

Pension Trust

1000 Mill Street
San Luis Obispo, CA 93408
(805) 781-5465 Phone
(805) 781-5697 Fax
www.SLOPensionTrust.org



AGENDA

PENSION TRUST BOARD OF TRUSTEES

Monday, February 24, 2020 9:30 AM

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

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

A) PUBLIC COMMENT

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

B) CONSENT

2. Minutes of the Regular Meeting of January 27, 2020 (Approve Without Correction).
3. Reports of Deposits and Contributions for the month of January 2020 (Receive and File).
4. Reports of Service Retirements, Disability Retirements and DROP Participants for the month of January 2020 (Receive, Approve and File).
5. Conflict of Interest Policy Amendment and Biennial Review (Recommend Approval).

C) ORGANIZATIONAL

None

D) APPLICATIONS FOR DISABILITY RETIREMENT

None

E) OLD BUSINESS

None

F) NEW BUSINESS

- 6. Approval of the Annual Cost-Of-Living Adjustments provided by the San Luis Obispo County Employees Retirement Plan (Recommend Approval).

G) INVESTMENTS

- 7. Quarterly Investment Report for the 4th Quarter of 2019 – Verus (Receive and File).
- 8. Monthly Investment Report for January 2020 (Receive and File).
- 9. Capital Market Assumptions – 2020 – Verus (Review, Discuss, Receive and File).
- 10. Asset Allocation Policy – Verus (Review, Discuss, and Direct Staff as necessary).
- 11. Asset Allocation - (Review, Discuss, and Direct Staff as necessary).

H) OPERATIONS

- 12. Staff Reports
- 13. General Counsel Reports
- 14. Committee Reports:
 - i. Audit Committee Report
 - ii. Personnel Committee No Report
- 15. Upcoming Board Topics (subject to change)
 - i. March 23, 2020
 - a. Actuarial Experience Study & Valuation planning (with GRS)
 - b. Employer prefunding agreement and discount rate
 - c. Fiduciary Refresher Training
 - d. FY20/21 SLOCPT administrative budget - preliminary
 - e. International Bond Strategy – Global Strategy
 - ii. April 27, 2020 (planned as a non-meeting month)
 - iii. May 18, 2020
 - a. Actuarial Experience Study Results – Actuarial Assumptions (with GRS)

- b. FY20/21 SLOCPT administrative budget - approval
 - c. Quarterly Investment Report
 - d. Asset Allocation – amended policy
 - e. Private Equity program review
- iv. June 22, 2020
- a. Financial Audit Report
 - b. CAFR Approval
 - c. **Actuarial Valuation – Contribution Rate Changes**
 - d. Employer prefunding amount

16. Trustee Comments

I) CLOSED SESSION

None

J) ADJOURNMENT

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BOARD OF TRUSTEES**

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MINUTES

January 27, 2020
Regular Meeting of the Pension Trust
Board of Trustees

Board Members Present: Guy Savage Vice President
Taylor Dacus
Jim Hamilton
Jeff Hamm
Matt Janssen
Michelle Shoresman
Gere Sibbach

Board Members Absent: -

Pension Trust Staff: Carl Nelson Executive Director
Amy Burke Deputy Director
Jennifer Alderete Accountant

General Counsel: Chris Waddell

Consultants: -

Others: Larry Batchelder SLOCREA
Daniel Andoetoe Retiree

Call to Order: 9:32 AM by Vice President Savage, presiding over the meeting.

A) PUBLIC COMMENT

1. None

B) ORGANIZATIONAL

2. Announcement of Elected Trustee Vacancy Appointment effective January 27, 2020

Discussion: Trustee Janssen introduced his and Trustee Shoresman's selection of Taylor Dacus to fill the remainder of Will Clemens's Elected Trustee term ending June 2022.

No Action Necessary

3. Election of Officers (Pursuant to Section 3.05 and Section 3.06 of the By-Laws of the San Luis Obispo County Pension Trust).

President: Trustee Sibbach nominated Trustee Savage to serve as Board of Trustees President for 2020. Seconded by Trustee Jansson and unanimously passed.

Vice President: Trustee Janssen nominated Trustee Sibbach to serve as Board of Trustees Vice President for 2020. Seconded by Trustee Shoresman and unanimously passed.

4. Committees

Newly elected President Savage appointed the following Trustees to the two standing committees as follows:

Audit Committee:

Trustees Dacus, Hamilton, and Sibbach

Personnel Committee:

Trustees Hamm, Janssen, and Shoresman

5. Resolution Number 2020-01: A Resolution Honoring Will Clemens for Service to the Pension Trust

Discussion: President Savage introduced the item and read aloud Resolution 2020-01 honoring Will Clemens for his years of service as a Trustee of the Pension Trust. Mr. Clemens addressed the Board and public He commented on the value he placed on his role as a Trustee and felt that it was one of the most rewarding parts of his career. Trustee Janssen commented that Will was excellent at respectfully asking tough questions. Trustee Savage noted that Will was a trusted mentor and peer. Trustee Hamilton identified Will as an exceptionally bright and helpful Trustee. Trustee Hamm commented on what a pleasure it had been to serve with Will. Trustee Sibbach commented that the County and the Pension Trust were fortunate to have the service of Will. Trustee Shoresman echoed the sentiments of her fellow Trustees.

Motion: To approve Resolution 2020-01

Public Comment: None

Motion Made: Mr. Sibbach Motion Seconded: Mr. Savage

Carried: Unanimous

6. Board of Trustees Meeting Schedule and Content

Discussion: Mr. Nelson introduced the item. President Savage commented that limited training during Board meetings was helpful, and training from General Counsel was appreciated. Trustee Hamm commented that he was happy with the current schedule. Vice President Sibbach commented that the current schedule was acceptable with continued access to General Counsel for any emergency legislative issues. Trustee Janssen recommended that investment education sessions with Verus were best if related to a specific topic at hand.

Motion: No Action Necessary

Public Comment: None

C) CONSENT

7. Minutes of the Regular Meeting of November 25, 2019 (Approve Without Correction).
8. Reports of Deposits and Contributions for the months of November 2019 and December 2019 (Receive and File).
9. Reports of Service Retirements, Disability Retirements and DROP Participants for the months of November 2019 and December 2019 (Receive, Approve and File).
10. Monthly Investment Report for November 2019 (Receive and File).
11. Resolution Modifying and Affirming Investment and Banking authority - Resolution 2020-02 (Recommend Approval).
12. Board Member Responsibilities, Core Competencies and Education Policy – Amend Travel Expense Policy (Recommend Approval).

Discussion: Mr. Nelson introduced the item. The SLOCPT Travel Expense Policy is based on the County's Travel Expense Policy, which was updated and approved by the County Board of Supervisors on October 22, 2019. This amendment reflects updated meal and lodging rates. Vice President Sibbach commented that the lodging rates were high for major cities. Mr. Nelson explained that most Board and Staff education opportunities occur in metropolitan areas where lodging is more expensive.

Motion: Approve the Consent items

Public Comment: None

Motion Made: Mr. Janssen

Motion Seconded: Mr. Hamm

Carried: Unanimous

D) APPLICATIONS FOR DISABILITY RETIREMENT

13. Application for Industrial Disability Retirement Case 2019-05

Discussion: Mr. Nelson introduced the item. The member had submitted Service Retirement and Industrial Disability Retirement applications concurrently. SLOCPT’s medical evaluation provider determined that the member’s disability was service-connected under the terms of the Retirement Plan.

Motion: To approve Industrial Disability Retirement Case 2019-05 application

Public Comment: Daniel Andoetoe, retiree, commented that this member may have suffered some financial harm because he had to leave the DROP program earlier than expected. Ms. Burke explained that this case is like any other disability case, in which the member’s plans changed due to the inability to perform his or her job duties.

Motion Made: Mr. Hamm

Motion Seconded: Mr. Janssen

Carried:

- For – Savage, Sibbach, Hamilton, Hamm, Janssen, and Shoresman
- Abstained – Dacus
- Against – none

E) OLD BUSINESS

None

F) NEW BUSINESS

None

G) INVESTMENTS

14. Annual Cashflow Analysis

Discussion: Staff presented an analysis of the net cashflow for the SLOCPT assets for 2020 as required by the Investment Policy Statement

Motion: Receive and file

Public Comment: None

Motion Made: Mr. Savage Motion Seconded: Mr. Hamilton

Carried: Unanimous

15. Monthly Investment Report for December 2019

Discussion: Monthly investment performance report by Staff. Mr. Nelson commented that the preliminary estimate of 2019's rate of return gross of fees for the year 2019 was 16.3%. Trustees Sibbach, Savage, and Hamm commented on the good return for 2019, but their expectations for 2020 were for lower returns.

Motion: Receive and File

Public Comment: Mr. Clemens asked – tongue-in-cheek - that the record show the rate of return for 2019, the year in which he was President of the Board of Trustees, was 16.3%.

Motion Made: Mr. Janssen Motion Seconded: Mr. Sibbach

Carried: Unanimous

16. Asset Allocation

Discussion: Staff reviewed routine administrative asset allocation transfers related to liquidity.

Public Comment: None

No Action Necessary

H) OPERATIONS

17. Staff Reports

- i. San Luis Obispo Regional Transit Authority (RTA) – Staff reported that RTA has been asked to submit a test file for contribution importing.

- ii. Pension Alternatives for New Hires – Staff reported that the County of San Luis Obispo has retained Bartel Associates, LLC to research alternative pension arrangements for future new hires to lower new-hires' pension costs and aide staff retention. Such alternatives could include a defined contribution plan instead of the defined benefit plan. Importantly, any alternative pension arrangements would apply only to future new-hires and not to existing Members.
- iii. SECURE Act – Staff reported on the passage of the SECURE Act in 2019 and the effects of its passage. Mr. Nelson commented that a technical amendment to the plan may be necessary due to the increase in age for required minimum distributions from 70½ to 72.
- iv. California Association of Public Retirement Systems (CALAPRS) – Mr. Nelson commented that as a CALAPRS Board member he acts as President for 2020.
- v. 2019 Form 1099-Rs – Staff reported that the 2019 Form 1099-Rs file had been sent to the printer for printing and mailing by January 31st.
- vi. PensionGold Member Portal – Staff reported that the second block of PINS was sent to active members and retirees, and that SLOCPT is on schedule to send additional PINS to allow Members to set up sign-in ability to Member Direct.

18. General Counsel Reports

Mr. Waddell reported that the merger between Olson, Hagel & Fishburn and Remcho, Johansen & Purcell was completed on January 1, 2020. The merged firm that Mr. Waddell works for is named Olson | Remcho. Mr. Waddell also commented that the fiduciary refresher training is scheduled for the March meeting of the Board of Trustees. Mr. Waddell further commented that there was no news on the Alameda case before the California Supreme Court.

19. Committee Reports:

- i. Audit Committee No Report
- ii. Personnel Committee No Report

20. Upcoming Board Topics (subject to change)

- i. February 24, 2020
 - a. Retiree COLA – effective 4/1/20
 - b. Quarterly Investment Report
 - c. Capital Market Assumptions
 - d. Asset Allocation Policy
- ii. March 23, 2020
 - a. Actuarial Experience Study & Valuation planning (with GRS)
 - b. Employer prefunding agreement and discount rate

- c. Fiduciary Refresher Training
 - d. FY20/21 SLOCPT administrative budget - preliminary
 - e. Asset Allocation Policy
- iii. April 27, 2020 (planned as a non-meeting month)
 - iv. May 18, 2020
 - a. Actuarial Experience Study Results – Actuarial Assumptions (with GRS)
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 - c. Actuarial Valuation – Contribution Rate Changes
 - d. Employer prefunding amount

21. Trustee Comments

- i. Trustee Janssen commented that he anticipates advocating for a multi-year phased reduction to the discount rate. Mr. Nelson commented that SLOCPT will perform an annual Actuarial Valuation as well as a biennial Experience Study this year, and that the discount rate would be one of many issues discussed in May and June.
- ii. Trustee Hamm commented that he would be attending the CALAPRS General Assembly in March. Trustees Sibbach and Janssen will also be attending.
- iii. Vice President Sibbach welcomed Trustee Dacus to the Board of Trustees.

I) CLOSED SESSION –

None

J) ADJOURNMENT –

There being no further business, the meeting was adjourned at 10:51 AM. The next Regular Meeting was set for February 24, 2020, at 9:30 AM, in the Board of Supervisors chambers, County Government Center, San Luis Obispo, California 93408.

Respectfully submitted,

Carl Nelson
Executive Director

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**REPORT OF DEPOSITS AND CONTRIBUTIONS FOR THE MONTH OF
JANUARY 2020**

PP 1	1/3/2020	Pensionable Salary	Employer Contributions	Employer Rate	Employee Contributions	Employer for	Employee Rate	Combined Rate	Additional Contributions	Buy Backs	TOTAL Contributions
						Employee Contributions					
	By Employer and Tier:										
	County Tier 1	3,375,319.75	865,177.42	25.63%	412,449.05	286,996.94	20.72%	46.35%	1,998.00	1,692.05	1,568,313.46
	County Tier 2	953,602.34	251,447.95	26.37%	49,752.02	81,374.38	13.75%	40.12%	-	332.54	382,906.89
	County Tier 3	3,062,910.86	759,609.73	24.80%	386,535.51	-	12.62%	37.42%	-	1,652.97	1,147,798.21
	Superior Court Tier 1	259,512.48	68,378.16	26.35%	44,645.56	-	17.20%	43.55%	-	-	113,023.72
	Superior Court Tier 3	96,652.40	24,170.91	25.01%	11,550.71	-	11.95%	36.96%	-	-	35,721.62
	APCD Tier 1	57,448.88	13,421.20	23.36%	7,521.19	4,237.88	20.47%	43.83%	-	-	25,180.27
	APCD Tier 3	17,375.01	3,916.91	22.54%	2,217.62	-	12.76%	35.31%	-	-	6,134.53
	Pension Trust Staff Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
	Pension Trust Staff Tier 2	9,003.20	2,170.67	24.11%	340.32	836.40	13.07%	37.18%	-	-	3,347.39
	Pension Trust Staff Tier 3	11,215.96	2,649.20	23.62%	1,457.67	-	13.00%	36.62%	250.00	30.35	4,387.22
	LAFCO Tier 1	10,832.21	3,269.43	30.18%	709.51	1,006.31	15.84%	46.02%	-	-	4,985.25
	LAFCO Tier 3	1,731.20	479.20	27.68%	161.35	-	9.32%	37.00%	-	-	640.55
		7,863,320.16	1,996,551.08	25.39%	918,367.49	375,168.71	16.45%	41.84%	2,248.00	3,707.91	\$ 3,296,043.19
PP 2	1/17/2020	Pensionable Salary	Employer Contributions	Employer Rate	Employee Contributions	Employer for Employee Contributions	Employee Rate	Combined Rate	Additional Contributions	Buy Backs	TOTAL Contributions
	By Employer and Tier:										
	County Tier 1	3,270,350.89	841,813.08	25.74%	392,426.81	278,521.62	20.52%	46.26%	987.50	1,692.05	1,515,441.06
	County Tier 2	954,317.41	254,261.35	26.64%	47,876.56	81,150.50	13.52%	40.16%	-	332.54	383,620.95
	County Tier 3	3,077,060.55	770,820.56	25.05%	380,105.97	-	12.35%	37.40%	-	1,718.55	1,152,645.08
	Superior Court Tier 1	262,892.58	72,847.03	27.71%	48,936.03	-	18.61%	46.32%	-	-	121,783.06
	Superior Court Tier 3	98,826.71	26,045.19	26.35%	13,119.80	-	13.28%	39.63%	-	-	39,164.99
	APCD Tier 1	57,491.45	14,218.55	24.73%	8,310.54	4,240.33	21.83%	46.56%	-	-	26,769.42
	APCD Tier 3	19,500.01	4,657.29	23.88%	2,747.07	-	14.09%	37.97%	-	-	7,404.36
	Pension Trust Staff Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
	Pension Trust Staff Tier 2	9,003.20	2,170.67	24.11%	340.32	836.40	13.07%	37.18%	-	-	3,347.39
	Pension Trust Staff Tier 3	11,215.96	2,649.20	23.62%	1,457.67	-	13.00%	36.62%	250.00	-	4,356.87
	LAFCO Tier 1	10,832.21	3,269.43	30.18%	709.51	1,006.31	15.84%	46.02%	-	-	4,985.25
	LAFCO Tier 3	1,731.20	479.20	27.68%	161.35	-	9.32%	37.00%	-	-	640.55
		7,780,938.04	1,995,091.85	25.64%	897,218.61	366,471.96	16.24%	41.88%	1,237.50	3,743.14	\$ 3,263,763.06
PP 3	1/31/2020	Pensionable Salary	Employer Contributions	Employer Rate	Employee Contributions	Employer for Employee Contributions	Employee Rate	Combined Rate	Additional Contributions	Buy Backs	TOTAL Contributions
	By Employer and Tier:										
	County Tier 1	3,273,368.75	842,671.45	25.74%	392,940.68	278,452.04	20.51%	46.25%	987.50	13,625.76	1,528,677.43
	County Tier 2	957,188.96	254,974.58	26.64%	45,314.49	83,974.50	13.51%	40.15%	-	332.54	384,596.11
	County Tier 3	3,135,341.23	785,274.19	25.05%	386,179.53	-	12.32%	37.36%	-	1,090.40	1,172,544.12
	Superior Court Tier 1	260,518.69	72,204.29	27.72%	48,370.20	-	18.57%	46.28%	-	-	120,574.49
	Superior Court Tier 3	101,171.29	26,646.30	26.34%	13,401.58	-	13.25%	39.58%	-	-	40,047.88
	APCD Tier 1	57,468.20	14,212.94	24.73%	8,306.14	4,238.99	21.83%	46.56%	-	-	26,758.07
	APCD Tier 3	20,481.60	4,889.34	23.87%	2,880.77	-	14.07%	37.94%	-	-	7,770.11
	Pension Trust Staff Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
	Pension Trust Staff Tier 2	9,003.20	2,170.67	24.11%	340.32	836.40	13.07%	37.18%	-	-	3,347.39
	Pension Trust Staff Tier 3	11,215.96	2,649.20	23.62%	1,457.67	-	13.00%	36.62%	250.00	-	4,356.87
	LAFCO Tier 1	10,832.21	3,269.43	30.18%	709.51	1,006.31	15.84%	46.02%	-	-	4,985.25
	LAFCO Tier 3	1,731.20	479.20	27.68%	161.35	-	9.32%	37.00%	-	-	640.55
		7,846,037.16	2,011,301.89	25.63%	901,089.22	369,225.04	16.19%	41.83%	1,237.50	15,048.70	\$ 3,297,902.35
TOTAL FOR THE MONTH		23,490,295.36	6,002,944.82	25.55%	2,716,675.32	1,110,865.71	16.29%	41.85%	4,723.00	22,499.75	\$ 9,857,708.60
TOTAL YEAR TO DATE		23,490,295.36	6,002,944.82	25.55%	2,716,675.32	1,110,865.71	16.29%	41.85%	4,723.00	22,499.75	\$ 9,857,708.60

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REPORT OF RETIREMENTS

January 2020

RETIREE NAME	DEPARTMENT	BENEFIT TYPE *	EFFECTIVE DATE	MONTHLY BENEFIT	SS TEMP ANNUITY**
Aunger, Brian H	Air Pollution Control District	Service Retirement	01/01/20	4,880.64	False
Bailey, Kerry L	Auditor-Contrlr-Treas-Tax-Coll	Service Retirement	01/01/20	3,157.70	False
Bernard, Carole Ann	Department of Social Services	Service Retirement	12/28/19	1,891.35	False
Castle-Chaffee, Maleah Jea	Department of Social Services	Service Retirement	12/28/19	717.71	True
Clark, Craig S	Sheriff-Coroner	DROP	01/01/20	6,167.58	True
Dudley, Pamela A	Public Health Department	Service Retirement	12/28/19	7,871.90	False
Dudley, Pamela A	Public Health Department	Additional Annuity	12/28/19	156.26	False
Dyer, Robert N	Department of Social Services	Service Retirement	12/28/19	2,682.85	False
Dyer, Robert N	Department of Social Services	Additional Annuity	12/28/19	134.67	False
Flynn, David J	Public Works ISF	Service Retirement	12/28/19	9,769.53	False
Flynn, David J	Public Works ISF	Additional Annuity	12/28/19	1.26	False
Fondell, Dawna C	Sheriff-Coroner	Service Retirement	12/28/19	3,475.65	False
Forero, Mirna E	Department of Social Services	Service Retirement	12/28/19	2,415.02	False
Garcia, Patrice A	Department of Social Services	Service Retirement	12/28/19	5,898.59	False
Gardner, Debra Kelleher	Department of Social Services	Service Retirement	12/28/19	873.41	False
Guaspari, Phyllis Marie	SLO County Child Support Servi	Service Retirement	01/01/20	1,444.42	True
Heintz, Shauna	Central Services	Service Retirement	12/28/19	2,289.59	True
Hernandez, Thomas P	Fleet Services ISF	Service Retirement	12/28/19	2,267.43	False
Hortillosa, Elaine L	Behavioral Health	Service Retirement	01/01/20	6,244.71	False
LaPalm, Jay S	ITD	Service Retirement	12/28/19	5,459.77	False
Lathrop, Scott R	Planning	Service Retirement	12/31/19	2,892.16	False
Lauterback, Kathlyne W	Department of Social Services	Service Retirement	01/01/20	6,417.72	False
Lauterback, Kathlyne W	Department of Social Services	Additional Annuity	01/01/20	3.53	False
Leon, Suzanne	Public Health Department	Service Retirement	12/21/19	627.18	False
Linhares, Dan R	Public Works ISF	DROP	01/01/20	3,722.34	False
Linhares, Dan R	Public Works ISF	Additional Annuity	01/01/20	285.74	False
MacDonald, Stuart A	Sheriff-Coroner	DROP	01/01/20	9,803.47	False
Macek, Christine T	Planning Department	Service Retirement	01/11/20	2,741.89	False
Mannon, Douglas	Assessor	Service Retirement	12/28/19	2,428.13	False
Manuele, Michael S	Sheriff-Coroner	DROP	01/01/20	11,174.04	False
McClure, Marydiane	SLO County Child Support Servi	Service Retirement	01/01/20	3,320.36	False
McKelvy, Preston	Assessor	Service Retirement	12/28/19	5,532.54	False
Outram, Kevin W	Sheriff-Coroner	DROP	01/01/20	7,116.07	False
Outram, Kevin W	Sheriff-Coroner	Additional Annuity	01/01/20	4.97	False
Overbey, Elizabeth J	Department of Social Services	Service Retirement	12/28/19	3,377.33	False

REPORT OF RETIREMENTS**January 2020**

RETIREE NAME	DEPARTMENT	BENEFIT TYPE *	EFFECTIVE DATE	MONTHLY BENEFIT	SS TEMP ANNUITY**
Porto, Donald Eugene	Department of Social Services	Service Retirement	01/01/20	1,417.31	False
Quate, Holly	District Attorney	Service Retirement	12/28/19	1,333.01	False
Rodgers, Christopher M	Department of Social Services	Service Retirement	12/20/19	984.38	False
Rodgers, Christopher M	Department of Social Services	Additional Annuity	12/20/19	1.51	False
Shemick, John F	Fleet Services ISF	DROP	01/01/20	2,351.11	False
Slater, Karoline M	Department of Social Services	Service Retirement	12/28/19	2,636.87	False
Slater, Karoline M	Department of Social Services	Additional Annuity	12/28/19	7.28	False
Sparks, Charron L	Assessor	Service Retirement	12/28/19	10,677.29	False
Stranlund, Jeff Konrad	Assessor	Service Retirement	12/28/19	3,343.31	False
Sullivan, Timothy R	Department of Social Services	Service Retirement	12/28/19	2,168.94	False
Torres, Victor A	Sheriff-Coroner	DROP	01/01/20	5,032.41	False
Underwood, Bonnie	Clerk Recorder	Service Retirement	10/01/19	1,314.09	False
Underwood, Bonnie	Clerk Recorder	Additional Annuity	10/01/19	377.92	False
Upton, Thomas H	ITD	DROP	01/01/20	5,418.51	False
Upton, Thomas H	ITD	Additional Annuity	01/01/20	12.55	False
Wilson, Thomas M	District Attorney	DROP	01/01/20	9,058.26	False

* Additional Annuity Benefits are calculated based on the Additional Contribution and associated Interest balance of the Retiree at the point of retirement (per Sections 5.07, 27.12, 28.12, 29.12, 30.12, and 31.12 of the Plan)

** If "True" Retiree has elected an optional Social Security Coordinated Temporary Annuity (per Section 13.06 of the Plan), actual monthly allowance will be increased until age 62 and then actuarially reduced going forward

Board of Trustees

1000 Mill Street
San Luis Obispo, CA 93408
Phone: (805) 781-5465
Fax: (805) 781-5697
www.SLOPensionTrust.org



Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 5: Conflict of Interest Policy Amendment and Biennial Review

Recommendation:

It is recommended by Staff that the Board of Trustees review and approve the attached amended Conflict of Interest Policy for the San Luis Obispo County Pension Trust (“SLOCPT”) in accordance with section V of said document.

Background:

The Political Reform Act requires every local government agency to review its conflict-of-interest code biennially. After review, each agency must submit to the County Clerk-Recorder a notice indicating whether or not an amendment is necessary. If an amendment is necessary, the Agency must submit the updated document to County Counsel for review before officially submitting to the Board of Supervisors for adoption. Staff has determined an amendment to the code is necessary due to –

- Changed titles for the Executive Director and Deputy Director
- Clarification that County of San Luis Obispo is the conflict of interest code reviewing body for agencies within the County. Hence the modification to reflect that Statements of Economic Interest (Form 700s) are filed with the County and copies retained SLOCPT.

If the Board of Trustees agrees with the recommendation, Staff will submit the Amended Conflict of Interest Policy and the “2020 Local Agency Biennial Notice” to the Clerk Recorder for review by the County Counsel’ Office and submission to the Board of Supervisors for approval.

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SAN LUIS OBISPO COUNTY PENSION TRUST
CONFLICT OF INTEREST CODE
ADOPTED FEBRUARY 24, 2014
AMENDED FEBRUARY 24, 2020
EFFECTIVE MARCH 1, ~~2014~~2020

I. PURPOSE

The Political Reform Act of 1974, Government Code Section 81000 et seq. (PRA) requires state and local government agencies to adopt and promulgate conflict of interest codes. The Pension Trust originally adopted a conflict of interest code that became effective on August 24, 1977. The purpose of this new code is to update the applicable obligations of Trustees, staff, and consultants to ensure present and future consistency with the requirements of the PRA as interpreted by the Fair Political Practices Commission (FPPC).

II. POLICY OBJECTIVES

The FPPC has adopted a regulation, Title 2, California Code of Regulations, section 18730, which contains the terms of a standardized conflict of interest code that is amended from time to time to conform with amendments to the PRA. Any local agency may incorporate the standard conflict of interest code, with the obligation that it supplements the provisions of such code with a designation of employees and other individuals who are obligated to submit disclosure statements pursuant to the PRA. The following policy seeks to comply with this statutory directive, and to promote the policy set forth in Government Code section 87100, which states that “No public official at any level of state or local government shall make, participate in making or in any way attempt to use his official position to influence a governmental decision in which he knows or has reason to know he has a financial interest.”

III. INCORPORATION OF SECTION 18730

The provisions of Title 2, California Code of Regulations, section 18730, and any amendments to it, duly adopted by the FPPC are hereby incorporated by reference and, along with the other provisions contained herein, including Exhibits A, B and C hereto, shall constitute the conflict of interest code of the Pension Trust.

IV. POLICY GUIDELINES

1. MEMBERS OF THE BOARD OF TRUSTEES AND EXECUTIVE SECRETARY-DIRECTOR

Members of the Board of Trustees and the Executive Secretary-Director are separately obligated by Government Code section 87200 to file a

Statement of Economic Interests (Form 700) because they are public officials with responsibility for managing public investments.

2. CATEGORIES OF DISCLOSURE AND INDIVIDUALS SUBJECT TO DISCLOSURE

The categories of disclosure required by this Code are described in Exhibit A. The individuals who must file Form 700s and the category of disclosure required for such individuals are described in Exhibit B. Form 700s are public records pursuant to Government Code section 81008.

3. TIMING OF DISCLOSURES

All individuals affected by this Code who have not previously filed Form 700s pursuant to policy or otherwise shall make an initial filing within 30 days of the effective date of this Code. Individuals appointed, promoted or transferred to designated positions shall file a Form 700 within 30 days thereafter. All affected individuals shall thereafter file a Form 700 annually prior to April 1 concerning the prior calendar year. All affected individuals shall file a “leaving office” Form 700 within 30 days of leaving a position for which a statement is required, unless assuming a similar position with the Pension Trust with the same or more inclusive filing requirements.

4. LOCATION OF DISCLOSURES

The original Form 700 shall be electronically filed with the County of San Luis Obispo. A copy will also be retained at the office of the San Luis Obispo County Pension Trust. ~~The Executive Secretary or his or designee shall make and retain a copy, and forward the original to the Clerk-Recorder.~~

V. POLICY REVIEW

The Board of Trustees shall review this Code prior to July 1 of each even numbered calendar year to ensure that its provisions remain relevant and appropriate.

VI. AMENDMENT HISTORY

The Board of Trustees adopted this Code on February 24, 2014 and last amended it on February 24, 2020 to be effective March 1, ~~2014~~2020.

EXHIBIT A

DISCLOSURE CATEGORIES

Form 87200 Filers

Form 87200 filers shall complete all schedules for Form 700 and disclose all reportable sources of income, interests in real property, investments and business positions in business entities, if applicable, consistent with the instructions for the Form 700 on the FPPC website. (www.fppc.ca.gov)

Category 1 Filers

Individuals designated in Category 1 on Exhibit B shall complete all schedules of Form 700 unless there are no reportable interests for a schedule. A “reportable interest” shall be any source of income, investment or business position, or interest in real property of a type in which the Pension Trust is authorized to invest in or contract with for services.

EXHIBIT B

DESIGNATED POSITION CATEGORIES

<u>Position</u>	<u>Disclosure Category</u>
Trustee	Form 87200 Filer
Executive Secretary <u>Director</u>	Form 87200 Filer
Deputy Executive Secretary <u>Director</u>	Category 1
Outside General Counsel	Category 1
Investment Consultants and Managers*	Category 1

* The Executive ~~Secretary~~Director may determine in writing that a particular Investment Consultant or Manager although a “designated position,” is hired to perform a range of duties that is limited in scope and thus is not required to fully comply with the disclosure requirements described in this section. Such written determination shall include a description of the consultant’s duties and, based upon that description, a statement of the extent of disclosure requirements. Such determination shall be a public record and shall be retained for public inspection in the same manner and location as this conflict of interest code.

Board of Trustees

1000 Mill Street
San Luis Obispo, CA 93408
Phone: (805) 781-5465
Fax: (805) 781-5697
www.SLOPensionTrust.org



Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 6: Annual Cost-Of-Living Adjustments provided by the San Luis Obispo County Employees Retirement Plan

Recommendation:

It is recommended that the Board approve Cost-Of-Living Adjustments (COLAs) as recommended by SLOCPT's Actuary (Gabriel Roeder, Smith and Company), and in accordance with the Retirement Plan.

1. **Tier 1 benefit recipients, 2020 COLA of 3.00% (the maximum) with a 0.5% carryover into the COLA -bank.**
2. **Tier 2 and Tier 3 recipients, 2020 COLA of 2.00% (the maximum).**

Discussion:

COLA Adjustments - The Retirement Plan provides for annual cost-of-living adjustments for retirees in: Section 19.01 and Section 19.02 of Article 19: Cost-Of-Living; Section 27.25 of Article 27: Tier Two –Miscellaneous; Section 28.25 of Article 28: Tier Two – Safety; Section 29.25 of Article 29: Tier Three – AB 340: Miscellaneous; Section 30.25 of Article 30: Tier Three – AB 340: Safety; and Section 31.24 of Article 31: Tier Three – AB 340: Probation.

CPI-U Benchmarks - The COLA percentage, as specified by the Plan, is determined by the average of the All Urban Consumers Consumer Price Index – all items (CPI-U) for the Los Angeles and the San Francisco metropolitan areas.

The SLOCPT's actuary calculates the recommended COLA as a smoothed value using the two most recent annual averages published by the Bureau of Labor Statistics for each specified

metropolitan area. While COLAs have historically been calculated as increases to benefits with positive inflation, the Plan also allows for decreases should there be deflation in the CPI-U data.

Financial:

This year’s recommended COLA is expected to cumulatively increase the current monthly retiree payroll distribution by approximately \$248,000.

The 2019 Actuarial Valuation uses a long-term inflation assumption of 2.50% which is also used as the long-term projection for Tier 1 COLA adjustments. As a result, the above assumed COLA for 2020 will contribute to an actuarial loss in future actuarial valuations.

Conclusion:

COLA Recommendation - The recommended COLA based on average of the years 2019 and 2018 has been calculated as **3.5%**. As dictated by the Plan, COLAs may not exceed 3% for Tier 1 retirees or 2% for Tier 2 and Tier 3 retirees. Furthermore, for Tier 1 retirees, if the calculated average percentage increase is greater than 3%, the amount in excess of 3% will be “banked” and used in subsequent years where the calculated percentage increase is less than 3% (aka: the “Cumulative Carryover”). Tier Two and Tier Three retirees are not eligible for the Cumulative Carryover as stipulated by the Plan.

Upon Board approval, all eligible retirees will receive a COLA on April 1, 2020 as shown in the following table. The Cumulative Carryover (COLA Bank) for each vintage year of retirees will change as shown on the attached letter from SLOCPT’s Actuary.

Tier:	Retirement Date:	COLA:
1	On or Before January 1, 2020	3.00%
2 & 3	On or Before January 1, 2020	2.00%

Respectfully Submitted



January 31, 2020

Mr. Carl Nelson
Executive Director
San Luis Obispo County Pension Trust
1000 Mill Street
San Luis Obispo, CA 93408

Subject: COST-OF-LIVING ADJUSTMENT, APRIL 1, 2020

Dear Carl,

Sections 19.01 and 19.02 of the by-laws of the San Luis Obispo County Pension Trust provides for cost-of-living adjustments to certain Tier 1 members who retire or die as of, or prior to, the previous January 1st each year. The following is the determination of the cost-of-living adjustment payable as of April 1, 2020.

The percentage changes of the All Urban Consumers C.P.I. annual average for the Los Angeles – Long Beach – Anaheim and the San Francisco - Oakland - Hayward areas are as follows:

2019 San Francisco – Oakland – Hayward	3.2%
2019 Los Angeles – Long Beach – Anaheim	3.1%
2018 San Francisco – Oakland – Hayward	3.9%
2018 Los Angeles – Long Beach – Anaheim	3.8%

The average of the percentage changes for the years 2019 and 2018 is used to determine the County’s cost-of-living adjustment (COLA) factor for April 2020 but the COLA may not exceed 3.0%. However, if the percentage increase is greater than three percent, then the excess may be carried forward and applied in a future year when the increase is less than three percent.

The average percentage increase for the last two years is **3.5%**. The attached schedule details the implementation of this factor to each Tier 1 retiree based on the date they entered the pension roll. All Tier 1 retirees will receive a 3.0% increase and have their Cumulative Carryover account increased by 0.5%.

While the Cumulative Carryover is consistent with last year, we are making no representation as to whether the historical Cumulative Carryover figures are accurate.

Mr. Carl Nelson
January 31, 2020
Page 2

These calculations comply with Sections 19.01 and 19.02 of the by-laws of the San Luis Obispo County Pension Trust. Sections 27.25 and 28.25 specify cost-of-living adjustments for Tier 2 Miscellaneous and Safety retirees respectively. Sections 29.25, 30.25, and 31.25 specify cost-of-living adjustments for Tier 3 AB 340 Miscellaneous, Safety, and Probation retirees respectively.

The initial COLA for Tier 2 and Tier 3 members is also governed by sections 19.01 and 19.02 but the COLA may not exceed 2.0% for these groups and they do not carry forward any accumulation of COLAs beyond the annual 2% maximum. Since the initial COLA this year is 3.5%, any Tier 2 or Tier 3 retirees as of January 1, 2020 would be eligible for a 2.0% COLA.

The actuary submitting this statement is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

If you have any questions about the information requested above or need any additional information, please contact me at 720-274-7275 or paul.wood@grsconsulting.com or Thomas Lyle at 720-274-7278 or thomas.lyle@grsconsulting.com.

Sincerely,

Gabriel, Roeder, Smith & Company



Paul T. Wood, ASA, FCA, MAAA
Consultant

Enclosure

Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this communication (or any attachment) concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.

This communication shall not be construed to provide tax advice, legal advice or investment advice.



**San Luis Obispo County
Suggested Cost-of-Living Increase**

<u>Entered Pension Roll</u>	<u>As of April 1, 2019</u>			<u>As of April 1, 2020</u>		
	<u>CPI Change</u>	<u>Used</u>	<u>Cumulative Carryover</u>	<u>CPI Change</u>	<u>Used</u>	<u>Cumulative Carryover</u>
On or Before 1/1/1979	3.4%	3.0%	16.9%	3.5%	3.0%	17.4%
1/2/1979 to 1/1/1980	3.4%	3.0%	12.6%	3.5%	3.0%	13.1%
1/2/1980 to 1/1/1981	3.4%	3.0%	5.9%	3.5%	3.0%	6.4%
1/2/1981 to 1/1/2019	3.4%	3.0%	0.4%	3.5%	3.0%	0.9%
1/2/2019 to 1/1/2020	-	-	0.0%	3.5%	3.0%	0.5%



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Board of Trustees

1000 Mill Street
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San Luis Obispo County Pension Trust *SLOPCT*

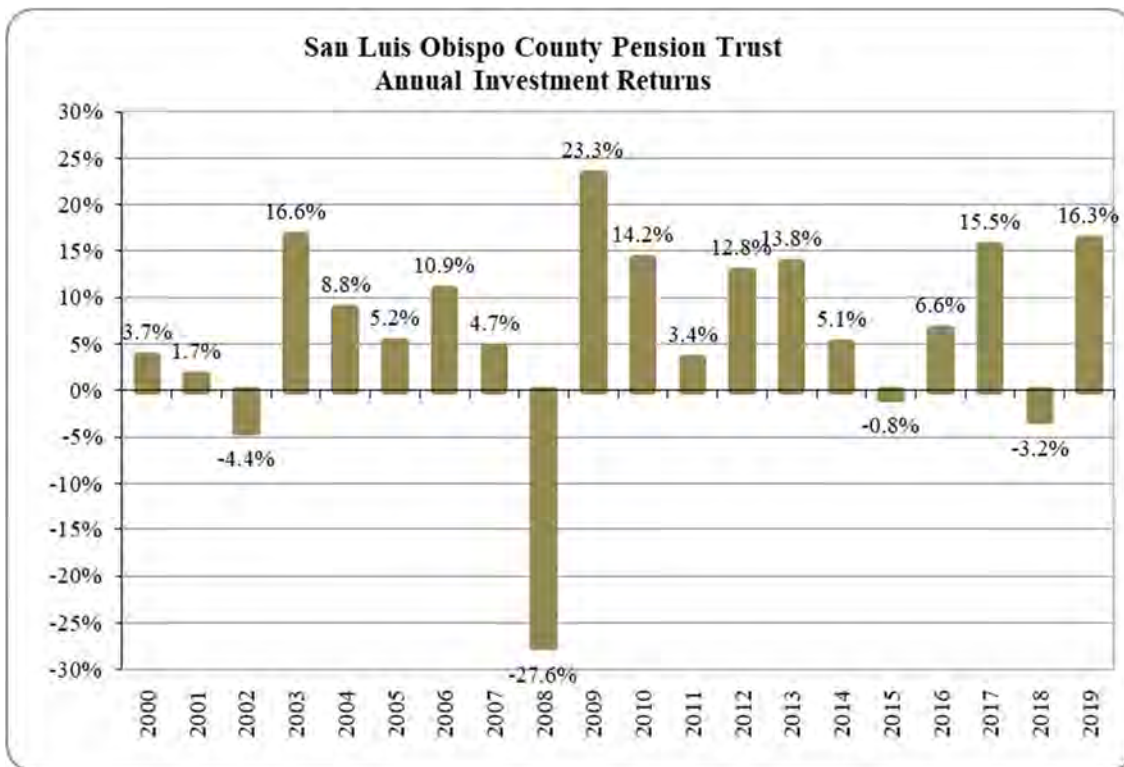
Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 7: Quarterly Investment Report for the 4th Quarter of 2019

Attached to this memo is the 4Q19 quarterly investment report prepared by the Trust's investment consultant Verus. Scott Whalen of Verus will make a detailed presentation and discuss the quarterly report. The 20 year history of the rates of return gross of fees of the Pension Trust are shown below as an extension of the data in the Verus report.



Respectfully submitted,

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**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2019

Investment Performance Review for

San Luis Obispo County Pension Trust

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[VERUSINVESTMENTS.COM](https://www.verusinvestments.com)

SEATTLE 206-622-3700

LOS ANGELES 300-297-1777

SAN FRANCISCO 415-362-3484

Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

1ST QUARTER 2020
Investment Landscape

Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

Annual outlooks

CAPITAL MARKET ASSUMPTIONS

Some important developments occurred in the last year. During our 2020 Capital Market Assumptions webinar, we discussed:

- Market movements of 2019 and how these shifts have affected our long-term outlook
- The impact of falling interest rates on fixed income expectations
- Why it is important to differentiate between shorter-term and longer-term forecasting exercises

Topics of interests

WHY BENCHMARKS MATTER

In this Topics of Interest paper, we seek to outline the importance of benchmark selection within the investment process. The white paper addresses the following points:

- Benchmarks which appear similar can behave very differently, even over long periods of time
- Unconsidered benchmark selection can introduce uncompensated tracking error
- Tools available to investors to assist in determining appropriate benchmark indexes

RISK IN MANAGER SELECTION

In our latest Topics of Interest paper, we provide a framework for assessing the candidacy of a manager for portfolio inclusion and consider the implications of one manager versus alternatives. It addresses the following questions:

- Does the manager add a desired exposure?
- Does the manager exhibit skill?
- What does the manager add to the broader portfolio relative to other candidates?

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Equity 23

Other assets 34

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4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.1% quarterly annualized rate). Falling imports and weak fixed investment (-0.2% contribution) acted as a drag on growth, while personal consumption continued to be the greatest driver of growth. **p. 7**
- U.S. and Chinese negotiators signed the “phase one” trade agreement, and Boris Johnson’s Conservative Party in the U.K. won a decisive victory. These events appear to have removed some uncertainty from the geopolitical landscape over the short- to intermediate-term. **p. 15**

PORTFOLIO IMPACTS

- Global equity markets exhibited strong performance through Q4, and U.S. equity performance was in-line (MSCI ACWI +9.0%, S&P 500 +9.1%). Emerging markets were the top performing asset class (+11.8%). **p. 40**
- U.S. headline inflation increased 2.3% YoY in December, alongside the core inflation growth figure, and up from 1.7% in September. Although this was a notable jump in the inflation rate, investors appear more concerned about global deflationary forces, as indicated by the 10yr U.S. TIPS Breakeven Inflation Rate of 1.73%. Cyclical price pressures remain surprisingly absent from the current environment. **p. 9**

THE INVESTMENT CLIMATE

- In October, the Federal Open Market Committee cut interest rates by 0.25% to a new range of 1.50 – 1.75%. This marked the third consecutive rate cut by the committee. **p. 18**
- Global sovereign bond yields picked up modestly in Q4, on higher inflation and growth prospects. The dollar value of negative-yielding outstanding debt fell from nearly \$15 trillion to just above \$11 trillion. Central bankers appealed for fiscal action, citing the limited capacity of monetary policy to sustain further economic expansion. **p. 18**

ASSET ALLOCATION ISSUES

- Most risk assets provided sizable gains in Q4. Global equities delivered +9.0%, U.S. high yield increased +2.6%, and Emerging Market Local Debt rose +5.2%. Longer duration fixed income saw losses as interest rates rebounded. **p. 40**
- The U.S. dollar weakened -0.5% against both developed and emerging currencies in Q4, reversing moves of the prior quarter. Dollar volatility remains low relative to the big swings that occurred throughout 2014-2018. **p. 35**
- Although risk assets appear to have rocketed higher in 2019, which may create concerns over valuations, it is important to note that much of this performance was due to assets recovering from a sharp fall in late-2018. **p. 25**

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

What drove the market in Q4?

“U.S. trade deficit falls 7.6% in October to 16-month low on decline in Chinese imports”

U.S. FEDERAL TRADE DEFICIT (\$BILLIONS)

Jun	Jul	Aug	Sep	Oct	Nov
53.7	52.7	53.5	51.1	46.9	43.1

Article Source: MarketWatch, December 5th, 2019

“As markets climb higher, are stocks becoming overvalued?”

BLENDED FORWARD 12-MONTH P/E RATIO OF THE S&P 500 INDEX

Jul	Aug	Sep	Oct	Nov	Dec
17.0x	16.6x	16.9x	17.3x	17.8x	18.3x

Article Source: CNBC, December 30th, 2019

“Fed ‘prepared to adjust’ balance sheet to prevent repo market flare-up”

MONTHLY CHANGE IN THE SIZE OF THE FED BALANCE SHEET (\$BILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
-47.7	-19.2	97.8	162.1	33.1	112.7

Article Source: Yahoo Canada Finance, December 11th, 2019

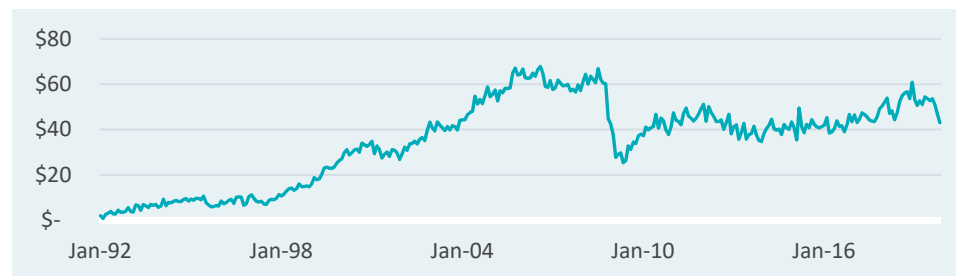
“China’s pork price jumps 110 per cent, sending consumer inflation rocketing to eight-year high”

CHINA CPI INFLATION (YoY % CHANGE)

Jul	Aug	Sep	Oct	Nov	Dec
2.8	2.8	3.0	3.8	4.5	4.5

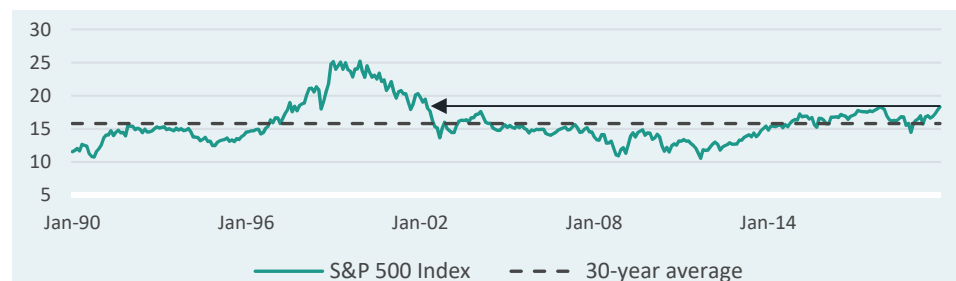
Article Source: South China Morning Post, December 10th, 2019

U.S. MONTHLY TRADE DEFICIT (BILLIONS)



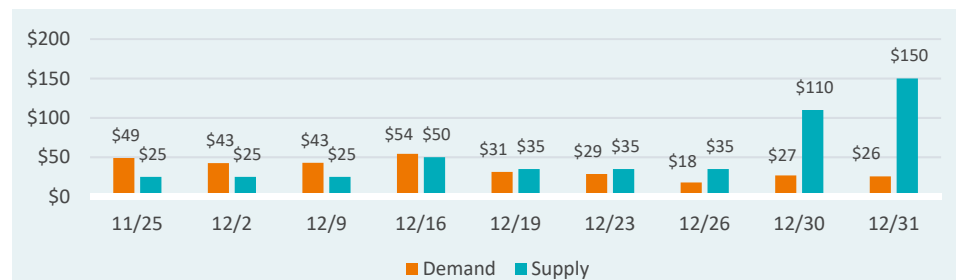
Source: Bloomberg, as of 11/30/19

FORWARD PRICE/EARNINGS RATIO (BLENDED 12-MONTH EARNINGS)



Source: Bloomberg, as of 12/31/19.

YEAR-END LIQUIDITY OFFERED UP BY THE NEW YORK FED (BILLIONS)



Source: New York Fed, as of 12/31/19.

Economic environment

U.S. economics summary

- Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.0% quarterly annualized rate). Falling imports and weak fixed investment (-0.2% contribution) acted as a drag on growth, while personal consumption continued to be the greatest driver of growth.
- U.S. headline inflation came in at 2.3% YoY in December, in line with the core inflation growth figure. Despite more than 10 years of economic expansion, cyclical price pressures seem surprisingly absent from the current environment. Investors appear more concerned about global deflationary forces.
- The U.S. labor market showed further strength in the fourth quarter and unemployment remained at 50-year lows of 3.5%.
- Consumer sentiment indicators remain near all-time-highs and improved slightly over the quarter.
- American households are in a

strong financial position, with balance sheets that appear increasingly robust. At the end of Q3, U.S. household debt outstanding was equal to about 74% of GDP, the healthiest level since Q4 2001.

- U.S. and Chinese negotiators signed the “phase one” agreement on trade, and Boris Johnson’s Conservative Party won a decisive victory in the U.K. These developments may ease some of the economic uncertainty across the global economy, providing a tailwind to future growth.
- Existing home sales grew +2.7% YoY in November. New home sales, a far smaller portion of the overall market, grew at a stronger rate of +16.9% YoY, as construction activity further accelerated. Rising homebuilder activity in recent years may ease some of the low inventory pressures in the current market environment.

	Most Recent	12 Months Prior
GDP (YoY)	2.1% <i>9/30/19</i>	3.1% <i>9/30/18</i>
Inflation (CPI YoY, Core)	2.3% <i>12/31/19</i>	2.2% <i>12/31/18</i>
Expected Inflation (5yr-5yr forward)	1.8% <i>12/31/19</i>	1.8% <i>12/31/18</i>
Fed Funds Target Range	1.50 – 1.75% <i>12/31/19</i>	2.25 – 2.50% <i>12/31/18</i>
10 Year Rate	1.9% <i>12/31/19</i>	2.7% <i>12/31/18</i>
U-3 Unemployment	3.5% <i>12/31/19</i>	3.9% <i>12/31/18</i>
U-6 Unemployment	6.7% <i>12/31/19</i>	7.6% <i>12/31/18</i>

GDP growth

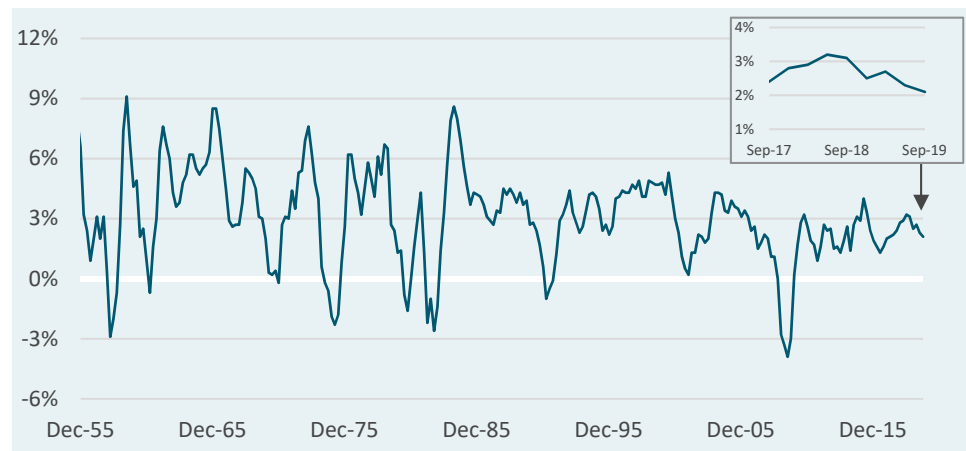
Real GDP grew at a 2.1% rate year-over-year in the third quarter (2.1% quarterly annualized rate). Falling imports detracted -0.3% from the overall GDP print, along with weak fixed investment (-0.2% contribution). Personal consumption, the largest component of gross domestic product, continued to drive the economy forward. The U.S. economy is pacing near the 2.0% rate that economists generally expect for full year 2020.

While trade policies and conflict likely resulted in a mild drag on economic growth in 2019, the U.S. and China have signed

the “phase one” trade deal. A partial trade resolution, or at least an indication that negotiations are headed in a more positive direction, could provide a lift to the economy and markets.

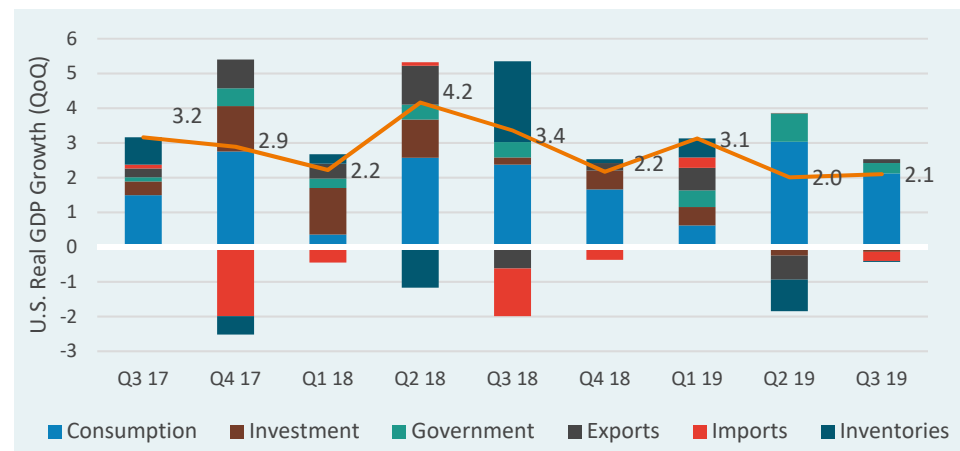
On January 17th, the Federal Reserve Bank of Atlanta GDPNow forecast indicated GDP growth of 1.8% in the fourth quarter. This forecast dipped recently due to weak personal consumption expenditures.

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 9/30/19

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 9/30/19

Inflation

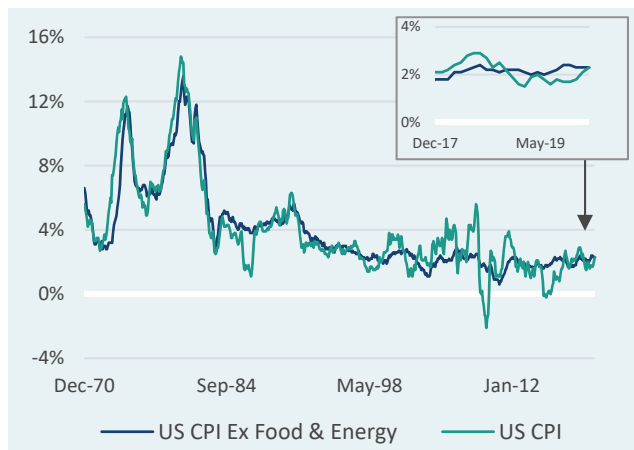
U.S. headline inflation increased 2.3% YoY in December, in line with the core inflation growth figure, and up from 1.7% in September. Although this is a notable jump in the inflation rate, investors appear more concerned about global deflationary forces. Cyclical price pressures remain surprisingly absent from the current environment.

During the quarter, the market's pricing of inflation increased from a low of 1.48% to 1.73%. While the breakeven rate has risen materially from its cycle low of 1.18% achieved in February 2016, it remains depressed by historical standards.

Consumer expectations moved in the opposite direction, falling from 2.7% at the beginning of the year to 2.3% in December.

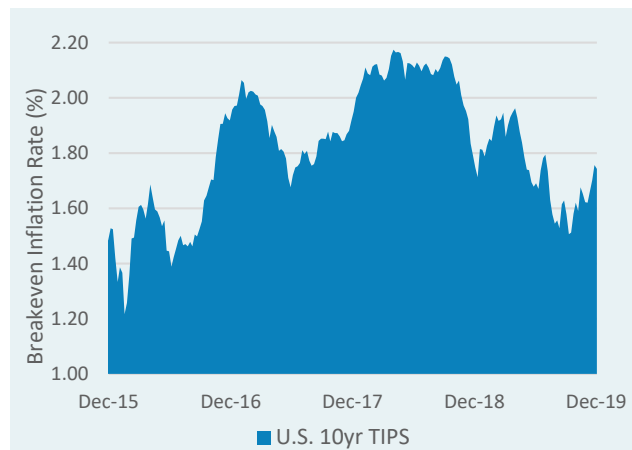
We believe it is likely that inflation will remain subdued. But it is also worth noting that if inflation or inflation fears returned to the markets, this might place central banks in a perilous position. It is doubtful that central banks could hike interest rates for any sustained period of time without risking recession.

U.S. CPI (YOY)



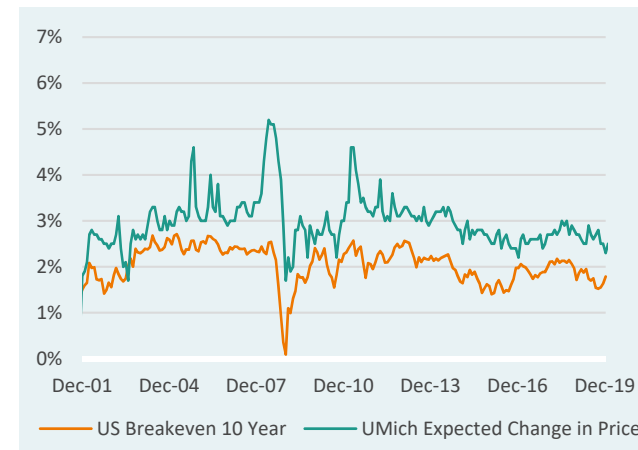
Source: Bloomberg, as of 12/31/19

U.S. BREAKEVEN INFLATION RATE



Source: FRED, as of 12/31/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 12/31/19

Labor market

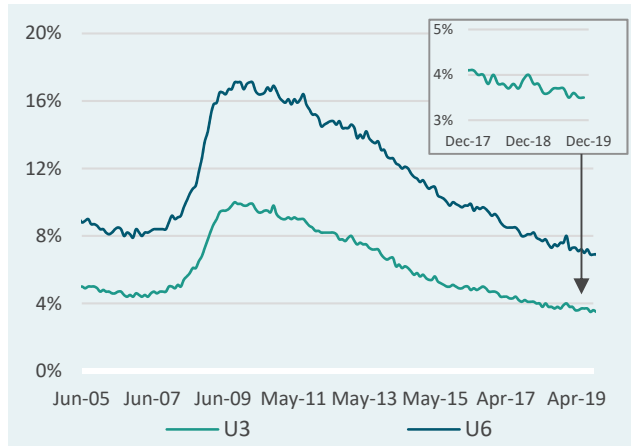
The U.S. labor market continued to show strength in Q4 and unemployment remained at 50-year lows of 3.5%. Year-over-year growth in non-farm payroll additions slowed to its lowest level since September 2017 at 1.4%. Nearly 1.24 jobs are now available per unemployed worker in the labor force, which suggests there is a limited remaining supply of workers to meet business hiring demands.

Average hourly earnings for production and nonsupervisory employees grew 3.0% year-over-year in December, outpacing inflation (2.3%). Sustained real wage growth would support sentiment, which is near cycle highs.

One plausible case for strong consumption to continue hinges on the fact that several key unemployment rates are near historic lows. The unemployment rate for workers who are at least 25 years old and lack high school diplomas (5.3%) is at an at all-time-low level since the data was first recorded in the year 2000. Typically, workers with less education earn less in nominal terms, but have a higher marginal propensity to consume per each dollar earned. These recent increases in employment for those workers who are more likely to spend may lead to outsized positive impacts on economic growth.

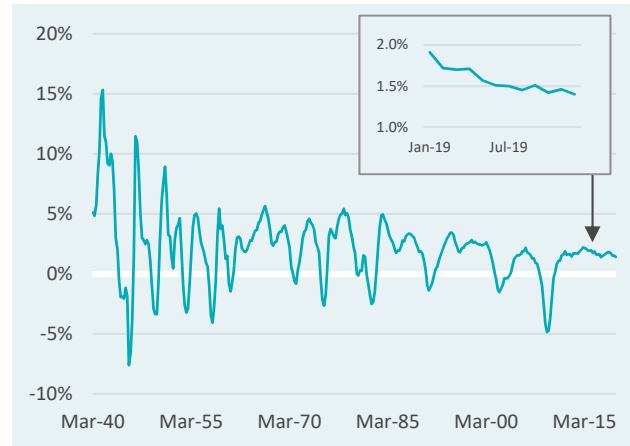
U.S. labor market remains strong, though further upside may be limited

U.S. UNEMPLOYMENT



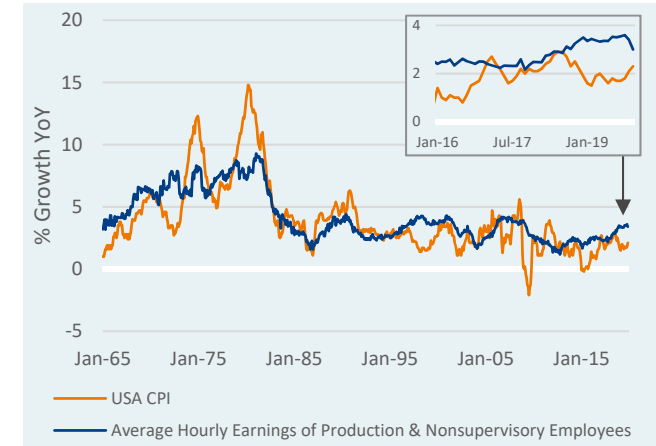
Source: FRED, as of 12/31/19

NON-FARM PAYROLL GROWTH (YOY)



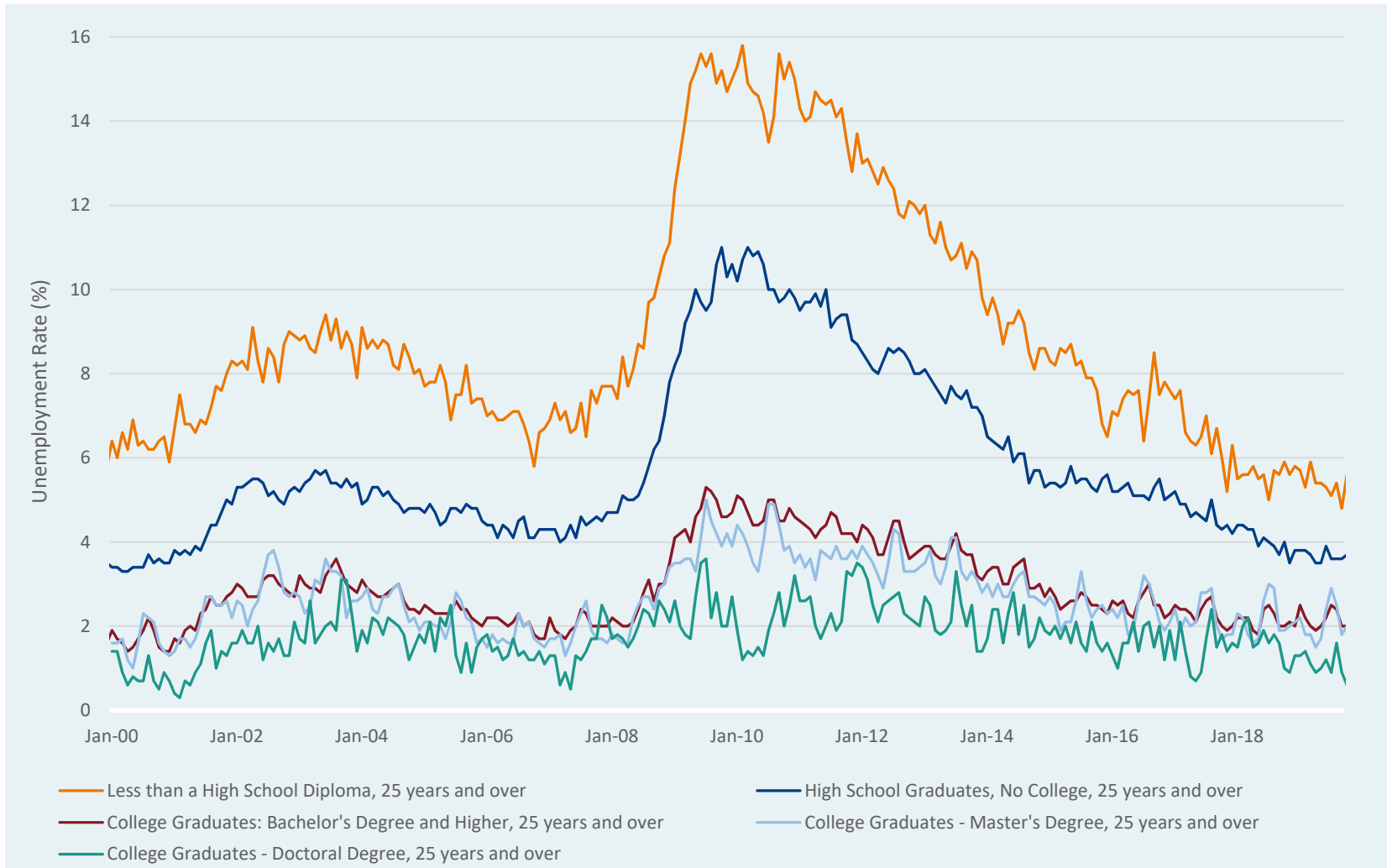
Source: BLS, as 12/31/19

U.S. WAGE GROWTH



Source: FRED, as of 11/30/19

U.S. unemployment



The U.S. job market is very strong, for all levels of education

Source: FRED, as of 11/30/19

The consumer

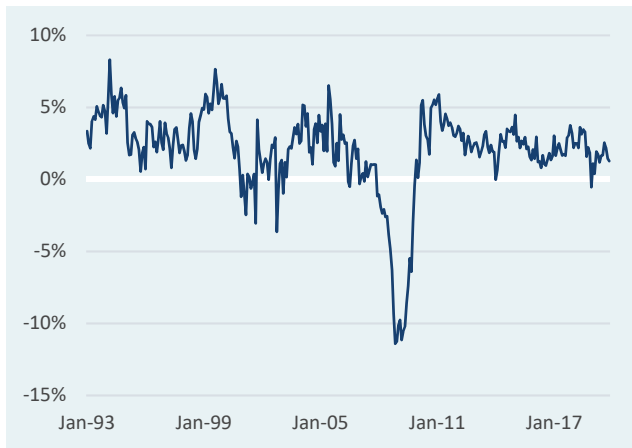
The U.S. consumer continued to push the U.S. economy forward, supported by low unemployment, solid wage gains, and high sentiment. American households are in a strong financial position, with balance sheets that appear robust. At the end of Q3, U.S. household debt outstanding was equal to about 74% of GDP, the healthiest level since Q4 2001.

Retail sales growth slid a bit in real terms, but much of this move was due to a pickup in inflation. The price of a barrel of WTI crude oil rose from \$53 to \$61, helping to propel year-over-year growth in headline inflation from 1.7% to 2.3%. Overall, retail sales growth remains solid, and has been boosted

recently by a surge in e-commerce sales. Cyber Monday sales grew nearly 20% this year, hitting a record \$9.4 billion U.S. dollars according to data from Adobe Analytics. Shoppers' carts were also about 6% larger at checkout than they were last year, perhaps hinting at a more optimistic consumer outlook.

Credit conditions remain benign. Credit-card borrowing ticked down slightly and was offset by faster growth in auto and student loans. Some might consider credit-card debt "worse debt" and auto and student loan debt "better debt" in that prudent investments in transportation and human capital are likely higher-returning than ultra-short-term consumption.

REAL RETAIL SALES GROWTH (YOY)



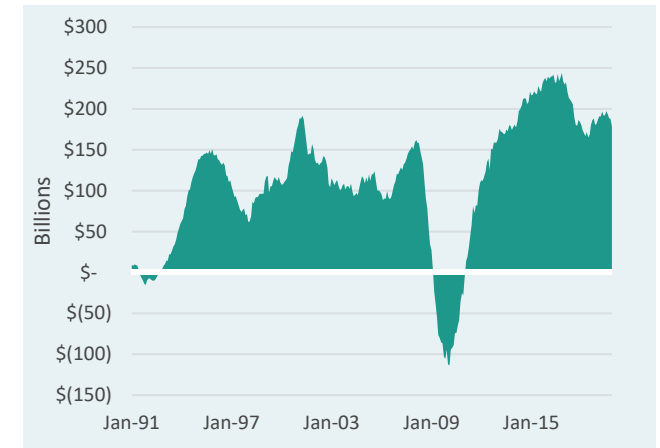
Source: FRED, as of 11/30/19

E-COMMERCE SALES GROWTH (QUARTERLY YOY)



Source: U.S. Census Bureau, Bloomberg, as of 9/30/19

12-MONTH GROWTH IN CONSUMER CREDIT



Source: Federal Reserve, Bloomberg, as of 11/30/19

Sentiment

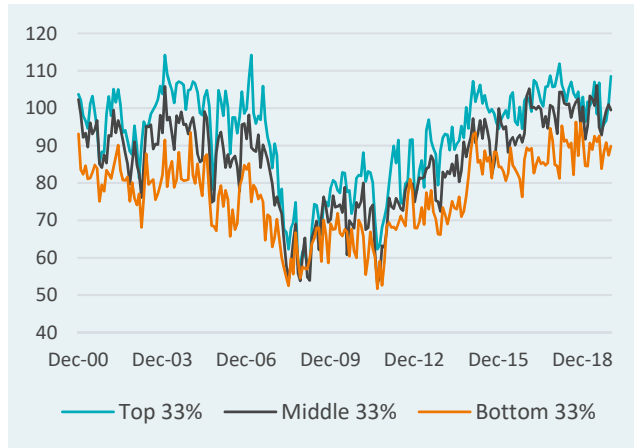
Consumer sentiment indicators remain near all-time-highs and improved slightly as a number of closely-followed geopolitical storylines appeared to move closer to resolution. The U.S. and China “phase one” trade deal, and the victory of Boris Johnson’s Conservative Party in the U.K. appears to have at least removed some uncertainty from the geopolitical landscape over the short- to intermediate-term.

Over the quarter, the difference between the sentiment reading for the top third of income earners and the bottom

third of income earners moved from the 10th percentile to the 65th percentile of monthly periods since 2001, indicating a widening in the gap between the “haves” and “have-nots”.

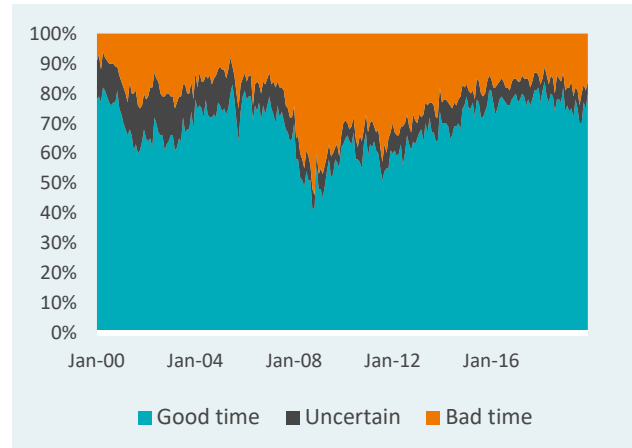
Consumers view the economic conditions for buying big-ticket household items such as furniture, refrigerators and televisions as close to as favorable as they have been over the course of the expansion. This belief appears to be rooted in dual expectations for job security and real wage gains.

CONSUMER SENTIMENT BY INCOME BRACKET



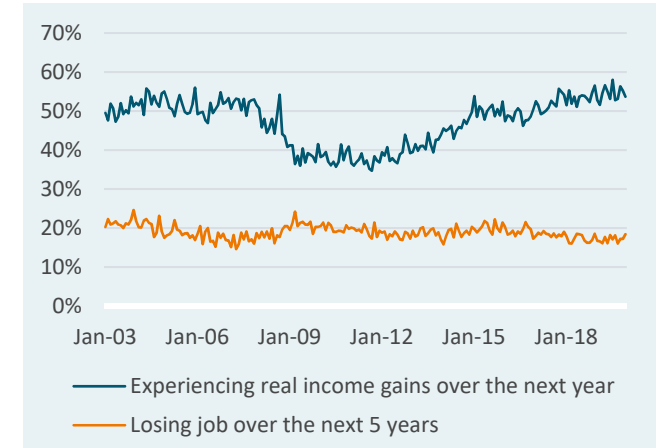
Source: University of Michigan, as of 12/31/19

CONDITIONS FOR BUYING BIG-TICKET ITEMS (%)



Source: University of Michigan, as of 12/31/19

CONSUMER FEAR GAUGE



Source: University of Michigan, as of 12/31/19

Housing

In the first half of 2019 the housing market appeared to be cooling off, coming down from a strong boom throughout the recent economic expansion. The average home sales price is down -8% from the highs of late-2017, although other variables such as the types and location of homes sold can impact these numbers. Homebuilding activity ticked up in the second half of the year as homebuilder sentiment jolted higher in 2019.

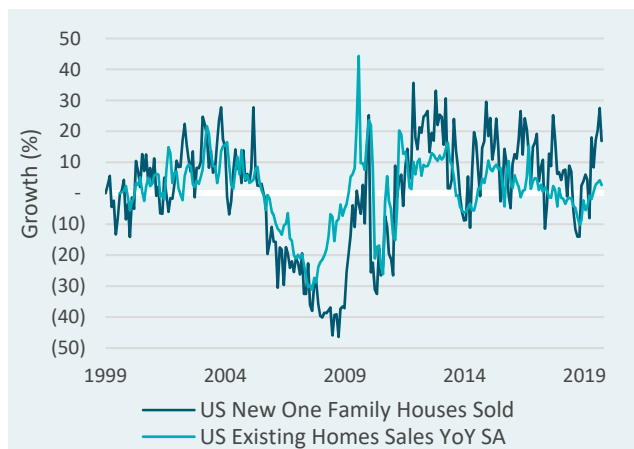
Existing home sales grew +2.7% YoY in November. New home sales, a far smaller portion of the overall market, grew at a stronger rate of +16.9% YoY, as construction activity further accelerated. Rising homebuilder activity in recent years may

ease some of the low inventory pressures in the current market environment.

The housing boom has contributed to a rebound in the U.S. homeownership rate. A decade-long trend away from buying and towards renting appears to have reversed in mid-2016. Since that time, the rate of homeownership has risen to 64.7% from a low of 63.1%.

It is always helpful to remember that home price trends can vary meaningfully by location, which means national statistics are sometimes difficult to interpret at a local level.

U.S. HOME SALES (YOY)



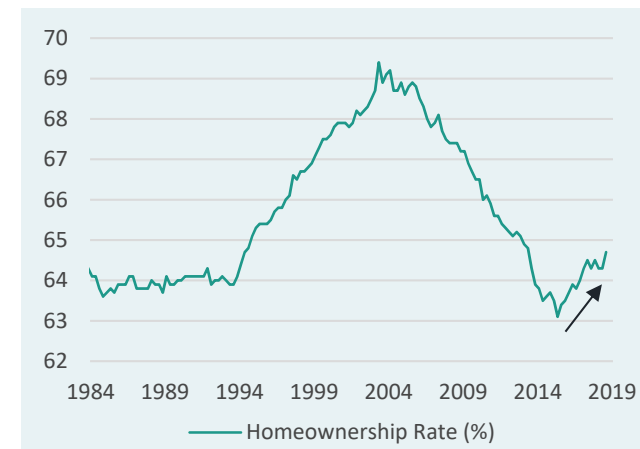
Source: FRED, as of 11/30/19

HOUSING STARTS & PERMITS



Source: Bloomberg, NAHB, as of 11/30/19 (see appendix)

HOMEOWNERSHIP RATE



Source: FRED, as of 9/30/19

International economics summary

- The growth of international developed economies remains in a range of 0.5% to 2.0%, near the 2.1% growth rate of the slowing U.S. economy.
- In January, the IMF forecasted 2.9% global growth in 2019 and an acceleration to 3.3% in 2020. These growth expectations were 0.1% lower than the previous quarter's report, and were mostly a result of downward adjustments to emerging markets expectations.
- Inflation continues to be muted across international developed markets, keeping more options on the table for central banks to step in as needed with accommodative policy.
- The U.K. general election in December resulted in a landslide victory for Boris Johnson. The election, through a consolidation of Tory party power, effectively guarantees that Brexit will ultimately be carried out.
- While the global economy has exhibited mild growth, labor markets continue to tighten across the board. By traditional unemployment measures, job markets are now stronger than pre-2008 levels in most major economies.
- U.S. and Chinese negotiators signed the “phase one” agreement on trade, and the decisive victory of Boris Johnson's Conservative Party in the U.K. appears to have at least removed some uncertainty from the geopolitical landscape over the short- to intermediate-term.
- China has experienced a significant jump in inflation to 4.5% as an outbreak of African swine fever resulted in a doubling of pork prices. This compares to a 5-year average inflation rate of 1.9%. An acceleration of inflation may create issues for Chinese leadership in an already-slowing economy.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.1% <i>9/30/19</i>	2.3% <i>12/31/19</i>	3.5% <i>12/31/19</i>
Eurozone	1.2% <i>9/30/19</i>	1.3% <i>12/31/19</i>	7.5% <i>11/30/19</i>
Japan	1.7% <i>9/30/19</i>	0.9% <i>12/31/19</i>	2.2% <i>11/30/19</i>
BRICS Nations	4.9% <i>9/30/19</i>	4.4% <i>12/31/19</i>	5.1% <i>9/30/19</i>
Brazil	1.2% <i>9/30/19</i>	4.3% <i>12/31/19</i>	11.2% <i>11/30/19</i>
Russia	1.7% <i>9/30/19</i>	3.1% <i>12/31/19</i>	4.6% <i>11/30/19</i>
India	4.5% <i>9/30/19</i>	7.4% <i>12/31/19</i>	8.5% <i>12/31/17</i>
China	6.0% <i>9/30/19</i>	4.5% <i>12/31/19</i>	3.6% <i>9/30/19</i>

International economics

The United States grew at a pace of 2.1% year-over-year in the third quarter, moving more closely in line with other developed nations which have posted growth of 1.0%-2.0%.

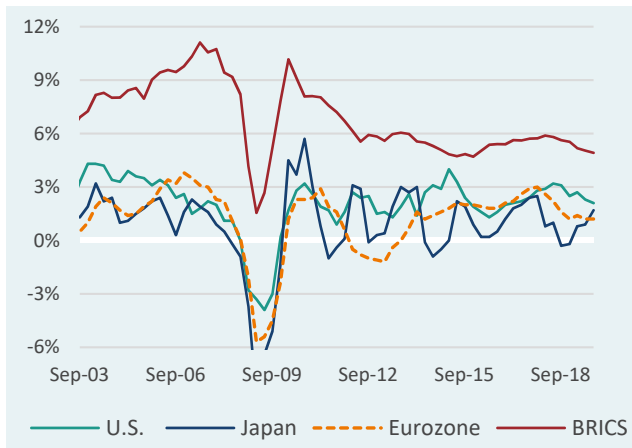
While the global economy has exhibited mild growth, labor markets continue to tighten across the board. By traditional unemployment measures, job markets are now stronger than pre-2008 levels in most major economies.

Inflation has remained subdued across international developed markets, and many pundits have viewed the mild inflation data as a cue for central banks to step in and

attempt to bolster economic growth through more accommodative policy. Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average.

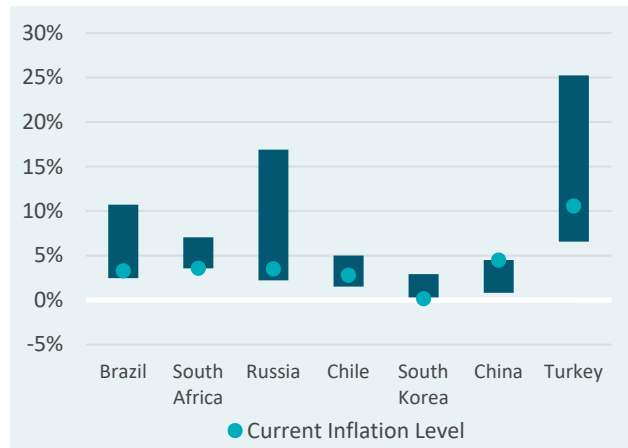
China's inflation rate has become an outlier, jumping to 4.5% as an outbreak of African swine fever resulted in a doubling of pork prices in the country during the year. This compares to a 5-year average inflation rate of 1.9%. Prices of other meats in China have also increased on heightened demand for pork substitutes. An acceleration of inflation may create issues for Chinese leadership in an already-slowing economy.

REAL GDP GROWTH (YOY)



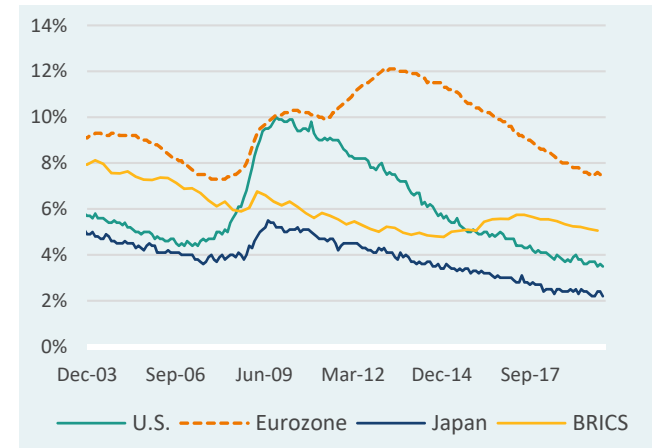
Source: Bloomberg, as of 9/30/19

INFLATION (CPI YOY)



Source: Bloomberg, inflation range of past 5 years, as of 11/30/19

UNEMPLOYMENT RATE



Source: Bloomberg, as of 11/30/19 or most recent release

Fixed income rates & credit

Interest rate environment

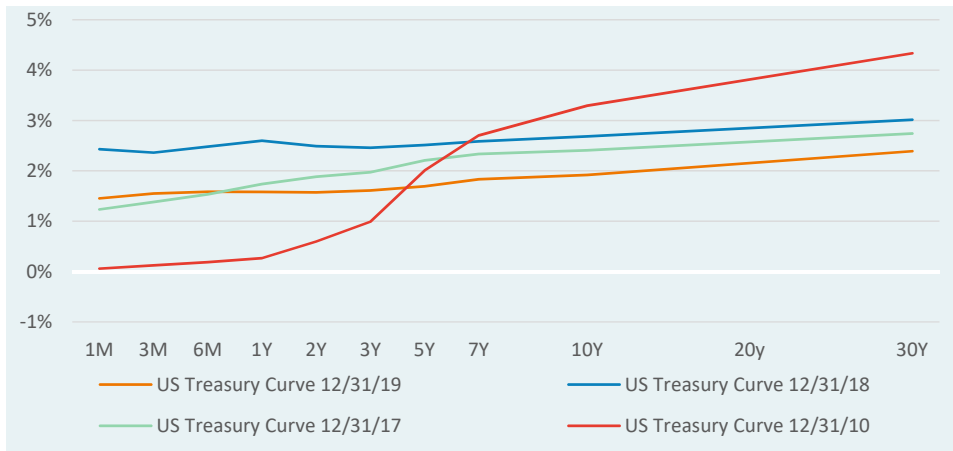
- The global sovereign bond rally lost steam in Q4 as inflation and growth prospects mildly reflat. Central bankers at the European Central Bank and the Federal Reserve signaled that policy would likely remain on hold in the absence of significant economic developments.
- Global ten-year sovereign bond yields picked up moderately, most significantly in Europe. Over the quarter, the U.S.-dollar value of global outstanding negative-yielding debt fell from nearly \$15 trillion to just above \$11 trillion.
- In October, the Federal Open Market Committee cut the range for its benchmark interest rate by 0.25% to a new range of 1.50 to 1.75%.
- Diversity of opinion among FOMC participants about the path of interest rates has faded. Most members now expect rates to remain flat in 2020, and move back toward 2.50% over the longer term.
- The New York Fed conducted a series of term repurchase operations aimed at providing sufficient liquidity for firms to get through the year-end turn when demand for cash typically surges. The Fed balance sheet grew by \$300B in Q4, and analysts continue to debate whether the Fed’s involvement in repo markets should be considered “technical” or “stimulative” in nature.
- The Governing Council of the ECB decided to leave key interest rates unchanged and confirmed that net asset purchases to the tune of €20 billion per month had begun in November.
- In Christine Lagarde’s first major move as President, she announced the ECB’s first Strategic Policy review since 2003, which will begin in January and will address a wide range of topics, including: low inflation, the price-stability goal, climate change, and cryptocurrency.

Area	Short Term (3M)	10-Year
United States	1.54%	1.92%
Germany	(0.78%)	(0.19%)
France	(0.65%)	0.12%
Spain	(0.61%)	0.47%
Italy	(0.34%)	1.41%
Greece	0.26%	1.47%
U.K.	0.69%	0.82%
Japan	(0.10%)	(0.01%)
Australia	0.94%	1.37%
China	2.43%	3.14%
Brazil	4.30%	6.79%
Russia	4.95%	6.36%

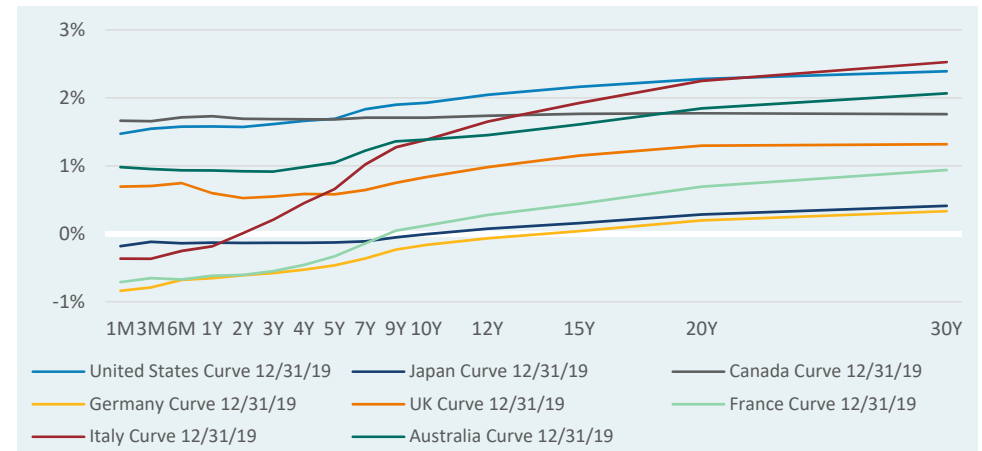
Source: Bloomberg, as of 12/31/19

Yield environment

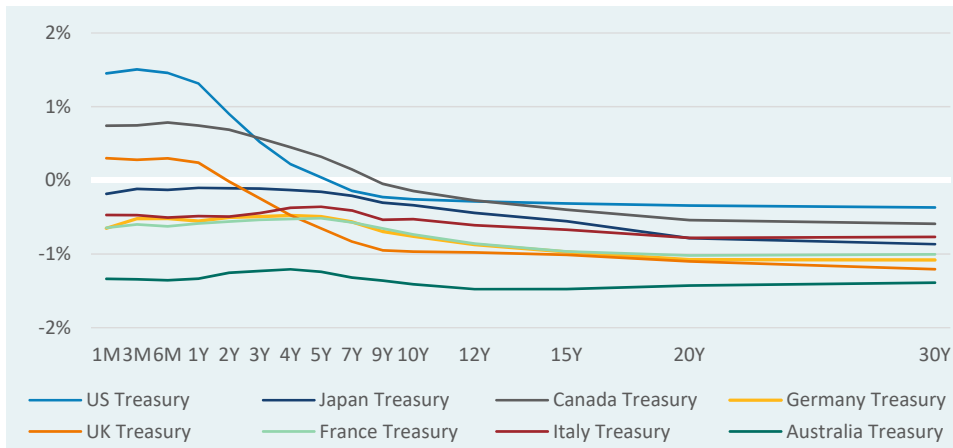
U.S. YIELD CURVE



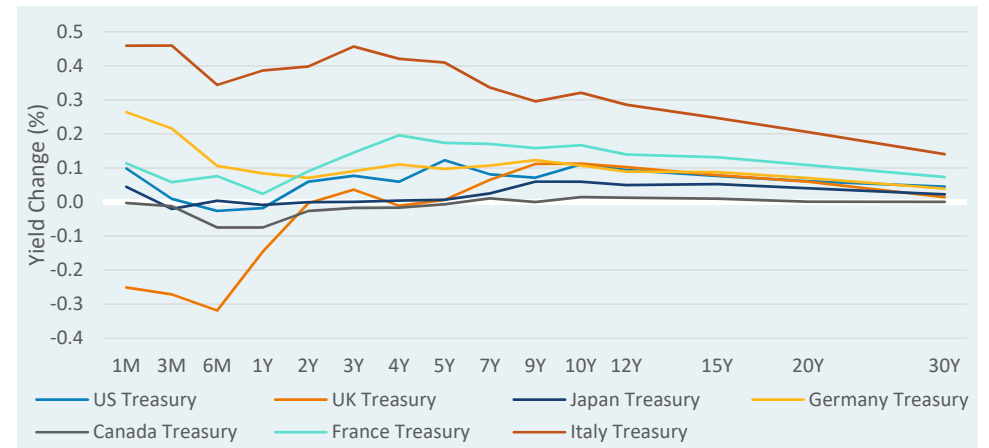
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/19

Credit environment

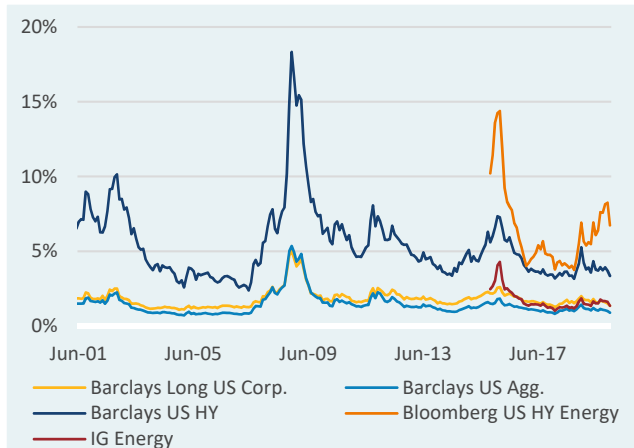
Credit enjoyed a positive 2019 driven by tightening spreads. Both investment grade and below-investment grade assets remained somewhat stable over the period. In high yield, CCCs and energy-related bonds were the best performers during Q4. High yield spreads tightened meaningfully over the year and the quarter (190 bps and 37 bps, respectively). Investment grade bonds also enjoyed positive performance fueled by this year's rate rally, attractive profit margins, and continued demand from investors for higher quality credit.

In the fourth quarter, high yield bonds have returned +3.4%, materially outperforming bank loans (+1.7%) and investment grade credit (+1.1%). In 2019, high yield bonds have returned +14.4%, materially outperforming bank loans (+8.6%) and slightly

outperforming investment grade credit (+13.8%). Bank loans have experienced outflows for much of the year driven by lessening demand for the asset class.

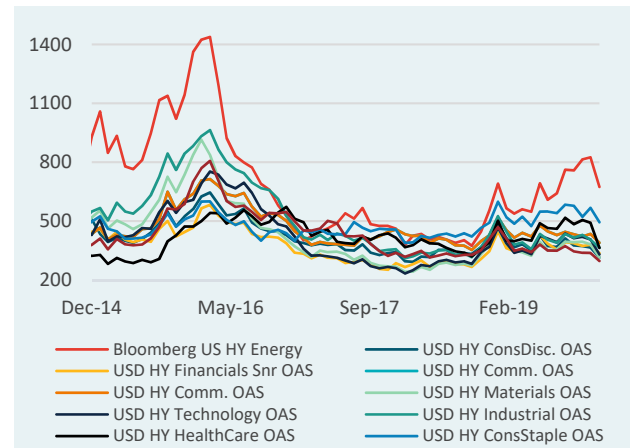
Based on concerns over late-cycle behavior in credit markets, we do not believe investors are being adequately compensated for credit risk. Late-cycle volatility tends to coincide with widening credit spreads and higher propensity for default activity. An underweight to U.S. investment grade, high yield credit, and bank loans may be warranted, with an overweight to emerging market debt which appears to offer more attractive value. This positioning should result in an overall neutral credit risk stance. Within U.S. markets, higher quality and more liquid assets appear most attractive.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/19

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/19

Market	Credit Spread (OAS)	
	12/31/19	12/31/18
Long U.S. Corp	1.4%	2.0%
U.S. Inv Grade Corp	0.9%	1.5%
U.S. High Yield	3.4%	5.3%
U.S. Bank Loans*	4.4%	5.1%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/19

*Discount margin (4-year life)

High yield – what’s in it?

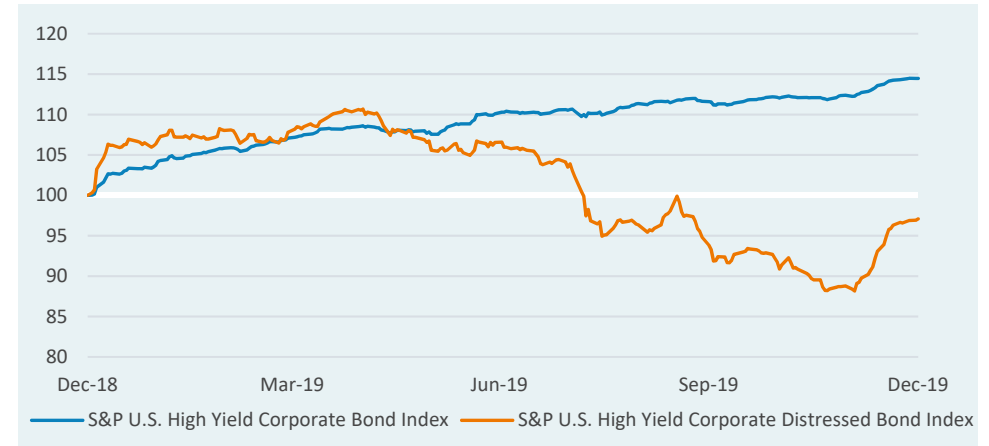
The high yield market rallied in 2019 to provide double digit positive returns for only the fourth time since the 2008-2009 global financial crisis. However, the market was characterized by significant divergences as investors rotated into upper-tier credits relative to lower-tier credits due to volatility and geopolitical uncertainty picking up during the year. This was evidenced by the ratio of CCC/BB credit spread levels, which climbed to levels last seen two decades ago. Investors generally see CCC credits as a proxy for less liquid and/or more complex situations and risks, especially relative to the BB segment.

The distressed market was negatively impacted by investor distaste for less liquid risk during the year. This was particularly true in the energy sector, and in certain retail and healthcare industries. Selling pressures peaked in November as the riskiest segment of the high yield market suffered losses in excess of those experienced during the 2018 year-end drawdown. Market participants pulled money from the space, which resulted in significant redemptions amongst distressed-focused hedge funds and even closures of hedge funds that had previously successfully navigated the global financial crisis.

CCC/BB SPREAD RATIO



HIGH YIELD VS. HIGH YIELD DISTRESSED (INDEXED 12/31/2018=100)



Source: Standard & Poor’s, J.P. Morgan, Wall Street Journal, as of 12/31/19

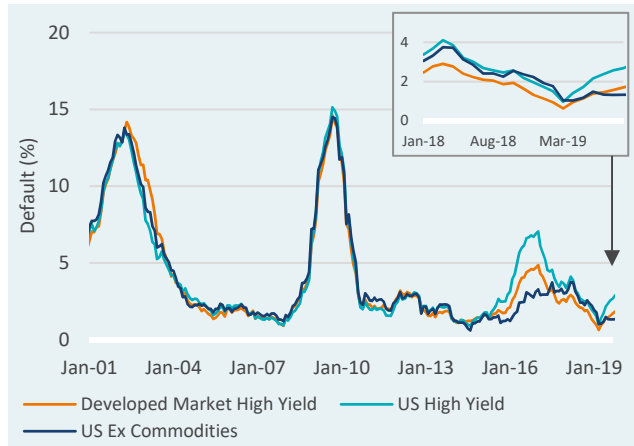
Default & issuance

Default activity for 2019 was slightly higher than 2018 by roughly 0.8%. This was mainly due to elevated defaults in commodity-related industries such as energy and metals/mining. The par-weighted default rate for high yield ended the year at 2.6% and remained below its long-term average range of 3.0-3.5%.

For loans, the par-weighted default rate for 2019 was 1.6% and remained below the long-term average of 3.1%, according to data from J.P. Morgan. Notably, defaults in commodity-related sectors accounted for essentially half of the year's default/distressed activity.

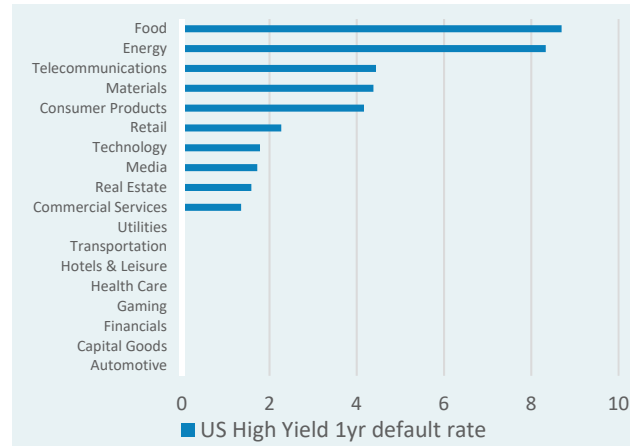
Gross high yield issue activity for 2019 was \$287 billion which was up 52% from a year ago. Loan market issuance is significantly behind last year's pace, likely influenced by lower demand for floating rate securities now that the Federal Reserve has paused monetary tightening. Gross loan issuance is essentially down 44% from a year ago although there was an increase in issuance at the end of December.

HY DEFAULT RATE (ROLLING 1-YEAR)



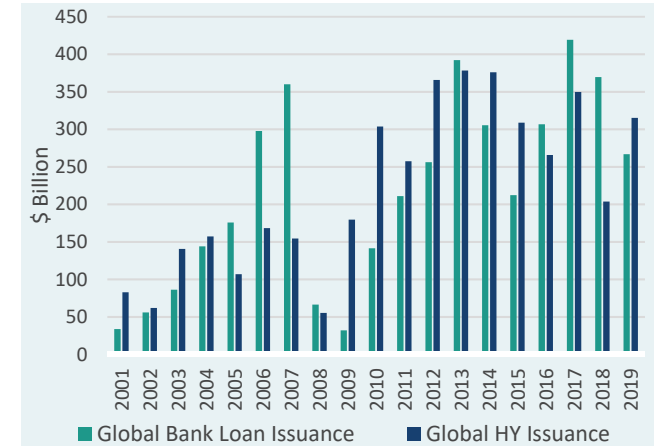
Source: BofA Merrill Lynch, as of 12/31/19

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 12/31/19 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 12/31/19

Equity

Equity environment

- Global equity markets exhibited strong performance through Q4, and U.S. equity performance was in-line (MSCI ACWI +9.0%, S&P 500 +9.1%). Emerging markets were the top performing asset class (+11.8%).
- Global currency volatility has been muted over the last few years, which has made ignoring currency exposure less consequential. Expecting low currency volatility to persist may be an assumption that gets investors into trouble.
- Unhedged U.S. investors in U.K. equities outperformed their hedged peers by 7.8% in Q4, as a stronger pound sterling dominated the U.K. equity return narrative.
- Based on price-to-forward earnings ratios international equity valuations appear elevated, but unlike in the U.S., they do not yet appear stretched.
- The outlook for monetary policy remains supportive of global equity price movement in 2020. Of the five major global central banks (Federal Reserve, European Central Bank, Bank of England, Bank of Japan, People’s Bank of China), four out of five are providing accommodation through their respective balance sheets. Futures imply better than 50/50 odds that the Bank of England cuts its main rate 0.25% at the end of January and China has continued to cut its benchmark lending rate.
- Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average. Central bank policy has remained accommodative in many major countries within the universe such as China, South Korea, Brazil, and South Africa. This accommodation could provide a boost for equity market pricing as we move further into 2020.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	9.1%		31.5%	
US Small Cap (Russell 2000)	9.9%		25.5%	
US Large Value (Russell 1000 Value)	7.4%		26.5%	
US Large Growth (Russell 1000 Growth)	10.6%		36.4%	
International Large (MSCI EAFE)	8.2%	5.8%	22.0%	24.6%
Eurozone (Euro Stoxx 50)	8.3%	5.9%	25.9%	32.1%
U.K. (FTSE 100)	10.8%	3.0%	22.1%	19.5%
Japan (NIKKEI 225)	8.2%	9.6%	21.9%	23.5%
Emerging Markets (MSCI Emerging Markets)	11.8%	9.5%	18.4%	17.7%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/19

A different look at 2019 performance



Most of the high returns of 2019 were due to markets recovering from the 2018 drop

Adjusting for this effect shows us that 2019 was a fairly average year

Source: Standard & Poor's, MSCI, Verus, as of 12/31/19 – "Drawdown" defined as the total market fall in 2018, "Rebound" defined as the total % return from the low point of the fall to the end of 2019. "Net Change" defined as the % market return from the 2018 high point to the end of 2019.

Domestic equity

U.S. equities outpaced international in the third quarter (S&P 500 +9.1%, MSCI EAFE +8.2%) as domestic markets continued to lead.

Falling interest rates in 2019 have supported stock prices, as fixed income becomes less attractive on a relative basis, and cheaper borrowing should bolster future corporate earnings. As the dividend yield of U.S. stocks is once again higher than U.S. Treasury yields, investors may feel pressure to maintain greater exposure to equities in order to meet return objectives.

The S&P 500 delivered a 31.5% total return in calendar year

2019, while underlying corporate profits are expected to be flat at +0.3%. This of course means that performance has been driven by higher stock multiples rather than fundamentals. It is worth noting that a significant portion of 2019 performance was a recovery from the late-2018 sell-off of nearly -20%.

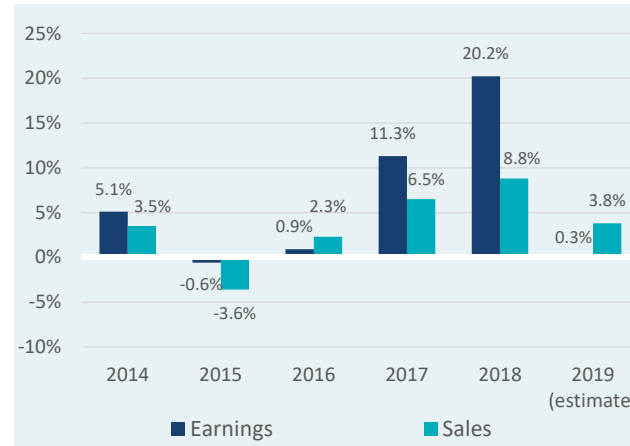
U.S. markets may continue to outperform over the shorter-term due to relative economic and market strength, and prices may certainly rise further. But history suggests that a widening gap between U.S. and international stock valuations will constrain U.S. performance over the longer-term.

U.S. EQUITIES



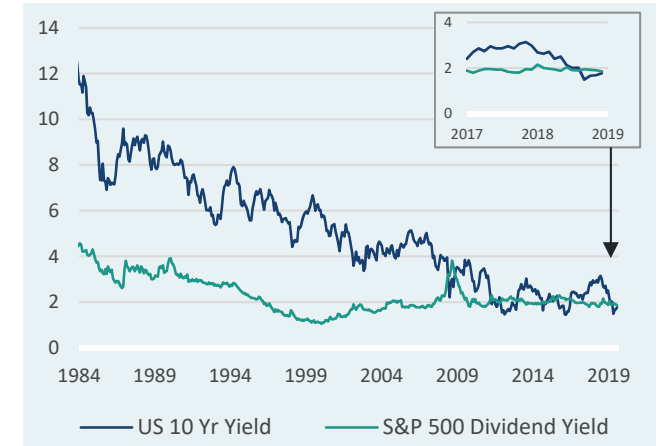
Source: Standard & Poor's, as of 9/30/19

EARNINGS



Source: FactSet, as of 12/20/19

RELATIVE YIELDS



Source: Standard & Poor's, as of 11/30/19

Domestic equity size & style

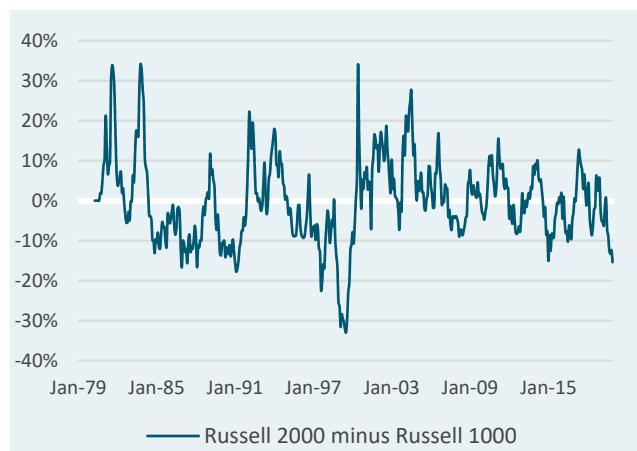
Value stocks lagged growth stocks during the fourth quarter (Russell 1000 Growth +10.6%, Russell 1000 Value +7.4%) while small cap stocks outperformed large stocks (Russell 2000 +9.9%, Russell 1000 +9.0%). During calendar year 2019, both size and value factors significantly underperformed (Russell 1000 +31.4%, Russell 2000 +25.5%; Russell 3000 Growth +35.8%, Russell 3000 Value +26.2%).

The impact of sector performance on the value premium was significant, once again, in 2019. Information Technology delivered very high returns (+50.3%) – a sector which tends to contain more growth stocks. Energy (+11.8%) and Materials (+24.6%) – industries which traditionally contain more value stocks – lagged

the overall index (S&P 500 +31.5%).

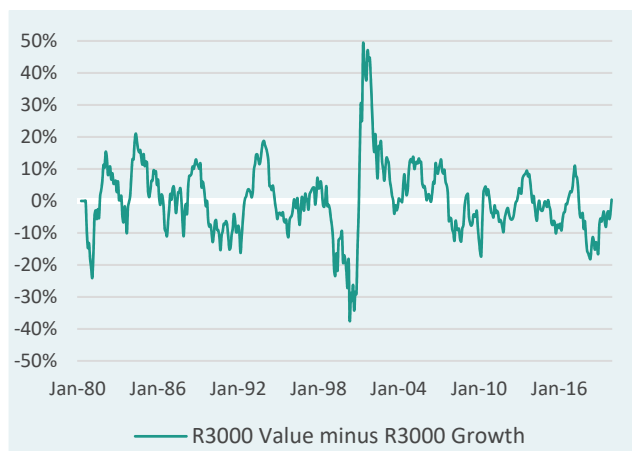
In mid-2016 we argued that there were clear and economic reasons for long-term value factor underperformance, and that a tactical overweight to the value factor did not appear warranted. This view has continued to be correct, as those who bought into value anytime of the past three years would have underperformed. While value continues to be historically cheap, price itself is not a catalyst for outperformance. We remain watchful of value stocks, but do not yet see clear signs of opportunity. As always, attempting to time factors is extremely difficult. We believe this should be done only rarely, if at all, and only when market conditions are particularly compelling.

SMALL CAP VS LARGE CAP (YOY)



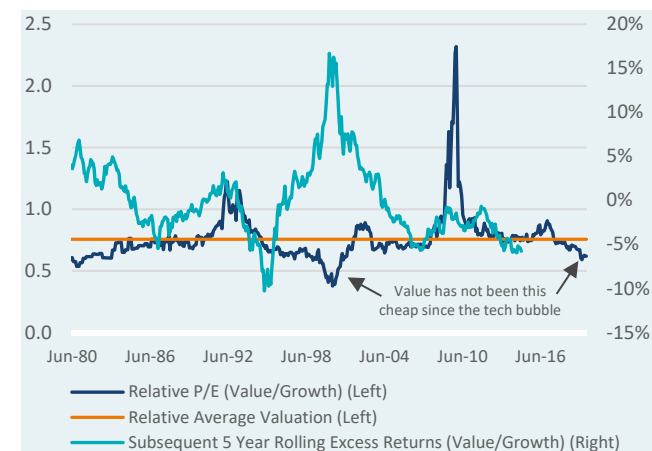
Source: FTSE, as of 12/31/19

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/19

VALUE CONTINUES TO LOOK CHEAP



Source: Russell, Bloomberg, as of 12/31/19

International developed equity

Equities in Europe and Japan posted strong performance for the quarter but failed to keep up with stocks in the U.S. and emerging markets. The U.S. dollar appreciated slightly against the yen, providing headwinds (-1.4%) for unhedged U.S. investors in Japanese stocks. Conversely, a slightly weaker U.S. dollar against the euro put some additional wind in the sails (+2.4%) of U.S. investors in European equities.

When investing in international equities, the “which currency should my assets be denominated?” question has been nearly equally as important as the “what assets should I hold?” question. Over the last three years however, global

currency volatility has been muted, which has made it much easier for investors to avoid thinking about their various currency exposures. Verus’ view remains that currency risk is not compensated, and that it tends to result in increased risk without necessarily adding to return.

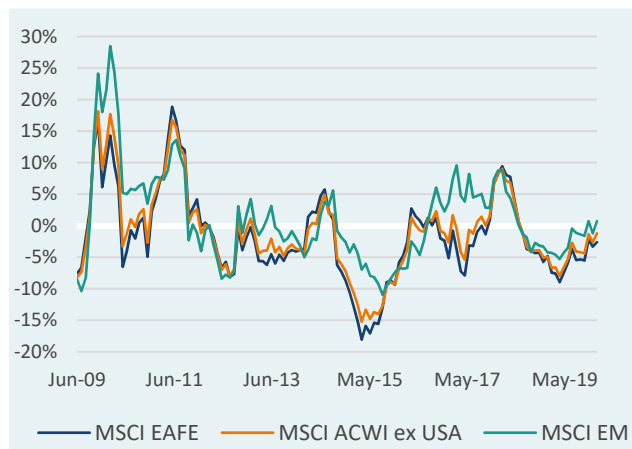
International equity valuations remain elevated, but unlike in the U.S., they do not yet appear stretched. Forward price-to-earnings ratios for the MSCI U.K. and Italy indices rank in the 59th and 52nd percentiles respectively, relative to the monthly expansion average. Valuations are a bit richer in the rest of the EAFE complex, but they may still have room to run.

INTERNATIONAL DEVELOPED EQUITIES



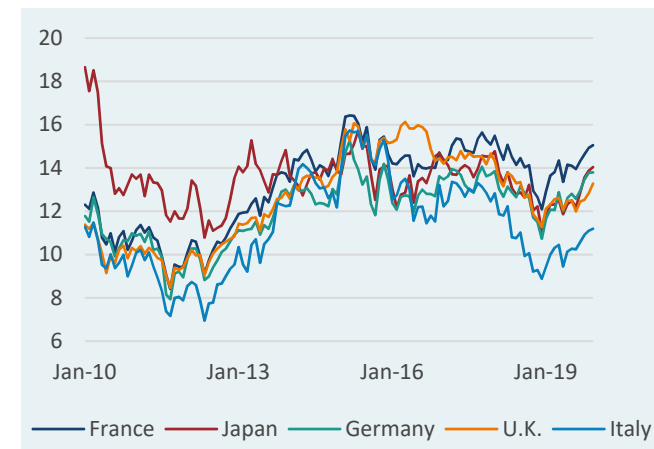
Source: MSCI, as of 12/31/19

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 12/31/19

BLENDED FORWARD 12-MONTH P/E RATIOS



Source: MSCI, Bloomberg, as of 12/31/19

Emerging market equity

Emerging market equities (+11.8%) outperformed both U.S. (+9.1%) and international developed equities (+8.2%) over the quarter, but still lagged over the full calendar year. In 2019, emerging market equities delivered a total return of 18.4%, and trailed the total return of international developed equities by 3.6%. Regionally, the Asian segment (+12.5%) of the emerging market complex performed better than the Latin American (+10.5%) segment in both Q4 and in 2019.

Emerging market equities saw multiple expansion in Q4: the forward P/E of the MSCI EM Index expanded from a level in

line with the 5-year average to a bit higher than average levels. We do not yet view pricing in this space as rich and see there being more room for multiple expansion.

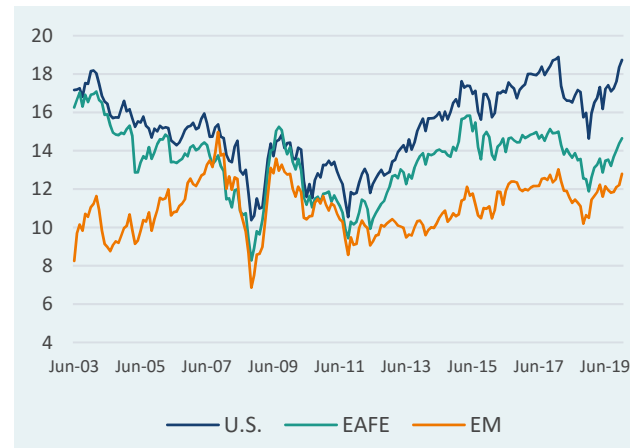
Inflation remains muted in emerging economies, and most economies are experiencing CPI below the 5-year average. Central bank policy has remained accommodative in many major countries within the universe such as China, South Korea, Brazil, and South Africa. This accommodation could provide a boost for equity market pricing as we move further into 2020.

EMERGING MARKET EQUITY



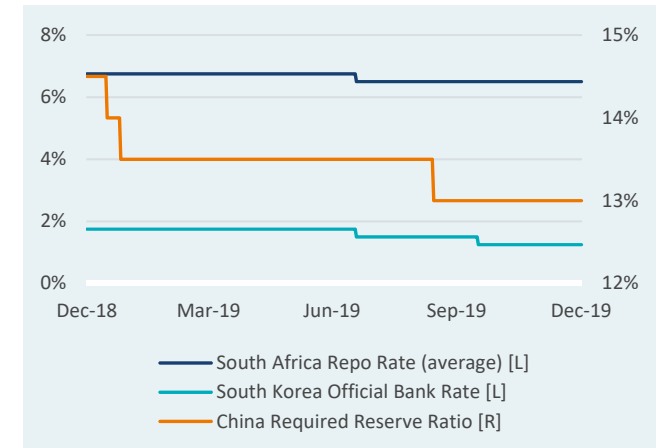
Source: MSCI, as of 12/31/19

FORWARD P/E



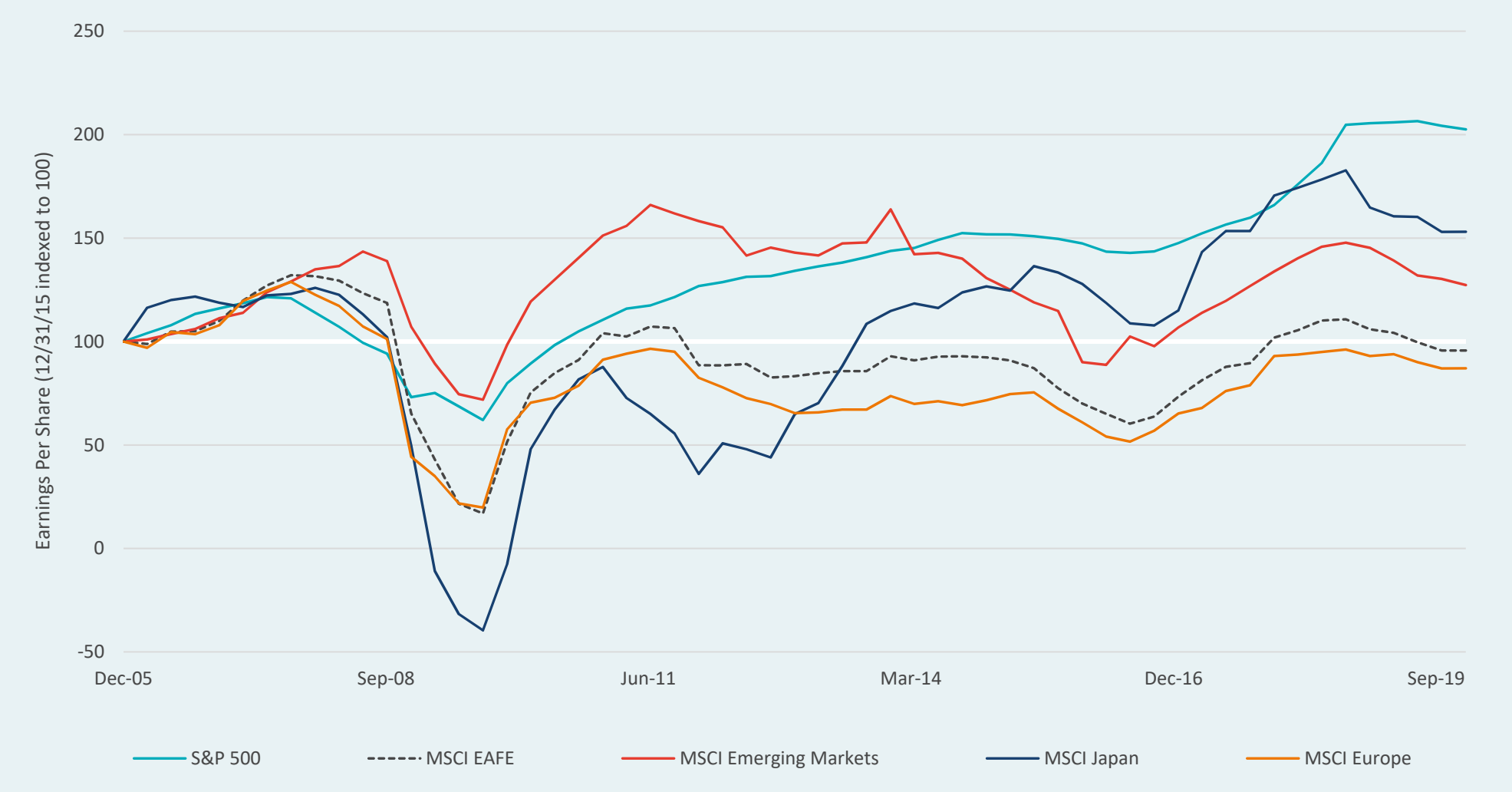
Source: MSCI, as of 12/31/19

CENTRAL BANK ACCOMODATION



Source: MSCI, as of 12/31/19

Equity earnings growth



Source: Bloomberg, as of 12/31/19

Equity valuations

Equity valuations expanded materially in 2019 as prices recovered from their year-end 2018 fall and then continued climbing through the fourth quarter. U.S. equities are expensive relative to their long-run average and prices may become more difficult to justify in an environment of flat earnings growth. International and emerging equity valuations are near average levels. We remain watchful of earnings trends in 2020, which may have important implications for the future path of equities.

In the United States, stocks within the Information Technology

(22.7x) and Communication Services (19.5x) sectors have retained forward P/E ratios elevated well above their respective 5- and 10-year averages. Last year, growing concerns over data privacy, support for anti-trust regulation, and several idiosyncratic scandals weighed on the tech sector. Over the course of this election year, we expect the issue of mega-cap tech regulation to remain beneath the microscope.

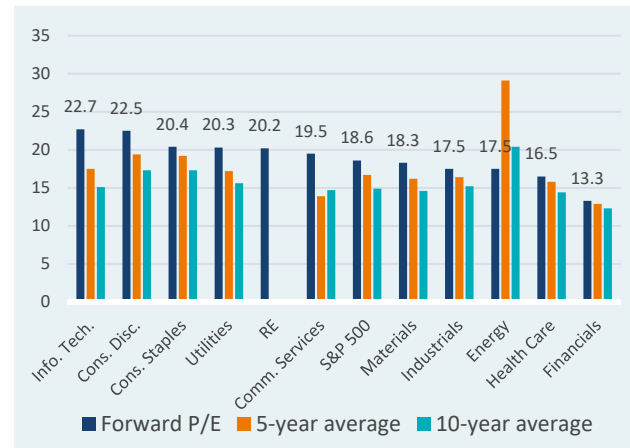
Compared to U.S. and EM equities, international developed equities offer the greatest yield at present, offering a three-month average trailing dividend yield of 3.4%.

FORWARD P/E RATIOS



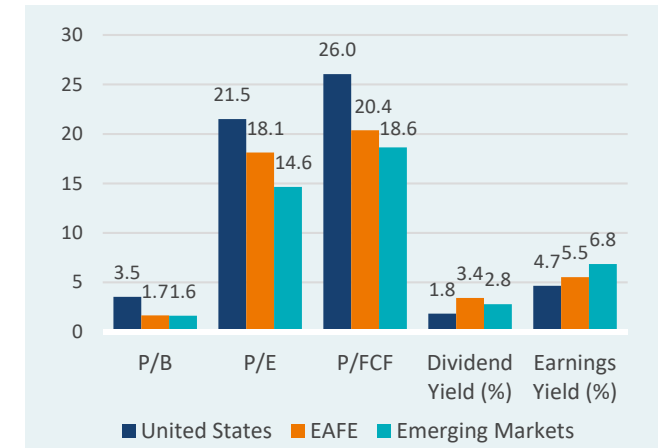
Source: MSCI, 12m forward P/E, as of 12/31/19

S&P 500 INDEX FORWARD SECTOR P/E RATIOS



Source: Standard & Poor's, FactSet, as of 1/17/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/19 - trailing P/E

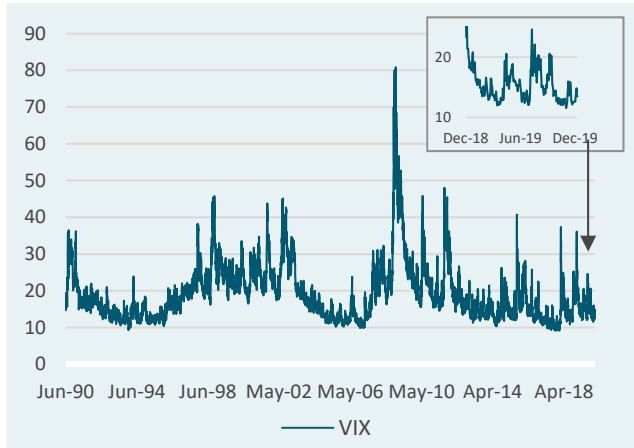
Equity volatility

The implied volatility of large-cap U.S. stocks returned to a subdued level. The CBOE VIX Index, which calculates the market's expectation for volatility implied by S&P 500 Index options, declined from 16.2 to 13.8, a reading which lies in the 15th percentile of weekly readings over the last thirty years. Net non-commercial short VIX positioning reached new all-time-highs in the 4th quarter, meaning that many people are betting on volatility to remain low and push lower. Some investors view this assumption as concerning, and as a signal that the market may be ready for a correction.

U.S. large-cap and emerging market stocks have experienced a higher degree of volatility than international developed stocks over the last several years. Some of the divergence may be attributable to the impacts of the ever-changing U.S.-China trade narrative which has held the full attention of market participants for much of the prior two years.

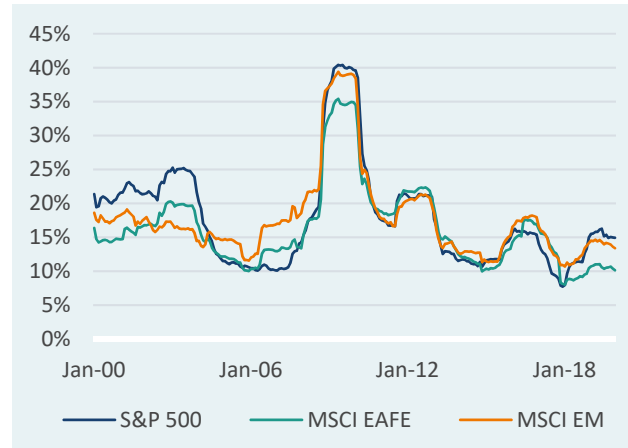
The MSCI EM Index touched new all-time highs in April and did not eclipse that level for another 174 days. In 2019, the S&P 500 and MSCI EAFE indices spent a maximum of 65 and 82 trading days between fresh all-time highs, respectively.

U.S. IMPLIED VOLATILITY (VIX)



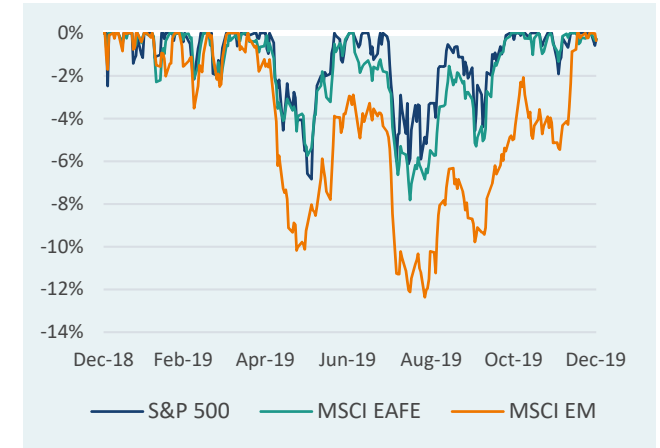
Source: CBOE, as of 12/31/19

ROLLING 1-YEAR REALIZED VOLATILITY



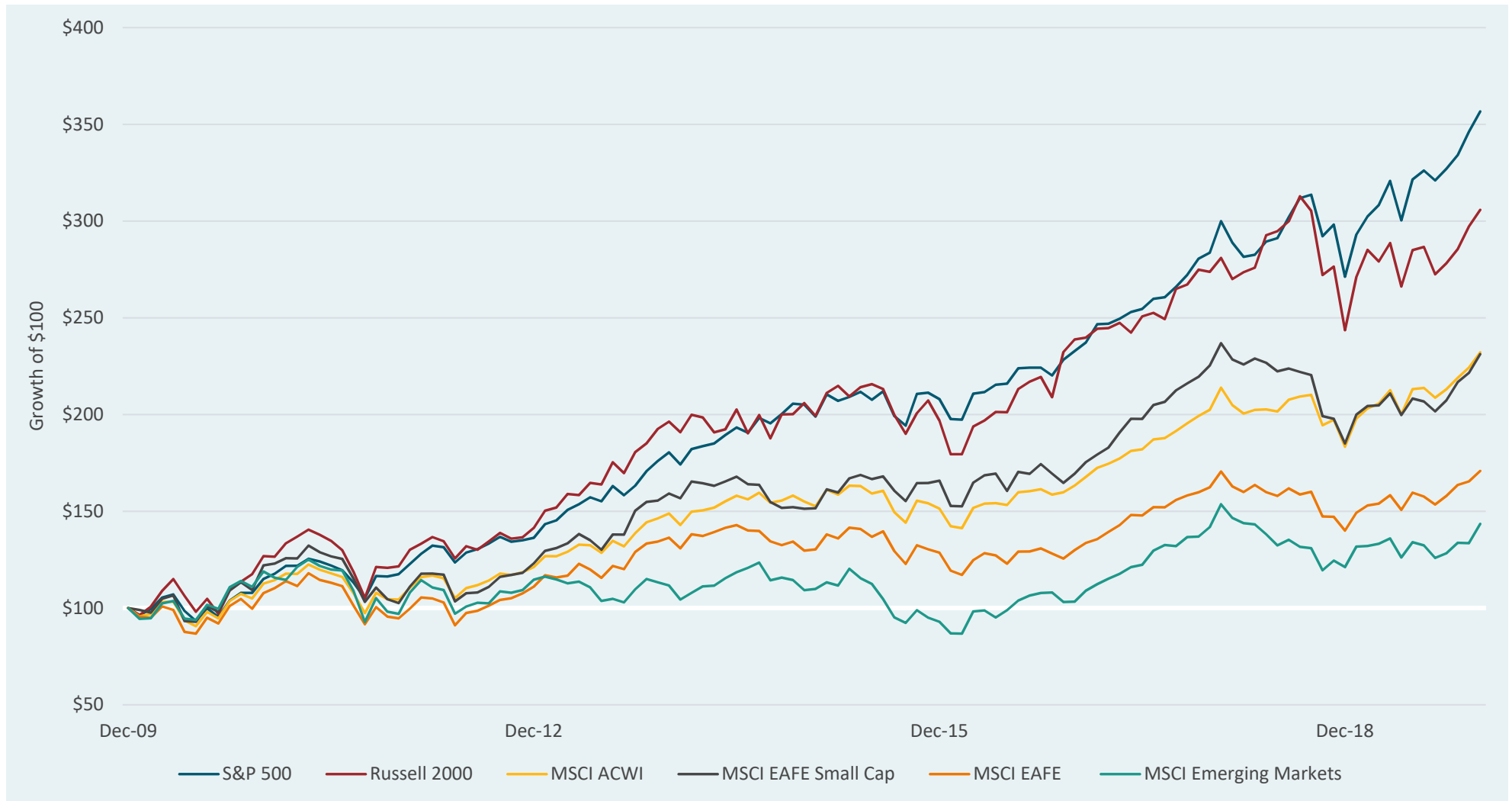
Source: Standard & Poor's, MSCI, Bloomberg, as of 12/31/19

2019 MAX DRAWDOWNS FROM PREVIOUS ALL-TIME-HIGH INDEX LEVELS



Source: Standard & Poor's, MSCI, Bloomberg, as of 12/31/19

Long-term equity performance



Source: Standard & Poor's, Russell, MSCI, Bloomberg, as of 12/31/19

Other assets

Currency

The U.S. dollar weakened versus both developed and emerging market currency baskets in the 4th quarter, fading some of the strong relative performance it had experienced back in Q3 2019. An index tracking the weighted average of the foreign exchange value of the U.S. dollar against major currencies fell 0.5%.

J.P. Morgan’s Emerging Market Currency Index fell -1.4% in 2019. Many analysts have argued that global disinflationary pressures have eased some long-standing concerns over the risk of capital flight within the emerging market complex. So

long as inflationary risks are muted, then higher nominal interest rates in the emerging market complex should afford emerging market central bankers’ further room to cut rates than their developed market peers. If implemented, the relative accommodation supplied may fuel both growth and currency depreciation.

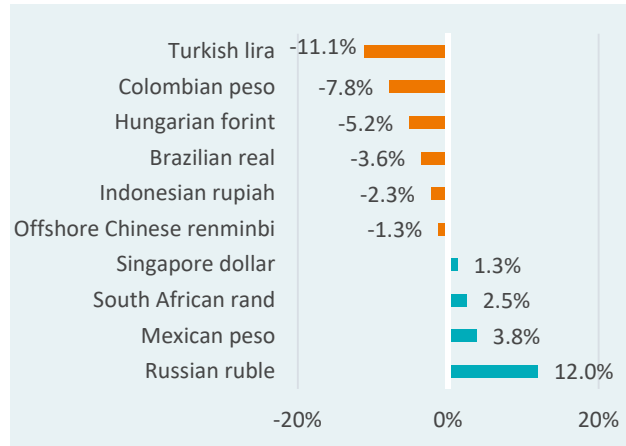
The British pound sterling bounced back sharply in Q4, rising from \$1.23 to \$1.33. Prime Minister Boris Johnson’s Conservative Party secured a firm majority in Parliament, lifting the shroud of “Brexit” from the geopolitical landscape.

U.S. DOLLAR TRADE WEIGHTED INDEX



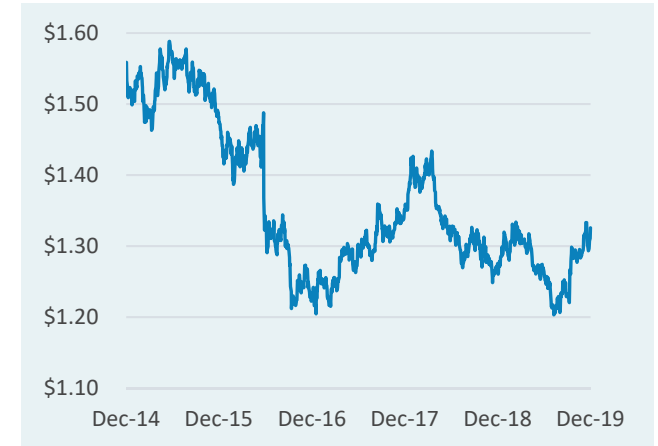
Source: Federal Reserve, Verus, as of 12/31/19

JP MORGAN EMCI CONSTITUENT 2019 RETURNS



Source: J.P. Morgan, Bloomberg, as of 12/31/19

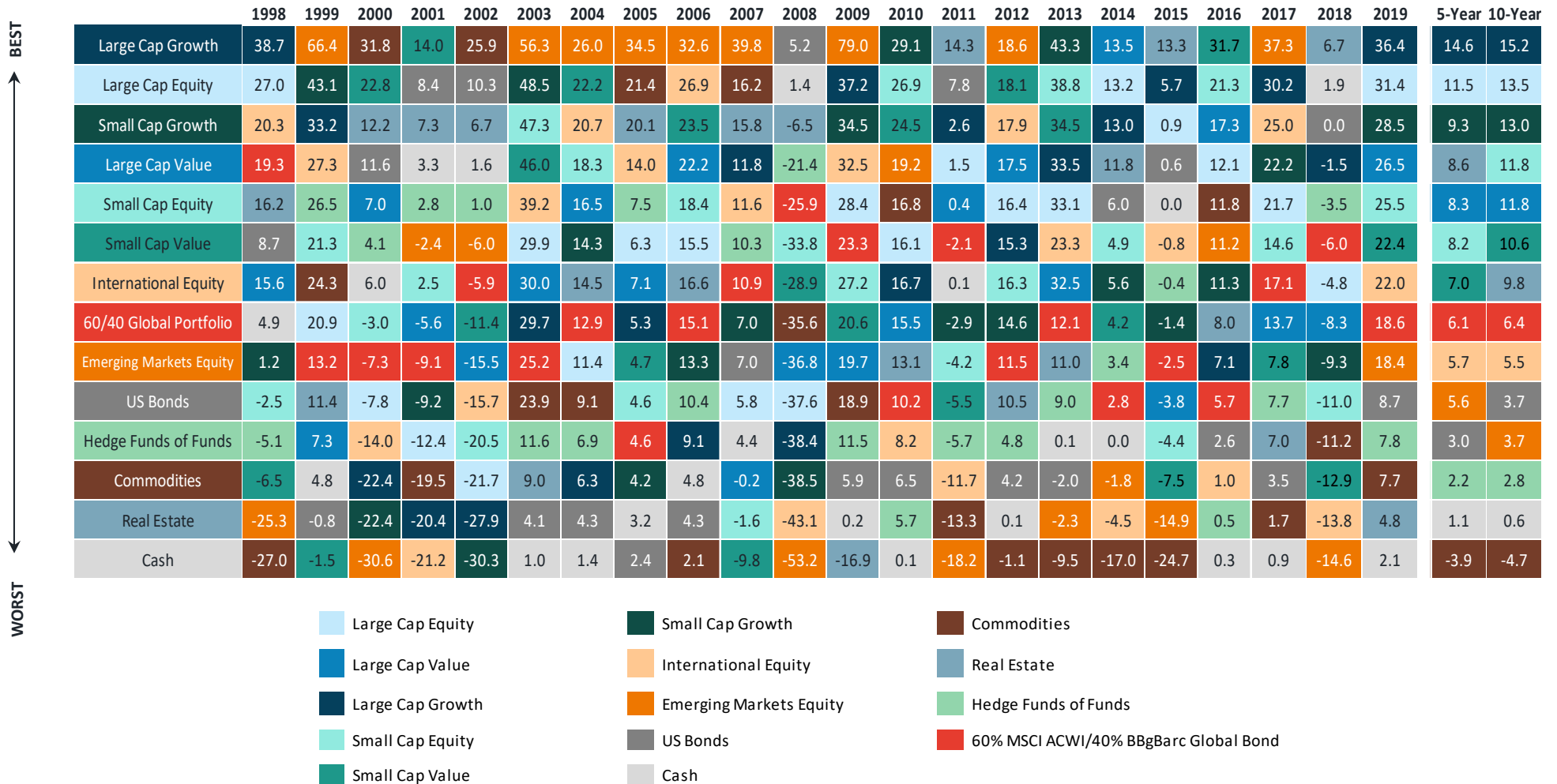
GBP/USD



Source: Bloomberg, as of 12/31/19

Appendix

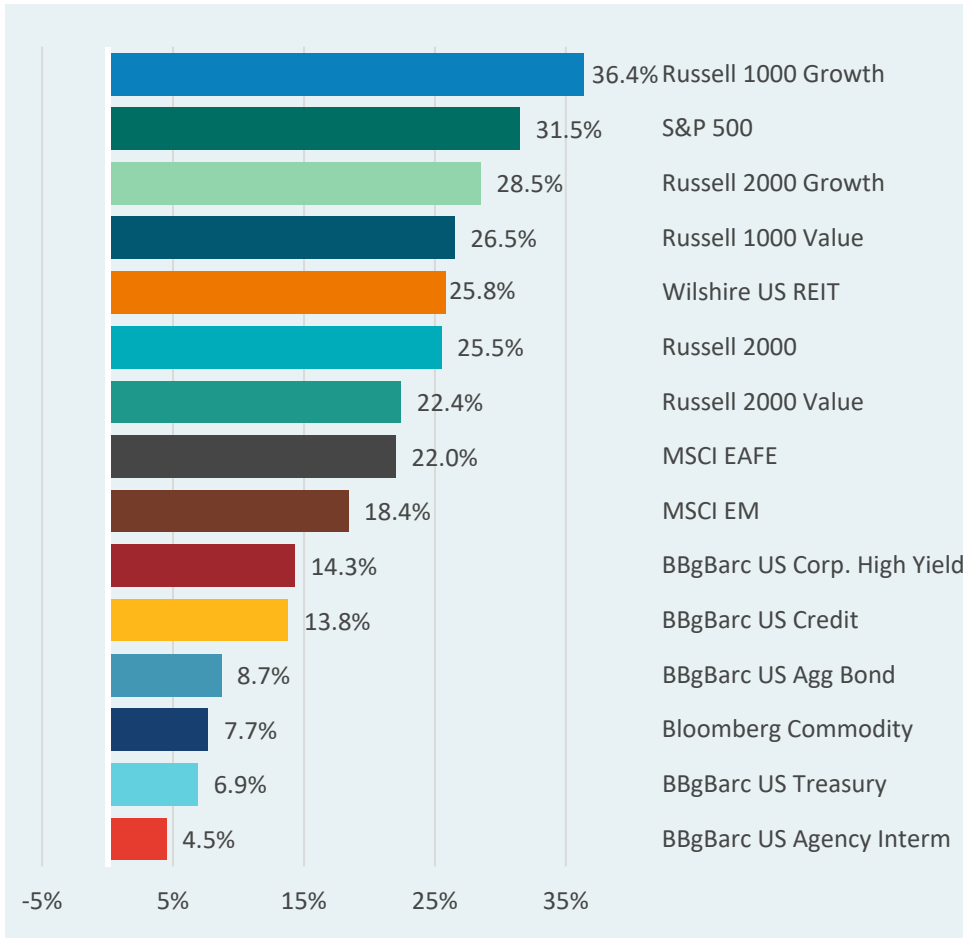
Periodic table of returns



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 9/30/19.

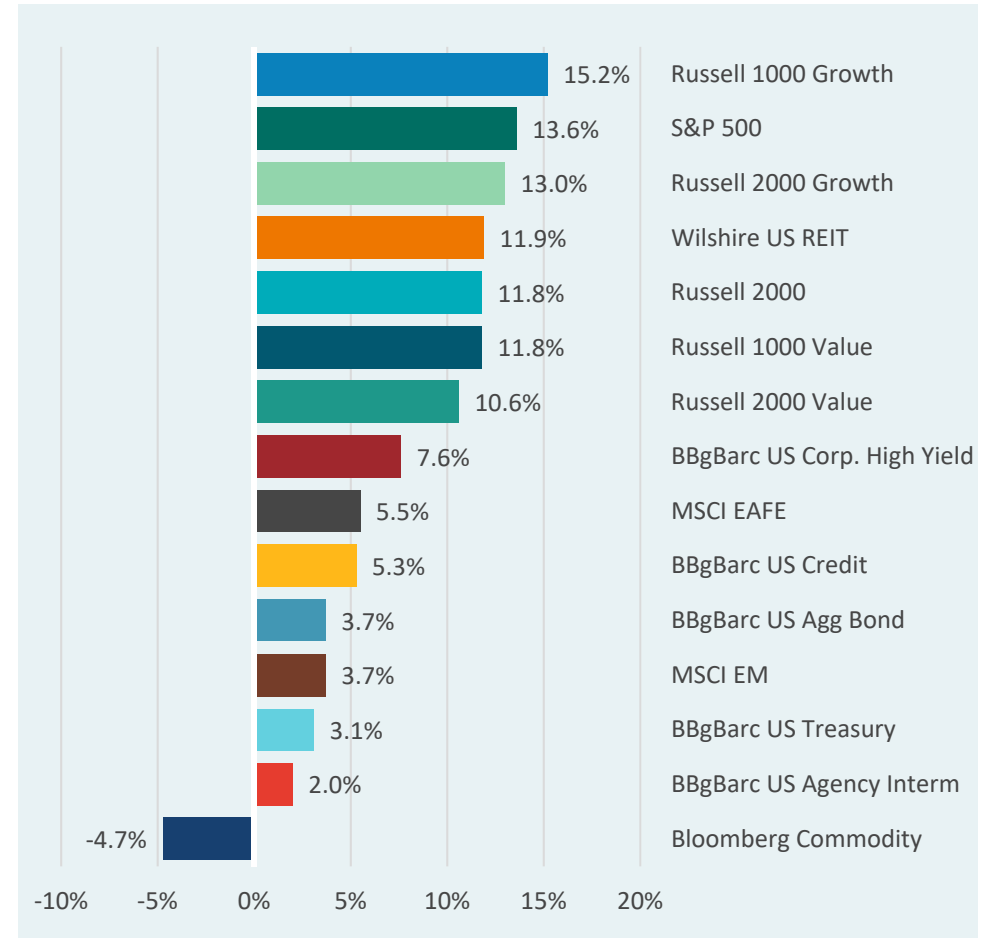
Major asset class returns

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/19

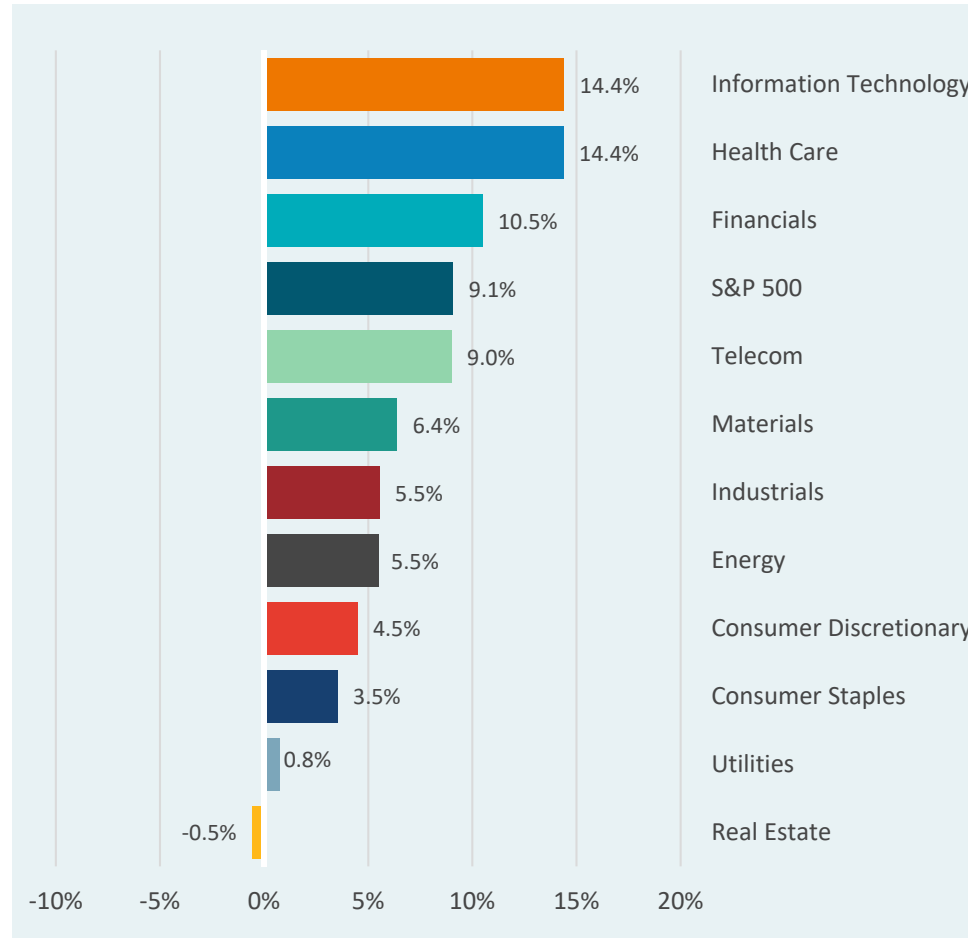
TEN YEARS ENDING DECEMBER



Source: Morningstar, as of 12/31/19

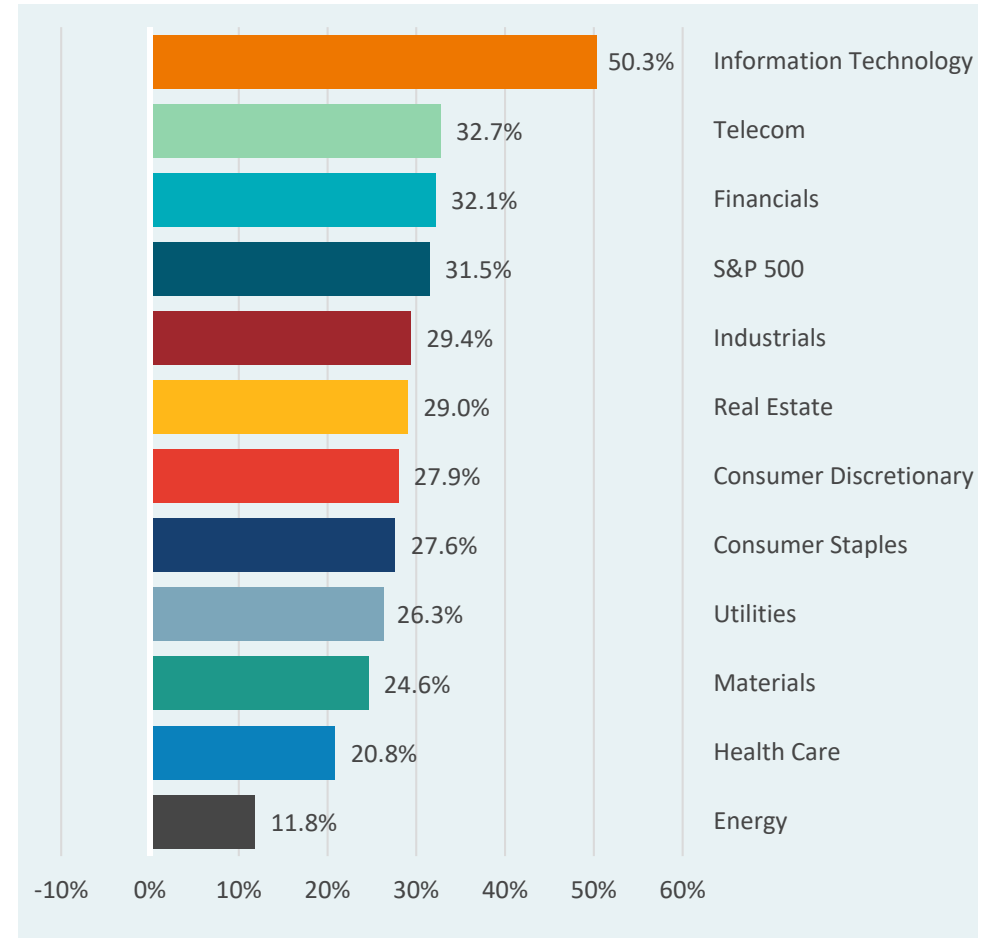
S&P 500 sector returns

Q4 2019



Source: Morningstar, as of 12/31/19

ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/19

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	3.0	9.1	31.5	31.5	15.3	11.7	13.6
S&P 500 Equal Weighted	2.8	7.6	29.2	29.2	12.4	9.8	13.5
DJ Industrial Average	1.9	6.7	25.3	25.3	15.7	12.6	13.4
Russell Top 200	3.1	9.8	31.8	31.8	16.2	12.3	13.7
Russell 1000	2.9	9.0	31.4	31.4	15.0	11.5	13.5
Russell 2000	2.9	9.9	25.5	25.5	8.6	8.2	11.8
Russell 3000	2.9	9.1	31.0	31.0	14.6	11.2	13.4
Russell Mid Cap	2.3	7.1	30.5	30.5	12.1	9.3	13.2
Style Index							
Russell 1000 Growth	3.0	10.6	36.4	36.4	20.5	14.6	15.2
Russell 1000 Value	2.8	7.4	26.5	26.5	9.7	8.3	11.8
Russell 2000 Growth	2.3	11.4	28.5	28.5	12.5	9.3	13.0
Russell 2000 Value	3.5	8.5	22.4	22.4	4.8	7.0	10.6

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	3.5	9.0	26.6	26.6	12.4	8.4	8.8
MSCI ACWI ex US	4.3	8.9	21.5	21.5	9.9	5.5	5.0
MSCI EAFE	3.2	8.2	22.0	22.0	9.6	5.7	5.5
MSCI EM	7.5	11.8	18.4	18.4	11.6	5.6	3.7
MSCI EAFE Small Cap	4.4	11.5	25.0	25.0	10.9	8.9	8.7
Style Index							
MSCI EAFE Growth	2.9	8.4	27.9	27.9	12.8	7.7	6.9
MSCI EAFE Value	3.7	7.8	16.1	16.1	6.3	3.5	4.0
Regional Index							
MSCI UK	5.2	10.0	21.0	21.0	8.3	3.3	5.0
MSCI Japan	2.1	7.6	19.6	19.6	8.9	7.7	6.6
MSCI Euro	2.9	7.9	22.9	22.9	9.1	5.1	3.7
MSCI EM Asia	7.1	12.5	19.2	19.2	12.9	6.6	5.8
MSCI EM Latin American	10.3	10.5	17.5	17.5	10.7	4.2	(0.6)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	0.4	0.8	8.4	8.4	3.3	2.6	3.4
BBgBarc US Treasury Bills	0.1	0.5	2.3	2.3	1.7	1.1	0.6
BBgBarc US Agg Bond	(0.1)	0.2	8.7	8.7	4.0	3.0	3.7
Duration							
BBgBarc US Treasury 1-3 Yr	0.2	0.5	3.6	3.6	1.9	1.4	1.2
BBgBarc US Treasury Long	(2.8)	(4.1)	14.8	14.8	6.9	4.1	7.0
BBgBarc US Treasury	(0.6)	(0.8)	6.9	6.9	3.3	2.4	3.1
Issuer							
BBgBarc US MBS	0.3	0.7	6.4	6.4	3.2	2.6	3.2
BBgBarc US Corp. High Yield	2.0	2.6	14.3	14.3	6.4	6.1	7.6
BBgBarc US Agency Interm	0.1	0.3	4.5	4.5	2.4	1.9	2.0
BBgBarc US Credit	0.3	1.1	13.8	13.8	5.8	4.4	5.3

OTHER

Index							
Bloomberg Commodity	5.0	4.4	7.7	7.7	(0.9)	(3.9)	(4.7)
Wilshire US REIT	(0.7)	(1.1)	25.8	25.8	7.6	6.9	11.9
CS Leveraged Loans	1.6	1.7	8.2	8.2	4.5	4.5	5.2
Alerian MLP	8.9	(4.6)	6.7	6.7	(5.0)	(7.0)	4.8
Regional Index							
JPM EMBI Global Div	2.0	1.8	15.0	15.0	6.7	6.2	6.9
JPM GBI-EM Global Div	4.1	5.2	13.5	13.5	7.0	2.8	2.7
Hedge Funds							
HFRI Composite	1.8	3.5	10.4	10.4	4.5	3.5	4.0
HFRI FOF Composite	1.3	2.5	7.8	7.8	3.7	2.2	2.8
Currency (Spot)							
Euro	1.8	3.0	(1.8)	(1.8)	2.1	(1.5)	(2.4)
Pound	2.4	7.5	4.0	4.0	2.3	(3.2)	(2.0)
Yen	0.8	(0.6)	1.0	1.0	2.4	2.0	(1.5)

Source: Morningstar, HFR, as of 12/31/19

Definitions

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

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

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

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

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San Luis Obispo County Pension Trust

Investment Performance Review
Period Ending: December 31, 2019



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SEATTLE 206-622-3700

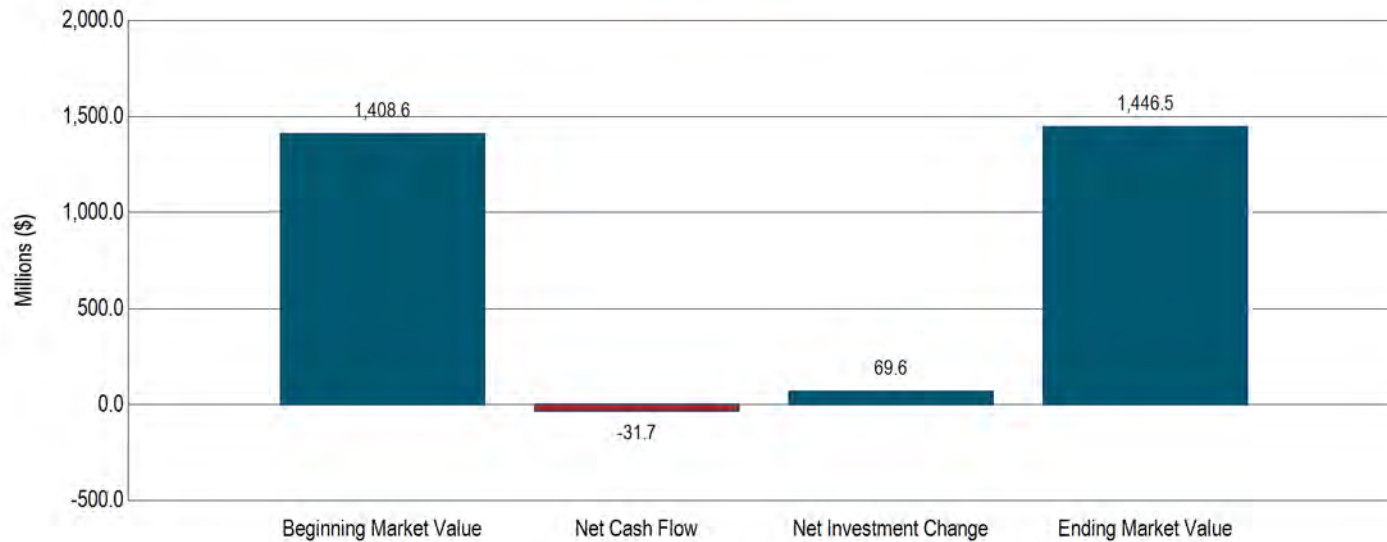
LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Portfolio Reconciliation

	Last Three Months	One Year
Beginning Market Value	\$1,408,635,998	\$1,286,051,260
Net Cash Flow	-\$31,727,540	-\$42,477,747
Net Investment Change	\$69,590,044	\$202,924,989
Ending Market Value	\$1,446,498,502	\$1,446,498,502

Change in Market Value
Last Three Months



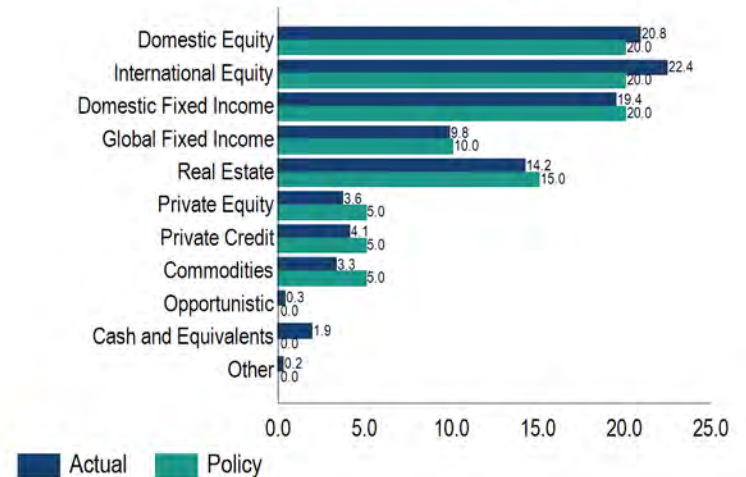
Contributions and withdrawals may include intra-account transfers between managers/funds.

Total Fund Executive Summary (Gross of Fees)

Period Ending: December 31, 2019

	QTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	5.0	60	16.3	83	9.2	58	6.6	72
<i>Policy Index</i>	4.7	77	16.6	78	8.6	75	6.6	73
Total Domestic Equity	7.8	71	29.4	66	15.3	12	11.9	8
<i>Russell 3000</i>	9.1	16	31.0	19	14.6	21	11.2	25
Total International Equity	10.3	24	30.2	1	13.1	4	7.2	19
<i>MSCI ACWI ex USA Gross</i>	9.0	76	22.1	58	10.4	42	6.0	53
Total Domestic Fixed Income	0.9	15	9.9	9	4.8	17	4.0	14
<i>BBgBarc US Aggregate TR</i>	0.2	60	8.7	29	4.0	40	3.0	42
Total Global Fixed	4.0	--	7.8	--	4.8	--	1.5	--
<i>FTSE World Govt Bond Index</i>	-0.4	--	5.9	--	4.1	--	2.0	--
Total Real Estate	2.0	--	4.3	--	6.5	--	9.0	--
<i>NCREIF Property Index</i>	1.6	--	6.4	--	6.7	--	8.2	--
Total Commodities	5.5	--	8.7	--	0.4	--	-3.2	--
<i>Bloomberg Commodity Index TR USD</i>	4.4	--	7.7	--	-0.9	--	-3.9	--
Total Private Equity	2.1	--	7.2	--	15.0	--	16.0	--
<i>Russell 3000 + 3%</i>	9.9	--	34.9	--	18.0	--	14.6	--
Total Private Credit	1.6	--	6.7	--	6.4	--	--	--
<i>BBgBarc High Yield +2% (Lagged)</i>	1.8	--	8.5	--	8.2	--	--	--
Total Cash	0.7	--	2.2	--	1.6	--	1.1	--
<i>91 Day T-Bills</i>	0.4	--	2.1	--	1.6	--	1.1	--
Total Opportunistic	1.2	--	-2.9	--	9.0	--	7.1	--
<i>Russell 3000 + 3%</i>	9.9	--	34.9	--	18.0	--	14.6	--

Actual vs Target Allocation (%)



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



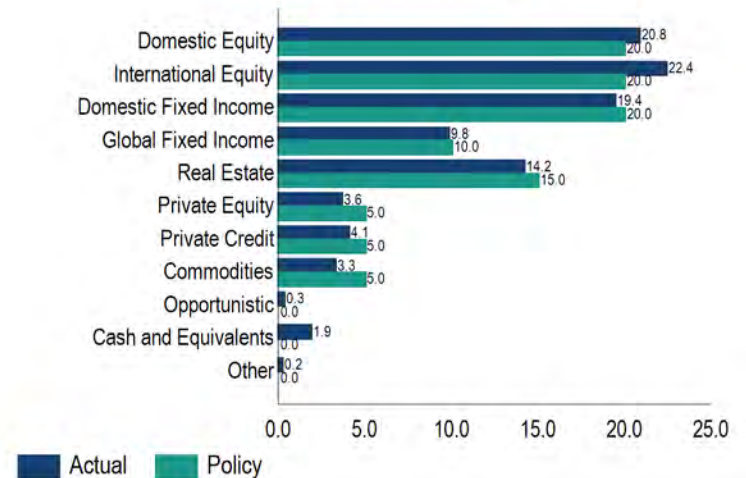
New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%, 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. Stone Harbor funded 7/9/13. Gresham TAP funded 8/30/13. Pacific Asset Corporate Loan funded 9/1/2014. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. All returns are (G) Gross of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Total Fund Executive Summary (Net of Fees)

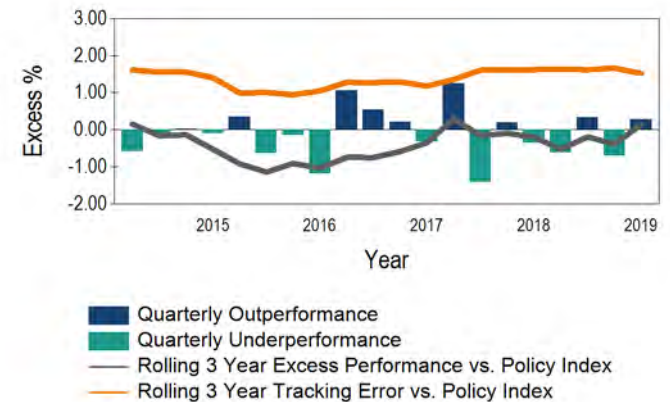
Period Ending: December 31, 2019

	QTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	5.0	66	15.8	86	8.7	72	6.1	85
<i>Policy Index</i>	4.7	77	16.6	78	8.6	75	6.6	73
Total Domestic Equity	7.6	76	28.7	77	14.8	18	11.4	21
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<i>BBgBarc US Aggregate TR</i>	0.2	60	8.7	29	4.0	40	3.0	42
Total Global Fixed	3.9	--	7.2	--	4.2	--	0.8	--
<i>FTSE World Govt Bond Index</i>	-0.4	--	5.9	--	4.1	--	2.0	--
Total Real Estate	2.0	--	4.3	--	6.5	--	8.6	--
<i>NCREIF Property Index</i>	1.6	--	6.4	--	6.7	--	8.2	--
Total Commodities	5.5	--	8.7	--	0.4	--	-3.5	--
<i>Bloomberg Commodity Index TR USD</i>	4.4	--	7.7	--	-0.9	--	-3.9	--
Total Private Equity	2.1	--	7.2	--	15.0	--	15.2	--
<i>Russell 3000 + 3%</i>	9.9	--	34.9	--	18.0	--	14.6	--
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Total Cash	0.7	--	2.2	--	1.6	--	1.1	--
<i>91 Day T-Bills</i>	0.4	--	2.1	--	1.6	--	1.1	--
Total Opportunistic	1.2	--	-2.9	--	9.0	--	6.8	--
<i>Russell 3000 + 3%</i>	9.9	--	34.9	--	18.0	--	14.6	--

Actual vs Target Allocation (%)



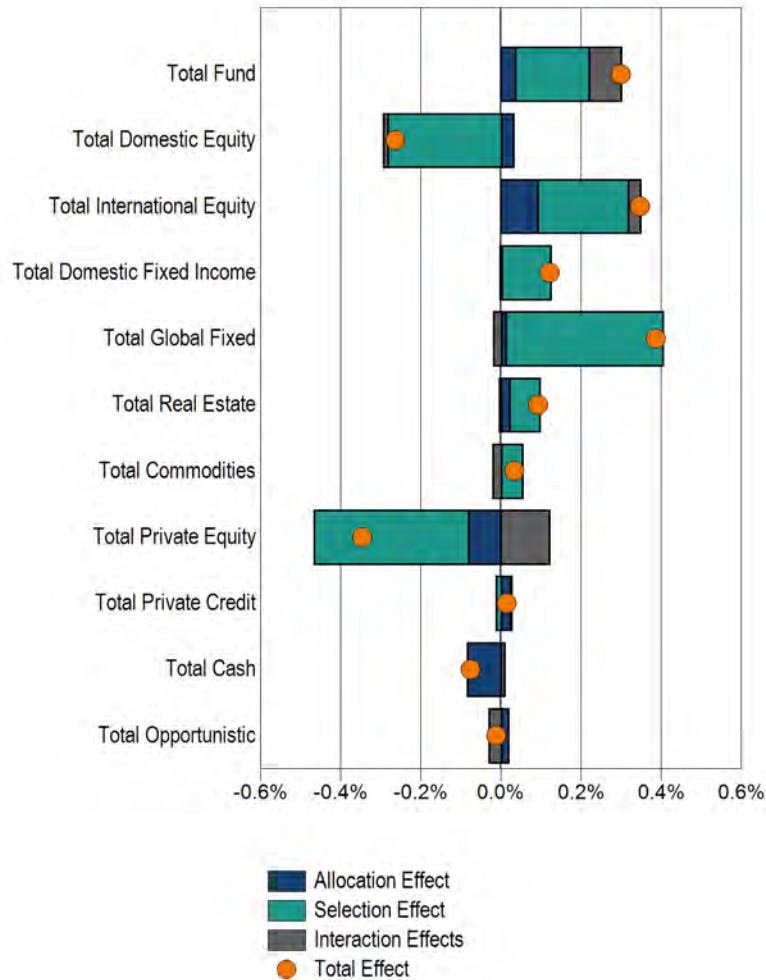
Rolling Annualized Excess Performance and Tracking Error
Total Fund vs. Policy Index



New Policy Index as of 10/1/2016: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3%, 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. Stone Harbor funded 7/9/13. Gresham TAP funded 8/30/13. Pacific Asset Corporate Loan funded 9/1/2014. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. All returns are (N) Net of fees. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation.

Performance Attribution

Attribution Effects
3 Months Ending December 31, 2019



	Last 3 Mo.
Wtd. Actual Return	4.97%
Wtd. Index Return *	4.67%
Excess Return	0.30%
Selection Effect	0.18%
Allocation Effect	0.04%
Interaction Effect	0.08%

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

Attribution Summary
3 Months Ending December 31, 2019

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	7.64%	9.10%	-1.46%	-0.28%	0.03%	-0.01%	-0.26%
Total International Equity	10.17%	8.99%	1.18%	0.23%	0.09%	0.03%	0.35%
Total Domestic Fixed Income	0.76%	0.18%	0.58%	0.12%	0.00%	0.00%	0.12%
Total Global Fixed	3.94%	0.18%	3.76%	0.39%	0.01%	-0.02%	0.39%
Total Real Estate	2.04%	1.55%	0.49%	0.07%	0.02%	0.00%	0.09%
Total Commodities	5.49%	4.42%	1.07%	0.05%	0.00%	-0.02%	0.03%
Total Private Equity	2.11%	9.88%	-7.77%	-0.38%	-0.08%	0.12%	-0.35%
Total Private Credit	1.61%	1.83%	-0.22%	-0.01%	0.02%	0.00%	0.01%
Total Cash	0.75%	0.39%	0.36%	0.00%	-0.08%	0.01%	-0.08%
Total Opportunistic	1.22%	9.88%	-8.66%	0.00%	0.02%	-0.03%	-0.01%
Total	4.97%	4.67%	0.30%	0.18%	0.04%	0.08%	0.30%

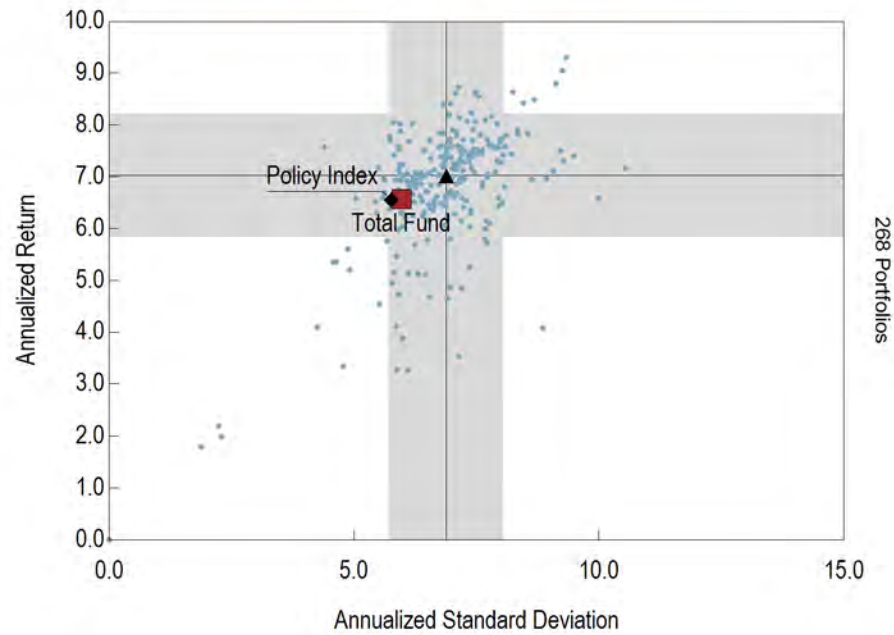
Attribution does not account for effects of overlay program. Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.

Total Fund
Risk Analysis - 5 Years (Gross of Fees)

Period Ending: December 31, 2019

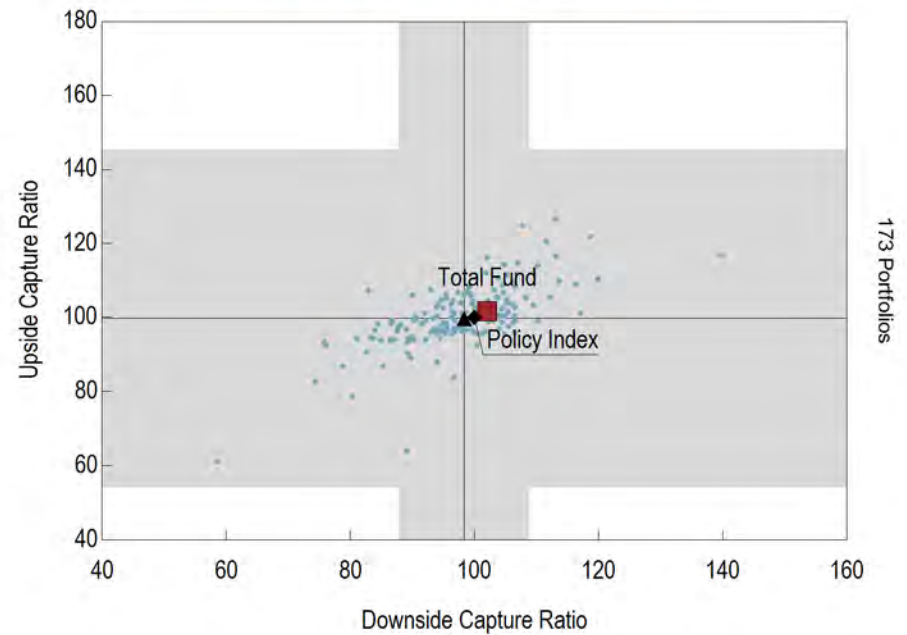
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	6.57%	0.02%	5.96%	-0.07%	1.01	1.24%	0.96	0.93	0.02	101.57%	102.08%

Annualized Return vs. Annualized Standard Deviation



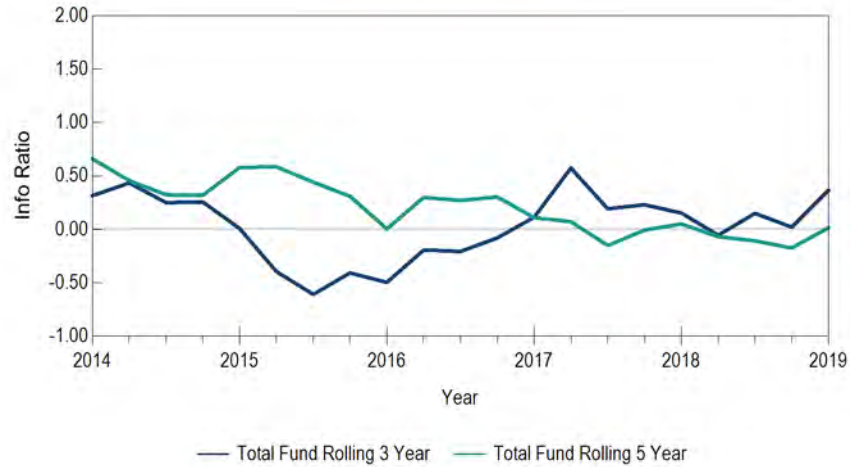
- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

Upside Capture Ratio vs. Downside Capture Ratio

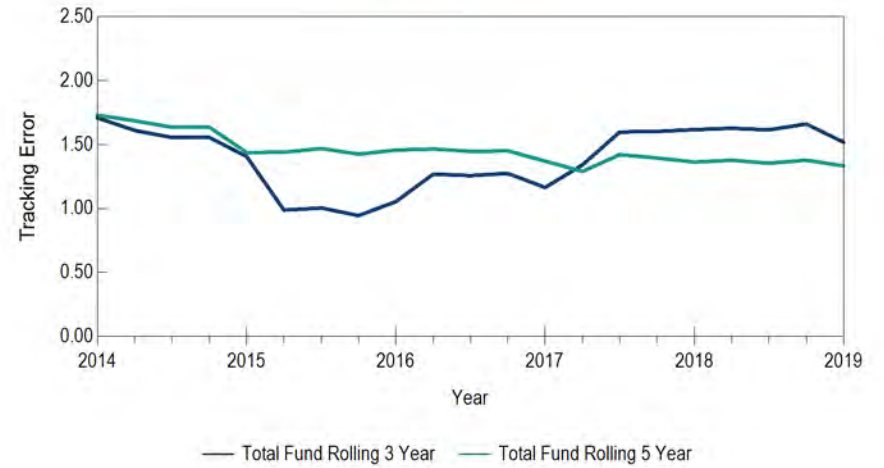


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

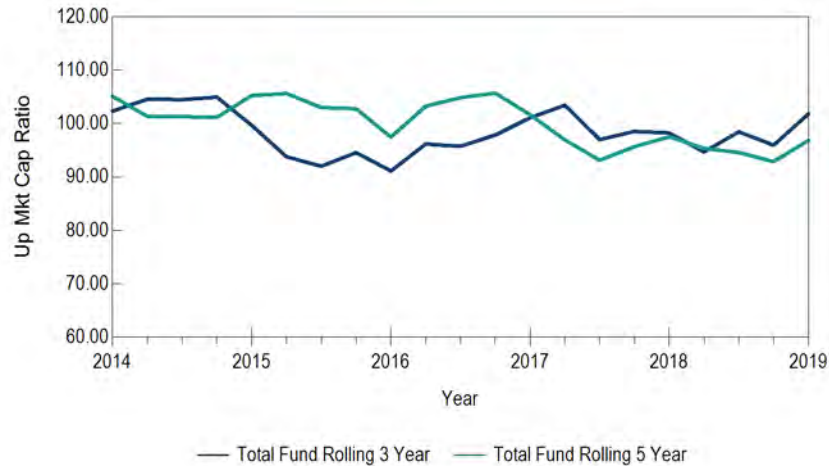
Rolling Information Ratio



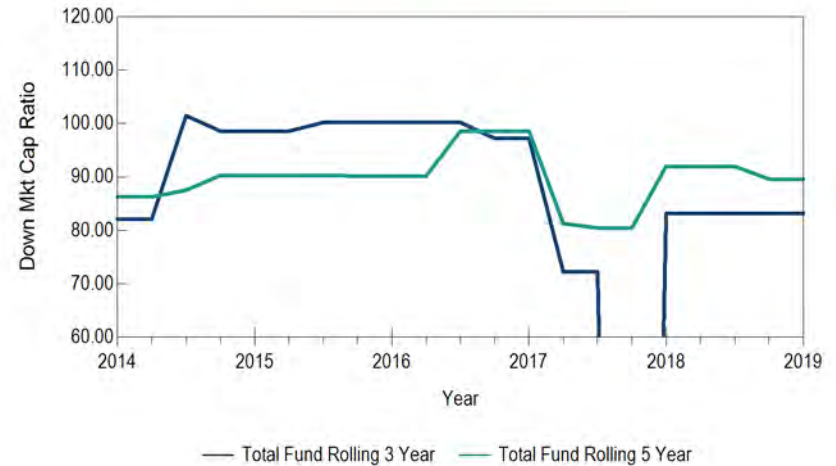
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



Total Fund Performance Summary (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fund	1,446,498,502	100.0	5.0	16.3	9.2	6.6	8.2	16.3	-3.1	15.5	6.6	-0.8		
Policy Index			4.7	16.6	8.6	6.6	7.6	16.6	-3.2	13.4	7.8	-0.5		
InvMetrics Public DB Gross Rank			60	83	58	72	48	83	25	47	84	74		
Total Domestic Equity	301,350,674	20.8	7.8	29.4	15.3	11.9	14.2	29.4	-5.2	25.1	13.0	1.2		
Russell 3000			9.1	31.0	14.6	11.2	13.4	31.0	-5.2	21.1	12.7	0.5		
InvMetrics Public DB US Eq Gross Rank			71	66	12	8	5	66	36	4	48	18		
PIMCO RAE Fundamental PLUS Instl	62,373,766	4.3	8.3	25.5	11.1	9.1	12.9	25.5	-6.6	17.0	15.9	-2.7	8.4	Nov-07
S&P 500			9.1	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4	9.0	Nov-07
eV US Large Cap Core Equity Gross Rank			48	82	91	86	68	82	72	89	6	86	80	Nov-07
Loomis Sayles Large Cap Growth	88,586,884	6.1	10.0	32.7	20.5	--	--	32.7	-1.7	34.1	--	--	20.5	Dec-16
Russell 1000 Growth			10.6	36.4	20.5	--	--	36.4	-1.5	30.2	--	--	20.5	Dec-16
eV US Large Cap Growth Equity Gross Rank			43	67	44	--	--	67	58	16	--	--	44	Dec-16
Boston Partners Large Cap Value	86,394,748	6.0	8.2	24.3	--	--	--	24.3	-8.5	--	--	--	10.9	Jan-17
Russell 1000 Value			7.4	26.5	--	--	--	26.5	-8.3	--	--	--	9.7	Jan-17
eV US Large Cap Value Equity Gross Rank			41	77	--	--	--	77	54	--	--	--	43	Jan-17
Atlanta Capital Mgmt	63,995,277	4.4	3.8	35.1	17.8	15.2	--	35.1	-4.5	26.6	12.6	10.4	18.1	Aug-10
Russell 2500			8.5	27.8	10.3	8.9	--	27.8	-10.0	16.8	17.6	-2.9	13.7	Aug-10
eV US Small-Mid Cap Equity Gross Rank			98	15	16	3	--	15	25	15	62	1	1	Aug-10
Total International Equity	323,758,246	22.4	10.3	30.2	13.1	7.2	8.1	30.2	-12.2	26.6	2.2	-4.3		
MSCI ACWI ex USA Gross			9.0	22.1	10.4	6.0	5.4	22.1	-13.8	27.8	5.0	-5.3		
InvMetrics Public DB ex-US Eq Gross Rank			24	1	4	19	4	1	9	81	82	68		
Dodge & Cox Intl Stock	153,763,831	10.6	10.8	23.6	8.4	4.3	6.4	23.6	-17.5	24.7	9.0	-10.8	3.1	Dec-07
MSCI EAFE Gross			8.2	22.7	10.1	6.2	6.0	22.7	-13.4	25.6	1.5	-0.4	2.4	Dec-07
eV All EAFE Equity Gross Rank			26	47	80	95	71	47	73	74	3	99	64	Dec-07
WCM International Growth	169,994,415	11.8	10.0	36.7	--	--	--	36.7	-6.7	--	--	--	17.5	Feb-17
MSCI ACWI ex USA Gross			9.0	22.1	--	--	--	22.1	-13.8	--	--	--	9.1	Feb-17
eV ACWI ex-US All Cap Growth Eq Gross Rank			67	12	--	--	--	12	1	--	--	--	9	Feb-17

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated as of 12/19/2019.

Total Fund

Performance Summary (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Domestic Fixed Income	280,963,382	19.4	0.9	9.9	4.8	4.0	4.6	9.9	0.4	4.3	4.5	1.1		
BBgBarc US Aggregate TR			0.2	8.7	4.0	3.0	3.7	8.7	0.0	3.5	2.6	0.6		
InvMetrics Public DB US Fix Inc Gross Rank			15	9	17	14	32	9	55	50	49	17		
BlackRock Core Bond	103,266,090	7.1	0.3	10.2	--	--	--	10.2	0.3	--	--	--	4.6	Jan-17
BBgBarc US Aggregate TR			0.2	8.7	--	--	--	8.7	0.0	--	--	--	4.1	Jan-17
eV US Core Fixed Inc Gross Rank			45	10	--	--	--	10	27	--	--	--	31	Jan-17
Dodge & Cox Income Fund	107,319,716	7.4	1.0	10.2	--	--	--	10.2	0.1	--	--	--	5.0	Jan-17
BBgBarc US Aggregate TR			0.2	8.7	--	--	--	8.7	0.0	--	--	--	4.1	Jan-17
eV US Core Fixed Inc Gross Rank			3	10	--	--	--	10	43	--	--	--	7	Jan-17
Pacific Asset Corporate Loan	70,377,576	4.9	1.6	9.1	4.9	5.3	--	9.1	1.0	4.9	9.2	2.5	4.7	Sep-14
S&P/LSTA Leveraged Loan Index			1.7	8.6	4.3	4.4	--	8.6	0.4	4.1	10.2	-0.7	3.9	Sep-14
eV US Float-Rate Bank Loan Fixed Inc Gross Rank			67	35	13	10	--	35	29	26	51	9	29	Sep-14
Total Global Fixed	142,118,607	9.8	4.0	7.8	4.8	1.5	2.7	7.8	-6.6	14.4	5.8	-11.8		
FTSE World Govt Bond Index			-0.4	5.9	4.1	2.0	1.8	5.9	-0.8	7.5	1.6	-3.6		
InvMetrics Public DB Gbl Fix Inc Gross Rank			--	--	--	--	--	--	99	29	67	95		
Brandywine Global Fixed Income	68,864,863	4.8	5.0	6.2	4.6	1.2	3.3	6.2	-4.1	12.5	2.2	-9.3	3.8	Nov-07
FTSE WGBI ex US TR			-0.1	5.3	4.5	1.9	1.4	5.3	-1.8	10.3	1.8	-5.5	2.2	Nov-07
eV All Global Fixed Inc Gross Rank			8	85	67	92	65	85	80	14	75	92	60	Nov-07
Ashmore EM Blended Debt Fund	73,253,744	5.1	3.2	--	--	--	--	--	--	--	--	--	5.1	Mar-19
50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+			3.1	--	--	--	--	--	--	--	--	--	7.3	Mar-19
eV All Emg Mkts Fixed Inc Gross Rank			55	--	--	--	--	--	--	--	--	--	90	Mar-19
Total Real Estate	204,950,512	14.2	2.0	4.3	6.5	9.0	9.0	4.3	7.5	7.8	7.8	18.0		
NCREIF Property Index			1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3		
JP Morgan Core Real Estate	170,439,620	11.8	2.1	3.4	5.5	8.0	10.9	3.4	7.0	6.1	8.4	15.2	5.5	Mar-08
NCREIF-ODCE			1.5	5.4	7.1	9.0	11.4	5.4	8.3	7.6	8.8	15.0	5.4	Mar-08
NCREIF Property Index			1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3	6.3	Mar-08
ARA American Strategic Value Realty	34,510,892	2.4	1.8	7.3	7.9	--	--	7.3	9.1	7.4	--	--	8.4	Jun-16
NCREIF-ODCE			1.5	5.4	7.1	--	--	5.4	8.3	7.6	--	--	7.3	Jun-16
NCREIF Property Index			1.6	6.4	6.7	--	--	6.4	6.7	7.0	--	--	6.8	Jun-16

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated as of 12/19/2019.

Total Fund
Performance Summary (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Commodities	47,369,955	3.3	5.5	8.7	0.4	-3.2	-4.2	8.7	-12.4	6.2	12.6	-25.2		
<i>Bloomberg Commodity Index TR USD</i>			4.4	7.7	-0.9	-3.9	-4.7	7.7	-11.2	1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	47,369,955	3.3	5.5	8.7	0.4	-3.2	--	8.7	-12.4	6.2	12.6	-25.2	-5.6	Aug-13
<i>Bloomberg Commodity Index TR USD</i>			4.4	7.7	-0.9	-3.9	--	7.7	-11.2	1.7	11.8	-24.7	-6.5	Aug-13
Total Private Equity	52,730,496	3.6												
Harbourvest Partners IX Buyout Fund L.P.	14,788,326	1.0												
Pathway Private Equity Fund Investors 9 L.P.	32,992,378	2.3												
Harbourvest 2018 Global Fund L.P.	4,949,792	0.3												
Total Private Credit	58,624,382	4.1												
TPG Diversified Credit Program	58,624,382	4.1												
Total Cash	26,982,942	1.9	0.7	2.2	1.6	1.1	0.8	2.2	1.5	1.0	0.5	0.4		
<i>91 Day T-Bills</i>			0.4	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0		
Cash Account	26,982,942	1.9	0.7	2.2	1.6	1.1	0.8	2.2	1.5	1.0	0.5	0.4		
<i>91 Day T-Bills</i>			0.4	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0		
Total Opportunistic	4,797,458	0.3												
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,695,289	0.3												
PIMCO Distressed Credit Fund	102,169	0.0												

Since Inception ranking is from the beginning of the first complete month of performance. Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated as of 12/19/2019.

Total Fund Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Fund	1,446,498,502	100.0	5.0	15.8	8.7	6.1	7.7	15.8	-3.5	15.0	6.0	-1.3
<i>Policy Index</i>			4.7	16.6	8.6	6.6	7.6	16.6	-3.2	13.4	7.8	-0.5
Total Domestic Equity	301,350,674	20.8	7.6	28.7	14.8	11.4	13.7	28.7	-5.7	24.5	12.7	0.8
<i>Russell 3000</i>			9.1	31.0	14.6	11.2	13.4	31.0	-5.2	21.1	12.7	0.5
PIMCO RAE Fundamental PLUS Instl	62,373,766	4.3	8.2	25.0	10.7	8.6	12.5	25.0	-7.0	16.5	15.4	-3.2
<i>S&P 500</i>			9.1	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4
Loomis Sayles Large Cap Growth	88,586,884	6.1	9.8	32.1	20.0	--	--	32.1	-2.1	33.5	--	--
<i>Russell 1000 Growth</i>			10.6	36.4	20.5	--	--	36.4	-1.5	30.2	--	--
Boston Partners Large Cap Value	86,394,748	6.0	8.1	23.8	--	--	--	23.8	-8.9	--	--	--
<i>Russell 1000 Value</i>			7.4	26.5	--	--	--	26.5	-8.3	--	--	--
Atlanta Capital Mgmt	63,995,277	4.4	3.6	34.1	16.8	14.3	--	34.1	-5.3	25.6	11.7	9.6
<i>Russell 2500</i>			8.5	27.8	10.3	8.9	--	27.8	-10.0	16.8	17.6	-2.9
Total International Equity	323,758,246	22.4	10.2	29.3	12.4	6.5	7.4	29.3	-12.8	25.8	1.6	-4.9
<i>MSCI ACWI ex USA Gross</i>			9.0	22.1	10.4	6.0	5.4	22.1	-13.8	27.8	5.0	-5.3
Dodge & Cox Intl Stock	153,763,831	10.6	10.6	22.8	7.7	3.7	5.8	22.8	-18.0	23.9	8.3	-11.4
<i>MSCI EAFE Gross</i>			8.2	22.7	10.1	6.2	6.0	22.7	-13.4	25.6	1.5	-0.4
WCM International Growth	169,994,415	11.8	9.8	35.8	--	--	--	35.8	-7.4	--	--	--
<i>MSCI ACWI ex USA Gross</i>			9.0	22.1	--	--	--	22.1	-13.8	--	--	--
Total Domestic Fixed Income	280,963,382	19.4	0.8	9.5	4.4	3.7	4.3	9.5	0.0	3.9	4.2	0.9
<i>BBgBarc US Aggregate TR</i>			0.2	8.7	4.0	3.0	3.7	8.7	0.0	3.5	2.6	0.6
BlackRock Core Bond	103,266,090	7.1	0.2	9.9	--	--	--	9.9	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>			0.2	8.7	--	--	--	8.7	0.0	--	--	--
Dodge & Cox Income Fund	107,319,716	7.4	0.8	9.7	--	--	--	9.7	-0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>			0.2	8.7	--	--	--	8.7	0.0	--	--	--
Pacific Asset Corporate Loan	70,377,576	4.9	1.5	8.7	4.6	4.9	--	8.7	0.7	4.6	8.8	2.1
<i>S&P/LSTA Leveraged Loan Index</i>			1.7	8.6	4.3	4.4	--	8.6	0.4	4.1	10.2	-0.7
Total Global Fixed	142,118,607	9.8	3.9	7.2	4.2	0.8	2.0	7.2	-7.2	13.7	5.1	-12.4
<i>FTSE World Govt Bond Index</i>			-0.4	5.9	4.1	2.0	1.8	5.9	-0.8	7.5	1.6	-3.6
Brandywine Global Fixed Income	68,864,863	4.8	4.9	5.7	4.2	0.8	2.8	5.7	-4.5	12.0	1.7	-9.7
<i>FTSE WGBI ex US TR</i>			-0.1	5.3	4.5	1.9	1.4	5.3	-1.8	10.3	1.8	-5.5

Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated as of 12/19/2019.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Ashmore EM Blended Debt Fund	73,253,744	5.1	3.1	--	--	--	--	--	--	--	--	--
50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+			3.1	--	--	--	--	--	--	--	--	--
Total Real Estate	204,950,512	14.2	2.0	4.3	6.5	8.6	8.5	4.3	7.5	7.8	6.8	16.9
NCREIF Property Index			1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	170,439,620	11.8	2.1	3.4	5.5	7.5	10.1	3.4	7.0	6.1	7.3	14.1
NCREIF-ODCE			1.5	5.4	7.1	9.0	11.4	5.4	8.3	7.6	8.8	15.0
NCREIF Property Index			1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	34,510,892	2.4	1.8	7.3	7.9	--	--	7.3	9.1	7.4	--	--
NCREIF-ODCE			1.5	5.4	7.1	--	--	5.4	8.3	7.6	--	--
NCREIF Property Index			1.6	6.4	6.7	--	--	6.4	6.7	7.0	--	--
Total Commodities	47,369,955	3.3	5.5	8.7	0.4	-3.5	-4.5	8.7	-12.4	6.2	11.8	-25.8
Bloomberg Commodity Index TR USD			4.4	7.7	-0.9	-3.9	-4.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	47,369,955	3.3	5.5	8.7	0.4	-3.5	--	8.7	-12.4	6.2	11.8	-25.8
Bloomberg Commodity Index TR USD			4.4	7.7	-0.9	-3.9	--	7.7	-11.2	1.7	11.8	-24.7
Total Private Equity	52,730,496	3.6										
Harbourvest Partners IX Buyout Fund L.P.	14,788,326	1.0										
Pathway Private Equity Fund Investors 9 L.P.	32,992,378	2.3										
Harbourvest 2018 Global Fund L.P.	4,949,792	0.3										
Total Private Credit	58,624,382	4.1										
TPG Diversified Credit Program	58,624,382	4.1										
Total Cash	26,982,942	1.9	0.7	2.2	1.6	1.1	0.8	2.2	1.5	1.0	0.5	0.4
91 Day T-Bills			0.4	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0
Cash Account	26,982,942	1.9	0.7	2.2	1.6	1.1	0.8	2.2	1.5	1.0	0.5	0.4
91 Day T-Bills			0.4	2.1	1.6	1.1	0.6	2.1	1.9	0.9	0.3	0.0
Total Opportunistic	4,797,458	0.3										
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,695,289	0.3										
PIMCO Distressed Credit Fund	102,169	0.0										

Research Affiliates converted to PIMCO RAE Fundamental Plus Instl on 6/5/15 (performance prior to this date represents previously held Research Affiliates Equity US Large, L.P.). ARA American funded 6/22/2016. Fidelity Real Estate Growth II liquidated 12/31/2015. Loomis Sayles Large Cap Growth funded 12/31/2016. Boston Partners funded 1/31/2017. Vontobel liquidated 2/15/2017. WCM International funded 2/15/2017. PIMCO Core Plus liquidated 1/6/2017. BlackRock Core and Dodge & Cox Income funded 1/19/2017. Pathway Private Equity Fund Investors 9 L.P. funded 4/7/2017. Fidelity Real Estate Growth III liquidated 12/29/2017. SSGA S&P 500 Flagship liquidated 1/3/2018. SSGA TIPS liquidated 1/17/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor Local Markets terminated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated as of 12/19/2019.

Investment Manager
Performance Analysis - 3 & 5 Years (Net of Fees)

Period Ending: December 31, 2019

3 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
PIMCO RAE Fundamental PLUS Instl	10.65%	-4.62%	12.70%	-4.89%	1.02	3.10%	0.94	0.71	-1.49	83.76%	109.23%
Loomis Sayles Large Cap Growth	19.95%	-0.54%	13.98%	-0.90%	1.02	3.65%	0.93	1.31	-0.15	100.63%	104.59%
Atlanta Capital Mgmt	16.84%	6.51%	13.23%	8.36%	0.82	5.90%	0.84	1.15	1.10	103.20%	68.06%
Dodge & Cox Intl Stock	7.67%	-2.44%	13.96%	-4.60%	1.21	4.86%	0.91	0.43	-0.50	115.76%	132.08%
Pacific Asset Corporate Loan	4.61%	0.27%	2.63%	0.63%	0.92	0.57%	0.96	1.13	0.47	100.98%	87.36%
Brandywine Global Fixed Income	4.17%	-0.32%	7.27%	0.00%	0.93	5.16%	0.50	0.35	-0.06	95.74%	98.83%
JP Morgan Core Real Estate	5.49%	-1.61%	0.96%	4.87%	0.09	2.85%	0.07	3.98	-0.57	27.83%	--
ARA American Strategic Value Realty	7.93%	0.83%	3.51%	10.31%	-0.33	5.18%	0.08	1.79	0.16	12.02%	--
Gresham MTAP Commodity Builder	0.36%	1.30%	9.54%	1.33%	1.03	3.70%	0.85	-0.13	0.35	121.07%	104.19%

5 Years

	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
PIMCO RAE Fundamental PLUS Instl	8.64%	-3.06%	12.23%	-2.97%	0.99	2.89%	0.94	0.62	-1.06	85.21%	104.67%
Atlanta Capital Mgmt	14.32%	5.39%	12.79%	7.11%	0.81	5.74%	0.85	1.04	0.94	94.31%	70.56%
Dodge & Cox Intl Stock	3.68%	-2.50%	14.96%	-3.42%	1.15	5.42%	0.88	0.18	-0.46	110.29%	115.96%
Pacific Asset Corporate Loan	4.93%	0.49%	2.48%	1.42%	0.79	0.96%	0.92	1.57	0.51	92.25%	55.74%
Brandywine Global Fixed Income	0.76%	-1.11%	7.65%	-0.79%	0.83	5.14%	0.57	-0.04	-0.22	70.11%	85.56%
JP Morgan Core Real Estate	7.52%	-1.45%	1.30%	6.58%	0.11	3.70%	0.10	5.00	-0.39	27.03%	--
Gresham MTAP Commodity Builder	-3.46%	0.46%	11.90%	0.49%	1.01	3.20%	0.93	-0.38	0.15	110.87%	101.95%

Private Markets
Non Marketable Securities Overview

Period Ending: December 31, 2019

Vintage	Manager & Fund Name	Estimated 12/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date
2011	HarbourVest Partners IX-Buyout Fund L.P.	\$14,788,326	\$20,000,000	\$16,550,000	83%	\$3,450,000	\$12,917,312	\$15,743,685	78.1%	167.4%	17.9%	9/30/19
2018	HarbourVest Partners 2018 Global Fund L.P.	\$4,949,792	\$20,000,000	\$4,800,000	23%	\$15,400,000	-	-	-	-	-	-
2010	KKR Mezzanine Partners I L.P. ⁶	\$4,695,289	\$20,000,000	\$20,000,000	100%	\$0	\$29,566,840	\$4,558,758	147.8%	171.3%	8.2%	9/30/19
2010	PIMCO Distressed Credit Fund ⁴	\$102,169	\$20,000,000	\$20,000,000	100%	\$0	\$27,950,093	\$102,169	139.8%	140.3%	12.3%	9/30/19
2016	TPG Diversified Credit Program	\$58,624,382	\$75,000,000	\$55,421,508	74%	\$19,578,492	\$5,530,296	\$59,157,445	10.0%	115.8%	9.3%	9/30/19
2017	Pathway Private Equity Fund Investors 9 L.P.	\$32,992,378	\$65,000,000	\$32,479,829	50%	\$32,520,171	\$243,611	-	0.8%	102.3%	-	-

Total Alternative Illiquids \$116,152,336 \$220,000,000 \$149,051,337 68% \$70,948,663 \$76,208,152 \$79,562,057 53.4% 104.5%

% of Portfolio (Market Value) 8.0%

	Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense ⁷
HarbourVest Partners IX-Buyout Fund L.P.	\$49,806	\$0	\$0	\$11,474	\$61,280
HarbourVest Partners 2018 Global Fund L.P.	\$32,665	\$0	\$0	\$36,277	\$68,942
KKR Mezzanine Partners I L.P.	\$15,683	\$0	\$0	\$7,680	\$23,363
PIMCO Distressed Credit Fund ⁴	\$0	\$0	\$0	\$332	\$332
TPG Diversified Credit Program	\$0	\$0	\$0	\$245,522	\$245,522
Pathway Private Equity Fund Investors 9 L.P.	\$98,283	\$0	\$0	\$0	\$98,283
	\$196,437	\$0	\$0	\$301,285	\$497,722

¹(DPI) is equal to (capital returned / capital called)

²(TVPI) is equal to (market value + capital returned) / capital called

³Last known market value + capital calls - distributions

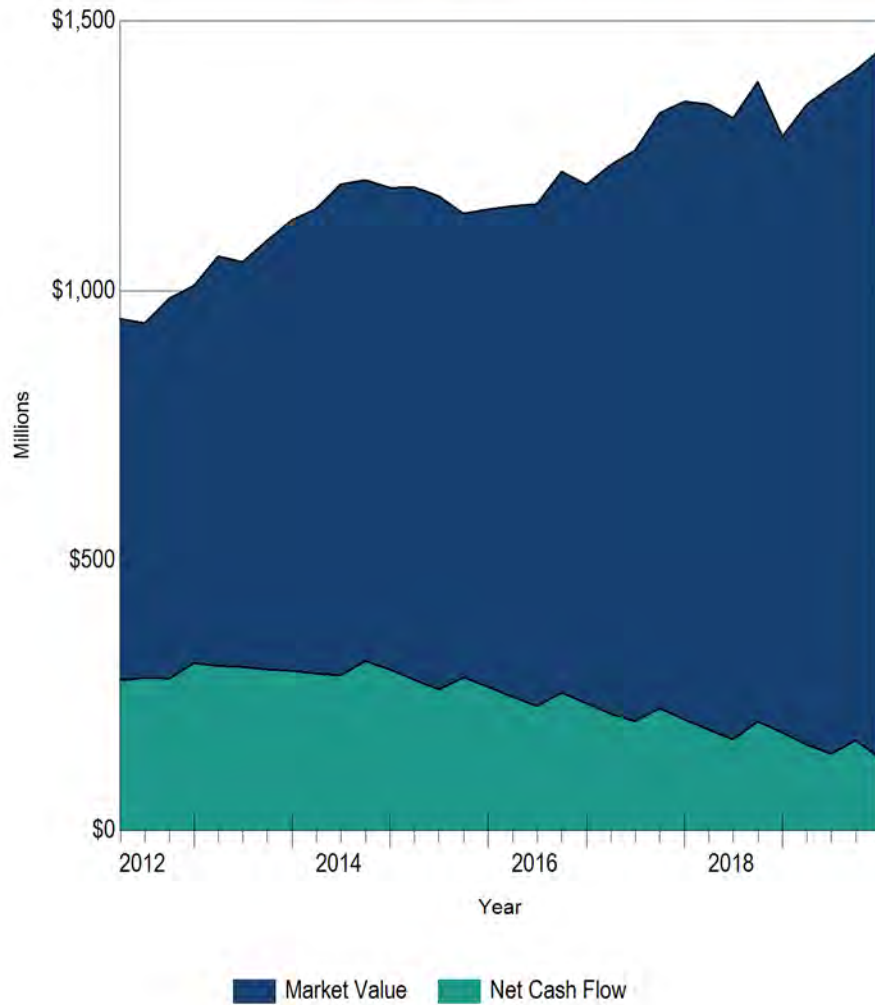
⁴Investment period ended, no further capital to be called.

⁵Net IRR is calculated on the cash flows of the underlying investments of the fund and is net of the underlying fund fees and carried interest.

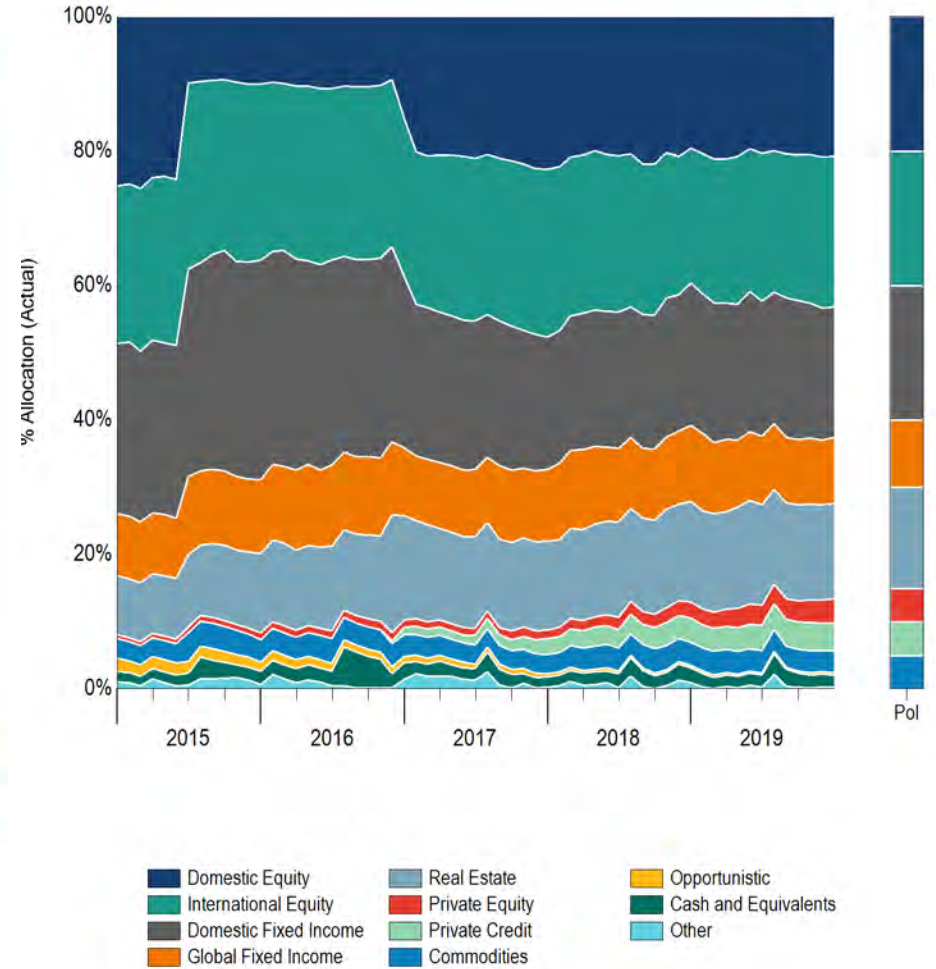
⁶KKR: As of 3Q2019, total capital called is \$23,593,570, which includes recycled distributions. Unused capital commitment is \$2,109,437 after including distribution proceeds available for reinvestment

⁷All fees and expenses are for 3Q 2019, except for Pathway, for which 2Q19 fees are shown.

Market Value History



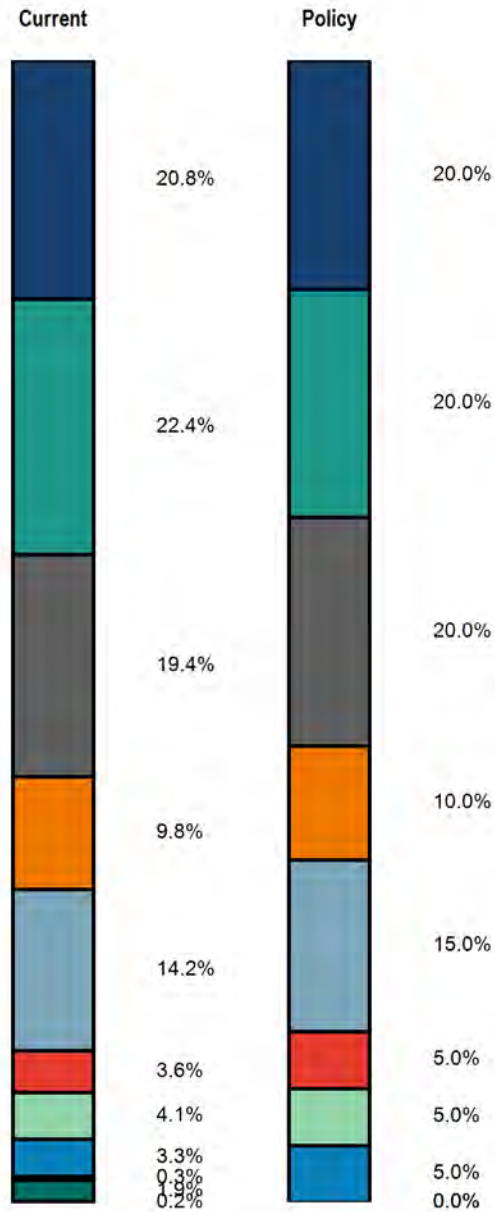
Asset Allocation History



*Other balance represents Clifton Group

Total Fund
Asset Allocation vs. Policy

Period Ending: December 31, 2019



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$301,350,674	20.8%	20.0%	\$12,050,974	15.0% - 30.0%	Yes
International Equity	\$323,758,246	22.4%	20.0%	\$34,458,545	15.0% - 30.0%	Yes
Domestic Fixed Income	\$280,963,382	19.4%	20.0%	-\$8,336,318	10.0% - 30.0%	Yes
Global Fixed Income	\$142,118,607	9.8%	10.0%	-\$2,531,243	0.0% - 20.0%	Yes
Real Estate	\$204,950,512	14.2%	15.0%	-\$12,024,264	5.0% - 20.0%	Yes
Private Equity	\$52,730,496	3.6%	5.0%	-\$19,594,429	0.0% - 10.0%	Yes
Private Credit	\$58,624,382	4.1%	5.0%	-\$13,700,543	0.0% - 10.0%	Yes
Commodities	\$47,369,955	3.3%	5.0%	-\$24,954,970	0.0% - 10.0%	Yes
Opportunistic	\$4,797,458	0.3%	0.0%	\$4,797,458	0.0% - 10.0%	Yes
Cash and Equivalents	\$26,982,942	1.9%	0.0%	\$26,982,942	0.0% - 5.0%	Yes
Other	\$2,851,849	0.2%	--	\$2,851,849	--	No
Total	\$1,446,498,502	100.0%	100.0%			

*Other balance represents Clifton Group

Total Fund Investment Fund Fee Analysis

Period Ending: December 31, 2019

Account	Fee Schedule	Market Value As of 12/31/2019	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
ARA American Strategic Value Realty	1.25% of First 10.0 Mil, 1.20% of Next 15.0 Mil, 1.10% of Next 25.0 Mil, 1.00% Thereafter	\$34,510,892	2.4%	\$409,620	1.19%
Ashmore EM Blended Debt Fund	1.00% of Assets	\$73,253,744	5.1%	\$732,537	1.00%
Atlanta Capital Mgmt	0.80% of First 50.0 Mil, 0.70% of Next 100.0 Mil, 0.60% Thereafter	\$63,995,277	4.4%	\$497,967	0.78%
BlackRock Core Bond	0.28% of First 100.0 Mil, 0.26% Thereafter	\$103,266,090	7.1%	\$288,492	0.28%
Boston Partners Large Cap Value	0.40% of Assets	\$86,394,748	6.0%	\$345,579	0.40%
Brandywine Global Fixed Income	0.45% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	\$68,864,863	4.8%	\$300,459	0.44%
Cash Account	No Fee	\$26,982,942	1.9%	--	--
Dodge & Cox Income Fund	0.42% of Assets	\$107,319,716	7.4%	\$450,743	0.42%
Dodge & Cox Intl Stock	0.64% of Assets	\$153,763,831	10.6%	\$984,089	0.64%
Gresham MTAP Commodity Builder	0.75% of First 50.0 Mil, 0.50% Thereafter	\$47,369,955	3.3%	\$355,275	0.75%
Harbourvest 2018 Global Fund L.P.	282,000 Annually	\$4,949,792	0.3%	\$282,000	5.70%
Harbourvest Partners IX Buyout Fund L.P.	200,000 Annually	\$14,788,326	1.0%	\$200,000	1.35%
JP Morgan Core Real Estate	0.92% of First 100.0 Mil, 0.80% of Next 150.0 Mil, 0.70% of Next 250.0 Mil, 0.50% Thereafter	\$170,439,620	11.8%	\$1,483,517	0.87%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	300,000 Annually	\$4,695,289	0.3%	\$300,000	6.39%
Loomis Sayles Large Cap Growth	0.45% of First 100.0 Mil, 0.40% Thereafter	\$88,586,884	6.1%	\$398,641	0.45%
Pacific Asset Corporate Loan	0.37% of Assets	\$70,377,576	4.9%	\$260,397	0.37%
Pathway Private Equity Fund Investors 9 L.P.	Please see footnote	\$32,992,378	2.3%	--	--
PIMCO Distressed Credit Fund	150,000 Annually	\$102,169	0.0%	\$150,000	146.82%
PIMCO RAE Fundamental PLUS Instl	0.40% of Assets	\$62,373,766	4.3%	\$249,495	0.40%
The Clifton Group	50,000 Annually	\$2,851,849	0.2%	\$50,000	1.75%
TPG Diversified Credit Program	Please see footnote	\$58,624,382	4.1%	--	--
WCM International Growth	0.70% of Assets	\$169,994,415	11.8%	\$1,189,961	0.70%
Investment Management Fee		\$1,446,498,502	100.0%	\$8,928,771	0.62%

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

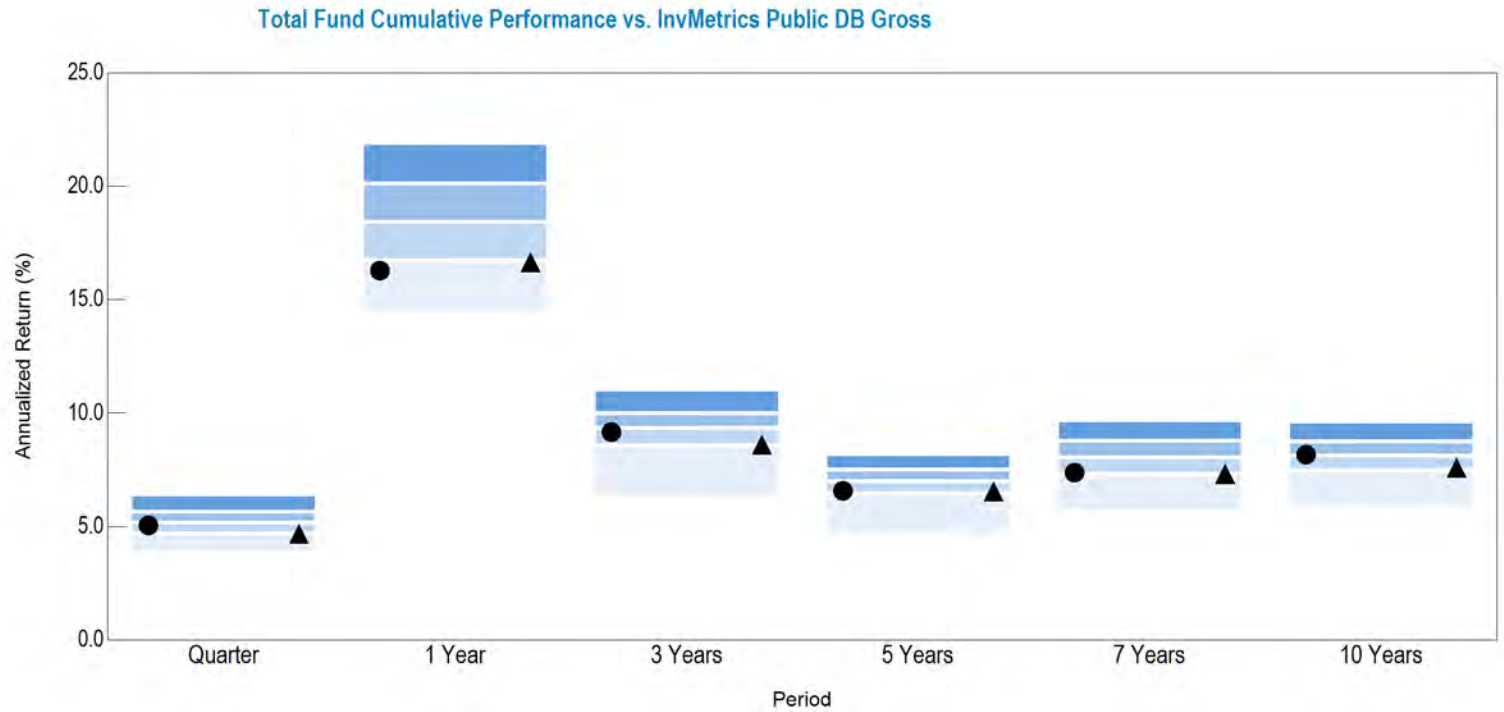
*Clifton Group fee schedule represents contractual minimum fee. Actual fee charged is \$1,500 per month through at least 6/30/2015.

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

Total Fund

Peer Universe Comparison: Cumulative Performance (Gross of Fees)

Period Ending: December 31, 2019

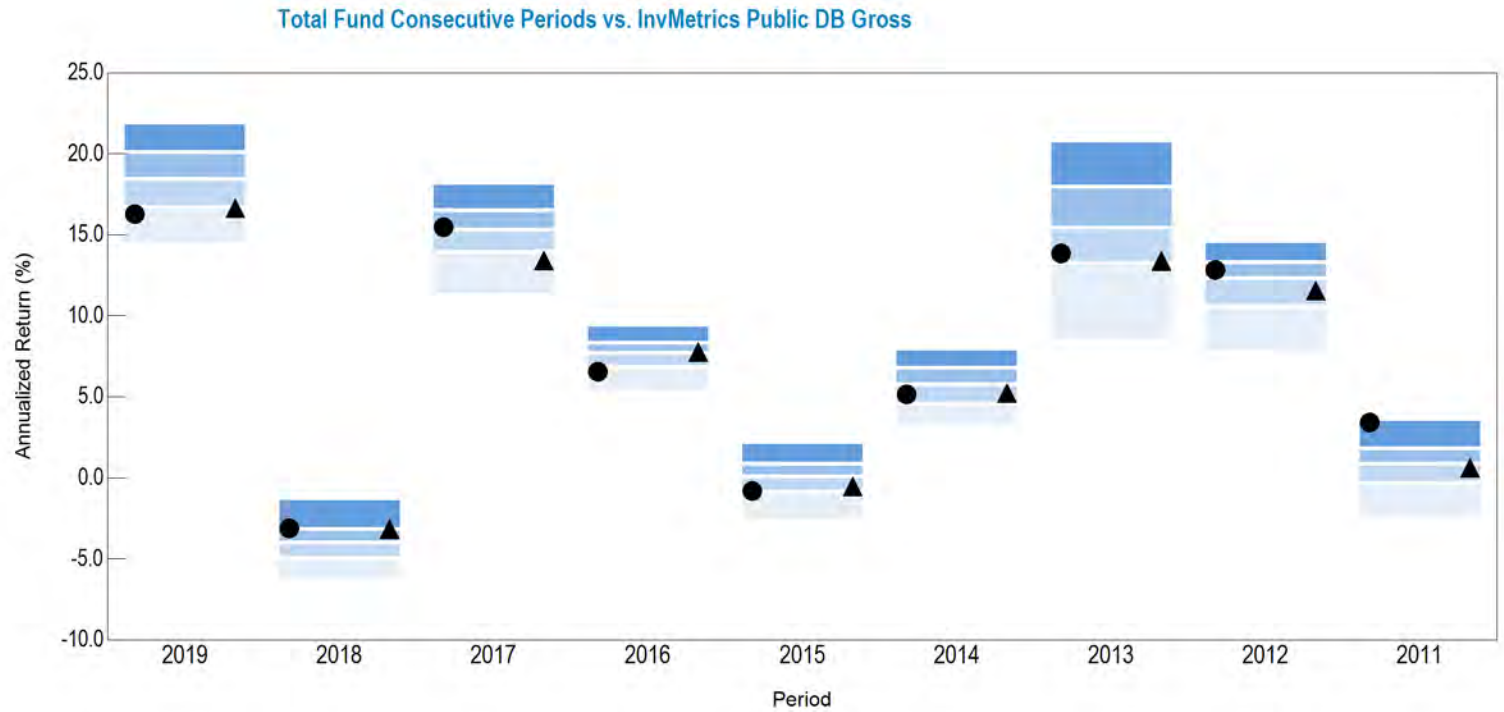


	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	6.4		21.9		11.0		8.2		9.7		9.6	
25th Percentile	5.7		20.1		10.0		7.5		8.8		8.8	
Median	5.2		18.5		9.4		7.0		8.1		8.1	
75th Percentile	4.7		16.8		8.6		6.5		7.3		7.5	
95th Percentile	3.9		14.4		6.3		4.7		5.7		5.9	
# of Portfolios	293		289		281		268		254		228	
● Total Fund	5.0	(60)	16.3	(83)	9.2	(58)	6.6	(72)	7.4	(74)	8.2	(48)
▲ Policy Index	4.7	(77)	16.6	(78)	8.6	(75)	6.6	(73)	7.3	(76)	7.6	(72)

Total Fund

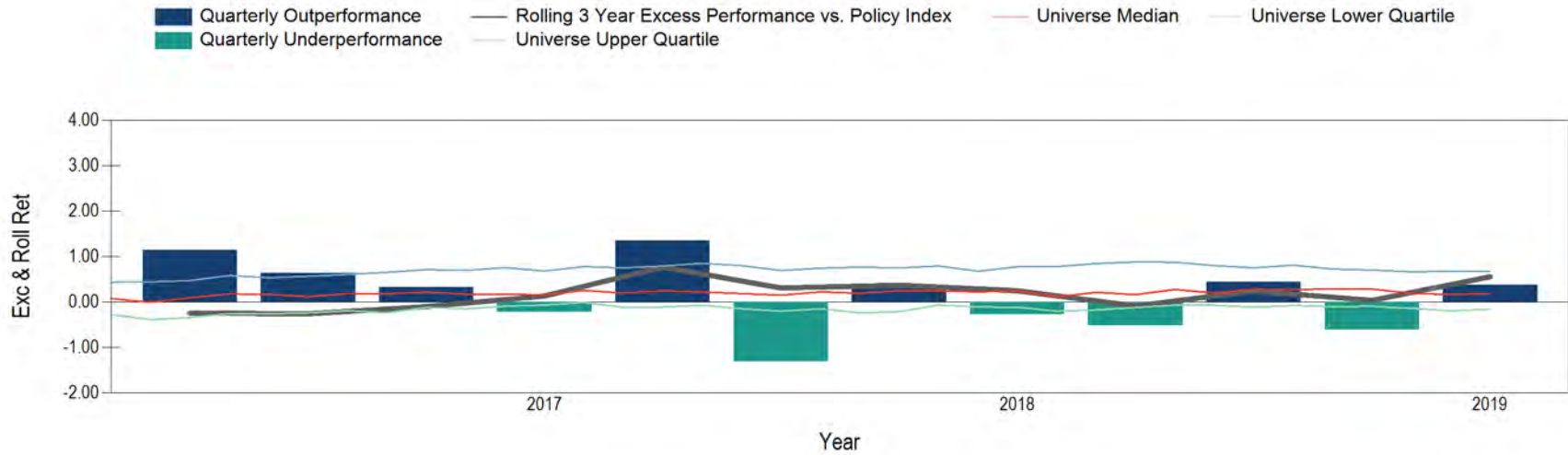
Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: December 31, 2019



	Return (Rank)									
5th Percentile	21.9	-1.3	18.2	9.4	2.2	8.0	20.8	14.6	3.6	
25th Percentile	20.1	-3.1	16.5	8.4	0.9	6.8	18.0	13.4	1.9	
Median	18.5	-4.0	15.3	7.7	0.1	5.8	15.5	12.4	0.9	
75th Percentile	16.8	-4.9	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	
95th Percentile	14.4	-6.3	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	
# of Portfolios	289	319	304	305	316	248	231	236	206	
● Total Fund	16.3 (83)	-3.1 (25)	15.5 (47)	6.6 (84)	-0.8 (74)	5.1 (66)	13.8 (71)	12.8 (40)	3.4 (6)	
▲ Policy Index	16.6 (78)	-3.2 (26)	13.4 (86)	7.8 (49)	-0.5 (67)	5.2 (64)	13.4 (74)	11.6 (69)	0.6 (60)	

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance



Total Domestic Equity
Asset Class Overview (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	301,350,674	7.8	29.4	15.3	11.9	14.2	29.4	-5.2	25.1	13.0	1.2
<i>Russell 3000</i>		9.1	31.0	14.6	11.2	13.4	31.0	-5.2	21.1	12.7	0.5
<i>InvMetrics Public DB US Eq Gross Rank</i>		71	66	12	8	5	66	36	4	48	18
PIMCO RAE Fundamental PLUS Instl	62,373,766	8.3	25.5	11.1	9.1	12.9	25.5	-6.6	17.0	15.9	-2.7
<i>S&P 500</i>		9.1	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4
<i>eV US Large Cap Core Equity Gross Rank</i>		48	82	91	86	68	82	72	89	6	86
Loomis Sayles Large Cap Growth	88,586,884	10.0	32.7	20.5	--	--	32.7	-1.7	34.1	--	--
<i>Russell 1000 Growth</i>		10.6	36.4	20.5	--	--	36.4	-1.5	30.2	--	--
<i>eV US Large Cap Growth Equity Gross Rank</i>		43	67	44	--	--	67	58	16	--	--
Boston Partners Large Cap Value	86,394,748	8.2	24.3	--	--	--	24.3	-8.5	--	--	--
<i>Russell 1000 Value</i>		7.4	26.5	--	--	--	26.5	-8.3	--	--	--
<i>eV US Large Cap Value Equity Gross Rank</i>		41	77	--	--	--	77	54	--	--	--
Atlanta Capital Mgmt	63,995,277	3.8	35.1	17.8	15.2	--	35.1	-4.5	26.6	12.6	10.4
<i>Russell 2500</i>		8.5	27.8	10.3	8.9	--	27.8	-10.0	16.8	17.6	-2.9
<i>eV US Small-Mid Cap Equity Gross Rank</i>		98	15	16	3	--	15	25	15	62	1

U.S. Effective Style Map
3 Years Ending December 31, 2019



U.S. Effective Style Map
5 Years Ending December 31, 2019



Total Domestic Equity
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2019

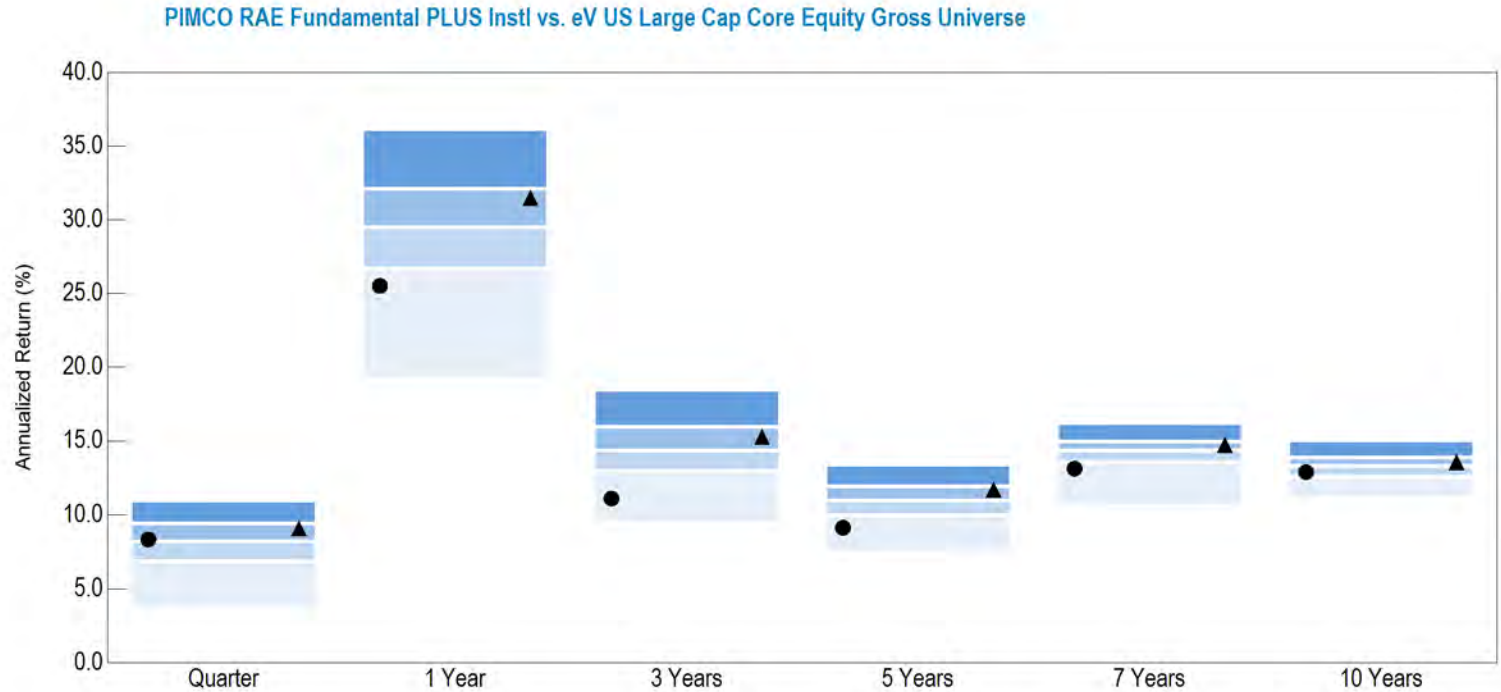
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	301,350,674	7.6	28.7	14.8	11.4	13.7	28.7	-5.7	24.5	12.7	0.8
<i>Russell 3000</i>		9.1	31.0	14.6	11.2	13.4	31.0	-5.2	21.1	12.7	0.5
PIMCO RAE Fundamental PLUS Instl	62,373,766	8.2	25.0	10.7	8.6	12.5	25.0	-7.0	16.5	15.4	-3.2
<i>S&P 500</i>		9.1	31.5	15.3	11.7	13.6	31.5	-4.4	21.8	12.0	1.4
Loomis Sayles Large Cap Growth	88,586,884	9.8	32.1	20.0	--	--	32.1	-2.1	33.5	--	--
<i>Russell 1000 Growth</i>		10.6	36.4	20.5	--	--	36.4	-1.5	30.2	--	--
Boston Partners Large Cap Value	86,394,748	8.1	23.8	--	--	--	23.8	-8.9	--	--	--
<i>Russell 1000 Value</i>		7.4	26.5	--	--	--	26.5	-8.3	--	--	--
Atlanta Capital Mgmt	63,995,277	3.6	34.1	16.8	14.3	--	34.1	-5.3	25.6	11.7	9.6
<i>Russell 2500</i>		8.5	27.8	10.3	8.9	--	27.8	-10.0	16.8	17.6	-2.9

Correlation Matrix
 Last 1 Year

	Total Domestic Equity	PIMCO RAE Fundamental PLUS Instl	Loomis Sayles Large Cap Growth	Boston Partners Large Cap Value	Russell 3000
Total Domestic Equity	1.00	--	--	--	--
PIMCO RAE Fundamental PLUS Instl	0.95	1.00	--	--	--
Loomis Sayles Large Cap Growth	0.99	0.95	1.00	--	--
Boston Partners Large Cap Value	0.93	0.99	0.95	1.00	--
Russell 3000	0.99	0.98	0.99	0.97	1.00

PIMCO RAE Fundamental PLUS Instl
 Cumulative Performance Comparison (Gross of Fees)

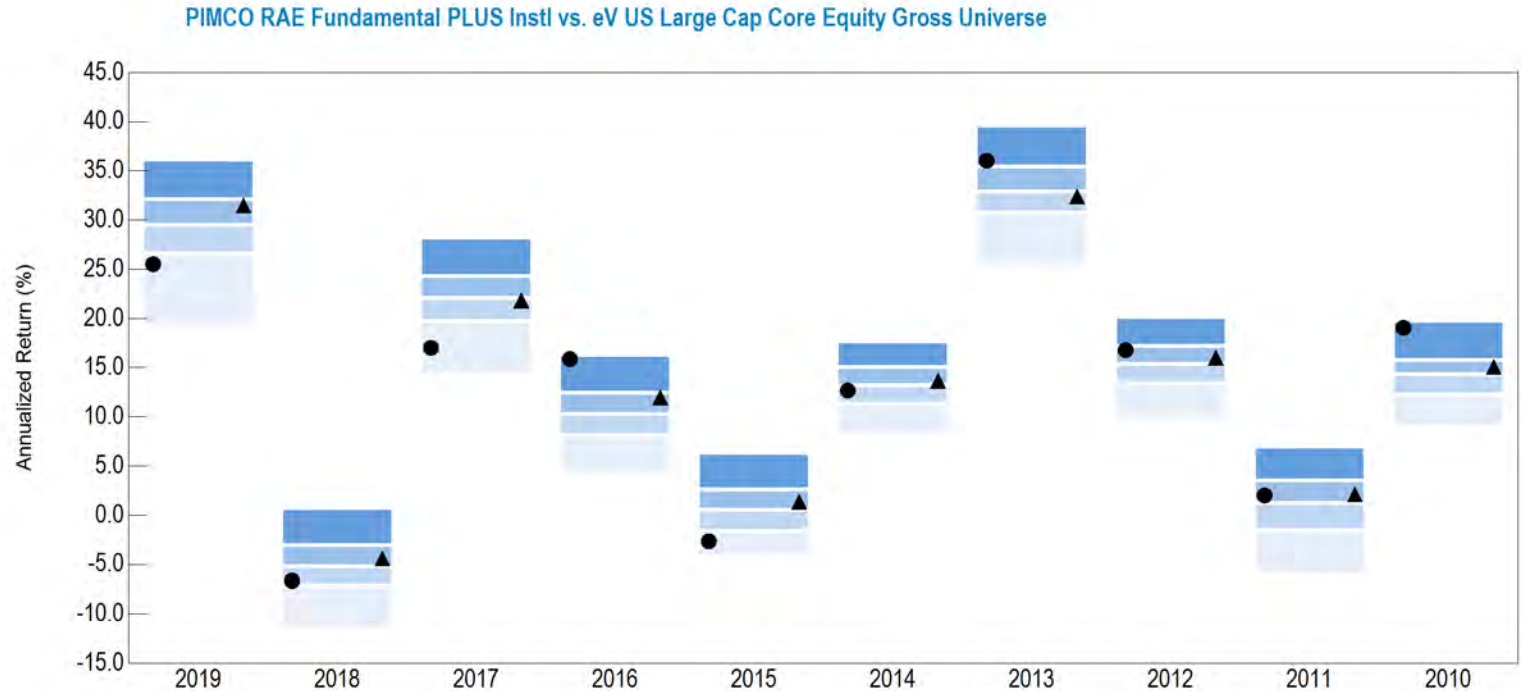
Period Ending: December 31, 2019



	Return (Rank)					
	Quarter	1 Year	3 Years	5 Years	7 Years	10 Years
5th Percentile	10.9	36.1	18.5	13.4	16.2	15.0
25th Percentile	9.4	32.1	16.0	11.9	15.0	13.9
Median	8.2	29.5	14.4	11.0	14.4	13.3
75th Percentile	6.9	26.7	13.0	10.0	13.6	12.6
95th Percentile	3.8	19.3	9.5	7.5	10.6	11.2
# of Portfolios	300	300	287	270	248	210
● PIMCO RAE Fundamental PLUS Instl	8.3 (48)	25.5 (82)	11.1 (91)	9.1 (86)	13.1 (83)	12.9 (68)
▲ S&P 500	9.1 (34)	31.5 (31)	15.3 (36)	11.7 (31)	14.7 (38)	13.6 (39)

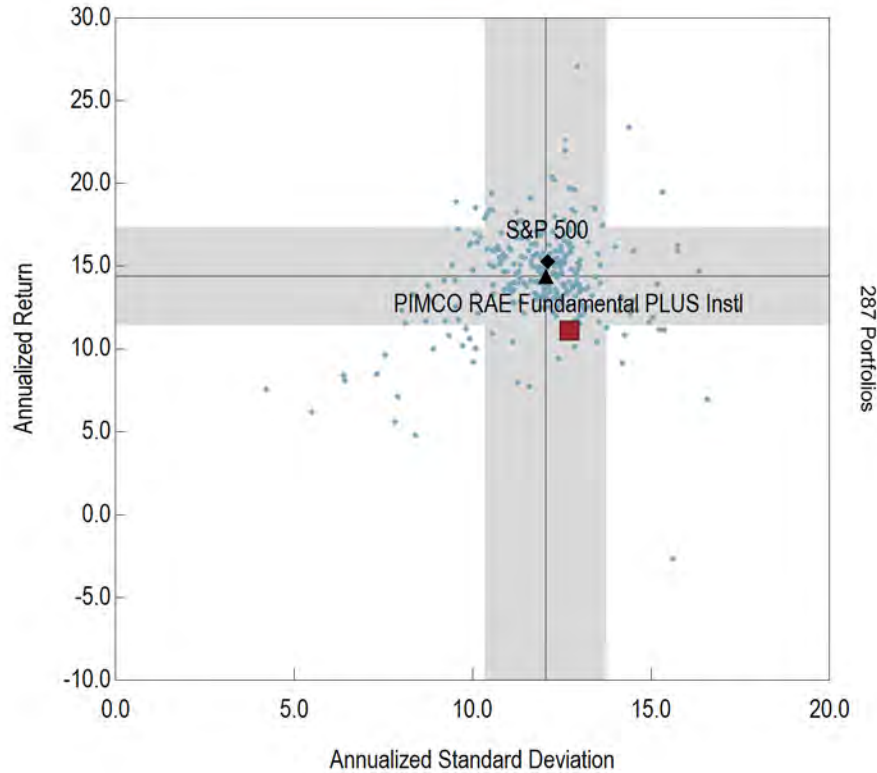
PIMCO RAE Fundamental PLUS Instl
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019



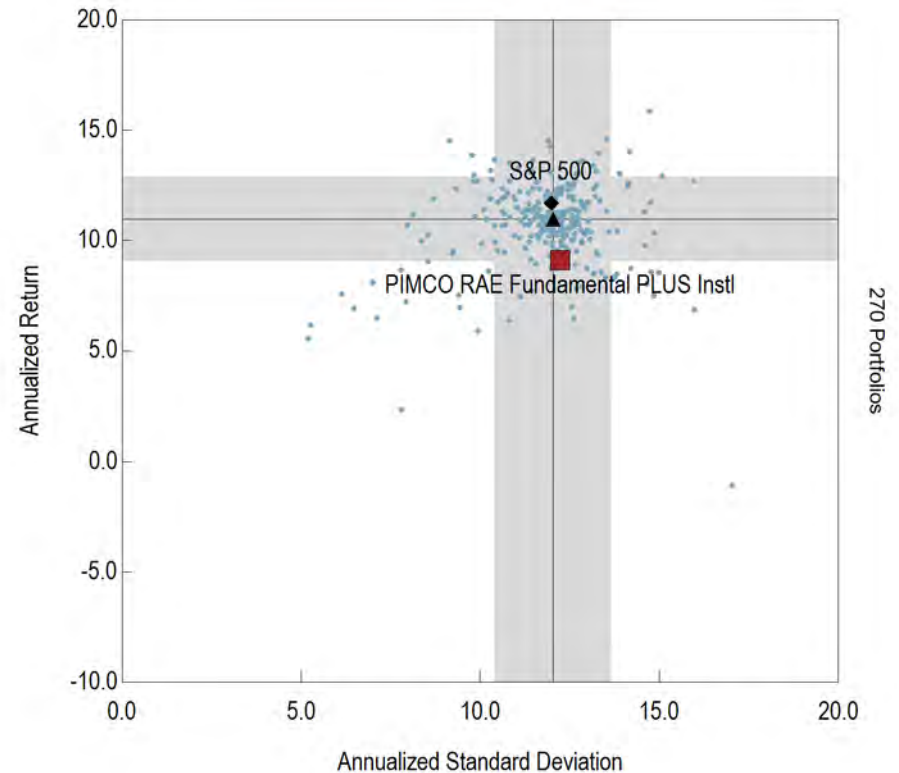
	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	36.1	0.7	28.2	16.3	6.3	17.7	39.6	20.1	7.0	19.7
25th Percentile	32.1	-3.0	24.3	12.5	2.7	15.1	35.5	17.2	3.6	15.8
Median	29.5	-5.1	22.1	10.4	0.6	13.3	32.9	15.4	1.3	14.4
75th Percentile	26.7	-7.1	19.8	8.2	-1.6	11.4	30.8	13.4	-1.5	12.3
95th Percentile	19.3	-11.4	14.4	4.3	-4.1	8.2	25.4	9.8	-5.9	9.1
# of Portfolios	300	316	318	308	267	267	261	254	259	254
● PIMCO RAE Fundamental PLUS Instl	25.5 (82)	-6.6 (72)	17.0 (89)	15.9 (6)	-2.7 (86)	12.7 (58)	36.0 (22)	16.8 (29)	2.0 (41)	19.0 (7)
▲ S&P 500	31.5 (31)	-4.4 (40)	21.8 (53)	12.0 (31)	1.4 (42)	13.7 (42)	32.4 (58)	16.0 (41)	2.1 (40)	15.1 (37)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2019



- PIMCO RAE Fundamental PLUS Instl
- ◆ S&P 500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2019

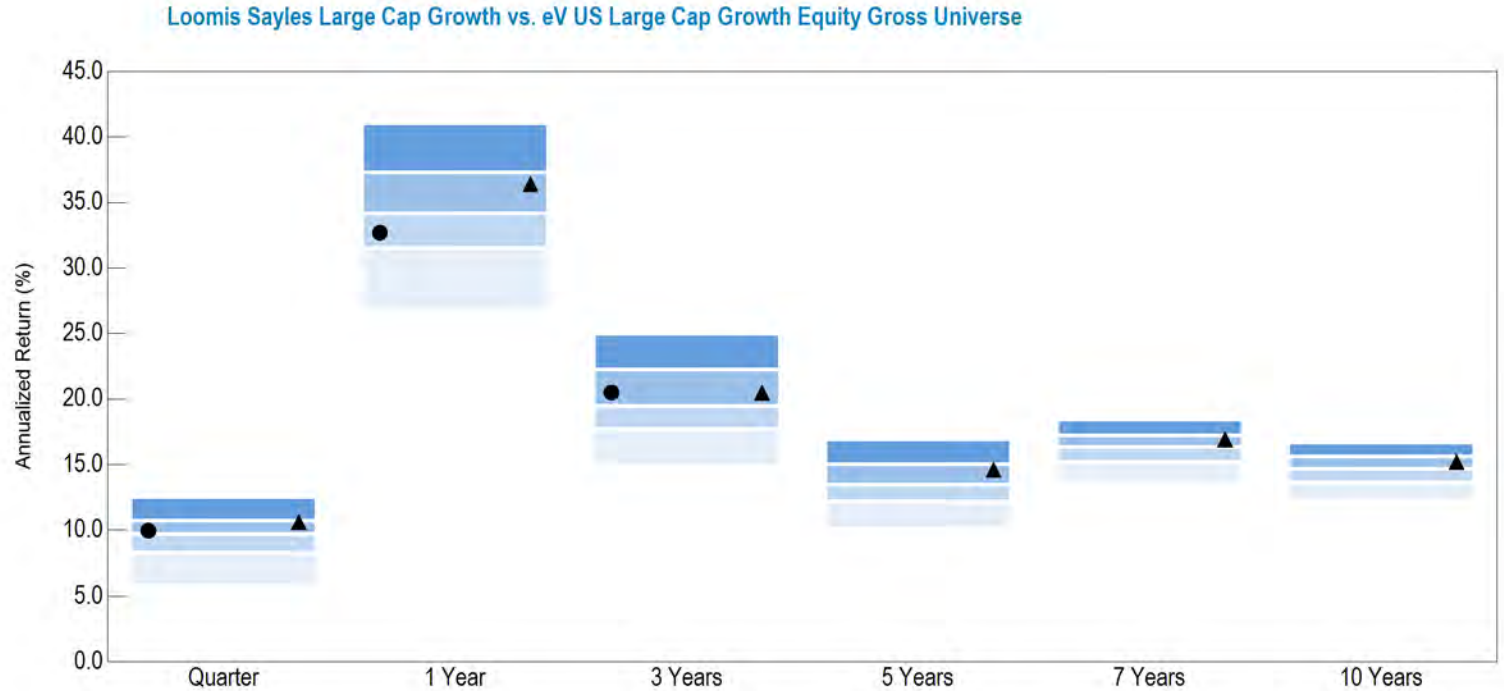


- PIMCO RAE Fundamental PLUS Instl
- ◆ S&P 500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross



Loomis Sayles Large Cap Growth
 Cumulative Performance Comparison (Gross of Fees)

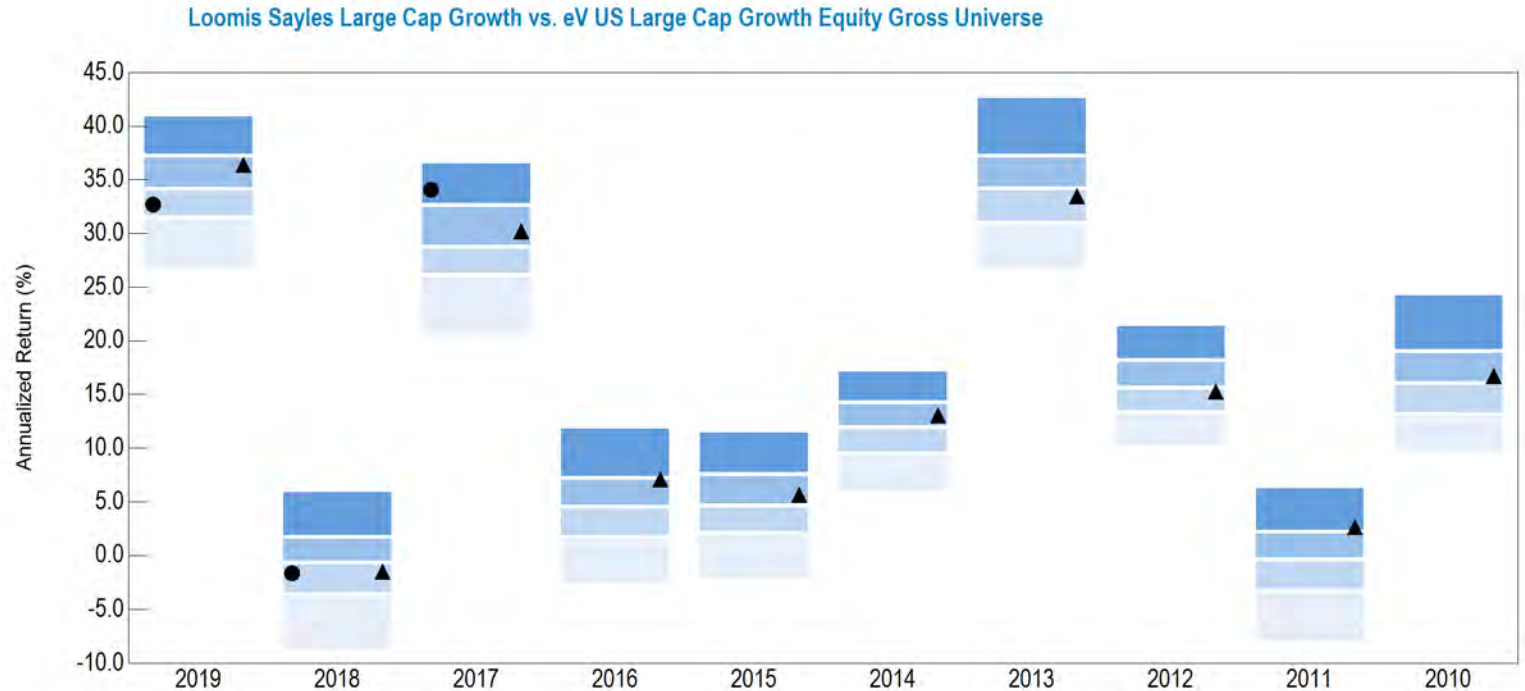
Period Ending: December 31, 2019



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	12.5		41.0		25.0		16.9		18.4		16.7	
25th Percentile	10.7		37.3		22.3		15.0		17.3		15.6	
Median	9.7		34.2		19.5		13.5		16.3		14.7	
75th Percentile	8.3		31.6		17.7		12.2		15.3		13.7	
95th Percentile	5.8		26.7		15.0		10.1		13.6		12.3	
# of Portfolios	236		236		230		225		215		199	
● Loomis Sayles Large Cap Growth	10.0	(43)	32.7	(67)	20.5	(44)	--	(--)	--	(--)	--	(--)
▲ Russell 1000 Growth	10.6	(27)	36.4	(31)	20.5	(44)	14.6	(31)	16.9	(32)	15.2	(33)

Loomis Sayles Large Cap Growth
 Consecutive Performance Comparison (Gross of Fees)

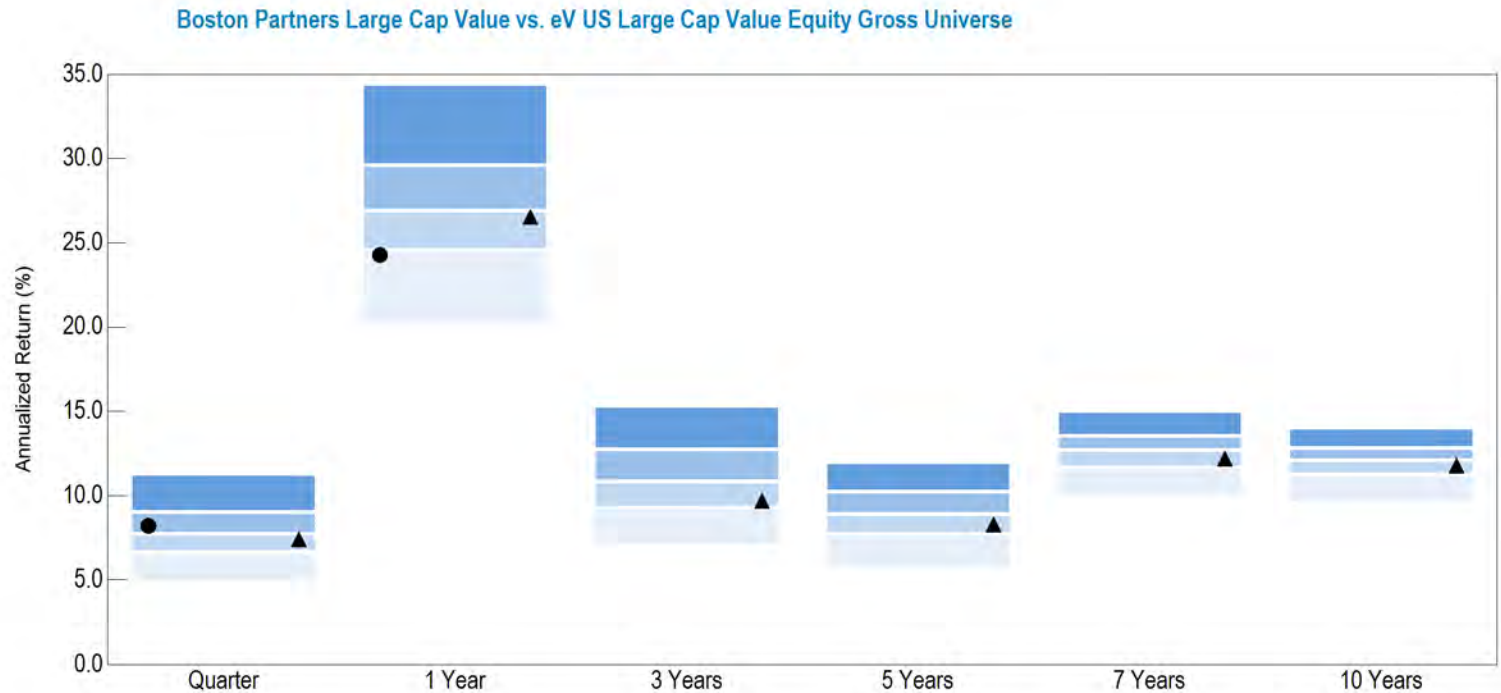
Period Ending: December 31, 2019



	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	41.0	6.1	36.7	12.0	11.6	17.3	42.8	21.6	6.4	24.4
25th Percentile	37.3	1.7	32.7	7.3	7.6	14.3	37.3	18.2	2.2	19.1
Median	34.2	-0.6	28.8	4.6	4.7	12.0	34.3	15.7	-0.3	16.1
75th Percentile	31.6	-3.5	26.2	1.8	2.1	9.5	31.0	13.4	-3.2	13.2
95th Percentile	26.7	-8.8	20.5	-2.7	-2.4	5.8	26.6	10.2	-8.0	9.6
# of Portfolios	236	255	265	282	270	291	274	274	294	304
● Loomis Sayles Large Cap Growth	32.7 (67)	-1.7 (58)	34.1 (16)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 1000 Growth	36.4 (31)	-1.5 (57)	30.2 (42)	7.1 (26)	5.7 (42)	13.0 (38)	33.5 (56)	15.3 (55)	2.6 (22)	16.7 (46)

Boston Partners Large Cap Value
 Cumulative Performance Comparison (Gross of Fees)

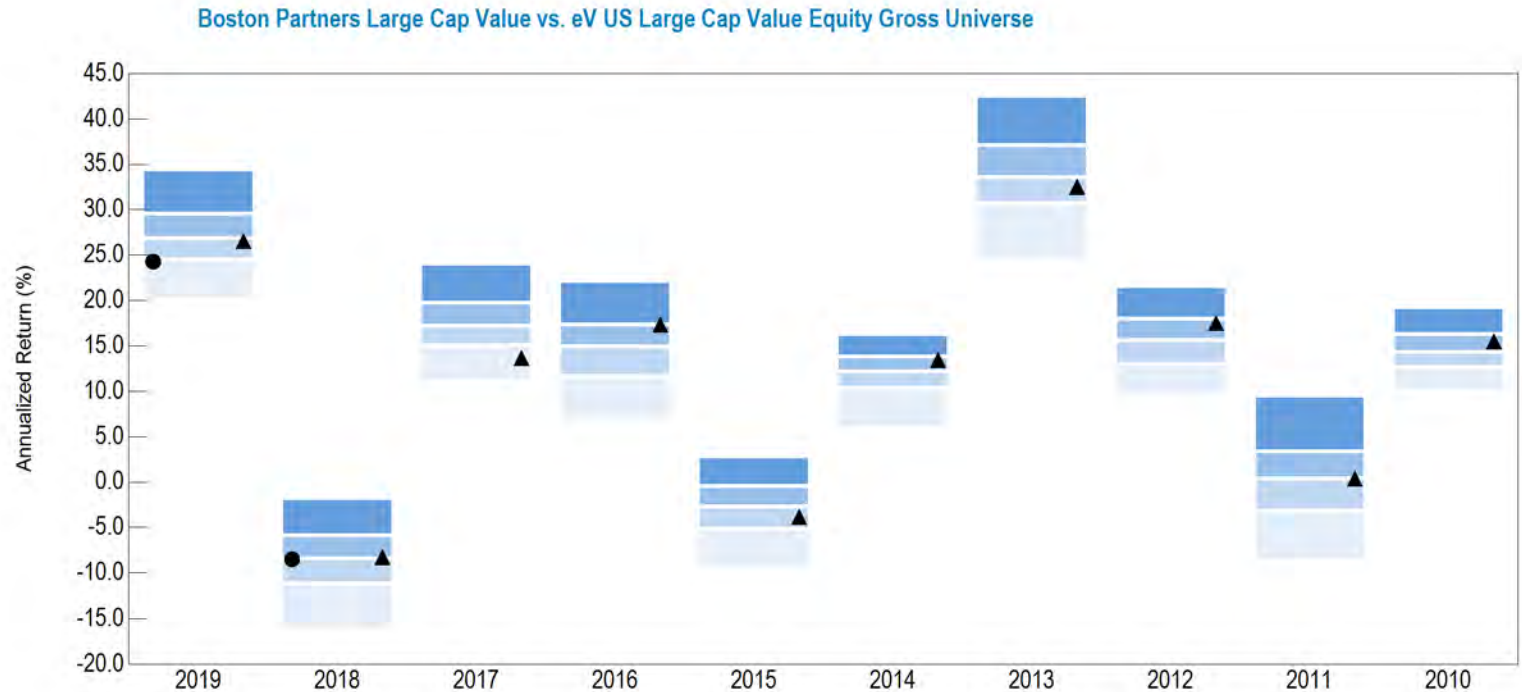
Period Ending: December 31, 2019



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	11.3		34.4		15.3		12.0		15.0		14.0	
25th Percentile	9.0		29.6		12.8		10.3		13.6		12.8	
Median	7.7		26.9		10.9		8.9		12.7		12.1	
75th Percentile	6.7		24.6		9.3		7.8		11.7		11.3	
95th Percentile	4.8		20.2		7.1		5.7		10.0		9.6	
# of Portfolios	310		310		305		295		283		250	
● Boston Partners Large Cap Value	8.2	(41)	24.3	(77)	--	(--)	--	(--)	--	(--)	--	(--)
▲ Russell 1000 Value	7.4	(60)	26.5	(55)	9.7	(70)	8.3	(65)	12.2	(67)	11.8	(62)

Boston Partners Large Cap Value
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019

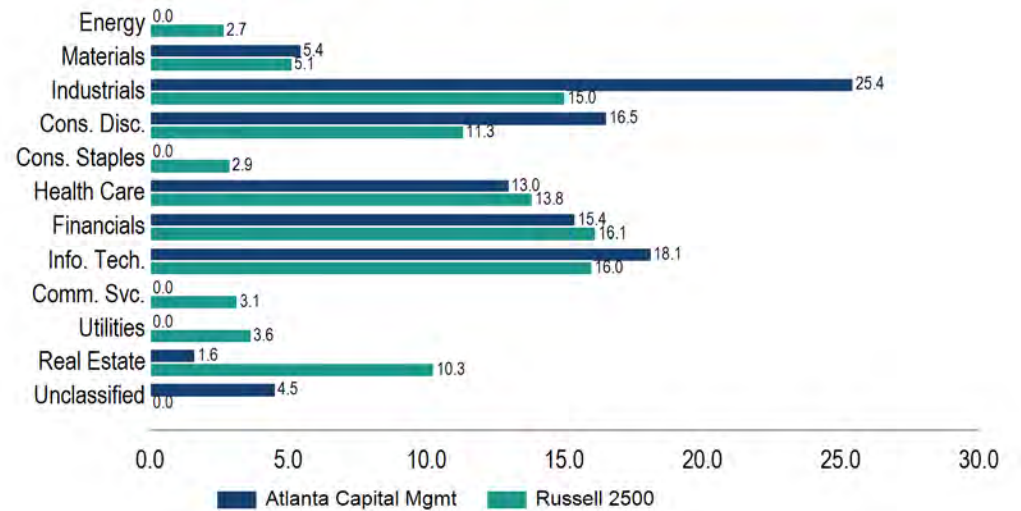


	Return (Rank)															
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010						
5th Percentile	34.4	-1.8	24.0	22.1	2.8	16.3	42.5	21.5	9.5	19.2						
25th Percentile	29.6	-5.8	19.8	17.4	-0.4	13.9	37.2	18.0	3.4	16.3						
Median	26.9	-8.3	17.2	15.0	-2.6	12.2	33.6	15.7	0.5	14.3						
75th Percentile	24.6	-11.1	15.1	11.8	-5.1	10.4	30.8	13.0	-3.1	12.7						
95th Percentile	20.2	-16.1	11.2	7.0	-9.4	5.9	24.6	9.6	-8.6	10.1						
# of Portfolios	310	336	342	346	312	307	310	303	310	323						
● Boston Partners Large Cap Value	24.3 (77)	-8.5 (54)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	
▲ Russell 1000 Value	26.5 (55)	-8.3 (50)	13.7 (87)	17.3 (26)	-3.8 (64)	13.5 (33)	32.5 (60)	17.5 (30)	0.4 (51)	15.5 (35)						

Characteristics

	Portfolio	Russell 2500
Number of Holdings	52	2,499
Weighted Avg. Market Cap. (\$B)	9.66	5.58
Median Market Cap. (\$B)	8.67	1.19
Price To Earnings	28.47	20.76
Price To Book	4.17	2.79
Price To Sales	1.78	1.34
Return on Equity (%)	20.57	6.51
Yield (%)	0.79	1.60
Beta	0.88	1.00

Sector Allocation (%) vs Russell 2500



*Unclassified includes Cash

Top Holdings
 Ending Period Weight

ARAMARK	4.69%
W R BERKLEY	4.64%
JPMORGAN FEDERAL MMKT - AGENCY SHR FUND 355 MONTHLY VARIABLE 12312049	4.52%
TRANSUNION	4.39%
TELEFLEX	4.18%
WEX	3.10%
SERVICEMASTER GLB.HDG.	3.10%
HUNT JB TRANSPORT SVS.	2.96%
CARLISLE COS.	2.73%
APTARGROUP	2.69%
Total	37.02%

Top Contributors

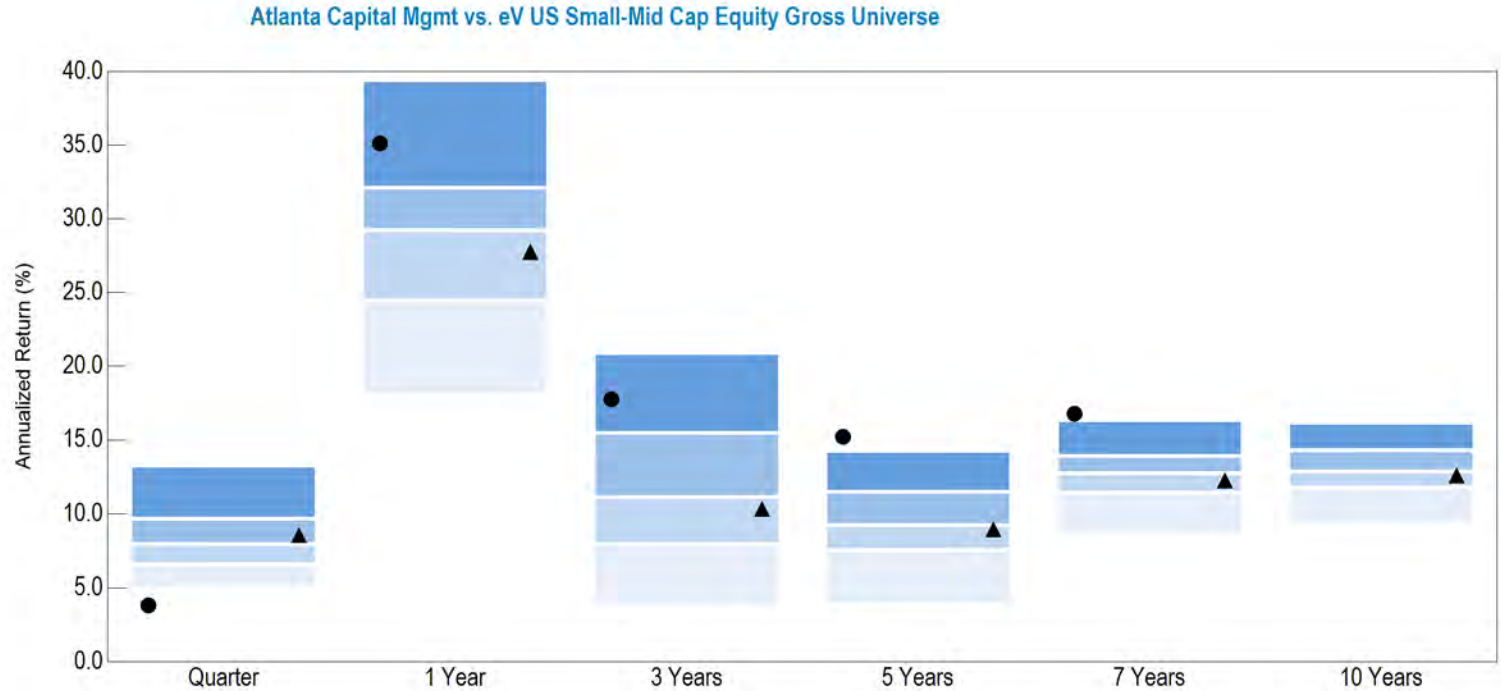
	Avg Wgt	Return	Contribution
TELEFLEX	3.97	10.91	0.43
CDW	2.56	16.23	0.41
FAIR ISAAC	1.71	23.44	0.40
JONES LANG LASALLE	1.27	25.52	0.32
CHOICE HOTELS INTL.	1.82	16.80	0.31
CARLISLE COS.	2.52	11.54	0.29
TRANSUNION	4.27	5.64	0.24
SALLY BEAUTY HOLDINGS	1.04	22.57	0.24
SEI INVESTMENTS	2.01	11.09	0.22
ANSYS	1.32	16.29	0.22

Bottom Contributors

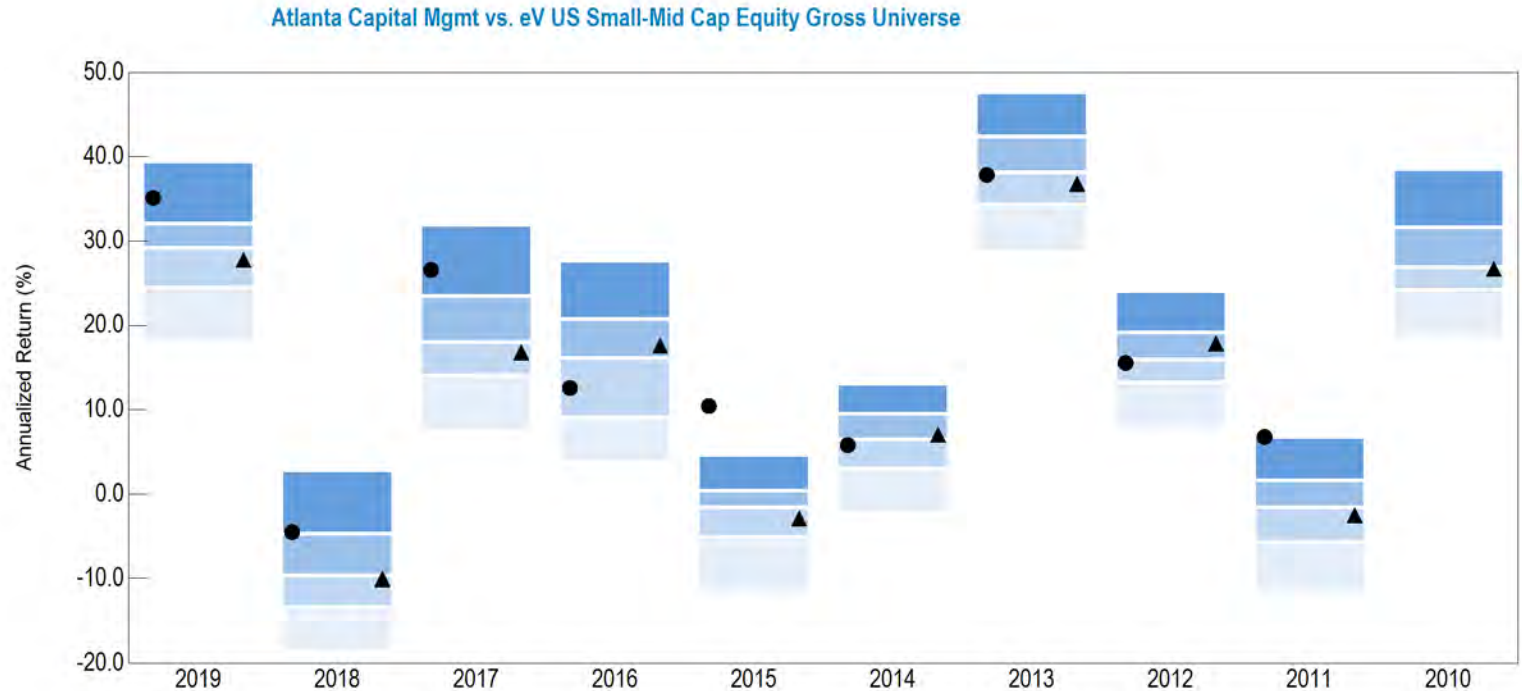
	Avg Wgt	Return	Contribution
SERVICEMASTER GLB.HDG.	3.99	-30.84	-1.23
BLACKBAUD	2.19	-11.76	-0.26
W R BERKLEY	4.81	-3.12	-0.15
HEXCEL	1.04	-10.54	-0.11
MARKEL	1.84	-3.28	-0.06
APTARGROUP	2.73	-2.09	-0.06
SENSIENT TECHS.	1.25	-3.14	-0.04
SERVICE CORP.INTL.	1.12	-3.34	-0.04
FRONTDOOR	1.41	-2.37	-0.03
MANHATTAN ASSOCS.	2.67	-1.14	-0.03

Atlanta Capital Mgmt
 Cumulative Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019

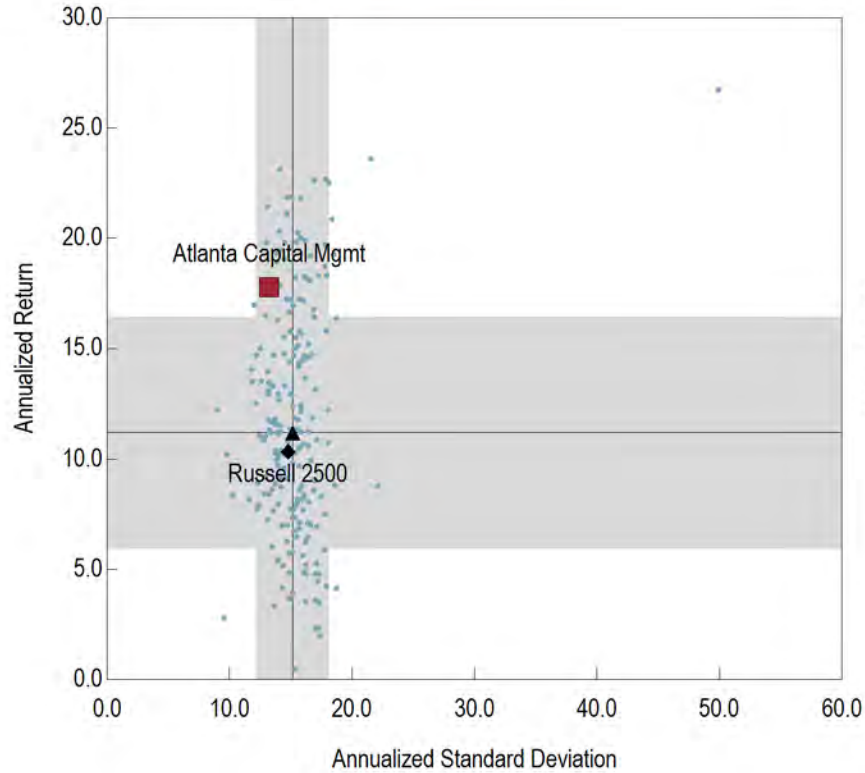


	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	13.2		39.4		20.9		14.2		16.3		16.2	
25th Percentile	9.7		32.1		15.5		11.5		13.9		14.3	
Median	8.0		29.3		11.2		9.3		12.8		12.9	
75th Percentile	6.6		24.5		7.9		7.5		11.4		11.8	
95th Percentile	5.0		18.1		3.9		3.9		8.6		9.4	
# of Portfolios	228		227		217		192		172		140	
● Atlanta Capital Mgmt	3.8	(98)	35.1	(15)	17.8	(16)	15.2	(3)	16.8	(3)	--	(--)
▲ Russell 2500	8.5	(40)	27.8	(59)	10.3	(57)	8.9	(57)	12.3	(63)	12.6	(59)



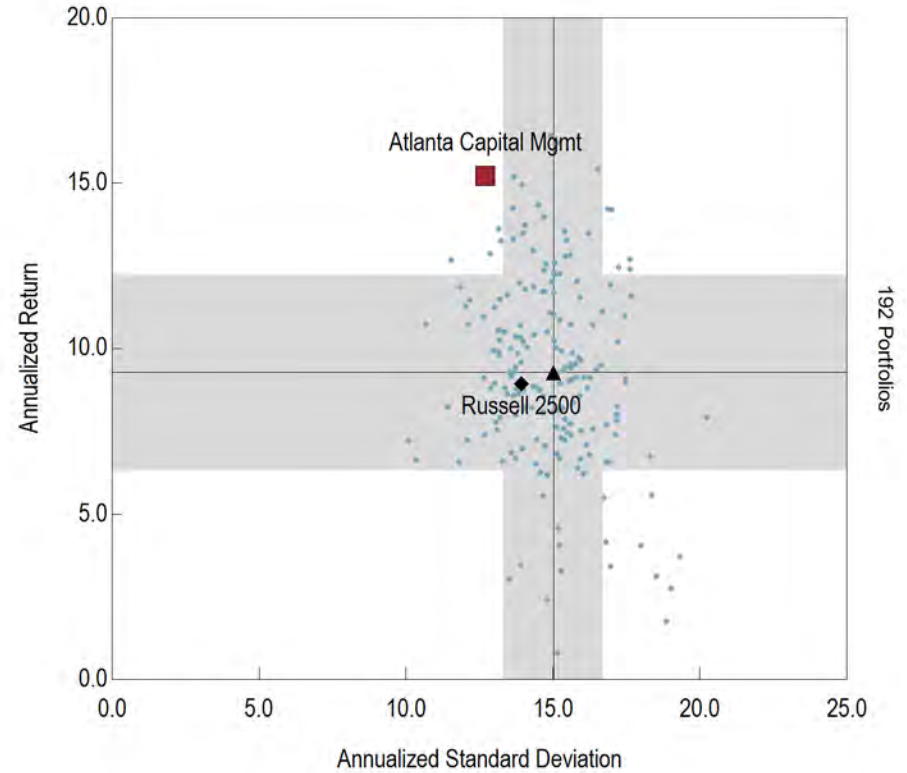
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Return (Rank)										
5th Percentile	39.4	2.8	31.9	27.6	4.6	13.0	47.6	24.1	6.8	38.5
25th Percentile	32.1	-4.6	23.5	20.8	0.4	9.6	42.5	19.2	1.7	31.7
Median	29.3	-9.6	18.1	16.1	-1.5	6.5	38.2	16.0	-1.5	26.9
75th Percentile	24.5	-13.3	14.1	9.2	-5.0	3.1	34.4	13.3	-5.6	24.3
95th Percentile	18.1	-18.5	7.5	3.8	-11.6	-2.3	28.7	7.8	-11.6	18.7
# of Portfolios	227	236	233	238	215	210	210	216	211	210
● Atlanta Capital Mgmt	35.1 (15)	-4.5 (25)	26.6 (15)	12.6 (62)	10.4 (1)	5.8 (56)	37.8 (52)	15.5 (55)	6.8 (5)	-- (--)
▲ Russell 2500	27.8 (59)	-10.0 (53)	16.8 (61)	17.6 (38)	-2.9 (64)	7.1 (46)	36.8 (58)	17.9 (36)	-2.5 (56)	26.7 (52)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2019

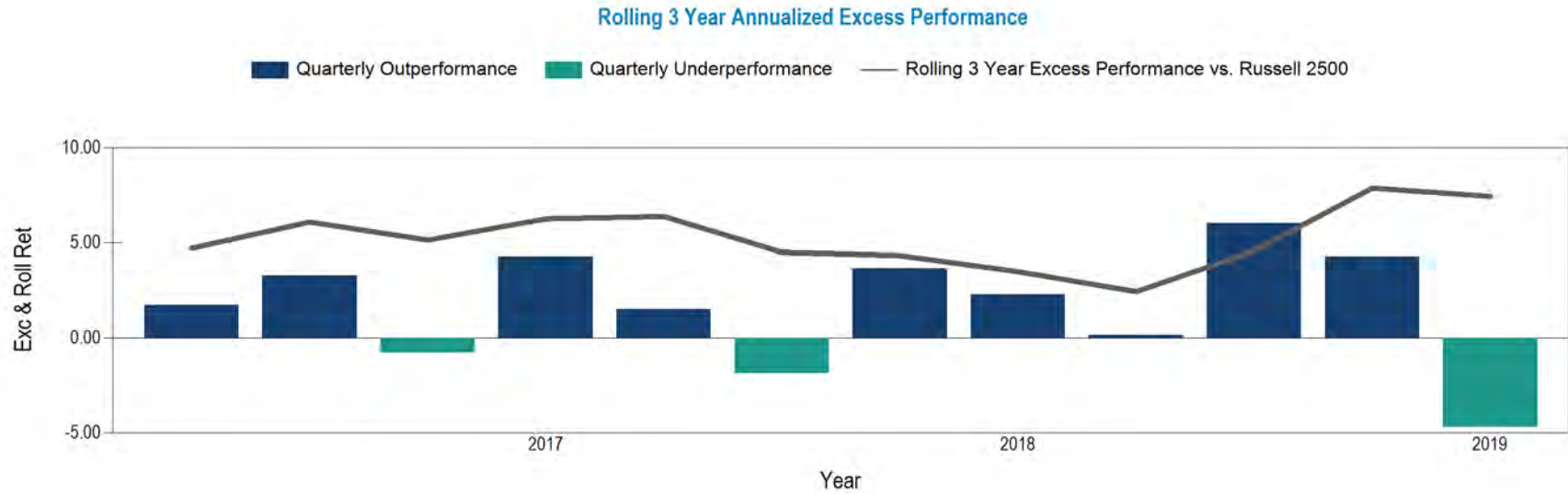


- Atlanta Capital Mgmt
- ◆ Russell 2500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Small-Mid Cap Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2019



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



Total International Equity
Asset Class Overview (Gross of Fees)

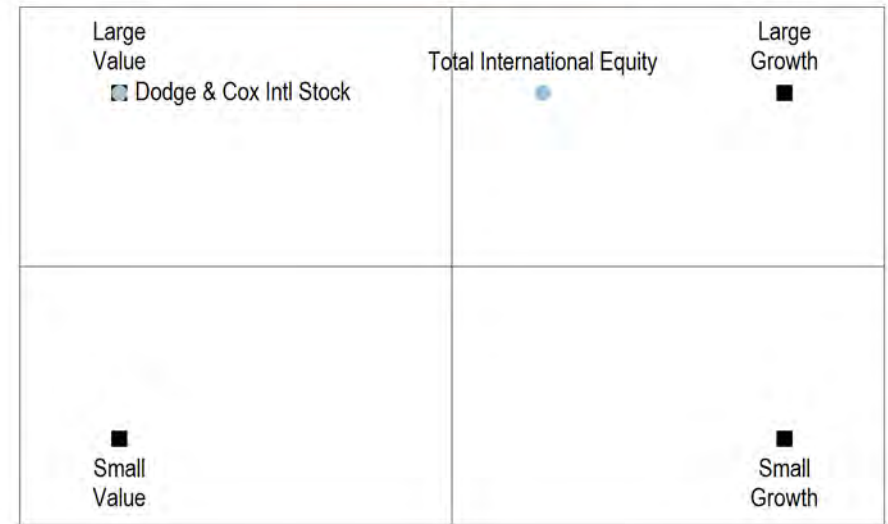
Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	323,758,246	10.3	30.2	13.1	7.2	8.1	30.2	-12.2	26.6	2.2	-4.3
MSCI ACWI ex USA Gross		9.0	22.1	10.4	6.0	5.4	22.1	-13.8	27.8	5.0	-5.3
InvMetrics Public DB ex-US Eq Gross Rank		24	1	4	19	4	1	9	81	82	68
Dodge & Cox Intl Stock	153,763,831	10.8	23.6	8.4	4.3	6.4	23.6	-17.5	24.7	9.0	-10.8
MSCI EAFE Gross		8.2	22.7	10.1	6.2	6.0	22.7	-13.4	25.6	1.5	-0.4
eV All EAFE Equity Gross Rank		26	47	80	95	71	47	73	74	3	99
WCM International Growth	169,994,415	10.0	36.7	--	--	--	36.7	-6.7	--	--	--
MSCI ACWI ex USA Gross		9.0	22.1	--	--	--	22.1	-13.8	--	--	--
eV ACWI ex-US All Cap Growth Eq Gross Rank		67	12	--	--	--	12	1	--	--	--

EAFE Effective Style Map
3 Years Ending December 31, 2019



EAFE Effective Style Map
5 Years Ending December 31, 2019



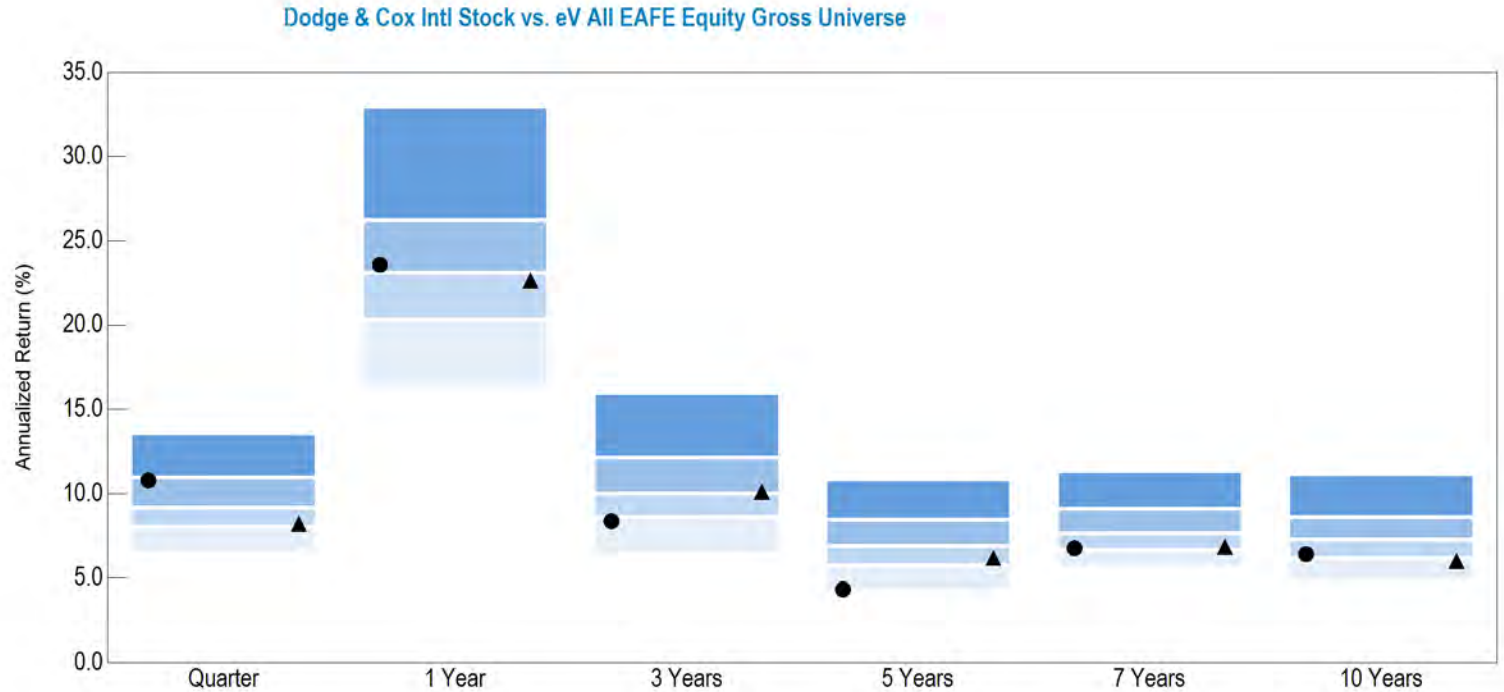
Total International Equity
 Asset Class Overview (Net of Fees)

Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	323,758,246	10.2	29.3	12.4	6.5	7.4	29.3	-12.8	25.8	1.6	-4.9
<i>MSCI ACWI ex USA Gross</i>		9.0	22.1	10.4	6.0	5.4	22.1	-13.8	27.8	5.0	-5.3
Dodge & Cox Intl Stock	153,763,831	10.6	22.8	7.7	3.7	5.8	22.8	-18.0	23.9	8.3	-11.4
<i>MSCI EAFE Gross</i>		8.2	22.7	10.1	6.2	6.0	22.7	-13.4	25.6	1.5	-0.4
WCM International Growth	169,994,415	9.8	35.8	--	--	--	35.8	-7.4	--	--	--
<i>MSCI ACWI ex USA Gross</i>		9.0	22.1	--	--	--	22.1	-13.8	--	--	--

Dodge & Cox Intl Stock
 Cumulative Performance Comparison (Gross of Fees)

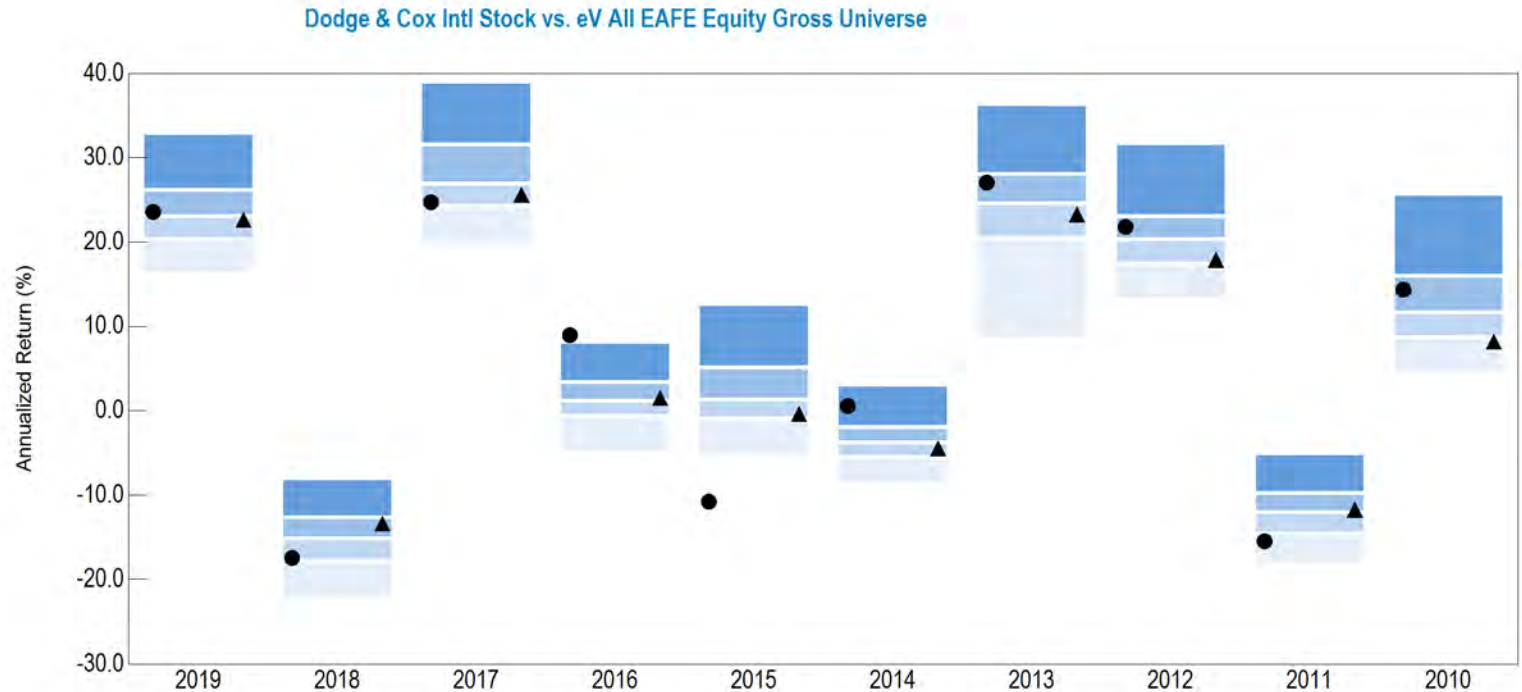
Period Ending: December 31, 2019



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	13.6		32.9		16.0		10.8		11.3		11.1	
25th Percentile	11.0		26.3		12.2		8.5		9.1		8.6	
Median	9.2		23.2		10.0		6.9		7.7		7.3	
75th Percentile	8.1		20.4		8.6		5.8		6.7		6.2	
95th Percentile	6.5		16.3		6.5		4.3		5.7		4.8	
# of Portfolios	388		387		370		327		289		253	
● Dodge & Cox Intl Stock	10.8	(26)	23.6	(47)	8.4	(80)	4.3	(95)	6.8	(73)	6.4	(71)
▲ MSCI EAFE Gross	8.2	(71)	22.7	(54)	10.1	(49)	6.2	(62)	6.8	(71)	6.0	(79)

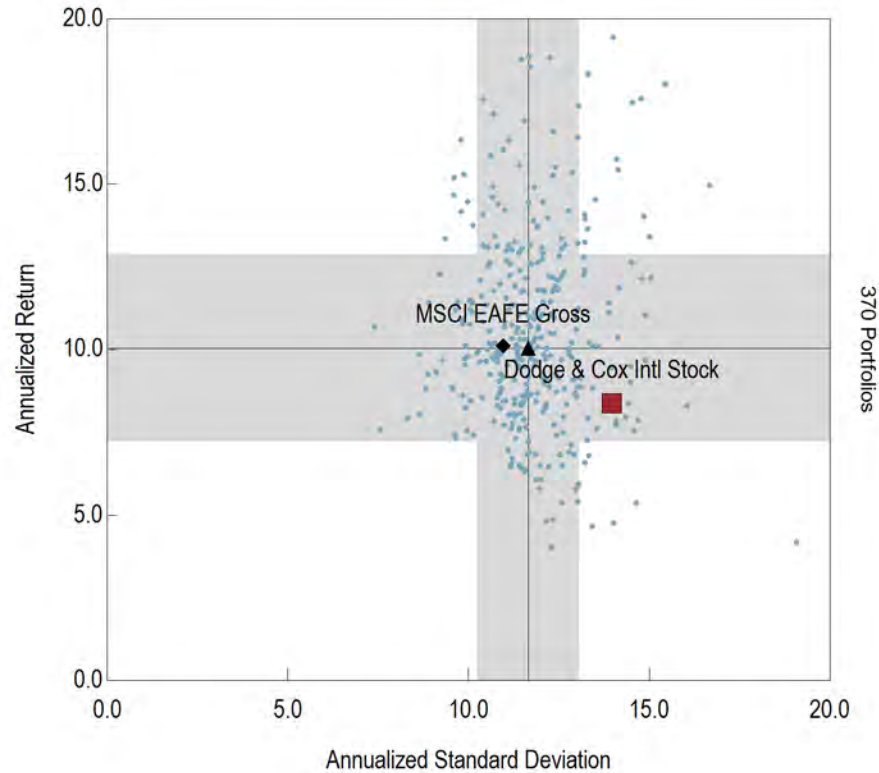
Dodge & Cox Intl Stock
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019



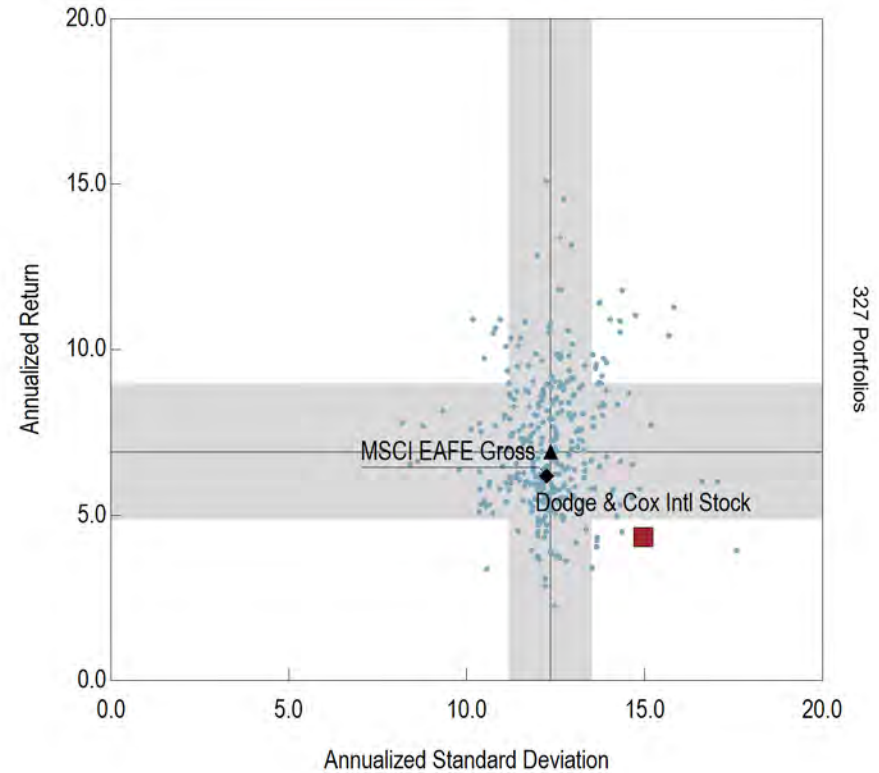
	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	32.9	-8.0	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7
25th Percentile	26.3	-12.6	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1
Median	23.2	-15.1	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7
75th Percentile	20.4	-17.8	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7
95th Percentile	16.3	-22.2	19.7	-4.9	-5.4	-8.6	8.6	13.3	-18.2	4.6
# of Portfolios	387	391	370	350	325	314	284	263	278	352
● Dodge & Cox Intl Stock	23.6 (47)	-17.5 (73)	24.7 (74)	9.0 (3)	-10.8 (99)	0.6 (14)	27.1 (32)	21.8 (37)	-15.5 (82)	14.4 (36)
▲ MSCI EAFE Gross	22.7 (54)	-13.4 (35)	25.6 (63)	1.5 (47)	-0.4 (66)	-4.5 (60)	23.3 (60)	17.9 (72)	-11.7 (47)	8.2 (78)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2019

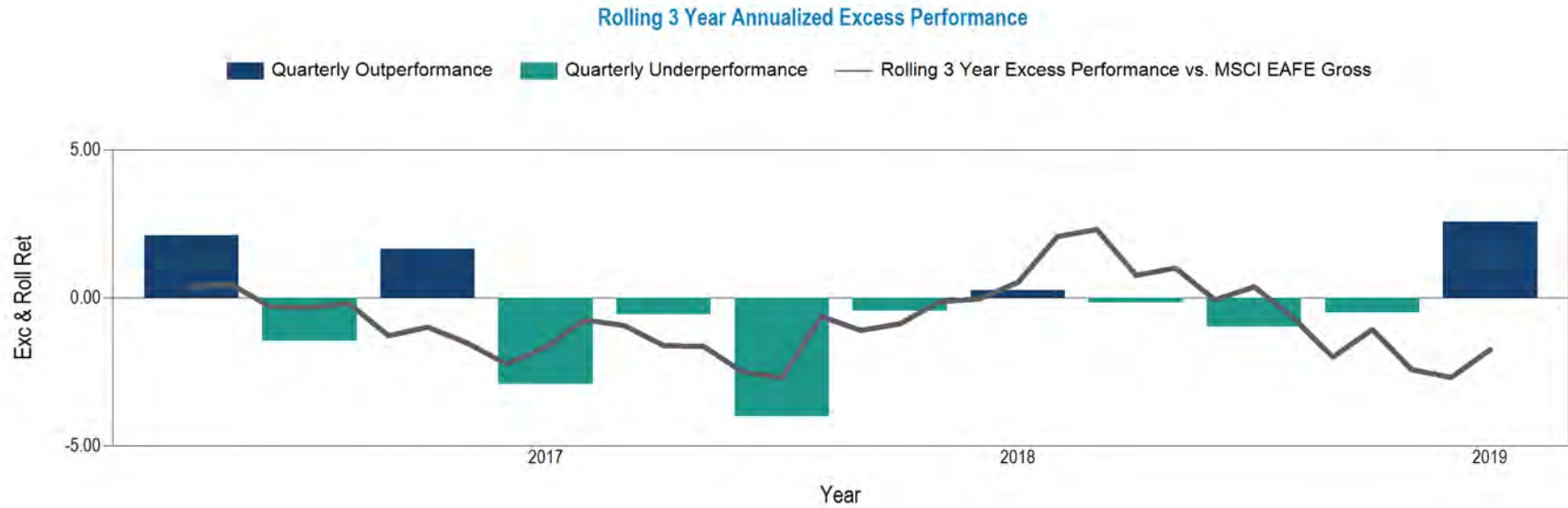


- Dodge & Cox Intl Stock
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2019

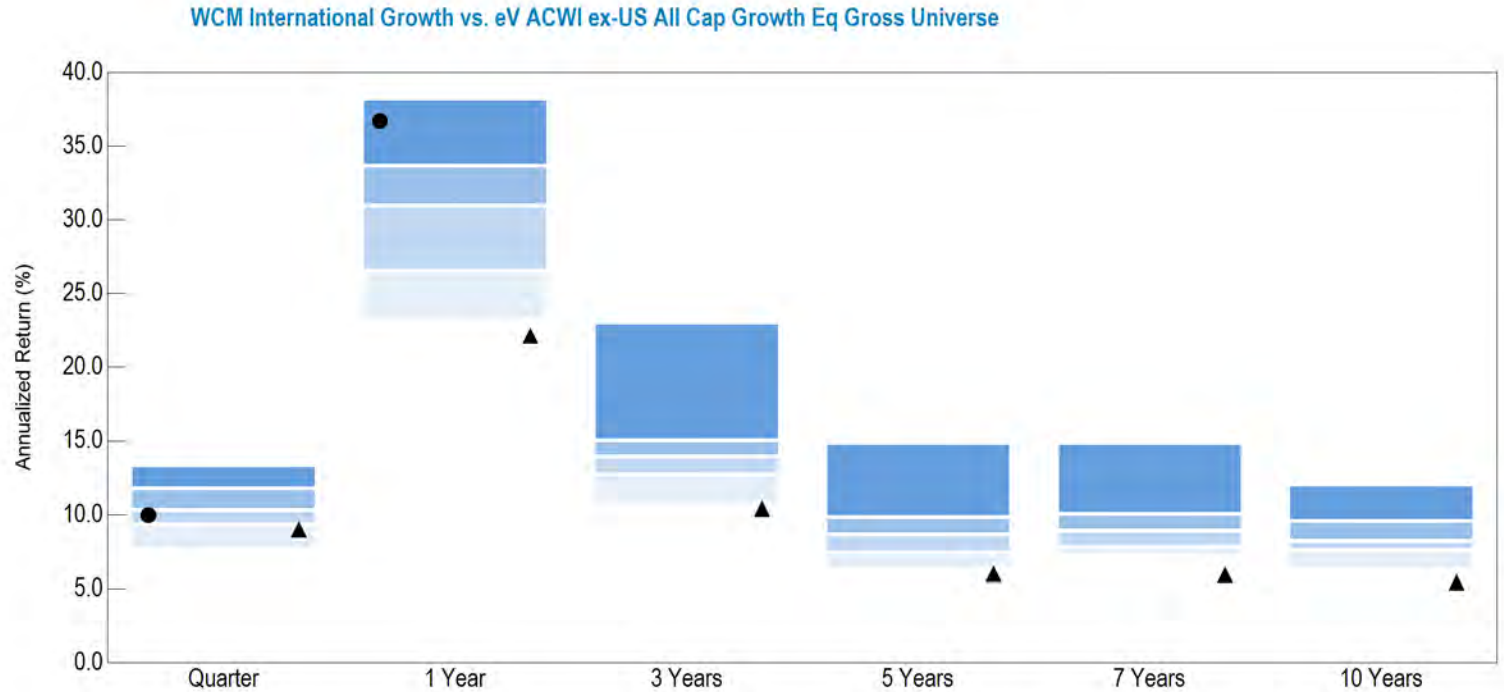


- Dodge & Cox Intl Stock
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



WCM International Growth
 Cumulative Performance Comparison (Gross of Fees)

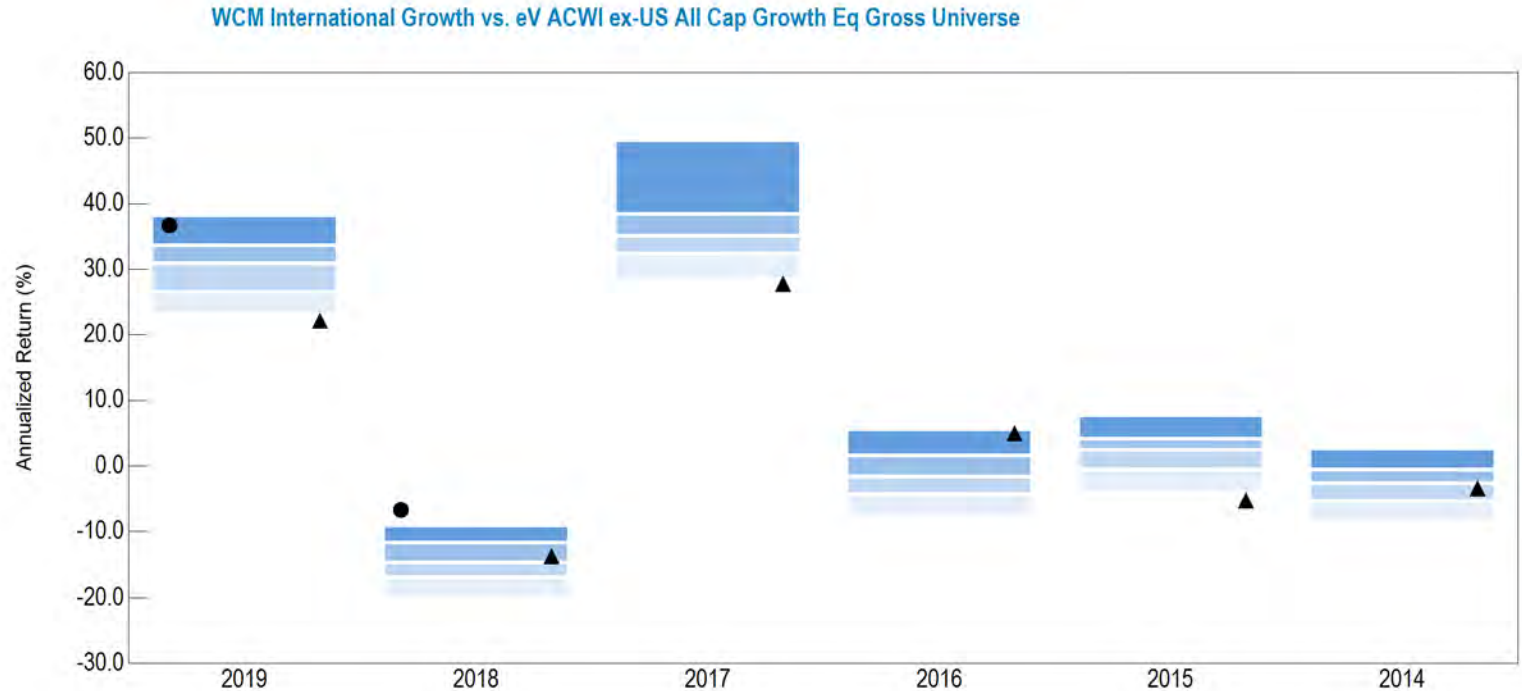
Period Ending: December 31, 2019



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	13.3		38.2		23.0		14.8		14.9		12.0	
25th Percentile	11.8		33.7		15.1		9.9		10.1		9.6	
Median	10.4		31.0		14.0		8.7		8.9		8.3	
75th Percentile	9.4		26.6		12.8		7.5		7.9		7.7	
95th Percentile	7.7		23.2		10.7		6.4		7.2		6.4	
# of Portfolios	34		34		31		30		28		24	
● WCM International Growth	10.0	(67)	36.7	(12)	--	(--)	--	(--)	--	(--)	--	(--)
▲ MSCI ACWI ex USA Gross	9.0	(81)	22.1	(98)	10.4	(97)	6.0	(97)	5.9	(99)	5.4	(99)

WCM International Growth
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019



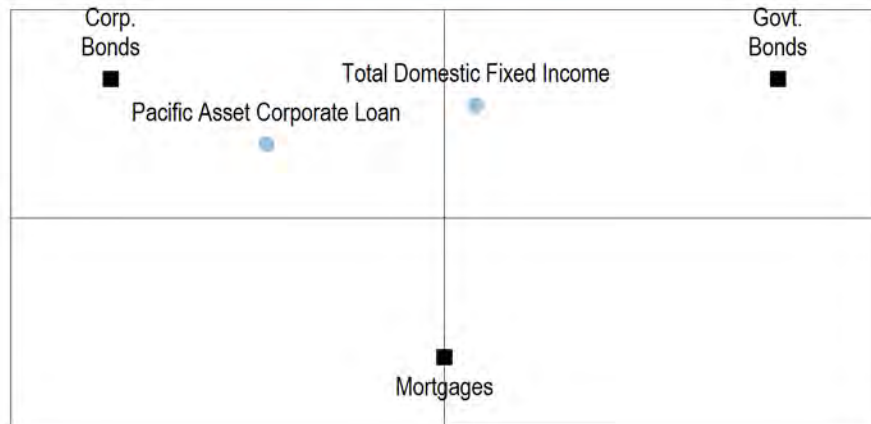
	2019		2018		2017		2016		2015		2014	
5th Percentile	38.2		-9.1		49.7		5.5		7.7		2.6	
25th Percentile	33.7		-11.6		38.5		1.7		4.2		-0.5	
Median	31.0		-14.6		35.2		-1.6		2.5		-2.5	
75th Percentile	26.6		-16.9		32.4		-4.2		-0.5		-5.2	
95th Percentile	23.2		-19.8		28.5		-7.7		-3.9		-8.4	
# of Portfolios	34		28		29		28		25		23	
● WCM International Growth	36.7	(12)	-6.7	(1)	--	(--)	--	(--)	--	(--)	--	(--)
▲ MSCI ACWI ex USA Gross	22.1	(98)	-13.8	(49)	27.8	(97)	5.0	(8)	-5.3	(97)	-3.4	(69)

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

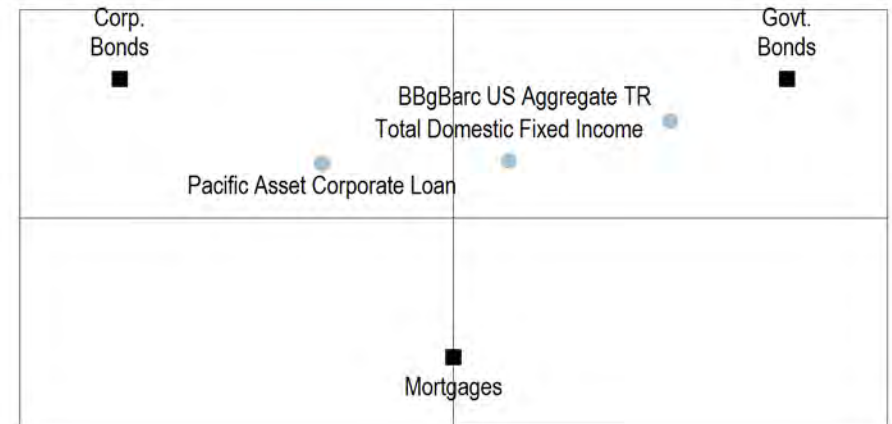
Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Fixed Income	280,963,382	0.9	9.9	4.8	4.0	4.6	9.9	0.4	4.3	4.5	1.1
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	4.0	3.0	3.7	8.7	0.0	3.5	2.6	0.6
<i>InvMetrics Public DB US Fix Inc Gross Rank</i>		15	9	17	14	32	9	55	50	49	17
BlackRock Core Bond	103,266,090	0.3	10.2	--	--	--	10.2	0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	--	--	--	8.7	0.0	--	--	--
<i>eV US Core Fixed Inc Gross Rank</i>		45	10	--	--	--	10	27	--	--	--
Dodge & Cox Income Fund	107,319,716	1.0	10.2	--	--	--	10.2	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	--	--	--	8.7	0.0	--	--	--
<i>eV US Core Fixed Inc Gross Rank</i>		3	10	--	--	--	10	43	--	--	--
Pacific Asset Corporate Loan	70,377,576	1.6	9.1	4.9	5.3	--	9.1	1.0	4.9	9.2	2.5
<i>S&P/LSTA Leveraged Loan Index</i>		1.7	8.6	4.3	4.4	--	8.6	0.4	4.1	10.2	-0.7
<i>eV US Float-Rate Bank Loan Fixed Inc Gross Rank</i>		67	35	13	10	--	35	29	26	51	9

Fixed Income Effective Style Map
3 Years Ending December 31, 2019



Fixed Income Effective Style Map
5 Years Ending December 31, 2019



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

Period Ending: December 31, 2019

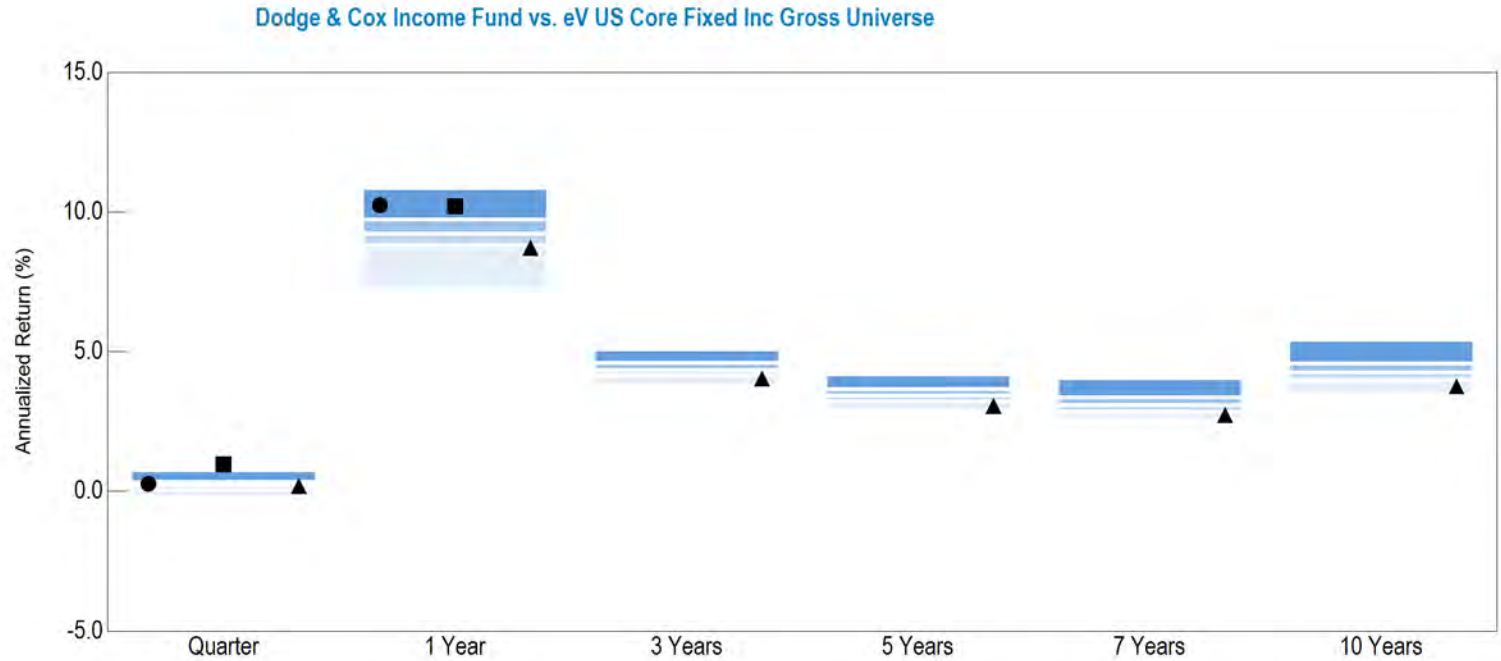
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Fixed Income	280,963,382	0.8	9.5	4.4	3.7	4.3	9.5	0.0	3.9	4.2	0.9
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	4.0	3.0	3.7	8.7	0.0	3.5	2.6	0.6
BlackRock Core Bond	103,266,090	0.2	9.9	--	--	--	9.9	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	--	--	--	8.7	0.0	--	--	--
Dodge & Cox Income Fund	107,319,716	0.8	9.7	--	--	--	9.7	-0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>		0.2	8.7	--	--	--	8.7	0.0	--	--	--
Pacific Asset Corporate Loan	70,377,576	1.5	8.7	4.6	4.9	--	8.7	0.7	4.6	8.8	2.1
<i>S&P/LSTA Leveraged Loan Index</i>		1.7	8.6	4.3	4.4	--	8.6	0.4	4.1	10.2	-0.7

Correlation Matrix
Last 1 Year

	Total Domestic Fixed Income	BlackRock Core Bond	Dodge & Cox Income Fund	Pacific Asset Corporate Loan	BBgBarc US Aggregate TR
Total Domestic Fixed Income	1.00	--	--	--	--
BlackRock Core Bond	0.96	1.00	--	--	--
Dodge & Cox Income Fund	1.00	0.97	1.00	--	--
Pacific Asset Corporate Loan	0.81	0.62	0.79	1.00	--
BBgBarc US Aggregate TR	0.90	0.98	0.91	0.47	1.00

US Core Fixed Income
 Cumulative Performance Comparison (Gross of Fees)

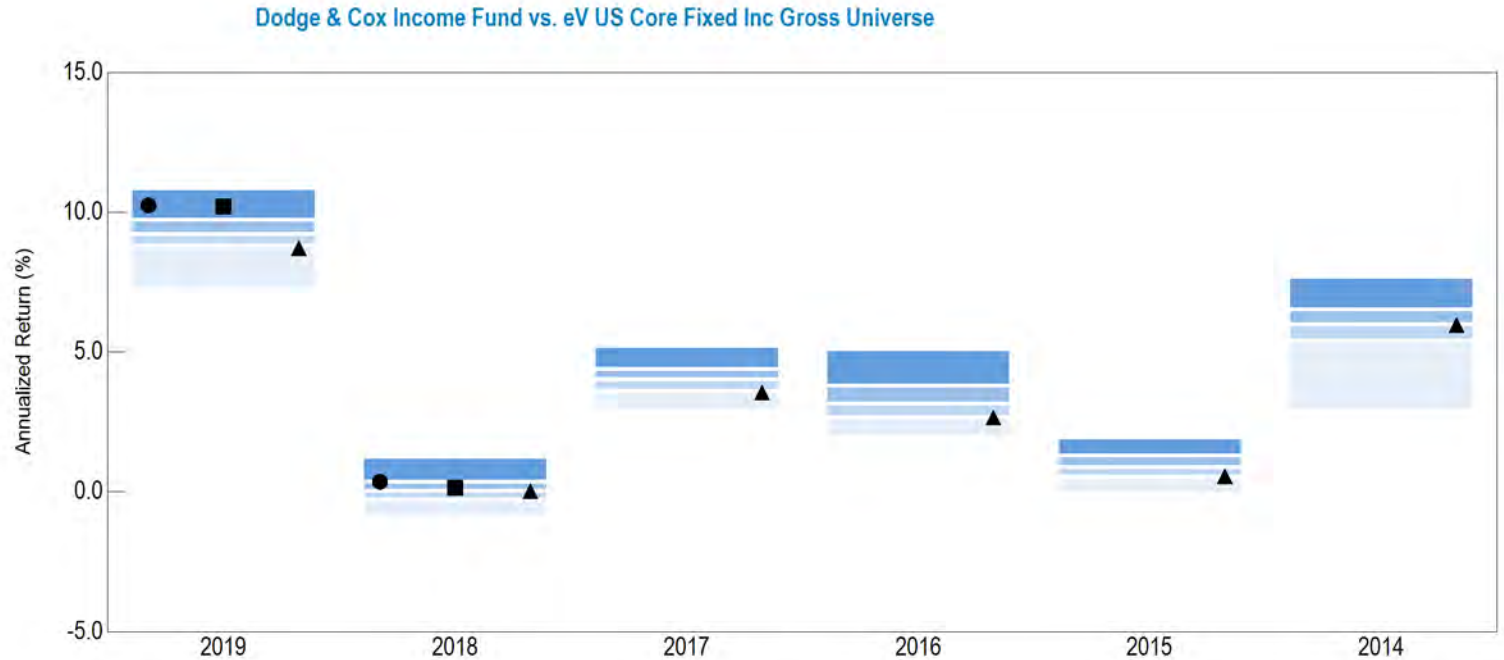
Period Ending: December 31, 2019



	Return (Rank)		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	0.7		10.9		5.1		4.2		4.0		5.4	
25th Percentile	0.3		9.8		4.6		3.7		3.4		4.6	
Median	0.2		9.2		4.4		3.4		3.1		4.3	
75th Percentile	0.1		8.8		4.2		3.2		2.9		4.0	
95th Percentile	-0.2		7.2		3.8		2.9		2.6		3.5	
# of Portfolios	216		216		214		210		208		197	
● BlackRock Core Bond	0.3	(45)	10.2	(10)	--	(--)	--	(--)	--	(--)	--	(--)
■ Dodge & Cox Income Fund	1.0	(3)	10.2	(10)	--	(--)	--	(--)	--	(--)	--	(--)
▲ BBgBarc US Aggregate TR	0.2	(58)	8.7	(78)	4.0	(85)	3.0	(90)	2.7	(88)	3.7	(91)

US Core Fixed Income
 Consecutive Performance Comparison (Gross of Fees)

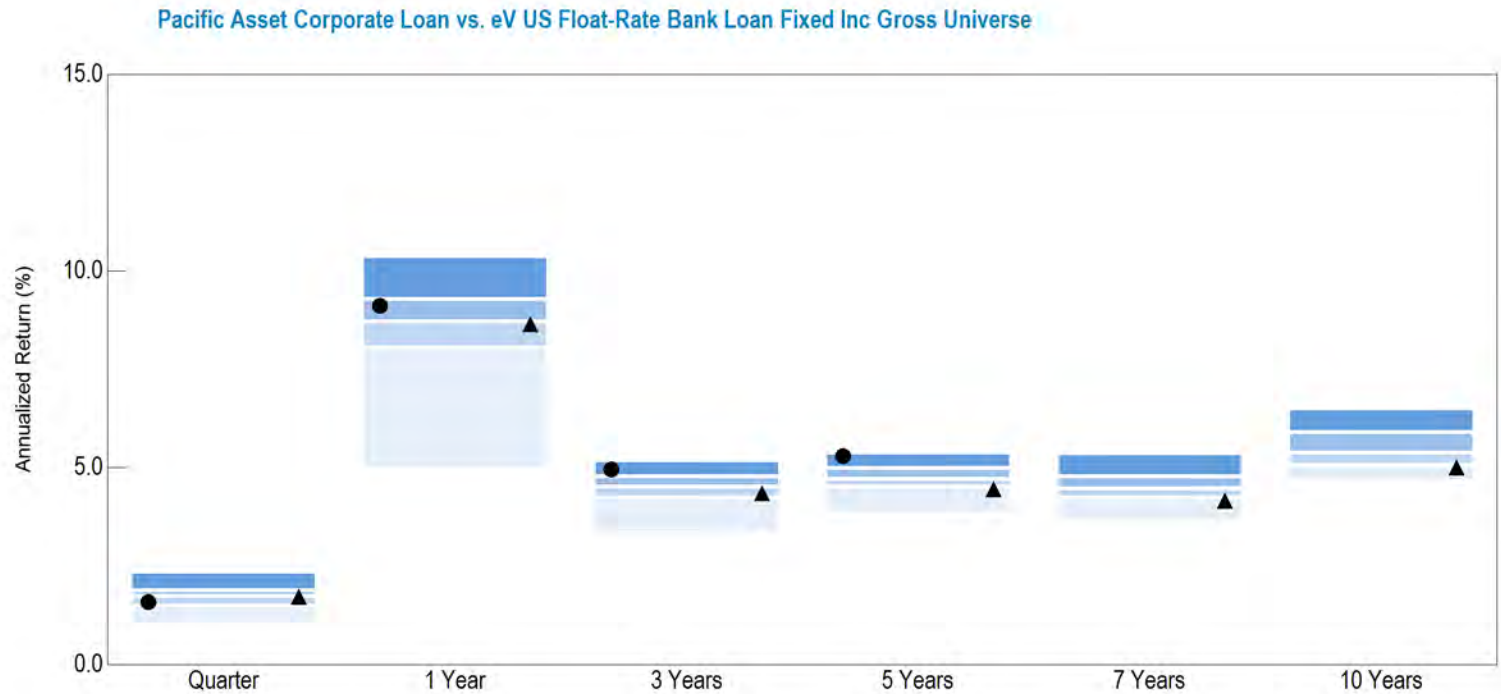
Period Ending: December 31, 2019



	2019		2018		2017		2016		2015		2014	
5th Percentile	10.9		1.2		5.2		5.1		1.9		7.7	
25th Percentile	9.8		0.4		4.4		3.8		1.3		6.5	
Median	9.2		0.0		4.0		3.2		0.9		6.0	
75th Percentile	8.8		-0.3		3.6		2.7		0.5		5.4	
95th Percentile	7.2		-0.9		2.9		2.0		-0.1		2.9	
# of Portfolios	216		240		233		223		196		213	
● BlackRock Core Bond	10.2	(10)	0.3	(27)	--	(--)	--	(--)	--	(--)	--	(--)
■ Dodge & Cox Income Fund	10.2	(10)	0.1	(43)	--	(--)	--	(--)	--	(--)	--	(--)
▲ BBgBarc US Aggregate TR	8.7	(78)	0.0	(54)	3.5	(79)	2.6	(77)	0.6	(75)	6.0	(52)

Pacific Asset Corporate Loan
 Cumulative Performance Comparison (Gross of Fees)

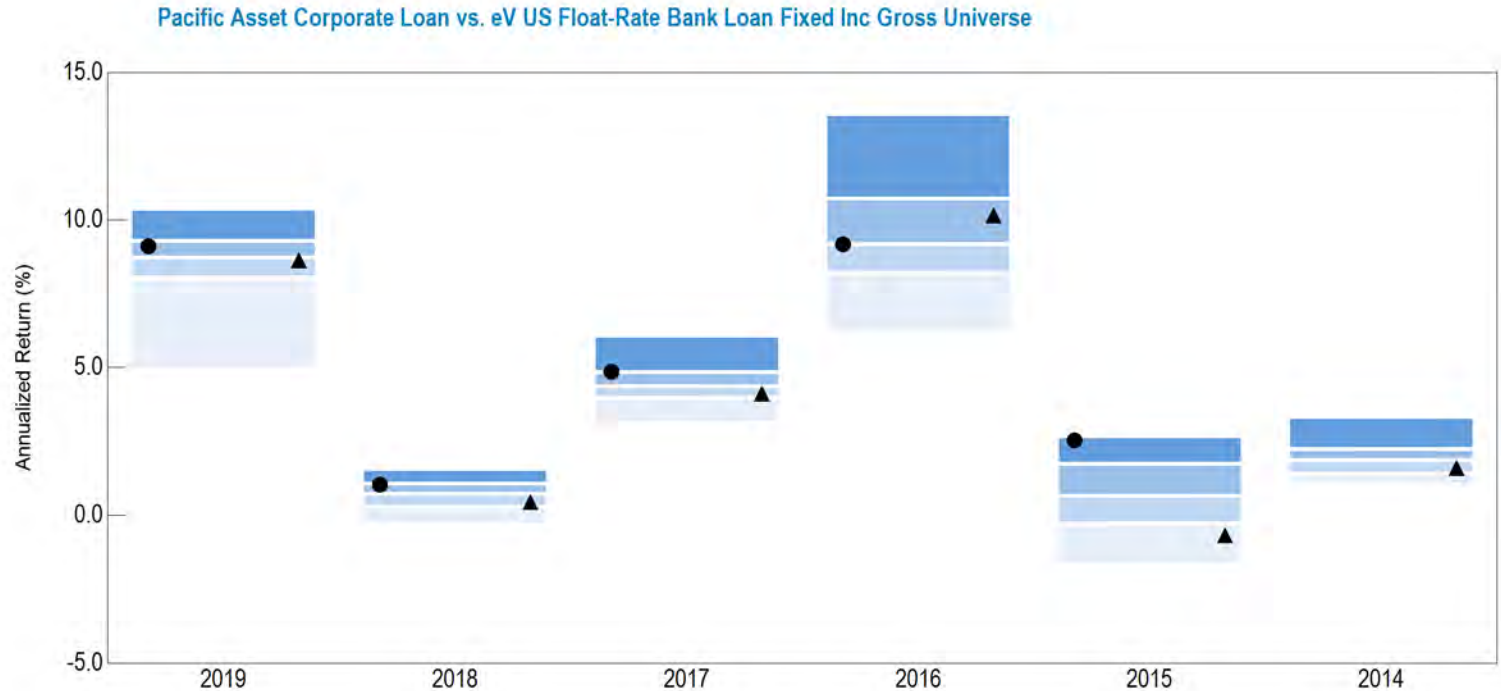
Period Ending: December 31, 2019



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	2.4		10.4		5.2		5.4		5.4		6.5	
25th Percentile	1.9		9.3		4.8		5.0		4.8		5.9	
Median	1.8		8.7		4.5		4.7		4.5		5.4	
75th Percentile	1.5		8.1		4.3		4.5		4.3		5.1	
95th Percentile	1.0		5.0		3.4		3.8		3.6		4.7	
# of Portfolios	70		70		68		67		59		47	
● Pacific Asset Corporate Loan	1.6	(67)	9.1	(35)	4.9	(13)	5.3	(10)	--	(--)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	1.7	(59)	8.6	(53)	4.3	(72)	4.4	(80)	4.2	(82)	5.0	(78)

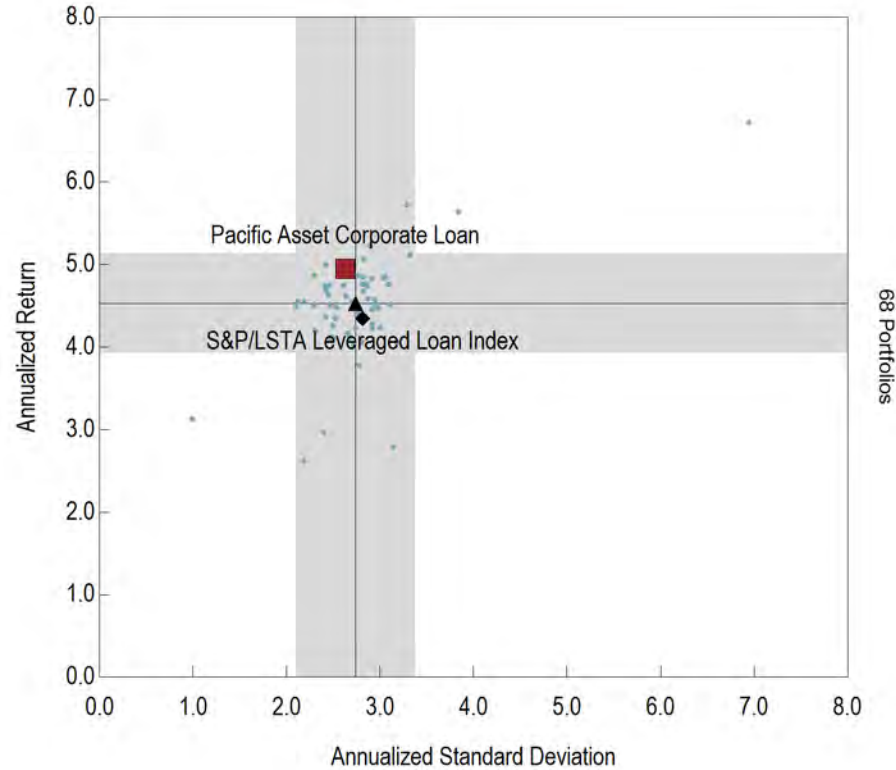
Pacific Asset Corporate Loan
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019



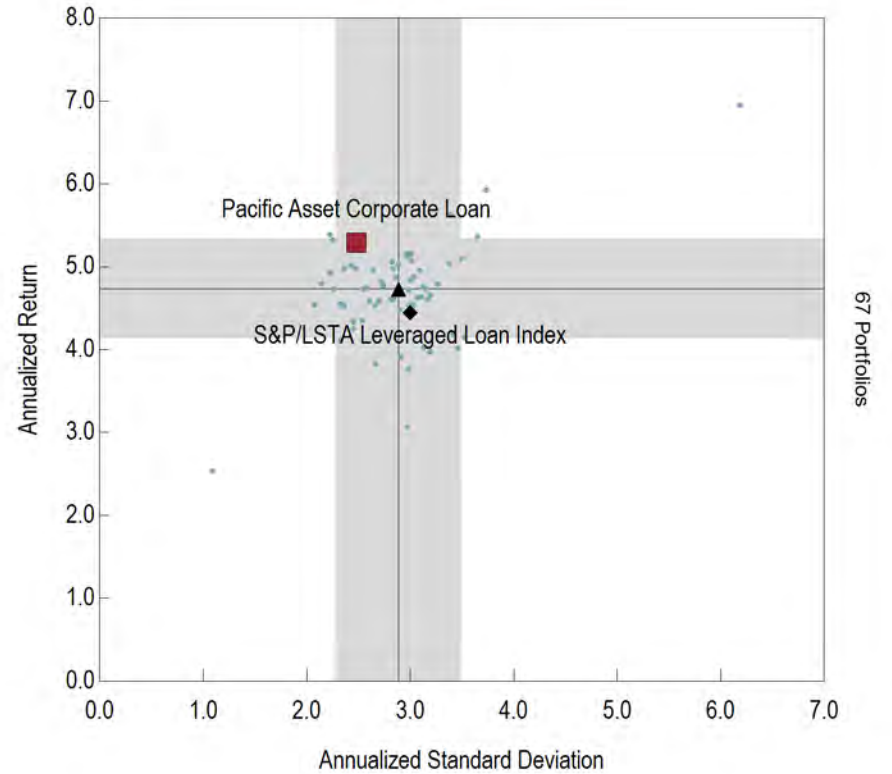
	2019		2018		2017		2016		2015		2014	
5th Percentile	10.4		1.6		6.1		13.6		2.7		3.3	
25th Percentile	9.3		1.1		4.9		10.7		1.8		2.3	
Median	8.7		0.7		4.4		9.2		0.7		1.9	
75th Percentile	8.1		0.3		4.0		8.2		-0.3		1.4	
95th Percentile	5.0		-0.3		3.1		6.2		-1.7		1.1	
# of Portfolios	70		76		75		69		54		48	
● Pacific Asset Corporate Loan	9.1	(35)	1.0	(29)	4.9	(26)	9.2	(51)	2.5	(9)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	8.6	(53)	0.4	(68)	4.1	(71)	10.2	(35)	-0.7	(82)	1.6	(68)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2019



- Pacific Asset Corporate Loan
- ◆ S&P/LSTA Leveraged Loan Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Float-Rate Bank Loan Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2019



- Pacific Asset Corporate Loan
- ◆ S&P/LSTA Leveraged Loan Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Float-Rate Bank Loan Fixed Inc Gross



Total Global Fixed
Asset Class Overview (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Global Fixed	142,118,607	4.0	7.8	4.8	1.5	2.7	7.8	-6.6	14.4	5.8	-11.8
<i>FTSE World Govt Bond Index</i>		-0.4	5.9	4.1	2.0	1.8	5.9	-0.8	7.5	1.6	-3.6
<i>InvMetrics Public DB Gbl Fix Inc Gross Rank</i>		--	--	--	--	--	--	99	29	67	95
Brandywine Global Fixed Income	68,864,863	5.0	6.2	4.6	1.2	3.3	6.2	-4.1	12.5	2.2	-9.3
<i>FTSE WGBI ex US TR</i>		-0.1	5.3	4.5	1.9	1.4	5.3	-1.8	10.3	1.8	-5.5
<i>eV All Global Fixed Inc Gross Rank</i>		8	85	67	92	65	85	80	14	75	92
Ashmore EM Blended Debt Fund	73,253,744	3.2	--	--	--	--	--	--	--	--	--
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+</i>		3.1	--	--	--	--	--	--	--	--	--
<i>eV All Emg Mkts Fixed Inc Gross Rank</i>		55	--	--	--	--	--	--	--	--	--

Total Global Fixed
Asset Class Overview (Net of Fees)

Period Ending: December 31, 2019

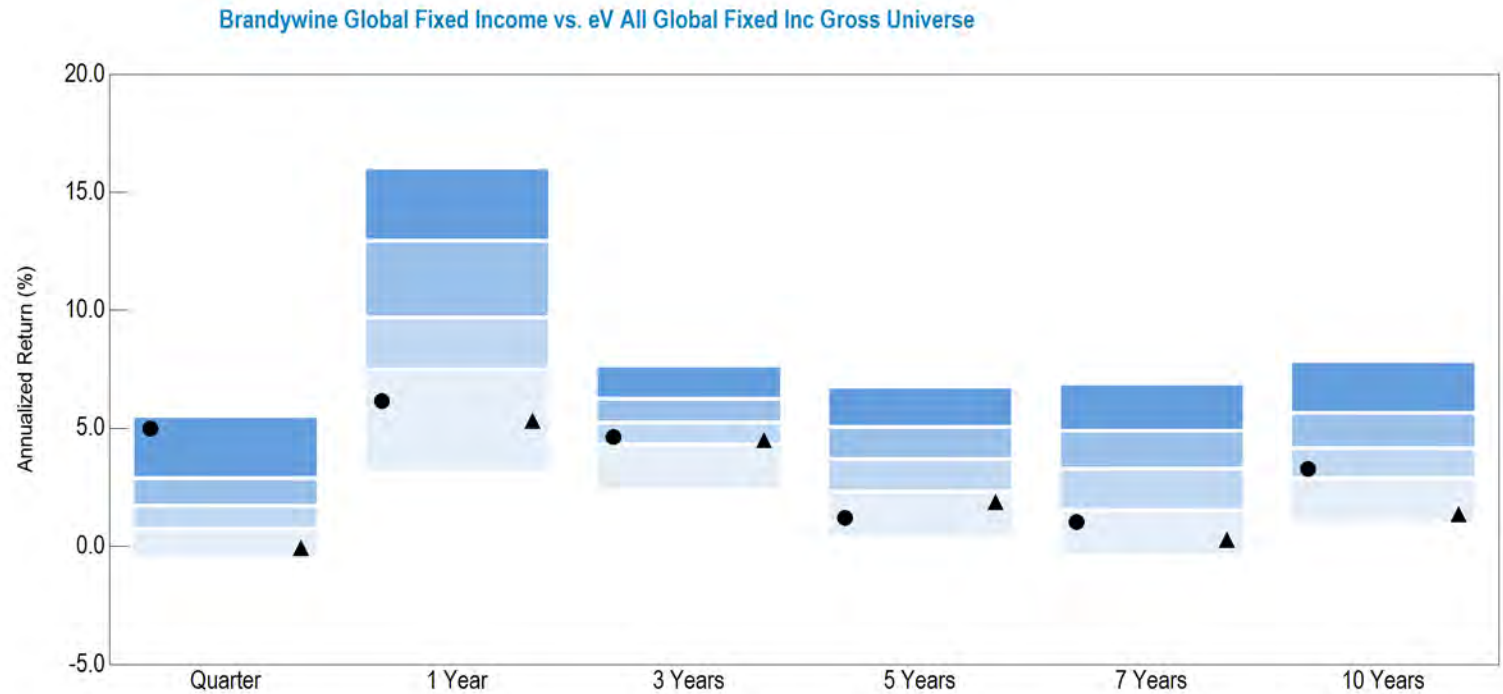
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Global Fixed	142,118,607	3.9	7.2	4.2	0.8	2.0	7.2	-7.2	13.7	5.1	-12.4
<i>FTSE World Govt Bond Index</i>		-0.4	5.9	4.1	2.0	1.8	5.9	-0.8	7.5	1.6	-3.6
Brandywine Global Fixed Income	68,864,863	4.9	5.7	4.2	0.8	2.8	5.7	-4.5	12.0	1.7	-9.7
<i>FTSE WGBI ex US TR</i>		-0.1	5.3	4.5	1.9	1.4	5.3	-1.8	10.3	1.8	-5.5
Ashmore EM Blended Debt Fund	73,253,744	3.1	--	--	--	--	--	--	--	--	--
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+</i>		3.1	--	--	--	--	--	--	--	--	--

Correlation Matrix
Last 1 Year

	Total Global Fixed	Brandywine Global Fixed Income	Ashmore EM Blended Debt Fund	FTSE World Govt Bond Index
Total Global Fixed	1.00	--	--	--
Brandywine Global Fixed Income	0.95	1.00	--	--
Ashmore EM Blended Debt Fund	--	--	--	--
FTSE World Govt Bond Index	0.14	-0.16	--	1.00

Brandywine Global Fixed Income
 Cumulative Performance Comparison (Gross of Fees)

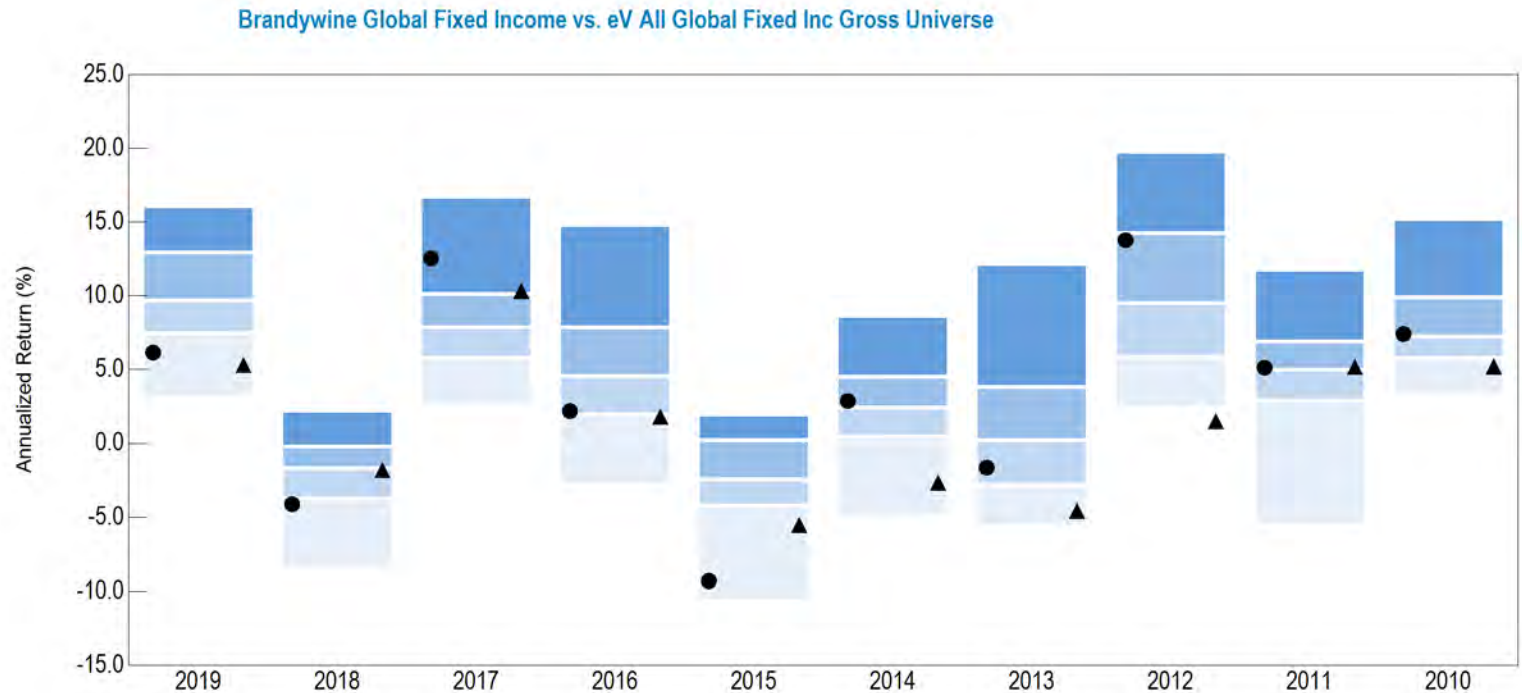
Period Ending: December 31, 2019



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	5.5	16.0	7.6	6.7	6.9	7.8						
25th Percentile	2.9	13.0	6.3	5.1	4.9	5.7						
Median	1.7	9.7	5.3	3.7	3.3	4.2						
75th Percentile	0.7	7.5	4.3	2.3	1.6	2.9						
95th Percentile	-0.5	3.1	2.4	0.4	-0.4	1.0						
# of Portfolios	463	461	440	399	341	235						
● Brandywine Global Fixed Income	5.0 (8)	6.2 (85)	4.6 (67)	1.2 (92)	1.0 (87)	3.3 (65)						
▲ FTSE WGBI ex US TR	-0.1 (88)	5.3 (89)	4.5 (71)	1.9 (86)	0.3 (92)	1.4 (92)						

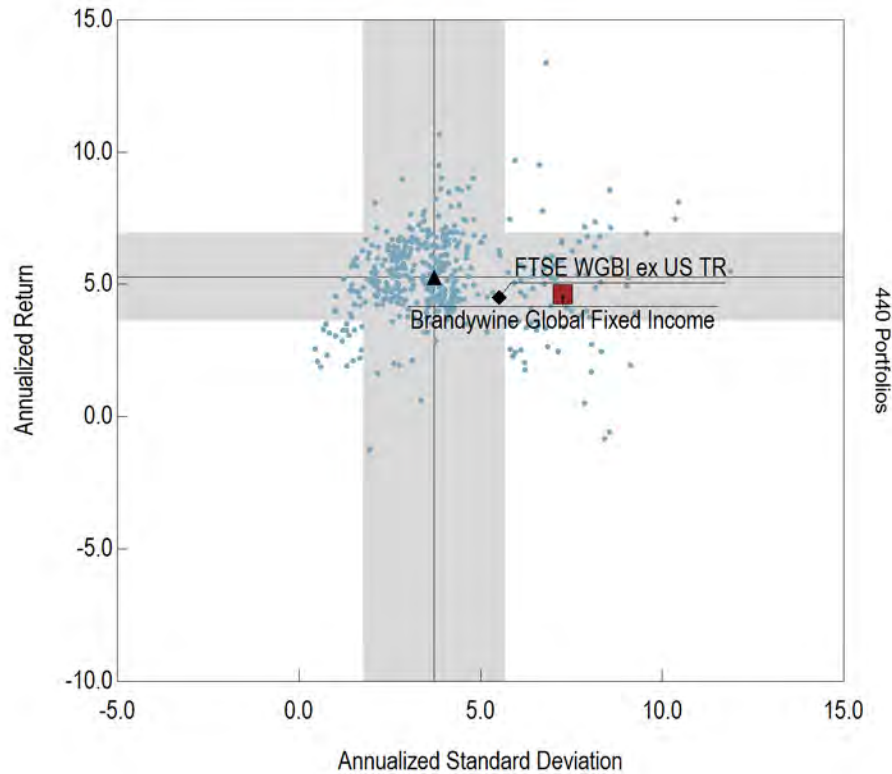
Brandywine Global Fixed Income
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019

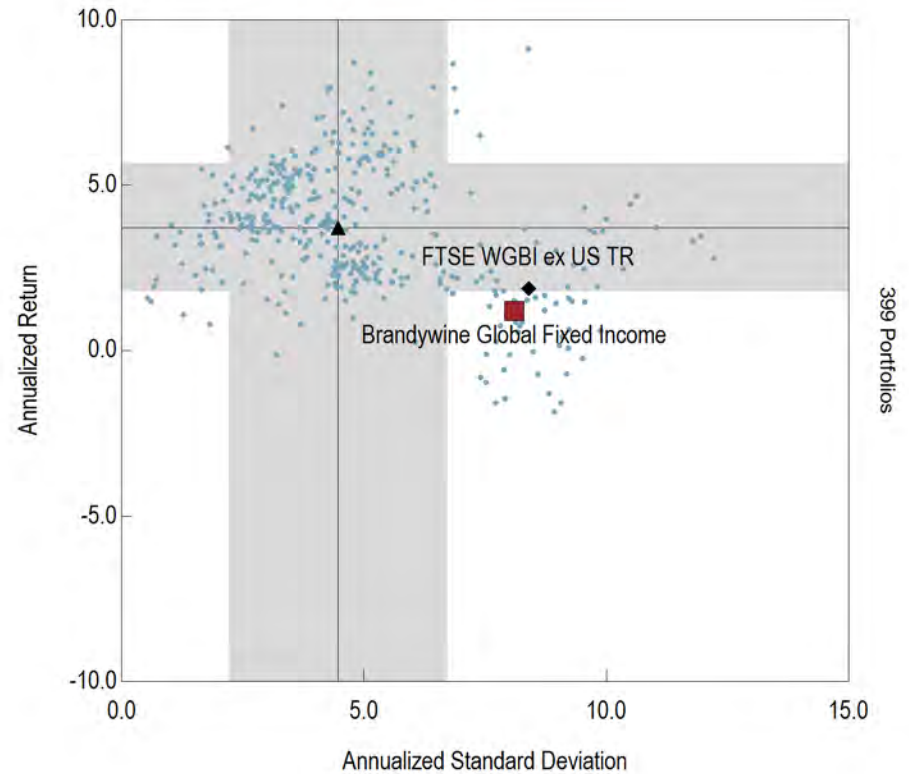


	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	16.0	2.2	16.7	14.8	1.9	8.6	12.1	19.7	11.7	15.2
25th Percentile	13.0	-0.2	10.1	7.9	0.3	4.5	3.9	14.3	6.9	9.9
Median	9.7	-1.7	7.9	4.6	-2.4	2.5	0.2	9.5	5.0	7.3
75th Percentile	7.5	-3.7	5.8	2.0	-4.2	0.5	-2.8	5.9	2.9	5.8
95th Percentile	3.1	-8.4	2.6	-2.8	-10.6	-4.9	-5.6	2.5	-5.5	3.4
# of Portfolios	461	458	445	432	332	263	225	197	171	100
● Brandywine Global Fixed Income	6.2 (85)	-4.1 (80)	12.5 (14)	2.2 (75)	-9.3 (92)	2.9 (46)	-1.6 (66)	13.8 (29)	5.1 (47)	7.4 (50)
▲ FTSE WGBI ex US TR	5.3 (89)	-1.8 (53)	10.3 (23)	1.8 (77)	-5.5 (85)	-2.7 (92)	-4.6 (90)	1.5 (99)	5.2 (46)	5.2 (85)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending December 31, 2019



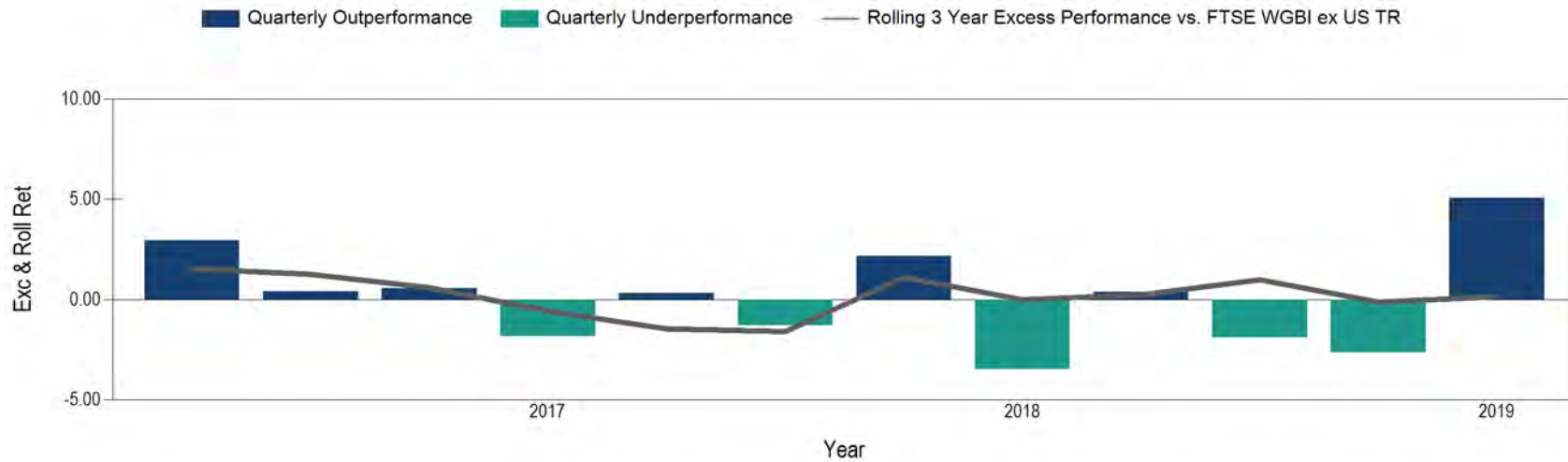
Annualized Return vs. Annualized Standard Deviation
 5 Years Ending December 31, 2019



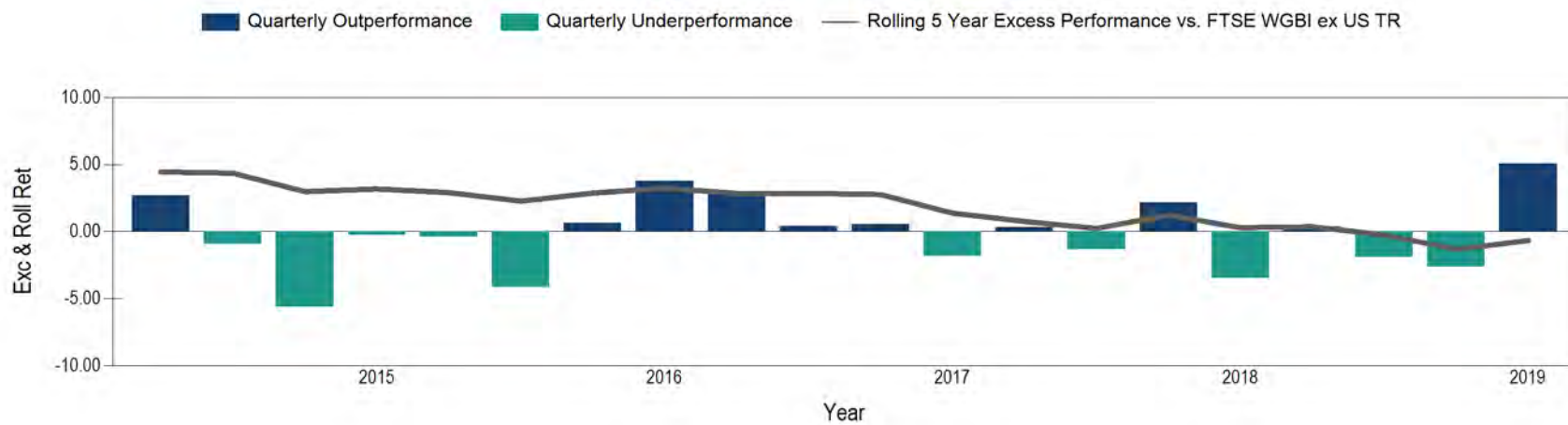
- Brandywine Global Fixed Income
- ◆ FTSE WGBI ex US TR
- ▲ Universe Median
- 68% Confidence Interval
- eV All Global Fixed Inc Gross

- Brandywine Global Fixed Income
- ◆ FTSE WGBI ex US TR
- ▲ Universe Median
- 68% Confidence Interval
- eV All Global Fixed Inc Gross

Rolling 3 Year Annualized Excess Performance

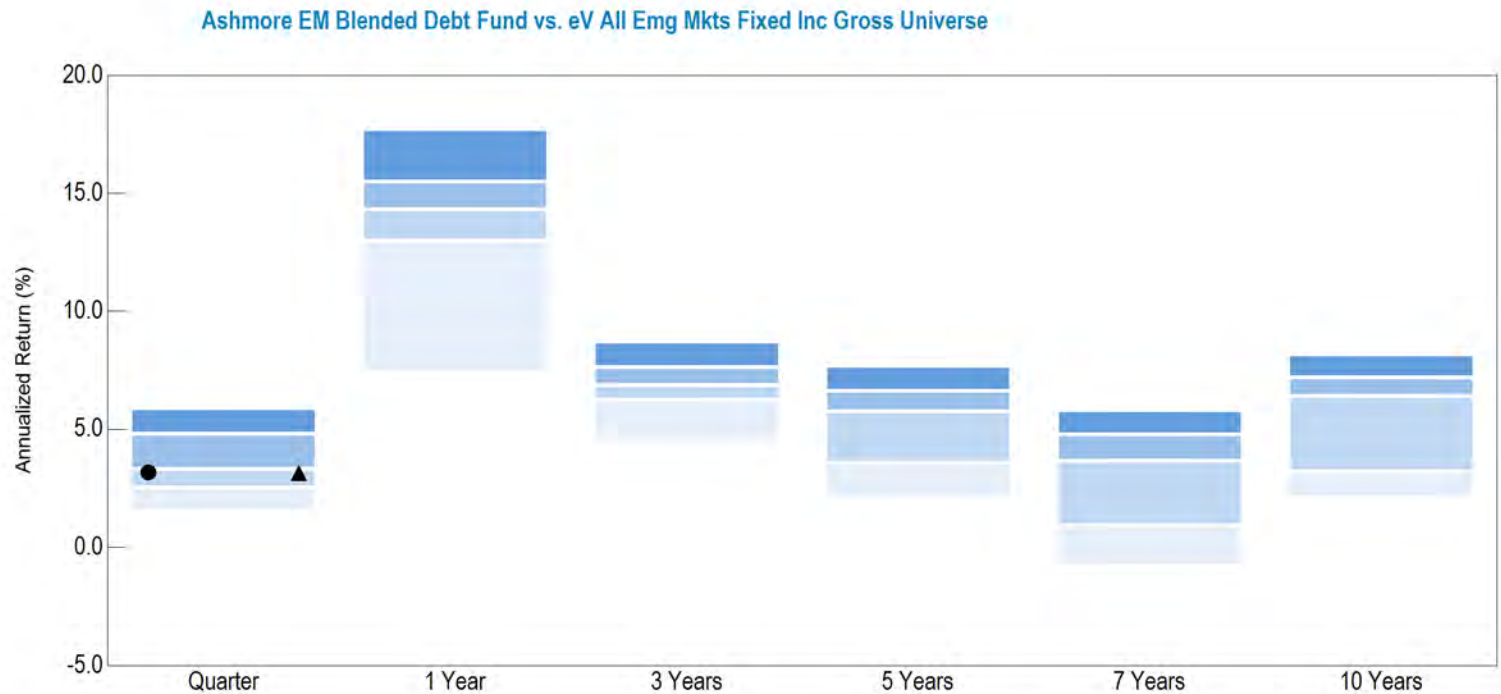


Rolling 5 Year Annualized Excess Performance



Ashmore EM Blended Debt Fund
 Cumulative Performance Comparison (Gross of Fees)

Period Ending: December 31, 2019



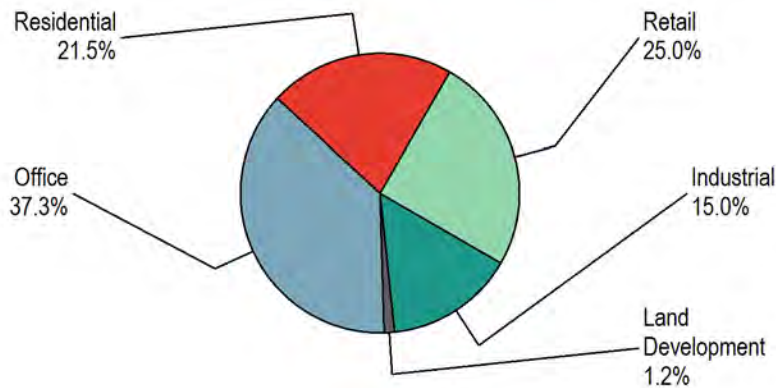
	Return (Rank)											
5th Percentile	5.9	17.7	8.7	7.7	5.8	8.2						
25th Percentile	4.8	15.5	7.6	6.6	4.8	7.2						
Median	3.3	14.3	6.9	5.8	3.7	6.4						
75th Percentile	2.6	13.0	6.3	3.6	0.9	3.2						
95th Percentile	1.6	7.4	4.5	2.1	-0.8	2.2						
# of Portfolios	267	266	255	232	181	102						
● Ashmore EM Blended Debt Fund	3.2	(55)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)
▲ 50% JPM EMBI GD/25% JPM GBI EM GD/25%	3.1	(56)	--	(--)	--	(--)	--	(--)	--	(--)	--	(--)

Total Real Estate
Asset Class Overview (Gross of Fees)

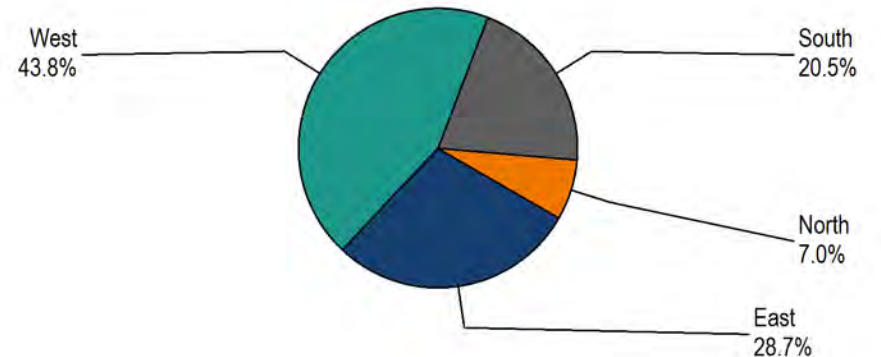
Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Real Estate	204,950,512	2.0	4.3	6.5	9.0	9.0	4.3	7.5	7.8	7.8	18.0
<i>NCREIF Property Index</i>		1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	170,439,620	2.1	3.4	5.5	8.0	10.9	3.4	7.0	6.1	8.4	15.2
<i>NCREIF-ODCE</i>		1.5	5.4	7.1	9.0	11.4	5.4	8.3	7.6	8.8	15.0
<i>NCREIF Property Index</i>		1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	34,510,892	1.8	7.3	7.9	--	--	7.3	9.1	7.4	--	--
<i>NCREIF-ODCE</i>		1.5	5.4	7.1	--	--	5.4	8.3	7.6	--	--
<i>NCREIF Property Index</i>		1.6	6.4	6.7	--	--	6.4	6.7	7.0	--	--

Property Type Allocation
Allocation as of December 31, 2019



Geographic Diversification
Allocation as of December 31, 2019



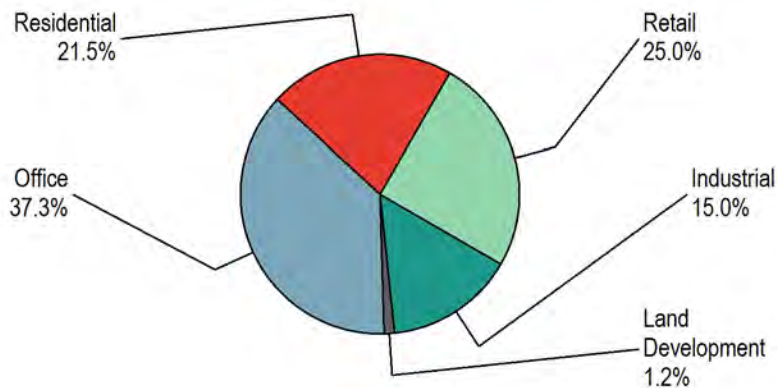
ARA American Strategic Value Realty is lagged one quarter.

Total Real Estate
Asset Class Overview (Net of Fees)

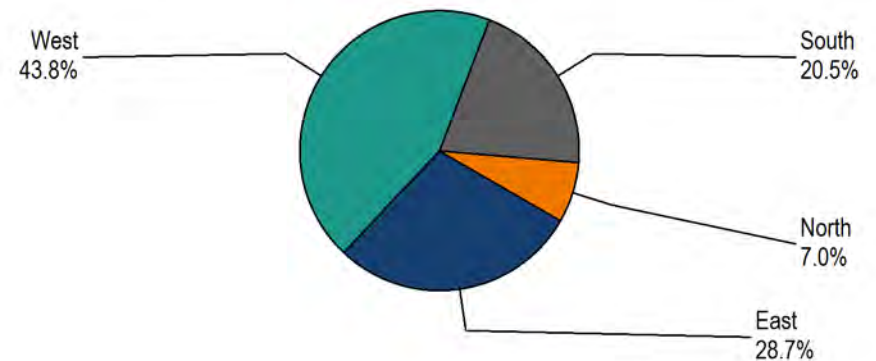
Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Real Estate	204,950,512	2.0	4.3	6.5	8.6	8.5	4.3	7.5	7.8	6.8	16.9
<i>NCREIF Property Index</i>		1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	170,439,620	2.1	3.4	5.5	7.5	10.1	3.4	7.0	6.1	7.3	14.1
<i>NCREIF-ODCE</i>		1.5	5.4	7.1	9.0	11.4	5.4	8.3	7.6	8.8	15.0
<i>NCREIF Property Index</i>		1.6	6.4	6.7	8.2	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	34,510,892	1.8	7.3	7.9	--	--	7.3	9.1	7.4	--	--
<i>NCREIF-ODCE</i>		1.5	5.4	7.1	--	--	5.4	8.3	7.6	--	--
<i>NCREIF Property Index</i>		1.6	6.4	6.7	--	--	6.4	6.7	7.0	--	--

Property Type Allocation
Allocation as of December 31, 2019



Geographic Diversification
Allocation as of December 31, 2019



ARA American Strategic Value Realty is lagged one quarter.

Total Commodities
 Asset Class Summary (Gross of Fees)

Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Commodities	47,369,955	5.5	8.7	0.4	-3.2	-4.2	8.7	-12.4	6.2	12.6	-25.2
<i>Bloomberg Commodity Index TR USD</i>		4.4	7.7	-0.9	-3.9	-4.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	47,369,955	5.5	8.7	0.4	-3.2	--	8.7	-12.4	6.2	12.6	-25.2
<i>Bloomberg Commodity Index TR USD</i>		4.4	7.7	-0.9	-3.9	--	7.7	-11.2	1.7	11.8	-24.7

Total Commodities
 Asset Class Summary (Net of Fees)

Period Ending: December 31, 2019

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Commodities	47,369,955	5.5	8.7	0.4	-3.5	-4.5	8.7	-12.4	6.2	11.8	-25.8
<i>Bloomberg Commodity Index TR USD</i>		4.4	7.7	-0.9	-3.9	-4.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	47,369,955	5.5	8.7	0.4	-3.5	--	8.7	-12.4	6.2	11.8	-25.8
<i>Bloomberg Commodity Index TR USD</i>		4.4	7.7	-0.9	-3.9	--	7.7	-11.2	1.7	11.8	-24.7

Performance Return Calculations

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

Data Source

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

Illiquid Alternatives

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

Manager Line Up

Manager	Inception Date	Data Source	Manager	Inception Date	Data Source
PIMCO RAE Fundamental PLUS	11/30/2007	J.P. Morgan	JP Morgan Core Real Estate	3/6/2008	J.P. Morgan
Loomis Sayles Large Cap Growth	12/31/2016	J.P. Morgan	Gresham MTAP Commodity	8/31/2013	BNY Mellon
Boston Partners Large Cap Value	1/31/2017	Boston Partners	Cash Account	-	SLOCPT
Atlanta Capital Management	8/31/2010	J.P. Morgan	HarbourVest Partners IX-Buyout	2011 ¹	HarbourVest
Dodge & Cox Intl Stock	12/6/2007	J.P. Morgan	HarbourVest 2018 Global Fund L.P.	-	HarbourVest
WCM International Growth	2/15/2017	WCM	KKR Mezzanine Partners	2010 ¹	KKR
BlackRock Core Bond	1/19/2017	J.P. Morgan	PIMCO Distressed Credit Fund	2010 ¹	Brown Brothers Harriman
Dodge & Cox Income	1/19/2017	Deutsche Bank	ARA American Strategic Value	6/22/2016	American Realty Adv.
Pacific Asset Corporate Loan	9/1/2014	Deutsche Bank	TPG Diversified Credit Program	2016 ¹	TPG
Brandywine Global Fixed	11/30/2007	J.P. Morgan	Pathway Private Equity Fund 9	2017 ¹	Pathway
Ashmore EM Blended Debt Fund	3/31/2019	Ashmore			

¹ Represents fund vintage year.

Policy & Custom Index Composition

Policy Index (10/1/2016-Current)	20% Russell 3000, 20% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 15% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps, 5% BBgBarc High Yield +2% (lagged).
Policy Index (7/1/2014-9/30/2016)	23% Russell 3000, 22% MSCI ACWI ex-US (Gross), 35% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (7/1/2013-6/30/2014)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (4/1/2011-6/30/2013)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 20% BBgBarc U.S. Aggregate, 5% Citi World Govt Bond, 5% Barclays US TIPS, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.

Other Disclosures

Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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The information presented may be deemed to contain forward-looking information. Examples of forward looking information include, but are not limited to, (a) projections of or statements regarding return on investment, future earnings, interest income, other income, growth prospects, capital structure and other financial terms, (b) statements of plans or objectives of management, (c) statements of future economic performance, and (d) statements of assumptions, such as economic conditions underlying other statements. Such forward-looking information can be identified by the use of forward looking terminology such as believes, expects, may, will, should, anticipates, or the negative of any of the foregoing or other variations thereon comparable terminology, or by discussion of strategy. No assurance can be given that the future results described by the forward-looking information will be achieved. Such statements are subject to risks, uncertainties, and other factors which could cause the actual results to differ materially from future results expressed or implied by such forward looking information. The findings, rankings, and opinions expressed herein are the intellectual property of Verus and are subject to change without notice. The information presented does not claim to be all-inclusive, nor does it contain all information that clients may desire for their purposes. The information presented should be read in conjunction with any other material provided by Verus, investment managers, and custodians.

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

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

Board of Trustees

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Date: February 24, 2020

To: Board of Trustees

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

Investment Report for January 2020

	January	Year to Date 2020	2019	2018	2017	2016	2015
Total Trust Investments (\$ millions)	\$1,437		\$1,446 year end	\$1,285 year end	\$1,351 year end	\$1,196 year end	\$1,148 year end
Total Fund Return	-0.9% Gross	-0.9% Gross	16.3 % Gross	-3.2 % Gross	15.5 % Gross	6.6 % Gross	-0.8% Gross
Policy Index Return (r)	-0.2%	-0.2%	16.4 %	-3.2 %	13.4 %	7.7 %	-0.5 %

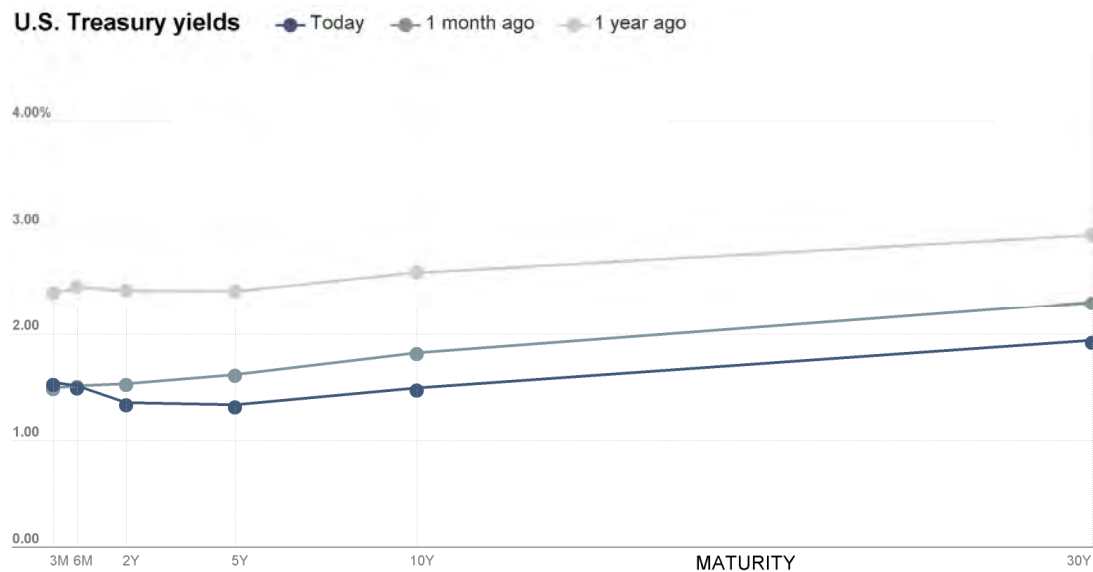
(r) Policy index as of Aug. 2016 revision to Strategic Asset Allocation Policy: 20% domestic equity, 20% international equity, 15% core bonds, 5% bank loans, 5% global bonds, 5% emerging market debt, 15% real estate, 5% commodities, 5% private equity, 5% private credit.

The Economy and Capital Markets:

• Fed Policy and Interest Rates –

- At the January FOMC meeting the Fed took a wait-and-see approach and held interest rates steady.
 - The Fed stance was supported by stubbornly low inflation rates under the Fed target of 2%.
 - The Treasury yield curve, has maintained a positive slope after the recession scare of an inverted yield curve last August-September – albeit with declines in rates a flattening of the yield curve in January. Treasury rates have declined significantly in

January as risk from the COVID-19 virus to global economies remains uncertain. The 10-year Treasury was at 1.53%, the 2-year Treasury at 1.39% and T-Bills at 1.58% as of February 20th. This reading shows a slight inversion comparing the 3month yield to the 10-year yield. The yield curve as of February 20th is shown below-



- Negative Interest Rates – The unprecedented aggressiveness of monetary globally includes the oddity of negative yielding governmental debt – mostly European.
 - Globally, about \$13 trillion of debt carries negative interest rates the leaves holders paying just to have a store of value.
 - Retirement funds are particularly exposed because of their lack of other secure investments.
 - Investors can still earn a return on negative yielding debt if bond prices rise or there are favorable movements in the currency the debt is denominated in relative to the investor’s home currency.
 - The natural result is for conservative investors to migrate towards taking credit risk in search of positive yields. At the end of 2018 global pension assets were about \$44 trillion according to the Organization for Economic Cooperation and Development. At the end of 2018 global pension funds held about 45% of their assets in bonds – compared to about 55% in 2008.
 - SLOCPT bond investments – The fixed income investments of the SLOCPT are in core bond portfolios that would not normally hold sovereign debt at negative yields. The SLOCPT bond portfolios by design are holders of “credit” – bond investments that have some risk and therefore carry higher yields.

- **Economic Growth** –

- Outlook for GDP Growth –

- Consistent with market expectations, the slowing pace of U.S. domestic growth showed up in the 4Q19 GDP growth rate at a 2.1% annual rate. For the full year of 2019 GDP growth came in at 2.3%, compared to 2.5% in 2018.
- The solid, albeit slow, rate of economic growth in 2019 followed short term runs of GDP growth in late 2017 and early 2018 above 3%. Those modest upticks in growth were fueled in part by massive tax cuts and government spending. However, those stimuli proved short lived and the U.S. economy returned to its structural rate of growth consistent with workforce growth and productivity growth.
- An interesting illustration of the impact on GDP growth of large events is the case of Boeing. With the protracted shut down of 737 Max aircraft sales due to safety/redesign/recertification issues, economists estimate that disrupted production at Boeing could shave 0.5% off the GDP growth rate in 1Q20.
- Economists expectations for U.S. GDP growth center around the 2% area annually.

- Eurozone and Brexit –

- The E.U. approved the January 31st exit of Britain from the European Union. Near term impacts are diffused by a standstill phase through the end of 2020 while details of how the two economies will relate are worked out. The near-term result is lessened risk perceptions in European markets.

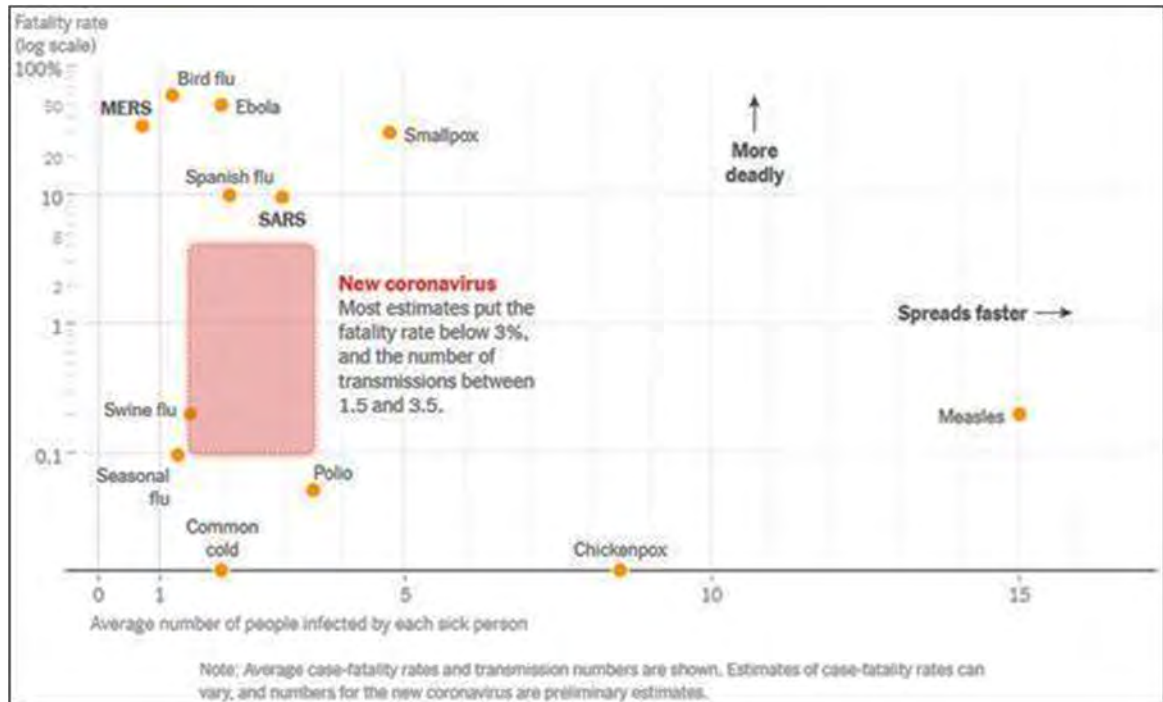
- Geopolitical Risks –

- 2020 appears to be a year where escalating geopolitical risks have the potential to impact capital markets. In a publication by BlackRock investments they comment -
“From an escalation in Middle East tensions to the evolving U.S.-China trade relationship to the upcoming presidential election, geopolitics are shaping up to be a driving force on financial markets in 2020. While we see growth edging higher this year, and supporting risk assets, any material escalation of geopolitical risks could lead to a slowdown, with effects across asset classes.”

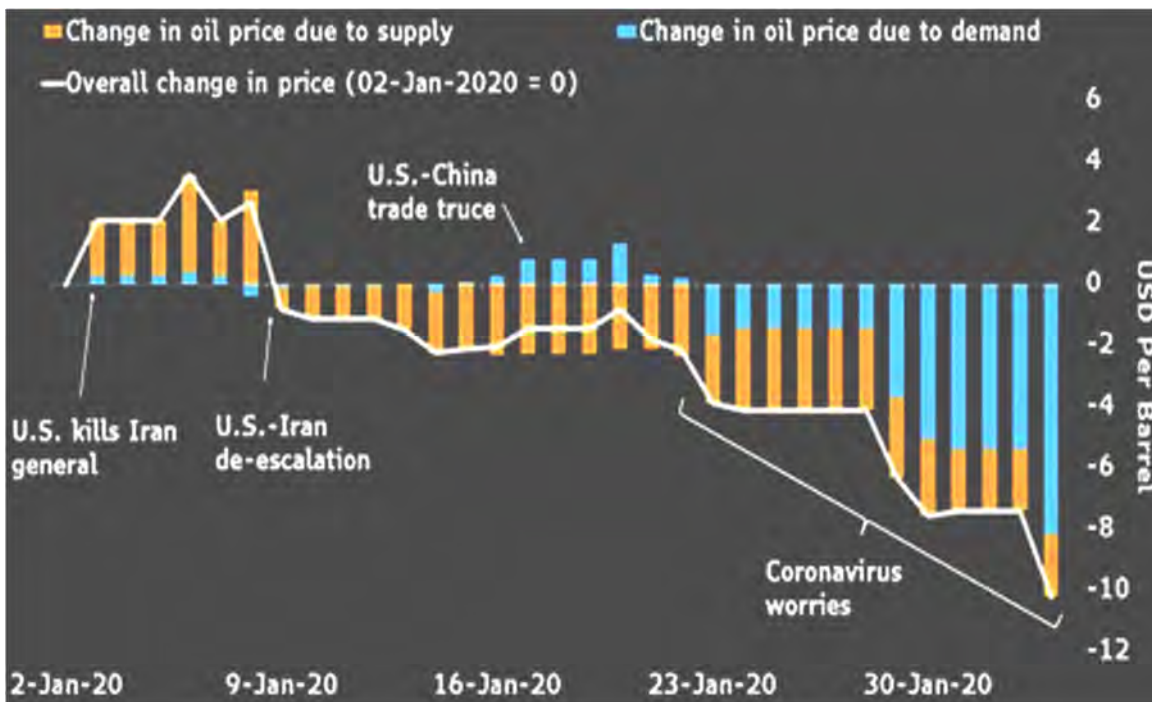
- COVID-19 - Coronavirus – A growing level of concern is about the spread of the Coronavirus epidemic in and beyond China. The risk to the global economy could include

- COVID-19 could spread globally, and possibly become a recurrent seasonal infection. Even if COVID-19 is less impactful than seasonal influenza (which infected 45m and killed 61k Americans in 2017-2018), it is a new source of health challenges. While the world has never seen a disease response as wide and extensive as the Chinese quarantines, it remains to be seen how effective such measures may be.

Fatality and Transmission Rates *Source: NY Times*



- Restraints on trade and travel in the near term are real impediments to economic activity. The quarantine of millions of Chinese and limited flights to China obviously has an immediate impact on business. The long-term impact on tourism may be substantial (who wants to book a cruise to Asia now???)
- Chinese economic growth may plunge from a 6% annual rate to as little as 2% in 1Q20. International supply chains are disrupted as companies like Apple shift to back-up suppliers elsewhere.
- Commodity prices – a sensitive indicator of economic conditions - since the start of the year have declined precipitously (-7.4% for the Bloomberg Commodity Index) in response to fears of lower Chinese and global growth. Petroleum and industrial metals as commodities central to Chinese economic activity have been particularly impacted. Oil prices (light sweet crude) have traded down into the \$50-\$55/barrel range from highs in January above \$65/barrel.



- **Trade Policy –**

- Following the signing of a Phase 1 trade deal between the U.S and China markets expected a reduction in the U.S. Trade deficit.
 - Trade deficits are an imprecise measure of relative economic activity. Trade deficits can decline because of bona fide increases in exports and decreases in imports. Trade deficits can also fall based on slowing demand in the domestic economy that reduces the demand for imports separate from other trade factors.
 - Substantially increased U.S. tariffs on Chinese imports previously implemented remain in place. Market expectations seemed to reflect a sense that a worst-case trade war was averted, but future negotiations encompass many substantial issues.

- **Employment and Wages –**

- As a key indicator of economic activity in the U.S. we always watch the monthly jobs report from the BLS. The January DOL report on nonfarm employment showed -
 - New jobs came in at +225k in January – above expectations – indicating moderate economic growth.
 - Unemployment was little changed at 3.6%, near its historic low. A broader measure of unemployment (U-6) that includes discouraged job seekers and part-time employees who would prefer full-time declined to a historic low of 6.7%.
 - Average Hourly Earnings improved slightly with a year-over-year increase measured at +3.1%.

SLOCPT Investment Returns:

The attached report from Verus covers the preliminary investment returns of the SLOCPT portfolio and general market conditions through the end of January. The attached market commentary from Verus details market conditions in January, but subsequent activity in February is not yet factored into these numbers.

Respectfully submitted

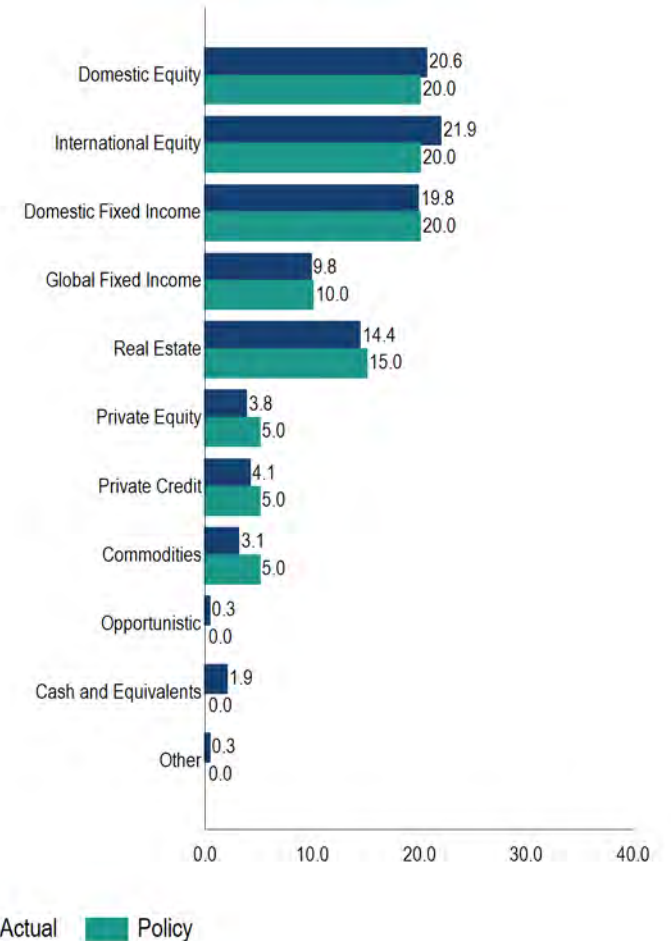
San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: January 31, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Fund	1,436,963,360	100.0	-0.9	-0.9
<i>Policy Index</i>			-0.2	-0.2
Total Domestic Equity	296,029,375	20.6	-1.7	-1.7
<i>Russell 3000</i>			-0.1	-0.1
PIMCO RAE Fundamental PLUS Instl	60,813,076	4.2	-2.5	-2.5
<i>S&P 500</i>			0.0	0.0
Loomis Sayles Large Cap Growth	89,220,174	6.2	0.7	0.7
<i>Russell 1000 Growth</i>			2.2	2.2
Boston Partners Large Cap Value	82,870,499	5.8	-4.0	-4.0
<i>Russell 1000 Value</i>			-2.2	-2.2
Atlanta Capital Mgmt	63,125,626	4.4	-1.4	-1.4
<i>Russell 2500</i>			-2.0	-2.0
Total International Equity	314,852,440	21.9	-2.7	-2.7
<i>MSCI ACWI ex USA Gross</i>			-2.7	-2.7
Dodge & Cox Intl Stock	146,181,113	10.2	-4.9	-4.9
<i>MSCI EAFE Gross</i>			-2.1	-2.1
WCM International Growth	168,671,327	11.7	-0.7	-0.7
<i>MSCI ACWI ex USA Gross</i>			-2.7	-2.7
Total Domestic Fixed Income	284,718,623	19.8	1.4	1.4
<i>BBgBarc US Aggregate TR</i>			1.9	1.9
BlackRock Core Bond	105,338,484	7.3	2.0	2.0
<i>BBgBarc US Aggregate TR</i>			1.9	1.9
Dodge & Cox Income Fund	109,002,563	7.6	1.6	1.6
<i>BBgBarc US Aggregate TR</i>			1.9	1.9
Pacific Asset Corporate Loan	70,377,576	4.9	0.0	0.0
<i>S&P/LSTA Leveraged Loan Index</i>			0.6	0.6
Total Global Fixed	140,879,070	9.8	-0.9	-0.9
<i>FTSE World Govt Bond Index</i>			1.6	1.6
Brandywine Global Fixed Income	67,620,691	4.7	-1.8	-1.8
<i>FTSE WGBI ex US TR</i>			1.1	1.1
Ashmore EM Blended Debt Fund	73,258,379	5.1	0.0	0.0
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELM+</i>			0.1	0.1

Actual vs Target Allocation (%)



*Other balance represents Clifton Group.

Policy Index (1/1/2017): 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity, 5% Russell 3000 + 300 bp lagged, 5% BBgBarc High Yield + 200 bp lagged. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Boston Partners funded 2/1/2017. WCM Intl Growth replaced Vontobel on 2/15/2017. Pathway 9 funded 4/7/2017. SSGA TIPS liquidated on 12/7/2017. Fidelity Real Estate Growth III liquidated on 12/29/2017. SSGA Flagship S&P 500 liquidated 2/1/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor liquidated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated 5/3/2019. Most recently reported market values for private equity/credit, opportunistic, and illiquid real estate funds adjusted for calls and distributions through the report end date. All data is preliminary.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

JANUARY 2020
Capital Markets Update

Market commentary

U.S. ECONOMICS

- The Institute for Supply Management’s purchasing managers indices indicated stronger than expected activity in both the services and manufacturing sectors in January. The ISM Manufacturing PMI rose from 47.2 to 50.9 (exp. 48.5), marking its first month of expansion since July. The ISM Services PMI increased from 55.0 to 55.5.
- Economic indicators continued to signal strength in the labor market. In January, the unemployment rate ticked up 0.1% to 3.6% but remained near 50-year lows. At month-end, 61.2% of the total population was employed, the highest rate since November 2008.
- In a preliminary reading, U.S. gross domestic product expanded at an annualized quarterly rate of 2.1% in Q4 (exp. 2.0%), and 2.3% from the prior year. The U.S. consumer continued to drive growth, as consumption accounted for 57% of the quarterly GDP increase.

U.S. EQUITIES

- The S&P 500 Price Index established new all-time highs of 3330 intra-month, but by month-end, delivered a 0.0% total return. The S&P 500 Equal-Weighted Index returned -1.8%, suggesting that after excluding the mega-cap tech stocks which have formed the market leadership, the broad U.S. equity experience was more negative than positive.
- With about half of the companies in the S&P 500 Index reporting fourth quarter results, revenue and earnings growth have exceeded expectations. Per FactSet, 69% of companies within the index have reported positive earnings-per-share surprise, and 65% have posted positive revenue surprise.
- Implied volatility on U.S. stocks picked up a bit from rather subdued levels. The VIX Index increased from 13.8 points to 18.8 points.

U.S. FIXED INCOME

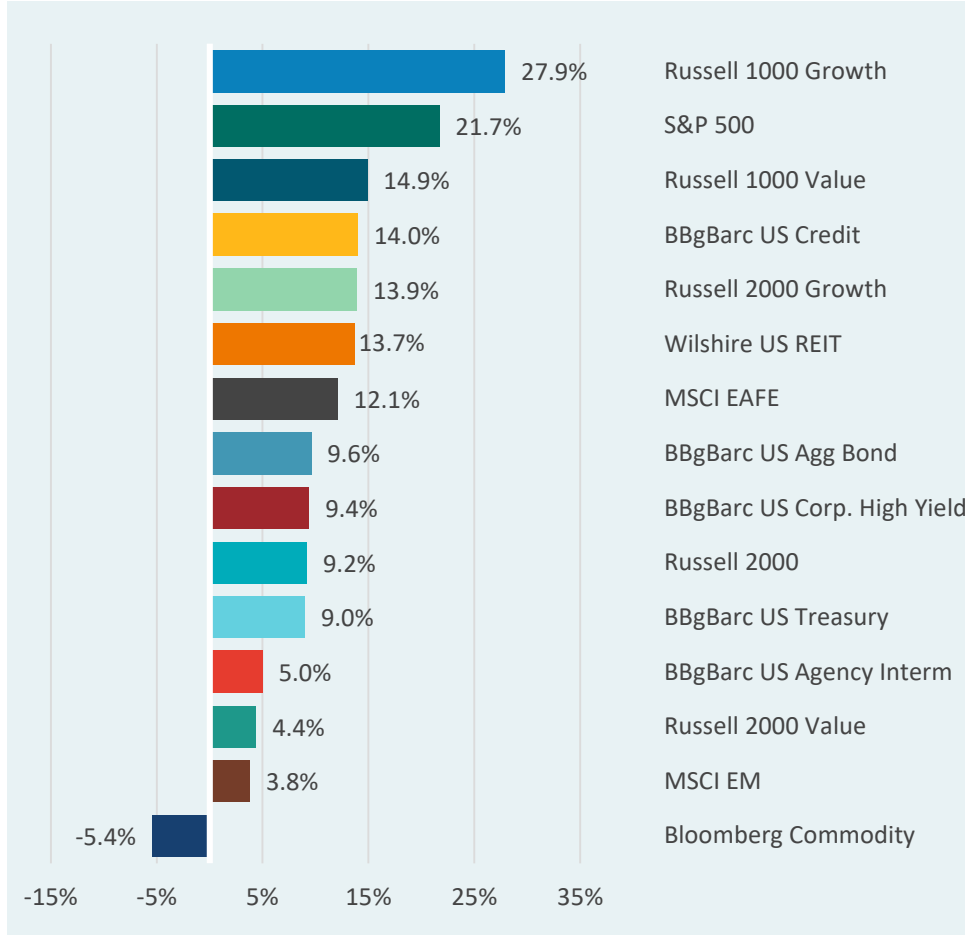
- The Federal Open Market Committee decided to hold the range for federal funds unchanged at 1.50 – 1.75% at its meeting in January. The FOMC tweaked the language in its post-meeting statement to reflect that policy is aimed at “inflation returning to the Committee’s symmetric 2% objective”, rather than simply maintaining inflation “near” the 2% level deemed healthy.
- The 10-year U.S. Treasury yield which rose 42 basis points over the final four months of the year reversed course in January and fell from 1.92% to 1.51%. The spread between the 10-year yield and the 3-month yield inverted briefly, and the yield curve flattened.
- High-yield credit spreads, which had been near cycle tights, expanded from 3.93% to 4.46%, and the Bloomberg Barclays Corporate High Yield Index delivered a total return of 0.0%.

INTERNATIONAL MARKETS

- Emerging market equities (MSCI EM Index -4.7%) significantly underperformed U.S. (S&P 500 Index -0.0%) and international developed equities (MSCI EAFE Index -2.1%). Within the emerging market universe, the Latin American component (-5.6%) underperformed the Asian component (-4.5%) in U.S. dollar terms.
- Growth-sensitive commodities were hit hard by the spread of the coronavirus. The Energy (-14.8%) and Industrial Metals (-7.3%) components of the Bloomberg Commodity Index sold off on concerns over the virus’ impact on future levels of demand.
- The J.P. Morgan Global FX Volatility Index reached fresh all-time lows. Some analysts have attributed the calmer currency markets to concurrently easier global monetary policy from central banks.

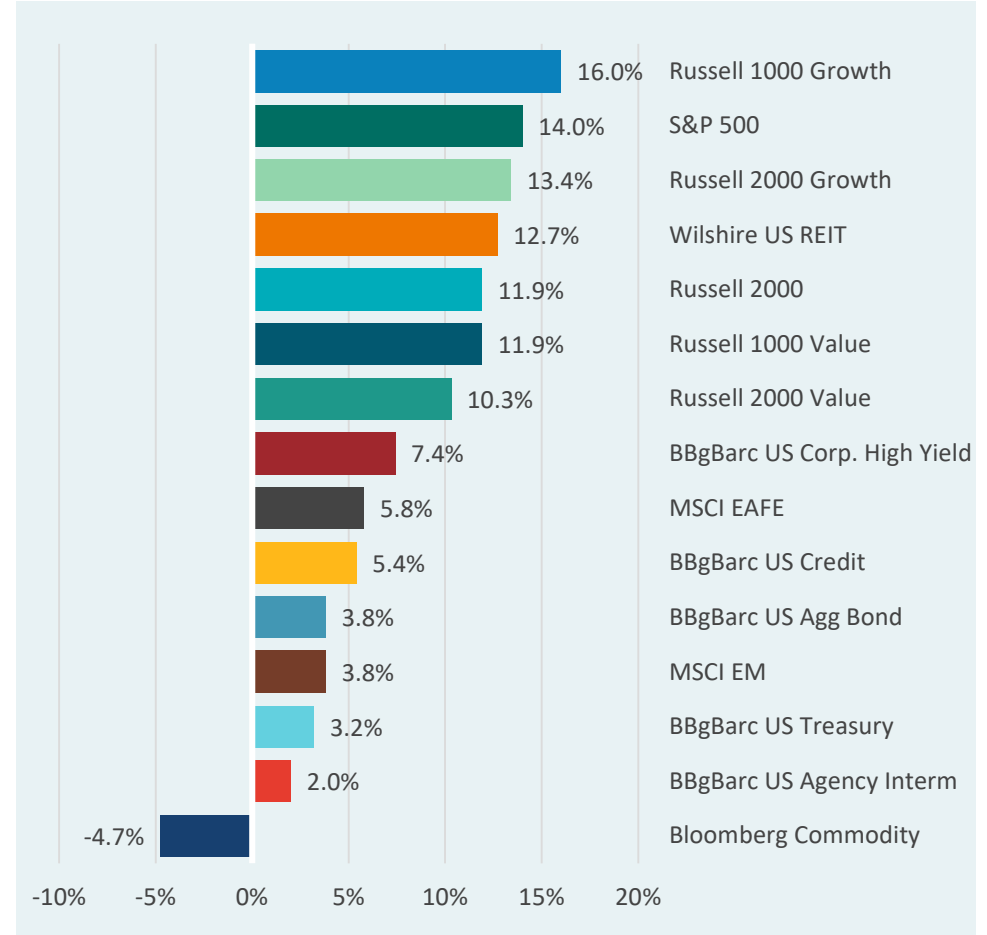
Major asset class returns

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/20

TEN YEARS ENDING JANUARY



Source: Morningstar, as of 1/31/20

U.S. large cap equities

- The S&P 500 Index was little changed, falling just four basis points in the first month of the new year. The Energy (-11.1%) and Materials (-6.2%) sectors weighed on the performance of the overall index while the Utilities (+6.7%) and Information Technology (+4.0%) sectors provided support.
- The forward P/E ratio of the S&P 500 Index reached 18.8 intra-month, well above its 5- and 10- year averages of 16.8 and 15.2. By month-end, the forward P/E ratio fell to 18.1, which still ranked in the 97th percentile of month-end levels over the last ten years.
- The Utilities sector was the top-performing sector in January and gained 6.7%, perhaps reflecting a more defensive posture from investors as the S&P 500 Index remained near record highs. At a weight of 23%, the Information Technology sector (+4.0%) made the largest positive contribution to the overall index return.
- The Energy sector plunged 11.1% in January due in large part to concern that a further spread of the coronavirus could lead to a protracted slump in demand for growth-sensitive commodities.

S&P 500 PRICE INDEX



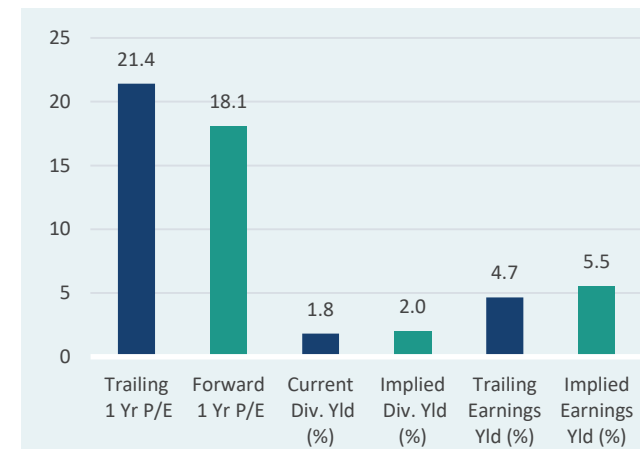
Source: Bloomberg, as of 1/31/20

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 1/31/20

S&P 500 VALUATION SNAPSHOT

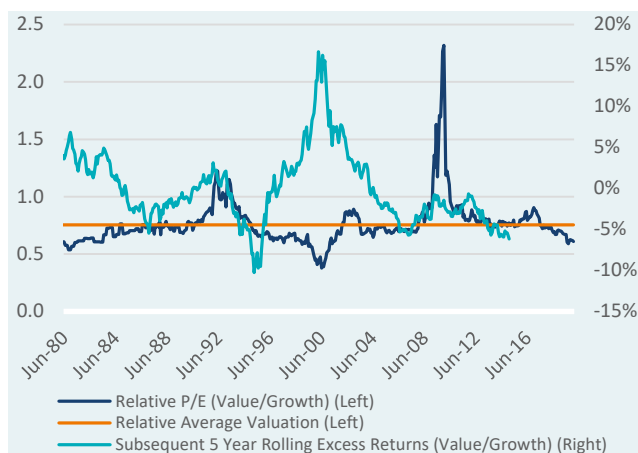


Source: Bloomberg, as of 1/31/20

Domestic equity size and style

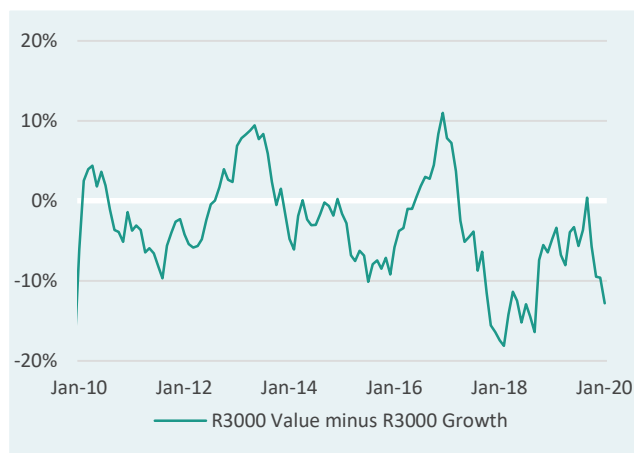
- In January, the Russell 3000 Growth Index pushed higher (+2.0%) while the Russell 3000 Value Index sold off (-2.4%). Over the last three years, the Russell 3000 Value Index has generated an annualized return of +7.0%, materially beneath the annualized return of the Russell 3000 Growth Index (+17.9%).
- Large-cap equities, represented by the Russell 1000 Index, rose slightly (+0.1%) while small-cap equities (Russell 2000 Index -3.2%) lagged. Within the large-cap universe, growth-orientated stocks outperformed value-orientated stocks by 4.4%.
- The MSCI USA Cyclical-Defensives Index delivered a total return of 3.2%, notching its highest monthly return since April of last year. Over the trailing year, cyclicals have outperformed defensives by 12.4% in total, and in eight out of twelve months.
- Some analysts have attributed the recent strength of the tech sector to its higher interest rate sensitivity. Tech stocks are priced more highly in part due to the expectation for higher growth over the longer-term. As interest rates fall, the discount rate applied to that expected growth falls, leading to steeper valuations.

VALUE VS. GROWTH RELATIVE VALUATIONS



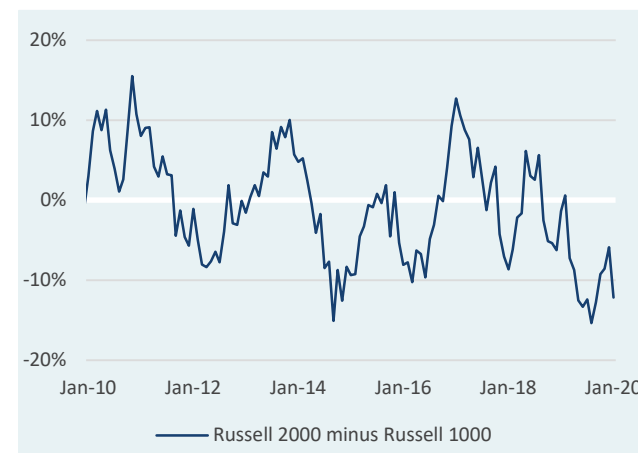
Source: Russell, Bloomberg, as of 1/31/20

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 1/31/20

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

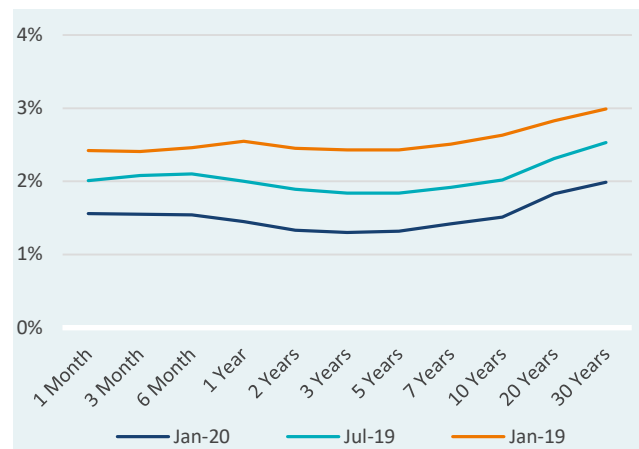


Source: FTSE, Bloomberg, as of 1/31/20

Fixed income

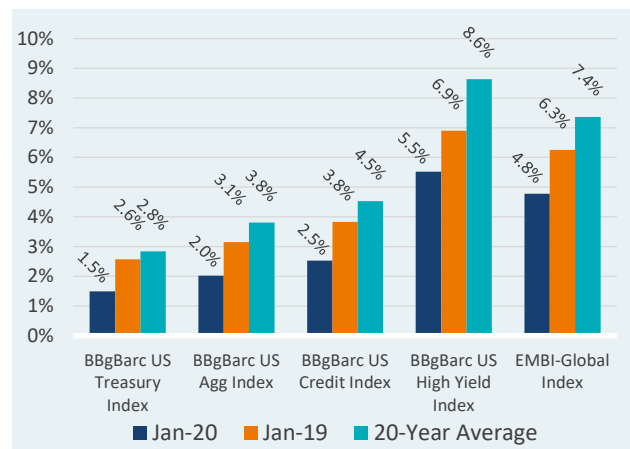
- Emerging market debt in U.S. dollar terms (J.P. Morgan EMBI +1.5%) outperformed riskier U.S. credit (U.S. high yield fixed income +0.0%). Local-currency denominated emerging market debt (J.P. Morgan GBI-EM -1.3%) underperformed and faced currency headwinds.
- Philip Lane, the Chief Economist at the ECB, called for a change to the central bank’s inflation measurement calculation which would result in the inclusion of housing costs alongside the current CPI components, and likely narrow the gap between realized Eurozone inflation and the ECB’s target of below, but close to 2%.
- A divergence grew between the Federal Open Market Committee and the market regarding the expectation for the future path of interest rate policy. The most recent FOMC dot plot indicated that 13 members expected rates to remain on hold and 4 members expected the fed funds range to move 25 basis points higher by the end of 2020. Conversely, at the end of January, the market had priced in 38 basis points of easing to the effective policy rate by year-end.
- Long-duration Treasuries outperformed within the U.S. fixed income universe and gained 6.8% over the period.

U.S. TREASURY YIELD CURVE



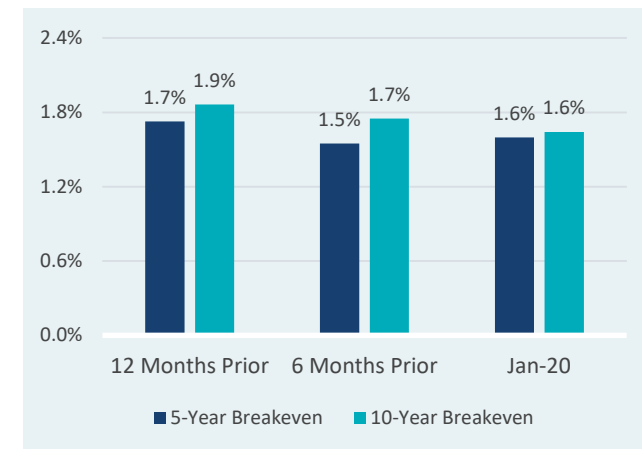
Source: Bloomberg, as of 1/31/20

NOMINAL YIELDS



Source: Morningstar, as of 1/31/20

BREAKEVEN INFLATION RATES

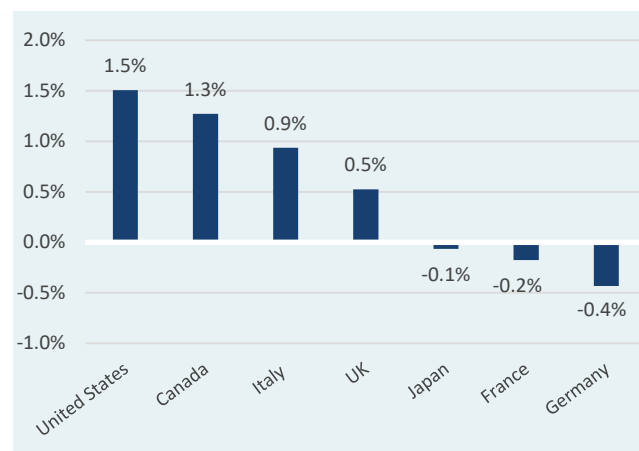


Source: Bloomberg, as of 1/31/20

Global markets

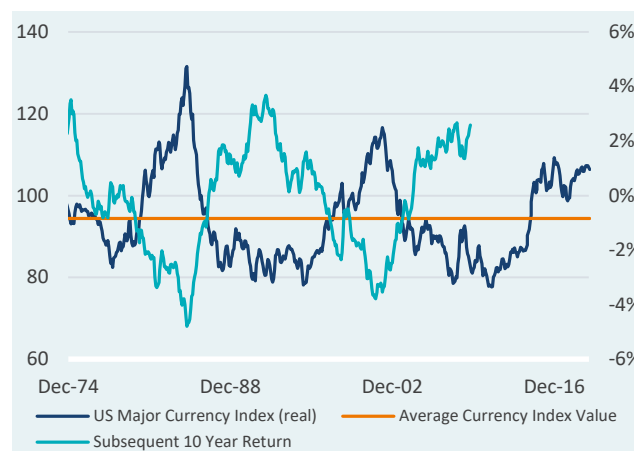
- The Japanese Yen appreciated 0.3% relative to the U.S. Dollar as investors sought shelter from an increasingly uncertain economic environment and exposure to the haven currency. Unhedged U.S. investors in the MSCI Japan Index experienced returns of -1.4%, while Japanese investors realized a local return of -1.6%.
- Global bond markets rallied, supported by risk-off flows which were spurred in part by the accelerating spread of the coronavirus. The value of outstanding negative-yielding debt in U.S. dollar terms rose from \$11.3 trillion to \$13.9 trillion, a three-month high.
- At long last, the United States and China, the two largest economies in the world, signed a “phase one” agreement on trade. Chinese officials agreed to purchase an additional \$200B in incremental U.S. goods (above 2017 levels) over the next two years. In exchange, the U.S. announced it would cut tariffs to a rate of 7.5% from 15.0% on \$160B in Chinese imports.
- U.S.-dollar hedged investors in the MSCI EAFE Index (-1.1%) outperformed unhedged U.S. investors (-2.1%) as the U.S. dollar strengthened 1.0% against the embedded currency portfolio of the MSCI EAFE Index.

GLOBAL SOVEREIGN 10-YEAR YIELDS



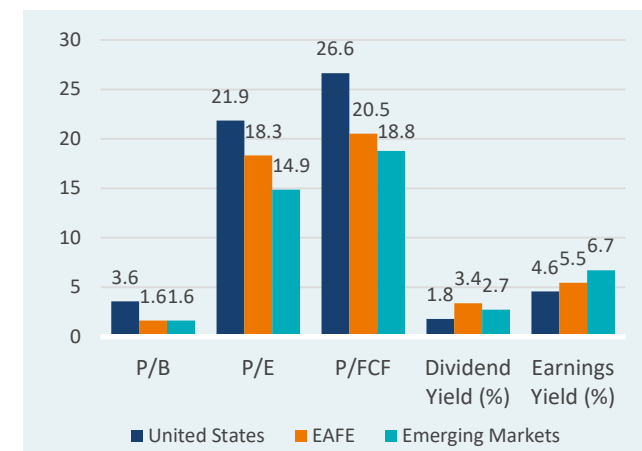
Source: Bloomberg, as of 1/31/20

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 1/31/20

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 1/31/20

Commodities

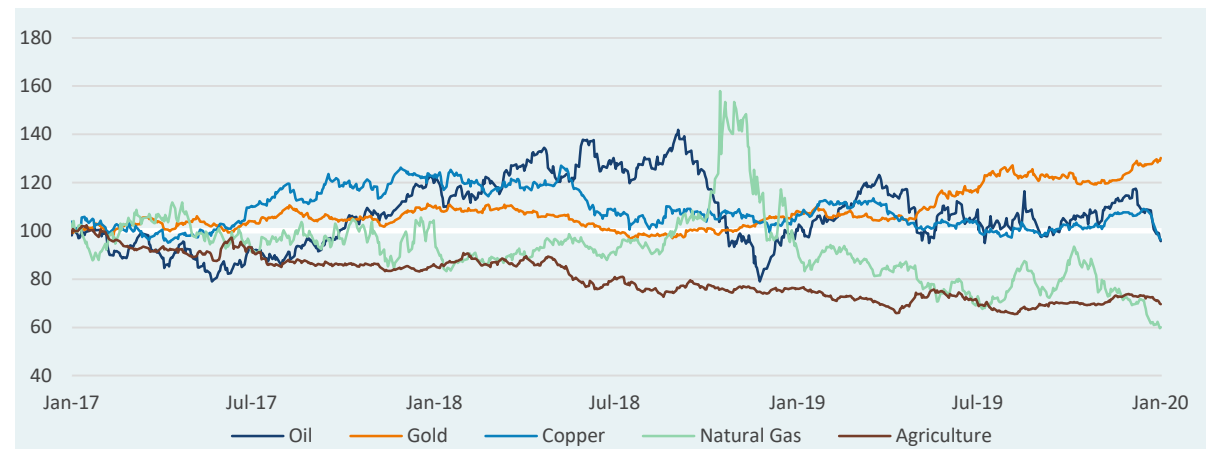
- The Bloomberg Commodity Index plummeted -7.4% in the first month of 2020. The Precious Metals (+3.2%) component was a bright spot within the overall index while the Energy (-14.8%), Petroleum (-14.6%), and Livestock sectors (-11.0%) dragged on performance.
- The Precious Metals (+3.2%) component of the Bloomberg Commodity Index was the only positive performer in January as risk-off sentiment stoked demand for haven assets. Declining Treasury yields further encouraged precious metals exposure as the opportunity cost for holding non-yielding assets decreased.
- Qasem Soleimani, an Iranian general and leader of the elite Quds Force, was killed in a U.S. drone strike on January 3rd. Oil prices jumped on the news and subsequently retraced those gains as tensions subsided.
- On January 7th, Chinese officials announced the spread of a novel coronavirus, 2019n-CoV, which originated in the Chinese city of Wuhan. In its efforts to contain the virus and prevent a pandemic, Chinese officials implemented a series of economically disruptive containment measures, resulting in significantly negative price action in both the Energy (-14.8%) and Industrial Metals (-7.3%) sectors.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(7.4)	(7.4)	(7.4)	(5.4)	(3.5)	(4.7)	(4.7)
Bloomberg Agriculture	(5.3)	(5.3)	(5.3)	(6.5)	(9.6)	(6.9)	(3.6)
Bloomberg Energy	(14.8)	(14.8)	(14.8)	(12.8)	(4.9)	(9.5)	(12.3)
Bloomberg Grains	(4.1)	(4.1)	(4.1)	(7.0)	(8.1)	(8.0)	(3.7)
Bloomberg Industrial Metals	(7.3)	(7.3)	(7.3)	(8.2)	(1.3)	(0.9)	(3.4)
Bloomberg Livestock	(11.0)	(11.0)	(11.0)	(15.0)	(3.9)	(6.0)	(2.8)
Bloomberg Petroleum	(14.6)	(14.6)	(14.6)	0.4	2.0	(4.9)	(6.5)
Bloomberg Precious Metals	3.2	3.2	3.2	17.0	6.4	2.7	2.6
Bloomberg Softs	(5.0)	(5.0)	(5.0)	(5.5)	(14.9)	(7.8)	(6.1)

Source: Morningstar, as of 1/31/20

COMMODITY PERFORMANCE



Source: Bloomberg, as of 1/31/20

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	2.2	15.5	16.0
Cash	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	2.1	12.1	14.0
US Bonds	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	1.9	9.6	13.4
Hedge Funds of Funds	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	0.6	8.7	11.9
Large Cap Equity	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	0.1	8.3	11.9
Real Estate	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	0.0	8.2	10.3
60/40 Global Portfolio	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	-0.2	6.7	10.2
Small Cap Growth	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	-1.1	6.3	6.7
International Equity	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	-2.1	5.1	5.8
Large Cap Value	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	-2.2	4.5	3.8
Small Cap Equity	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	-3.2	3.0	3.8
Emerging Markets Equity	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	-4.7	2.5	2.9
Small Cap Value	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	-5.4	1.1	0.6
Commodities	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-7.4	-4.7	-4.7

BEST

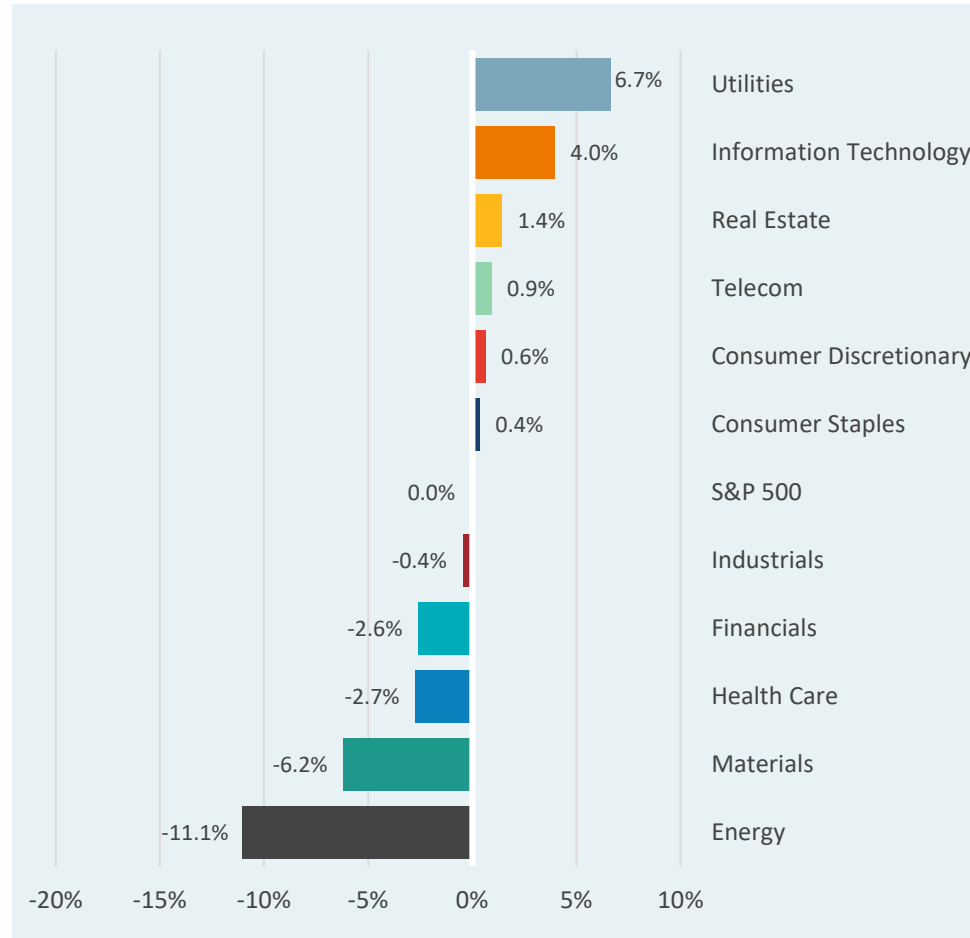
WORST

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

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/19.

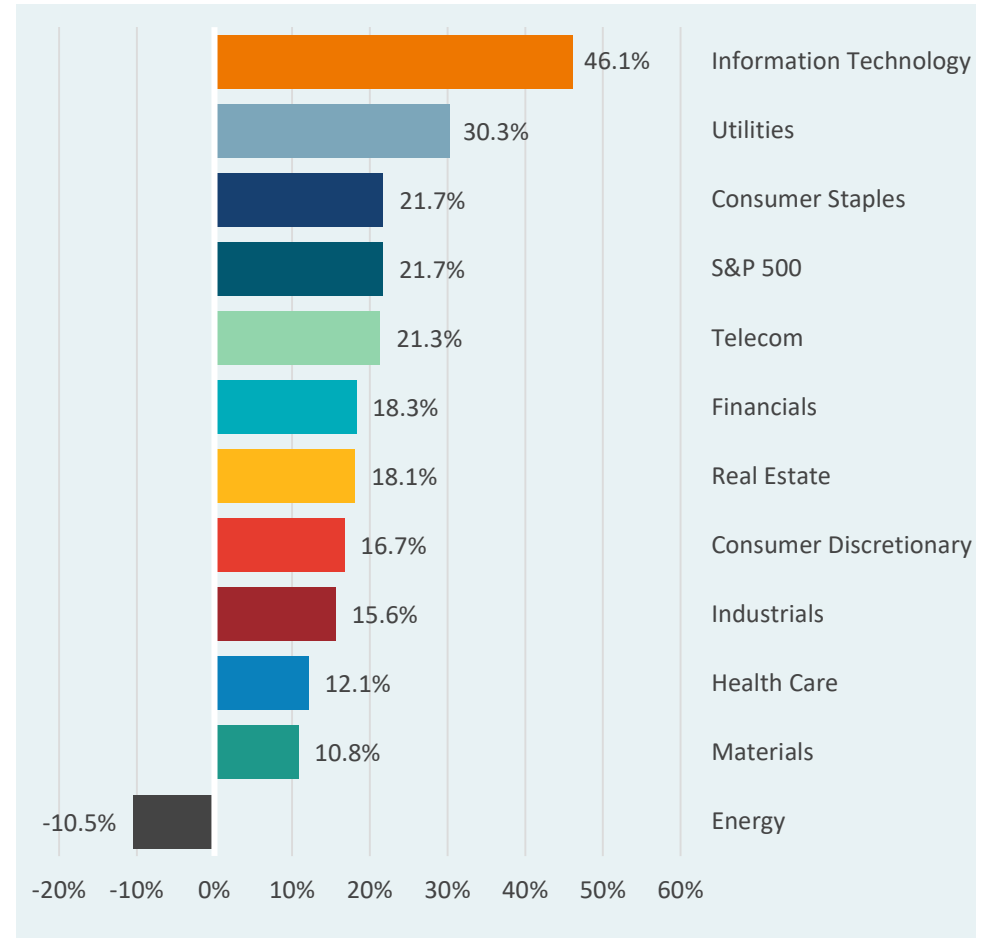
S&P 500 sector returns

QTD



Source: Morningstar, as of 1/31/20

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/20

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(0.0)	(0.0)	(0.0)	21.7	14.5	12.4	14.0
S&P 500 Equal Weighted	(1.8)	(1.8)	(1.8)	15.5	10.9	10.0	13.7
DJ Industrial Average	(0.9)	(0.9)	(0.9)	15.8	15.1	13.2	13.7
Russell Top 200	0.4	0.4	0.4	23.1	15.7	13.2	14.1
Russell 1000	0.1	0.1	0.1	21.4	14.3	12.1	14.0
Russell 2000	(3.2)	(3.2)	(3.2)	9.2	7.3	8.2	11.9
Russell 3000	(0.1)	(0.1)	(0.1)	20.5	13.8	11.8	13.8
Russell Mid Cap	(0.8)	(0.8)	(0.8)	16.9	10.9	9.5	13.5
Style Index							
Russell 1000 Growth	2.2	2.2	2.2	27.9	20.0	15.5	16.0
Russell 1000 Value	(2.2)	(2.2)	(2.2)	14.9	8.6	8.7	11.9
Russell 2000 Growth	(1.1)	(1.1)	(1.1)	13.9	11.5	9.6	13.4
Russell 2000 Value	(5.4)	(5.4)	(5.4)	4.4	3.1	6.7	10.3

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	(1.1)	(1.1)	(1.1)	16.0	11.0	8.5	9.1
MSCI ACWI ex US	(2.7)	(2.7)	(2.7)	9.9	7.6	5.0	5.2
MSCI EAFE	(2.1)	(2.1)	(2.1)	12.1	7.8	5.1	5.8
MSCI EM	(4.7)	(4.7)	(4.7)	3.8	7.9	4.5	3.8
MSCI EAFE Small Cap	(2.9)	(2.9)	(2.9)	12.3	8.6	8.2	8.5
Style Index							
MSCI EAFE Growth	(0.6)	(0.6)	(0.6)	19.5	11.4	7.3	7.3
MSCI EAFE Value	(3.6)	(3.6)	(3.6)	4.9	4.2	2.8	4.1
Regional Index							
MSCI UK	(3.8)	(3.8)	(3.8)	8.8	6.5	2.7	5.2
MSCI Japan	(1.4)	(1.4)	(1.4)	11.2	7.1	6.9	6.2
MSCI Euro	(3.2)	(3.2)	(3.2)	11.9	7.6	4.4	4.3
MSCI EM Asia	(4.5)	(4.5)	(4.5)	6.1	9.1	5.2	5.9
MSCI EM Latin American	(5.6)	(5.6)	(5.6)	(3.5)	6.0	4.3	(0.3)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	2.1	2.1	2.1	9.2	3.7	2.4	3.4
BBgBarc US Treasury Bills	0.1	0.1	0.1	2.3	1.7	1.1	0.6
BBgBarc US Agg Bond	1.9	1.9	1.9	9.6	4.6	3.0	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	0.6	0.6	0.6	3.9	2.0	1.4	1.2
BBgBarc US Treasury Long	6.8	6.8	6.8	21.9	9.2	3.8	7.4
BBgBarc US Treasury	2.4	2.4	2.4	9.0	4.1	2.3	3.2
Issuer							
BBgBarc US MBS	0.7	0.7	0.7	6.3	3.5	2.6	3.1
BBgBarc US Corp. High Yield	0.0	0.0	0.0	9.4	5.9	6.0	7.4
BBgBarc US Agency Interm	0.9	0.9	0.9	5.0	2.6	1.9	2.0
BBgBarc US Credit	2.3	2.3	2.3	14.0	6.5	4.3	5.4

OTHER

Index							
Bloomberg Commodity	(7.4)	(7.4)	(7.4)	(5.4)	(3.5)	(4.7)	(4.7)
Wilshire US REIT	0.8	0.8	0.8	13.7	8.2	5.7	12.7
CS Leveraged Loans	0.5	0.5	0.5	6.3	4.5	4.6	5.0
Alerian MLP	(5.9)	(5.9)	(5.9)	(11.1)	(8.3)	(7.6)	4.0
Regional Index							
JPM EMBI Global Div	1.5	1.5	1.5	11.9	6.7	6.4	7.0
JPM GBI-EM Global Div	(1.3)	(1.3)	(1.3)	6.2	5.8	2.4	2.5
Hedge Funds							
HFRI Composite	(0.2)	(0.2)	(0.2)	6.5	4.1	3.5	4.1
HFRI FOF Composite	0.6	0.6	0.6	6.3	3.7	2.5	2.9
Currency (Spot)							
Euro	(1.3)	(1.3)	(1.3)	(3.4)	0.8	(0.4)	(2.2)
Pound	(0.5)	(0.5)	(0.5)	0.2	1.6	(2.6)	(1.9)
Yen	0.3	0.3	0.3	0.4	1.3	1.6	(1.8)

Source: Morningstar, HFR, as of 1/31/20

Notices & disclosures

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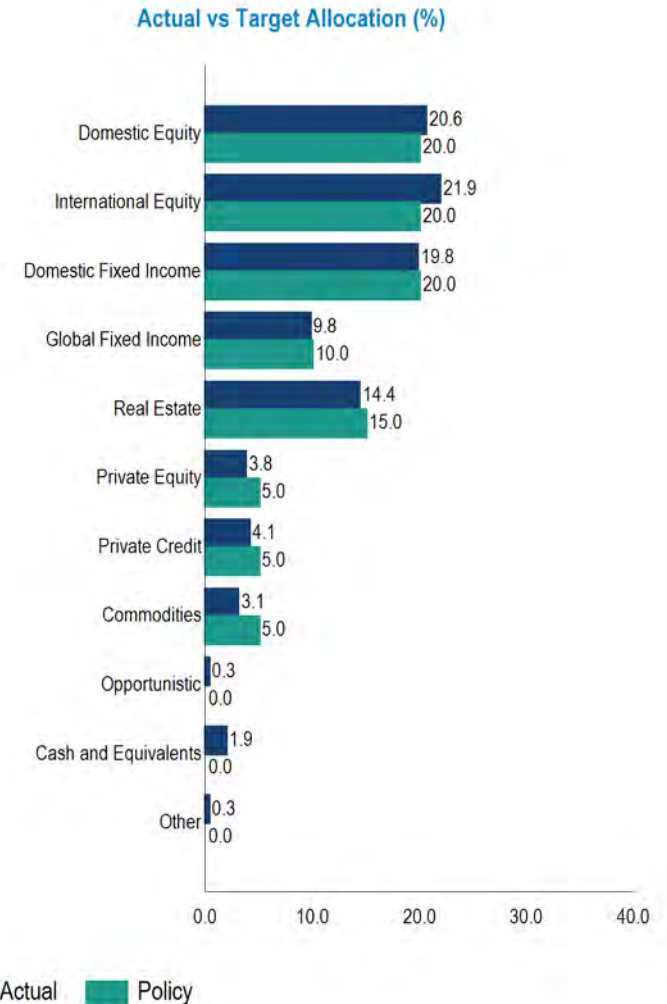
Verus – also known as Verus Advisory™.

San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: January 31, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Real Estate	206,594,983	14.4	0.7	0.7
NCREIF Property Index			0.0	0.0
JP Morgan Core Real Estate	171,127,680	11.9	0.3	0.3
NCREIF-ODCE			0.0	0.0
NCREIF Property Index			0.0	0.0
ARA American Strategic Value Realty	35,306,713	2.5	2.3	2.3
NCREIF-ODCE			0.0	0.0
NCREIF Property Index			0.0	0.0
Total Commodities	43,849,899	3.1	-7.4	-7.4
Bloomberg Commodity Index TR USD			-7.4	-7.4
Gresham MTAP Commodity Builder	43,849,899	3.1	-7.4	-7.4
Bloomberg Commodity Index TR USD			-7.4	-7.4
Total Private Equity	54,253,338	3.8		
Harbourvest Partners IX Buyout Fund L.P.	15,394,660	1.1		
Pathway Private Equity Fund Investors 9 L.P.	33,008,886	2.3		
Harbourvest 2018 Global Fund L.P.	5,849,792	0.4		
Total Private Credit	58,624,233	4.1		
TPG Diversified Credit Program	58,624,233	4.1		
Total Cash	27,829,377	1.9	0.5	0.5
91 Day T-Bills			0.1	0.1
Cash Account	27,829,377	1.9	0.5	0.5
91 Day T-Bills			0.1	0.1
Total Opportunistic	4,868,881	0.3		
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,766,761	0.3		
PIMCO Distressed Credit Fund	102,120	0.0		



*Other balance represents Clifton Group.

Policy Index (1/1/2017): 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity, 5% Russell 3000 + 300 bp lagged, 5% BBgBarc High Yield + 200 bp lagged. Effective 1/01/2017, only traditional asset class (public equity, public fixed income, REITs) investment management fees will be included in the gross of fee return calculation. Boston Partners funded 2/1/2017. WCM Intl Growth replaced Vontobel on 2/15/2017. Pathway 9 funded 4/7/2017. SSGA TIPS liquidated on 12/7/2017. Fidelity Real Estate Growth III liquidated on 12/29/2017. SSGA Flagship S&P 500 liquidated 2/1/2018. Harbourvest 2018 Global Fund L.P. funded 12/14/2018. Stone Harbor liquidated 3/22/2019. Ashmore EM Blended Debt funded 3/31/2019. Direct RE liquidated 5/3/2019. Most recently reported market values for private equity/credit, opportunistic, and illiquid real estate funds adjusted for calls and distributions through the report end date. All data is preliminary.

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Board of Trustees

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Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 9: Capital Market Assumptions 2020 - Verus

Recommendation:

Staff recommends that the Board of Trustees review and discuss the presentation to be given by Scott Whalen of Verus, the Pension Trust's investment consultant.

Capital Market Assumptions:

It is the practice of the Pension Trust to include in the February Board of Trustees meeting an annual review of asset allocation and Capital Market Assumptions (CMA). Verus' CMAs are for primarily for a 10-year period – with the addition of a 30 year CMA as well. CMAs are inherently heavily influenced by current market valuation levels and interest rates. The strong 2019 investment markets lower the outlook for future returns in almost all asset classes. Pervasively low interest rates suppress lower risk return expectations. Elevated equity market valuations (high P/E ratios) lower future expectations in anticipation of reversion-to-the-mean at some point contracting equity valuations.

The Overall portfolio CMA for the SLOCPT Strategic Asset Allocation Policy (SAA) is shown below.

2018 Verus CMAs	10 year ~ 6.0%	
2019 Verus CMAs	10 year ~ 6.7%	30 year ~ 6.6%
2020 Verus CMAs	10 year ~ 6.2%	30 year ~ 6.2%
Historical average	long-term ~ 7.7%	

Long Term Rate of Return Implications:

An appropriate earnings assumption to use for funding the Plan is based on 30+ year time frame so will differ from the 10-year CMAs that investment consultants typically provide. Pension Trust practice has been to consider changes to the long-term actuarial discount rate, or earnings assumption on a biennial basis in conjunction with biennial Actuarial Experience Studies. This allows for an integrated consideration of not just the discount rate, but the other key actuarial assumptions (e.g., inflation, mortality, etc.) that go into determining the necessary funding for the Plan.

Forecasts of investment returns are obviously imprecise. Investment consultant forecasts of CMAs for 10 or 30 years have some basis in market valuations, interest rates and market theory. However, investment forecasts beyond 10 years are necessarily speculative. Often, pension funds rely on historical rates of returns as a rough estimate of long-term rates of return. Such estimates rely on the presumption that the global economy will survive and function somewhat as it has in the past and that investment returns will revert to historical means. Such reversion-to-the-mean logic is reasonable in forecasting inherently complex data in the absence of more specific forecasts.

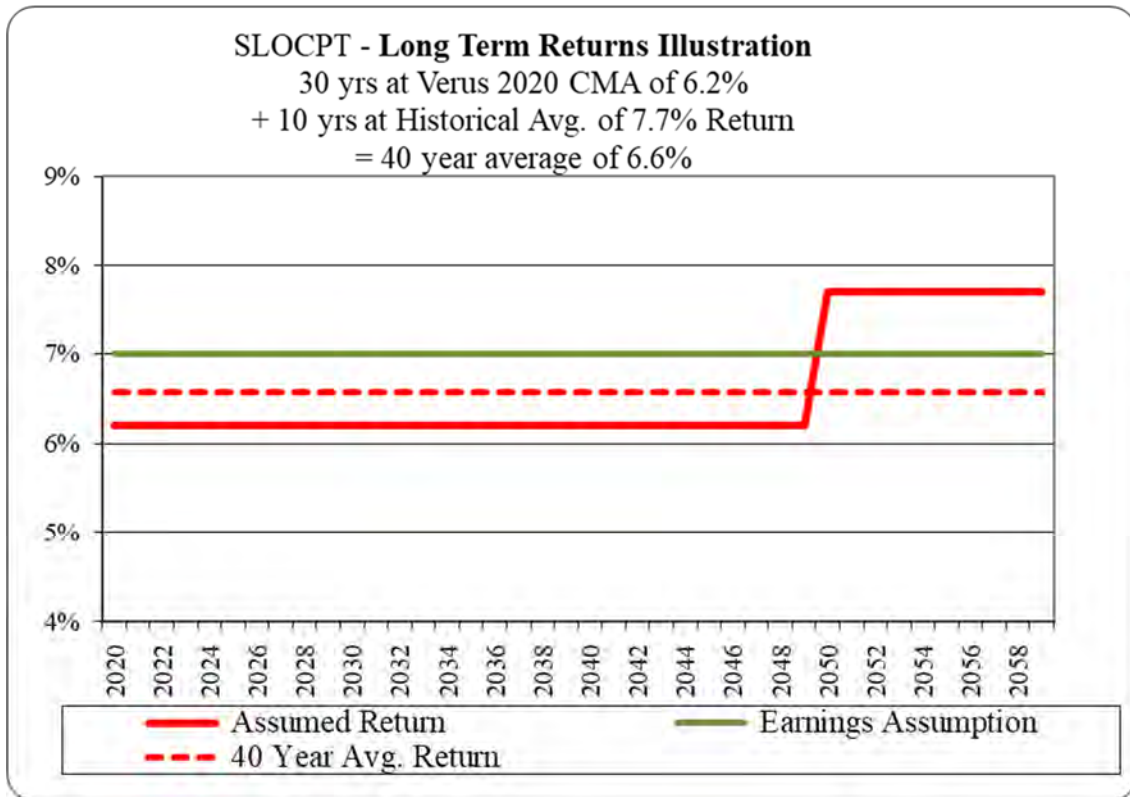
To this end Verus has estimated the long-term rates of return of various asset classes using the best available data. Their history is necessarily of varying periods. For example, domestic equity markets have long histories and are well studied. In contrast, asset classes such as emerging market equity and debt, private equity, and private credit have come of age as institutionally investable asset classes in only the last 20 years or so. Based on Verus' 2019 analysis of historical returns and using the Pension Trust's current asset allocation policy, Verus estimates that a historically based illustration of a long-term rate of return would be approximately 7.7% as shown in the table below. It is compared to Verus' 2020 CMAs.

	2020 CMAs <u>10 years</u>	Historically based <u>long-term returns</u>
Avg. Annual Return	6.2%	7.7%
Standard Deviation of Return	11.0%	7.8%

As an illustration of 40+ year rates of return we have linked the following assumed rates of return as shown below –

30 year CMA based rate of return – 2020-2049	6.2%
10 years Historically based returns – 2050-2059	<u>7.7%</u>
Combined 40 year return illustration	6.6%

The following graph presents this illustrated series of expected returns.



This illustration is not intended as a predictor of an appropriate long-term discount rate/earnings assumption for the Annual Actuarial Valuation. That key assumption will be addressed at the March 2020 and May 2020 Board of Trustees meeting in consultation with the Actuary. Rather, this illustration is intended to provide a longer-term context for such a discussion.

Forecast error is inevitable. The level of confidence in 30 year CMA projections is much lower than that for 10 years so such assumptions should be viewed with a wide band of probability around the central average of the CMAs. With that caution in mind, the difference between a long term CMA of 6.6% and a long term discount rate of 7.0% should be compared to CMAs of other investment consultants – an analysis that the Plan Actuary performs.

Respectfully Submitted

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A decorative graphic element consisting of a white triangle pointing up and a blue triangle pointing down, both centered on a vertical axis.

**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

NOVEMBER 2019
2020 Capital Market Assumptions

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SAN FRANCISCO 415-362-3484

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Summary

Methodology

CORE INPUTS

- We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
- For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
- Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	Real yield estimate + inflation forecast	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Bank loan forecast + 1.75% private credit premium**	Long-term volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 4%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Expected Sharpe Ratio * target volatility + cash rate	Target volatility

*Long-term historical volatility data is adjusted for autocorrelation (see Appendix)

**The private credit premium is generated by illiquidity, issuer size, and lack of credit rating

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Equities								
U.S. Large	S&P 500	5.5%	6.6%	15.4%	0.23	0.31	1.01	1.02
U.S. Small	Russell 2000	5.7%	7.7%	21.1%	0.18	0.28	0.62	0.67
International Developed	MSCI EAFE	7.0%	8.4%	17.5%	0.29	0.37	0.30	0.37
International Small	MSCI EAFE Small Cap	7.2%	9.3%	21.8%	0.24	0.34	0.46	0.52
Emerging Markets	MSCI EM	7.6%	10.4%	25.6%	0.22	0.33	0.17	0.25
Global Equity	MSCI ACWI	6.4%	7.7%	16.8%	0.27	0.34	0.59	0.63
Private Equity*	Cambridge Private Equity	8.5%	11.3%	25.3%	0.26	0.37	-	-
Fixed Income								
Cash	30 Day T-Bills	1.9%	1.9%	1.2%	-	-	-	-
U.S. TIPS	BBgBarc U.S. TIPS 5-10	2.1%	2.2%	5.4%	0.04	0.06	0.65	0.66
U.S. Treasury	BBgBarc Treasury 7-10 Year	1.7%	1.9%	6.7%	-0.03	0.00	0.68	0.69
Global Sovereign ex U.S.	BBgBarc Global Treasury ex U.S.	0.1%	0.6%	9.7%	-0.19	-0.13	0.10	0.14
Global Aggregate	BBgBarc Global Aggregate	1.2%	1.4%	6.2%	-0.11	-0.08	0.39	0.37
Core Fixed Income	BBgBarc U.S. Aggregate Bond	2.2%	2.4%	6.3%	0.05	0.08	1.08	1.09
Core Plus Fixed Income	BBgBarc U.S. Corporate IG	2.7%	3.0%	8.3%	0.10	0.14	1.21	1.22
Short-Term Gov't/Credit	BBgBarc U.S. Gov't/Credit 1-3 Year	1.7%	1.8%	3.6%	-0.06	-0.03	1.16	1.17
Short-Term Credit	BBgBarc Credit 1-3 Year	1.9%	2.0%	3.6%	0.01	0.03	1.76	1.78
Long-Term Credit	BBgBarc Long U.S. Corporate	3.0%	3.4%	9.4%	0.12	0.16	0.93	0.94
High Yield Corp. Credit	BBgBarc U.S. Corporate High Yield	3.3%	4.0%	11.3%	0.12	0.18	1.25	1.26
Bank Loans	S&P/LSTA Leveraged Loan	5.3%	5.8%	10.0%	0.34	0.39	1.47	1.50
Global Credit	BBgBarc Global Credit	1.4%	1.6%	7.4%	-0.07	-0.03	0.77	0.78
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.0%	5.7%	12.4%	0.25	0.31	1.03	1.03
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	5.7%	6.4%	12.0%	0.32	0.37	0.17	0.22
Private Credit	Bank Loans + 175bps	7.0%	7.5%	10.0%	0.51	0.56	-	-
Other								
Commodities	Bloomberg Commodity	3.8%	4.9%	15.4%	0.12	0.20	-0.36	-0.29
Hedge Funds*	HFRI Fund Weighted Composite	4.0%	4.3%	7.7%	0.27	0.31	0.55	0.56
Real Estate Debt	BBgBarc CMBS IG	4.0%	4.3%	7.6%	0.27	0.31	1.55	1.58
Core Real Estate	NCREIF Property	6.6%	7.3%	12.4%	0.38	0.44	1.84	1.89
Value-Add Real Estate	NCREIF Property + 200bps	8.6%	10.0%	17.7%	0.38	0.46	-	-
Opportunistic Real Estate	NCREIF Property + 400bps	10.6%	12.9%	23.0%	0.38	0.48	-	-
REITs	Wilshire REIT	6.6%	8.2%	19.1%	0.25	0.33	0.80	0.83
Global Infrastructure	S&P Global Infrastructure	7.2%	8.6%	17.8%	0.30	0.38	0.52	0.56
Risk Parity	Risk Parity	6.9%	7.4%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	1.8%	1.8%	3.6%	-0.04	-0.02	0.19	0.21
Inflation		1.9%	-	-	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

*Return expectations differ depending on method of implementation

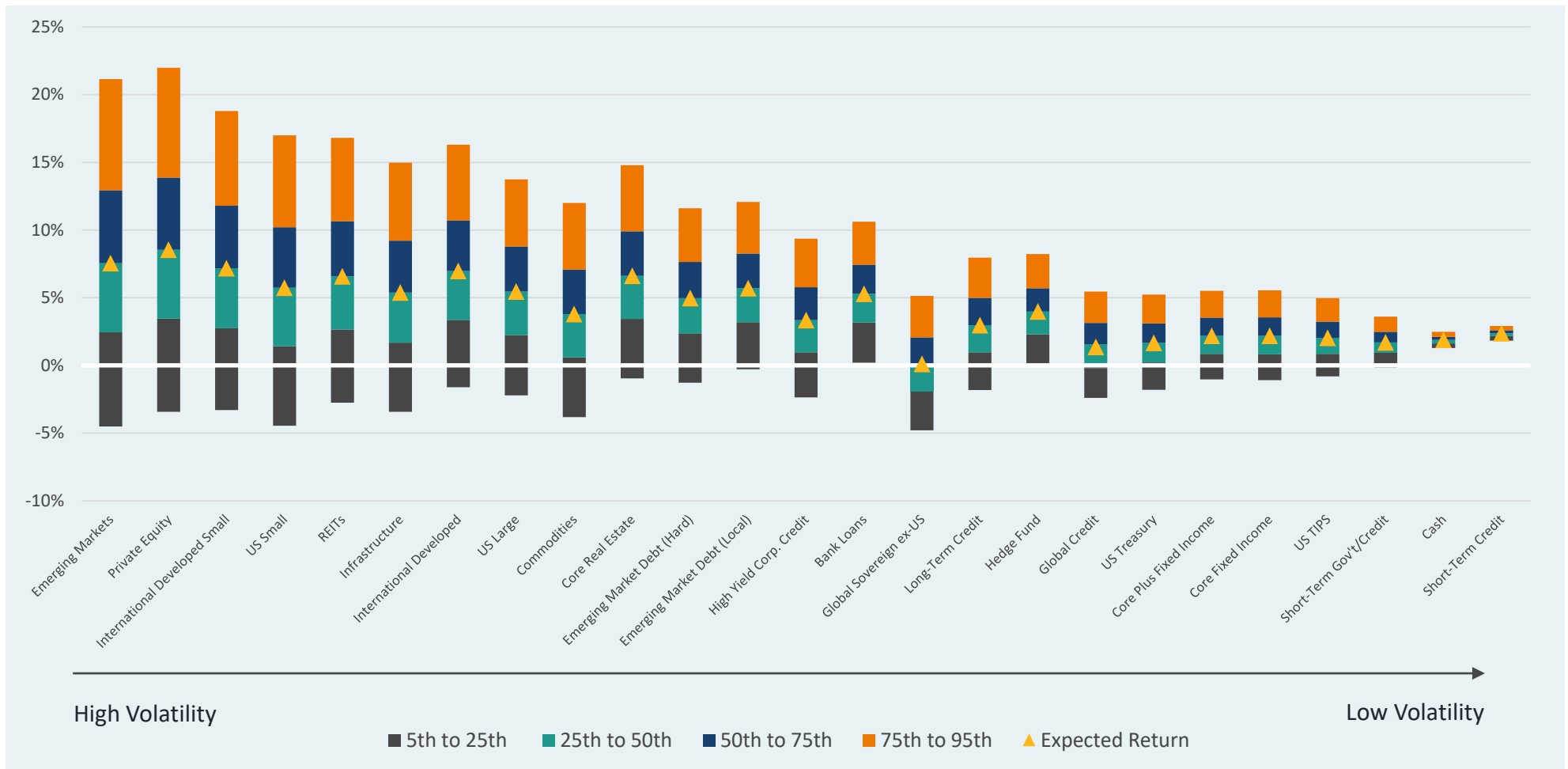
Correlation assumptions

	Cash	US Large	US Small	Intl Large	Intl Small	EM	Global Equity	PE	US TIPS	US Treasury	Global Sovereign	US Core	Core Plus	Short-Term Gov't/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EMD USD	EMD Local	Commodities	Hedge Funds	Real Estate	REITs	Infrastructure	Risk Parity	Currency Beta			
Cash	1.0																														
US Large	0.0	1.0																													
US Small	-0.1	0.9	1.0																												
Intl Large	0.0	0.9	0.7	1.0																											
Intl Small	-0.1	0.8	0.7	1.0	1.0																										
EM	0.0	0.7	0.6	0.8	0.8	1.0																									
Global Equity	0.0	1.0	0.8	1.0	0.9	0.9	1.0																								
PE	-0.2	0.6	0.6	0.6	0.6	0.5	0.6	1.0																							
US TIPS	0.0	0.0	-0.1	0.1	0.1	0.2	0.1	0.0	1.0																						
US Treasury	0.1	-0.4	-0.5	-0.3	-0.3	-0.2	-0.4	-0.2	0.7	1.0																					
Global Sovereign	0.1	0.2	0.0	0.3	0.3	0.4	0.3	0.0	0.5	0.4	1.0																				
US Core	0.1	-0.2	-0.3	-0.1	-0.1	0.0	-0.1	-0.1	0.8	0.9	0.5	1.0																			
Core Plus	0.1	0.1	0.0	0.2	0.2	0.3	0.2	0.0	0.8	0.7	0.6	0.9	1.0																		
Short-Term Gov't/Credit	0.3	-0.1	-0.2	0.0	0.0	0.1	0.0	-0.1	0.7	0.7	0.6	0.8	0.7	1.0																	
Short-Term Credit	0.2	0.2	0.1	0.4	0.3	0.4	0.3	0.0	0.6	0.4	0.6	0.6	0.8	0.8	1.0																
Long-Term Credit	0.1	0.0	-0.1	0.1	0.1	0.2	0.1	-0.1	0.7	0.7	0.5	0.8	1.0	0.6	0.6	1.0															
US HY	0.0	0.7	0.7	0.8	0.8	0.8	0.8	0.4	0.3	-0.2	0.3	0.1	0.5	0.2	0.6	0.4	1.0														
Bank Loans	-0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.1	-0.3	0.0	-0.1	0.2	-0.1	0.3	0.1	0.8	1.0													
Global Credit	0.1	0.5	0.3	0.7	0.7	0.7	0.6	0.2	0.5	0.2	0.8	0.5	0.7	0.5	0.8	0.6	0.7	0.4	1.0												
EMD USD	0.0	0.4	0.3	0.6	0.5	0.7	0.6	0.2	0.5	0.3	0.6	0.5	0.7	0.4	0.6	0.6	0.7	0.3	0.8	1.0											
EMD Local	0.1	0.5	0.4	0.7	0.6	0.8	0.6	0.2	0.4	0.1	0.6	0.2	0.5	0.3	0.5	0.4	0.6	0.4	0.8	0.8	1.0										
Commodities	0.0	0.5	0.5	0.6	0.6	0.6	0.6	0.3	0.1	-0.3	0.4	-0.1	0.1	0.1	0.3	0.0	0.6	0.4	0.5	0.4	0.6	1.0									
Hedge Funds	0.0	0.8	0.7	0.8	0.8	0.7	0.9	0.6	0.1	-0.3	0.1	-0.1	0.2	0.0	0.3	0.1	0.7	0.6	0.5	0.4	0.4	0.5	1.0								
Real Estate	-0.1	0.6	0.5	0.5	0.5	0.4	0.6	0.4	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.4	0.3	0.2	0.3	0.3	0.2	0.5	1.0							
REITs	0.0	0.6	0.6	0.6	0.5	0.5	0.6	0.4	0.3	0.1	0.3	0.3	0.4	0.2	0.4	0.4	0.6	0.5	0.5	0.5	0.5	0.3	0.5	0.7	1.0						
Infrastructure	0.0	0.7	0.6	0.9	0.8	0.8	0.8	0.7	0.3	-0.1	0.5	0.1	0.4	0.2	0.5	0.3	0.8	0.5	0.7	0.7	0.7	0.5	0.7	0.3	0.7	1.0					
Risk Parity	0.0	0.5	0.4	0.6	0.5	0.6	0.6	0.4	0.6	0.3	0.5	0.5	0.7	0.5	0.6	0.6	0.7	0.4	0.7	0.7	0.6	0.6	0.6	0.3	0.5	0.6	1.0				
Currency Beta	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	1.0		

Note: Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model – we have therefore used BarraOne correlation data to strengthen these correlation estimates.

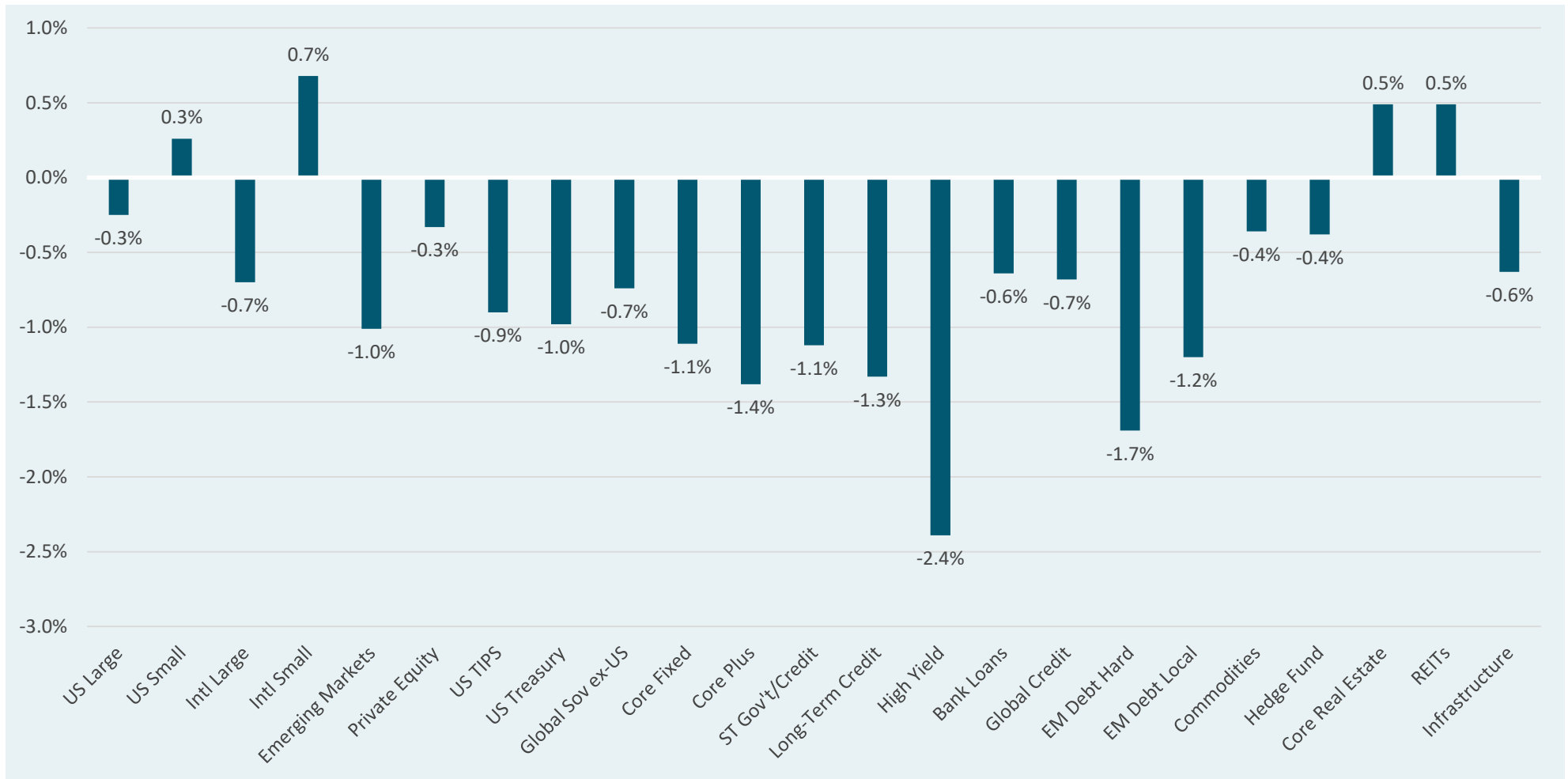
Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus, MPI

2020 vs. 2019 return forecast



Note: year-over-year change of the select group of asset classes above is based on the 2020 CMA methodology

Relevant forecast changes

- Return expectations fell broadly across most asset classes as bond yields moved lower, equities recovered from their 2018 end-of-year drawdown, and valuations became richer. This effect resulted in a decrease of between 0.7%-1.0% to non-U.S. equity expectations.
- Market pricing indicates lower inflation over the next decade. The 10yr U.S. TIPS breakeven inflation rate fell from 1.7% to 1.5% year-to-date, while the University of Michigan Inflation Expectations Survey fell from 2.5% to 2.4%. Inflation is an important component to the performance of asset classes such as equities, real estate, and commodities. Return expectations for these asset classes has come down by 0.1% to 0.2% to reflect this inflation trend. It is important to note that lower inflation expectations decrease *nominal* returns, but do not impact *real* returns.
- Credit spreads dropped throughout the year as the asset class delivered strong performance, which resulted in lower return forecasts for credit assets. Core fixed income spreads fell from 72 bps to 62 bps, and high yield spreads fell from 529 bps to 396 bps.
- The short end of the yield curve fell as the Federal Reserve reversed course, and U.S. markets moved towards a decreasing interest rate environment. The U.S. effective fed funds rate dropped from 2.3% at the beginning of the year to 1.9% in September. The three-month U.S. dollar LIBOR reference rate fell from 2.8% to 2.1%.
- Emerging market hard and local currency debt forecasts have both declined, following strong performance year-to-date. Hard currency-denominated debt spreads to U.S. Treasury yields fell from 421 bps to 351 bps, while yields of local-denominated debt fell from 7.2% to 6.0%.

All data cited above is as of 9/30/19

10yr & 30yr mean variance analysis

	2020 10-year CMAs				2020 30-year CMAs			
	Policy 10-yr	Return (g)	Standard Deviation	Sharpe Ratio (a)	Policy 30-yr	Return (g)	Standard Deviation	Sharpe Ratio (a)
US Large	16.0	5.5	15.4	0.31	16.0	5.5	15.4	0.32
US Small	4.0	5.7	21.1	0.28	4.0	6.1	21.1	0.30
Total Domestic Equity	20				20			
International Developed	13.0	7.0	17.5	0.37	13.0	6.7	17.5	0.36
Emerging Markets	7.0	7.6	25.6	0.33	7.0	6.8	25.6	0.31
Total Int'l Equity	20				20			
Total Equity	40				40			
Core Plus Fixed Income	15.0	2.7	8.3	0.14	15.0	3.6	8.3	0.28
Bank Loans	5.0	5.3	10.0	0.39	5.0	4.7	10.0	0.35
Global Aggregate	5.0	1.2	6.2	-0.08	5.0	1.1	6.2	-0.06
Emerging Market Debt (Hard)	2.5	5.0	12.4	0.31	2.5	6.1	12.4	0.41
Emerging Market Debt (Local)	2.5	5.7	12.0	0.37	2.5	5.7	12.0	0.39
Total Fixed Income	30				30			
Commodities	5.0	3.8	15.4	0.20	5.0	3.2	15.4	0.18
Core Real Estate	10.0	6.6	12.4	0.44	10.0	6.8	12.4	0.47
Value Add Real Estate	5.0	8.6	17.7	0.46	5.0	8.8	17.7	0.48
Total Real Assets	20				20			
Private Equity	5.0	8.5	25.3	0.37	5.0	8.7	25.3	0.39
Private Credit	5.0	7.0	10.0	0.56	5.0	6.4	10.0	0.52
Total Non-Public Investments	10	1.9	1.2	-	10			
Cash	0.0				0.0			
Total Allocation	100				100			
	Policy 10-yr				Policy 30-yr			
Mean Variance Analysis								
Forecast 10/30 Year Return	6.2				6.2			
Standard Deviation	11.0				11.1			
Return/Std. Deviation	0.6				0.6			
1st percentile ret. 1 year	-16.4				-16.6			
Sharpe Ratio	0.44				0.45			

Source: MPI

Inflation

Inflation

We use a weighted average of market expectations (50%), consumer expectations (25%), and professional forecasts (25%) to create a 10-year inflation forecast. The market's expectations for 10-year inflation can be inferred by taking the difference between the U.S. 10-year Treasury yield and the 10-year Treasury Inflation-Protected (TIPS) yield (referred to as the breakeven inflation rate).

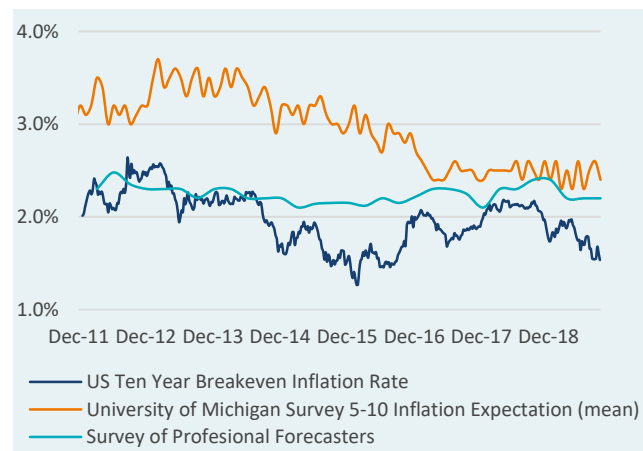
Inflation drifted upward in 2019, reaching the levels not seen in the past decade. However, investors generally expect the low inflation environment to continue well into the future. Breakeven rates rose in the first quarter but then trended downward in Q2 and Q3, likely affected by

pessimism around the U.S. economy. Overall, inflation levels remain mild, relative to past economic cycles.

Consumer inflation expectations increased very slightly from 2.7% to 2.8% in September, based on the University of Michigan Consumer Inflation Expectations Survey. Inflation expectations from the Survey of Professional Forecasters fell from 2.4% to 2.3% - this measure has historically been fairly stable, especially in environments characterized by suppressed inflation volatility.

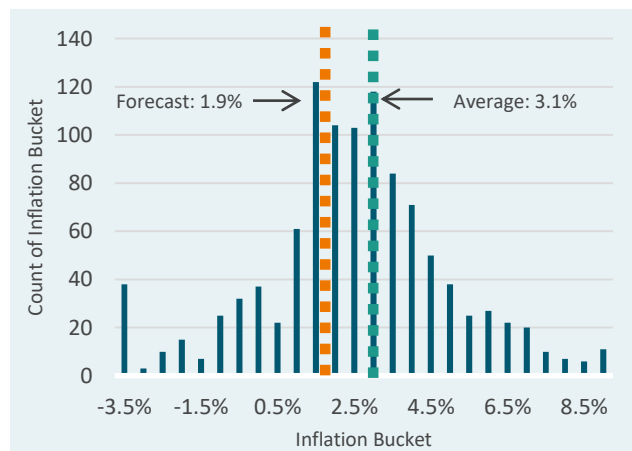
Our inflation forecast decreased slightly from 2.0% to 1.9%.

INFLATION EXPECTATIONS



Source: U. of Michigan, Philly Fed, as of 9/30/19

U.S. 10-YR ROLLING AVERAGE INFLATION SINCE 1923



Source: Bloomberg, as of 9/30/19

FORECAST

	10-Year Forecast
University of Michigan Survey (25% weight)	+2.4%
Survey of Professional Forecasters (25% weight)	+2.2%
US 10-Year TIPS Breakeven Rate (50% weight)	+1.5%
Inflation Forecast	1.9%

Source: Verus, as of 9/30/19

Fixed income

Cash

The U.S. Treasury yield curve further flattened in the latter half of the year, inverting temporarily between the 10- and 2-year yields. By other measures, such as the spread between 10-year and 3-month yields, the curve remains inverted. From the time of inversion, the U.S. economy has historically entered recession within 1-3 years. However, unprecedented monetary policy and central bank involvement in the markets may be having an outsized impact on fixed income pricing, which could be muddying this signal.

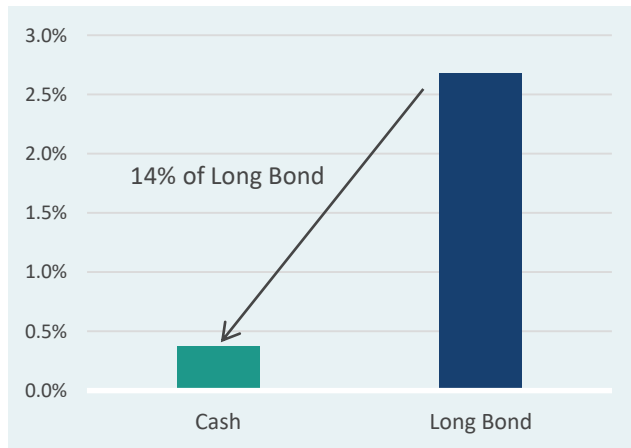
cash has been 14% of the real return to long-term bonds.

By applying this historical real return relationship, we arrive at a -3 bps expected real return to cash (14% of our -25 bps 10-year U.S. Treasury real return forecast) as real yields are now negative.

Adding our inflation forecast of 1.9% results in a nominal return to cash of 1.9%.

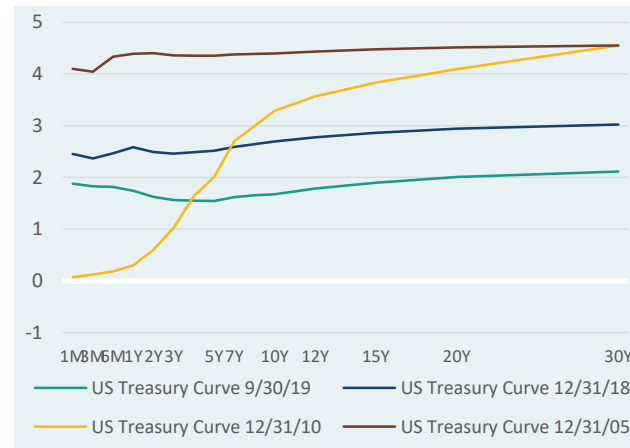
Over rolling ten-year time periods, the average historical real return to

AVERAGE REAL RETURN



Source: Bloomberg

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/19

FORECAST

	10-Year Forecast
Cash	+1.88%
Inflation Forecast	-1.91%
Real Return	-0.03%

Source: Verus, as of 9/30/19

Rates

We forecast the return from rates based upon the current 10-year Treasury yield, with all cash flows reinvested at the current yield. The 10-year yield fell from 2.7% to 1.7% through September.

U.S. Treasury yields remain high relative to other developed nations, specifically Japan and Germany. U.S. yields marched upward in 2017 and 2018, but reversed sharply in 2019 as expectations for U.S. economic growth soured and the Federal Reserve shifted to an easing stance. The U.S. yield curve remains surprisingly flat.

Developed world central banks have shifted their narrative from tightening to easing. Discussions have taken place over fiscal stimulus or perhaps renewed quantitative easing. It is unclear how potent a return to monetary easing would be, now that interest rates have been low (or negative) for some time.

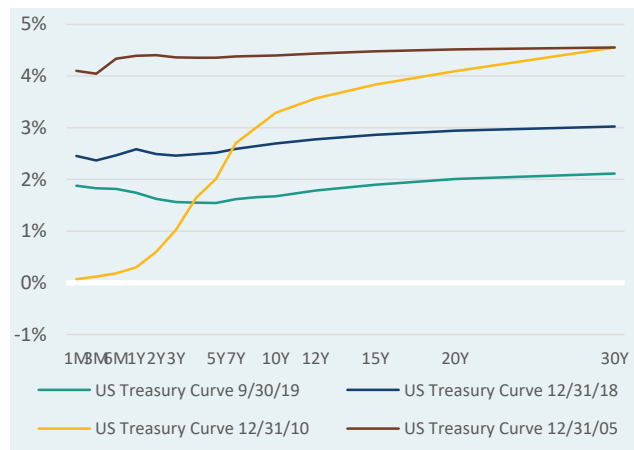
In the U.S., further rate cuts are expected, with rate stabilization possibly occurring in late 2020. It is possible that the next recession may bring negative interest rates to the U.S., in line with secularly low interest rates elsewhere.

U.S. 10-YR TREASURY YIELD



Source: Bloomberg, as of 9/30/19

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/19

FORECAST

	10-Year Forecast
U.S. 10-Year Treasury	+1.7%
Inflation Forecast	-1.9%
Real Return	-0.2%

Source: Verus, as of 9/30/19

Real rates

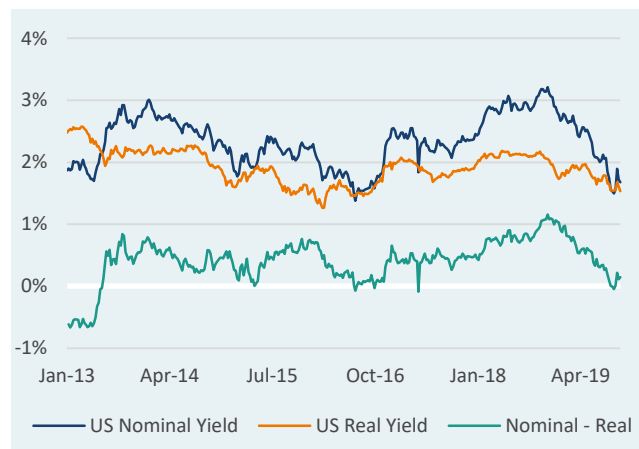
TIPS provide high sensitivity to duration (interest rate risk) over short periods and track inflation (CPI) fairly well over longer periods. Changing inflation expectations, demand for inflation protection, and rate movements contribute to the price volatility of TIPS. Currently, future inflation is expected to be mild, there is low demand for inflation protection, and interest rates are expected to fall. This environment may be muting the price of TIPS.

Breakeven rates rose in the first quarter but trended downward in Q2 and Q3, likely impacted by pessimism around the domestic economy.

To arrive at a nominal 10-year forecast, we add the current real TIPS yield to our 10-year inflation forecast. Our real rates forecast fell markedly from 1.0% to 0.1% as nominal interest rate dropped much further than inflation expectations.

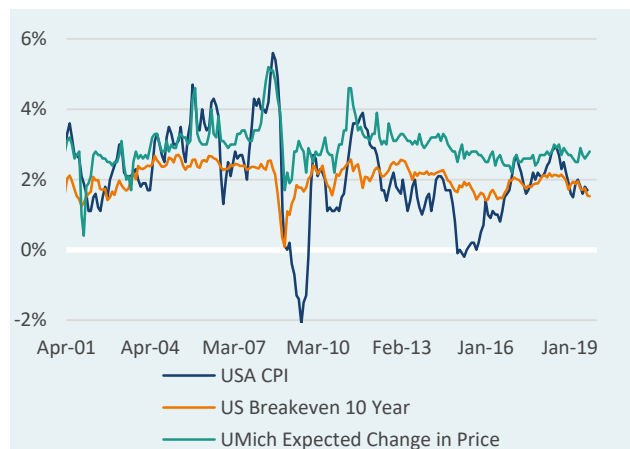
The U.S. 10-year real yield fell steadily through Q3, along with U.S. TIPS Breakeven rates. Inflation rose slightly, depressing real yields.

NOMINAL YIELD VS. REAL



Source: Bloomberg, as of 9/30/19

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/19

FORECAST

	10-Year Forecast
U.S. 10-Year TIPS Real Yield	+0.14%
Inflation Forecast	+1.91%
Nominal Return	2.05%

Source: Verus, as of 9/30/19

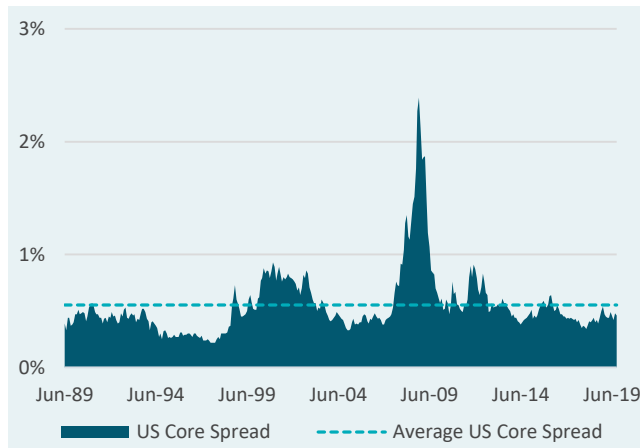
Core fixed

Credit fixed income return is composed of a bond term premium (duration) and credit spread. The bond term premium is represented by the 10-year U.S. Treasury yield.

We use default rates and credit spreads for each respective fixed income category to provide our 10-year return forecast. Our default rate assumption is derived from a variety of sources, including historical data and academic research. The effective default that is subtracted from the return forecast is based on our assumed default and recovery rates.

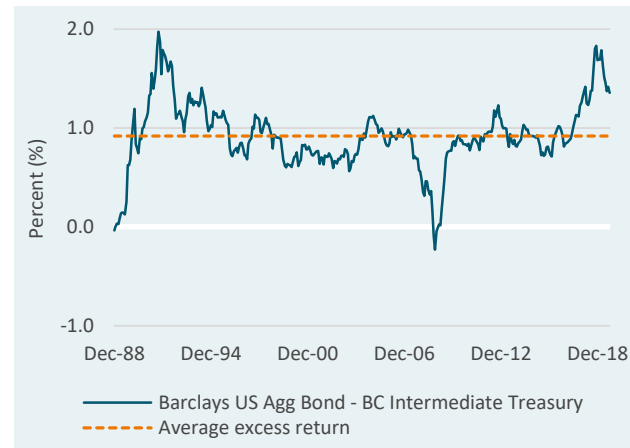
Spreads tightened throughout the year, which resulted in lower return forecasts for credit assets. Core fixed income spreads remain below their 30-year average of 1.25%. Widening credit spreads are typical of late-cycle behavior, as investors demand greater compensation for higher perceived credit risk. Recent activity suggests investors are not yet concerned about late-cycle credit market issues.

U.S. CORE CREDIT SPREAD



Source: Barclays, as of 9/30/19

ROLLING EXCESS RETURN (10-YR)



Source: Barclays, as of 9/30/19

FORECAST

	10-Year Forecast
Barclays U.S. Option-Adjusted Spread	+0.6%
Effective Default	-0.1%
U.S. 10-Year Treasury	+1.7%
Nominal Return	2.2%
Inflation Forecast	-1.9%
Real Return	0.3%

Source: Verus, as of 9/30/19

Credit summary

	Core	Long-Term Credit	Global Credit	High Yield	Bank Loans	EM Debt (USD)	EM Debt (Local)	Private Credit	Real Estate Debt
Index	BBgBarc U.S. Aggregate	BBgBarc Long U.S. Corporate	BBgBarc Global Credit	BBgBarc U.S. High Yield	S&P LSTA	JPM EMBI	JPM GBI-EM	S&P LTSA + 1.75%	BBgBarc CMBS IG
Method	OAS + U.S. 10-Year	OAS + U.S. 10-Year	OAS + Global 10-Year Treasuries	OAS + U.S. 10-Year	LIBOR + Spread	OAS + U.S. 10-Year	Current Yield	Bank Loans+ 1.75% private premium	LIBOR + Spread
Spread to	Intermediate U.S. Treasury	Long-Term U.S. Treasury	Global Long-Term Treasuries	Intermediate U.S. Treasury	LIBOR	Intermediate U.S. Treasury	-	-	LIBOR
Default Assumption	-0.5%	-4.5%	-3.0%	-3.8%	-3.5%	-0.5%	-0.5%	-	-3.7%
Recovery Assumption	80%	95%	40%	40%	90%	60%	40%	-	47%
Spread	0.6%	1.5%	2.0%	4.0%	3.6%	3.5%	-	-	4.0%
Yield	-	-	-	-	-	-	6.0%	-	-
Risk Free Yield	1.7%	1.7%	1.1%	1.7%	2.1%	1.7%	-	-	2.0%
Effective Default	-0.1%	-0.2%	-1.8%	-2.3%	-0.4%	-0.2%	-0.3%	-	-2.0%
Nominal Return	2.2%	3.0%	1.4%	3.4%	5.3%	5.0%	5.7%	7.1%	4.0%
Inflation Forecast	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Real Return	0.3%	1.1%	-0.6%	1.4%	3.4%	3.1%	3.8%	5.2%	2.1%

Source: Verus

Equities

Equities

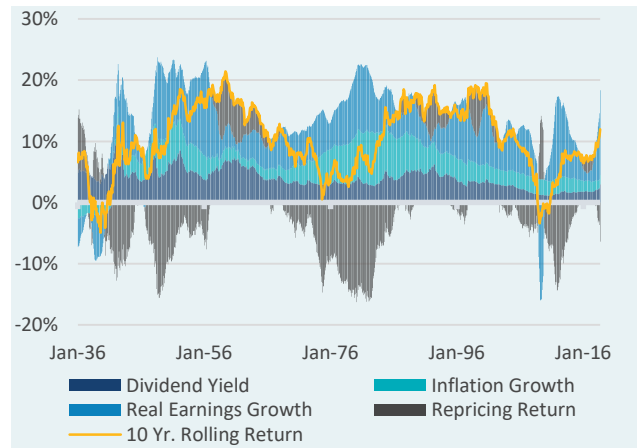
Investment returns in the equity space can be broken down into earnings growth, dividend yield, inflation, and repricing. Over the very long-term, repricing represents a small portion of return to equity investors, but over shorter time frames, the impacts on return can vary considerably.

If investors are willing to pay more for earnings, it could signal that investors are more confident in positive earnings growth going forward, while the opposite is true if investors pay less for earnings. It is somewhat surprising that investor confidence varies so much given that the long-term earnings growth is relatively stable.

Investor confidence in earnings growth can be measured using both the Shiller P/E ratio and the trailing 12-month P/E ratio. We take an average of these two valuations metrics when determining our repricing assumption. In short, if the P/E ratio is too high (low) relative to history, we expect future returns to be lower (higher) than the long-term average. Implicit in this analysis is the assumption that P/E's will exhibit mild mean reversion over 10 years.

We make a conservative repricing estimate given how widely repricing can vary over time. We then skew the repricing adjustment because the percentage change in index price is larger with each incremental rise in valuations when P/E's are low, compared to when they are high.

TRAILING 10-YR S&P 500 RETURN COMPOSITION



Source: Shiller, Standard & Poor's, as of 9/30/19

U.S. LARGE SHILLER P/E



Source: Shiller, S&P 500, as of 9/30/19

P/E REPRICING ASSUMPTION

Average P/E Percentile Bucket	Lower P/E	Upper P/E	Repricing Assumption
Lower 10%	-	10	2.00%
10% - 20%	10	13	1.50%
20% - 30%	13	15	0.75%
30% - 45%	15	18	0.50%
45% - 55%	18	19	0.0%
55% - 70%	19	21	-0.25%
70% - 80%	21	22	-0.50%
80% - 90%	22	24	-0.75%
Top 10%	24	-	-1.00%

Source: Verus

Global equity

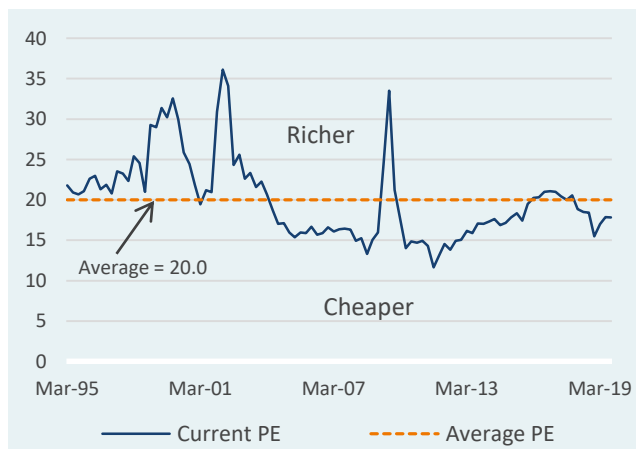
Global Equity is a combination of U.S. large, international developed, and emerging market equities. We can therefore combine our existing return forecasts for each of these asset classes to arrive at our global equity return forecast.

We use the MSCI ACWI Index as our benchmark for global equity and apply the country weights of this index to determine the weightings for our global equity return calculation. As with other equity asset classes, we use the historical standard deviation of the benchmark (MSCI ACWI Index) for our volatility forecast.

The valuation of global equities are driven by the richness/cheapness of the underlying markets, as indicated by the current price-to-earnings ratio.

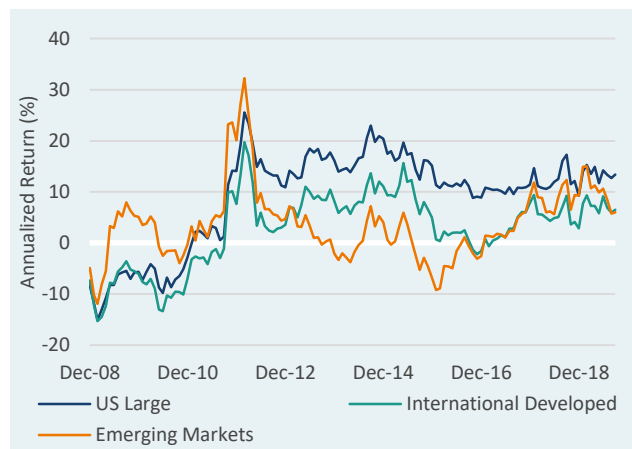
Our return building blocks produce a local return forecast for international equities. For investors who wish to incorporate market implied currency movements into the return forecast, please see the adjustments and explanation in the Appendix.

GLOBAL EQUITY P/E RATIO HISTORY



Source: MSCI, as of 9/30/19

MARKET PERFORMANCE (3-YR ROLLING)



Source: MSCI, Standard & Poor's, as of 9/30/19

FORECAST

Market	Weight	CMA return
U.S. Large	54.2%	5.5%
Developed Large	32.4%	7.0%
Emerging Markets	10.3%	7.6%
Canada	3.1%	8.9%
Global Equity Forecast		6.4%

Source: Verus, as of 9/30/19

Equity summary

	U.S. Large	U.S. Small	EAFE	EAFE Small	EM
Index	S&P 500	Russell 2000	MSCI EAFE Large	MSCI EAFE Small	MSCI EM
Method	Building Block Approach: current dividend yield + historical average real earnings growth + inflation on earnings + repricing				
Current Shiller P/E Ratio	29.0	45.1	17.5	-	10.5
Regular P/E Ratio	19.5	41.0	16.7	18.7*	13.3
2019 Shiller P/E Change	+1.8%	+5.6%	+9.4%	-	+4.0%
2019 Regular P/E Change	+14.0%	-8.3%	+24.6%	-21.4%	+14.9%
Current Shiller P/E Percentile Rank	81%	93%	34%	-	18%
Current Regular P/E Percentile Rank	74%	90%	46%	18%*	34%
Average of P/E Methods' Percentile Rank	77%	92%	40%	18%*	26%
2019 YTD Return	20.5%	14.2%	12.8%	12.1%	5.9%
Shiller PE History	1982	1988	1982	Not Enough History	2005
Long-Term Average Shiller P/E	22.9	31.1	22.6	-	15.1
Current Dividend Yield	2.0%	1.8%	3.5%	2.7%	3.0%
Long-Term Average Real Earnings Growth	2.1%	3.1%	1.9%	1.9%	1.9%
Inflation on Earnings	1.9%	1.9%	1.1%	1.1%	1.9%
Repricing Effect (Estimate)	-0.5%	-1.0%	0.5%	1.5%	0.8%
Nominal Return	5.5%	5.7%	7.0%	7.2%	7.6%
Inflation Forecast	1.9%	1.9%	1.9%	1.1%	1.9%
Real Return	3.6%	3.8%	5.1%	6.1%	5.7%

Data as of 9/30/19

*Average trailing P/E from previous 12 months is used

NOTE: For all equities, we exclude data prior to 1972, which allows for a more appropriate comparison between data sets

Alternatives

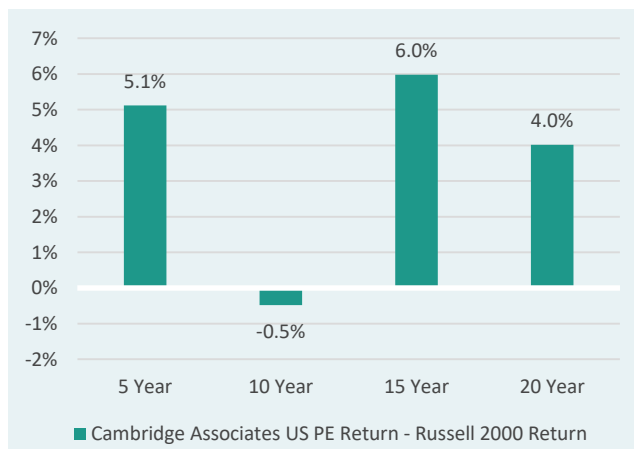
Private equity

Private equity and public equity returns have been correlated historically because the underlying economic forces driving these asset class returns are quite similar. The return relationship between the two can vary in the short-term, but over the long-term investors have received a premium, driven by leverage, concentrated factor exposure (smaller and undervalued companies), skill, and possibly illiquidity.

Historically, the beta of private equity relative to public equities has been high. We use a beta assumption of 1.85 to U.S. large cap equities in our capital market forecast.

Private equity performance typically differs based on the implementation approach. We provide a 10-year forecast for the entire private equity universe of 8.5%. Direct private equity programs have historically outperformed the broader universe by approximately 1.0%, and we forecast direct private equity accordingly with a forecast of 9.5%. Private equity fund-of-fund programs have historically lagged the universe by 1.0%, and we forecast private equity FoF at 7.5% to reflect this drag.

PRIVATE EQUITY EXCESS RETURN (PE – U.S. SMALL CAP EQUITY)



Source: Cambridge, Russell, as of 3/31/19

PRIVATE EQUITY IMPLEMENTATION FORECASTS

	10-Year Forecast
Private Equity Universe Forecast	+8.5%
Private Equity FoF Forecast	+7.5%
Private Equity Direct Forecast	+9.5%

Source: Verus, as of 9/30/19

PRIVATE EQUITY UNIVERSE FORECAST

	10-Year Forecast
U.S. Large Cap Forecast	+5.5%
1.85 Beta Multiplier	+3.0%
Nominal Return	+8.5%
Inflation Forecast	-1.9%
Real Return	+6.6%

Source: Verus, as of 9/30/19

Hedge funds

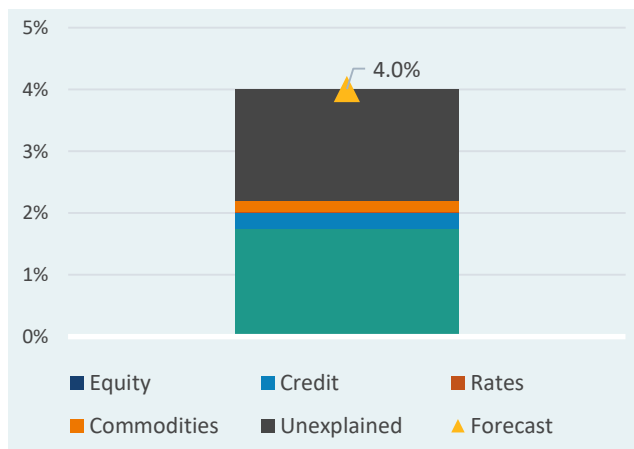
Hedge fund performance variation through time can be partly explained by public market betas (ex: equity, rates, credit, commodities) and partly explained by non-public sources of return (ex: alternative betas, skill, luck). Certain hedge fund strategies can be mostly explained by public market betas, while other types of hedge fund strategies are driven mostly by non-public sources of return.

To forecast hedge fund returns, we identified the portion of historical hedge fund performance that can be attributed to public market betas, and the portion of hedge fund returns that cannot be attributed to public market beta. This means our forecast has two components:

the public market return (explained return) and the non-public market return (unexplained return).

To forecast the public market beta portion of hedge funds, we take the historical sensitivity of hedge funds to equity, rates, credit, and commodities and pair these with our current 10-year public market forecasts for each asset class. To forecast the non-public market return portion of hedge funds (unexplained return) we simply assume the historical performance contribution of these sources will continue over the next 10 years.

HEDGE FUND FORECAST



Source: Verus, as of 9/30/19

HEDGE FUND PUBLIC MARKET SOURCES OF RETURN (EXPLAINED RETURN)

Equity
Rates
Credit
Commodities

HEDGE FUND NON-PUBLIC SOURCES OF RETURN (UNEXPLAINED RETURN)

Alternative betas
Skill
Luck

Source: Verus

FORECAST

	10-Year Forecast
Public Market % of Return	+2.2%
Non-Public Market % of Return	+1.8%
Nominal Return	+4.0%
Inflation Forecast	-1.9%
Real Return	+2.1%

Source: Verus, as of 9/30/19

Private core real estate/REITS

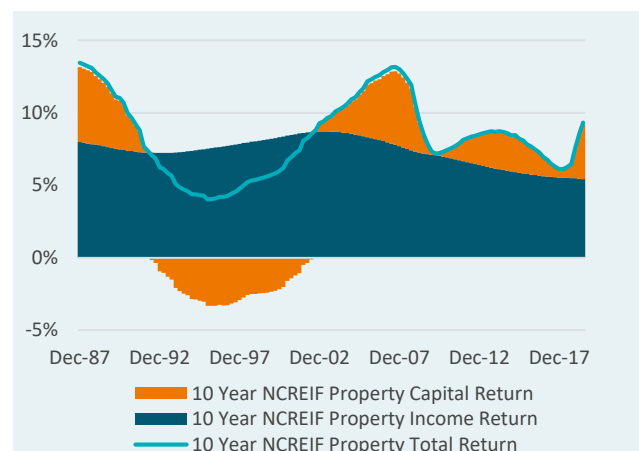
Performance of the NCREIF property index can be decomposed into an income return (cap rate) and capital return. The return coming from income has historically been more stable than the return derived from capital changes.

The cap rate is the ratio of earnings less expenses to price, and does not include extraordinary expenses. A more accurate measure of the yield investors receive should include non-recurring capital expenditures; we assume a 2.0% capex expenditure. We also assume income growth will track inflation as higher prices are passed through to rents.

Private real estate and REITs have provided very similar returns over the long-term. Investors should be careful when comparing risk-adjusted returns of publicly traded assets to returns of appraisal priced assets, due to smoothing effects. While private real estate appears to be less volatile than REITs, the true risks to investors are very similar.

We assume the effects of leverage and liquidity offset each other. Therefore, our return forecast is the same for private real estate and REITs.

TRAILING 10-YR NCREIF RETURN COMPOSITION



Source: NCREIF, as of 6/30/19

PRIVATE REAL ESTATE

	Private Real Estate 10-Year Forecast
Current Cap Rate	+4.4%
Real Income Growth	+2.3%
Capex Assumption	-2.0%
Inflation	+1.9%
Nominal Return	6.6%
Inflation Forecast	-1.9%
Real Return	4.7%

Source: Verus, as of 9/30/19

REITS

	10-Year Forecast
Nominal Return Forecast	6.6%
Inflation Forecast	-1.9%
Real Return	4.7%

Source: Verus, as of 9/30/19

Value-add & opportunistic real estate

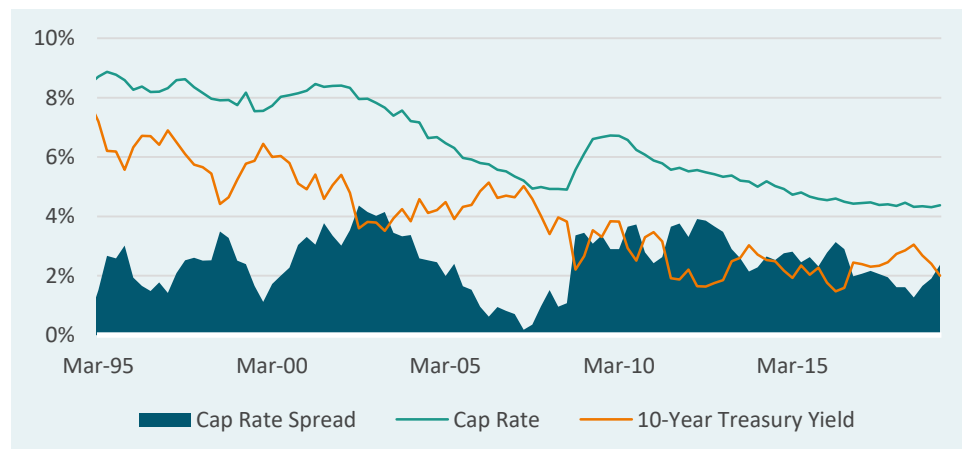
Value-add real estate includes properties which are in need of renovation, repositioning, and/or lease-up. Properties may also be classified as value-add due to their lower quality and/or location. Opportunistic real estate can also include development and distressed or very complex transactions. Greater amounts of leverage are usually employed within these strategies. Leverage increases beta (risk) by expanding the purchasing power of property managers via a greater debt load, which magnifies gains or losses. Increased debt also results in greater interest rate sensitivity. An increase/decrease in interest rates may result in a write-up/write-down of fixed rate debt, since debt holdings are typically marked-to-market.

Performance of value-add real estate is composed of the underlying private

real estate market returns, plus a premium for additional associated risk, which is modeled here as 200 bps above our core real estate return forecast. Performance of opportunistic real estate strategies rest further out on the risk spectrum, is modeled as 400 bps above the core real estate return forecast.

Additional expected returns above core real estate are justified by the higher inherent risk of properties which need improvement (operational or physical), price discounts built into properties located in non-core markets, illiquidity, and the ability of real estate managers to potentially source attractive deals in this less-than-efficient marketplace.

CAP RATE SPREADS



Source: NCREIF, Bloomberg, as of 6/30/19

FORECAST

	Value-Add 10-Year Forecast	Opportunistic 10-Year Forecast
Premium above core	+2.0%	+4.0%
Current Cap Rate	+4.4%	+4.4%
Real Income Growth	+2.3%	+2.3%
Capex Assumption	-2.0%	-2.0%
Inflation	+1.9%	+1.9%
Nominal Return	8.6%	10.6%
Inflation Forecast	-1.9%	-1.9%
Real Return	6.7%	8.7%

Source: Verus, as of 9/30/19

Infrastructure

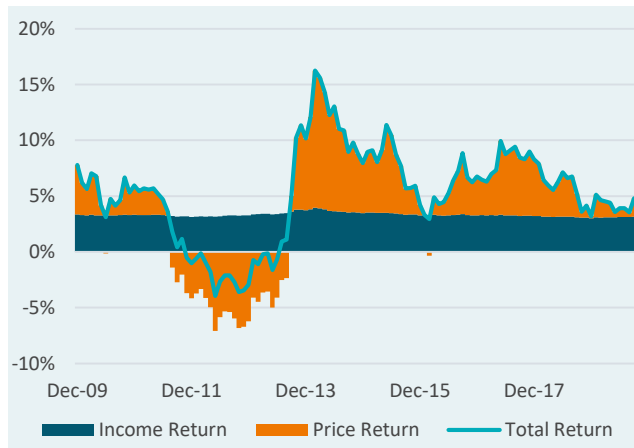
Infrastructure includes a variety of investment types across a subset of industries. There is not one definition for what can be included within infrastructure. The asset class has grown dramatically in the last decade as investors sought assets that might provide more attractive yield relative to fixed income along with the potential for inflation protection.

Similar to real estate investment, income plays a significant role in the returns investors receive. Income yields are currently lower than average due to higher prices and competition in the space, which

might reasonably be expected to translate into lower expected future returns.

Due to the discount rate effect, infrastructure asset valuations would generally be negatively affected by material increases in interest rates. Because leverage is used in this space, higher interest rates would also impact investors in the form of higher borrowing costs.

5-YR ROLLING RETURN COMPOSITION



Source: S&P Global Infrastructure Index, as of 9/30/19

ADVANCED ECONOMY REAL GDP GROWTH



Source: IMF, as of 9/30/19

FORECAST

	10-Year Forecast
Inflation	1.7%
Yield	4.1%
Income Growth	1.5%
Nominal Return	7.2%
Global Inflation Forecast	-1.7%
Real Return	5.5%

Source: Verus, as of 9/30/19, may not sum due to rounding

Commodities

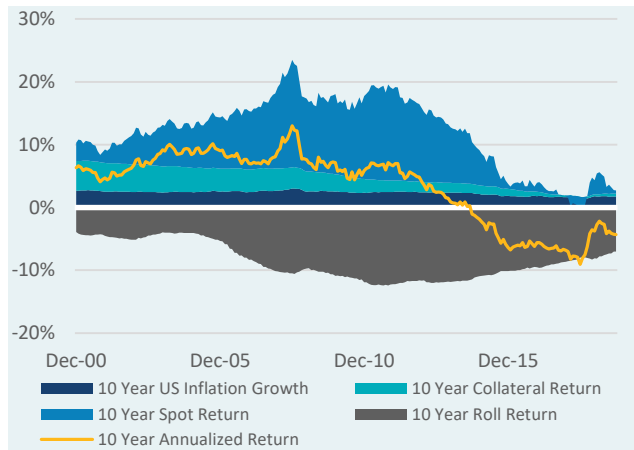
Commodity returns can be decomposed into three sources: collateral return (cash), spot changes (inflation), and roll yield.

Roll return is generated by either backwardation or contango present in futures markets. Backwardation occurs when the futures price is below the spot price, which results in positive yield. Contango occurs when the futures price is above the spot price, and this results in a loss to commodity investors. Historically, futures markets have fluctuated between backwardation and contango but with a net-zero effect over the very long-term (since 1877). Therefore, roll return is assumed to

be zero in our forecast. Over the most recent 10-year period, roll return has been negative, though this is likely the result of multiple commodity crises and a difficult market environment.

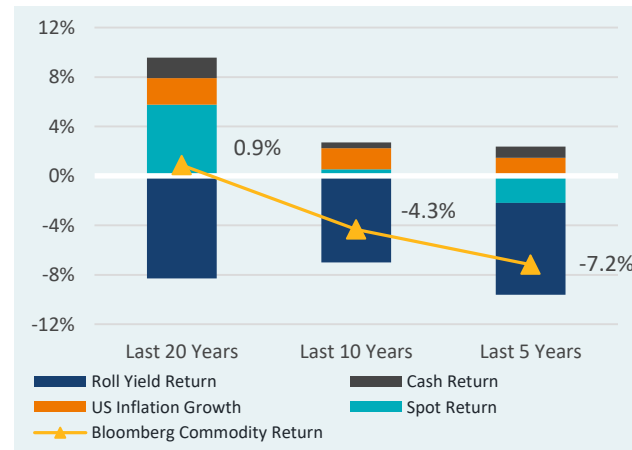
Our 10-year commodity forecast combines collateral (cash) return with spot return (inflation) to arrive at the nominal return, and subtracts out inflation to arrive at the real return.

TRAILING 10YR BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Bloomberg, as of 9/30/19

BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Bloomberg, as of 9/30/19

FORECAST

	10-Year Forecast
Collateral Return (Cash)	+1.9%
Roll Return	+0.0%
Spot Return (Inflation)	+1.9%
Nominal Return	3.8%
Inflation Forecast	-1.9%
Real Return	1.9%

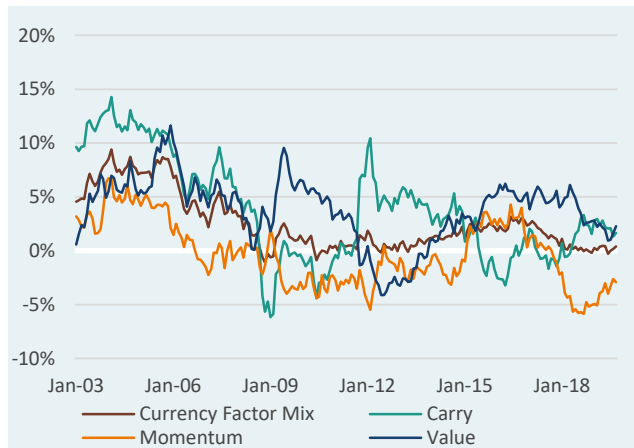
Source: Verus, as of 9/30/19

Currency beta

Currency beta is a long-short portfolio of G10 currencies constructed by investing in three equally weighted factors: carry, momentum, and value. A significant amount of academic research has concluded that these factors demand a risk premium in the currency market. Studies have also shown that currency beta explains a high portion of active currency managers' returns, indicating it may be a good neutral starting point or benchmark for currency investing. Currency beta portfolios gain exposure to the carry, momentum, and value factors in a systematic and transparent manner. For more detailed information on currency beta, please contact your consultant.

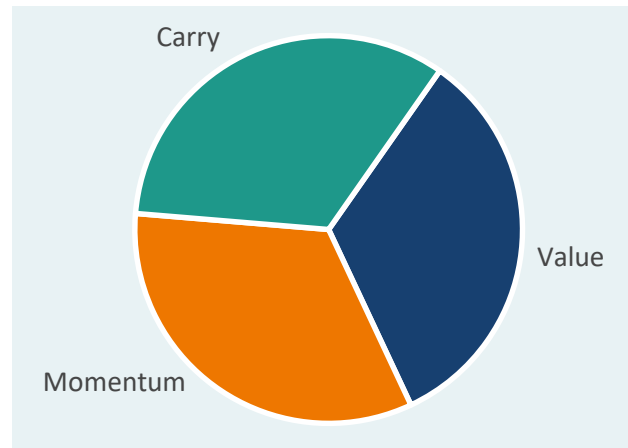
We model each factor in the currency beta portfolio separately, and then take a weighted average to get an overall return forecast. For the carry portfolio, the main driver of returns is the yield an investor receives from holding currencies with relatively higher interest rates. We therefore use a 12-month average of the portfolio's yield as the expected return. For value, our return forecast assumes a certain level of mean reversion to PPP fair value based on historical data. Lastly, for momentum, we simply assume the average historical return due to lack of long-term fundamental return drivers. Short-term volatility levels typically drive returns in the momentum portfolio, which is difficult to model in a 10-year return forecast.

3-YEAR ROLLING PERFORMANCE



Source: MSCI, as of 9/30/19

CURRENCY BETA CONSTRUCTION



Source: Verus

RETURN FORECAST

Factor	Weight	Return Forecast	Weighted return
Carry	33.3%	2.7%	0.9%
Momentum	33.3%	-0.2%	-0.1%
Value	33.3%	2.8%	0.9%
Currency Beta			1.8%

Source: Verus, as of 9/30/19

Risk parity

Risk parity is built upon the philosophy of allocating to risk premia rather than to asset classes. Because risk parity by definition aims to diversify risk, the actual asset allocation can appear very different from traditional asset class allocation.

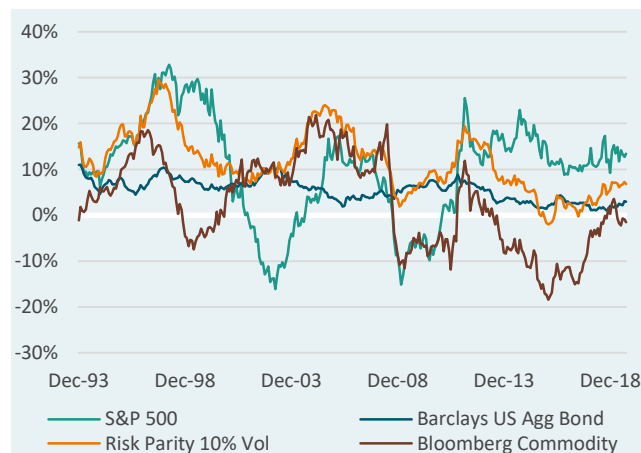
We model risk parity using an assumed Sharpe Ratio of 0.5, which considers the historical performance of risk parity. This assumed Sharpe Ratio is higher than other asset class forecasts, but is consistent with these forecasts because *portfolios* of assets tend to deliver materially higher Sharpe Ratios than individual assets.

The expected return of Risk Parity is determined by this Sharpe Ratio forecast, along with a 10% volatility assumption.

We used a 10-year historical return stream from a market-leading product to represent risk parity correlations relative to the behaviors of each asset class. Risk parity funds are suggested to be better able to withstand various difficult economic environments - reducing volatility without sacrificing return, over longer periods.

It is difficult to arrive at a single model for risk parity, since strategies can differ significantly across firms/strategies. Risk parity almost always requires explicit leverage. The amount of leverage will depend on the specific strategy implementation style, as well as expected correlations and volatility.

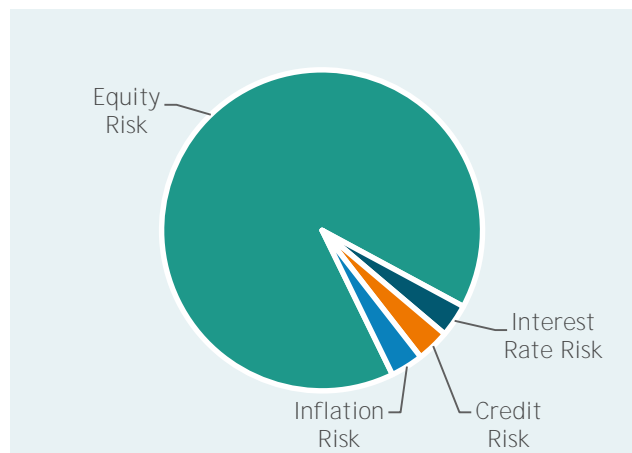
VS. TRADITIONAL ASSET CLASSES



Source: Morningstar, AQR, as of 9/30/19

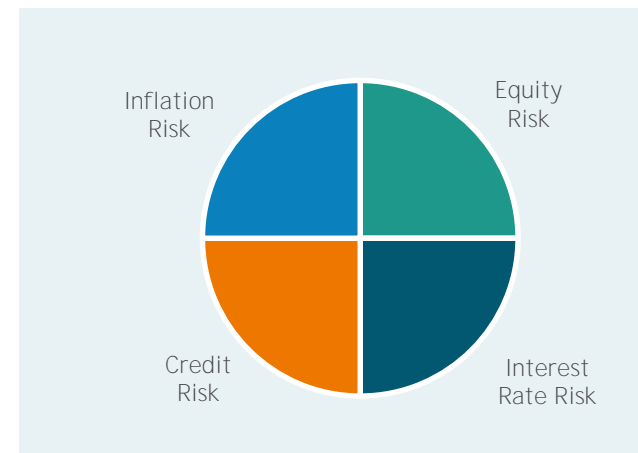
Note: Risk parity is modeled here using the AQR GRP-EL 10% Volatility fund. Performance is back tested prior to February 2015

TRADITIONAL ASSET ALLOCATION



Source: Verus

RISK PARITY



Source: Verus

Appendix

30-year return & risk assumptions

- Occasionally investors may have a specific need for longer-term capital market forecasts. We have developed a set of 30-year assumptions to meet those needs.
- The return forecasts below have been constructed using our existing building block approach, but with longer-term inputs. Risks and correlations are estimated using the same approach as our 10-year forecasts, using full-history autocorrelation-adjusted realized risk and past 10 year realized correlations.
- These return figures must be thought of separately from our 10-year forecasts, and are not meant to imply performance for the 20 years *beyond* our 10 year forecasts.
- Please reach out to your Verus consultant with questions regarding whether 30-year Capital Market Assumptions might be appropriate for your needs.

Asset Class	Index Proxy	Thirty Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)
		Geometric	Arithmetic			
Equities						
U.S. Large	S&P 500	5.5%	6.6%	15.4%	0.25	0.32
U.S. Small	Russell 2000	6.1%	8.1%	21.1%	0.21	0.30
International Developed	MSCI EAFE	6.7%	8.0%	17.5%	0.29	0.36
International Small	MSCI EAFE Small Cap	6.2%	8.3%	21.8%	0.21	0.31
Emerging Markets	MSCI EM	6.8%	9.6%	25.6%	0.20	0.31
Global Equity	MSCI ACWI	6.0%	7.3%	16.8%	0.26	0.34
Private Equity*	Cambridge Private Equity	8.7%	11.5%	25.3%	0.28	0.39
Fixed Income						
Cash	30 Day T-Bills	1.7%	1.7%	1.2%	-	-
U.S. TIPS	BBgBarc U.S. TIPS 5 - 10	2.1%	2.3%	5.4%	0.08	0.11
U.S. Treasury	BBgBarc Treasury 7-10 Year	2.1%	2.3%	6.7%	0.07	0.10
U.S. 30-year Treasuries	BBgBarc U.S. Treasury 20+ Year	2.1%	2.9%	12.5%	0.04	0.10
Global Sovereign ex U.S.	BBgBarc Global Treasury ex U.S.	0.7%	1.1%	9.7%	-0.10	-0.06
Global Aggregate	BBgBarc Global Aggregate	1.1%	1.3%	6.2%	-0.09	-0.06
Core Fixed Income	BBgBarc U.S. Aggregate Bond	3.0%	3.2%	6.3%	0.21	0.24
Core Plus Fixed Income	BBgBarc U.S. Corporate IG	3.6%	4.0%	8.3%	0.24	0.28
Short-Term Gov't/Credit	BBgBarc U.S. Gov't/Credit 1 - 3 year	2.3%	2.3%	3.6%	0.17	0.18
Short-Term Credit	BBgBarc Credit 1-3 Year	2.9%	2.9%	3.6%	0.33	0.35
Long-Term Credit	BBgBarc Long U.S. Corporate	3.5%	3.9%	9.4%	0.20	0.24
High Yield Corp. Credit	BBgBarc U.S. Corporate High Yield	5.3%	5.9%	11.3%	0.32	0.37
Bank Loans	S&P/LSTA Leveraged Loan	4.7%	5.2%	10.0%	0.30	0.35
Global Credit	BBgBarc Global Credit	0.8%	1.1%	7.4%	-0.12	-0.08
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	6.1%	6.8%	12.4%	0.35	0.41
Emerging Markets Debt (Local)	JPM GBI EM Global Diversified	5.7%	6.4%	12.0%	0.34	0.39
Private Credit	Bank Loans + 175bps	6.4%	6.9%	10.0%	0.48	0.52
Other						
Commodities	Bloomberg Commodity	3.2%	4.4%	15.4%	0.10	0.18
Hedge Funds*	HFRI Fund Weighted Composite	4.5%	4.8%	7.7%	0.37	0.40
Real Estate Debt	BBgBarc IG CMBS	4.1%	4.4%	7.6%	0.32	0.35
Core Real Estate	NCREIF Property	6.8%	7.5%	12.4%	0.41	0.47
Value-Add Real Estate	NCREIF Property + 200bps	8.8%	10.2%	17.7%	0.40	0.48
Opportunistic Real Estate	NCREIF Property + 400bps	10.8%	13.0%	23.0%	0.40	0.49
REITs	Wilshire REIT	6.8%	8.4%	19.1%	0.27	0.35
Global Infrastructure	S&P Global Infrastructure	7.0%	8.4%	17.8%	0.30	0.38
Risk Parity	Risk Parity	7.1%	7.6%	10.0%	0.54	0.59
Currency Beta	MSCI Currency Factor Index	2.2%	2.2%	3.6%	0.14	0.15
Inflation		1.6%	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

*Private Equity and Hedge Fund return expectations differ if implemented through a direct program versus a fund of funds vehicle

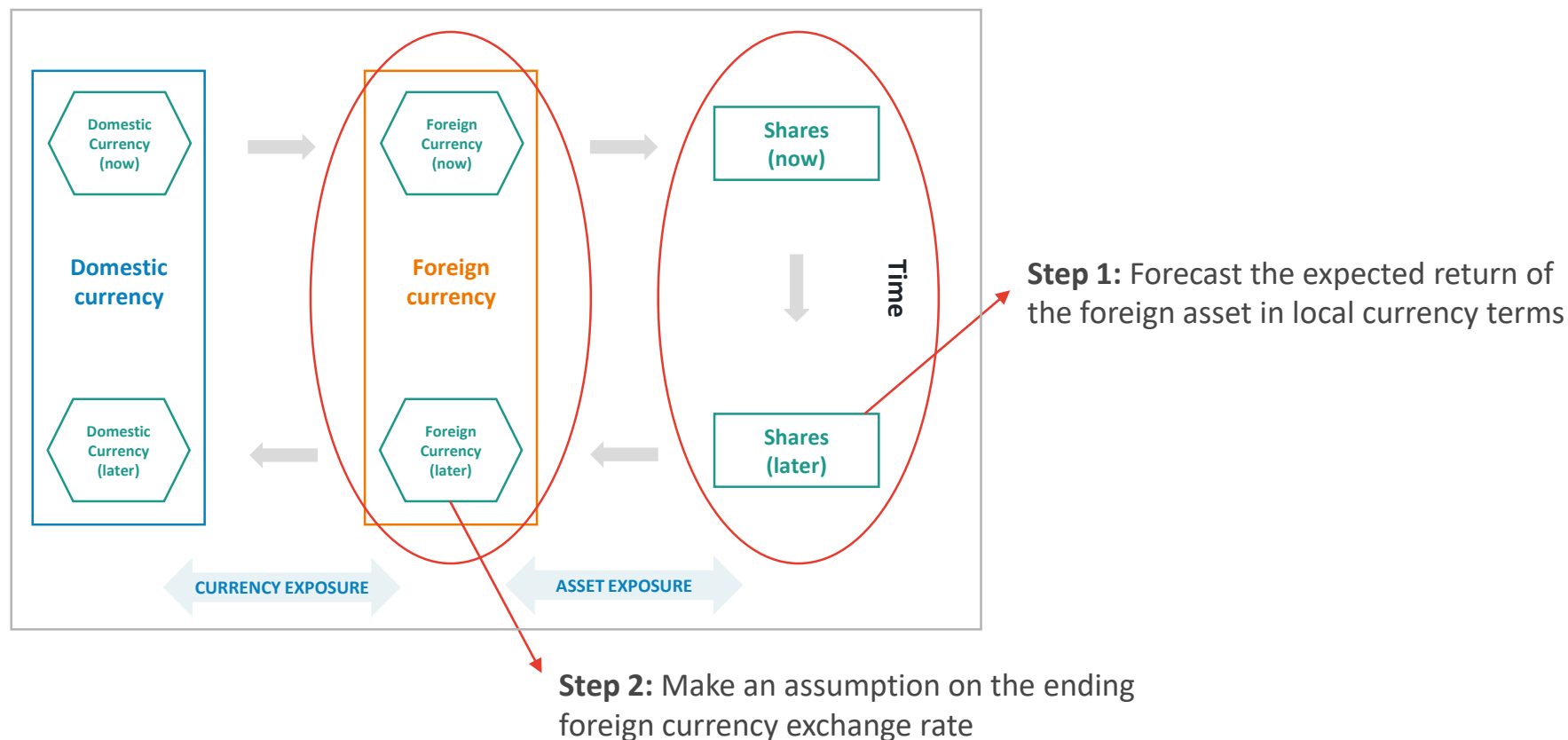
10-year return forecasts with currency adjustment

Asset Class	Index Proxy	Ten Year Return Forecast (Geometric)			Standard Deviation Forecast
		CMA Forecast	Currency Adjustment	Total	
Equities					
International Developed Equity Unhedged	MSCI EAFE	7.0%	1.8%	8.8%	17.5%
International Developed Equity Hedged	MSCI EAFE Hedged	7.0%	1.8%	8.8%	15.7%
International Small Equity Unhedged	MSCI EAFE Small Cap	7.2%	1.8%	9.0%	21.8%
International Small Equity Hedged	MSCI EAFE Small Cap Hedged	7.2%	1.8%	9.0%	19.2%
Fixed Income					
Global Sovereign ex U.S. Unhedged	BBgBarc Global Treasury ex U.S.	0.1%	1.7%	1.8%	9.7%
Global Sovereign ex U.S. Hedged	BBgBarc Global Treasury ex U.S. Hedged	0.1%	1.7%	1.8%	3.8%
Global Credit Unhedged	BBgBarc Global Credit	1.4%	0.5%	1.9%	7.4%
Global Credit Hedged	BBgBarc Global Credit Hedged	1.4%	0.5%	1.9%	5.0%

The currency adjustment is the market implied price change for major currency pairs based on forward contract pricing. Since the market implied spot price change and the cost/gain from hedging are both derived from pricing in the forward market, they are one and the same. Therefore, the currency adjustment is the same for both unhedged and hedged forecasts. See the following slides for the more detail on the currency adjustment methodology.

Explanation of the currency adjustment

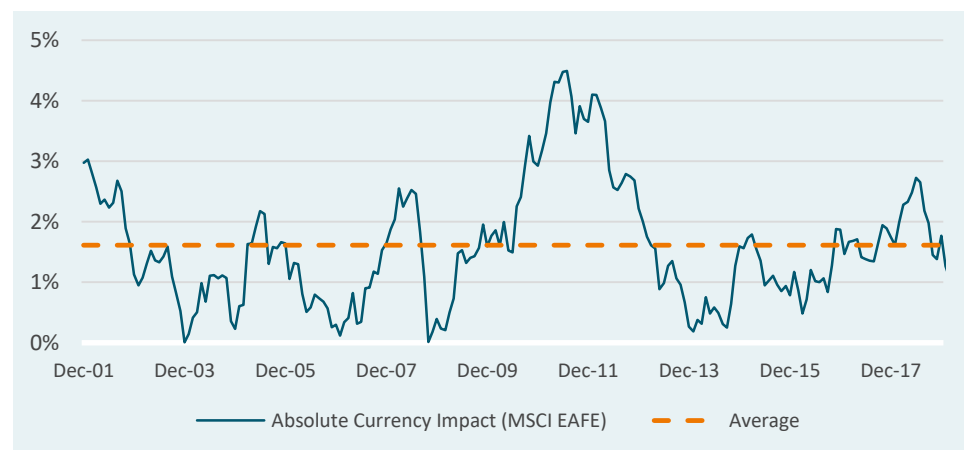
Our fundamental building block approach produces a return forecast in local currency. In order to create useable forecasts for non-U.S. dollar-denominated assets, we must make an assumption about future foreign exchange rates.



Explanation of the currency adjustment

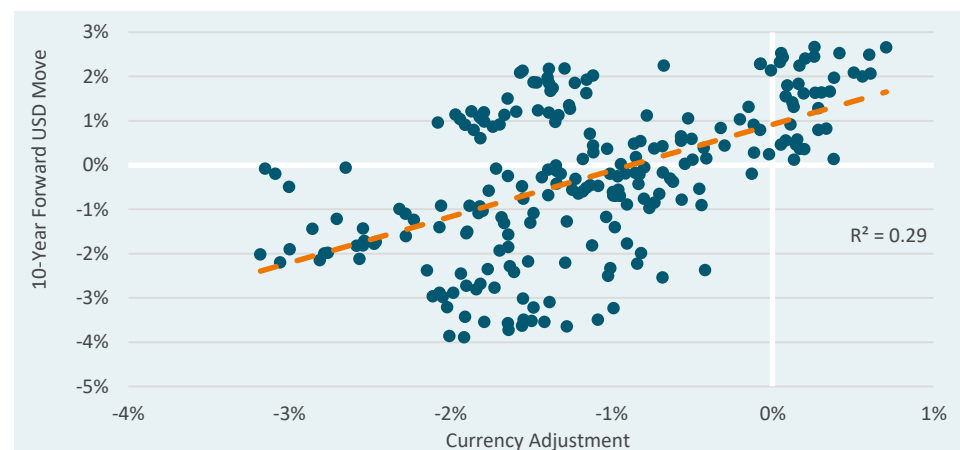
- There are two options to adjust a local currency return forecast to a U.S. dollar forecast: make a specific exchange rate forecast or take market pricing based on the forward curve
 - It is important to note that ignoring currency is making a specific assumption that the current exchange rate will be unchanged over the next 10 years, which has rarely been the case throughout history
- Markets price future exchange rates in the forward market, which represents the SPOT currency price for FORWARD delivery
- Forward currency contracts are priced based on the interest rate differential between two currencies – interest rate differentials reflect a significant amount of information, including growth, inflation, and monetary policy expectations
- A currency with a higher interest rate is priced to depreciate relative to a currency with a lower interest rate
- We adjust our local currency return forecasts based on forward market pricing because we believe this is the neutral, “no opinion” position, rather than making a specific forecast
- Historically, this currency adjustment has had a positive relationship with 10-year forward exchange rate movements

10-YEAR ROLLING ABSOLUTE CURRENCY IMPACT



Source: Verus, MSCI, as of 9/30/19

CURRENCY ADJUSTMENT VS. FORWARD USD MOVEMENT



Source: Verus, Bloomberg, using data since 1989, based on the MSCI EAFE Index

Autocorrelation adjustment

- We adjust all volatility forecasts that use the long-term historical volatility for autocorrelation.
- Autocorrelation occurs when the future returns of a time series are described (positively correlated) by past returns.
- Time series with positive autocorrelation exhibit artificially low volatility, while time series with negative autocorrelation exhibit artificially high volatility.
- Many asset classes that we tested showed positive autocorrelation, meaning the volatility forecasts that we use in the forecasting process are too low for those asset classes.
- The result of this process was that several asset classes have higher volatility forecasts than if we had made no adjustment for autocorrelation.

Russell 2000 autocorrelation, among many asset classes, is statistically significant

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Board of Trustees

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www.SLOPensionTrust.org



Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 10: Strategic Asset Allocation Policy Review

Recommendation:

Staff and Verus, as the Pension Trust Investment Consultant, recommend the Board discuss in depth the attached materials on Strategic Asset Allocation Policy (SAA).

Staff and Verus plan on recommending a change to a Functionally Focused Portfolio asset allocation methodology. This presentation is an introduction to this methodology. The actual Board decision point on a revised SAA method and policy is planned for the May 18th Board of Trustees meeting. At that time, a revised Investment Policy Statement (IPS) incorporating a new SAA policy will be presented for Board consideration.

Discussion:

Scott Whalen of Verus, will make a presentation on the attached materials on Strategic Asset Allocation policy. This is an annual reassessment of the SAA as an important part of exercising the Pension Trust's fiduciary responsibilities. Verus does not recommend any significant changes to the SAA at present.

The presentation includes conceptual material on Functionally Focused Portfolios as an SAA methodology. The current SAA is somewhat below peer pension fund averages for risk and a Functionally Focused Portfolio approach is likewise expected to be below average in investment risk.

Respectfully submitted,

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**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



FEBRUARY 2020

Strategic Asset Allocation Review

San Luis Obispo County Pension Trust

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Functionally Focused
Portfolio (FFP) **SLIDE 4**

Strategic Asset Allocation
Review **SLIDE 13**

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Executive Summary

Objectives

- Assess SLOCPT's investment strategy in light of Verus' latest 10-year market forecast
- Identify potential improvement opportunities / make appropriate recommendations

Observations

- Return expectations are down across most markets in Verus' latest 10-year outlook
- Value-added real estate (ARA) remains underfunded and awaiting capital calls, but core real estate has an offsetting overweight
- Current policy allocation provides expected return of 6.2%, below the actuarial assumption rate of 7.0%

Recommendations

- Current allocation remains satisfactory given continued challenging risk/return environment
- Consider FFP allocation

Re-introducing the Functionally Focused Portfolio (FFP)*

* Concept and content borrowed liberally from white paper created by Tim Price, CIO, Contra Costa County Employees' Retirement Association

Functionally focused portfolio (FFP)

Description

- Design based on functional elements, rather than categorizing assets by asset class or risk factors (e.g., liquidity and short-term needs, long term growth assets, diversifying strategies)

Pros

- Highly diversified from a risk factor and asset perspective
- Portfolio is conceptually simple and strategically aligned with functional goals
- Higher expected return with lower risk than traditional 60/40
 - Higher Sharpe Ratio
 - Smaller drawdowns

Cons

- Less upside potential
- High peer risk (may not keep up with peers in strong equity markets)

FFP vs. traditional portfolio

Relative to a traditional approach, the Functionally Focused Portfolio puts liquidity at the center of the process and builds in growth and diversification once that core function has been satisfied

The portfolio is segmented to meet three primary functional purposes:

Provide – designed to meet monthly net outflows and a meaningful liquidity cushion

Produce – designed for sufficient growth to satisfy the perpetual nature of the Plan

Protect – designed to reduce the volatility inherent in the growth portfolio and provide liquidity to take advantage of market dislocations

FFP vs. traditional portfolio (cont'd)





FFP generally calls for a barbell approach with much higher cash and equivalents, much more illiquidity, and highly liquid, low correlation assets in between

Functional Purpose	Traditional Portfolio	FFP
Provide (high liquidity) <ul style="list-style-type: none"> • Monthly benefits and expense • 24-48 months “reserve” 	<ul style="list-style-type: none"> • Cash is minimized to reduce cash drag • Fixed income instruments carry risk to increase expected return 	<ul style="list-style-type: none"> • Cash for short-term needs • Enhanced cash for “reserve” assets
Produce (high growth)	<ul style="list-style-type: none"> • Public markets equity dominates • Private markets investments • Credit • Real estate 	<ul style="list-style-type: none"> • Public equity • High yield debt • Diversified illiquid assets
Protect (high diversification)	<ul style="list-style-type: none"> • Fixed income • Hedge funds • Real estate • Commodities 	<ul style="list-style-type: none"> • Global sovereign debt

Return sources

Return sources are similarly barbelled

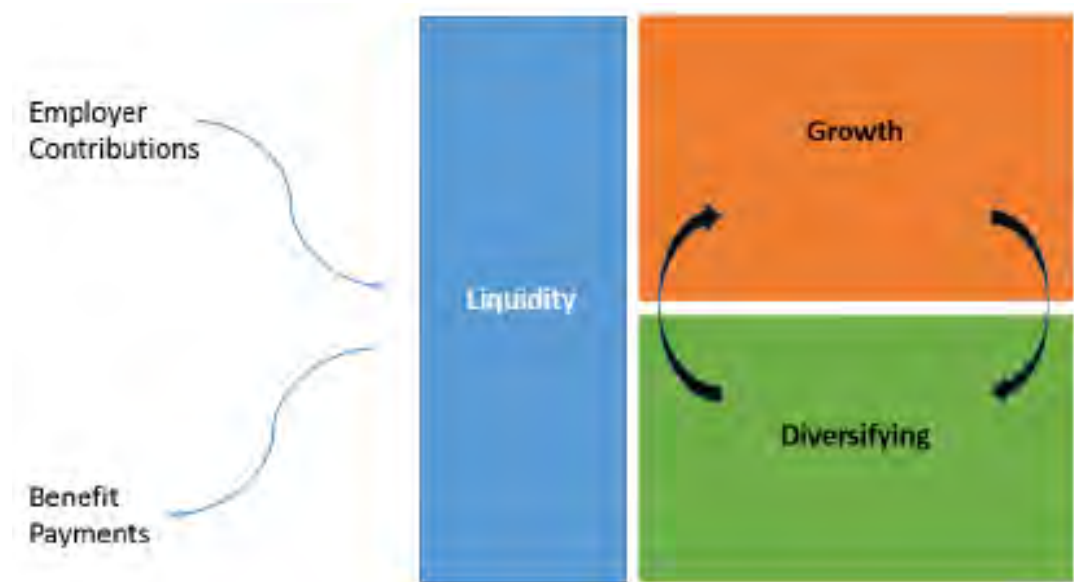
Return Sources

Sub-Portfolios	Income	Beta	Alpha
Liquidity			
Growth			
Diversifying			

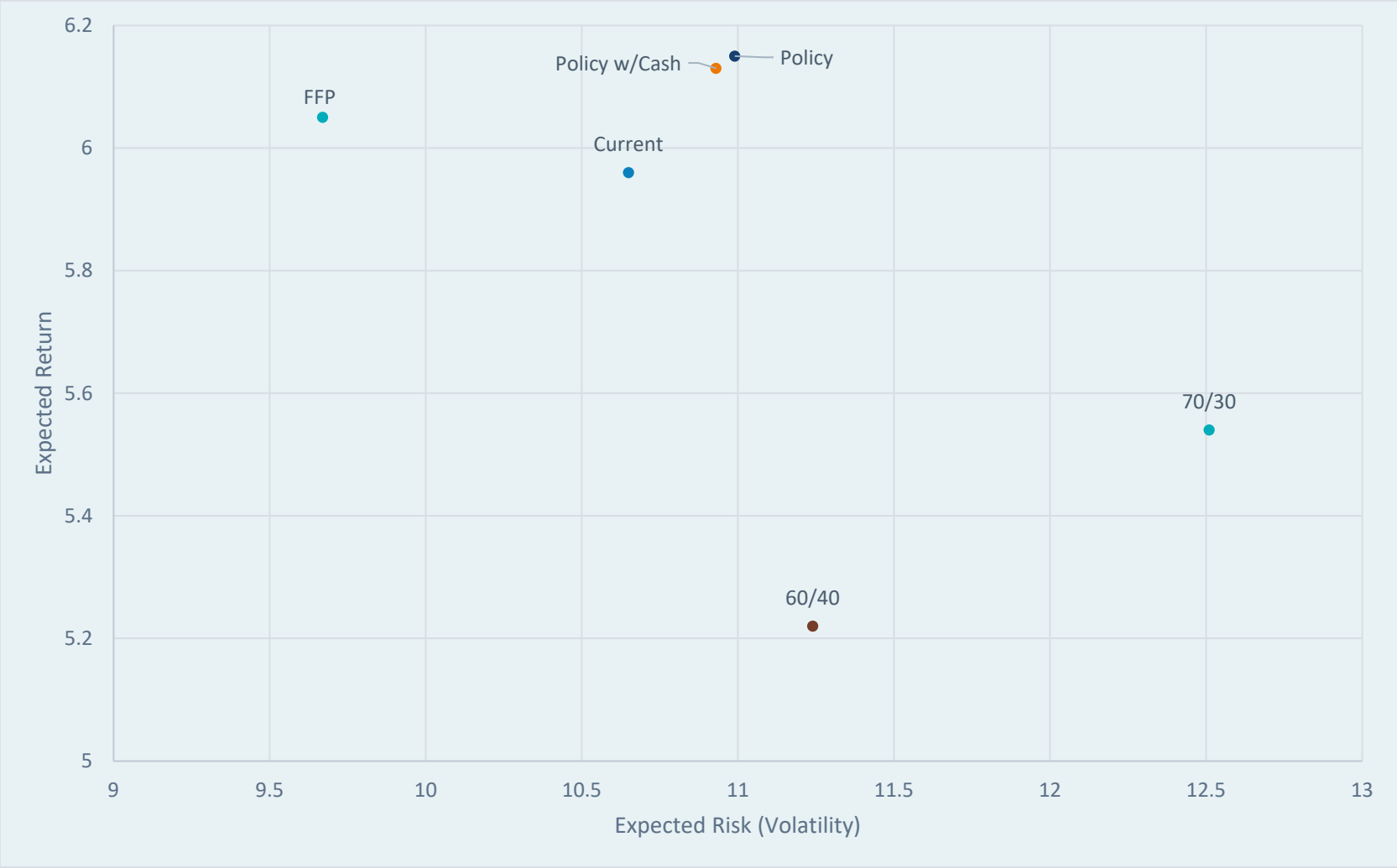
FFP in practice

The FFP is managed dynamically:

- The liquidity pool is continuously replenished from contributions and investment income
- Growth and diversifying portfolios are periodically rebalanced, based on market movements

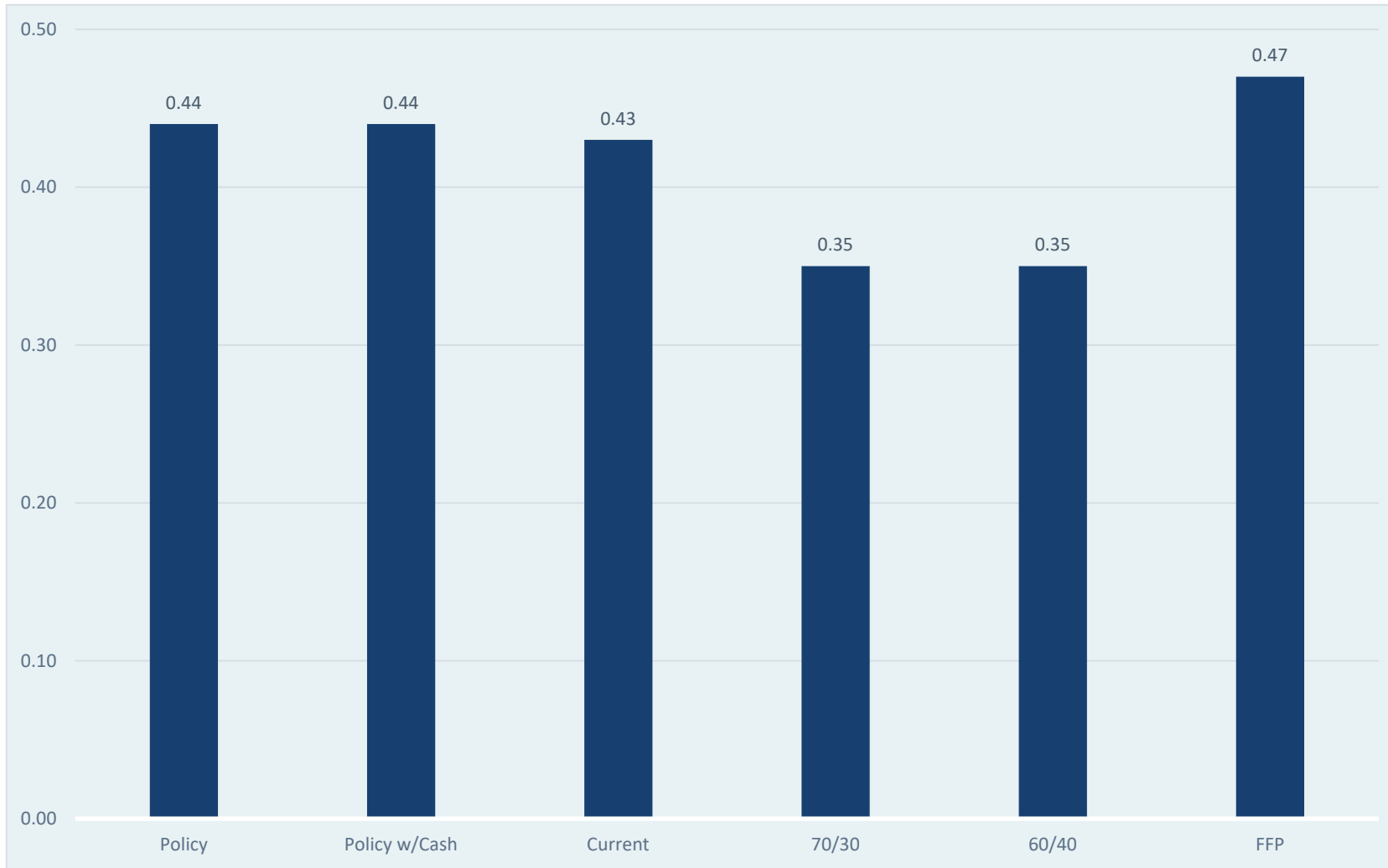


Forecasted risk/return



Based on Verus 2020 10-year Capital Market Assumptions

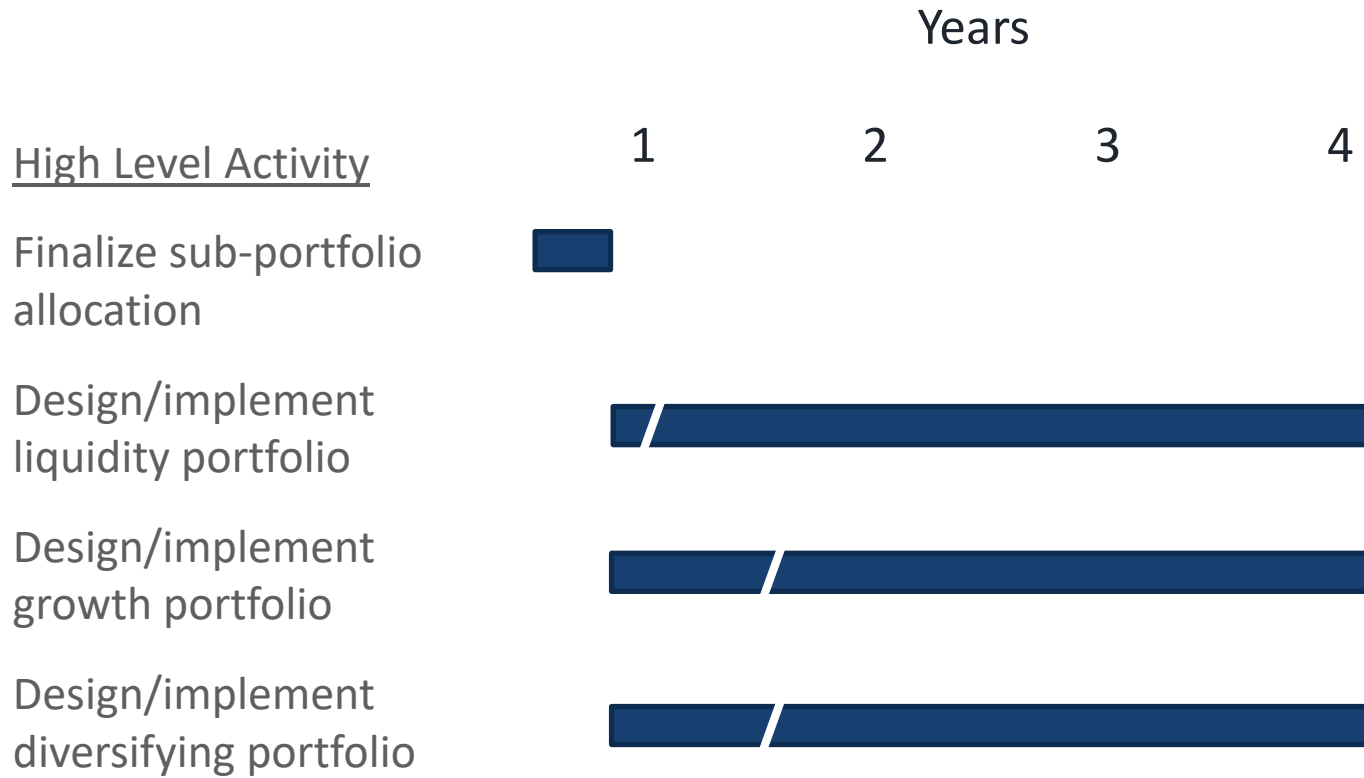
Portfolio efficiency – Sharpe Ratio



Based on Verus 2020 10-year Capital Market Assumptions

Implementation

Transitioning from traditional portfolio to an FFP approach occurs in multiple steps over multiple years



Strategic Asset Allocation Review

10-year return & risk assumptions

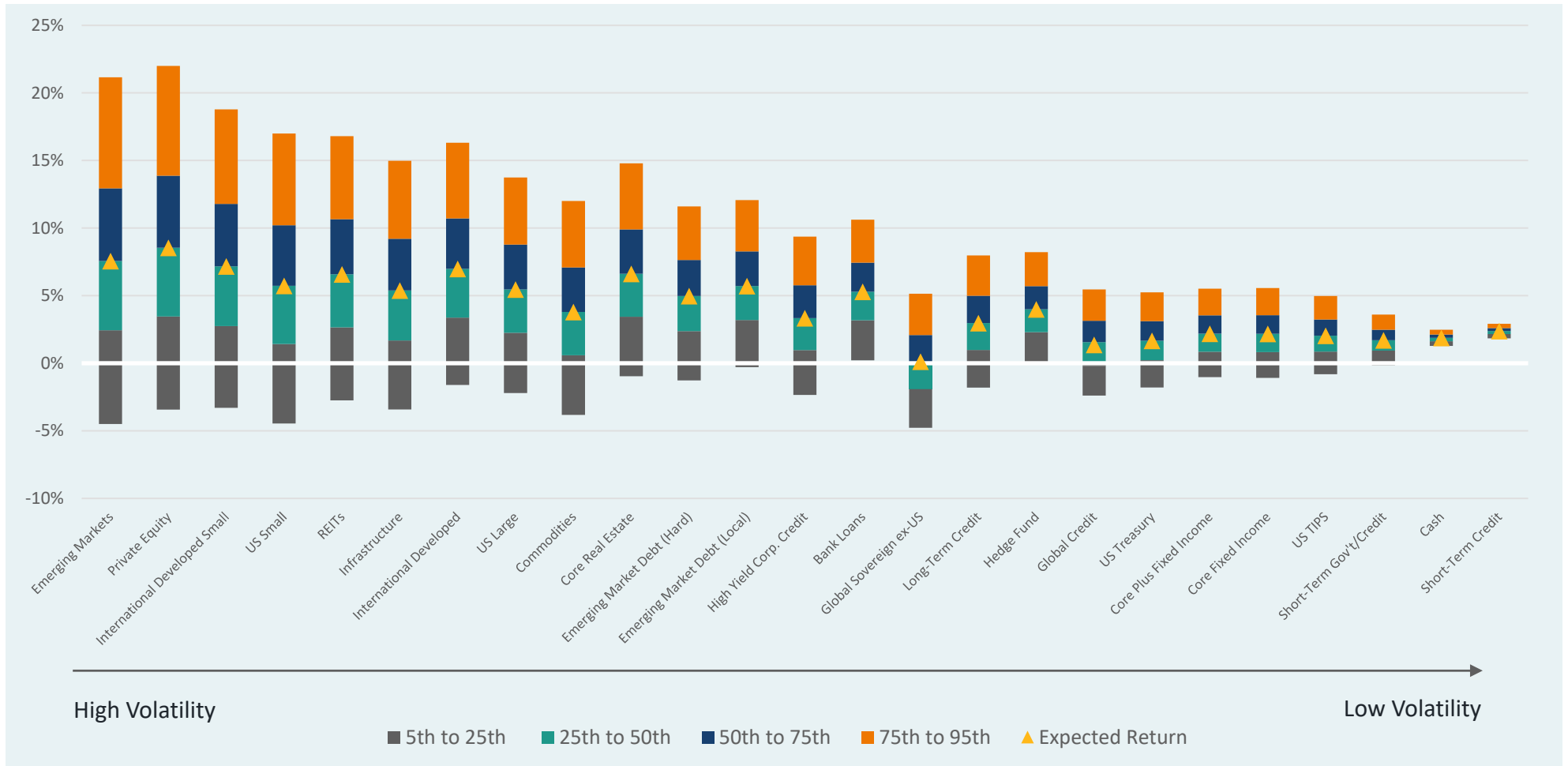
Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Equities								
U.S. Large	S&P 500	5.5%	6.6%	15.4%	0.23	0.31	1.01	1.02
U.S. Small	Russell 2000	5.7%	7.7%	21.1%	0.18	0.28	0.62	0.67
International Developed	MSCI EAFE	7.0%	8.4%	17.5%	0.29	0.37	0.30	0.37
International Small	MSCI EAFE Small Cap	7.2%	9.3%	21.8%	0.24	0.34	0.46	0.52
Emerging Markets	MSCI EM	7.6%	10.4%	25.6%	0.22	0.33	0.17	0.25
Global Equity	MSCI ACWI	6.4%	7.7%	16.8%	0.27	0.34	0.59	0.63
Private Equity*	Cambridge Private Equity	8.5%	11.3%	25.3%	0.26	0.37	-	-
Fixed Income								
Cash	30 Day T-Bills	1.9%	1.9%	1.2%	-	-	-	-
U.S. TIPS	BBgBarc U.S. TIPS 5-10	2.1%	2.2%	5.4%	0.04	0.06	0.65	0.66
U.S. Treasury	BBgBarc Treasury 7-10 Year	1.7%	1.9%	6.7%	-0.03	0.00	0.68	0.69
Global Sovereign ex U.S.	BBgBarc Global Treasury ex U.S.	0.1%	0.6%	9.7%	-0.19	-0.13	0.10	0.14
Global Aggregate	BBgBarc Global Aggregate	1.2%	1.4%	6.2%	-0.11	-0.08	0.39	0.37
Core Fixed Income	BBgBarc U.S. Aggregate Bond	2.2%	2.4%	6.3%	0.05	0.08	1.08	1.09
Core Plus Fixed Income	BBgBarc U.S. Corporate IG	2.7%	3.0%	8.3%	0.10	0.14	1.21	1.22
Short-Term Gov't/Credit	BBgBarc U.S. Gov't/Credit 1-3 Year	1.7%	1.8%	3.6%	-0.06	-0.03	1.16	1.17
Short-Term Credit	BBgBarc Credit 1-3 Year	1.9%	2.0%	3.6%	0.01	0.03	1.76	1.78
Long-Term Credit	BBgBarc Long U.S. Corporate	3.0%	3.4%	9.4%	0.12	0.16	0.93	0.94
High Yield Corp. Credit	BBgBarc U.S. Corporate High Yield	3.3%	4.0%	11.3%	0.12	0.18	1.25	1.26
Bank Loans	S&P/LSTA Leveraged Loan	5.3%	5.8%	10.0%	0.34	0.39	1.47	1.50
Global Credit	BBgBarc Global Credit	1.4%	1.6%	7.4%	-0.07	-0.03	0.77	0.78
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.0%	5.7%	12.4%	0.25	0.31	1.03	1.03
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	5.7%	6.4%	12.0%	0.32	0.37	0.17	0.22
Private Credit	Bank Loans + 175bps	7.0%	7.5%	10.0%	0.51	0.56	-	-
Other								
Commodities	Bloomberg Commodity	3.8%	4.9%	15.4%	0.12	0.20	-0.36	-0.29
Hedge Funds*	HFRI Fund Weighted Composite	4.0%	4.3%	7.7%	0.27	0.31	0.55	0.56
Real Estate Debt	BBgBarc CMBS IG	4.0%	4.3%	7.6%	0.27	0.31	1.55	1.58
Core Real Estate	NCREIF Property	6.6%	7.3%	12.4%	0.38	0.44	1.84	1.89
Value-Add Real Estate	NCREIF Property + 200bps	8.6%	10.0%	17.7%	0.38	0.46	-	-
Opportunistic Real Estate	NCREIF Property + 400bps	10.6%	12.9%	23.0%	0.38	0.48	-	-
REITs	Wilshire REIT	6.6%	8.2%	19.1%	0.25	0.33	0.80	0.83
Global Infrastructure	S&P Global Infrastructure	7.2%	8.6%	17.8%	0.30	0.38	0.52	0.56
Risk Parity	Risk Parity	6.9%	7.4%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	1.8%	1.8%	3.6%	-0.04	-0.02	0.19	0.21
Inflation		1.9%	-	-	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

*Return expectations differ depending on method of implementation

Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus, MPI

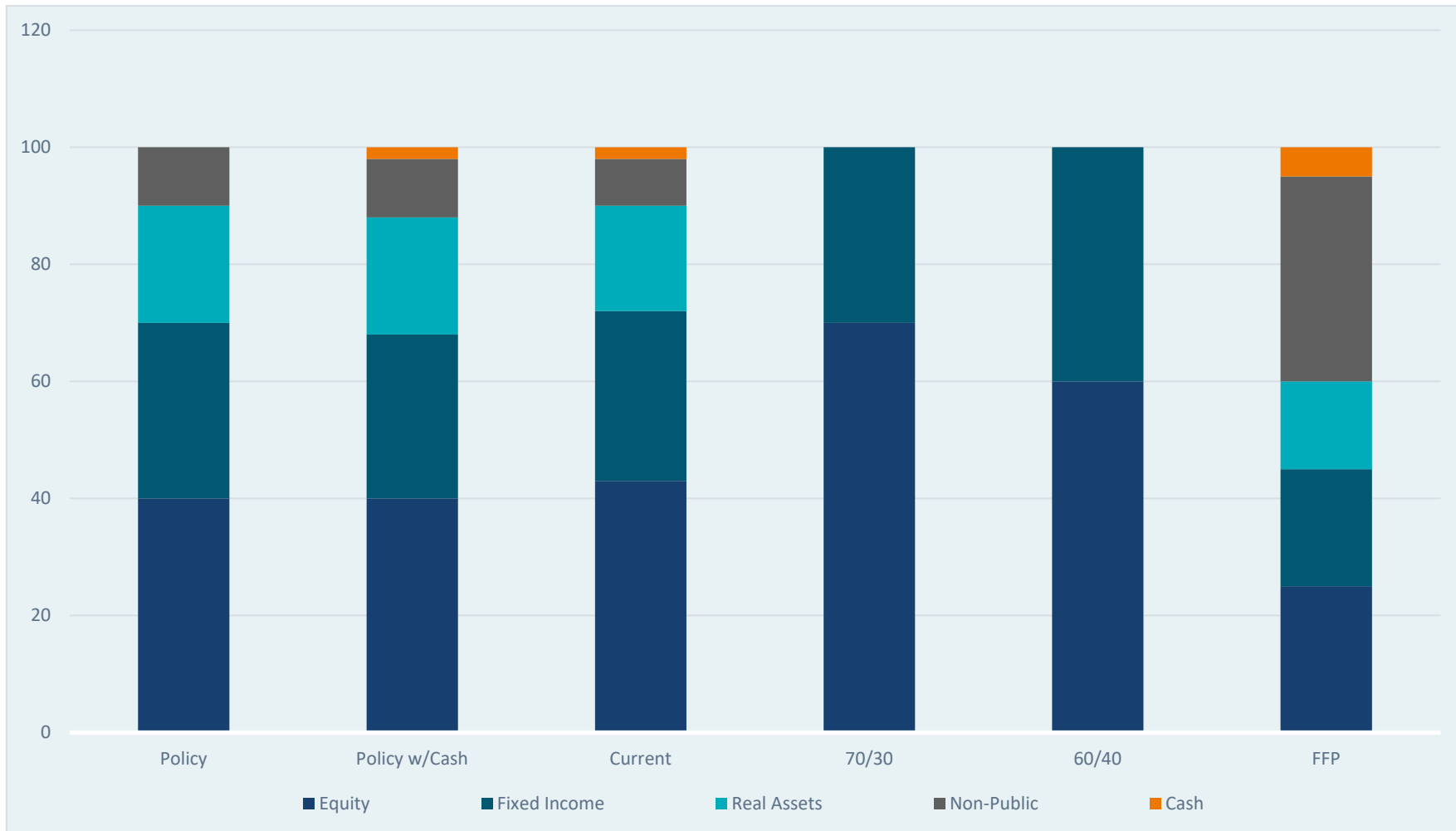
Mean Variance Analysis

							Verus 2020 CMA's (10 Yr)			
	Policy	Policy w/Cash	Current	70/30	60/40	FFP	Return (g)	Return (a)	Standard Deviation	Sharpe Ratio (a)
US Large	16.0	16.0	16.4	0.0	0.0	0.0	5.5	6.6	15.4	0.31
US Small	4.0	4.0	4.4	0.0	0.0	0.0	5.7	7.7	21.1	0.28
Total Domestic Equity	20	20	21	0	0	0				
International Developed	13.0	13.0	19.5	0.0	0.0	0.0	7.0	8.4	17.5	0.37
Emerging Markets	7.0	7.0	2.9	0.0	0.0	0.0	7.6	10.4	25.6	0.33
Total Int'l Equity	20	20	22	0	0	0				
Global Equity	0.0	0.0	0.0	70.0	60.0	25.0	6.4	7.7	16.8	0.34
Total Equity	40	40	43	70	60	25				
Core Plus Fixed Income	15.0	13.0	14.5	30.0	40.0	0.0	2.7	3.0	8.3	0.14
US Treasury	0.0	0.0	0.0	0.0	0.0	10.0	1.7	1.9	6.7	0.00
Short-Term Gov't/Credit	0.0	0.0	0.0	0.0	0.0	10.0	1.7	1.8	3.6	-0.03
Bank Loans	5.0	5.0	4.9	0.0	0.0	0.0	5.3	5.8	10.0	0.39
Global Sovereign ex-US	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	9.7	-0.13
Global Aggregate	5.0	5.0	4.8	0.0	0.0	0.0	1.2	1.4	6.2	-0.08
Emerging Market Debt (Hard)	2.5	2.5	2.6	0.0	0.0	0.0	5.0	5.7	12.4	0.31
Emerging Market Debt (Local)	2.5	2.5	2.6	0.0	0.0	0.0	5.7	6.4	12.0	0.37
Total Fixed Income	30	28	29	30	40	20				
Commodities	5.0	5.0	3.3	0.0	0.0	0.0	3.8	4.9	15.4	0.20
Core Real Estate	10.0	10.0	11.8	0.0	0.0	10.0	6.6	7.3	12.4	0.44
Value Add Real Estate	5.0	5.0	2.4	0.0	0.0	5.0	8.6	10.0	17.7	0.46
Total Real Assets	20	20	18	0	0	15				
Other Diversifying Assets	0.0	0.0	0.0	0.0	0.0	10.0	4.0	4.3	7.7	0.31
Private Equity	5.0	5.0	3.6	0.0	0.0	15.0	8.5	11.3	25.3	0.37
Private Credit	5.0	5.0	4.4	0.0	0.0	10.0	7.0	7.5	10.0	0.56
Total Non-Public Investments	10	10	8	0	0	35				
Cash	0.0	2.0	2.0	0.0	0.0	5.0	1.9	1.9	1.2	-
Total Allocation	100	100	100	100	100	100				

	Policy	Policy w/Cash	Current	70/30	60/40	FFP
Mean Variance Analysis						
Forecast 10 Year Return	6.2	6.1	6.0	5.5	5.2	6.1
Standard Deviation	11.0	10.9	10.7	12.5	11.2	9.7
Return/Std. Deviation	0.6	0.6	0.6	0.4	0.5	0.6
1st percentile ret. 1 year	-16.4	-16.3	-16.0	-19.7	-17.8	-14.1
Sharpe Ratio	0.44	0.44	0.43	0.35	0.35	0.47

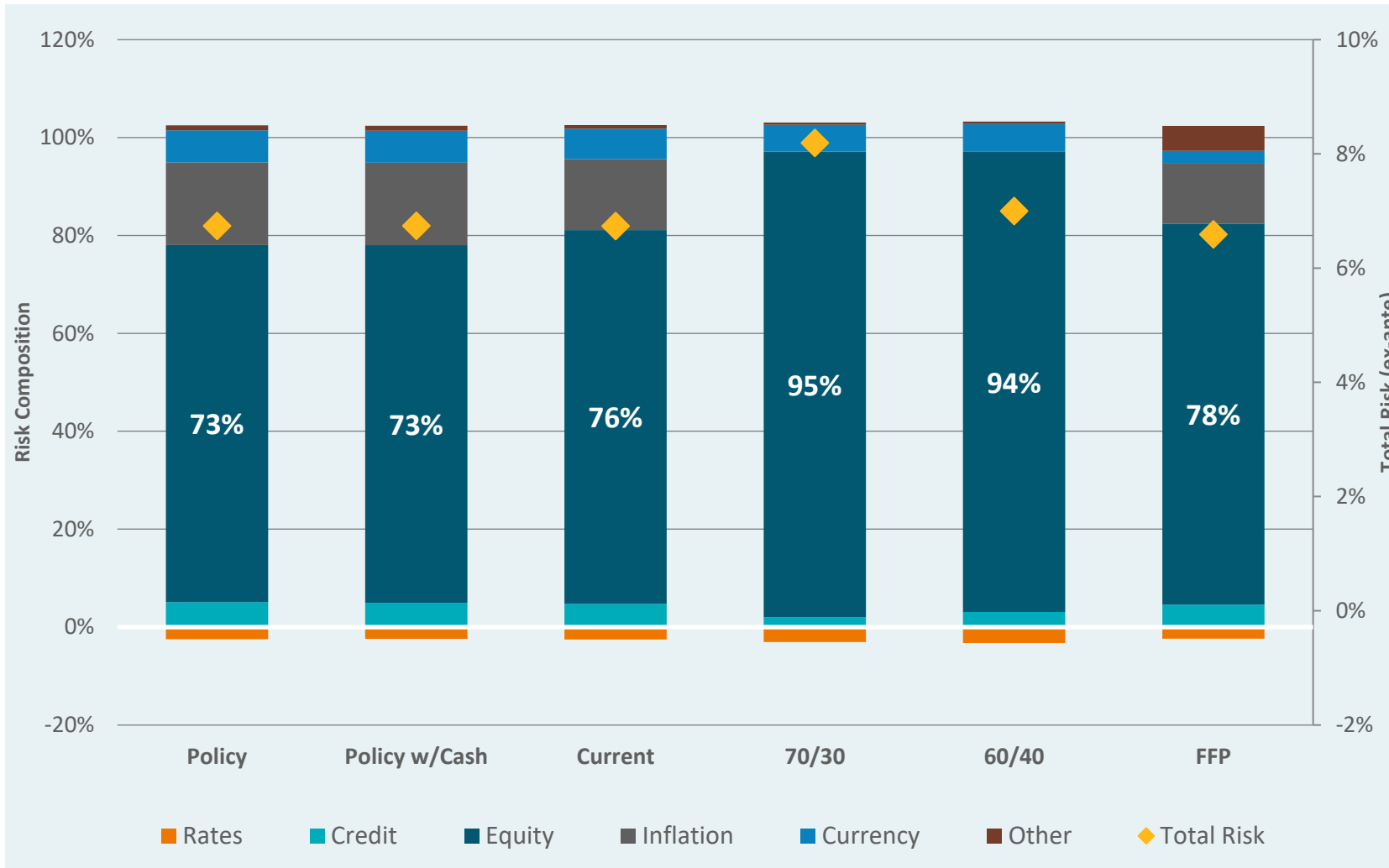
Source: MPI

Asset class decomposition



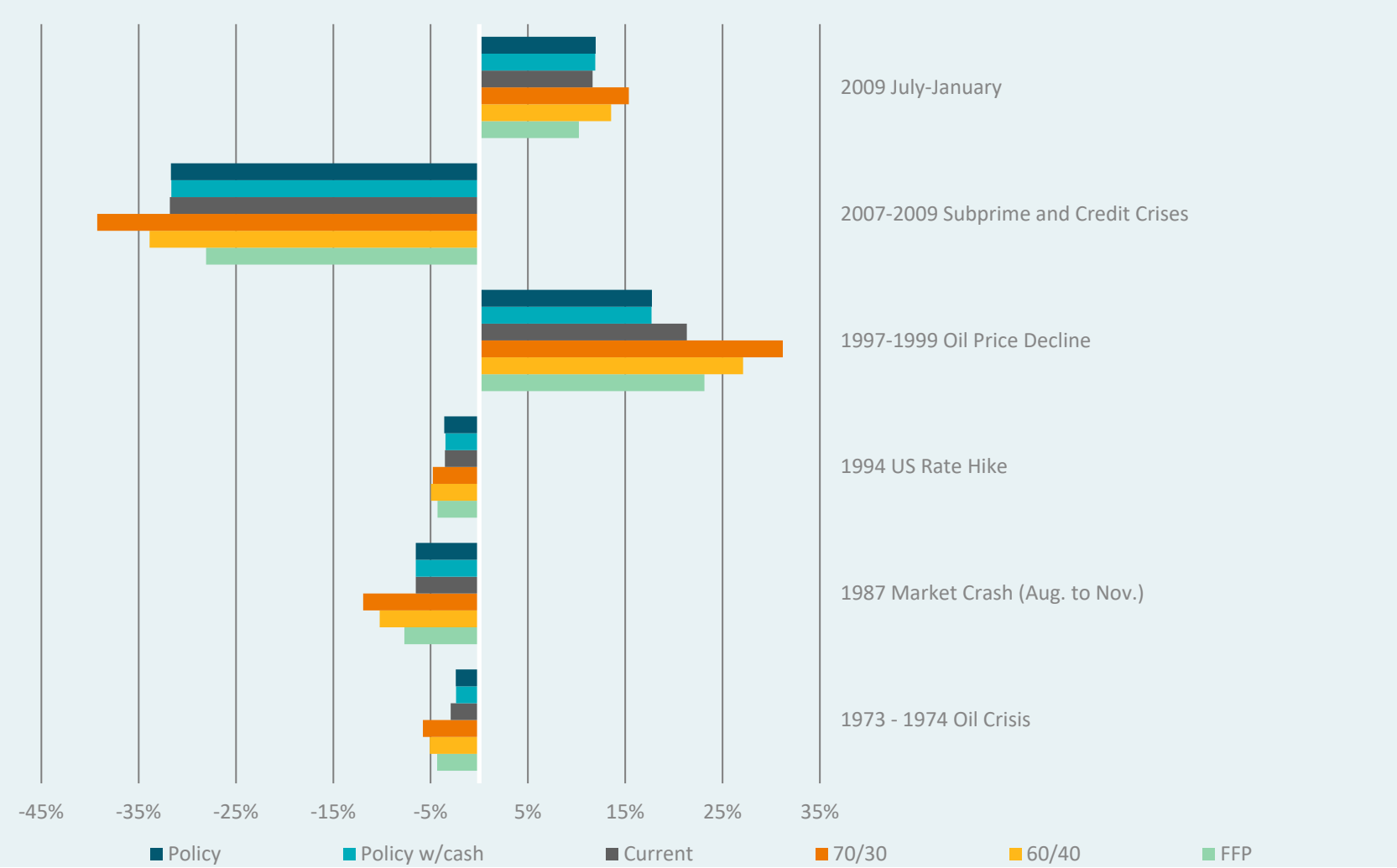
Policy portfolio utilizes benchmark constituent weights to determine asset allocation weights for equities and fixed income

Risk decomposition



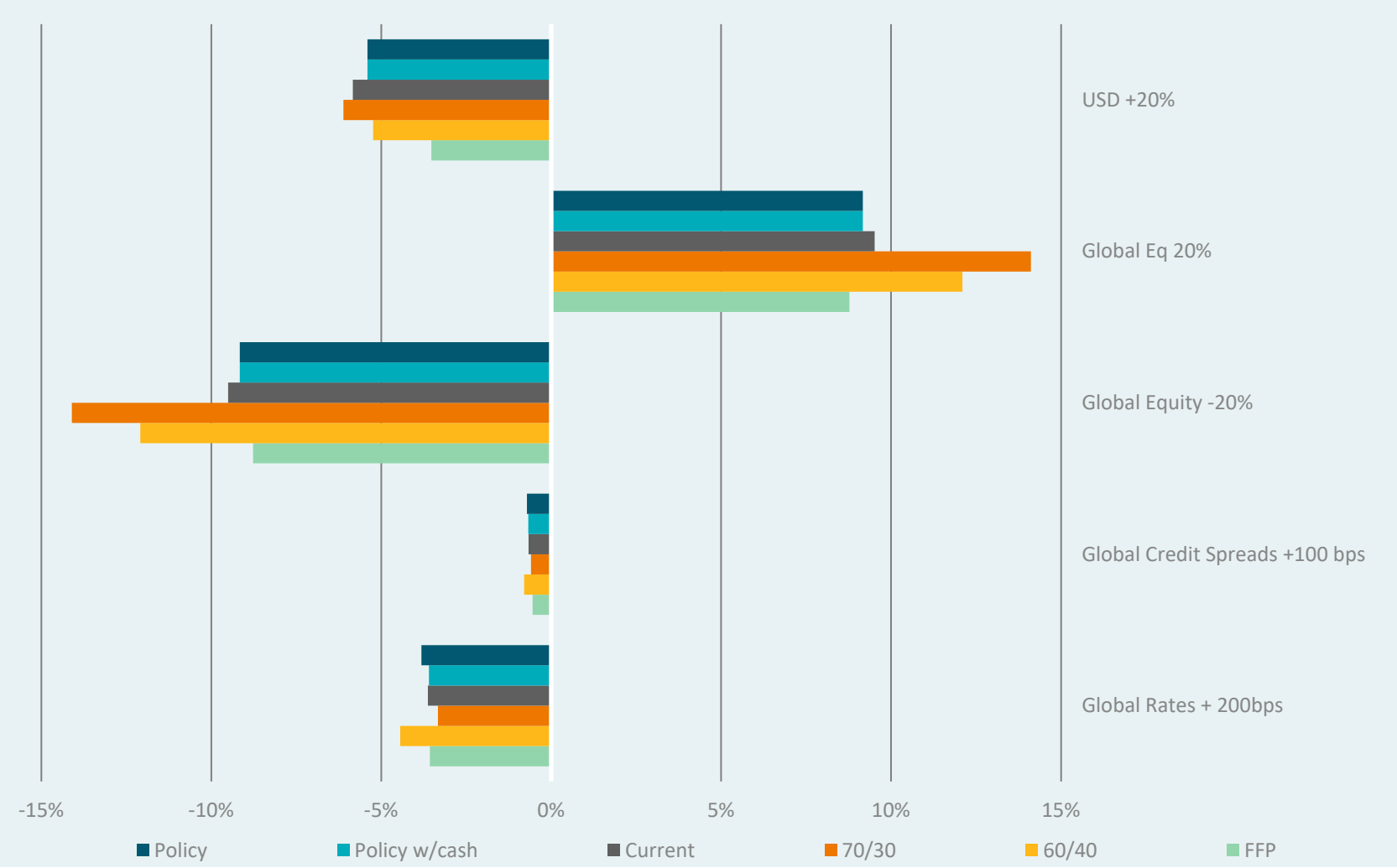
Source: Barra

Scenario analysis



Source: Barra

Stress tests



Source: Barra

Board of Trustees

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Date: February 24, 2020

To: Board of Trustees

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

Agenda Item 11: Asset Allocation February 2020

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

The normal investment portfolio drawdowns for liquidity to fund benefit payments and capital calls for 1Q20 are being spread out across the quarter to minimize cash allocations. The pending drawdowns may be modified depending on actual asset mix as it evolves across the quarter.

Public equities – domestic	- \$6m from Loomis Sayles	(pending)
	- \$4m from Boston Partners	(pending)
Public equities – international	- \$ 5m from Dodge & Cox Intl.	(done)
	- \$10m from WCM Intl. (Jan.)	(done)
	- \$ 5m from WCM Intl. (Mar.)	(pending)

Fixed Income

No Board action is planned at this point.

Respectfully submitted

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