

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

BOARD OF RETIREMENT

BUSINESS MEETING

MAY 21, 2018

AGENDA

PLACE: Ventura County Employees' Retirement Association
Second Floor Boardroom
1190 South Victoria Avenue
Ventura, CA 93003

TIME: 9:00 a.m.

Members of the public may comment on any item under the Board's jurisdiction by filling out a speaker form and presenting it to the Clerk. Unless otherwise directed by the Chair, comments related to items on the agenda will be heard when the Board considers that item. Comments related to items not on the agenda will generally be heard at the time designated for Public Comment.

ITEM:

I. <u>CALL TO ORDER</u>	Master Page No.
II. <u>APPROVAL OF AGENDA</u>	1 – 3
III. <u>APPROVAL OF MINUTES</u>	
A. Disability Meeting for May 7, 2018.	4 – 10
IV. <u>CONSENT AGENDA</u>	
A. Approve Regular and Deferred Retirements and Survivors Continuances for the Month of April 2018.	11 – 13
B. Receive and File Report of Checks Disbursed in April 2018.	14 – 16
C. Receive and File Budget Summary for FY 2016-17 Month Ending April 30, 2018.	17 – 18
D. Receive and File Statement of Fiduciary Net Position, Statement of Changes in Fiduciary Net Position, Schedule of Investments, Cash, and Cash Equivalents, and Schedule of Investment Management Fees for the Period Ending March 31, 2018.	19 – 22

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IV. CONSENT AGENDA (continued)

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|----|---|---------|
| E. | Receive and File Statement of Fiduciary Net Position, Statement of Changes in Fiduciary Net Position, Schedule of Investments, Cash, and Cash Equivalents, and Schedule of Investment Management Fees for the Period Ending April 30, 2018. | 23 – 26 |
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V. INVESTMENT MANAGER PRESENTATIONS

- | | | |
|----|---|---------|
| A. | Receive Annual Investment Presentation, Tortoise Capital Advisors, Andrew Goldsmith and Gregory Murphy. | 27 – 62 |
| B. | Receive Annual Investment Presentation, Bridgewater, Pam Tholen and Patrick Dimick. | 63 – 98 |

VI. INVESTMENT INFORMATION

- | | | |
|----|---|-----------|
| A. | NEPC – Allan Martin.
VCERA – Dan Gallagher, Chief Investment Officer. | |
| 1. | April 2018 Monthly Preliminary Performance Report.
RECOMMENDED ACTION: Receive and file. | 99 – 108 |
| 2. | Quarterly Investment Performance Report for Period Ending March 31, 2018.
RECOMMENDED ACTION: Receive and file. | 109 – 206 |
| B. | Recommendation to Approve Investment: \$35 Million Investment in HarbourVest Partners' Co-Investment Fund V.
RECOMMENDED ACTION: Approve. | |
| 1. | Staff Letter by C.I.O., Dan Gallagher. | 207 |
| 2. | Memorandum from NEPC. | 208 – 211 |
| 3. | HarbourVest Co-Investment Presentation. | 212 – 245 |
| C. | Recommendation to Approve Proposed Asset Allocation.
RECOMMENDED ACTION: Approve. | |
| 1. | Staff Letter by C.I.O., Dan Gallagher. | 246 |
| 2. | NEPC Asset Allocation Report. | 247 – 314 |

VII. OLD BUSINESS

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| A. | VCERA Office Location Update. | |
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VIII. NEW BUSINESS

- A. Request from Trustee Bianchi to Attend the Wharton Alternative Investment Strategies Program in San Francisco, CA, July 30 – August 1, 2018.

Recommended Action: Approve.

- | | |
|--|-----------|
| 1. Staff letter. | 315 |
| 2. Wharton Investment Programs Brochure. | 316 – 327 |

IX. INFORMATIONAL

- | | |
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| A. CALAPRS Trustees' Roundtable. | 328 – 329 |
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X. PUBLIC COMMENT

XI. STAFF COMMENT

XII. BOARD MEMBER COMMENT

XIII. ADJOURNMENT

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

BOARD OF RETIREMENT

DISABILITY MEETING

MAY 7, 2018

MINUTES

DIRECTORS
PRESENT: William W. Wilson, Vice Chair, Public Member
Steven Hintz, Treasurer-Tax Collector
Robert Bianchi, Public Member
Maeve Fox, General Employee Member
Craig Winter, General Employee Member
Arthur E. Goulet, Retiree Member
Will Hoag, Alternate Retiree Member
Chris Johnston, Safety Employee Member
Ed McCombs, Alternate Public Member

DIRECTORS
ABSENT: Peter C. Foy, Public Member
Mike Sedell, Public Member

STAFF
PRESENT: Linda Webb, Retirement Administrator
Lori Nemiroff, General Counsel
Henry Solis, Chief Financial Officer
Dan Gallagher, Chief Investment Officer
Julie Stallings, Chief Operations Officer
Shalini Nunna, Retirement Benefits Manager
Vickie Williams, Retirement Benefits Manager
Donna Edwards, Retirement Benefits Specialist
Nancy Jensen, Retirement Benefit Specialist
Stephanie Berkley, Retirement Benefit Specialist
Chris Ayala, Program Assistant

PLACE: Ventura County Employees' Retirement Association
Second Floor Boardroom
1190 South Victoria Avenue
Ventura, CA 93003

TIME: 9:00 a.m.

**BOARD OF RETIREMENT
DISABILITY MEETING**

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ITEM:

I. CALL TO ORDER

Vice-Chair Wilson called the Disability Meeting of May 7, 2018, to order at 9:00 a.m.

II. APPROVAL OF AGENDA

MOTION: Approve.

Moved by Bianchi, seconded by Winter.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

III. APPROVAL OF MINUTES

A. Disability & Business Meeting of April 16, 2018.

MOTION: Approve.

Moved by Goulet, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain: Fox

Trustee Fox abstained from the vote as she had been absent from the meeting of April 16, 2018.

IV. RECEIVE AND FILE PENDING DISABILITY APPLICATION STATUS REPORT

MOTION: Approve.

Moved by Fox, seconded by McCombs.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

V. APPLICATIONS FOR DISABILITY RETIREMENT

**BOARD OF RETIREMENT
DISABILITY MEETING**

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- A. Application for Service-Connected Disability Retirement – Reason, Randall E.; Case No. 17-004.
1. Application for Service-Connected Disability Retirement, filed February 7, 2017.
 2. Medical Analysis and Recommendation, including Supporting Medical Documentation, submitted by County of Ventura/Risk Management, in support of the Application for Service-Connected Disability Retirement, dated April 4, 2018.
 3. Hearing Notice, dated April 5, 2018.

Catherine Laveau was present on behalf of County of Ventura Risk Management. The applicant, Randall E. Reason, was also present.

Both parties declined to make statements.

After discussion by the Board, the following motion was made:

MOTION: Approve Application for Service Connected Disability Retirement.

Moved by Bianchi, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

Both parties agreed to waive preparation of findings of fact and conclusions of law.

- B. Application for Non-Service Connected Disability Retirement – Becker, Kristi L.; Case No. 17-009.
1. Application for Non-Service Connected Disability Retirement, filed May 15, 2017.
 2. Medical Analysis and Recommendation, including Supporting Medical Documentation, submitted by Ventura County Superior Court, in support of the Application for Non-Service Connected Disability Retirement, dated March 22, 2018.
 3. Hearing Notice, dated April 24, 2018.

Lorraine Benavides and Lidia Q. Almaguer were present on behalf of County of Ventura Superior Court. The applicant, Kristi L. Becker, was also present.

Both parties declined to make statements.

After discussion by the Board, the following motion was made:

MOTION: Approve Application for Service Connected Disability Retirement.

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Moved by Johnston, seconded by Fox.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

Both parties agreed to waive preparation of findings of fact and conclusions of law.

C. Application for Service-Connected Disability Retirement – Gonzalez, Carmen M.; Case No. 15-028.

1. Findings and Decision Regarding Employee Application for Disability Retirement, recommendation to grant the Service-Connected Disability, submitted by Hearing Officer Robert Klepa, dated March 9, 2018.
2. Legal Memorandum by Respondent, County of Ventura/Risk Management, Objection to Findings and Decision and Recommendation of Hearing Officer Robert Klepa, submitted by Stephen D. Roberson, Counsel for County of Ventura/Risk Management, dated March 21, 2018.
3. Hearing Notice, dated April 24, 2018.

Stephen D. Roberson, Attorney at Law, was present on behalf of County of Ventura Risk Management. The applicant, Carmen M. Gonzalez, was also present.

Mr. Roberson made a statement before the Board.

Ms. Gonzalez also made a statement before the Board.

Trustee Goulet said he saw problems with the Hearing Officer's report. First, the Social Security Administration, Workers Compensation, and State Disability cases and the laws that govern them have nothing to do with VCERA's disability retirement applications; secondly, the idea that if an employee performing a job duty once in the morning, and then once again in the late afternoon, was considered repetitive, was unreasonable. He continued saying, the Board had two choices, which were either to return the case to the Hearing Officer with instructions regarding the correct legal standards and their concerns, or to request all documents related to the case so that the Board could perform its own review.

Trustee Johnston stated that if the Board would be providing the Hearing Officer with the proper standard upon which to base the decision, then the Board should also give the doctors a chance to review the case again, using the same standard.

After discussion by the Board, the following motion was made:

MOTION: Send the Case Back to the Hearing Officer, with Instructions.

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Moved by Winter, seconded by Hintz.

Vote: Motion carried

Yes: Bianchi, Fox, Hintz, Johnston, McCombs, Wilson, Winter

No: Goulet

Absent: Foy, Sedell

Abstain:

D. Application for Service-Connected Disability Retirement – Landeros, Maria L.; Case No. 15-008.

1. Proposed Findings of Fact and Recommended Decision to deny the Application for Service-Connected Disability, submitted by Hearing Officer Nancy T. Beardsley, dated February 19, 2018.
2. Hearing Notice, dated April 26, 2018.

Stephen D. Roberson, Attorney at Law, was present on behalf of County of Ventura Risk Management. The applicant, Maria L. Landeros, was not present.

After discussion by the Board, the following motions was made:

MOTION: Adopt the Hearing Officer's Recommendation to Deny the Applicant a Service-Connected Disability Retirement.

Moved by Winter, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

VI. OLD BUSINESS

None.

VII. NEW BUSINESS

A. Request for Direction on Timing of Election to Fill Pending Board Member Vacancy.

1. Staff Letter.

Ms. Webb reported that Trustee Towner had recently been terminated from the County of Ventura, but had also filed to appeal the termination with the Civil Service Committee (CSC).

She said Mr. Towner had submitted a letter to the Board requesting that they allow the CSC appeal to be decided, before holding an election to fill the vacancy. She said the Ventura

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County Deputy Sheriffs' Association (VCDSA) had submitted a letter making the same request. She then said that staff was requesting direction on how to proceed.

Trustee Goulet said that he believed Mr. Towner to be an honorable person; further, because of the pending CSC appeal hearing, it would not be practical to call for an election at this time.

Trustee Hoag remarked that the Elections Office might not be inclined to hold an election when the status of the vacancy had not yet been decided.

Trustee Wilson noted that because the vacancy was for the alternate Safety member seat, not holding an election at this time would not negatively affect Safety member representation, as Trustee Johnston would be representing them.

After discussion by the Board, the following motion was made:

MOTION: Direct Staff to Monitor the Progress of Mr. Towner's Civil Service Committee Hearing and Provide Updates to the Board for Future Action.

Moved by Winter, seconded by Hintz.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

No: -

Absent: Foy, Sedell

Abstain:

B. Request for Authorization to Engage Investigative Services to Enable Staff to Make Recommendations on Disability Retirement Re-Evaluations under Government Code 31729 when Circumstances Warrant.

1. Staff Letter.

Ms. Webb informed the Board that staff had received a report of a potential need for an investigation regarding a disability retiree, under the age of 55. She said Government Code Section 31729, states that the Board has the authority to require a disability retiree under the age of 55, to undergo a medical re-evaluation.

She said staff was requesting that the Board authorize a preliminary investigation whenever this kind of situation arises now and, in the future, so that staff could gather information to recommend to the Board whether a medical evaluation was warranted.

After discussion by the Board, the following motion was made:

MOTION: Authorize Staff to Engage Investigative Services Up to \$5,000, Per Case Under Government Code 31729, for the Purpose of Gathering Information for Recommendations to the Board.

Moved by Winter, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Fox, Goulet, Hintz, Johnston, McCombs, Wilson, Winter

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No: -
Absent: Foy, Sedell
Abstain:

VIII. INFORMATIONAL

A. Nossaman's Fiduciaries Forum, "Save the Date".

IX. PUBLIC COMMENT

None.

X. STAFF COMMENT

Ms. Nemiroff notified the Board of proposed legislation that would be up for vote at the SACRS Business Meeting, on May 18th. She said the proposed legislation, SB1270, would allow the boards of retirement systems without district status to appoint, set salaries, and dismiss, if appropriate, Assistant Retirement Administrators and Chief Investment Officers; however, it would not give boards authority to set salaries independent of their counties' salary schedules.

Thus, she did not see a reason to oppose it. The Board directed VCERA's SACRS voting designee to support the proposed legislation.

XI. BOARD MEMBER COMMENT

None.

XII. ADJOURNMENT

The meeting was adjourned at 9:47 a.m.

Respectfully submitted,



LINDA WEBB, Retirement Administrator

Approved,

WILLIAM W. WILSON, Vice-Chairman

**VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
REPORT OF REGULAR AND DEFERRED RETIREMENTS AND SURVIVORS CONTINUANCES**

April 2018

FIRST NAME	LAST NAME	G/S	DATE OF MEMBERSHIP	BENEFIT SERVICE*	DEPARTMENT	EFFECTIVE DATE
REGULAR RETIREMENTS:						
Jeffrey	Auerbach	G	7/31/1994	6.09	Health Care Agency (deferred)	3/27/2018
Kim	Bergeson	S	7/16/2006	11.71	Sheriff's Department	3/25/2018
Roger	Boross	G	8/10/1975	42.65	Public Works Agency	3/23/2018
Janice	Brenenstall	G	7/7/2002	15.73	Sheriff's Department	3/23/2018
William	Breuklander	S	9/4/1990	27.60	Fire Protection District	3/29/2018
Sharon	Cabrera	G	9/16/1990	27.63	Sheriff's Department	3/30/2018
Reynaldo	Capati	G	2/8/1998	20.14	General Service Agency	3/31/2018
Rafaela	Carrodegua	G	5/12/1991	26.93	Public Works Agency	3/24/2018
John	Carroll	G	12/24/1989	28.27	CEO	3/31/2018
Kevin	Clancy	S	4/15/1990	31.09	Sheriff's Department	3/30/2018
Debora	Clancy				Sheriff's Department (alternate payee)	3/30/2018
Bradford	Clifton	S	4/16/1989	29.07	Sheriff's Department	3/28/2018
Elizabeth	Cox	G	8/9/1998	18.14	Health Care Agency	3/31/2018
William	Dederick	S	11/28/1998	29.35	Fire Protection District	3/26/2018
James	Dembowski	G	6/3/1984	33.82	CEO	3/24/2018
Carrie	Dittmar	S	12/12/1999	13.13	Probation Agency (deferred, non-member)	3/1/2018
Kenneth	Dittmar	S	12/12/1999	14.59	Probation Agency	3/1/2018
Sherri	Dugdale	G	12/24/2000	5.03	Public Works Agency (deferred)	3/26/2018
Estela	Duran	G	12/10/1989	27.74	Human Services Agency	3/17/2018
Robert	Duran	S	7/11/1999	18.73	Sheriff's Department	3/23/2018
Michael	Escalante	G	10/28/1990	25.98	Health Care Agency	3/14/2018
Victoria	Escoto	G	8/9/1999	18.62	Public Works Agency	3/24/2018
Steven	Francis	S	3/27/1983	35.38	Fire Protection District	3/29/2018
Fred	Garcia	G	3/25/1984	33.95	General Service Agency	3/31/2018
Alice	Ginn	G	2/3/1991	31.13	Fire Protection District	3/25/2018
Albert	Ginn				Fire Protection District (alternate payee)	3/25/2018
Bernardo	Gonzales	G	4/6/1997	10.06	District Attorney (deferred)	1/20/2018
William	Graham	S	3/31/1991	26.99	Sheriff's Department	3/16/2018
Soledad	Guerrero	G	8/30/1981	35.97	Health Care Agency	3/31/2018
Philip	Hadley	S	3/1/1981	37.89	Fire Protection District	3/30/2018
Mark	Haliday	S	9/4/1990	33.04	Fire Protection District	3/14/2018
Kenneth	Hazlewood	G	11/20/2005	10.30	Health Care Agency (deferred)	3/26/2018
Melissa	Hernandez	G	7/17/2005	11.23	Resource Management Agency	3/22/2018
Paula	Horn	G	8/16/2015	0.13	Human Services Agency (deferred)	3/19/2018
Steven	Kirkby	S	6/18/1995	5.46	Sheriff's Department (deferred)	3/26/2018

**VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
REPORT OF REGULAR AND DEFERRED RETIREMENTS AND SURVIVORS CONTINUANCES**

April 2018

FIRST NAME	LAST NAME	G/S	DATE OF MEMBERSHIP	BENEFIT SERVICE*	DEPARTMENT	EFFECTIVE DATE
Vicki	Knight	G	2/1/1976	42.00	Superior Court	3/30/2018
Lyn	Krieger	G	12/15/1986	21.47	Harbor Administration	3/31/2018
Terrence	Lamb	S	3/1/1981	37.81	Fire Protection District	3/30/2018
Raymond	Lambert	S	2/26/1984	33.16	Fire Protection District	3/26/2018
Jess	Lemos	G	9/12/1982	38.94	Public Works Agency	3/23/2018
Michael	Lindbery	S	11/28/1988	29.37	Fire Protection District	3/30/2018
Tanya	Lovelace	S	2/12/1995	28.02	Fire Protection District	3/29/2018
Elda	Mac Donald	G	11/5/2006	10.21	Health Care Agency	3/30/2018
Christopher	Mahon	S	6/27/1988	29.80	Fire Protection District	4/1/2018
Beverly	Mears	G	1/10/1988	29.62	Human Services Agency	4/5/2018
Janis	Meier	G	5/13/1990	14.19	Health Care Agency (deferred)	3/31/2018
Albert	Mesa	S	4/15/1990	27.98	Sheriff's Department	3/23/2018
Melinda	Meshad	G	3/12/2006	12.05	Human Services Agency	3/24/2018
Elisa	Ng	G	7/14/2003	14.66	Probation Agency	3/24/2018
Erin	O'Connell	G	5/16/1999	14.01	Resource Management Agency (deferred)	3/26/2018
Martin	O'Malley	S	8/29/1982	33.65	Fire Protection District	3/18/2018
Eduardo	Ornelas	S	2/12/1995	29.91	Fire Protection District	3/26/2018
Evanglina	Orozco	G	4/2/1979	37.52	Health Care Agency	3/31/2018
Katherine	Otani	G	1/5/1992	20.87	Air Pollution Control District	4/1/2018
Karen	Richardson	G	10/13/1991	26.02	Health Care Agency	3/2/2018
Edwin	Sabio	G	12/23/1990	26.81	Human Services Agency	3/16/2018
Ronald	Sandor	S	12/14/1986	31.52	Fire Protection District	3/30/2018
Cheryl	Serr	G	10/14/2002	15.34	Public Works Agency	3/24/2018
Craig	Smith	S	12/18/1983	34.31	Sheriff's Department	3/31/2018
Keith	Smith	S	11/28/1988	29.61	Fire Protection District	3/29/2018
Theodore	Smith	S	2/2/1981	37.75	Fire Protection District	3/31/2018
Nancy	Snyder	G	11/13/1988	5.62	Probation Agency (deferred)	1/1/2018
Valencia	Spaccia	G	3/14/1993	8.05	Health Care Agency (deferred)	3/6/2018
Michael	Sterling	G	3/14/1993	25.05	General Service Agency	3/31/2018
Alicia	Stratton	G	11/24/1991	20.38	Air Pollution Control District	3/31/2018
William	Therrien	S	5/9/1980	31.29	Sheriff's Department	3/23/2018
Jason	Tuazon	G	5/21/2006	11.53	Health Care Agency	3/23/2018
Kenneth	Valentini	S	2/3/2003	19.18	District Attorney	3/30/2018
Douglas	Watson	S	2/2/1981	37.16	Fire Protection District	3/30/2018
John	Ybarra	G	7/18/1993	1.25	Sheriff's Department (deferred)	3/10/2018
T. Michael	Yzaguirre	S	3/5/1989	28.26	Fire Protection District	3/15/2018
Scott	Zeller	S	6/27/1988	31.56	Fire Protection District	3/31/2018

**VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
REPORT OF REGULAR AND DEFERRED RETIREMENTS AND SURVIVORS CONTINUANCES**

April 2018

FIRST NAME	LAST NAME	G/S	DATE OF MEMBERSHIP	BENEFIT SERVICE*	DEPARTMENT	EFFECTIVE DATE
DEFERRED RETIREMENTS:						
Emily J.	Baumruk	G	9/2/2012	5.518	Human Services Agency	3/24/2018
Selena E.	Cashmark	S	7/15/2007	9.913	Sheriff's Department	3/16/2018
Dalziel J.	Fisher	G	10/16/2011	6.526	Human Services Agency	4/21/2018
Arnold	Greenberg	G	7/23/2001	16.6892	Assessor	4/13/2018
Breanna	Hendren	G	7/3/2005	11.109	Human Services Agency	3/22/2018
Cynthia	Lopez	G	10/22/2006	11.3711	Health Care Agency	3/17/2018
Jane	Middleton	G	11/11/2001	16.3925	Ventura County Library	4/14/2018
Jorge C.	Navarro	G	4/19/2010	7.3866	Regional Sanatation District	3/28/2018
Cesar	Perfecto	G	7/2/2017	0.7623	Probation Agency	4/10/2018
Alejandro R.	Romano	G	11/7/2004	12.3424	Health Care Agency	3/28/2018
Naveen	Sangwan	G	8/27/2017	0.5929	Health Care Agency	3/30/2018
Susan M.	Scott	G	5/8/2011	7.4982	Health Care Agency	4/8/2018
Flynn E.	Sylvest	G	7/19/2015	2.2633	Human Services Agency	3/30/2018
Tricia	Walker Hill	G	10/3/2010	7.3627	Health Care Agency	4/10/2018
Michael T.	Wills	G	7/11/2010	7.78	Health Care Agency	4/20/2018
Jason A.	Wood	G	2/26/2017	0.9678	Health Care Agency	4/10/2018
Carolina	Ugarte	G	2/20/2001	16.6224	Human Services Agency	4/7/2018
Michael J.	MacLeod	S	12/18/2005	12.32	Probation Agency	4/7/2018
Justin T.	Wood	G	2/19/2013	5.1339	County Executive Office	4/5/2018
Wendell L.	Beale	G	1/25/2009	9.2397	Health Care Agency	4/20/2018

SURVIVORS' CONTINUANCES:

Barbara Keller
Martha Williams

* = Excludes reciprocal service or service from any previous retirements
** = Member establishing reciprocity

Business Meeting Agenda - IV. CONSENT AGENDA

Date: Friday, April 27, 2018
 Time: 08:15AM
 User: 104164

Ventura County Retirement Assn

Check Register - Standard

Period: 10-18 As of: 4/27/2018

Page: 1 of 3
 Report: 03630.rpt
 Company: VCERA

Check Nbr	Check Type	Check Date	Vendor ID Vendor Name	Period To Post Closed	Ref Nbr	Doc Type	Invoice Number	Invoice Date	Discount Taken	Amount Paid
Company: VCERA										
Acct / Sub:	10200		000000							
027523	CK	4/11/2018	BANKOFAMER BUSINESS CARD	10-18	000400	VO	ADMIN/IT	4/11/2018	0.00	7,049.73
027524	CK	4/11/2018	BRENTWOODI BRENTWOOD IT	10-18	000401	VO	IT-CAP	4/11/2018	0.00	15,645.00
027525	CK	4/11/2018	DIGITALDEP DIGITAL DEPLOYMENT	10-18	000403	VO	IT	4/11/2018	0.00	650.00
027526	CK	4/11/2018	GLOBALCAPA GTT COMMUNICATIONS	10-18	000402	VO	IT	4/11/2018	0.00	603.63
027527	CK	4/11/2018	HARRISWATE HARRIS WATER CONDITIONING	10-18	000404	VO	ADMIN EXP	4/11/2018	0.00	144.50
027528	CK	4/11/2018	NOSSAMAN NOSSAMAN LLP	10-18	000406	VO	LEGAL FEES	4/11/2018	0.00	1,712.00
027529	CK	4/11/2018	SPRUCEGROV SPRUCEGROVE INVESTMENT M	10-18	000407	VO	INVESTMENT FEES	4/11/2018	0.00	68,250.16
027530	CK	4/11/2018	STAPLESADV STAPLES ADVANTAGE	10-18	000405	VO	ADMIN EXP	4/11/2018	0.00	1,215.82
027531	CK	4/11/2018	TITCHERJEF JEFFREY TITCHER	10-18	000408	VO	ADMIN EXP	4/11/2018	0.00	555.00
027532	CK	4/11/2018	TOWERSWATS TOWERS WATSON DELAWARE I	10-18	000409	VO	ADMIN EXP	4/11/2018	0.00	14,000.00
027533	CK	4/11/2018	VITECHSYST VITECH SYSTEMS GROUP, INC.	10-18	000410	VO	ADMIN EXP	4/11/2018	0.00	2,190.00
027534	CK	4/18/2018	ATTMOBILIT AT&T MOBILITY	10-18	000411	VO	IT	4/18/2018	0.00	367.69
027535	CK	4/18/2018	HEXAVEST HEXAVEST INC.	10-18	000412	VO	INVESTMENT FEES	4/18/2018	0.00	107,026.73

Business Meeting Agenda - IV. CONSENT AGENDA

Date: Friday, April 27, 2018
 Time: 08:15AM
 User: 104164

Ventura County Retirement Assn

Check Register - Standard

Period: 10-18 As of: 4/27/2018

Page: 2 of 3
 Report: 03630.rpt
 Company: VCERA

Check Nbr	Check Type	Check Date	Vendor ID Vendor Name	Period To Post Closed	Ref Nbr	Doc Type	Invoice Number	Invoice Date	Discount Taken	Amount Paid
027536	CK	4/18/2018	PARAMETRIC PARAMETRIC PORTFOLIO ASSO	10-18	000413	VO	INVESTMENT FEES	4/18/2018	0.00	56,598.00
027537	CK	4/18/2018	SHREDITUSA SHRED-IT USA	10-18	000414	VO	ADMIN EXP	4/18/2018	0.00	158.46
027538	CK	4/18/2018	THOMSONREU THOMSON REUTERS- WEST	10-18	000416	VO	IT	4/18/2018	0.00	374.85
027539	CK	4/18/2018	TIMEWARNER TIME WARNER CABLE	10-18	000415	VO	IT	4/18/2018	0.00	294.99
027540	CK	4/18/2018	WALTERSCOT BNY MELLON INV MGMT CAYMA	10-18	000417	VO	INVESTMENT FEES	4/18/2018	0.00	218,765.79
027541	CK	4/25/2018	LINEASOLUT LINEA SOLUTIONS	10-18	000418	VO	ADMIN EXP	4/25/2018	0.00	10,725.00
027542	CK	4/25/2018	LOOMISSAYL LOOMIS, SAYLES & COMPANY, L	10-18	000419	VO	INVESTMENT FEES	4/25/2018	0.00	125,272.02
027543	CK	4/25/2018	MFDAILYCOR M.F. DAILY CORPORATION	10-18	000420	VO	ADMIN EXP	4/25/2018	0.00	17,451.38
027544	CK	4/25/2018	NATIONALAS NAPPA	10-18	000421	VO	ADMIN EXP	4/25/2018	0.00	895.00
027545	CK	4/25/2018	REAMSASSET SCOUT INVESTMENTS, INC	10-18	000422	VO	INVESTMENT FEES	4/25/2018	0.00	134,236.00
027546	CK	4/25/2018	VITECHSYST VITECH SYSTEMS GROUP, INC.	10-18	000423	VO	IT	4/25/2018	0.00	157,500.00

Business Meeting Agenda - IV. CONSENT AGENDA

Date: Friday, April 27, 2018
 Time: 08:15AM
 User: 104164

Ventura County Retirement Assn

Check Register - Standard

Period: 10-18 As of: 4/27/2018

Page: 3 of 3
 Report: 03630.rpt
 Company: VCERA

Check Nbr	Check Type	Check Date	Vendor ID Vendor Name	Period To Post Closed	Ref Nbr	Doc Type	Invoice Number	Invoice Date	Discount Taken	Amount Paid
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Check Count: 24

Acct Sub Total: 941,681.75

Check Type	Count	Amount Paid
Regular	24	941,681.75
Hand	0	0.00
Electronic Payment	0	0.00
Void	0	0.00
Stub	0	0.00
Zero	0	0.00
Mask	0	0.00
Total:	24	941,681.75

Company Disc Total 0.00 Company Total 941,681.75

Ventura County Employees' Retirement Association
Budget Summary Fiscal Year 2017-2018
For the Ten Months Ended April 30, 2018 and Year-To-Date - 83.33% of Fiscal Year Expended

	<i>Adopted 2018 Budget</i>	<i>Adjusted 2018 Budget</i>	<i>April 2018</i>	<i>Expended Fiscal Year to Date</i>	<i>Available Balance</i>	<i>Percent Expended</i>
Salaries and Benefits						
Regular Salary	\$3,026,300.00	\$2,826,300.00	\$223,037.62	\$2,216,486.52	\$609,813.48	78.42%
Extra-Help/Temporary Services	294,400.00	194,400.00	10,725.00	110,096.48	84,303.52	56.63%
Overtime	0.00	0.00	0.00	(221.61)	221.61	0.00%
Supplemental Payments	59,900.00	59,900.00	3,705.60	36,890.91	23,009.09	61.59%
Vacation Redemption	139,500.00	139,500.00	7,427.52	128,960.85	10,539.15	92.45%
Retirement Contributions	531,200.00	481,200.00	41,292.45	382,286.73	98,913.27	79.44%
OASDI Contribution	171,600.00	171,600.00	14,381.64	116,663.90	54,936.10	67.99%
FICA-Medicare	48,100.00	48,100.00	3,363.42	33,997.18	14,102.82	70.68%
Medical Insurance	302,000.00	277,000.00	21,200.00	200,263.96	76,736.04	72.30%
Life Insurance	1,300.00	1,300.00	86.80	856.80	443.20	65.91%
Unemployment Insurance	2,500.00	2,500.00	179.14	1,753.35	746.65	70.13%
Mgmt Disability Insurance	23,600.00	23,600.00	1,441.01	14,511.21	9,088.79	61.49%
Workers Compensation Insurance	23,500.00	23,500.00	1,647.58	16,658.41	6,841.59	70.89%
401K Plan Contribution	72,500.00	72,500.00	5,493.32	53,197.34	19,302.66	73.38%
Total Salaries & Benefits	\$4,696,400.00	\$4,321,400.00	\$333,981.10	\$3,312,402.03	\$1,008,997.97	76.65%
Services & Supplies						
Board Member Stipend	\$13,200.00	\$13,200.00	\$1,700.00	\$9,000.00	\$4,200.00	68.18%
Other Professional Services	224,700.00	224,700.00	30,025.07	170,191.22	54,508.78	75.74%
Auditing	46,000.00	46,000.00	0.00	39,921.24	6,078.76	86.79%
Hearing Officers	60,000.00	60,000.00	0.00	35,350.00	24,650.00	58.92%
Legal	350,000.00	350,000.00	1,712.00	226,106.00	123,894.00	64.60%
Election Services	9,000.00	9,000.00	0.00	12,196.49	(3,196.49)	135.52%
Actuary-Valuation	159,000.00	159,000.00	0.00	60,000.00	99,000.00	37.74%
Actuary-GASB 67	0.00	0.00	0.00	13,000.00	(13,000.00)	0.00%
Actuary-415 Calculation	0.00	0.00	0.00	2,830.00	(2,830.00)	0.00%
Actuary-Misc Hrly Consult	0.00	0.00	0.00	9,396.00	(9,396.00)	0.00%
Actuary-Actuarial Audit	42,000.00	42,000.00	0.00	51,256.00	(9,256.00)	122.04%
Printing	33,000.00	33,000.00	0.00	11,259.95	21,740.05	34.12%
Postage	71,400.00	71,400.00	4,446.36	38,297.87	33,102.13	53.64%
Copy Machine	4,000.00	4,000.00	0.00	1,995.78	2,004.22	49.89%
General Liability	9,500.00	9,500.00	4,744.00	9,488.00	12.00	99.87%
Fiduciary Liability	85,000.00	85,000.00	0.00	84,488.04	511.96	99.40%
Cost Allocation Charges	33,500.00	33,500.00	16,735.00	33,470.00	30.00	99.91%
Education Allowance	6,000.00	6,000.00	0.00	4,000.00	2,000.00	66.67%
Training/Travel-Staff	54,200.00	54,200.00	4,810.71	23,838.19	30,361.81	43.98%
Training/Travel-Trustee	53,100.00	53,100.00	3,330.38	13,212.11	39,887.89	24.88%
Travel-Due Diligence-Staff	0.00	0.00	0.00	3,011.42	(3,011.42)	0.00%
Travel-Due Diligence-Trustee	19,400.00	19,400.00	0.00	3,433.06	15,966.94	17.70%
Mileage-Staff	8,500.00	8,500.00	0.00	1,530.47	6,969.53	18.01%
Mileage -Trustee	0.00	0.00	0.00	2,231.71	(2,231.71)	0.00%
Mileage-Due Diligence-Staff	0.00	0.00	0.00	310.71	(310.71)	0.00%
Mileage-Due Diligence-Trustee	0.00	0.00	0.00	200.09	(200.09)	0.00%
Auto Allowance	6,900.00	6,900.00	575.00	5,750.00	1,150.00	83.33%
Facilities-Security	3,700.00	3,700.00	220.00	2,818.93	881.07	76.19%
Facilities-Maint & Repairs	0.00	0.00	174.88	2,561.72	(2,561.72)	0.00%
Equipment-Maint & Repairs	2,000.00	2,000.00	0.00	0.00	2,000.00	0.00%
General Office Expense	6,000.00	6,000.00	144.50	7,751.67	(1,751.67)	129.19%
Books & Publications	2,500.00	2,500.00	300.00	970.91	1,529.09	38.84%
Office Supplies	18,000.00	18,000.00	1,215.82	10,013.12	7,986.88	55.63%
Memberships & Dues	13,300.00	13,300.00	1,015.00	14,332.50	(1,032.50)	107.76%
Bank Service Charges	0.00	0.00	131.61	1,214.84	(1,214.84)	0.00%
Offsite Storage	4,800.00	4,800.00	0.00	2,830.13	1,969.87	58.96%
Claims, Judgements & Court Ord	0.00	0.00	555.00	555.00	(555.00)	0.00%
Rents/Leases-Structures	209,900.00	209,900.00	17,451.38	174,301.57	35,598.43	83.04%
Non-Capital Equipment	10,000.00	10,000.00	0.00	0.00	10,000.00	0.00%
Non-Capital Furniture	40,000.00	40,000.00	0.00	19,519.70	20,480.30	48.80%
Depreciation /Amortization	1,163,500.00	1,313,500.00	120,894.86	1,208,948.60	104,551.40	92.04%
Total Services & Supplies	\$2,762,100.00	\$2,912,100.00	\$210,181.57	\$2,311,583.04	\$600,516.96	79.38%
Total Sal, Ben, Serv & Supp	\$7,458,500.00	\$7,233,500.00	\$544,162.67	\$5,623,985.07	\$1,609,514.93	77.75%

Ventura County Employees' Retirement Association
Budget Summary Fiscal Year 2017-2018
For the Ten Months Ended April 30, 2018 and Year-To-Date - 83.33% of Fiscal Year Expended

	<i>Adopted 2018 Budget</i>	<i>Adjusted 2018 Budget</i>	<i>April 2018</i>	<i>Expended Fiscal Year to Date</i>	<i>Available Balance</i>	<i>Percent Expended</i>
Technology						
Technology Hardware	\$49,400.00	\$49,400.00	\$85.06	\$12,214.46	\$37,185.54	24.73%
Technology Hardware Support	0.00	5,000.00	0.00	7,235.24	(2,235.24)	144.70%
Technology Software	213,100.00	213,100.00	158,866.71	201,573.44	11,526.56	94.59%
Technology Software Support	19,000.00	19,000.00	525.47	11,065.85	7,934.15	58.24%
Technology Systems Support	263,400.00	293,400.00	650.00	248,975.05	44,424.95	84.86%
Technology Infrastruct Support	300.00	300.00	0.00	184.95	115.05	61.65%
Technology Application Support	507,000.00	647,000.00	6,207.60	331,474.10	315,525.90	51.23%
Technology Data Communication	55,800.00	55,800.00	4,949.65	42,379.67	13,420.33	75.95%
Total Technology	<u>\$1,108,000.00</u>	<u>\$1,283,000.00</u>	<u>\$171,284.49</u>	<u>\$855,102.76</u>	<u>\$427,897.24</u>	<u>66.65%</u>
Capital Expenses						
Capitalized Equipment	0.00	50,000.00	0.00	49,278.19	721.81	98.56%
Total Capitalized Expenses	<u>\$0.00</u>	<u>\$50,000.00</u>	<u>\$0.00</u>	<u>\$49,278.19</u>	<u>\$721.81</u>	<u>98.56%</u>
Congtingency	<u>\$532,800.00</u>	<u>\$532,800.00</u>	<u>\$0.00</u>	<u>\$0.00</u>	<u>\$532,800.00</u>	<u>0.00%</u>
Total Current Year	<u><u>\$9,099,300.00</u></u>	<u><u>\$9,099,300.00</u></u>	<u><u>\$715,447.16</u></u>	<u><u>\$6,528,366.02</u></u>	<u><u>\$2,570,933.98</u></u>	<u><u>71.75%</u></u>

*Ventura County Employees' Retirement Association
Statement of Fiduciary Net Position
As of March 31, 2018 (Unaudited)*

Assets

Cash & Cash Equivalents		\$120,951,851
Receivables		
Interest and Dividends	3,469,323	
Securities Sold	9,444,182	
Miscellaneous	5,056	
Total Receivables	12,918,561	12,918,561
Investments at Fair Value		
Domestic Equity	1,736,467,838	
Non U.S. Equity	880,117,051	
Global Equity	593,793,720	
Fixed Income	948,500,852	
Private Equity	249,287,873	
Real Estate	412,852,882	
Liquid Alternatives	416,066,970	
Cash Overlay	30,276	
Total Investments	5,237,117,462	5,237,117,462
Capital Assets, Net of Accumulated Depreciation & Amortization		13,468,608
Total Assets		5,384,456,482

Liabilities

Securities Purchased	21,999,175	
Accounts Payable	1,752,855	
Tax Withholding Payable	2,911,227	
Deferred Revenue (PrePaid Contributions)	33,557,903	
Total Liabilities	60,221,160	60,221,160
Net Position Restricted for Pensions		\$5,324,235,322

*Ventura County Employees' Retirement Association
Statement of Changes in Fiduciary Net Position
For The Nine Months Ending March 31, 2018 (Unaudited)*

ADDITIONS

Contributions		
Employer	\$144,624,991	
Employee	54,154,908	
Total Contributions		198,779,899

Investment Income		
Net Appreciation (Depreciation) in Fair Value of Investments	349,148,159	
Interest Income	13,353,550	
Dividend Income	6,075,069	
Other Investment Income	15,593	
Real Estate Operating Income, Net	13,483,164	
Security Lending Income	656,090	
Total Investment Income	382,731,624	

Less Investment Expenses		
Management & Custodial Fees	10,927,677	
Other Investment Expenses	377,456	
Securities Lending Borrower Rebates	486,149	
Securities Lending Management Fees	52,390	
Total Investment Expenses	11,843,671	

Net Investment Income/(Loss)		370,887,953
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Total Additions		569,667,852
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DEDUCTIONS

Benefit Payments	200,992,832	
Member Refunds and Death Benefit Payments	3,300,289	
Administrative Expenses	3,516,884	
Other Expenses	1,869,300	
Total Deductions	209,679,305	209,679,305

Net Increase/(Decrease)		359,988,547
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Net Position Restricted For Pensions

Beginning of Year		4,964,246,776
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Ending Balance		\$5,324,235,323
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*Ventura County Employees' Retirement Association
Investments, Cash, and Cash Equivalents
As of March 31, 2018 (Unaudited)*

	<u>Investments</u>	<u>Cash & Cash Equivalents</u>
Equity		
Domestic Equity		
Blackrock - Russell 1000	\$1,491,321,398	\$0
Blackrock - Russell 2500	61,170,667	0
Western Asset Enhanced Equity Index Plus	183,975,773	28,325,368
Total Domestic Equity	<u>1,736,467,838</u>	<u>28,325,368</u>
Non U.S. Equity		
Blackrock - ACWI ex - US	432,724,547	0
Hexavest	92,562,716	0
Sprucegrove	232,117,674	0
Walter Scott	122,712,114	0
Total Non U.S. Equity	<u>880,117,051</u>	<u>0</u>
Global Equity		
Blackrock - ACWI Index	593,793,720	0
Total Global Equity	<u>593,793,720</u>	<u>0</u>
Fixed Income		
Blackrock - Bloomberg Barclays Aggregate Index	219,869,939	0
Loomis Sayles Multi Sector	81,450,209	225,801
Loomis Sayles Strategic Alpha	46,585,815	0
Reams	307,962,771	3
Western Asset Management	292,632,118	3,584,923
Total Fixed Income	<u>948,500,852</u>	<u>3,810,727</u>
Private Equity		
Abbott Secondaries	4,048,252	0
Adams Street	140,945,824	0
Battery Ventures	186,250	0
Carval Investors	1,500,000	0
Clearlake Investors	1,438,308	0
Drive Capital	3,860,042	0
Harbourvest	63,355,261	0
Pantheon	33,953,935	0
Total Private Equity	<u>249,287,873</u>	<u>0</u>
Real Estate		
Prudential Real Estate	147,826,435	237
UBS Realty	265,026,448	0
Total Real Estate	<u>412,852,882</u>	<u>237</u>
Liquid Alternatives		
Bridgewater All Weather	310,358,510	0
Tortoise (MLPs)	105,708,460	2,033,166
Total Liquid Alternatives	<u>416,066,970</u>	<u>2,033,166</u>
Cash Overlay (Parametric)	30,276	76,763,290
Cash Abbott Capital		1,500,000
VCERA Cash - State Street		198,169
In-House Cash		<u>8,320,893</u>
 Total Investments, Cash, and Cash Equivalents	 <u><u>\$5,237,117,462</u></u>	 <u><u>\$120,951,851</u></u>

*Ventura County Employees' Retirement Association
Schedule of Investment Management Fees
For the Nine Months Ending March 31, 2018 (Unaudited)*

Equity Managers	
Domestic Equity	
Blackrock - Russell 1000	\$51,536
Blackrock - Russell 2500	62,528
Western Asset Enhanced Equity Index Plus	261,283
Total Domestic Equity	<u>375,346</u>
Non U.S. Equity	
Blackrock - ACWI ex - US	323,464
Hexavest	316,836
Sprucegrove	606,464
Walter Scott	708,408
Total Non U.S. Equity	<u>1,955,172</u>
Global Equity	
Blackrock - ACWI Index	177,168
Total Global Equity	<u>177,168</u>
Fixed Income Managers	
Blackrock Bloomberg Barclays Aggregate Index	72,048
Loomis Sayles Multi Sector	238,740
Loomis Sayles Strategic Alpha	137,691
Reams Asset Management	403,556
Western Asset Management	400,686
Total Fixed Income	<u>1,252,721</u>
Private Equity	
Abbott Capital	112,500
Adams Street	1,353,443
Drive Capital	150,000
Harbourvest	965,991
Pantheon	442,756
Total Private Equity	<u>3,024,690</u>
Real Estate	
Prudential Real Estate Advisors	919,774
RREEF	1,005
UBS Realty	1,483,628
Total Real Estate	<u>2,404,407</u>
Liquid Alternatives	
Bridgewater All Weather	581,930
Tortoise (MLPs)	540,762
Total Liquid Alternatives	<u>1,122,692</u>
Cash Overlay (Parametric)	141,030
Securities Lending	
Borrower's Rebate	486,149
Management Fees	52,390
Total Securities Lending	<u>538,539</u>
Other	
Investment Consultant (NEPC)	229,719
Investment Custodian (State Street)	244,732
Total Other Fees	<u>474,451</u>
Total Investment Management Fees	<u><u>\$11,466,215</u></u>

*Ventura County Employees' Retirement Association
Statement of Fiduciary Net Position
As of April 30, 2018 (Unaudited)*

Assets

Cash & Cash Equivalents		\$95,024,787
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Receivables

Interest and Dividends	4,483,902	
Securities Sold	6,974,761	
Miscellaneous	4,756	
Total Receivables		11,463,419

Investments at Fair Value

Domestic Equity	1,741,519,693	
Non U.S. Equity	897,113,854	
Global Equity	600,232,035	
Fixed Income	939,808,583	
Private Equity	260,597,207	
Real Estate	412,852,882	
Liquid Alternatives	425,707,022	
Cash Overlay	41,485	
Total Investments		5,277,872,762

Capital Assets, Net of Accumulated Depreciation & Amortization		13,347,713
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Total Assets		5,397,708,680
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Liabilities

Securities Purchased	24,583,072	
Accounts Payable	1,019,069	
Tax Withholding Payable	3,070,037	
Deferred Revenue (PrePaid Contributions)	18,680,456	

Total Liabilities		47,352,634
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Net Position Restricted for Pensions		\$5,350,356,047
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*Ventura County Employees' Retirement Association
Statement of Changes in Fiduciary Net Position
For The Ten Months Ending April 30, 2018 (Unaudited)*

ADDITIONS

Contributions		
Employer	\$159,511,593	
Employee	59,721,224	
Total Contributions	<u>59,721,224</u>	219,232,818

Investment Income

Net Appreciation (Depreciation) in Fair Value of Investments	378,306,411	
Interest Income	14,883,575	
Dividend Income	6,814,320	
Other Investment Income	15,593	
Real Estate Operating Income, Net	13,483,164	
Security Lending Income	671,190	
Total Investment Income	<u>414,174,252</u>	

Less Investment Expenses

Management & Custodial Fees	11,222,860	
Other Investment Expenses	401,574	
Securities Lending Borrower Rebates	486,149	
Securities Lending Management Fees	52,390	
Total Investment Expenses	<u>12,162,972</u>	

Net Investment Income/(Loss)		<u>402,011,279</u>
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Total Additions		621,244,097
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DEDUCTIONS

Benefit Payments	224,889,745	
Member Refunds and Death Benefit Payments	4,167,567	
Administrative Expenses	3,920,984	
Other Expenses	2,156,530	
Total Deductions	<u>2,156,530</u>	<u>235,134,826</u>

Net Increase/(Decrease)		386,109,271
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Net Position Restricted For Pensions

Beginning of Year		<u>4,964,246,776</u>
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Ending Balance		<u><u>\$5,350,356,047</u></u>
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Ventura County Employees' Retirement Association
Investments, Cash, and Cash Equivalents
As of April 30, 2018 (Unaudited)

	<u>Investments</u>	<u>Cash & Cash Equivalents</u>
Equity		
Domestic Equity		
Blackrock - Russell 1000	\$1,496,588,965	\$0
Blackrock - Russell 2500	61,322,574	0
Western Asset Enhanced Equity Index Plus	183,608,154	31,514,453
Total Domestic Equity	<u>1,741,519,693</u>	<u>31,514,453</u>
Non U.S. Equity		
Blackrock - ACWI ex - US	440,440,610	0
Hexavest	94,539,799	0
Sprucegrove	238,192,962	0
Walter Scott	123,940,483	0
Total Non U.S. Equity	<u>897,113,854</u>	<u>0</u>
Global Equity		
Blackrock - ACWI Index	600,232,035	0
Total Global Equity	<u>600,232,035</u>	<u>0</u>
Fixed Income		
Blackrock - Bloomberg Barclays Aggregate Index	218,250,390	0
Loomis Sayles Multi Sector	80,016,757	2,232,450
Loomis Sayles Strategic Alpha	46,736,945	0
Reams	306,589,740	32,493
Western Asset Management	288,214,751	4,079,719
Total Fixed Income	<u>939,808,583</u>	<u>6,344,662</u>
Private Equity		
Abbott Secondaries	4,048,252	0
Adams Street	145,043,435	0
Battery Ventures	186,250	0
Carval Investors	3,000,000	0
Clearlake Investors	1,438,308	0
Drive Capital	4,191,949	0
Harbourvest	66,280,261	0
Insight Ventures	2,750,000	0
Pantheon	33,658,752	0
Total Private Equity	<u>260,597,207</u>	<u>0</u>
Real Estate		
Prudential Real Estate	147,826,435	2
UBS Realty	265,026,448	0
Total Real Estate	<u>412,852,882</u>	<u>2</u>
Liquid Alternatives		
Bridgewater All Weather	313,052,001	0
Tortoise (MLPs)	112,655,021	1,972,777
Total Liquid Alternatives	<u>425,707,022</u>	<u>1,972,777</u>
Cash Overlay (Parametric)	41,485	47,032,421
Cash - State Street		197,528
In-House Cash		7,962,945
Total Investments, Cash, and Cash Equivalents	<u><u>\$5,277,872,762</u></u>	<u><u>\$95,024,787</u></u>

*Ventura County Employees' Retirement Association
Schedule of Investment Management Fees
For the Ten Months Ending April 30, 2018 (Unaudited)*

Equity Managers	
Domestic Equity	
Blackrock - Russell 1000	\$51,536
Blackrock - Russell 2500	62,528
Western Asset Enhanced Equity Index Plus	261,283
Total Domestic Equity	375,346
Non U.S. Equity	
Blackrock - ACWI ex - US	323,464
Hexavest	316,836
Sprucegrove	606,464
Walter Scott	708,408
Total Non U.S. Equity	1,955,172
Global Equity	
Blackrock - ACWI Index	177,168
Total Global Equity	177,168
Fixed Income Managers	
Blackrock Bloomberg Barclays Aggregate Index	72,048
Loomis Sayles Multi Sector	238,740
Loomis Sayles Strategic Alpha	137,691
Reams Asset Management	403,556
Western Asset Management	400,686
Total Fixed Income	1,252,721
Private Equity	
Abbott Capital	112,500
Adams Street	1,353,443
Drive Capital	150,000
Harbourvest	965,991
Pantheon	737,939
Total Private Equity	3,319,873
Real Estate	
Prudential Real Estate Advisors	919,774
RREEF	1,005
UBS Realty	1,483,628
Total Real Estate	2,404,407
Liquid Alternatives	
Bridgewater All Weather	581,930
Tortoise (MLPs)	540,762
Total Liquid Alternatives	1,122,692
Cash Overlay (Parametric)	141,030
Securities Lending	
Borrower's Rebate	486,149
Management Fees	52,390
Total Securities Lending	538,539
Other	
Investment Consultant (NEPC)	229,719
Investment Custodian (State Street)	244,732
Total Other Fees	474,451
Total Investment Management Fees	\$11,761,399



Ventura County Employees' Retirement Association

Energy update



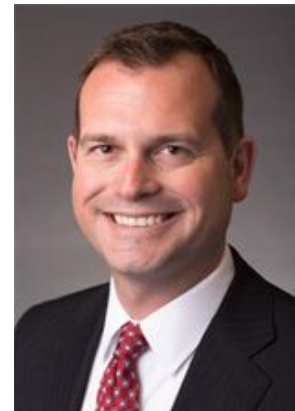
Tortoise presenters

Andrew Goldsmith



**Director –
Institutional Sales and
Consultant Relations**

Gregory Murphy, CFA



**Director –
Relationship Management**

Organizational update

Lovell Minnick and Tortoise management acquired Tortoise

About the transaction

- Tortoise Investments and Lovell Minnick Partners announced the signing of a definitive agreement for a buyout of Tortoise in January
- Lovell Minnick was joined by Tortoise management and a premier group of institutional investors, including HarbourVest Partners and AlInvest Partners
- Management and employees increased their ownership of Tortoise
 - Employees retained a significant equity interest, with many investing additional capital alongside Lovell Minnick
- Three co-founders, Zach Hamel, Ken Malvey and Terry Matlack, sold their remaining interest and retired from Tortoise upon close of the transaction

About Lovell Minnick

- Private equity firm founded in 1999, with substantial expertise investing in asset management companies
 - Including through the most recent financial downturn
- Tenured team brings deep knowledge base and operational expertise, with 20+ asset management portfolio companies during their history, including
 - Current investments:*
 - Matthews International Capital Management
 - CenterSquare Investment Management
 - Trea Asset Management
 - 361 Capital
 - Past investments:*
 - ALPS
 - Duff & Phelps
 - AssetMark

Tortoise approach

Deeply committed to exceptional service

- Mindset that values relationships and a commitment to put clients first
- Foundation on which we build and maintain trust

Motivated by thinking differently

- View that looks beyond the obvious and inspires pioneering investment solutions that have broadened and deepened our investor base
- Entrepreneurial approach that fosters curiosity, debate and teamwork

Focused on the long term

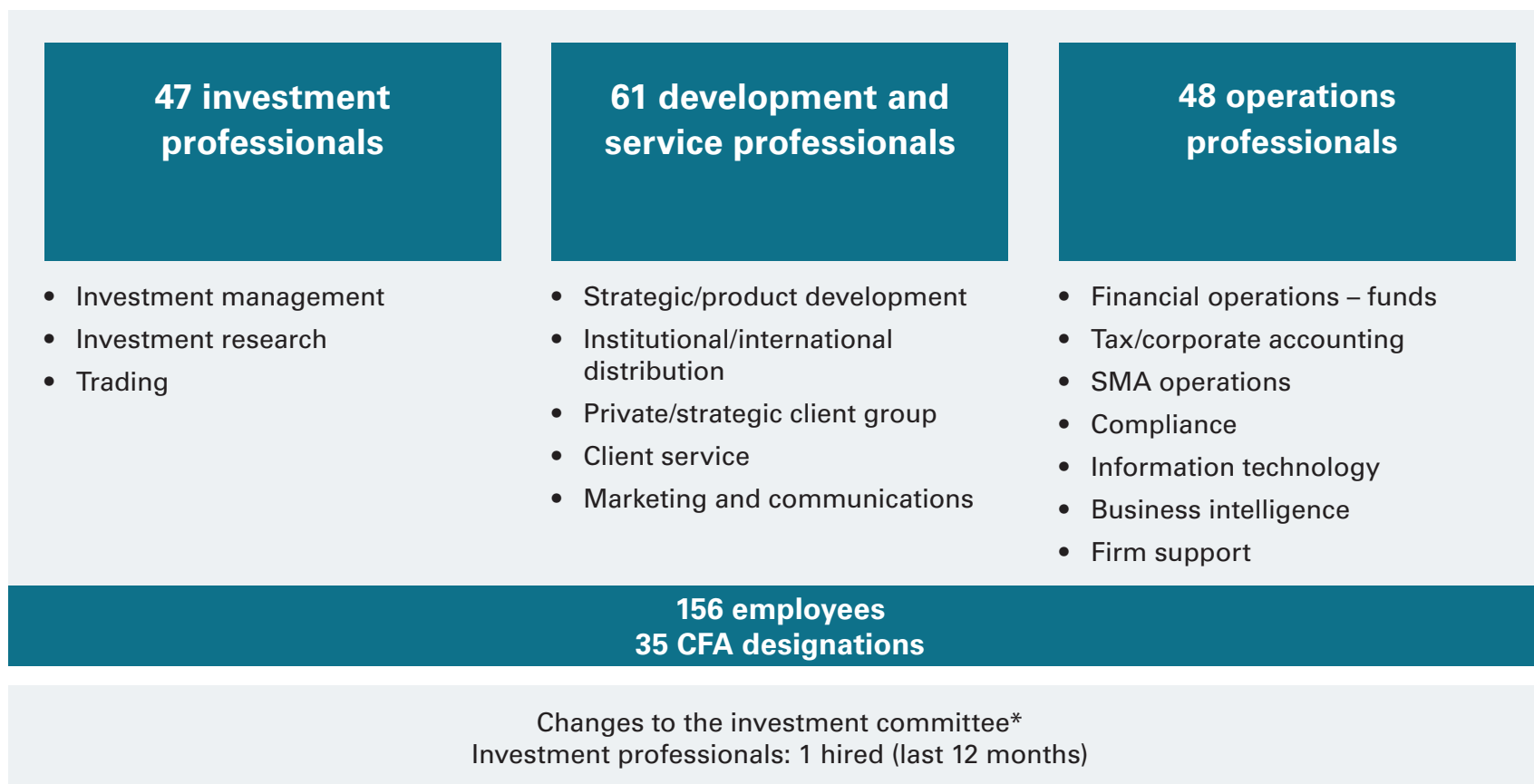
- Disciplined and results-driven investment process
- Steadfast investment philosophy that endures across economic cycles

Passionate about quality

- Focus on providing unmatched quality in every aspect of our business

The broad Tortoise team

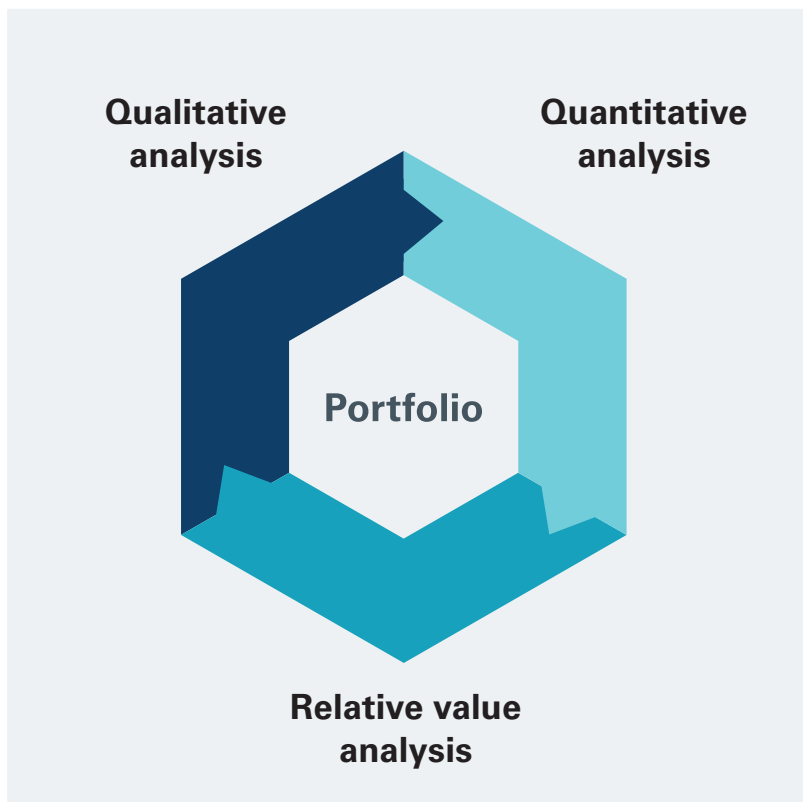
- Approximately \$19.6 billion in assets under management through its family of registered investment advisers
- Locations in Kansas City, Los Angeles, New York, Connecticut and Luxembourg



As of 4/30/2018

*Please see important disclosures at end of presentation for additional information on changes to the investment committee.

In-depth security analysis focused on risk mitigation



Proprietary risk models

- Management strength rating
- Quality of cash flows
- Asset footprint

Proprietary financial models

- Historical and projected operational and financial data
- Organic project/acquisition profile
- Liquidity analysis and credit sensitivities
- Sensitivity analysis to various key drivers

Proprietary valuation models

- Discounted cash flow model
- Comparable company multiples
- Relative value
- Other considerations (i.e. unit coverage, subordination, parent/sponsor relationship, etc.)

Midstream SMA investment strategy

We have consistently pursued a strategy focused on long-haul, fee-based, investment grade companies for their compelling risk and return characteristics

Own strategic assets critical to sustainability and growth of economic activity

Emphasize high quality companies

- Long-haul pipeline asset footprint
- Proven management teams
- Fee-based cash flow generation with investment grade metrics

Prefer internal and dropdown growth potential with low cost of capital

Tortoise investment solutions

	Inception	Focus	Type	
ESSENTIAL ASSETS	Energy			
	Midstream MLP strategy	2003	Midstream MLPs	Separately managed account/ private fund
	TYG	2004	Midstream MLPs	Closed-end fund (C-corp)
	TPZ	2009	Power and energy infrastructure fixed income and dividend-paying equity	Closed-end fund (RIC)
	NTG	2010	Natural gas midstream MLPs	Closed-end fund (C-corp)
	TORIX/TORTX/TORCX/UCITS ¹ / TVPTX ²	2011	North American pipeline companies	Open-end fund/UCITS/ variable insurance portfolio
	TTP	2011	North American pipeline companies	Closed-end fund (RIC)
	NDP	2012	North American oil and gas producers companies	Closed-end fund (RIC)
	TOPIX/TOPTX/TOPCX/SMA	2013	North American energy companies and beneficiaries	Open-end fund/ separately managed account
	TPYP	2015	North American pipeline companies	Exchange-traded product
	Direct opportunity strategy	2016 ³	MLP and related PIPE/private investments	Private fund
Sustainable infrastructure				
TBLU/SMA	2017	Water companies	Exchange-traded product/ separately managed account	
Credit				
INCOME	Taxable fixed income/TBNIX/TBNTX	1984 ⁴	Core, Core Plus, High Yield and CLO	Separately managed accounts/ open-end fund
	Direct lending			
	Tax-advantaged direct lending/ TSIFX	2016	Charter schools, senior living and healthcare facilities	Private fund/separately managed account/interval fund

As of 4/30/2018. ¹For non-U.S. investors only. ²Currently available on Jefferson National's Monument Advisor.

³Inception date of Fund I. Fund II is currently open to new investors. ⁴Inception date of Bradford & Marzec's Core strategy.



Account overview

Summary

- Initial funding date: April 22, 2013
- Current account AUM: approximately \$115.4 million
- Performance inception to date: 0.5%
- Relative performance vs. Tortoise MLP Index[®] inception to date: outperformed by 3.1%
- Benefiting from emphasis on larger, investment grade, more stable fee-based sectors
- We expect 14% - 16% MLP market returns for next 12 months (current MLP market yield plus 5% - 7% growth)*
- Intermediate and long-term growth outlook remains favorable in our view

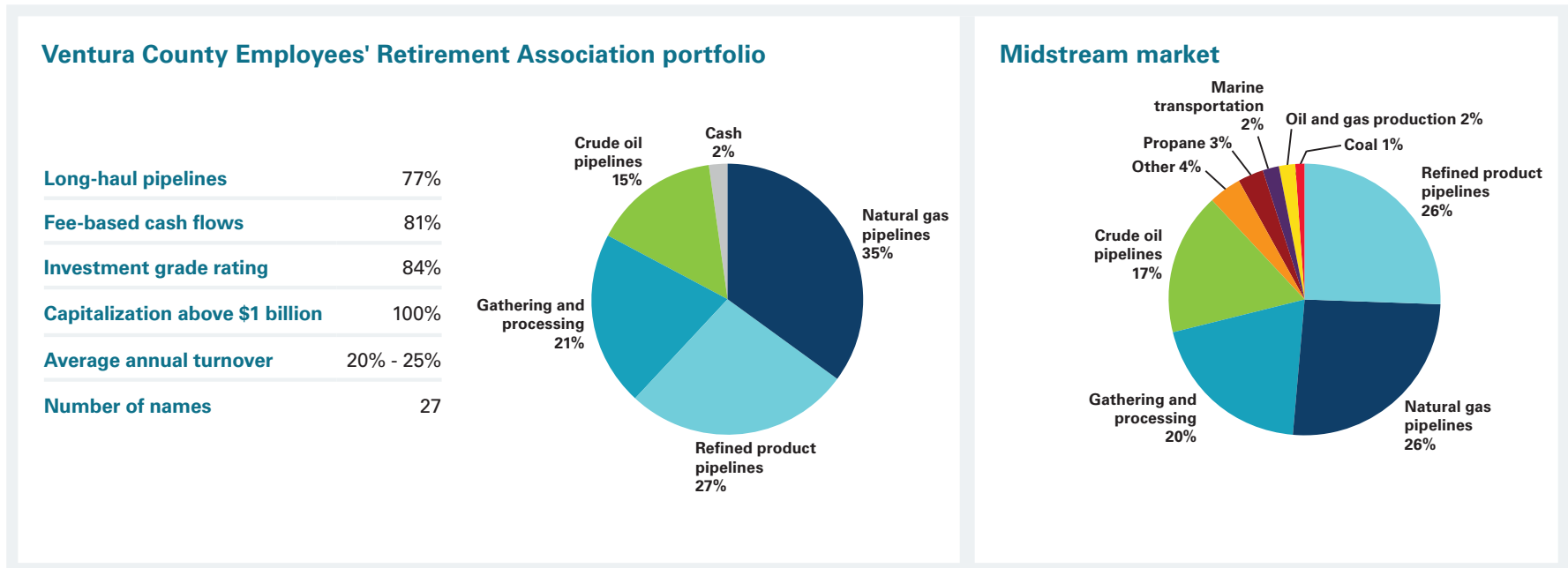


As of 4/30/2018. Returns presented are net of fees. *As of 3/31/2018. Please see important disclosures at end of presentation.

Past performance is no guarantee of future results.

Account portfolio vs. index

We have consistently pursued a strategy focused on long-haul, fee-based, investment grade companies



As of 4/30/2018

Midstream market represented by the Tortoise MLP Index®. Due to rounding, totals may not equal 100%. Please see important disclosures at end of presentation.

Account performance summary

	Month to date	Fiscal year to date ¹	1 year	3 year	5 year	Since inception ²	7 year	10 year
Account (net of fees)	7.36	(5.76)	(9.96)	(8.69)	0.54	0.54	N/A	N/A
Composite (net of fees)³	7.34	(5.76)	(10.00)	(9.15)	0.02	0.02	5.04	9.02
Tortoise MLP Index[®]	7.52	(7.30)	(11.89)	(9.78)	(2.59)	(2.59)	2.11	6.98
Over/under account performance (net)	(0.16)	1.54	1.93	1.09	3.13	3.13	N/A	N/A
Over/under composite performance (net)	(0.18)	1.54	1.89	0.63	2.61	2.61	2.93	2.04

Portfolio activity summary From 4/22/2013 to 4/30/2018

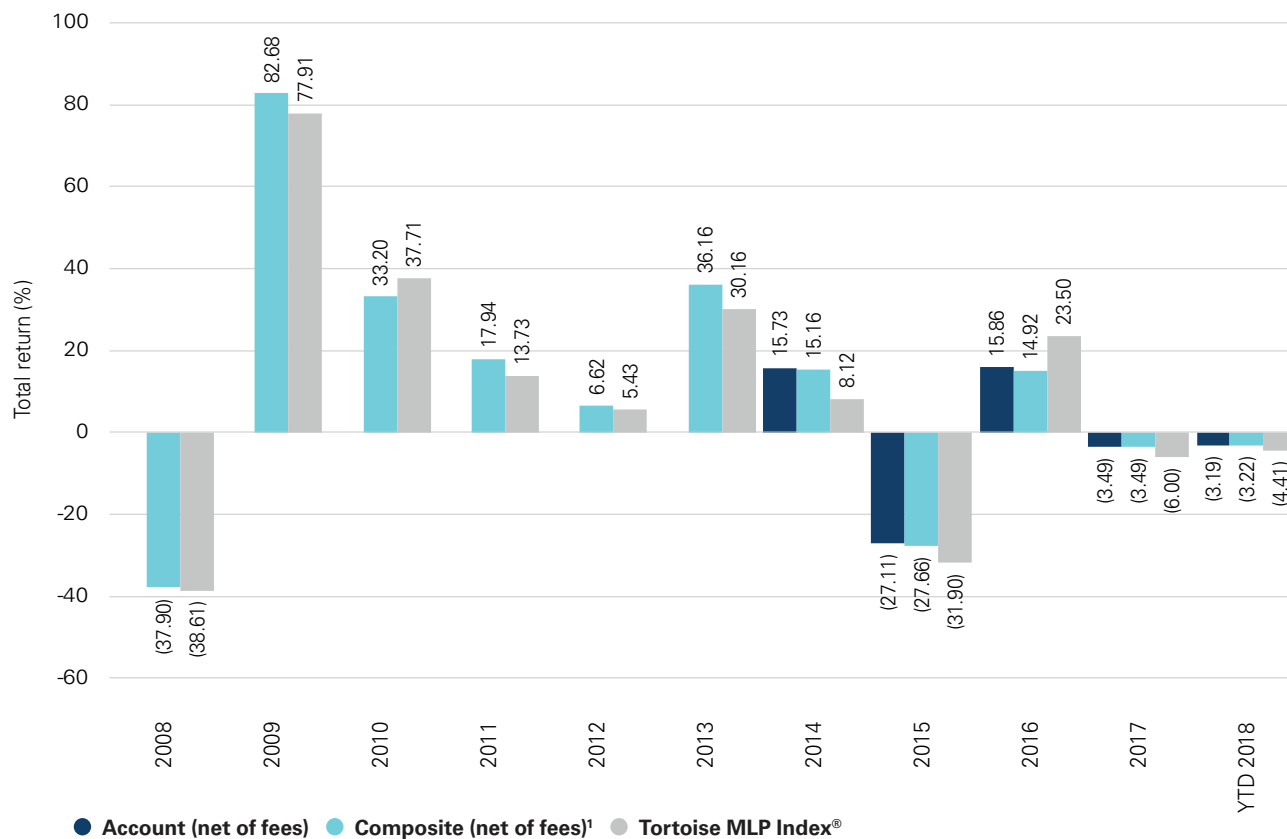
Portfolio value on 4/22/2013	\$ -
Contributions	109,000,000
Withdrawals	-
Realized gains/(losses)	(7,654,260)
Unrealized gains/(losses)	(18,157,679)
Interest	86,344
Dividends/distributions	32,091,968
Management fees paid from account	-
Expenses	-
Portfolio value on 4/30/2018	\$115,366,373

All returns through 4/30/2018. Annualized for periods over one year. ¹Account fiscal year to date: 6/30/2017 to 4/30/2018. ²Account performance inception date: 4/30/2013. ³Performance figures for the composite (net of fees) have been reduced by 0.75%, the highest management fee charged to any client whose account is included in the composite, however, actual fees for accounts within the Tortoise composite vary. Prior to 12/31/2009, public funds were invested under the parameters of the Tortoise Midstream MLP Composite. We created a separate, dedicated composite on 1/1/2010 and have since invested public fund accounts under a slightly different model. Performance information for the periods 2/1/2003 - 12/31/2009 and 1/1/2010 - 4/30/2018 is from the Tortoise Midstream MLP Composite and the Tortoise Midstream MLP Exempt Institutions Composite, respectively. It is not possible to invest directly in an index. Information provided is supplemental to the fully compliant performance presentation. Please see GIPS[®] compliant presentation and important disclosures at end of presentation.

Past performance is no guarantee of future results.



Account yearly performance vs. index



Account (net of fees) over/under performance vs. midstream index (bps)

	Tortoise MLP Index [®]
YTD 2018	122
2017	251
2016	(764)
2015	479
2014	761

Composite (net of fees) over/under performance vs. midstream index (bps)

	Tortoise MLP Index [®]
YTD 2018	119
2017	251
2016	(858)
2015	424
2014	704
2013	600
2012	119
2011	421
2010	(451)
2009	477
2008	71

Year to date returns through 4/30/2018. ¹Performance figures for the composite (net of fees) have been reduced by 0.75%, the highest management fee charged to any client whose account is included in the composite, however, actual fees for accounts within the Tortoise composite vary. Prior to 12/31/2009, public funds were invested under the parameters of the Tortoise Midstream MLP Composite. We created a separate, dedicated composite on 1/1/2010 and have since invested public fund accounts under a slightly different model. Performance information for the periods 2/1/2003 - 12/31/2009 and 1/1/2010 - 4/30/2018 is from the Tortoise Midstream MLP Composite and the Tortoise Midstream MLP Exempt Institutions Composite, respectively. It is not possible to invest directly in an index. Information provided is supplemental to the fully compliant performance presentation. Please see GIPS[®] compliant presentation and important disclosures at end of presentation.

Past performance is no guarantee of future results.



Performance drivers (last 12 months)

Positive contributors

Sub-sector/thematic performance

- Positive selection effect, natural gas pipelines (down 12%)
- Positive selection effect, refined product pipelines (down 14%)
- Positive selection effect, crude oil pipelines (down 22%)

Negative contributors

Sub-sector/thematic performance

- Underweight oil and gas production (up 39%)
- Underweight other (up 3%)
- Negative selection effect, gathering and processing (down 9%)

Outperformed midstream market by 1.9%

Individual security selection

- Overweight OKE (up 22%)
- Underweight EEP (down 40%)
- Underweight NS (down 51%)
- Held cash in a negative return environment

Individual security selection

- Underweight VNOM (up 86%)
- Underweight DCP (up 6%)
- Underweight CVRR (up 90%)
- Underweight APU (up 3%)

As of 4/30/2018. Returns presented are net of fees as compared to the Tortoise MLP Index®.

Past performance is no guarantee of future results.

Account portfolio

Ticker	Security	Shares held	Unit cost (\$)	Total cost (\$)	Current price (\$)	Current value (\$)	Market weight (%)
Common stock							
<i>Natural gas pipelines</i>							
LNG	Cheniere Energy Inc.	14,085	47.28	665,976.83	58.16	819,183.60	0.7
OKE	ONEOK, Inc	103,114	52.16	5,378,426.26	60.22	6,209,525.08	5.4
TEGP	Tallgrass Energy GP, LP	22,142	22.00	487,124.00	20.46	453,025.32	0.4
				<u>\$6,531,527.09</u>		<u>\$7,481,734.00</u>	<u>6.5%</u>
<i>Gathering and processing</i>							
AMGP	Antero Midstream GP LP	42,234	22.89	966,607.10	17.22	727,269.48	0.6
TRGP	Targa Resources Corp.	44,953	57.02	2,563,342.09	46.97	2,111,442.41	1.8
WMB	Williams Companies, Inc	53,453	25.50	1,362,956.85	25.73	1,375,345.69	1.2
				<u>\$4,892,906.04</u>		<u>\$4,214,057.58</u>	<u>3.7%</u>
Limited partnerships							
<i>Crude oil pipelines</i>							
ANDX	Andeavor Logistics LP	121,587	53.80	6,541,261.48	42.44	5,160,152.28	4.5
BPMP	BP Midstream Partners LP	64,917	17.74	1,151,359.89	18.97	1,231,475.49	1.1
PAA	Plains All American Pipeline, L.P.	332,089	44.92	14,916,879.59	23.51	7,807,412.39	6.8
SHLX	Shell Midstream Partners LP	163,960	29.13	4,776,448.81	21.59	3,539,896.40	3.1
				<u>\$27,385,949.77</u>		<u>\$17,738,936.56</u>	<u>15.4%</u>
<i>Natural gas pipelines</i>							
ETE	Energy Transfer Equity, L.P.	380,528	14.83	5,643,250.43	15.80	6,012,342.40	5.2
ETP	Energy Transfer Partners, L.P.	287,374	24.10	6,926,504.19	18.02	5,178,479.48	4.5
EPD	Enterprise Products Partners L.P.	401,913	28.61	11,500,189.60	26.84	10,787,344.92	9.4
EQGP	EQT GP Holdings LP	22,434	30.21	677,674.70	25.00	560,850.00	0.5
EQM	EQT Midstream Partners, LP	91,068	73.80	6,720,989.59	56.26	5,123,485.68	4.4
SEP	Spectra Energy Partners, LP	44,374	47.89	2,124,909.22	35.65	1,581,933.10	1.4
TEP	Tallgrass Energy Partners, LP	78,276	43.64	3,415,578.52	41.21	3,225,753.96	2.8
				<u>\$37,009,096.24</u>		<u>\$32,470,189.54</u>	<u>28.1%</u>
<i>Refined product pipelines</i>							
BPL	Buckeye Partners, L.P.	87,036	66.03	5,747,331.94	41.55	3,616,345.80	3.1
MMP	Magellan Midstream Partners, L.P.	158,069	58.78	9,291,017.59	65.83	10,405,682.27	9.0
MPLX	MPLX LP	254,126	41.93	10,654,698.97	35.33	8,978,271.58	7.8
PSXP	Phillips 66 Partners LP	108,390	49.63	5,379,852.60	49.58	5,373,976.20	4.7
VLP	Valero Energy Partners LP	73,873	38.93	2,875,826.01	39.43	2,912,812.39	2.5
				<u>\$33,948,727.11</u>		<u>\$31,287,088.24</u>	<u>27.1%</u>
<i>Gathering and processing</i>							
AM	Antero Midstream Partners LP	111,943	27.97	3,131,130.27	26.81	3,001,191.83	2.6
NBLX	Noble Midstream Partners LP	18,844	25.27	476,227.06	45.00	847,980.00	0.7
WGP	Western Gas Equity Partners, LP	16,008	34.68	555,197.46	33.89	542,511.12	0.5
WES	Western Gas Partners LP	128,457	54.18	6,960,268.24	48.06	6,173,643.42	5.4
WPZ	Williams Partners L.P.	244,442	37.48	9,160,483.47	36.40	8,897,688.80	7.7
				<u>\$20,283,306.50</u>		<u>\$19,463,015.17</u>	<u>16.9%</u>
Cash and equivalents							
CASH	Cash Account			1,972,777.09		1,972,777.09	1.7
DIVACC	Dividend Accrual			738,575.28		738,575.28	0.6
				<u>\$2,711,352.37</u>		<u>\$2,711,352.37</u>	<u>2.4%</u>
TOTAL PORTFOLIO				<u><u>\$132,762,865.12</u></u>		<u><u>\$115,366,373.46</u></u>	<u><u>100.0%</u></u>

Client service

Weekly podcast

Portfolio managers provide timely updates on trending topics in the market

Monthly report

Contains performance, transactions, sector allocations and holdings

Quarterly letter

One-page portfolio review of the sector market and strategy performance

Quarterly webcast

In-depth review of performance, attribution of performance and current market outlook with portfolio team

Annual meeting

In your office with members of the Tortoise team

K-1 checklist

Includes a list of K-1s to be received, expected release dates, end of year units and current year transactions

Access to portfolio managers

Deep and experienced investment team, consisting of six portfolio managers, averaging 17 years of experience

Symposium

Educational sessions and keynote speakers, covering the spectrum of essential assets and income investing

Separate account key contacts

Client Service

Reporting
General questions
Billing (advisory fee)
K-1 checklist
General tax questions

Jenny Park

Director, Head of Institutional Client Service
(913) 890-2132
jpark@tortoiseadvisors.com

Tamara Boykin

Senior Client Service Associate
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tboykin@tortoiseadvisors.com

Leslie Lamoreaux

Client Service Associate
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llamoreaux@tortoiseadvisors.com

Operations

Custodial account data feed setup
Trade settlement issues
Investment accounting and reconciliation

Raven Olivarez-Weber

Vice President and Operations Manager
(913) 890-2160

Kelly Schuetz

Senior Operations Specialist
(913) 890-2151

Kevin Morin

Operations Analyst
(913) 890-2142

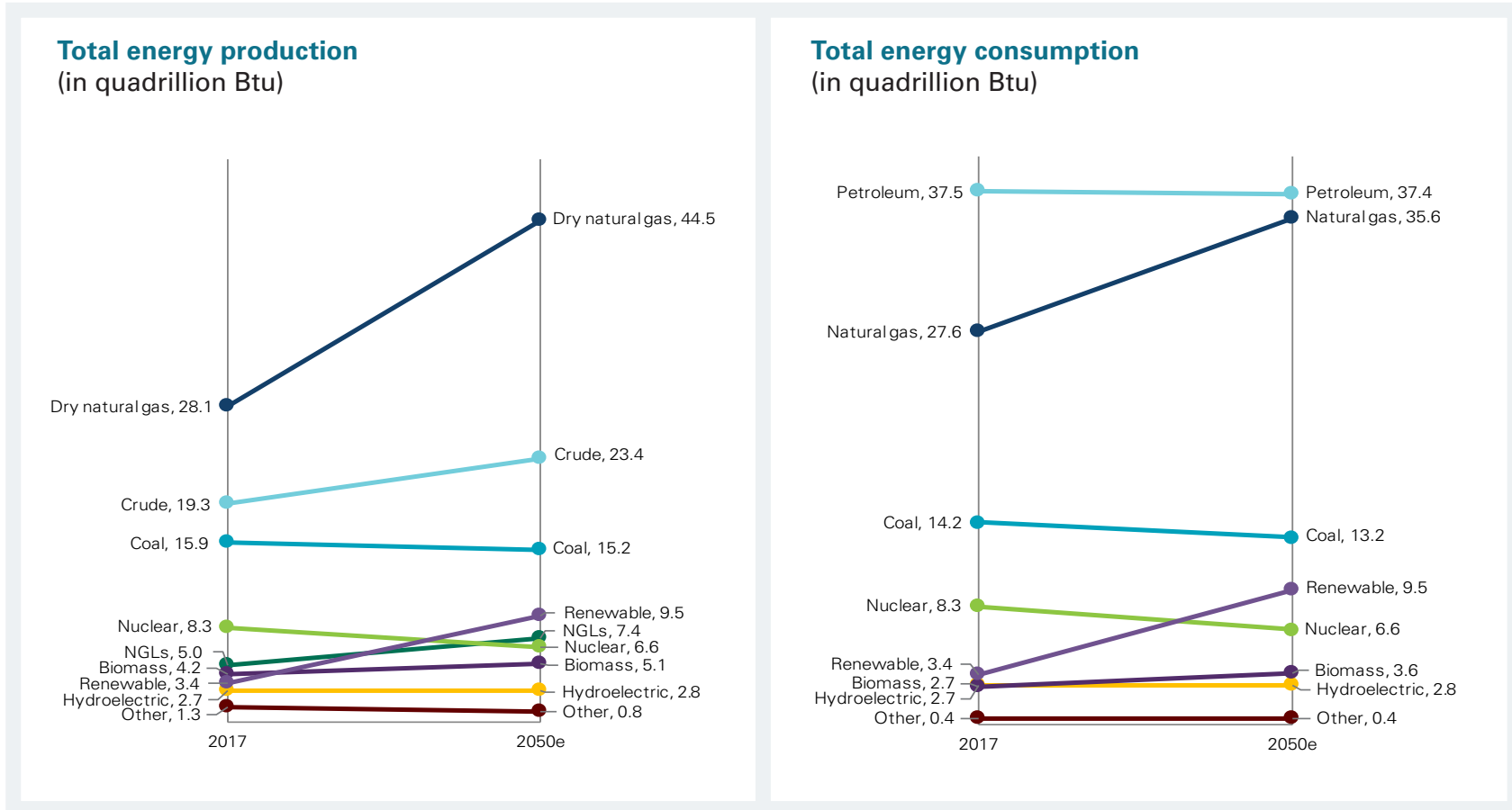
sma@tortoiseadvisors.com

Trends in energy market

Our thoughts on trends in energy market

- U.S. becomes net exporter of energy within the next 10 years
- Natural gas is expected to be a long-term winner, growing share in electric generation as well as industrial approaches
- Coal and nuclear cede share of electric generation to natural gas and renewables (solar and wind)
- Renewables will grow quickly and take share in electric generation, however, from a small starting base
- Petroleum is expected to see flat to slight growth in volumes over the long term with wild cards in demand of electric vehicle adoption and export opportunities

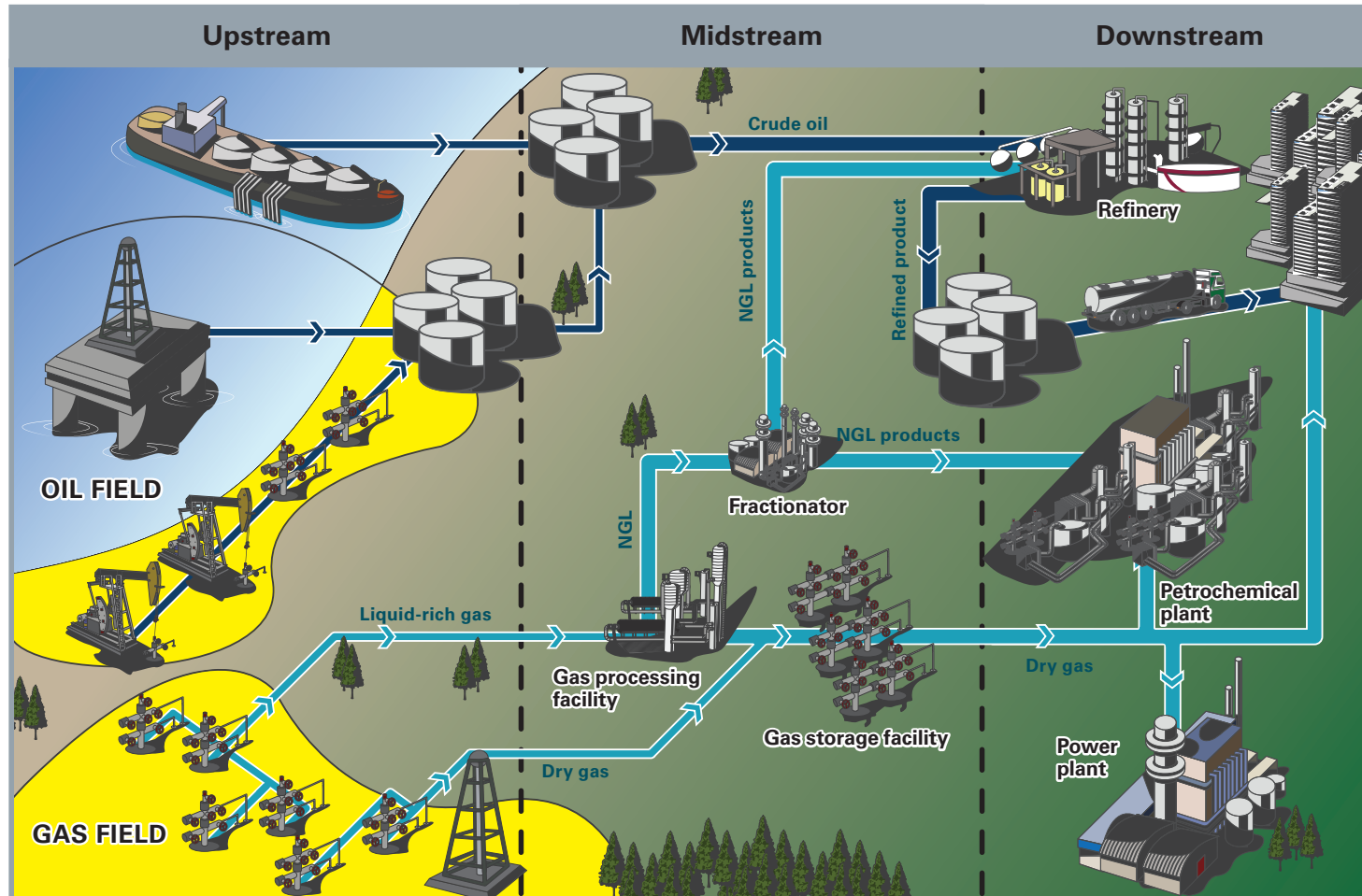
We believe the future is both energy and renewables



Source: EIA AEO 2018. The projections on this page are based on industry estimates and are no guarantee of future outcomes.

Five year outlook

Energy value chain in perspective



Source: Tortoise

Disruptive technology driving shale growth

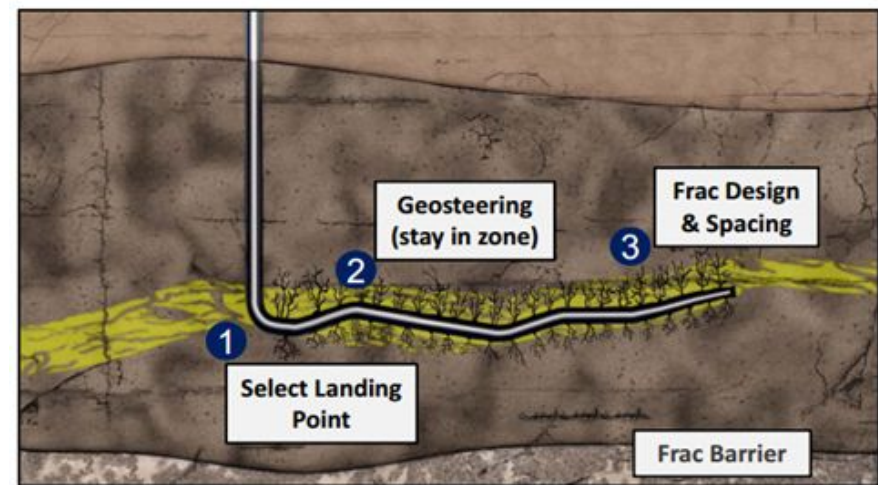
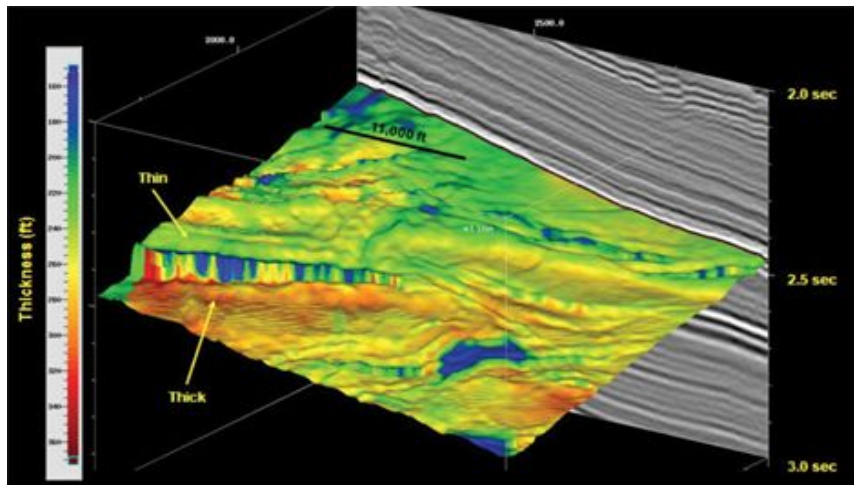
Use of technology in oil and gas sector has reversed a decade-long decline in domestic production

Growing North American production is driven by two processes used safely for many years

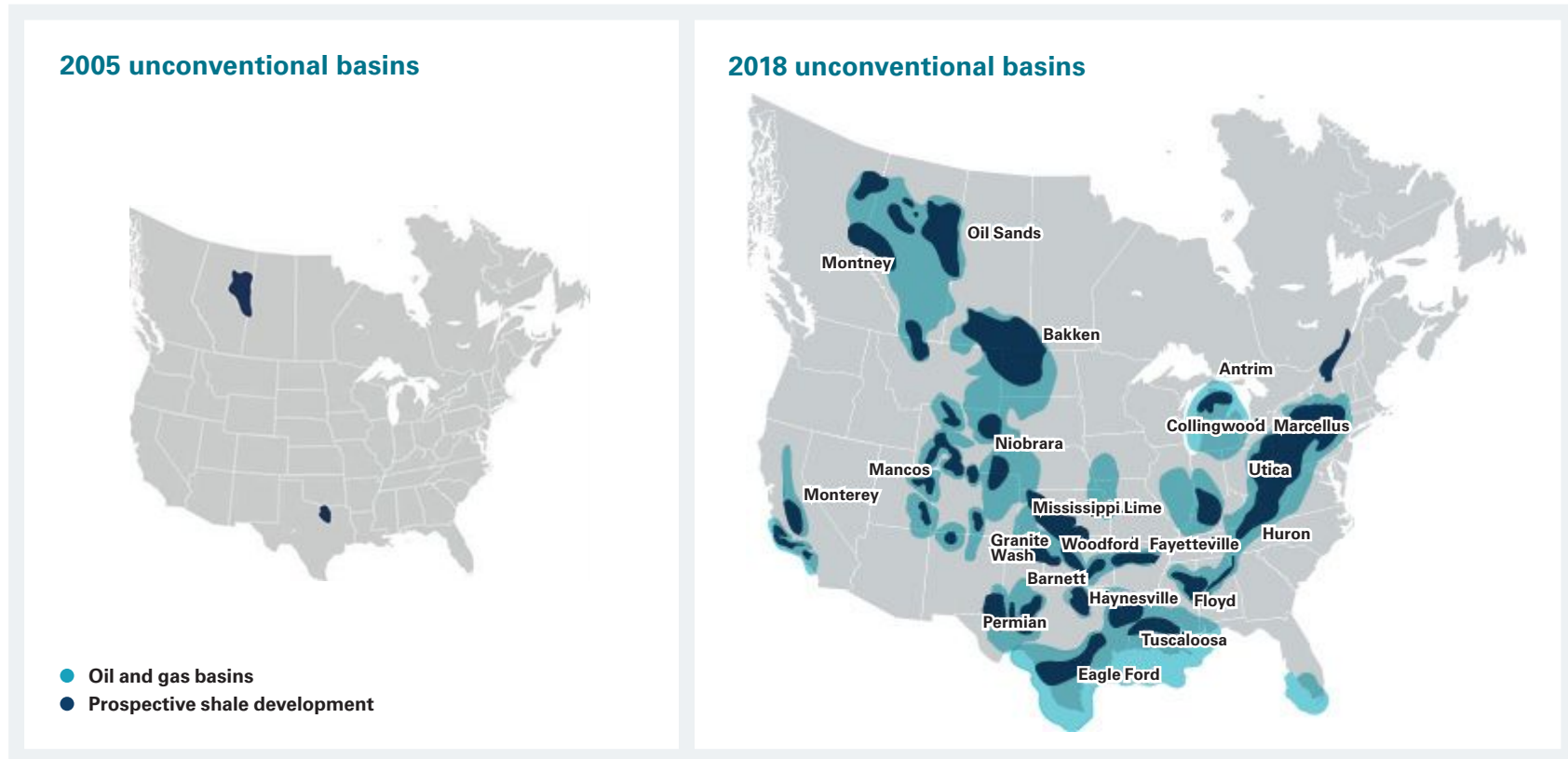
- Hydraulic fracturing
- Horizontal drilling

New technological advancements are increasing recoveries while lowering costs

- 3D reservoir modeling
- Geosteering



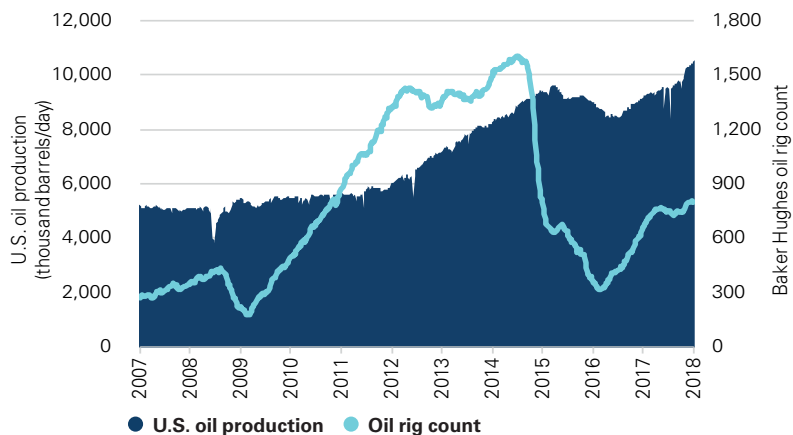
Evolving North American energy landscape



Source: Tortoise

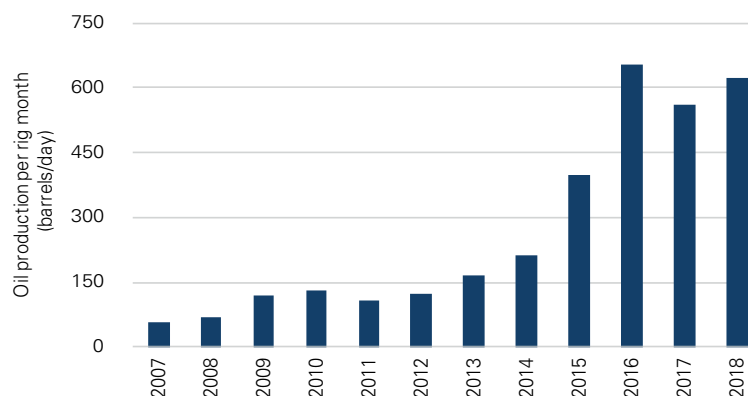
Technology and efficiency have increased production

U.S. oil production has grown despite falling rig count



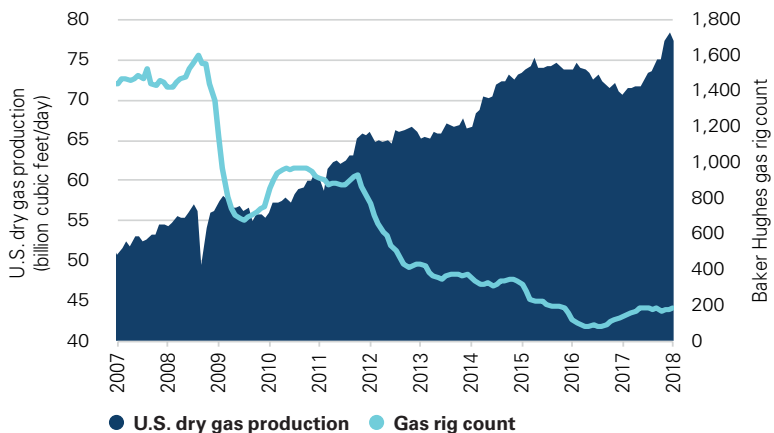
Source: Baker Hughes and Bloomberg as of 4/6/2018

Oil rig efficiency has increased since 2007



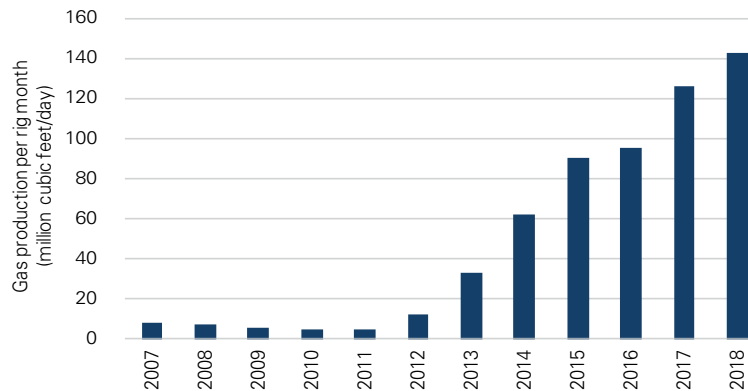
Source: EIA as of 4/16/2018

U.S. dry gas production has grown despite falling rig count



Source: Baker Hughes and Bloomberg as of 1/31/2018

Gas rig efficiency has increased since 2007

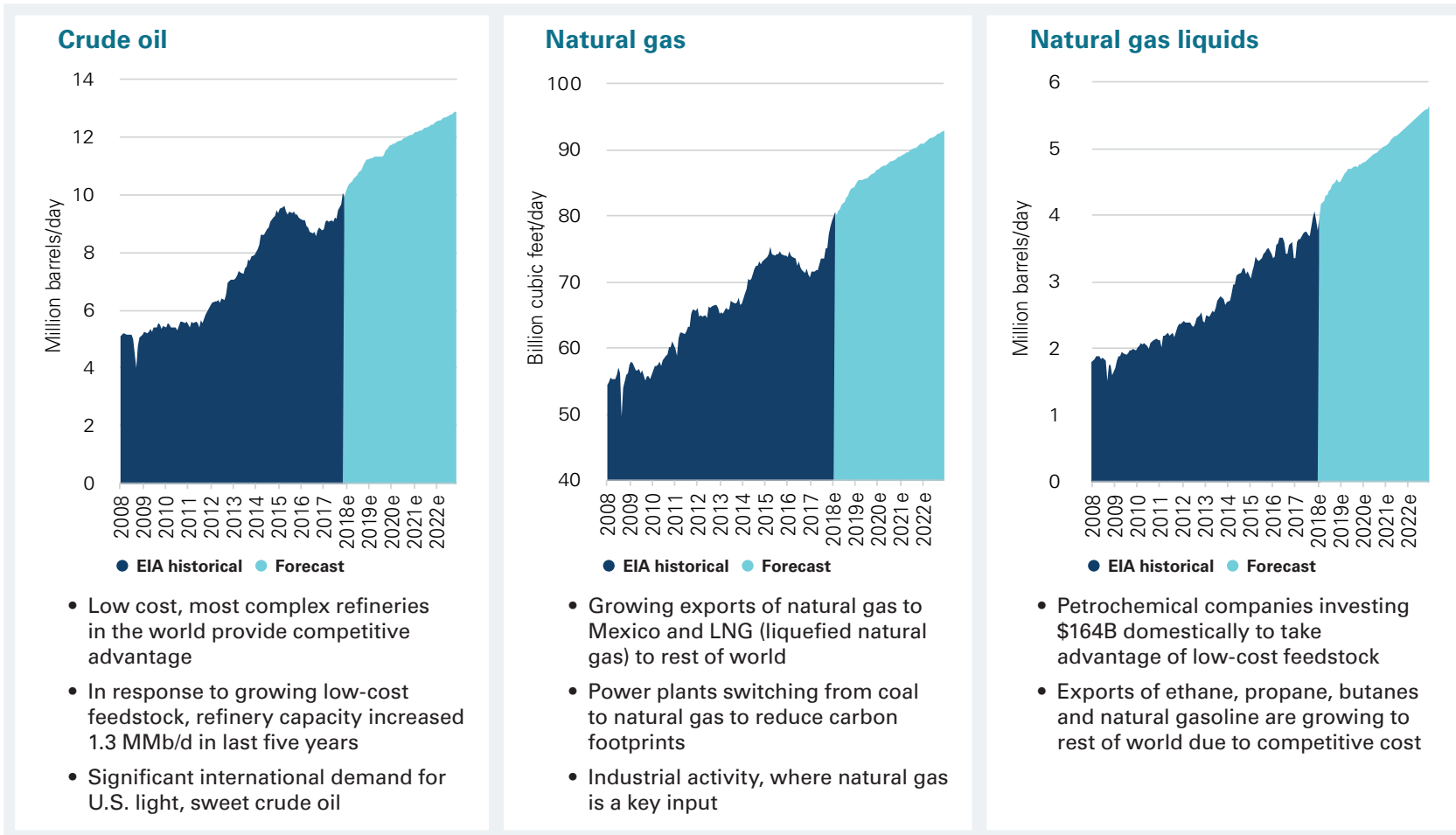


Source: EIA as of 4/16/2018



U.S. production outlook

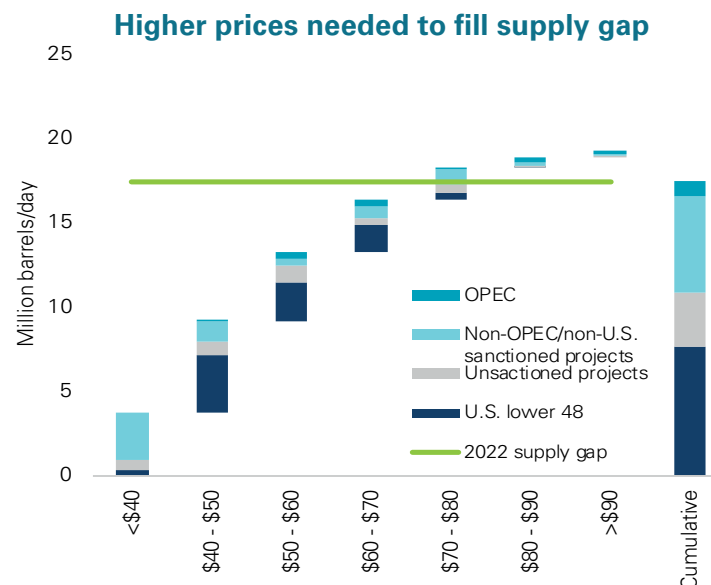
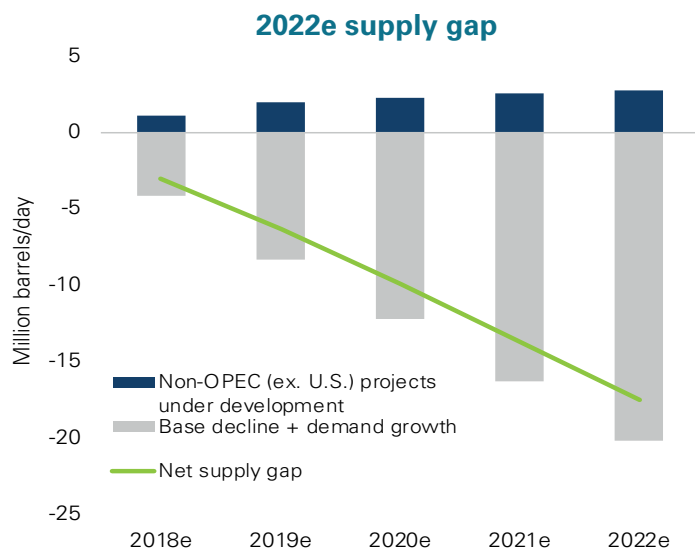
Production growth expected to continue at a strong pace for the next five years



Source: BTU Analytics, EIA STEO (April 2018), EPD, IHS, Tortoise estimates, Tudor Pickering and Wood Mackenzie as of 3/31/2018
 The projections on this page are based on industry estimates and are no guarantee of future outcomes.



U.S. shale and OPEC needed to fill the oil supply gap



- Market is focusing on short-term news regarding elevated inventory balances, while ignoring potential medium-term supply gap in our view
 - Global investment in upstream production, ex. U.S., has declined for three consecutive years, leaving global production declines and is expected to limit supply growth beyond 2018
 - Output at older fields, which make up nearly 1/3 of global production fell by 5.7% in 2016, the most since 1992
- Demand growth is expected to remain strong in 2018 with growth of approximately 1.6 million barrels/day

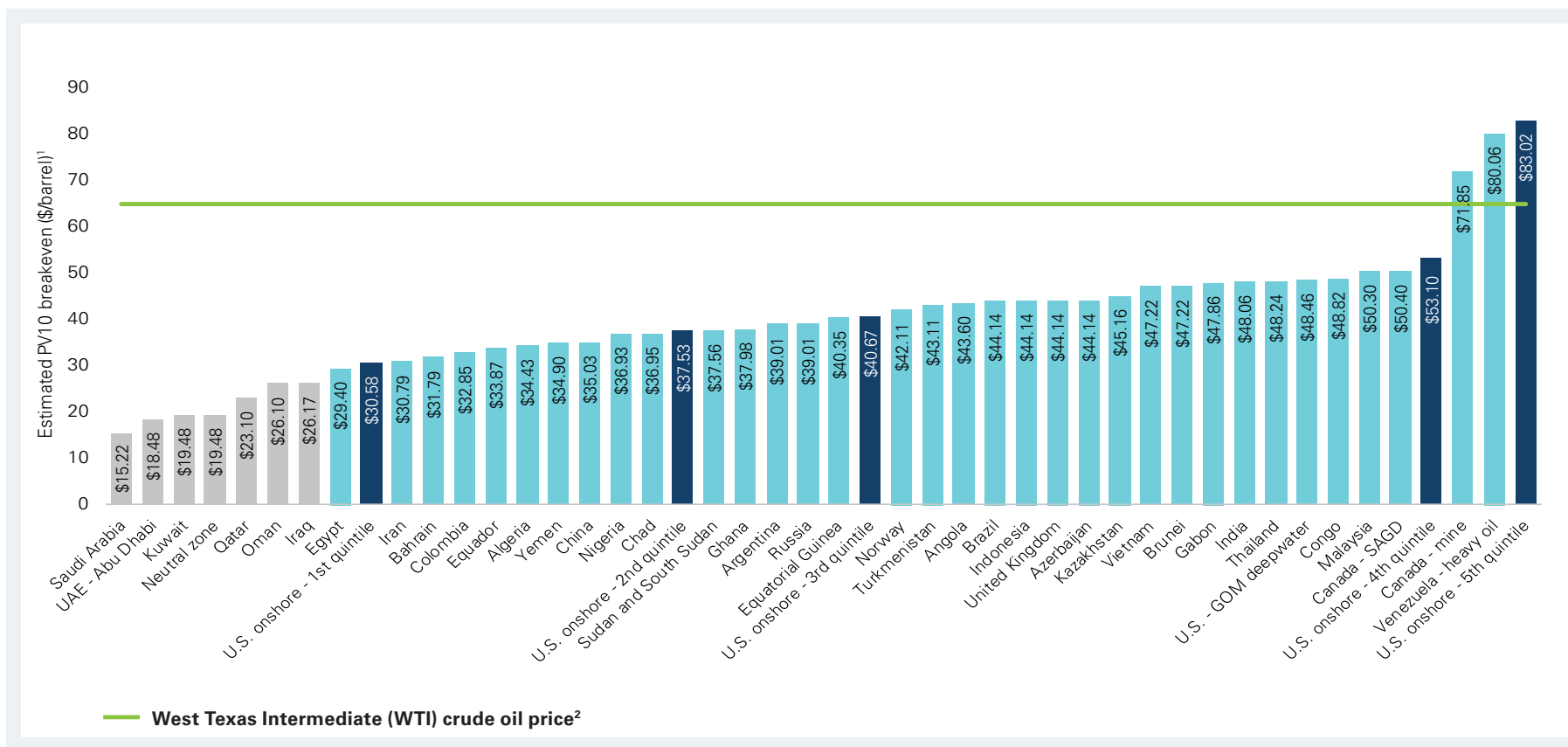
- We think global markets are likely to become increasingly dependent on U.S. supply
 - Can help meet demand growth in the short term as shale opportunity remains among the lowest cost on the global dispatch curve
 - Potential to meet approximately 20% of global petroleum demand by 2022
- Higher prices will likely be required to incent investment in non-U.S. projects needed to meet global petroleum demand into next decade
- Based on current environment, U.S. has ability to add material incremental production with oil prices between \$40 - \$70



Source: Bloomberg, EPD, IHS, OPEC and Wood Mackenzie (June 2017) as of 3/31/2018

Shale competitive globally

Short cycle nature of shale production benefits U.S. producers, attracting investment dollars from long lead time projects elsewhere



Source: ¹IHS as of 10/4/2017, ²Bloomberg as of 3/31/2018
 Quintiles measure well production in the U.S. from most to least productive.

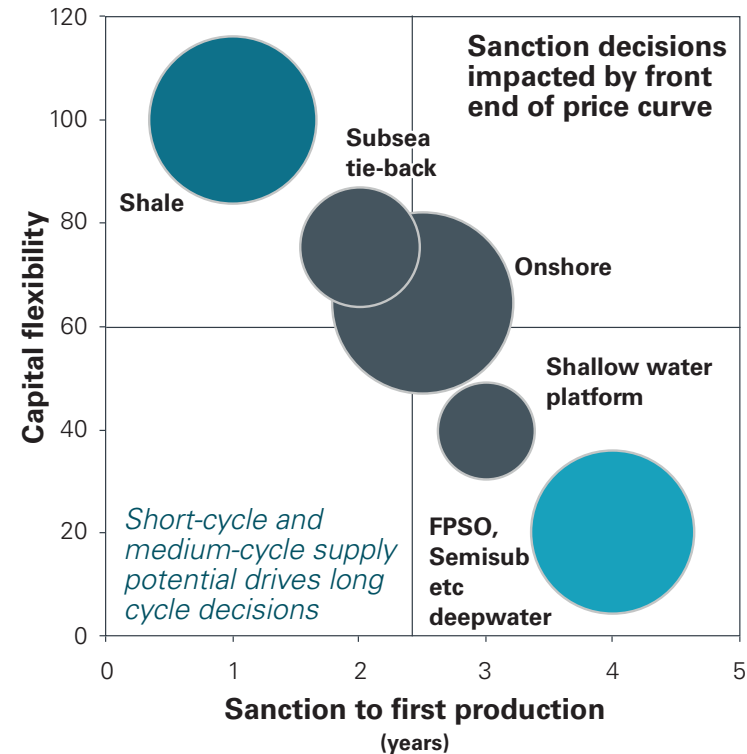


U.S. shifting down the global dispatch curve

Shale is moving down the global dispatch curve as it crowds out other sources of production

- U.S. is shifting from marginal to primary global supplier
- Onshore North American drilling offers:
 - Faster production
 - Increased capital flexibility
 - Reduced risk due to high certainty of supply
 - Enhanced technological development over time
 - Surety of law
- Shale is causing delay or cancellation of long-dated projects such as offshore exploration

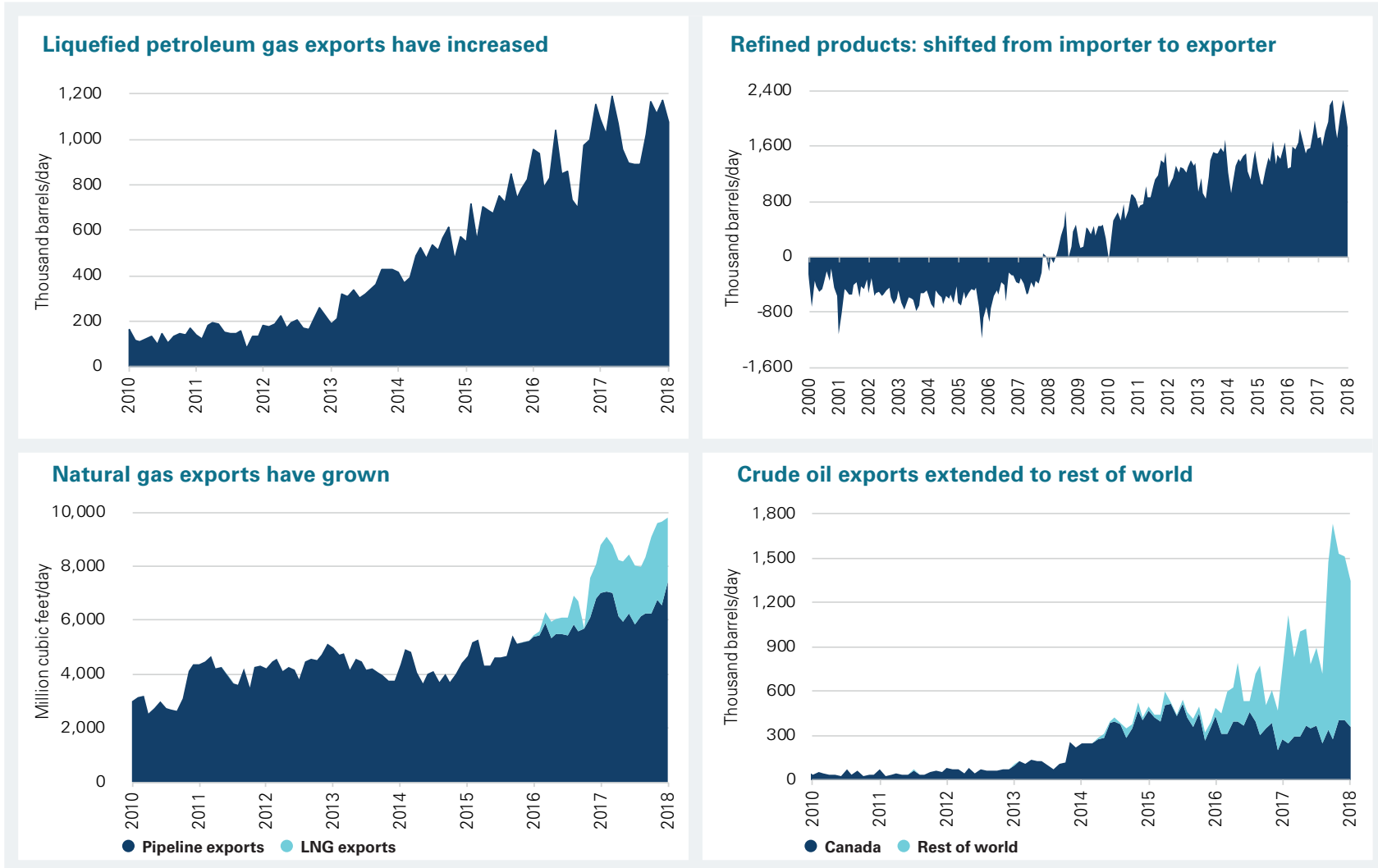
Capital flexibility and project cycle times



Source: IHS Markit

Bubble size represents projected unsanctioned volumes through 2023. Capital flexibility = least to most flexible. FPSO = floating production storage and offloading.

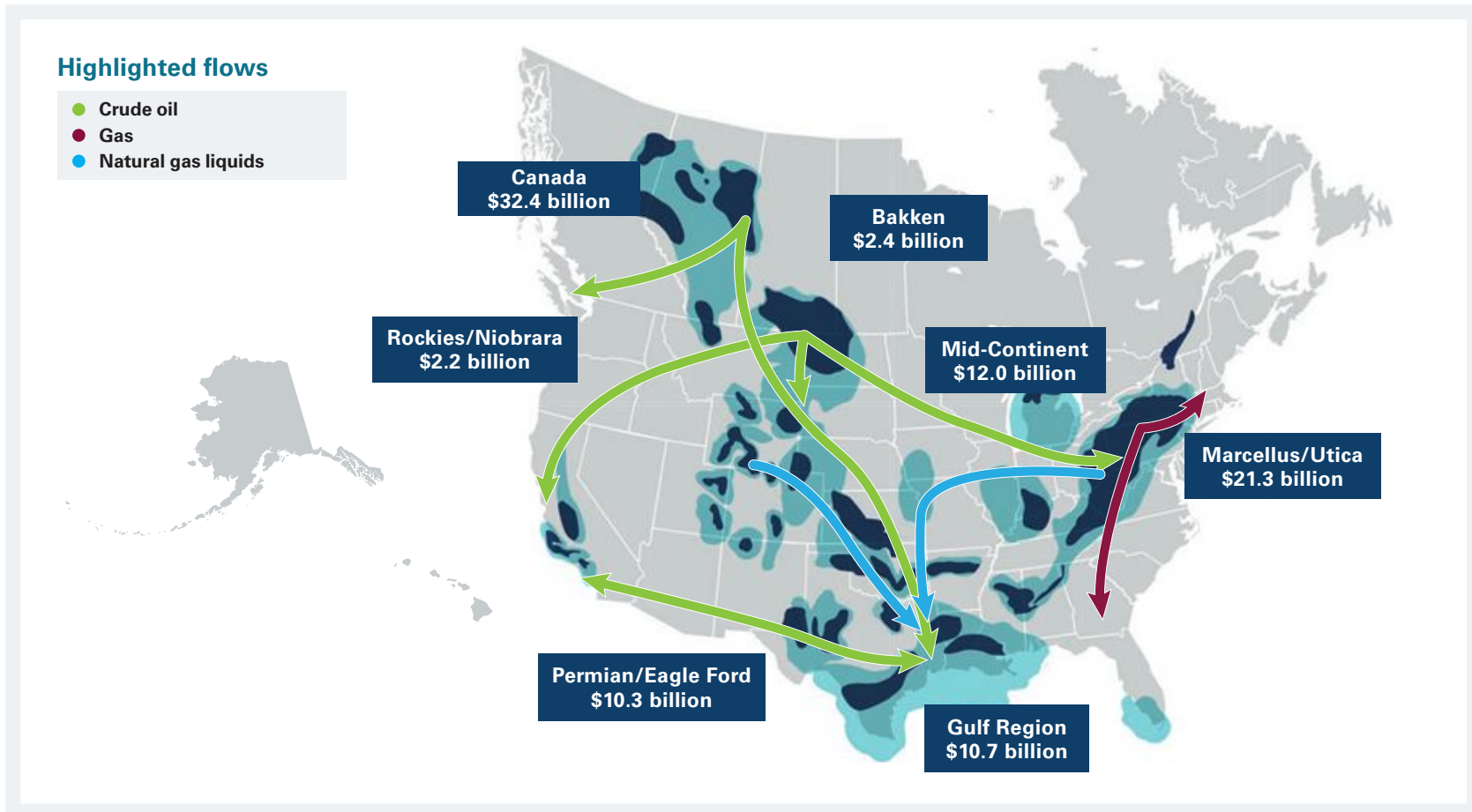
U.S. transition to a global exporter



Source: EIA (April 2018) as of 1/15/2018

Infrastructure growth initiatives 2018e - 2020e

Approximately \$117 billion in pipeline and related projects



Source: company filings and Tortoise estimates as of 3/31/2018

Note: Total capital investment also includes miscellaneous other projects totaling approximately \$26 billion. The projections on this page are based on industry estimates and are no guarantee of future outcomes.

GIPS[®] standards compliant presentation

Tortoise Midstream MLP Composite – January 1, 2008 through March 31, 2018

Period Ended	Total Return (Gross)	Benchmark Return	Composite 3 Year Std Dev	Benchmark 3 Year Std Dev	Composite Dispersion	Composite Ending Value (millions)	Ending Number of Portfolios	Total Firm Net Assets End of Period (millions)	Total Firm Gross Assets End of Period (millions)	Percentage of Bundled Fee Accounts
12/31/08	-37.22%	-38.61%	18.16%	19.09%	1.23%	\$217	190	\$947	\$1,440	1%
12/31/09	84.46%	77.91%	22.91%	24.09%	2.70%	\$659	245	\$2,354	\$2,830	1%
12/31/10	33.25%	37.71%	22.61%	24.05%	0.70%	\$1,145	376	\$5,268	\$6,119	2%
12/31/11	16.92%	13.73%	16.34%	17.69%	0.39%	\$1,602	456	\$6,590	\$7,593	3%
12/31/12	8.67%	5.43%	12.38%	13.48%	0.26%	\$2,042	572	\$8,121	\$9,206	3%
12/31/13	36.46%	30.16%	12.72%	13.26%	0.53%	\$3,386	776	\$12,931	\$14,189	5%
12/31/14	17.54%	8.12%	13.28%	13.59%	0.51%	\$4,117	885	\$15,667	\$17,306	7%
12/31/15	-26.77%	-31.90%	18.64%	18.80%	0.51%	\$3,755	833	\$11,791	\$13,213	6%
12/31/16	16.21%	23.50%	20.02%	21.32%	0.88%	\$4,694	881	\$14,884	\$16,227	7%
12/31/17	-2.80%	-6.00%	19.06%	20.22%	0.35%	\$4,237	701	\$14,578	\$15,897	8%
YTD 3/31/18	-10.57%	-11.10%	19.96%	21.28%	0.19%	\$3,791	858	\$12,864	\$14,171	8%

Tortoise Capital Advisors, L.L.C. claims compliance with the Global Investment Performance Standards (GIPS[®]) and has prepared and presented this report in compliance with the GIPS standards. Tortoise has been independently verified for the periods 2/1/03-12/31/17. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Tortoise Midstream MLP Composite has been examined for the periods 2/1/03-12/31/17. The verification and performance examination reports are available upon request.

Performance Disclosures

- Tortoise Capital Advisors, L.L.C. ("Tortoise") is a registered investment advisor established in 2002 specializing in listed energy investing. Tortoise manages assets for institutional and individual investors.
- The Tortoise Midstream MLP Composite (the "Composite") is a composite of Tortoise managed accounts focused on investments in publicly traded Master Limited Partnerships predominately comprised of U.S. energy infrastructure assets. A complete list of Tortoise performance composites is available upon request.
- The creation and inception date for the Composite is 2/1/03; therefore, the period ended 12/31/03 includes 2/1/03 through 12/31/03 (eleven months).
- Valuations are computed and stated in U.S. dollars.
- The Composite includes all fee-paying, discretionary, similarly managed accounts starting with the first full month under management, including accounts no longer managed by the firm.
- Performance is reported as a total rate of return, reflecting reinvested dividends and income. Performance is size weighted and is calculated using time weighted monthly returns for periods prior to 6/30/09. Periods after 6/30/09 are calculated using daily returns.
- The ex-post risk measurement shown is the three year annualized standard deviation of monthly returns for both the Composite and the Index as of each year end if a full 36 months of trailing data is available.
- Composite dispersion is measured by asset weighted standard deviation of returns for accounts managed for the full year.
- Composite returns for periods prior to 12/31/04 are calculated based on dividend distribution pay dates. For periods after 12/31/04 returns are calculated using accruals for distributions based on distribution ex-dates.
- The Composite does not include leverage; however, total firm assets are presented both gross and net of leverage with gross of leverage numbers added as supplemental information to the compliant presentation. Our ADV reflects gross of leverage numbers per regulatory requirements.
- Results are presented before management fees. Client returns will be reduced by advisory fees and other expenses incurred as a client. Tortoise's standard fee is 75 basis points of the market value of assets annually. The compounding effect of advisory fees would reduce annualized returns by approximately 82 basis points at 10% total annual return. Such impact would vary with rates of portfolio returns. Fees may be lower for older accounts with grandfathered fees or for accounts with negotiated fees based on size of account and the nature and level of services provided by Tortoise. See Part II of Tortoise's Form ADV for additional fee disclosures.
- Bundled fees include advisory, trading, custody and other service fees.
- The portfolio returns have been compared to the Tortoise MLP Total Return Index (the "Index") as a benchmark. The Index is a float-adjusted, capitalization weighted index of energy master limited partnerships. The Index has a 7.5% cap on any one constituent at the time it is rebalanced. Standard & Poor's Custom Indices independently calculates the Index which is rebalanced quarterly. The benchmark returns are not covered by independent verifiers. The benchmark was changed to the Index from the Atlantic Asset Management MLP Energy Index as of 1/1/10 when Atlantic discontinued publication of their index. The returns prior to 1/1/10 for the Index are not materially different from the Atlantic Index.
- Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.
- Consultants may provide Tortoise's gross performance results to prospective clients only on a "one-on-one" basis and with the above disclosures.
- Past performance is not indicative of future results.

GIPS® standards compliant presentation

Tortoise Midstream MLP Exempt Institutions Composite – January 1, 2010 through March 31, 2018

Period Ended	Total Return (Gross)	Benchmark Return	Composite 3 Year Std Dev	Benchmark 3 Year Std Dev	Composite Dispersion	Composite Ending Value (millions)	Ending Number of Portfolios	Total Firm Net Assets End of Period (millions)	Total Firm Gross Assets End of Period (millions)	Percentage of Bundled Fee Accounts
12/31/10	34.48%	37.71%	NA	NA	0.07%	\$348	10	\$5,268	\$6,119	0%
12/31/11	19.11%	13.73%	NA	NA	0.15%	\$656	15	\$6,590	\$7,593	0%
12/31/12	7.70%	5.43%	12.69%	13.48%	0.15%	\$1,020	25	\$8,121	\$9,206	0%
12/31/13	37.48%	30.16%	12.86%	13.26%	0.31%	\$2,247	32	\$12,931	\$14,189	0%
12/31/14	16.31%	8.12%	13.29%	13.59%	0.32%	\$3,075	39	\$15,667	\$17,306	0%
12/31/15	-26.87%	-31.90%	18.68%	18.80%	0.44%	\$2,936	42	\$11,791	\$13,213	0%
12/31/16	15.88%	23.50%	20.05%	21.32%	0.82%	\$3,312	45	\$14,884	\$16,227	0%
12/31/17	-2.78%	-6.00%	19.18%	20.22%	0.19%	\$2,837	45	\$14,578	\$15,897	0%
YTD 3/31/18	-9.66%	-11.10%	20.01%	21.28%	0.09%	\$2,603	46	\$12,864	\$14,171	0%

Tortoise Capital Advisors, L.L.C. claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Tortoise has been independently verified for the periods 2/1/03-12/31/17. The verification reports are available upon request. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

Performance Disclosures

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- The Tortoise Midstream MLP Exempt Institutions Composite (the "Composite") is a composite of Tortoise managed institutional separate accounts focused on investments in publicly traded Master Limited Partnerships predominately comprised of U.S. energy infrastructure assets. The accounts included in the Composite are considered ineligible unitholders by certain MLPs, and therefore, cannot own these MLPs. A complete list of Tortoise performance composites is available upon request.
- The Composite creation date is 3/31/10 and inception is 1/1/10.
- Valuations are computed and stated in U.S. dollars.
- The Composite includes all fee-paying, discretionary, similarly managed accounts starting with the first full month under management, including accounts no longer managed by the firm.
- Performance is reported as a total rate of return, reflecting reinvested dividends and income. Performance is size weighted and is calculated using daily returns.
- The three-year annualized ex-post standard deviation measures the variability of the gross composite returns and the benchmark returns over the preceding 36-month period. It is not required to be presented for annual periods ended prior to 2011 or when the composite does not yet have 36 monthly returns.
- Composite dispersion is measured by asset weighted standard deviation of returns for accounts managed for the full year.
- The Composite does not include leverage; however, total firm assets are presented both gross and net of leverage with gross of leverage numbers added as supplemental information to the compliant presentation. Our ADV reflects gross of leverage numbers per regulatory requirements.
- Results are presented before management fees. Client returns will be reduced by advisory fees and other expenses incurred as a client. Tortoise's standard fee is 75 basis points of the market value of assets annually. The compounding effect of advisory fees would reduce annualized returns by approximately 82 basis points at 10% total annual return. Such impact would vary with rates of portfolio returns. Fees may be lower for older accounts with grandfathered fees or for accounts with negotiated fees based on size of account and the nature and level of services provided by Tortoise. See Part II of Tortoise's Form ADV for additional fee disclosures.
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- Consultants may provide Tortoise's gross performance results to prospective clients only on a "one-on-one" basis and with the above disclosures.
- Past performance is not indicative of future results.

Important disclosures

This presentation contains certain forward-looking statements. These forward-looking statements include all statements regarding the intent, belief or current expectations regarding matters covered and all statements which are not statements of historical fact. The forward-looking statements involve known and unknown risk, uncertainties, contingencies and other factors, many of which are beyond our control. Since these factors can cause results, performance and achievements to differ materially from those discussed in the presentation, you are cautioned not to place undue reliance on the forward-looking statements. This presentation is updated through April 30, 2018 unless otherwise noted.

Master limited partnerships (MLPs) are subject to many risks, including those that differ from the risks involved in an investment in the common stock of a corporation. Holders of MLP units have limited control and voting rights on matters affecting the partnership. Holders of units issued by an MLP are exposed to a remote possibility of liability for all of the obligations of that MLP in the event that a court determines that the rights of the holders of MLP units to vote to remove or replace the general partner of that MLP, to approve amendments to that MLP's partnership agreement, or to take other action under the partnership agreement of that MLP would constitute "control" of the business of that MLP, or a court or governmental agency determines that the MLP is conducting business in a state without complying with the partnership statute of that state. Holders of MLP units are also exposed to the risk that they will be required to repay amounts to the MLP that are wrongfully distributed to them. In addition, the value of the investment in an MLP will depend largely on the MLP's treatment as a partnership for U.S. federal income tax purposes. If an MLP does not meet current legal requirements to maintain partnership status, or if it is unable to do so because of tax law changes, it would be treated as a corporation for U.S. federal income tax purposes. In that case, the MLP would be obligated to pay income tax at the entity level and distributions received generally would be taxed as dividend income. Furthermore, MLP interests may not be as liquid as other more commonly traded equity securities.

****From page 6: Upon close of the transaction, Zach Hamel, Ken Malvey and Terry Matlack sold their remaining stakes in Tortoise and are no longer members of the investment committee. The investment committee is now comprised of Kevin Birzer, Brian Kessens, James Mick, Matt Sallee and Rob Thummel. The investment committee continues to provide investment strategy oversight to the portfolio team who implements the strategy.***

Index information: The Tortoise MLP Index[®] is a float-adjusted, capitalization-weighted index of energy MLPs. To be eligible for inclusion in the Tortoise MLP Index[®], a company must be publicly traded, organized as a limited partnership or a limited liability company (LLC), and be classified as an "energy MLP" by the Master Limited Partnership Association (MLPA). Tortoise MLP Index[®] (the "Index") is the exclusive property of Tortoise Index Solutions, LLC, which has contracted with S&P Opco, LLC (a subsidiary of S&P Dow Jones Indices LLC) to calculate and maintain the Index. The Index is not sponsored by S&P Dow Jones Indices or its affiliates or its third party licensors (collectively, "S&P Dow Jones Indices"). S&P Dow Jones Indices will not be liable for any errors or omission in calculating the Index. "Calculated by S&P Dow Jones Indices" and its related stylized mark(s) are service marks of S&P Dow Jones Indices and have been licensed for use by Tortoise Index Solutions, LLC and its affiliates. S&P[®] is a registered trademark of Standard & Poor's Financial Services LLC ("SPFS"), and Dow Jones[®] is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"). It is not possible to invest directly in an index. Index returns and yields shown are presented before management fees and other expenses of Tortoise advisory products and services. Clients or investors in Tortoise products and services will experience returns and yields reduced by advisory fees and other product expenses.

Past performance is no guarantee of future results.



www.tortoiseadvisors.com



Board Presentation

May 21, 2018

One Glendinning Place
Westport, CT 06880
(203) 226-3030
www.bridgewater.com

BRIDGEWATER REPRESENTATIVES



Pam Tholen – Client Advisor

Pam Tholen joined Bridgewater in 2016 as a Client Advisor. Previously, she was with KKR & Co., where she served as Head of Investor Relations for KKR Financial Holdings and helped to build KKR's Investor Relations function from the company's debut as a US-listed public entity. She also held fundraising and business development roles within the Private Equity, Credit, and Hedge Fund businesses. Prior to KKR, Pam was with Lehman Brothers' Investment Banking Division in its Communications and Media Mergers & Acquisitions group. Pam holds an AB in Politics and a Certificate in French from Princeton University.



Patrick Dimick – Senior Portfolio Strategist

Patrick is a Senior Portfolio Strategist at Bridgewater. He is a senior member of the research group with expertise in economics, portfolio structuring and the foreign exchange, interest rate, commodity, and equity markets. Patrick works directly with Bridgewater's CIOs and other senior researchers to continually deepen their understanding of the global financial system, where the dual goal is to turn that understanding into great investment return streams and to provide thought partnership and strategic advice to many of the largest pools of capital in the world. He has been with the firm since 2007. Before joining Bridgewater in 2007, Patrick worked in markets for 17 years with Medley Global Advisors, UBS Investment Bank, and Credit Suisse First Boston. He received a B.A. in Economics (1989) and an M.A. in International Economics and Finance (1990) from Brandeis University.

AGENDA

- I. Bridgewater Overview
- II. Account Review
- III. Global Outlook

I. Bridgewater Overview

BRIDGEWATER OVERVIEW

- ◆ Institutional investment manager
- ◆ Founded in 1975
- ◆ Deep fundamental understanding of markets
- ◆ Built around the principle of separating alpha and beta
 - Managing Pure Alpha accounts for 27 years
 - Managing All Weather accounts for 22 years
 - Launched Optimal Portfolio in 2015
- ◆ Manage approximately \$164 billion in assets
 - \$87bln in Pure Alpha strategies*
 - \$52bln in All Weather strategy
 - \$25bln in Optimal Portfolio strategy
- ◆ Employee controlled

Figures estimated as of April 2018.

* \$87bln is equivalent to \$103bln in 12% return-adjusted terms or equivalent to \$68bln in 18% return-adjusted terms
Please review the "Important Disclosures and Other Information" located at the end of this presentation.

II. Account Review

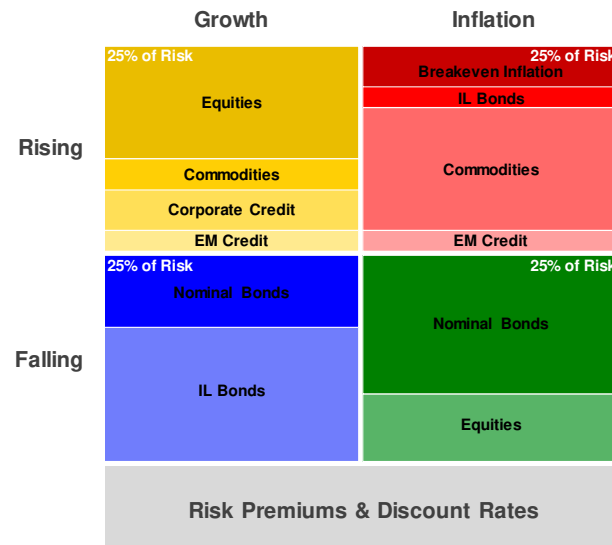
ALL WEATHER MANDATE SUMMARY

Investment Philosophy: Fundamental, Systematic, Diversified.

Strategy Overview: Bridgewater's optimal beta portfolio, designed to produce the highest return-to-risk ratio for a strategic asset mix.

Approach: Collect the risk premium embedded across assets by balancing risk across asset classes with opposing sensitivities to shifts in the economic environment.

Size: \$314 million.



Note: AUM is estimated as of May 7, 2018.
Please review the "Important Disclosures and Other Information" located at the end of this presentation.

PERFORMANCE SUMMARY

Net of Fees Performance Summary

	Excess	+ Return on Cash	= Total Return
1996	17.2 %	3.1 %	20.4 %
1997	9.4 %	5.6 %	15.0 %
1998	-7.3 %	5.5 %	-1.8 %
1999	10.5 %	5.1 %	15.6 %
2000	3.6 %	6.3 %	9.9 %
2001	-9.8 %	3.8 %	-6.0 %
2002	8.5 %	1.7 %	10.2 %
2003	15.6 %	1.1 %	16.7 %
2004	16.3 %	1.4 %	17.7 %
2005	12.2 %	3.3 %	15.5 %
2006	-3.9 %	5.0 %	1.2 %
2007	6.8 %	5.0 %	11.8 %
2008	-22.0 %	1.9 %	-20.2 %
2009	9.2 %	0.2 %	9.4 %
2010	17.5 %	0.1 %	17.6 %
2011	18.0 %	0.1 %	18.1 %
2012	14.5 %	0.2 %	14.7 %
2013	-4.0 % / 1.9 %*	0.1 % / 0.0 %*	-3.9 % / 2.0 %*
2014	7.5 %	0.1 %	7.6 %
2015	-6.8 %	0.0 %	-6.8 %
2016	9.8 %	0.2 %	10.0 %
2017	11.1 %	0.8 %	11.9 %
2018 YTD	-0.9 %	0.5 %	-0.5 %

Bridgewater All Weather Strategy

Jun 1996 - Apr 2018 Net Total	
Cumulative Return	423.9%
Annual Return	7.8%
Annual StDev	9.9%

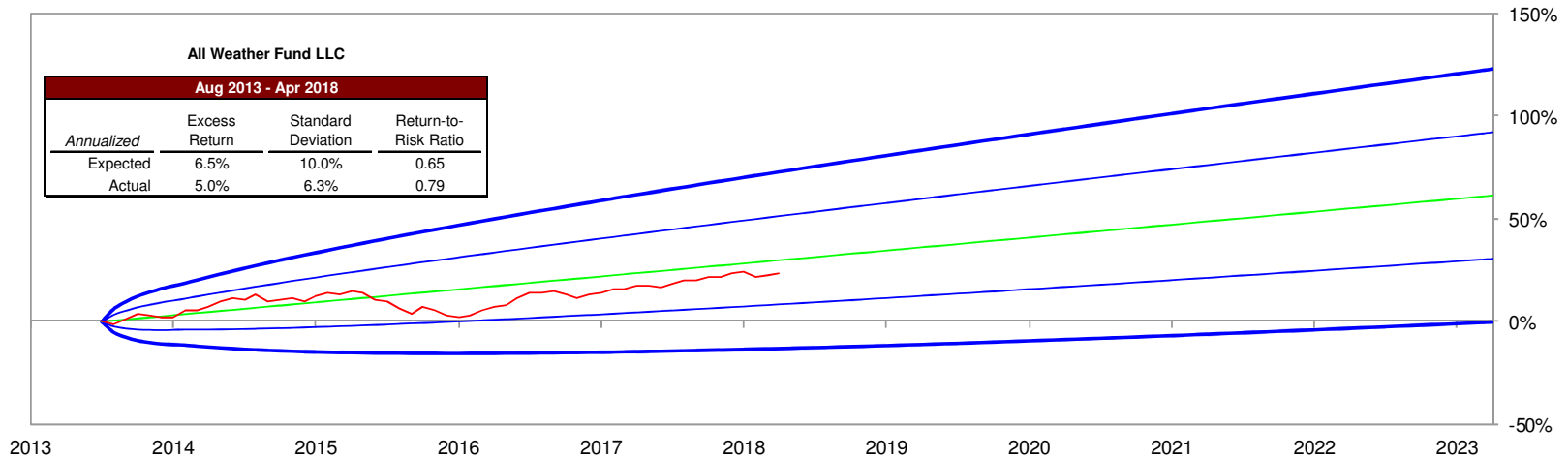
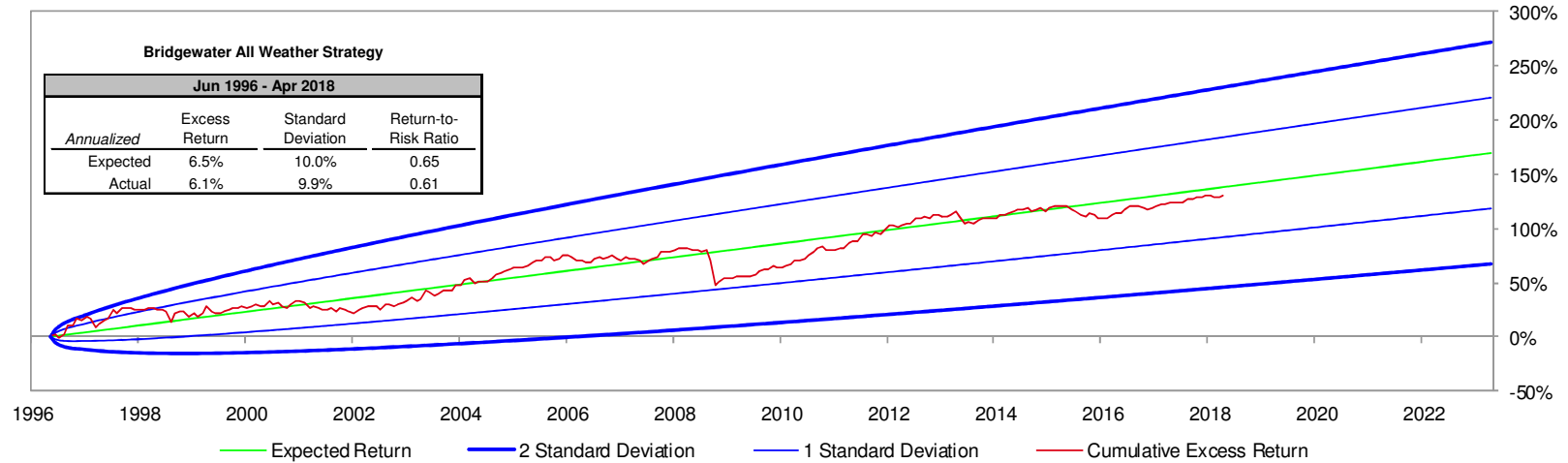
Ventura County Employees' Retirement
Association

Aug 2013 - Apr 2018 Net Total	
Last 1 Year	6.8%
Last 2 Years (ann)	8.4%
Last 3 Years (ann)	2.8%
Cumulative Return	25.2%
Annual Return	4.8%
Annual StDev	6.3%

Performance is estimated through April 30, 2018. Inception of the mandate was August 2013. Inception of the strategy was June 1996. Standard deviation is calculated using gross of fees excess returns.
 *Performance is shown for the full year for the All Weather Strategy (black text), and for the partial year for the client's specific account (bold red text). Summary statistics for the All Weather Strategy are based on the full history of the strategy, and may differ from the performance of your specific account or investment.
 PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.
 Please review the "Important Disclosures and Other Information" located at the end of this presentation.

PERFORMANCE VS. EXPECTATIONS

Gross Cumulative Excess Return vs. Expectations (In)

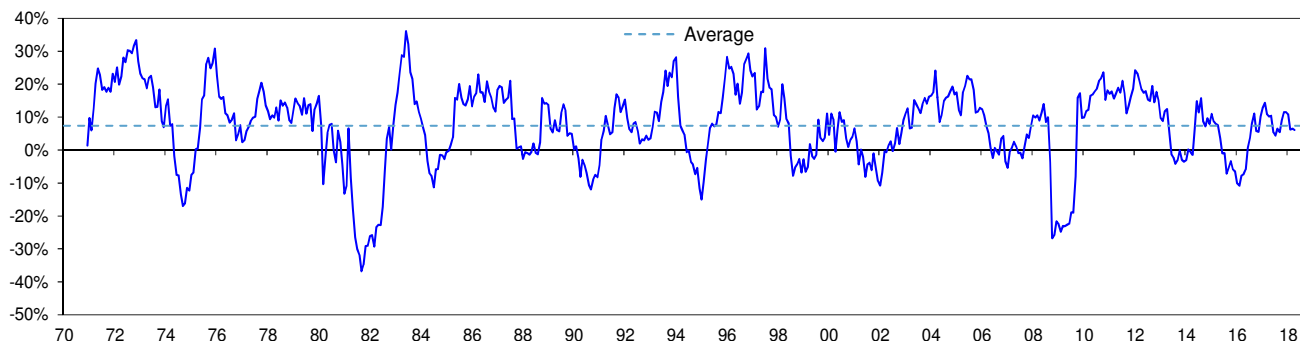


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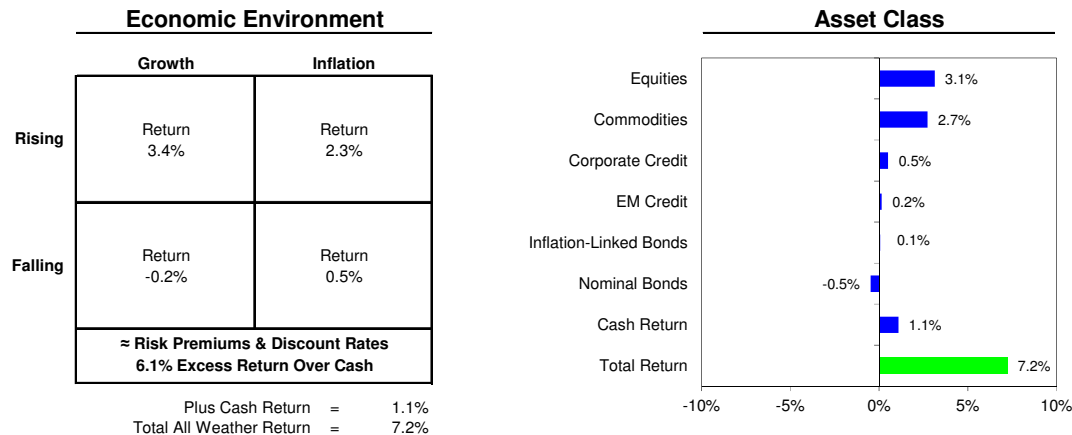
ALL WEATHER PERFORMANCE: TRAILING ONE YEAR

All Weather Strategy Rolling One Year Excess Return (Gross of Fees)

(Returns Simulated Prior to June 1996)



Trailing One Year Gross Attribution (May 2017 - April 2018)



Please note the returns shown for All Weather are simulated prior to June 1996 using the All Weather Strategy Simulation (see All Weather Strategy Simulation Disclosure). It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

Appendix

ALL WEATHER PERFORMANCE: **HISTORICAL ANNUAL ROLLING NET RETURNS**

	Annual Return		3 Year		5 Year		7 Year		10 Year	
	Excess	Cash	Excess	Cash	Excess	Cash	Excess	Cash	Excess	Cash
1996	17.2%	3.1%	--	--	--	--	--	--	--	--
1997	9.4%	5.6%	--	--	--	--	--	--	--	--
1998	-7.3%	5.5%	--	--	--	--	--	--	--	--
1999	10.5%	5.1%	3.9%	5.4%	--	--	--	--	--	--
2000	3.6%	6.3%	2.0%	5.6%	--	--	--	--	--	--
2001	-9.8%	3.8%	1.0%	5.1%	0.9%	5.3%	--	--	--	--
2002	8.5%	1.7%	0.5%	3.9%	0.8%	4.5%	--	--	--	--
2003	15.6%	1.1%	4.3%	2.2%	5.4%	3.6%	4.0%	4.1%	--	--
2004	16.3%	1.4%	13.4%	1.4%	6.5%	2.8%	5.0%	3.5%	--	--
2005	12.2%	3.3%	14.7%	1.9%	8.2%	2.2%	7.9%	3.2%	--	--
2006	-3.9%	5.0%	8.0%	3.2%	9.6%	2.5%	5.8%	3.2%	5.2%	3.9%
2007	6.8%	5.0%	4.9%	4.4%	9.3%	3.1%	6.2%	3.0%	5.0%	3.8%
2008	-22.0%	1.9%	-7.3%	3.9%	0.9%	3.3%	4.0%	2.7%	3.1%	3.4%
2009	9.2%	0.2%	-3.1%	2.3%	-0.4%	3.0%	4.1%	2.5%	3.0%	2.9%
2010	17.5%	0.1%	0.2%	0.7%	0.6%	2.4%	4.4%	2.4%	4.4%	2.3%
2011	18.0%	0.1%	14.8%	0.1%	4.9%	1.4%	4.6%	2.2%	7.2%	1.9%
2012	14.5%	0.2%	16.7%	0.1%	6.4%	0.5%	4.9%	1.7%	7.8%	1.8%
2013	-4.0%	0.1%	9.1%	0.1%	10.7%	0.1%	4.9%	1.0%	5.8%	1.7%
2014	7.4%	0.1%	5.7%	0.1%	10.4%	0.1%	4.9%	0.4%	4.9%	1.6%
2015	-7.0%	0.0%	-1.4%	0.1%	5.3%	0.1%	7.5%	0.1%	3.0%	1.2%
2016	9.7%	0.2%	3.1%	0.1%	3.8%	0.1%	7.6%	0.1%	4.3%	0.8%
2017	11.0%	0.8%	4.2%	0.3%	3.1%	0.2%	6.7%	0.2%	4.7%	0.4%
2018 YTD	-1.0%	0.5%	--	--	--	--	--	--	--	--
Periods of Outperformance*	71%		84%		94%		100%		100%	

Performance is estimated through April 30, 2018. Inception of the strategy was June 1996.

Rolling returns greater than one year are annualized. *Periods of outperformance are only calculated for full periods (1997-2017) and are based on total return outperforming cash.

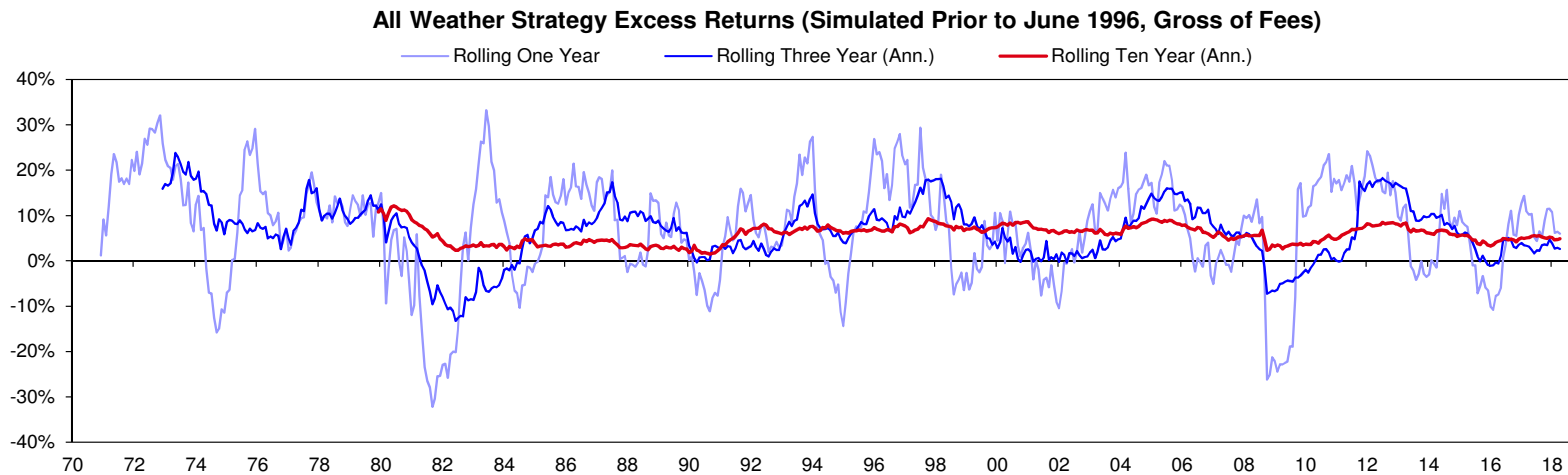
PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

Please review the "Important Disclosures and Other Information" located at the end of this presentation.

ALL WEATHER PERFORMANCE DRIVEN BY THE RELATIVE ATTRACTIVENESS OF CASH VS. ASSETS

- ◆ Shifts in the relative attractiveness of cash vs. assets result from:
 - Changes in the expected return of cash based on actual or discounted central bank action;
 - Changes in the risk premium above cash that investors demand as compensation for parting with their cash.

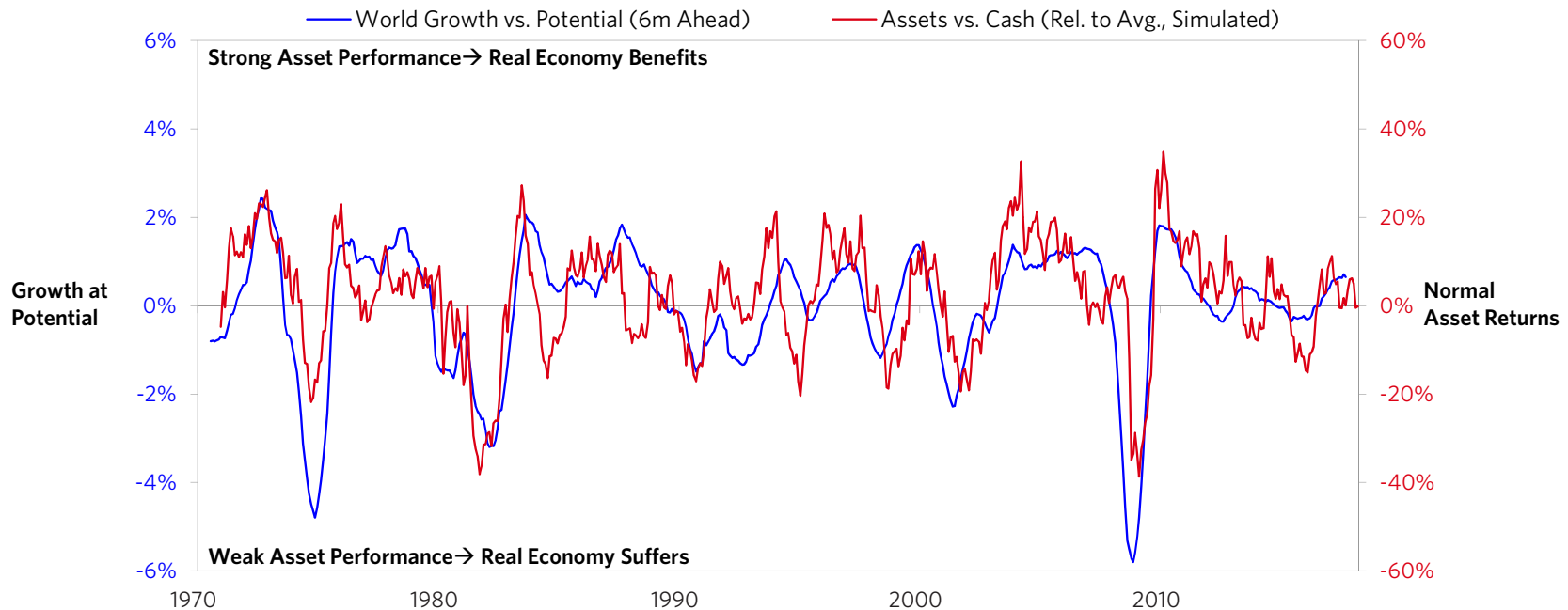
- ◆ The ups and downs of All Weather’s returns in the short-term normalize over longer periods as investors must be compensated for taking risk.



Returns are shown through April 2018. Please note the returns shown for All Weather are simulated prior to June 1996 using the All Weather Strategy Simulation (see All Weather Strategy Simulation Disclosure). It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

WHEN CASH OUTPERFORMS ASSETS, ECONOMIES WEAKEN, CENTRAL BANKS LOOK TO EASE IF THEY CAN

- ◆ When a well-diversified mix of assets underperforms cash:
 - There is a negative wealth effect and negative incentives to invest in economic activity.
 - Central banks generally look to ease if they can.



Returns are shown through March 2018. Please note the returns shown for Assets are simulated using the All Weather Asset Mix (see All Weather Asset Mix Disclosure). "World Growth vs. Potential" and "Assets vs. Cash" are shown on a rolling 12-month basis. It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

DRAWDOWNS FOR A BALANCED PORTFOLIO ARE SHORTER-LIVED AND RECOVER FASTER RELATIVE TO CONCENTRATED ONES

<i>Since 1970</i>	All Weather 10% Strategy (Simulated Prior to June 1996)	Global 60/40
All Drawdowns (Average)		
Drawdown	-10%	-13%
Length (Months)	13	31
Recovery (Months)	8	24
5 Deepest Drawdowns (Average)		
Drawdown	-26%	-28%
Length (Months)	35	74
Recovery (Months)	21	59
Worst Drawdown		
Start Date	Oct-79	Jan-73
Drawdown	-39%	-36%
Length (Months)	78	143
Recovery (Months)	46	123

Note: Drawdowns are based on gross of fees excess returns above cash and include drawdowns that are at least three months long. Length of drawdown refers to the time from which a portfolio/asset falls below a high water mark until it recovers back to the high water mark. Recovery refers to the time from which the portfolio/asset reaches the trough until it recovers back to the high water mark.

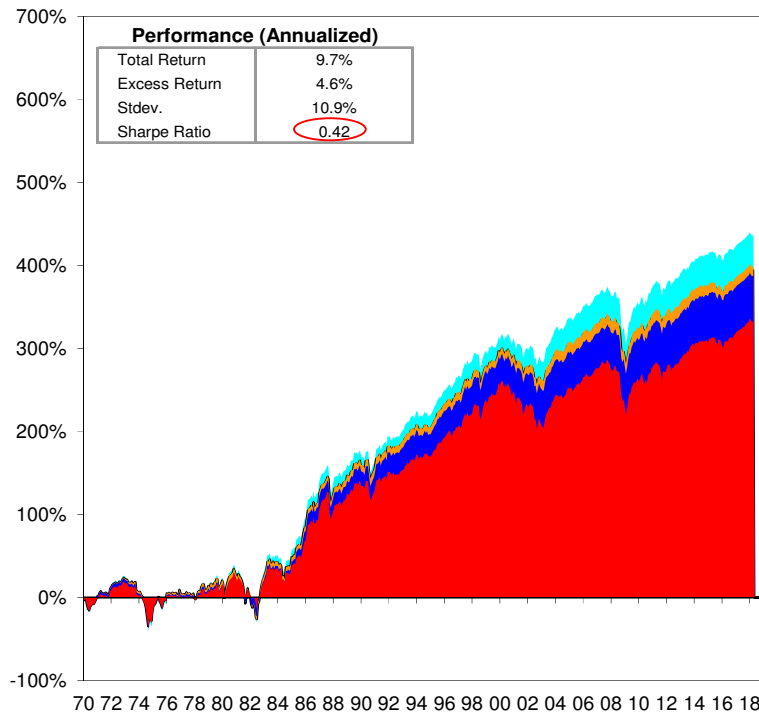
Data from January 1970 through March 2018. The global 60/40 is 60% hedged world equities and 40% hedged world bonds. Please note the returns shown for All Weather are simulated prior to June 1996 using the All Weather Simulation (see All Weather Simulation Disclosure). It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. Past performance is not indicative of future results. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

CONCENTRATED VS. BALANCED PORTFOLIO RETURN CONTRIBUTION

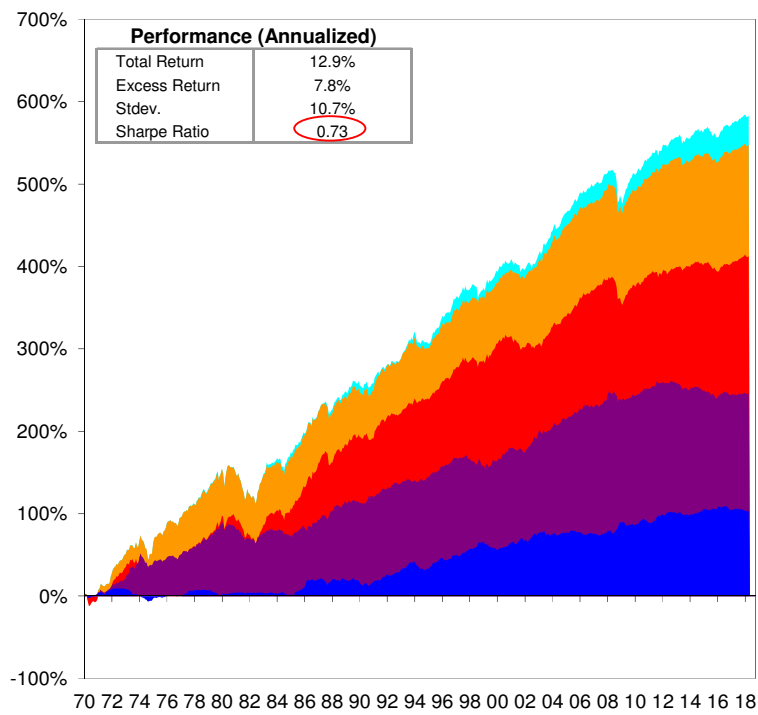
Cumulative Performance Attribution (In)

■ Equities
 ■ Nominal Bonds
 ■ IL Bonds
 ■ Commodities
 ■ Other

Traditional Portfolio

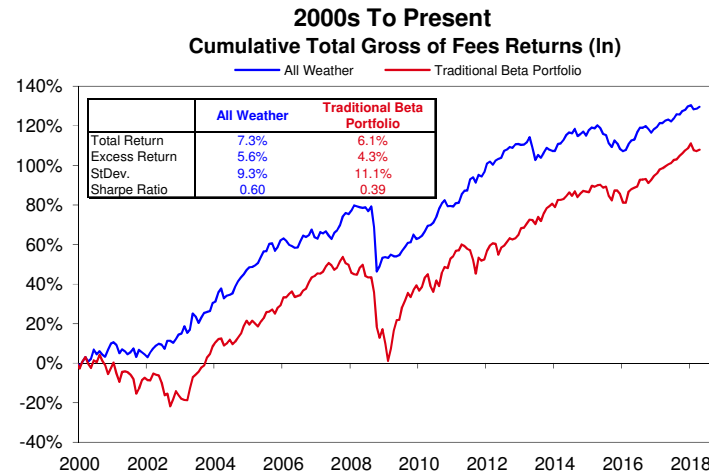
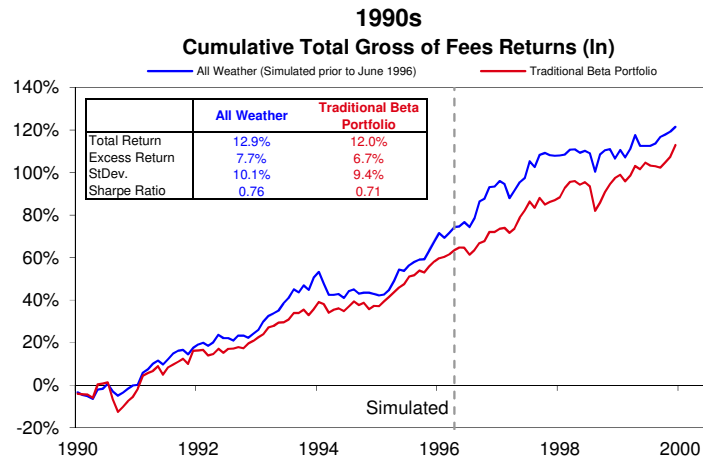
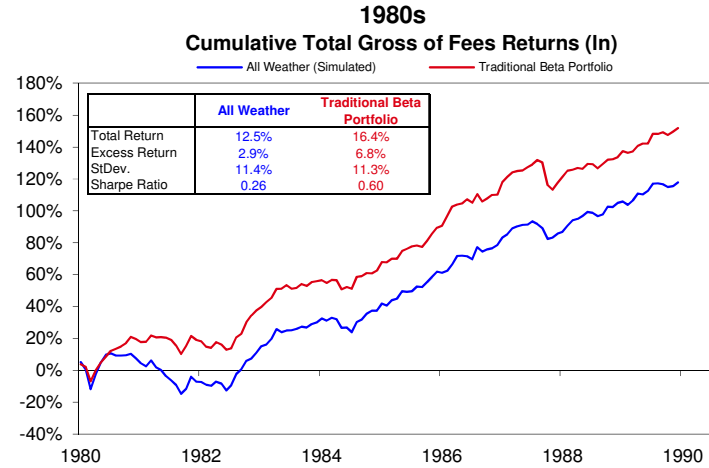
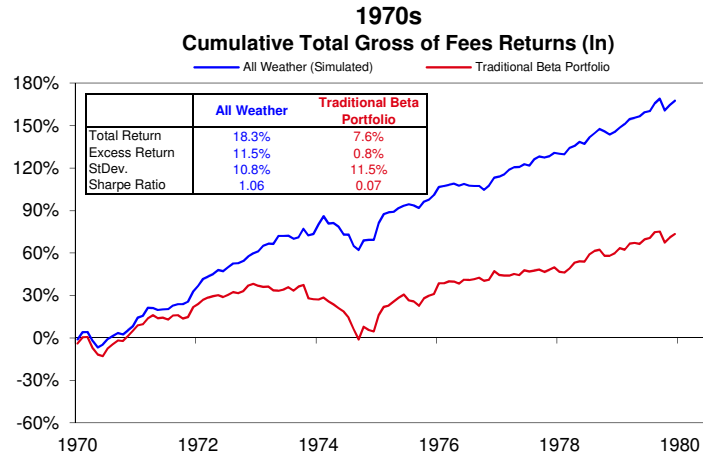


Balanced Portfolio (Simulated)



Data through April 2018. "Traditional Portfolio" refers to the U.S. Traditional Portfolio. "Balanced Portfolio" is simulated using the All Weather Asset Mix as described in the "All Weather Asset Mix Disclosure." Returns are cumulative excess returns above cash, shown gross of fees. It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. Past performance is not indicative of future results. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

ALL WEATHER VS. TRADITIONAL PORTFOLIO BY DECADE



Data through Apr-2018. All Weather refers to the All Weather 10% Strategy. "Traditional Beta Portfolio" refers to the USD Traditional Portfolio. Before June 1996 the returns shown for All Weather are simulated using the All Weather Strategy Simulation (see All Weather Strategy Simulation Disclosure). It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. Past performance is not indicative of future results. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

STRESS-TESTED PERFORMANCE: SECULAR RISE AND FALL IN INTEREST RATES



All Weather 10%			
Annualized Performance	1946 - Sep. 1981	Oct. 1981 - Present	Full Period
Total Return	11.8%	11.1%	11.4%
Excess Return	7.4%	6.8%	7.1%
Standard Deviation	8.8%	9.5%	9.2%
Sharpe Ratio	0.84	0.72	0.77

Simulated Prior to June 1996

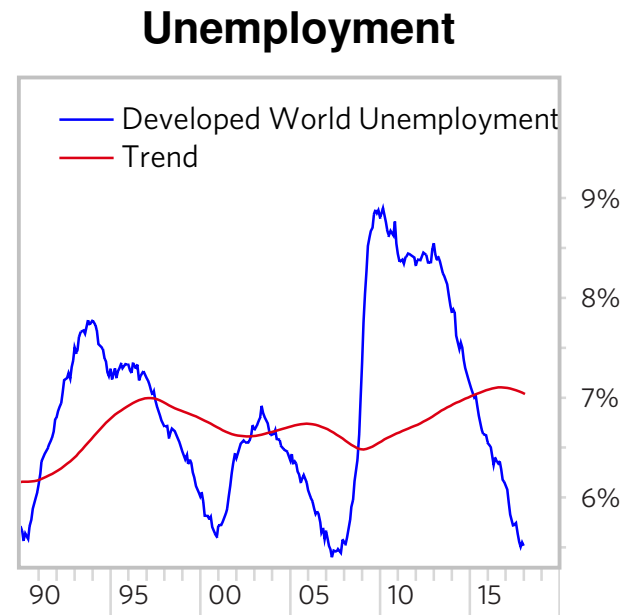
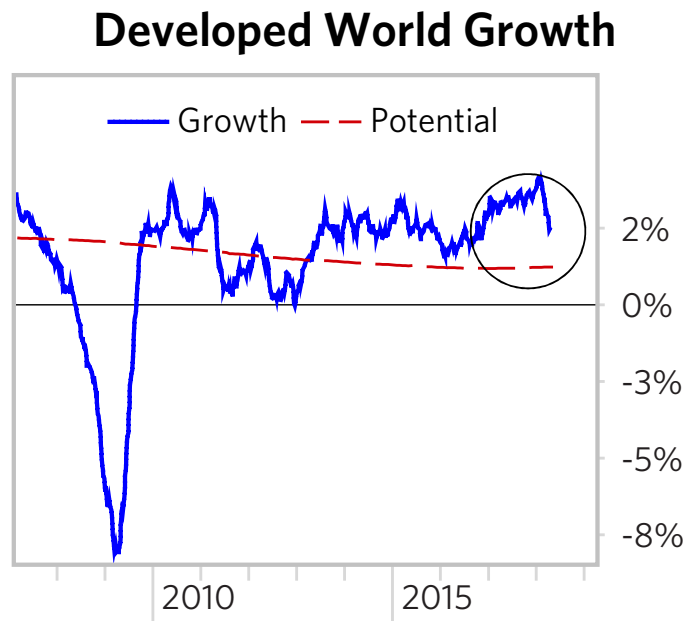
Simulated performance through Apr-2018. The returns shown for All Weather are simulated prior to June 1996 using the All Weather Strategy Simulation (see All Weather Strategy Simulation Disclosure). The global long rate is based on a GDP-weighted average of U.S., Germany, Japan, U.K. and Australia 10-year yields. It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology and the underlying market data. Past results are not necessarily indicative of future results. HYPOTHETICAL OR SIMULATED PERFORMANCE RESULTS HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE AN ACTUAL PERFORMANCE RECORD, SIMULATED RESULTS DO NOT REPRESENT ACTUAL TRADING OR THE COSTS OF MANAGING THE PORTFOLIO. ALSO, SINCE THE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THE RESULTS MAY HAVE UNDER OR OVER COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

III. Global Outlook

OUTLOOK

- ◆ We're now in the late phase of the business cycle, when the trade-off between growth and monetary policy gets more difficult.
- ◆ This particular late-cycle period differs from “normal” in two key ways:
 - While interest rate increases are typical in this part of the cycle, a \$1 trillion+ liquidity drain is not.
 - Unusually low wage inflation and unusually healthy banks could allow the late cycle to play out more slowly (i.e., “buy more time”).
- ◆ The above implies that the real economy will probably outperform financial assets (the reverse of the previous 9 years).

PROLONGED CYCLICAL RECOVERY

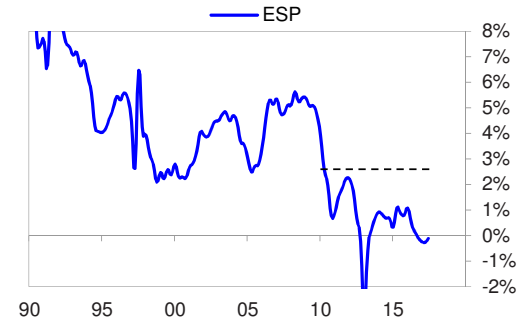
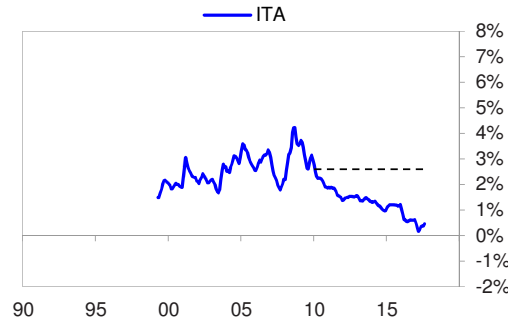
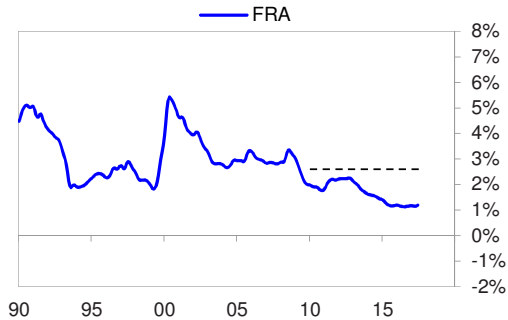
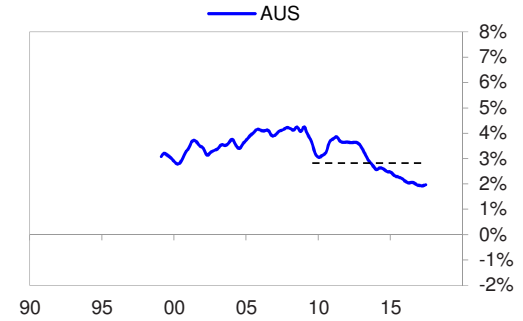
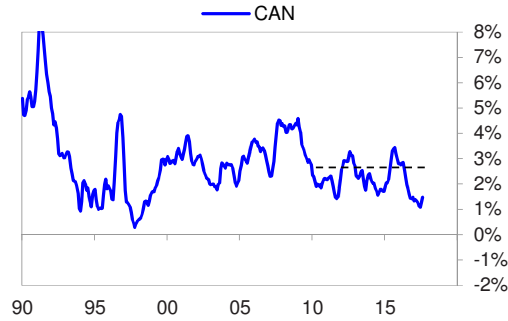
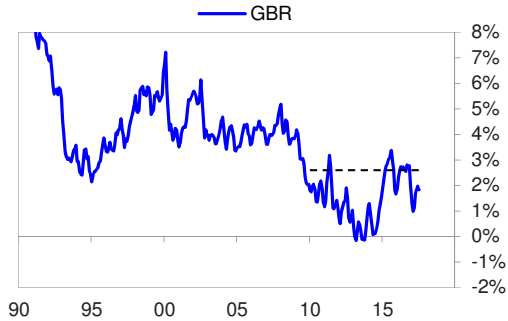
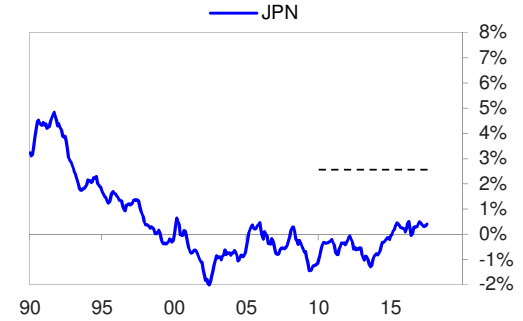
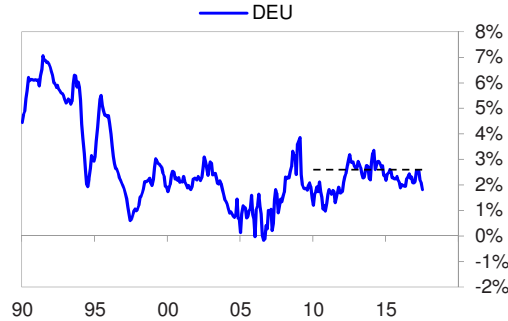
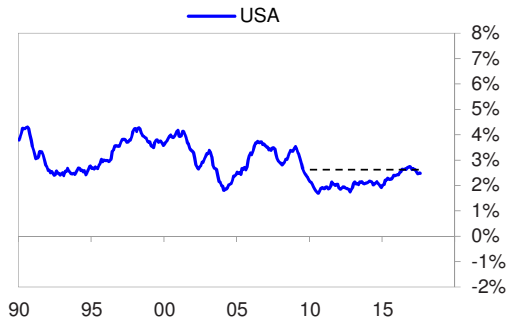


CORRELATED GLOBAL TIGHTENING

- ◆ The Fed is rolling down its balance sheet, approaching a rate of \$400 billion per year. They are also raising short-term interest rates.
- ◆ The ramp-up in US fiscal stimulation is underway, a draw on liquidity of \$250 billion or more per year.
- ◆ The ECB has cut their purchases of bonds by half (€360bln / yr) and is now beginning to contemplate the timing of interest rate increases.
- ◆ China is pursuing a managed deleveraging.
- ◆ The BoJ has gradually reduced asset purchases.

STILL NOT MUCH WAGE INFLATION

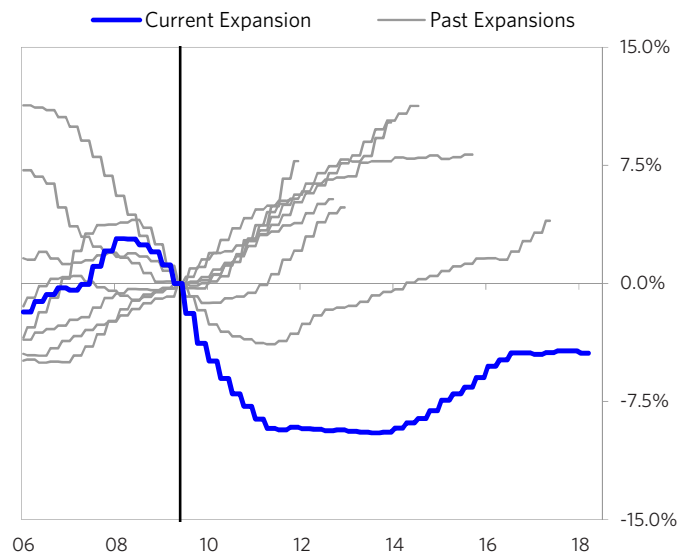
Wage Growth



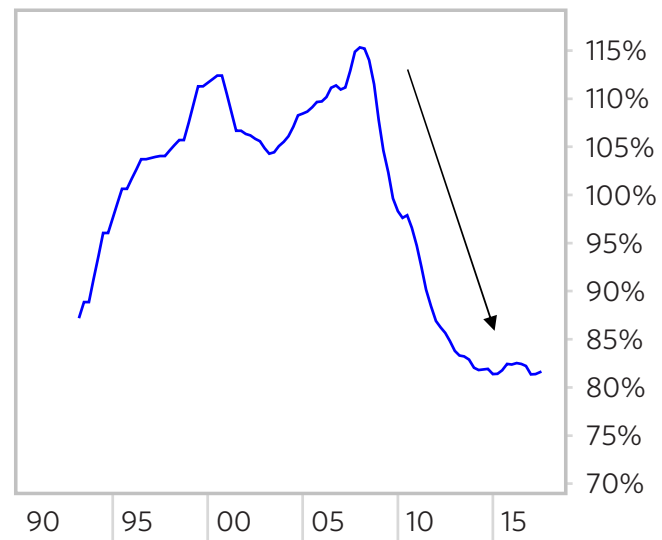
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UNLIKE PAST CYCLES, LOW FINANCIAL LEVERAGE REDUCES VULNERABILITY

Bank Loans (%GDP, Indexed to Start of Expansion)

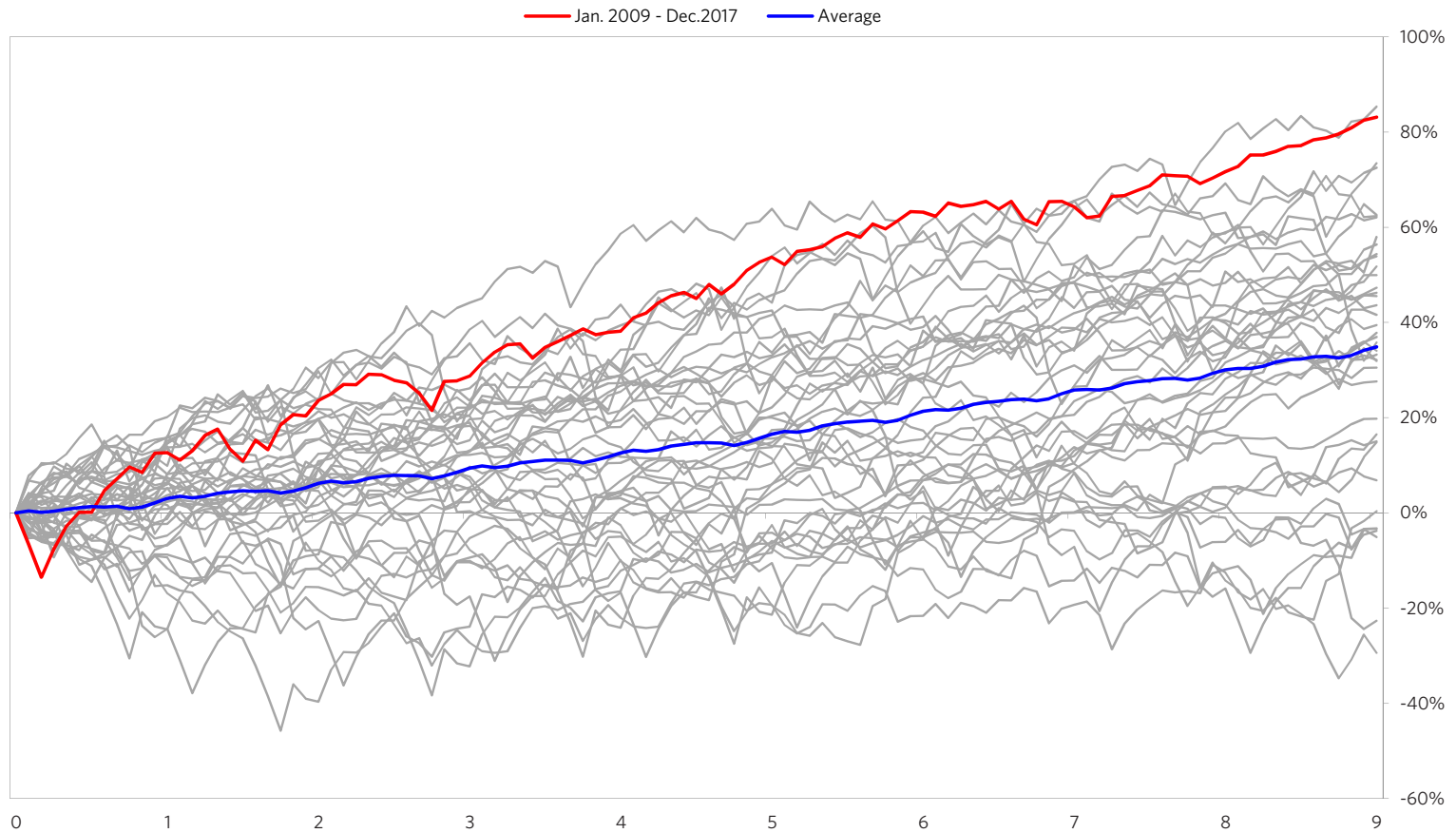


USA Bank Loan-to-Deposit Ratio



THE PAST: FINANCIAL ASSETS OUTPERFORMED THE ECONOMY

U.S. 60/40 Portfolio Cumulative Returns Over All 9-Year Periods Since 1970 (In)



The U.S. 60/40 Portfolio represents 60% capital weight in U.S. large cap equities and 40% capital weight in U.S. government bonds. Each gray line represents a distinct 9 year period beginning in January of each year.

Global Outlook Appendix

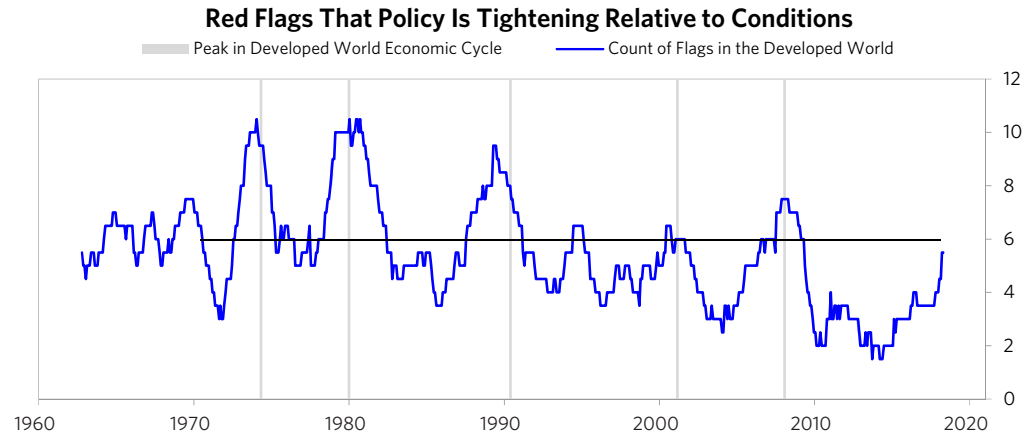
LATE CYCLE CONDITIONS INCREASE RISKS

Ratios of World Assets

Asset Class	Early Cycle	Mid Cycle	Late Cycle
Equities	0.6	0.5	-0.2
Nominal Bonds	0.9	0.9	-0.3
IL Bonds	0.6	0.4	0.5
Credit	0.9	0.7	-0.4
Commodities	0.1	-0.2	0.4
World 60/40	0.8	0.7	-0.2

Results shown 1970 through February 2018. Past performance is not indicative of future results. Please review the "Important Disclosures and Other Information" located at the end of this presentation.

TRACKING THE FLOW-THROUGH OF TIGHTENING



Red Flags That Policy Is Tightening Relative to Conditions

	USA	EUR	JPN	GBR
Real interest rates rising?	Somewhat	Somewhat	No	Somewhat
Interest rates rising relative to growth?	Somewhat	No	No	Somewhat
Interest rates rising led by the short end?	Somewhat	No	No	No
Interest rates rising faster than discounted in forward markets?	Somewhat	No	No	Somewhat
Balanced mix of assets underperforming cash?	Somewhat	Somewhat	Somewhat	Somewhat

CENTRAL BANKS HAVE LITTLE MANEUVERABILITY

Developed World Central Bank "Fuel in the Tank" (Ability to Ease)



Important Disclosures and Other Information

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Certain information contained herein constitutes forward-looking statements (including projections, targets, hypotheticals, ratios, estimates, returns, performance, opinions, activity and other events contained or referenced herein), which can be identified by the use of terms such as "may," "will," "should," "expect," "anticipate," "project," "estimate," "intend," "continue" or "believe" or other variations (or the negatives thereof) thereof. Due to various risks, assumptions, uncertainties and actual events, including those discussed herein and in the OM, actual results, returns or performance may differ materially from those reflected or contemplated in such forward-looking statements. As a result, prospective investors should not rely on such forward-looking statements in making their investment decisions. Any forward-looking statements contained herein reflect Bridgewater's current judgment and assumptions which may change in the future, and Bridgewater has no obligation to update or amend such forward-looking statements.

Bridgewater's investment process seeks to understand the cause and effect linkages that drive markets over time. To assess and refine its understanding of these linkages, Bridgewater performs historical stress tests across a wide range of timeframes and market environments. From these stress tests, Bridgewater is able to simulate how its strategies would have performed prior to their inception. Because Bridgewater recognizes the possibility that it could be wrong, Bridgewater "humbles" its simulations, by systematically adjusting downward the back-tested, simulated results that Bridgewater's current investment logic produces. Because this stress testing is a core component of Bridgewater's investment process, it shares these simulations with current and prospective investors to demonstrate its thinking. However, because they do not demonstrate actual results, these simulations are inherently limited and should not be relied upon to make an investment decision.

HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

Bridgewater believes that a particular return stream should be evaluated against its expected performance or its benchmark. To that end, Bridgewater demonstrates whether its strategies are operating as expected via a cone chart, which shows the performance of a particular strategy over time relative to the strategy's benchmark and also within bands of standard deviation from that benchmark. Separately, to demonstrate the impact of market conditions on the strategies it manages, Bridgewater explains the macro-economic pressures and market conditions that effected performance in the context of client letters, account reviews, or other publications that Bridgewater provides to each current and prospective investor on a regular basis. Additional information about how Bridgewater thinks about setting expectations for its strategies via a benchmark is available upon request.

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Any tables, graphs or charts relating to past performance, whether hypothetical, simulated or actual, included in this presentation are intended only to illustrate the performance of indices, strategies, or specific accounts for the historical periods shown. When creating such tables, graphs and charts, Bridgewater may incorporate assumptions on trading, positions, transactions costs, market impact estimations and the benefit of hindsight. For example, transaction cost estimates used in simulations are based on historical measured costs and/or modeled costs, and attribution is derived from a process of attributing positions held at a point in time to specific market views and is inherently imprecise. Such tables, graphs and charts are not intended to predict future performance and should not be used as a basis for making any investment decision. Bridgewater has no obligation to update or amend such tables, graphs or charts.

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Statistical and mathematical measures of performance and risk measures based on past performance, market assumptions or any other input should not be relied upon as indicators of future results. While Bridgewater believes the assumptions and possible adjustments it may make in making the underlying calculations are reasonable, other assumptions, methodologies and adjustments could have been made that are reasonable and would result in materially different results, including materially lower results. Where shown, targeted performance and the abilities and capabilities of the active and passive management approaches discussed herein are based on Bridgewater's analysis of market data, quantitative research of the underlying forces that influence asset classes as well as management policies and objectives, all of which are subject to change. The material contained herein may exhibit the potential for attractive returns, however it also involves a corresponding high degree of risk. Targeted performance, whether mathematically based or theoretical, is considered hypothetical and is subject to inherent limitations such as the impact of concurrent economic or geo-political elements, forces of nature, war and other factors not addressed in the analysis, such as lack of liquidity. There is no guarantee that the targeted performance for any fund or strategy shown herein can or will be achieved. A broad range of risk factors, individually or collectively, could cause a fund or strategy to fail to meet its investment objectives and/or targeted returns, volatilities or correlations.

Where shown, information related to markets traded may not necessarily indicate the actual historical or current strategies of Bridgewater. Markets listed may or may not be currently traded and are subject to change without notice. Markets used for illustrative purposes may not represent the universe of markets traded or results available and may not include actual trading results of Bridgewater. Other markets or trading, not shown herein, may have had materially different results. Attribution of performance or designation of markets and the analysis of performance or other performance with respect to scenario analysis or the determination of biases is based on Bridgewater's analysis. Statements made with respect to the ability of Bridgewater, a fund, a strategy, a market or instrument to perform in relation to any other market, instrument or manager in absolute terms or in any specific manner in the future or any specified time period are not a guarantee of the desired or targeted result.

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None of the information related to a fund or strategy that Bridgewater may provide is intended to form the basis for any investment decision with respect to any retirement plan's assets. Any information Bridgewater provides should be independently and critically evaluated based on whatever other sources deemed appropriate, including legal and tax advice; it is also not intended to be impartial investment information or advice as Bridgewater may recommend one or more Bridgewater products in connection with such information, which would result in additional fees being paid to Bridgewater. Bridgewater's status as an ERISA fiduciary with respect to the management of any existing or future Bridgewater product(s) in which you invest would be (or continue to be) set forth in that product's applicable governing instruments. You are responsible for ensuring that your decision to invest in any Bridgewater product does not violate the fiduciary or prohibited transaction rules of ERISA, the U.S. Internal Revenue Code or any applicable laws or regulations that are similar. On and after June 9, 2017, the information provided herein is being made available only to "independent fiduciaries with financial expertise" (within the meaning of the Definition of the Term "Fiduciary"; Conflict of Interest Rule – Retirement Investment Advice, 81 Fed. Reg. 20,946 (Apr. 8, 2017), available at <https://www.gpo.gov/fdsys/pkg/FR-2016-04-08/pdf/2016-07924.pdf>), and this presentation should not be accepted by any person who does not meet such requirements.

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In certain instances amounts and percentages in this presentation are approximate and have been rounded for presentation purposes. Statements in this presentation are made as of the date appearing on this presentation unless otherwise indicated. Neither the delivery of this presentation or the OM shall at any time under any circumstances create an implication that the information contained herein is correct as of any time subsequent to such date. Bridgewater has no obligation to inform potential or existing investors when information herein becomes stale, deleted, modified or changed. ©2018 Bridgewater Associates, LP. All rights reserved.

ALL WEATHER STRATEGY DISCLOSURE

All Weather Strategy Performance (Net of Fees)

	All Weather Total Return in USD
Last 1 Year	6.6%
Last 3 Years	2.6%
Last 5 Years	2.6%
Last 7 Years	6.0%
Last 10 Years	4.7%

Annualized Returns (Jun-96 through Apr-18)

Net Since Inception Jun-96 through Apr-18

	All Weather Total Return in USD
Annualized Return	7.8%
Standard Deviation	9.9%
Sharpe Ratio	0.56

Past results are not necessarily indicative of future results.

Standard deviation is calculated using gross of fees performance.

Bridgewater All Weather Strategy Performance Disclosure:

For the period June 1996 (the inception of the strategy) through August 2001 the performance is based on the total return of the Bridgewater All Weather strategy as implemented for Bridgewater's principals and their affiliates and was not fully hedged to the US Dollar. The All Weather strategy is structured to be fully hedged, and the performance reflected after August 2001 includes these hedging transactions. For the period of August 2001 through present the performance shown is the actual total returns of the longest running fully funded All Weather account. For the entire history excess returns are calculated by subtracting an approximation of a U.S. cash rate from the total returns described above. Of note, the All Weather strategy's target leverage, volatility and return, as well as the asset mix varied from June 1996 to July 2005. From August 2005 through the present the strategy has targeted 10% volatility. Bridgewater manages additional All Weather portfolios not included in this performance history.

Gross of fees performance is gross of management fees and includes the reinvestment of interest, gains, and losses. Returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account.

Net of fees performance has been calculated using our standard fee schedule for a minimum size account, which are the highest fees we have or would currently charge an account. Investment advisory fees are described in Bridgewater's ADV Part 2A.

No representation is being made that any account will or is likely to achieve returns similar to those shown. Trading in futures is risky and can result in losses as well as profits. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS. Performance as of the current month is estimated and subject to change.

ALL WEATHER STRATEGY SIMULATION DISCLOSURE

All Weather Simulation Performance (Net of Fees)

	All Weather Total Return in USD
Last 1 Year	5.4%
Last 3 Years	2.7%
Last 5 Years	3.1%
Last 7 Years	5.0%
Last 10 Years	7.0%

Annualized Returns (Jan-70 through Apr-18)

Net Since Inception Jan-70 through Apr-18

	All Weather Total Return in USD
Annualized Return	12.4%
Standard Deviation	10.1%
Sharpe Ratio	0.73

Standard deviation is calculated using gross of fees performance. Past results are not necessarily indicative of future results. HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

All Weather Strategy Simulation Performance Disclosure

From June 1996 to present, any performance shown will be based on the performance of the All Weather Strategy or a variation of the All Weather Strategy expressed in a different currency or volatility. For additional information about the characteristics of such returns, please refer to the relevant disclosure page provided at the end of the materials. Prior to June 1996, performance of the Bridgewater All Weather Strategy Simulation is based on simulated, hypothetical performance and not the actual returns of Bridgewater's All Weather Strategy. Bridgewater's investment selection and trading strategies are systematic and rules-based. However, they are not fully automated and they do include human input. As a result, back-tested returns are designed based on assumptions about how Bridgewater would have implemented the All Weather Strategy, prior to its existence. These assumptions are intended to approximate such implementation, but are inherently speculative.

The simulated performance for the All Weather Strategy Simulation was derived by applying Bridgewater's current investment systems and portfolio construction logic to historical market returns across the markets selected for the All Weather Strategy Simulation. A list of the markets used appears below. We use actual market returns when available as an input for our hypothetical returns and otherwise use Bridgewater Associates' proprietary estimates, based on other available data and our fundamental understanding of asset classes. In certain cases, market data for an exposure which otherwise would exist in the simulation may be omitted if the relevant data is unavailable, deemed unreliable, immaterial or accounted for using proxies. Proxies are assets that existed and for which data is available, which Bridgewater believes would approximate returns for an asset that did not exist or for which reliable data is not available. For example, before reliable commodity futures returns data can be found Bridgewater estimates futures returns by using the spot commodity returns and their typical relationship to futures returns. Examples of omitted markets or accounted for using proxies include, but are not limited to, emerging market equities, emerging market debt, and certain commodities. The mix and weightings of markets traded for All Weather Strategy Simulation are subject to change in the future.

The All Weather Strategy Simulation includes periodic adjustments that are made to the All Weather Strategy Simulation's desired strategic asset allocation and level of risk pursuant to Bridgewater's systematic strategic management process. Such strategic management is based on a systematic process that assesses whether the assumptions underlying the All Weather Strategy (that assets will outperform cash, and that assets can be reasonably balanced against each other) are under threat, and systematically adjusts or reduces exposures accordingly. When applicable, the returns of the All Weather Strategy Simulation reflect adjustments based on this systematic strategic management process.

Simulated asset returns are subject to considerable uncertainty and potential error, as a great deal cannot be known about how assets would have performed in the absence of actual returns. The All Weather Strategy Simulation is an approximation of our current process but not an exact replication and may have differences including but not limited to the precise mix of markets used and the weights applied to those markets. It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology (including the addition/removal of asset classes) and the underlying market data. There is no guarantee that previous results would not be materially different. Future strategy changes could materially change previous simulated returns in order to reflect the changes accurately across time.

Transaction costs are accounted for and are estimates themselves based on historical measured costs and/or modeled costs. Actual transaction costs experienced could have been higher or lower than those reflected. Where noted, the All Weather Strategy Simulation net of fees returns have been calculated using our standard fee schedule for a minimum size account, which are the highest fees we have or would currently charge an account. Investment advisory fees are described in Bridgewater's ADV Part 2A. Gross of fees performance (i) excludes the deduction of management fees, and other operating expenses (the "fees and expenses") and (ii) includes the reinvestment of interest, gains and losses. Including the fees and expenses would lower performance. There is no guarantee regarding the All Weather Strategy Simulation's ability to perform in absolute returns or relative to any market in the future, during market events not represented or during market events occurring in the future. Market conditions and events vary considerably, are unpredictable and can have unforeseen impacts resulting in materially adverse results.

Markets included in the All Weather Strategy Simulation

The All Weather Strategy Simulation includes returns from the following markets: global nominal interest rates, global inflation linked bonds, emerging market credit spreads, corporate credit spreads, global equities, and commodities.

ALL WEATHER ASSET MIX DISCLOSURE

All Weather Asset Mix Performance (Net of Fees)	
	All Weather Total Return in USD
Last 1 Year	6.2%
Last 3 Years	3.7%
Last 5 Years	3.9%
Last 7 Years	5.7%
Last 10 Years	6.0%

Annualized Returns (Jan-70 through Apr-18)

Net Since Inception Jan-70 through Apr-18	
	All Weather Total Return in USD
Annualized Return	12.3%
Standard Deviation	10.7%
Sharpe Ratio	0.68

Standard deviation is calculated using gross of fees performance. Past results are not necessarily indicative of future results. HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

All Weather Asset Mix Simulation Performance Disclosure

Where shown all performance of the Bridgewater All Weather Asset Mix is based on simulated, hypothetical performance and not the returns of Bridgewater's All Weather strategy. Bridgewater's investment selection and trading strategies are systematic and rules-based. However, they are not fully automated and they do include human input. As a result, back-tested returns are designed based on assumptions about how Bridgewater would have implemented the All Weather Asset Mix, prior to its existence. These assumptions are intended to approximate such implementation, but are inherently speculative.

The simulated performance for the All Weather Asset Mix was derived by applying Bridgewater's current investment systems and portfolio construction logic to historical market returns across the markets selected for the All Weather Asset Mix. A table of the markets used appears below. We use actual market returns when available as an input for our hypothetical returns and otherwise use Bridgewater Associates' proprietary estimates, based on other available data and our fundamental understanding of asset classes. In certain cases, market data for an exposure which otherwise would exist in the simulation may be omitted if the relevant data is unavailable, deemed unreliable, immaterial or accounted for using proxies. Proxies are assets that existed and for which data is available, which Bridgewater believes would approximate returns for an asset that did not exist or for which reliable data is not available. For example, before reliable commodity futures returns data can be found Bridgewater estimates futures returns by using the spot commodity returns and their typical relationship to futures returns. Examples of omitted markets or accounted for using proxies include, but are not limited to, emerging market equities, emerging market debt, and certain commodities. The mix and weightings of markets traded for All Weather Asset Mix are subject to change in the future.

The All Weather Asset Mix maintains the desired strategic asset allocation and level of risk regardless of market conditions. Accordingly, the All Weather Asset Mix does not alter the desired strategy asset allocation and level of risk based on the strategic management process employed in the All Weather Strategy.

Simulated asset returns are subject to considerable uncertainty and potential error, as a great deal cannot be known about how assets would have performed in the absence of actual returns. The All Weather Asset Mix is an approximation of our current process but not an exact replication and may have differences including but not limited to the precise mix of markets used and the weights applied to those markets. It is expected that the simulated performance will periodically change as a function of both refinements to our simulation methodology (including the addition/removal of asset classes) and the underlying market data. There is no guarantee that previous results would not be materially different. Future strategy changes could materially change previous simulated returns in order to reflect the changes accurately across time.

Transaction costs are accounted for and are estimates themselves based on historical measured costs and/or modeled costs. Actual transaction costs experienced could have been higher or lower than those reflected. Where noted, the All Weather Asset Mix net of fees returns have been calculated using our standard fee schedule for a minimum size account, which are the highest fees we have or would currently charge an account. Investment advisory fees are described in Bridgewater's ADV Part 2A. Gross of fees performance (i) excludes the deduction of management fees, and other operating expenses (the "fees and expenses") and (ii) includes the reinvestment of interest, gains and losses. Including the fees and expenses would lower performance. There is no guarantee regarding the All Weather Asset Mix's ability to perform in absolute returns or relative to any market in the future, during market events not represented or during market events occurring in the future. Market conditions and events vary considerably, are unpredictable and can have unforeseen impacts resulting in materially adverse results.

Markets included in the All Weather Asset Mix Simulation

The All Weather Asset Mix Simulation includes returns from the following markets: global nominal interest rates, global inflation linked bonds, emerging market credit spreads, corporate credit spreads, global equities, and commodities.

USD TRADITIONAL PORTFOLIO

This page contains the allocation information for the historical simulation of the Traditional portfolio, from 1970 onwards, as well as forward looking assumptions for expected returns, volatility, tracking error, and correlations used in this analysis. The portfolio capital allocation weights (illustrated below) are estimates based either upon Bridgewater Associates' understanding of standard asset allocation (which may change without notice) or information provided by or publicly available from the recipient of this presentation. Asset class returns are actual market returns where available and otherwise a proxy index constructed based on Bridgewater Associates understanding of global financial markets. Information regarding specific indices and simulation methods used for proxies is available upon request (except where the proprietary nature of information precludes its dissemination). Results are hypothetical or simulated and gross of fees unless otherwise indicated. HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM. ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

Asset Type	Benchmark	Nominal Exposure	Fx Exposure	Beta Volatility	Beta Ratio	Alpha Volatility	Alpha Ratio
Equities	U.S. Equities	15.0%	---	15.1%	0.25	---	---
Equities	U.S. Equities	15.0%	---	15.1%	0.25	5.0%	0.25
Equities	Dev. World Equities Ex-US	18.0%	Unhedged	15.3%	0.30	5.0%	0.30
Equities	Emerging Market Equities	3.0%	Unhedged	18.2%	0.25	5.0%	0.30
Nominal Bonds	U.S. Gov't Bonds	4.5%	---	3.7%	0.25	---	---
Nominal Bonds	U.S. Gov't Bonds	4.5%	---	3.7%	0.25	2.0%	0.25
Corporate Bonds	U.S. Corporate Bonds	5.0%	---	6.5%	0.30	3.0%	0.25
MBS	U.S. MBS	6.0%	---	3.8%	0.25	2.0%	0.25
IL Bonds	U.S. IL Bonds	1.0%	---	6.1%	0.25	---	---
IL Bonds	U.S. IL Bonds	1.0%	---	6.1%	0.25	1.0%	0.25
High Yield Bonds	U.S. High Yield	2.0%	---	11.1%	0.30	4.0%	0.25
Nominal Bonds	World Gov't Bonds Ex-US	2.0%	Hedged	3.8%	0.30	2.0%	0.30
Equities	U.S. PE / VC	9.0%	---	23.9%	0.25	10.0%	0.25
Real Estate	U.S. Real Estate	5.0%	---	19.1%	0.25	6.0%	0.25
Real Estate	World Real Estate	2.0%	Unhedged	18.1%	0.30	6.0%	0.30
Commodities	Bloomberg Commodity Index	2.0%	---	18.0%	0.20	---	---
Hedge Fund	Cash	5.0%	---	---	---	7.0%	0.70

PRELIMINARY MONTHLY PERFORMANCE REPORT

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

April 30, 2018

Allan Martin, Partner

Anthony Ferrara, CAIA, Consultant

Michael Miranda, CFA, Sr. Analyst



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL NET OF FEES

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund	5,351,271,513	100.0	100.0	0.6	-3.2	8.0	9.8	6.5	7.8	6.2	8.1	Apr-94
<i>Policy Index</i>				<u>0.4</u>	<u>-3.1</u>	<u>8.1</u>	<u>10.1</u>	<u>7.2</u>	<u>8.2</u>	<u>6.3</u>	<u>8.1</u>	<i>Apr-94</i>
Over/Under				0.2	-0.1	-0.1	-0.3	-0.7	-0.4	-0.1	0.0	
60% MSCI ACWI (Net) / 40% CITI WGBI				-0.2	-3.6	8.1	10.5	5.6	5.6	4.2	--	Apr-94
Total Fund ex Parametric	5,299,269,514	99.0	--	0.6	-3.3	7.6	9.3	6.3	7.7	6.1	8.0	Apr-94
Total Fund ex Private Equity	5,090,966,502	95.1	--	0.6	-3.5	7.7	9.3	6.2	7.3	--	9.0	Jan-12
<i>Policy Index</i>				<u>0.4</u>	<u>-3.1</u>	<u>8.1</u>	<u>10.1</u>	<u>7.2</u>	<u>8.2</u>	<u>6.3</u>	<u>9.7</u>	<i>Jan-12</i>
Over/Under				0.2	-0.4	-0.4	-0.8	-1.0	-0.9	--	-0.7	
Total US Equity	1,754,296,634	32.8	28.0	0.3	-5.5	11.1	13.2	10.3	13.0	9.0	9.3	Dec-93
<i>Russell 3000</i>				<u>0.4</u>	<u>-5.3</u>	<u>10.9</u>	<u>13.0</u>	<u>10.2</u>	<u>12.7</u>	<u>9.2</u>	<u>9.6</u>	<i>Dec-93</i>
Over/Under				-0.1	-0.2	0.2	0.2	0.1	0.3	-0.2	-0.3	
Western U.S. Index Plus	196,385,095	3.7		0.3	-6.2	11.9	13.6	11.1	13.4	8.7	5.7	May-07
<i>S&P 500</i>				<u>0.4</u>	<u>-5.8</u>	<u>11.0</u>	<u>13.3</u>	<u>10.6</u>	<u>13.0</u>	<u>9.0</u>	<u>7.4</u>	<i>May-07</i>
Over/Under				-0.1	-0.4	0.9	0.3	0.5	0.4	-0.3	-1.7	
Blackrock Russell 1000 Index	1,496,588,965	28.0		0.4	-5.5	11.0	13.2	--	--	--	13.2	May-17
<i>Russell 1000</i>				<u>0.3</u>	<u>-5.5</u>	<u>11.0</u>	<u>13.2</u>	<u>10.3</u>	<u>12.8</u>	<u>9.1</u>	<u>13.2</u>	<i>May-17</i>
Over/Under				0.1	0.0	0.0	0.0	--	--	--	0.0	
Blackrock Russell 2500 Index	61,322,574	1.1		0.2	-2.9	10.3	11.8	--	--	--	11.8	May-17
<i>Russell 2500</i>				<u>0.2</u>	<u>-3.0</u>	<u>10.2</u>	<u>11.7</u>	<u>8.9</u>	<u>11.5</u>	<u>9.7</u>	<u>11.7</u>	<i>May-17</i>
Over/Under				0.0	0.1	0.1	0.1	--	--	--	0.1	

Policy Index: Currently, 28% Russell 3000, 20% BBgBarc US Aggregate, 15% MSCI ACWI ex U.S., 10%MSCI ACWI, 10% Russell 3000 Index + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.

Prior to January 2016 the Total U.S. Equity Benchmark was a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

CPI+4% and CPI+5% are estimated due to CPI monthly lag.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL NET OF FEES

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Non-US Equity	897,113,854	16.8	15.0	1.9	-4.5	12.1	15.1	6.1	6.0	2.9	6.7	Mar-94
<i>MSCI ACWI ex USA</i>				<u>1.6</u>	<u>-4.9</u>	<u>11.9</u>	<u>15.9</u>	<u>5.0</u>	<u>5.5</u>	<u>2.3</u>	<u>5.5</u>	<i>Mar-94</i>
Over/Under				0.3	0.4	0.2	-0.8	1.1	0.5	0.6	1.2	
<i>MSCI EAFE</i>				2.3	-4.1	10.7	14.5	4.9	5.9	2.4	5.1	<i>Mar-94</i>
<i>MSCI ACWI ex USA Local Currency</i>				3.5	-2.1	9.1	11.0	5.1	8.4	4.3	--	<i>Mar-94</i>
<i>MSCI EAFE Local Currency</i>				4.5	-1.2	7.2	8.6	4.5	8.5	4.2	5.0	<i>Mar-94</i>
BlackRock ACWI ex-U.S. Index	440,440,610	8.2		1.8	-4.6	12.5	16.6	5.7	6.0	2.8	3.3	Mar-07
<i>MSCI ACWI ex USA IMI</i>				<u>1.5</u>	<u>-4.8</u>	<u>12.3</u>	<u>16.3</u>	<u>5.5</u>	<u>5.8</u>	<u>2.6</u>	<u>3.0</u>	<i>Mar-07</i>
Over/Under				0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	
<i>MSCI ACWI ex USA Local Currency</i>				3.5	-2.1	9.1	11.0	5.1	8.4	4.3	3.6	<i>Mar-07</i>
Sprucegrove	238,192,962	4.5		2.6	-4.7	15.4	15.7	7.0	6.6	4.1	8.0	Mar-02
<i>MSCI ACWI ex USA</i>				<u>1.6</u>	<u>-4.9</u>	<u>11.9</u>	<u>15.9</u>	<u>5.0</u>	<u>5.5</u>	<u>2.3</u>	<u>7.0</u>	<i>Mar-02</i>
Over/Under				1.0	0.2	3.5	-0.2	2.0	1.1	1.8	1.0	
<i>MSCI EAFE</i>				2.3	-4.1	10.7	14.5	4.9	5.9	2.4	6.4	<i>Mar-02</i>
<i>MSCI ACWI ex USA Local Currency</i>				3.5	-2.1	9.1	11.0	5.1	8.4	4.3	5.6	<i>Mar-02</i>
<i>MSCI EAFE Local Currency</i>				4.5	-1.2	7.2	8.6	4.5	8.5	4.2	4.8	<i>Mar-02</i>
Hexavest	94,539,799	1.8		2.1	-3.4	5.8	9.0	3.7	4.6	--	4.9	Dec-10
<i>MSCI EAFE</i>				<u>2.3</u>	<u>-4.1</u>	<u>10.7</u>	<u>14.5</u>	<u>4.9</u>	<u>5.9</u>	<u>2.4</u>	<u>5.9</u>	<i>Dec-10</i>
Over/Under				-0.2	0.7	-4.9	-5.5	-1.2	-1.3	--	-1.0	
<i>MSCI EAFE Local Currency</i>				4.5	-1.2	7.2	8.6	4.5	8.5	4.2	8.1	<i>Dec-10</i>
Walter Scott	123,940,483	2.3		0.9	-4.3	9.5	13.7	6.7	5.5	--	6.2	Dec-10
<i>MSCI ACWI ex USA</i>				<u>1.6</u>	<u>-4.9</u>	<u>11.9</u>	<u>15.9</u>	<u>5.0</u>	<u>5.5</u>	<u>2.3</u>	<u>4.8</u>	<i>Dec-10</i>
Over/Under				-0.7	0.6	-2.4	-2.2	1.7	0.0	--	1.4	
<i>MSCI ACWI ex USA Local Currency</i>				3.5	-2.1	9.1	11.0	5.1	8.4	4.3	7.3	<i>Dec-10</i>
<i>MSCI EAFE</i>				2.3	-4.1	10.7	14.5	4.9	5.9	2.4	5.9	<i>Dec-10</i>
Total Global Equity	600,232,035	11.2	10.0	1.1	-5.2	11.5	14.6	7.2	8.2	4.5	6.3	May-05
<i>MSCI ACWI</i>				<u>1.0</u>	<u>-5.4</u>	<u>11.2</u>	<u>14.2</u>	<u>7.4</u>	<u>8.8</u>	<u>5.1</u>	<u>7.1</u>	<i>May-05</i>
Over/Under				0.1	0.2	0.3	0.4	-0.2	-0.6	-0.6	-0.8	
BlackRock MSCI ACWI Equity Index	600,232,035	11.2		1.1	-5.2	11.5	14.6	7.9	9.2	--	11.3	Aug-12
<i>MSCI ACWI</i>				<u>1.0</u>	<u>-5.4</u>	<u>11.2</u>	<u>14.2</u>	<u>7.4</u>	<u>8.8</u>	<u>5.1</u>	<u>10.9</u>	<i>Aug-12</i>
Over/Under				0.1	0.2	0.3	0.4	0.5	0.4	--	0.4	



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL NET OF FEES

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Private Equity	260,305,010	4.9	10.0	0.7	3.7	14.3	19.3	13.5	14.8	--	14.5	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>18.2</u>	<i>Jan-12</i>
Over/Under				0.1	8.2	0.7	2.9	0.0	-1.3		-3.7	
<i>Cambridge Associates Global All PE (Qtr Lag)</i>				0.0	5.0	14.1	18.4	11.4	12.9	8.7	12.8	<i>Jan-12</i>
Adams Street Global Fund Series	144,903,002	2.7		0.0	5.2	13.2	17.3	11.0	13.4	--	12.9	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>18.2</u>	<i>Jan-12</i>
Over/Under				-0.6	9.7	-0.4	0.9	-2.5	-2.7		-5.3	
Harbourvest	65,569,916	1.2		0.0	0.0	17.2	23.3	18.6	--	--	19.5	Aug-13
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>15.3</u>	<i>Aug-13</i>
Over/Under				-0.6	4.5	3.6	6.9	5.1			4.2	
Pantheon Global Secondary Funds	33,953,933	0.6		6.0	6.0	15.6	24.1	17.7	14.4	--	13.1	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>18.2</u>	<i>Jan-12</i>
Over/Under				5.4	10.5	2.0	7.7	4.2	-1.7		-5.1	
Drive Capital Fund	4,191,949	0.1		-2.1	-2.1	-9.1	-20.2	--	--	--	-37.3	Sep-16
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>18.3</u>	<i>Sep-16</i>
Over/Under				-2.7	2.4	-22.7	-36.6				-55.6	
Abbott Secondary Opportunities	4,048,252	0.1		0.0	0.0	--	--	--	--	--	0.0	Jan-18
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>0.7</u>	<i>Jan-18</i>
Over/Under				-0.6	4.5						-0.7	
CVI Credit Value Fund	3,057,000	0.1		1.9	1.9	--	--	--	--	--	1.9	Jan-18
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>0.7</u>	<i>Jan-18</i>
Over/Under				1.3	6.4						1.2	
Clearlake Capital Partners V	1,438,308	0.0		0.0	--	--	--	--	--	--	0.0	Mar-18
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>-1.1</u>	<i>Mar-18</i>
Over/Under				-0.6							1.1	
Battery Ventures XII	186,250	0.0		0.0	--	--	--	--	--	--	0.0	Apr-18
<i>Russell 3000 + 3%</i>				<u>0.6</u>	<u>-4.5</u>	<u>13.6</u>	<u>16.4</u>	<u>13.5</u>	<u>16.1</u>	<u>12.4</u>	<u>0.6</u>	<i>Apr-18</i>
Over/Under				-0.6							-0.6	
Insight Venture Partners X	2,750,000	0.1										
Abbott Capital Cash	206,399	0.0										

Please Note:

Private Equity performance is shown on a time-weighted return basis. Values are cash adjusted with current month cash flows.

Insight Venture Partners X funded 4/2018.

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION PRIVATE EQUITY LIMITED PARTNERSHIP PERFORMANCE

Fund Name	Vintage Year	Initial Investment Date	Commitment	Capital Called to Date ¹	Outstanding Commitment ¹	Call Ratio	Add'l Fees ²	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions to Paid In Multiple (DPI)	Total Value to Paid In Multiple (TVPI)
Abbott Secondary Opportunities, LP.	2017	12/21/2017	\$25,000,000	\$5,548,252	\$19,814,464	22%	--	\$1,500,000	\$4,685,268	\$6,185,268	\$637,016	58.7%	0.27x	1.11x
Adams Street 2010 U.S. Fund	2010	5/21/2010	\$42,500,000	\$37,442,500	\$5,057,500	88%	\$15,213	\$21,732,250	\$36,541,960	\$58,274,210	\$20,816,497	13.5%	0.58x	1.56x
Adams Street 2010 Non-U.S. Dev. Mkts Fund	2010	5/21/2010	\$25,500,000	\$22,325,249	\$3,174,751	88%	\$1,589	\$13,174,585	\$18,042,982	\$31,217,567	\$8,890,729	10.8%	0.59x	1.4x
Adams Street 2010 Non-U.S. Emg Mkts Fund	2010	1/3/2011	\$8,500,000	\$7,378,000	\$1,122,000	87%	\$0	\$1,859,844	\$9,085,338	\$10,945,182	\$3,567,182	11.0%	0.25x	1.48x
Adams Street 2010 Direct Fund	2010	5/21/2010	\$8,500,000	\$8,046,100	\$453,900	95%	\$6,697	\$8,141,277	\$5,116,016	\$13,257,293	\$5,204,496	12.3%	1.01x	1.65x
Adams Street 2013 Global Fund	2013	6/27/2013	\$75,000,000	\$53,250,000	\$21,750,000	71%	\$10,728	\$6,236,204	\$59,594,061	\$65,830,265	\$12,569,537	8.8%	0.12x	1.24x
Adams Street 2016 Global Fund	2016	12/22/2016	\$60,000,000	\$16,950,000	\$43,050,000	28%	\$0	\$2,082,389	\$16,663,078	\$18,745,467	\$1,795,467	23.5%	0.12x	1.11x
Battery Ventures XII	2018	2/1/2018	\$9,050,000	\$135,750	\$8,914,250	2%	\$0	\$0	\$135,750	\$135,750	--	0.0%	0x	1x
Battery Ventures XII Side Fund	2018	2/1/2018	\$5,050,000	\$50,500	\$4,999,500	1%	\$0	\$0	\$50,500	\$50,500	--	0.0%	0x	1x
Buenaventure One, LLC	2018	1/5/2018	\$7,700,000	--	\$7,700,000	0%	--	--	--	--	--	--	--	--
Clearlake Capital Partners	2017	12/22/2017	\$9,950,000	\$1,438,308	\$8,511,692	14%	\$46,158	--	\$1,349,499	\$1,349,499	-\$134,967	-41.6%	--	0.94x
CVI Credit Value Fund IV	2017	12/31/2017	\$30,000,000	\$3,000,000	\$27,000,000	10%	--	--	\$3,000,000	\$3,000,000	--	--	0x	1x
Drive Capital Fund II	2016	9/1/2016	\$15,000,000	\$4,724,107	\$10,279,103	31%	\$3,210	\$0	\$4,191,949	\$4,191,949	-\$535,368	-16.3%	0x	0.89x
GTCR Fund XII	2017	9/29/2017	\$30,000,000	--	\$30,000,000	0%	--	--	(\$171,029)	(\$171,029)	--	-100.0%	--	--
Insight Venture Partners X	2017	10/13/2017	\$25,000,000	\$2,750,000	\$22,250,000	11%	--	--	\$2,526,642	\$2,526,642	--	-90.7%	--	0.92x
HarbourVest - Dover Street VIII	2013	5/30/2013	\$67,500,000	\$59,147,454	\$8,437,500	88%	\$84,954	\$59,744,800	\$29,313,098	\$89,057,898	\$29,825,490	21.8%	1.01x	1.51x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$15,600,000	\$44,400,000	26%	\$0	\$4,079,170	\$15,872,814	\$19,951,984	\$4,351,984	48.0%	0.26x	1.28x
HarbourVest - PRINS CO INVEST IV L.P.	2017	6/2/2017	\$30,000,000	\$20,371,740	\$9,825,000	68%	\$0	\$0	\$22,205,224	\$22,205,224	\$1,833,484	15.5%	0x	1.09x
M/C Partners VIII	2018	4/2/2018	\$10,000,000	--	\$10,000,000	0%	--	--	--	--	--	--	--	--
Pantheon Global Secondary Fund IV	2010	8/20/2010	\$15,000,000	\$9,960,000	\$5,040,000	66%	\$0	\$12,270,001	\$3,357,708	\$15,627,709	\$5,667,709	14.3%	1.23x	1.57x
Pantheon Global Secondary Fund V	2015	2/26/2015	\$50,000,000	\$27,641,509	\$22,358,491	55%	(\$162,514)	\$5,987,534	\$30,466,092	\$36,453,626	\$8,974,631	21.1%	0.22x	1.32x
Total VCERA Private Equity Program	--	5/21/2010	\$609,250,000	\$295,759,469	\$314,138,151	49%	\$6,035	\$136,808,054	\$262,026,950	\$398,835,004	\$103,463,887	14.4%	0.46x	1.35x

1. Includes recycled/recallable distributions received to date.

2. Add'l Fees represents notional interest paid/(received).

3. Add'l Fees for Pantheon Global Secondary Fund V includes notional interest paid/(received) and management fee rebates paid to VCERA.

Note: Private equity performance data is reported net of fees.

Performance shown is based on 4/30/2018 recent statement of investments produced by Abbott Capital.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL NET OF FEES

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total US Fixed Income	946,006,543	17.7	20.0	-0.6	-1.0	-0.1	0.8	2.1	1.9	5.1	5.8	Feb-94
BBgBarc US Aggregate TR				<u>-0.7</u>	<u>-1.1</u>	<u>-1.0</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.5</u>	<u>3.6</u>	<u>5.2</u>	Feb-94
Over/Under				0.1	0.1	0.9	1.1	1.0	0.4	1.5	0.6	
BlackRock U.S. Debt Fund	218,250,390	4.1		-0.7	-1.1	-1.0	-0.3	1.1	1.5	3.7	5.0	Nov-95
BBgBarc US Aggregate TR				<u>-0.7</u>	<u>-1.1</u>	<u>-1.0</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.5</u>	<u>3.6</u>	<u>5.0</u>	Nov-95
Over/Under				0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
Western	291,966,153	5.5		-0.9	-1.3	-0.3	1.0	2.2	2.5	5.0	6.0	Dec-96
BBgBarc US Aggregate TR				<u>-0.7</u>	<u>-1.1</u>	<u>-1.0</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.5</u>	<u>3.6</u>	<u>5.0</u>	Dec-96
Over/Under				-0.2	-0.2	0.7	1.3	1.1	1.0	1.4	1.0	
Reams	306,622,252	5.7		-0.4	-0.7	-0.2	0.3	2.3	1.3	5.0	5.2	Sep-01
Reams Custom Index				<u>0.2</u>	<u>0.5</u>	<u>1.4</u>	<u>1.6</u>	<u>1.0</u>	<u>0.7</u>	<u>3.0</u>	<u>3.9</u>	Sep-01
Over/Under				-0.6	-1.2	-1.6	-1.3	1.3	0.6	2.0	1.3	
BBgBarc US Aggregate TR				<u>-0.7</u>	<u>-1.1</u>	<u>-1.0</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.5</u>	<u>3.6</u>	<u>4.2</u>	Sep-01
3-Month LIBOR + 3%				0.4	1.3	3.9	4.7	4.0	3.7	3.8	4.8	Sep-01
Loomis Strategic Alpha	46,736,945	0.9		0.3	0.6	3.4	3.3	2.6	--	--	2.8	Jul-13
BBgBarc US Aggregate TR				<u>-0.7</u>	<u>-1.1</u>	<u>-1.0</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.5</u>	<u>3.6</u>	<u>2.2</u>	Jul-13
Over/Under				1.0	1.7	4.4	3.6	1.5			0.6	
3-Month LIBOR + 3%				0.4	1.3	3.9	4.7	4.0	3.7	3.8	3.7	Jul-13
Loomis Sayles Multi Strategy	82,430,802	1.5		-0.3	-1.2	1.7	3.0	3.4	3.2	6.4	6.3	Jul-05
Loomis Custom Index				<u>-0.3</u>	<u>-1.0</u>	<u>0.0</u>	<u>0.8</u>	<u>2.2</u>	<u>2.4</u>	<u>4.8</u>	<u>4.9</u>	Jul-05
Over/Under				0.0	-0.2	1.7	2.2	1.2	0.8	1.6	1.4	
BBgBarc US Govt/Credit TR				<u>-0.8</u>	<u>-1.3</u>	<u>-1.1</u>	<u>-0.3</u>	<u>1.1</u>	<u>1.4</u>	<u>3.6</u>	<u>3.9</u>	Jul-05

Reams Custom Index: Merrill Lynch 3 Month Libor Constant Maturity Index, prior to February 2013 the Barclays Aggregate.

Loomis Custom Index: 65% BBgBarc US Aggregate, 30% Citigroup High Yield Market Index and 5% JPM Non-US Hedged Bond Index.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL NET OF FEES

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	412,852,882	7.7	7.0	0.0	1.9	5.6	6.8	8.1	9.5	2.9	7.8	Mar-94
NCREIF ODCE Net				0.0	2.1	5.7	7.2	9.0	10.4	4.2	8.1	Mar-94
Over/Under				0.0	-0.2	-0.1	-0.4	-0.9	-0.9	-1.3	-0.3	
Prudential Real Estate	147,826,435	2.8		0.0	2.3	6.3	7.9	9.6	11.0	3.9	6.2	Jun-04
NCREIF ODCE Net				0.0	2.1	5.7	7.2	9.0	10.4	4.2	7.1	Jun-04
Over/Under				0.0	0.2	0.6	0.7	0.6	0.6	-0.3	-0.9	
NCREIF ODCE				0.0	2.2	6.3	8.1	10.0	11.4	5.1	8.1	Jun-04
UBS Real Estate	265,026,448	5.0		0.0	1.7	5.2	6.2	7.4	8.7	4.3	7.4	Mar-03
NCREIF ODCE Net				0.0	2.1	5.7	7.2	9.0	10.4	4.2	7.3	Mar-03
Over/Under				0.0	-0.4	-0.5	-1.0	-1.6	-1.7	0.1	0.1	
NCREIF ODCE				0.0	2.2	6.3	8.1	10.0	11.4	5.1	8.3	Mar-03
Total Liquid Alternatives	428,421,080	8.0	10.0	2.5	-3.0	3.4	1.4	-0.9	4.5	--	4.5	Apr-13
CPI + 4% (Unadjusted)				0.6	1.9	5.5	6.4	5.9	6.3	--	6.3	Apr-13
Over/Under				1.9	-4.9	-2.1	-5.0	-6.8	-1.8	--	-1.8	
Bridgewater All Weather Fund	313,052,001	5.9		0.9	-1.1	7.3	6.8	2.8	--	--	5.3	Aug-13
CPI + 5% (Unadjusted)				0.6	2.1	6.3	7.4	7.0	--	--	6.5	Aug-13
Over/Under				0.3	-3.2	1.0	-0.6	-4.2	--	--	-1.2	
Tortoise Energy Infrastructure	115,369,079	2.2		7.3	-7.7	-5.8	-10.7	-8.7	0.5	--	0.5	Apr-13
Wells Fargo MLP Index				7.5	-9.5	-7.3	-11.9	-11.5	-3.7	--	-3.7	Apr-13
Over/Under				-0.2	1.8	1.5	1.2	2.8	4.2	--	4.2	
Overlay	52,043,475	1.0	0.0									
Parametric	52,043,475	1.0										

Total Real Estate Benchmark: NCREIF ODCE; prior to January 2006, the NCREIF Property Index.

Real Estate managers and NCREIF ODCE are valued on a quarterly basis. Performance is not applicable in mid-quarter months, therefore 0% return is shown.

Real Estate Valuation is as of 3/31/2018.



Ventura County Employees' Retirement Association

TOTAL FUND

Cash Flow Summary							
Month Ending April 30, 2018							
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Fees	Net Investment Change	Ending Market Value
Abbott Capital Cash	\$1,702,046	\$30,100,000	-\$31,604,518	-\$1,504,518	\$0	\$8,871	\$206,399
Abbott Secondary Opportunities	\$4,048,252	\$0	\$0	\$0	\$0	\$0	\$4,048,252
Adams Street Global Fund Series	\$140,805,398	\$4,097,611	\$0	\$4,097,611	\$0	-\$6	\$144,903,002
Battery Ventures XII	\$186,250	\$0	\$0	\$0	\$0	\$0	\$186,250
BlackRock ACWI ex-U.S. Index	\$432,724,547	\$0	\$0	\$0	-\$38,370	\$7,716,063	\$440,440,610
BlackRock MSCI ACWI Equity Index	\$593,793,720	\$0	\$0	\$0	-\$21,674	\$6,438,315	\$600,232,035
Blackrock Russell 1000 Index	\$1,491,321,398	\$0	\$0	\$0	-\$12,888	\$5,267,567	\$1,496,588,965
Blackrock Russell 2500 Index	\$61,170,667	\$0	\$0	\$0	-\$1,022	\$151,907	\$61,322,574
BlackRock U.S. Debt Fund	\$219,869,939	\$0	\$0	\$0	-\$10,608	-\$1,619,549	\$218,250,390
Bridgewater All Weather Fund	\$310,358,510	\$0	\$0	\$0	-\$98,553	\$2,693,491	\$313,052,001
Clearlake Capital Partners V	\$1,438,308	\$0	\$0	\$0	\$0	\$0	\$1,438,308
CVI Credit Value Fund	\$1,500,000	\$1,500,000	\$0	\$1,500,000	\$0	\$57,000	\$3,057,000
Drive Capital Fund	\$3,947,269	\$331,907	\$0	\$331,907	\$0	-\$87,227	\$4,191,949
Harbourvest	\$62,644,907	\$2,925,000	\$0	\$2,925,000	\$0	\$10	\$65,569,916
Hexavest	\$92,562,716	\$0	\$0	\$0	-\$35,680	\$1,977,083	\$94,539,799
Insight Venture Partners X	\$0	\$2,750,000	\$0	\$2,750,000	\$0	\$0	\$2,750,000
Loomis Sayles Multi Strategy	\$82,690,216	\$0	\$0	\$0	-\$26,441	-\$259,414	\$82,430,802
Loomis Strategic Alpha	\$46,585,815	\$0	\$0	\$0	-\$15,579	\$151,130	\$46,736,945
Pantheon Global Secondary Funds	\$32,033,047	\$0	\$0	\$0	\$0	\$1,920,887	\$33,953,933
Parametric	\$84,933,234	\$0	-\$30,100,000	-\$30,100,000	-\$5,379	-\$2,789,759	\$52,043,475
Prudential Real Estate	\$147,826,435	\$0	\$0	\$0	\$0	\$0	\$147,826,435
Reams	\$307,962,773	\$0	\$0	\$0	-\$44,578	-\$1,340,521	\$306,622,252



Ventura County Employees' Retirement Association

TOTAL FUND

	Month Ending April 30, 2018							Ending Market Value
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Fees	Net Investment Change		
Sprucegrove	\$232,117,674	\$0	\$0	\$0	-\$69,207	\$6,075,288	\$238,192,962	
Tortoise Energy Infrastructure	\$107,459,344	\$0	\$0	\$0	-\$60,088	\$7,909,735	\$115,369,079	
UBS Real Estate	\$265,026,448	\$0	\$0	\$0	\$0	\$0	\$265,026,448	
Walter Scott	\$122,712,114	\$0	\$0	\$0	-\$83,845	\$1,228,369	\$123,940,483	
Western	\$294,697,469	\$0	\$0	\$0	-\$48,996	-\$2,731,316	\$291,966,153	
Western U.S. Index Plus	\$195,822,774	\$0	\$0	\$0	-\$37,048	\$562,321	\$196,385,095	
Total	\$5,337,941,269	\$41,704,518	-\$61,704,518	-\$20,000,000	-\$609,956	\$33,330,244	\$5,351,271,513	



Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



QUARTERLY PERFORMANCE REPORT

Ventura County Employees' Retirement Association

March 31, 2018

Allan Martin, Partner
Anthony Ferrara, CAIA, Consultant
Michael Miranda, CFA, Senior Analyst



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MARKET ENVIRONMENT UPDATE AND OUTLOOK

NEPC, LLC

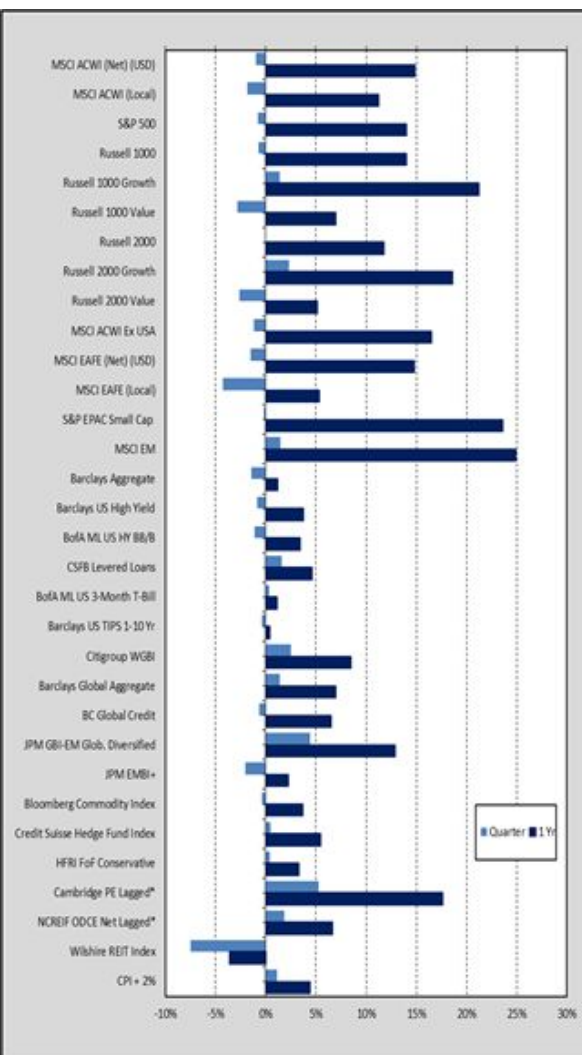
ECONOMIC ENVIRONMENT

- **First quarter GDP growth rate (advance estimate) increased at a moderate 2.3%.**
 - Retail sales ended February at +4.2% on a YoY basis. In the same period last year the YoY growth rate was 4.9%.
 - Corporate profits (ended October) as a percent of GDP decreased to 8.5% from 9.5% (in July) and remain elevated relative to historical levels.
 - The inventory-to-sales ratio ended February up at 1.4 from 1.3 and has remained relatively flat since early 2010.
 - The U.S. trade deficit widened by 1.6% ended February and is at its highest level in nearly 10 years.
- **The unemployment rate remained flat at 4.1% Q1; U-6, a broader measure of unemployment, decreased to 8.0% from 8.1% during the first quarter.**
- **The Case-Shiller Home Price Index (ended January) increased to 196.3 from 195.6 and remains at levels higher than that of pre-financial crisis levels of 150.9.**
- **Rolling 12-month seasonally-adjusted CPI saw an up-tick to 2.4% from 2.1% at the end of March; Capacity Utilization marginally increased to 78.0% from 77.9% in Q1.**
- **Fed Funds rate was increased 0.25% to a targeted range of 1.50% - to – 1.75%. The 10-year Treasury Yield (constant maturity) finished Q1 at 2.8% up from 2.4% in December.**
- **The Fed balance sheet decreased slightly during Q1 2018, while the European Central Bank balance sheet continues to increase.**
 - ECB held its benchmark refinancing rate at 0%, deposit rates -0.4% and asset purchases would slow from €60 billion per month to €30 billion per month.
- **S&P valuations increased slightly in Q1, remaining above the 10-year and long-term averages.**
 - Cyclically adjusted Shiller PE ratio (32.6x) is above the long-term average of 16.9x and above the 10-year average of 23.5x.



MARKET ENVIRONMENT – Q1 2018 OVERVIEW

		Qtr.	1 Yr.	3 Yr.	5 Yr.	10 Yr.
World Equity Benchmarks						
MSCI ACWI (Net) (USD)	World	-1.0%	14.8%	8.1%	9.2%	5.6%
MSCI ACWI (Local)	World (Local Currency)	-1.9%	11.2%	7.3%	10.4%	6.6%
Domestic Equity Benchmarks						
S&P 500	Large Core	-0.8%	14.0%	10.8%	13.3%	9.5%
Russell 1000	Large Core	-0.7%	14.0%	10.4%	13.2%	9.6%
Russell 1000 Growth	Large Growth	1.4%	21.3%	12.9%	15.5%	11.3%
Russell 1000 Value	Large Value	-2.8%	6.9%	7.9%	10.8%	7.8%
Russell 2000	Small Core	-0.1%	11.8%	8.4%	11.5%	9.8%
Russell 2000 Growth	Small Growth	2.3%	18.6%	8.8%	12.9%	11.0%
Russell 2000 Value	Small Value	-2.6%	5.1%	7.9%	10.0%	8.6%
International Equity Benchmarks						
MSCI ACWI Ex USA	World ex-US	-1.2%	16.5%	6.2%	5.9%	2.7%
MSCI EAFE (Net) (USD)	Int'l Developed	-1.5%	14.8%	5.6%	6.5%	2.7%
MSCI EAFE (Local)	Int'l Developed (Local Currency)	-4.3%	5.3%	3.4%	8.5%	4.5%
S&P EPAC Small Cap	Small Cap Int'l	-0.2%	23.6%	12.0%	11.4%	6.3%
MSCI EM	Emerging Equity	1.4%	24.9%	8.8%	5.0%	3.0%
Domestic Fixed Income Benchmarks						
Barclays Aggregate	Core Bonds	-1.5%	1.2%	1.2%	1.8%	3.6%
Barclays US High Yield	High Yield	-0.9%	3.8%	5.2%	5.0%	8.3%
BofA ML US HY BB/B	High Yield	-1.1%	3.4%	4.7%	4.8%	7.4%
CSFB Levered Loans	Bank Loans	1.6%	4.6%	4.3%	4.2%	5.4%
BofA ML US 3-Month T-Bill	Cash	0.4%	1.1%	0.5%	0.3%	0.3%
Barclays US TIPS 1-10 Yr	Inflation	-0.4%	0.4%	1.2%	-0.1%	2.2%
Global Fixed Income Benchmarks						
Citigroup WGBI	World Gov. Bonds	2.5%	8.5%	3.5%	1.2%	2.0%
Barclays Global Aggregate	Global Core Bonds	1.4%	7.0%	3.1%	1.5%	2.6%
BC Global Credit	Global Bonds	-0.6%	6.5%	3.1%	2.4%	3.7%
JPM GBI-EM Glob. Diversified	Em. Mkt. Bonds (Local Currency)	4.4%	12.9%	5.4%	-0.7%	3.8%
JPM EMBI+	Em. Mkt. Bonds	-2.0%	2.2%	5.1%	3.6%	6.5%
Alternative Benchmarks						
Bloomberg Commodity Index	Commodities	-0.4%	3.7%	-3.2%	-8.3%	-7.7%
Credit Suisse Hedge Fund Index	Hedge Fund	0.5%	5.4%	1.8%	3.6%	3.5%
HFRI FoF Conservative	Fund of Hedge Funds	0.4%	3.3%	1.6%	2.9%	1.3%
Cambridge PE Lagged*	Private Equity	5.3%	17.6%	12.0%	13.6%	9.8%
NCREIF ODCE Net Lagged*	Real Estate	1.9%	6.7%	9.4%	10.5%	4.1%
Wilshire REIT Index	REIT	-7.5%	-3.6%	1.0%	6.1%	6.2%
CPI + 2%	Inflation/Real Assets	1.1%	4.4%	3.9%	3.5%	3.6%



* As of 12/31/2017



MARKET ENVIRONMENT

Global Equity

- **U.S. equities as measured by the S&P 500 posted a loss in the first quarter (-0.8%).**
- **Small cap stocks outperformed large cap stocks during the quarter, with the Russell 2000 Index returning -0.1% and the Russell 1000 Index returning -0.7%.**
- **International equities underperformed U.S. markets during the quarter, returning -1.2%, as measured by the MSCI ACWI ex-U.S. Index. Emerging markets returned 1.4% as measured by the MSCI Emerging Markets Index in U.S. dollar terms.**
 - Developed international markets returned -1.5% in USD terms, while in local currency terms returned -4.3% as measured by the MSCI EAFE Index.

Private Equity

- **Capital commitment momentum slowed to a level not seen since 2015 in Q1 2018.**
- **Private equity fundraising totaled \$80 billion in Q1 2018.**
 - North America focused private equity funds raised \$31.7 billion.
 - Asia focused private equity funds raised \$4.8 billion.
 - Europe focused private equity raised \$42.9 billion.
- **Private equity dry powder continued its increase to record levels and stands at \$1.09 trillion.**



MARKET ENVIRONMENT

Fixed Income

- **The nominal yield curve continued to flatten in Q1. Long term yields decreased 27 –to- 23 basis points across 20 to 30 year treasury bonds while short term yields increased 35 basis points for the 3 month and 33 basis points in the one year.**
- **The spread between two and 10 year rates decreased to 47 basis points from 51 basis points in Q1.**
- **Treasury Inflation-Protected Securities, or TIPS, returned -0.4% during the quarter, as measured by the BBg Barclays US TIPS 1-10 Yr Index.**
- **The BBg Barclays Long Duration Credit Index lost -3.8%.**
- **Long Treasuries lost -3.29% and investment-grade US corporate debt lost -1.5%.**
- **The BBg Barclays 1-3 year US Government/ Credit Index returned -0.20%. US high yield bonds lost -0.9% as spreads widened.**
- **Emerging markets debt had mixed results.**
 - US dollar-denominated debt, as measured by the JP Morgan EMBI Index, returned -2.0%; local currency debt gained 4.4%, according to the JP Morgan GBI-EM BD Index.



MARKET ENVIRONMENT

Real Assets/Inflation-Linked Assets

- **Energy remains attractive despite volatile oil prices.**
 - Private equity and debt opportunities are attractive.
 - Fire sale prices never materialized but focusing on assets outside of the hottest zip codes provides potential for strong returns as market normalizes.

- **Infrastructure – select opportunities to access growth markets.**
 - High quality assets are receiving premium bids from direct investors (Pension Funds and Sovereigns) with low costs of capital and long hold horizons; focus on mismanaged or niche opportunities.

- **Metals & Mining – have commodity prices bottomed?**
 - Improving Metals & Mining fundamentals but limited to assets near production

- **Timber – low return potential and limited opportunity for outperformance.**

- **Agriculture – near-term slowdown in price appreciation creates opportunity to invest in a strong (very) long term outlook supported by demographic trends.**



MARKET ENVIRONMENT

Commodities

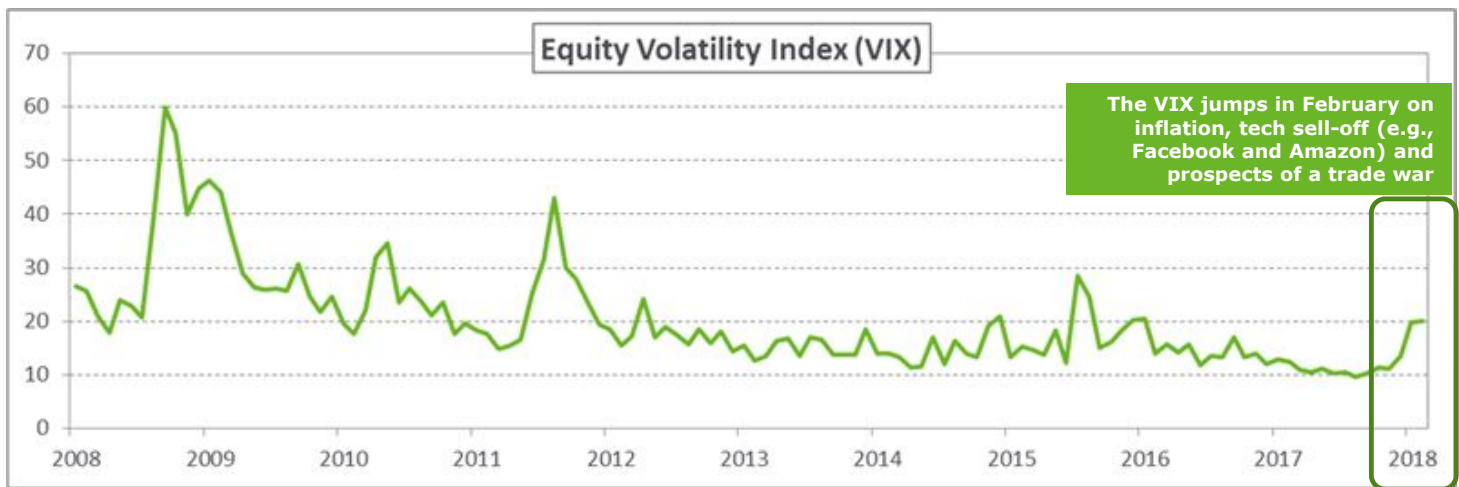
- **Commodities returned -0.4% as measured by the Bloomberg Commodity Index.**
 - Industrial metals led to the index's decline. US Dollar weakness led to increased oil prices.

Real Estate

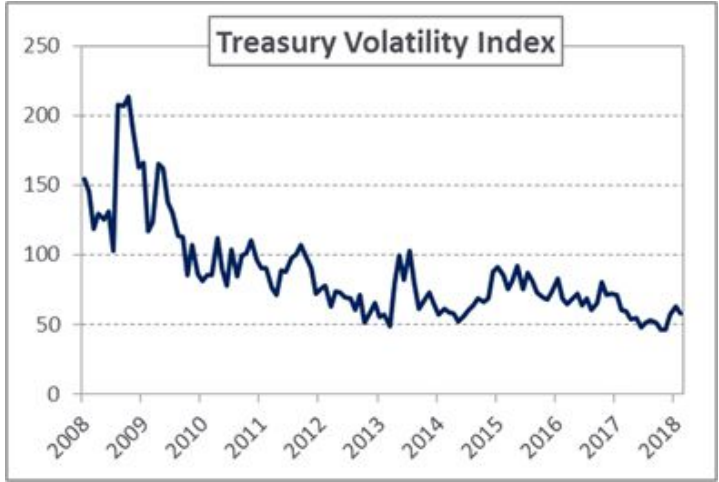
- **NEPC continues to be neutral on core real estate in the US and remains positive on non-core real estate, that is, value-add and opportunistic strategies.**
- **Real estate fundamentals (rent growth, occupancy, net absorption) remain strong; however, valuations are high on an absolute and relative basis.**
 - Rising interest rates have been baked into existing valuations but excess cap rate expansion (beyond general expectations) will reset valuations.
 - REIT sector has been volatile and remain at the high end of historical FFO multiple ranges
- **Overall, the non-core real estate investment environment in the U.S. is normalizing; however, select areas remain attractive.**
- **Europe is viewed as the best place for a marginal dollar of non-core real estate investment.**
- **Emerging markets in Latin America (Brazil) and Asia (China, India) may have strengthening opportunities.**



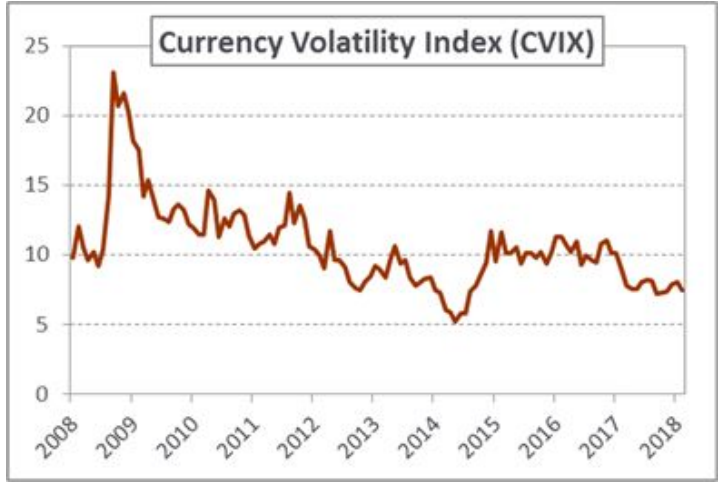
VOLATILITY



Source: CBOE, Bloomberg



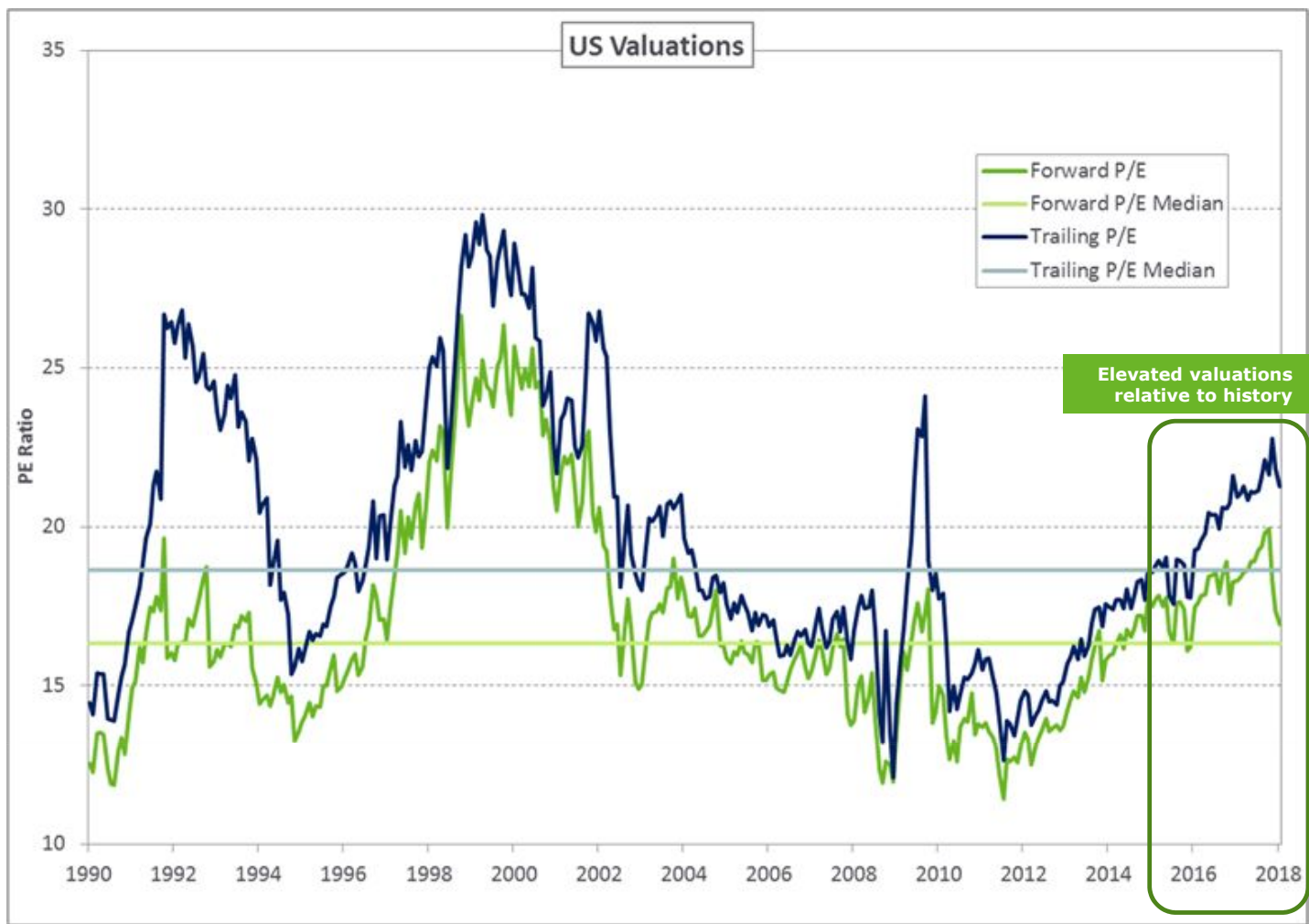
Source: Merrill Lynch, Bloomberg



Source: Deutsche Bank, Bloomberg



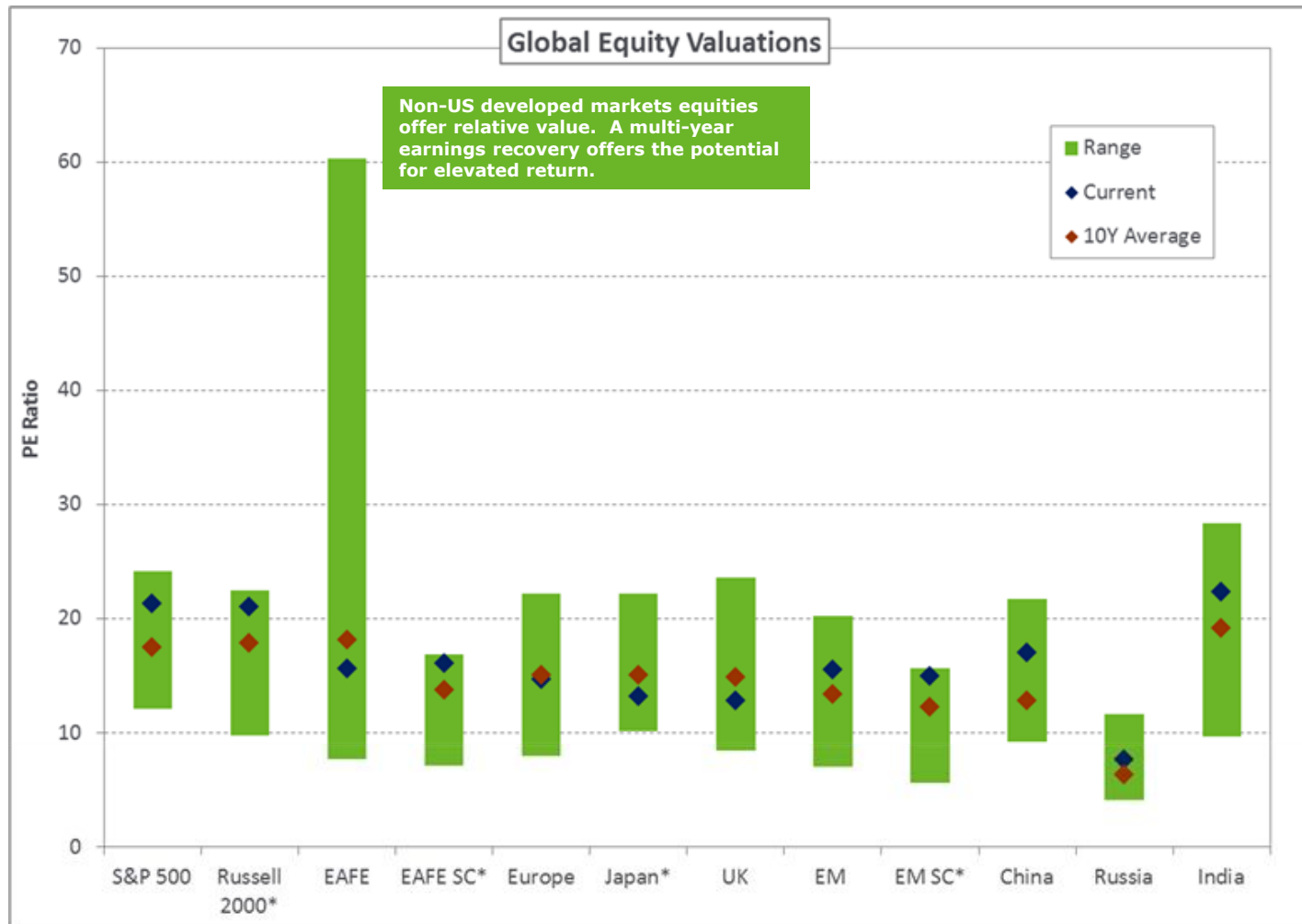
US EQUITY VALUATIONS



Source: S&P, Bloomberg
Medians calculated as of 01/31/1990



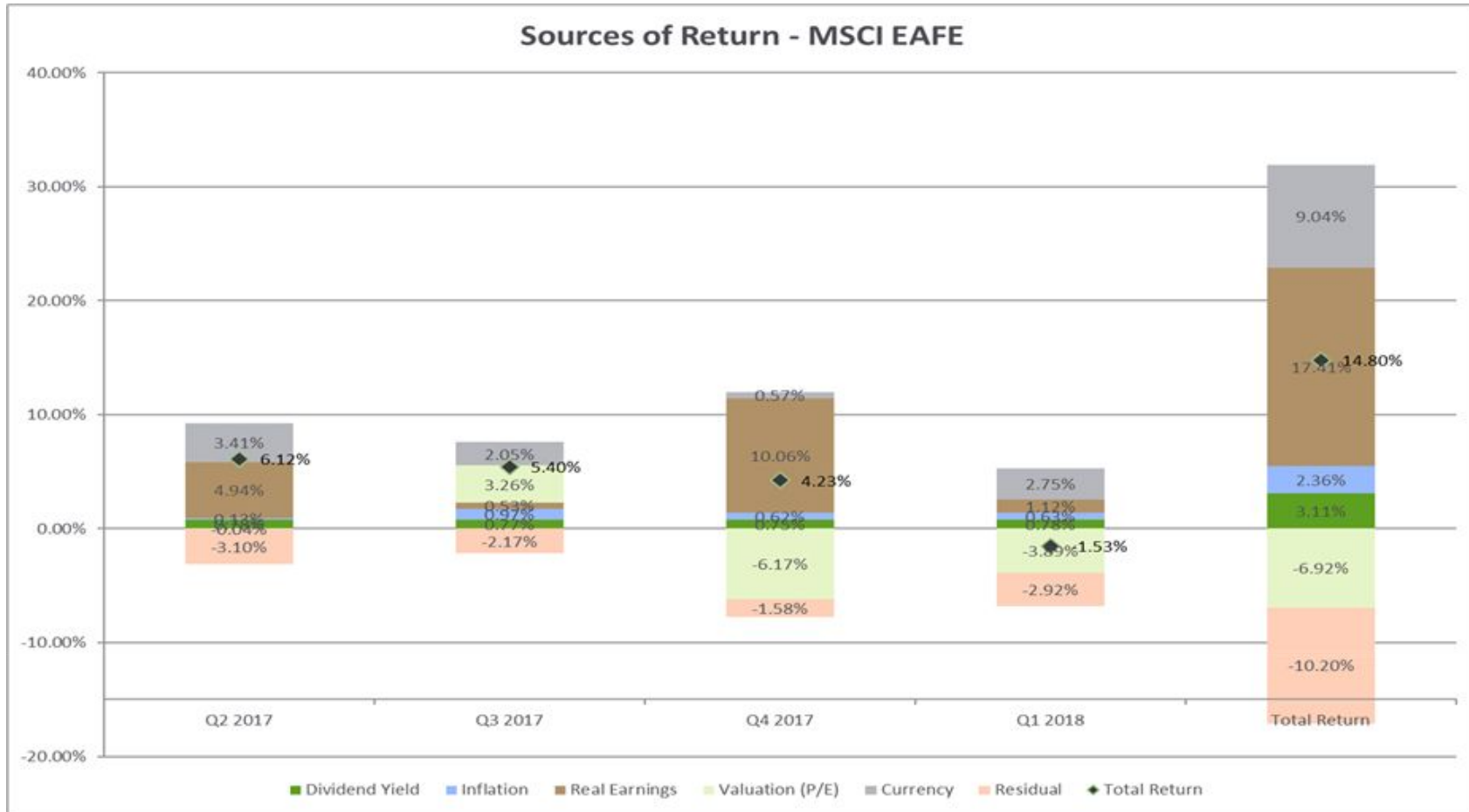
GLOBAL EQUITY VALUATIONS



Source: S&P, Russell, MSCI, Bloomberg, NEPC
 *Denotes the use of index-adjusted positive PE ratio
 Ranges calculated using trailing 10-year figures



TRAILING 1 YEAR – ATTRIBUTION OF MSCI EAFE RETURNS



Spot Rates

1 USD = 0.876 Euro

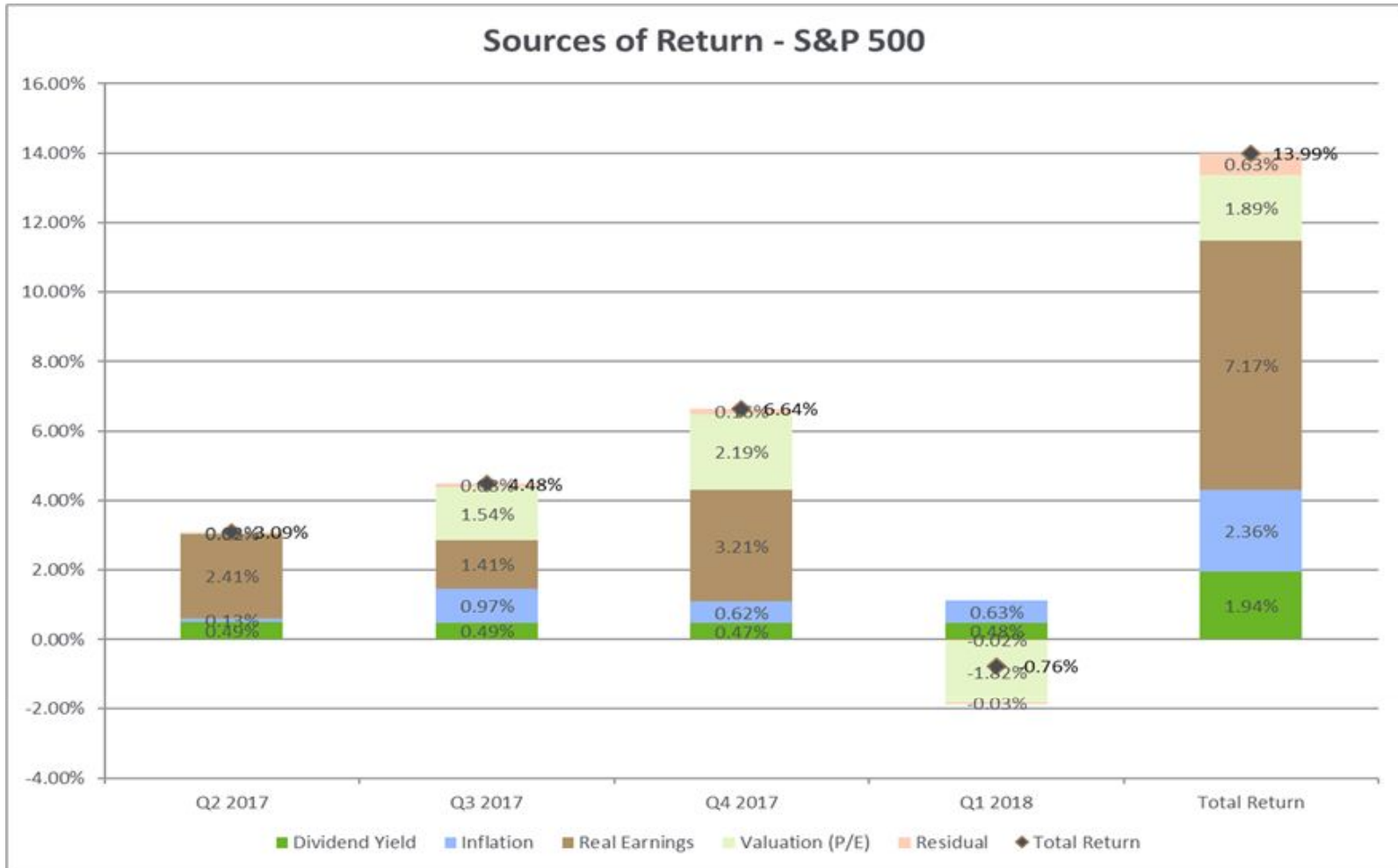
1 USD = 0.846 Euro

1 USD = 0.833 Euro

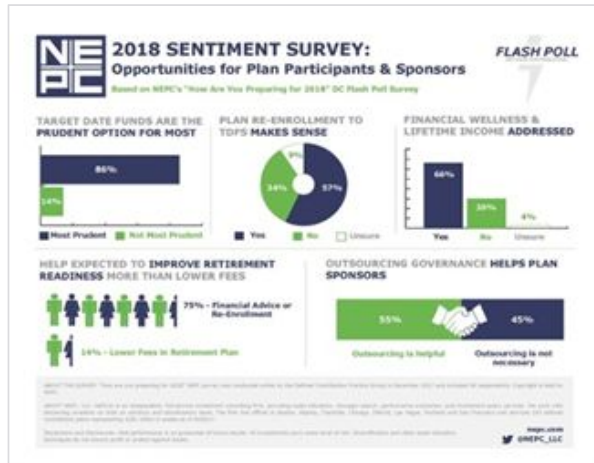
1 USD = 0.811 Euro



TRAILING 1 YEAR – ATTRIBUTION OF S&P 500 RETURNS



HIGHLIGHTS OF FIRST QUARTER HAPPENINGS AT NEPC



NEPC INSIGHTS

- Taking Stock: Corporate Pension Plans: Is it Time to Play Defense?
- White Paper: The Curse of Greed
- Taking Stock: Solar Tariffs: Too Much Shade for Solar?
- 2018 Annual Asset Allocation Letter
- Fourth Quarter Market Thoughts
- Defined Contribution Infographic: How Are You Preparing for 2018?
- Taking Stock: Are CTAs Positioned to Protect Portfolios?
- Taking Stock: Last Week's Market Correction: A Short-Term Blip or a Long-Term Trend?
- Taking Stock: Corporate Pension Plans: Navigating Tax Reform and Q4 Liability Performance
- Taking Stock: Instability and Indecision Fuel Political Uncertainty
- Taking Stock: Italy's Instability and Indecision Fuel Political Uncertainty, Part Due
- March 2018 Endowment & Foundation Survey Results & Infographic
- Taking Stock: What's the Deal with the High Turnover at the Fed?
- Taking Stock: The Fed Sticks to Script; Ups 2019 Projections
- Taking Stock: Ten Years Since the Global Financial Crisis, Part 2: The Ides of March

WEBINAR REPLAYS

- 2018 Market Outlook Webinar Replay

To download NEPC's recent insights and webinar replays, visit: www.NEPC.com/insights

RECENT UPDATES

- Our team continues to grow: Please join us in welcoming back Kristen Colvin, Principal and Member of the Defined Contribution team.
- We have updated our manager rating system! NEPC clients will see these changes in 2018 materials. We transitioned from a qualitatively-named rating system to a numerically-named system.



HIGHLIGHTS OF FIRST QUARTER HAPPENINGS AT NEPC



REGISTER NOW!

We are looking forward to seeing you at NEPC's 23rd Annual Investment Conference next month in Boston. For those who have yet to register for the event, we hope that you will join us as we explore this year's theme of "Disruption" through many lenses.

Our accomplished external speakers and informational breakout sessions are a great opportunity to tune up your knowledge on the latest thinking and approaches to investing across the equity spectrum.

At the end of Day One we invite you to join us for dinner at some of Boston's finer restaurants, where you will have a great opportunity to meet and mingle with other NEPC clients. Please reach out to your NEPC representative with any questions.

To register, visit:

www.NEPC.com/insights/save-the-date-nepcs-23rd-annual-investment-conference



TOTAL FUND PERFORMANCE SUMMARY

NEPC, LLC

Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE SUMMARY (NET)

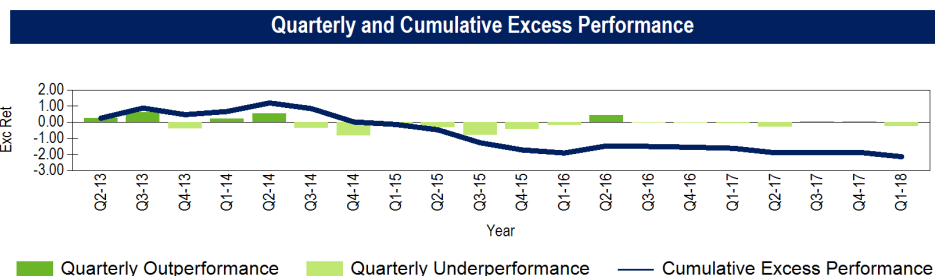
	Market Value	3 Mo	Rank	Fiscal YTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank	10 Yrs	Rank	Inception	Inception Date
Total Fund	\$5,337,941,269	-0.6%	92	7.4%	45	10.3%	56	6.8%	41	8.1%	24	6.5%	28	8.1%	Apr-94
Policy Index		-0.3%	76	7.6%	32	10.9%	37	7.5%	15	8.6%	12	6.6%	15	8.1%	Apr-94
60% MSCI ACWI (Net) / 40% CITI WGBI		0.5%	33	8.3%	15	12.3%	11	6.4%	65	6.1%	89	4.4%	94	--	Apr-94
60% S&P 500 / 40% BBgBarc Aggregate		-1.0%	99	6.2%	90	8.8%	95	7.0%	32	8.7%	10	7.4%	2	8.3%	Apr-94
InvestorForce Public DB > \$1B Net Median		0.1%		7.2%		10.4%		6.6%		7.5%		5.9%		7.5%	Apr-94

- For the five year period ending March 31, 2018, the Fund returned 8.1% trailing the policy index by 0.5% and ranking in the 24th percentile of its peers and outperforming the actuarial assumed rate of 7.5%. The Fund's volatility, as measured by standard deviation, ranked in the 81st percentile of its peers, and the risk-adjusted return, or Sharpe Ratio, ranks in the 52nd percentile. This means that the Fund has earned more return per unit of volatility taken than 48% of its peers.

- For the three-year period, the Fund returned 6.8%, trailing the policy index by 0.7% and ranking in the 41st percentile of its peers. The Fund's volatility ranks in the 86th percentile of its peers over this period, with the Fund's Sharpe Ratio ranking in the 70th percentile.

- For the one-year period, the Fund returned 10.3%, underperforming the policy index by 0.6% and ranking in the 56th percentile of the InvestorForce Public Funds > \$1 Billion Universe (Net of fees).

- For the one-year period, the Fund experienced a net investment gain of \$523 million which includes a net investment loss of \$27 million in the quarter. Assets increased from \$4.83 billion one year ago to \$5.34 billion.



3 Years Ending March 31, 2018								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	6.8%	41	6.7%	86	0.9	70	1.4	58
Policy Index	7.5%	15	6.5%	79	1.1	40	1.6	35
InvestorForce Public DB > \$1B Net Median	6.6%	--	5.8%	--	1.0	--	1.4	--

5 Years Ending March 31, 2018								
	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
Total Fund	8.1%	24	6.4%	81	1.2	52	2.1	38
Policy Index	8.6%	12	6.3%	76	1.3	36	2.2	31
InvestorForce Public DB > \$1B Net Median	7.5%	--	5.7%	--	1.2	--	2.0	--

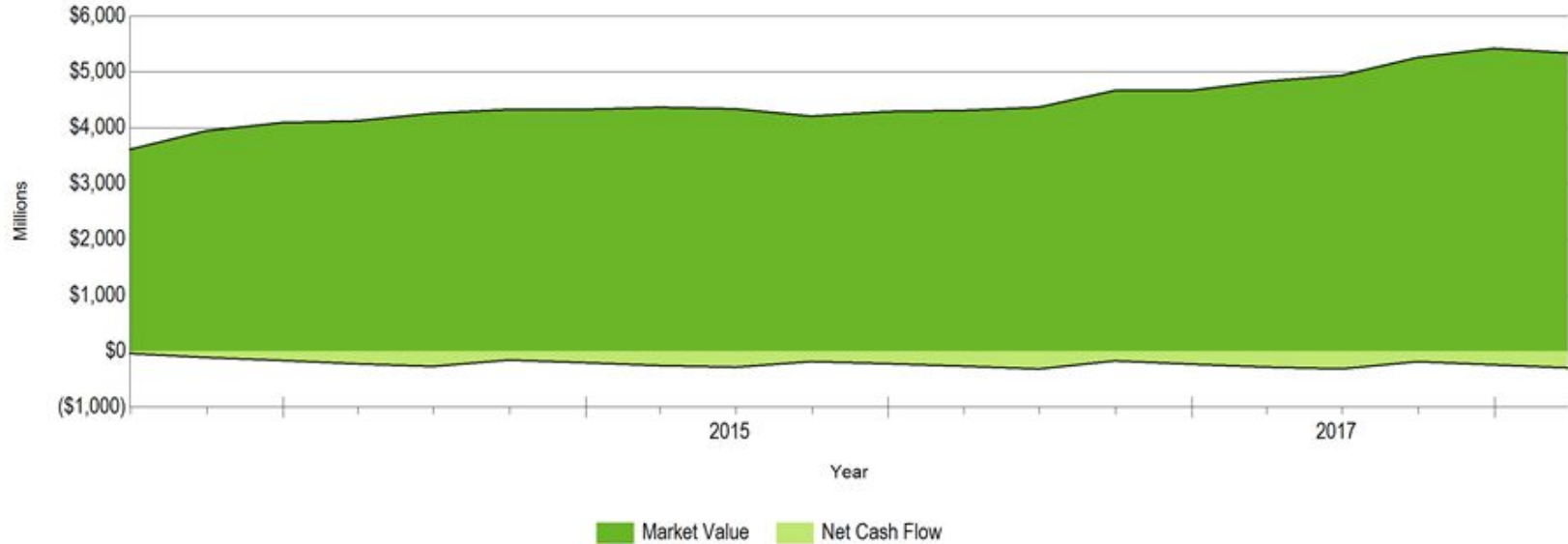
Policy Index as of January 2016: 28% Russell 3000, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% Russell 3000 Index + 3%, 10% CPI+4%Index, and 7% NCREIF ODCE Real Estate Index.



Ventura County Employees' Retirement Association

TOTAL FUND ASSET GROWTH SUMMARY

Market Value History
5 Years Ending March 31, 2018

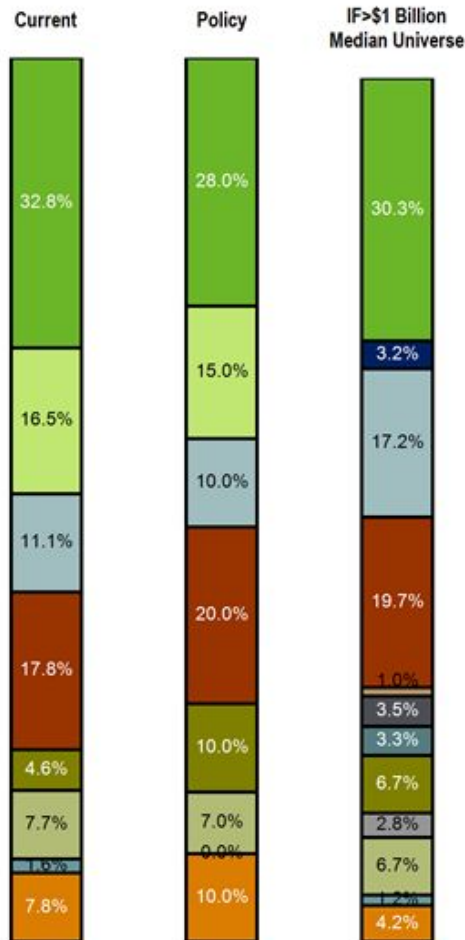


Summary of Cash Flows					
	Last Three Months	Fiscal Year-To-Date	One Year	Three Years	Five Years
Beginning Market Value	\$5,420,490,945	\$4,935,381,791	\$4,829,813,958	\$4,365,835,058	\$3,648,861,350
Net Cash Flow	-\$55,700,795	\$18,151,429	-\$14,588,251	-\$41,920,682	-\$298,561,551
Net Investment Change	-\$26,848,881	\$384,408,049	\$522,715,562	\$1,014,026,893	\$1,987,641,470
Ending Market Value	\$5,337,941,269	\$5,337,941,269	\$5,337,941,269	\$5,337,941,269	\$5,337,941,269



Ventura County Employees' Retirement Association

TOTAL FUND ASSET ALLOCATION VS. POLICY TARGETS



Asset Allocation vs. Target							
	Current	Current	Policy	Difference*	Policy Range	Within Range	
U.S. Equity	\$1,748,314,838	32.8%	28.0%	4.8%	24.0% - 32.0%	--	
Non-US Equity	\$880,117,051	16.5%	15.0%	1.5%	12.0% - 18.0%	Yes	
Emerging Markets Equity	--	--	--	0.0%	--	--	
Global Equity	\$593,793,720	11.1%	10.0%	1.1%	7.0% - 13.0%	Yes	
U.S. Fixed Income	\$951,806,212	17.8%	20.0%	-2.2%	16.0% - 24.0%	Yes	
Fixed Income - Emerging	--	--	--	0.0%	--	--	
Fixed Income - Global	--	--	--	0.0%	--	--	
Global Asset Allocation	--	--	--	0.0%	--	--	
Private Equity	\$246,603,431	4.6%	10.0%	-5.4%	0.0% - 12.0%	Yes	
Hedge Funds	--	--	--	0.0%	--	--	
Real Estate	\$412,852,882	7.7%	7.0%	0.7%	4.0% - 10.0%	Yes	
Cash	\$86,635,280	1.6%	0.0%	1.6%	0.0% - 3.0%	Yes	
Liquid Alternatives	\$417,817,854	7.8%	10.0%	-2.2%	5.0% - 15.0%	Yes	
Total	\$5,337,941,269	100.0%	100.0%				

*Difference between Policy and Current Allocation

Cash represents assets in Parametric Overlay.

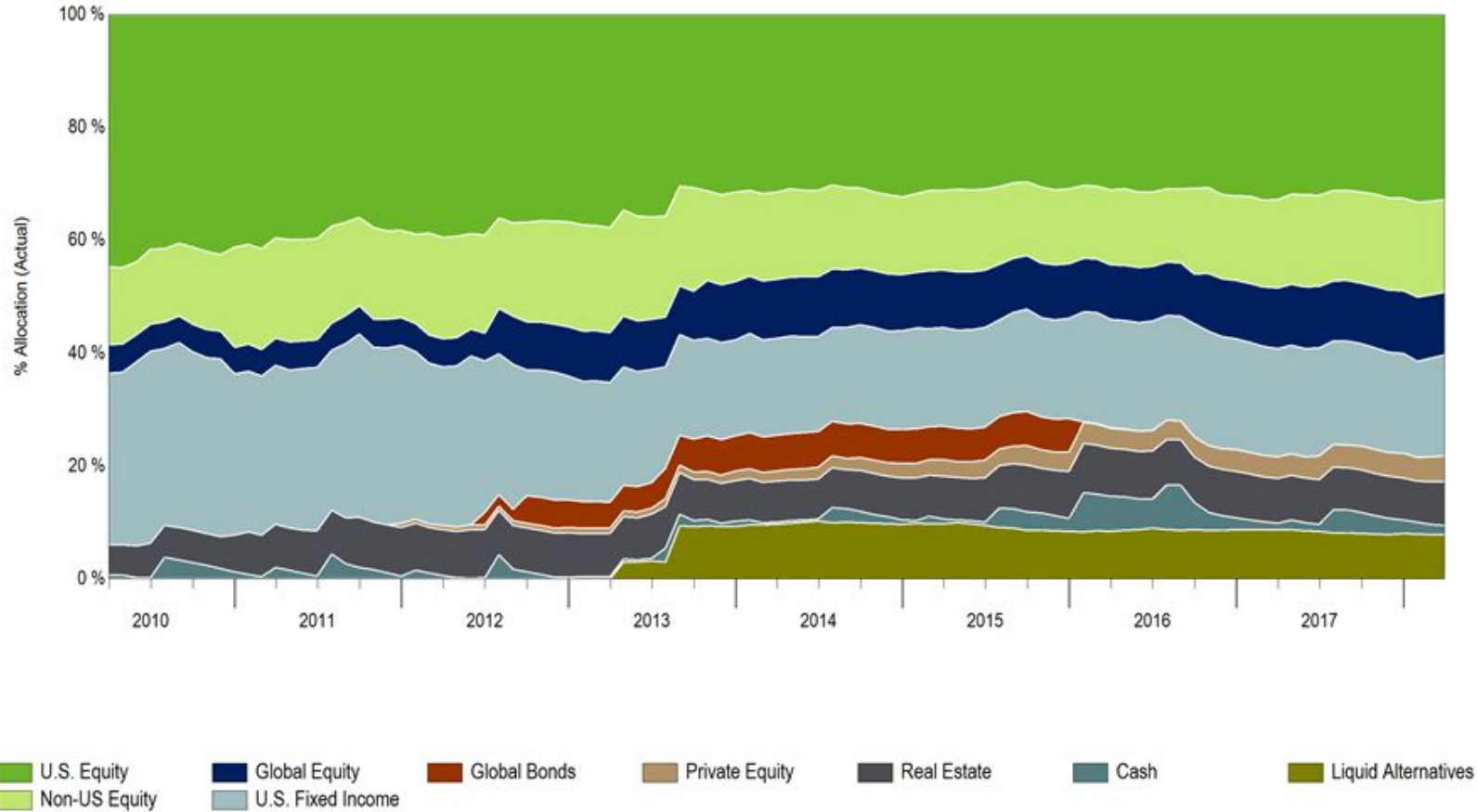
Policy Index as of January 2016: , 28% Russell 3000, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% Russell 3000 + 3%, 10% CPI+4% Index, and 7% NCREIF ODCE Real Estate Index.



Ventura County Employees' Retirement Association

ASSET ALLOCATION HISTORY

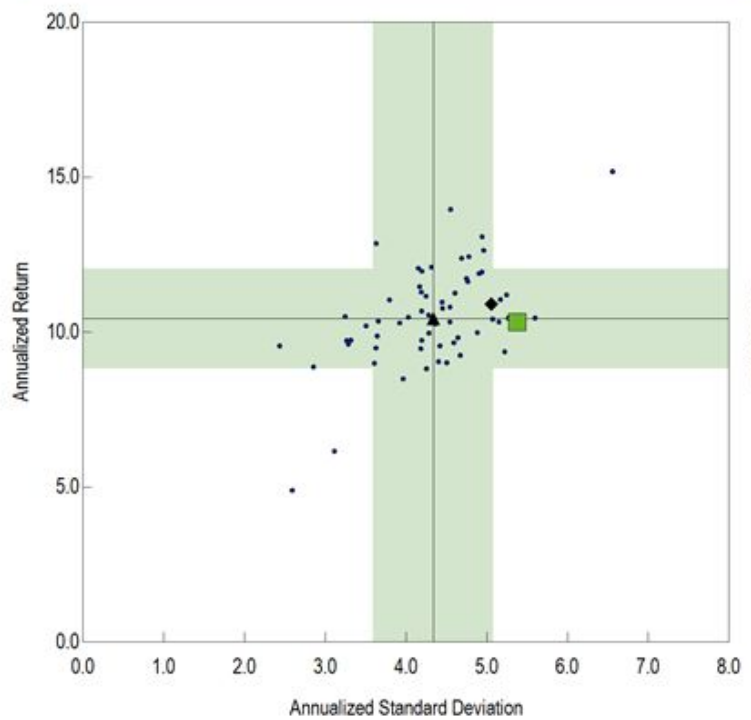
Asset Allocation History
8 Years Ending March 31, 2018



Ventura County Employees' Retirement Association

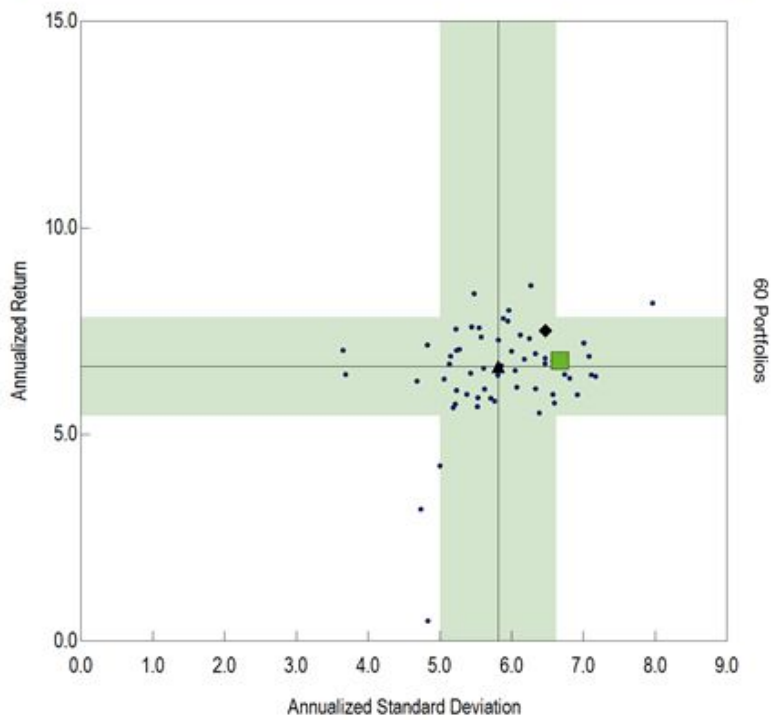
TOTAL FUND RISK/RETURN

1 Years Ending March 31, 2018



- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

3 Years Ending March 31, 2018



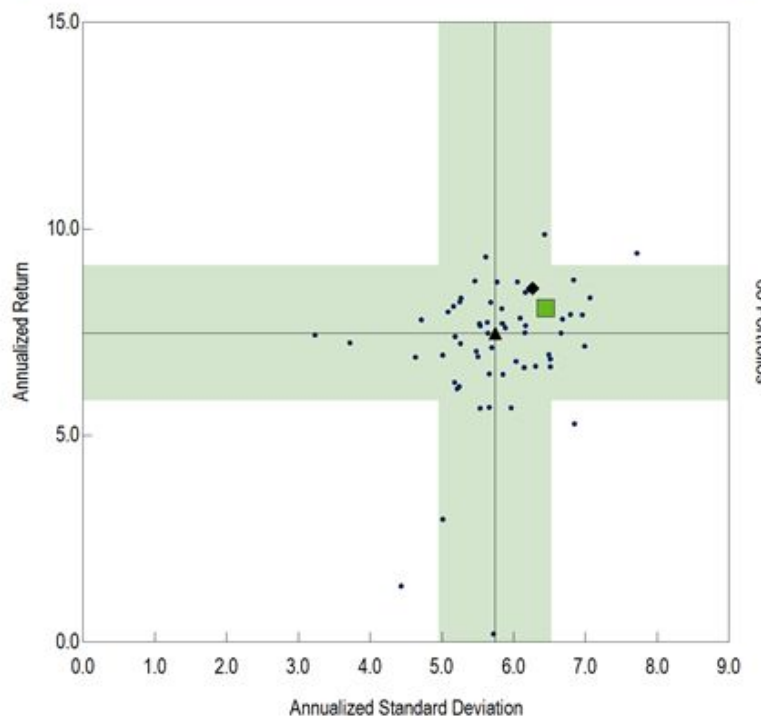
- Total Fund
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



Ventura County Employees' Retirement Association

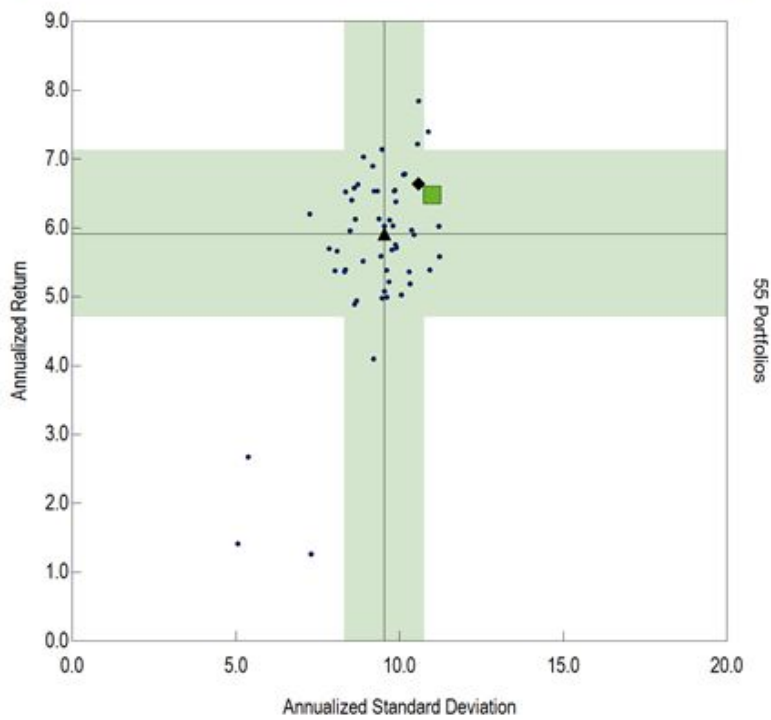
TOTAL FUND RISK/RETURN

5 Years Ending March 31, 2018



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net

10 Years Ending March 31, 2018



- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Net



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net 1 Year



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net 3 Years



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

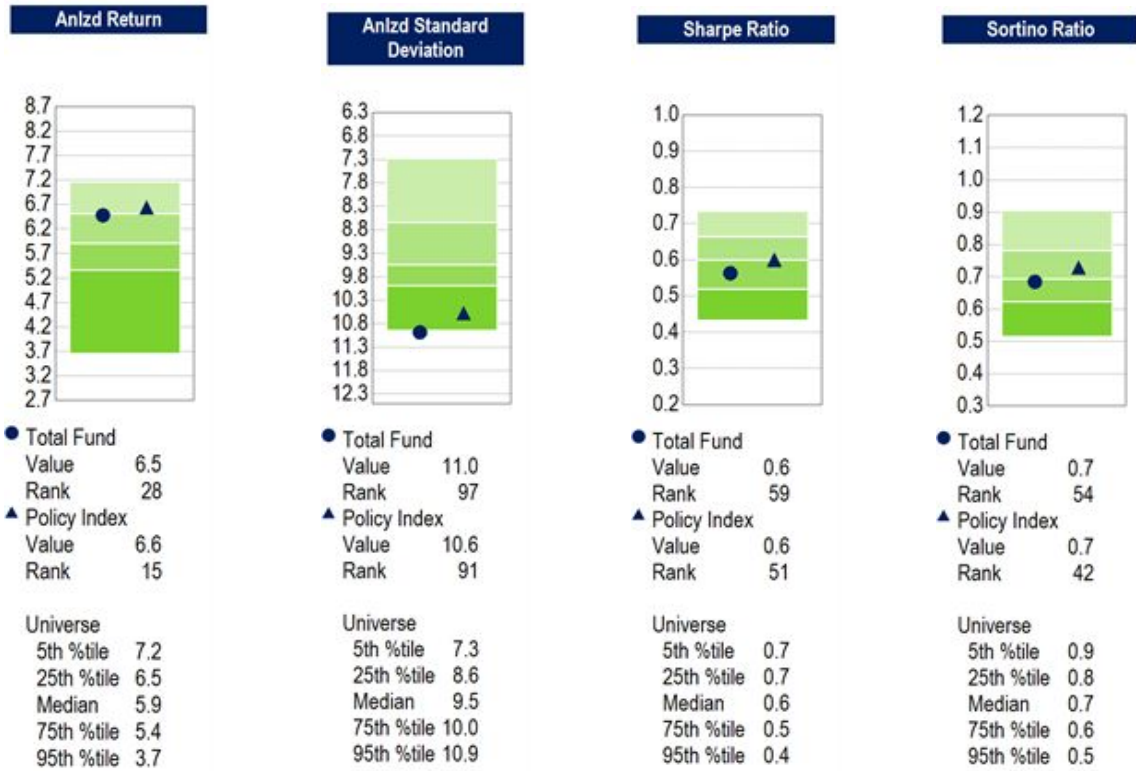
Total Fund vs. InvestorForce Public DB > \$1B Net 5 Years



Ventura County Employees' Retirement Association

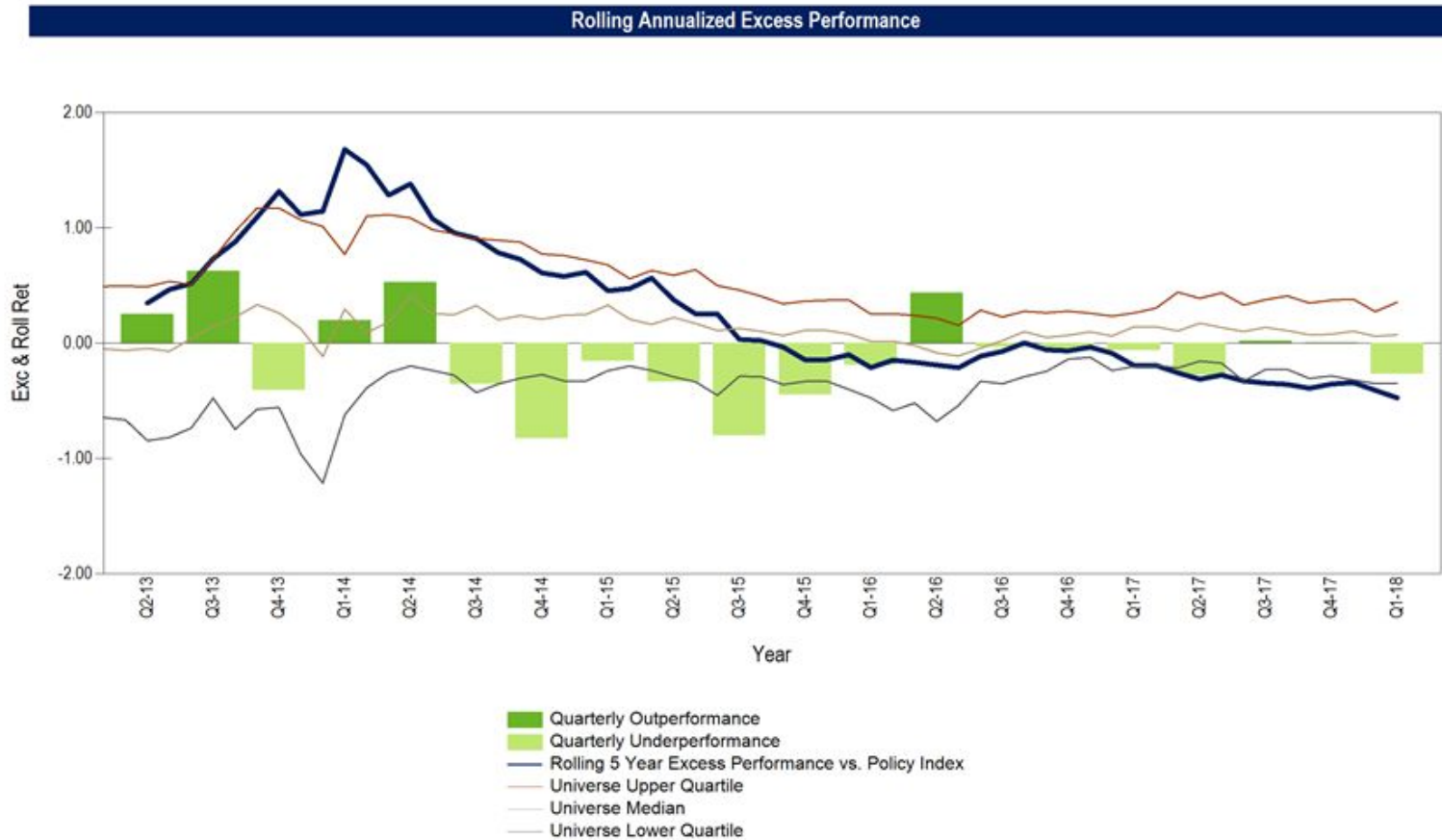
TOTAL FUND RISK STATISTICS VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net 10 Years



Ventura County Employees' Retirement Association

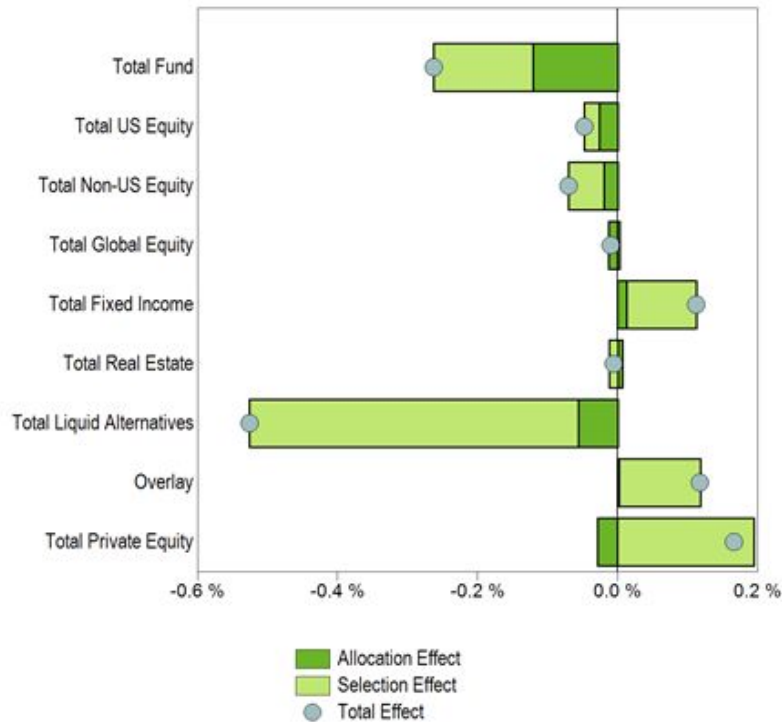
ROLLING 5 YEAR EXCESS RETURNS- NET OF FEES



Ventura County Employees' Retirement Association

TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
3 Months Ending March 31, 2018



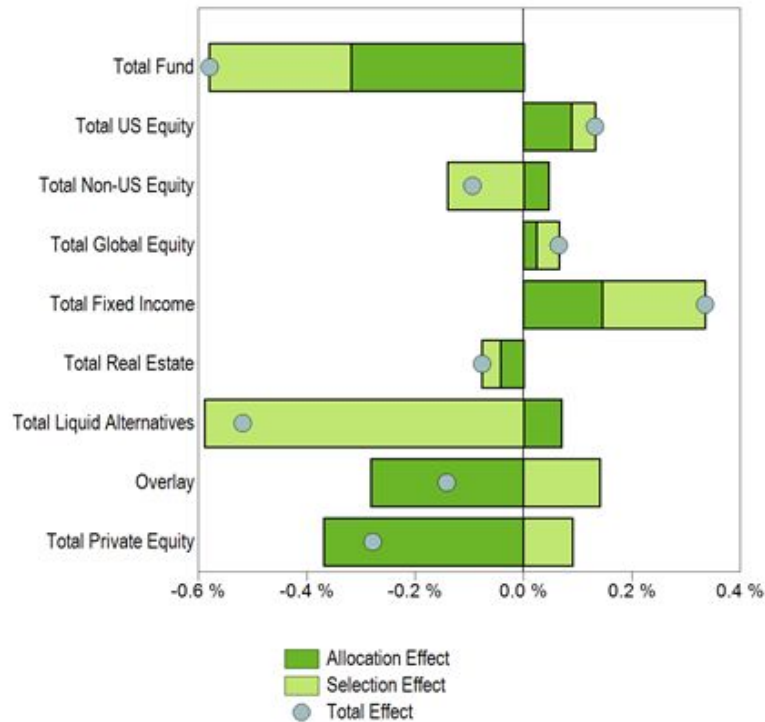
Attribution Summary						
3 Months Ending March 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	-0.7%	-0.6%	-0.1%	0.0%	0.0%	0.0%
Total Non-US Equity	-1.5%	-1.2%	-0.3%	-0.1%	0.0%	-0.1%
Total Global Equity	-0.9%	-1.0%	0.0%	0.0%	0.0%	0.0%
Total Fixed Income	-0.9%	-1.5%	0.6%	0.1%	0.0%	0.1%
Total Real Estate	1.9%	2.1%	-0.2%	0.0%	0.0%	0.0%
Total Liquid Alternatives	-3.7%	2.2%	-5.9%	-0.5%	-0.1%	-0.5%
Overlay	6.8%	0.4%	6.4%	0.1%	0.0%	0.1%
Total Private Equity	4.8%	0.1%	4.7%	0.2%	0.0%	0.2%
Total	-0.6%	-0.3%	-0.3%	-0.1%	-0.1%	-0.3%



Ventura County Employees' Retirement Association

TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
1 Year Ending March 31, 2018



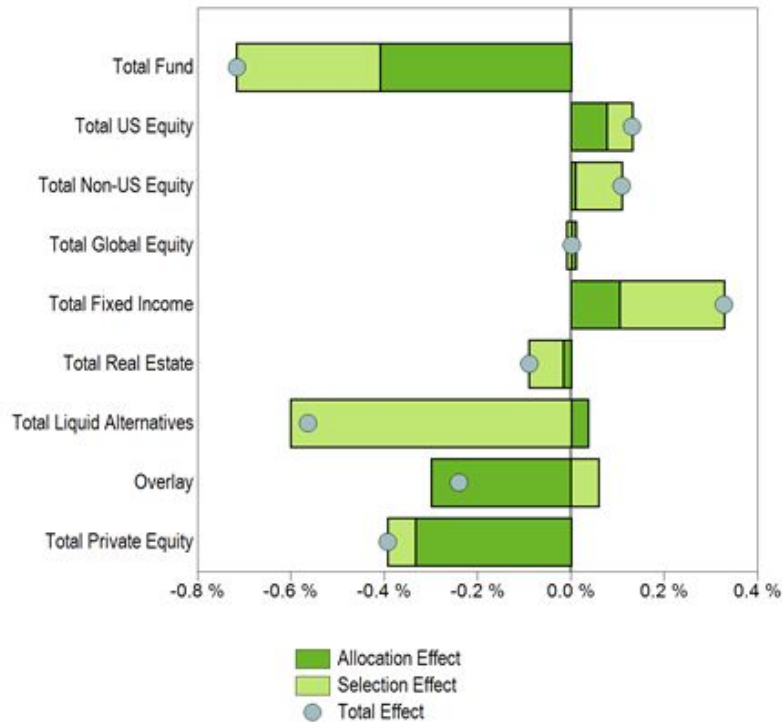
Attribution Summary						
1 Year Ending March 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	13.9%	13.8%	0.1%	0.0%	0.1%	0.1%
Total Non-US Equity	15.7%	16.5%	-0.9%	-0.1%	0.0%	-0.1%
Total Global Equity	15.2%	14.8%	0.4%	0.0%	0.0%	0.1%
Total Fixed Income	2.2%	1.2%	1.0%	0.2%	0.1%	0.3%
Total Real Estate	6.8%	7.2%	-0.4%	0.0%	0.0%	-0.1%
Total Liquid Alternatives	-0.4%	6.4%	-6.8%	-0.6%	0.1%	-0.5%
Overlay	9.0%	1.2%	7.9%	0.1%	-0.3%	-0.1%
Total Private Equity	19.9%	17.2%	2.7%	0.1%	-0.4%	-0.3%
Total	10.3%	10.9%	-0.6%	-0.3%	-0.3%	-0.6%



Ventura County Employees' Retirement Association

TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
3 Years Ending March 31, 2018



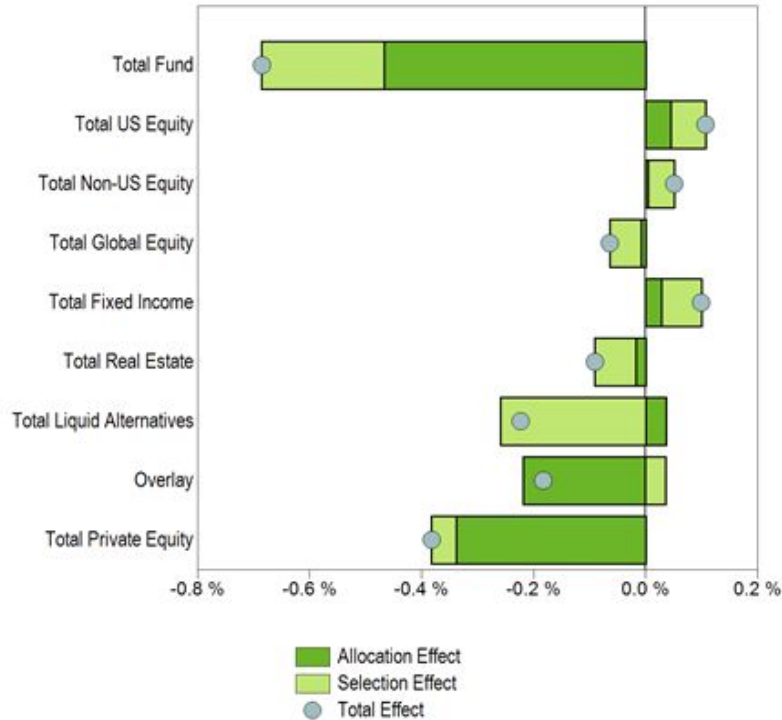
Attribution Summary						
3 Years Ending March 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	10.4%	10.2%	0.2%	0.1%	0.1%	0.1%
Total Non-US Equity	7.0%	6.2%	0.9%	0.1%	0.0%	0.1%
Total Global Equity	8.0%	8.1%	-0.1%	0.0%	0.0%	0.0%
Total Fixed Income	2.4%	1.2%	1.2%	0.2%	0.1%	0.3%
Total Real Estate	8.1%	9.0%	-0.9%	-0.1%	0.0%	-0.1%
Total Liquid Alternatives	-0.7%	5.9%	-6.7%	-0.6%	0.0%	-0.6%
Overlay	3.7%	0.5%	3.1%	0.1%	-0.3%	-0.2%
Total Private Equity	13.1%	13.5%	-0.4%	-0.1%	-0.3%	-0.4%
Total	6.8%	7.5%	-0.7%	-0.3%	-0.4%	-0.7%



Ventura County Employees' Retirement Association

TOTAL FUND ATTRIBUTION ANALYSIS

Attribution Effects
5 Years Ending March 31, 2018



Attribution Summary						
5 Years Ending March 31, 2018						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total US Equity	13.2%	13.0%	0.2%	0.1%	0.0%	0.1%
Total Non-US Equity	6.4%	5.9%	0.5%	0.0%	0.0%	0.1%
Total Global Equity	8.6%	9.2%	-0.6%	-0.1%	0.0%	-0.1%
Total Fixed Income	1.9%	1.5%	0.4%	0.1%	0.0%	0.1%
Total Real Estate	9.5%	10.4%	-1.0%	-0.1%	0.0%	-0.1%
Total Liquid Alternatives	--	6.2%	--	-0.2%	0.0%	-0.2%
Overlay	--	0.3%	--	0.0%	-0.2%	-0.2%
Total Private Equity	15.0%	16.3%	-1.3%	0.0%	-0.3%	-0.4%
Total	7.9%	8.6%	-0.6%	-0.2%	-0.5%	-0.6%



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

1 Year Ending March 31, 2018												
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.4%	14.6%	52	8.3%	94	0.2%	56	0.6%	6	-0.3	--	1.0
MSCI ACWI	--	14.8%	49	8.5%	99	0.0%	71	0.0%	1	--	--	1.0
Total US Equity	32.8%	13.9%	32	8.2%	96	-0.2%	60	0.5%	6	0.2	28	1.0
Russell 3000	--	13.8%	39	8.0%	92	0.0%	50	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	15.7%	83	9.0%	78	-0.5%	87	0.9%	7	-1.0	--	1.0
MSCI ACWI ex USA	--	16.5%	71	9.2%	86	0.0%	77	0.0%	1	--	--	1.0
Total Global Equity	11.1%	15.2%	52	8.6%	78	0.4%	77	0.1%	1	4.9	1	1.0
MSCI ACWI	--	14.8%	53	8.5%	78	0.0%	79	0.0%	1	--	--	1.0
Total Fixed Income	17.8%	2.2%	58	1.9%	67	1.0%	55	0.8%	42	1.3	40	0.8
Total Fixed Income Policy Index	--	1.2%	72	2.4%	95	0.0%	80	0.0%	1	--	--	1.0
Total US Fixed Income	17.8%	2.2%	32	1.9%	73	1.0%	30	0.8%	70	1.3	32	0.8
BBgBarc US Aggregate TR	--	1.2%	57	2.4%	94	0.0%	83	0.0%	1	--	--	1.0
Total Liquid Alternatives	7.8%	-0.4%	--	6.2%	--	10.0%	--	6.5%	--	-1.1	--	-2.2
CPI + 4% (Unadjusted)	--	6.4%	--	0.8%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.7%	6.8%	54	2.9%	63
NCREIF ODCE Net	--	7.2%	44	3.0%	66
Total Private Equity	4.7%	19.9%	17	5.9%	62
Russell 3000 + 3%	--	17.2%	42	8.0%	81

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 73 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 143 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 95 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 40 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 72 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 88 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 46 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 26 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

3 Years Ending March 31, 2018												
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.4%	9.1%	25	10.5%	72	1.3%	17	1.2%	30	0.8	5	1.0
MSCI ACWI	--	8.1%	84	10.9%	93	0.0%	75	0.0%	1	--	--	1.0
Total US Equity	32.8%	10.4%	22	10.4%	70	0.1%	26	0.3%	2	0.5	5	1.0
Russell 3000	--	10.2%	29	10.3%	64	0.0%	32	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	7.0%	52	11.9%	52	1.1%	51	1.1%	5	0.7	26	1.0
MSCI ACWI ex USA	--	6.2%	81	12.5%	83	0.0%	84	0.0%	1	--	--	1.0
Total Global Equity	11.1%	8.0%	24	10.9%	69	-0.1%	72	0.9%	1	-0.1	--	1.0
MSCI ACWI	--	8.1%	18	10.9%	69	0.0%	70	0.0%	1	--	--	1.0
Total Fixed Income	17.8%	2.4%	46	2.5%	47	1.3%	41	1.6%	58	0.8	23	0.8
Total Fixed Income Policy Index	--	1.2%	71	2.7%	54	0.0%	83	0.0%	1	--	--	1.0
Total US Fixed Income	17.8%	2.5%	23	2.5%	60	1.5%	19	1.7%	74	0.8	29	0.8
BBgBarc US Aggregate TR	--	1.2%	57	2.7%	71	0.0%	77	0.0%	1	--	--	1.0
Total Liquid Alternatives	7.8%	-0.7%	--	9.6%	--	-16.4%	--	9.4%	--	-0.7	--	2.8
CPI + 4% (Unadjusted)	--	5.9%	--	0.9%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.7%	8.1%	64	3.6%	43
NCREIF ODCE Net	--	9.0%	45	3.9%	47
Total Private Equity	4.7%	13.1%	32	6.1%	61
Russell 3000 + 3%	--	13.5%	21	10.4%	87

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 70 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 133 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 90 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 34 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 67 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 86 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 44 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 25 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND RISK STATISTICS

5 Years Ending March 31, 2018												
	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank	Anlzd AJ	Rank	Tracking Error	Rank	Info Ratio	Rank	Beta
Total Equity	60.4%	10.5%	45	10.0%	57	1.7%	9	1.2%	27	1.1	2	1.0
MSCI ACWI	--	9.2%	92	10.3%	91	0.0%	78	0.0%	1	--	--	1.0
Total US Equity	32.8%	13.2%	13	10.1%	52	0.1%	18	0.4%	2	0.6	1	1.0
Russell 3000	--	13.0%	24	10.0%	41	0.0%	23	0.0%	1	--	--	1.0
Total Non-US Equity	16.5%	6.4%	60	11.3%	32	0.8%	47	1.1%	5	0.4	32	0.9
MSCI ACWI ex USA	--	5.9%	75	11.9%	78	0.0%	74	0.0%	1	--	--	1.0
Total Global Equity	11.1%	8.6%	67	10.5%	50	-0.6%	91	1.0%	1	-0.5	--	1.0
MSCI ACWI	--	9.2%	64	10.3%	48	0.0%	84	0.0%	1	--	--	1.0
Total Fixed Income	17.8%	1.9%	59	2.5%	29	0.8%	32	1.6%	54	0.3	44	0.7
Total Fixed Income Policy Index	--	1.5%	74	2.9%	44	0.0%	76	0.0%	1	--	--	1.0
Total US Fixed Income	17.8%	2.2%	35	2.5%	44	0.9%	26	1.8%	82	0.2	54	0.7
BBgBarc US Aggregate TR	--	1.8%	53	2.9%	69	0.0%	75	0.0%	1	--	--	1.0
Total Liquid Alternatives	7.8%	--	--	--	--	--	--	--	--	--	--	--
CPI + 4% (Unadjusted)	--	6.5%	--	2.8%	--	0.0%	--	0.0%	--	--	--	1.0

	% of Tot	Anlzd Ret	Rank	Anlzd Std Dev	Rank
Total Real Estate	7.7%	9.5%	69	4.0%	43
NCREIF ODCE Net	--	10.4%	42	4.4%	52
Total Private Equity	4.7%	15.0%	25	6.5%	60
Russell 3000 + 3%	--	16.4%	14	10.0%	85

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.

Total Non-U.S. Equity Benchmark: MSCI ACWI ex US Free, prior to May 2002, the MSCI EAFE.

Composite rankings are used for Total Equity (InvestorForce Public DB Total Eq consists of 54 portfolios), Total US Equity (InvestorForce Public DB US Eq consists of 112 portfolios), Total Non-US Equity (InvestorForce Public DB ex-US Eq consists of 83 portfolios), Total Global Equity (InvestorForce Public DB Gbl Eq consists of 21 portfolios), Total Fixed Income (InvestorForce Public DB Total Fix Inc consists of 57 portfolios), Total US Fixed Income (InvestorForce Public DB US Fix Inc consists of 75 portfolios), Total Real Estate (InvestorForce Public DB Real Estate Pub+Priv consists of 41 portfolios) and Total Private Equity (InvestorForce Public DB Private Eq consists of 24 portfolios).



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fund	5,337,941,269	100.0	100.0	-0.6	92	7.4	45	10.3	56	6.8	41	8.1	24	6.5	28	8.1	Apr-94
Policy Index				-0.3	76	7.6	32	10.9	37	7.5	15	8.6	12	6.6	15	8.1	Apr-94
Over/Under				-0.3		-0.2		-0.6		-0.7		-0.5		-0.1		0.0	
60% MSCI ACWI (Net) / 40% CITI WGBI				0.5	33	8.3	15	12.3	11	6.4	65	6.1	89	4.4	94	--	Apr-94
60% S&P 500 / 40% BBgBarc Aggregate				-1.0	99	6.2	90	8.8	95	7.0	32	8.7	10	7.4	2	8.3	Apr-94
InvestorForce Public DB > \$1B Net Median				0.1		7.2		10.4		6.6		7.5		5.9		7.5	Apr-94
Total Fund ex Parametric*	5,251,633,235	98.4	--	-0.8	--	6.9	--	9.8	--	6.6	--	7.9	--	6.3	--	8.0	Apr-94
Total Fund ex Private Equity	5,089,635,792	95.3	--	-0.8	97	7.1	60	9.9	66	6.6	55	7.6	49	--	--	9.1	Jan-12
Policy Index				-0.3	76	7.6	32	10.9	37	7.5	15	8.6	12	6.6	15	9.8	Jan-12
Over/Under				-0.5		-0.5		-1.0		-0.9		-1.0				-0.7	
InvestorForce Public DB > \$1B Net Median				0.1		7.2		10.4		6.6		7.5		5.9		8.9	Jan-12
Total US Equity	1,748,314,838	32.8	28.0	-0.7	68	10.7	32	13.9	32	10.4	22	13.2	13	9.5	40	9.3	Dec-93
Russell 3000				-0.6	61	10.5	42	13.8	39	10.2	29	13.0	24	9.7	29	9.6	Dec-93
Over/Under				-0.1		0.2		0.1		0.2		0.2		-0.2		-0.3	
InvestorForce Public DB US Eq Net Median				-0.5		10.3		13.5		9.8		12.5		9.4		9.3	Dec-93
Western U.S. Index Plus	195,822,774	3.7		-1.0	57	11.6	34	14.6	39	11.4	16	13.8	20	9.4	57	5.7	May-07
S&P 500				-0.8	51	10.6	43	14.0	42	10.8	21	13.3	26	9.5	53	7.4	May-07
Over/Under				-0.2		1.0		0.6		0.6		0.5		-0.1		-1.7	
eV All US Equity Net Median				-0.8		9.7		12.5		8.6		11.9		9.6		7.4	May-07
Blackrock Russell 1000 Index	1,491,321,398	27.9		-0.7	46	10.6	49	--	--	--	--	--	--	--	--	12.8	May-17
Russell 1000				-0.7	46	10.6	49	14.0	47	10.4	29	13.2	34	9.6	40	12.8	May-17
Over/Under				0.0		0.0										0.0	
eV US Large Cap Equity Net Median				-0.9		10.4		13.3		9.1		12.3		9.1		12.5	May-17
Blackrock Russell 2500 Index	61,170,667	1.1		-0.2	54	10.0	51	--	--	--	--	--	--	--	--	11.5	May-17
Russell 2500				-0.2	54	10.0	51	12.3	52	8.2	44	11.5	43	10.3	47	11.5	May-17
Over/Under				0.0		0.0										0.0	
eV US Small-Mid Cap Equity Net Median				0.0		10.0		12.7		7.8		11.2		10.2		11.7	May-17

Color Coding: PERFORMANCE: Green-Over performance, Red-Under performance / Color Coding: RANKS: 1 - 25 Green - Positive Result, 26 - 50 Yellow, 50 - 75 Orange, 76 - 100 Red - Negative Result.

Policy Index: Currently, 28% Russell 3000 Index, 20% Barclays Aggregate, 15% MSCI ACWI ex U.S., 10% MSCI ACWI, 10% Russell 3000 Index + 3%, 10% CPI+4%Index, and 7% NCREIF ODCE Real Estate Index.

Total U.S. Equity Benchmark: Russell 3000 Index. Prior to January 2016, the Benchmark is a dynamic hybrid using the respective managers' market value weights within the U.S. Equity component toward their benchmark. Prior to May 2013, the Dow Jones U.S. Total Stock Market Index. Prior to May 2007, the Russell 3000 Index.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Non-US Equity	880,117,051	16.5	15.0	-1.5	92	10.0	66	15.7	83	7.0	52	6.4	60	3.2	51	6.7	Mar-94
MSCI ACWI ex USA				-1.2	83	10.2	64	16.5	71	6.2	81	5.9	75	2.7	70	5.5	Mar-94
Over/Under				-0.3		-0.2		-0.8		0.8		0.5		0.5		1.2	
MSCI EAFE				-1.5	93	8.2	95	14.8	87	5.6	92	6.5	54	2.7	68	5.0	Mar-94
MSCI ACWI ex USA Local Currency				-3.1	99	5.5	99	8.9	99	4.7	96	8.3	10	4.6	14	--	Mar-94
MSCI EAFE Local Currency				-4.3	99	2.6	99	5.3	99	3.4	99	8.5	8	4.5	17	4.8	Mar-94
InvestorForce Public DB ex-US Eq Net Median				-0.4		10.6		17.8		7.1		6.6		3.2		6.0	Mar-94
BlackRock ACWI ex-U.S. Index	432,724,547	8.1		-1.2	78	10.6	59	17.2	67	6.9	60	6.4	76	3.2	72	3.1	Mar-07
MSCI ACWI ex USA IMI				-1.1	77	10.6	58	17.1	68	6.7	62	6.2	77	3.1	74	2.9	Mar-07
Over/Under				-0.1		0.0		0.1		0.2		0.2		0.1		0.2	
MSCI ACWI ex USA Local Currency				-3.1	99	5.5	99	8.9	99	4.7	88	8.3	46	4.6	46	3.3	Mar-07
eV ACWI ex-US All Cap Equity Net Median				-0.1		11.6		19.2		7.6		7.9		4.3		4.0	Mar-07
Sprucegrove	232,117,674	4.3		-1.9	90	12.5	40	15.6	76	7.6	51	6.7	72	4.1	51	7.9	Mar-02
MSCI ACWI ex USA				-1.2	78	10.2	67	16.5	71	6.2	68	5.9	80	2.7	82	6.9	Mar-02
Over/Under				-0.7		2.3		-0.9		1.4		0.8		1.4		1.0	
MSCI EAFE				-1.5	82	8.2	82	14.8	82	5.6	75	6.5	75	2.7	80	6.3	Mar-02
MSCI ACWI ex USA Local Currency				-3.1	99	5.5	99	8.9	99	4.7	88	8.3	46	4.6	46	5.4	Mar-02
MSCI EAFE Local Currency				-4.3	99	2.6	99	5.3	99	3.4	96	8.5	43	4.5	48	4.5	Mar-02
eV ACWI ex-US All Cap Equity Net Median				-0.1		11.6		19.2		7.6		7.9		4.3		7.6	Mar-02
Hexavest	92,562,716	1.7		-1.9	73	3.6	97	8.6	96	4.3	89	5.0	96	--	--	4.7	Dec-10
MSCI EAFE				-1.5	52	8.2	57	14.8	57	5.6	69	6.5	75	2.7	75	5.6	Dec-10
Over/Under				-0.4		-4.6		-6.2		-1.3		-1.5		--		-0.9	
MSCI EAFE Local Currency				-4.3	99	2.6	99	5.3	99	3.4	97	8.5	28	4.5	30	7.6	Dec-10
eV EAFE All Cap Equity Net Median				-1.4		8.6		15.8		6.6		7.5		3.4		6.5	Dec-10
Walter Scott	122,712,114	2.3		-1.3	79	8.5	79	16.2	72	8.2	43	6.2	78	--	--	6.2	Dec-10
MSCI ACWI ex USA				-1.2	78	10.2	67	16.5	71	6.2	68	5.9	80	2.7	82	4.6	Dec-10
Over/Under				-0.1		-1.7		-0.3		2.0		0.3		--		1.6	
MSCI ACWI ex USA Local Currency				-3.1	99	5.5	99	8.9	99	4.7	88	8.3	46	4.6	46	6.9	Dec-10
MSCI EAFE				-1.5	82	8.2	82	14.8	82	5.6	75	6.5	75	2.7	80	5.6	Dec-10
eV ACWI ex-US All Cap Equity Net Median				-0.1		11.6		19.2		7.6		7.9		4.3		6.7	Dec-10



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Global Equity	593,793,720	11.1	10.0	-0.9	74	10.4	20	15.2	52	8.0	24	8.6	67	5.0	17	6.2	May-05
MSCI ACWI				-1.0	74	10.1	22	14.8	53	8.1	18	9.2	64	5.6	13	7.1	May-05
Over/Under				0.1		0.3		0.4		-0.1		-0.6		-0.6		-0.9	
InvestorForce Public DB Gbl Eq Net Median				-0.3		8.5		15.3		7.3		10.5		3.3		6.3	May-05
BlackRock MSCI ACWI Equity Index	593,793,720	11.1		-0.9	49	10.4	43	15.2	44	8.6	36	9.6	46	--	--	11.3	Aug-12
MSCI ACWI				-1.0	50	10.1	44	14.8	46	8.1	44	9.2	54	5.6	63	10.9	Aug-12
Over/Under				0.1		0.3		0.4		0.5		0.4				0.4	
eV All Global Equity Net Median				-1.0		9.4		14.2		7.7		9.4		6.3		11.1	Aug-12



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Private Equity	248,305,476	4.7	10.0	4.8	23	13.4	17	19.9	17	13.1	32	15.0	25	--	--	14.6	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.1</u>	92	<u>12.9</u>	21	<u>17.2</u>	42	<u>13.5</u>	21	<u>16.4</u>	14	<u>12.9</u>	1	<u>18.3</u>	Jan-12
Over/Under				4.7		0.5		2.7		-0.4		-1.4				-3.7	
<i>Cambridge Associates Global All PE (Qtr Lag)</i>				5.0	21	14.1	15	18.4	27	11.4	54	12.9	51	8.7	45	13.0	Jan-12
<i>InvestorForce Public DB Private Eq Net Median</i>				3.3		10.6		15.7		12.4		12.9		8.4		13.0	Jan-12
Adams Street Global Fund Series	140,805,398	2.6		5.2	--	13.2	--	17.3	--	10.9	--	13.8	--	--	--	13.1	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>18.3</u>	Jan-12
Over/Under				5.1		0.3		0.1		-2.6		-2.6				-5.2	
Harbourvest	62,644,907	1.2		6.8	--	17.2	--	26.0	--	18.6	--	--	--	--	--	19.8	Aug-13
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>15.4</u>	Aug-13
Over/Under				6.7		4.3		8.8		5.1						4.4	
Pantheon Global Secondary Funds	32,033,047	0.6		0.0	--	9.1	--	24.2	--	14.3	--	13.5	--	--	--	12.3	Jan-12
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>18.3</u>	Jan-12
Over/Under				-0.1		-3.8		7.0		0.8		-2.9				-6.0	
Drive Capital Fund	3,947,269	0.1		0.0	--	-7.2	--	-18.5	--	--	--	--	--	--	--	-38.0	Sep-16
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>18.9</u>	Sep-16
Over/Under				-0.1		-20.1		-35.7								-56.9	
Abbott Secondary Opportunities	4,048,252	0.1		0.0	--	--	--	--	--	--	--	--	--	--	--	0.0	Jan-18
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>0.1</u>	Jan-18
Over/Under				-0.1												-0.1	
CVI Credit Value Fund	1,500,000	0.0		0.0	--	--	--	--	--	--	--	--	--	--	--	0.0	Jan-18
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>0.1</u>	Jan-18
Over/Under				-0.1												-0.1	
Clearlake Capital Partners V	1,438,308	0.0		--	--	--	--	--	--	--	--	--	--	--	--	0.0	Mar-18
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	<u>-1.8</u>	Mar-18
Over/Under																1.8	
Battery Ventures XII	186,250	0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	Apr-18
<i>Russell 3000 + 3%</i>				<u>0.1</u>	--	<u>12.9</u>	--	<u>17.2</u>	--	<u>13.5</u>	--	<u>16.4</u>	--	<u>12.9</u>	--	--	Apr-18
Over/Under																	
Abbott Capital Cash	1,702,046	0.0															

Private equity performance shown above is calculated using a time-weighted return methodology. Market values shown are cash-adjusted based on the current period's cash flows.

Adams Street Global Fund Series includes Adams Street 2010 U.S. Fund, 2010 Non-U.S. Developed Markets Fund, 2010 Non-U.S. Emerging Markets Fund, 2010 Direct Fund, 2013, and 2016 Global Fund.

Pantheon Global Secondary Funds includes Pantheon Global Secondary Fund IV and Global Secondary Fund V.

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION PRIVATE EQUITY LIMITED PARTNERSHIP PERFORMANCE

Fund Name	Vintage Year	Initial Investment Date	Commitment	Capital Called to Date ¹	Outstanding Commitment ¹	Call Ratio	Add'l Fees ²	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions to Paid In Multiple (DPI)	Total Value to Paid In Multiple (TVPI)
Abbott Secondary Opportunities, LP.	2017	12/21/2017	\$25,000,000	\$5,548,252	\$19,814,464	22%	--	\$1,500,000	\$3,625,000	\$5,125,000	-\$423,252	-37.8%	0.27x	0.92x
Adams Street 2010 U.S. Fund	2010	5/21/2010	\$42,500,000	\$37,442,500	\$5,057,500	88%	\$15,213	\$21,732,250	\$34,426,599	\$56,158,849	\$18,701,136	12.7%	0.58x	1.50x
Adams Street 2010 Non-U.S. Dev. Mkts Fund	2010	5/21/2010	\$25,500,000	\$22,325,249	\$3,174,751	88%	\$1,589	\$13,174,585	\$17,209,343	\$30,383,928	\$8,057,090	10.1%	0.59x	1.36x
Adams Street 2010 Non-U.S. Emg Mkts Fund	2010	1/3/2011	\$8,500,000	\$7,378,000	\$1,122,000	87%	\$0	\$1,859,844	\$8,465,989	\$10,325,833	\$2,947,833	9.6%	0.25x	1.4x
Adams Street 2010 Direct Fund	2010	5/21/2010	\$8,500,000	\$8,046,100	\$453,900	95%	\$6,697	\$8,141,277	\$4,975,392	\$13,116,669	\$5,063,872	12.1%	1.01x	1.63x
Adams Street 2013 Global Fund	2013	6/27/2013	\$75,000,000	\$53,250,000	\$21,750,000	71%	\$10,728	\$6,236,204	\$59,575,341	\$65,811,545	\$12,550,817	9.0%	0.12x	1.24x
Adams Street 2016 Global Fund	2016	12/22/2016	\$60,000,000	\$10,770,000	\$49,230,000	18%	\$0	\$0	\$12,565,467	\$12,565,467	\$1,795,467	26.9%	0x	1.17x
Battery Ventures XII	2018	2/1/2018	\$9,050,000	\$135,750	\$8,914,250	2%	\$0	\$0	\$135,750	\$135,750	--	0.0%	0x	1x
Battery Ventures XII Side Fund	2018	2/1/2018	\$5,050,000	\$50,500	\$4,999,500	1%	\$0	\$0	\$50,500	\$50,500	--	0.0%	0x	1x
Buenaventure One, LLC	2018	1/5/2018	\$7,700,000	--	\$7,700,000	0%	--	--	--	--	--	--	--	--
Clearlake Capital Partners	2017	12/22/2017	\$9,950,000	\$1,438,308	\$8,511,692	14%	\$46,158	--	\$1,349,499	\$1,349,499	-\$134,967	-84.8%	--	0.94x
CVI Credit Value Fund IV	2017	12/31/2017	\$30,000,000	\$1,500,000	\$28,500,000	5%	--	--	\$1,500,000	\$1,500,000	--	--	0x	1x
Drive Capital Fund II	2016	9/1/2016	\$15,000,000	\$4,392,200	\$10,611,010	29%	\$3,210	\$0	\$3,947,268	\$3,947,268	-\$448,142	-15.4%	0x	0.9x
GTCR Fund XII	2017	9/29/2017	\$30,000,000	--	\$30,000,000	0%	--	--	(\$171,029)	(\$171,029)	--	-100.0%	--	--
Insight Venture Partners X	2017	10/13/2017	\$25,000,000	--	\$25,000,000	0%	--	--	(\$223,358)	(\$223,458)	--	-100.0%	--	--
HarbourVest - Dover Street VIII	2013	5/30/2013	\$67,500,000	\$59,147,454	\$8,437,500	88%	\$84,954	\$59,744,800	\$28,732,832	\$88,477,632	\$29,245,224	21.7%	1.01x	1.5x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$15,600,000	\$44,400,000	26%	\$0	\$4,079,170	\$15,145,465	\$19,224,635	\$3,624,635	45.2%	0.26x	1.23x
HarbourVest - PRTNS CO INVEST IV L.P.	2017	6/2/2017	\$30,000,000	\$17,446,740	\$12,750,000	58%	\$0	\$0	\$18,875,777	\$18,875,777	\$1,429,037	14.0%	0x	1.08x
Pantheon Global Secondary Fund IV	2010	8/20/2010	\$15,000,000	\$9,960,000	\$5,040,000	66%	\$0	\$12,270,001	\$3,127,210	\$15,397,211	\$5,437,211	13.9%	1.23x	1.55x
Pantheon Global Secondary Fund V	2015	2/26/2015	\$50,000,000	\$27,641,509	\$22,358,491	55%	(\$162,514)	\$5,987,534	\$28,880,899	\$34,868,433	\$7,389,438	18.6%	0.22x	1.26x
Total VCERA Private Equity Program	--	5/21/2010	\$599,250,000	\$282,072,562	\$317,825,058	47%	\$6,035	\$134,725,665	\$242,193,944	\$376,919,509	\$95,235,399	13.8%	0.48x	1.34x

1. Includes recycled/recallable distributions received to date.

2. Add'l Fees represents notional interest paid/(received).

2. Add'l Fees for Pantheon Global Secondary Fund V includes notional interest paid/(received) and management fee rebates paid to VCERA.

Note: Private equity performance data is reported net of fees.

Performance shown is based on 3/31/2018 statement of investments produced by Abbott Capital.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total US Fixed Income	951,806,212	17.8	20.0	-0.9	52	0.5	39	2.2	32	2.5	23	2.2	35	5.2	17	5.8	Feb-94
<i>BBgBarc US Aggregate TR</i>				<i>-1.5</i>	<i>92</i>	<i>-0.2</i>	<i>60</i>	<i>1.2</i>	<i>57</i>	<i>1.2</i>	<i>57</i>	<i>1.8</i>	<i>53</i>	<i>3.6</i>	<i>56</i>	<i>5.2</i>	<i>Feb-94</i>
<i>Over/Under</i>				<i>0.6</i>		<i>0.7</i>		<i>1.0</i>		<i>1.3</i>		<i>0.4</i>		<i>1.6</i>		<i>0.6</i>	
<i>InvestorForce Public DB US Fix Inc Net Median</i>				<i>-0.9</i>		<i>0.0</i>		<i>1.5</i>		<i>1.5</i>		<i>2.0</i>		<i>3.9</i>		<i>5.8</i>	<i>Feb-94</i>
BlackRock U.S. Debt Fund	219,869,939	4.1		-1.5	77	-0.2	79	1.3	62	1.2	63	1.9	56	3.7	56	5.1	Nov-95
<i>BBgBarc US Aggregate TR</i>				<i>-1.5</i>	<i>76</i>	<i>-0.2</i>	<i>80</i>	<i>1.2</i>	<i>64</i>	<i>1.2</i>	<i>65</i>	<i>1.8</i>	<i>57</i>	<i>3.6</i>	<i>59</i>	<i>5.0</i>	<i>Nov-95</i>
<i>Over/Under</i>				<i>0.0</i>		<i>0.0</i>		<i>0.1</i>		<i>0.0</i>		<i>0.1</i>		<i>0.1</i>		<i>0.1</i>	
<i>eV All US Fixed Inc Net Median</i>				<i>-0.9</i>		<i>0.4</i>		<i>1.7</i>		<i>1.7</i>		<i>2.1</i>		<i>4.0</i>		<i>5.0</i>	<i>Nov-95</i>
Western	294,697,469	5.5		-1.3	68	0.6	44	3.0	32	2.5	34	3.0	35	5.2	31	6.0	Dec-96
<i>BBgBarc US Aggregate TR</i>				<i>-1.5</i>	<i>76</i>	<i>-0.2</i>	<i>80</i>	<i>1.2</i>	<i>64</i>	<i>1.2</i>	<i>65</i>	<i>1.8</i>	<i>57</i>	<i>3.6</i>	<i>59</i>	<i>5.1</i>	<i>Dec-96</i>
<i>Over/Under</i>				<i>0.2</i>		<i>0.8</i>		<i>1.8</i>		<i>1.3</i>		<i>1.2</i>		<i>1.6</i>		<i>0.9</i>	
<i>eV All US Fixed Inc Net Median</i>				<i>-0.9</i>		<i>0.4</i>		<i>1.7</i>		<i>1.7</i>		<i>2.1</i>		<i>4.0</i>		<i>5.0</i>	<i>Dec-96</i>
Reams	307,962,773	5.8		-0.4	36	0.2	58	1.2	63	3.0	26	1.4	70	5.1	32	5.3	Sep-01
<i>Reams Custom Index</i>				<i>0.5</i>	<i>11</i>	<i>1.2</i>	<i>26</i>	<i>1.5</i>	<i>55</i>	<i>0.9</i>	<i>78</i>	<i>0.7</i>	<i>90</i>	<i>3.0</i>	<i>71</i>	<i>3.9</i>	<i>Sep-01</i>
<i>Over/Under</i>				<i>-0.9</i>		<i>-1.0</i>		<i>-0.3</i>		<i>2.1</i>		<i>0.7</i>		<i>2.1</i>		<i>1.4</i>	
<i>BBgBarc US Aggregate TR</i>				<i>-1.5</i>	<i>76</i>	<i>-0.2</i>	<i>80</i>	<i>1.2</i>	<i>64</i>	<i>1.2</i>	<i>65</i>	<i>1.8</i>	<i>57</i>	<i>3.6</i>	<i>59</i>	<i>4.3</i>	<i>Sep-01</i>
<i>3-Month LIBOR + 3%</i>				<i>1.2</i>	<i>5</i>	<i>3.5</i>	<i>7</i>	<i>4.6</i>	<i>17</i>	<i>4.0</i>	<i>16</i>	<i>3.7</i>	<i>27</i>	<i>3.8</i>	<i>55</i>	<i>4.8</i>	<i>Sep-01</i>
<i>eV All US Fixed Inc Net Median</i>				<i>-0.9</i>		<i>0.4</i>		<i>1.7</i>		<i>1.7</i>		<i>2.1</i>		<i>4.0</i>		<i>4.4</i>	<i>Sep-01</i>
Loomis Strategic Alpha	46,585,815	0.9		1.0	7	3.1	9	3.2	31	2.5	32	--	--	--	--	2.8	Jul-13
<i>BBgBarc US Aggregate TR</i>				<i>-1.5</i>	<i>76</i>	<i>-0.2</i>	<i>80</i>	<i>1.2</i>	<i>64</i>	<i>1.2</i>	<i>65</i>	<i>1.8</i>	<i>57</i>	<i>3.6</i>	<i>59</i>	<i>2.4</i>	<i>Jul-13</i>
<i>Over/Under</i>				<i>2.5</i>		<i>3.3</i>		<i>2.0</i>		<i>1.3</i>						<i>0.4</i>	
<i>3-Month LIBOR + 3%</i>				<i>1.2</i>	<i>5</i>	<i>3.5</i>	<i>7</i>	<i>4.6</i>	<i>17</i>	<i>4.0</i>	<i>16</i>	<i>3.7</i>	<i>27</i>	<i>3.8</i>	<i>55</i>	<i>3.7</i>	<i>Jul-13</i>
<i>eV All US Fixed Inc Net Median</i>				<i>-0.9</i>		<i>0.4</i>		<i>1.7</i>		<i>1.7</i>		<i>2.1</i>		<i>4.0</i>		<i>2.7</i>	<i>Jul-13</i>
Loomis Sayles Multi Strategy	82,690,216	1.5		-0.7	42	2.0	16	4.7	16	3.7	19	3.7	26	6.7	17	6.4	Jul-05
<i>Loomis Custom Index</i>				<i>-1.2</i>	<i>65</i>	<i>0.3</i>	<i>54</i>	<i>1.9</i>	<i>48</i>	<i>2.3</i>	<i>37</i>	<i>2.7</i>	<i>39</i>	<i>5.0</i>	<i>34</i>	<i>4.9</i>	<i>Jul-05</i>
<i>Over/Under</i>				<i>0.5</i>		<i>1.7</i>		<i>2.8</i>		<i>1.4</i>		<i>1.0</i>		<i>1.7</i>		<i>1.5</i>	
<i>BBgBarc US Govt/Credit TR</i>				<i>-1.6</i>	<i>81</i>	<i>-0.3</i>	<i>83</i>	<i>1.4</i>	<i>58</i>	<i>1.2</i>	<i>64</i>	<i>1.8</i>	<i>57</i>	<i>3.7</i>	<i>58</i>	<i>4.0</i>	<i>Jul-05</i>
<i>eV All US Fixed Inc Net Median</i>				<i>-0.9</i>		<i>0.4</i>		<i>1.7</i>		<i>1.7</i>		<i>2.1</i>		<i>4.0</i>		<i>4.1</i>	<i>Jul-05</i>

Reams Custom Index: Merrill Lynch 3 Month Libor Constant Maturity Index, prior to February 2013 the Barclays Aggregate

Loomis Custom Index: 65% Barclays Aggregate, 30% Citigroup High Yield Market Index and 5% JPM Non-US Hedged Bond Index

As of January 2016, Loomis Strategic Alpha was moved from the Total Global Fixed Income composite to the Total US Fixed Income composite.



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Real Estate	412,852,882	7.7	7.0	1.9	40	5.6	41	6.8	54	8.1	64	9.5	69	2.9	83	7.8	Mar-94
<i>NCREIF ODCE Net</i>				<u>2.1</u>	24	<u>5.7</u>	40	<u>7.2</u>	44	<u>9.0</u>	45	<u>10.4</u>	42	<u>4.2</u>	57	<u>8.1</u>	<i>Mar-94</i>
<i>Over/Under</i>				-0.2		-0.1		-0.4		-0.9		-0.9		-1.3		-0.3	
<i>InvestorForce Public DB Real Estate Pub+Priv Net Median</i>				1.9		5.4		7.0		8.7		10.2		4.5		7.2	<i>Mar-94</i>
Prudential Real Estate	147,826,435	2.8		2.3	--	6.3	--	7.9	--	9.6	--	11.0	--	3.9	--	6.2	Jun-04
<i>NCREIF ODCE Net</i>				<u>2.1</u>	--	<u>5.7</u>	--	<u>7.2</u>	--	<u>9.0</u>	--	<u>10.4</u>	--	<u>4.2</u>	--	<u>7.1</u>	<i>Jun-04</i>
<i>Over/Under</i>				0.2		0.6		0.7		0.6		0.6		-0.3		-0.9	
<i>NCREIF ODCE</i>				2.2	--	6.3	--	8.1	--	10.0	--	11.4	--	5.1	--	8.1	<i>Jun-04</i>
UBS Real Estate	265,026,448	5.0		1.7	--	5.2	--	6.2	--	7.4	--	8.7	--	4.3	--	7.4	Mar-03
<i>NCREIF ODCE Net</i>				<u>2.1</u>	--	<u>5.7</u>	--	<u>7.2</u>	--	<u>9.0</u>	--	<u>10.4</u>	--	<u>4.2</u>	--	<u>7.3</u>	<i>Mar-03</i>
<i>Over/Under</i>				-0.4		-0.5		-1.0		-1.6		-1.7		0.1		0.1	
<i>NCREIF ODCE</i>				2.2	--	6.3	--	8.1	--	10.0	--	11.4	--	5.1	--	8.3	<i>Mar-03</i>

Total Real Estate Benchmark: NCREIF ODCE; prior to January 2006, the NCREIF Property Index



Ventura County Employees' Retirement Association

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	Inception (%)	Inception Date
Total Liquid Alternatives	417,817,854	7.8	10.0	-3.7	--	0.9	--	-0.4	--	-0.7	--	--	--	--	--	4.1	Apr-13
<i>CPI + 4% (Unadjusted)</i>				<u>2.2</u>	--	<u>4.9</u>	--	<u>6.4</u>	--	<u>5.9</u>	--	<u>6.5</u>	--	--	--	<u>6.3</u>	<i>Apr-13</i>
Over/Under				-5.9		-4.0		-6.8		-6.6						-2.2	
Bridgewater All Weather Fund	310,358,510	5.8		-1.3	--	6.4	--	7.1	--	2.9	--	--	--	--	--	5.2	Aug-13
<i>CPI + 5% (Unadjusted)</i>				<u>2.5</u>	--	<u>5.7</u>	--	<u>7.5</u>	--	<u>6.9</u>	--	--	--	--	--	<u>6.5</u>	<i>Aug-13</i>
Over/Under				-3.8		0.7		-0.4		-4.0						-1.3	
Tortoise Energy Infrastructure	107,459,344	2.0		-9.8	--	-12.2	--	-17.1	--	-9.1	--	--	--	--	--	-0.9	Apr-13
<i>Wells Fargo MLP Index</i>				<u>-11.4</u>	--	<u>-13.8</u>	--	<u>-19.4</u>	--	<u>-12.0</u>	--	<u>-4.9</u>	--	--	--	<u>-5.2</u>	<i>Apr-13</i>
Over/Under				1.6		1.6		2.3		2.9						4.3	
Overlay	84,933,234	1.6	0.0														
Parametric	84,933,234	1.6															

Overlay performance is not applicable on an individual account level.

Color Coding: PERFORMANCE: Green-Over performance, Red-Under performance

Color Coding: RANKS: 1 - 25 Green - Positive Result, 26 - 50 Yellow, 50 - 75 Orange, 76 - 100 Red - Negative Result



MANAGER DUE DILIGENCE

NEPC, LLC

DUE DILIGENCE MONITOR

The items below summarize the recent quarter's performance and any changes or announcements from the Plan's managers/products. A "-" indicates there were no material announcements. A "Yes" indicates there was an announcement and a brief summary is provided on the following pages. NEPC's Due Diligence Committee meets every two weeks to review events as they relate to investment managers and determine if any action should be taken (by NEPC and/or by our clients). Events are rated: No Action, Watch, Hold, Client Review or Terminate. NEPC's recommendation in view of the recent quarter's developments (performance, manager events, and any of the longer-term trending data) is refreshed quarterly.

Investment Options	Performance (Recent Quarter)	Changes/Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
BlackRock Russell 1000 Index	-	-	-	-		10/2013
Western U.S. Index Plus	-	-	-	-		6/2014
BlackRock Russell 2500 Index	-	-	-	-		10/2013
BlackRock MSCI ACWI ex-U.S. Index	Bottom Quartile	-	-	-		10/2013
Sprucegrove	Bottom Quartile	-	-	-		N/A
Hexavest	-	Yes	No Action	Watch (Board Driven)	Announced retirement and recent hire.	1/2013
Walter Scott	Bottom Quartile	-	-	-		10/2012
BlackRock MSCI ACWI Index	-	-	-	-		10/2013
Adams Street	N/A	-	-	-		11/2013
HarbourVest	N/A	-	-	-		3/2014
Pantheon	N/A	-	-	-		1/2015
Drive	N/A	-	-	-		
Abbott Secondary Opps.	N/A	-	-	-		
Carval Credit Value	N/A	-	-	-		
Battery Ventures	N/A	-	-	-		
BlackRock U.S. Debt Fund	Bottom Quartile	-	-	-		10/2013
Western	-	-	-	-		6/2014
Reams	-	-	-	-		11/2013
Loomis Sayles Multi-Sector Full Discretion	-	-	-	-		11/2013
Loomis Sayles Strategic Alpha	Top Quartile	-	-	-		11/2013



DUE DILIGENCE MONITOR

	Performance (Recent Quarter)	Changes/ Announcements (Recent Quarter)	NEPC DD Committee Rec.	Plan Rec.	Comments	Last Onsite Conducted
Prudential	N/A	-	-	-		7/2014
RREEF	N/A	-	-	-		7/2013
UBS	N/A	Yes	No Action	-	Announced retirements and team changes.	8/2011
Bridgewater	N/A	-	-	-		9/2012
Tortoise	N/A	-	-	-		8/2013
Parametric/Clifton	N/A	-	-	-		7/2013

NEPC Due Diligence Committee Recommendation Key	
No Action	Informational items have surfaced; no action is recommended.
Watch	Issues have surfaced to be concerned over; manager can participate in future searches, but current and prospective clients must be made aware of the issues.
Hold	Serious issues have surfaced to be concerned over; manager cannot participate in future searches unless a client specifically requests, but current and prospective clients must be made aware of the issues.
Client Review	Very serious issues have surfaced with an Investment Manager; manager cannot participate in future searches unless a client specifically requests. Current clients must be advised to review the manager.
Terminate	We have lost all confidence in the product; manager would not be recommended for searches and clients would be discouraged from using. The manager cannot participate in future searches unless a client specifically requests. Current clients must be advised to replace the manager.



DUE DILIGENCE COMMENTARY

Below is a summary of manager changes, announcements and due diligence events since the issuance of our last quarterly report.

Manager Changes/Announcements

Hexavest

Hexavest management notified NEPC that Jean-Rene Adams, one of the Co-CIOs would be leaving Hexavest to pursue other opportunities. The other CIO remaining is Hexavest founder Vital Proulx. He remains in place driving the Hexavest macro investment process that he initiated in the early 1990s. The Hexavest investment process is top down, macro driven by their 'ranking' framework. It's quite systematic and is further vetted at a committee level. This eliminates the 'key man' risk many stock picking shops have. Not a thing is changing at the process level. All other players at Hexavest remain in place.

Hexavest also announced Vincent Delisle is joining the firm as co-Chief Investment Officer on May 22, 2018. Mr. Delisle previously led the Portfolio Strategy team at Scotiabank since 2004, and has more than 20 years of industry experience. Mr. Delisle will work closely with Vital Proulx, co-Chief Investment Officer, and Jean-Pierre Couture, Chief Economist developing the global equity outlook of the firm and overall portfolio strategy.

In addition, Christian Crête, portfolio manager, and Jean-François Bérubé, Vice President of Quant. Analysis and IT, will be joining the Strategy team. Mr. Crête and Mr. Bérubé joined the firm many years ago and are both members of the investment committee.

NEPC recommends No Action at this time. We will continue to monitor the situation and provide updates as necessary.

UBS

UBS Trumbull Property Fund ("TPF") notified investors of several recent senior portfolio management changes in their flagship real estate core fund. Kevin Crean, Senior Portfolio Manager, and Stephen Olstein, Portfolio Manager, will be retiring after 33 and 15 years with UBS, respectively. Timothy Walsh, Portfolio Manager, has been promoted within UBS to become the Senior Portfolio Manager of Trumbull Property Growth and Income Fund ("TPG"). Mr. Olstein and Mr. Walsh will depart during Q2 2018 and Mr. Crean will remain with the team through 2018 to ensure a smooth transition.

Paul Canning, Senior Portfolio Manager for TPG, who has been with UBS for 26 years will assume the lead portfolio manager role for TPF. Additionally, Peter Shaplin and Mario Maturò will join the TPF team as Portfolio Managers. Mr. Canning has been with UBS since 1991, initially as an asset manager with a focus on retail and then as head of Dispositions. Mr. Canning helped establish TPG in 2006 and has been its Senior Portfolio Manager since inception. Mr. Shaplin has been with UBS since 2013 as an asset manager on the Commercial Asset Management Team- East Region focused on the Industrial Portfolio. Mr. Maturò joined UBS in 2005 and was responsible for acquisitions and development activities in Northern California, Pacific Northwest and Southwest.

Pam Thompson has been a Portfolio Manager of TPF for 11 years and will remain in her role, focusing on acquisitions, financing, and portfolio analysis and reporting.

NEPC is comfortable with the announced natural succession of TPF's senior portfolio managers which will give way to new talent on their deep bench.

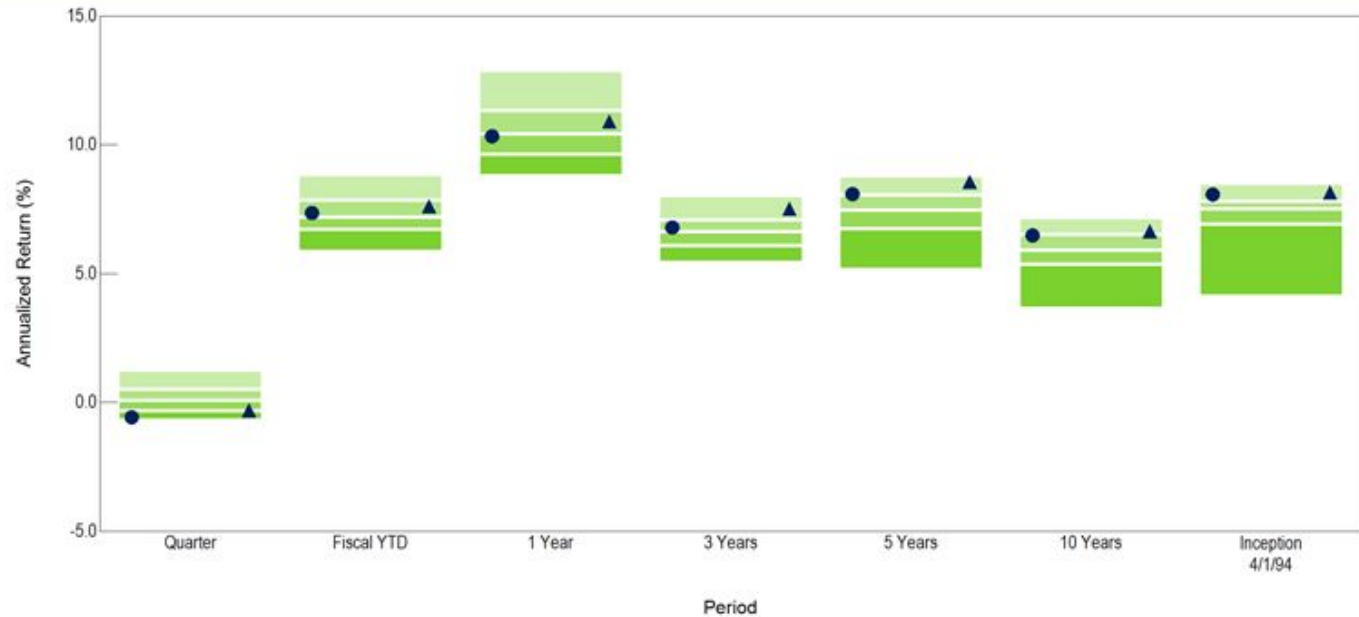
NEPC recommends No Action at this time. We will continue to monitor the situation and provide updates as necessary.



Ventura County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net



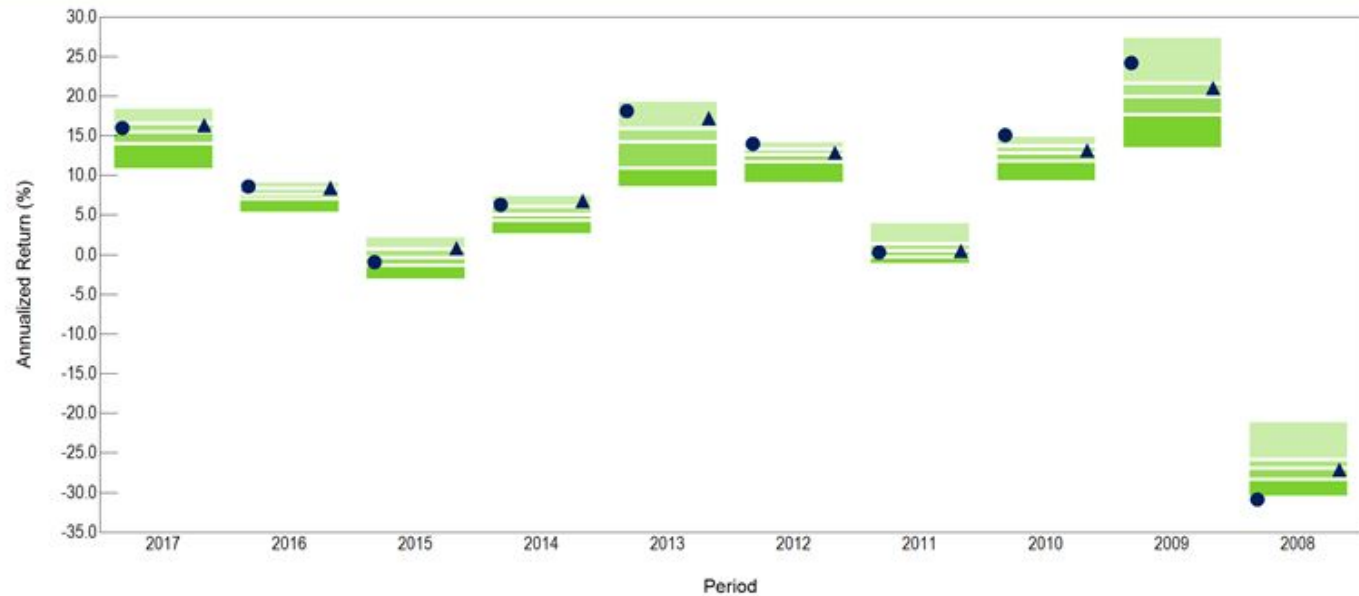
	Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)		Return (Rank)			
5th Percentile	1.2	8.8	12.9	8.0	8.8	7.2	8.5							
25th Percentile	0.5	7.9	11.3	7.1	8.1	6.5	7.8							
Median	0.1	7.2	10.4	6.6	7.5	5.9	7.5							
75th Percentile	-0.3	6.7	9.6	6.1	6.8	5.4	6.9							
95th Percentile	-0.7	5.9	8.8	5.5	5.2	3.7	4.1							
# of Portfolios	60	60	60	60	60	55	31							
● Total Fund	-0.6	(92)	7.4	(45)	10.3	(56)	6.8	(41)	8.1	(24)	6.5	(28)	8.1	(17)
▲ Policy Index	-0.3	(76)	7.6	(32)	10.9	(37)	7.5	(15)	8.6	(12)	6.6	(15)	8.1	(13)



Ventura County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net



	Return (Rank)									
5th Percentile	18.6	9.3	2.4	7.6	19.5	14.3	4.2	15.1	27.5	-20.9
25th Percentile	16.6	8.4	0.8	6.1	16.0	13.4	1.5	13.8	21.7	-25.7
Median	15.6	7.7	-0.4	5.1	14.3	12.7	0.6	12.8	20.0	-26.9
75th Percentile	14.1	7.1	-1.3	4.4	11.0	11.8	-0.3	11.8	17.7	-28.3
95th Percentile	10.7	5.3	-3.2	2.6	8.5	9.0	-1.2	9.3	13.4	-30.5
# of Portfolios	61	62	57	55	48	44	42	41	40	39
● Total Fund	16.0 (37)	8.6 (15)	-0.9 (65)	6.3 (20)	18.1 (10)	14.0 (15)	0.3 (61)	15.1 (6)	24.2 (16)	-30.9 (98)
▲ Policy Index	16.3 (29)	8.4 (25)	0.8 (25)	6.8 (12)	17.2 (14)	12.9 (41)	0.5 (55)	13.2 (44)	21.0 (33)	-27.1 (54)



Ventura County Employees' Retirement Association

TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Total Fund vs. InvestorForce Public DB > \$1B Net



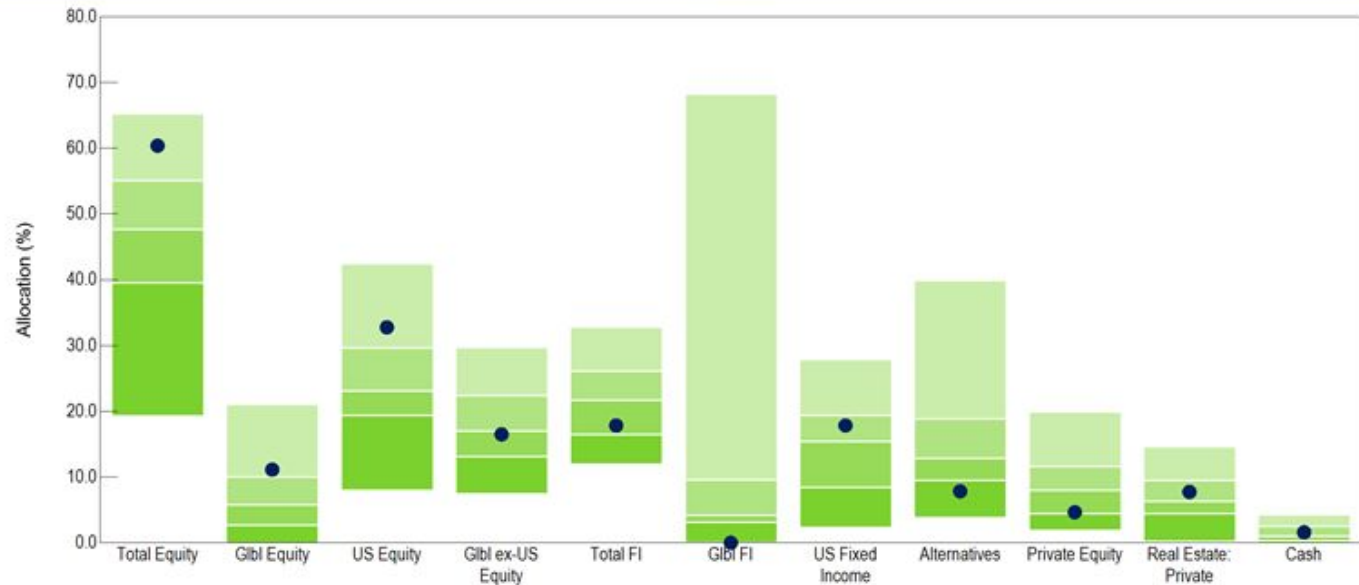
	Fiscal 2017		Fiscal 2016		Fiscal 2015		Fiscal 2014		Fiscal 2013	
	Return	(Rank)	Return	(Rank)	Return	(Rank)	Return	(Rank)	Return	(Rank)
5th Percentile	14.9		2.7		4.3		18.7		15.0	
25th Percentile	13.7		0.8		3.3		17.2		13.1	
Median	12.7		-0.5		2.6		16.1		11.8	
75th Percentile	11.9		-1.2		1.6		14.7		10.5	
95th Percentile	9.2		-2.4		-0.9		13.6		7.5	
# of Portfolios	65		55		53		43		56	
● Total Fund	12.6	(53)	0.8	(26)	1.7	(71)	18.8	(4)	13.2	(22)
▲ Policy Index	13.1	(37)	1.8	(9)	3.4	(25)	17.7	(19)	12.4	(39)



Ventura County Employees' Retirement Association

TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

Total Plan Allocation vs. InvestorForce Public DB > \$1B Net



	Allocation (Rank)											
5th Percentile	65.2	21.0	42.4	29.7	32.8	68.2	27.8	39.9	19.9	14.6	4.3	--
25th Percentile	55.2	10.1	29.7	22.4	26.1	9.6	19.5	18.9	11.7	9.6	2.6	--
Median	47.7	5.9	23.1	17.1	21.8	4.3	15.5	12.9	8.1	6.4	1.1	--
75th Percentile	39.6	2.8	19.4	13.2	16.5	3.2	8.5	9.6	4.6	4.5	0.4	--
95th Percentile	19.4	0.0	8.0	7.6	12.1	0.1	2.4	3.9	2.0	0.3	0.0	--
# of Portfolios	55	21	47	50	56	26	50	51	48	43	53	--
• Total Fund	60.4 (13)	11.1 (23)	32.8 (17)	16.5 (51)	17.8 (70)	0.0 (96)	17.8 (29)	7.8 (84)	4.7 (75)	7.7 (41)	1.6 (37)	--



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total Fund	16.0	8.6	-0.9	6.3	18.1	14.0	0.3	15.1	24.2	-30.9	7.0
Policy Index	16.3	8.4	0.8	6.8	17.2	12.9	0.5	13.2	21.0	-27.1	8.5
Over/Under	-0.3	0.2	-1.7	-0.5	0.9	1.1	-0.2	1.9	3.2	-3.8	-1.5
60% MSCI ACWI (Net) / 40% CITI WGBI	17.1	5.5	-2.6	2.3	11.4	10.3	-1.8	10.0	21.3	-24.1	11.6
60% S&P 500 / 40% BBgBarc Aggregate	14.2	8.3	1.3	10.6	17.6	11.3	4.7	12.1	18.4	-22.1	6.2
Total Fund ex Parametric*	15.7	8.6	-0.9	6.3	17.8	13.7	0.6	14.5	23.3	-30.3	6.9
Total Fund ex Private Equity	15.9	8.6	-1.4	6.1	16.2	13.3	--	--	--	--	--
Policy Index	16.3	8.4	0.8	6.8	17.2	12.9	0.5	13.2	21.0	-27.1	8.5
Over/Under	-0.4	0.2	-2.2	-0.7	-1.0	0.4	--	--	--	--	--
Total US Equity	21.4	13.0	0.5	12.5	34.0	16.9	0.9	18.5	29.2	-40.0	4.3
Russell 3000	21.1	12.7	0.4	12.4	33.5	16.4	1.1	17.5	28.6	-37.2	5.5
Over/Under	0.3	0.3	0.1	0.1	0.5	0.5	-0.2	1.0	0.6	-2.8	-1.2
Western U.S. Index Plus	22.7	13.8	1.1	14.2	32.9	20.7	1.0	24.7	42.6	-56.3	--
S&P 500	21.8	12.0	1.4	13.7	32.4	16.0	2.1	15.1	26.5	-37.0	5.5
Over/Under	0.9	1.8	-0.3	0.5	0.5	4.7	-1.1	9.6	16.1	-19.3	--
Blackrock Russell 1000 Index	--	--	--	--	--	--	--	--	--	--	--
Russell 1000	21.7	12.1	0.9	13.2	33.1	16.4	1.5	16.1	28.4	-37.6	5.8
Over/Under	--	--	--	--	--	--	--	--	--	--	--
Blackrock Russell 2500 Index	--	--	--	--	--	--	--	--	--	--	--
Russell 2500	16.8	17.6	-2.9	7.1	36.8	17.9	-2.5	26.7	34.4	-36.8	1.4
Over/Under	--	--	--	--	--	--	--	--	--	--	--



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total Non-US Equity	26.5	6.6	-4.8	-3.6	16.3	17.9	-13.6	13.5	37.4	-44.1	11.7
MSCI ACWI ex USA	27.2	4.5	-5.7	-3.9	15.3	16.8	-13.7	11.2	41.4	-45.5	16.7
Over/Under	-0.7	2.1	0.9	0.3	1.0	1.1	0.1	2.3	-4.0	1.4	-5.0
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4	11.2
MSCI ACWI ex USA Local Currency	18.2	7.0	1.9	6.0	20.1	16.3	-12.2	7.6	31.7	-40.9	8.5
MSCI EAFE Local Currency	15.2	5.3	5.3	5.9	26.9	17.3	-12.2	4.8	24.7	-40.3	3.5
BlackRock ACWI ex-U.S. Index	28.1	4.7	-4.5	-3.8	16.0	17.2	-14.1	12.8	43.1	-45.6	--
MSCI ACWI ex USA IMI	27.8	4.4	-4.6	-3.9	15.8	17.0	-14.3	12.7	43.6	-46.0	16.1
Over/Under	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.1	-0.5	0.4	--
MSCI ACWI ex USA Local Currency	18.2	7.0	1.9	6.0	20.1	16.3	-12.2	7.6	31.7	-40.9	8.5
Sprucegrove	27.5	11.9	-9.1	-3.2	17.1	17.2	-10.7	18.8	36.2	-42.4	5.8
MSCI ACWI ex USA	27.2	4.5	-5.7	-3.9	15.3	16.8	-13.7	11.2	41.4	-45.5	16.7
Over/Under	0.3	7.4	-3.4	0.7	1.8	0.4	3.0	7.6	-5.2	3.1	-10.9
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4	11.2
MSCI ACWI ex USA Local Currency	18.2	7.0	1.9	6.0	20.1	16.3	-12.2	7.6	31.7	-40.9	8.5
MSCI EAFE Local Currency	15.2	5.3	5.3	5.9	26.9	17.3	-12.2	4.8	24.7	-40.3	3.5
Hexavest	17.4	3.8	-1.4	-4.3	20.2	13.7	-9.6	--	--	--	--
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4	11.2
Over/Under	-7.6	2.8	-0.6	0.6	-2.6	-3.6	2.5	--	--	--	--
MSCI EAFE Local Currency	15.2	5.3	5.3	5.9	26.9	17.3	-12.2	4.8	24.7	-40.3	3.5
Walter Scott	26.6	5.1	-0.4	-3.5	11.8	20.4	-9.3	--	--	--	--
MSCI ACWI ex USA	27.2	4.5	-5.7	-3.9	15.3	16.8	-13.7	11.2	41.4	-45.5	16.7
Over/Under	-0.6	0.6	5.3	0.4	-3.5	3.6	4.4	--	--	--	--
MSCI ACWI ex USA Local Currency	18.2	7.0	1.9	6.0	20.1	16.3	-12.2	7.6	31.7	-40.9	8.5
MSCI EAFE	25.0	1.0	-0.8	-4.9	22.8	17.3	-12.1	7.8	31.8	-43.4	11.2
Total Global Equity	24.5	9.0	-3.8	1.9	22.0	14.4	-3.9	11.4	17.8	-37.3	11.3
MSCI ACWI	24.0	7.9	-2.4	4.2	22.8	16.1	-7.3	12.7	34.6	-42.2	11.7
Over/Under	0.5	1.1	-1.4	-2.3	-0.8	-1.7	3.4	-1.3	-16.8	4.9	-0.4
BlackRock MSCI ACWI Equity Index	24.5	8.4	-2.0	4.6	23.2	--	--	--	--	--	--
MSCI ACWI	24.0	7.9	-2.4	4.2	22.8	16.1	-7.3	12.7	34.6	-42.2	11.7
Over/Under	0.5	0.5	0.4	0.4	0.4	--	--	--	--	--	--



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total Private Equity	16.9	7.6	14.7	19.0	17.9	10.3	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under	-7.8	-8.5	11.2	3.1	-19.6	-9.6					
<i>Cambridge Associates Global All PE (Qtr Lag)</i>	15.8	8.5	7.0	16.3	15.9	13.0	12.6	17.1	-9.3	-7.2	34.8
Adams Street Global Fund Series	13.4	7.1	10.3	19.6	15.7	10.8	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under	-11.3	-9.0	6.8	3.7	-21.8	-9.1					
Harbourvest	23.2	6.7	28.5	18.5	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under	-1.5	-9.4	25.0	2.6							
Pantheon Global Secondary Funds	24.1	15.5	6.4	16.7	14.9	0.9	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under	-0.6	-0.6	2.9	0.8	-22.6	-19.0					
Drive Capital Fund	-33.7	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under	-58.4										
Abbott Secondary Opportunities	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under											
CVI Credit Value Fund	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under											
Clearlake Capital Partners V	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under											
Battery Ventures XII	--	--	--	--	--	--	--	--	--	--	--
<i>Russell 3000 + 3%</i>	<u>24.7</u>	<u>16.1</u>	<u>3.5</u>	<u>15.9</u>	<u>37.5</u>	<u>19.9</u>	<u>4.1</u>	<u>20.4</u>	<u>32.1</u>	<u>-35.3</u>	<u>8.3</u>
Over/Under											
Abbott Capital Cash											



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total US Fixed Income	4.4	4.9	0.3	3.0	-0.1	9.6	7.3	10.6	25.6	-8.7	6.3
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0
Over/Under	0.9	2.3	-0.2	-3.0	1.9	5.4	-0.5	4.1	19.7	-13.9	-0.7
BlackRock U.S. Debt Fund	3.6	2.7	0.6	6.2	-2.0	4.3	7.9	6.7	6.0	5.4	7.0
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0
Over/Under	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.2	0.0
Western	6.0	4.1	0.9	7.4	-1.2	9.7	7.3	11.3	18.9	-8.9	4.8
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0
Over/Under	2.5	1.5	0.4	1.4	0.8	5.5	-0.5	4.8	13.0	-14.1	-2.2
Reams	2.5	6.0	0.3	-3.6	2.5	10.0	8.4	10.0	33.6	-11.0	7.4
Reams Custom Index	1.3	0.7	0.3	0.2	-0.5	4.2	7.8	6.5	5.9	5.2	7.0
Over/Under	1.2	5.3	0.0	-3.8	3.0	5.8	0.6	3.5	27.7	-16.2	0.4
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0
3-Month LIBOR + 3%	4.4	3.8	3.3	3.2	3.3	3.5	3.3	3.4	3.8	6.2	8.7
Loomis Strategic Alpha	3.3	6.1	-1.0	2.4	--	--	--	--	--	--	--
BBgBarc US Aggregate TR	3.5	2.6	0.5	6.0	-2.0	4.2	7.8	6.5	5.9	5.2	7.0
Over/Under	-0.2	3.5	-1.5	-3.6							
3-Month LIBOR + 3%	4.4	3.8	3.3	3.2	3.3	3.5	3.3	3.4	3.8	6.2	8.7
Loomis Sayles Multi Strategy	8.4	8.2	-2.3	6.8	1.4	16.7	4.2	13.6	37.6	-19.7	6.4
Loomis Custom Index	4.5	7.0	-1.2	4.6	0.8	7.5	7.1	8.7	18.8	-4.6	5.1
Over/Under	3.9	1.2	-1.1	2.2	0.6	9.2	-2.9	4.9	18.8	-15.1	1.3
BBgBarc US Govt/Credit TR	4.0	3.0	0.1	6.0	-2.4	4.8	8.7	6.6	4.5	5.7	7.2
Total Real Estate	5.9	6.8	12.8	11.6	10.6	9.1	14.4	15.4	-31.2	-16.0	12.8
NCREIF ODCE Net	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7	14.8
Over/Under	-0.8	-1.0	-1.2	0.1	-2.3	-0.7	-0.6	0.1	-0.8	-5.3	-2.0
Prudential Real Estate	7.0	8.2	14.5	12.5	13.8	8.8	18.0	17.2	-34.8	-13.6	16.7
NCREIF ODCE Net	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7	14.8
Over/Under	0.3	0.4	0.5	1.0	0.9	-1.0	3.0	1.9	-4.4	-2.9	1.9
NCREIF ODCE	7.6	8.8	15.0	12.5	13.9	10.9	16.0	16.4	-29.8	-10.0	16.0
UBS Real Estate	5.4	6.2	11.9	10.6	9.3	9.0	12.1	15.9	-22.9	-8.3	12.8
NCREIF ODCE Net	6.7	7.8	14.0	11.5	12.9	9.8	15.0	15.3	-30.4	-10.7	14.8
Over/Under	-1.3	-1.6	-2.1	-0.9	-3.6	-0.8	-2.9	0.6	7.5	2.4	-2.0
NCREIF ODCE	7.6	8.8	15.0	12.5	13.9	10.9	16.0	16.4	-29.8	-10.0	16.0



Ventura County Employees' Retirement Association

TOTAL FUND CALENDAR YEAR RETURN SUMMARY

	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)	2012 (%)	2011 (%)	2010 (%)	2009 (%)	2008 (%)	2007 (%)
Total Liquid Alternatives	7.2	11.7	-13.8	10.2	--	--	--	--	--	--	--
<i>CPI + 4% (Unadjusted)</i>	6.2	6.2	4.8	4.8	28.8	5.4	13.5	--	--	--	--
Over/Under	1.0	5.5	-18.6	5.4							
Bridgewater All Weather Fund	11.9	10.0	-6.8	7.6	--	--	--	--	--	--	--
<i>CPI + 5% (Unadjusted)</i>	7.2	7.2	5.8	5.8	--	--	--	--	--	--	--
Over/Under	4.7	2.8	-12.6	1.8							
Tortoise Energy Infrastructure	-3.5	15.9	-27.1	15.7	--	--	--	--	--	--	--
<i>Wells Fargo MLP Index</i>	-5.7	21.0	-34.1	8.0	28.8	5.4	13.5	--	--	--	--
Over/Under	2.2	-5.1	7.0	7.7							
Overlay											
Parametric											



APPENDIX: MARKET ENVIRONMENT

NEPC, LLC

CALENDAR YEAR INDEX PERFORMANCE

	2010	2011	2012	2013	2014	2015	2016	2017	Jan	Feb	Mar	Q1	YTD
US Large Cap	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	5.7%	-3.7%	-2.5%	-0.8%	-0.8%
US Small/Mid Cap	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	3.0%	-4.1%	1.0%	-0.2%	-0.2%
Int'l Developed Equity	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	5.0%	-4.5%	-1.8%	-1.5%	-1.5%
Emerging Market Equity	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	8.3%	-4.6%	-1.9%	1.4%	1.4%
US Aggregate	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	3.5%	-1.2%	-0.9%	0.6%	-1.5%	-1.5%
US High Yield	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	0.6%	-0.8%	-0.6%	-0.9%	-0.9%
US Long Treasuries	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.2%	-3.0%	3.0%	-3.3%	-3.3%
EM Local Credit	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	15.2%	4.5%	-1.0%	1.0%	4.4%	4.4%
Global Credit	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.2%	-0.9%	1.1%	1.4%	1.4%
Commodities	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	1.7%	2.0%	-1.7%	-0.6%	-0.4%	-0.4%

Source: Bloomberg, Barclays, S&P, Russell, MSCI, JP Morgan, Credit Suisse

S&P 500 = US Large Cap
 Russell 2500 = US Small/Mid Cap
 MSCI EAFE = International Developed Equity
 MSCI EM = Emerging Market Equity
 Barclays Aggregate = US Aggregate
 Barclays Long Treasury = US Long Treasuries
 Barclays High Yield = US HY
 Barclays Global Aggregate = Global Credit
 GBI-EM Global Diversified = EM Local Credit
 Bloomberg Commodity = Commodities



CALENDAR YEAR INDEX PERFORMANCE

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Jan	Feb	Mar	Q1	YTD
S&P 500	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	12.0%	21.8%	5.7%	-3.7%	-2.5%	-0.8%	-0.8%
Russell 1000	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	0.9%	12.1%	21.7%	5.5%	-3.7%	-2.3%	-0.7%	-0.7%
Russell 2000	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	-4.4%	21.3%	14.6%	2.6%	-3.9%	1.3%	-0.1%	-0.1%
Russell 2500	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	-2.9%	17.6%	16.8%	3.0%	-4.1%	1.0%	-0.2%	-0.2%
MSCI EAFE	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	-0.8%	1.0%	25.0%	5.0%	-4.5%	-1.8%	-1.5%	-1.5%
MSCI EM	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	11.2%	37.3%	8.3%	-4.6%	-1.9%	1.4%	1.4%
MSCI ACWI	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	-2.4%	7.9%	24.0%	5.6%	-4.2%	-2.1%	-1.0%	-1.0%
Private Equity*	13.7%	19.7%	7.9%	12.5%	20.6%	12.7%	9.6%	8.3%	13.7%*	-	-	-	-	-
BC TIPS	11.4%	6.3%	13.6%	7.0%	-8.6%	3.6%	-1.4%	4.7%	3.0%	-0.9%	-1.0%	1.1%	-0.8%	-0.8%
BC Municipal Bond	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	3.3%	0.2%	6.2%	-1.2%	-0.3%	0.4%	-1.1%	-1.1%
BC Muni High Yield	32.7%	7.8%	9.2%	18.1%	-5.5%	13.8%	1.8%	3.0%	9.7%	-0.9%	0.1%	1.5%	0.6%	0.6%
BC US Corp High Yield	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	-4.5%	17.1%	7.5%	0.6%	-0.8%	-0.6%	-0.9%	-0.9%
BC US Aggregate	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	0.5%	2.6%	4.2%	-1.2%	-0.9%	0.6%	-1.5%	-1.5%
BC Global Aggregate	-6.5%	-5.3%	-5.3%	-4.1%	2.7%	-0.6%	3.3%	2.1%	7.4%	1.2%	-0.9%	1.1%	1.4%	1.4%
BC Long Treasuries	-12.9%	9.4%	29.9%	3.6%	-12.7%	25.1%	-1.2%	1.3%	8.5%	-3.2%	-3.0%	3.0%	-3.3%	-3.3%
BC US Long Credit	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	-4.6%	10.2%	13.7%	-1.3%	-3.3%	0.7%	-3.8%	-3.8%
BC US STRIPS 20+ Yr	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	-3.7%	1.4%	10.7%	-4.2%	-4.6%	4.4%	-4.6%	-4.6%
JPM GBI-EM Glob Div	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-14.9%	9.9%	14.6%	4.5%	-1.0%	1.0%	4.4%	4.4%
JPM EMBI Glob Div	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	1.2%	10.2%	12.2%	0.0%	-2.0%	0.3%	-1.7%	-1.7%
CS Leveraged Loan	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	-0.4%	9.9%	5.2%	1.1%	0.2%	0.3%	1.6%	1.6%
CS Hedge Fund	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	-0.7%	1.2%	7.1%	2.7%	-2.1%	-	0.5%	0.5%
BBG Commodity	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-24.7%	11.8%	0.8%	2.0%	-1.7%	-0.6%	-0.4%	-0.4%
Alerian MLP	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-32.6%	18.3%	-6.5%	5.8%	-9.7%	-6.9%	-11.1%	-11.1%
FTSE NAREIT Eq REITs	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	3.2%	8.5%	3.5%	-4.2%	-7.7%	3.8%	-8.2%	-8.2%

Source: Bloomberg, Barclays, Alerian, Nareit, MSCI, JP Morgan, Credit Suisse, Thomson One
 *Private Equity return represents calendar year pooled IRR and is subject to a one quarter lag



TRAILING ANNUAL INDEX PERFORMANCE

Equity						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
Global Equity	-2.1%	-1.0%	14.8%	8.1%	9.2%	5.6%
US Large Cap	-2.5%	-0.8%	14.0%	10.8%	13.3%	9.5%
US Small/Mid Cap	1.0%	-0.2%	12.3%	8.1%	11.6%	10.3%
Int'l Developed Equity	-1.8%	-1.5%	14.8%	5.6%	6.5%	2.7%
Emerging Market Equity	-1.9%	1.4%	24.9%	8.8%	5.0%	3.0%

Rates/Credit						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
Global Aggregate	1.1%	1.4%	7.0%	3.1%	1.5%	2.6%
US Aggregate	0.6%	-1.5%	1.2%	1.2%	1.8%	3.6%
US Credit	0.3%	-2.1%	2.6%	2.2%	2.8%	5.1%
US High Yield	-0.6%	-0.9%	3.8%	5.2%	5.0%	8.3%
EM Local Debt	1.0%	4.4%	13.0%	5.4%	-0.7%	3.8%

Real Assets						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
Commodities	-0.6%	-0.4%	3.7%	-3.2%	-8.3%	-7.7%
MLPs	-6.9%	-11.1%	-20.1%	-11.2%	-5.8%	5.5%

Source: Bloomberg, Barclays, MSCI, S&P, Russell, JP Morgan, Alerian



TRAILING ANNUAL INDEX PERFORMANCE

Equity						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI	-2.1%	-1.0%	14.8%	8.1%	9.2%	5.6%
S&P 500	-2.5%	-0.8%	14.0%	10.8%	13.3%	9.5%
Russell 1000	-2.3%	-0.7%	14.0%	10.4%	13.2%	9.6%
Russell 2000	1.3%	-0.1%	11.8%	8.4%	11.5%	9.8%
Russell 2500	1.0%	-0.2%	12.3%	8.1%	11.6%	10.3%
MSCI EAFE	-1.8%	-1.5%	14.8%	5.6%	6.5%	2.7%
MSCI Emerging Markets	-1.9%	1.4%	24.9%	8.8%	5.0%	3.0%

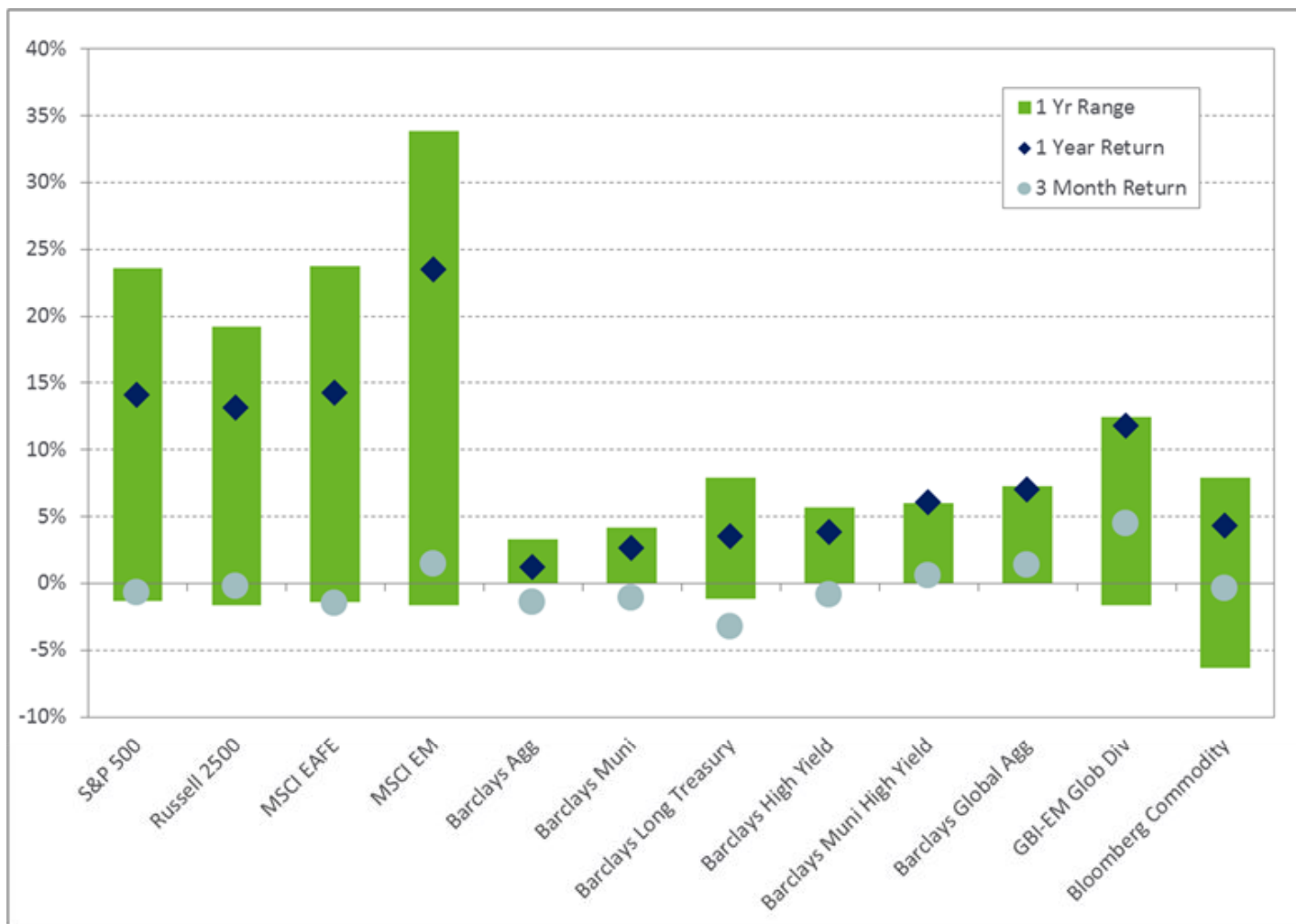
Rates/Credit						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
BC Global Aggregate	1.1%	1.4%	7.0%	3.1%	1.5%	2.6%
BC US Aggregate	0.6%	-1.5%	1.2%	1.2%	1.8%	3.6%
BC Credit	0.3%	-2.1%	2.6%	2.2%	2.8%	5.1%
BC US High Yield	-0.6%	-0.9%	3.8%	5.2%	5.0%	8.3%
BC Municipal Bond	0.4%	-1.1%	2.7%	2.3%	2.7%	4.4%
BC Municipal High Yield	1.5%	0.6%	6.0%	4.6%	4.1%	5.6%
BC TIPS	1.1%	-0.8%	0.9%	1.3%	0.0%	2.9%
BC 20+ STRIPS	4.4%	-4.6%	6.6%	0.1%	5.3%	8.2%
BC Long Treasuries	3.0%	-3.3%	3.5%	0.4%	3.3%	5.8%
BC Long Credit	0.7%	-3.8%	6.2%	3.3%	4.7%	7.5%
BC Gov/Credit 1-3 Yr	0.2%	-0.2%	0.2%	0.7%	0.8%	1.6%
CS Lev Loan	0.3%	1.6%	4.6%	4.3%	4.2%	5.4%
JPM EMBI Glob Div	0.3%	-1.7%	4.3%	5.8%	4.7%	7.0%
JPM GBI-EM Glob Div	1.0%	4.4%	13.0%	5.4%	-0.7%	3.8%

Real Assets						
	Mar-18	YTD	1 YR	3 YR	5 YR	10 YR
BBG Commodity	-0.6%	-0.4%	3.7%	-3.2%	-8.3%	-7.7%
Alerian MLP	-6.9%	-11.1%	-20.1%	-11.2%	-5.8%	5.5%
FTSE NAREIT Equity REITs	3.7%	-6.7%	-1.1%	2.9%	6.7%	6.9%

Source: Bloomberg, Barclays, S&P, Russell, MSCI, JP Morgan, Credit Suisse, Alerian, NAREIT



SHORT-TERM PERFORMANCE SUMMARY



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan

*1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago



LONG-TERM PERFORMANCE SUMMARY



Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, JP Morgan



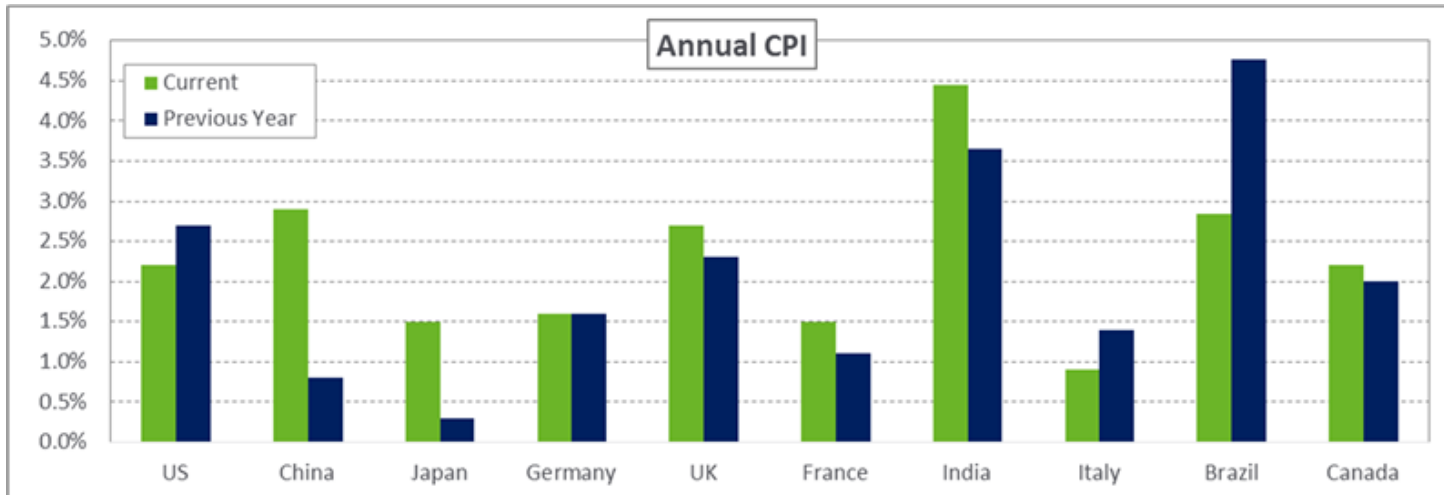
MACRO

NEPC, LLC

INFLATION



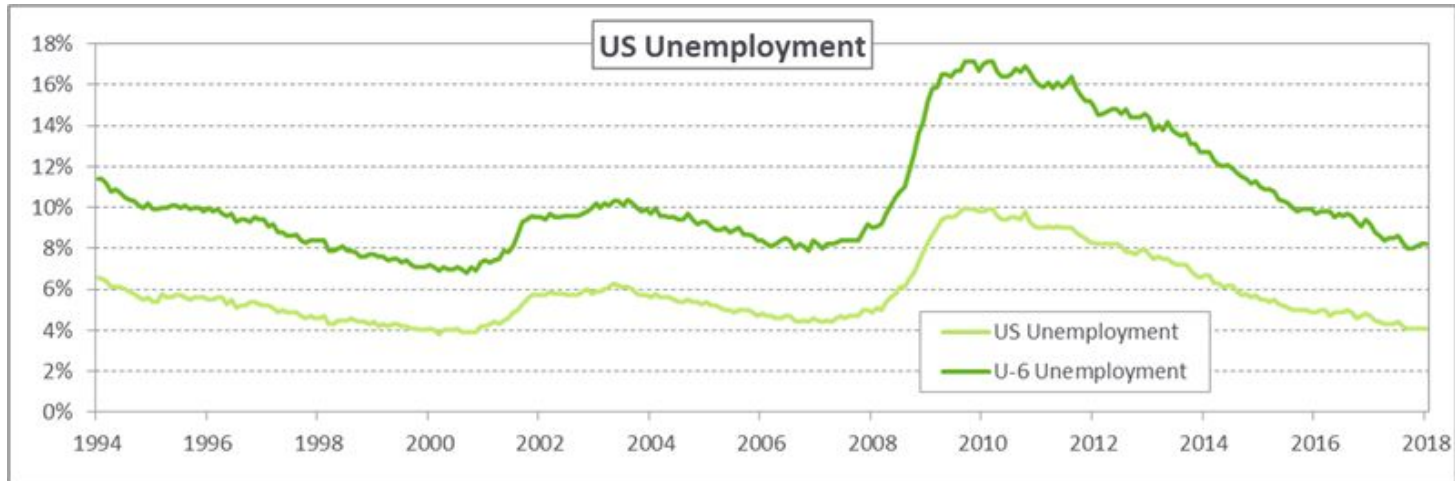
Source: Bureau of Labor Statistics, Bloomberg, NEPC



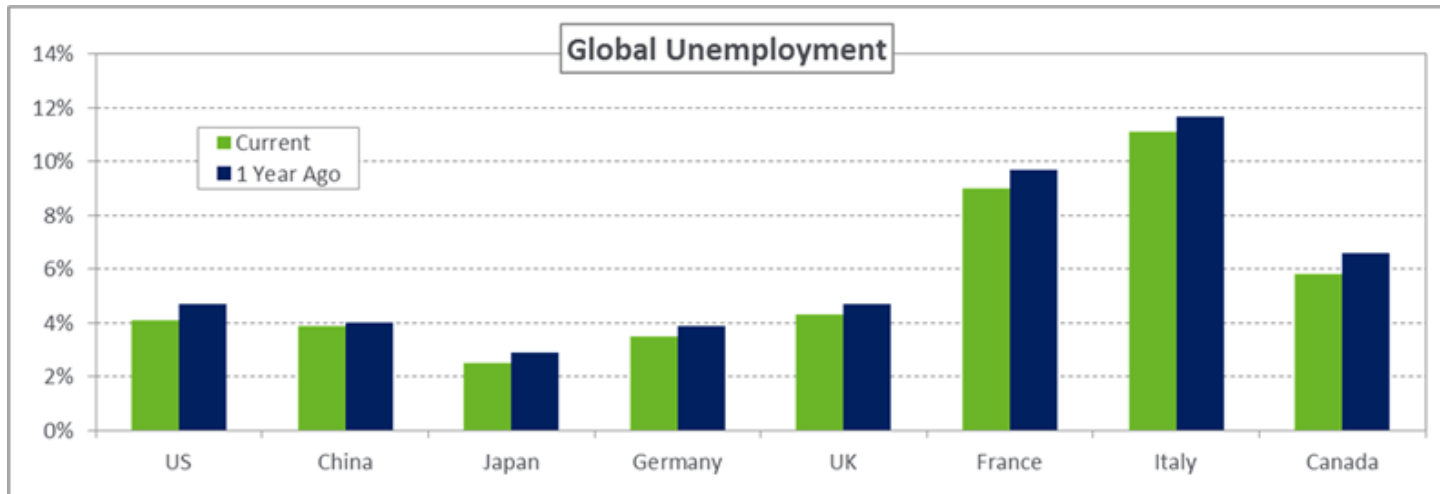
Source: Bureau of Labor Statistics, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, India Central Statistical Organization, ISTAT, IBGE, STCA, Bloomberg



UNEMPLOYMENT



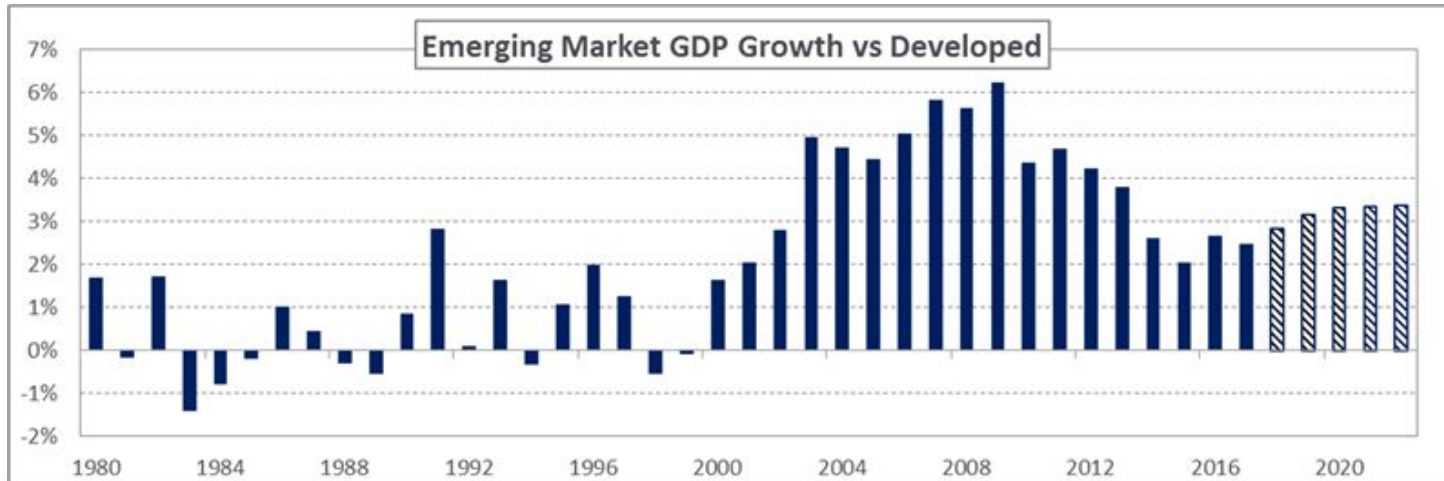
Source: Bureau of Labor Statistics, Bloomberg



Source: Bureau of Labor Statistics, STA, National Bureau of Statistics of China, Ministry of Internal Affairs and Communications (Japan), German Federal Statistics Office, UK Office for National Statistics, National Statistics Office of France, ISTAT, IBGE, Bloomberg



ECONOMIC INDICATORS



Source: IMF



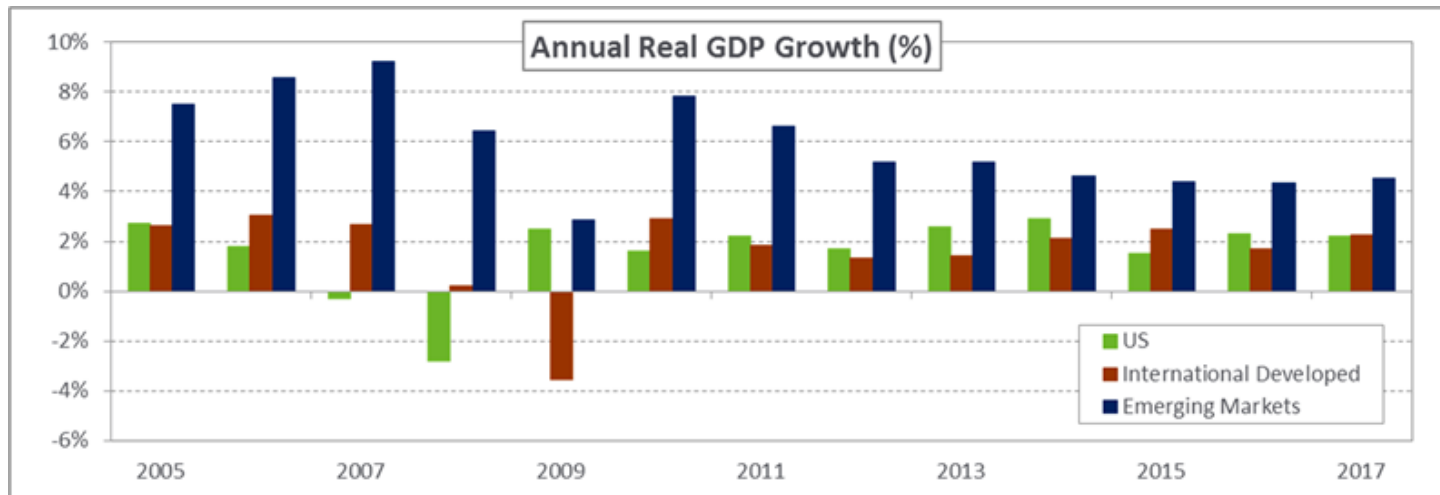
Source: OECD, Bloomberg



GROSS DOMESTIC PRODUCT



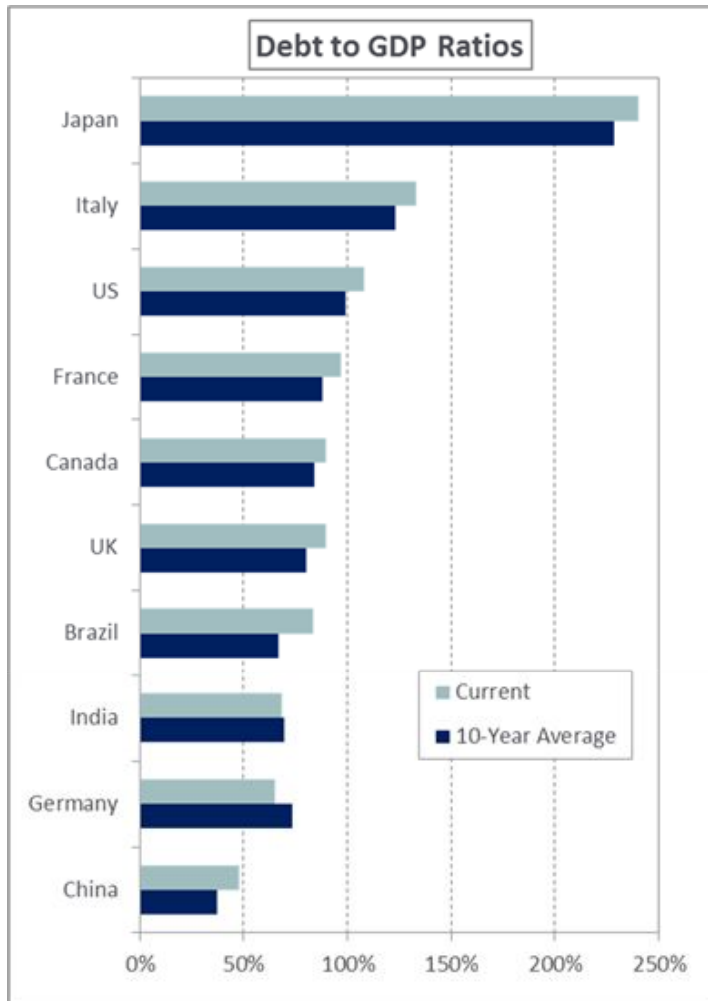
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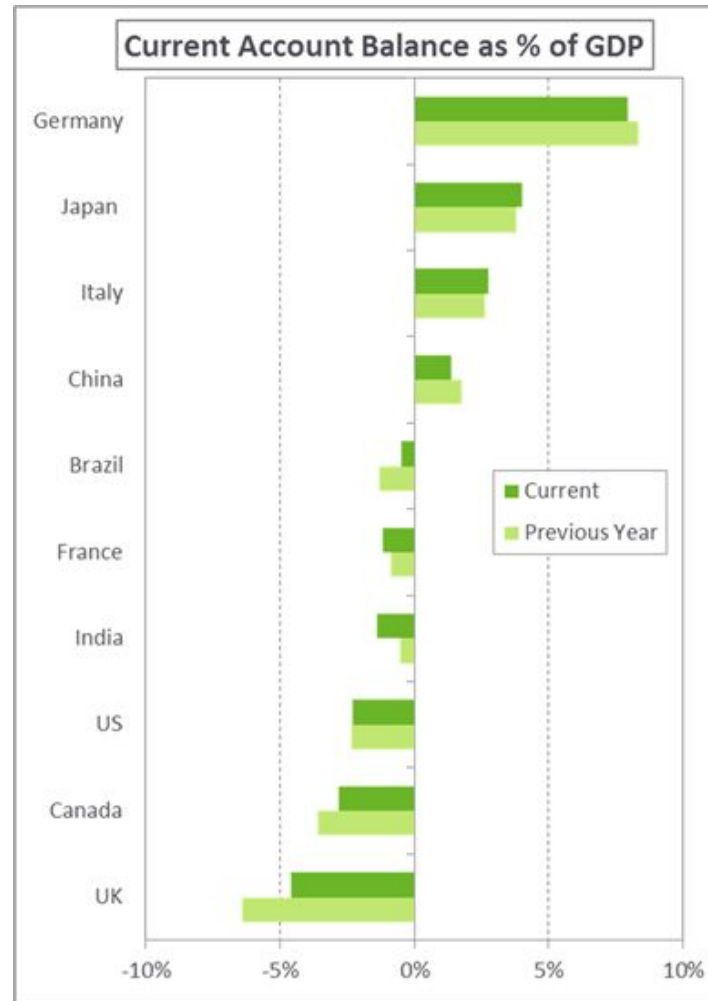
Source: Bloomberg



GROSS DOMESTIC PRODUCT METRICS



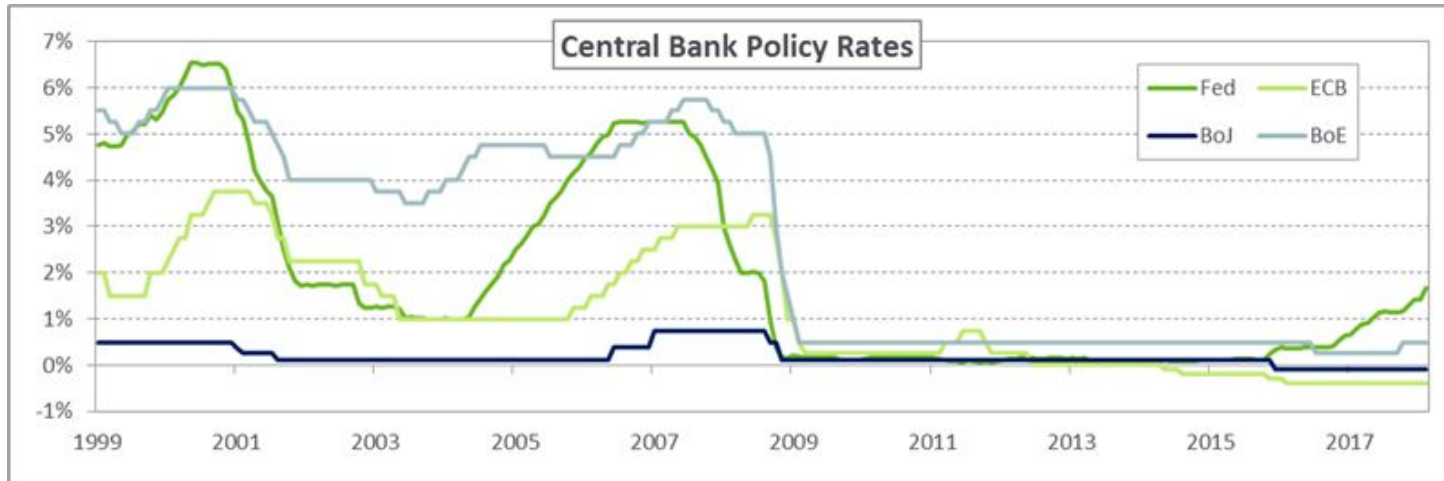
Source: IMF, Bloomberg



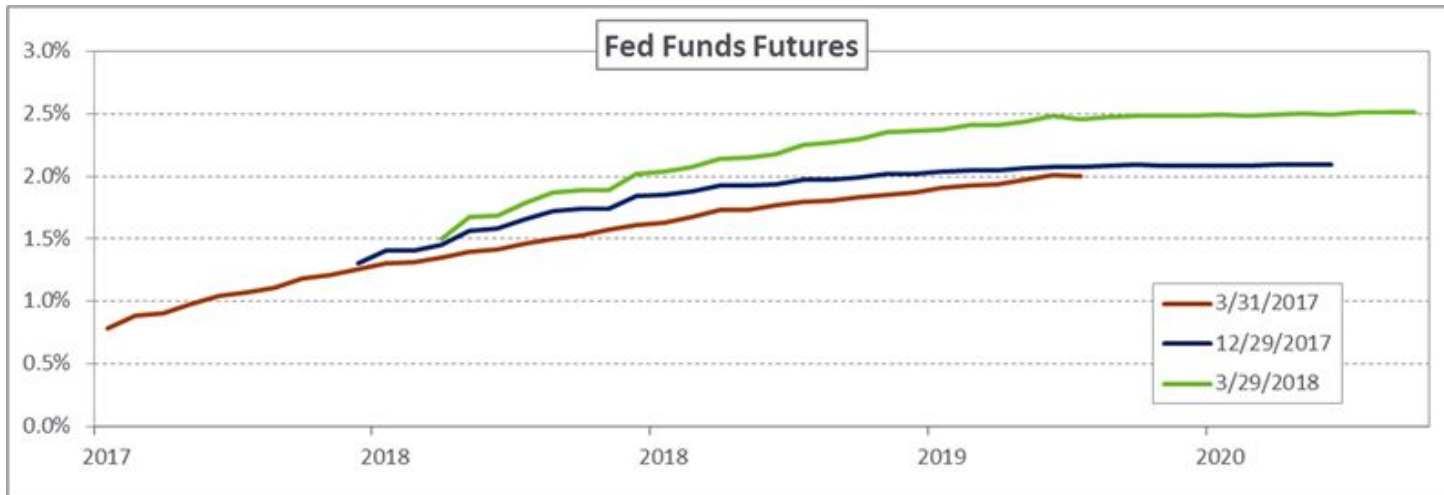
Source: Bloomberg



CENTRAL BANK RATES



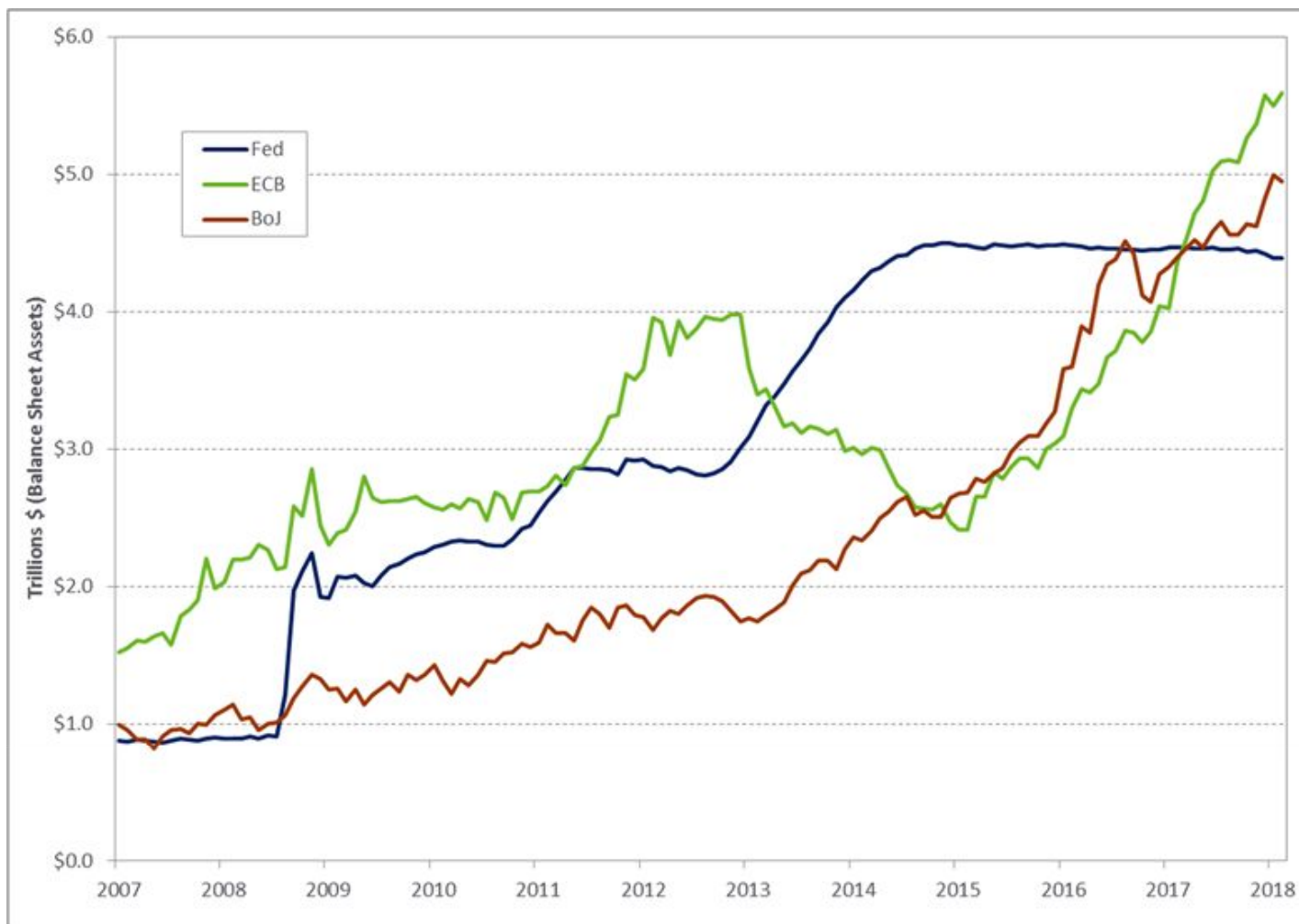
Source: Federal Reserve, ECB, Bank of Japan, Bank of England, Bloomberg



Source: Bloomberg



CENTRAL BANK BALANCE SHEETS



Source: Federal Reserve, Bank of Japan, ECB, Bloomberg, NEPC



CURRENCIES

% Change Relative to USD				
Currencies	Spot	1 Month	YTD	1 Year
Euro	1.23	1.1%	2.7%	15.7%
British Pound	1.40	1.9%	3.7%	11.7%
Japanese Yen	106.28	0.4%	6.0%	4.8%
Swiss Franc	0.95	-1.0%	2.1%	5.1%
Australian Dollar	0.77	-1.1%	-1.7%	0.7%
Chinese Yuan	6.29	0.6%	3.4%	9.3%
Brazilian Real	3.31	-2.0%	0.2%	-5.6%
Russian Ruble	57.34	-1.7%	0.6%	-1.9%
Indian Rupee	65.08	0.3%	-1.9%	-0.4%
Mexican Peso	18.18	3.6%	8.1%	3.0%
South African Rand	11.84	-0.4%	4.5%	13.4%

Source: Bloomberg



Source: Bloomberg



EQUITY

NEPC, LLC

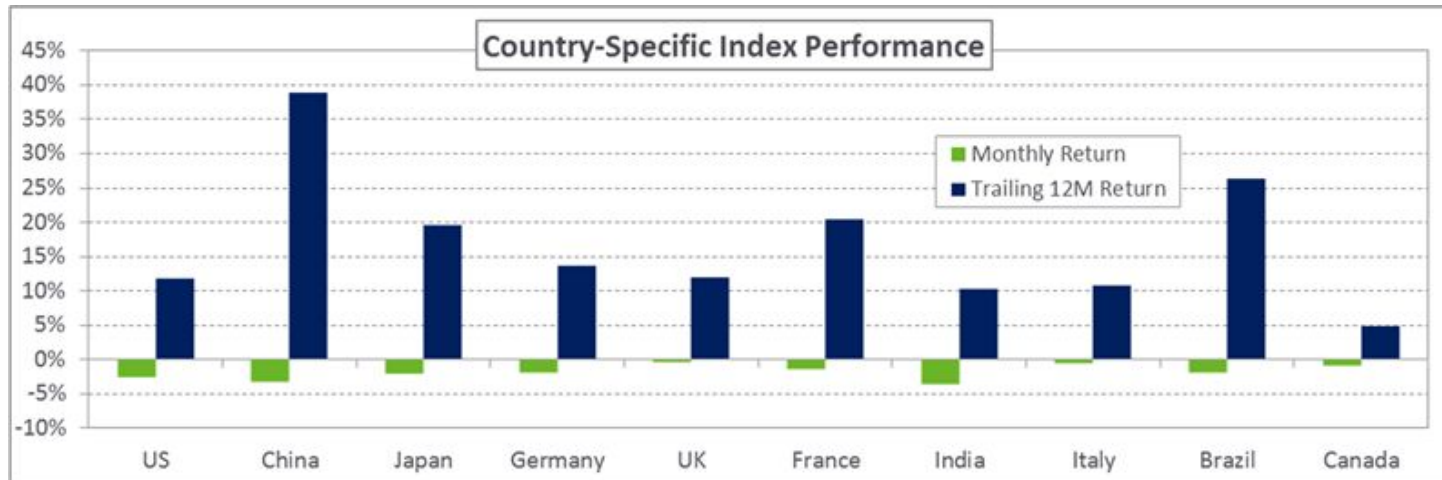
EQUITY INDEX PERFORMANCE



Source: Russell, Bloomberg



Source: MSCI, Bloomberg



Source: MSCI, Bloomberg
Represents returns in USD

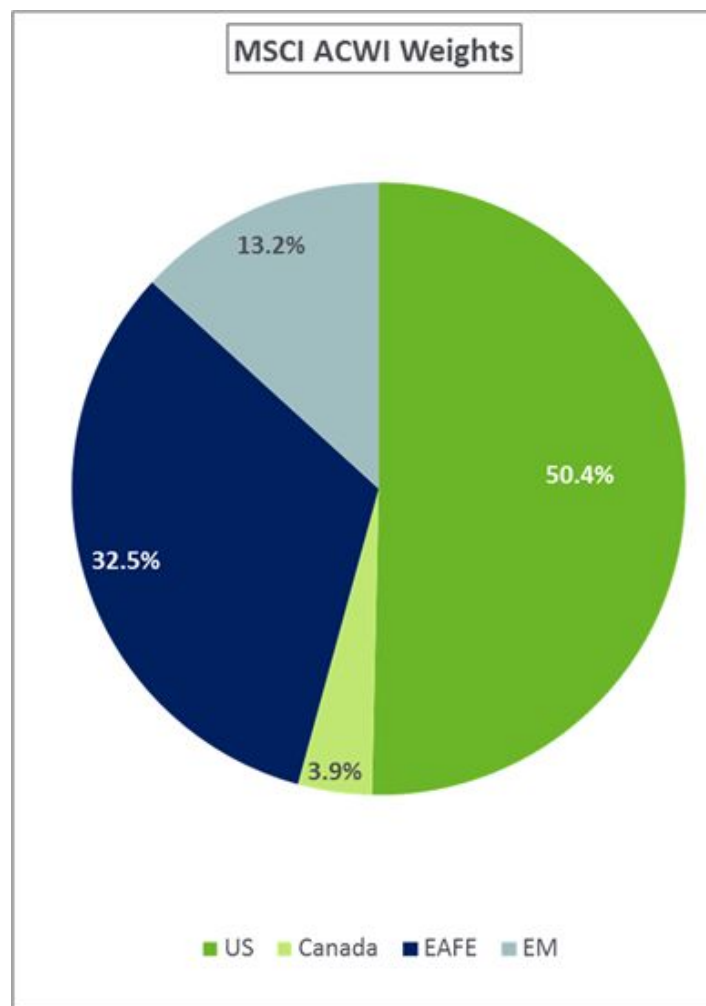


INDEX COMPOSITION

	MTD	QTD	YTD	Index Weight
S&P 500	-2.5%	-0.8%	-0.8%	100%
Cons Disc	-2.4%	3.0%	3.0%	12.7%
Cons Staples	-1.0%	-7.3%	-7.3%	7.7%
Energy	1.6%	-6.1%	-6.1%	5.8%
Financials	-4.4%	-1.1%	-1.1%	14.2%
Health Care	-3.1%	-1.3%	-1.3%	13.9%
Industrials	-2.7%	-1.7%	-1.7%	10.3%
Info Tech	-3.9%	3.4%	3.4%	24.8%
Materials	-4.3%	-5.7%	-5.7%	2.9%
Real Estate	3.6%	-5.3%	-5.3%	2.8%
Telecom	-1.0%	-7.8%	-7.8%	2.0%
Utilities	3.7%	-3.6%	-3.6%	2.9%

	MTD	QTD	YTD	Index Weight
MSCI ACWI	-2.1%	-0.9%	-0.9%	100%
Cons Disc	-2.7%	1.0%	1.0%	12.0%
Cons Staples	0.1%	-4.9%	-4.9%	8.0%
Energy	0.7%	-3.8%	-3.8%	6.3%
Financials	-3.8%	-1.0%	-1.0%	18.5%
Health Care	-2.0%	-1.0%	-1.0%	10.6%
Industrials	-2.4%	-1.6%	-1.6%	11.1%
Info Tech	-3.0%	3.2%	3.2%	18.9%
Materials	-3.6%	-3.7%	-3.7%	5.4%
Real Estate	2.1%	-3.6%	-3.6%	3.2%
Telecom	-1.5%	-5.4%	-5.4%	3.1%
Utilities	3.8%	-1.3%	-1.3%	2.9%

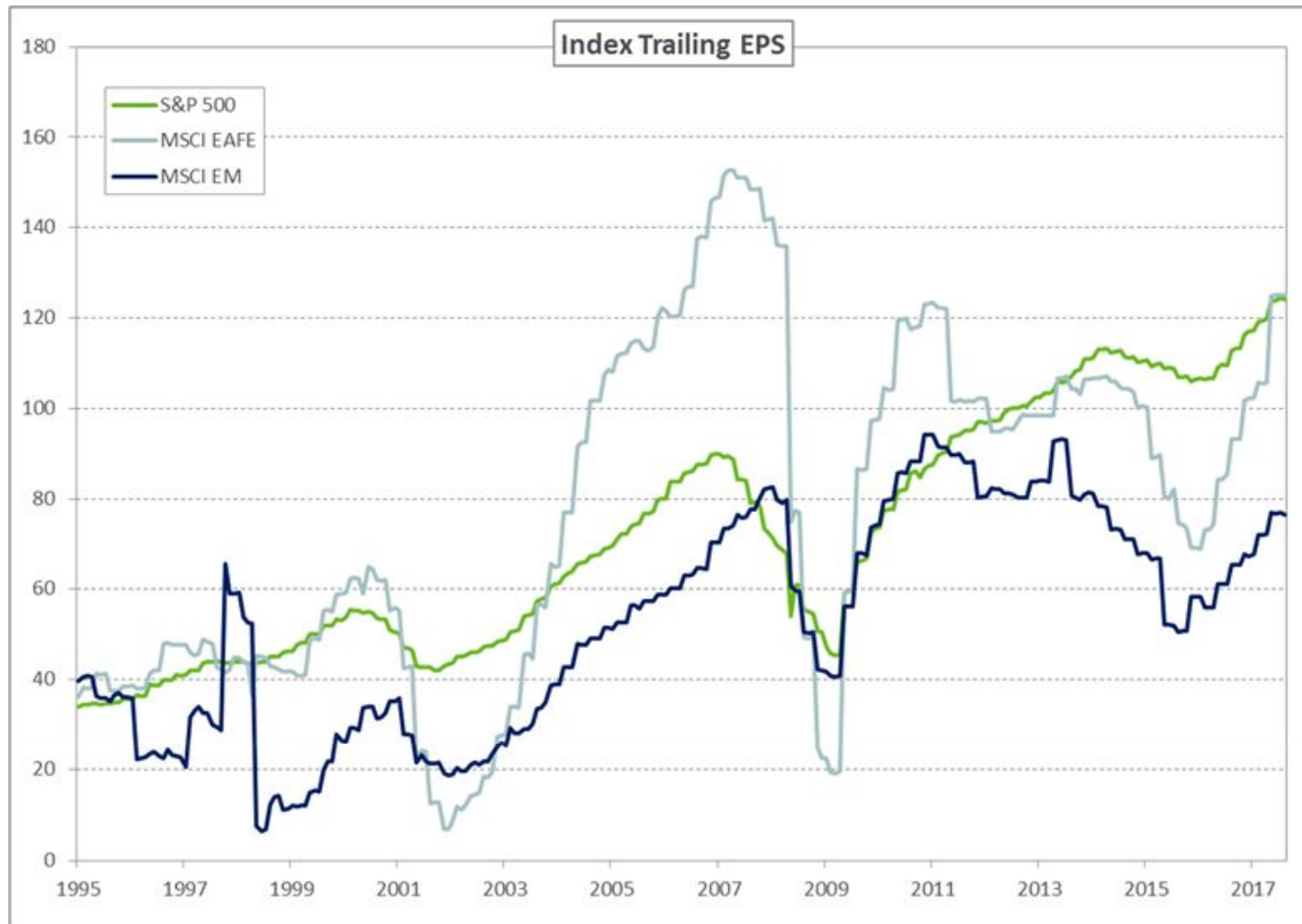
Source: S&P, MSCI, Bloomberg



Source: MSCI, Bloomberg



EARNINGS



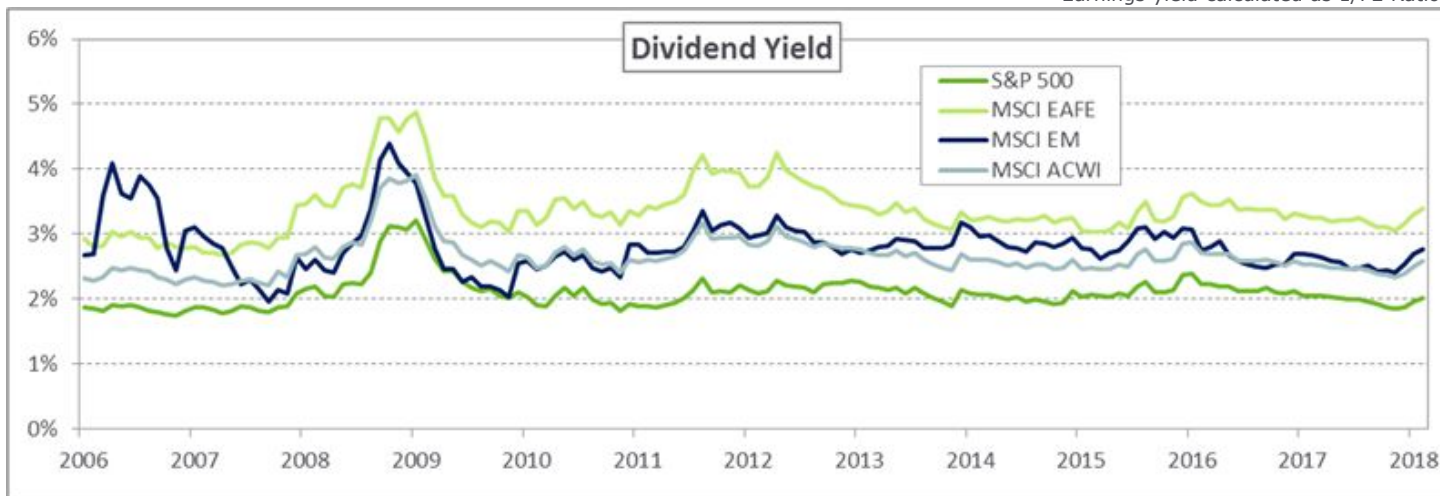
Source: S&P, MSCI, Bloomberg



YIELDS



Source: S&P, MSCI, Bloomberg
Earnings yield calculated as 1/PE Ratio



Source: S&P, MSCI, Bloomberg



CREDIT

NEPC, LLC

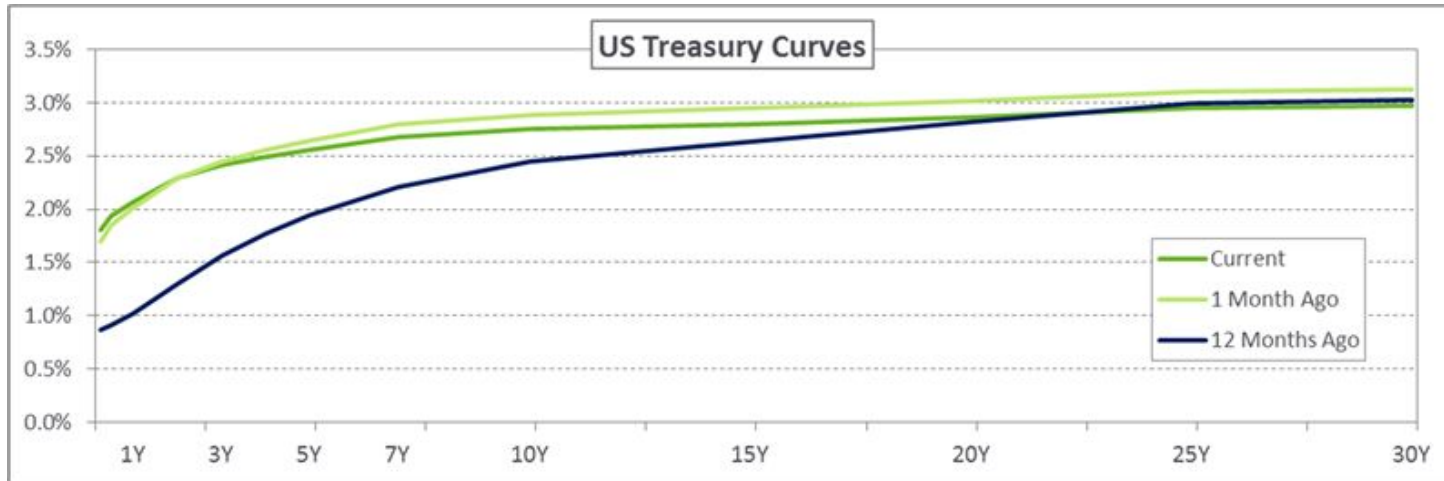
FIXED INCOME CHARACTERISTICS

	Averages			Total Returns (%)		
	Yield to Worst	Spread (bps)	Duration (Years)	1-Month	YTD	1-Year
Barclays Aggregate	3.1%	41	6.1	0.6%	-1.5%	1.2%
Barclays Treasury	2.6%	-	6.1	0.9%	-1.2%	0.4%
Barclays Agency	2.6%	12	3.9	0.6%	-0.5%	0.8%
Barclays MBS	3.3%	29	5.1	0.6%	-1.2%	0.8%
Barclays ABS	2.8%	43	2.3	0.2%	-0.5%	0.5%
Barclays CMBS	3.3%	67	5.4	0.4%	-1.3%	1.1%
Barclays Corp IG	3.8%	109	7.5	0.3%	-2.3%	2.7%
Barclays Muni	2.7%	-	6.0	0.4%	-1.1%	2.7%
Barclays HY Muni	5.3%	-	8.1	1.5%	0.6%	6.0%
Barclays TIPS	2.8%	-	5.0	1.1%	-0.8%	0.9%
Barclays HY	6.2%	354	4.1	-0.6%	-0.9%	3.8%
Barclays Global Agg	1.8%	38	7.1	1.1%	1.4%	7.0%
JPM EMBI Glob Div	5.9%	326	7.4	0.3%	-1.7%	4.3%
JPM CEMBI Broad	4.6%	244	4.7	-0.2%	-1.1%	3.7%
JPM GBI - EM	6.0%	-	5.2	1.0%	4.4%	13.0%

Source: Barclays, JPM, Bloomberg



TREASURIES



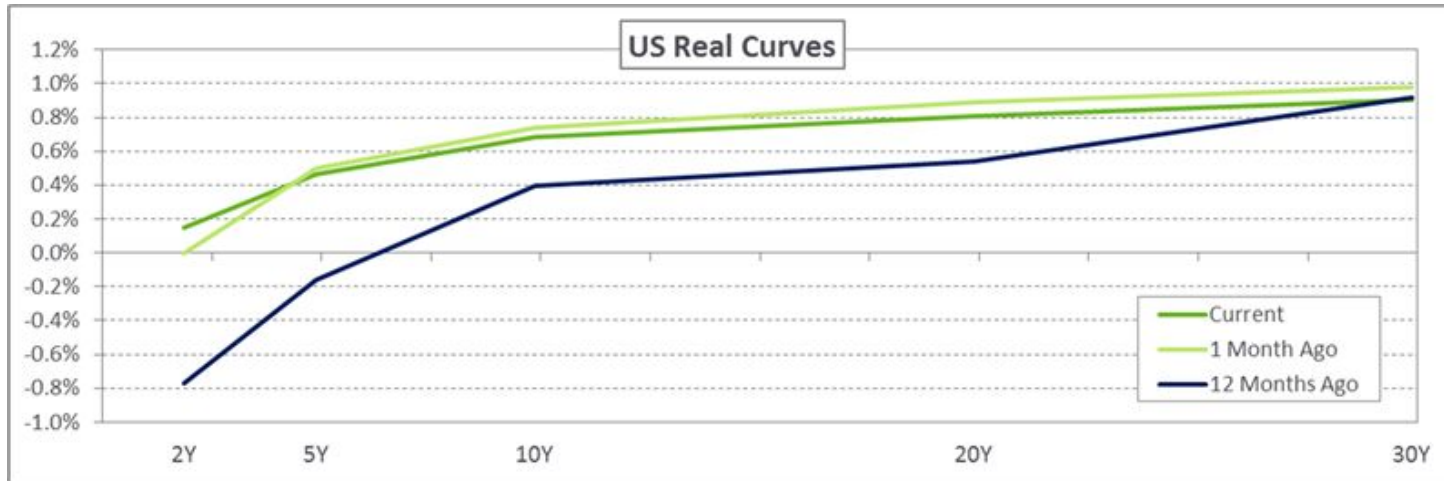
Source: Bloomberg

	Yield (%)			Total Return (%)	
	Current	1 Month Ago	12 Months Ago	1 Month	12 Months
3M Treasury	1.81%	1.70%	0.86%	0.13%	1.05%
6M Treasury	1.94%	1.85%	0.91%	0.14%	1.07%
2Y Treasury	2.30%	2.29%	1.31%	0.17%	-0.17%
5Y Treasury	2.56%	2.65%	1.94%	0.65%	-0.81%
10Y Treasury	2.75%	2.89%	2.45%	1.32%	-1.09%
30Y Treasury	2.98%	3.13%	3.03%	3.37%	3.54%

Source: Barclays, Bloomberg



REAL YIELDS



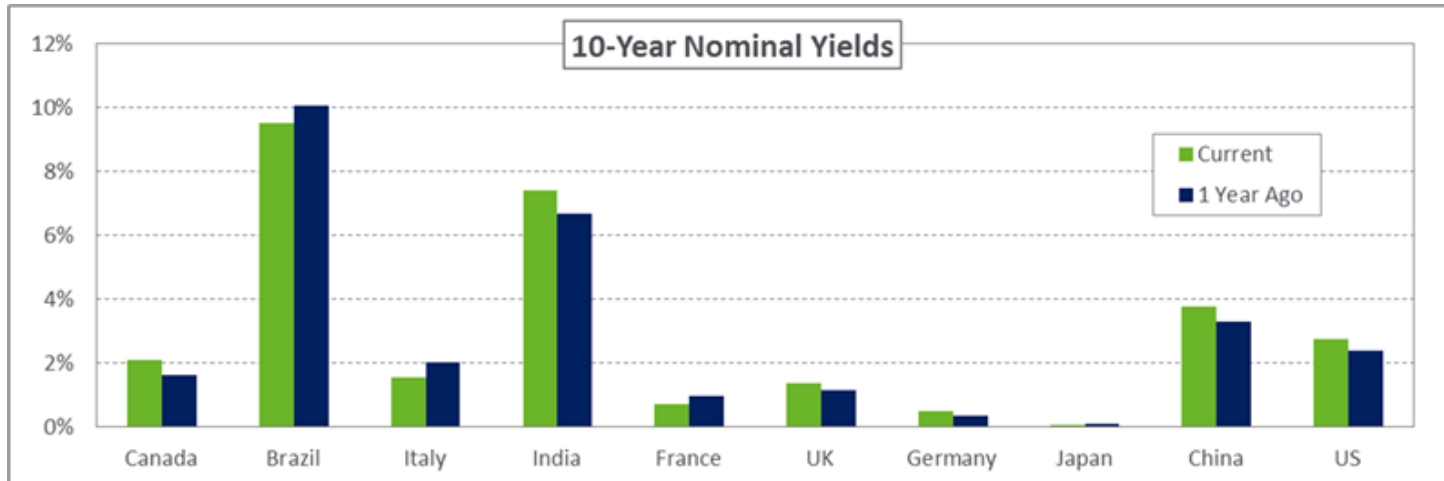
Source: Bloomberg

	Real Rates			Breakeven Rates	
	Current	1 Month Ago	12 Months Ago	Current	12 Months Ago
2Y Treasury	0.15%	0.00%	-0.77%	1.98%	1.82%
5Y Treasury	0.47%	0.50%	-0.16%	2.04%	1.95%
10Y Treasury	0.68%	0.74%	0.40%	2.06%	1.98%
20Y Treasury	0.81%	0.89%	0.54%	2.00%	1.94%
30Y Treasury	0.90%	0.98%	0.91%	2.07%	2.09%

Source: Barclays, Bloomberg



NOMINAL YIELDS



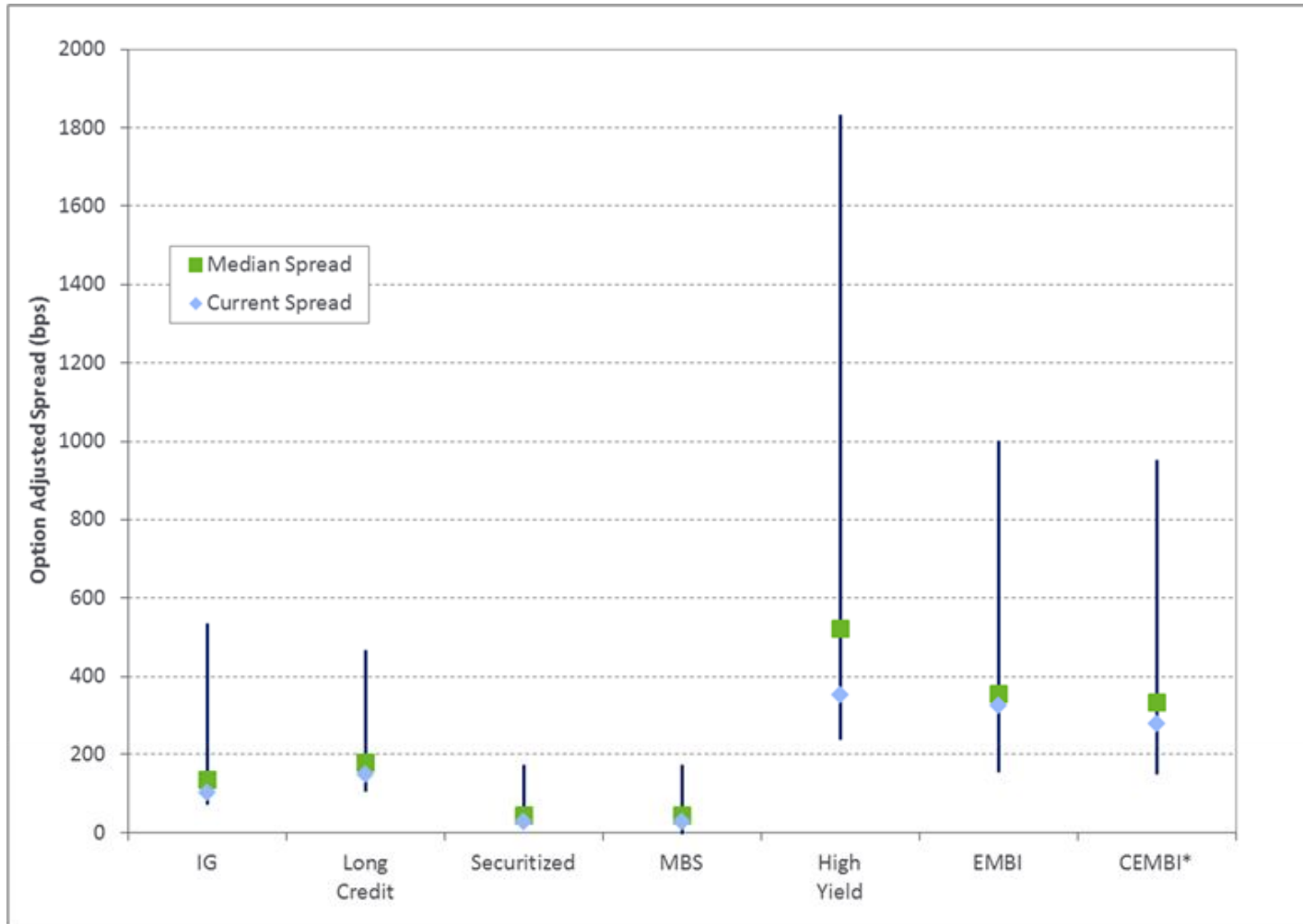
Source: Bloomberg



Source: Bloomberg



CREDIT SPREADS



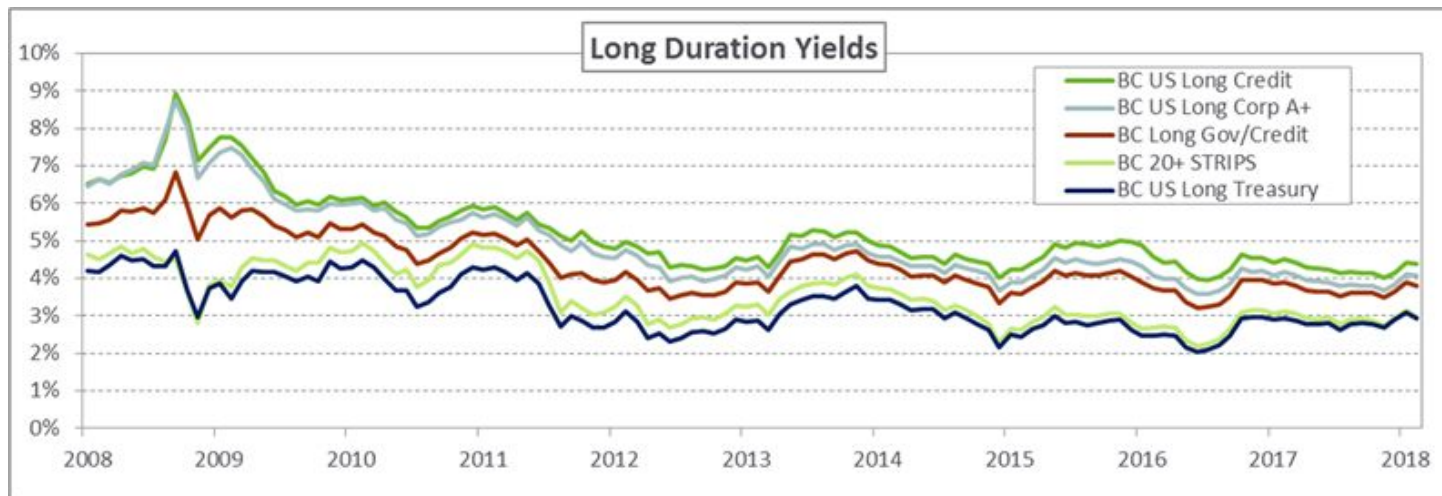
Source: Barclays, JPM, Bloomberg
 Ranges calculated since 01/31/2000
 *JPM CEMBI calculated as of 12/31/2001



LONG DURATION

Index	Month-End Yield	1 Month Prior Yield	1 Year Prior Yield	Duration
Barclays Long Treasury	2.9%	3.1%	3.0%	17.3
Barclays 20+ STRIPS	3.0%	3.2%	3.1%	25.5
Barclays Long Gov/Credit	3.8%	3.9%	3.9%	15.2
Barclays Long Credit	4.4%	4.4%	4.5%	13.8
Barclays Long Corp A+	4.1%	4.1%	4.2%	14.4

Source: Barclays, Bloomberg



Source: Barclays, Bloomberg



REAL ASSETS

NEPC, LLC

REAL ASSETS INDEX PERFORMANCE

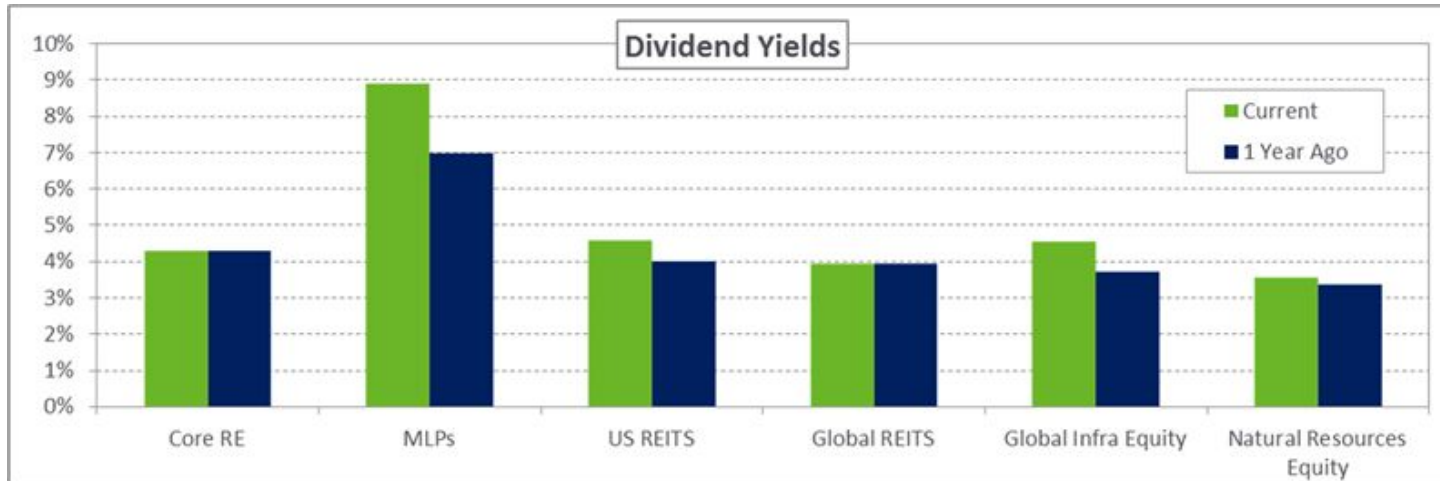
Index	1 Month	3 Month	YTD	1 Year	3 Year	5 Year
Bloomberg Commodity Index	-0.6%	-0.4%	-0.4%	3.7%	-3.2%	-8.3%
Bloomberg Sub Agriculture Index	-2.8%	3.1%	3.1%	-5.4%	-4.6%	-8.7%
Coffee	-3.0%	-7.6%	-7.6%	-22.5%	-12.6%	-11.7%
Corn	1.6%	8.7%	8.7%	-5.9%	-9.1%	-15.8%
Cotton	-1.6%	2.6%	2.6%	7.0%	8.0%	-0.6%
Soybean	-1.0%	7.5%	7.5%	4.9%	0.3%	-0.2%
Soybean Oil	-1.1%	-4.8%	-4.8%	-3.5%	-2.7%	-11.8%
Sugar	-7.6%	-17.9%	-17.9%	-28.8%	-4.5%	-15.2%
Wheat	-8.8%	3.2%	3.2%	-11.3%	-15.0%	-16.7%
Bloomberg Sub Energy	4.9%	1.8%	1.8%	9.9%	-9.0%	-16.2%
Brent Crude	7.2%	5.4%	5.4%	30.5%	-3.2%	-14.6%
Heating Oil	6.2%	-0.3%	-0.3%	27.7%	-2.9%	-11.7%
Natural Gas	1.5%	-6.9%	-6.9%	-28.6%	-23.9%	-24.3%
Unleaded Gas	4.3%	0.9%	0.9%	18.1%	-1.5%	-12.2%
WTI Crude Oil	5.8%	8.8%	8.8%	25.7%	-7.1%	-16.4%
Bloomberg Sub Industrial Metals	-4.4%	-6.2%	-6.2%	12.7%	4.0%	-1.5%
Aluminum	-6.2%	-12.0%	-12.0%	0.0%	0.6%	-3.7%
Copper	-3.3%	-8.6%	-8.6%	12.0%	1.8%	-3.4%
Nickel	-3.6%	4.2%	4.2%	31.3%	1.0%	-5.8%
Zinc	-4.9%	-0.8%	-0.8%	19.7%	15.3%	9.3%
Bloomberg Sub Precious Metals	0.2%	-0.5%	-0.5%	0.5%	1.8%	-6.1%
Gold	0.4%	1.0%	1.0%	5.2%	3.1%	-4.2%
Silver	-0.7%	-5.2%	-5.2%	-12.0%	-2.0%	-11.7%
Bloomberg Sub Livestock	-7.1%	-10.0%	-10.0%	-4.4%	-6.7%	-3.4%
Lean Hogs	-0.6%	-10.7%	-10.7%	-1.4%	-4.8%	-7.6%
Live Cattle	-10.4%	-10.4%	-10.4%	-7.0%	-7.9%	-1.0%

Source: Bloomberg

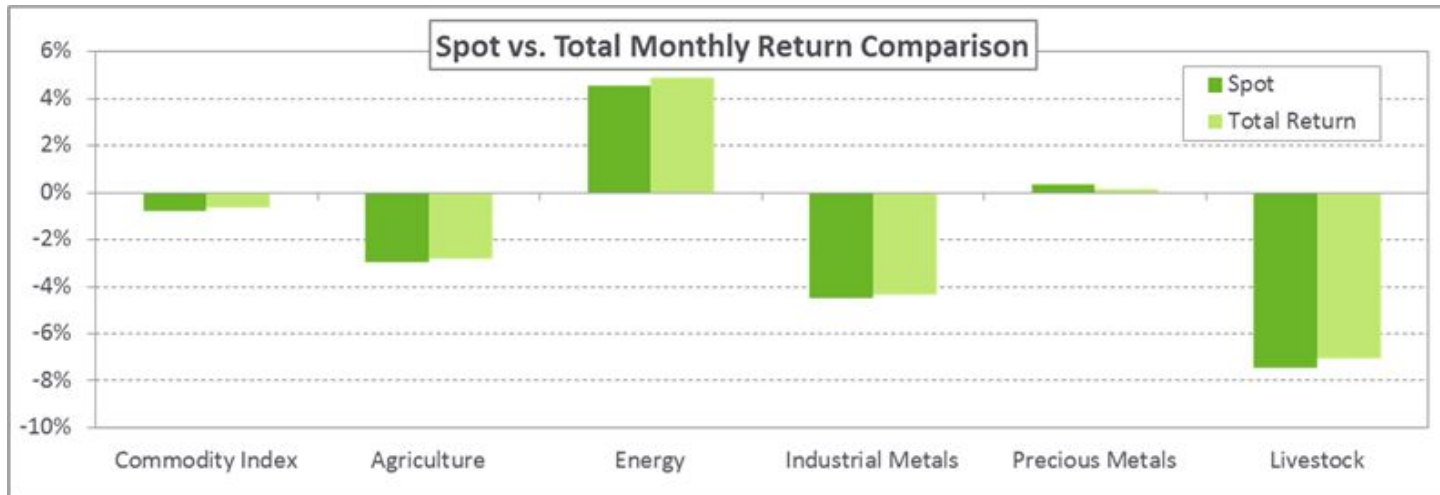
Bloomberg subindex total return indices reflects the return of the underlying one month commodity futures price movements



INCOME YIELD



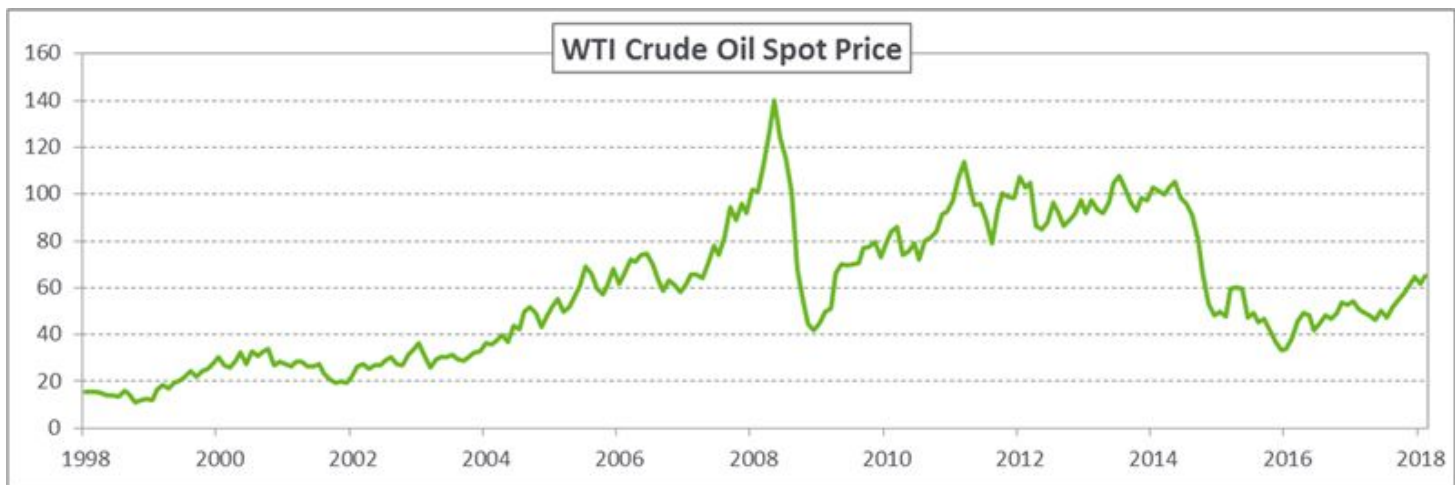
Source: Alerian, NAREIT, S&P, Bloomberg



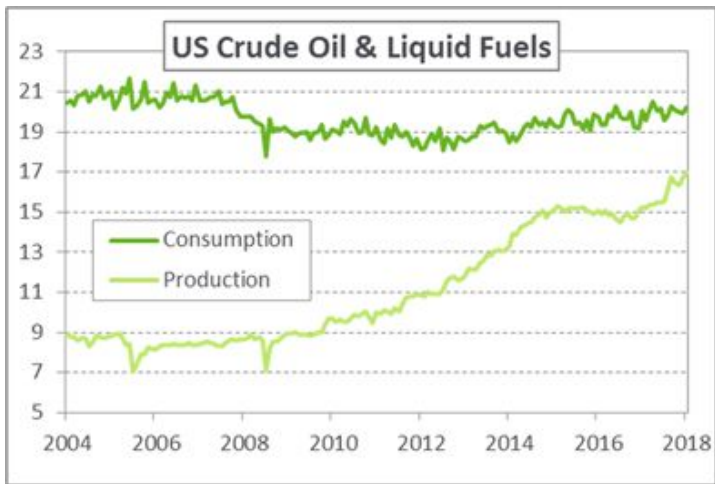
Source: Bloomberg, NEPC



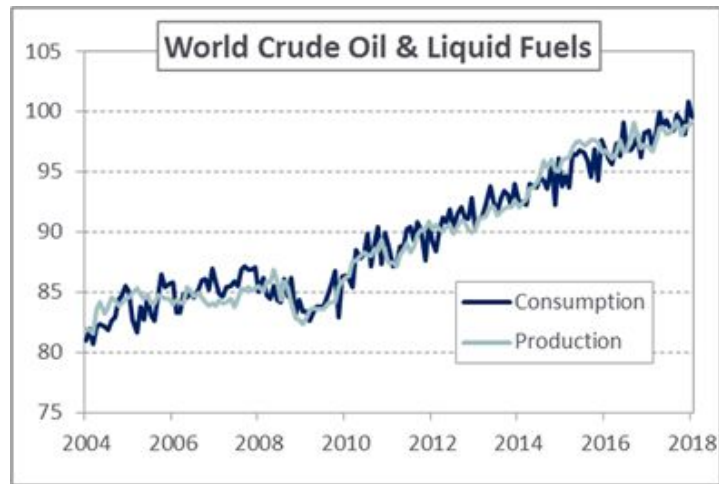
OIL MARKETS



Source: New York Mercantile Exchange, Bloomberg



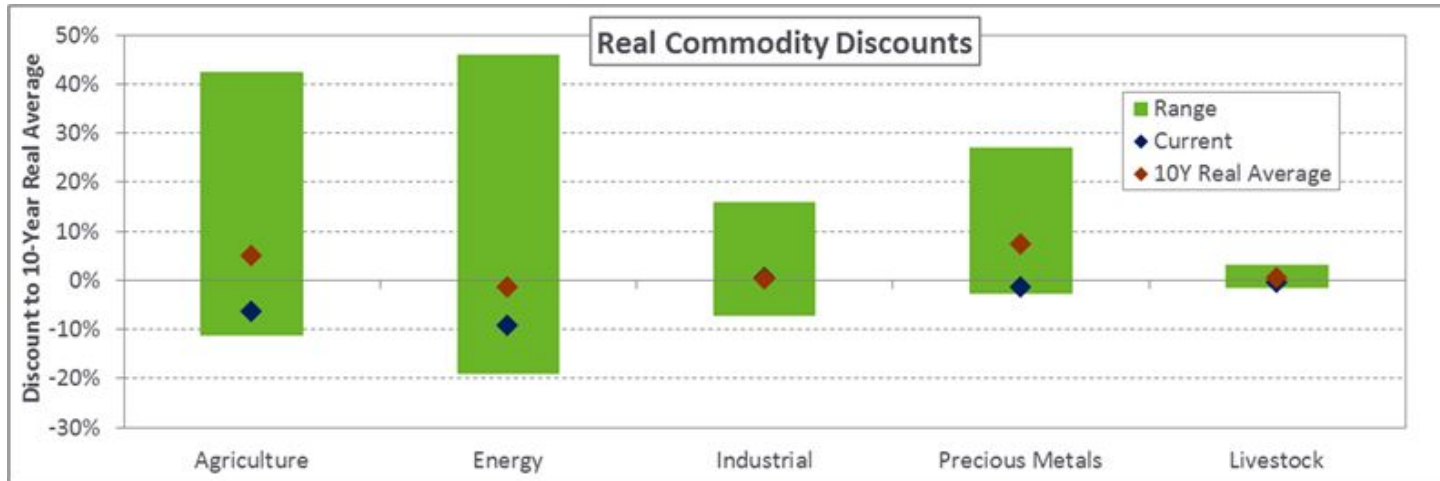
Source: US Department of Energy, Bloomberg



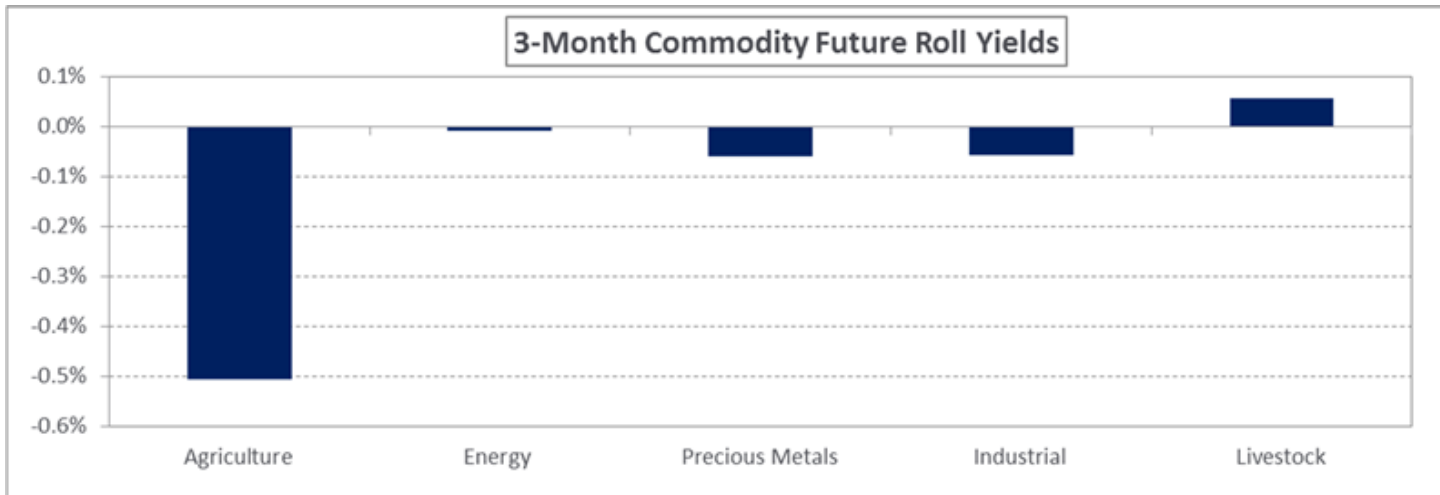
Source: OECD, Bloomberg



VALUATIONS



Source: Bloomberg, NEPC



Source: Bloomberg



INVESTMENT GUIDELINES

- **Blackrock Russell 1000 Index Fund**
 - The Blackrock Russell 1000 Index Fund shall be invested and reinvested primarily in a portfolio of Equity Securities with the objective of approximating as closely as practicable the capitalization weighted total rate of return of the Russell 1000 Index (large cap companies).
- **Blackrock Russell 2500 Index Fund**
 - The Blackrock Russell 2500 Index Fund shall be invested and reinvested primarily in a portfolio of Equity Securities with the objective of approximating as closely as practicable the capitalization weighted total rate of return of the Russell 2500 Index (mid and small cap companies).
- **Western Asset Management Index Plus Separate Account**
 - The objective of the Portfolio is to maximize the long term total return in the Portfolio while providing a core domestic equity exposure to the Standard & Poor's ("S&P") 500 Index and managing Portfolio risk. The Manager shall aim to exceed the total return of the S&P 500 index with all dividends reinvested in the index by 75 basis points on an annualized basis over a full market cycle.
- **Blackrock MSCI ACWI ex-U.S. IMI Index Fund**
 - The BlackRock MSCI ACWI ex-U.S. IMI Index Fund shall be invested and reinvested in a portfolio of International Equity Securities whose total rates of return will approximate as closely as practicable the capitalization-weighted total rates of return of the equity markets of selected non-U.S. developed and emerging countries.
- **Blackrock MSCI ACWI Equity Index Fund**
 - The BlackRock MSCI ACWI Equity Index Fund shall be invested and reinvested primarily in a portfolio of U.S. Equity Securities and International Equity Securities with the objective of approximating as closely as practicable the capitalization-weighted total rates of return of the equity markets of the U.S, non-U.S. developed and emerging countries.
- **Hexavest EAFE Equity Fund**
 - The Fund seeks to provide investors with capital appreciation and income generation by using a top-down approach and investing primarily in equity and quasi equity securities located in Europe, Australasia and the Far East ("EAFE") and which form part of the MSCI EAFE Index. The Fund seeks to achieve a rate of return that will exceed that of the index net of fees, and achieve a high ranking relative to similar funds over a full market cycle.



INVESTMENT GUIDELINES

- **Sprucegrove U.S. International Pooled Fund**
 - The Fund seeks to maximize the long-term rate of return while seeking to preserve investment capital by investing primarily in equity and quasi-equity securities of companies with more value characteristics located in developed markets in the Europe, Australasia and the Far East ("EAFE") Index and to outperform the index, net of fees and achieve a high ranking relative to similar funds over a full market cycle.
- **Walter Scott & Partners International Fund**
 - The Fund will invest in equity securities that meet certain quantitative and qualitative investment criteria and will seek long-term capital appreciation. The Fund will tend to focus on those industries or sectors with more growth characteristics and experiencing upper quartile economic growth and may avoid industries which are in secular economic decline. The Fund seeks to outperform the MSCI Europe, Australasia and the Far East ("EAFE") Index net of fees, and achieve a high ranking relative to similar funds over a full market cycle.
- **Blackrock U.S. Debt Index Fund**
 - The U.S. Debt Index Fund shall be invested and reinvested primarily in a portfolio of Debt Securities with the objective of approximating as closely as practicable the total rate of return of the market for Debt Securities as defined by the Barclays Capital/Bloomberg U.S. Aggregate Bond Index.
- **Western Asset Management Core Plus Fixed Income Separate Account**
 - The objective of the Portfolio is to provide above-average total return in a manner that is consistent with the typical rate-of-return volatility exhibited by broad market fixed income portfolios. The Fund will seek to outperform the Bloomberg Barclays U.S. Aggregate Index, net of fees, over a full market cycle.
- **Reams Unconstrained Fixed Income Separate Account**
 - The Portfolio will be broadly diversified across markets, sectors, securities, and maturities in a manner consistent with accepted standards of prudence. The objective of the Portfolio is to maximize risk-adjusted total return by systematically pursuing relative value opportunities throughout all sectors of the fixed income market. The Portfolio will seek returns in excess of the Bloomberg/Barclays U.S. Aggregate Bond Index and/or the three month London Interbank Offered Rate ("LIBOR") in U.S. dollars plus 3% net of fees with an expected risk volatility goal of approximately 4 to 6% over a full market cycle.



INVESTMENT GUIDELINES

- **Loomis, Sayles & Company Multisector Full Discretion Separate Account**
 - The fixed income portfolio should be broadly diversified across markets, sectors, securities, and maturities in a manner consistent with accepted standards of prudence. The objective of the Portfolio is to provide above-average total return in a manner that is consistent with the typical rate-of-return volatility exhibited by broad market fixed income portfolios. The return of the Manager should exceed that of the custom benchmark (30% of the rate of return of the Citigroup High-Yield Index, 5% of the rate of return of the J.P. Morgan Non-U.S. Hedged Bond Index and 65% of the rate of return of the Bloomberg Barclays U.S. Aggregate Bond Index), net of fees, over a full market cycle.
- **Loomis, Sayles & Company Strategic Alpha Fund**
 - The objective of the Fund is to provide absolute returns in excess of the Bloomberg/Barclays U.S. Aggregate Bond Index and/or the three month London Interbank Offered Rate (“LIBOR”) in U.S. dollars plus 3% net of fees with an expected risk volatility goal of approximately 4 to 6% over a full market cycle.
- **Bridgewater Associates All Weather Portfolio**
 - The investment objective of the Fund is to seek to provide attractive returns with relatively limited risks, with no material bias to perform better or worse in any particular type of economic environment. In other words, the portfolio seeks to perform approximately as well in rising or falling inflation periods, or in periods of strong or weak economic growth. To achieve this objective, the Fund holds investments in different asset classes that have different biases to economic conditions. The Manager will seek to outperform the CPI + 4% (Unadjusted) benchmark net of fees over a full market cycle.
- **Tortoise Energy Infrastructure Master Limited Partnership**
 - The Manager will invest in master limited partnerships with an investment approach that emphasizes a long-term, buy-and-hold philosophy with low turnover in an effort to achieve a portfolio characterized by high current income, high growth and low volatility. The Manager invests primarily in long-haul pipelines and gathering & processing pipelines. The Manager will seek to outperform the Wells Fargo MLP Index net of fees over a full market cycle.



INVESTMENT GUIDELINES

- **PGIM Real Estate Property Investment Separate Account**
 - PRISA is a broadly diversified equity real estate portfolio that invests primarily in existing, income-producing properties with strong cash flow that is expected to increase over time and thereby provide the potential for capital appreciation. The Fund’s performance objective is to produce a total return each year that meets or exceeds the National Council of Real Estate Investment Fiduciaries Fund Index – Open-End Diversified Core Equity (“NCREIF-ODCE”) net of fees, while maintaining the benefits of a broadly diversified, core real estate portfolio.
- **UBS Realty Investors Trumbull Property Fund**
 - The Fund seeks to provide investors with strategic market access to high-quality private commercial real estate with the financial objective of providing superior risk-adjusted returns across the real estate cycles. Maximize the quality and growth of the Fund’s income by acquiring and aggressively managing high quality assets in major US metropolitan markets to minimize risk through diversification by property type, geographic location and economic sector. The Fund’s performance objective is to outperform the National Council of Real Estate Investment Fiduciaries Fund Index – Open-End Diversified Core Equity (“NCREIF-ODCE”) index net of fees, and a 5% real rate of return (inflation-adjusted return) over a full market cycle.



GLOSSARY OF INVESTMENT TERMINOLOGY

Alpha - Measures the relationship between the fund performance and the performance of another fund or benchmark index and equals the excess return while the other fund or benchmark index is zero.

Alpha Jensen - The average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Also known as the abnormal return or the risk adjusted excess return.

Annualized Excess Return over Benchmark - Annualized fund return minus the annualized benchmark return for the calculated return.

Annualized Return - A statistical technique whereby returns covering periods greater than one year are converted to cover a 12 month time span.

Beta - Measures the volatility or systematic risk and is equal to the change in the fund's performance in relation to the change in the assigned index's performance.

Information Ratio - A measure of the risk adjusted return of a financial security, asset, or portfolio.

Formula:

(Annualized Return of Portfolio - Annualized Return of Benchmark)/Annualized Standard Deviation(Period Portfolio Return - Period Benchmark Return). To annualize standard deviation, multiply the deviation by the square root of the number of periods per year where monthly returns per year equals 12 and quarterly returns is four periods per year.

R-Squared - Represents the percentage of a fund's movements that can be explained by movements in an index. R-Squared values range from 0 to 100. An R-Squared of 100 denotes that all movements of a fund are completely explained by movements in the index.

Sharpe Ratio - A measure of the excess return or risk premium per unit of risk in an investment asset or trading strategy.

Sortino Ratio - A method to differentiate between good and bad volatility in the Sharpe Ratio. The differentiation of up and down volatility allows the calculation to provide a risk adjusted measure of a security or fund's performance without upward price change penalties.

Formula:

*Calculation Average (X-Y)/Downside Deviation (X-Y) * 2
Where X=Return Series X Y = Return Series Y which is the risk free return (91 day T-bills)*

Standard Deviation - The standard deviation is a statistical term that describes the distribution of results. It is a commonly used measure of volatility of returns of a portfolio, asset class, or security. The higher the standard deviation the more volatile the returns are.

Formula:

(Annualized Return of Portfolio - Annualized Return of Risk Free) / Annualized Standard Deviation (Portfolio Returns)

Tracking Error - Tracking error, also known as residual risk, is a measure of the degree to which a portfolio tracks its benchmark. It is also a measure of consistency of excess returns. Tracking error is computed as the annualized standard deviation of the difference between a portfolio's return and that of its benchmark.

Formula:

*Tracking Error = Standard Deviation (X-Y) * $\sqrt{(\# \text{ of periods per year})}$
Where X = periods portfolio return and Y = the period's benchmark return
For monthly returns, the periods per year = 12
For quarterly returns, the periods per year = 4*

Treynor Ratio - A risk-adjusted measure of return based on systematic risk. Similar to the Sharpe ratio with the difference being the Treynor ratio uses beta as the measurement of volatility.

Formula:

(Portfolio Average Return - Average Return of Risk-Free Rate)/Portfolio Beta

Up/Down Capture Ratio - A measure of what percentage of a market's returns is "captured" by a portfolio. For example, if the market declines 10% over some period, and the manager declines only 9%, then his or her capture ratio is 90%. In down markets, it is advantageous for a manager to have as low a capture ratio as possible. For up markets, the higher the capture ratio the better. Looking at capture ratios can provide insight into how a manager achieves excess returns. A value manager might typically have a lower capture ratio in both up and down markets, achieving excess returns by protecting on the downside, whereas a growth manager might fall more than the overall market in down markets, but achieve above-market returns in a rising market.

UpsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Period Benchmark Return is > = 0

DownsideCapture = TotalReturn(FundReturns)/TotalReturns(BMReturn) when Benchmark < 0

Data Source: InvestorForce



GLOSSARY OF INVESTMENT TERMINOLOGY

Of Portfolios/Observations¹ – The total number of data points that make up a specified universe

Allocation Index³ - The allocation index measures the value added (or subtracted) to each portfolio by active management. It is calculated monthly: The portfolio asset allocation to each category from the prior month-end is multiplied by a specified market index.

Asset Allocation Effect² - Measures an investment manager's ability to effectively allocate their portfolio's assets to various sectors. The allocation effect determines whether the overweighting or underweighting of sectors relative to a benchmark contributes positively or negatively to the overall portfolio return. Positive allocation occurs when the portfolio is over weighted in a sector that outperforms the benchmark and underweighted in a sector that underperforms the benchmark. Negative allocation occurs when the portfolio is over weighted in a sector that underperforms the benchmark and under weighted in a sector that outperforms the benchmark.

Agency Bonds (Agencies)³ - The full faith and credit of the United States government is normally not pledged to payment of principal and interest on the majority of government agencies issuing these bonds, with maturities of up to ten years. Their yields, therefore, are normally higher than government and their marketability is good, thereby qualifying them as a low risk-high liquidity type of investment. They are eligible as security for advances to the member banks by the Federal Reserve, which attests to their standing.

Asset Backed Securities (ABS)³ - Bonds which are similar to mortgage-backed securities but are collateralized by assets other than mortgages; commonly backed by credit card receivables, auto loans, or other types of consumer financing.

Attribution³ - Attribution is an analytical technique that allows us to evaluate the performance of the portfolio relative to the benchmark. A proper attribution tells us where value was added or subtracted as a result of the manager's decisions.

Average Effective Maturity⁴ - For a single bond, it is a measure of maturity that takes into account the possibility that a bond might be called back to the issuer.

For a portfolio of bonds, average effective maturity is the weighted average of the maturities of the underlying bonds. The measure is computed by weighing each bond's maturity by its market value with respect to the portfolio and the likelihood of any of the bonds being called. In a pool of mortgages, this would also account for the likelihood of prepayments on the mortgages.

Batting Average¹ - A measurement representing an investment manager's ability to meet or beat an index.

Formula: Divide the number of days (or months, quarters, etc.) in which the manager beats or matches the index by the total number of days (or months, quarters, etc.) in the period of question and multiply that factor by 100.

Brinson Fachler (BF) Attribution¹ - The BF methodology is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance. The main advantage of the BF methodology is that rather than using the overall return of the benchmark, it goes a level deeper than BHB and measures whether the benchmark sector, country, etc. outperformed/or underperformed the overall benchmark.

Brinson Hood Beebower (BHB) Attribution¹ - The BHB methodology shows that excess return must be equal to the sum of all other factors (i.e., allocation effect, selection effect, interaction effect, etc.). The advantage to using the BHB methodology is that it is a highly accepted industry standard for calculating the allocation, selection, and interaction effects within a portfolio that collectively explains a portfolio's underlying performance.

Corporate Bond (Corp)⁴ - A debt security issued by a corporation and sold to investors. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds.

Correlation¹ - A range of statistical relationships between two or more random variables or observed data values. A correlation is a single number that describes the degree of relationship between variables.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgeco.net



GLOSSARY OF INVESTMENT TERMINOLOGY

Coupon⁴ – The interest rate stated on a bond when it is issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate."

Currency Effect¹ - Is the effect that changes in currency exchange rates over time affect excess performance.

Derivative Instrument³ - A financial obligation that derives its precise value from the value of one or more other instruments (or assets) at the same point of time. For example, the relationship between the value of an S&P 500 futures contract (the derivative instrument in this case) is determined by the value of the S&P 500 Index and the value of a U.S. Treasury bill that matures at the expiration of the futures contract.

Downside Deviation¹ - Equals the standard deviation of negative return or the measure of downside risk focusing on the standard deviation of negative returns.

Formula:

Annualized Standard Deviation (Fund Return - Average Fund Return) where average fund return is greater than individual fund returns, monthly or quarterly.

Duration³ - Duration is a measure of interest rate risk. The greater the duration of a bond, or a portfolio of bonds, the greater its price volatility will be in response to a change in interest rates. A bond's duration is inversely related to interest rates and directly related to time to maturity.

Equity/Debt/Cash Ratio¹ – The percentage of an investment or portfolio that is in Equity, Debt, and/or Cash (i.e. A 7/89/4 ratio represents an investment that is made up of 7% Equity, 89% Debt, and 4% Cash).

Foreign Bond³ - A bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. A foreign bond is most often issued by a foreign firm to raise capital in a domestic market that would be most interested in purchasing the firm's debt. For foreign firms doing a large amount of business in the domestic market, issuing foreign bonds is a common practice.

Hard Hurdle⁵ – is a hurdle rate that once beaten allows a fund manager to charge a performance fee on only the funds above the specified hurdle rate.

High-Water Mark⁴ - The highest peak in value that an investment fund/account has reached. This term is often used in the context of fund manager compensation, which is performance based. Some performance-based fees only get paid when fund performance exceeds the high-water mark. The high-water mark ensures that the manager does not get paid large sums for poor performance.

Hurdle Rate⁴ - The minimum rate of return on an investment required, in order for a manager to collect incentive fees from the investor, which is usually tied to a benchmark.

Interaction Effects² - The interaction effect measures the combined impact of an investment manager's selection and allocation decisions within a sector. For example, if an investment manager had superior selection and over weighted that particular sector, the interaction effect is positive. If an investment manager had superior selection, but underweighted that sector, the interaction effect is negative. In this case, the investment manager did not take advantage of the superior selection by allocating more assets to that sector. Since many investment managers consider the interaction effect to be part of the selection or the allocation, it is often combined with the either effect.

Median³ - The value (rate of return, market sensitivity, etc.) that exceeds one-half of the values in the population and that is exceeded by one-half of the values. The median has a percentile rank of 50.

Modified Duration³ - The percentage change in the price of a fixed income security that results from a change in yield.

Mortgage Backed Securities (MBS)³ - Bonds which are a general obligation of the issuing institution but are also collateralized by a pool of mortgages.

Municipal Bond (Muni)⁴ - A debt security issued by a state, municipality or county to finance its capital expenditures.

Net Investment Change¹ – Is the change in an investment after accounting for all Net Cash Flows.

Performance Fee⁴ - A payment made to a fund manager for generating positive returns. The performance fee is generally calculated as a percentage of investment profits, often both realized and unrealized.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgerco.net



GLOSSARY OF INVESTMENT TERMINOLOGY

Policy Index³ - A custom benchmark designed to indicate the returns that a passive investor would earn by consistently following the asset allocation targets set forth in this investment policy statement.

Price to Book (P/B)⁴ - A ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share, also known as the "price-equity ratio".

Price to Earnings (P/E)³ - The weighted equity P/E is based on current price and trailing 12 months earnings per share (EPS).

Price to Sales (P/S)⁴ - A ratio for valuing a stock relative to its own past performance, other companies, or the market itself. Price to sales is calculated by dividing a stock's current price by its revenue per share for the trailing 12 months.

Return on Equity (ROE)⁴ - The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

Selection (or Manager) Effect² - Measures the investment manager's ability to select securities within a given sector relative to a benchmark. The over or underperformance of the portfolio is weighted by the benchmark weight, therefore, selection is not affected by the manager's allocation to the sector. The weight of the sector in the portfolio determines the size of the effect—the larger the sector, the larger the effect is, positive or negative.

Soft Hurdle rate⁵ - is a hurdle rate that once beaten allows a fund manager to charge a performance fee based on the entire annualized return.

Tiered Fee¹ - A fee structure that is paid to fund managers based on the size of the investment (i.e. 1.00% fee on the first \$10M invested, 0.90% on the next \$10M, and 0.80% on the remaining balance).

Total Effects² - The active management (total) effect is the sum of the selection, allocation, and interaction effects. It is also the difference between the total portfolio return and the total benchmark return. You can use the active management effect to determine the amount the investment manager has added to a portfolio's return.

Total Return¹ - The actual rate of return of an investment over a specified time period. Total return includes interest, capital gains, dividends, and distributions realized over a defined time period.

Universe³ - The list of all assets eligible for inclusion in a portfolio.

Upside Deviation¹ - Standard Deviation of Positive Returns

Weighted Avg. Market Cap.⁴ - A stock market index weighted by the market capitalization of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, with the best example being the S&P 500.

Yield (%)³ - The current yield of a security is the current indicated annual dividend rate divided by current price.

Yield to Maturity³ -The discount rate that equates the present value of cash flows, both principal and interest, to market price.

Data Source: ¹InvestorForce, ²Interaction Effect Performance Attribution, ³NEPC, LLC, ⁴Investopedia, ⁵Hedgeco.net



Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
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Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



INFORMATION DISCLAIMER

- **Past performance is no guarantee of future results.**
- **The goal of this report is to provide a basis for monitoring financial markets. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.**
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May 21, 2018

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, Suite 200
Ventura, CA 93003

SUBJECT: \$35 MILLION INVESTMENT IN HARBOURVEST PARTNERS' CO-INVESTMENT FUND V

Dear Board Members:

Attached is a memo from NEPC recommending a \$35 million investment in Harbourvest Partners' Co-Investment Fund V. Staff concurs with NEPC's investment recommendation.

Discussion

The Board adopted its Private Equity Annual Plan at the April 16, 2018 meeting, with a goal of constructing a portfolio in accordance with the Private Equity Investment Policy. The adopted pacing plan targeted committing \$185 million during 2018.

Co-investments are made in companies diversified by geography, stage, industry, and co-investor. Investments are made alongside other investors with unique knowledge or insight into individual transactions. The fund is targeting a net IRR of 15% - 20%, and a multiple of invested capital of 2.0x - 2.25x. Each of Harbourvest's prior co-investment funds have been oversubscribed.

Since 2013, VCERA has invested \$67.5 million and \$60 million in Harbourvest's Dover Funds VIII and IX, respectively; and, \$30 million in their Co-Investment Fund IV.

Co-Investment Fund V fees are based on invested capital, rather than the more common and less investor-friendly committed capital. Investors who participate in this fund's closing by July 31, 2018 will have management fees waived for the first year.

THEREFORE, IT IS RECOMMENDED THAT THE BOARD:

- 1. Approve an allocation of \$35 million to Harbourvest Partners' Co-Investment Fund V, and direct staff and counsel to negotiate the necessary legal documents; and,**
- 2. Subject to successful contract negotiations, the Board authorize the Board Chair or the Retirement Administrator or the Chief Investment Officer to approve and execute the required documentation.**

Respectfully Submitted,

Dan Gallagher
Chief Investment Officer



To: Ventura County Employees' Retirement Association
From: NEPC Consulting Team
Date: May 21, 2018
Subject: Harbourvest Co-Investment Fund V Recommendation

Recommendation

NEPC recommends the Ventura County Employees' Retirement Association ("VCERA" or the "Plan") consider making a commitment of up to \$35.0 million to HarbourVest Co-Investment Fund V ("Co-Investment Fund V" or the "Fund") pending the successful completion of contract negotiations between HarbourVest (the "Firm") and the Plan's legal counsel. The Fund is rated a 2 by NEPC Research (NEPC has a positive view on the strategy, the strategy has a compelling thesis that the manager is resourced and incented to execute on) and fits within the pacing plan done by Abbott Capital. Listed below are the positives and negatives of the investment. Our primary concern for our 2 rating is the size of the fund, but given Ventura's experience with Harbourvest and the successful track record, we don't foresee the fund size as a significant impediment to strong performance. NEPC will continue to vet opportunities on funds on VCERA's behalf as they come to market.

Overview of Ventura Private Equity Program

As of 12/31/2017, VCERA has committed \$577,450,000 to Private Equity, with a Since Inception IRR of 14.2%. Of that total, \$157,500,000 has been approved for investment with Harbourvest in three separate commitments as detailed below. The two most recent commitments were reviewed and recommended by NEPC.

Fund Name	Vintage Year	Investment Date	Initial Commitment	Capital Called to Date ¹	Outstanding Commitment	Call Ratio	Ad'l Fees ²	Distributions to Date	Valuation	Total Value	Net Benefit	IRR	Since Inception	
													Distributions Paid In Multiple (DP)	Total Value to Paid In Multiple (TVPI)
HarbourVest - Dover Street VII	2013	5/07/2013	\$67,500,000	\$59,147,454	\$8,437,500	88%	\$84,954	\$46,566,930	\$40,585,660	\$67,152,590	\$27,920,182	21.9%	0.79x	1.47x
HarbourVest - Dover Street IX	2016	12/16/2016	\$60,000,000	\$12,600,000	\$47,400,000	21%	\$0	\$3,388,361	\$12,615,715	\$16,004,076	\$3,404,076	65.0%	0.27x	1.27x
HarbourVest - PRTHS CO INVEST M/ L.P.	2017	6/2/2017	\$30,000,000	\$14,521,740	\$15,678,000	48%	\$0	\$0	\$16,043,068	\$16,043,068	\$1,521,328	26.0%	0x	1.1x

Summary

HarbourVest Partners Co-investment Fund V will make direct equity investments alongside fund managers sourced through HarbourVest's extensive manager network. The Direct Team will identify, evaluate and invest in approximately 25 to 40 deals globally but primarily in North America and Europe, and to a lesser extent Latin America and Asia/Pacific.

The Fund intends to build a portfolio of direct co-investments in buyout, growth equity, and in a select number of equity-oriented credit investments alongside fund managers who, in the Firm's view, possess particular industry knowledge, cultural familiarity and investment

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expertise in relevant areas. The strategy will consider macro factors including the economy, industry and region of a particular transaction. The team will also utilize third party industry research including speaking with equity research analysts to see if a transaction is viable.

The Fund has the ability make investments generally ranging from \$25 million to \$100 million. The strategy will not make any venture capital investments and will largely avoid certain industries and sectors such as automotive, airlines and restaurants. The Fund will also avoid fund-less sponsors and target making investments alongside specific partners within specific sectors at specific private equity firms. The strategy has evolved since the first fund in 2004 in regards to smaller GPs. The team will look to stay involved throughout the life of an investment.

HarbourVest is involved at the board level in approximately one-third of its co-investment companies, with an actual board seat or board observer position. The strategy consists of the deal team constructing its own financial models and incorporating company data, comparable company data and return sensitivity analysis. When evaluating a potential deal, the team focuses on four main factors: portfolio fit; the manager's capability with the proposed transaction; industry; specific company & deal dynamics. The team will assess multiple factors regarding a manager's capabilities regarding a proposed transaction including the manager's overall track record, the manager's track record in the target sector, the track record of the individual partner of the manager responsible for the applicable deal, and whether the investment thesis of a particular transaction is consistent with the manager's expertise.

The team will also utilize the Firm's database of approximately 27,000 companies to assess the historical valuations, similar company transactions, the competitive landscape, variability of private equity returns in related transactions. So as not to rely wholly on the diligence provided by the manager, the team will call other private equity firms familiar with the industry, key management of similar companies within the HarbourVest network, and industry experts to gather information to make better decisions and provide for different points of view.

The Direct Team also overlays thematic-based sourcing initiatives to opportunities it receives from HarbourVest's general partner relationships. Examples of prior themes include: the need to provide high-quality healthcare at lower costs; the expansion of online business models displacing traditional solutions; and the proliferation of infrastructure and analytical tools to accommodate the growing generation and consumption of data. The Direct Team has used consulting firms to help formulate the thesis. As HarbourVest identifies attractive industry themes to pursue, the Direct Team initiates a targeted sourcing effort to meet with fund managers and companies in that particular space with the goal of making investments that fit its thesis.

The Fund is targeting a net 15%-20% internal rate of return, or IRR and a net investment multiple of 2.0x-2.25x. The Fund is aiming to raise \$2.5 billion and has not yet established a hard cap.

The Fund has a fee structure based on invested capital rather than the standard management fee based on committed capital. The result of this structure will mitigate and/or dampen the J-curve normally associated with private equity fund commitments.



Additionally, the 1% fee and 10% carry will allow for direct company exposure at about a third to half of the cost normally associated with a direct private equity fund where management fees generally range from 1.5% to 2% and a 20% carry are standard. Investors who participate in the July 31, 2018 or earlier closings will have management fees waived for the first year.

Positives:

- **Large Dedicated Team** – With 26 investment professionals, HarbourVest has one of the largest dedicated co-investment teams in the industry. The dedicated team allows investment professionals to remain solely focused on their strategy without the distraction of having to diligence primary fund or secondary opportunities. Additionally, the team is spread across three continents which allows for a better understanding of local economic and industry dynamics.
- **Diversification by Industry, Geography and Deal Sponsor** – The Fund will aim to construct a portfolio that will be diversified by manager exposure, industry, market segment and geography. This approach allows HarbourVest to seek to invest in only those investments that will provide for the best risk adjusted returns and provides for an element of downside protection.
- **Breadth and High Quality of the Firm's Fund of Fund Platform** - HarbourVest has large primary fund-of-funds and secondary platforms. As a result, the team has a large database of information related to investment funds that the co-investment team leverages to source deals and aid in their due diligence. Additionally, when appropriate, HarbourVest will exploit the synergies of its fund-of-funds and co-investment platforms to facilitate an exit of a portfolio company within its fund of funds platform to another suitable financial sponsor that would result in a co-investment opportunity.
- **Significant Co-investment Experience** – HarbourVest has extensive co-investment experience dating back over 30 years and a dedicated co-investment team since 1988. Over this period, the Firm has invested approximately \$4.8 billion in 285 distinct portfolio companies. The Firm's co-investing DNA is such that all investment professionals, regardless of platform, are in some shape or form involved in helping the Direct Investment Team source and aid in their diligence.

Negatives:

- **Increase in Fund Size** – HCF V is targeting \$2.5 billion, which is nearly 50% larger than the \$1.75 billion HCF IV, which in turn was 50% larger than HCF III. While HarbourVest views the increase in fund size as benefitting their ability to source transactions, the larger fund could result in a larger number of deals or in an increase in size of the companies in which they co-invest.
- **Equity and Debt Positions in Same Investment** – HarbourVest's Direct Team manages both mezzanine debt and equity co-investment programs. The team has indicated that in small number of its co-investments, HarbourVest is also a debt holder in that same business. HarbourVest believes that their willingness to provide both debt and equity capital to support the same transaction is a competitive advantage in terms of sourcing and in building and maintaining favorable sponsor relationships. The team recognizes that being both debt and equity holders could present a potential conflict of interest. To mitigate this risk, when the overlap exists, the mezzanine fund will also make a small equity investment.



- **Key Person Clause** – The Fund’s Key Person clause considers the loss of a certain number of Managing Directors (14 of 26) at the firm-level, not at the individual fund-level for the Managing Directors with direct oversight of HCF V. As such, the loss of a majority of HCF V’s Managing Directors would not trigger a Key Person Clause. Additionally, there is not currently a No-Fault Divorce in place that would serve as a backstop should a majority of the Direct Team’s Managing Directors depart the Firm.



HarbourVest Co-investment Fund V

Ventura County Employees' Retirement Association

May 1 2018

access OPPORTUNITY

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HARBOURVEST OVERVIEW

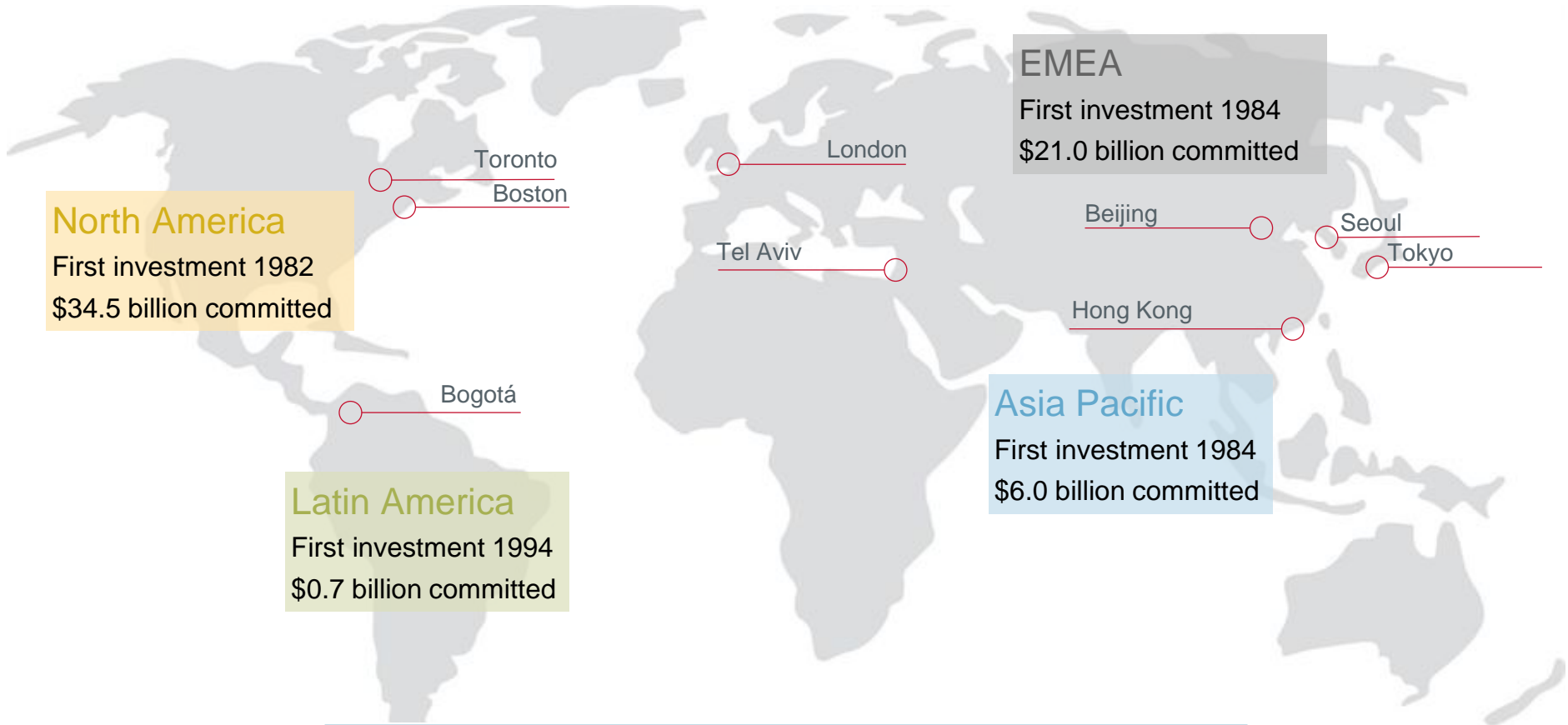
HarbourVest overview

<p>Established Firm</p>	<ul style="list-style-type: none"> > Team formed in 1982 > More than \$60 billion committed to investments over three decades > Registered investment adviser with the US Securities and Exchange Commission* > AIFMD-compliant investment products for European investors* > Independent, employee-owned
<p>Experienced & Stable Team</p>	<ul style="list-style-type: none"> > Deep team of 400+ employees with more than 100 investment professionals > 45 managing directors with an average firm tenure of 13 years > Local teams in Beijing, Bogotá, Boston, Hong Kong, London, Seoul, Tel Aviv, Tokyo and Toronto
<p>Focus on Private Markets</p>	<ul style="list-style-type: none"> > Global expertise across primary partnerships, secondary investments and direct co-investments provide clients with market perspectives and actionable insights > Comprehensive and specialized programs
<p>Proven Track Record</p>	<ul style="list-style-type: none"> > One of the longest track records in the industry > Demonstrated performance across all strategies > Consistent approach to portfolio construction
<p>Superior Client Service</p>	<ul style="list-style-type: none"> > Distinguished global investor base > Responsive to client needs > Broad infrastructure – accounting, treasury, tax, compliance/regulatory, trading, investor relations
<p>Strong Risk Controls</p>	<ul style="list-style-type: none"> > SOC 1 reports on controls available to clients and their auditors

* This does not indicate approval or endorsement of HarbourVest by the US SEC or UK FCA

HarbourVest – Global private markets platform

One of the longest established firms in the industry



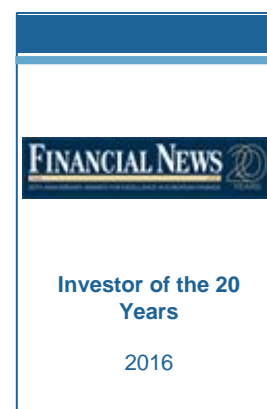
Expertise across capital structure (equity and debt) and investment types		
PRIMARY	SECONDARY	DIRECT CO-INVEST
\$34.1 billion committed	\$19.8 billion committed	\$8.4 billion committed

As of March 31, 2018

Based on primary, secondary, and direct commitments made by HarbourVest

○ Indicates HarbourVest team location

HarbourVest accolades



Awards do not necessarily represent investor experience with HarbourVest or its funds, nor do they constitute a recommendation of HarbourVest or its services. The Financial News awards are a shortlist drawn-up by their editorial team who conduct research in the months leading up to the awards. The winners in each category are then decided by an independent panel of industry practitioners who cast their vote electronically on the shortlisted companies/individuals. After removing any votes that would constitute a conflict of interest, the winner is determined by the nominee with the highest average score. The Private Equity International Awards are based on a one reader, one vote per category basis. The shortlists are developed by their editorial team. There is no panel of judges. The person or firm with the greatest number of votes wins. Any Editor's Choice Awards are chosen by the editors. They are not indicative of HarbourVest's or HVPE's future performance.

Industry leadership



Signatory



Kathleen Bacon, 2017



PRIVATE EQUITY INTERNATIONAL
AWARDS 2017

North American Fund of Funds
of the Year



George Anson, Chairman, 2013-2014



HarbourVest (Europe)*



Craig Fowler, Board of Directors



Scott Voss, Board of Directors



Founding Member 2013



Fund of Funds
of the Year



PRIVATE EQUITY INTERNATIONAL
AWARDS 2017

European Fund of Funds of the
Year



Kathleen Bacon,
Founding Member



Founding Member



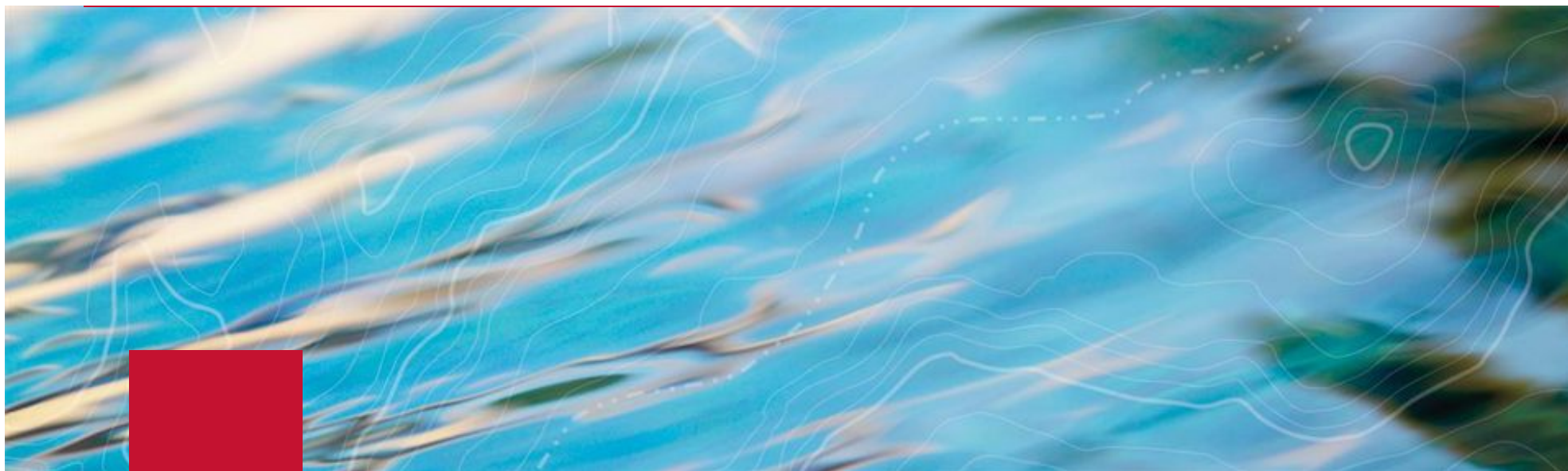
Edward Powers,
LP Advisory Board



The Association of Asian-American
Investment Managers
Sanjiv Shah, Co-Chair

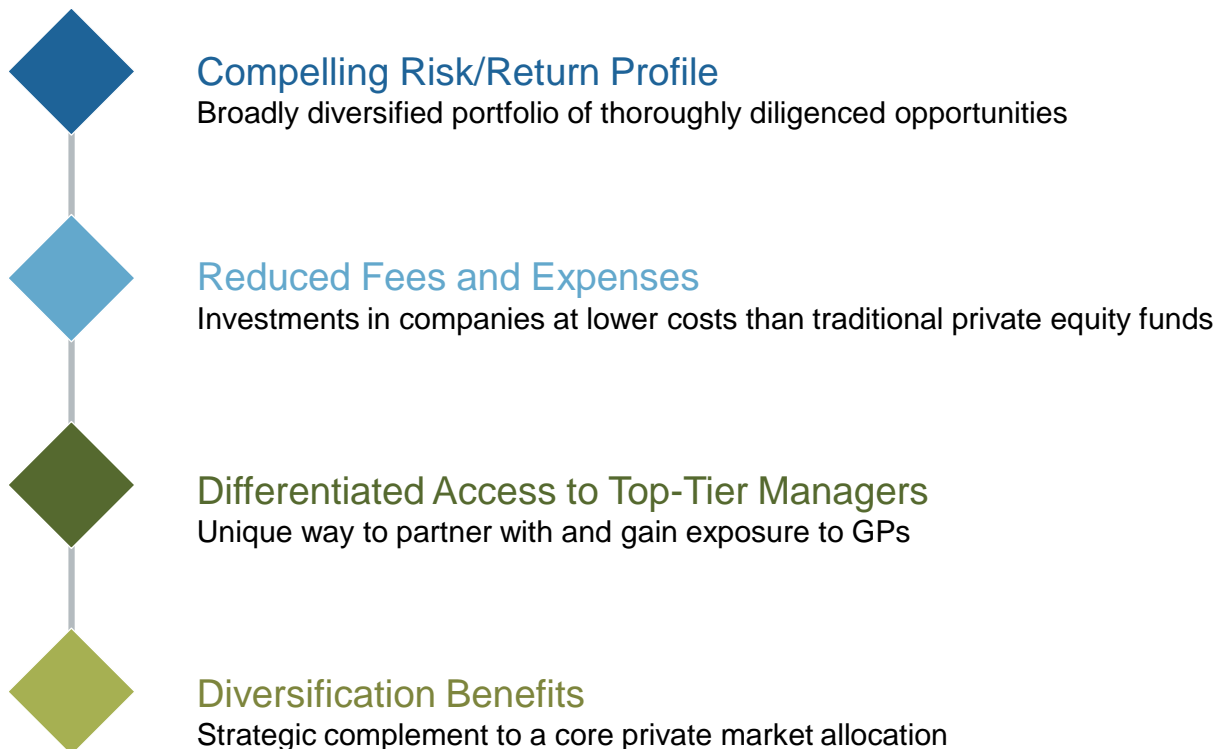
* HarbourVest Partners (Europe) Limited, 3rd Floor, 33 Jermyn Street, London SW1Y 6DN registered in England and Wales number 8618271. Authorized and regulated by the Financial Conduct Authority.

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HARBOURVEST'S CO-INVESTMENT PROGRAM

Advantages of co-investing



A systematic sourcing approach and proven selection process executed by a dedicated team are required to develop a successful co-investment program.

A trusted co-investment partner

HarbourVest is an established leader in building global co-investment portfolios

Strong, demonstrated track record*

19.0%

gross model IRR for realized co-investments

3/4

funds outperforming the top-quartile benchmark**

Proven deal-sourcing platform

580+

total deals sourced in 2017

51%

small/mid-market deals sourced in 2017†



Systematic, repeatable process

\$8+ billion

co-investment capital deployed since 1989

1/15

deals selected for investment††

Experienced, dedicated team

32

investment professionals globally

18

average years of MD experience

As of March 31, 2018, unless otherwise noted

* Source: HarbourVest as of December 31, 2017. Past performance is not a reliable indicator of future results. Gross model IRR is presented on a gross basis and reflects the performance of all realized direct co-investments made by the HarbourVest team since 1989 across all HarbourVest-managed funds and accounts, excluding custom accounts and early-stage investments. No investor received the gross model IRR. See 'Additional Important Information' at the end of the presentation, including important disclosures related to Gross Performance Returns, Model Performance, and Fees and Expenses.

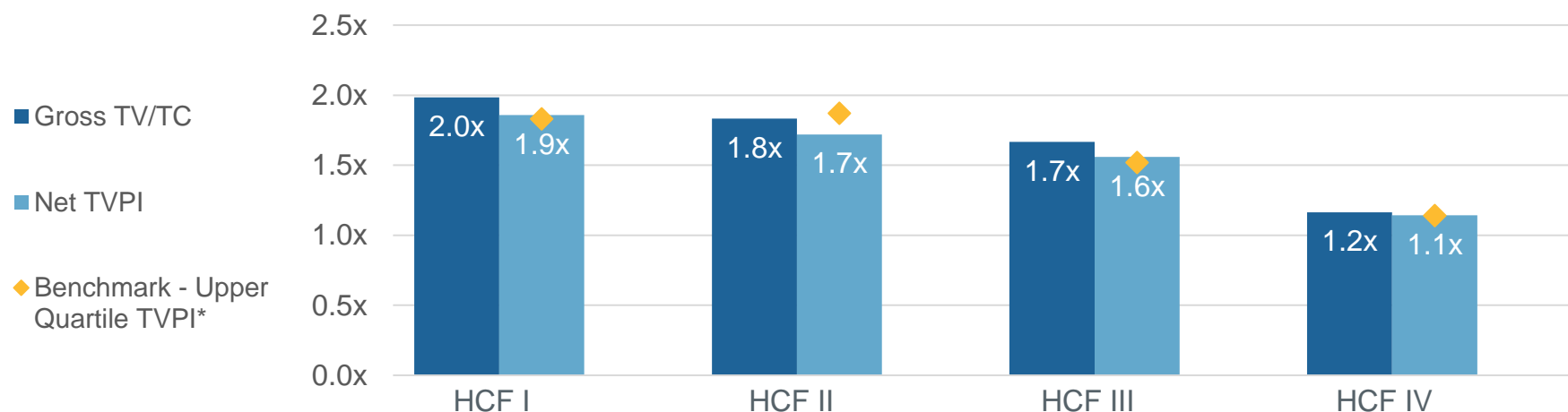
** Source: Burgiss Global All Private Equity benchmark data as of December 31, 2017

† Small/mid-market deals are defined as such by the co-investment team at the time that the opportunity was sourced

†† Based on all co-investment deals evaluated for a HarbourVest fund/account between January 1, 2012 and December 31, 2017

Strong and consistent co-investment returns

Since inception as of December 31, 2017



	Commitment Period	Fund Size (Millions)	% Called	DPI	Net IRR	Number of Investments	Total Cost	Gross IRR	Realized Gross IRR	Realized Gross TV/TC
HCF I	2004-2007	\$350.0	100%	1.8x	10.9%	25	\$368.1	13.3%	15.4%	2.1x
HCF II	2007-2012	\$734.0	98%	1.5x	10.6%	35	\$749.4	12.8%	12.4%	1.8x
HCF III	2013-2016	\$1,010.1	97%	0.4x	20.1%	30	\$1,002.1	24.3%	40.1%	2.4x
HCF IV**	2016-Present	\$1,767.7	49%	0.0x	24.8%	21	\$921.3	26.9%	-	-

Source: HarbourVest, HCF I refers to 2004 Direct Fund, HCF II refers to 2007 Direct Fund, HCF III refers to 2013 Direct Fund, and HCF IV refers to Co-Investment Fund IV.

* Source: Burgiss Global All Private Equity benchmark data as of December 31, 2017 for vintages 2005, 2007, 2013, and 2016. HCF I's first capital call was in December 2004; however, given the minimal activity in this year, HarbourVest benchmarks this fund against 2005 vintage funds. When it is benchmarked against 2004 vintage funds, the top quartile Burgiss All Private Equity benchmark as of December 31, 2017 is 1.86x (compared to the fund's net TVPI of 1.86x).

** HCF IV performance also includes the performance of any AIF-related funds.

Past performance is not a reliable indicator of future results. This performance is intended for distribution with the annual performance information in 'Additional Track Record Detail'. See 'Additional Important Information' at the end of the presentation, including important disclosures related to Net Performance Returns, Gross Performance Returns, and Fees and Expenses.

Proven deal sourcing platform



SOURCES OF DEAL FLOW

HarbourVest Platform

Relationships with 500+ GPs built by our primary and secondary investment teams

Industry Network

Access to the GP networks of our global, diversified LP base



Proactive Sourcing Efforts

Systematic sourcing approach focused on actively tracking managers and investment themes

Solutions Offering

Bespoke solutions created to meet GP needs, underpinned by co-underwriting and warehousing capabilities

580+ deals sourced in 2017 (+15% CAGR 2012-17*)

PLATFORM



INDUSTRY NETWORK



PROACTIVE



SOLUTIONS



* Based on all co-investment deals evaluated for a HarbourVest fund/account between January 1, 2012 and December 31, 2017. Past performance is not a reliable indicator of future results.

The companies listed above are intended for illustrative purposes only. While each may be an actual investment in a HarbourVest portfolio, there is no guarantee they will be in a future portfolio. A complete list of 2013 Direct Fund and Co-Investment Fund IV portfolio holdings and performance may be found later in this presentation.

Solutions: A differentiated approach to co-investing

- > Proprietary deals tailored to the capital needs of general partners
- > Unique opportunities created by leveraging HarbourVest's platform, processes, and resources

CO-UNDERWRITE



Insight Venture Partners

GROWTH CAPITAL



PRESTON HOLLOW
CAPITAL

Stone Point Capital

LIQUIDITY SOLUTION

CORTEFIEL

CVC Capital Partners

WAREHOUSE FOR LATER GP SYNDICATION



Windjammer Capital

WAREHOUSE FOR FUTURE GP FUND PARTICIPATION

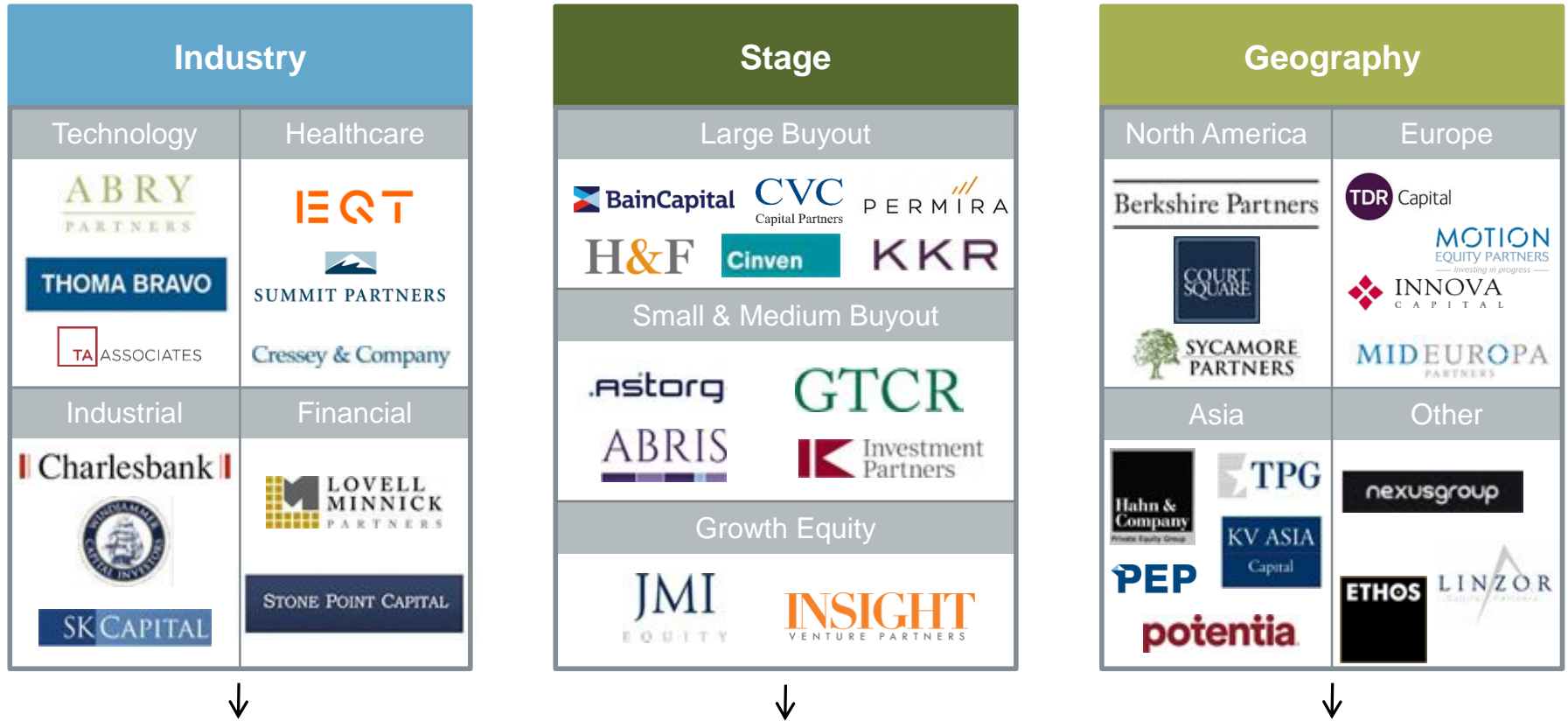
Klarna

Permira

The companies and general partners listed above are intended for illustrative purposes only. While each may be an actual investment or relationship in a HarbourVest portfolio, there is no guarantee they will be in a future portfolio. A complete list of 2013 Direct Fund and Co-Investment Fund IV portfolio holdings and performance may be found later in this presentation.

Exposure to top-tier managers

Proactive, systematic sourcing contributes to diversification of lead managers



65% of co-investments are solutions-oriented opportunities*

* Based on commitments made on behalf of 2013 Direct Fund and Co-investment Fund IV as of December 31, 2017. Past performance is not a reliable indicator of future results. The general partners shown above are all those with whom 2013 Direct Fund and Co-investment Fund IV invested, and are intended for illustrative purposes only. While this may be an actual investment or relationship in a HarbourVest portfolio, there is no guarantee it will be in a future portfolio.

Efficient and rigorous selection process



Proven Screening Process

- > Clearly defined investment criteria
- > Initial feedback to GP in 48 hours
- > Insights from global co-investment team

Extensive Due Diligence

- > Differentiated ability to evaluate the lead GP
- > Strategic, commercial, and financial-focused company analysis
- > Supplement with differentiated resources – consultant access, proprietary databases, reference calls via extensive private networks

Rigorous Selection

- > 3-step approval process
- > Collaborative deal team for each investment
- > Weekly direct investment committee reviews

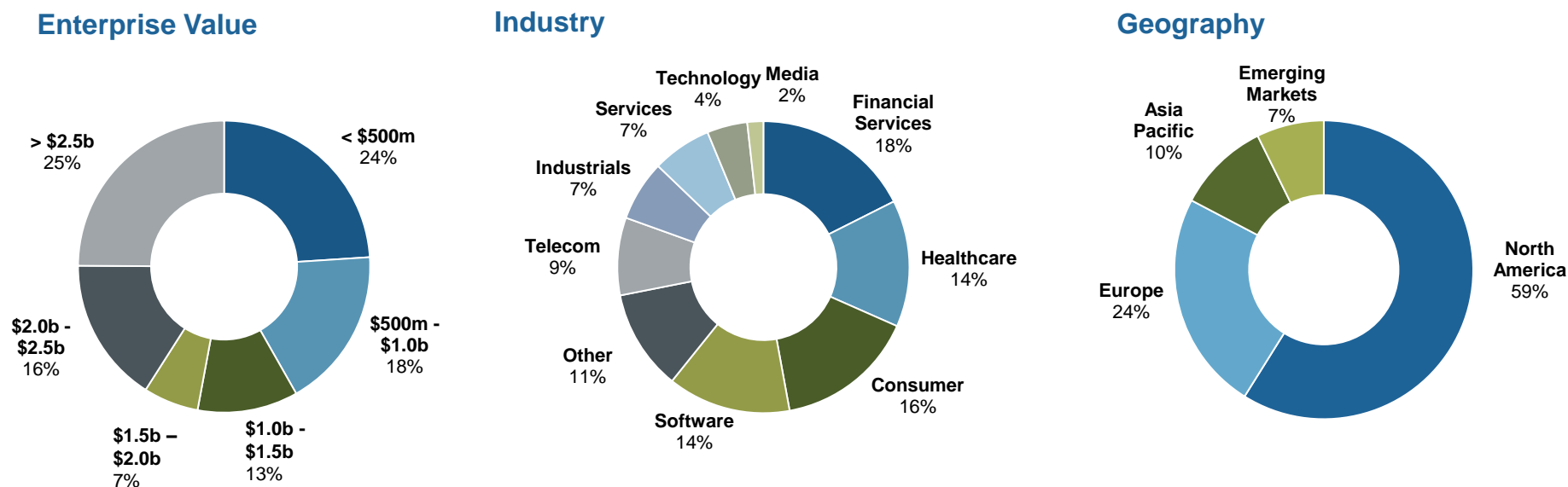
High Selectivity

Invest in 1 of 15 deals sourced

Based on all co-investment deals evaluated for a HarbourVest fund/account between January 1, 2012 and December 31, 2017, including buyout, growth equity, and mezzanine. Past performance is not a reliable indicator of future results.

Lower risk through diversification

Broad relationships and strong deal flow lead to well-diversified portfolios



- > Significant exposure to growth equity, small, and mid-market investment opportunities
 - 42% of total cost in deals with enterprise values of \$1 billion or less
- > Seek to achieve lower risk by diversifying across industries and end markets
- > Deals well-diversified by geography

Based on cost of deals as of December 31, 2017 for Co-investment Funds I, II, III and IV.



Experienced co-investment team

Managing Directors						Principals						
	Corentin Du Roy	Ian Lane	Peter Lipson	Alex Rogers	Kelvin Yap		Francisco Arboleda*	Joel Hwang	Ryan Jones	Craig MacDonald	David Zug*	
	Vice Presidents											
		Cartus Chan	Matt Cheng	Todd DeAngelo	Gonçalo Faria Ferreira		Lenny Li	Jackie Peradotto				
		Senior Associates						Associates				
Megan Beecher			Gokhan Kara	Alexander Mackinger	Sophia Maizel*	Alexander Brown	Charles Dequeker		Jan de Wolff	Sean Gillespie	Courtney Kelly	
Associates												
	Noel Lam		Tikerun Quinn	Alex Robins	Daniel Schieferdecker	Tyler Smith	Junyi Zang					

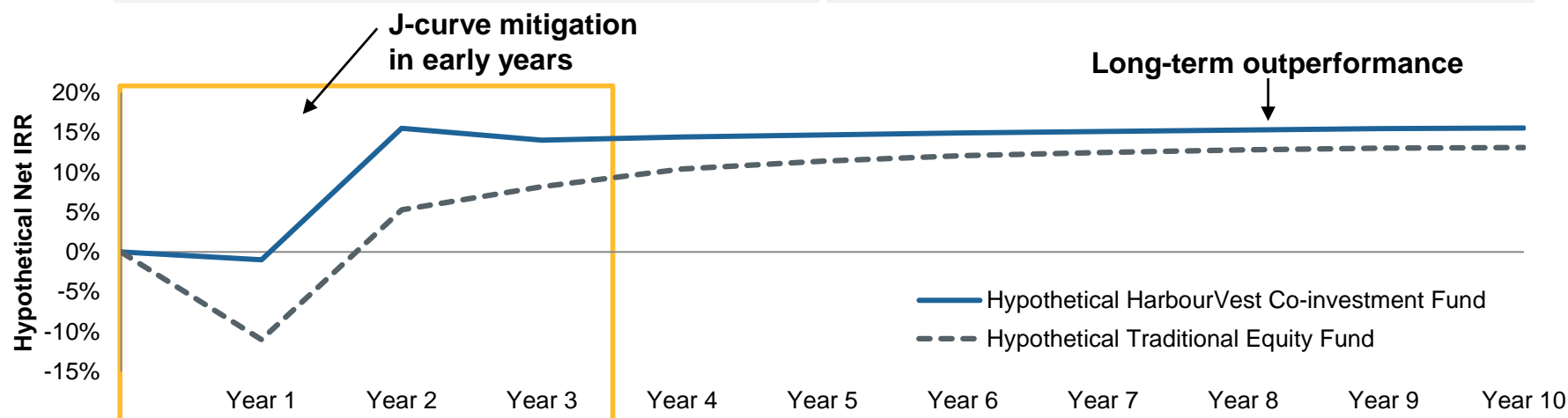
As of March 31, 2018. Includes team members that are expected to be involved in the investment process of HCF V
 Includes employees based in Boston (blue), London (green), Bogotá (dark gray), Hong Kong (light green), and Toronto (light gray)
 *These individuals are focused on direct co-investments, as well as primary partnership investments and/or investor relations.

Low-cost access: J-curve mitigation and higher net return to LPs



Example: \$2.5 billion fund, invests ~\$830 million per year evenly over 3 years, generates a gross portfolio return of 2.25x

	Hypothetical HarbourVest Co-investment Fund	Hypothetical Traditional Equity Fund
Fee:	1% of invested capital* in years 1 through 5, declining by 20% each year thereafter	2% of committed capital in years 1 through 5, declining by 20% each year thereafter
Carry:	12.5%	20%



Result: Based on our model, a hypothetical \$2.5 billion HarbourVest Co-investment Fund would return \$464 million more cash to LPs over a ten-year term, representing 46% less fees and carried interest than a hypothetical Traditional Equity Fund.

*Invested Capital is defined as cumulative capital committed to investments which includes any investments funded through a financing facility. In the event that cumulative capital committed to investments, including reinvested capital, ever exceeds total committed capital, then the management fee will be based on the lower committed capital number.

Shown to illustrate effect of fees only. Not intended to project performance in any manner whatsoever. **No investor received the indicated model performance.** The terms of the actual funds that the Fund invests alongside may be different. Hypothetical HarbourVest Co-investment Fund fees and carried interest are based on HCF V's terms. Assumes 100% of committed capital invested and 2.25x gross portfolio return in both scenarios. Management fees are paid with portfolio proceeds beginning in Year 6. Both scenarios have an identical schedule of gross distributions assuming investments are held for 5 years. Hypothetical Net IRRs are calculated based on annual cash flows, assuming capital called in mid-year and NAV as of year-end. Hypothetical Net IRRs reflect assumption of 17.6% NAV increase in Years 2 through 10. Does not reflect organizational costs and other fund-level operating expenses that would be incurred in the management of an actual fund. No cash balance is modeled, i.e., all fund excess cash is distributed to LPs. The carried interest accrues to the general partner's account as it is generated and is paid to the general partner in Years 9 and 10. No assurance is made that the Fund will achieve comparable results.

HCF V – Overview

Objective

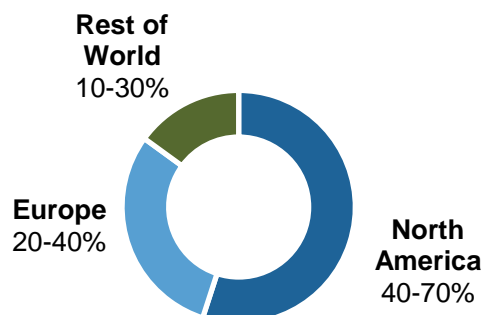
- > Provide clients access to a diversified global portfolio of direct co-investments in buyout, growth equity, and other private market transactions alongside top-tier private markets managers
- > Seek risk-adjusted returns for investors by leveraging the Firm’s proven sourcing platform, established deal selection process, differentiated execution capabilities, and global presence

Investment Focus

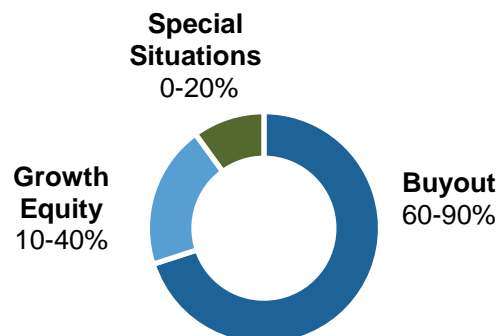
- > Portfolio of co-investments diversified by lead manager, industry, stage, and geography
- > Utilizing HarbourVest’s proven, repeatable process to access and create unique opportunities

Allocation Targets*

Geography



Stage



* These amounts reflect the current expectations for the allocation of the Fund. The ultimate allocation will differ based upon market conditions and available investment opportunities over the life of the Fund. Additionally, these are not prescriptive guidelines. The investment guidelines of the Fund are contained in the offering memorandum and the limited partnership agreement.

HCF V – Summary of terms

Target Size	\$2.5 billion
Investment Period	3-5 years
Term	10 years, with three one-year extensions at the option of the General Partner with the approval of a majority in interest of the Limited Partners
Management Fee	<ul style="list-style-type: none"> > 0.62% average annual management fee* > 1.0% of invested capital** in years 1 through 5, declining by 20% each year thereafter
Early Closing Fee Reduction	Commitments before July 31, 2018 will not be charged management fees for the first 12 months
Carried Interest	<ul style="list-style-type: none"> > 12.5% on net investment profits > 8% limited partner preferred return with general partner catch up

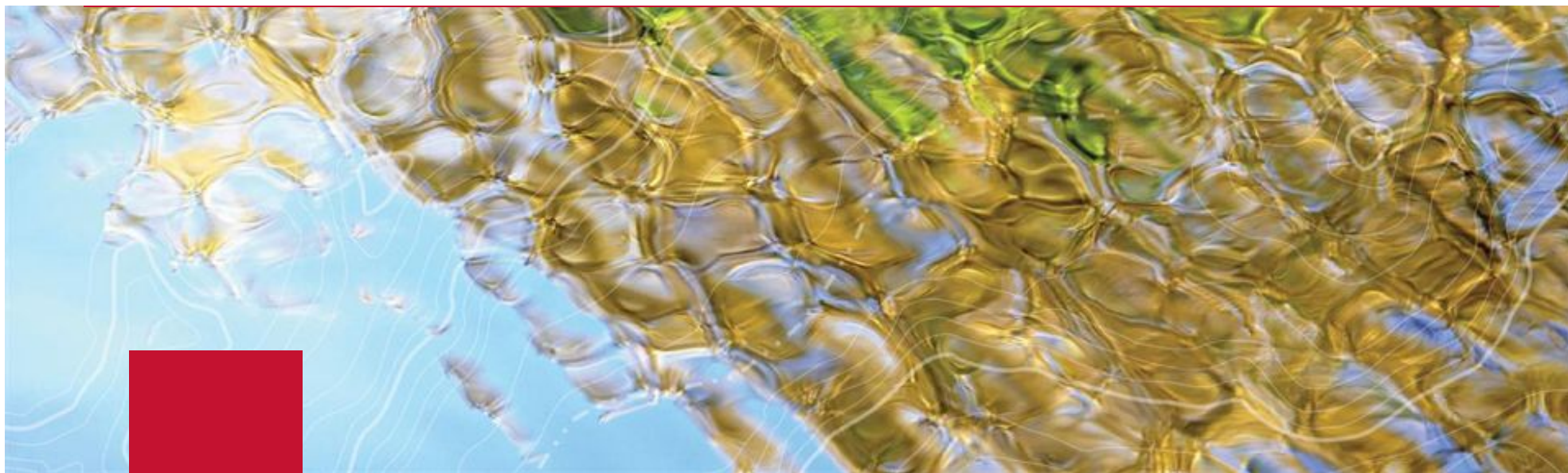
Terms are subject to change prior to the issuance of definitive program documentation.

* Assumes that capital will be fully committed to investments over the first three years and invested in the middle of each year, and that the Fund's term will end after ten years. The actual average annual management fee will depend on the Fund's commitment pace and term. For example, the average annual management fee would be 0.57% of capital commitments if capital was fully committed to investments the first four years and 0.52% of capital commitments if capital was fully committed to investments over the first five years. There can be no assurance that the actual investment activity of the Fund will be consistent with these assumptions.

** Cumulative capital committed to investments includes any investments funded through a financing facility. In the event that cumulative capital committed to investments, including reinvested capital, ever exceeds total committed capital, then the management fee will be based on the lower committed capital number.

Subject to regulatory approval, versions of the Fund that take AIFMD considerations into account are expected to be available in Q1 2018.

See 'Additional Important Information' at the end of the presentation, including important disclosures related to Fees and Expenses.



CO-INVESTMENT FUND UPDATE

HarbourVest Partners 2013 Direct Fund

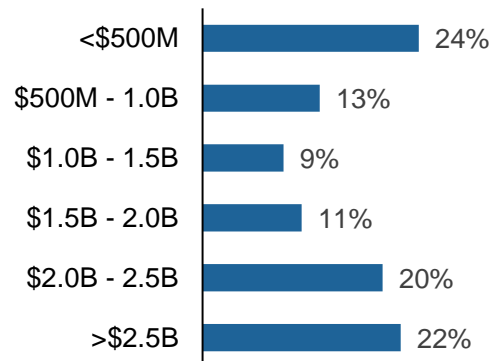


Overview	<ul style="list-style-type: none"> > Commitment period from 2013 - 2016 > Co-investments principally in leveraged buyouts, recapitalizations, growth equity and special situations
Portfolio Update	<ul style="list-style-type: none"> > \$1.0 billion committed to 30 global co-investments > \$40 million invested in portfolio companies during 2017 > Portfolio generated \$380 million of proceeds during 2017; largest sources were sales of Planview (proceeds of 2.8x cost), Lightower Fiber Networks (2.4x cost), and Securus Technologies (2.9x cost) > Portfolio generated a \$207 million gain during 2017, driven by the sale of Lightower to Crown Castle and increased valuations for LeasePlan and Appriss) > Total portfolio value is 1.7x cost at December 31, 2017

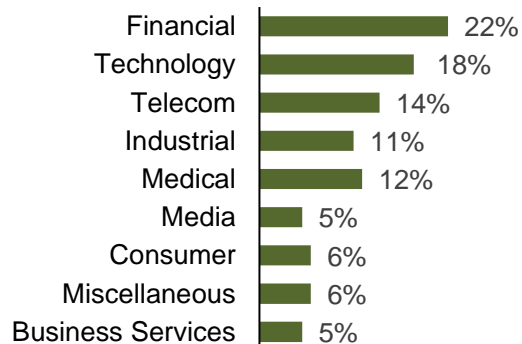
\$ Millions

As of	Dec-31 '17	Mar-31 '18
Fund Size	\$1,010.1	\$1,010.1
Committed to Investments	100%	100%
Paid-In Capital	\$967.7	\$967.7
% Called	97%	97%
Distributions	\$428.6	\$461.8
DPI	0.4x	0.5x
Total Value	\$1,508.9	
TVPI	1.6x	
Net IRR	20.1%	

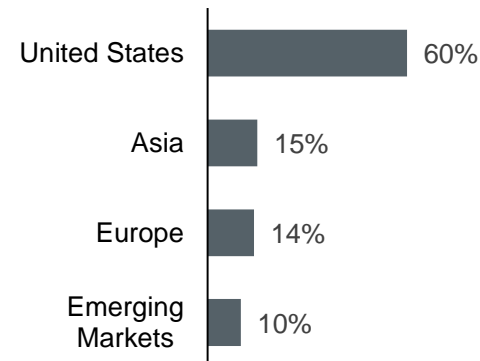
Enterprise Value



Industry



Geography



Source: HarbourVest. Charts are based on cumulative cost and commitments of company investments as of December 31, 2017.

A complete list of the fund's portfolio holdings and performance may be found elsewhere in this presentation. This performance is intended for distribution with the annual performance information in 'Additional Track Record Detail'. See 'Additional Important Information' at the end of the presentation, including important disclosures on Gross / Net Performance Returns and Fees and Expenses. This page summarizes the activity and performance of a HarbourVest fund or account. There is no guarantee the investments and relationships referenced will be in a future portfolio. Past performance is not a reliable indicator of future results.



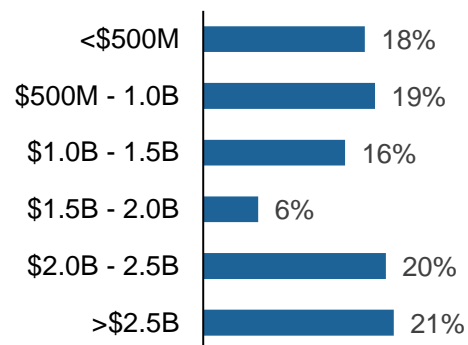
HarbourVest Partners Co-Investment Fund IV

Overview	<ul style="list-style-type: none"> > Formed in 2016, Fund held final closing in June 2017 > Commitment period from 2016 - 2018 > Co-investments principally in leveraged buyouts, recapitalizations, growth equity and special situations
Portfolio Update	<ul style="list-style-type: none"> > \$1.2 billion (including unfunded commitments) committed to global co-investments across industries > The Fund made multiple new investments in 2017, the largest of which include Staples, Nets Holding, Albany Molecular Research, Cortefiel, Klarna, and AllFunds Bank > Net gain during 2017 driven by increasing valuations for Preston Hollow Capital, Ministry Brands, and Profi Rom Food, and the July 2017 IPO of GetBack > Total portfolio value is 1.2x cost at December 31, 2017

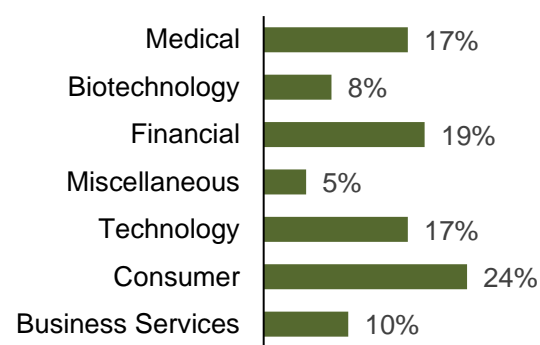
\$ Millions

As of	Dec-31 '17	Mar-31 '18
Fund Size	\$1,767.7	\$1,767.7
Committed to Investments	77%	81%
Paid-In Capital	\$849.9	\$1,008.8
% Called	49%	58%
Distributions	\$0.0	\$0.0
DPI	0.0x	0.0x
Total Value	\$971.3	
TVPI	1.1x	
Net IRR	24.8%	

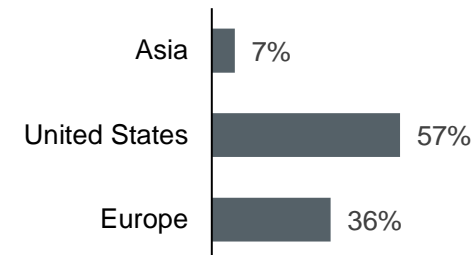
Enterprise Value



Industry



Geography



Source: HarbourVest. Charts are based on cumulative cost and commitments of company investments as of December 31, 2017.

HCF IV performance may not yet be meaningful as a substantial portion of capital is yet to be invested. HCF IV performance also includes the performance of any AIF-related funds.

A complete list of the fund's portfolio holdings and performance may be found elsewhere in this presentation. This performance is intended for distribution with the annual performance information in 'Additional Track Record Detail'. See 'Additional Important Information' at the end of the presentation, including important disclosures on Gross / Net Performance Returns and Fees and Expenses. This page summarizes the activity and performance of a HarbourVest fund or account. There is no guarantee the investments and relationships referenced will be in a future portfolio. Past performance is not a reliable indicator of future results.



CO-INVESTMENT SUMMARY

Summary



Strong, demonstrated track record

Proven deal-sourcing platform

HARBOURVEST STRENGTHS

The diagram features a central grey rectangular box with the text "HARBOURVEST STRENGTHS". Surrounding this box are four diamond shapes: a dark blue diamond at the top-left, a light blue diamond at the top-right, a dark green diamond at the bottom-left, and a light green diamond at the bottom-right.

Systematic, repeatable process

Experienced, dedicated team

HarbourVest has the experience, process, and team required to construct successful co-investment programs for investors.



APPENDIX

Strong global team

PRIMARY PARTNERSHIPS		SECONDARY INVESTMENTS		DIRECT INVESTMENTS		OPERATIONS	
MANAGING DIRECTOR		MANAGING DIRECTOR		MANAGING DIRECTOR		Paula Drake, Managing Director	
Kathleen Bacon	Julie Ocko	David Atterbury	Mike Pugatch	Corentin du Roy	Alex Rogers	Julie Eiermann, Managing Director, CDO	
Till Burges	Amanda Outerbridge	Michael Dean	Rajesh Senapati	Ian Lane	Rob Wadsworth	Karin Lagerlund, Managing Director / CFO	
Carolina Espinal	Senia Rapisarda	Tim Flower	John Toomey	Peter Lipson	Kelvin Yap	Tricia Mackechnie, Managing Director, CTO	
Ryan Gunther	Sally Shan	Brett Gordon	Kevin Warn-Schindel	PRINCIPAL		Mark Reale, Managing Director	
Tatsuya Kubo	Greg Stento	Valérie Handal	Peter Wilson	Joel Hwang	Craig MacDonald	Mary Traer, Managing Director / CAO	
Hemal Mirani	Michael Taylor	Jeff Keay		Ryan Jones	David Zug	Monique Austin, SVP, US Counsel	
John Morris	Scott Voss	PRINCIPAL		VICE PRESIDENT		Richard Campbell, SVP, Program Office	
PRINCIPAL		Dan Buffery	Justin Lane	Cartus Chan	Goncalo Faria Ferreira	Tony Cobuzzi, SVP, Fund Controller	
Francisco Arboleda	Mac Grayson	Greg Ciesielski	Matt Souza	Matthew Cheng	Lenny Li	Cory Cook, SVP, Fund Controller	
Alex Barker	Stephen Tamburelli	John Fiato	Dustin Willard	Todd DeAngelo	Jacqueline Peradotto	Matthew Dowgert, SVP, Counsel	
Minjun Chung	Chris Walker	Edward Holdsworth		SENIOR ASSOCIATE		Sofia Gertsberg, SVP, Investment Risk	
Shumin Gong	Alex Wolf	VICE PRESIDENT		Megan Beecher	Alexander Mackinger	Danielle Green, SVP, CCO	
VICE PRESIDENT		Abuzar Anaswala	Blake Holman	Gokhan Kara	Sophia Maizel	Bruce Pixler, SVP, Director of Tax	
Eric Simas		Nick Bellisario	Thomas Joly	ASSOCIATE		Dave Stepanis, SVP, Portfolio Analytics	
SENIOR ASSOCIATE		Kyle Dowd	Benjamin Wu	Alexander Brown	Tikeren Quinn	Jack Wagner, SVP, Treasurer	
Amanda Chen	Dean Poulos	Dominic Goh	Martin Yung	Charles Dequeker	Alex Robins	Jecca Auchterlonie, VP, Trading	
Chang Liu	Taehyun Yum	SENIOR ASSOCIATE		Jan de Wolff	Daniel Schieferdecker	Philip Channen, VP, Deputy CCO	
ASSOCIATE		Peter O'Hanlon		Sean Gillespie	Tyler Smith	Kelli Finnegan, VP, Senior Fund Controller	
Charles Carey	Matthew Marotta	ASSOCIATE		Courtney Kelly	Junyi Zang	Jason Frigiani, VP, Corporate Controller	
Andy Chen	Will Mucci	Julie Catton	Tony Law	Noel Lam		Aliza Firestone Goren, VP, Counsel	
Michael Ferrante	Daryl Ng	Mimi Dang	Pierre Maffei	INVESTOR RELATIONS		Sharon Si, VP, Asia CO	
Cesar Gimeno Le Paih	Angus Walker	John Donovan	Emily Ren	MANAGING DIRECTOR		Hannah Bend, VP, BI	
Alex Little	Cynthia Wang	Lorenzo Fusco	Forrest Richmond	Nate Bishop	Ilan Rosen	Melvin Edwards, VP, Sr. Tax Manager	
EMERGING AND DIVERSE INVESTMENTS		Ian Jeffrey	Frank Schwahn	Simon Jennings	Olav König	Matt Fisher, VP, Portfolio Analytics	
MANAGING DIRECTOR		Elena Kareclas	Eric Zhang	Jamie Kase		Kathy O'Brien Manzo, VP, BA/BI	
Craig Fowler	Sanjiv Shah			PRINCIPAL		Michael Passannante, VP, Asst Treasurer	
Edward Powers				Simon Lund	Fran Peters	Sandra Pasquale, VP, Asst Treasurer	
HVPE				Nhora Otalora	Mark Radville	Igor Rudolf, VP, Direct Invest. Controller	
Richard Hickman, Principal, Portfolio Mgmt.				Janish Patel	Laura Thaxter	David Rule, VP, Global Infrastructure	
Bill Macaulay, Director of Finance				VICE PRESIDENT / DIRECTOR		Jean Walsh, VP, Asst Treasurer	
				Emily Archer	Vaibhav Rajan	SENIOR MANAGING DIRECTOR EMERITUS	
				Jay Brasseur	Edwin Rasberry	Brooks Zug	
				Joe Gallitano	Danielle Remis Hackel	SENIOR ADVISORS	
				Michael Joseph	Alicia Sweeney	George Anson	Ed Kane
				Bradley Karelitz	Deirdre Whann	John Begg	Fred Maynard
				Oren Laufer		Kevin Delbridge	Ofer Nemirovsky
				SENIOR ASSOCIATE		Bill Johnston	Martha Vorlicek
				Aiko Adachi	Mike DeCenzo		
				Olga Cooke	Jeong Kim		
				ASSOCIATE			
				Mindy Adams	Kevin Du		
				Libby Burrus	Benjamin Levine		
				Judy Chang			

As of March 31, 2018. Includes employees of HarbourVest Partners, LLC, HarbourVest Partners (U.K.) Limited, HarbourVest Partners (Asia) Limited, HarbourVest Partners (Japan) Limited, HarbourVest Partners, LLC Oficina de Representación, HarbourVest Investment Consulting (Beijing) Company Limited, HarbourVest Partners Korea Ltd and HarbourVest Partners (Israel) Ltd

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ADDITIONAL IMPORTANT INFORMATION

Additional important information

Any data presented about investments prior to 1998 is related to transactions that occurred when the HarbourVest team was affiliated with Hancock Venture Partners, Inc.

In considering the prior performance information contained herein, prospective investors should bear in mind that past performance is not a reliable indicator of future results, and there can be no assurance that an investment sponsored (or an account managed) by HarbourVest will achieve comparable results or be able to implement its investment strategy or meet its performance objectives.

The foregoing performance information includes realized and unrealized investments. Unrealized investments are valued by HarbourVest in accordance with the valuation guidelines contained in the applicable limited partnership agreement. Actual realized returns on unrealized investments will depend on, among other factors, future operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs, and the timing and manner of sale, all of which may differ from the assumptions on which the valuations used in prior performance data contained herein are based. Accordingly, the actual realized returns on these unrealized investments may differ materially from returns indicated herein.

In certain cases, a Fund, or the partnerships in which it invests, may utilize a credit facility or other third-party financing. This is generally to bridge capital calls from limited partners or to pay for a portion of an investment. This may make the resulting IRR and multiples higher or lower than the IRR or multiples that would have been presented had drawdowns from partners or available cash been initially used to acquire or pay for the investment.

IRRs are calculated from the date of a fund's first cash flow from a limited partner, which may include capital contributions in connection with fund formation, as may occur with certain AIF-Related Funds (as defined below), and therefore can be earlier than the date of the first capital call from a limited partner for the purpose of investment. The start date for IRR calculations can also be later than the date of initial investment when a credit facility or other third-party financing is used to fund such investment.

Performance is expressed in US dollars, unless otherwise noted. Returns do not include the effect of any withholding taxes. Cash flows are converted to US dollars at historic daily exchange rates, unless otherwise indicated. The return to investors whose local currency is not the US dollar may increase or decrease as a result of currency fluctuations.

1. **Net Performance Returns** - DPI (Distributions / Paid-In Capital), TVPI (Total Value / Paid-In Capital), and Net IRR (Internal Rate of Return) through the applicable date are the returns to limited partners of a Fund after all fees, operating expenses, and carried interest. These returns reflect the combined return for all limited partners in a Fund and may not reflect an individual limited partner's actual return. The Net IRR is calculated using daily cash flows to and from limited partners. In this calculation, the final cash flow to limited partners is the fair market value of all limited partners' capital accounts at the applicable date as determined by the general partner of the respective Fund in accordance with the valuation policy. The net multiples (DPI and TVPI) are calculated based on the same cash flows. See note 8 below for additional disclosures related to fees and expenses of a Fund.
2. **Gross Performance Returns** - This information (Distributed / Funded, Total Value / Funded, TV/TC (Total Value / Total Cost), Gross Portfolio IRR, and Gross IRR), if shown, is presented on a gross basis and reflects the performance of the investment portfolio, including primary fund investments, secondary investments, and/or direct co-investments. Gross Portfolio IRR represents the annual return calculated using daily cash flows from the Fund(s) to and from the various partnerships or companies in which the Fund(s) invested during the period specified. These returns reflect the fees, expenses, and carried interest of the primary investments, secondary investments, and co-investments, as applicable, but do not reflect the management fees, carried interest, and other expenses borne by investors in the Fund(s), which will reduce returns. See note 8 below for additional disclosures related to fees and expenses of a Fund.
3. **Portfolio Company Performance** – This information, if shown, is based on the cost and value of underlying company investments within the primary and secondary investment portfolios of the Fund(s). These returns do not reflect the fees, expenses, and carried interest of the partnership investments of the Fund(s), which will reduce returns. Performance may be aggregated when a company is held through multiple primary and secondary investments. These returns do not represent the performance of any specific Fund or the return to limited partners of any specific Fund. As a result, portfolio company performance returns are considered model performance. See notes 6 and 8 below for additional disclosures related to model performance and fees and expenses of a Fund, respectively.

Notes continued on next page.

Additional important information

- 4. Public Market Comparison** – This information, if shown, 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. See note 6 for additional disclosures related to model performance.

In certain instances, where indicated as such herein, 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.

The MSCI AC World® Index (ACWI) is designed to measure the performance of publicly-traded equity securities in global developed and emerging markets. The MSCI ACWI Index is maintained by Morgan Stanley Capital International ("MSCI") and has historically captured approximately 85% coverage of the free float-adjusted market capitalization of its publicly-traded global equity opportunity set.

The MSCI AC World® (ACWI) Ex-US Index is designed to measure the performance of publicly-traded equity securities in global developed and emerging markets excluding the US. The MSCI ACWI Ex-US Index is maintained by MSCI and has historically captured approximately 85% coverage of the free float-adjusted market capitalization of its publicly-traded global equity opportunity set outside the US.

The MSCI EAFE® Index is designed to measure the performance of publicly-traded large and mid-capitalization equity securities across developed markets, including countries in Europe, Australasia, and the Far East, and excluding the US and Canada. The MSCI EAFE Index is maintained by MSCI and has historically captured approximately 85% coverage of the free float-adjusted market capitalization of publicly-traded equities in each included country.

The S&P 500® Index is designed to measure the performance of publicly-traded equity securities of the large capitalization sector of the US market and includes 500 large companies having common stock listed on the New York Stock Exchange or Nasdaq Stock Market. The S&P 500 Index is maintained by Standard & Poors ("S&P") and has historically captured approximately 80% coverage of available market capitalization of publicly-traded equities in the US market.

The Russell 2000® Index is designed to measure the performance of publicly-traded equity securities of the small capitalization sector of the US market and includes the 2,000 smallest companies in the Russell 3000® Index. These indexes are maintained by FTSE Russell, a subsidiary of the London Stock Exchange Group. The Russell 3000 Index consists of the 3,000 largest publicly-listed US companies, and has historically captured approximately 98% coverage of the total capitalization of the entire US stock market.

The adjusted public market indices shown are not intended to, and do not, parallel the risk, investment strategy, or investment characteristics of a Fund. The securities comprising the public market indices have substantially different characteristics than the investments held by a Fund, and accordingly, a direct comparison may not be meaningful. The public market comparison is shown for illustrative purposes only. The adjusted indices are shown to demonstrate the approximate returns an investor may have received had the investor invested in certain publicly-traded equity securities in lieu of a Fund or the investments made by HarbourVest. An investor is not able to directly invest in a benchmark index.

Bloomberg is the source of the index data contained or reflected in this material. MSCI, S&P, and FTSE Russell are the owners of the index data contained or reflected in this material and all trademarks and copyrights related thereto. This is HarbourVest's presentation of the data. Bloomberg, MSCI, S&P, and FTSE Russell are not responsible for the calculations conducted by HarbourVest, the formatting or configuration of this material, or for any inaccuracy in presentation thereof.

Notes continued on next page.

Additional important information

5. **Vintage Years** - HarbourVest vintage classification is based on the year in which capital was first funded to each underlying fund (for primary fund investments) or the year of HarbourVest's purchase (for secondary investments).
6. **Monte Carlo Simulations** - These model (hypothetical) portfolios, if shown, are intended for illustrative purposes only. Performance information for each hypothetical portfolio utilized a Monte Carlo Simulation and are based on the actual cash flows of a proprietary data set that includes partnership investments made by Funds, along with partnership data from external sources. The capital calls and distribution data is based on historic partnership investment cash flows, but does not represent the actual experience of any investor or Fund. The results of the simulation are impacted by an uneven representation of funds with different vintage years, sizes, managers, and strategies, and a limited pool of investment cash flow data. The actual pace and timing of cash flows is likely to be different and will be highly dependent on the underlying partnerships' commitment pace, the types of investments made by the Fund(s), market conditions, and terms of any relevant management agreements. The results presented are based entirely on the output from numerous mathematical simulations. The simulations are unconstrained by the fund size, market opportunity, and minimum commitment amount, and do not take into account the practical aspects of raising and managing a fund. The simulated hypothetical portfolio results should be used solely as a guide and should not be relied upon to manage your investments or make investment decisions.
7. **Model Performance** - Model performance results, if shown, are inherently limited and should not be considered a reliable indicator of future results. **No investor received the indicated performance of the model portfolio(s).** Different model scenarios will provide different results. Individual fund and strategy performance can be better or worse than the model performance. While the model portfolio may consist of investments made by HarbourVest during the relevant period(s), they do not reflect an actual portfolio managed by HarbourVest during the relevant period(s). Thus, they do not represent the impact that material economic and market factors might have had on HarbourVest's decision making if HarbourVest had been managing a Fund that incorporated the investment strategy shown during the specified period(s). In addition, the Funds had investment results materially different from the results portrayed in the model portfolio during the relevant period(s). No representation is made that any Fund will or is likely to achieve returns similar to those presented. Current model performance may differ from that shown in this presentation.

The following is the criteria used when showing model portfolio performance that includes the following investment types:

Primary Investments – Based on the cash flows of all primary investments (or a subset as noted) made by Funds during the period(s) specified, with the exception of custom accounts that made investments primarily in emerging venture capital managers, emerging managers, diverse managers, or state-focused managers, as these strategies are outside of HarbourVest's core focus.

Secondary Investments – Based on the cash flows of all secondary investments (or a subset as noted) made by Funds during the period(s) specified.

Direct Co-investments – Based on the cash flows of all direct co-investments (or a subset as noted) made by Funds during the period(s) specified. This performance excludes custom accounts that may make investments outside of HarbourVest's core co-investment strategy (e.g., industry, sourcing, return profile). Co-investments are defined as: (i) buyout, recapitalization, and special situation investments; (ii) expansion capital, growth equity, or other venture capital investment in companies with greater than \$7.5 million in trailing 12-month revenues at the time of investment; or (iii) mezzanine investments. Early stage investments, defined as those companies with revenues less than \$7.5 million at the time of initial investment, which are outside of the focus of the Fund, are also not included in the model portfolio returns shown. If early stage investments were included in the model portfolio, returns would be lower.

Notes continued on next page.

Additional important information

8. **Fees and Expenses** - Actual management fees and carried interest will vary and are established in negotiations with the limited partners of a Fund or separate account client. Management fees may range from 0.5% to 2.0% of committed, called, or invested capital of a Fund, pursuant to the limited partnership agreement or investment management agreement. Fees for Funds in extension years may be reduced, including to nil. Fund investors will typically bear all the costs and expenses relating to the operations of a Fund and its general partners (or similar managing fiduciary). A Fund shall bear its pro rata share of any such expenses incurred in connection with any portfolio investment to the extent the same portfolio investment is being made by other Funds. Organization expenses of a Fund will also typically be borne by Fund investors. When a Fund is generally expected to invest alongside a Fund primarily intended for European-based investors, which takes into account the regulatory requirements of the Alternative Investment Fund Managers Directive (an "AIF Related Fund"), organization expenses may be aggregated and allocated pro-rata between a Fund and its AIF Related Fund based on the relative commitments of the partners of the Fund and the partners of its AIF Related Fund (unless HarbourVest, as general partner, determines in good faith that a different share is appropriate). The specific payment terms and other conditions of the management fees, carried interest, and other expenses of a Fund are set forth in the governing documents of the Fund. Fees and expenses are also described in HarbourVest's Form ADV, Part 2A brochure.

Gross performance returns, if shown, are presented before management fees, carried interest, and other expenses borne by investors in the Fund(s). An actual portfolio would bear such fees and expenses. If such fees and expenses were deducted from performance, returns would be lower. For example, if a fund appreciated by 10% a year for five years, the total annualized return for five years prior to deducting fees and expenses at the end of the five year period would be 10%. If total fund fees and expenses were 1% for each of the five years, the total annualized return of the fund for five years at the end of the five-year period would be 8.90%.

9. **Private Equity Index Data** - Unless otherwise indicated, all private equity fund benchmark data reflects the fees, carried interest, and other expenses of the funds included in the benchmark. Please note that Fund returns would be reduced by the fees, carried interest, and other expenses borne by investors in the Fund. Such fees, carried interest, and other expenses may be higher or lower than those of the funds included in the benchmark. Burgiss (unless otherwise noted) is the source and owner of any private equity index data contained or reflected in this material and all trademarks and copyrights related thereto. The material may contain confidential information and unauthorized use, disclosure, copying, dissemination, or redistribution is strictly prohibited. This is HarbourVest's presentation of the data. Burgiss is not responsible for the calculations conducted by HarbourVest, the formatting or configuration of this material, or for any inaccuracy in presentation thereof.

Notes continued on next page.

Additional important information

The information contained herein is highly confidential and is being provided to you at your request for informational purposes only and is not, and may not be relied on in any manner as, legal, tax, or investment advice or as an offer to sell or a solicitation of an offer to buy an interest in any fund or any other investment product sponsored by HarbourVest (the "Fund"). Any offering of interests in the Fund will be made by means of delivery of a confidential Private Placement Memorandum or similar materials (the "Memorandum") that contain a description of the material terms of such investment and subscriptions will be accepted solely pursuant to definitive documentation. These materials do not purport to contain all the information relevant to evaluating an investment in the Fund. The information contained herein will be superseded by, and is qualified in its entirety by reference to, the Memorandum, which will contain information about the investment objective, terms, and conditions of an investment in the Fund and will also contain tax information and risk disclosures that are important to any investment decision regarding the Fund. No person has been authorized to make any statement concerning the Fund other than as will be set forth in the Memorandum and any such statements, if made, may not be relied upon. No sale will be made in any jurisdiction in which the offer, solicitation, or sale is not authorized or to any person to whom it is unlawful to make the offer, solicitation, or sale. Offers and sales of interests in the Fund will not be registered under the laws of any jurisdiction and will be made solely to "qualified purchasers" as defined in the U.S. Investment Company Act of 1940, as amended. The information contained herein must be kept strictly confidential and may not be reproduced or redistributed in any format without the express written approval of HarbourVest.

An investment in the Fund will involve significant risks, including loss of the entire investment. Before deciding to invest in the Fund, prospective investors should pay particular attention to the risk factors contained in the Memorandum. Prospective investors should make their own investigations and evaluations of the information contained herein. Prior to the closing of a private offering of interests in the Fund, HarbourVest will give investors the opportunity to ask questions and receive additional information concerning the terms and conditions of such offering and other relevant matters. Each prospective investor should consult its own attorney, business advisor, and tax advisor as to legal, business, tax, and related matters concerning the information contained herein and such offering.

Certain information contained herein (including financial information and information relating to investments) has been obtained from published and non-published sources. Such information has not been independently verified by HarbourVest. Except where otherwise indicated herein, the information provided herein is based on matters as they exist as of the date of preparation and not as of any future date, and will not be updated or otherwise revised to reflect information that subsequently becomes available, or circumstances existing or changes occurring after the date hereof. Any forecast provided herein is based on HarbourVest's opinion of the market as of the date of preparation and is subject to change, dependent on future changes in the market.

In considering any performance data contained herein, you should bear in mind that past performance is not a reliable indicator of future results. Certain information contained herein constitutes forward-looking statements, which can be identified by the use of terms such as "may", "will", "should", "expect", "anticipate", "project", "estimate", "intend", "continue", or "believe" (or the negatives thereof) or other variations thereof. Due to various risks and uncertainties, including those discussed above, actual events or results or actual performance of the Fund may differ materially from those reflected or contemplated in such forward-looking statements. As a result, investors should not rely on such forward-looking statements in making their investment decisions.

None of the information contained herein has been filed with the Securities and Exchange Commission, any securities administrator under any state securities laws, or any other governmental or self-regulatory authority. No governmental authority has passed on the merits of the offering of interests in the Fund or the adequacy of the information contained herein. Any representation to the contrary is unlawful.



May 21, 2018

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1190 South Victoria Avenue, Suite 200
Ventura, CA 93003

SUBJECT: BOARD APPROVAL OF THE PROPOSED INVESTMENT ASSET ALLOCATION

As part of its Investment Policy, the Board adopted an Asset Allocation policy which is designed to maximize the probability that the investment goals will be fulfilled.

The asset allocation process considers a number of factors including:

- The liability structure of the plan.
- Capital market assumptions.
- The risk tolerance of the Board.

The goal of asset allocation is to provide for diversification of assets, and to maximize risk-adjusted investment returns. Asset allocation modelling identifies asset classes and targeted percentages each asset class represents in the total fund.

The allocation mix is reviewed annually, and is revised as fund conditions change and investment conditions warrant. Due to the fluctuation of market values, positioning within a specified range is acceptable and constitutes compliance with the policy. An extended period of time may be required to fully implement asset allocation changes.

At the April 16, 2018 Board meeting, NEPC and I presented an asset allocation analysis, and proposed differing asset allocation mixes for Board review and discussion. The Board directed that an asset allocation recommendation be brought back for Board adoption. The attached PowerPoint presentation contains a joint recommendation by NEPC and staff.

Subject to Board approval of the proposed allocation mix, staff and NEPC will bring back to the Board an implementation plan that includes asset class ranges and benchmarks for Board adoption.

RECOMMENDED: THAT THE BOARD APPROVE THE PROPOSED ASSET ALLOCATION, AND DIRECT THAT AN IMPLEMENTATION PLAN BE BROUGHT BACK FOR BOARD CONSIDERATION AND ADOPTION.

Respectfully submitted,

Dan Gallagher
Chief Investment Officer

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

ASSET ALLOCATION REVIEW AND MIXES FOR ADOPTION

May 21, 2018

Allan Martin, Partner

Anthony Ferrara, CAIA, Consultant

Michael Miranda, CFA, Senior Analyst



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

ASSET ALLOCATION RECOMMENDATION

NEPC, LLC

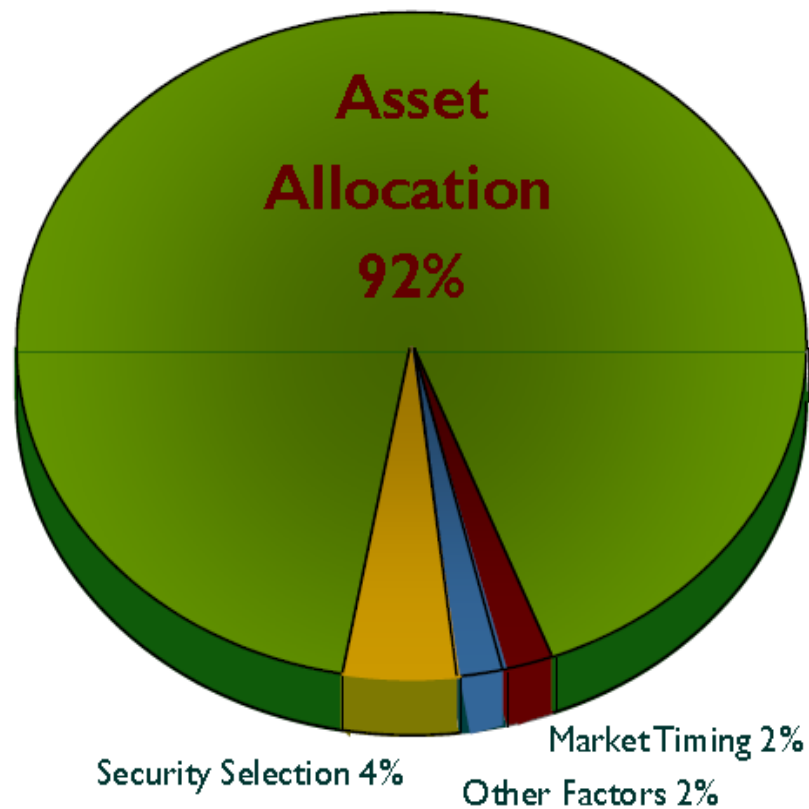
ASSET ALLOCATION DEFINED

- **The process of allocating assets across a spectrum of investments to achieve an expected return at an expected level of risk**
 - “Expected” is a statistics term, which is different from the common use of the word.
 - Expected return is the weighted average of all possible returns, where the weights are the probabilities that each return will occur.
- **Asset allocation decisions include, but are not limited to:**
 - Equity/Bonds/Cash/Real Estate/Private Equity/Real Assets/etc
 - Domestic/International/Global
 - liquid-vs.-illiquid
- **Structure: refers to implementation decision**
 - Core vs. Value/Growth
 - All Cap vs. Large/Medium/Small Cap
 - Active vs. Passive
 - Global vs. US/Foreign



ASSET ALLOCATION: THE KEY INVESTMENT DECISION

Determinants of Portfolio Performance



Source: *Determinants of Portfolio Performance II: An Update*, Brinson, et al, *Financial Analysts Journal*, May/June 1991, pp 40-48.



ANALYTICAL MODELING CAPABILITIES – PROPRIETARY TOOLS

- NEPC uses a variety of proprietary tools developed internally to better assess strategic asset allocation changes and the impact of tactical adjustments

Approach	Advantages	Shortcomings
Mean-Variance	<ul style="list-style-type: none"> • Calculates most efficient portfolio for given volatility • Produces range of portfolios 	<ul style="list-style-type: none"> • Relies on static assumptions and assumes normal distribution • Chosen constraints can drive results • Limits risk definition to volatility
Risk Budgeting	<ul style="list-style-type: none"> • Provides risk allocations • Recognizes that less efficient portfolios may have better risk balance 	<ul style="list-style-type: none"> • Relies on Mean-Variance optimization assumptions • Defines risk as standard deviation • Ignores tail risks
Scenario Analysis	<ul style="list-style-type: none"> • Focuses on low-probability, high magnitude economic environments (tail risks) • Recognizes environmental biases of each asset class 	<ul style="list-style-type: none"> • Offers opportunity to test risk tolerance to various outcomes but should not be used to construct best portfolio for each environment
Liquidity Analysis	<ul style="list-style-type: none"> • Recognizes a “risk” not captured in traditional tools: illiquidity • Highlights impact of changing cash flows (both investment-driven and exogenous) 	<ul style="list-style-type: none"> • Requires portfolio specific cash flow and partnership details • Long-term planning tool – cannot easily adjust portfolio or compare different portfolios

– Final Result = Revised Asset Class Targets, Ranges, Benchmarks

Please note that all investments carry some level of risk. No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment.



2018 ASSET CLASS ASSUMPTIONS

NEPC asset class assumptions offer both an intermediate (5-7 years) and long term (30 years) forecast horizon

November 30th market data is used for inputs to the asset class models

The 5-7 year return expectations for US credit and equity asset classes are broadly lower due to continued increases in valuation levels

Credit-based asset class expectations have declined considerably from prior year, with credit spreads moving below long-term medians across most sectors

The outlook for non-US equities remains attractive over 5-7 years supported by improvement in corporate earnings and economic growth

We anticipate US inflation will gradually move higher and average 2.5%

We continue to refine and enhance our process where appropriate



ASSUMPTION DEVELOPMENT

Capital market assumptions are published for over 40 asset classes

Assumptions include 5-7 year and 30 year return forecasts, average annual volatility expectations, and correlations

The 5-7 year forecast is designed to capture the return outlook for the current investment cycle

30 year return assumptions reflect a long-term outlook and are informed by the historical relationships among asset classes

Assumptions are published annually on December 15th and use market data as of November 30th

Assumptions are developed by the Asset Allocation Committee and approved by the Partners Research Committee (PRC)

Return assumptions are developed with proprietary valuation models and rely on a core building block methodology

Asset Allocation Committee	
September	Asset Allocation Committee Assumptions Kickoff Finalize List of New Asset Class Assumptions
October	Review Draft of Asset Class Return Assumptions Discuss Outlook with NEPC Research Beta Groups
November	Finalize Volatility and Correlation Assumptions Final Update of Asset Class Models (As of 11/30)
December	Review Model Output and Create Return Assumptions Present Draft to the PRC Publish Assumptions on December 15 th



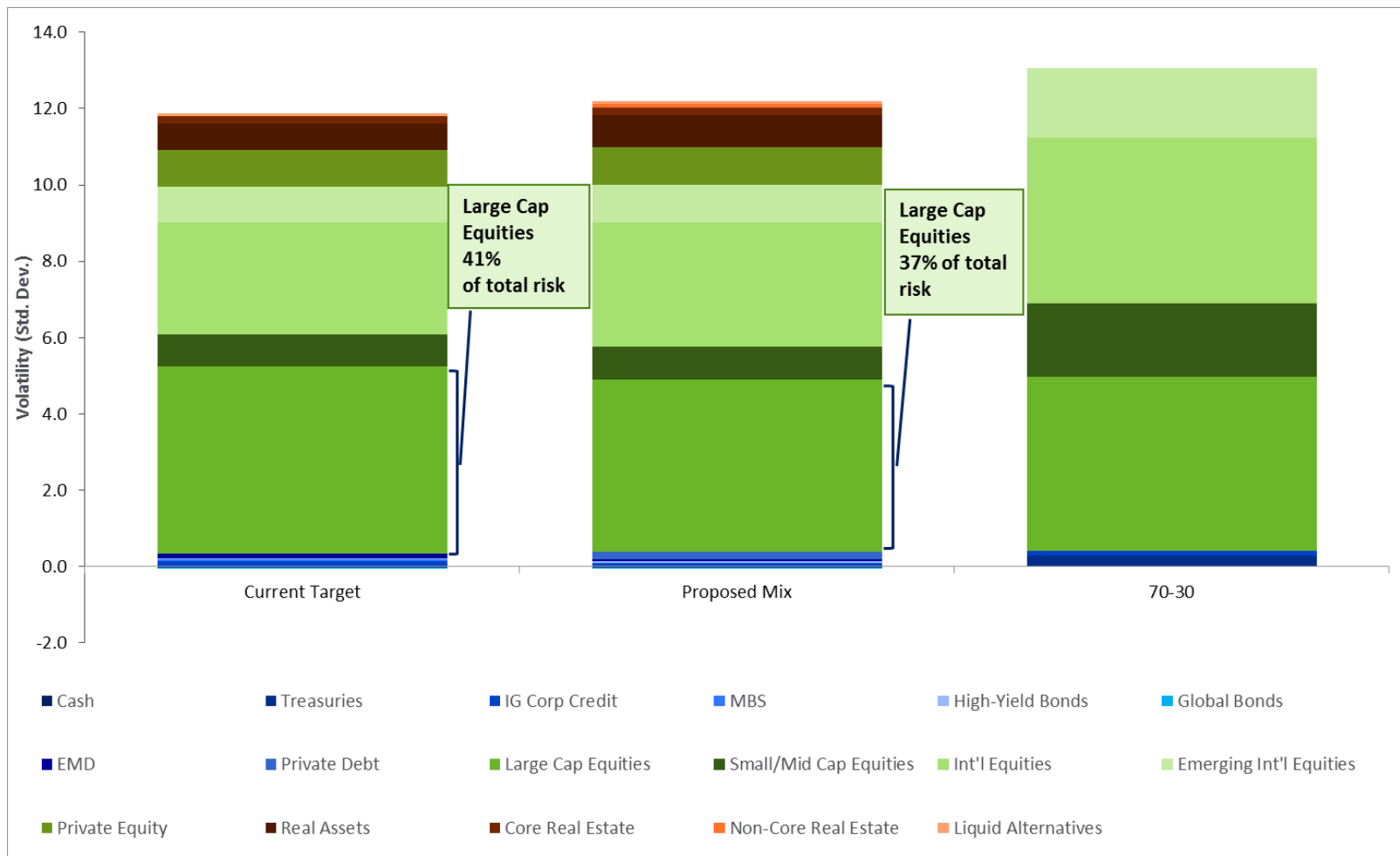
VCERA PORTFOLIO

NEPC, LLC

VCERA PORTFOLIO – 2018 ASSUMPTIONS

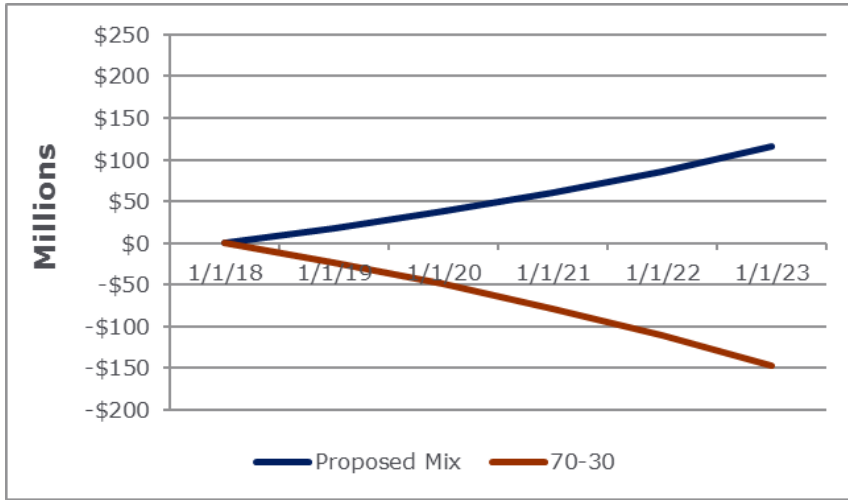
	Current Target	Proposed Mix	70-30
Cash	0%	0%	0%
Large Cap Equities	25%	23%	28%
Small/Mid Cap Equities	3%	3%	10%
Int'l Equities (Unhedged)	12%	11%	20%
Int'l Sm Cap Equities (Unhedged)	0%	3%	3%
Emerging Int'l Equities	3%	3%	7%
Emerging Int'l Sm Cap Equities	0%	0%	1%
Global Equity	10%	10%	0%
Private Equity	10%	10%	0%
Total Equity	63%	63%	70%
Core Bonds	10%	7%	30%
Treasuries	2%	2%	0%
Absolute Return Fixed Income	8%	7%	0%
Private Debt	0%	3%	0%
Total Fixed Income	20%	19%	30%
Real Assets	0%	10%	0%
Liquid Alternatives	10%	0%	0%
Core Real Estate	7%	6%	0%
Non-Core Real Estate	0%	2%	0%
Total Real Assets	17%	18%	0%
Expected Return 5- 7 yrs	6.3%	6.7%	5.9%
Expected Return 30 yrs	7.7%	7.9%	7.2%
Standard Dev	11.8%	12.1%	13.0%
Sharpe Ratio (5-7 years)	0.37	0.38	0.30
Sharpe Ratio (30 years)	0.42	0.43	0.34
Probability of 1-Year Return Under 0%	29.6%	29.2%	32.6%
Probability of 6-Year Return Under 0%	9.5%	9.0%	13.4%
Probability of 6-Year Return Over 7.5%	40.4%	43.2%	38.2%
Probability of 30-Year Return Over 7.5%	53.4%	57.7%	44.9%

RISK BUDGETING

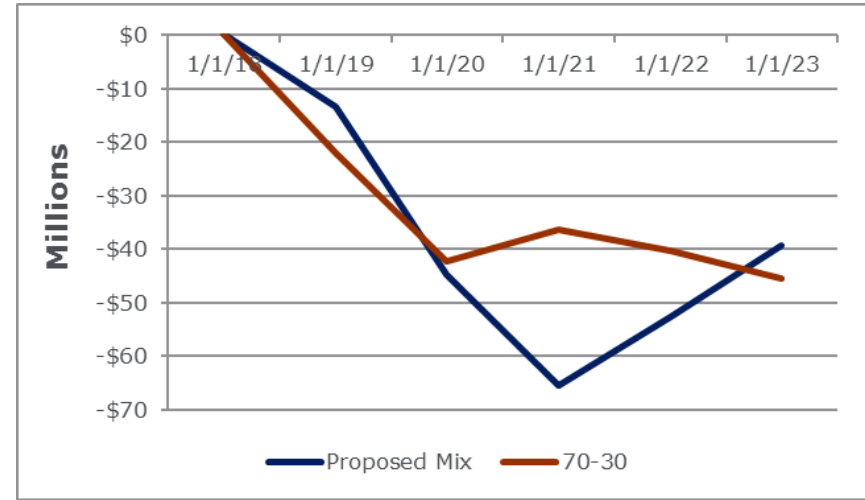


SCENARIO ANALYSIS - CHANGE FROM TARGET

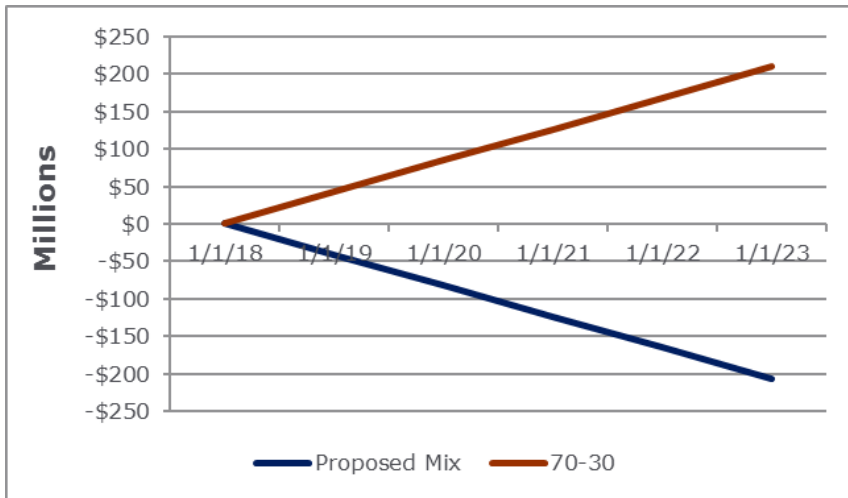
Base Case



Stagflation



Recession

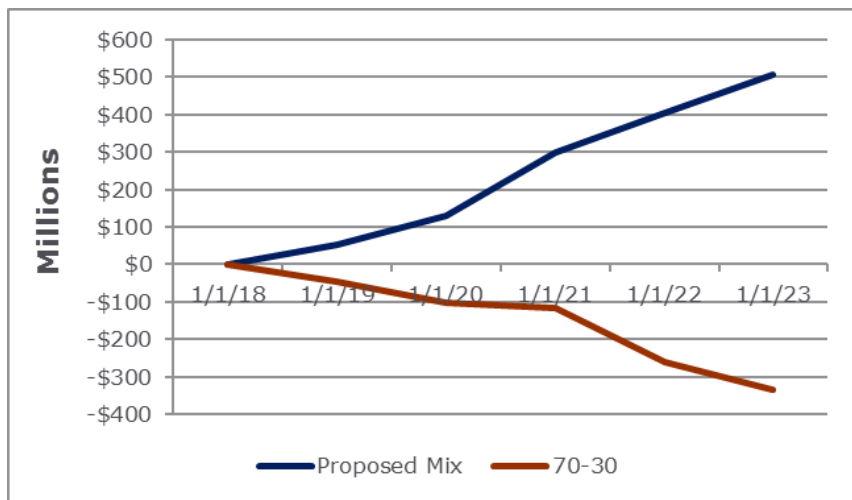


- In the Base Case scenario the Proposed Mix captures more upside potential as equity beta is redistributed and Credit and Non-Core Real Estate are added

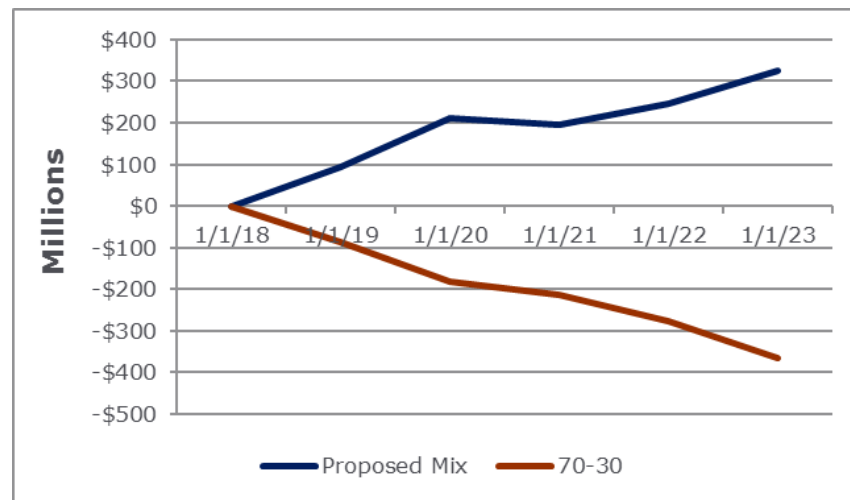


SCENARIO ANALYSIS - CHANGE FROM TARGET

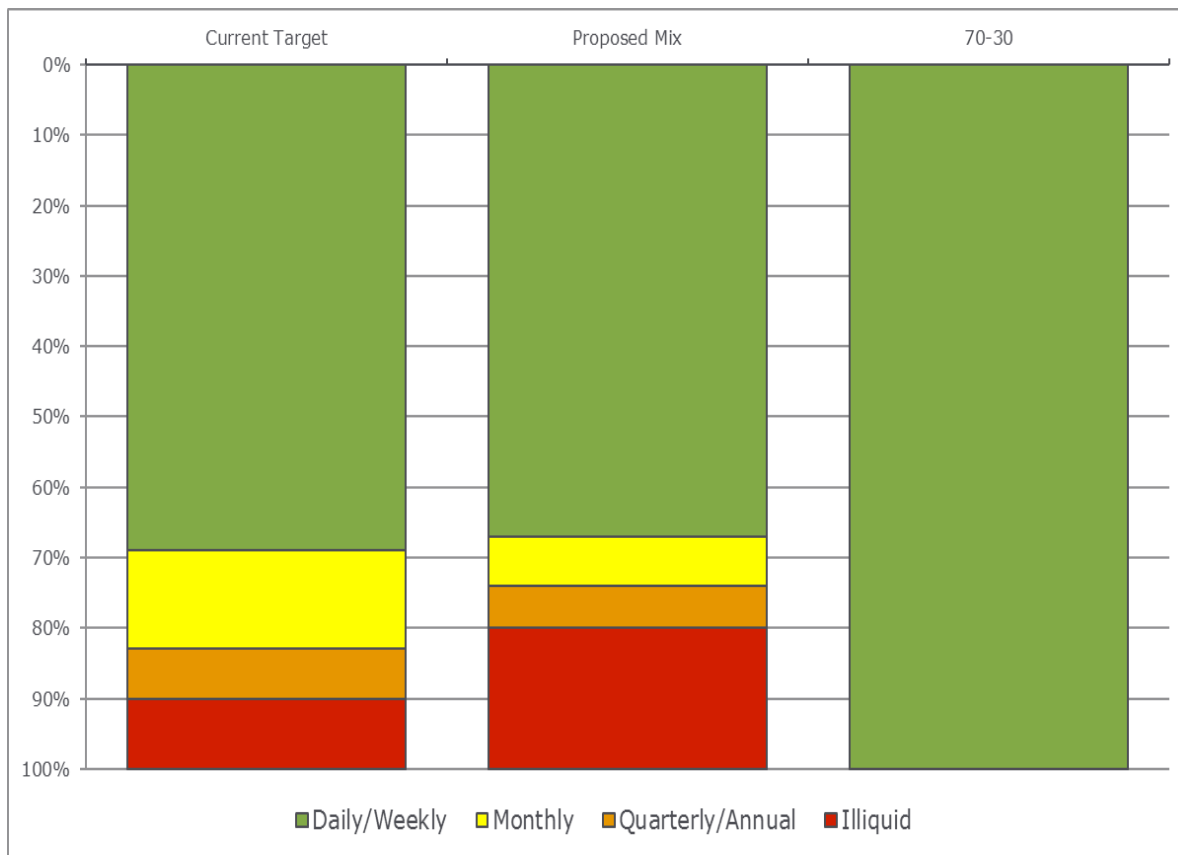
Expansion



Overextension



LIQUIDITY ANALYSIS



- The Proposed Mix assumes more illiquidity risk; attempts to capture associated risk premium
- Suggests sufficient liquidity in the plan exists to meet obligations
- A more detailed liquidity analysis may be warranted in order to stress test liquidity constraints

Summary of Cash Flows				
	Fourth Quarter	Fiscal Year-To-Date	One Year	Three Years
Beginning Market Value	\$5,257,900,164	\$4,935,381,791	\$4,668,717,739	\$4,328,232,756
Net Cash Flow	-\$55,558,176	\$73,852,225	-\$10,957,697	-\$37,760,046
Net Investment Change	\$218,148,957	\$411,256,929	\$762,730,903	\$1,130,018,235
Ending Market Value	\$5,420,490,945	\$5,420,490,945	\$5,420,490,945	\$5,420,490,945



APPENDIX

NEPC, LLC

KEY MARKET THEMES

NEPC, LLC

THEMES - INTRODUCTION

The outlook for developed market equities outside the US has improved

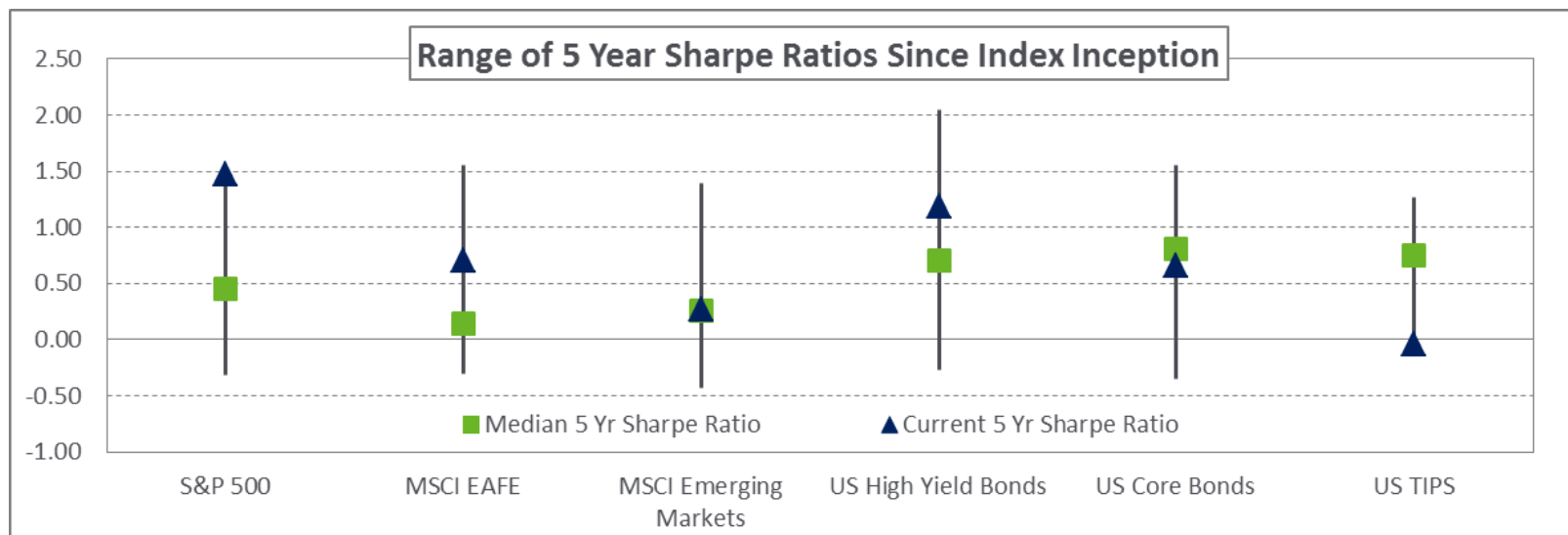
Growth conditions across the globe are on the upswing supported by easy financial conditions and an improved corporate earnings outlook

We encourage reducing exposure to assets that have outperformed expectations over a prolonged period such as US stocks and high yield

Tilt exposure to assets underperforming expectations in recent years, particularly emerging market equities, developed market equities, and US TIPS

Market stability must not elicit complacency, we encourage investors to increase exposure to strategies that mitigate market drawdowns

Look to rebalance "safe haven" fixed income exposure back to strategic targets



Index Inception: S&P 500 - 1926, MSCI EAFE - 1970, MSCI EM - 1988, US High Yield - 1983, US Core Bonds - 1976, US TIPS - 1997

Source: Ibbotson-Morningstar, eVestment, Sharpe Ratio range spans 5th to 95th percentile



KEY MARKET THEMES

Extended US Economic Cycle

Synchronized Economic Resurgence

Federal Reserve Gradualism

China Transitions

Globalization Backlash



KEY MARKET THEMES

Extended US Economic Cycle

Economic cycles do not die of old age

The US economy is in an extended expansionary cycle despite being eight years removed from the last recession

Financial health of US consumers and ongoing recovery of the housing market continue to drive economic growth

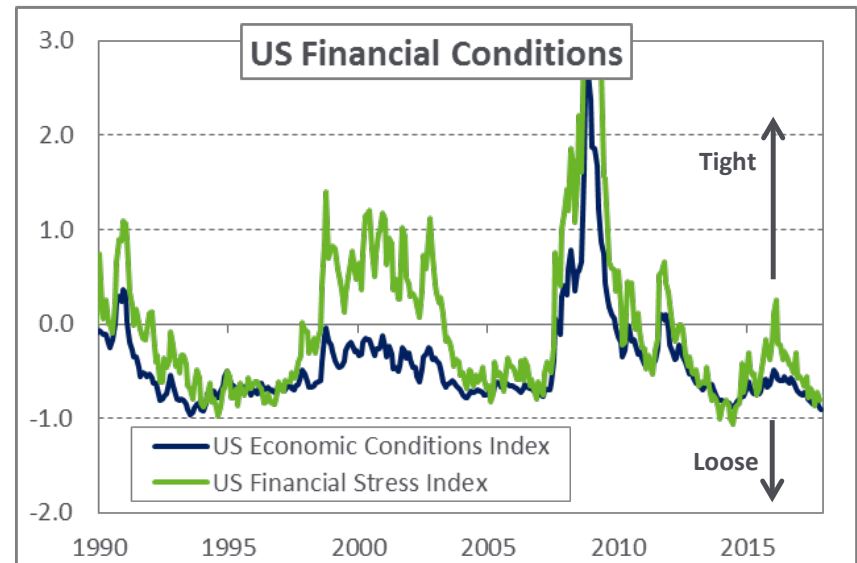
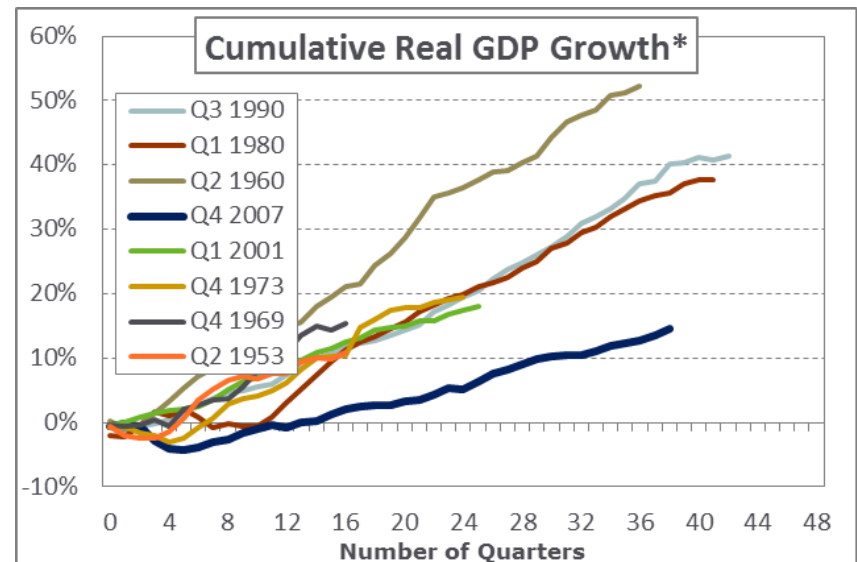
A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

US financial conditions remain loose and support steady economic gains

Low inflation provides a foundation for positive economic conditions and reinforces the Fed's gradual monetary policy approach

Moderating US dollar strength is another form of easy financial conditions, benefiting global trade flows and credit creation

Reversal in these easy conditions may be fueled by actions outside the US, such as a misstep by global central banks and/or increased volatility in the Chinese yuan



Source: (Top) Bloomberg, *Cumulative GDP growth from prior cycle peak
Source: (Bottom) Federal Reserve Bank of Chicago and Kansas City



KEY MARKET THEMES

Extended US Economic Cycle

Excess capacity remains in the system and provides fuel for the expansion

Labor market gains have been robust but slack remains as many have not returned to the workforce

Muted wage gains and low inflation metrics are reflective of the excess capacity remaining in the US economy

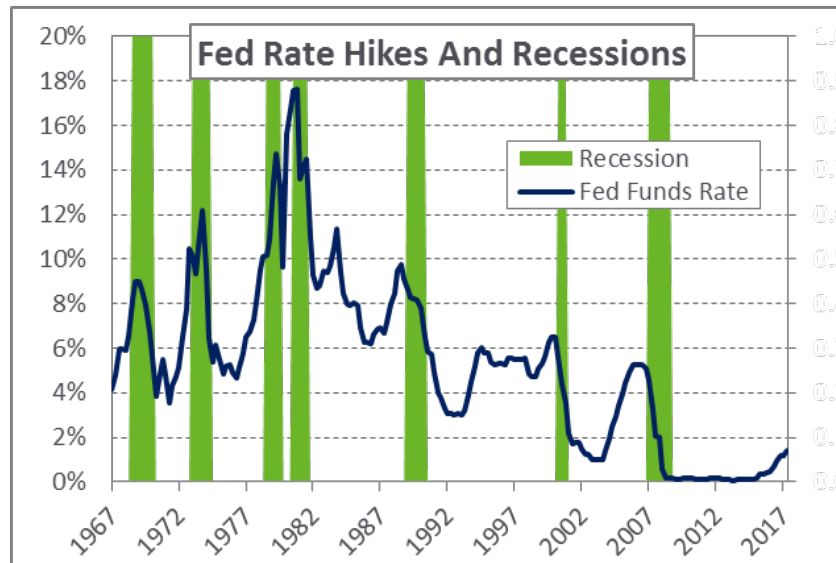
Tax cuts and fiscal stimulus can potentially remove spare economic capacity and be a catalyst for an uptick in inflation measures

US recession concerns are muted

An acceleration in inflation leading to a tightening of financial conditions has historically been a catalyst to end economic expansions

However, improved US household balance sheets have room to expand and support further consumer spending gains

Improving global economic conditions reinforce an expansion of the US economy as global growth factors synchronize



Source: (Top) Federal Reserve Bank of St. Louis
Source: (Bottom) Federal Reserve, NEPC



KEY MARKET THEMES

Synchronized Economic Resurgence

Global economic conditions are improving in a synchronized fashion

Coordinated global growth factors reinforce economic gains across the globe and are distinct from the extension of the US economic cycle

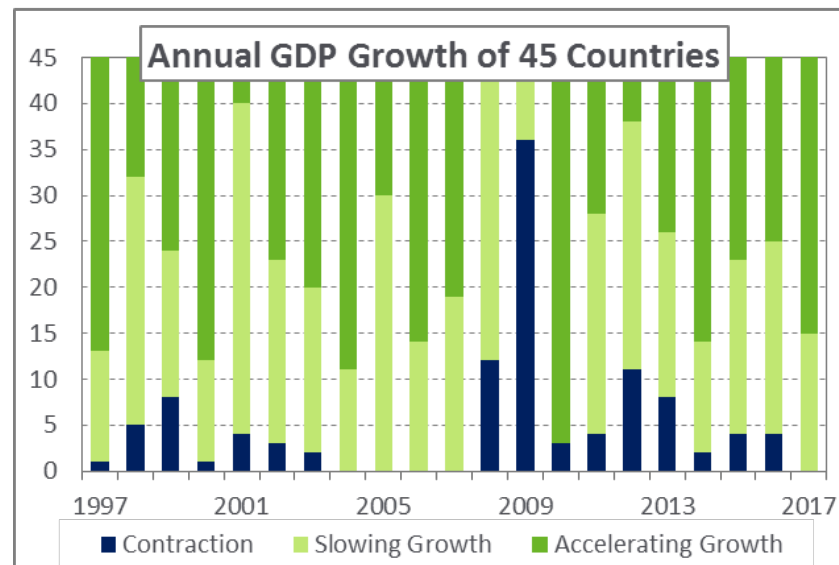
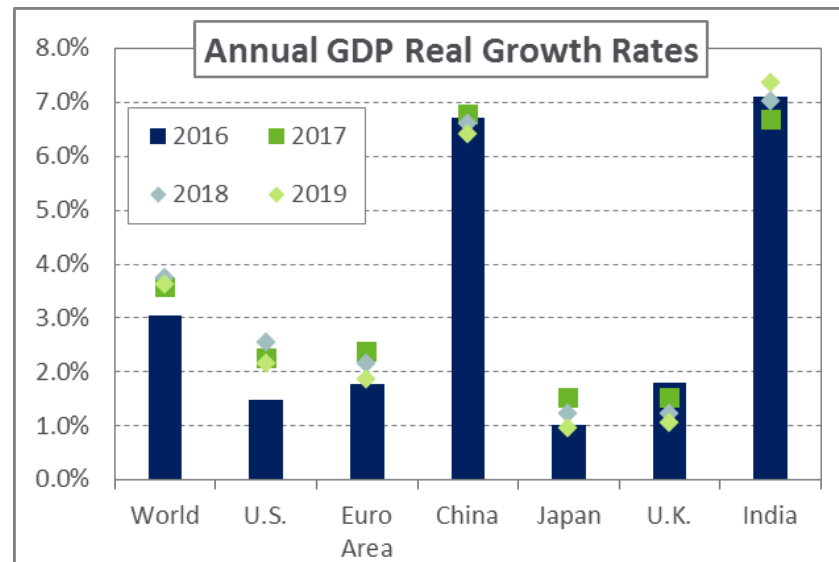
Non-US corporate revenues and equities are best positioned to benefit from a widespread boost in global economic conditions

Positive growth rates harmonized across the globe are relatively rare

Conditions are the result of Europe, Japan, and large parts of the emerging world transitioning out of economic malaise

Persistence of the theme over several years would provide a substantial benefit to equity markets globally – specifically in Europe and Japan

Historically, periods of synchronized growth have been derailed by higher inflation levels and central banks tightening policy



Source: (Top) OECD
Source: (Bottom) OECD



KEY MARKET THEMES

Synchronized Economic Resurgence

Erosion of excess economic capacity is a catalyst to boost economic gains

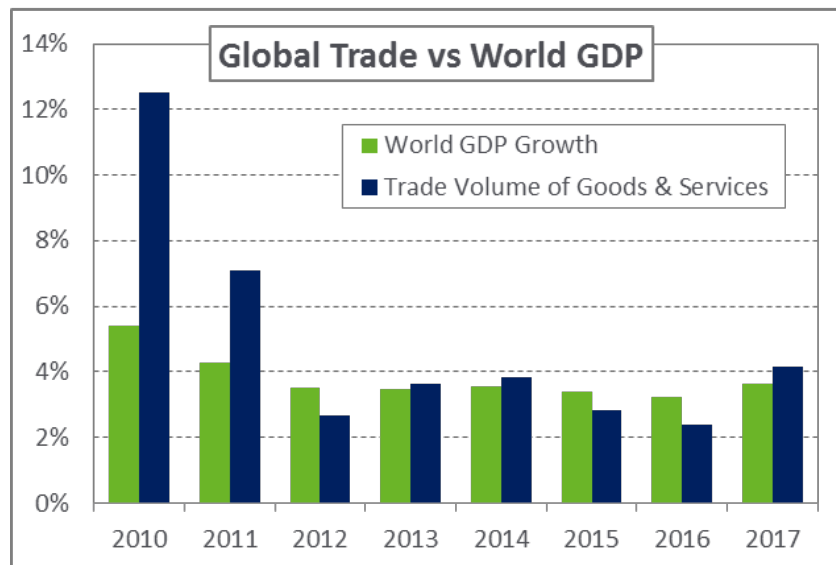
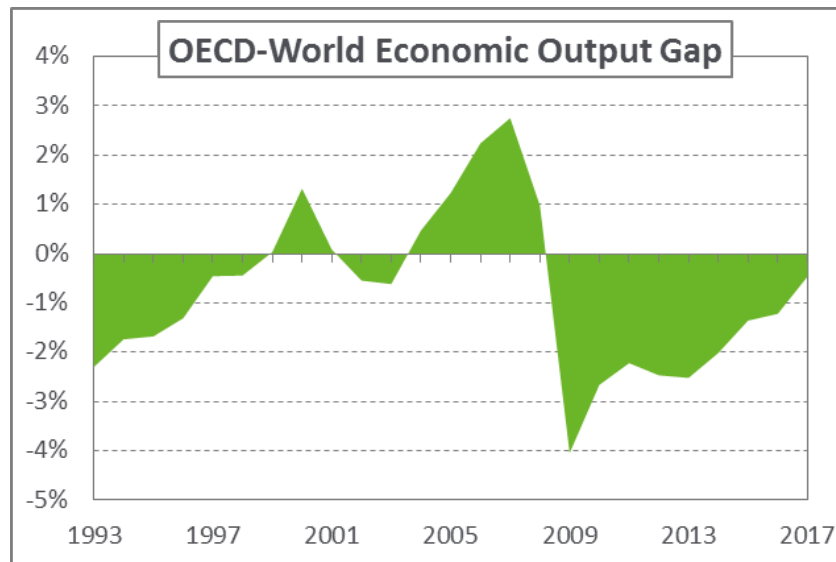
Despite recent labor market improvements, potential for labor reform in Europe and improved workforce participation in Japan offer multi-year benefits to economic growth

Material decline in emerging market inflation provides a cushion for real interest rates to fall and fuel an expansion of economic activity

Economic resurgence is delicate and can be disrupted by lingering global risk factors

US dollar strength, dislocation in China's credit expansion, and restrictive US trade policy pose the greatest threats

The foundation of synchronized economic resurgence is the continuation of positive trends associated with the other key market themes



Source: (Top) OECD
Source: (Bottom) IMF



KEY MARKET THEMES

Federal Reserve Gradualism

The Federal Reserve is expected to slowly increase interest rates

Expected path of Fed policy through 2020 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

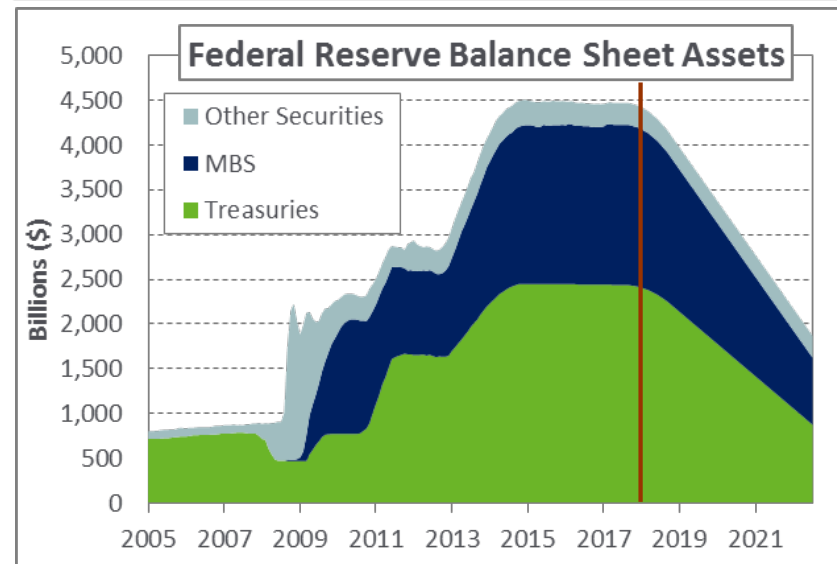
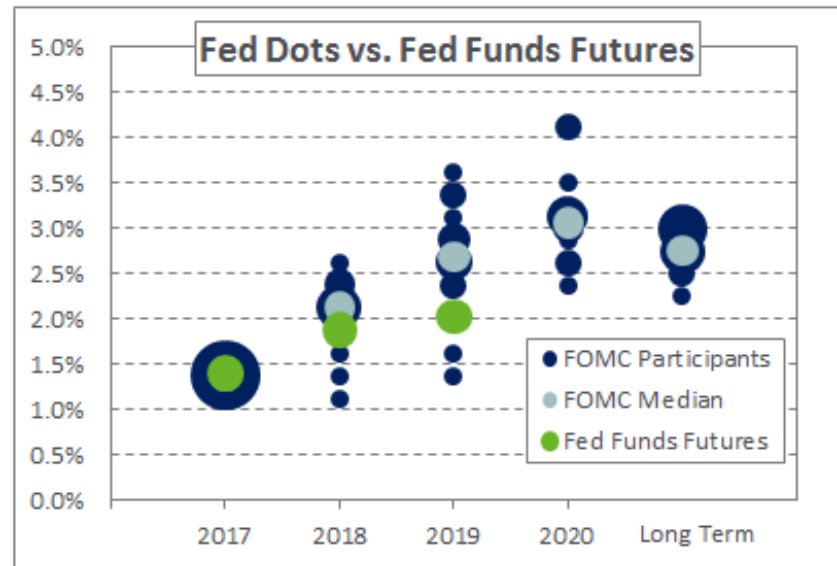
A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

The Fed's balance sheet normalization is a low grade tightening of monetary policy but its impact is untested

Fed is expected to be careful and data dependent yet balance sheet disbursement into a strong economy will likely have tightening effects – in the same way balance sheet expansion had easing effects

The balance sheet will gradually shrink over time assuming conditions remain supportive

The gradual progression of balance sheet reduction combined with the accommodative policies of global central banks supports easy global financial conditions



Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC



KEY MARKET THEMES

Federal Reserve Gradualism

Gradualism is the policy of choice globally as the major central banks manage unprecedented initiatives

ECB's QE program is expanding but at a slower rate

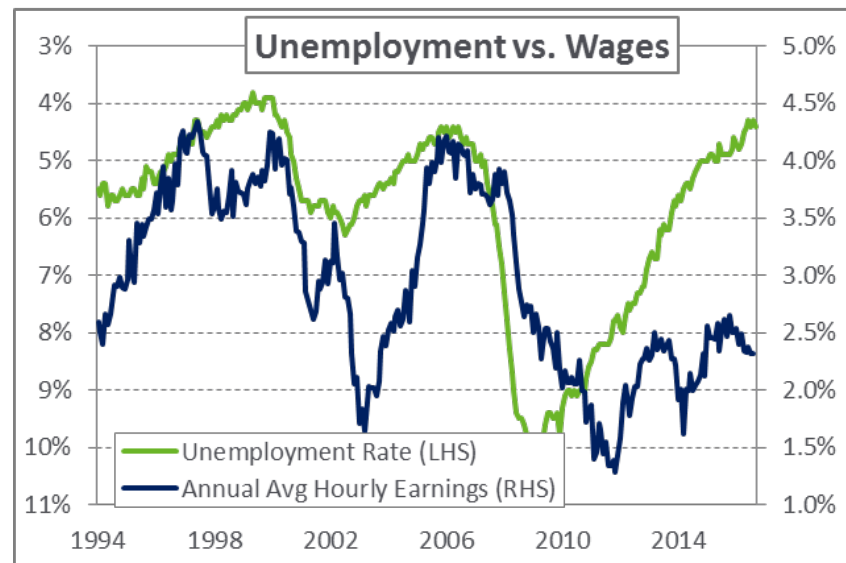
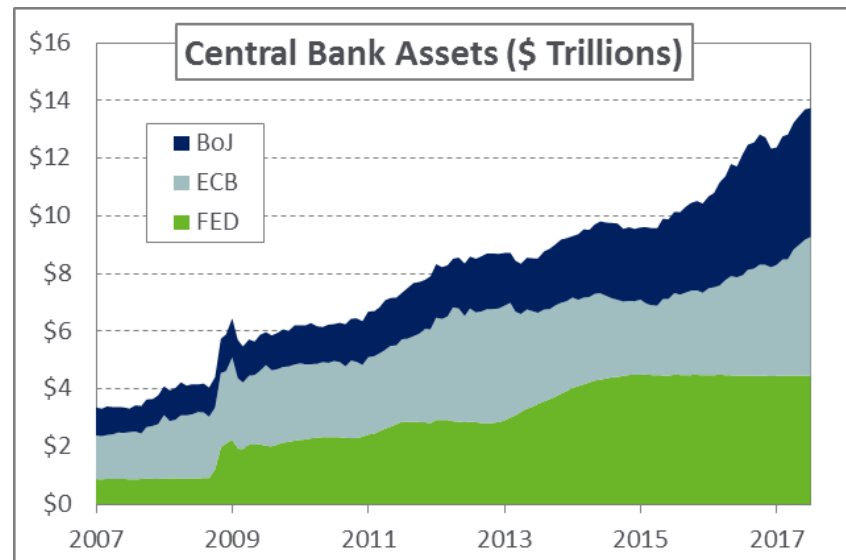
However, the reinvestment of balance sheet holdings is likely to continue for an extended period of time

Bank of Japan's QE yield-curve control program has rapidly slowed bond purchases but solidified steepness in the yield curve

Inflation expected to shift marginally higher in the coming years

Improvements in wage growth and aggregate economic activity support modest upticks in inflation but still within the Fed's tolerance bands to gradually raise rates

Fed has stated a willingness to let the economy "run hot" and accept some inflation to repair the deflationary effects of the past decade



Source: (Top) Bloomberg, NEPC
Source: (Bottom): Bloomberg, FRED



KEY MARKET THEMES

China Transitions

China is the global growth engine but faces fundamental transitions

China's economic transition is pivoting from production and investment focused to a service and consumption based economy

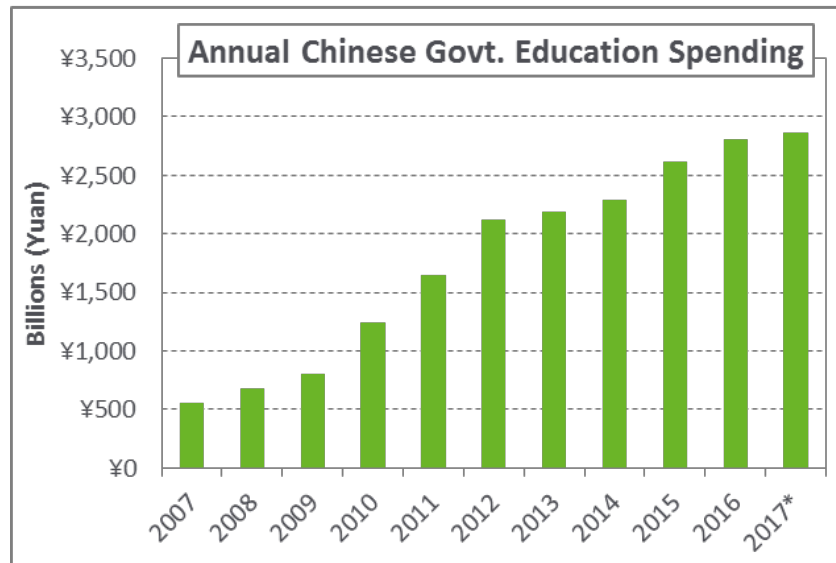
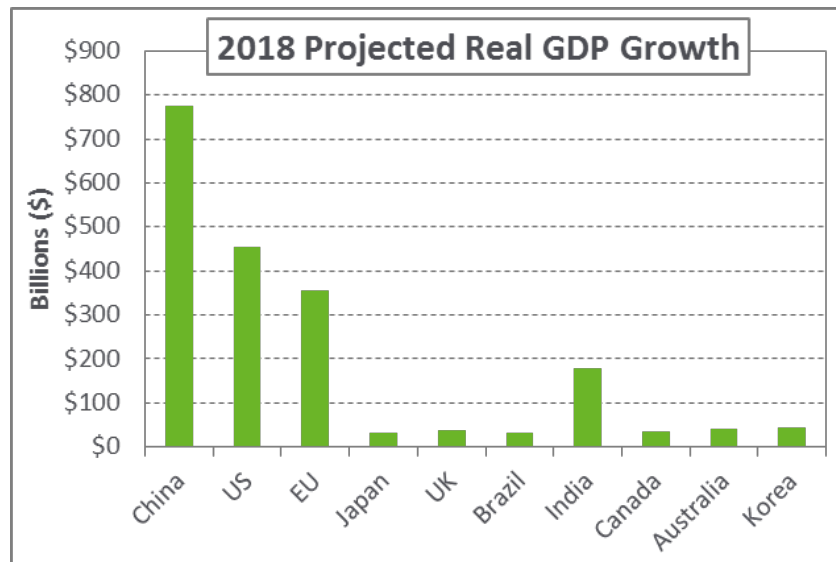
Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers

Any disruption to these transitions will have global repercussions due to China's role in the global economy

China must manage competing social goals in attempting to sustain growth

Engineering an orderly transition to a consumer-led economy requires supporting employment outside the major cities and improving quality of life metrics such as air quality in the urban centers

Future growth in a services based economy requires advancement in productivity, technology, and a more skilled labor force



Source: (Top) Bloomberg

Source: (Bottom) Bloomberg, *Includes estimate for Nov/Dec 2017



KEY MARKET THEMES

Globalization Backlash

Uneven economic growth and wage gains have fueled political discontent in the developed world

Election results in France have assuaged fears of political gridlock in the EU

Italian election in first half of 2018 is another potential flashpoint on globalization

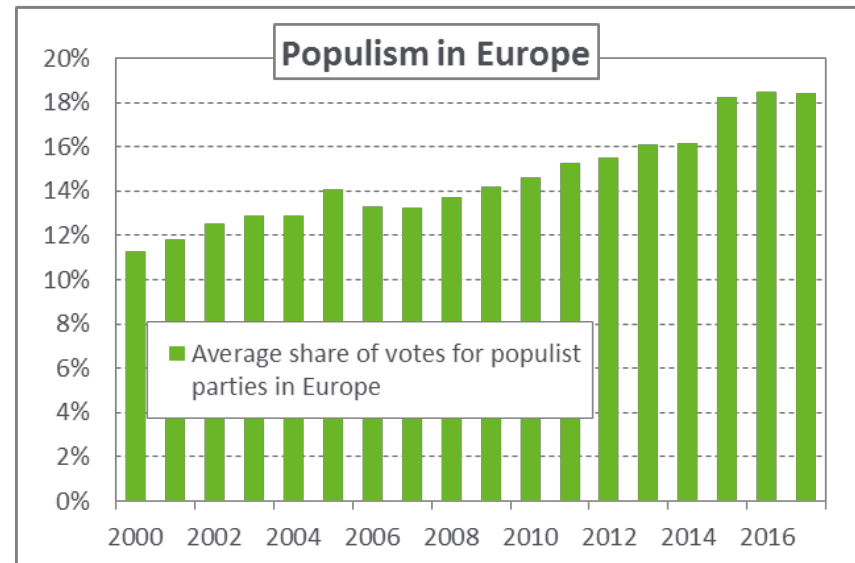
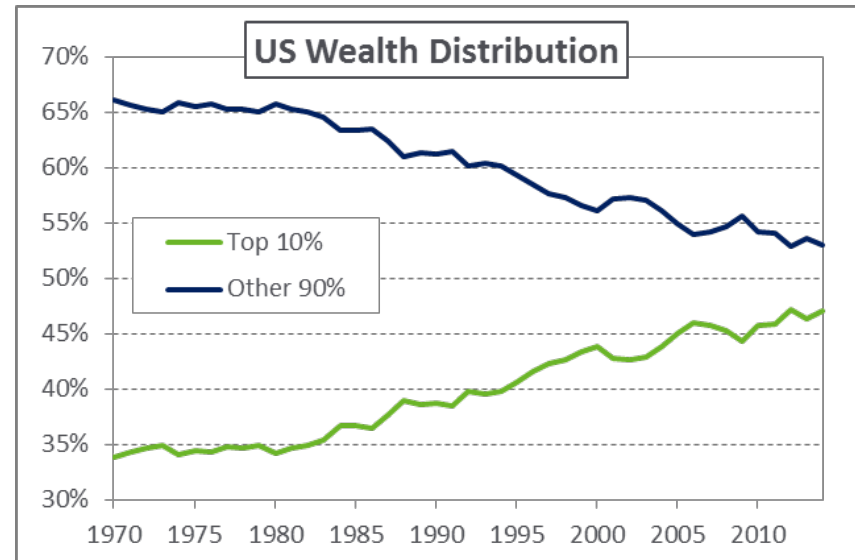
Anti-establishment political bias is likely a long term trend and potentially leads to higher levels of currency volatility over time

For many nations, a turn inward is associated with globalization fatigue

Often fuels greater expression of nationalism and increased geopolitical risks as multilateral relationships are reassessed

Populist movements destabilize the political order and shifts away from political orthodoxy heighten tail risks

However, equity markets often overreact to geopolitical concerns and sell-offs can be a buying opportunity for investors



Source: (Top) World Wealth & Income Database
Source: (Bottom) World Bank



KEY MARKET THEMES

Globalization Backlash

Major shifts in US trade policy did not materialize in 2017

However, a more aggressive protectionist policy would represent a material risk to global markets and the world economy

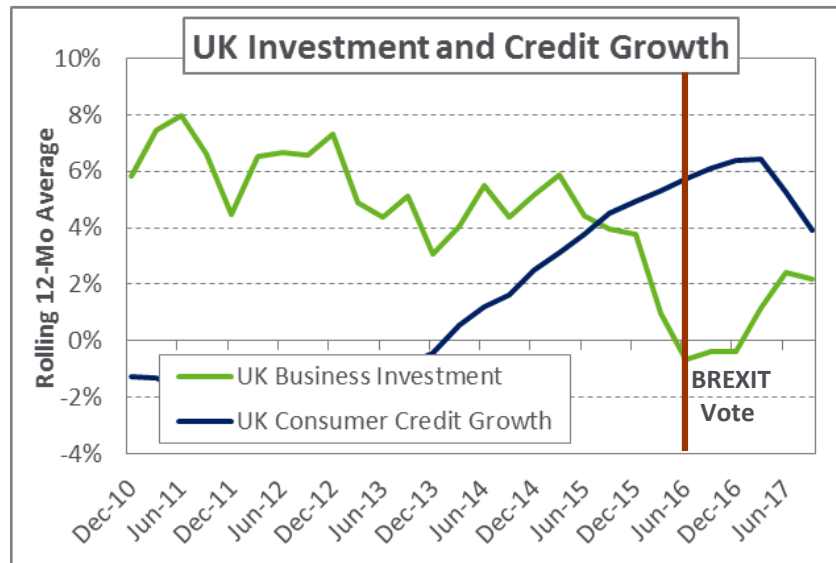
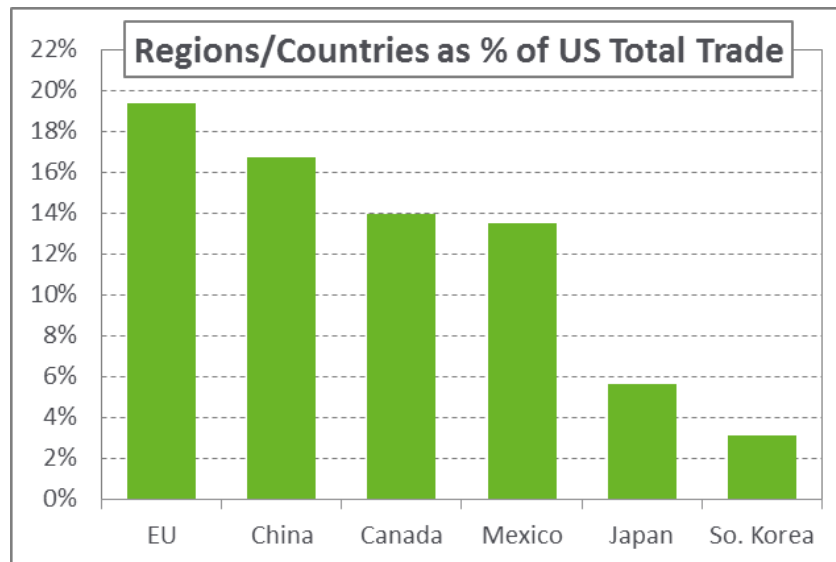
Markets have taken to interpreting the US administration's rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern

The UK serves as a live case study for the effects of globalization backlash

While it is early in the process, economic metrics across the country have turned lower in the 18 months since UK voted to leave the European Union

Expected disruption to financial regulations, customs controls, and business confidence in the UK are proving to be a cautionary tale for a turn away from globalization

However, the economic unease of voters remain and popularity of anti-establishment political parties poses a risk to the global economic order



Source: (Top) Federal Reserve Bank of St. Louis
Source: (Bottom) Bloomberg



INTRODUCTION ASSET CLASS ASSUMPTIONS

NEPC, LLC

INFLATION OVERVIEW

Inflation is an integral component of our asset allocation assumptions

Represents an essential building block for developing asset class returns

Inflation building blocks are model driven and informed by multiple sources for both the US and global asset classes

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

US inflation is based upon the TIPS breakeven inflation curve adjusted for expectations of economic activity, employment, and capacity levels

Global inflation expectations are informed by consensus forecasts across countries along with implied inputs from global bond curves

The 30 year global inflation forecast assumes purchase power parity holds across the globe and country specific inflation levels converge to a terminal value

Region	5-7 Year Inflation Assumption	30-Year Inflation Assumption
United States	2.50%	2.75%
Global	3.00%	3.25%



2018 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	2018	2017	2018-2017
Cash	2.00%	1.75%	+0.25%
Treasuries	2.25%	2.00%	+0.25%
IG Corp Credit	3.50%	3.75%	-0.25%
MBS	2.50%	2.25%	+0.25%
Core Bonds*	2.75%	2.65%	+0.10%
TIPS	3.25%	3.00%	+0.25%
High-Yield Bonds	3.75%	4.75%	-1.00%
Bank Loans	4.50%	5.25%	-0.75%
Non-US Bonds (Unhedged)	0.50%	1.00%	-0.50%
Non-US Bonds (Hedged)	0.73%	1.09%	-0.36%
EMD External	4.25%	4.75%	-0.50%
EMD Local Currency	6.00%	6.75%	-0.75%
Large Cap Equities	5.25%	5.75%	-0.50%
Small/Mid Cap Equities	5.75%	6.00%	-0.25%
Int'l Equities (Unhedged)	7.50%	7.25%	+0.25%
Int'l Equities (Hedged)	7.82%	7.57%	+0.25%
Emerging Int'l Equities	9.00%	9.50%	-0.50%
Private Equity	8.00%	8.25%	-0.25%
Private Debt	6.50%	7.25%	-0.75%
Core Real Estate	5.75%	6.00%	-0.25%
Non-Core Real Estate	7.00%	N/A	N/A
Private Real Assets: Energy/Metals	8.00%	8.25%	-0.25%
Private Real Assets: Infrastructure/Land	6.00%	6.00%	-

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.



2018 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	2018	2017	2018-2017
Cash	2.75%	3.00%	-0.25%
Treasuries	3.25%	3.50%	-0.25%
IG Corp Credit	4.75%	5.00%	-0.25%
MBS	3.25%	3.50%	-0.25%
Core Bonds*	3.75%	4.00%	-0.25%
TIPS	3.75%	3.75%	-
High-Yield Bonds	5.50%	5.75%	-0.25%
Bank Loans	5.50%	6.00%	-0.50%
Non-US Bonds (Unhedged)	2.50%	2.75%	-0.25%
Non-US Bonds (Hedged)	2.77%	2.87%	-0.10%
EMD External	5.00%	5.75%	-0.75%
EMD Local Currency	6.50%	6.50%	-
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	7.75%	7.75%	-
Int'l Equities (Hedged)	8.14%	8.14%	-
Emerging Int'l Equities	9.25%	9.50%	-0.25%
Private Equity	9.50%	9.50%	-
Private Debt	7.50%	8.00%	-0.50%
Core Real Estate	6.50%	6.50%	-
Non-Core Real Estate	7.50%	N/A	N/A
Private Real Assets: Energy/Metals	7.75%	7.75%	-
Private Real Assets: Infrastructure/Land	6.25%	6.00%	+0.25%

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.



2018 VOLATILITY FORECASTS

Volatility		
Asset Class	Capital Market Volatility	Accounting Volatility
Cash	1.00%	1.00%
Treasuries	5.50%	5.50%
IG Corp Credit	7.50%	7.50%
MBS	7.00%	6.50%
Core Bonds*	5.99%	5.85%
TIPS	6.50%	6.00%
High-Yield Bonds	13.00%	9.00%
Bank Loans	9.00%	5.50%
Non-US Bonds (Unhedged)	10.00%	10.00%
Non-US Bonds (Hedged)	4.50%	3.50%
EMD External	13.00%	13.50%
EMD Local Currency	13.00%	13.00%
Large Cap Equities	17.50%	16.00%
Small/Mid Cap Equities	21.00%	20.50%
Int'l Equities (Unhedged)	21.00%	18.50%
Int'l Equities (Hedged)	18.00%	15.50%
Emerging Int'l Equities	28.00%	25.00%
Private Equity	23.00%	12.50%
Private Debt	13.00%	8.50%
Core Real Estate	13.00%	6.00%
Non-Core Real Estate	17.00%	
Private Real Assets: Energy/Metals	21.00%	
Private Real Assets: Infrastructure/Land	12.00%	

* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

** Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.



BUILDING BLOCKS METHODOLOGY

Forward-looking asset class models incorporate current and forecasted market and economic data to inform expected returns

Quantitative inputs combined with qualitative factors and investor sentiment (capital flows, etc.) drive the 5 to 7 year return outlook

Components are combined to capture core drivers of return across asset classes – forming the foundation of our building blocks framework

Building blocks will vary across equity, credit, and real assets



5-7 YEAR RETURN ASSUMPTIONS

	Asset Class	5-7 Year Return	Change 2018-2017	Volatility
	Cash	2.00%	+.25%	1.00%
	US Inflation	2.50%	-	-
Equity	Large Cap Equities	5.25%	-.50%	17.50%
	International Equities (Unhedged)	7.50%	+.25%	21.00%
	Emerging International Equities	9.00%	-.50%	28.00%
	Private Equity	8.00%	-.25%	23.00%
Rates/Credit	Treasuries	2.25%	+.25%	5.50%
	Core Bonds	2.75%	+.10%	5.99%
	Municipal Bonds 1-10 Year	2.50%	-	5.50%
	High Yield Bonds	3.75%	-1.00%	13.00%
	Private Debt	6.50%	-.75%	13.00%
Real Assets	Commodities	4.75%	-	19.00%
	REITs	6.50%	-	21.00%
	Core Real Estate	5.75%	-.25%	13.00%
Multi-Asset	US 60/40*	4.54%	-.24%	10.99%
	Global 60/40*	4.91%	-.13%	11.78%
	Global Trading Strategies*	5.83%	-.10%	9.07%

*Each calculated as a blend of other asset classes



2018 CORRELATIONS

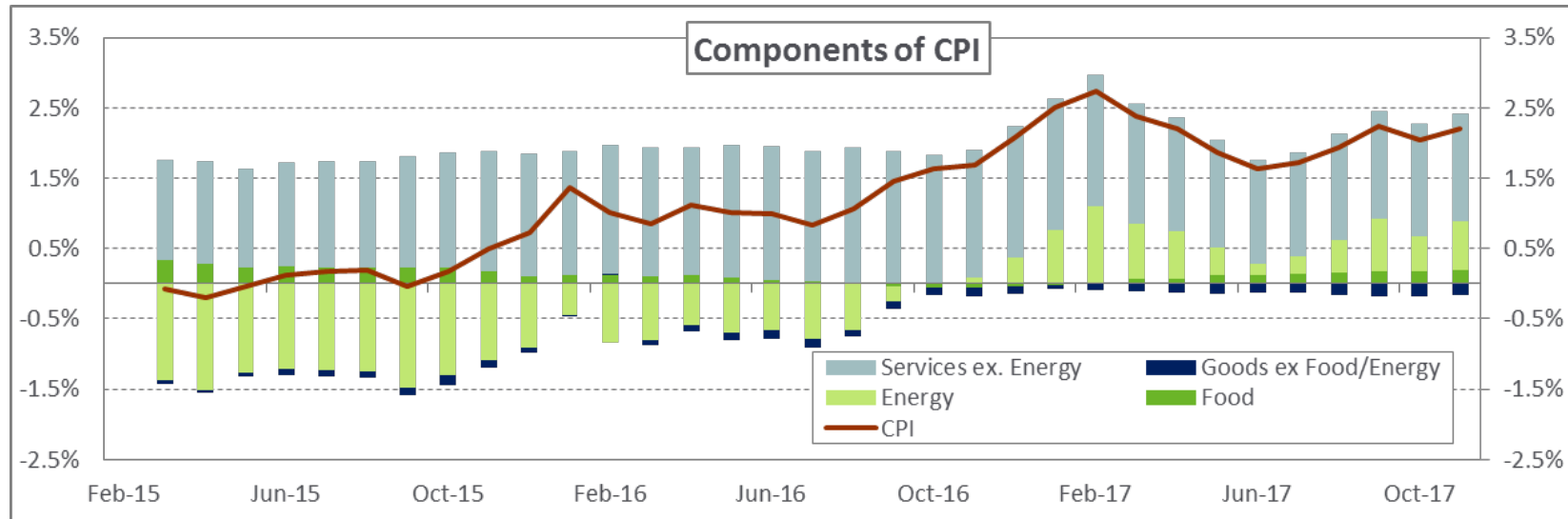
Asset Class	Cash	US Lev	Tsy	IG	MBS	TIPS	HY	Non-US Bonds (U)	Non-US Bonds (H)	EMD (Ext)	EMD (Loc)	Large Cap	SMID	Int'l (U)	Int'l (H)	EME	PE	PD	PRA - Egy/Met	PRA: Infra/Land	Core RE	Comm odities
Cash	1.00	0.90	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.20	0.00	-0.05	0.15	0.10	0.10
US Lev	0.90	1.00	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.25	0.00	-0.05	0.15	0.10	0.10
Treasuries	0.20	0.20	1.00	0.65	0.85	0.65	0.10	0.45	0.70	0.20	0.10	-0.10	-0.15	-0.10	-0.10	-0.20	-0.15	-0.35	-0.20	-0.05	0.10	-0.10
IG	0.10	0.10	0.65	1.00	0.75	0.65	0.55	0.45	0.60	0.60	0.50	0.25	0.25	0.30	0.30	0.35	0.30	0.15	0.20	0.10	0.15	0.15
MBS	0.25	0.25	0.85	0.75	1.00	0.65	0.30	0.45	0.60	0.35	0.25	0.10	0.10	0.05	0.05	-0.10	0.10	-0.15	-0.05	-0.05	0.05	0.00
TIPS	0.35	0.35	0.65	0.65	0.65	1.00	0.20	0.40	0.65	0.30	0.25	-0.10	-0.10	-0.05	-0.05	-0.10	-0.10	-0.10	-0.05	0.05	0.10	0.30
HY	-0.05	-0.05	0.10	0.55	0.30	0.20	1.00	0.10	0.20	0.70	0.55	0.65	0.70	0.65	0.65	0.70	0.60	0.65	0.50	0.40	0.35	0.20
Non-US Bonds (U)	0.10	0.10	0.45	0.45	0.45	0.40	0.10	1.00	0.40	0.30	0.35	0.00	-0.05	0.35	0.05	0.25	-0.15	-0.10	-0.10	0.05	0.15	0.10
Non-US Bonds (H)	0.15	0.15	0.70	0.60	0.60	0.65	0.20	0.40	1.00	0.30	0.20	-0.10	-0.15	-0.10	-0.10	-0.20	-0.20	-0.10	-0.15	0.00	0.05	-0.10
EMD (Ext)	0.05	0.05	0.20	0.60	0.35	0.30	0.70	0.30	0.30	1.00	0.75	0.55	0.55	0.60	0.60	0.70	0.35	0.50	0.40	0.35	0.25	0.35
EMD (Local)	0.05	0.05	0.10	0.50	0.25	0.25	0.55	0.35	0.20	0.75	1.00	0.60	0.50	0.70	0.65	0.80	0.40	0.60	0.40	0.40	0.40	0.50
Large Cap	-0.10	-0.10	-0.10	0.25	0.10	-0.10	0.65	0.00	-0.10	0.55	0.60	1.00	0.90	0.70	0.75	0.65	0.70	0.60	0.65	0.50	0.40	0.30
SMID Cap	-0.15	-0.15	-0.15	0.25	0.10	-0.10	0.70	-0.05	-0.15	0.55	0.50	0.90	1.00	0.65	0.70	0.65	0.75	0.65	0.70	0.50	0.40	0.30
Int'l Eqty (U)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.35	-0.10	0.60	0.70	0.70	0.65	1.00	0.85	0.70	0.60	0.75	0.55	0.45	0.35	0.40
Int'l Eqty (H)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.05	-0.10	0.60	0.65	0.75	0.70	0.85	1.00	0.70	0.65	0.75	0.60	0.45	0.40	0.30
EM	-0.10	-0.10	-0.20	0.35	-0.10	-0.10	0.70	0.25	-0.20	0.70	0.80	0.65	0.65	0.70	0.70	1.00	0.45	0.80	0.50	0.40	0.30	0.55
PE	-0.20	-0.25	-0.15	0.30	0.10	-0.10	0.60	-0.15	-0.20	0.35	0.40	0.70	0.75	0.60	0.65	0.45	1.00	0.65	0.85	0.60	0.50	0.25
PD	0.00	0.00	-0.35	0.15	-0.15	-0.10	0.65	-0.10	-0.10	0.50	0.60	0.60	0.65	0.75	0.75	0.80	0.65	1.00	0.65	0.50	0.40	0.30
PRA - Egy/Met	-0.05	-0.05	-0.20	0.20	-0.05	-0.05	0.50	-0.10	-0.15	0.40	0.40	0.65	0.70	0.55	0.60	0.50	0.85	0.65	1.00	0.75	0.45	0.35
PRA - Infra/Land	0.15	0.15	-0.05	0.10	-0.05	0.05	0.40	0.05	0.00	0.35	0.40	0.50	0.50	0.45	0.45	0.40	0.60	0.50	0.75	1.00	0.70	0.40
Core RE	0.10	0.10	0.10	0.15	0.05	0.10	0.35	0.15	0.05	0.25	0.40	0.40	0.40	0.35	0.40	0.30	0.50	0.40	0.45	0.70	1.00	0.30
Commodities	0.10	0.10	-0.10	0.15	0.00	0.30	0.20	0.10	-0.10	0.35	0.50	0.30	0.30	0.40	0.30	0.55	0.25	0.30	0.35	0.40	0.30	1.00



MACRO ASSUMPTIONS

NEPC, LLC

US INFLATION



Source: Bloomberg, NEPC

Low inflation continued throughout 2017 despite strong economic growth, tightening labor market, and early signs of wage gains

These metrics were thought to help inflation accelerate, yet the Fed's 2% inflation target has been a difficult target for the US economy to maintain

A seemingly transitory drop in certain CPI elements, such as healthcare costs and vehicles, have minimized price pressures in 2017 even as the impact from energy prices has turned positive

The Fed's preferred inflation measure, the personal consumption expenditures (PCE), remains below their 2% target

However, other more inclusive indicators such as the NY Fed Underlying Inflation Gauge, point to an increase in inflation in the coming years, but still below the long-term average



GLOBAL INFLATION

In most developed economies, core inflation has failed to reach or exceed central bank targets despite improved domestic demand and labor markets

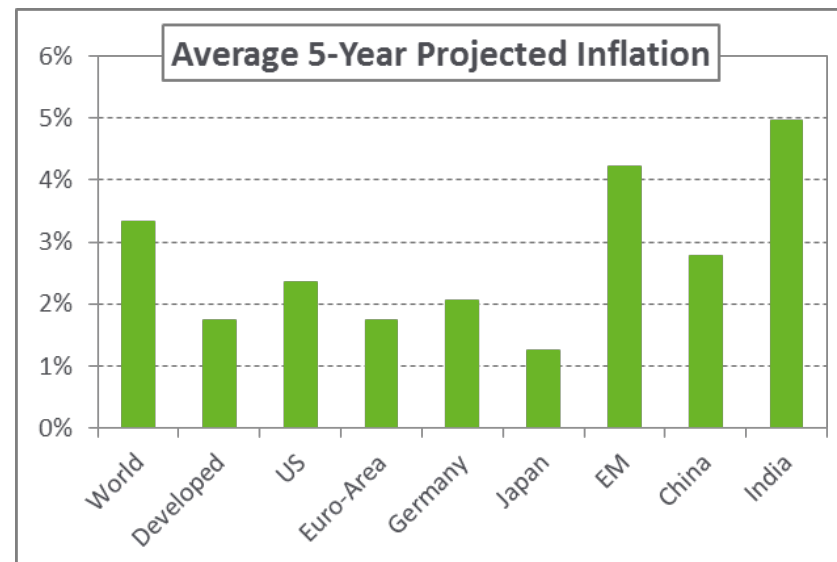
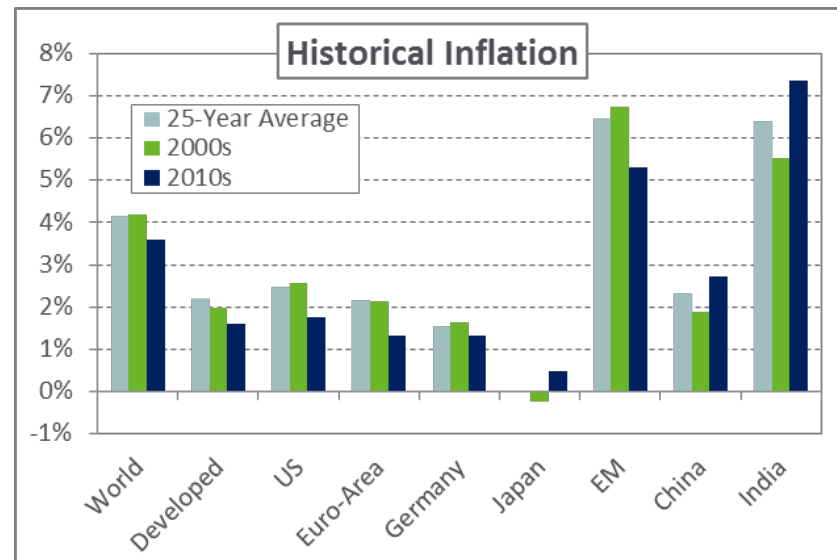
Ultra accommodative monetary policy remains in place for Europe and Japan to fuel higher levels of inflation

The UK is an exception to this trend as significant depreciation of the pound has led to higher consumer prices

Emerging market inflation has broadly declined over the last 24 months

This is in part due to the large fiscal correction and prudent monetary policy actions that followed the currency declines of prior years

Core inflation particularly in Russia and Brazil have declined significantly as the effect of high real interest rates weakens inflationary trends



Source: (Top) IMF, NEPC
Source: (Bottom) IMF, NEPC



US CASH EXPECTATIONS

Cash is the basic cornerstone of all asset class forecasts

The assumption flows through as a direct building block component or as a relative value adjustment (cash + risk premia)

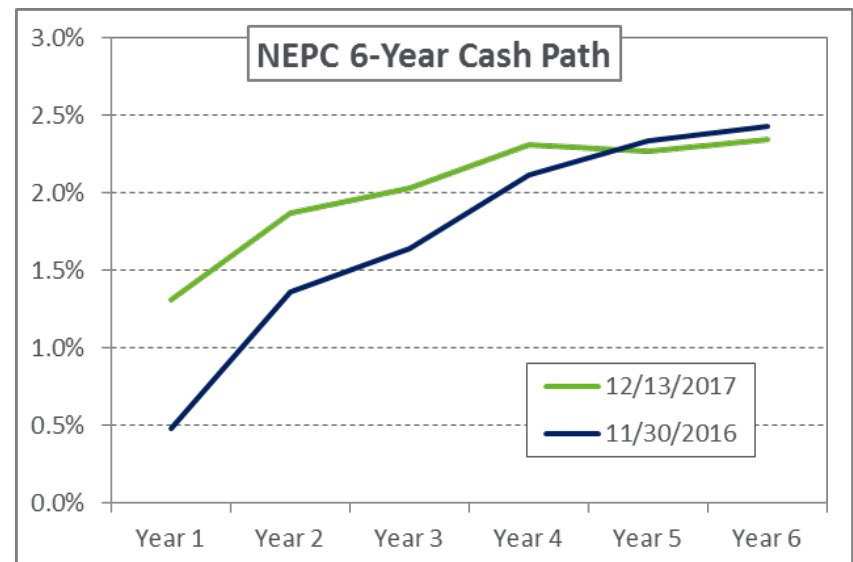
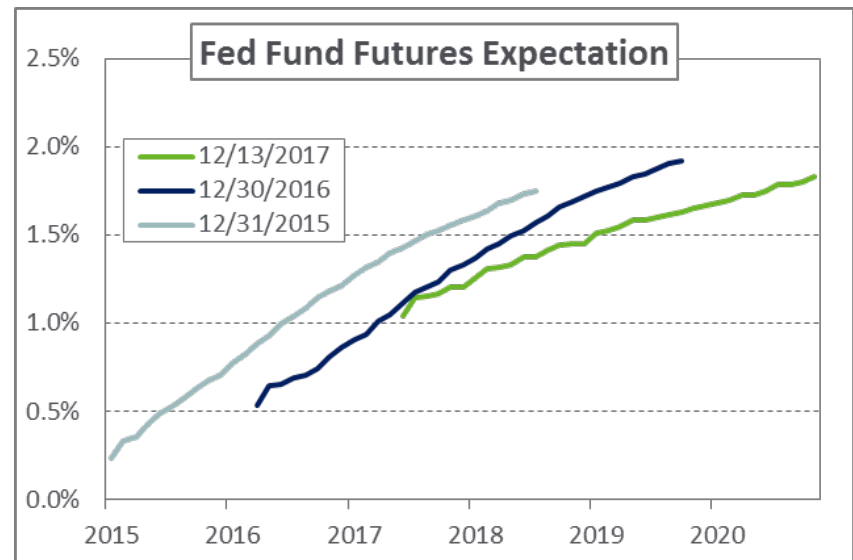
The longer-term cash assumption is a result of the inflation assumption in conjunction with our forecasted real interest rate path

After three Fed rate hikes in 2017, expectations for increased short term interest rates project higher still

A progressively flatter yield curve has formed as longer-term rate expectations remain muted

Market prices reflect only two rate hikes in 2018, despite FOMC expectations of three

A key risk to our overall investment outlook is the ending of Fed gradualism and rate increases beyond market expectations



Source: (Top) Bloomberg

Source: (Bottom) Bloomberg, NEPC
Charts as of 12/13/2017



US INTEREST RATE EXPECTATIONS

Real yields are marginally higher relative to last year

Continued strength in economic data and expectation of future Fed rate hikes have improved the outlook for real yields

While higher, real rates remain below long-term averages, reinforcing the subdued outlook for fixed income

Long-term expectations for real yields remain positive but low in the US

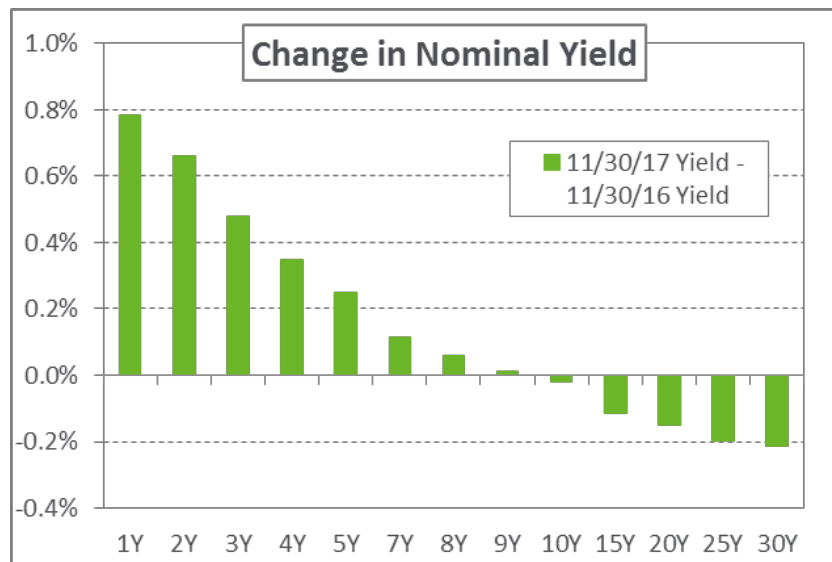
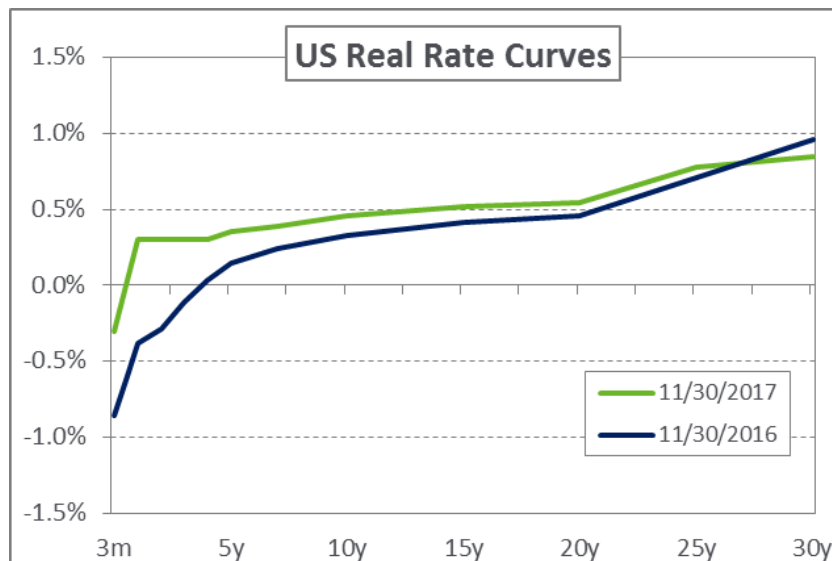
Low real rates depress the return outlook for risk assets over the long-term

Interest rate increases have been slower than what the market has discounted

Additional uncertainty surrounding the path of rates is possible in 2018

Potential disruption with the confirmation of new Fed Chairman Jerome Powell

Tax cuts could push interest rates higher due to the larger federal deficits and debt issuance needs



Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg



GLOBAL INTEREST RATE EXPECTATIONS

Government bond yields remain low and negative in much of the developed world

European sovereign yields have declined relative to Germany as political and economic risk declines

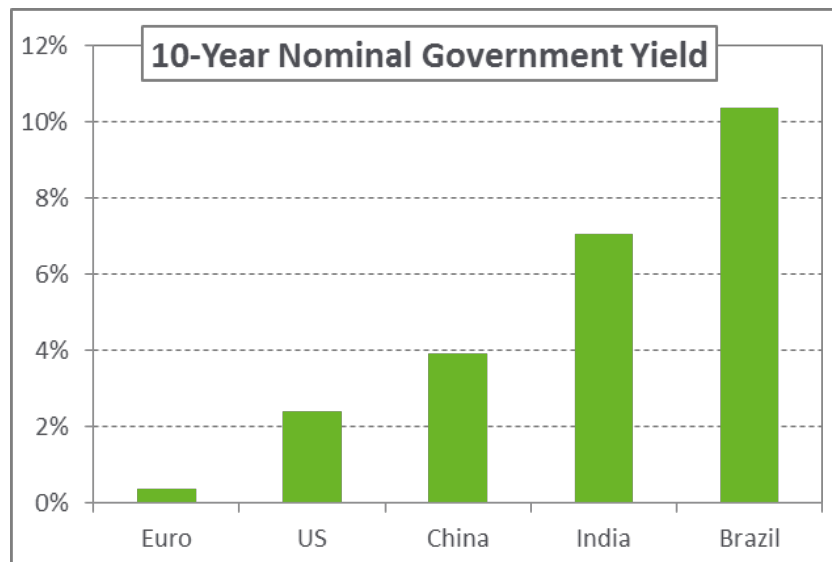
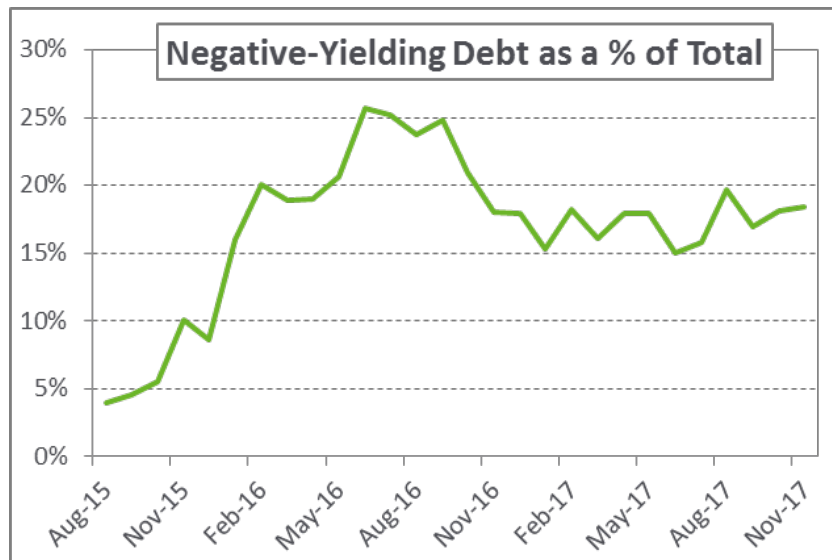
Spain and other periphery nations have showed positive economic momentum

France's election of Emmanuel Macron was seen as a stabilizing event for the country and the EU as a whole

Emerging market local interest rates are attractively priced as real yields remain elevated

Emerging market yields continue to retain a healthy premia over developed world rates

Additionally, positive real rates provide a larger cushion for EM central banks to cut interest rates and ease monetary conditions



Source: (Top) Bloomberg
Source: (Bottom) Bloomberg



EQUITY ASSUMPTIONS

NEPC, LLC

EQUITY: ASSUMPTIONS

Equity Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	An input representing P/E multiple contraction or expansion relative to long-term trend
Inflation	Represents market-specific inflation derived from index country revenue contribution and region-specific forecasted inflation
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Dividend Yield	Informed by current income distributed to shareholders with adjustments made to reflect market conditions and trends

Asset Class	5-7 Year Return	Change 2018-2017
US Large Cap	5.25%	-.50%
US Small/Mid-Cap	5.75%	-.25%
International (Unhedged)	7.50%	+.25%
International (Hedged)	7.82%	+.25%
International Small Cap	7.75%	+.25%
Emerging International	9.00%	-.50%
Emerging Intl. Small Cap	9.25%	-.75%
Private Equity	8.00%	-.25%
Hedge Funds – Long/Short	6.25%	-
<i>Global Equity</i>	<i>6.88%</i>	<i>-.33%</i>



EQUITY: REAL EARNINGS GROWTH

Global growth was stronger than expected during 2017

Synchronized global growth is likely to persist with continued favorable market growth conditions

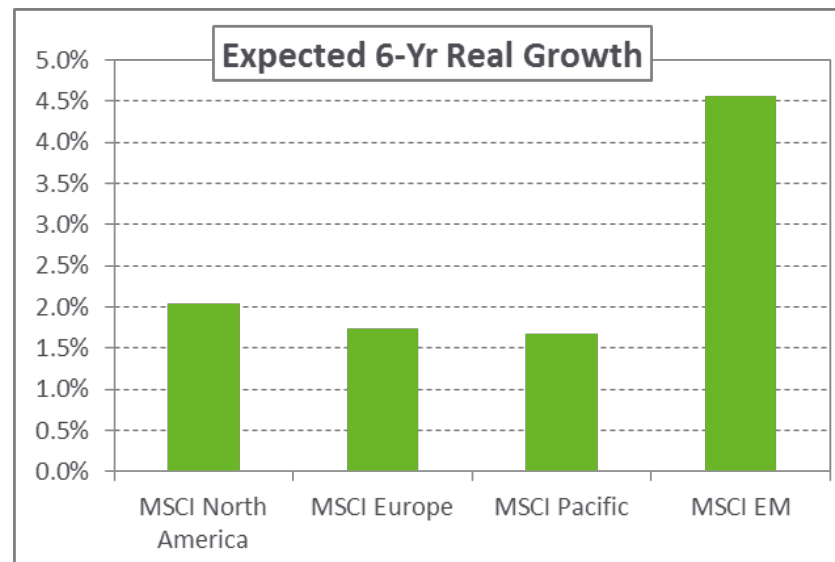
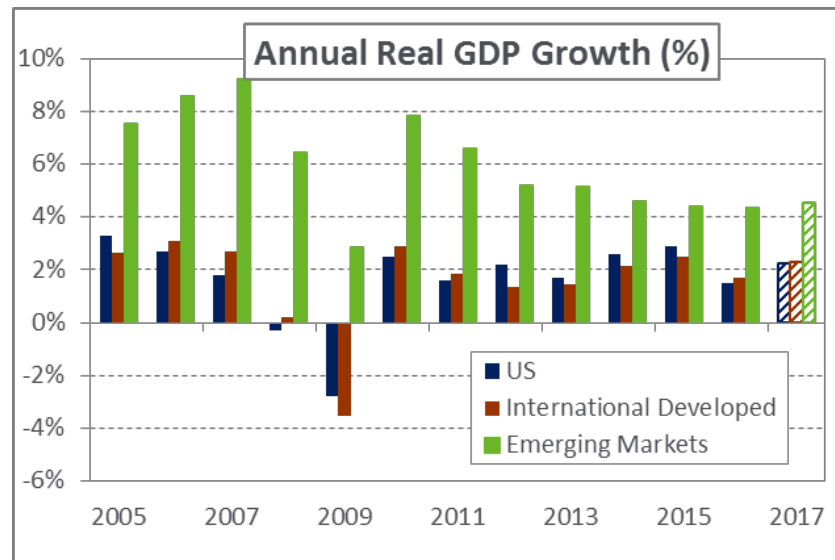
The broad outlook for developed economies has improved as a real earnings recovery has begun

The UK remains a notable outlier as the country continues sorting through Brexit

Emerging economies are broadly expected to continue strong growth

Chinese real growth is expected to slow in future years as the country transitions to a more consumer based economy

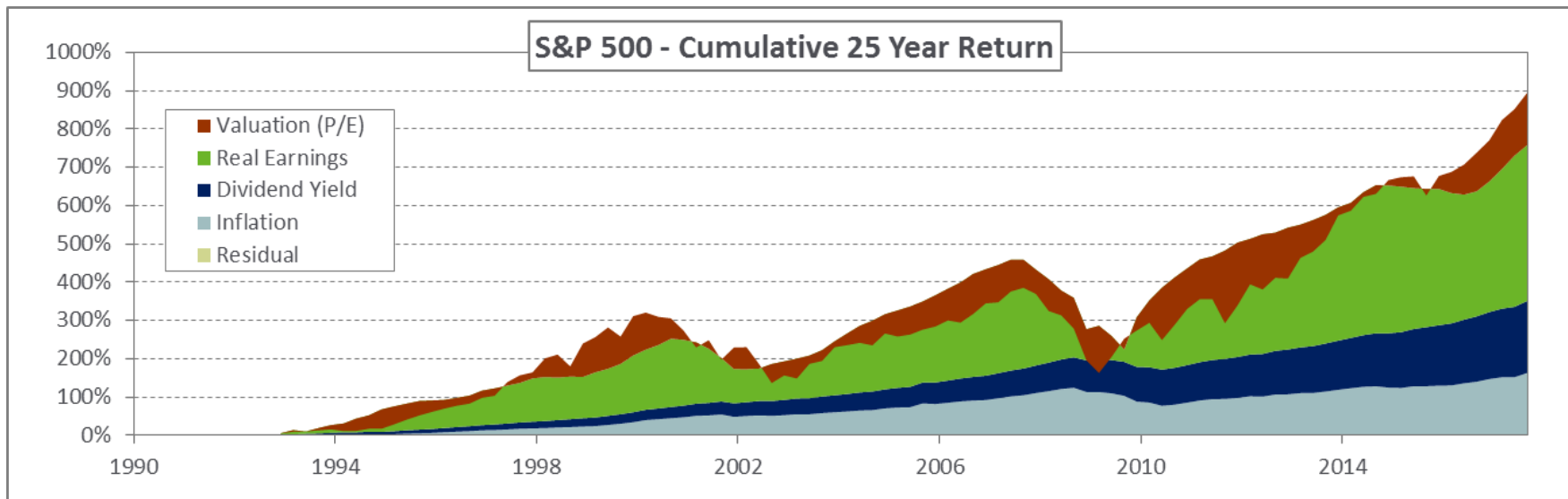
Reforms in India and southeast Asia are expected to boost investment, productivity, and per-capita growth



Source: (Top) Bloomberg, NEPC
Source: (Bottom) IMF, MSCI, Bloomberg

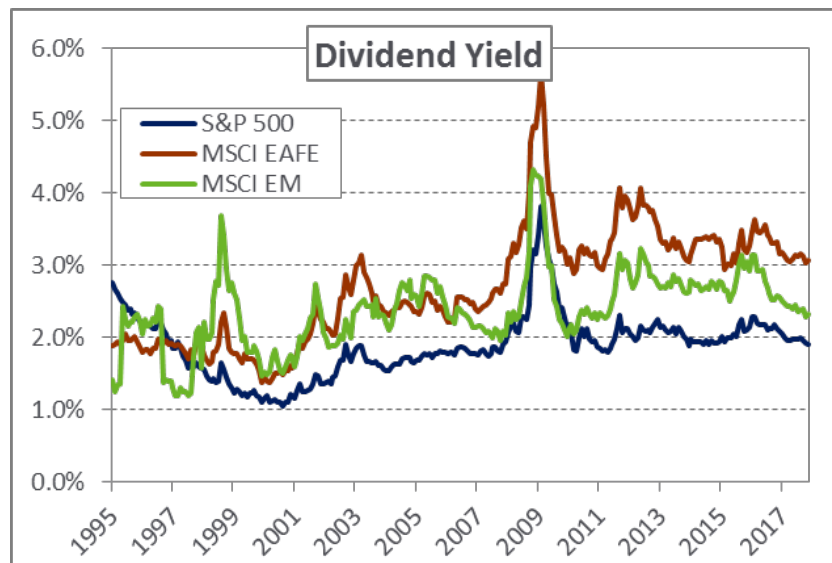


EQUITY: DIVIDEND YIELD



Real dividends per share have increased over time, but prices have increased at a faster rate, leading to falling yields

International and Emerging Markets continue to offer a more attractive dividend yield relative to the US



Source: (Top) S&P, NEPC, Bloomberg
Source: (Bottom) S&P, MSCI, Bloomberg



EQUITY: VALUATION

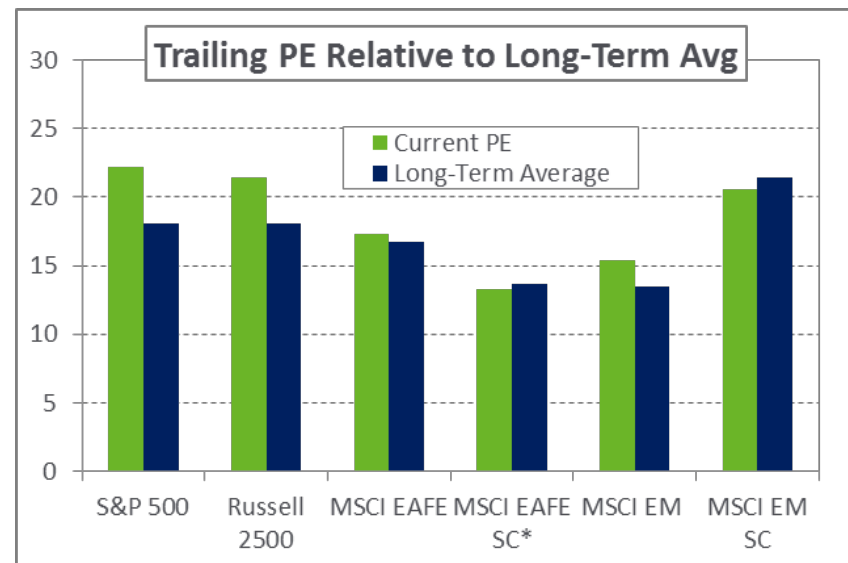
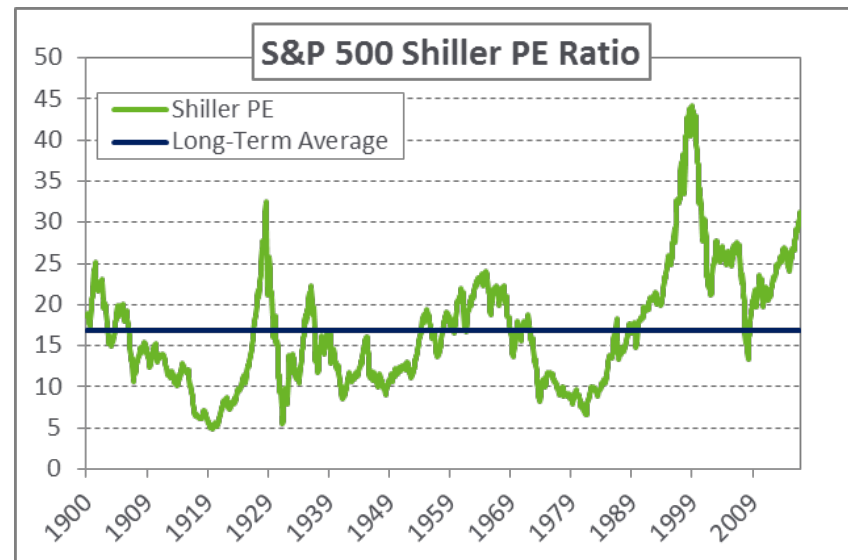
Global equities broadly pushed higher in 2017 supported by macroeconomic data, robust earnings, and easy financial conditions

While earnings growth in the US came in stronger than expected, price gains continued to outpace – leading to further P/E multiple expansion

Recovering corporate earnings for international developed markets have allowed valuations to remain relatively attractive

A multi-year earnings recovery in Europe and Japan offers the potential for an elevated return in these markets

While emerging market equities posted the strongest gains for 2017, valuations remain close to long-term averages relative to domestic markets



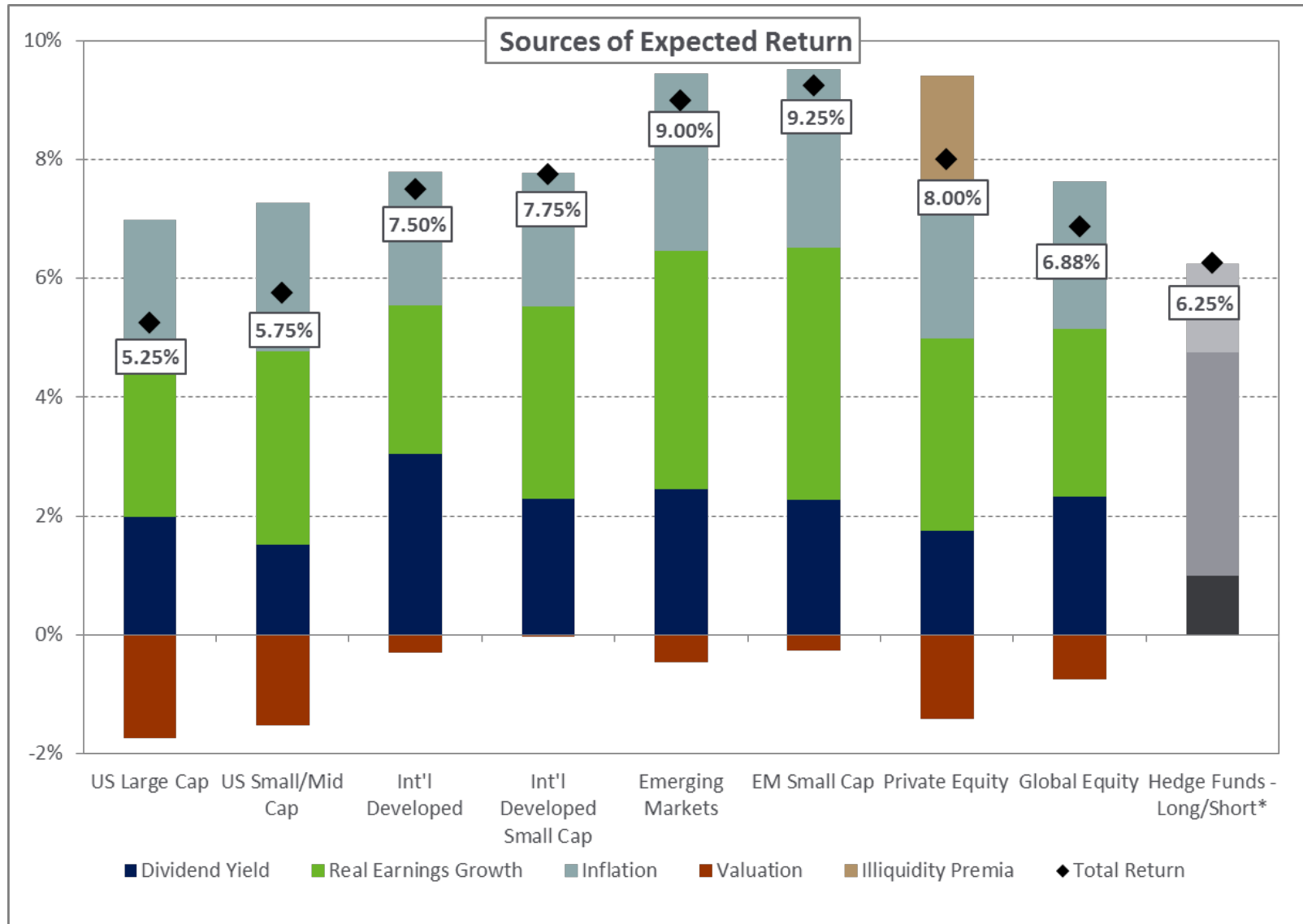
Source: (Top) S&P, Shiller

Source: (Bottom) S&P, Russell, MSCI, Bloomberg

*Reflects index-adjusted positive P/E values



EQUITY: BUILDING BLOCKS

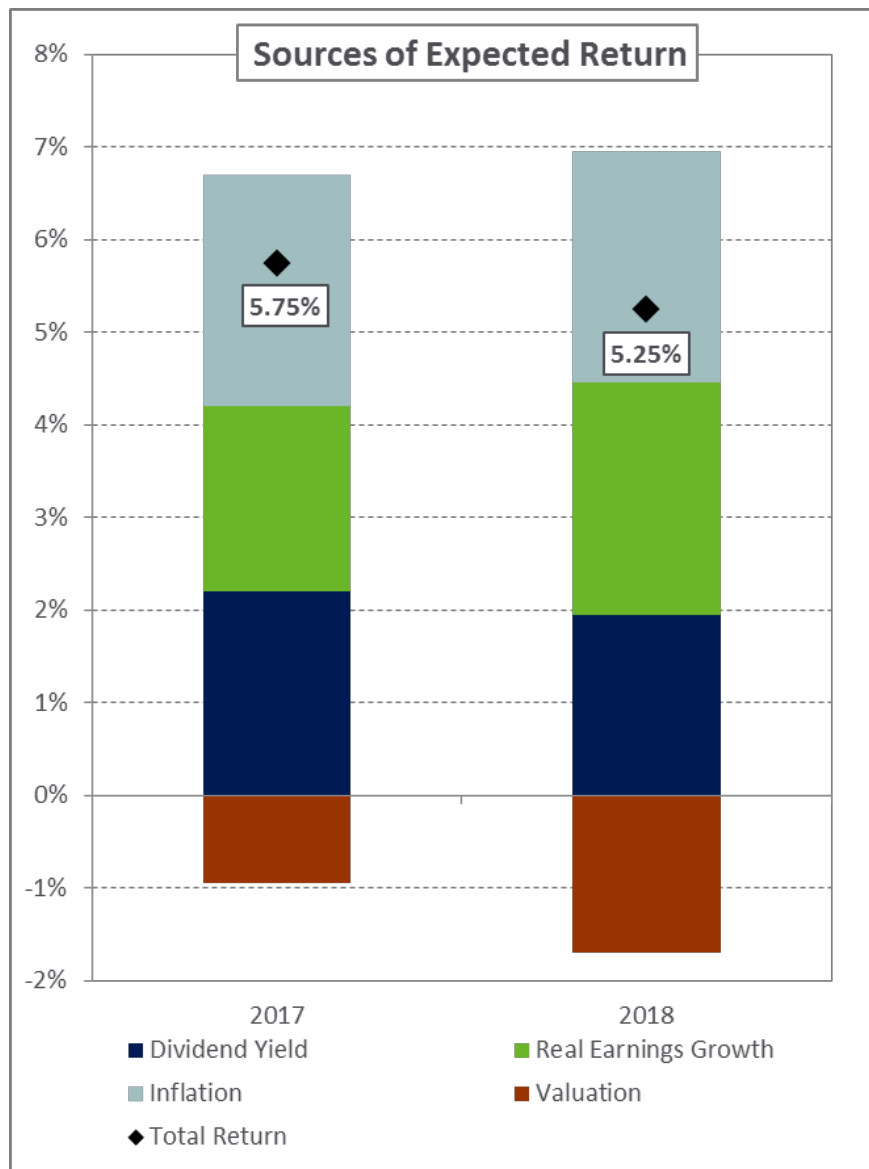


Source: NEPC

*Hedge Funds are discussed in detail in the Multi-Asset section



EQUITY EXAMPLE: LARGE CAP US EQUITY



- **Relative to 2017, the 2018 building blocks incorporate:**
 - Modestly higher growth to reflect strength in global growth
 - A more significant valuation adjustment to reflecting multiple expansion

- **Despite only a 50 basis point reduction in the 5-7 year outlook, more generous assumptions were applied:**
 - Profit margins are assumed to remain near current elevated levels
 - Assumed P/E multiple is expected to mean revert half way to the long-term average



RATES & CREDIT ASSUMPTIONS

NEPC, LLC

RATES & CREDIT: ASSUMPTIONS

Rate & Credit Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Government Rates Price Change	The valuation change resulting from a change in the current yield curve to forecasted rates
Spread Price Change	The valuation change resulting from a change in credit spreads over the duration of the investment and highly sensitive to economic cycles
Credit Deterioration	The average loss for credit securities associated with an expected default cycle and recovery rates
Credit Spread	Additional yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk associated with their valuation

Asset Class	5-7 Year Return	Change 2018-2017
Treasuries	2.25%	+.25%
Investment-Grade Corporate Credit	3.50%	-.25%
Municipal Bonds	2.50%	+.25%
TIPS	3.25%	+.25%
High-Yield Bonds	3.75%	-1.00%
High-Yield Municipal Bonds	3.75%	-.50%
Bank Loans	4.50%	-.75%
<i>Global Bonds (Unhedged)</i>	1.17%	+.17%
EMD (External)	4.25%	-.50%
EMD (Local Currency)	6.00%	-.75%
Private Debt	6.50%	-.75%
<i>Core Bonds</i>	2.75%	+.10%



RATES & CREDIT: CREDIT SPREAD

Strong global growth and yield-seeking investor behavior has compressed credit spreads

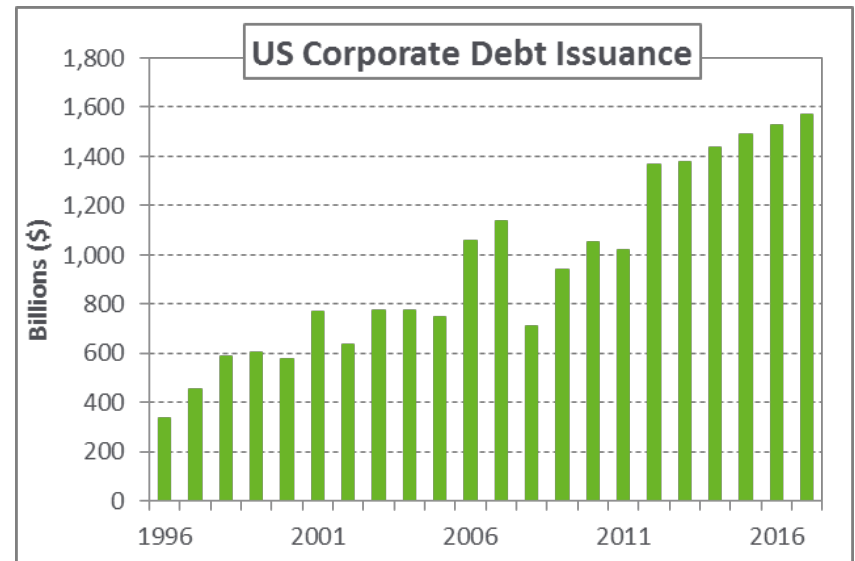
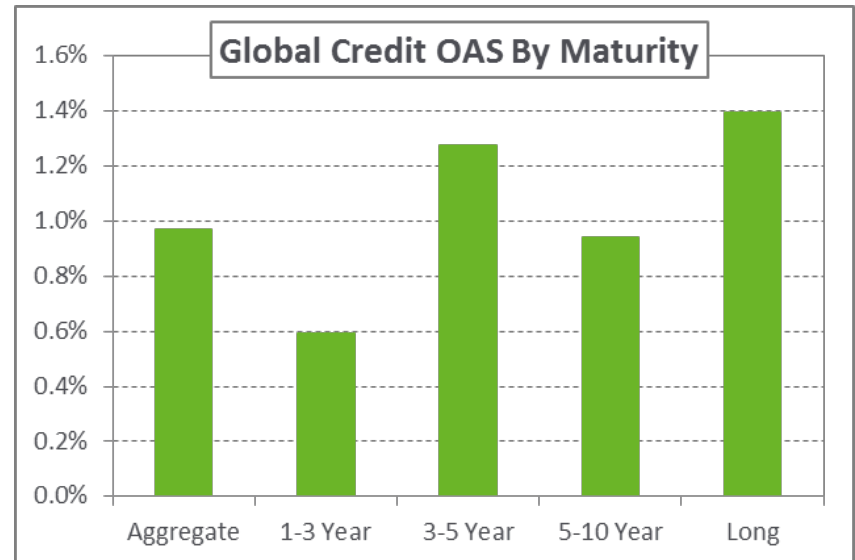
Economic growth usually translates to tighter credit spreads due to a lower probability of defaults

In Europe, the ECB's decision to include corporate bonds in its quantitative easing program has also contributed to smaller credit risk premiums globally

Low borrowing costs have encouraged record issuance in both investment grade and high yield bonds

Passive ownership of credit has increased significantly, even with a larger denominator

The outlook for US credit is subdued with limited return opportunities as credit spreads trade below long-term medians



Source: (Top) Barclays, Bloomberg
Source: (Bottom) SIFMA



RATES & CREDIT: RATES PRICE CHANGE

Rates price change include changes in the level of interest rates, changes to the shape of the curve, and roll down

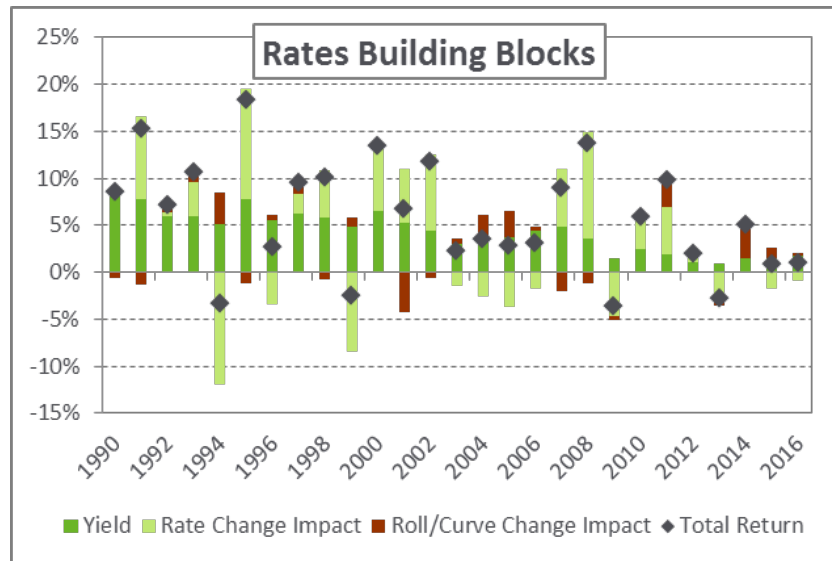
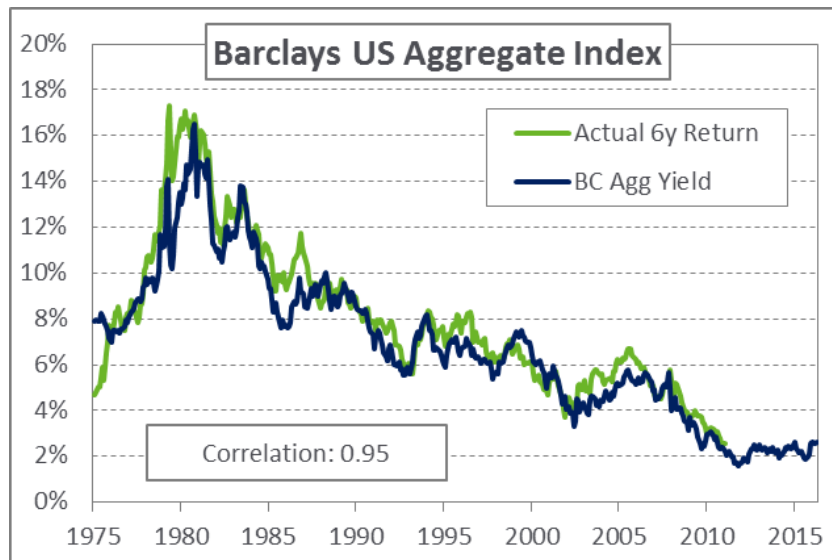
Roll down refers to expected price change due to aging of a bond along the curve

Rate change impact often dominates total return and is a likely detractor in the coming cycle, given expectations of modestly higher rates

Path of interest rates for each market is tied to both central bank actions and inflation expectations

Roll down offers some relief to rising rates when yield curves are steep

As yield curve flattens this can be a drag, pushing investors to shorter duration bonds



Source: (Top) Barclays, Bloomberg, NEPC
Source: (Bottom) Barclays, Bloomberg, NEPC



RATES & CREDIT: SPREAD PRICE CHANGE

Credit spreads continued to tighten throughout the year and remain below long-term averages

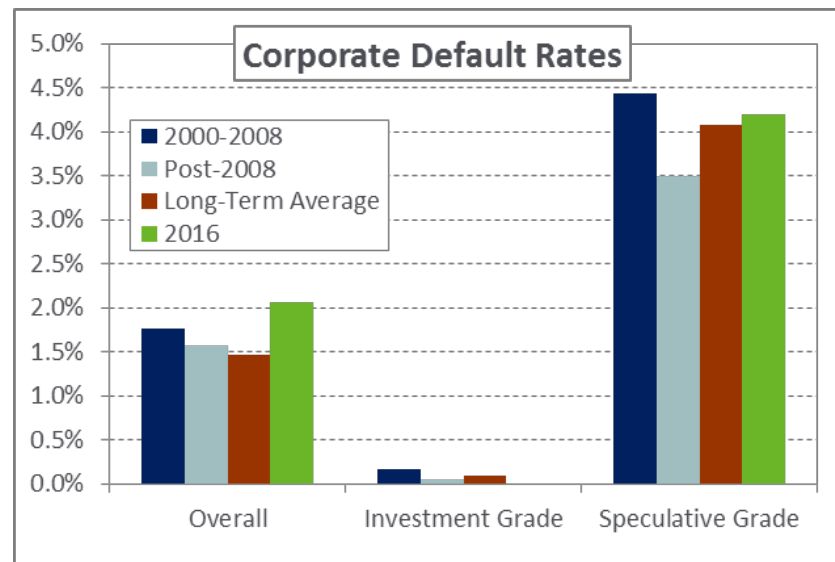
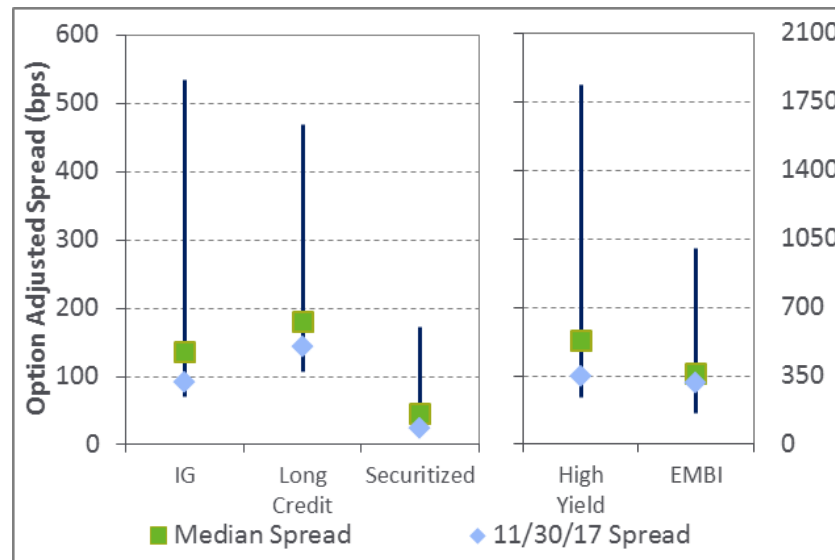
With positive economic indicators and strong technicals, spreads could grind lower

The number of defaults increased last year as a result of the depressed energy and natural resources sector

Over 50% of credit defaults occurred within the energy sector

Nearly all other sectors experienced default rates well below long-term averages

Credit spreads near historic lows suggest investors are receiving less compensation for taking on risk

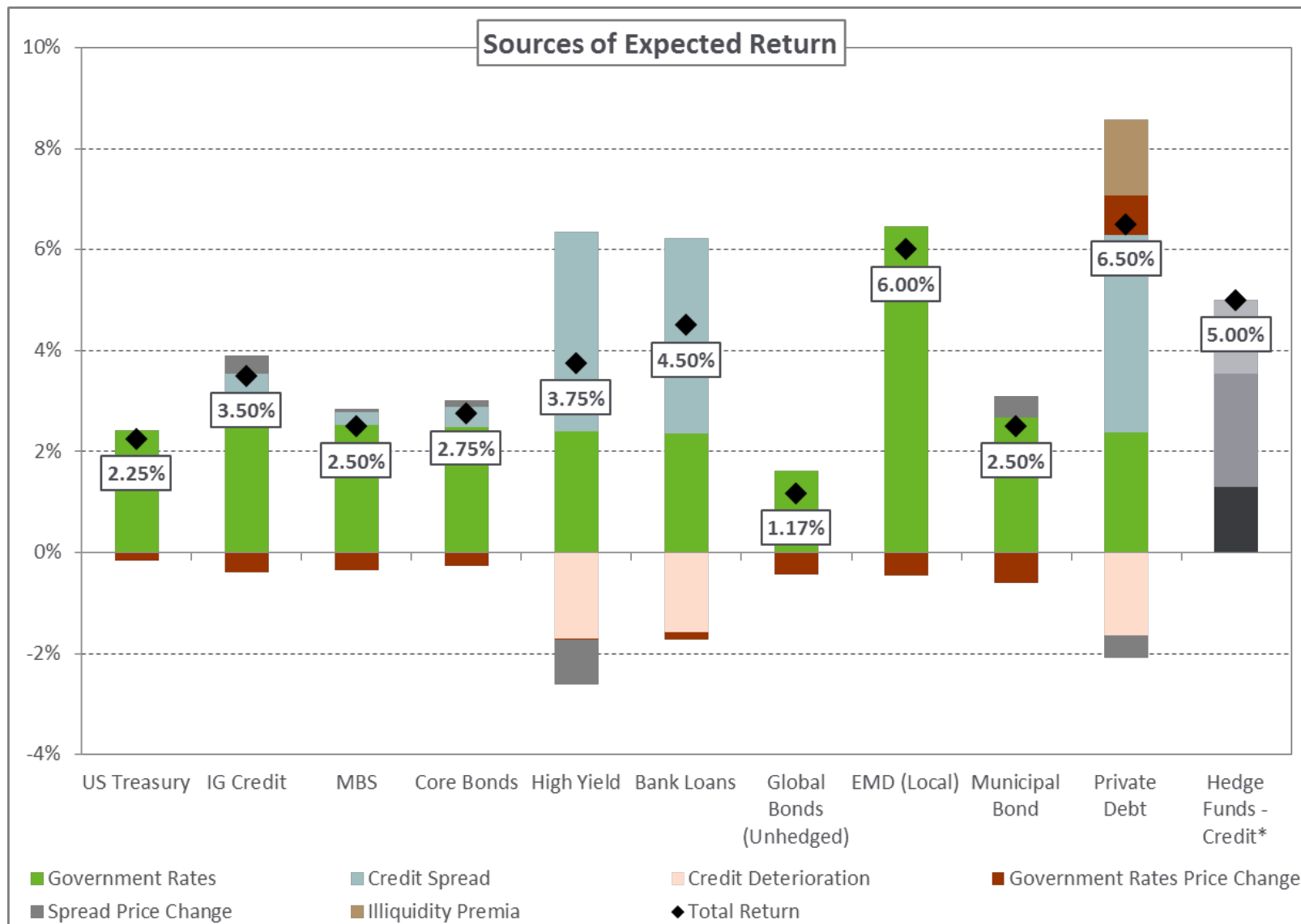


Source: (Top) JPM, Bloomberg, NEPC. As of 01/31/2000

Source: (Bottom) S&P, NEPC



CREDIT: BUILDING BLOCKS

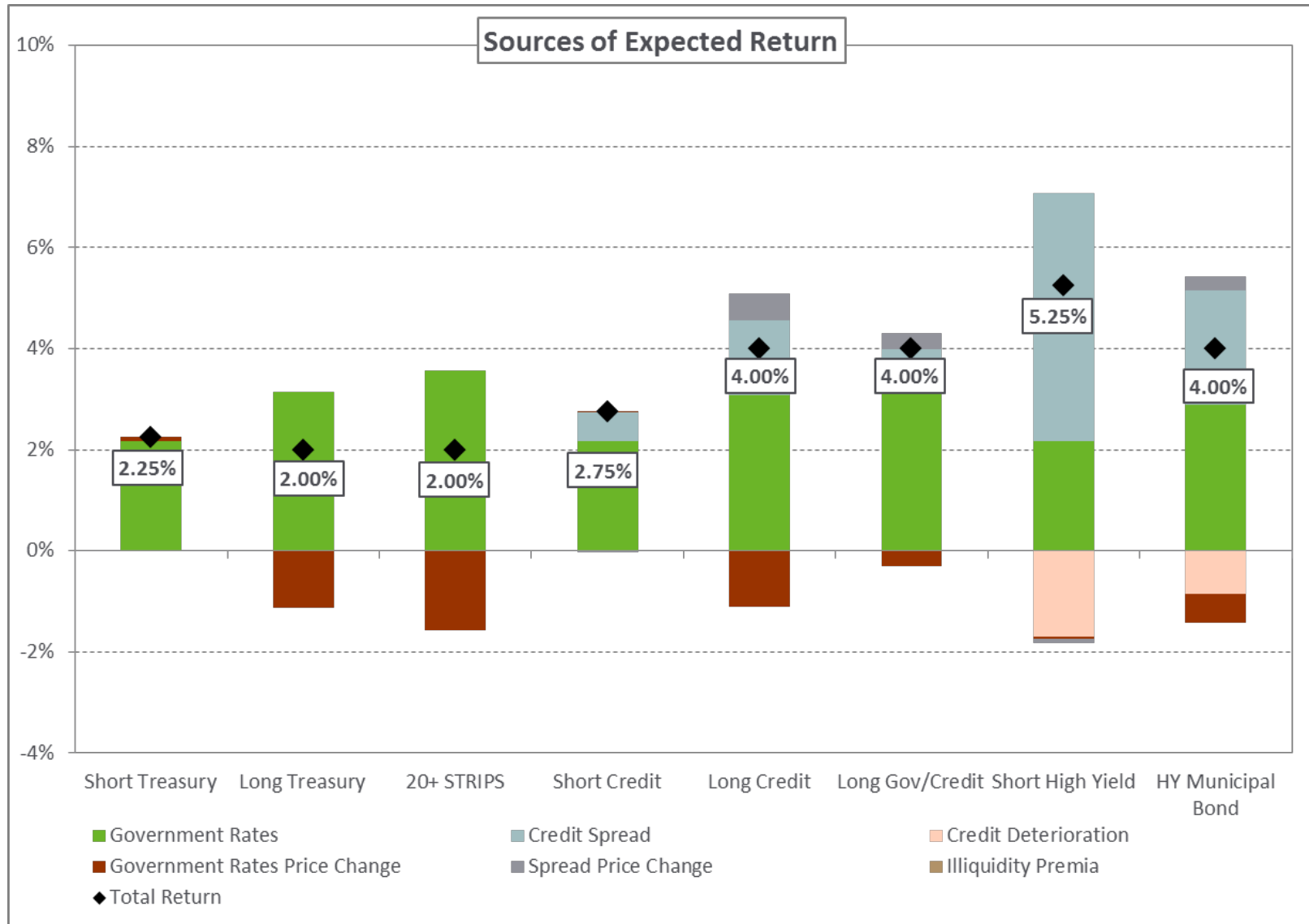


Source: NEPC

*Hedge Funds are discussed in detail in the Multi-Asset section



CREDIT: BUILDING BLOCKS



Source: NEPC



REAL ASSETS ASSUMPTIONS

NEPC, LLC

REAL ASSETS: ASSUMPTIONS

Real Assets Building Blocks	
Illiquidity Premium	The additional return expected for investments carrying liquidity risk
Valuation	The expected change in price of the underlying asset reverting to a long-term real average or terminal value assumption
Inflation	Incorporates the inflation paths as defined by TIPS breakeven expectations and NEPC expected inflation assumptions
Real Earnings Growth	Reflects market-specific real growth for each equity asset class as a weighted-average derived from index country revenue contribution and forecasted GDP growth
Real Income	Represents the inflation-adjusted income produced by the underlying tangible or physical asset

Asset Class	5-7 Year Return	Change 2018-2017
Commodities	4.75%	-
MLPs	7.25%	+.25%
REITs	6.50%	-
Core Real Estate	5.75%	-.25%
Non-Core Real Estate	7.00%	N/A
Private Real Assets: Energy/Metals	8.00%	-.25%
Private Real Assets: Infrastructure/Land	6.00%	-
<i>Real Assets (Liquid)</i>	5.87%	-.05%



REAL ASSETS: REAL INCOME

Equity-like investments: Real income represents the inflation-adjusted dividend yield

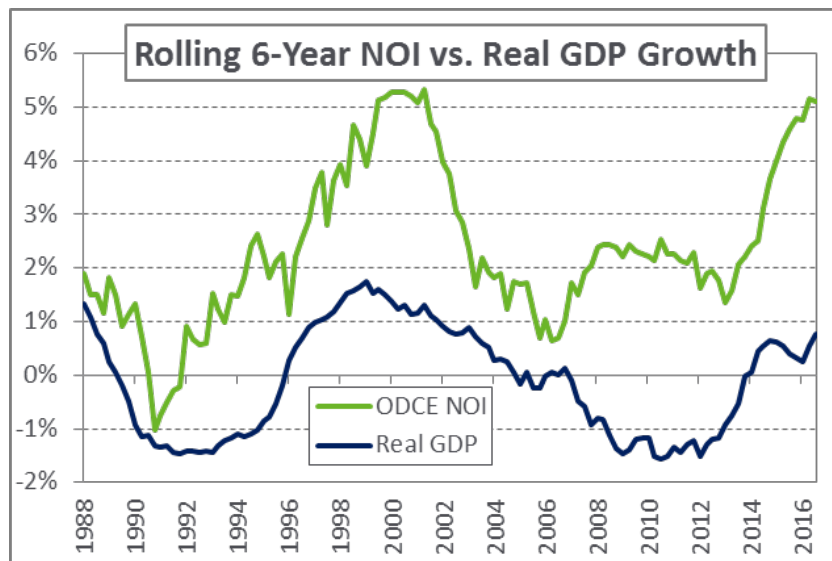
Includes MLPs, natural resource equities, global infrastructure equities, and REITs
 Notably, MLP yields have increased relative to last year in combination with generally stronger balance sheets and a double-digit price decline

Real Estate: Real income growth is a function of Net Operating Income (NOI) growth

Rolling 6-year NOI growth exhibits cyclically economic pattern and appears to be at or near its peak

Commodities: Real income is represented by collateral return

A cash proxy is used to represent the collateral and as such, it represents the return on cash over the investment horizon



Real Asset Yields	11/30/16	11/30/17
MLPs	7.4%	8.1%
Core Real Estate	4.7%	4.6%
US REITs	4.6%	4.0%
Global REITs	4.2%	3.6%
Global Infrastructure Equities	4.1%	3.9%
Natural Resource Equities	3.0%	3.3%
US 10-Yr Breakeven Inflation	2.0%	1.9%
Commodity Index Roll Yield	-6.5%	-1.4%

Source: (Top) NCREIF, Bloomberg, NEPC

Source: (Bottom) NCREIF, Alerian, NAREIT, S&P, Bloomberg



REAL ASSETS: VALUATION

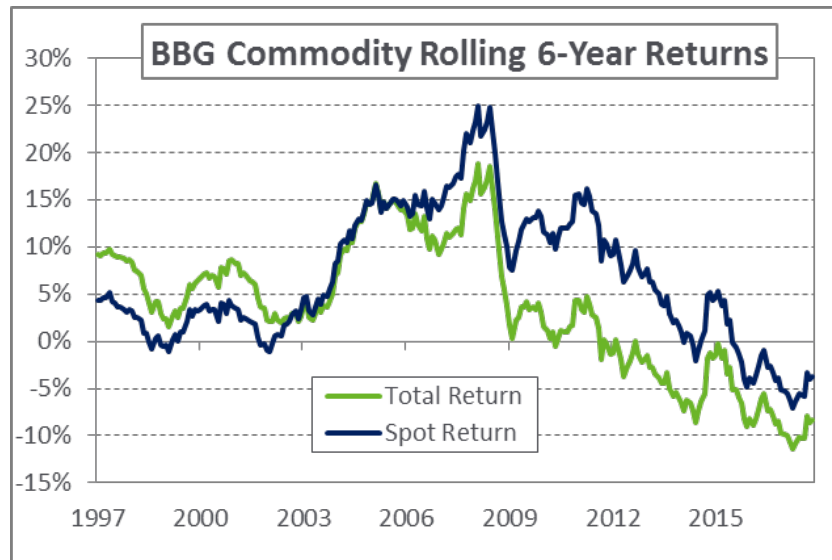
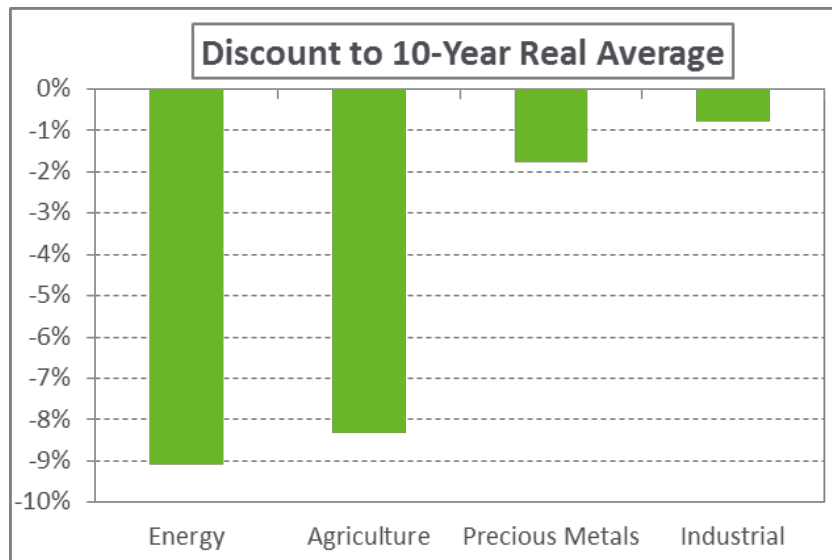
Change in commodity valuations can be attributed to both roll yield and change in spot price

Commodity prices continue to trade below their long-term real averages, particularly in the energy and agriculture sectors

Roll yield continues to be a hurdle for investing in commodity futures

Post-2008, spot returns have had consistently higher returns than total return indices – demonstrating the impact of negative roll yield on overall investments

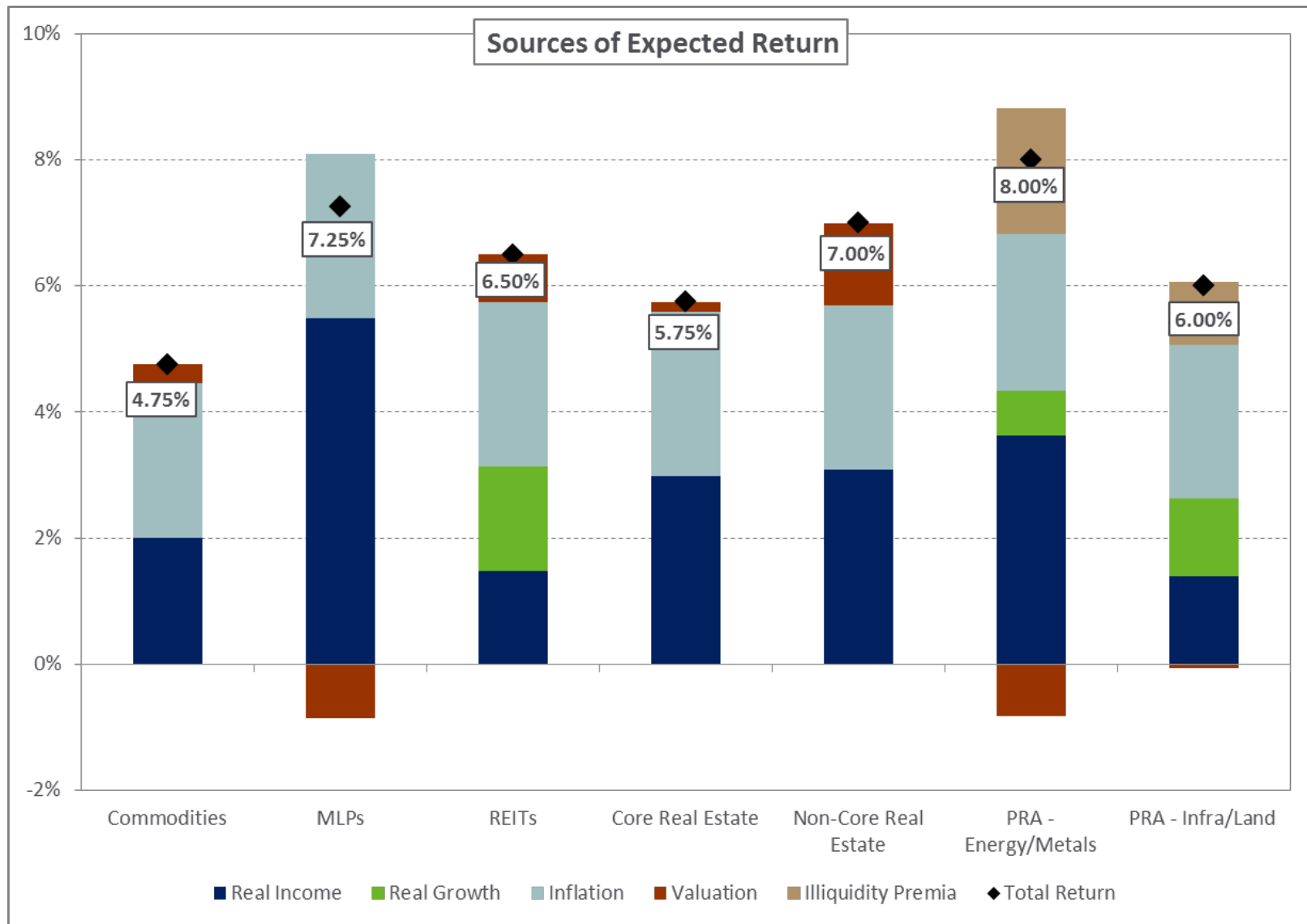
In the latter half of 2017, commodity prices rallied off mid-year lows, causing the negative roll yield to be much smaller relative to last year



Source: (Top) Bloomberg, NEPC
Source: (Bottom) Bloomberg, NEPC



REAL ASSETS: BUILDING BLOCKS



Source: NEPC



MULTI-ASSET & DERIVED COMPOSITES

NEPC, LLC

MULTI-ASSET & DERIVED COMPOSITES

Multi-asset assumptions are the result of the sum of equity, credit, and real asset building blocks

Global 60/40: 60% global equity and 40% global bonds

US 60/40: 60% US equity and 40% core bonds

Risk Parity 10% Vol: Average of 3 common risk parity exposures

GAA Strategies: Average of 3 common GAA exposures

Global Equity: Market weighted blend of MSCI ACWI IMI (US, Non-US Developed, Emerging)

Core Bonds: Market weighted blend of Bloomberg Barclays US Aggregate Bond Index (Treasury, IG Credit, MBS)

Real Assets (Liquid): Weighted blend of TIPS, global equities, REITs, and commodities

Hedge Funds: Weighted blend of 40% HF equity, 40% HF credit, and 20% HF macro

Asset Class	5-7 Year Return	Change 2018-2017
<i>Global 60/40</i>	4.91%	-.13%
<i>US 60/40</i>	4.54%	-.24%
<i>Risk Parity 10% Vol</i>	5.11%	+.04%
<i>GAA Strategies</i>	5.44%	-.11%
<i>Absolute Return – Macro Strategies</i>	6.25%	-
<i>Global Equity</i>	6.88%	-.33%
<i>Core Bonds</i>	2.75%	+.10%
<i>Real Assets (Liquid)</i>	5.87%	-.05%
<i>Absolute Return Strategies</i>	5.83%	-.12%

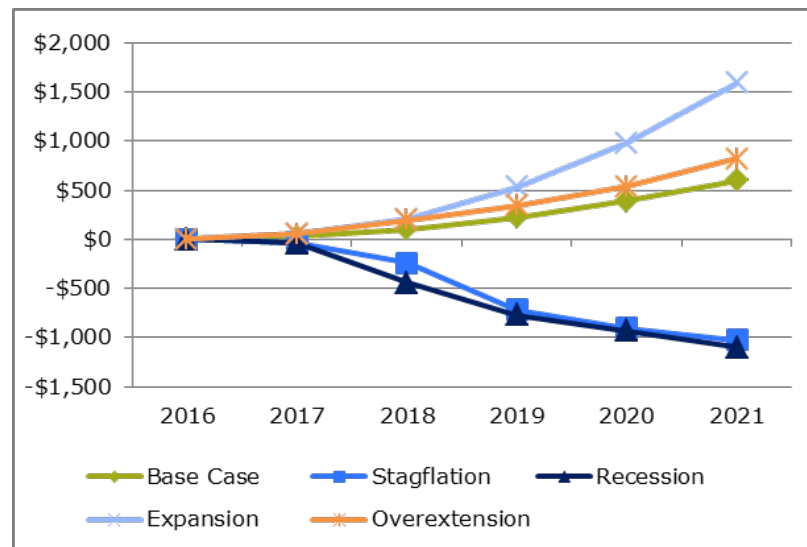
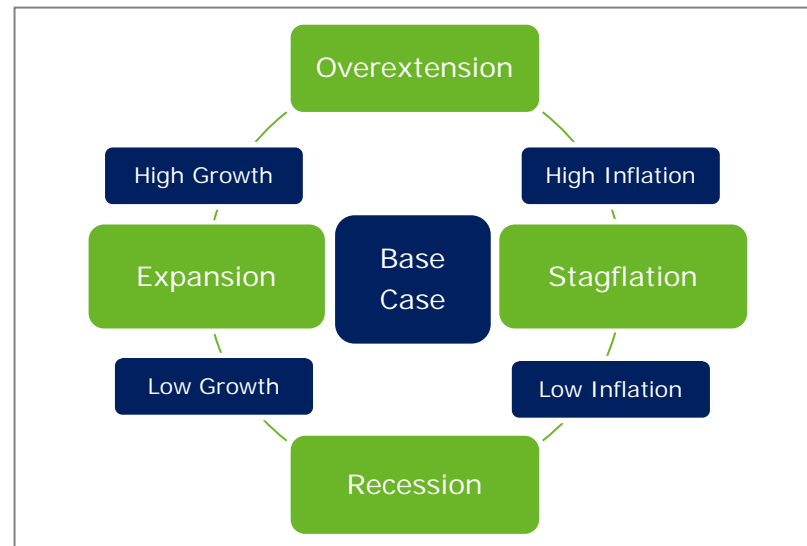


PROPRIETARY TOOLS

NEPC, LLC

PROPRIETARY MODELING TOOLS: SCENARIO ANALYSIS

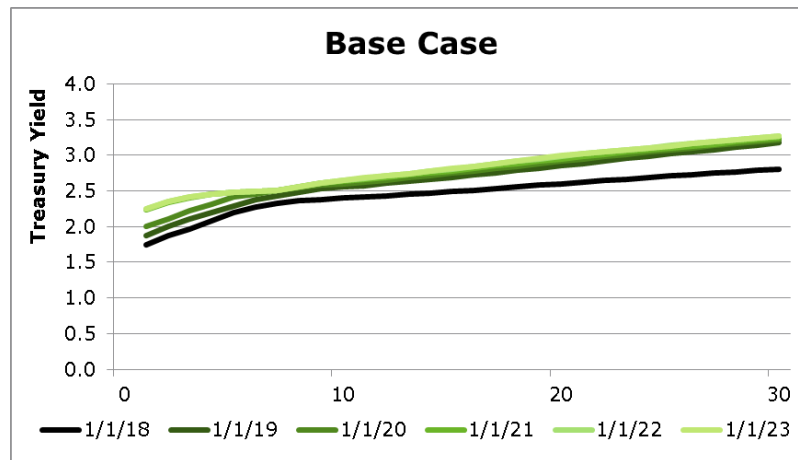
- **Scenario analysis tests the viability of asset mixes under multiple economic scenarios**
- **This risk tolerance exercise considers multi-standard deviation events over longer time frames (3-5 years)**
 - Often ignored/underappreciated in traditional mean-variance analysis
- **Scenario analysis and stress testing focuses investors' attention on outcomes that depart significantly from "expectations"**
 - Discards baseline return and risk and forces consideration of alternative outcomes



SCENARIOS CONSIDERED

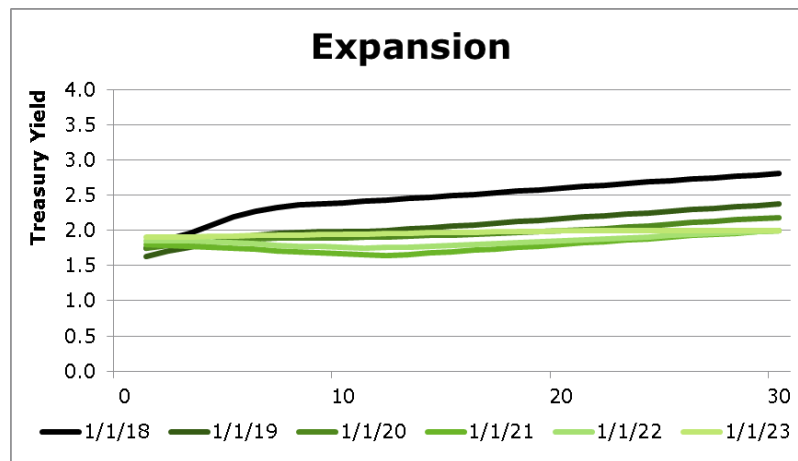
- **Base Case**

- Asset returns over 5-year period in line with NEPC 2018 5-7 Year Assumptions
- No volatility



- **Expansion**

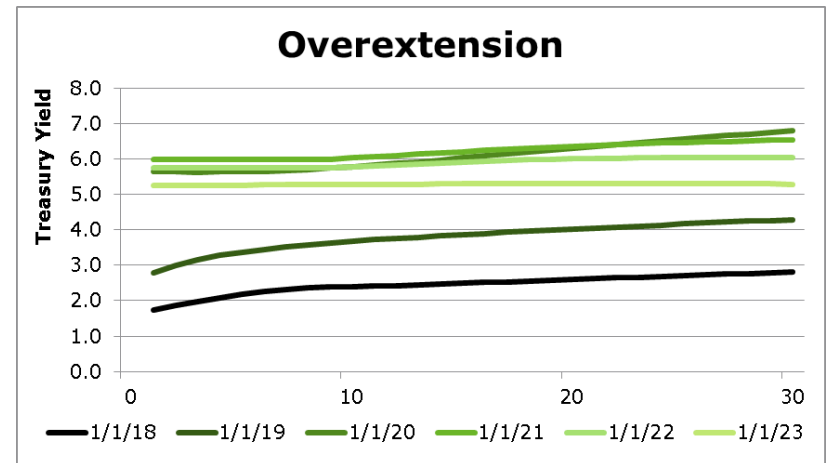
- Economy is growing by a strong, but seemingly sustainable level
- Bond yields are stable, inflation is manageable, equities and other high volatility asset classes perform quite well in this environment
- Historical example: 2004-2006
- *Large cap equities time-series: 10%, 17%, 28%, 12%, 10%*



SCENARIOS CONSIDERED

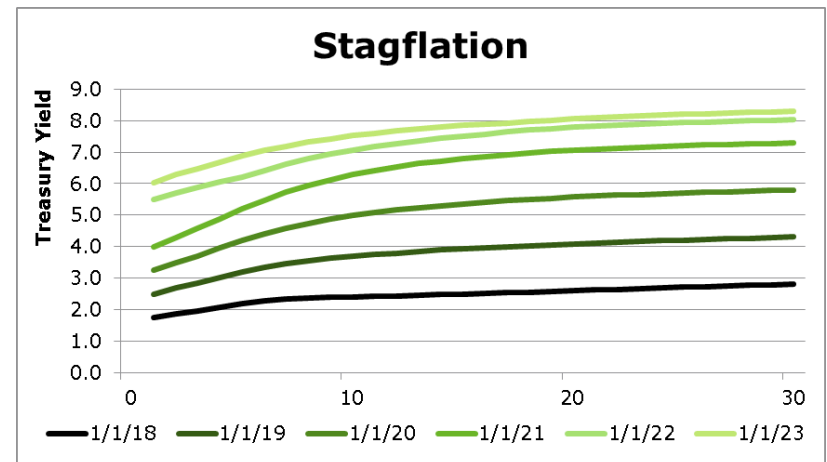
• Overextension

- Economy is growing at a rapid pace, inflation increases significantly – booming times but at the cost of future growth
- Bond yields move higher as a result of inflation; high yield does well with confidence in the economy
- Equities, real estate, and commodities fuel rapid expansion
- Historical example: Vietnam War era (1967-1971)
- *Large cap equities time-series: 12%, 16%, 0%, 12%, 16%*



• Stagflation

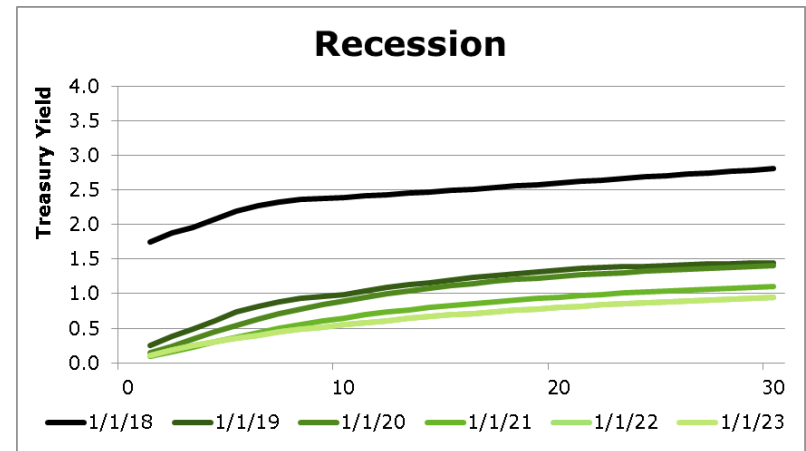
- Two problems – (1) the economy is not growing, (2) inflation has skyrocketed
 - Inflation is sticky – once it gets high, it stays high for several years
 - Fed has limited options to kick-start economy because easing only promotes further inflation
- Equities sag; bonds lose real value; real assets such as TIPS perform well on a relative basis because they are linked to inflation
- Historical example: flat stock market and double digit inflation of the mid-1970s
- *Large cap equities time-series: -8%, -12%, -15%, 9%, 12%*



SCENARIOS CONSIDERED

- **Recession**

- Economy stalls – there is a flight to quality as investors lose confidence
 - Equity markets fall
 - Bond yields fall
- Interest-sensitive securities (bonds, especially long duration bonds) will perform well in this environment
- Historical example: early 1990s
- *Large cap equities time-series: -8%, -18%, -8%, 4%, -10%*

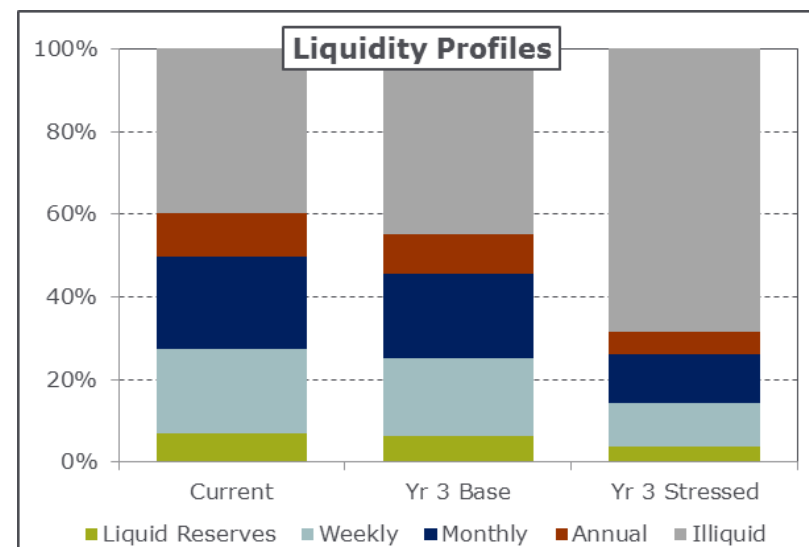
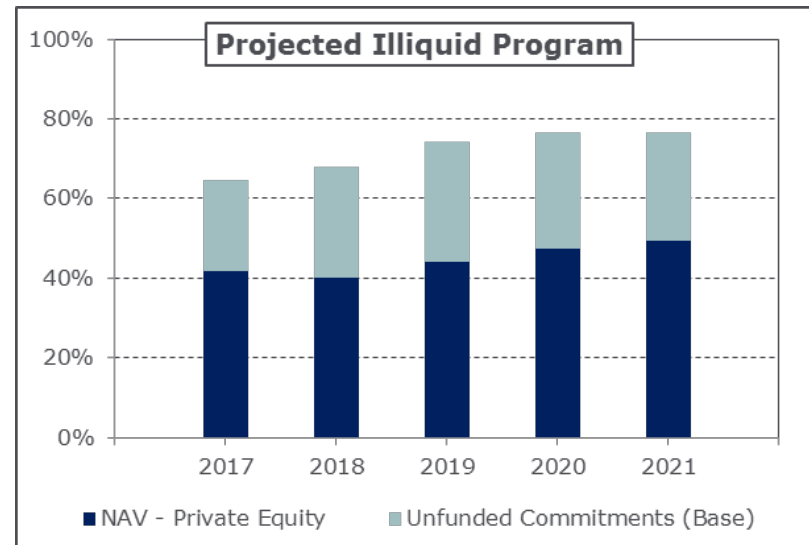


PROPRIETARY MODELING TOOLS: LIQUIDITY ANALYSIS

- **Improves perspective on illiquidity, a risk not captured in many traditional portfolio tools**
 - Illiquid exposure can magnify adverse events under stressed market conditions

- **Liquidity analysis highlights portfolio impact of changing cash flow demands**
 - Must consider the interplay of multiple factors across various market environments
 - Investment returns
 - Benefit payments
 - Contributions
 - Unfunded capital commitments

- **Customized stress test can help frame the nature and magnitude of any potential liquidity issues**
 - Provides guidance on the appropriate size of illiquid program



INFORMATION DISCLAIMER

Past performance is no guarantee of future results.

The goal of this report is to provide a basis for substantiating asset allocation recommendations. The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.

Information on market indices was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

All investments carry some level of risk. Diversification and other asset allocation techniques do not ensure profit or protect against losses.

This report is provided as a management aid for the client's internal use only. This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.





May 21, 2018

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, Suite 200
Ventura, CA 93003

SUBJECT: AUTHORIZATION FOR TRUSTEE BIANCHI TO ATTEND IFEBP'S ALTERNATIVE INVESTMENT STRATEGIES PROGRAM THROUGH THE WHARTON SCHOOL, JULY 30 – AUGUST 1, 2018 IN SAN FRANCISCO, CA.

Dear Board Members:

Staff recommends authorization for Trustee Bianchi to IFEBP's Alternative Investment Strategies Program through the Wharton School, July 30 – August 1, 2018, in San Francisco, CA. This program is particularly robust and advanced, and has been beneficial to other trustees. The cost to attend will be approximately \$5,550 including registration (\$3,995), airfare, lodging and other related expenses.

VCERA staff will be pleased to respond to any questions you may have on this matter at May 21, 2018 business meeting.

Sincerely,

Linda Webb
Retirement Administrator



Alternative Investment Strategies

July 30-August 1, 2018 | San Francisco, California



www.ifebp.org/altinv





Alternative Investment Strategies

July 30-August 1, 2018 | San Francisco, California

www.ifebp.org/altinv

The varying investment needs of an employee benefit fund require different investment strategies.

Alternative investment solutions can offer greater gains, but there is also higher risk. Knowing what to look for and how to monitor performance is key.

The Alternative Investment Strategies program focuses specifically on topics related to hedge fund and real estate investing for benefit plans. Building upon participants' existing knowledge and experience, this advanced-level program offers faculty-led discussions, real-world problem-solving exercises and group breakout sessions.

DAY ONE

Introduction and Hedge Funds

Introduction and the Overview of Hedge Funds and Other Alternative Investments

Understanding new types of investment opportunities is no easy task. Our opening session will cover the alternative investment basics you need to know to make informed choices for your fund. Learn how to define alternative investments and understand the demand for hedge funds, myths and facts about hedge funds, volatility considerations and more.

Institutional Interest in Hedge Funds

Why is there interest in investing in hedge funds? In this session, we will introduce you to examples of hedge funds and their statistical trends, various hedge fund styles, private equity and venture capital, and the basics of fund of funds.

Hedge Fund Investing

Do hedge funds hedge? At the end of Day One, we will continue our discussion of hedge funds as we dive into various types of investment strategies. We cover asset allocation, performance management topics including quantitative measures and qualitative criteria, hedge fund selection, exposure analysis, manager selection topics including manager strategy and business structure, performance persistence fees, operational due diligence and market timing.





DAY TWO

Insights Into Alternative Investments

Lessons From Hedge Fund Failures

As our conversation about hedge funds comes to a close, we will summarize the elements of the fund of funds investment process, including topics such as the hedge fund's approach to allocation, manager sourcing, manager selection process, fund performance and risk analysis, ongoing monitoring and self-discipline, liquidity parameters, tax implications and portable alpha.

Other Alternative Investment Trends and the Future

What other alternative investments are available to funds? What investment choices are gaining traction in the investment industry? In "Other Alternative Investment Trends and the Future," we will discuss these questions along with topics such as mark-to-market rules, hedge fund replication and current trends in alternative investments.

Equity Investments in Real Estate

What real estate investments are considered alternative investments? In this session, we will cover the basics of real estate valuation, how to value real estate cash flow, the current state of the real estate market, real estate fundamentals and cycles, structured debt and its dangers, the real estate investment trust (REIT) market, real estate private equity, the risk/return profile of equity real estate and portfolio allocation, and risks and opportunities in real estate.

DAY THREE

The Conclusion

Debt Investments in Real Estate

Learning the risks and challenges of investing in real estate is important. This session will cover structured debt vs. traditional lending, commercial mortgage-backed securities, collateralized debt obligations and mezzanine debt.

Final Wrap-Up and Program Integration

Our final session of the program. Attendance at this session is required to earn a certificate.



Wharton | San Francisco

Program Faculty



Christopher C. Geczy

Adjunct Professor of Finance

Academic Director of Wharton Wealth
Management Initiative

Academic Director of Jacobs Levy Equity
Management Center for Quantitative
Financial Research

The Wharton School



Todd Sinai

Professor of Real Estate and Business
Economics and Public Policy

The Wharton School



Program Structure

The Alternative Investment Strategies program is a 2½-day program intended for those with a prior knowledge of fundamental investment theory.

DATES	LOCATION	COST
July 30- August 1, 2018	Wharton San Francisco 2 Harrison Street San Francisco, California	<i>(through June 18, 2018)</i> Member: \$3,995 Nonmember: \$4,295
		<i>(after June 18, 2018)</i> Member: \$4,295 Nonmember: \$4,595

HOTEL INFORMATION AND REGISTRATION: www.ifebp.org/altinv

Space is extremely limited for this advanced-level program to allow for extensive discussion and optimal comprehension.



REGISTRATION IS NOW OPEN.

Alternative Investment Strategies

July 30-August 1, 2018
San Francisco, California

Space is limited.

Register at www.ifebp.org/wharton.

International Foundation
OF EMPLOYEE BENEFIT PLANS 

18700 West Bluemound Road
Brookfield, WI 53045
www.ifebp.org

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California Association of Public Retirement Systems

CALAPRS

EDUCATION • COMMUNICATION • NETWORKING

Agenda Available for Download

Trustees' Round Table

**Friday, June 8, 2018
8:30 a.m - 3:30 p.m.**

**Hilton Oakland Airport
1 Hegenberger Road, Oakland, California 94621**

Your meeting chair, [Russell Baldwin](#) from Orange County Employees' Retirement System, and Stan McDivitt, the CALAPRS Trustees' Round Table Facilitator, have prepared the agenda for this meeting. Agenda topics include:

- “The Kentucky Case Summary”: Three international hedge fund sellers and their top executives are being called to account for targeting and selling alleged unsuitable “black box” investments to the Kentucky Retirement Systems in a derivative suit filed by current and former public employees, whose retirement funds have been decimated.

- Current Operational Due Diligence (ODD) Best Practices and Observations, in the Alternative Assets Industry
- System Updates and Current Issues for Trustees

The agenda is available for download on the CALAPRS website. The program will begin at 8:30 a.m. and end by 3:30 p.m. Breakfast and lunch are provided.

[Register for the Event on the CALAPRS Website](#)

Agenda Now Available

[Download the Agenda \[PDF\]](#)

Book Your Hotel By May 16

CALAPRS has secured a hotel room block at the Hilton Oakland Airport at the rate of \$179/night + tax. You can [make your reservation online by clicking here](#), or by calling (510) 635-5000 and referencing the "CALAPRS" group.

Quick Links

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[Program Calendar](#)

[Round Table Groups](#)

[Member Directory](#)

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