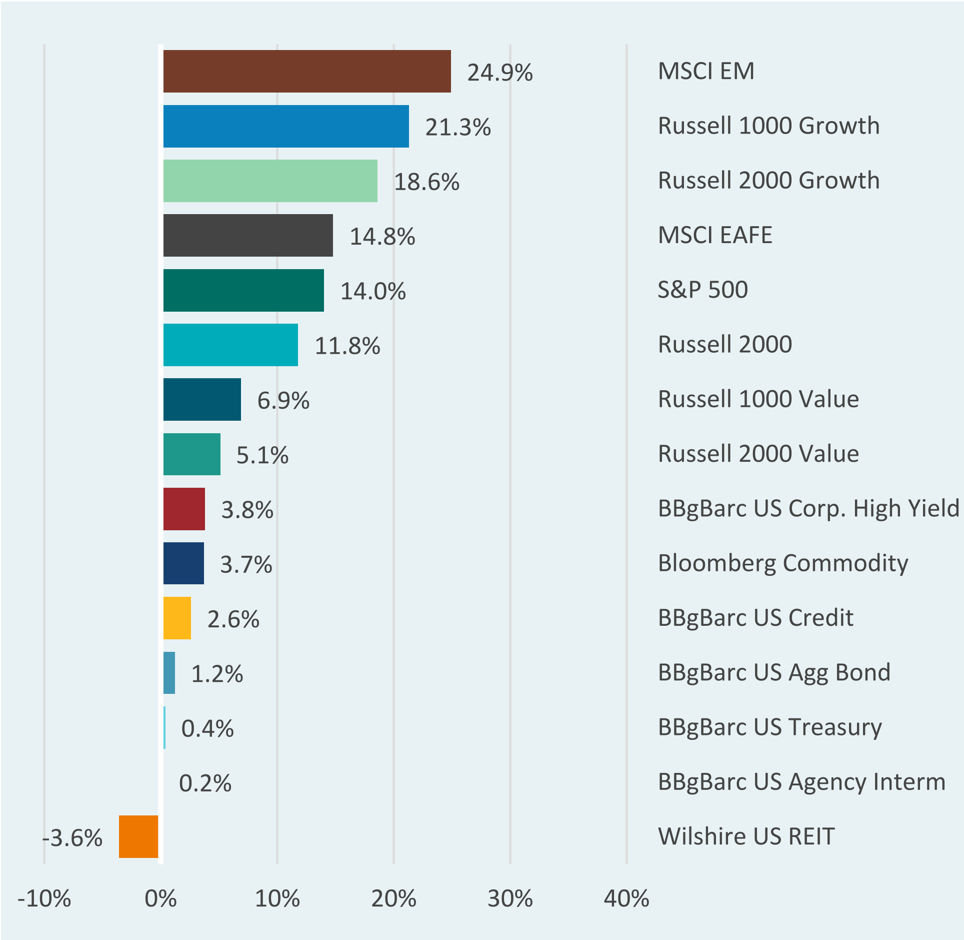
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD	5-Year	10-Year
Small Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	2.3	15.5	11.3
Emerging Markets Equity	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.4	13.2	11.0
Large Cap Growth	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	1.4	12.9	9.8
Hedge Funds of Funds	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	0.9	11.5	9.6
Cash	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	0.4	10.8	8.6
60/40 Global Portfolio	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	0.0	10.2	7.8
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	0.0	10.0	6.1
Small Cap Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-0.1	6.5	4.7
Commodities	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-0.4	6.2	3.6
Large Cap Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-0.7	5.0	3.0
US Bonds	-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	-1.5	3.5	2.7
International Equity	-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	-1.5	1.8	1.6
Small Cap Value	-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	-2.6	0.3	0.3
Large Cap Value	-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	-2.8	-8.3	-7.7

- 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 12/31/17.

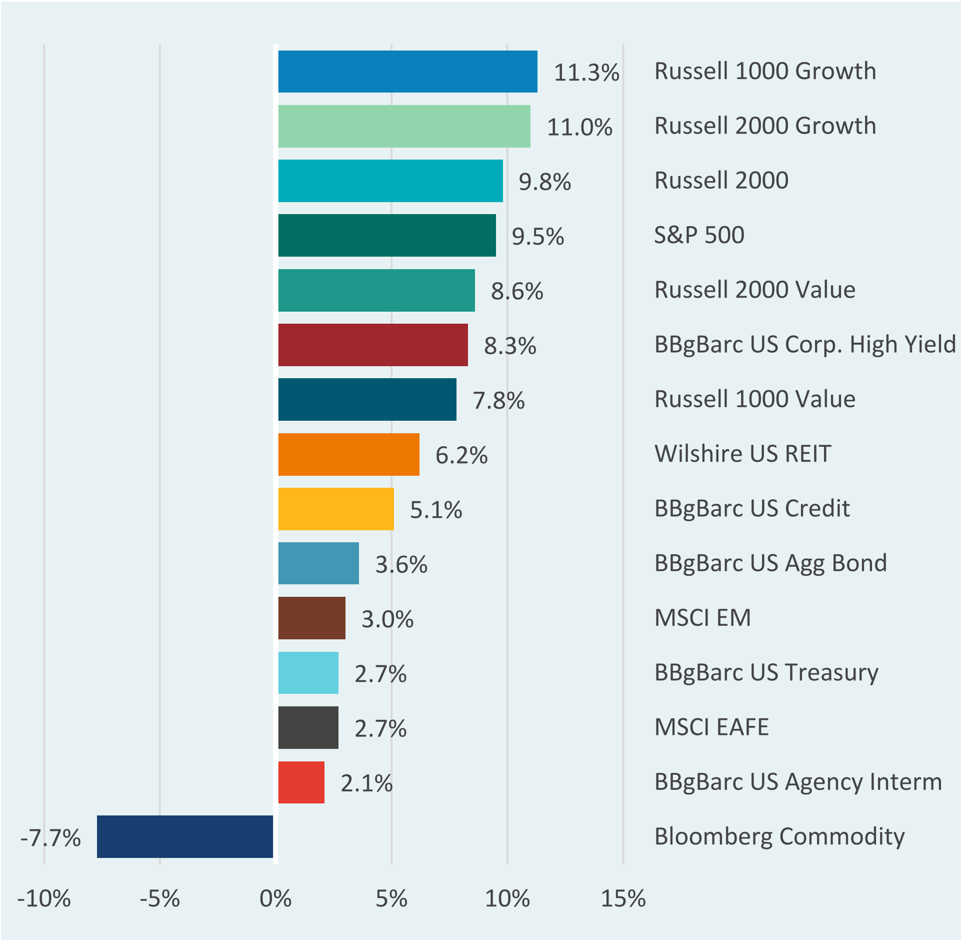
Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/18

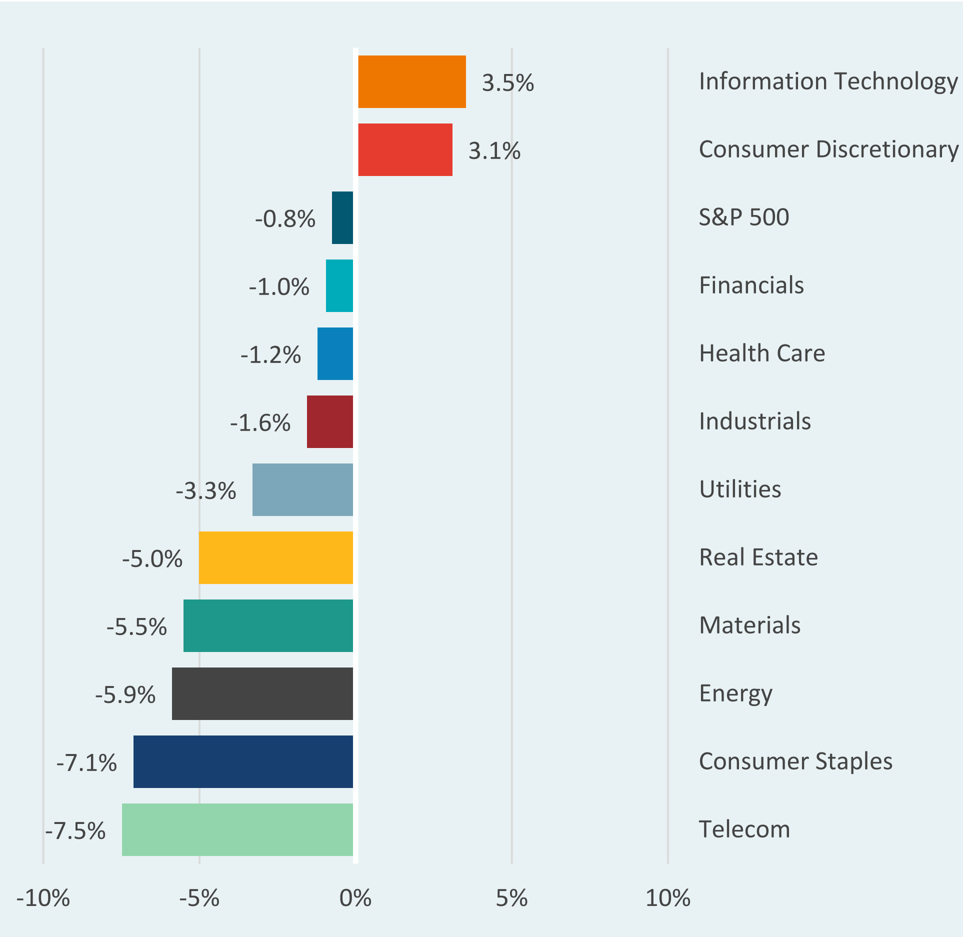
TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/18

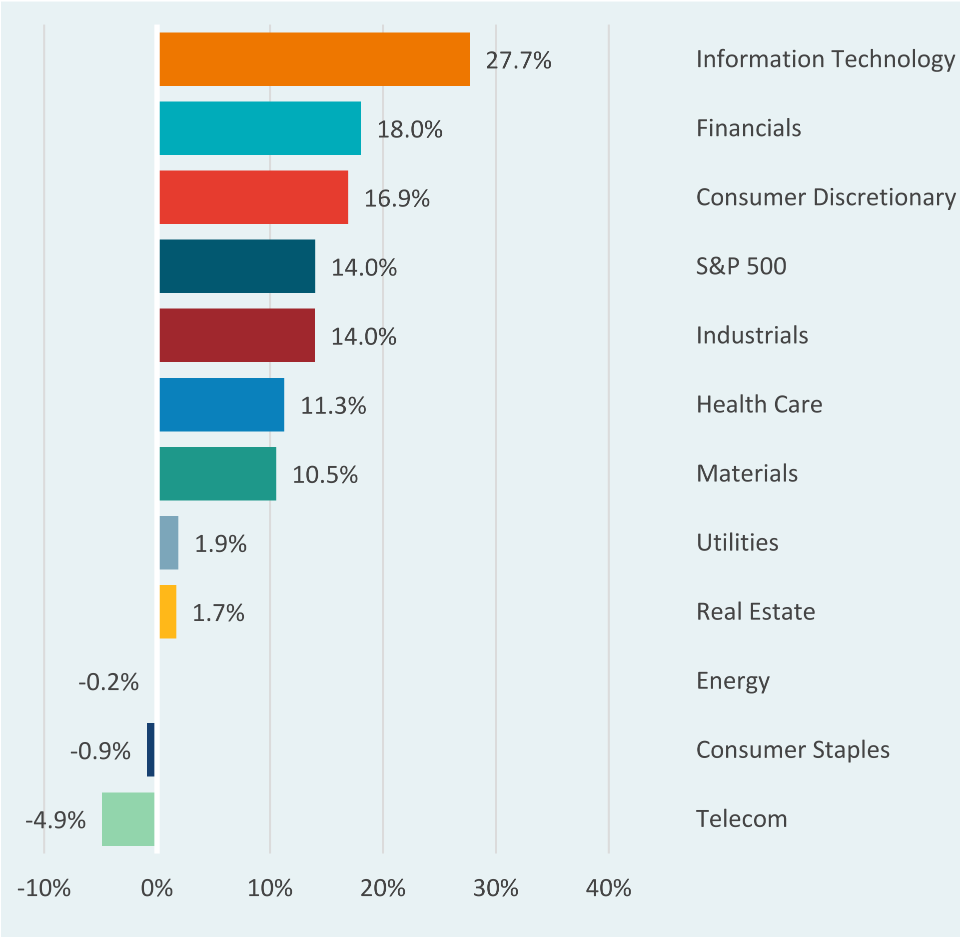
S&P 500 sector returns

1ST QUARTER



Source: Morningstar, as of 3/31/18

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/18

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(2.5)	(0.8)	(0.8)	14.0	10.8	13.3	9.5
S&P 500 Equal Weighted	(0.9)	(1.0)	(1.0)	11.7	9.1	12.9	11.0
DJ Industrial Average	(3.6)	(2.0)	(2.0)	19.4	13.5	13.3	9.9
Russell Top 200	(3.2)	(0.8)	(0.8)	14.7	11.4	13.6	9.4
Russell 1000	(2.3)	(0.7)	(0.7)	14.0	10.4	13.2	9.6
Russell 2000	1.3	(0.1)	(0.1)	11.8	8.4	11.5	9.8
Russell 3000	(2.0)	(0.6)	(0.6)	13.8	10.2	13.0	9.6
Russell Mid Cap	0.1	(0.5)	(0.5)	12.2	8.0	12.1	10.2
Style Index							
Russell 1000 Growth	(2.7)	1.4	1.4	21.3	12.9	15.5	11.3
Russell 1000 Value	(1.8)	(2.8)	(2.8)	6.9	7.9	10.8	7.8
Russell 2000 Growth	1.3	2.3	2.3	18.6	8.8	12.9	11.0
Russell 2000 Value	1.2	(2.6)	(2.6)	5.1	7.9	10.0	8.6

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(2.1)	(1.0)	(1.0)	14.8	8.1	9.2	5.6
MSCI ACWI ex US	(1.8)	(1.2)	(1.2)	16.5	6.2	5.9	2.7
MSCI EAFE	(1.8)	(1.5)	(1.5)	14.8	5.6	6.5	2.7
MSCI EM	(1.9)	1.4	1.4	24.9	8.8	5.0	3.0
MSCI EAFE Small Cap	(1.1)	0.2	0.2	23.5	12.3	11.1	6.5
Style Index							
MSCI EAFE Growth	(1.2)	(1.0)	(1.0)	17.5	6.7	7.1	3.4
MSCI EAFE Value	(2.4)	(2.0)	(2.0)	12.2	4.3	5.8	2.0
Regional Index							
MSCI UK	(0.3)	(3.9)	(3.9)	11.9	3.1	3.9	2.3
MSCI Japan	(2.1)	0.8	0.8	19.6	8.4	8.9	4.1
MSCI Euro	(1.2)	(0.4)	(0.4)	16.1	5.7	8.1	0.7
MSCI EM Asia	(1.4)	0.8	0.8	27.0	9.4	8.4	5.2
MSCI EM Latin American	(1.0)	8.0	8.0	19.3	10.1	(1.9)	(0.8)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.1	(0.8)	(0.8)	0.9	1.3	0.0	2.9
BBgBarc US Treasury Bills	0.1	0.3	0.3	1.0	0.5	0.3	0.4
BBgBarc US Agg Bond	0.6	(1.5)	(1.5)	1.2	1.2	1.8	3.6
Duration							
BBgBarc US Treasury 1-3 Yr	0.2	(0.2)	(0.2)	(0.0)	0.4	0.5	1.1
BBgBarc US Treasury Long	3.0	(3.3)	(3.3)	3.5	0.4	3.3	5.8
BBgBarc US Treasury	0.9	(1.2)	(1.2)	0.4	0.4	1.1	2.7
Issuer							
BBgBarc US MBS	0.6	(1.2)	(1.2)	0.8	1.1	1.8	3.5
BBgBarc US Corp. High Yield	(0.6)	(0.9)	(0.9)	3.8	5.2	5.0	8.3
BBgBarc US Agency Interm	0.3	(0.4)	(0.4)	0.2	0.7	0.9	2.1
BBgBarc US Credit	0.3	(2.1)	(2.1)	2.6	2.2	2.8	5.1

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(0.6)	(0.4)	(0.4)	3.7	(3.2)	(8.3)	(7.7)
Wilshire US REIT	4.1	(7.5)	(7.5)	(3.6)	1.0	6.1	6.2
CS Leveraged Loans	0.3	1.6	1.6	4.6	4.3	4.2	5.4
Regional Index							
JPM EMBI Global Div	0.3	(1.7)	(1.7)	4.3	5.8	4.7	7.0
JPM GBI-EM Global Div	1.0	4.4	4.4	13.0	5.4	(0.7)	3.8
Hedge Funds							
HFRI Composite	(0.7)	0.1	0.1	4.6	2.0	3.9	3.6
HFRI FOF Composite	(0.0)	0.9	0.9	6.2	2.1	3.5	1.6
Currency (Spot)							
Euro	0.8	2.4	2.4	15.0	4.6	(0.9)	(2.5)
Pound	1.8	3.7	3.7	12.2	(1.9)	(1.6)	(3.4)
Yen	0.3	5.9	5.9	4.8	4.1	(2.4)	(0.7)

Source: Morningstar, as of 3/31/18

Definitions

Atlanta Fed Wage Tracker – *a measure of the nominal wage growth of individuals. It is constructed using microdata from the Current Population Survey (CPS), and is the median percent change in the hourly wage of individuals observed 12 months apart. (www.frbatlanta.org)*

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

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

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

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/)*

OECD Purchasing Power Parity *– the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between countries. In their simplest form, PPPs show the ratio of prices in national currencies of the same good or service in different countries. (www.OECD.org)*

Notices & disclosures

San Luis Obispo County Pension Trust

Investment Performance Review

Period Ending: March 31, 2018

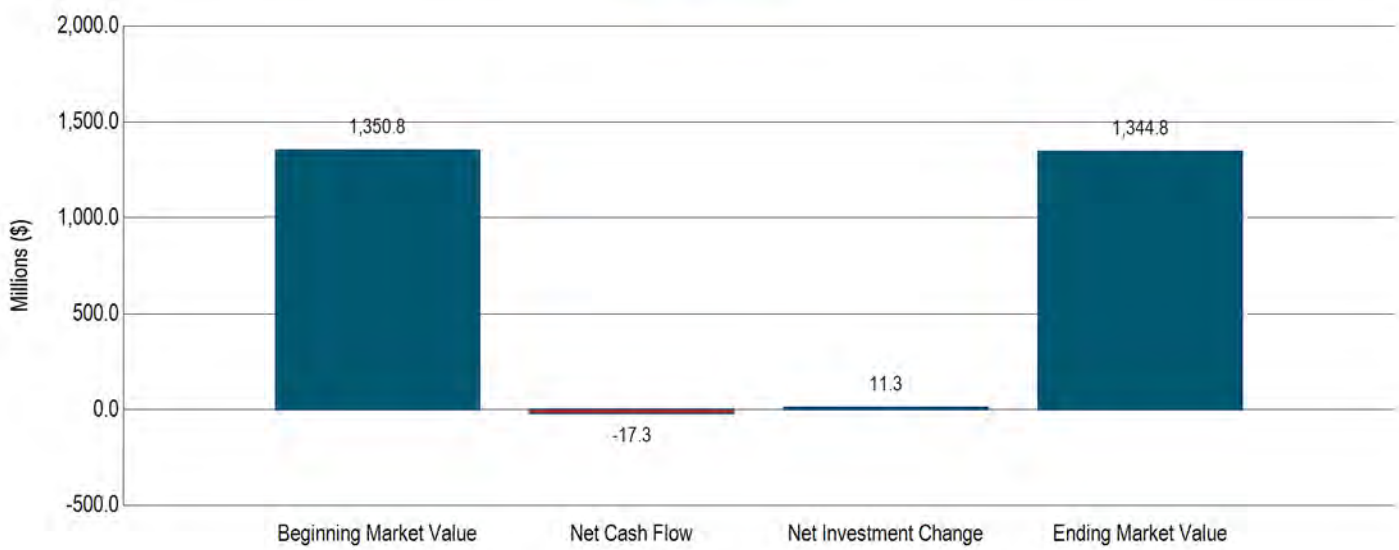
VERUSINVESTMENTS.COM

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	$1,350,791,282	$1,350,791,282	$1,232,920,247
Net Cash Flow	-$17,273,223	-$17,273,223	-$23,716,305
Net Investment Change	$11,309,526	$11,309,526	$135,623,643
Ending Market Value	$1,344,827,585	$1,344,827,585	$1,344,827,585

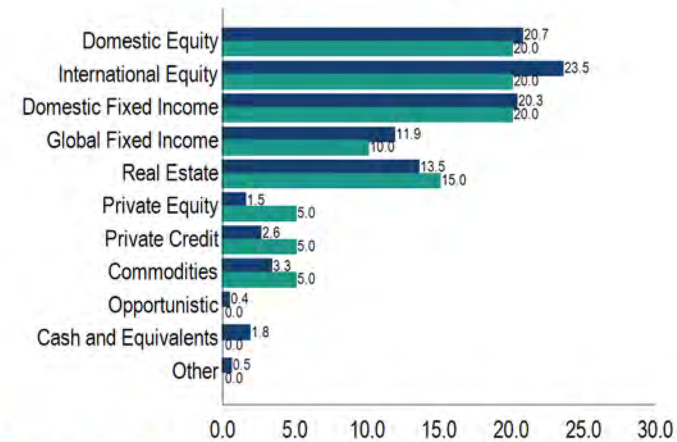
Change in Market Value
Last Three Months



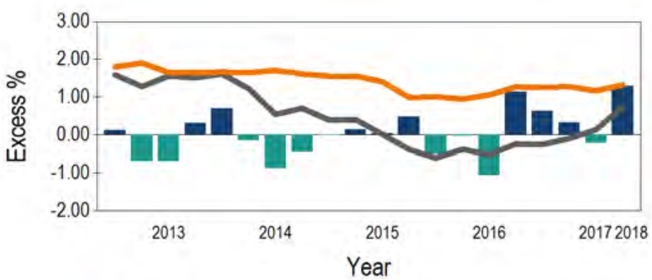
Contributions and withdrawals may include intra-account transfers between managers/funds. Beginning Market Value reflects downward revision in Pathway Private Equity in December.

	QTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	0.9	6	11.3	28	6.6	49	6.8	81
Policy Index	-0.4	68	9.1	79	5.9	83	6.7	83
Total Fund ex Overlay	0.9	6	11.3	27	6.6	50	6.8	81
Policy Index	-0.4	68	9.1	79	5.9	83	6.7	83
Total Domestic Equity	-0.2	30	17.8	5	11.9	3	13.0	44
Russell 3000	-0.6	64	13.8	45	10.2	37	13.0	40
Total International Equity	-0.3	46	16.1	84	6.2	84	7.1	53
MSCI ACWI ex USA Gross	-1.1	83	17.0	73	6.7	72	6.4	77
Total Domestic Fixed Income	-0.4	17	2.4	36	2.6	35	2.2	57
BBgBarc US Aggregate TR	-1.5	89	1.2	70	1.2	80	1.8	65
Total Global Fixed	5.1	--	12.9	--	4.7	--	1.2	--
Citi World Govt Bond Index	2.5	--	8.5	--	3.5	--	1.2	--
Total Real Estate	2.0	--	7.6	--	10.8	--	11.2	--
NCREIF Property Index	1.7	--	7.1	--	8.7	--	10.0	--
Total Commodities	0.0	--	7.2	--	-2.0	--	-7.1	--
Bloomberg Commodity Index TR USD	-0.4	--	3.7	--	-3.2	--	-8.3	--
Total Private Equity	2.4	--	15.0	--	15.4	--	16.8	--
Russell 3000 + 3%	0.1	--	17.2	--	13.5	--	16.4	--
Total Private Credit	3.2	--	6.2	--	--	--	--	--
BBgBarc High Yield +2% (Lagged)	1.0	--	9.6	--	--	--	--	--
Total Cash	0.3	--	1.0	--	0.7	--	0.5	--
91 Day T-Bills	0.4	--	1.2	--	0.5	--	0.3	--
Total Opportunistic	3.2	--	9.9	--	6.1	--	9.0	--
Russell 3000 + 3%	0.1	--	17.2	--	13.5	--	16.4	--

Actual vs Target Allocation (%)

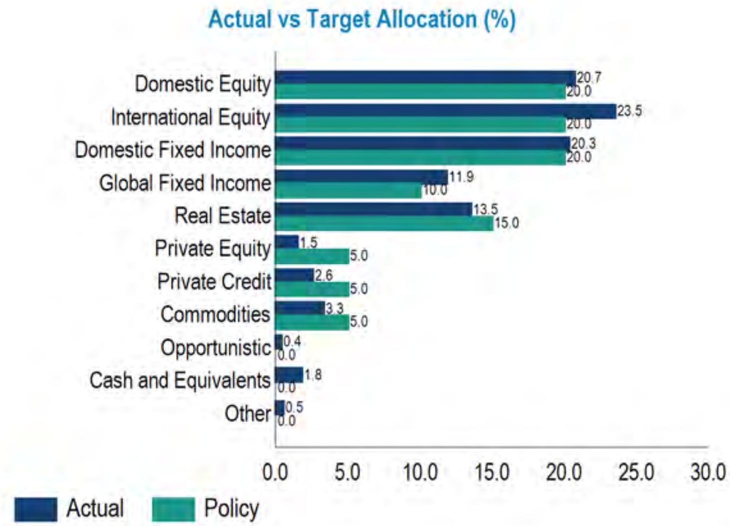


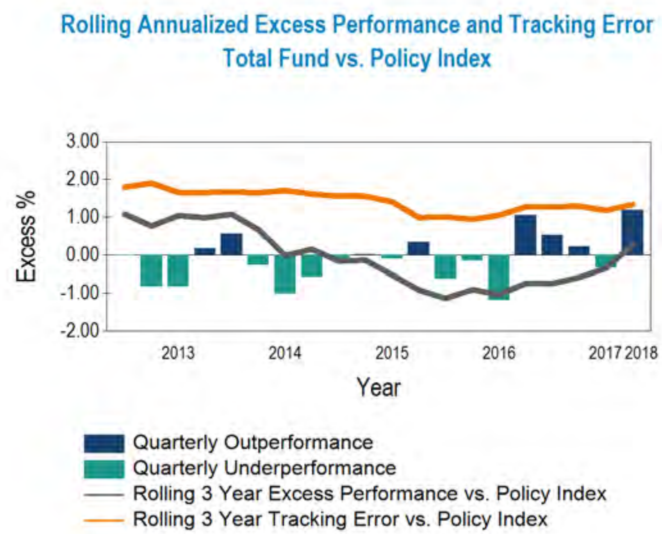
Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



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	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	**0.8**	**8**	**10.8**	**36**	**6.1**	**72**	**6.3**	**91**
Policy Index	*-0.4*	*68*	*9.1*	*79*	*5.9*	*83*	*6.7*	*83*
Total Fund ex Overlay	0.8	8	10.9	36	6.1	76	6.3	91
Policy Index	*-0.4*	*68*	*9.1*	*79*	*5.9*	*83*	*6.7*	*83*
Total Domestic Equity	**-0.3**	**37**	**17.2**	**7**	**11.5**	**5**	**12.5**	**69**
Russell 3000	*-0.6*	*64*	*13.8*	*45*	*10.2*	*37*	*13.0*	*40*
Total International Equity	**-0.4**	**57**	**15.4**	**91**	**5.5**	**95**	**6.4**	**77**
MSCI ACWI ex USA Gross	*-1.1*	*83*	*17.0*	*73*	*6.7*	*72*	*6.4*	*77*
Total Domestic Fixed Income	**-0.5**	**19**	**2.1**	**44**	**2.3**	**41**	**1.9**	**64**
BBgBarc US Aggregate TR	*-1.5*	*89*	*1.2*	*70*	*1.2*	*80*	*1.8*	*65*
Total Global Fixed	**4.9**	**--**	**12.2**	**--**	**4.0**	**--**	**0.5**	**--**
Citi World Govt Bond Index	*2.5*	*--*	*8.5*	*--*	*3.5*	*--*	*1.2*	*--*
Total Real Estate	**2.0**	**--**	**7.6**	**--**	**10.3**	**--**	**10.5**	**--**
NCREIF Property Index	*1.7*	*--*	*7.1*	*--*	*8.7*	*--*	*10.0*	*--*
Total Commodities	**0.0**	**--**	**7.2**	**--**	**-2.4**	**--**	**-7.6**	**--**
Bloomberg Commodity Index TR USD	*-0.4*	*--*	*3.7*	*--*	*-3.2*	*--*	*-8.3*	*--*
Total Private Equity	**2.4**	**--**	**15.0**	**--**	**14.2**	**--**	**14.5**	**--**
Russell 3000 + 3%	*0.1*	*--*	*17.2*	*--*	*13.5*	*--*	*16.4*	*--*
Total Private Credit	**3.2**	**--**	**6.2**	**--**	**--**	**--**	**--**	**--**
BBgBarc High Yield +2% (Lagged)	*1.0*	*--*	*9.6*	*--*	*--*	*--*	*--*	*--*
Total Cash	**0.3**	**--**	**1.0**	**--**	**0.7**	**--**	**0.5**	**--**
91 Day T-Bills	*0.4*	*--*	*1.2*	*--*	*0.5*	*--*	*0.3*	*--*
Total Opportunistic	**3.2**	**--**	**9.9**	**--**	**5.5**	**--**	**8.7**	**--**
Russell 3000 + 3%	*0.1*	*--*	*17.2*	*--*	*13.5*	*--*	*16.4*	*--*





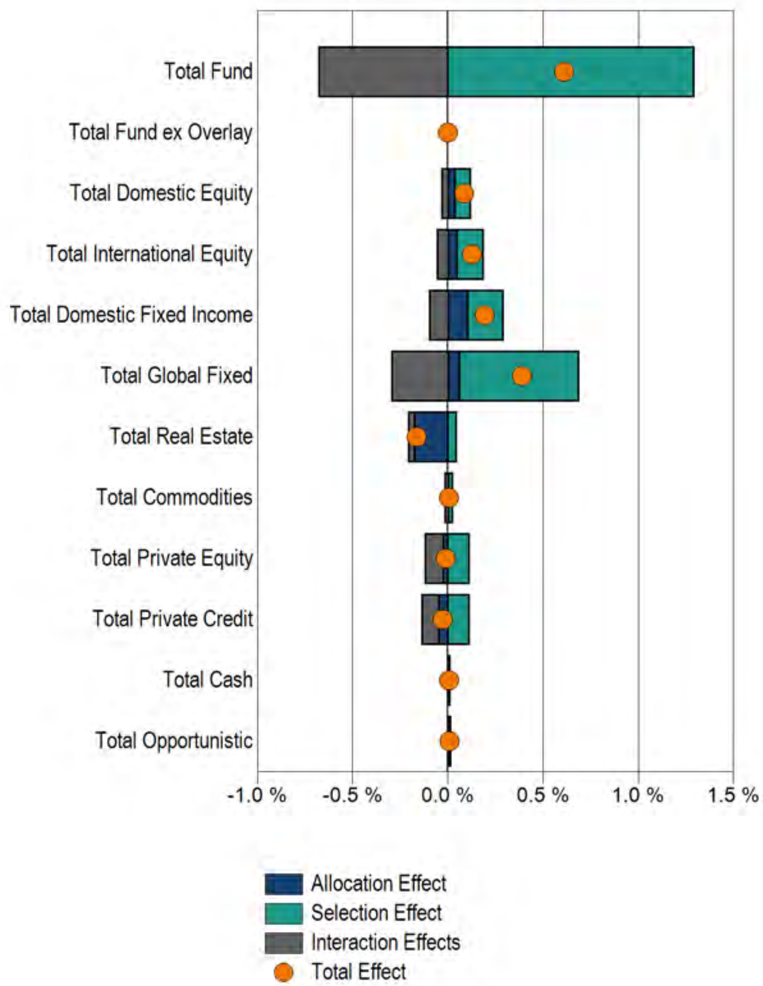
New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%, 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. Stone 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.

Performance Attribution

	Last 3 Mo.
Wtd. Actual Return	0.77%
Wtd. Index Return *	-0.43%
Excess Return	**1.20%**
Selection Effect	1.29%
Allocation Effect	-0.01%
Interaction Effect	-0.67%

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

Attribution Effects
3 Months Ending March 31, 2018

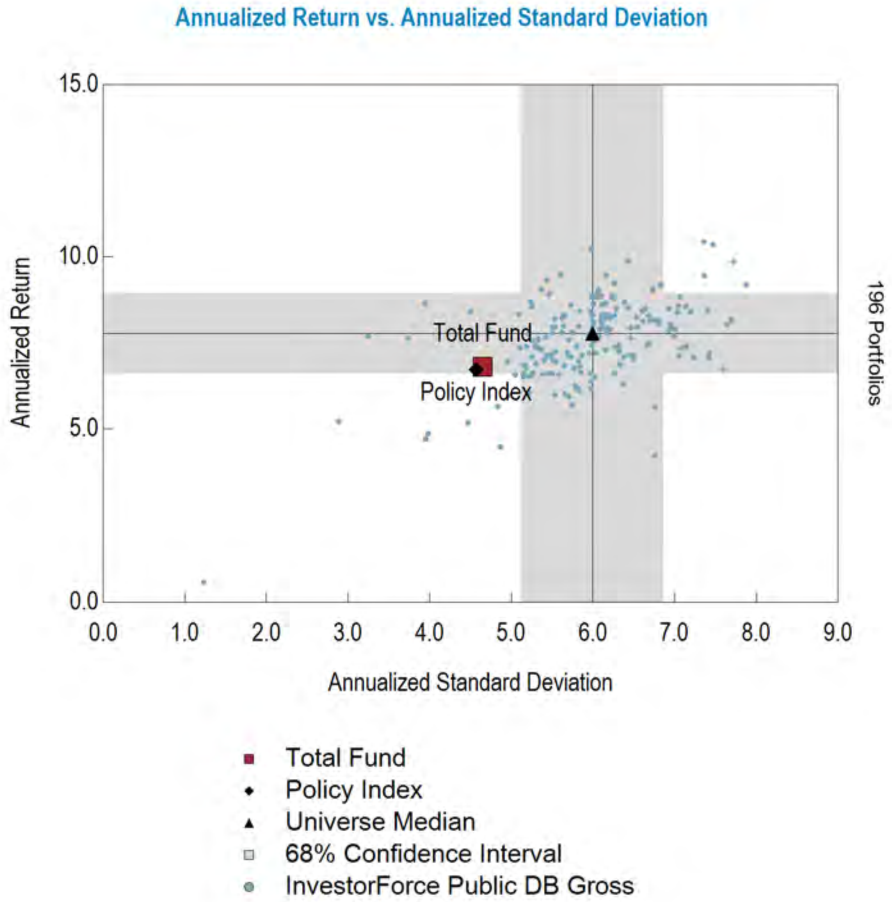


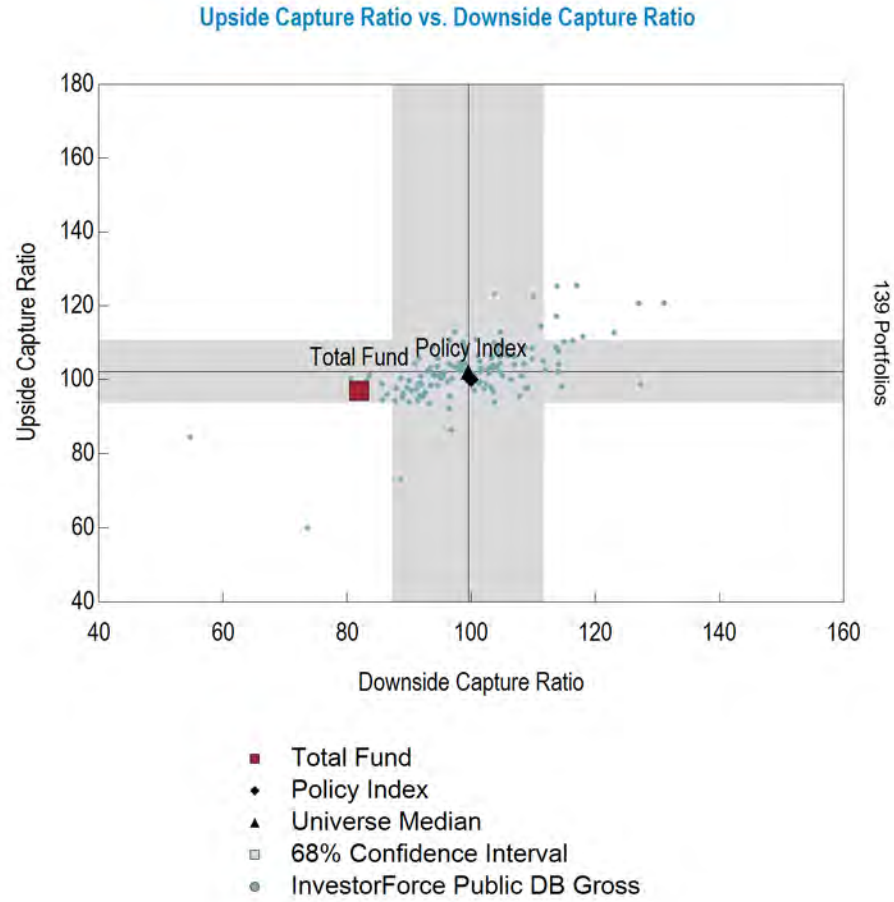
Attribution Summary
3 Months Ending March 31, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Fund ex Overlay	0.77%	-0.43%	1.20%	--	--	--	--
Total Domestic Equity	-0.29%	-0.64%	0.35%	0.08%	0.03%	-0.03%	0.07%
Total International Equity	-0.42%	-1.08%	0.66%	0.13%	0.05%	-0.05%	0.13%
Total Domestic Fixed Income	-0.53%	-1.46%	0.93%	0.18%	0.10%	-0.09%	0.19%
Total Global Fixed	4.92%	-1.46%	6.38%	0.62%	0.06%	-0.29%	0.39%
Total Real Estate	2.01%	1.70%	0.31%	0.04%	-0.18%	-0.03%	-0.17%
Total Commodities	-0.01%	-0.40%	0.39%	0.02%	0.00%	-0.01%	0.01%
Total Private Equity	2.35%	0.09%	2.26%	0.11%	-0.03%	-0.09%	-0.01%
Total Private Credit	3.18%	0.97%	2.22%	0.11%	-0.05%	-0.08%	-0.03%
Total Cash	0.28%	0.38%	-0.10%	0.00%	0.01%	0.00%	0.01%
Total Opportunistic	3.17%	0.09%	3.07%	0.00%	0.00%	0.01%	0.01%
Total	**0.77%**	**-0.43%**	**1.20%**	**1.29%**	**-0.01%**	**-0.67%**	**0.60%**

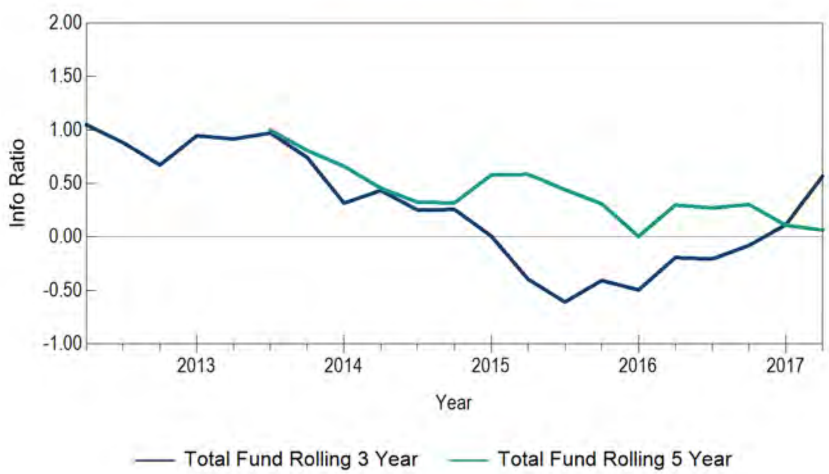
Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.

	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	6.81%	0.08%	4.65%	0.22%	0.98	1.28%	0.92	1.40	0.06	96.92%	81.95%

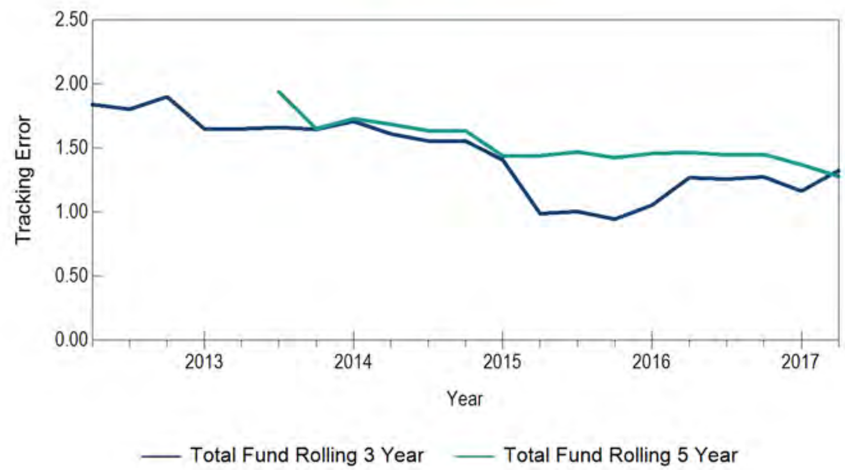




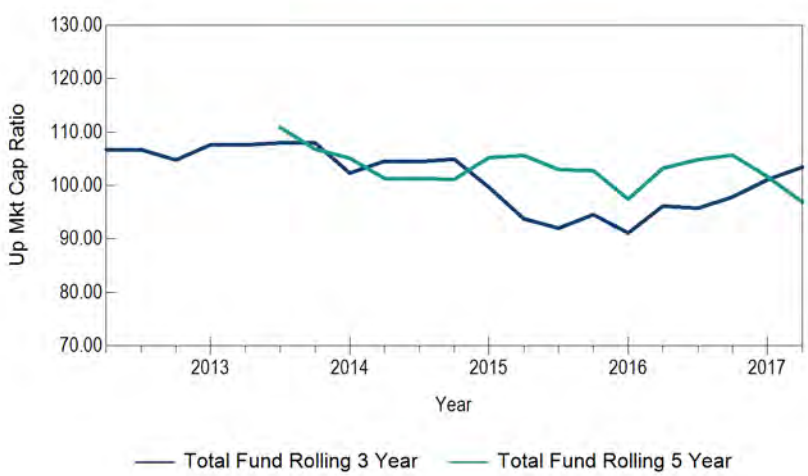
Rolling Information Ratio



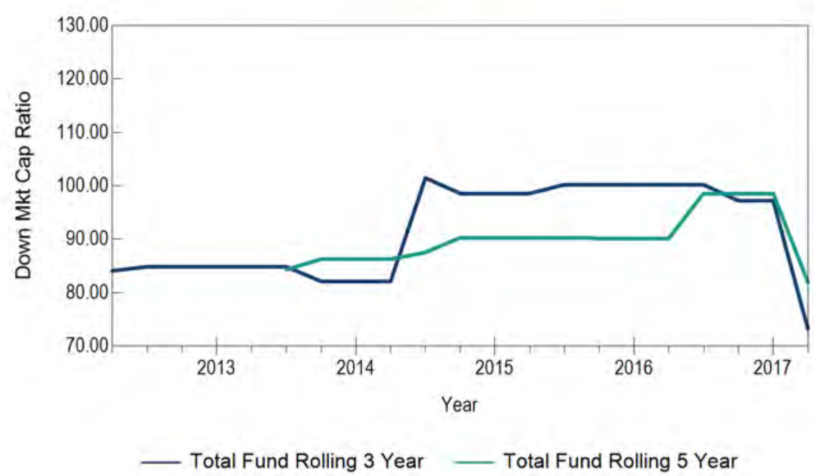
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Fund	**1,344,827,585**	**100.0**	**0.9**	**11.3**	**6.6**	**6.8**	**--**	**15.5**	**6.6**	**-0.8**	**5.1**	**13.8**	**--**	
InvestorForce Public DB Gross Rank			*6*	*28*	*49*	*81*	*--*	*47*	*84*	*74*	*66*	*71*	*--*	
Total Fund ex Overlay	1,337,899,218	99.5	0.9	11.3	6.6	6.8	6.2	15.3	6.6	-0.8	5.2	13.8	--	
Policy Index			*-0.4*	*9.1*	*5.9*	*6.7*	*5.6*	*13.4*	*7.8*	*-0.5*	*5.2*	*13.4*	*--*	
InvestorForce Public DB Gross Rank			*6*	*27*	*50*	*81*	*58*	*51*	*83*	*75*	*64*	*72*	*--*	
Total Domestic Equity	**278,585,085**	**20.7**	**-0.2**	**17.8**	**11.9**	**13.0**	**10.7**	**25.1**	**13.0**	**1.2**	**11.0**	**32.2**	**--**	
Russell 3000			*-0.6*	*13.8*	*10.2*	*13.0*	*9.6*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*	*--*	
InvestorForce Public DB US Eq Gross Rank			*30*	*5*	*3*	*44*	*5*	*4*	*48*	*18*	*60*	*91*	*--*	
PIMCO RAE Fundamental PLUS Instl	58,510,426	4.4	-1.4	11.3	9.3	12.1	9.6	17.0	15.9	-2.7	12.7	36.0	8.1	Nov-07
S&P 500			*-0.8*	*14.0*	*10.8*	*13.3*	*9.5*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*	*8.1*	*Nov-07*
eV US Large Cap Core Equity Gross Rank			*75*	*82*	*70*	*79*	*62*	*89*	*6*	*86*	*58*	*22*	*68*	*Nov-07*
Loomis Sayles Large Cap Growth	81,794,636	6.1	0.9	24.2	--	--	--	34.1	--	--	--	--	27.3	Dec-16
Russell 1000 Growth			*1.4*	*21.3*	*--*	*--*	*--*	*30.2*	*--*	*--*	*--*	*--*	*24.9*	*Dec-16*
eV US Large Cap Growth Equity Gross Rank			*76*	*29*	*--*	*--*	*--*	*16*	*--*	*--*	*--*	*--*	*33*	*Dec-16*
Boston Partners Large Cap Value	80,131,983	6.0	-1.5	13.5	--	--	--	--	--	--	--	--	14.5	Jan-17
Russell 1000 Value			*-2.8*	*6.9*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*8.2*	*Jan-17*
eV US Large Cap Value Equity Gross Rank			*31*	*17*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*11*	*Jan-17*
Atlanta Capital Mgmt	58,148,040	4.3	1.3	21.5	14.5	15.4	--	26.6	12.6	10.4	5.8	37.8	18.9	Aug-10
Russell 2500			*-0.2*	*12.3*	*8.2*	*11.5*	*--*	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*	*14.9*	*Aug-10*
eV US Small-Mid Cap Equity Gross Rank			*36*	*17*	*3*	*7*	*--*	*15*	*62*	*1*	*56*	*52*	*1*	*Aug-10*
Total International Equity	**315,756,740**	**23.5**	**-0.3**	**16.1**	**6.2**	**7.1**	**5.0**	**26.6**	**2.2**	**-4.3**	**2.1**	**17.9**	**--**	
MSCI ACWI ex USA Gross			*-1.1*	*17.0*	*6.7*	*6.4*	*3.2*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*	*--*	
InvestorForce Public DB ex-US Eq Gross Rank			*46*	*84*	*84*	*53*	*17*	*81*	*82*	*68*	*1*	*50*	*--*	
Dodge & Cox Intl Stock	157,457,829	11.7	-2.0	11.7	4.4	7.9	4.7	24.7	9.0	-10.8	0.7	27.1	3.3	Dec-07
MSCI EAFE Gross			*-1.4*	*15.3*	*6.0*	*7.0*	*3.2*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*	*2.0*	*Dec-07*
eV All EAFE Equity Gross Rank			*82*	*93*	*94*	*58*	*48*	*74*	*3*	*99*	*13*	*32*	*60*	*Dec-07*
WCM International Growth	158,298,911	11.8	1.5	21.1	--	--	--	--	--	--	--	--	23.6	Feb-17
MSCI ACWI ex USA Gross			*-1.1*	*17.0*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*18.4*	*Feb-17*
eV ACWI ex-US All Cap Growth Eq Gross Rank			*30*	*74*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*46*	*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	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Domestic Fixed Income	**273,328,883**	**20.3**	**-0.4**	**2.4**	**2.6**	**2.2**	**3.8**	**4.3**	**4.5**	**1.1**	**4.7**	**-2.7**	**--**	
BBgBarc US Aggregate TR			*-1.5*	*1.2*	*1.2*	*1.8*	*3.6*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*	*--*	
InvestorForce Public DB US Fix Inc Gross Rank			*17*	*36*	*35*	*57*	*59*	*50*	*49*	*17*	*68*	*95*	*--*	
BlackRock Core Bond	99,274,911	7.4	-1.4	0.8	--	--	--	--	--	--	--	--	1.3	Jan-17
BBgBarc US Aggregate TR			*-1.5*	*1.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*1.6*	*Jan-17*
eV US Core Fixed Inc Gross Rank			*54*	*96*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*74*	*Jan-17*
Dodge & Cox Income Fund	104,374,372	7.8	-0.8	2.7	--	--	--	--	--	--	--	--	3.0	Jan-17
BBgBarc US Aggregate TR			*-1.5*	*1.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*1.6*	*Jan-17*
eV US Core Fixed Inc Gross Rank			*7*	*7*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*4*	*Jan-17*
Pacific Asset Corporate Loan	69,679,600	5.2	1.4	4.9	5.3	--	--	4.9	9.2	2.5	--	--	4.6	Sep-14
S&P/LSTA Leveraged Loan Index			*1.4*	*4.4*	*4.2*	*--*	*--*	*4.1*	*10.2*	*-0.7*	*--*	*--*	*3.8*	*Sep-14*
eV Float-Rate Bank Loan Gross Rank			*38*	*32*	*14*	*--*	*--*	*26*	*51*	*9*	*--*	*--*	*27*	*Sep-14*
Total Global Fixed	**159,418,889**	**11.9**	**5.1**	**12.9**	**4.7**	**1.2**	**4.0**	**14.4**	**5.8**	**-11.8**	**-2.2**	**-3.8**	**--**	
Citi World Govt Bond Index			*2.5*	*8.5*	*3.5*	*1.2*	*2.0*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*	*--*	
InvestorForce Public DB Glbl Fix Inc Gross Rank			*--*	*--*	*--*	*--*	*--*	*29*	*67*	*95*	*93*	*59*	*--*	
Brandywine Global Fixed Income	79,950,472	5.9	4.7	12.3	3.6	2.1	4.4	12.5	2.2	-9.3	2.9	-1.6	4.7	Nov-07
Citi WGBI ex US			*4.4*	*12.9*	*5.0*	*1.4*	*1.8*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*	*2.7*	*Nov-07*
eV Global Fixed Inc Unhedged Gross Rank			*1*	*8*	*55*	*59*	*38*	*9*	*71*	*96*	*43*	*59*	*38*	*Nov-07*
Stone Harbor Local Markets Ins	79,468,417	5.9	5.4	13.5	6.0	--	--	16.4	9.9	-14.4	-7.7	--	0.6	Jul-13
JPM GBI-EM Global Diversified TR USD			*4.4*	*12.9*	*5.4*	*--*	*--*	*15.2*	*9.9*	*-14.9*	*-5.7*	*--*	*1.0*	*Jul-13*
eV All Emg Mkts Fixed Inc Gross Rank			*4*	*12*	*64*	*--*	*--*	*14*	*67*	*79*	*98*	*--*	*98*	*Jul-13*
Total Real Estate	**181,756,196**	**13.5**	**2.0**	**7.6**	**10.8**	**11.2**	**4.9**	**7.8**	**7.8**	**18.0**	**10.4**	**12.9**	**--**	
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*	*--*	
JP Morgan Core Real Estate	154,427,667	11.5	1.9	6.4	9.1	11.0	5.6	6.1	8.4	15.2	11.2	15.9	5.6	Mar-08
NCREIF-ODCE			*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*	*5.2*	*Mar-08*
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*	*6.2*	*Mar-08*
ARA American Strategic Value Realty	13,388,299	1.0	2.0	6.6	--	--	--	7.4	--	--	--	--	8.6	Jun-16
NCREIF-ODCE			*2.2*	*8.1*	*--*	*--*	*--*	*7.6*	*--*	*--*	*--*	*--*	*8.1*	*Jun-16*
NCREIF Property Index			*1.7*	*7.1*	*--*	*--*	*--*	*7.0*	*--*	*--*	*--*	*--*	*7.0*	*Jun-16*
Direct Real Estate	13,940,230	1.0	2.7	17.5	17.9	12.1	6.6	20.6	5.5	22.9	6.1	5.2	--	
NCREIF-ODCE			*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*	*--*	
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*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	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013	Inception	Inception Date
Total Commodities	**44,624,999**	**3.3**	**0.0**	**7.2**	**-2.0**	**-7.1**	**--**	**6.2**	**12.6**	**-25.2**	**-16.0**	**-9.1**	**--**	
Bloomberg Commodity Index TR USD			*-0.4*	*3.7*	*-3.2*	*-8.3*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*	*--*	
Gresham MTAP Commodity Builder	44,624,999	3.3	0.0	7.2	-2.0	--	--	6.2	12.6	-25.2	-16.0	--	-6.7	Aug-13
Bloomberg Commodity Index TR USD			*-0.4*	*3.7*	*-3.2*	*--*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*--*	*-8.0*	*Aug-13*
Total Cash	**24,222,873**	**1.8**	**0.3**	**1.0**	**0.7**	**0.5**	**0.8**	**1.0**	**0.5**	**0.4**	**0.3**	**0.3**	**--**	
91 Day T-Bills			*0.4*	*1.2*	*0.5*	*0.3*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*	*--*	
Cash Account	24,222,873	1.8	0.3	1.0	0.7	0.5	0.8	1.0	0.5	0.4	0.3	0.3	--	
91 Day T-Bills			*0.4*	*1.2*	*0.5*	*0.3*	*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: March 31, 2018

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Fund	**1,344,827,585**	**100.0**	**0.8**	**10.8**	**6.1**	**6.3**	**--**	**15.0**	**6.0**	**-1.3**	**4.6**	**13.3**
Total Fund ex Overlay	1,337,899,218	99.5	0.8	10.9	6.1	6.3	--	14.9	6.1	-1.3	4.7	13.2
Policy Index			*-0.4*	*9.1*	*5.9*	*6.7*	--	*13.4*	*7.8*	*-0.5*	*5.2*	*13.4*
Total Domestic Equity	**278,585,085**	**20.7**	**-0.3**	**17.2**	**11.5**	**12.5**	**--**	**24.5**	**12.7**	**0.8**	**10.5**	**31.6**
Russell 3000			*-0.6*	*13.8*	*10.2*	*13.0*	--	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
PIMCO RAE Fundamental PLUS Instl	58,510,426	4.4	-1.5	10.8	8.7	11.6	9.2	16.5	15.4	-3.2	12.3	35.6
S&P 500			*-0.8*	*14.0*	*10.8*	*13.3*	*9.5*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
Loomis Sayles Large Cap Growth	81,794,636	6.1	0.8	23.6	--	--	--	33.5	--	--	--	--
Russell 1000 Growth			*1.4*	*21.3*	--	--	--	*30.2*	--	--	--	--
Boston Partners Large Cap Value	80,131,983	6.0	-1.6	13.0	--	--	--	--	--	--	--	--
Russell 1000 Value			*-2.8*	*6.9*	--	--	--	--	--	--	--	--
Atlanta Capital Mgmt	58,148,040	4.3	1.1	20.6	13.6	14.5	--	25.6	11.7	9.6	5.0	37.0
Russell 2500			*-0.2*	*12.3*	*8.2*	*11.5*	--	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*
Total International Equity	**315,756,740**	**23.5**	**-0.4**	**15.4**	**5.5**	**6.4**	**--**	**25.8**	**1.6**	**-4.9**	**1.4**	**17.0**
MSCI ACWI ex USA Gross			*-1.1*	*17.0*	*6.7*	*6.4*	--	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
Dodge & Cox Intl Stock	157,457,829	11.7	-2.1	11.0	3.8	7.3	4.1	23.9	8.3	-11.4	0.1	26.3
MSCI EAFE Gross			*-1.4*	*15.3*	*6.0*	*7.0*	*3.2*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
WCM International Growth	158,298,911	11.8	1.3	20.2	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross			*-1.1*	*17.0*	--	--	--	--	--	--	--	--
Total Domestic Fixed Income	**273,328,883**	**20.3**	**-0.5**	**2.1**	**2.3**	**1.9**	**--**	**3.9**	**4.2**	**0.9**	**4.4**	**-3.0**
BBgBarc US Aggregate TR			*-1.5*	*1.2*	*1.2*	*1.8*	--	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
BlackRock Core Bond	99,274,911	7.4	-1.5	0.5	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			*-1.5*	*1.2*	--	--	--	--	--	--	--	--
Dodge & Cox Income Fund	104,374,372	7.8	-0.9	2.2	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR			*-1.5*	*1.2*	--	--	--	--	--	--	--	--
Pacific Asset Corporate Loan	69,679,600	5.2	1.3	4.6	4.9	--	--	4.6	8.8	2.1	--	--
S&P/LSTA Leveraged Loan Index			*1.4*	*4.4*	*4.2*	--	--	*4.1*	*10.2*	*-0.7*	--	--
Total Global Fixed	**159,418,889**	**11.9**	**4.9**	**12.2**	**4.0**	**0.5**	**--**	**13.7**	**5.1**	**-12.4**	**-2.8**	**-4.4**
Citi World Govt Bond Index			*2.5*	*8.5*	*3.5*	*1.2*	--	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
Brandywine Global Fixed Income	79,950,472	5.9	4.6	11.8	3.1	1.6	--	12.0	1.7	-9.7	2.4	-2.3
Citi WGBI ex US			*4.4*	*12.9*	*5.0*	*1.4*	--	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*

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: March 31, 2018

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Stone Harbor Local Markets Ins	79,468,417	5.9	5.2	12.5	5.0	--	--	15.4	9.0	-15.1	-8.6	--
JPM GBI-EM Global Diversified TR USD			*4.4*	*12.9*	*5.4*	*--*	*--*	*15.2*	*9.9*	*-14.9*	*-5.7*	*--*
Total Real Estate	**181,756,196**	**13.5**	**2.0**	**7.6**	**10.3**	**10.5**	**--**	**7.8**	**6.8**	**16.9**	**9.6**	**12.1**
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*--*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	154,427,667	11.5	1.9	6.4	8.5	10.2	--	6.1	7.3	14.1	10.0	14.8
NCREIF-ODCE			*2.2*	*8.1*	*10.0*	*11.4*	*--*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*--*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	13,388,299	1.0	2.0	6.6	--	--	--	7.4	--	--	--	--
NCREIF-ODCE			*2.2*	*8.1*	*--*	*--*	*--*	*7.6*	*--*	*--*	*--*	*--*
NCREIF Property Index			*1.7*	*7.1*	*--*	*--*	*--*	*7.0*	*--*	*--*	*--*	*--*
Direct Real Estate	13,940,230	1.0	2.7	17.5	17.5	11.9	6.5	20.6	4.9	22.2	6.1	5.2
NCREIF-ODCE			*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index			*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
Total Commodities	**44,624,999**	**3.3**	**0.0**	**7.2**	**-2.4**	**-7.6**	**--**	**6.2**	**11.8**	**-25.8**	**-16.6**	**-9.5**
Bloomberg Commodity Index TR USD			*-0.4*	*3.7*	*-3.2*	*-8.3*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	44,624,999	3.3	0.0	7.2	-2.4	--	--	6.2	11.8	-25.8	-16.6	--
Bloomberg Commodity Index TR USD			*-0.4*	*3.7*	*-3.2*	*--*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*--*
Total Cash	**24,222,873**	**1.8**	**0.3**	**1.0**	**0.7**	**0.5**	**0.8**	**1.0**	**0.5**	**0.4**	**0.3**	**0.3**
91 Day T-Bills			*0.4*	*1.2*	*0.5*	*0.3*	*0.3*	*0.9*	*0.3*	*0.0*	*0.0*	*0.0*
Cash Account	24,222,873	1.8	0.3	1.0	0.7	0.5	0.8	1.0	0.5	0.4	0.3	0.3
91 Day T-Bills			*0.4*	*1.2*	*0.5*	*0.3*	*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	8.74%	-2.04%	7.67%	-1.48%	0.95	2.87%	0.86	1.08	-0.71	87.73%	120.59%
Atlanta Capital Mgmt	13.63%	5.47%	7.72%	8.46%	0.63	6.12%	0.56	1.70	0.89	121.15%	24.61%
Dodge & Cox Intl Stock	3.76%	-2.29%	13.68%	-3.64%	1.22	5.72%	0.85	0.24	-0.40	90.17%	119.24%
Pacific Asset Corporate Loan	4.92%	0.72%	1.86%	2.49%	0.58	1.42%	0.89	2.34	0.50	95.17%	20.85%
Brandywine Global Fixed Income	3.10%	-1.92%	8.82%	-0.81%	0.78	5.23%	0.71	0.29	-0.37	68.94%	82.81%
Stone Harbor Local Markets Ins	5.04%	-0.37%	11.89%	-0.66%	1.05	1.37%	0.99	0.38	-0.27	101.14%	106.82%
JP Morgan Core Real Estate	8.50%	-1.49%	1.46%	-1.08%	0.96	0.29%	0.96	5.47	-5.16	83.90%	--
Direct Real Estate	17.45%	7.46%	7.60%	-5.91%	2.34	7.03%	0.21	2.23	1.06	187.57%	--
Gresham MTAP Commodity Builder	-2.42%	0.78%	14.62%	0.81%	1.01	2.05%	0.98	-0.20	0.38	107.99%	98.71%

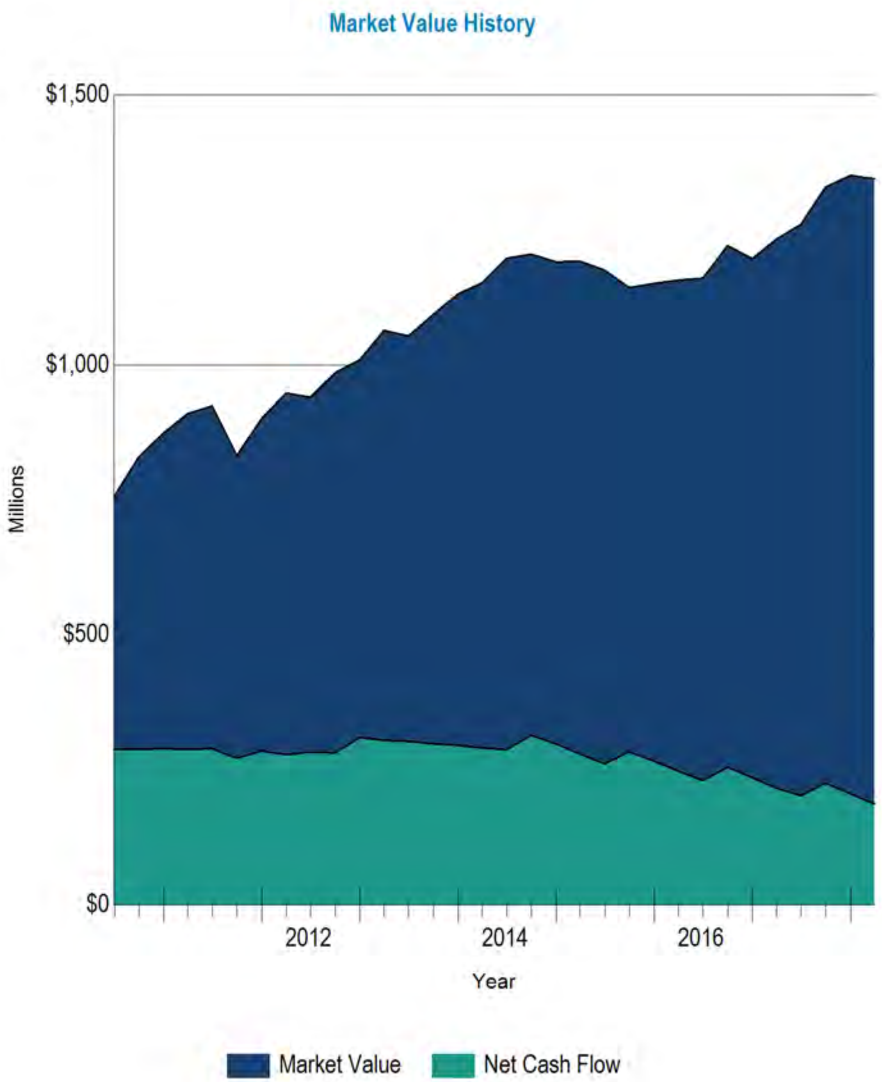
5 Years

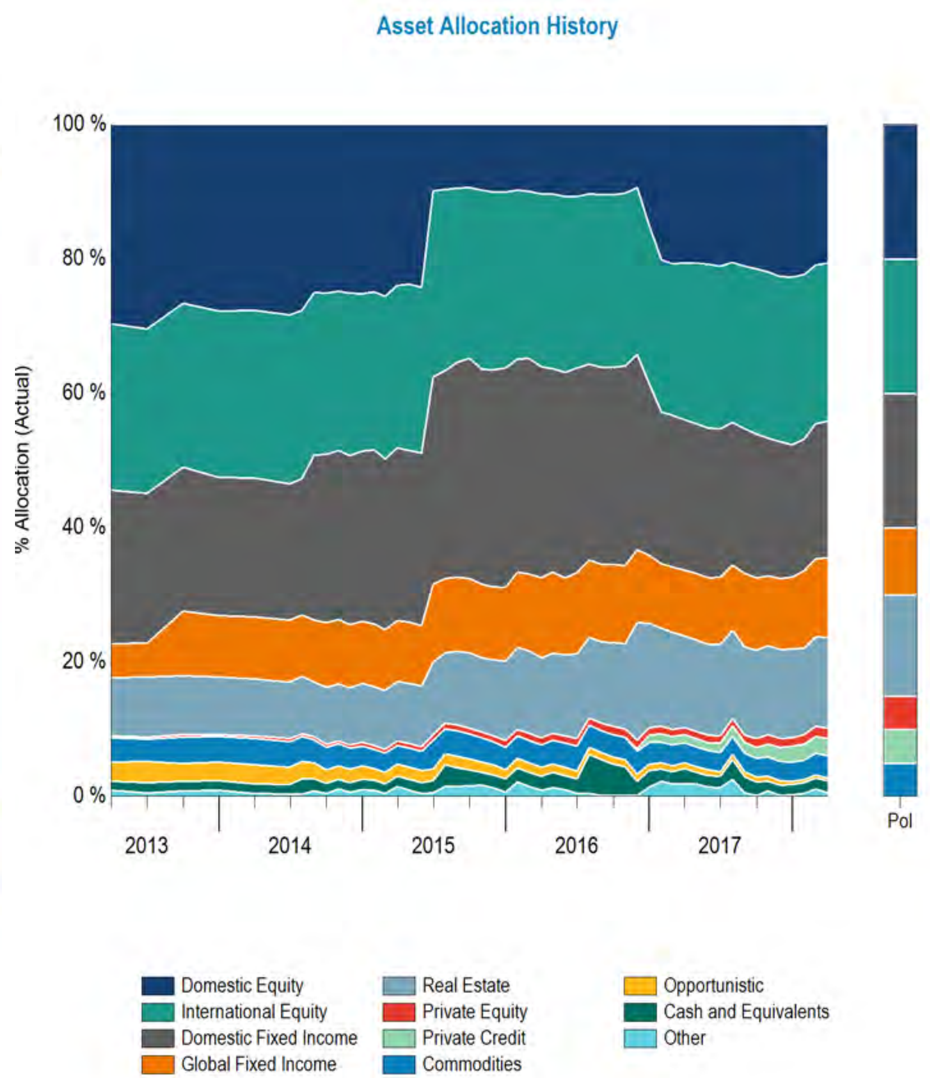
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
PIMCO RAE Fundamental PLUS Instl	11.63%	-1.68%	7.43%	-1.64%	1.00	2.48%	0.89	1.52	-0.68	88.66%	120.59%
Atlanta Capital Mgmt	14.50%	2.96%	8.18%	6.09%	0.73	5.37%	0.66	1.73	0.55	104.54%	38.35%
Dodge & Cox Intl Stock	7.26%	0.28%	12.33%	-0.31%	1.08	5.00%	0.84	0.56	0.06	100.97%	97.22%
Brandywine Global Fixed Income	1.63%	0.26%	7.46%	0.65%	0.71	4.70%	0.72	0.17	0.06	70.39%	68.33%
Direct Real Estate	11.91%	0.49%	6.76%	10.21%	0.15	6.88%	0.00	1.72	0.07	105.27%	--
JP Morgan Core Real Estate	10.16%	-1.27%	1.72%	-1.86%	1.05	0.70%	0.83	5.72	-1.80	86.71%	--

Vintage	Manager & Fund Name	Estimated 3/31 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.	$13,412,090	$20,000,000	$13,964,818	70%	$6,035,182	$6,852,918	$12,464,670	49.1%	145.1%	17.5%	12/31/17
2010	KKR Mezzanine Partners I L.P. [6]	$5,282,746	$20,000,000	$20,000,000	100%	$0	$28,026,563	$5,228,751	140.1%	166.5%	8.1%	12/31/17
2010	PIMCO Distressed Credit Fund [4]	$103,463	$20,000,000	$20,000,000	100%	$0	$27,899,650	$1,248,698	139.5%	140.0%	12.2%	12/31/17
2016	TPG Diversified Credit Program	$34,656,989	$75,000,000	$33,277,831	44%	$41,722,169	$459,765	$30,978,587	1.4%	105.5%	9.3%	12/31/17
2017	Pathway Private Equity Fund Investors 9 L.P.	$6,750,265	$65,000,000	$6,907,355	11%	$58,092,645	-	-	-	-	-	-
	Total Alternative Illiquids	**$60,205,554**	$200,000,000	$94,150,004	47%	$105,849,996	$63,238,895	$49,920,706	53.0%	120.2%		
	% of Portfolio (Market Value)	4.5%										

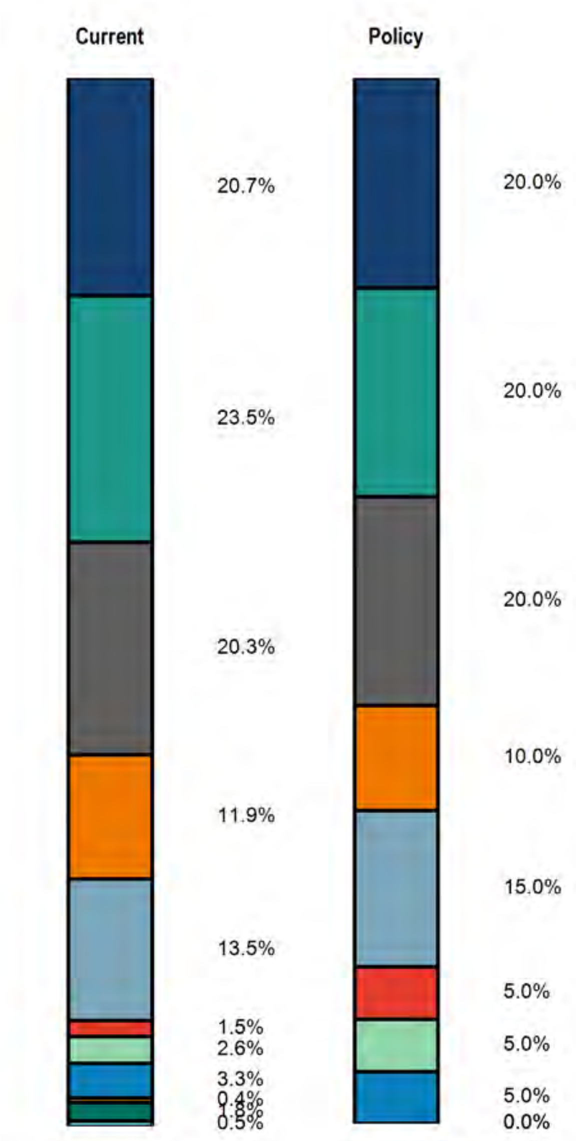
	Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense[7]
HarbourVest Partners IX-Buyout Fund L.P.	$49,792	$0	$0	$14,715	$64,507
KKR Mezzanine Partners I L.P.	$29,338	$0	$0	$0	$29,338
PIMCO Distressed Credit Fund [4]	$0	$0	$0	$515	$515
TPG Diversified Credit Program	$37,012	$0	$0	$0	$37,012
Pathway Private Equity Fund Investors 9 L.P.	-	-	-	-	-
	$116,142	$0	$0	$15,230	**$131,372**

[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 (market values as of 12/31/2017)
[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 4Q2017, total capital called is $23,593,570, which includes recylced distributions. Unused capital commitment is $2,109,437 after including distribution proceeds available for reinvestment
[7]All fees and expenses are for 4Q 2017





*Other balance represents Clifton Group



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	$278,585,085	20.7%	20.0%	$9,619,568	15.0% - 30.0%	Yes
International Equity	$315,756,740	23.5%	20.0%	$46,791,223	15.0% - 30.0%	Yes
Domestic Fixed Income	$273,328,883	20.3%	20.0%	$4,363,366	10.0% - 30.0%	Yes
Global Fixed Income	$159,418,889	11.9%	10.0%	$24,936,130	0.0% - 20.0%	Yes
Real Estate	$181,756,196	13.5%	15.0%	-$19,967,942	5.0% - 20.0%	Yes
Private Equity	$20,162,355	1.5%	5.0%	-$47,079,024	0.0% - 10.0%	Yes
Private Credit	$34,656,989	2.6%	5.0%	-$32,584,390	0.0% - 10.0%	Yes
Commodities	$44,624,999	3.3%	5.0%	-$22,616,380	0.0% - 10.0%	Yes
Opportunistic	$5,386,209	0.4%	0.0%	$5,386,209	0.0% - 10.0%	Yes
Cash and Equivalents	$24,222,873	1.8%	0.0%	$24,222,873	0.0% - 5.0%	Yes
Other	$6,928,367	0.5%	--	$6,928,367	--	No
Total	**$1,344,827,585**	**100.0%**	**100.0%**			

**Other balance represents Clifton Group*

Total Fund
Investment Fund Fee Analysis

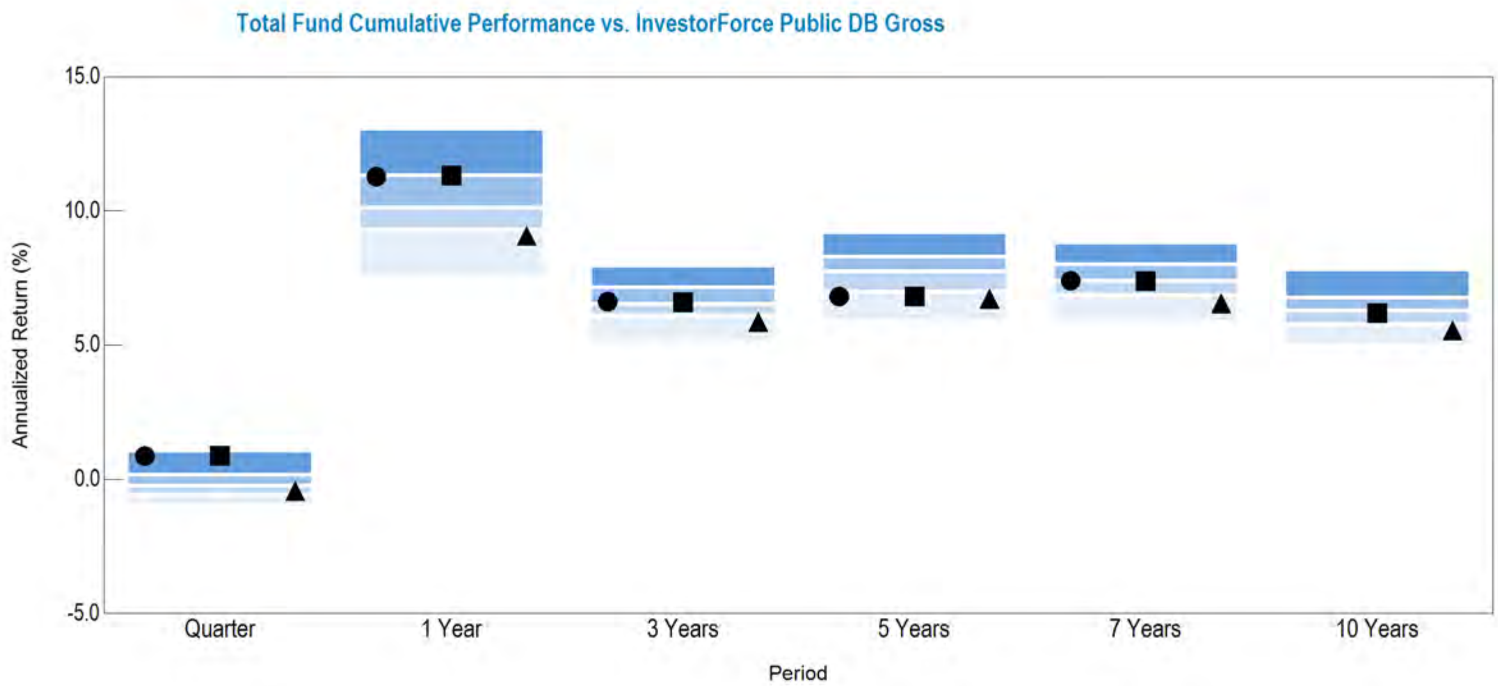
Period Ending: March 31, 2018

Account	Fee Schedule	Market Value As of 3/31/2018	% 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	$13,388,299	1.0%	$165,660	1.24%
Atlanta Capital Mgmt	0.80% of First 50.0 Mil, 0.70% of Next 100.0 Mil, 0.60% Thereafter	$58,148,040	4.3%	$457,036	0.79%
BlackRock Core Bond	0.28% of First 100.0 Mil, 0.26% Thereafter	$99,274,911	7.4%	$277,970	0.28%
Boston Partners Large Cap Value	0.40% of Assets	$80,131,983	6.0%	$320,528	0.40%
Brandywine Global Fixed Income	0.45% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	$79,950,472	5.9%	$344,802	0.43%
Cash Account	No Fee	$24,222,873	1.8%	--	--
Direct Real Estate	No Fee	$13,940,230	1.0%	--	--
Dodge & Cox Income Fund	0.43% of Assets	$104,374,372	7.8%	$448,810	0.43%
Dodge & Cox Intl Stock	0.64% of Assets	$157,457,829	11.7%	$1,007,730	0.64%
Gresham MTAP Commodity Builder	0.75% of First 50.0 Mil, 0.50% Thereafter	$44,624,999	3.3%	$334,687	0.75%
Harbourvest Partners IX Buyout Fund L.P.	200,000 Annually	$13,412,090	1.0%	$200,000	1.49%
JP Morgan Core Real Estate	1.00% of Assets	$154,427,667	11.5%	$1,544,277	1.00%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	300,000 Annually	$5,282,746	0.4%	$300,000	5.68%
Loomis Sayles Large Cap Growth	0.45% of First 100.0 Mil, 0.40% Thereafter	$81,794,636	6.1%	$368,076	0.45%
Pacific Asset Corporate Loan	0.37% of Assets	$69,679,600	5.2%	$257,815	0.37%
Pathway Private Equity Fund Investors 9 L.P.	Please see footnote	$6,750,265	0.5%	--	--
PIMCO Distressed Credit Fund	150,000 Annually	$103,463	0.0%	$150,000	144.98%
PIMCO RAE Fundamental PLUS Instl	0.40% of Assets	$58,510,426	4.4%	$234,042	0.40%
Stone Harbor Local Markets Ins	0.89% of Assets	$79,468,417	5.9%	$707,269	0.89%
The Clifton Group	50,000 Annually	$6,928,367	0.5%	$50,000	0.72%
TPG Diversified Credit Program	Please see footnote	$34,656,989	2.6%	--	--
WCM International Growth	0.70% of Assets	$158,298,911	11.8%	$1,108,092	0.70%
Investment Management Fee		**$1,344,827,585**	**100.0%**	**$8,276,793**	**0.62%**

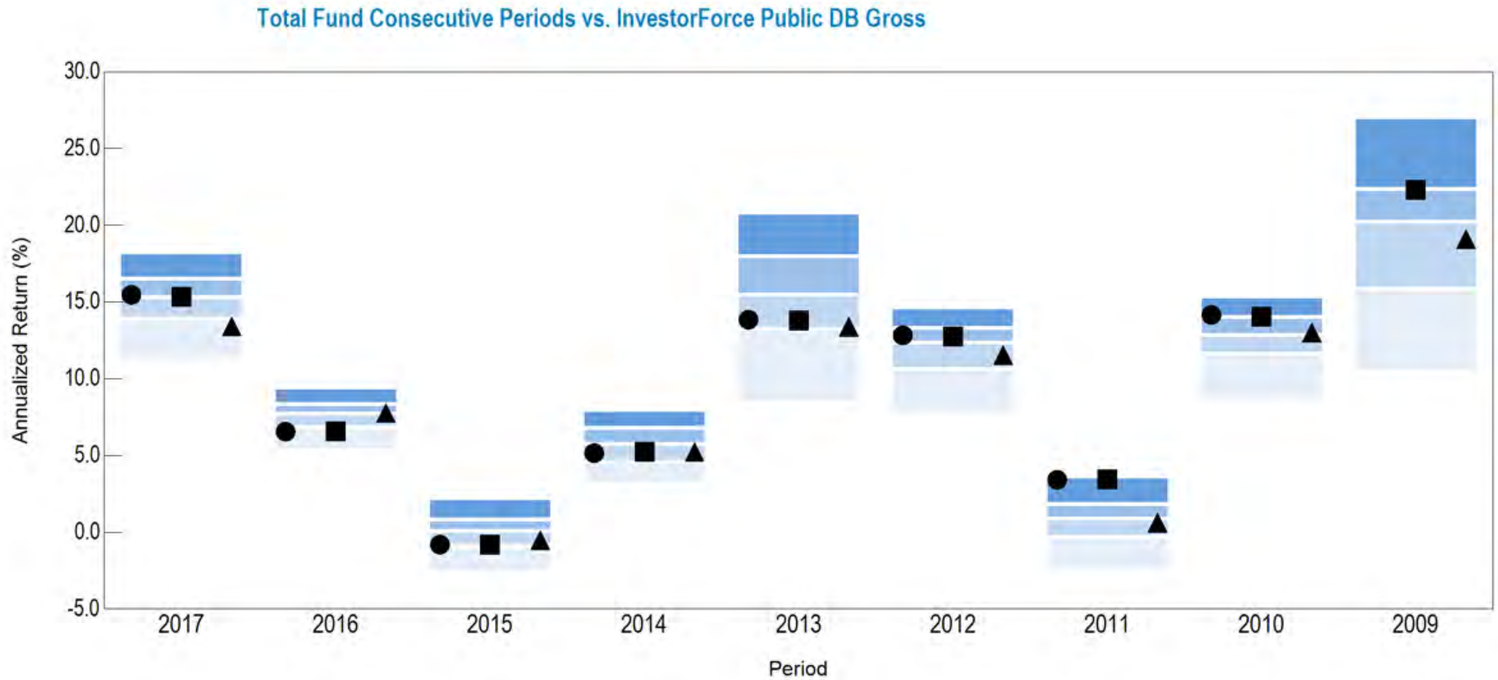
**HarbourVest, KKR and PIMCO Distressed Credit fees are estimated gross management fees only and do not include incentive allocations or offsetting cash flows received by the fund. Pathway fee steps up and down over time, with an effective average of 0.71% up to $25m, 0.67% up to $50m, 0.63% up to $75m,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

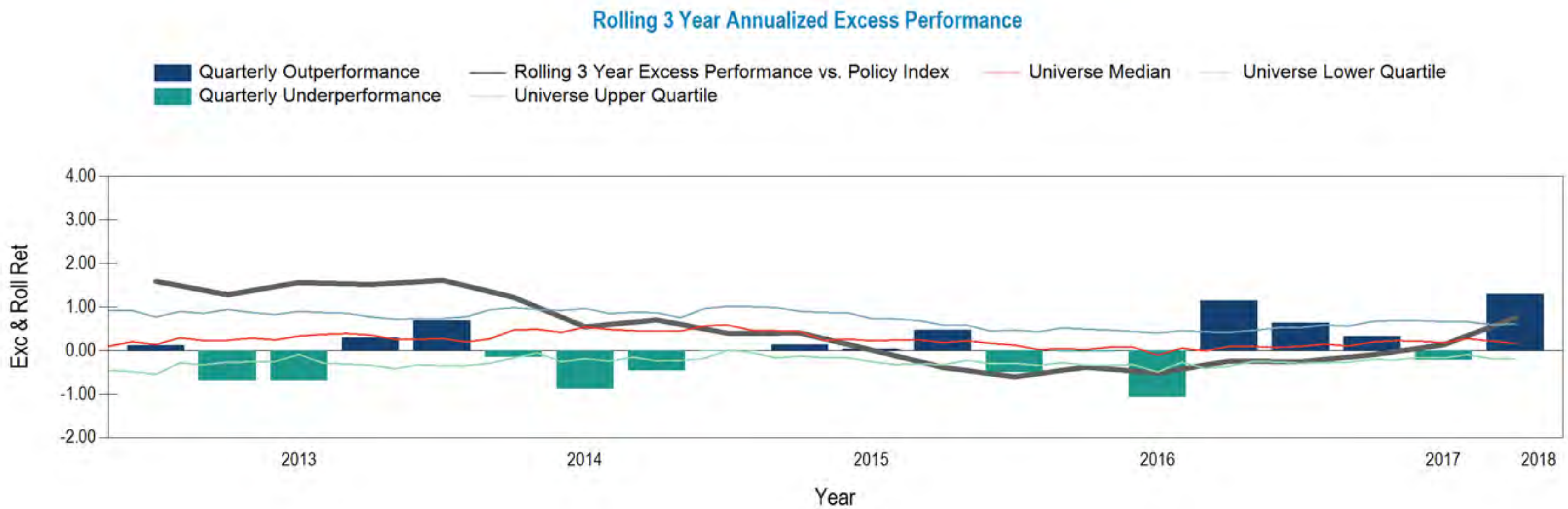
**TPG: No management fee at SMA level. Subject to the annual fees of each of the underlying TSSP funds. (1) TAO 65bps on unfunded commitments and 1.35% on remaining capital contributions (long-term designation) (2) TSLE 1.5% on commitments, 1.25% on remaining capital contributions post commitment period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

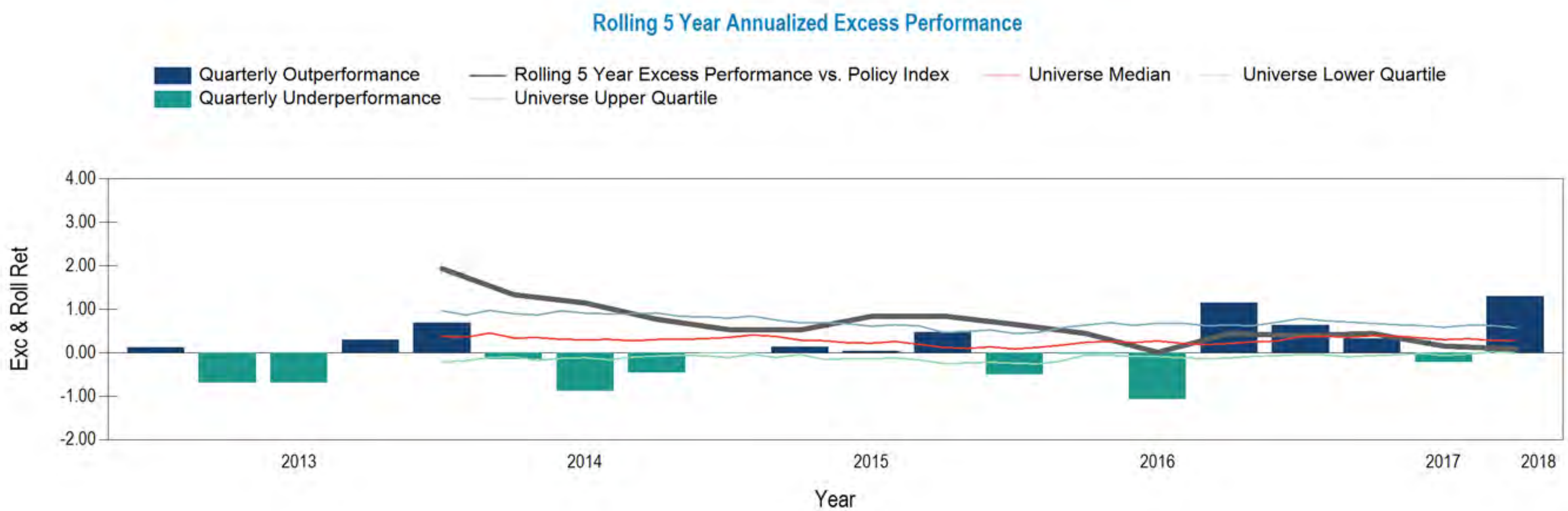


	Return (Rank)											
5th Percentile	1.1		13.1		7.9		9.2		8.8		7.8	
25th Percentile	0.2		11.3		7.2		8.3		8.0		6.8	
Median	-0.2		10.1		6.6		7.8		7.4		6.3	
75th Percentile	-0.6		9.3		6.1		7.0		6.9		5.8	
95th Percentile	-1.0		7.5		5.1		5.9		5.9		5.0	
# of Portfolios	235		232		219		196		169		154	
● Total Fund	0.9	(6)	11.3	(28)	6.6	(49)	6.8	(81)	7.4	(51)	--	(--)
■ Total Fund ex Overlay	0.9	(6)	11.3	(27)	6.6	(50)	6.8	(81)	7.4	(51)	6.2	(58)
▲ Policy Index	-0.4	(68)	9.1	(79)	5.9	(83)	6.7	(83)	6.6	(84)	5.6	(85)

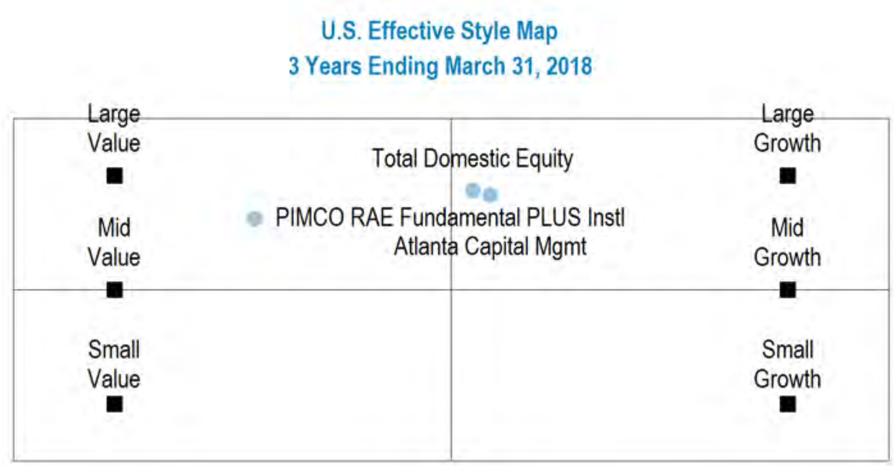


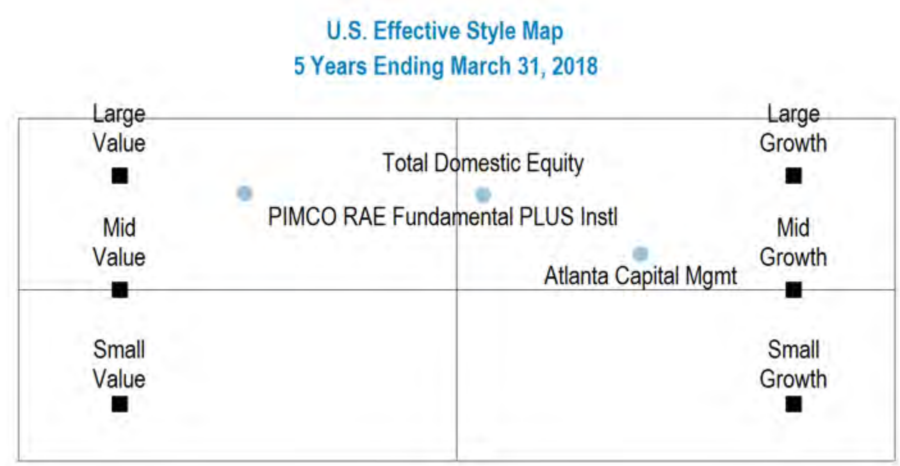
	2017		2016		2015		2014		2013		2012		2011		2010		2009	
Return (Rank)																		
5th Percentile	18.2		9.4		2.2		8.0		20.8		14.6		3.6		15.4		27.0	
25th Percentile	16.5		8.4		0.9		6.8		18.0		13.4		1.9		14.0		22.4	
Median	15.3		7.7		0.1		5.8		15.5		12.4		0.9		12.9		20.2	
75th Percentile	14.0		6.9		-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
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
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. Policy Index
Universe Upper Quartile
Universe Median
Universe Lower Quartile
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	**278,585,085**	**-0.2**	**17.8**	**11.9**	**13.0**	**10.7**	**25.1**	**13.0**	**1.2**	**11.0**	**32.2**
Russell 3000		*-0.6*	*13.8*	*10.2*	*13.0*	*9.6*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
InvestorForce Public DB US Eq Gross Rank		*30*	*5*	*3*	*44*	*5*	*4*	*48*	*18*	*60*	*91*
PIMCO RAE Fundamental PLUS Instl	58,510,426	-1.4	11.3	9.3	12.1	9.6	17.0	15.9	-2.7	12.7	36.0
S&P 500		*-0.8*	*14.0*	*10.8*	*13.3*	*9.5*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
eV US Large Cap Core Equity Gross Rank		*75*	*82*	*70*	*79*	*62*	*89*	*6*	*86*	*58*	*22*
Loomis Sayles Large Cap Growth	81,794,636	0.9	24.2	--	--	--	34.1	--	--	--	--
Russell 1000 Growth		*1.4*	*21.3*	--	--	--	*30.2*	--	--	--	--
eV US Large Cap Growth Equity Gross Rank		*76*	*29*	--	--	--	*16*	--	--	--	--
Boston Partners Large Cap Value	80,131,983	-1.5	13.5	--	--	--	--	--	--	--	--
Russell 1000 Value		*-2.8*	*6.9*	--	--	--	--	--	--	--	--
eV US Large Cap Value Equity Gross Rank		*31*	*17*	--	--	--	--	--	--	--	--
Atlanta Capital Mgmt	58,148,040	1.3	21.5	14.5	15.4	--	26.6	12.6	10.4	5.8	37.8
Russell 2500		*-0.2*	*12.3*	*8.2*	*11.5*	--	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*
eV US Small-Mid Cap Equity Gross Rank		*36*	*17*	*3*	*7*	--	*15*	*62*	*1*	*56*	*52*





SSGA S&P 500 Flag. liquidated 1/3/2018.

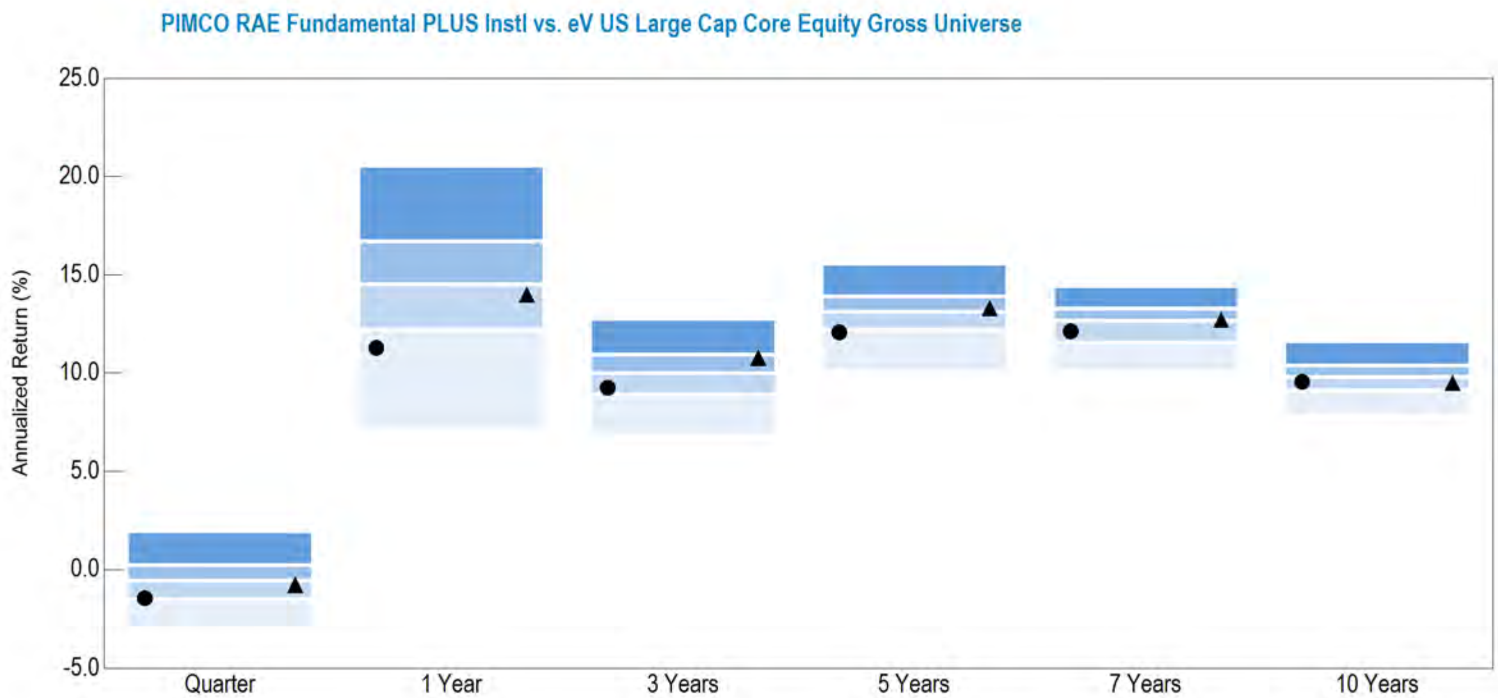
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Equity	**278,585,085**	**-0.3**	**17.2**	**11.5**	**12.5**	**--**	**24.5**	**12.7**	**0.8**	**10.5**	**31.6**
Russell 3000		*-0.6*	*13.8*	*10.2*	*13.0*	*--*	*21.1*	*12.7*	*0.5*	*12.6*	*33.6*
PIMCO RAE Fundamental PLUS Instl	58,510,426	-1.5	10.8	8.7	11.6	9.2	16.5	15.4	-3.2	12.3	35.6
S&P 500		*-0.8*	*14.0*	*10.8*	*13.3*	*9.5*	*21.8*	*12.0*	*1.4*	*13.7*	*32.4*
Loomis Sayles Large Cap Growth	81,794,636	0.8	23.6	--	--	--	33.5	--	--	--	--
Russell 1000 Growth		*1.4*	*21.3*	*--*	*--*	*--*	*30.2*	*--*	*--*	*--*	*--*
Boston Partners Large Cap Value	80,131,983	-1.6	13.0	--	--	--	--	--	--	--	--
Russell 1000 Value		*-2.8*	*6.9*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Atlanta Capital Mgmt	58,148,040	1.1	20.6	13.6	14.5	--	25.6	11.7	9.6	5.0	37.0
Russell 2500		*-0.2*	*12.3*	*8.2*	*11.5*	*--*	*16.8*	*17.6*	*-2.9*	*7.1*	*36.8*

SSGA S&P 500 Flag. liquidated 1/3/2018.

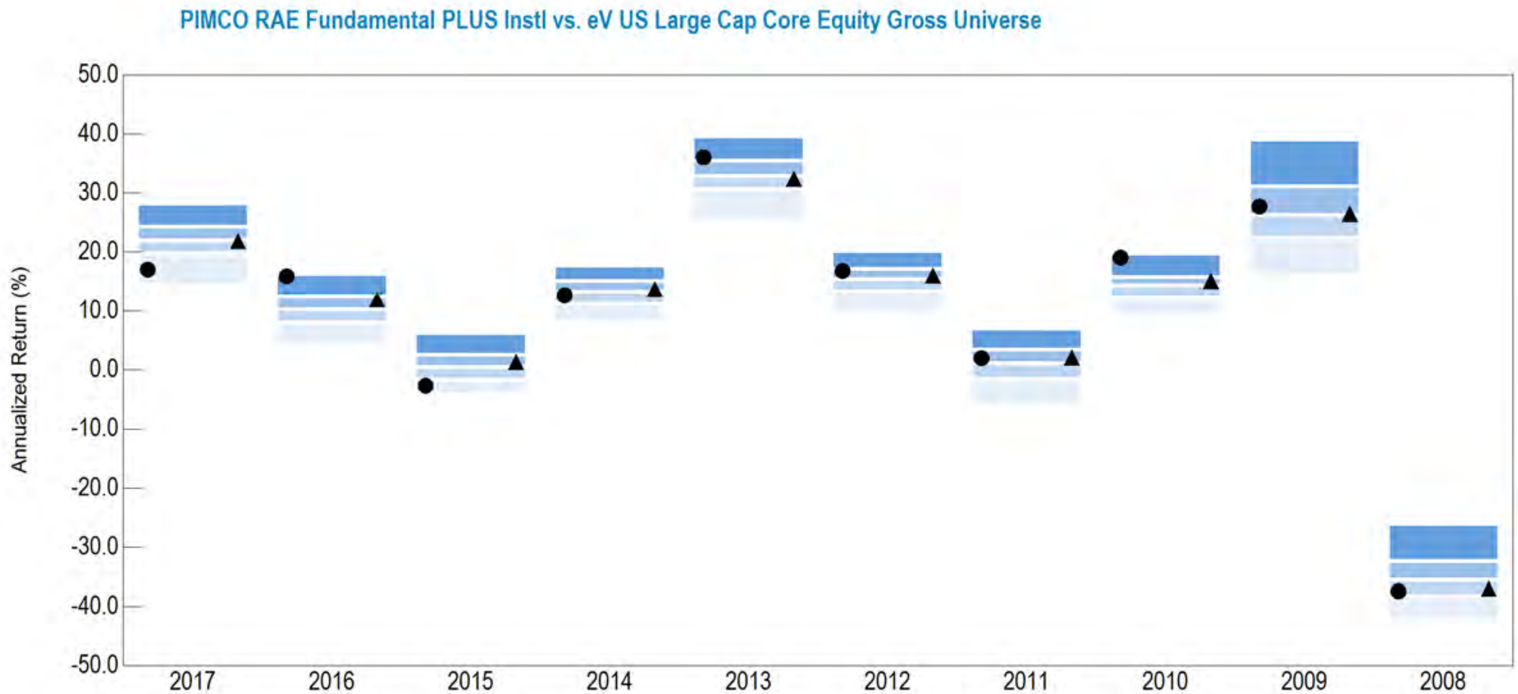
Correlation Matrix
Last 5 Years

	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	0.91	1.00	--	--	--
Loomis Sayles Large Cap Growth	--	--	--	--	--
Boston Partners Large Cap Value	--	--	--	--	--
Russell 3000	0.96	0.94	--	--	1.00

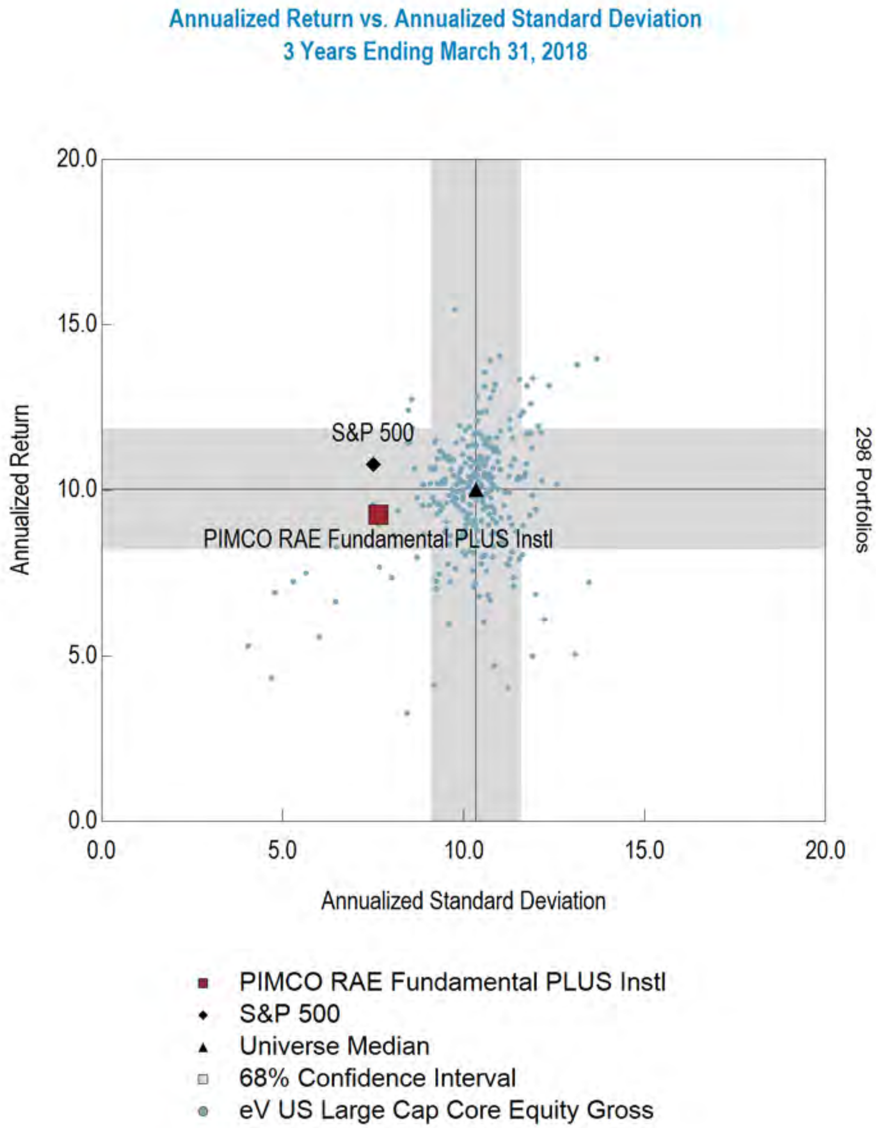
SSGA S&P 500 Flag. liquidated 1/3/2018.

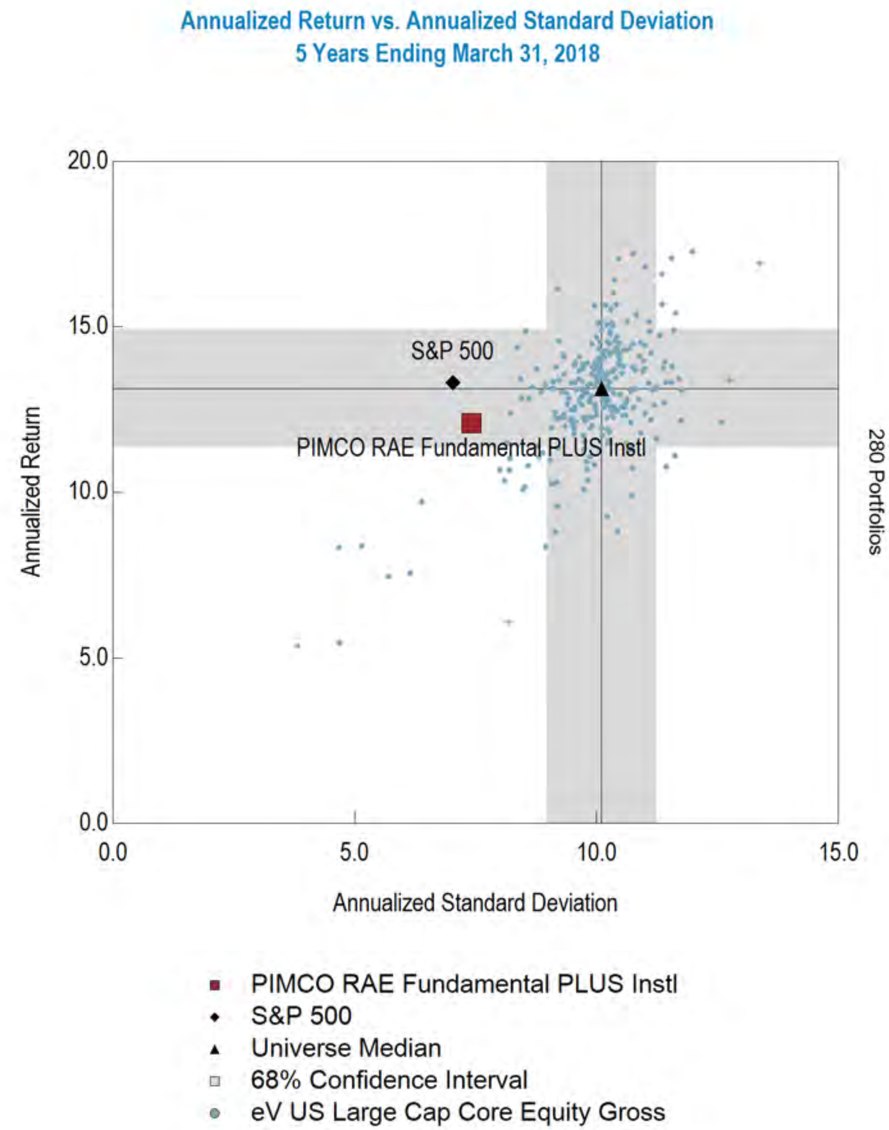


Return (Rank)	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.9		20.5		12.8		15.6		14.4		11.6	
25th Percentile	0.2		16.7		10.9		13.9		13.3		10.4	
Median	-0.5		14.5		10.0		13.1		12.7		9.8	
75th Percentile	-1.4		12.2		8.9		12.2		11.6		9.1	
95th Percentile	-3.0		7.1		6.8		10.1		10.1		7.9	
# of Portfolios	306		306		298		280		256		225	
● PIMCO RAE Fundamental PLUS Instl	-1.4	(75)	11.3	(82)	9.3	(70)	12.1	(79)	12.1	(63)	9.6	(62)
▲ S&P 500	-0.8	(59)	14.0	(56)	10.8	(30)	13.3	(46)	12.7	(50)	9.5	(63)

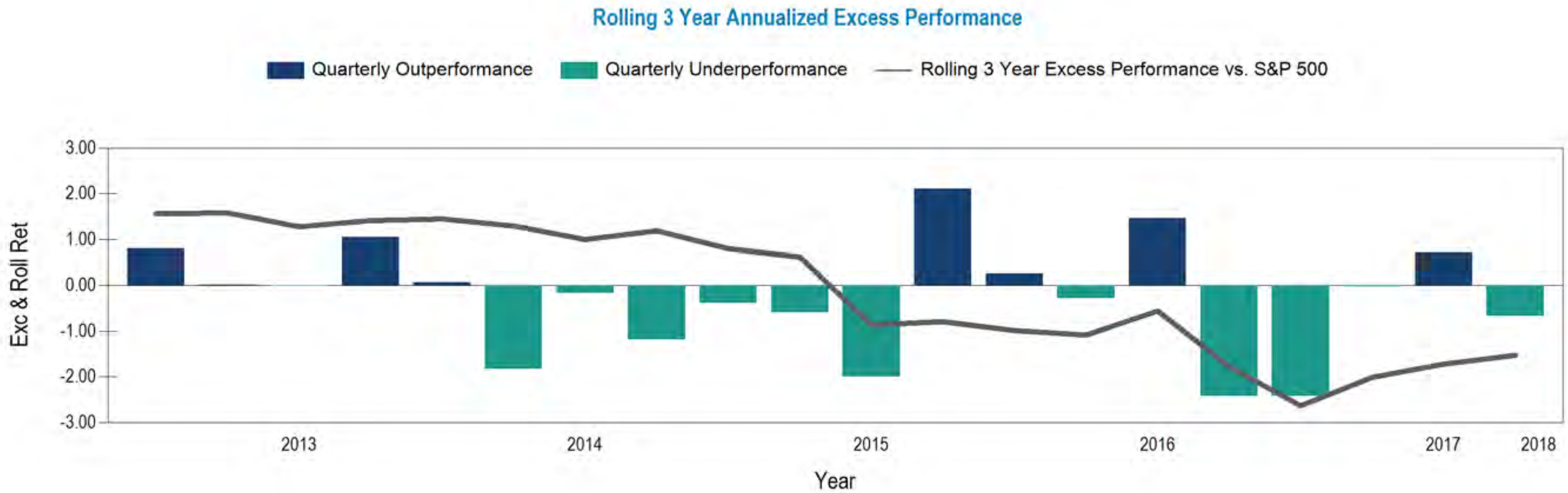


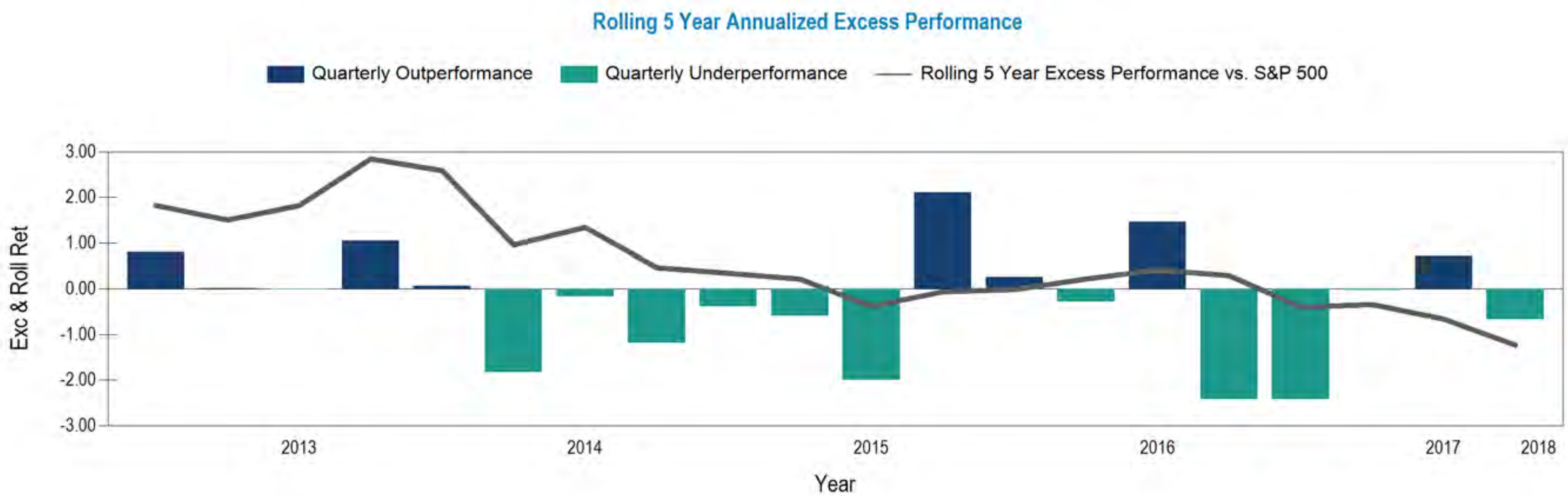
Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	28.2		16.3		6.3		17.7		39.6		20.1		7.0		19.7		39.1		-26.1	
25th Percentile	24.3		12.5		2.7		15.1		35.5		17.2		3.6		15.8		31.2		-32.3	
Median	22.1		10.4		0.6		13.3		32.9		15.4		1.3		14.4		26.3		-35.4	
75th Percentile	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 March 31, 2018
Annualized Return
Annualized Standard Deviation
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
20.0
S&P 500
PIMCO RAE Fundamental PLUS Instl
298 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 March 31, 2018
Annualized Return
Annualized Standard Deviation
20.0
15.0
10.0
5.0
0.0
0.0
5.0
10.0
15.0
S&P 500
PIMCO RAE Fundamental PLUS Instl
280 Portfolios
PIMCO RAE Fundamental PLUS Instl
S&P 500
Universe Median
68% Confidence Interval
eV US Large Cap Core Equity Gross

PIMCO RAE Fundamental PLUS Instl
Rolling Return Analysis (Gross of Fees) Period Ending: March 31, 2018

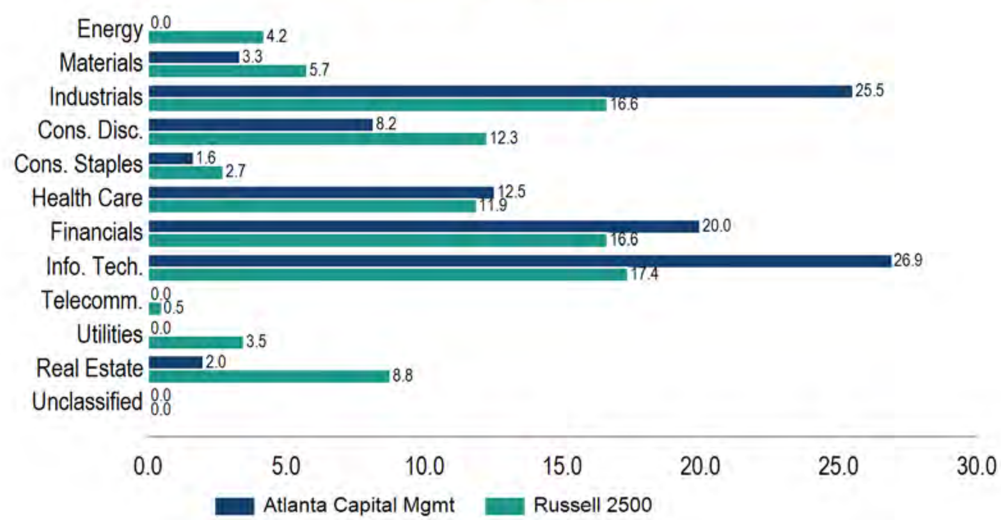




Characteristics

	Portfolio	Russell 2500
Number of Holdings	46	2,470
Weighted Avg. Market Cap. ($B)	8.70	5.27
Median Market Cap. ($B)	7.84	1.18
Price To Earnings	35.65	22.59
Price To Book	6.13	3.49
Price To Sales	4.04	3.43
Return on Equity (%)	19.09	11.74
Yield (%)	0.73	1.25
Beta	0.64	1.00

Sector Allocation (%) vs Russell 2500



*Unclassified includes Cash

Top Holdings

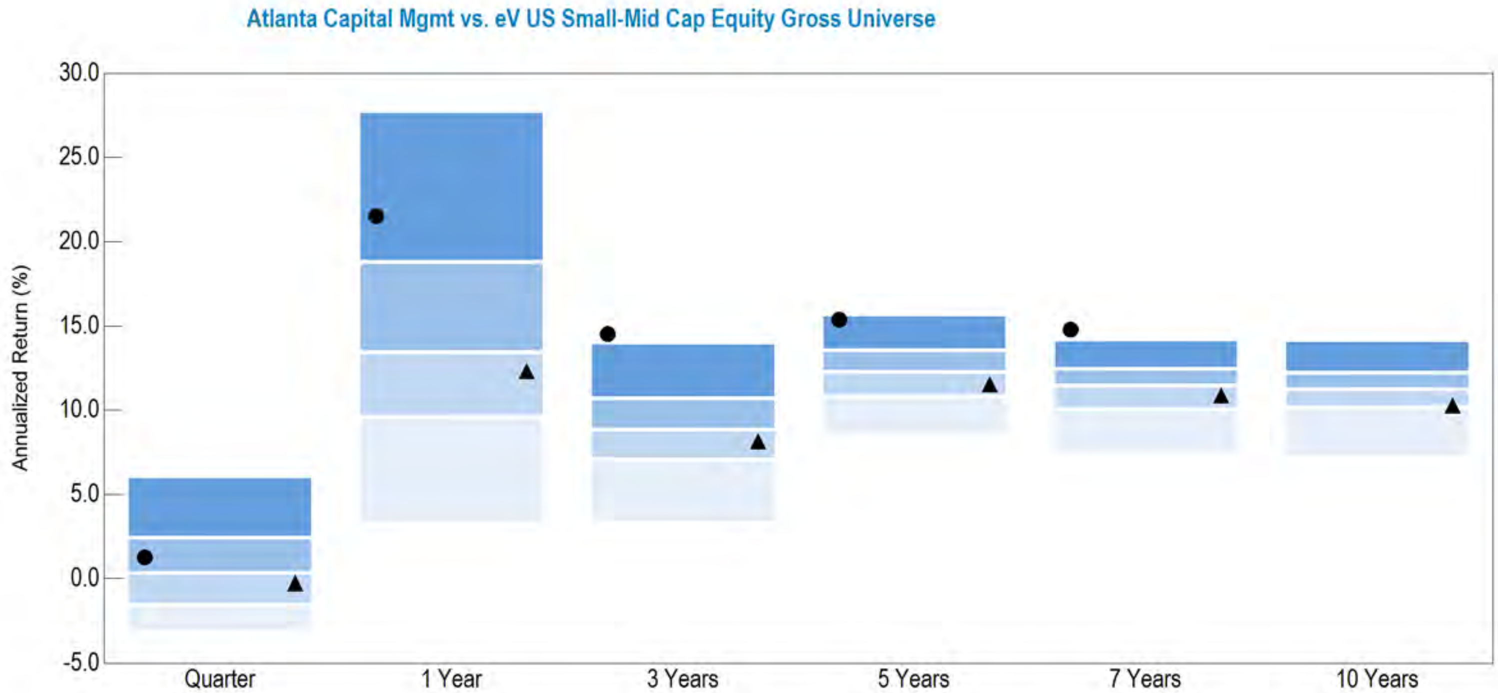
Ending Period Weight	
MARKEL	4.37%
TELEFLEX	4.17%
ANSYS	4.03%
SEI INVESTMENTS	3.68%
TRANSUNION	3.62%
BIO-RAD LABORATORIES 'A'	2.94%
BLACKBAUD	2.89%
ARAMARK	2.88%
CDW	2.81%
HUNT JB TRANSPORT SVS.	2.77%
Total	34.16%

Top Contributors

	Avg Wgt	Return	Contribution
BROADRIDGE FINL.SLTN.	1.87	21.51	0.40
WEX	2.81	10.90	0.31
JONES LANG LASALLE	1.71	17.26	0.30
COPART	1.56	17.92	0.28
KIRBY	1.83	15.19	0.28
BIO-TECHNE	1.60	16.85	0.27
FAIR ISAAC	2.42	10.55	0.25
ANSYS	4.11	6.17	0.25
BLACKBAUD	2.83	7.87	0.22
IDEX	2.67	8.28	0.22

Bottom Contributors

	Avg Wgt	Return	Contribution
ACUITY BRANDS	2.40	-20.85	-0.50
DENTSPLY SIRONA	1.98	-23.44	-0.46
MANHATTAN ASSOCS.	2.15	-15.46	-0.33
SALLY BEAUTY HOLDINGS	1.82	-12.31	-0.22
AFFILIATED MANAGERS	2.80	-7.49	-0.21
ARAMARK	2.89	-7.20	-0.21
CARLISLE COS.	2.57	-7.81	-0.20
TRIMBLE	1.66	-11.71	-0.19
NORDSON	2.00	-6.67	-0.13
GARTNER 'A'	2.09	-4.49	-0.09

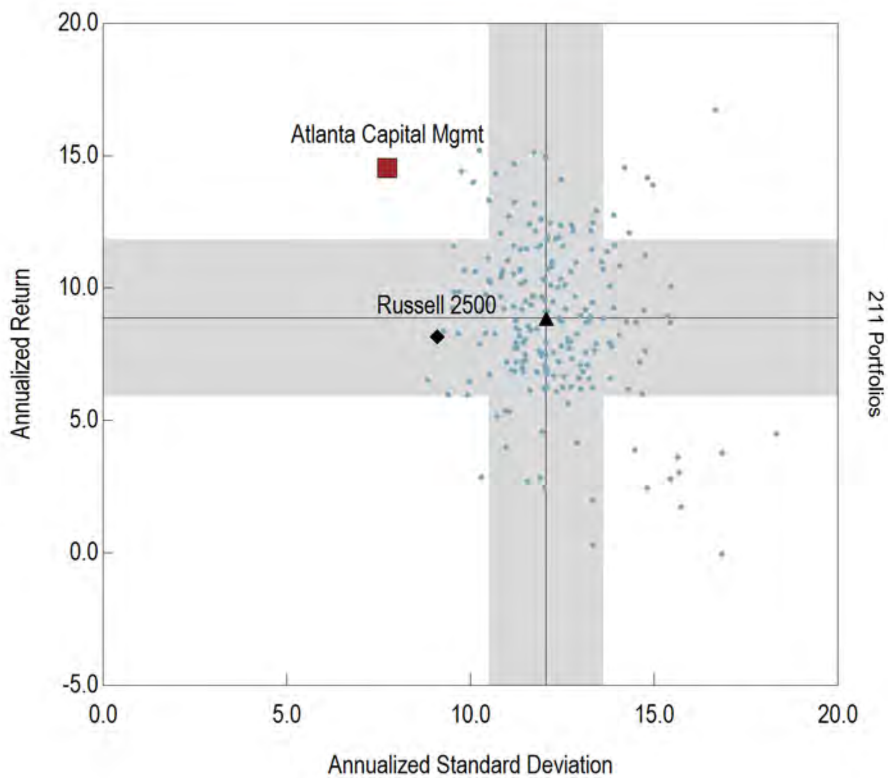


	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	6.0		27.7		14.0		15.7		14.2		14.2	
25th Percentile	2.4		18.8		10.7		13.6		12.5		12.3	
Median	0.4		13.5		8.9		12.3		11.5		11.2	
75th Percentile	-1.5		9.6		7.1		10.9		10.1		10.2	
95th Percentile	-3.1		3.3		3.3		8.5		7.4		7.2	
# of Portfolios	223		223		211		192		169		146	
● Atlanta Capital Mgmt	1.3	(36)	21.5	(17)	14.5	(3)	15.4	(7)	14.8	(3)	--	(--)
▲ Russell 2500	-0.2	(57)	12.3	(58)	8.2	(60)	11.5	(65)	10.9	(63)	10.3	(73)

Atlanta Capital Mgmt vs. eV US Small-Mid Cap Equity Gross Universe

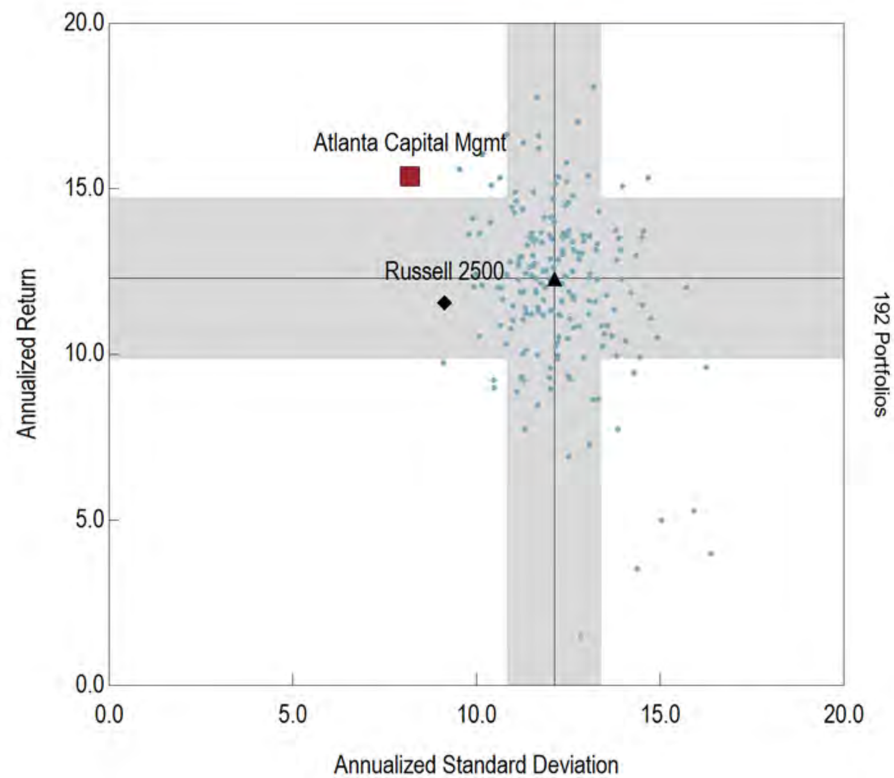
Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	31.9		27.6		4.6		13.0		47.6		24.1		6.8		38.5		62.6		-26.7	
25th Percentile	23.5		20.8		0.4		9.6		42.5		19.2		1.7		31.7		44.6		-34.7	
Median	18.1		16.1		-1.5		6.5		38.2		16.0		-1.5		26.9		35.2		-38.1	
75th Percentile	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 March 31, 2018

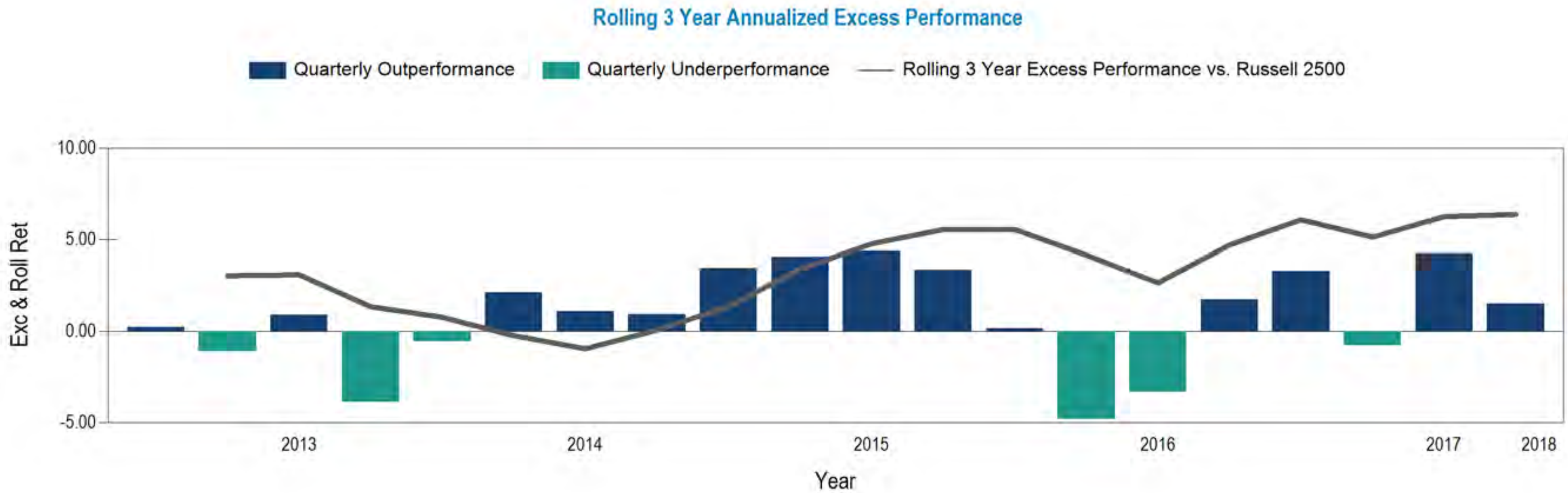


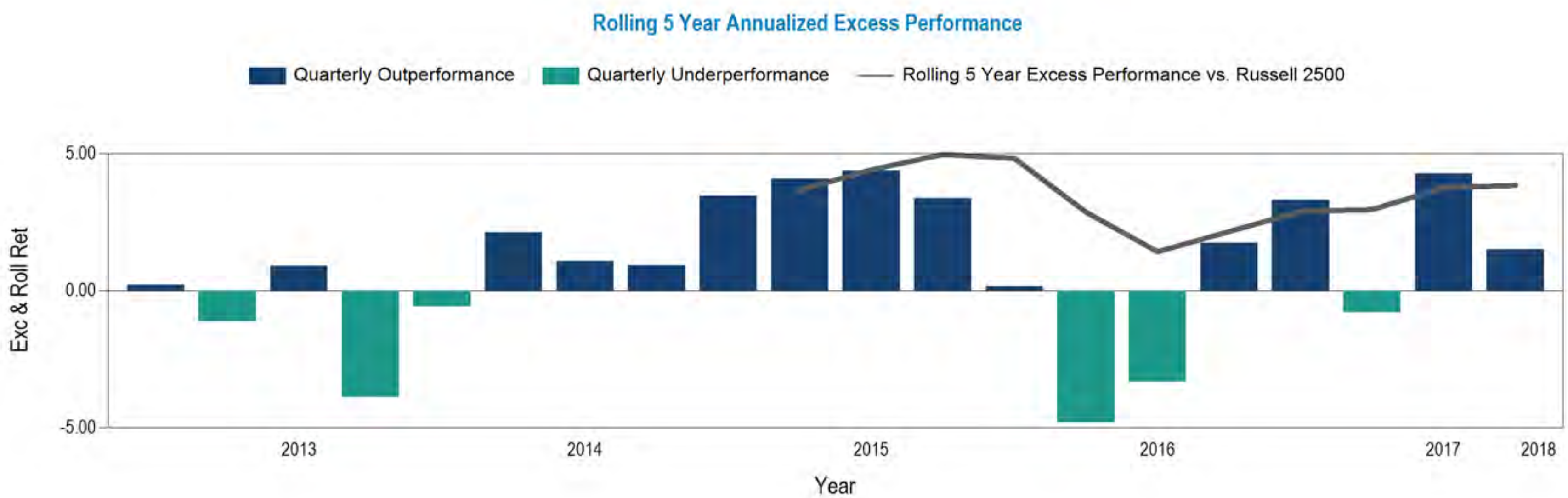
- Atlanta Capital Mgmt
- Russell 2500
- Universe Median
- 68% Confidence Interval
- eV US Small-Mid Cap Equity Gross

Annualized Return vs. Annualized Standard Deviation
5 Years Ending March 31, 2018



- 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

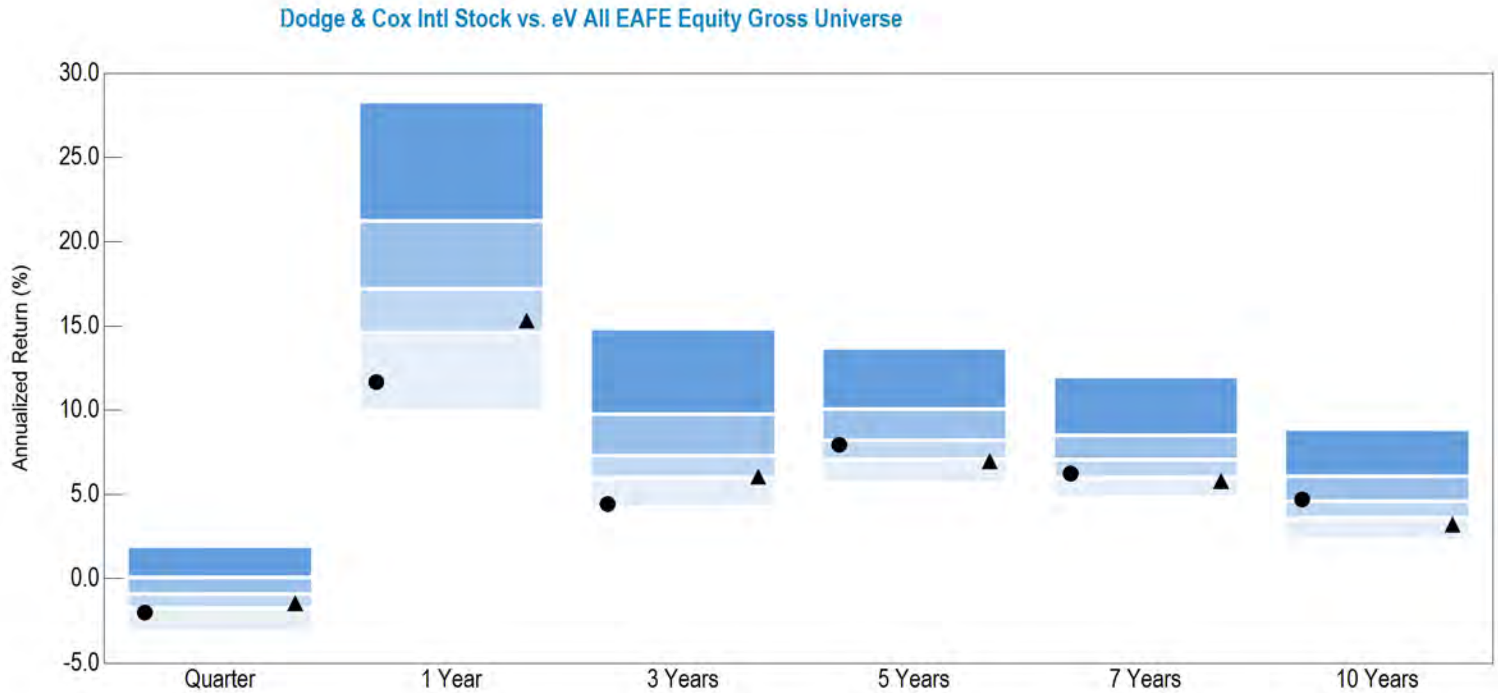
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	**315,756,740**	**-0.3**	**16.1**	**6.2**	**7.1**	**5.0**	**26.6**	**2.2**	**-4.3**	**2.1**	**17.9**
MSCI ACWI ex USA Gross		*-1.1*	*17.0*	*6.7*	*6.4*	*3.2*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
InvestorForce Public DB ex-US Eq Gross Rank		*46*	*84*	*84*	*53*	*17*	*81*	*82*	*68*	*1*	*50*
Dodge & Cox Intl Stock	157,457,829	-2.0	11.7	4.4	7.9	4.7	24.7	9.0	-10.8	0.7	27.1
MSCI EAFE Gross		*-1.4*	*15.3*	*6.0*	*7.0*	*3.2*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
eV All EAFE Equity Gross Rank		*82*	*93*	*94*	*58*	*48*	*74*	*3*	*99*	*13*	*32*
WCM International Growth	158,298,911	1.5	21.1	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross		*-1.1*	*17.0*	--	--	--	--	--	--	--	--
eV ACWI ex-US All Cap Growth Eq Gross Rank		*30*	*74*	--	--	--	--	--	--	--	--

EAFE Effective Style Map
3 Years Ending March 31, 2018

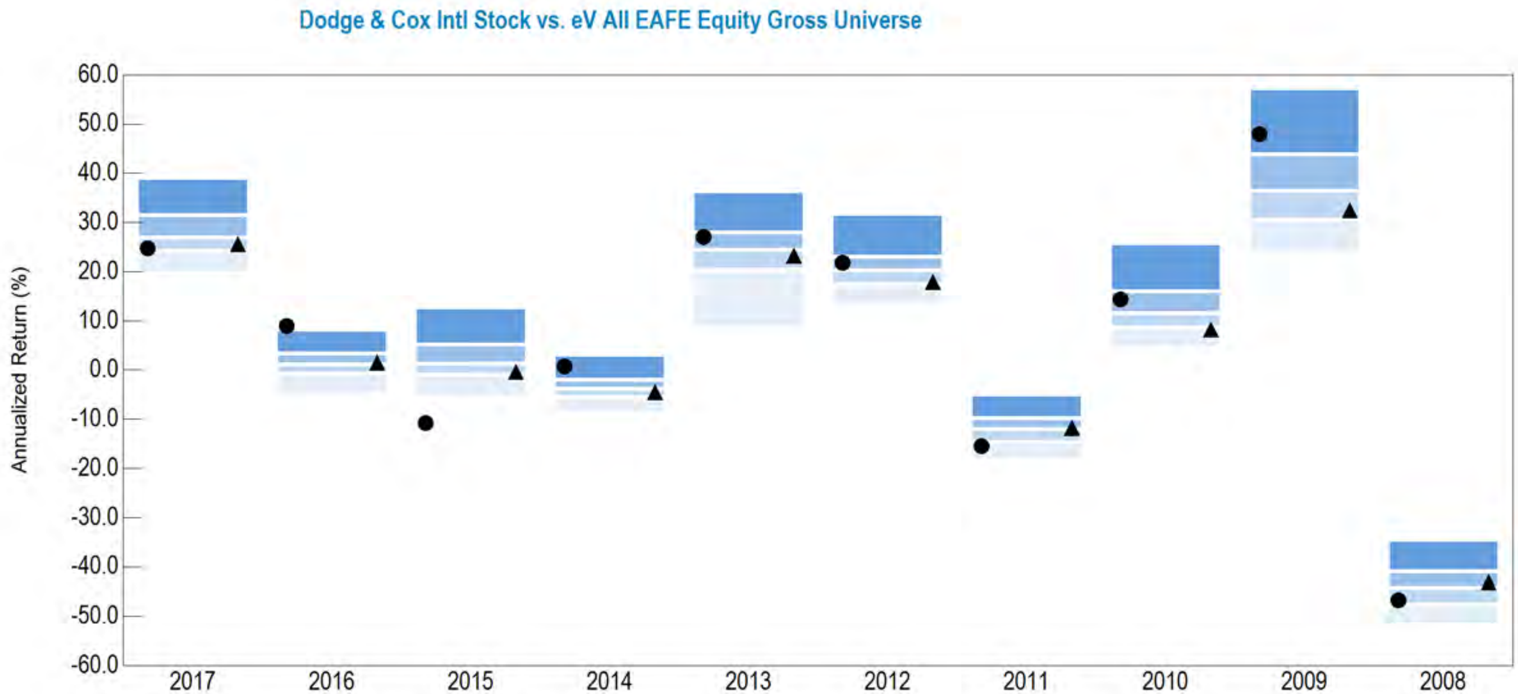
EAFE Effective Style Map
5 Years Ending March 31, 2018

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total International Equity	**315,756,740**	**-0.4**	**15.4**	**5.5**	**6.4**	**--**	**25.8**	**1.6**	**-4.9**	**1.4**	**17.0**
MSCI ACWI ex USA Gross		*-1.1*	*17.0*	*6.7*	*6.4*	*--*	*27.8*	*5.0*	*-5.3*	*-3.4*	*15.8*
Dodge & Cox Intl Stock	157,457,829	-2.1	11.0	3.8	7.3	4.1	23.9	8.3	-11.4	0.1	26.3
MSCI EAFE Gross		*-1.4*	*15.3*	*6.0*	*7.0*	*3.2*	*25.6*	*1.5*	*-0.4*	*-4.5*	*23.3*
WCM International Growth	158,298,911	1.3	20.2	--	--	--	--	--	--	--	--
MSCI ACWI ex USA Gross		*-1.1*	*17.0*	--	--	--	--	--	--	--	--

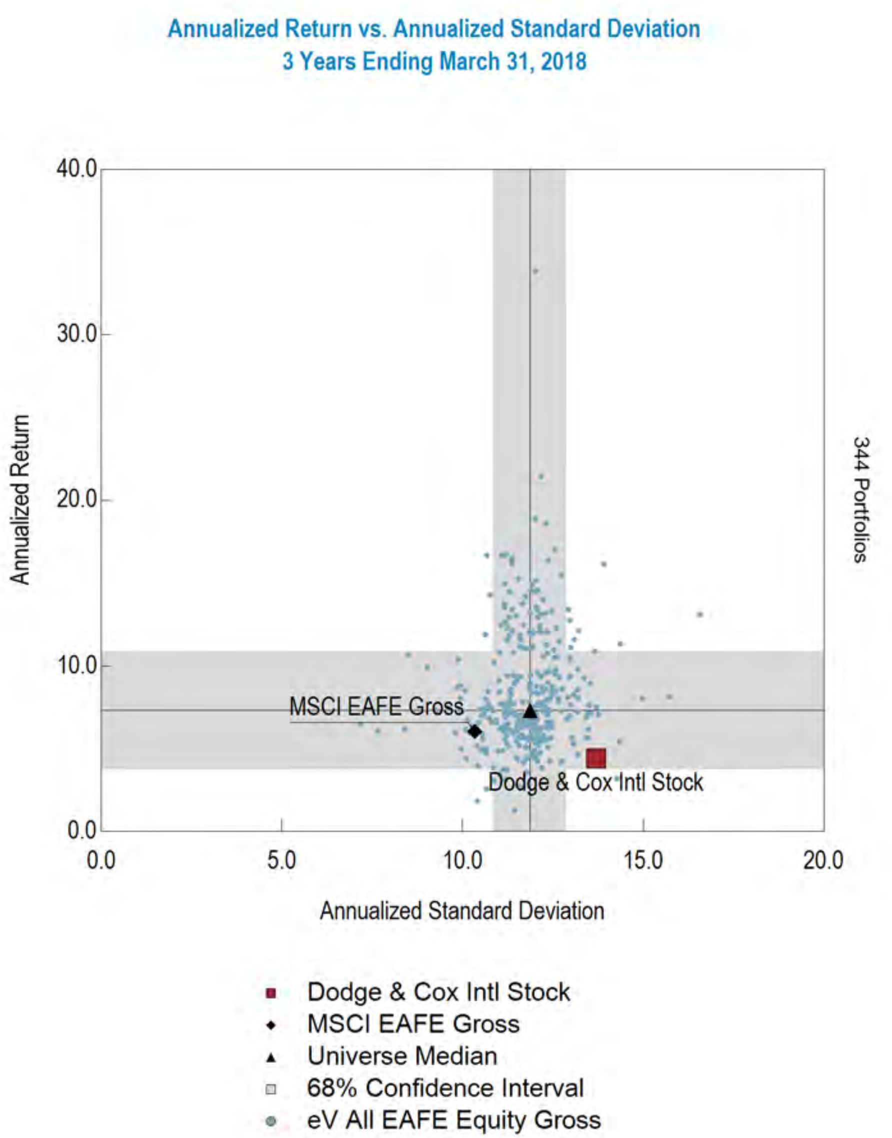
Dodge & Cox Intl Stock
Cumulative Performance Comparison (Gross of Fees) Period Ending: March 31, 2018

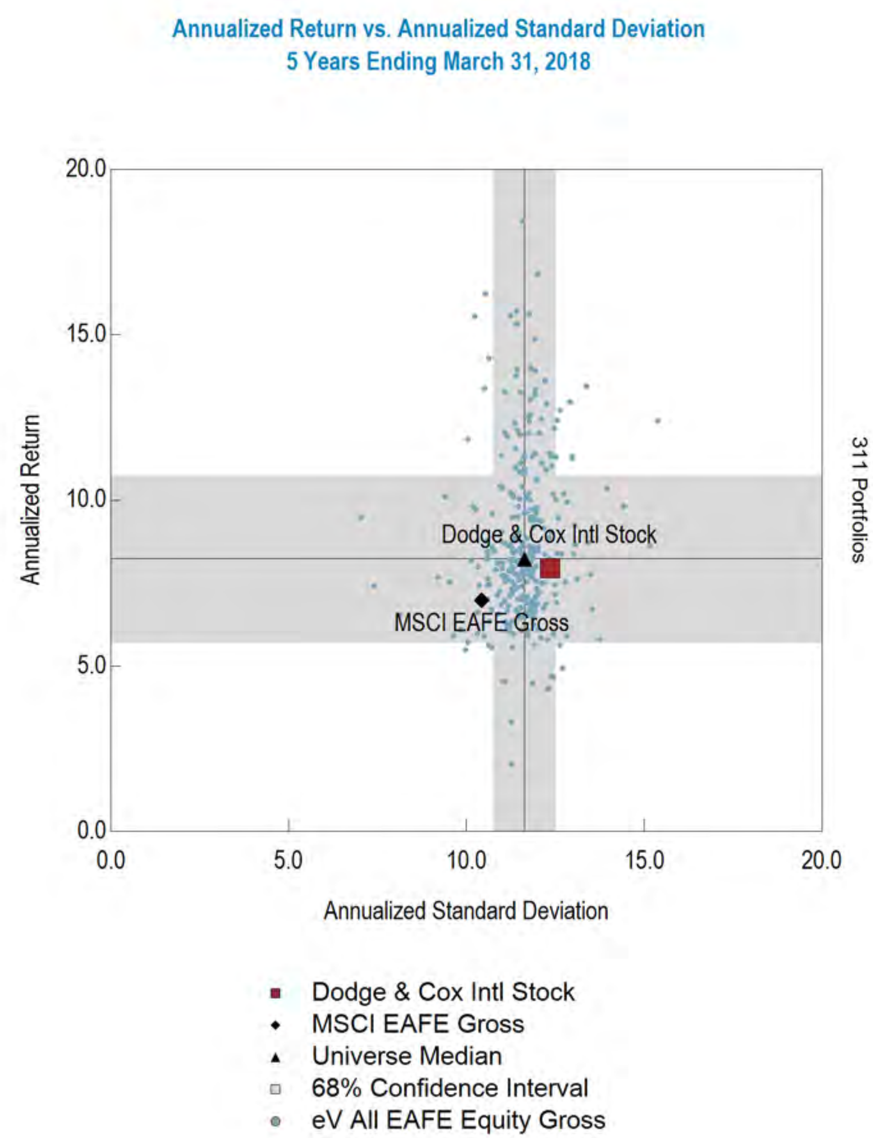


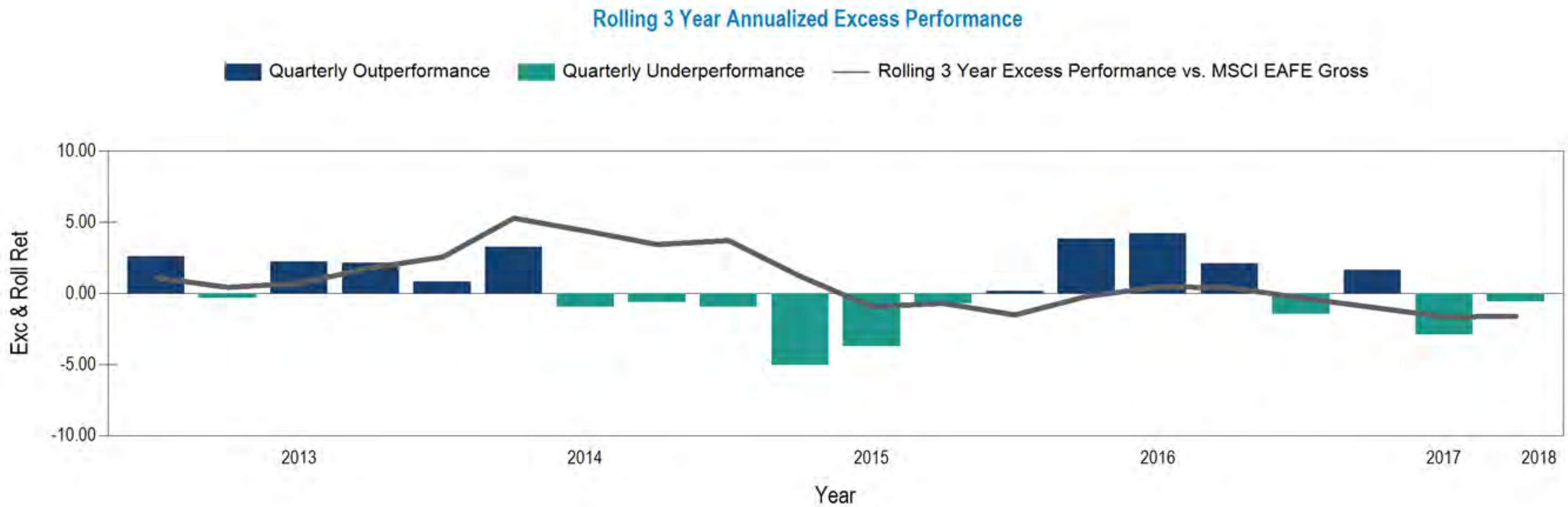
Return (Rank)	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.9		28.3		14.9		13.7		12.0		8.9	
25th Percentile	0.1		21.3		9.8		10.1		8.5		6.1	
Median	-0.9		17.2		7.3		8.2		7.1		4.6	
75th Percentile	-1.7		14.7		6.0		7.1		6.0		3.6	
95th Percentile	-3.1		10.0		4.2		5.7		4.9		2.3	
# of Portfolios	367		367		344		311		285		251	
● Dodge & Cox Intl Stock	-2.0	(82)	11.7	(93)	4.4	(94)	7.9	(58)	6.2	(69)	4.7	(48)
▲ MSCI EAFE Gross	-1.4	(66)	15.3	(67)	6.0	(75)	7.0	(77)	5.8	(79)	3.2	(83)

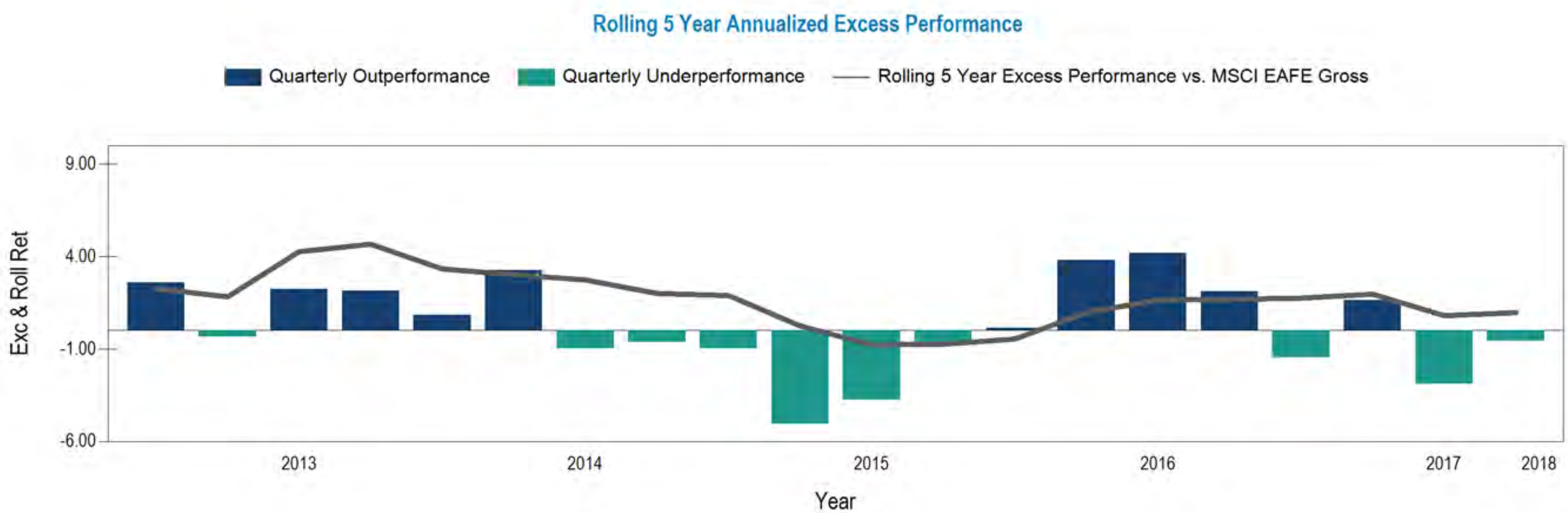


Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	39.0		8.1		12.6		3.0		36.3		31.7		-5.1		25.7		57.3		-34.5	
25th Percentile	31.6		3.4		5.2		-1.9		28.1		23.1		-9.7		16.1		44.0		-40.8	
Median	27.0		1.3		1.4		-3.7		24.6		20.4		-12.0		11.7		36.5		-44.1	
75th Percentile	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 March 31, 2018
40.0
30.0
20.0
10.0
0.0
Annualized Return
0.0
5.0
10.0
15.0
20.0
Annualized Standard Deviation
344 Portfolios
MSCI EAFE Gross
Dodge & Cox Intl Stock
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 March 31, 2018
20.0
15.0
10.0
5.0
0.0
Annualized Return
0.0
5.0
10.0
15.0
20.0
Annualized Standard Deviation
311 Portfolios
Dodge & Cox Intl Stock
MSCI EAFE Gross
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
10.00
5.00
0.00
-5.00
-10.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

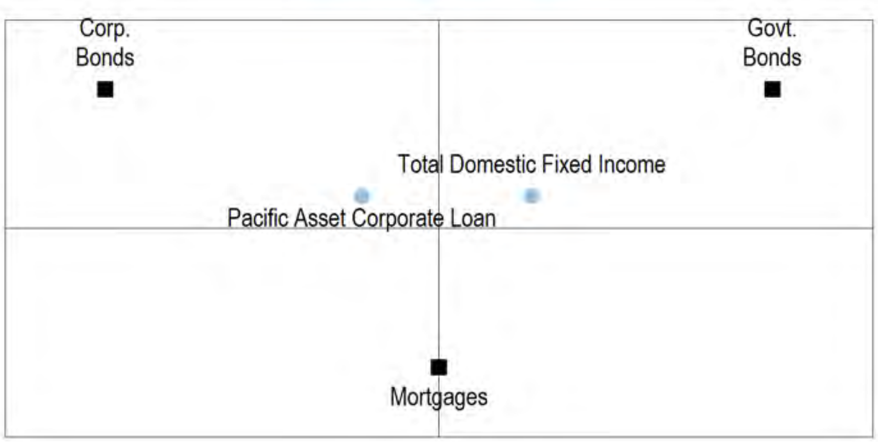

Rolling 5 Year Annualized Excess Performance
Quarterly Outperformance
Quarterly Underperformance
Rolling 5 Year Excess Performance vs. MSCI EAFE Gross
9.00
4.00
-1.00
-6.00
Exc & Roll Ret
2013
2014
2015
2016
2017
2018
Year

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

Period Ending: March 31, 2018

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Fixed Income	**273,328,883**	**-0.4**	**2.4**	**2.6**	**2.2**	**3.8**	**4.3**	**4.5**	**1.1**	**4.7**	**-2.7**
BBgBarc US Aggregate TR		*-1.5*	*1.2*	*1.2*	*1.8*	*3.6*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
InvestorForce Public DB US Fix Inc Gross Rank		*17*	*36*	*35*	*57*	*59*	*50*	*49*	*17*	*68*	*95*
BlackRock Core Bond	99,274,911	-1.4	0.8	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*-1.5*	*1.2*	--	--	--	--	--	--	--	--
eV US Core Fixed Inc Gross Rank		*54*	*96*	--	--	--	--	--	--	--	--
Dodge & Cox Income Fund	104,374,372	-0.8	2.7	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*-1.5*	*1.2*	--	--	--	--	--	--	--	--
eV US Core Fixed Inc Gross Rank		*7*	*7*	--	--	--	--	--	--	--	--
Pacific Asset Corporate Loan	69,679,600	1.4	4.9	5.3	--	--	4.9	9.2	2.5	--	--
S&P/LSTA Leveraged Loan Index		*1.4*	*4.4*	*4.2*	--	--	*4.1*	*10.2*	*-0.7*	--	--
eV Float-Rate Bank Loan Gross Rank		*38*	*32*	*14*	--	--	*26*	*51*	*9*	--	--

Fixed Income Effective Style Map
3 Years Ending March 31, 2018



Fixed Income Effective Style Map
5 Years Ending March 31, 2018

SSGA TIPS liquidated 1/17/2018.

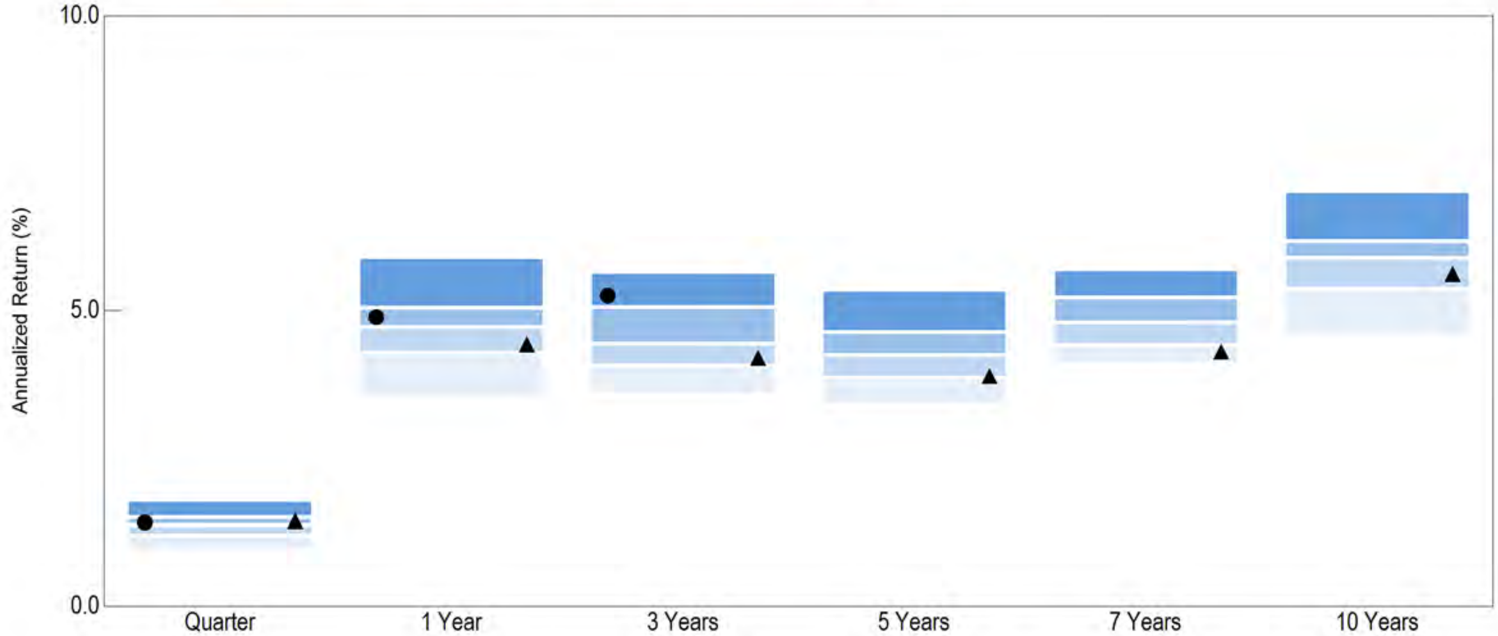
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Domestic Fixed Income	**273,328,883**	**-0.5**	**2.1**	**2.3**	**1.9**	**--**	**3.9**	**4.2**	**0.9**	**4.4**	**-3.0**
BBgBarc US Aggregate TR		*-1.5*	*1.2*	*1.2*	*1.8*	*--*	*3.5*	*2.6*	*0.6*	*6.0*	*-2.0*
BlackRock Core Bond	99,274,911	-1.5	0.5	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*-1.5*	*1.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Dodge & Cox Income Fund	104,374,372	-0.9	2.2	--	--	--	--	--	--	--	--
BBgBarc US Aggregate TR		*-1.5*	*1.2*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*
Pacific Asset Corporate Loan	69,679,600	1.3	4.6	4.9	--	--	4.6	8.8	2.1	--	--
S&P/LSTA Leveraged Loan Index		*1.4*	*4.4*	*4.2*	*--*	*--*	*4.1*	*10.2*	*-0.7*	*--*	*--*

Correlation Matrix
5 Years Ending March 31, 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

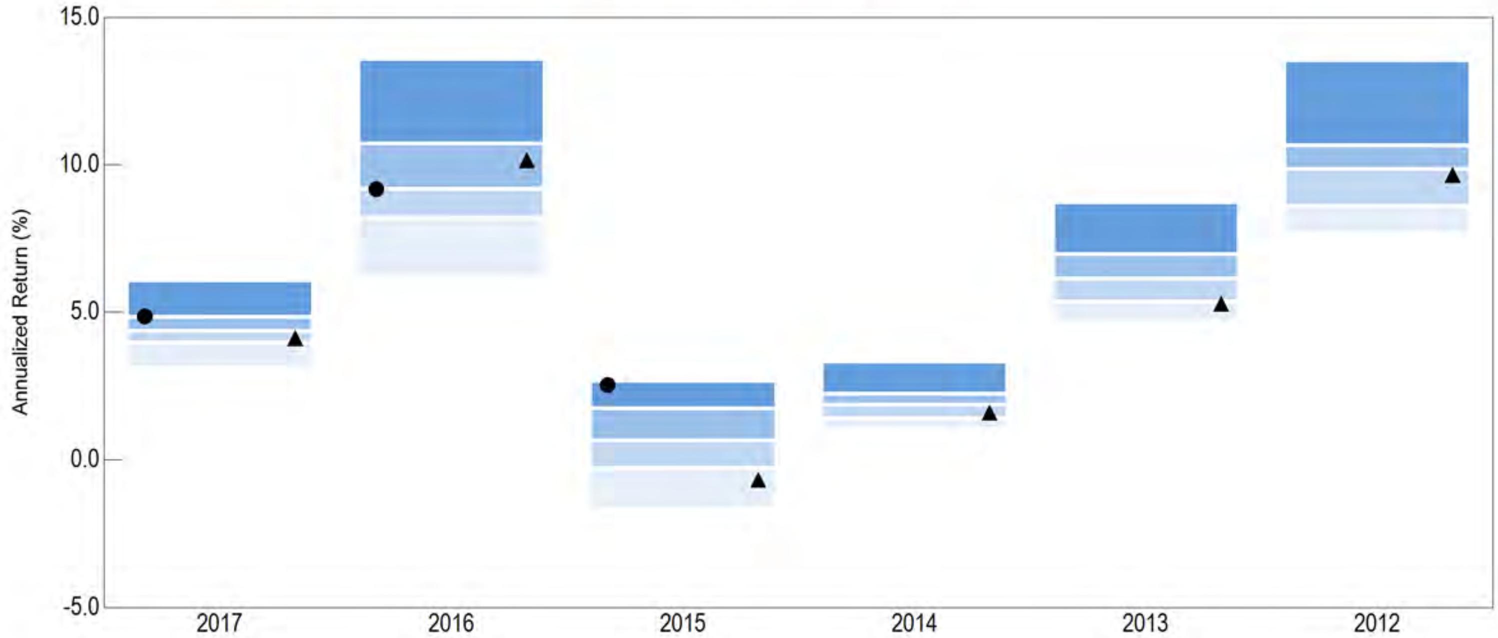
SSGA TIPS liquidated 1/17/2018.

Pacific Asset Corporate Loan vs. eV Float-Rate Bank Loan Gross Universe

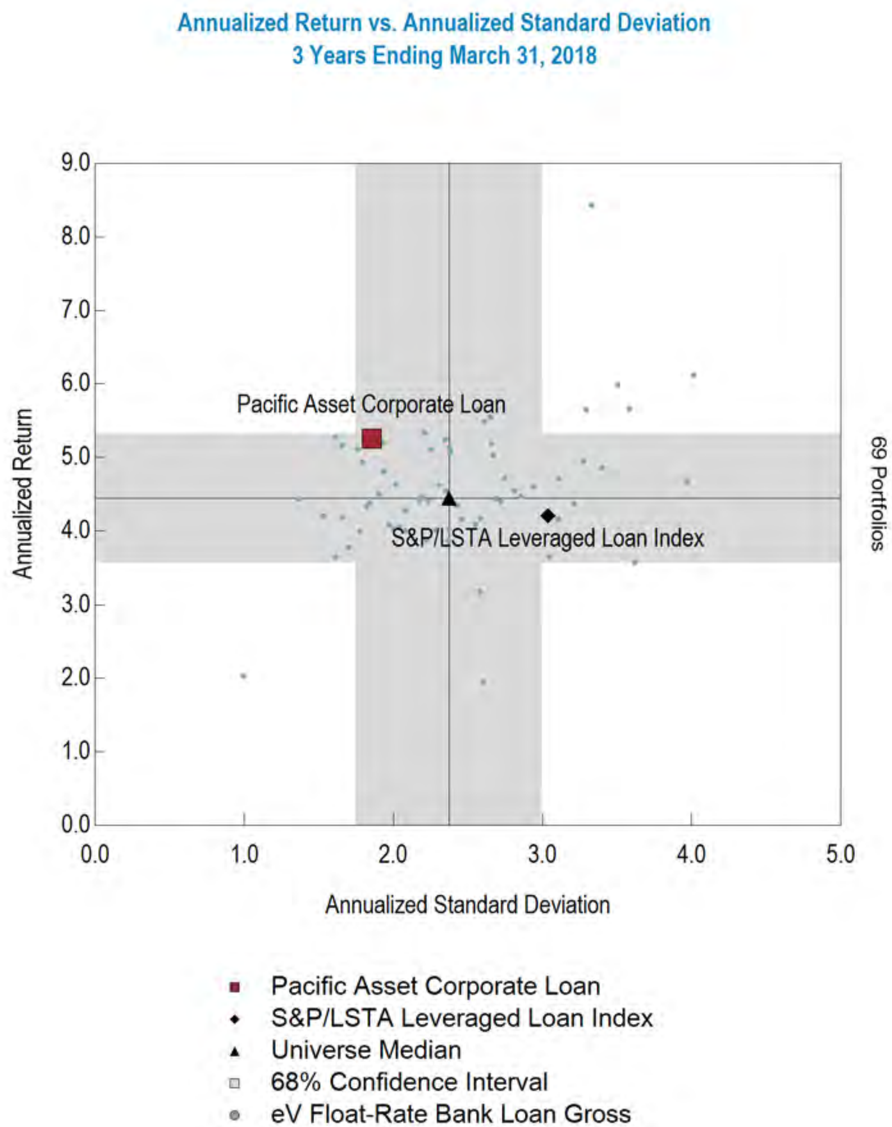


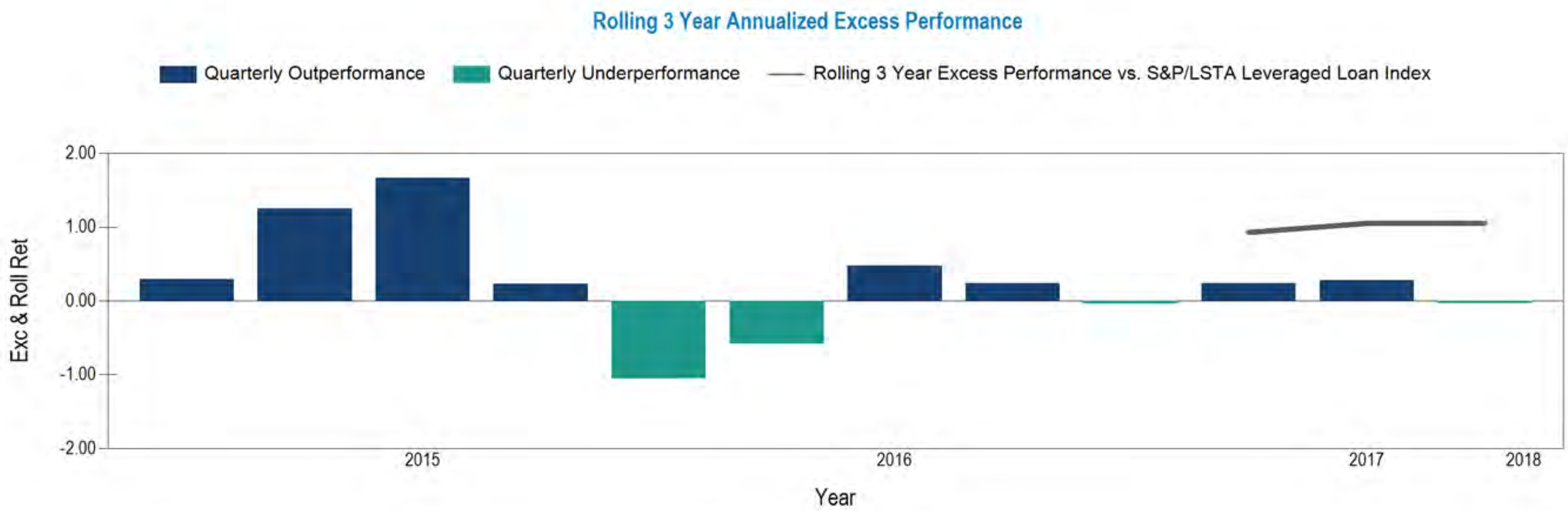
	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.8		5.9		5.7		5.4		5.7		7.0	
25th Percentile	1.5		5.1		5.1		4.6		5.2		6.2	
Median	1.4		4.7		4.4		4.3		4.8		5.9	
75th Percentile	1.2		4.3		4.1		3.9		4.4		5.4	
95th Percentile	1.0		3.5		3.6		3.4		4.1		4.6	
# of Portfolios	69		69		69		60		54		38	
● Pacific Asset Corporate Loan	1.4	(38)	4.9	(32)	5.3	(14)	--	(--)	--	(--)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	1.4	(34)	4.4	(66)	4.2	(68)	3.9	(73)	4.3	(90)	5.6	(67)

Pacific Asset Corporate Loan vs. eV Float-Rate Bank Loan Gross Universe



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 March 31, 2018
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Annualized Return
0.0
1.0
2.0
3.0
4.0
5.0
Annualized Standard Deviation
Pacific Asset Corporate Loan
S&P/LSTA Leveraged Loan Index
69 Portfolios
Pacific Asset Corporate Loan
S&P/LSTA Leveraged Loan Index
Universe Median
68% Confidence Interval
eV Float-Rate Bank Loan 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

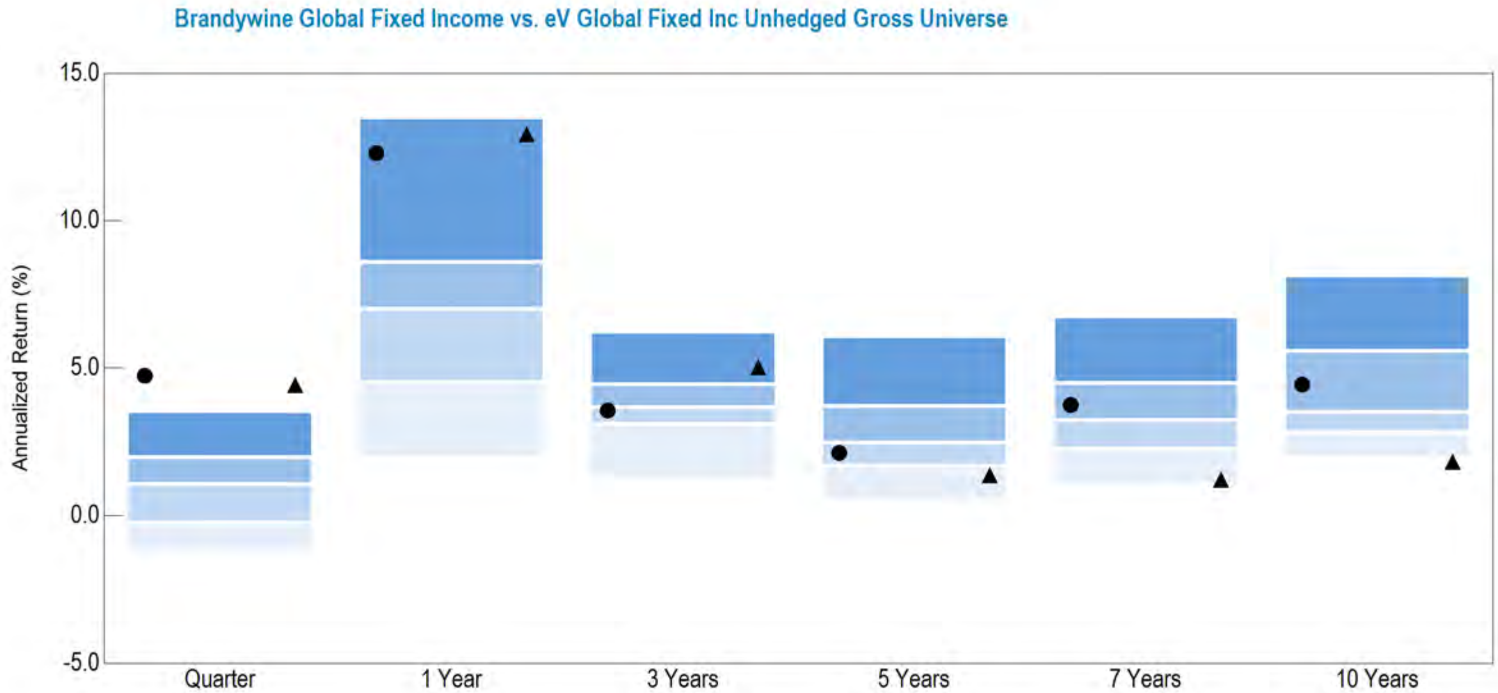
Total Global Fixed
Asset Class Overview (Gross of Fees)
Period Ending: March 31, 2018

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Global Fixed	**159,418,889**	**5.1**	**12.9**	**4.7**	**1.2**	**4.0**	**14.4**	**5.8**	**-11.8**	**-2.2**	**-3.8**
Citi World Govt Bond Index		*2.5*	*8.5*	*3.5*	*1.2*	*2.0*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
InvestorForce Public DB Glbl Fix Inc Gross Rank		--	--	--	--	--	*29*	*67*	*95*	*93*	*59*
Brandywine Global Fixed Income	79,950,472	4.7	12.3	3.6	2.1	4.4	12.5	2.2	-9.3	2.9	-1.6
Citi WGBI ex US		*4.4*	*12.9*	*5.0*	*1.4*	*1.8*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*
eV Global Fixed Inc Unhedged Gross Rank		*1*	*8*	*55*	*59*	*38*	*9*	*71*	*96*	*43*	*59*
Stone Harbor Local Markets Ins	79,468,417	5.4	13.5	6.0	--	--	16.4	9.9	-14.4	-7.7	--
JPM GBI-EM Global Diversified TR USD		*4.4*	*12.9*	*5.4*	--	--	*15.2*	*9.9*	*-14.9*	*-5.7*	--
eV All Emg Mkts Fixed Inc Gross Rank		*4*	*12*	*64*	--	--	*14*	*67*	*79*	*98*	--

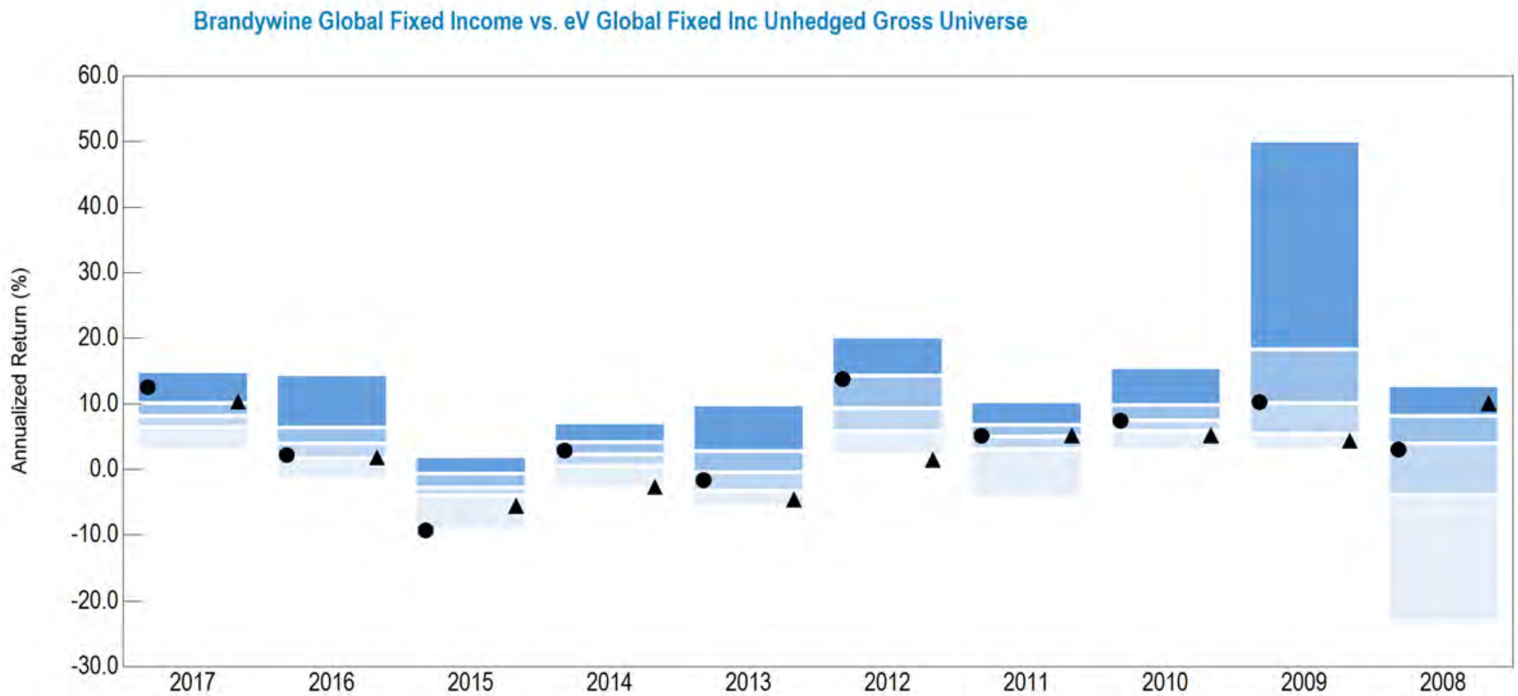
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Global Fixed	**159,418,889**	**4.9**	**12.2**	**4.0**	**0.5**	**--**	**13.7**	**5.1**	**-12.4**	**-2.8**	**-4.4**
Citi World Govt Bond Index		*2.5*	*8.5*	*3.5*	*1.2*	*--*	*7.5*	*1.6*	*-3.6*	*-0.5*	*-4.0*
Brandywine Global Fixed Income	79,950,472	4.6	11.8	3.1	1.6	--	12.0	1.7	-9.7	2.4	-2.3
Citi WGBI ex US		*4.4*	*12.9*	*5.0*	*1.4*	*--*	*10.3*	*1.8*	*-5.5*	*-2.7*	*-4.6*
Stone Harbor Local Markets Ins	79,468,417	5.2	12.5	5.0	--	--	15.4	9.0	-15.1	-8.6	--
JPM GBI-EM Global Diversified TR USD		*4.4*	*12.9*	*5.4*	*--*	*--*	*15.2*	*9.9*	*-14.9*	*-5.7*	*--*

Correlation Matrix
Last 5 Years

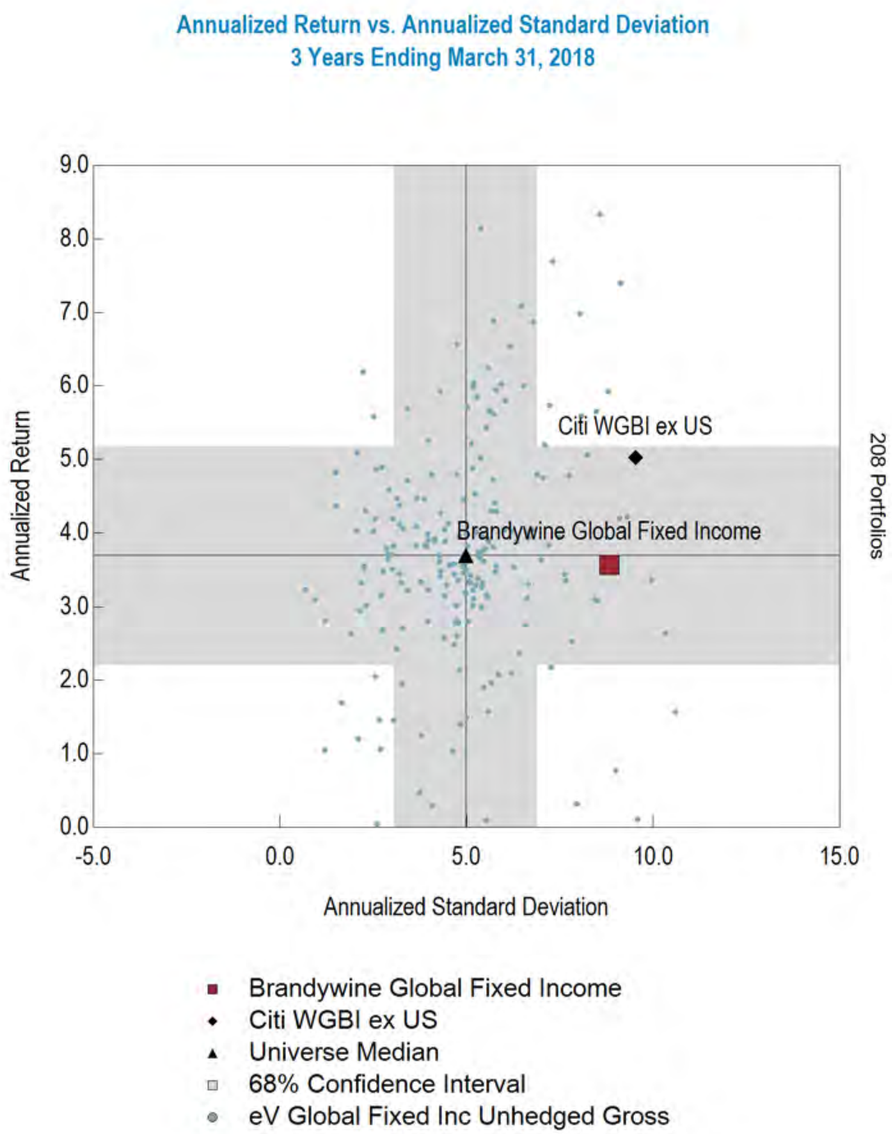
	Total Global Fixed	Brandywine Global Fixed Income	Stone Harbor Local Markets Ins	Citi World Govt Bond Index
Total Global Fixed	1.00	--	--	--
Brandywine Global Fixed Income	0.96	1.00	--	--
Stone Harbor Local Markets Ins	--	--	--	--
Citi World Govt Bond Index	0.76	0.84	--	1.00

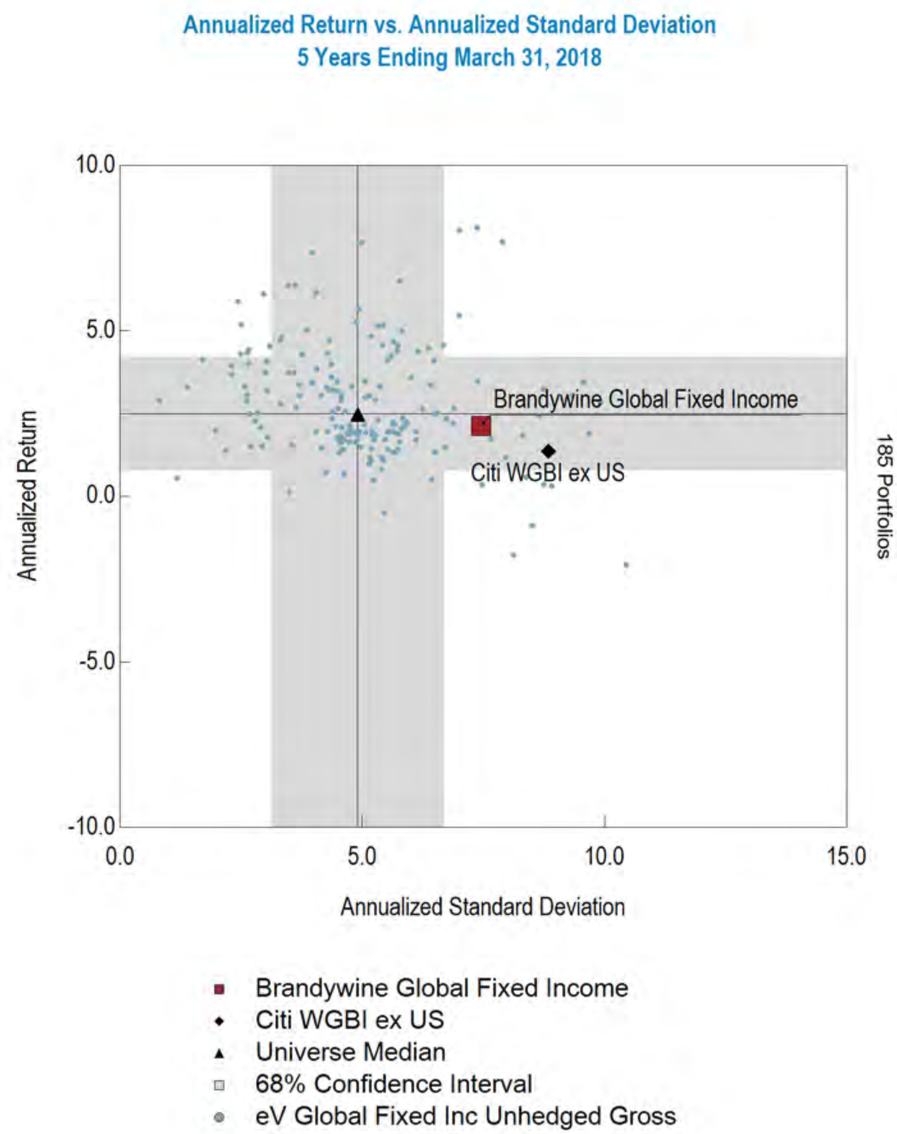


	Return (Rank)											
5th Percentile	3.5		13.5		6.2		6.1		6.7		8.1	
25th Percentile	2.0		8.6		4.5		3.7		4.5		5.6	
Median	1.1		7.0		3.7		2.5		3.3		3.5	
75th Percentile	-0.2		4.5		3.1		1.7		2.3		2.8	
95th Percentile	-1.2		1.9		1.2		0.5		1.1		2.0	
# of Portfolios	220		218		208		185		150		106	
● Brandywine Global Fixed Income	4.7	(1)	12.3	(8)	3.6	(55)	2.1	(59)	3.7	(42)	4.4	(38)
▲ Citi WGBI ex US	4.4	(1)	12.9	(6)	5.0	(18)	1.4	(87)	1.2	(95)	1.8	(96)

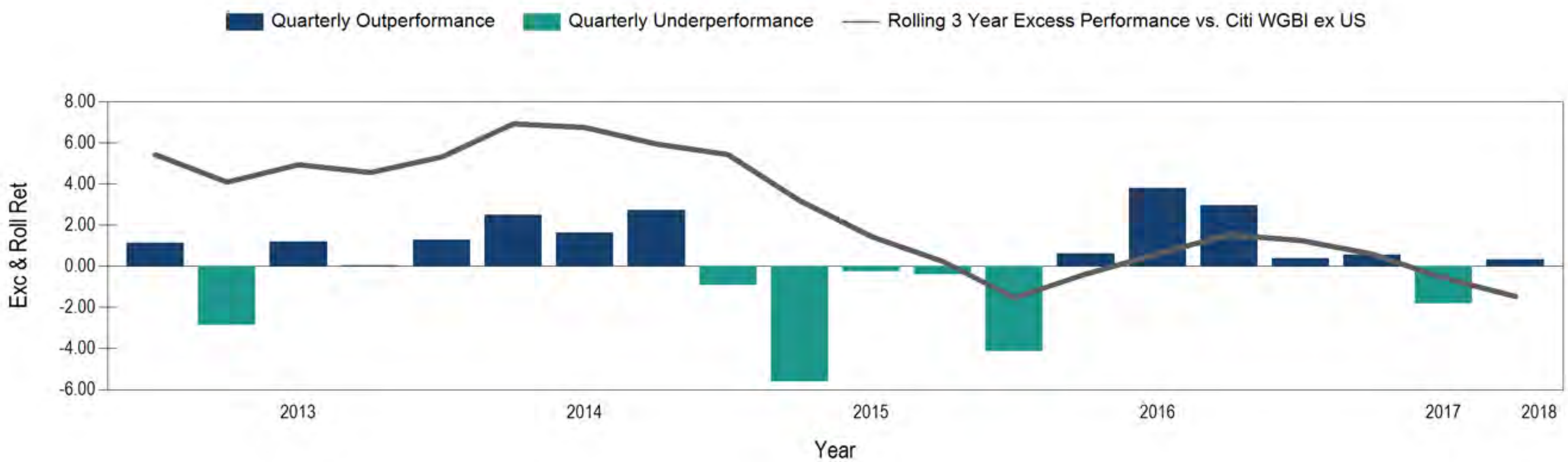


Return (Rank)	2017		2016		2015		2014		2013		2012		2011		2010		2009		2008	
5th Percentile	15.0		14.5		2.0		7.1		9.8		20.2		10.4		15.5		50.1		12.8	
25th Percentile	10.1		6.5		-0.6		4.2		2.8		14.3		6.9		9.9		18.4		8.2	
Median	8.2		4.0		-2.7		2.3		-0.4		9.4		5.0		7.5		10.1		4.0	
75th Percentile	6.5		1.8		-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)
▲ Citi WGBI ex US	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)

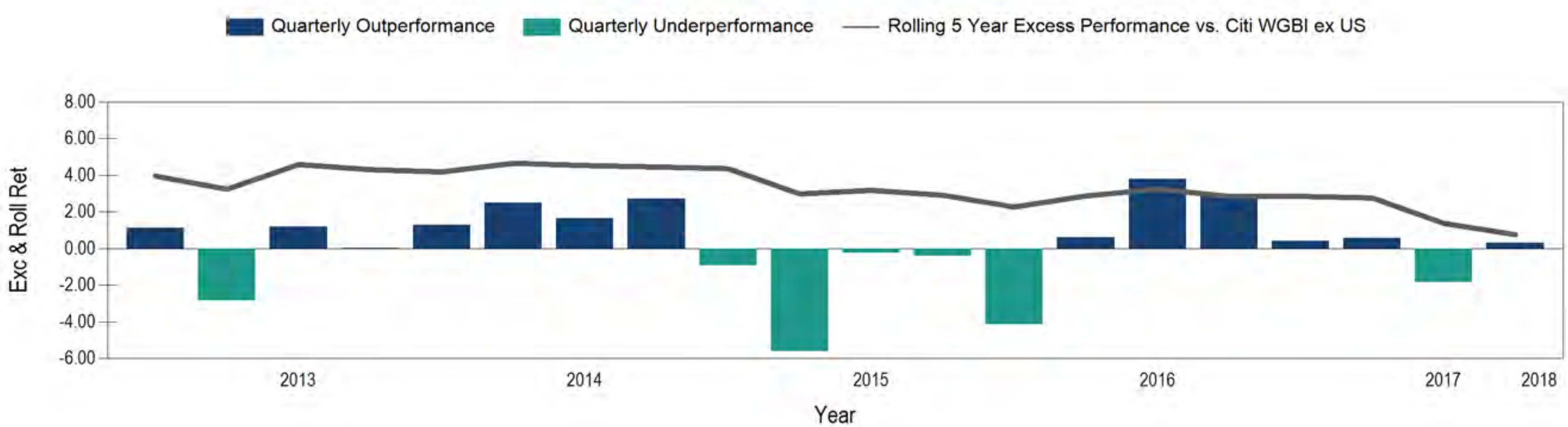

Annualized Return vs. Annualized Standard Deviation
3 Years Ending March 31, 2018
Annualized Return
Annualized Standard Deviation
208 Portfolios
Citi WGBI ex US
Brandywine Global Fixed Income
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-5.0
0.0
5.0
10.0
15.0
Brandywine Global Fixed Income
Citi WGBI ex US
Universe Median
68% Confidence Interval
eV Global Fixed Inc Unhedged Gross

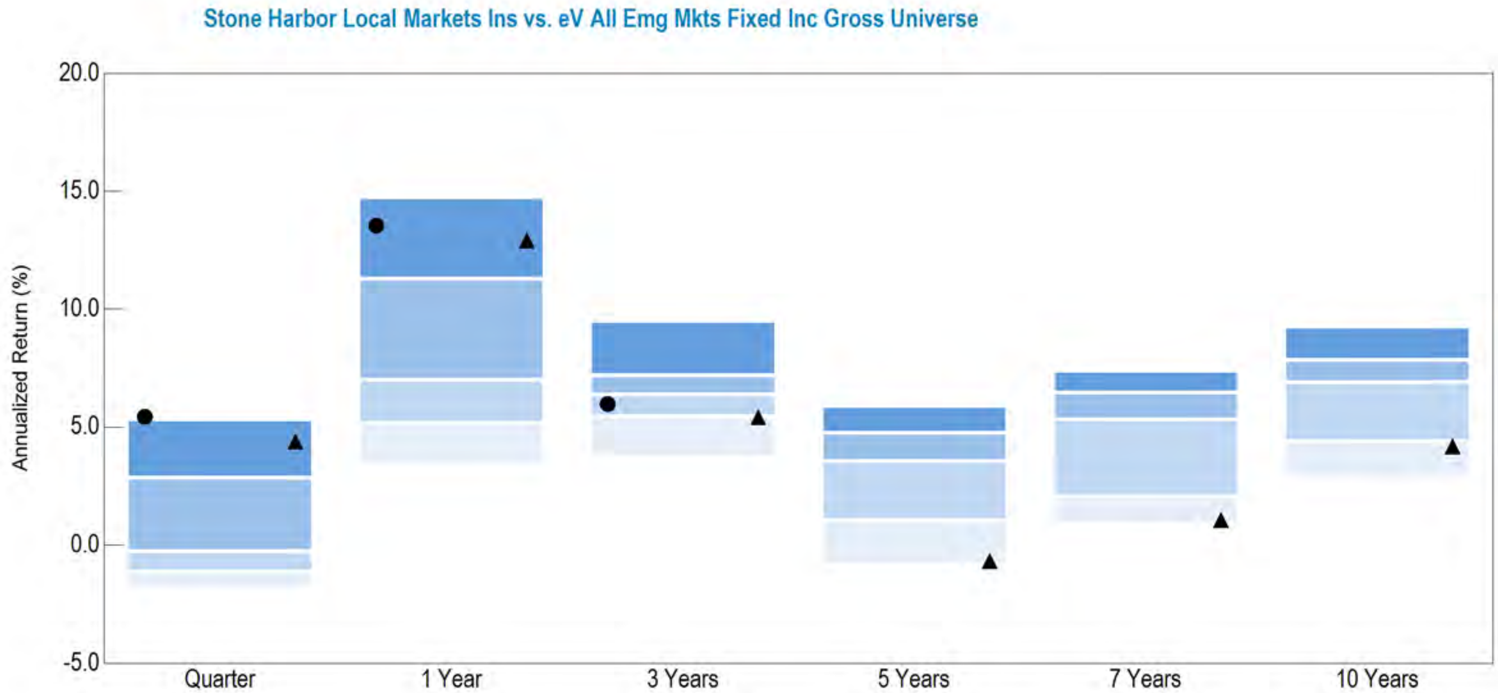

Annualized Return vs. Annualized Standard Deviation
5 Years Ending March 31, 2018
Annualized Return
Annualized Standard Deviation
185 Portfolios
Brandywine Global Fixed Income
Citi WGBI ex US
10.0
5.0
0.0
-5.0
-10.0
0.0
5.0
10.0
15.0
Brandywine Global Fixed Income
Citi WGBI ex US
Universe Median
68% Confidence Interval
eV Global Fixed Inc Unhedged Gross

Rolling 3 Year Annualized Excess Performance

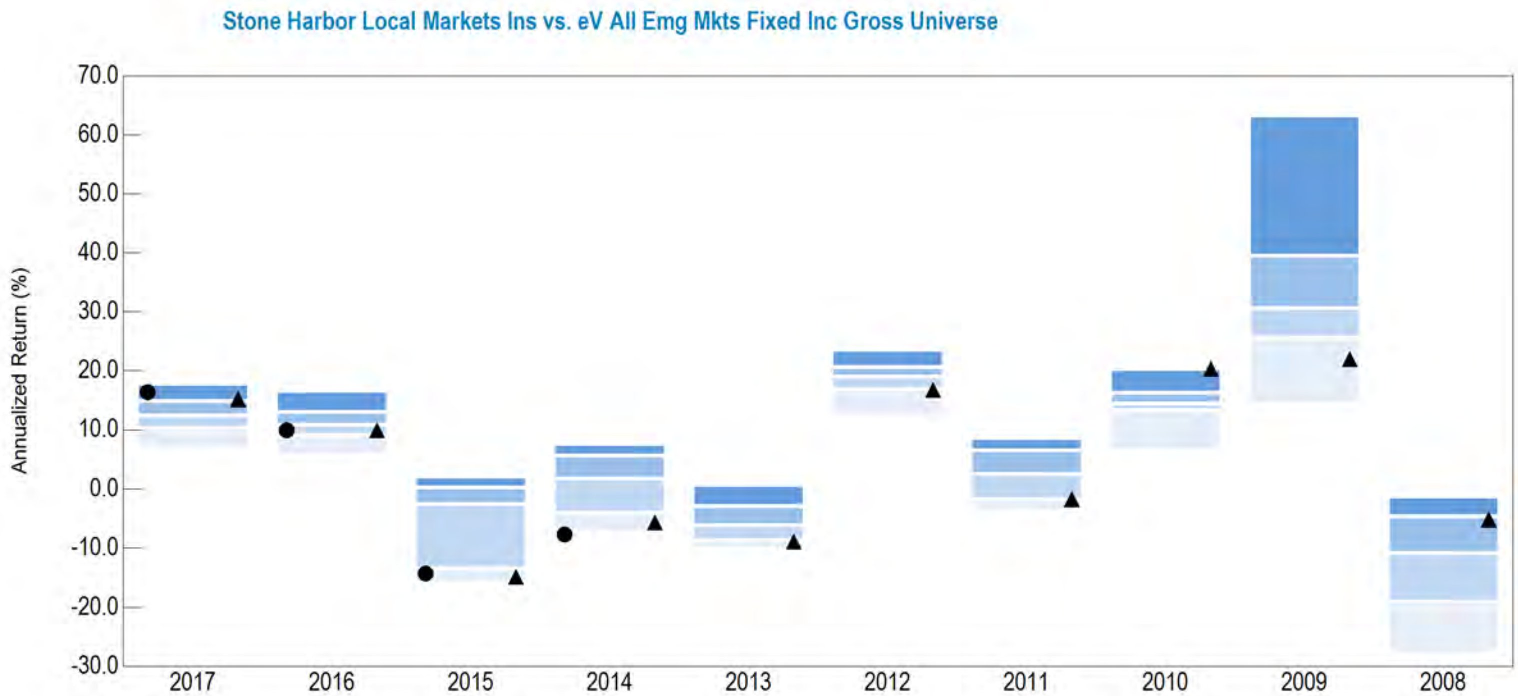


Rolling 5 Year Annualized Excess Performance

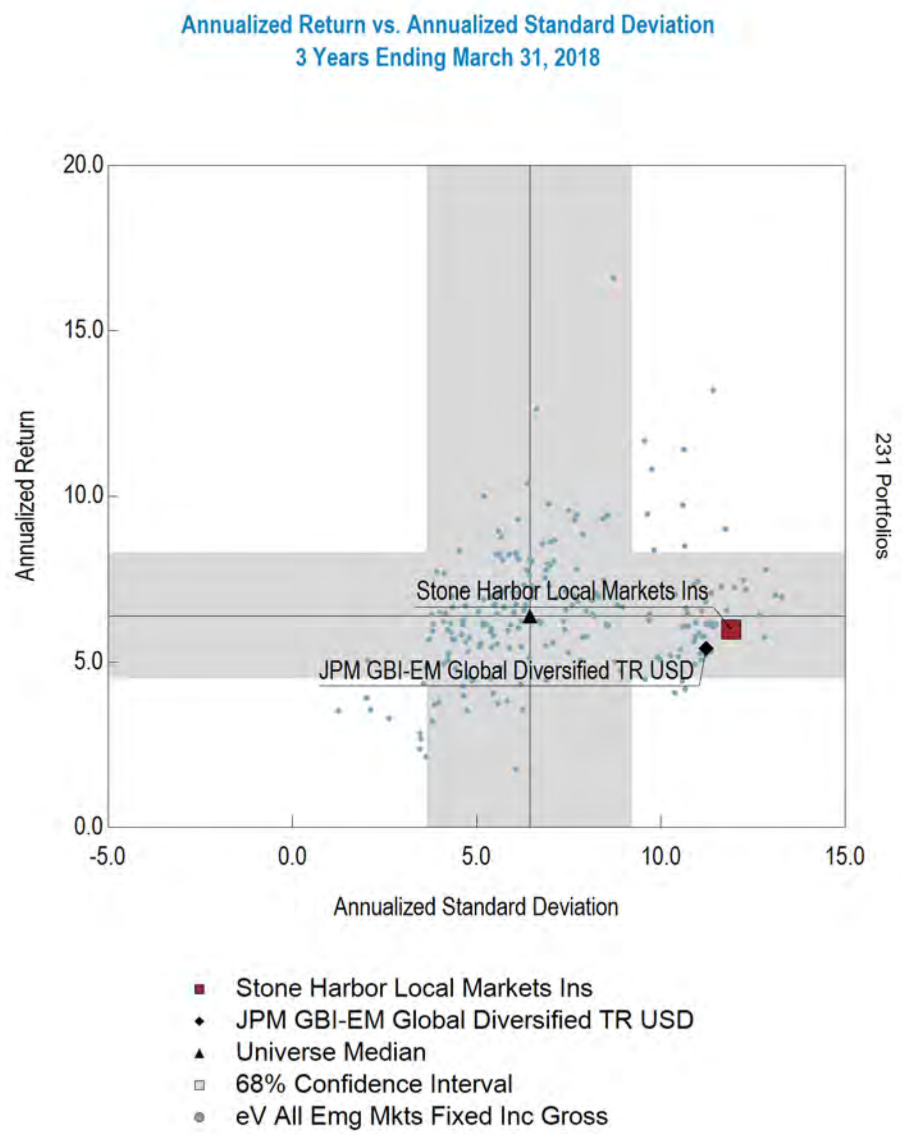




	Return (Rank)											
5th Percentile	5.3		14.7		9.5		5.9		7.4		9.2	
25th Percentile	2.9		11.3		7.2		4.8		6.5		7.9	
Median	-0.3		7.0		6.4		3.6		5.3		6.9	
75th Percentile	-1.1		5.2		5.5		1.1		2.1		4.4	
95th Percentile	-1.8		3.5		3.7		-0.8		0.9		2.8	
# of Portfolios	246		246		231		190		140		90	
● Stone Harbor Local Markets Ins	5.4	(4)	13.5	(12)	6.0	(64)	--	(--)	--	(--)	--	(--)
▲ JPM GBI-EM Global Diversified TR USD	4.4	(17)	12.9	(16)	5.4	(77)	-0.7	(94)	1.1	(94)	4.2	(80)



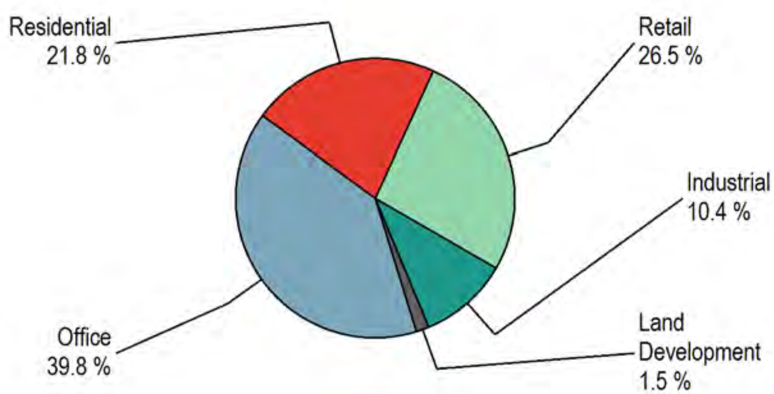
	Return (Rank)																			
5th Percentile	17.7		16.6		2.1		7.6		0.7		23.6		8.6		20.3		63.2		-1.3	
25th Percentile	15.0		13.1		0.3		5.7		-2.9		20.7		6.6		16.3		39.6		-4.6	
Median	12.6		10.9		-2.6		1.8		-6.1		19.1		2.6		14.5		30.7		-10.8	
75th Percentile	10.4		9.2		-13.4		-4.0		-8.6		17.0		-1.6		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 March 31, 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
231 Portfolios
Stone Harbor Local Markets Ins
JPM GBI-EM Global Diversified TR USD
Stone Harbor Local Markets Ins
JPM GBI-EM Global Diversified TR USD
Universe Median
68% Confidence Interval
eV All Emg Mkts Fixed Inc Gross

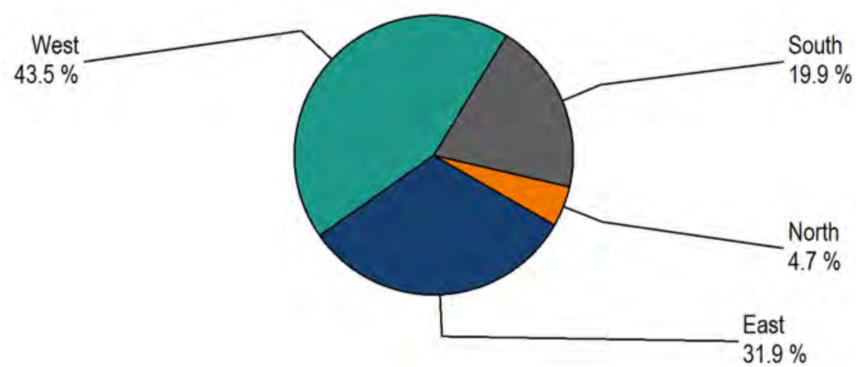
Stone Harbor Local Markets Ins
Rolling Return Analysis (Gross of Fees) Period Ending: March 31, 2018

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	**181,756,196**	**2.0**	**7.6**	**10.8**	**11.2**	**4.9**	**7.8**	**7.8**	**18.0**	**10.4**	**12.9**
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	154,427,667	1.9	6.4	9.1	11.0	5.6	6.1	8.4	15.2	11.2	15.9
NCREIF-ODCE		*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	13,388,299	2.0	6.6	--	--	--	7.4	--	--	--	--
NCREIF-ODCE		*2.2*	*8.1*	--	--	--	*7.6*	--	--	--	--
NCREIF Property Index		*1.7*	*7.1*	--	--	--	*7.0*	--	--	--	--
Direct Real Estate	13,940,230	2.7	17.5	17.9	12.1	6.6	20.6	5.5	22.9	6.1	5.2
NCREIF-ODCE		*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*

Property Type Allocation
Allocation as of March 31, 2018

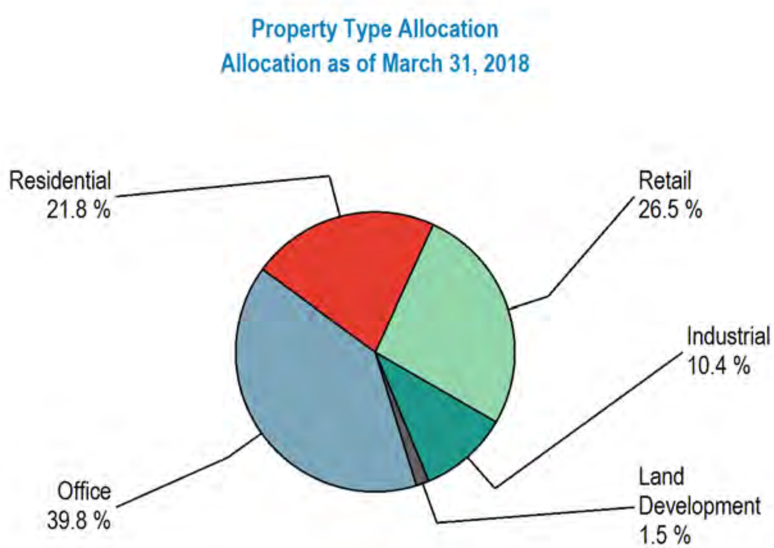


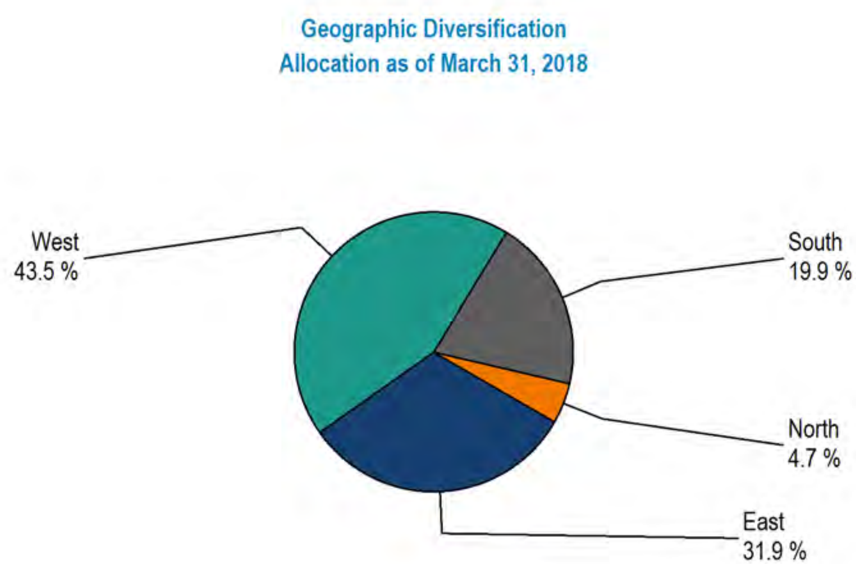
Geographic Diversification
Allocation as of March 31, 2018



Property Allocation and Geographic Diversification analytics exclude Direct Real Estate and ARA American. Direct Real Estate is lagged one quarter. Fidelity Real Estate Growth III liquidated 12/29/2017.

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Real Estate	**181,756,196**	**2.0**	**7.6**	**10.3**	**10.5**	**--**	**7.8**	**6.8**	**16.9**	**9.6**	**12.1**
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*--*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
JP Morgan Core Real Estate	154,427,667	1.9	6.4	8.5	10.2	--	6.1	7.3	14.1	10.0	14.8
NCREIF-ODCE		*2.2*	*8.1*	*10.0*	*11.4*	*--*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*--*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*
ARA American Strategic Value Realty	13,388,299	2.0	6.6	--	--	--	7.4	--	--	--	--
NCREIF-ODCE		*2.2*	*8.1*	*--*	*--*	*--*	*7.6*	*--*	*--*	*--*	*--*
NCREIF Property Index		*1.7*	*7.1*	*--*	*--*	*--*	*7.0*	*--*	*--*	*--*	*--*
Direct Real Estate	13,940,230	2.7	17.5	17.5	11.9	6.5	20.6	4.9	22.2	6.1	5.2
NCREIF-ODCE		*2.2*	*8.1*	*10.0*	*11.4*	*5.1*	*7.6*	*8.8*	*15.0*	*12.5*	*13.9*
NCREIF Property Index		*1.7*	*7.1*	*8.7*	*10.0*	*6.1*	*7.0*	*8.0*	*13.3*	*11.8*	*11.0*





Property Allocation and Geographic Diversification analytics exclude Direct Real Estate and ARA American. Direct Real Estate is lagged one quarter. Fidelity Real Estate Growth III liquidated 12/29/2017.

Total Commodities
Asset Class Summary (Gross of Fees)

Period Ending: March 31, 2018

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	**44,624,999**	**0.0**	**7.2**	**-2.0**	**-7.1**	**--**	**6.2**	**12.6**	**-25.2**	**-16.0**	**-9.1**
Bloomberg Commodity Index TR USD		*-0.4*	*3.7*	*-3.2*	*-8.3*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	44,624,999	0.0	7.2	-2.0	--	--	6.2	12.6	-25.2	-16.0	--
Bloomberg Commodity Index TR USD		*-0.4*	*3.7*	*-3.2*	*--*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*--*

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2017	2016	2015	2014	2013
Total Commodities	**44,624,999**	**0.0**	**7.2**	**-2.4**	**-7.6**	**--**	**6.2**	**11.8**	**-25.8**	**-16.6**	**-9.5**
Bloomberg Commodity Index TR USD		*-0.4*	*3.7*	*-3.2*	*-8.3*	*--*	*1.7*	*11.8*	*-24.7*	*-17.0*	*-9.5*
Gresham MTAP Commodity Builder	44,624,999	0.0	7.2	-2.4	--	--	6.2	11.8	-25.8	-16.6	--
Bloomberg Commodity Index TR USD		*-0.4*	*3.7*	*-3.2*	*--*	*--*	*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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The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

Verus will make every reasonable effort to obtain and include accurate market values. However, if managers or custodians are unable to provide the reporting period's market values prior to the report issuance, Verus may use the last reported market value or make estimates based on the manager's stated or estimated returns and other information available at the time. These estimates may differ materially from the actual value. Hedge fund market values presented in this report are provided by the fund manager or custodian. Market values presented for private equity investments reflect the last reported NAV by the custodian or manager net of capital calls and distributions as of the end of the reporting period. These values are estimates and may differ materially from the investments actual value. Private equity managers report performance using an internal rate of return (IRR), which differs from the time-weighted rate of return (TWRR) calculation done by Verus. It is inappropriate to compare IRR and TWRR to each other. IRR figures reported in the illiquid alternative pages are provided by the respective managers, and Verus has not made any attempts to verify these returns. Until a partnership is liquidated (typically over 10-12 years), the IRR is only an interim estimated return. The actual IRR performance of any LP is not known until the final liquidation.

Verus receives universe data from InvestorForce, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 12: Monthly Investment Report for April 2018

The report will be distributed under separate cover following the receipt of the monthly analysis from the investment consultant. The preparation of the monthly performance report is dependent on custody bank statements that are not due until the 11th business day of the month.

Given the 3rd Monday of the month date of the May meeting, this report may have to be distributed following the meeting. In that case, the April report will be a "receive and file" item on the June agenda for the Board of Trustees.

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San Luis Obispo County
Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 13: Private Equity Program Review

Recommendation:

Receive the Private Equity Program Review presentation from Scott Whalen, Investment Consultant and discuss. Implementation steps related to the proposed Private Equity approach will be recommended at a future meeting.

Discussion:

The SLOCPT's target asset allocation to Private Equity (PE) is 5%. Due to the inherently slow pace of making commitments to PE and having capital calls actually invest the funds, the SLOCPT has never been close to its target allocation. Recent commitments to Private Equity and Private Credit have addressed the under-invested relative to target issue by over-committing to these illiquid asset classes.

Scott Whalen of Verus will discuss the overall Private Equity program followed by the SLOCPT (e.g., using fund-of-funds) and alternatives. An additional level of over-commitment to PE is recommended and would be implemented by additional commitments to PE funds. A specific PE Fund that Verus will recommend for additional commitment will be the topic of a future Board meeting after the Board of Trustees have had a chance to consider and discuss Verus' recommendations on the overall PE program.

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PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS

MAY 2018

Private equity program review

San Luis Obispo County Pension Trust

Executive summary

— SLOCPT's private equity (PE) program composes 1.3% of the total fund, compared to a target of 5.0%, based on the December 31, 2017 performance report.

— A significant portion of the private equity program is mature and in the distribution phase of their life cycle.

— SLOCPT has recently re-committed to private equity through its investment in Pathway Fund 9. This fund is in the early stage of its life cycle.

— Capital call pacing among managers has been largely in-line with expectations.

— Cash flow projections indicate additional capital commitment to private equity is appropriate to maintain the program at the target allocation.

— We recommend a $20 million commitment to extend the current program and reviewing the program annually on a go-forward basis with the expectation of making regular ongoing commitments.

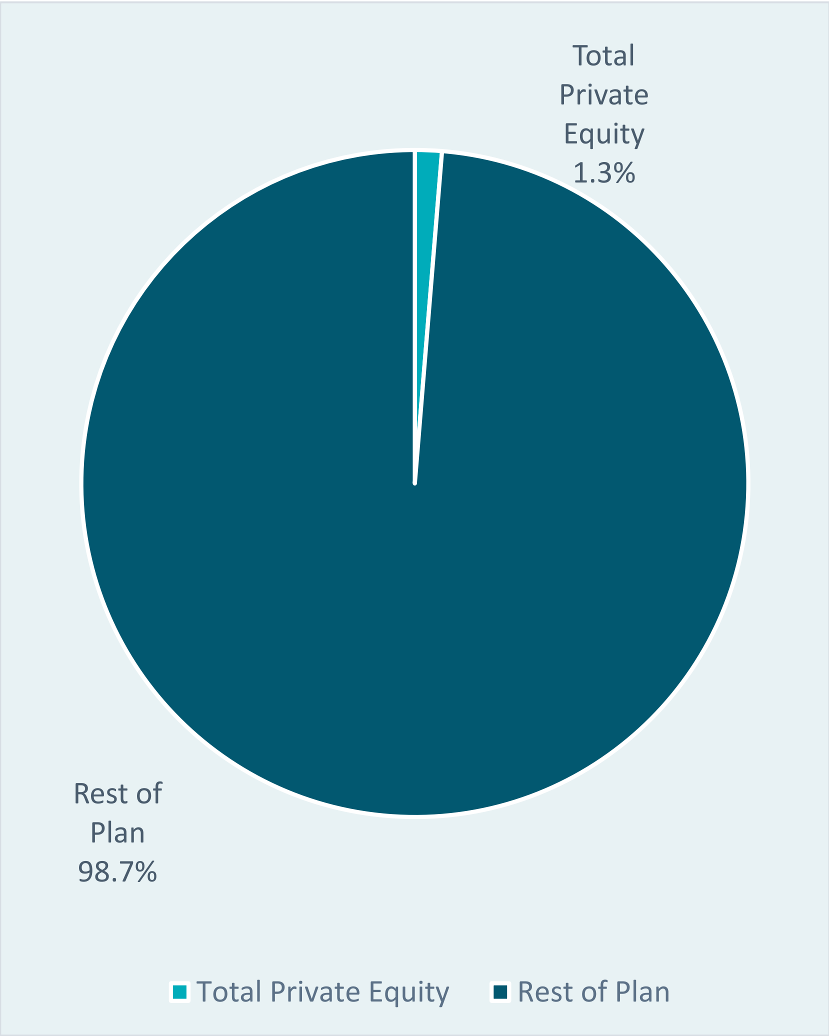
Portfolio allocation

Asset Class	Policy	Current (3/31/18)
Domestic Equity	20%	20.7%
International Equity	20%	23.5%
Core Plus Fixed Income	15%	15.1%
Bank Loans	5%	5.2%
Global Fixed Income	5%	5.9%
Emerging Markets Debt	5%	5.9%
Core Real Estate	10%	12.5%
Value-Add Real Estate	5%	1.0%
Commodities	5%	3.3%
Private Equity	5%	1.5%
Private Credit	5%	2.6%
Opportunistic	0%	0.4%
Cash	0%	2.3%

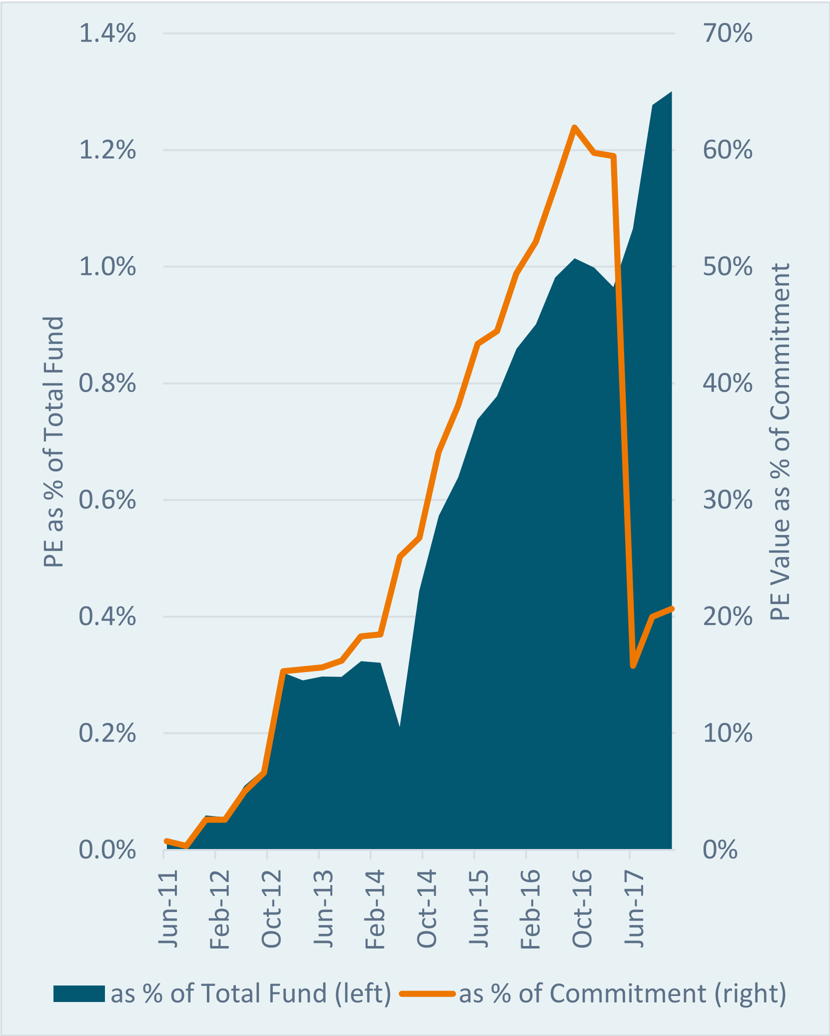
**Opportunistic is composed of KKR Mezzanine and PIMCO DCF, Cash also includes cash overlay manager Parametric Clifton*

Private equity program at a glance

PRIVATE EQUITY AS % OF TOTAL FUND



PRIVATE EQUITY VALUE AS % OF COMMITMENT AND TOTAL FUND



As of 9/30/17

Current private equity holdings

Vintage	Manager & Fund Name	Estimated 12/31 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.	$12,464,670	$20,000,000	$12,650,000	63%	$7,350,000	$5,569,600	$12,947,988	44.0%	142.6%	16.8%	9/30/17
2010	KKR Mezzanine Partners I L.P. [6]	$5,228,751	$20,000,000	$20,000,000	100%	$0	$24,650,233	$8,460,682	123.3%	149.4%	8.0%	9/30/17
2010	PIMCO Distressed Credit Fund [4]	$1,248,698	$20,000,000	$20,000,000	100%	$0	$26,747,593	$1,248,698	133.7%	140.0%	12.6%	9/30/17
2016	TPG Diversified Credit Program	$30,978,587	$75,000,000	$30,623,000	41%	$44,377,000	$459,765	$22,592,364	1.5%	102.7%	6.1%	9/30/17
2017	Pathway Private Equity Fund Investors 9 L.P.	$5,407,212	$65,000,000	$5,480,301	8%	$59,519,699	-	-	-	-	-	-
	Total Alternative Illiquids	**$55,327,918**	$200,000,000	$88,753,301	44%	$111,246,699	$57,427,191	$45,249,732	51.0%	115.7%		
	% of Portfolio (Market Value)	**4.1%**										

	Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense[7]
HarbourVest Partners IX-Buyout Fund L.P.	$49,727	$0	$0	$13,281	$63,008
KKR Mezzanine Partners I L.P.	$30,586	$0	$0	$0	$30,586
PIMCO Distressed Credit Fund [4]	$401	$80	$0	$4,562	$5,043
TPG Diversified Credit Program	$27,210	$0	$0	$0	$27,210
Pathway Private Equity Fund Investors 9 L.P.	-	-	-	-	-
	$107,924	$80	$0	$17,843	**$125,847**

[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 (market values as of 9/30/2017)
[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 3Q2017, total capital called is $23,593,570, which includes recycled distributions. Unused capital commitment is $1,953,003 after including distribution proceeds available for reinvestment
[7]All fees and expenses are for 3Q 2017

Excerpt from SLOCPT'S 12/31/17 performance report. Private equity holdings data are reported on a lagged cycle and are reflective o the last know values at the time of the report.
KKR Mezzanine, PIMCO DCF are categorized as Opportunistic within SLOCPT's investment policy. TPG is categorized as Private Credit. Therefore these assets are not part of this study.

Diversification within the program

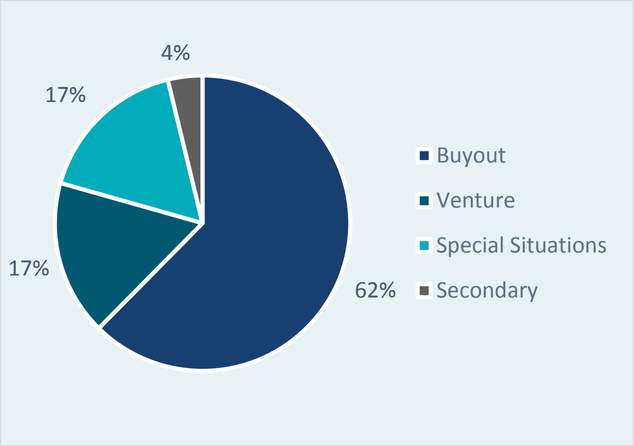
— The program is diversified across two funds, each constructed by a different manager.

— Currently, the largest allocation is to the HarbourVest Buyout Fund IX.

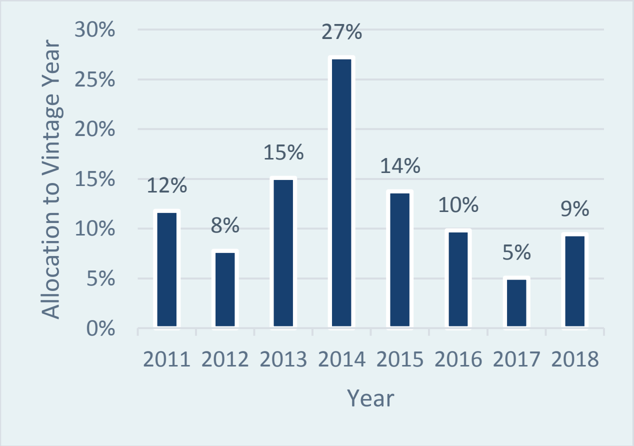
— The program currently spans 8 vintage years with the highest concentration in year 2014 which is a function of HarbourVest deploying a large allocation into funds of that year.

— Leveraged Buyouts make up most of the program, with a caveat. Underlying secondary investments can actually be categorized as buyout, venture, credit, etc. We include secondaries as a strategy/stage type because fund managers will allocate to second-hand deals to mitigate the j-curve or to pick up an undervalued asset with high upside potential.

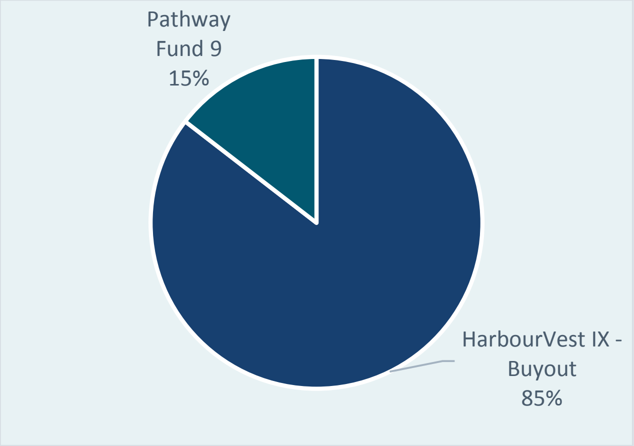
STRATEGY/STAGE DIVERSIFICATION



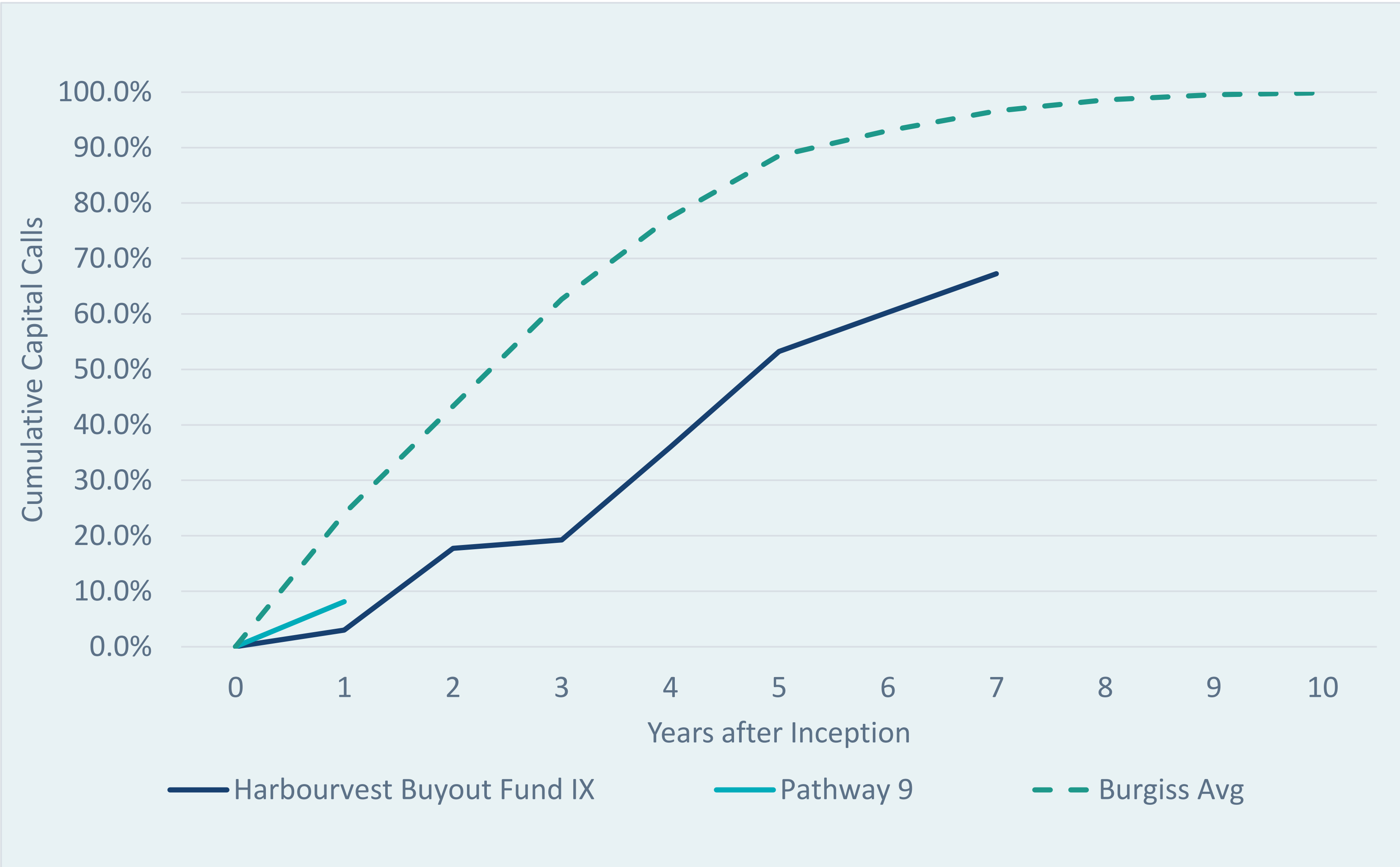
VINTAGE YEAR DIVERSIFICATION



MANAGER DIVERSIFICATION



Capital call pace



Program fees

	Fund IX Buyout	Pathway 9
Commitment	$20,000,000	$65,000,000
Vintage Year	2011	2017
Year 1	0.25%	0.15%
Year 2	0.50%	0.35%
Year 3	0.75%	0.55%
Year 4	1.00%	0.77%
Year 5	1.00%	0.82%
Year 6	1.00%	0.82%
Year 7	1.00%	0.82%
Year 8	1.00%	0.82%
Year 9	1.00%	0.75%
Year 10	1.00%	0.67%
Year 11	0.90%	0.59%
Year 12	0.81%	0.51%
Average	0.85%	0.63%

Total lifetime program costs average to about 69 bps[1]

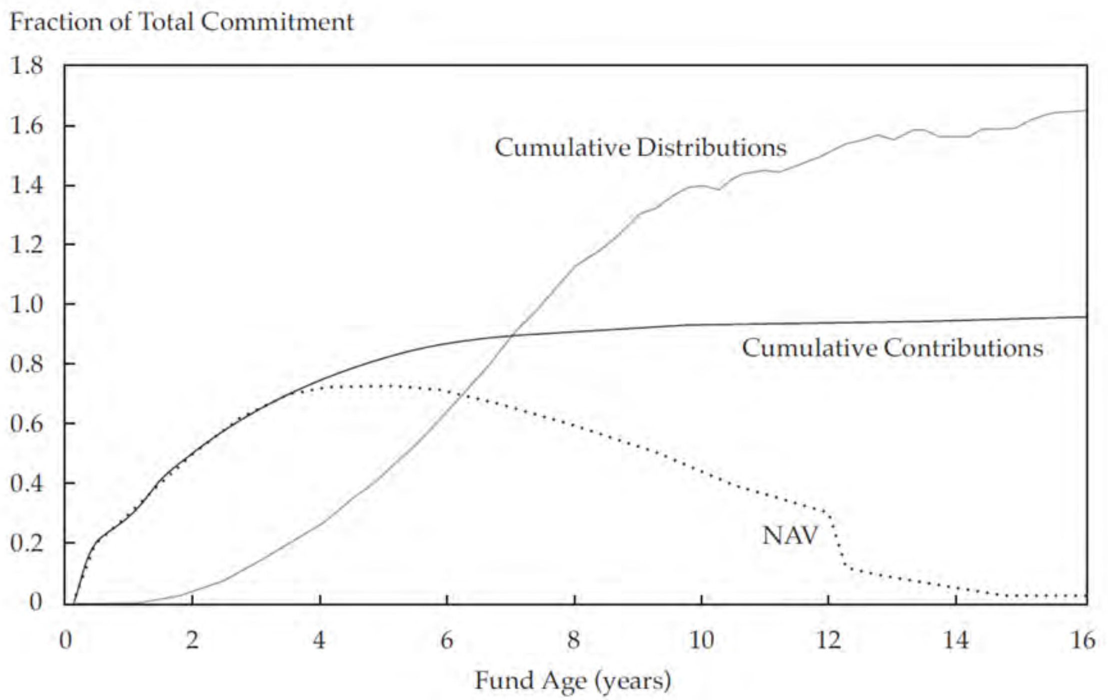
1. Calculation is cap-weighted based on commitment amounts of current funds..

Program projections

Fund	Vintage Year	Commitment	Remaining Commitment	Cumulative To Date	2018	2019	2020	2021	2022	2023	2024
					(Contributions) / Distributions						
HarbourVest IX Buyout	2011	$20.00	$7.35								
Contributions (%)				(63%)	(13%)	(12%)	(5%)	(3%)			
Distributions (%)				28%	18%	20%	25%	23%	22%	17%	14%
Contributions ($)				($12.7)	($2.6)	($2.4)	($1.0)	($0.6)			
Distributions ($)				$5.6	$3.5	$4.0	$5.0	$4.6	$4.5	$3.5	$2.9
Net Cash Flow					$0.9	$1.6	$4.0	$4.0	$4.5	$3.5	$2.9
NAV				$12.5	$13.4	$13.9	$12.0	$9.8	$6.8	$4.3	$2.1
Pathway 9	2017	$65.00	$59.52								
Contributions (%)				(8%)	(17%)	(23%)	(13%)	-4.8%	-4.8%	-4.8%	-4.8%
Distributions (%)				0%	0.0%	0.0%	2.0%	18.8%	18.8%	18.8%	18.8%
Contributions ($)				($5.5)	($11.1)	($15.0)	($8.5)	($3.1)	($3.1)	($3.1)	($3.1)
Distributions ($)				$0.0	$0.0	$0.0	$1.3	$12.2	$12.2	$12.2	$12.2
Net Cash Flow					($11.1)	($15.0)	($7.2)	$9.1	$9.1	$9.1	$9.1
NAV				$5.4	$17.1	$34.1	$45.2	$41.5	$37.4	$32.8	$27.6
PE Balance		**$85.00**	**$66.87**	**$17.87**	**$30.52**	**$47.93**	**$57.22**	**$51.30**	**$44.16**	**$37.10**	**$29.72**
% of Total Assets				**1.3%**	**2.1%**	**3.2%**	**3.6%**	**3.0%**	**2.4%**	**1.9%**	**1.5%**
Total Plan Assets				**$1,351**	**$1,432**	**$1,518**	**$1,609**	**$1,706**	**$1,808**	**$1,917**	**$2,032**

Note: Assumptions for this model are detailed in the appendix

Recommitment Considerations



- Due to the nature of private equity investments, institutional investors face challenges in maintaining a stable private equity allocation
- Contributions and distributions are uncertain
- Commitments are irrevocable and only 90% of commitments are called on average[1]
- The estimated market value of private equity assets (NAV) rise and fall over the life of the fund
- Further, the private equity NAV's rarely reach the commitment amount

Chart: Average cumulative contributions, average cumulative distributions, and average NAVs of individual private equity funds 1980:Q1 to 2005:Q41

1. De Zwart, Friesser, and Van Dijk. "Private Equity Recommitment Strategies for Institutional Investors." Financial Analysts Journal, Vol. 68, Number 3

Recommitment strategies

Considerations	Pros	Cons
Over commit or commit up to policy?		
Over commitment strategy	— Only method to keep stable allocation fairly close to policy target	— Fees are paid on committed capital, therefore more fees will be paid
Commit up to policy	— Pay less in fees	— Allocation will never be up to policy target
Static vs. Dynamic Recommitment Strategy		
Static Recommitment Strategy	— Straight-forward implementation (e.g.: commit 1/3 of policy target each year) — Over commitment is not required	— Does not consider current portfolio characteristics
Dynamic Recommitment Strategy[1]	— New commitments based on current program characteristics including estimated NAV, uncalled capital, and distributions — Most likely to maintain stable private equity allocation	— Requires over-commitment and therefore more fees to be paid — Slightly more sophisticated implementation — Managing capital calls and distributions can be administratively burdensome
What to do with uncalled capital or distributions?		
Invest in public market equivalent (eg: Small Cap or Micro Cap)	— Capital is invested — Asset class most closely correlated with private equity[2]	— In the context of the entire plan, will be over allocated to equities — Still paying management fees which can get high for active small and micro-cap
Over allocate temporarily to an existing manager	— Capital is invested	— Overall plan will not be at policy target — Need to make tactical decision where to over allocate temporarily
Hold in cash	— Assets will be immediately available for capital calls	— Creates performance drag on portfolio

1. Based on strategy published in the Financial Analysts Journal, Volume 68, Number 3

2. Woodward, Susan. "Measuring Risk for Venture Capital and Private Equity Portfolios." Sand Hill Econometrics, August 2009

Performance as of 9/30/17

Fund	Net IRR	PME Return	PME Benchmark
Fund IX – Buyout	16.8%	10.7%	S&P 500
		11.0%	Russell 2000
Pathway 9	n/a	3.1%	S&P 500

Public Market Equivalent – This information represents adjusted model performance of each index as if the respective index had been purchased and sold at the time of the limited partners' capital calls and distributions, with the remainder held at the date noted. Dividends are not reinvested. Under this methodology, the capital calls for the purchase of the public market index are the same as the capital calls for the Fund(s). The distributions for the sales of the public market index are scaled to represent the same proportion of the Fund's NAV at the time of the distribution. For example, if the Fund distributes 5% of NAV, then 5% of the index NAV is distributed. Thus, the index returns presented are not actual index returns, but adjusted model returns. In certain instances, the comparison is based on the PME+ (public market equivalent) method as described in an article titled, "Beating the Public Market," by Christophe Rouvinez, as published in the Private Equity International in December 2003 / January 2004. When using this methodology, both the Fund and the adjusted index are assumed to have the same ending NAV. The ending NAV for the adjusted index is derived by scaling the distributions by a constant scaling factor, while preserving the overall cash flow pattern.

Source: Harbourvest, Pathway.

Note: Pathway's returns are not meaningful this early in the fund's life

Program structures

Private equity program structures

	Fund of Funds	Fund of One	Direct Fund Portfolio
Development of Portfolio Strategy	Manager's Responsibility	Flexible range: manager can have full discretion, plan sponsor can mandate the strategy, or collaboration between the two	Advisor recommends, discretion remains with Board
Fund Selection	Plan Sponsor hires Fund-of-Funds manager. FoF manager selects underlying funds	Plan Sponsor hires Fund-of-One manager. Fo1 manager selects underlying funds. Process can be customized.	Advisor/consultant recommends funds. Board holds decision making authority.
Customization/Flexibility in strategy development and fund selection	Little to none	Highly customizable - Plan Sponsor can determine the amount of discretion delegated to the manager	Plan sponsor has full discretion
Access to top managers	Expected access to top tier of mangaers	Expected access to top-tier managers, but access could potentially be limited due to factors like commitment size	Access to top-tier managers will depend on commitment amounts and willingness of funds
Commitment Sizes	Small relative minimum commitments	Requires relatively large commitments to achive sufficient diversification	Requires relatively large commitments to achieve sufficient diversification
Diversification	Most diversification, even for small commitments	Diversified, but more concentrated than FoF	Diversified, but more concentrated than FoF
Cash Management	Manager responsible for all cash-flow management with underlying funds	Manager responsible for all cash-flow management with underlying funds	Cash flow management may or may not be provided by advisor/consultant. Roles established at initiation
Legal	Manager responsible for all legal matters with underlying funds.	Manager responsible for all legal matters with underlying funds, but process is flexible	Legal support may or may not be available through the advisor. Roles established at initiation.
Fees	Highest of the three	Negotiated	Lowest of the three

Key consideration points

	Fund of Funds	Fund of One	Direct Fund Portfolio
Advantages	• Easiest to implement and administer • Time effective for Board and Staff • Legal review of underlying funds outsourced • Most cash flow management is outsourced • Access to top-tier funds	• Easier to implement than investing a portfolio of direct funds • High customization, flexibility, and control over portfolio • Potentially better access to top-tier funds	• Lowest cost • High customization, flexibility, and control over portfolio
Concerns	• Fees on fees • Too much diversification? • Not much control, customization, or tailoring	• Requires a fair amount of work up front to determine portfolio strategy and degree of discretion • Alignment of interest with Fo1 manager	• Requires high use of administrative resources for legal document review and cash flow management • Multiple funds to manage • Possible access to top-tier managers may be hampered

Appendix

Assumptions for cash flow model

- Asset Values are represented in millions.
- This is a hypothetical model based on reasonable assumptions and does not reflect actual timing and should not be interpreted as predicting the future.
- Hypothetical cash flows provided by each respective manager with the following exceptions:
- Pathway provided 3 years of projections.
    - The remaining contributions are allocated evenly over eight years after Pathway's provided forecast.
    - Remaining distributions calculated assuming the fund returns a total of ~1.5x to investors. The balance of distributions in excess of Pathway's estimate is distributed evenly over eight years following the provided forecast.
- IRR over each fund's entire life will be different
- Total Plan assets are assumed to grow at 6.00% per annum based on the 2018 Asset Allocation study.
- Current MVs are based on last known valuation.
- NAV at future dates are estimated based on cash flows and implied remaining life IRR.
- Cash flows occur at year end.
- NAV at future dates are estimated based on cash flows and growth rates

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Board of Trustees

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San Luis Obispo County Pension Trust
SLOCPT

Date: May 21, 2018

To: Board of Trustees

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

Agenda Item 14: Asset Allocation May 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.

The only asset allocation changes planned by Staff for May are a $10 million drawdown for liquidity purposes to cover benefit payments. Staff plans to use this May drawdown for rebalancing purposes and will base the source portfolios to drawdown on the April-end asset mix from the Verus monthly report.

A further liquidity drawdown will be necessary in June and will be decided on depending on asset mix at that times.

Should SLO County proceed with the anticipated prefunding of employer paid contributions for the County and the APCD in July, those funds will be allocated depending on asset mix at that time.

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