

Pension Trust

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



AGENDA

PENSION TRUST BOARD OF TRUSTEES

Monday, May 18, 2020 9:30 AM

Room 161/162*

County Government Center
San Luis Obispo, CA 93408

MEETING MATERIALS

Materials for the meeting may be found at

<http://www.slocounty.ca.gov/Departments/Pension-Trust/Board-of-Trustees>

Any supporting documentation that relates to an agenda item for open session of any regular meeting that is distributed after the agenda is posted and prior to the meeting will also be available at this location.

AMERICANS WITH DISABILITIES ACT (Government Code §54953.2)

Disabled individuals who need special assistance to listen to and/or participate in any meeting of the Board of Trustees may request assistance by calling 805/781-5465, or sending an email to SLOCPT@co.slo.ca.us. Every effort will be made to reasonably accommodate individuals with disabilities by making meeting materials and access available in alternative formats. Requests for assistance should be made at least two days in advance of a meeting whenever possible.

* TELE-CONFERENCE / VIDEO-CONFERENCE

Due to the current pandemic, Board of Trustees meetings are closed to the public attending in person until further notice.

This meeting of the Board of Trustees will be held via teleconference and/or videoconference pursuant to Executive Order N-25-20, issued by Governor Newsom on March 12, 2020, Executive Order N-29-20, issued by Governor Newsom on March 17, 2020, and Executive Order N-35-20, issued by Governor Newsom on March 21, 2020. Items of business will be limited to the matters shown on the agenda.

If you wish to view the videoconference of the meeting please access

<https://zoom.us/j/93266487509?pwd=dGxORmtqVWpCWmlUemlVQUQ3YVpiQT09>

for webinar ID 932 6648 7509.

If you wish to listen to the teleconference meeting, please dial 1 346/248-7799 (Meeting ID 932 6648 7509). If you have any questions or require additional service, please contact SLOCPT at 805/781-5465.

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 March 23, 2020 (Approve Without Correction).
3. Reports of Deposits and Contributions for the months of March and April 2020 (Receive and File).
4. Reports of Service Retirements, Disability Retirements and DROP Participants for the months of March and April 2020 (Receive, Approve and File).
5. Monthly Investment Report for March 2020 (Receive and File).
6. Social Security Section 218 Agreement - Resolution 2020-03 (Recommend Approval).

C) ORGANIZATIONAL

None

D) APPLICATIONS FOR DISABILITY RETIREMENT

7. Application for Reconsideration of Industrial Disability in Ordinary Disability Retirement – Case 2019-02 (Recommend Approval).
8. Application for Industrial Disability Retirement – Case 2020-01 (Recommend Approval).

E) OLD BUSINESS

None

F) NEW BUSINESS

- 9. 2020 Actuarial Experience Study Results - Presentation by Paul Wood, Plan Actuary of Gabriel Roeder Smith - (Discuss, Direct Actuary and Staff as necessary - Recommend Approval).
- 10. Actuarial Valuation – 2020 Actuarial Assumptions Approval - (Discuss, Direct Actuary and Staff as necessary – Recommend Approval).
- 11. Administrative Budget for Fiscal Year 2020-2021 - Approval – (Recommend Approval).
- 12. *reserved*

G) INVESTMENTS

- 13. Quarterly Investment Report for the 1st Quarter of 2020 – Verus (Receive and File).
- 14. Monthly Investment Report for April 2020 (Receive and File).
- 15. Asset Allocation Policy - Verus (Review, Discuss, and Direct Staff as necessary).
- 16. Cash Overlay Strategy Review - Verus (Discuss, Direct Staff as necessary - Recommend Approval).
- 17. Asset Allocation & Rebalancing - (Review, Discuss, and Direct Staff as necessary).

H) OPERATIONS

- 18. Staff Reports
- 19. General Counsel Reports
- 20. Committee Reports:
 - i. Audit Committee No Report
 - ii. Personnel Committee No Report

21. Upcoming Board Topics (subject to change)

- i. June 22, 2020
 - a. Financial Audit Report
 - b. CAFR Approval
 - c. **Actuarial Valuation – Contribution Rate Changes**
 - d. Employer prefunding amount

- ii. July 27, 2020 (planned as a non-meeting month)

- iii. August 24, 2020
 - a. Mid-year Financial Statements and Budget Status
 - b. Actuarial Services RFP
 - c. Quarterly Investment Report
 - d. Asset Allocation Policy – Amended Investment Policy Statement
 - e. Private Equity Review

- iv. September 28, 2020
 - a. Annual Strategic Planning session

22. Trustee Comments

I) CLOSED SESSION

None

J) ADJOURNMENT

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BOARD OF TRUSTEES**

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MINUTES

March 23, 2020
Regular Meeting of the Pension Trust
Board of Trustees

- Board Members Present:** Guy Savage President
Gere Sibbach Vice President (via teleconference)
- Taylor Dacus
Jim Hamilton
Jeff Hamm
Matt Janssen (via teleconference)
- Board Members Absent:** Michelle Shoresman
- Pension Trust Staff:** Carl Nelson Executive Director
Amy Burke Deputy Director
- General Counsel:** Chris Waddell (via teleconference)
- Consultants:** Paul Wood, Gabriel Roeder Smith (via teleconference)
- Others:** Michael Hobbs SLO County Human Resources
Natalie Fixler SLO County Human Resources
Dan Andoetoe Retiree

Call to Order: 9:31 AM by President Savage, presiding over the meeting.

A) PUBLIC COMMENT

1. Dan Andoetoe, Retiree: Mr. Andoetoe requested that the minutes for today’s meeting be published in draft form online earlier than their typical publication as part of the following

Board of Trustees meeting materials. Mr. Andoetoe then departed observing social distancing protocols during the Covid-19 emergency.

Staff inquired of General Counsel about the legalities of publishing draft minutes farther in advance and Mr. Waddell reported no issues with such a change in practice.

B) CONSENT

2. Minutes of the Regular Meeting of February 24, 2020 (Approve Without Correction).
3. Reports of Deposits and Contributions for the month of February 2020 (Receive and File).
4. Reports of Service Retirements, Disability Retirements and DROP Participants for the month of February 2020 (Receive, Approve and File).

Motion: Approve the Consent items.

Public Comment: None

Discussion: Mr. Sibbach inquired about one retirement on Item 4 – specifically a retiring Deferred Member currently employed by the SLO Superior Court as a judge. Staff noted that the Member is currently covered by the Judges Retirement System 2 and is eligible to retire from the SLOCPT, although it breaks any reciprocity with the JRS2.

Motion Made: Mr. Hamm Motion Seconded: Mr. Hamilton

Carried: Unanimous (roll call vote)

C) ORGANIZATIONAL

None

D) APPLICATIONS FOR DISABILITY RETIREMENT

None

E) OLD BUSINESS

None

F) NEW BUSINESS

5. 2020 Actuarial Valuation Planning - Presentation by Paul Wood, Plan Actuary - (Discuss, Direct Actuary and Staff as necessary)

Discussion: Paul Wood, Actuary with GRS presented planning concepts for the 2020 biennial Actuarial Experience Study and annual Actuarial Valuation. Actuarial assumptions for the Valuation are planned for approval at the May 18th Board meeting after the results of the Experience Study are known. Preliminary recommendations by GRS on key actuarial assumptions were covered in the presentation materials. Relative to the highly impactful Discount Rate, Mr. Wood noted that a reasonable range would be 6.50% to 7.00%, but that a lower Discount Rate is preferred since it increases the probability that actual Investment Earnings will be near the Discount Rate. However, the strong funding policy followed by the SLOCPT (5-year asset value smoothing, 20-year layered amortization of the Unfunded Actuarial Accrued Liability and full contribution by the Plan Sponsor of the Annually Determined Contribution rate) supports some flexibility on setting of the Discount Rate. Other key assumptions discussed included: Inflation; Location-specific inflation rates for the COLA, Salary Growth, Payroll Growth and updated Mortality tables.

The Trustees discussed the preliminary Actuary's recommendations at length. Mr. Sibbach and Mr. Janssen reiterated their past advocacy for a gradual reduction in the Discount rate starting in 2020 to better match realistic expectations for capital market returns.

Motion: No Action Necessary

Public Comment: None

6. Employer Contributions Prefunding (Discuss, Direct Staff as necessary).

Discussion: Staff presented a recommendation that the SLOCPT accept prefunded employer paid pension contributions for FY20-21 from San Luis Obispo County and the Air Pollution Control District at a discounted amount. Staff recommended a more conservative discount rate of ½ of the Earnings Assumption used in the actuarial valuation. The Trustees discussed the issue of employer contribution prefunding at length. Mr. Hamilton observed that employer prefunding discounted at the Earnings Assumption used by the Plan is theoretically actuarially neutral to the Plan in the long-term. There were mixed opinions on the prefunding discount rate among the Trustees relative to the quite conservative opinion of Staff. General Counsel Waddell suggested staff survey other retirement systems on the topic of prefunding prior to the 2021 prefunding consideration. Mr. Savage suggested using as an alternative benchmark for the prefunding discount rate the assumption used in the actuarial valuation for long-term real rates of return (currently 4.50%).

Motion: To approve the Plan Sponsor prefunding of employer contributions for FY20-21, at the County's discretion, at a discount rate equal to the Plan's current Real Rate of Return assumption of 4.50%.

Public Comment: None

Motion Made: Mr. Hamm Motion Seconded: Mr. Savage

Carried: Unanimous (roll call vote)

7. Administrative Budget for Fiscal Year 2020-2021 - Proposed – (Review, Discuss, and Direct Staff as necessary).

Discussion: Staff presented the proposed SLOCPT administrative budget for FY20-21. Approval is scheduled for the May 18th Board of Trustees meeting.

Motion: No Action Necessary

Public Comment: None

8. Board Educational Presentation – Fiduciary Responsibilities Refresher Briefing – Chris Waddell, General Counsel.

POSTPONED

G) INVESTMENTS

9. Monthly Investment Report for February 2020

Discussion: Monthly investment performance report for February and mid-March estimated returns.

Motion: Receive and File

Public Comment: None

Motion Made: Mr. Savage Motion Seconded: Mr. Hamm

Carried: Unanimous (roll call vote)

10. Global Fixed Income Strategy modification (Recommend Approval).

Discussion: Staff presentation of a Verus recommendation to convert the global bond strategy currently allocated to Brandywine Capital Management’s International Bond Fund to Brandywine’s Global Bond Fund.

Motion: Approve Recommendation

Public Comment: None

Motion Made: Mr. Hamm Motion Seconded: Mr. Janssen

Carried: Unanimous (roll call vote)

11. Strategic Asset Allocation Policy - Commodities allocation (Recommend Approval).

Discussion: Staff presentation of a Verus recommendation to amend the Strategic Asset Allocation (SAA) to eliminate the Commodities allocation and reallocate that 5% of the fund to several other asset classes. Staff reported that this change is consistent with, and in anticipation of, a broader change of the SAA policy to a “Functionally Focused Portfolio” at later Board meetings.

Mr. Janssen expressed concern over the timing of the transition away from Commodities in current market conditions. Staff reported that, in consultation with Verus, the actual drawdown of the Commodities allocation would be done over multiple calendar quarters in the latter half of 2020 due to the current slump in energy commodity prices. The current Commodities manager would be terminated at the end of the drawdown process.

Motion: Approve Recommendation and Amend Addendum A to the Investment Policy Statement.

Public Comment: None

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

Carried: Unanimous (roll call vote)

12. Asset Allocation

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

No Action Necessary

H) OPERATIONS

12. Staff Reports

- i. TAO Contingent Fund - Mr. Nelson reported that the TSSP- TAO Contingent private credit fund approved by the Board in 2018 gave notice of its activation effective April 1st. The TAO Contingent fund is a private credit fund to be activated when TSSP viewed the market as having significant credit disruption to create attractively valued buying opportunities. TSSP views the current volatile market as just such an opportunity. Initial capital calls for the TSSP-TAO Contingent fund are expected in April. Staff will work with Verus to identify other portfolios to drawdown to fund the

TAO Contingent capital calls consistent with the SAA policy and rebalancing transfers as an administrative matter following the approved investment policy.

- ii. PensionGold Member Portal – Ms. Burke reported that SLOCPT continues to send PIN letters to active members and retirees and has about 2,100 remaining PIN letters to issue. No significant problems with Member access to the Member Portal have been reported. Given that and the current Covid-19 related closure of the SLOCPT office to visitors in favor of telephone and email member service, Ms. Burke noted that she is planning on accelerating the mailing of the remaining PIN letters to facilitate member access to the online portal.
- iii. Form 700 filing – Ms. Burke reminded Trustees that the due date for filing their Form 700s is April 1.

13. General Counsel Reports

None

14. Committee Reports:

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

15. Upcoming Board Topics – published on meeting agenda

16. Trustee Comments

Mr. Janssen reported that the CALAPRS General Assembly that he attended in early March was of interest and useful. Presentations on “The Canadian Model” of pension with increased risk-sharing, and on Simplicity in Investing were of particular interest.

Mr. Savage noted that the May 18th Board of Trustees meeting is scheduled to be held in room 161/162 which does not have video streaming capability which should be noted in the meeting notice to go out.

I) CLOSED SESSION

None

J) ADJOURNMENT –

There being no further business, the meeting was adjourned at 10:42 AM. The next Regular Meeting was set for May 18, 2020, at 9:30 AM, in room 161/162, 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
MARCH 2020**

PP 6 3/13/2020	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	3,297,701.29	845,981.27	25.65%	395,987.65	280,833.71	20.52%	46.18%	987.50	1,692.05	1,525,482.18
County Tier 2	980,381.61	261,153.21	26.64%	46,495.78	85,924.73	13.51%	40.14%	-	332.54	393,906.26
County Tier 3	3,286,887.66	820,512.24	24.96%	406,079.98	-	12.35%	37.32%	-	25,572.59	1,252,164.81
Superior Court Tier 1	259,124.55	71,974.62	27.78%	48,118.51	-	18.57%	46.35%	-	-	120,093.13
Superior Court Tier 3	104,429.95	27,617.25	26.45%	13,884.58	-	13.30%	39.74%	-	-	41,501.83
APCD Tier 1	58,069.94	14,360.41	24.73%	8,407.87	4,279.69	21.85%	46.58%	-	-	27,047.97
APCD Tier 3	22,660.81	5,415.63	23.90%	3,220.21	-	14.21%	38.11%	-	-	8,635.84
SLOCPT Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
SLOCPT Tier 2	9,171.20	2,211.17	24.11%	346.67	852.01	13.07%	37.18%	-	-	3,409.85
SLOCPT Tier 3	12,113.97	2,861.31	23.62%	1,572.93	-	12.98%	36.60%	250.00	-	4,684.24
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
	8,050,820.26	2,057,696.04	25.56%	926,012.02	373,613.25	16.14%	41.70%	1,237.50	27,597.18	\$ 3,386,155.99

PP 7 3/27/2020	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	3,292,109.21	844,804.69	25.66%	395,271.10	280,501.76	20.53%	46.19%	912.50	1,692.05	1,523,182.10
County Tier 2	985,979.57	263,546.53	26.73%	48,179.09	84,970.91	13.50%	40.23%	-	332.54	397,029.07
County Tier 3	3,297,562.63	822,554.86	24.94%	406,575.31	-	12.33%	37.27%	-	846.46	1,229,976.63
Superior Court Tier 1	255,272.43	70,860.81	27.76%	47,412.68	-	18.57%	46.33%	-	-	118,273.49
Superior Court Tier 3	104,124.46	27,488.62	26.40%	13,751.69	-	13.21%	39.61%	-	-	41,240.31
APCD Tier 1	57,616.04	14,250.88	24.73%	8,321.87	4,253.59	21.83%	46.56%	-	-	26,826.34
APCD Tier 3	20,663.21	4,934.65	23.88%	2,880.51	-	13.94%	37.82%	-	-	7,815.16
SLOCPT Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
SLOCPT Tier 2	9,171.20	2,211.17	24.11%	346.67	852.01	13.07%	37.18%	-	-	3,409.85
SLOCPT Tier 3	11,637.97	2,748.88	23.62%	1,513.50	-	13.00%	36.62%	250.00	-	4,512.38
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
	8,054,416.00	2,059,010.02	25.56%	926,150.26	372,301.38	16.12%	41.68%	1,162.50	2,871.05	\$ 3,361,495.21

TOTAL FOR THE MONTH	16,105,236.26	4,116,706.06	25.56%	1,852,162.28	745,914.63	16.13%	41.69%	2,400.00	30,468.23	\$ 6,747,651.20
TOTAL YEAR TO DATE	55,653,656.80	14,223,174.55	25.56%	6,419,303.89	2,603,498.50	16.21%	41.77%	9,598.00	59,656.88	23,315,231.82

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

PP 8	4/10/2020	Pensionable	Employer	Employer	Employee	Employer for		Combined	Additional	Buy	TOTAL
						Employee	Employee				
By Employer and Tier:		Salary	Contributions	Rate	Contributions	Contributions	Rate	Rate	Contributions	Backs	Contributions
	County Tier 1	3,269,798.69	840,089.34	25.69%	393,175.79	278,458.45	20.54%	46.23%	912.50	1,692.05	1,514,328.13
	County Tier 2	994,737.84	265,665.83	26.71%	49,580.28	85,259.67	13.56%	40.26%	-	361.58	400,867.36
	County Tier 3	3,340,192.39	837,128.87	25.06%	413,157.23	-	12.37%	37.43%	-	1,148.40	1,251,434.50
	Superior Court Tier 1	260,323.35	72,202.40	27.74%	48,397.04	-	18.59%	46.33%	-	-	120,599.44
	Superior Court Tier 3	110,223.42	29,097.47	26.40%	14,495.11	-	13.15%	39.55%	-	-	43,592.58
	APCD Tier 1	59,904.03	14,791.60	24.69%	8,657.93	4,385.15	21.77%	46.47%	-	-	27,834.68
	APCD Tier 3	20,663.20	4,934.65	23.88%	2,880.51	-	13.94%	37.82%	-	-	7,815.16
	SLOCPT Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
	SLOCPT Tier 2	9,171.20	2,211.17	24.11%	346.67	852.01	13.07%	37.18%	-	-	3,409.85
	SLOCPT Tier 3	11,733.96	2,771.56	23.62%	1,523.88	-	12.99%	36.61%	250.00	-	4,545.44
	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
	RTA Tier 2	150,341.89	38,307.07	25.48%	3,162.30	19,544.41	15.10%	40.58%	-	-	61,013.78
	RTA Tier 3	69,763.22	20,224.37	28.99%	7,032.78	-	10.08%	39.07%	-	308.16	27,565.31
		8,317,132.47	2,133,033.26	25.65%	944,307.36	390,222.80	16.05%	41.69%	1,162.50	3,510.19	\$ 3,472,236.11

PP 9	4/24/2020	Pensionable	Employer	Employer	Employee	Employer for		Combined	Additional	Buy	TOTAL
						Employee	Employee				
By Employer and Tier:		Salary	Contributions	Rate	Contributions	Contributions	Rate	Rate	Contributions	Backs	Contributions
	County Tier 1	3,267,847.87	838,538.01	25.66%	392,632.31	278,285.60	20.53%	46.19%	912.50	1,692.05	1,512,060.47
	County Tier 2	991,596.97	264,748.69	26.70%	49,790.73	84,526.73	13.55%	40.24%	-	361.58	399,427.73
	County Tier 3	3,355,923.33	841,241.34	25.07%	415,229.45	-	12.37%	37.44%	-	780.88	1,257,251.67
	Superior Court Tier 1	257,279.91	71,474.25	27.78%	47,939.33	-	18.63%	46.41%	-	-	119,413.58
	Superior Court Tier 3	107,067.02	28,563.64	26.68%	14,239.83	-	13.30%	39.98%	-	-	42,803.47
	APCD Tier 1	57,824.02	14,301.06	24.73%	8,353.43	4,265.55	21.82%	46.56%	-	-	26,920.04
	APCD Tier 3	20,795.20	4,965.85	23.88%	2,895.51	-	13.92%	37.80%	-	-	7,861.36
	SLOCPT Tier 1	7,715.87	1,860.30	24.11%	1,026.98	716.80	22.60%	46.71%	-	-	3,604.08
	SLOCPT Tier 2	9,171.20	2,211.17	24.11%	346.67	852.01	13.07%	37.18%	-	-	3,409.85
	SLOCPT Tier 3	11,733.96	2,771.56	23.62%	1,523.88	-	12.99%	36.61%	250.00	-	4,545.44
	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
	RTA Tier 2	25,056.98	6,384.51	25.48%	527.05	3,257.40	15.10%	40.58%	-	-	10,168.96
	RTA Tier 3	11,627.20	3,370.72	28.99%	1,172.13	-	10.08%	39.07%	-	-	4,542.85
		8,136,202.94	2,084,179.73	25.62%	936,548.16	372,910.40	16.09%	41.71%	1,162.50	2,834.51	\$ 3,397,635.30

TOTAL FOR THE MONTH	16,453,335.41	4,217,212.99	25.63%	1,880,855.52	763,133.20	16.07%	41.70%	2,325.00	6,344.70	\$ 6,869,871.41
TOTAL YEAR TO DATE	72,106,992.21	18,440,387.54	25.57%	8,300,159.41	3,366,631.70	16.18%	41.75%	11,923.00	66,001.58	30,185,103.23

REPORT OF RETIREMENTS**March 2020**

RETIREE NAME	DEPARTMENT	BENEFIT TYPE *	EFFECTIVE DATE	MONTHLY BENEFIT	SS TEMP ANNUITY**
Horn, Diana L	Department of Social Services	Service Retirement	02/28/20	2,339.29	False
Kleiman, Cheryl A	Planning Department	Service Retirement	03/07/20	5,938.08	False
Lchuga, Mark S	Facilities Management	Service Retirement	03/07/20	2,666.27	False
Piotrowski, Lisa	Sheriff-Coroner	Service Retirement	02/16/20	5,255.95	False
Rincon, Diana	Department of Social Services	Service Retirement	02/22/20	3,012.08	False
Seehof, Sherry M	Department of Social Services	Service Retirement	02/29/20	3,664.30	True
Seehof, Sherry M	Department of Social Services	Additional Annuity	02/29/20	2.84	False
Siebert, Sharon L	Public Works ISF	DROP	03/01/20	4,160.61	False
Siebert, Sharon L	Public Works ISF	Additional Annuity	03/01/20	173.60	False
STOLTEY, JEAN M	Superior Court	Service Retirement	02/29/20	3,818.13	False
STOLTEY, JEAN M	Superior Court	Additional Annuity	02/29/20	4.00	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

REPORT OF RETIREMENTS**April 2020**

RETIREE NAME	DEPARTMENT	BENEFIT TYPE *	EFFECTIVE DATE	MONTHLY BENEFIT	SS TEMP ANNUITY**
Acosta, Phillip W	Public Works	Public Works ISF	03/28/20	3,022.38	False
Hernandez, Donna	Planning	Planning Department	04/01/20	2,428.20	False
Hilker, Joanne	Public Works	Public Works ISF	04/18/20	2,341.85	False
PASCAL, EMILY	Superior Court	Superior Court	04/01/20	3,217.67	False
Resendiz, Hector	Behavioral Health	Behavioral Health	04/11/20	2,124.85	False
Toscano, Kathleen W	Assessor	Assessor	04/01/20	9,793.84	False
Toscano, Kathleen W	Assessor	Assessor	04/01/20	19.87	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
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www.SLOPensionTrust.org



Date: April 27, 2020

To: Board of Trustees

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

Investment Report for March 2020

	March	Year to Date 2020		2019	2018	2017	2016	2015
Total Trust Investments (\$ millions)	\$1,256			\$1,446 year end	\$1,285 year end	\$1,351 year end	\$1,196 year end	\$1,148 year end
Total Fund Return	-8.7% Gross	-12.4% Gross		16.3 % Gross	-3.2 % Gross	15.5 % Gross	6.6 % Gross	-0.8% Gross
Policy Index Return (r)	-6.2%	-8.9%		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.

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 March. The attached market commentary from Verus details market conditions in March, but subsequent activity in April is not yet factored into these numbers.

Staff estimates on a preliminary basis that Total Fund Return in **April month-to-date is approximately +2%.**

The Economy and Capital Markets:

- **Covid-19 Pandemic -**

- **Global Recession -**

- The rapid global spread of the SARS-CoV-2 virus with a high rate of transmissibility that leads to the Covid-19 illness created widespread quarantine or social distancing public policy responses of various types in different countries. In the U.S. state-by-state restrictionism have certainly started a deep and pronounced recession.
- This recession is unprecedented in its cause. It is the first recession imposed by governmental decree for the sake of public safety. It is often referred to as putting the economy in a medically induced coma. Another metaphor that is used is that the economy is at a “Full Stall” at present and expected to gradually return to “Flight Speed” late in 2020.
- The rationale for the economic shutdown appears to be being borne out as the growth curve of new infections has been flattened – albeit with close to 60k deaths so far – so that hospital facilities are not overwhelmed. The key questions for the future are how much and where to selectively loosen economic restrictions to balance an economic recovery relative to not letting infections and deaths grow too much.
- Underlying economic conditions are generally healthy. Unlike the Global Financial Crisis (GFC) of 2008, there were not large credit market imbalances. Bank financial health is substantially stronger than in 2008 due to Dodd-Frank regulations and monetary conditions were already accommodative.
- Employment is the initial casualty of the recession as massive numbers of workers are laid off or business’s close. As of this date, initial jobless benefit claims have shot past 26 million in only a month. This is expected to push the unemployment rate above 15% in short order. Forecasts of 20%+ unemployment are conceivable in 2Q20-3Q20.
- Recovery in unemployment will not be as sudden as its crash. As businesses adjust to new ways of doing lessened business as a public health policy matter before a vaccine is widely available late in 2021, hiring will not be rapid. An obvious example of this are restaurants operating at half density / half revenue / half-staff well into 2022.
- Forecasts of the depth and length of the current recession are inherently speculative and depend on the path of infection rates and the extension of the necessary economic shutdown. The consensus of many market commentators is that this recession will be historically very sudden, very deep, and hopefully short-lived. A -15% or more fall in U.S. GDP in 2Q20 is quite likely.

- **Policy Responses -**

- Monetary Policy – Central banks globally moved to rapidly loosen monetary policy. In the U.S. the Fed rapidly used the lessons learned in the GFC and gets high marks for its strong response. The immediate reduction in the Fed Funds rate to a 0% lower bound was followed by multiple creative programs to pump liquidity into the financial markets at an unprecedented pace. The Fed’s play-book was well stocked with the lessons learned in the GFC. While monetary policy cannot influence the course of the pandemic, it can ease the 2nd and 3rd order financial impacts of economic recession.

- Fiscal Policy – The Federal government added significant stimulus with an eye-popping, deficit funded and rapid \$2+ trillion series of measures. Learning from the GFC experience of too-little, too-late stimulus, the fiscal policy response was lauded as an adequately sized start to the fiscal response. It is to be expected that further measures will need to be added. The initial U.S. fiscal response and resulting increase in deficit spending is about 10% of GDP. By comparison the fiscal stimulus provided by Germany is about 30% of GDP and Chinese fiscal stimulus is about 5% of GDP.

➤ Recovery Prospects -

- V-shaped Recovery – the initially hoped for short and sharp impact on the economy and the capital markets is not a likely outcome given the aggressive nature of the virus and the length of public health measures that will be needed to avoid disastrous spikes in illness and death.
- **U-Shaped Recovery** – the most prevalent market expectations are for a deep and harsh U.S. recession throughout 2Q20 and 3Q20, with a start of a recovery in 4Q20. 2021 is expected to be a year of return to normal growth, but at an uneven pace depending on the sector of the economy. Leisure, dining and vacation travel are areas of consumer spending that are expected to return more gradually. While business travel, capital investment and pent up consumer spending are expected to normalize more quickly.
- W-Shaped Recovery – as a variation on the U-Shaped Recovery, it is reasonable to expect that economic recovery and the capital markets will fluctuate forward and back as the expected waves of increased infection occur.
- L-Shaped Recovery – a minority of forecasters fear a much more extensive economic disruption from prolonged intractable waves of Covid-19 infection and economic activity disrupted. In this depression-like scenario the expectation would be that economic disruption continues despite the abandonment of many government restrictions since they are not sustainable in the long-run.

➤ Equity Markets

- Equity markets globally responded to the pandemic and its economic fallout with unprecedented rapidity of their falls. The U.S. domestic stock S&P 500 index declined from a high of 3,386 in mid-February to a bottom on March 23rd at 2,237 – a 33% drop. Since that date the S&P 500 has rallied – albeit with heightened volatility – to 2,878 on April 27th. Thus far the S&P 500 has retraced about ½ of its fall and is +28% off its March 23rd bottom and down -15% from its February peak.

➤ Debt Markets

- With the aggressive monetary policy response Treasury Bond yields fell precipitously with the 10-year Treasury bond going from about a 1.50% yield in mid-February to a 0.67% yield on April 27th. Such a drop in rates creates significant price appreciation in bonds (interest rates and bond prices are inversely related). However, the spread between Treasury Rates and “Credit” – corporate debt that carries risk of default – widened and caused negative corporate bond returns in early March. However, for the

year to date through March investment grade bonds delivered a +3.1% return on the Barclay's Aggregate bond index. Credit spreads have calmed somewhat in April which indicates positive returns so far.

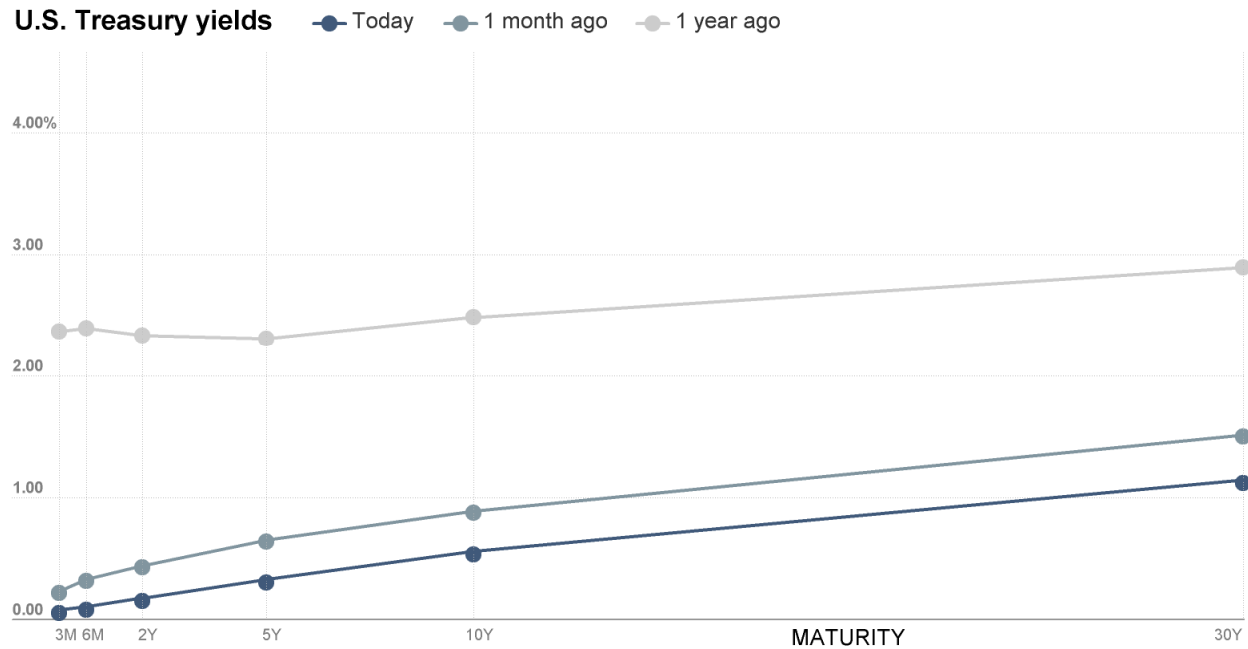
- Liquidity in the debt markets was severely challenged as investors scrambled to the safety of Treasury Bonds. Even with massive Fed purchases of debt, many bond traders found elevated bid/ask spreads and a difficult time trading large blocks of bonds.

➤ **Real Estate Markets**

- Commercial real estate tends to fluctuate slower than other capital assets due in part to its monthly or quarterly appraised value process in contrast to the minute-by-minute pricing of stocks and bonds. Real estate observers express concern for short-term late 2020 and early 2021 impacts to real estate returns as cashflow from rents is hindered.
 - Early reports are that in retail real estate, the large majority of restaurants did not pay April rent. While commercial leases typically have *force majeure* clauses allowing lessees to not pay rent in government-imposed limits, their applicability in this environment is subject to question.
 - Similarly, about half of retail stores were skipping their April rent with the exception of busy grocery-anchored local shopping centers.
 - Office and Industrial properties (especially the booming online fulfillment centers) held up well on rents.
 - Multi-family residential rents were not immediately impacted, but they are expected to have more non-payment issues as the recession progresses.
 - A typical way of dealing with non-payment of rent for a temporary financial downturn where the tenant is expected to return to viability in the future is to not forgive skipped rent, but to add it to the remainder of the lease term in some manner. So the long-term impact on owners of real estate may be muted except for those investors (typically individuals) with heavy debt loads and a lack of cash to bridge the gap.
- In the medium term, the real estate markets will have to assimilate change such as –
 - Slow to rebuild retail revenues and long-lasting lower revenues as restaurants adjust to serving at lower densities.
 - Slow to rebuild retail revenues which are ultimately driven by sales/SF. The strong use of online shopping during the pandemic may prove to continue and accelerate its negative impact on traditional retail space demands.
 - Uncertain impacts on office space demand as large parts of the economy gain positive experiences with Work From Home (WFH) employees.
 - An unknown outlook for multi-family residential housing as more WFH employees are attracted back to larger, single-family residences.

- **Fed Policy and Interest Rates –**

- On March 3rd the Fed reduced the Fed Funds rate by 0.50% to a range of 1.00% to 1.25% in an emergency attempt to reinforce the U.S. economy over concerns about the Covid-19 virus pandemic’s impact on business activity. Again, on March 15th the Fed did another emergency rate reduction of a full 1% and indicated aggressive monetary easing as a way to moderate the follow-on economic shocks of the Covid-19 pandemic.
 - The Treasury yield curve has plummeted in response to flight-to-safety trading. Treasury rates maintained a steepening yield curve. The yield curve as of April 24th is shown below-



- **Oil Prices –**

- Oil prices are a sensitive barometer of global economic activity.
 - Demand - The demand contraction for oil from the Covid-19 pandemic as whole economies move into quarantine has been substantial – on the order of -35% of global demand.
 - Supply - Oil supplies subject to complex interactions between major producers such as OPEC, Russia, Latin America, and U.S. domestic producers. Oil supply is also subject to complex technical issues – e.g., oil wells once shut off may not return to production at the same level due to geology and recovery methods. Finally, oil supplies are subject to the availability of storage capacity either in tanks or on tankers at sea.
 - Geopolitics - April oil supply was bloated by the inability of Russia and Saudi Arabi to agree on cutbacks in production to maintain oil prices. While they eventually agreed on about a 10% of world production reduction, it was far too small in the face of the 35% demand contraction. Reasons for the intransigence of the Russians are speculative but, could include a long-game to significantly weaken American exploration and production companies. With oil trending below \$20/barrel and production costs for

- Russia around \$30/barrel and for the U.S. in the upper \$30 range, continued supply at those prices is unprofitable and expected to lead to oil company failures and supply reduction.
- Futures markets – Oil is priced off futures contracts. As contracts expire each month and pricing rolls to the next month’s contract there can be minor turbulence in prices as contract holders sell their long positions to close them out and avoid physical delivery of the oil. With the expiration of the May 1st contracts in mid-April, it happened at the worst possible time with a -35% demand contraction, only a -10% supply contraction, storage capacity nearing full and a futures price expiration. The resulting decline was unprecedented. Briefly, oil prices hit the never before negative price of -\$37/barrel before rising back to a paltry \$12/barrel at present.
- **Employment and Wages –**
 - The March DOL report from the BLS on nonfarm employment showed -
 - New jobs came in at -701k in March battered by massive layoffs and halted growth in the face of the Covid-19 pandemic.
 - Unemployment surged to 4.4% - from its February low of 3.5%. Economists looking at the 26+ million new claims for unemployment benefits in late March and April expect the jobless rate to rapidly climb above 10% in April with a 20% unemployment rate conceivable on a short-term basis.

Respectfully Submitted,

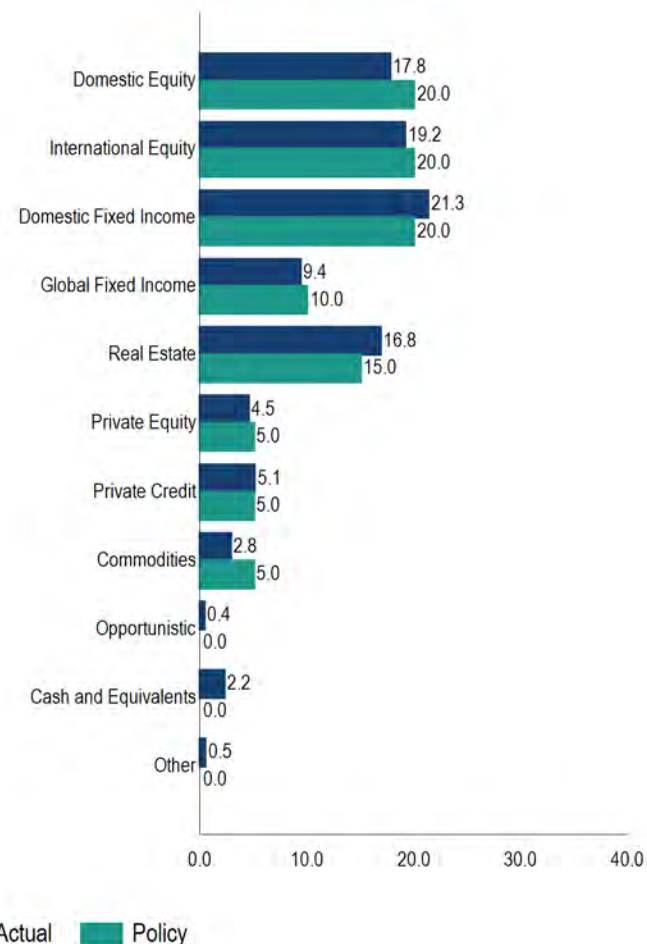
San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Fund	1,255,578,200	100.0	-8.7	-12.4
<i>Policy Index</i>			-6.2	-8.9
Total Domestic Equity	222,919,536	17.8	-14.8	-23.2
<i>Russell 3000</i>			-13.8	-20.9
PIMCO RAE Fundamental PLUS Instl	44,990,913	3.6	-17.6	-27.8
<i>S&P 500</i>			-12.4	-19.6
Loomis Sayles Large Cap Growth	73,595,133	5.9	-7.4	-11.2
<i>Russell 1000 Growth</i>			-9.8	-14.1
Boston Partners Large Cap Value	57,706,877	4.6	-18.1	-29.0
<i>Russell 1000 Value</i>			-17.1	-26.7
Atlanta Capital Mgmt	46,626,613	3.7	-18.2	-27.1
<i>Russell 2500</i>			-21.7	-29.7
Total International Equity	240,682,405	19.2	-15.5	-23.0
<i>MSCI ACWI ex USA Gross</i>			-14.4	-23.3
Dodge & Cox Intl Stock	103,270,223	8.2	-20.3	-30.4
<i>MSCI EAFE Gross</i>			-13.2	-22.7
WCM International Growth	137,412,182	10.9	-11.5	-16.4
<i>MSCI ACWI ex USA Gross</i>			-14.4	-23.3
Total Domestic Fixed Income	267,755,346	21.3	-4.4	-2.4
<i>BBgBarc US Aggregate TR</i>			-0.6	3.1
BlackRock Core Bond	103,766,873	8.3	-3.0	0.6
<i>BBgBarc US Aggregate TR</i>			-0.6	3.1
Dodge & Cox Income Fund	100,271,640	8.0	-3.1	-0.6
<i>BBgBarc US Aggregate TR</i>			-0.6	3.1
Pacific Asset Corporate Loan	63,716,833	5.1	-8.5	-9.4
<i>S&P/LSTA Leveraged Loan Index</i>			-12.4	-13.0
Total Global Fixed	117,843,644	9.4	-13.6	-17.0
<i>FTSE World Govt Bond Index</i>			-0.6	2.0
Brandywine Global Fixed Income	60,408,812	4.8	-8.0	-12.2
<i>FTSE WGBI ex US TR</i>			-2.9	-1.9
Ashmore EM Blended Debt Fund	57,434,832	4.6	-18.9	-21.4
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELM+</i>			-11.0	-12.6

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. Pathway 10 funded 3/31/2020. 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.

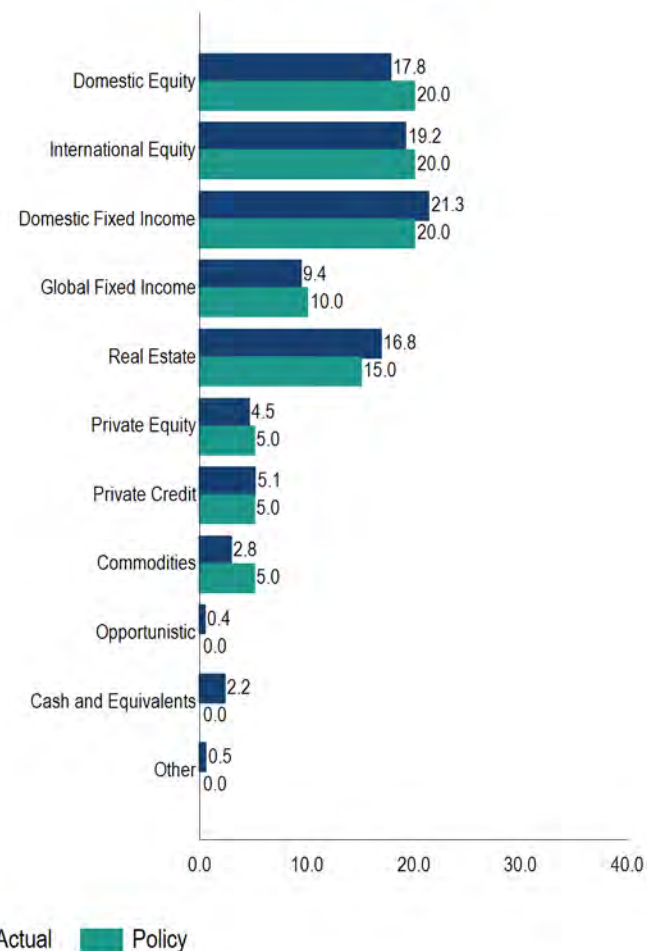
San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Real Estate	211,516,434	16.8	0.5	1.5
NCREIF Property Index			0.0	0.0
JP Morgan Core Real Estate	173,113,721	13.8	0.6	1.3
NCREIF-ODCE			1.0	1.0
NCREIF Property Index			0.0	0.0
ARA American Strategic Value Realty	38,402,713	3.1	0.0	2.3
NCREIF-ODCE			1.0	1.0
NCREIF Property Index			0.0	0.0
Total Commodities	35,481,350	2.8	-14.6	-25.1
Bloomberg Commodity Index TR USD			-12.8	-23.3
Gresham MTAP Commodity Builder	35,481,350	2.8	-14.6	-25.1
Bloomberg Commodity Index TR USD			-12.8	-23.3
Total Private Equity	56,613,827	4.5		
Harbourvest Partners IX Buyout Fund L.P.	14,895,591	1.2		
Pathway Private Equity Fund Investors 9 L.P.	34,373,940	2.7		
Harbourvest 2018 Global Fund L.P.	6,772,192	0.5		
Pathway Private Equity Fund Investors 10 L.P.	572,104	0.0		
Total Private Credit	63,836,942	5.1		
TPG Diversified Credit Program	63,836,942	5.1		
Total Cash	28,126,918	2.2	0.0	0.5
91 Day T-Bills			0.1	0.4
Cash Account	28,126,918	2.2	0.0	0.5
91 Day T-Bills			0.1	0.4
Total Opportunistic	4,884,598	0.4		
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,782,478	0.4		
PIMCO Distressed Credit Fund	102,120	0.0		

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. Pathway 10 funded 3/31/2020. 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**

MARCH 2020
Capital Markets Update

Market commentary

U.S. ECONOMICS

- Roughly 17 million people, or around 10% of the U.S. labor force filed for unemployment in the final three weeks of March, indicating the historic impact the social distancing controls have had on the U.S. labor market. Claims are expected to remain high, and many analysts believe the recent claims data have been understated due to the sheer volume of claims perhaps overwhelming processing capacity.
- The broad U-3 unemployment rate rose from 3.5% to 4.4% in the March household survey. The number of unemployed people on temporary layoff more than doubled to 1.8 million, while the number of permanent job losers increased by 177,000 to reach 1.5 million.
- The NFIB Small Business Optimism Index registered its largest ever monthly decline in March, falling from 104.5 to 96.4. Surveys showed that most employers have been negatively impacted by COVID-19 and half can survive no longer than two months under current conditions.

U.S. EQUITIES

- The S&P 500 Index declined 12.4% over the period, marking its 15th worst monthly return since 1871. Before making a partial recovery in late March, the S&P 500 Price Index hit intra-month lows of 2237 on March 23rd and was down 24.3% over the month-to-date.
- The VIX Index of implied volatility reached levels not seen since the Global Financial Crisis, and hit an intra-day closing high of 82.7 on March 16th. During the Global Financial Crisis, the VIX briefly eclipsed 100.0 intra-day but never closed at a higher level than 80.9.
- The month-end forward P/E ratio of the S&P 500 Index was 15.9x, below the 5-year average (16.7) and above the 10-year average (15.0).

U.S. FIXED INCOME

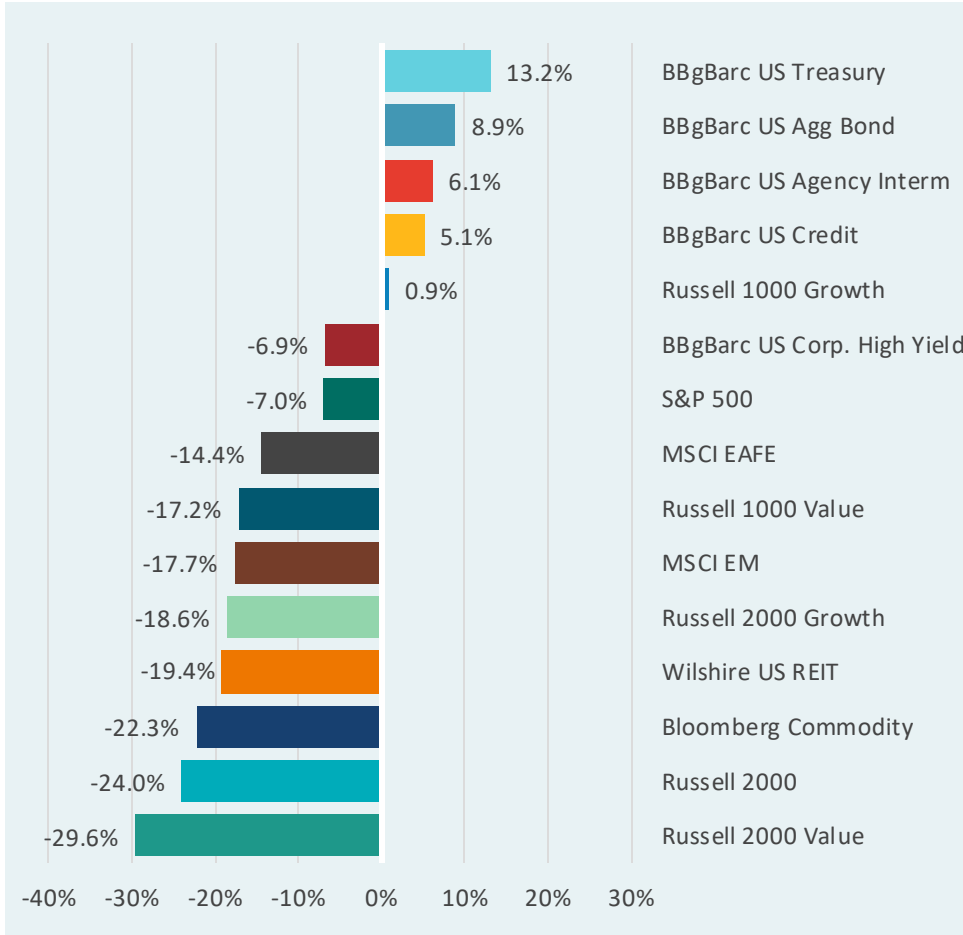
- The Federal Reserve responded quickly and forcefully to ensure the flow of credit to U.S. households and businesses. Over the course of the month, the Fed cut the range for federal funds from 1.50-1.75% to 0.00-0.25% and reintroduced several crisis-era liquidity programs from its arsenal of monetary policy tools.
- On March 15th, the Fed announced it would be buying \$700B in Treasuries and agency mortgage-backed securities. Later in the month, the Fed expanded its guidance on purchases, and pledged to buy securities “in the amounts needed to support smooth market functioning and effective transmission of monetary policy.”
- U.S. Treasuries provided downside protection as yields pushed lower across the curve, and the 10-year Treasury yield fell from 1.15% to 0.67%. The Treasury curve steepened slightly as shorter-term yields fell further than yields on longer-dated Treasuries.

INTERNATIONAL MARKETS

- COVID-19 news flow gripped global markets as the epicenter of the pandemic moved from Wuhan to Italy and Spain, and then to the Eastern seaboard of the United States. The confirmed global death toll swelled from just under 3,000 to 42,107.
- Global governments raced to provide fiscal support to cushion the economic impacts of COVID-19 related disruptions. Japanese officials pledged support equal to roughly 20% of GDP, and U.S. officials passed a \$2.2 trillion package worth about 10% of GDP.
- Services purchasing managers’ indices, which are less cyclical and normally stickier, plunged around the world. The J.P. Morgan Global Services PMI fell from 47.1 to 37.0 in March.

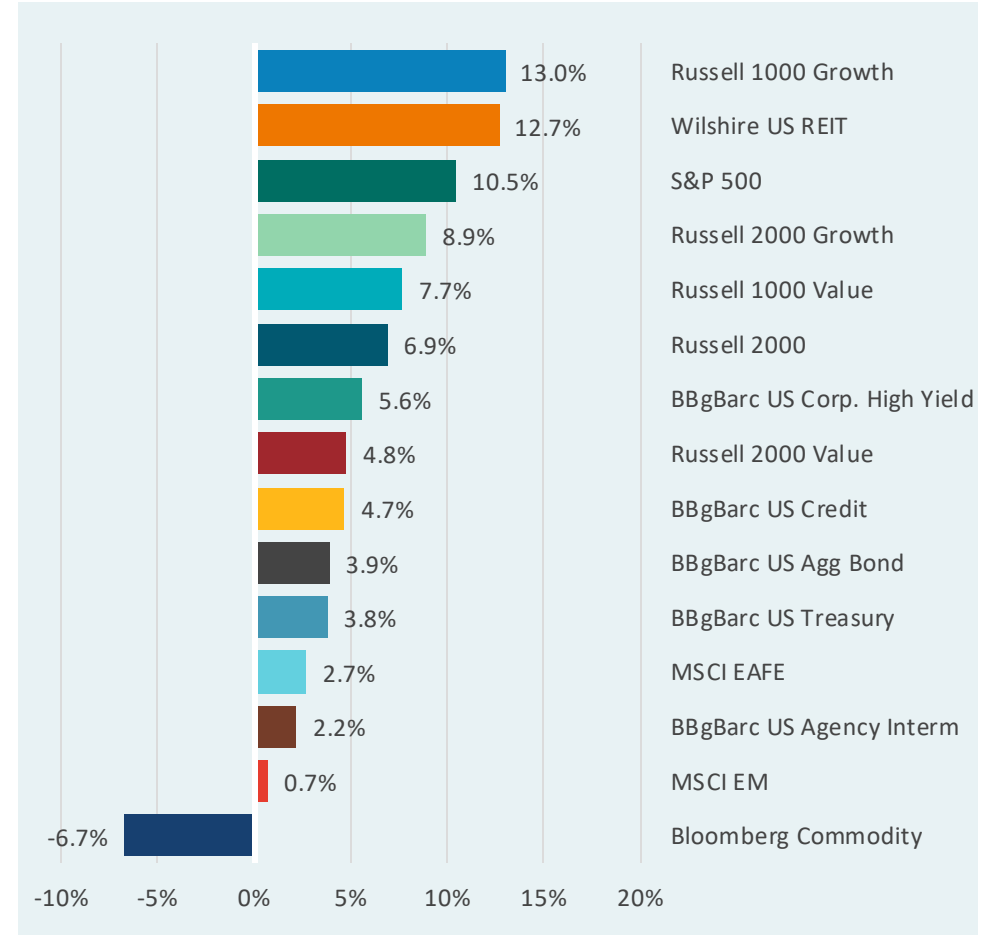
Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/20

TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/20

U.S. large cap equities

- The S&P 500 Index experienced a sharp decline in March and fell 12.4% over the month. Weakness was broad, and all eleven GICS sectors posted declines.
- Volatility reached historic levels over the month. The 10-day trailing annualized volatility of the S&P 500 Index rose from 27.8% to 73.5% and reached intra-month peaks of 127.3% on March 24th. Over 22 trading sessions, the average absolute value percentage move of the S&P 500 was 5.0%, and the index moved up or down by more than 7% on five separate occasions.
- The severe decline in the S&P 500 Index was exacerbated by the extraordinary demand and supply pressures faced by the Energy (-34.8%) sector. Poor performance from Financials (-21.3%) presented additional headwinds.
- According to FactSet, S&P 500 earnings are expected to decline -10.0% from the prior year in Q1 2020. Revenues are expected to grow +1.0% from the prior year, though revenue growth projections have fallen by 3.8% since the end of last year.

S&P 500 PRICE INDEX



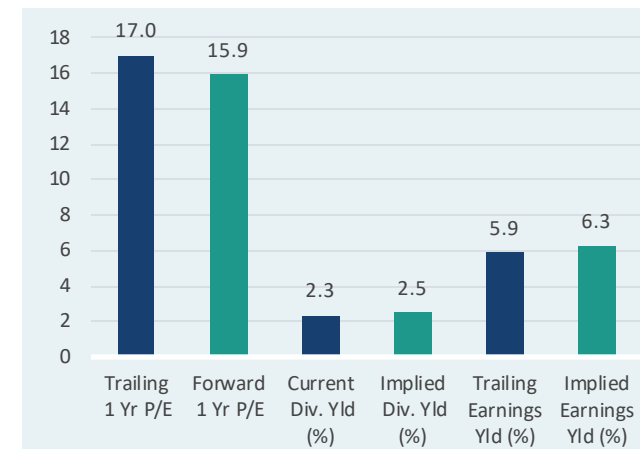
Source: Bloomberg, as of 3/31/20

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 3/31/20

S&P 500 VALUATION SNAPSHOT

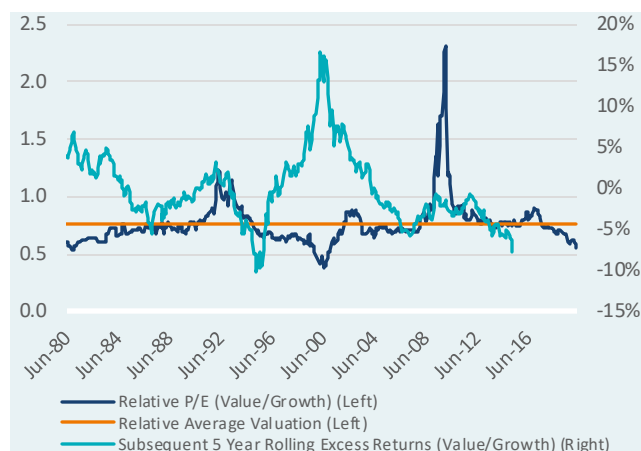


Source: Bloomberg, as of 3/31/20

Domestic equity size and style

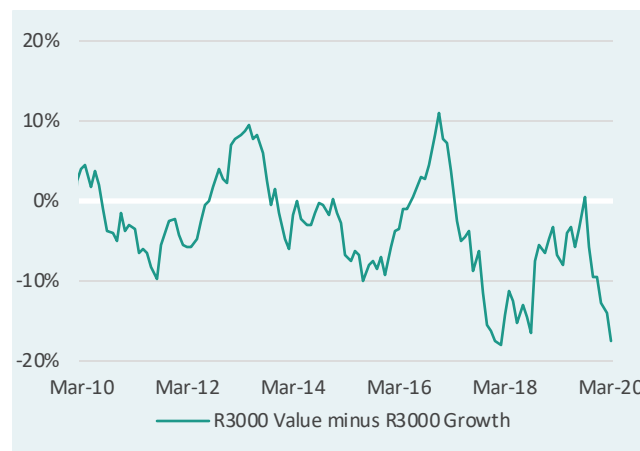
- The value factor dramatically underperformed the growth factor in March. The Russell 3000 Value Index (-17.6%) underperformed the Russell 3000 Growth Index (-10.4%) by 7.2%. Over the year-to-date, the Russell 3000 Value Index has underperformed its growth counterpart by 12.5%.
- Large-cap equities proved significantly more insulated (relative to small-cap equities) from the spike in economic uncertainty generated by the COVID-19 outbreak. The Russell 1000 Index declined only -13.2% while the Russell 2000 Index lost -21.7%.
- Much of the underperformance of the value factor relative to the growth factor in March was explained by differences in sector composition across indices. Energy stocks in the S&P 500 fell -34.8% and drove the underperformance of value. Information Technology stocks in the index declined only -8.6% and helped to buoy declines in growth factor indices.
- Exposure to the momentum factor paid investors in March. The Bloomberg U.S. Pure Momentum Factor Index registered a +1.2% return for the month.

VALUE VS. GROWTH RELATIVE VALUATIONS



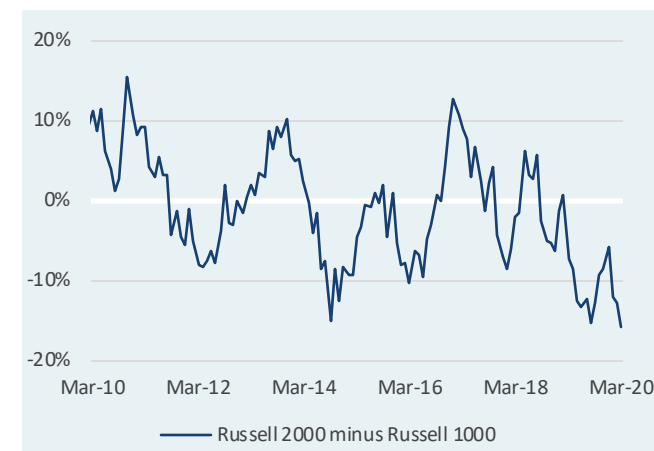
Source: Russell, Bloomberg, as of 3/31/20

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 3/31/20

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

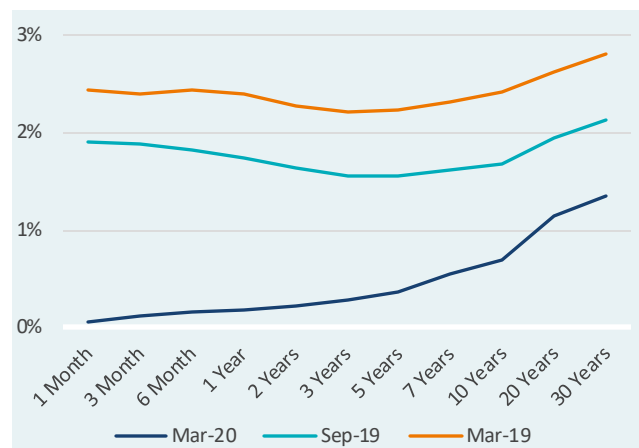


Source: FTSE, Bloomberg, as of 3/31/20

Fixed income

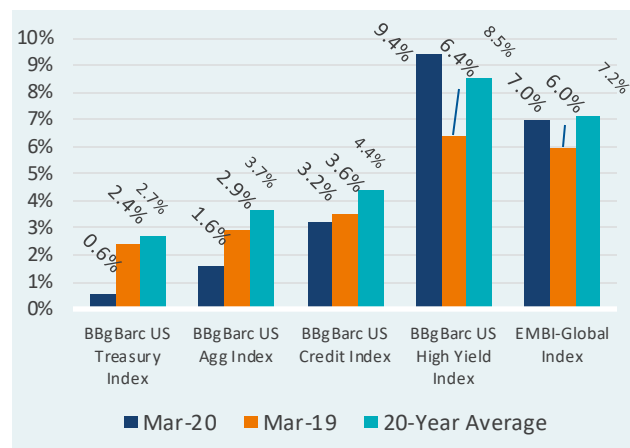
- To allay concerns over dollar liquidity in global dollar funding markets, the Federal Reserve opened dollar liquidity swap lines with foreign central banks, and rolled out a FIMA repo facility, allowing foreign central banks and monetary authorities to enter repurchase agreements with the Federal Reserve.
- Hard-currency denominated emerging market debt was the worst performer within fixed income (J.P. Morgan EMBI Global Diversified -13.8%). Several countries, including Mexico and South Africa, experienced sovereign debt rating downgrades.
- Breakeven inflation rates, which are calculated by subtracting TIPS yields from equivalent-maturity nominal Treasury yields, fell materially over the period. However, declines in breakeven inflation rates can also capture the effects of temporary liquidity imbalances. Treasury liquidity exceeded TIPS liquidity in March and drove some of the decline in breakeven inflation rates.
- U.S. investment grade credit spreads surged from 1.22% to 2.72% and reached intra-month highs of 3.73%. High-yield credit spreads spiked from 5.00% to as high as 11.00% and finished the month at 8.80%.

U.S. TREASURY YIELD CURVE



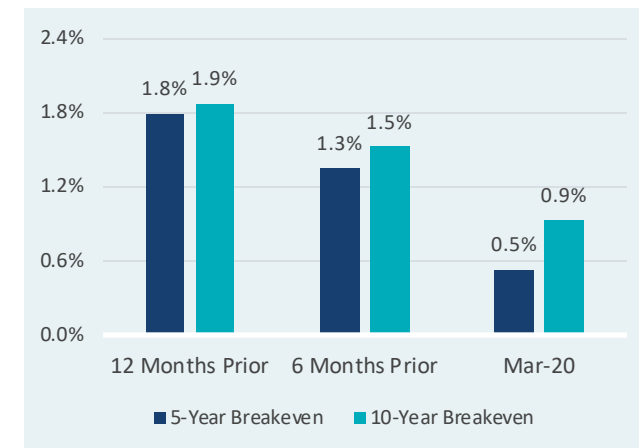
Source: Bloomberg, as of 3/31/20

NOMINAL YIELDS



Source: Morningstar, as of 3/31/20

BREAKEVEN INFLATION RATES

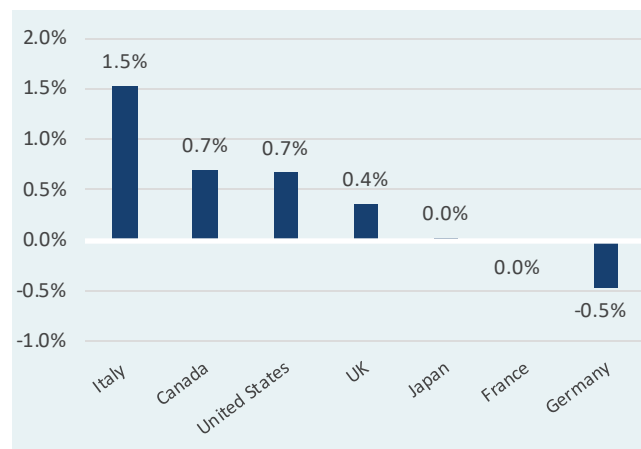


Source: Bloomberg, as of 3/31/20

Global markets

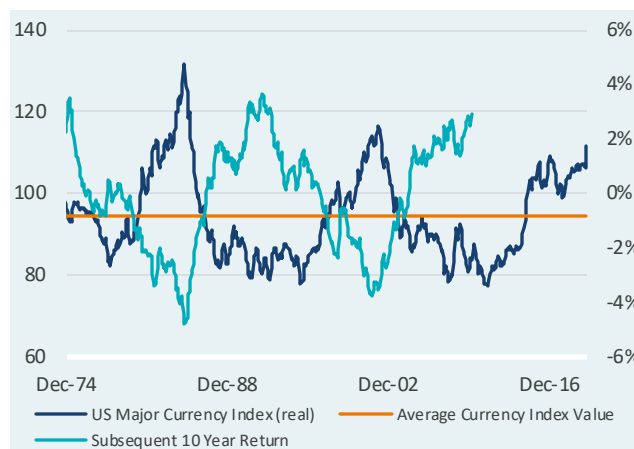
- Global equities (MSCI ACWI) fell -13.5% and emerging market equities (-15.4%) underperformed. Within emerging market equity, the Latin American segment (-34.5%) significantly underperformed the Asian component (-11.7%) in U.S. dollar terms. Weakness in Latin American currencies, specifically the Mexican peso, versus the U.S. dollar, exacerbated weakness.
- International developed equities (MSCI EAFE) returned -13.3%, in line with the global benchmark. Eurozone equities (-17.2%) lagged Japanese equities (-7.1%) in dollar terms, and currency impacts were negligible.
- The Bloomberg Dollar Spot Index, which measures the strength of the U.S. dollar relative to both developed and emerging market currency pairs, advanced 3.1%. Between March 9th and March 23rd, the index gained 8.9% as dollar liquidity became constrained. The index gave back some of those gains by month-end as Fed intervention in dollar funding markets eased strains.
- On March 31st, the blended forward 12-month P/E ratio of the MSCI ACWI Index was 14.3, below the 5-year monthly average (15.3). If expected earnings were to fall by 20%, the current forward P/E would be 17.8x.

GLOBAL SOVEREIGN 10-YEAR YIELDS



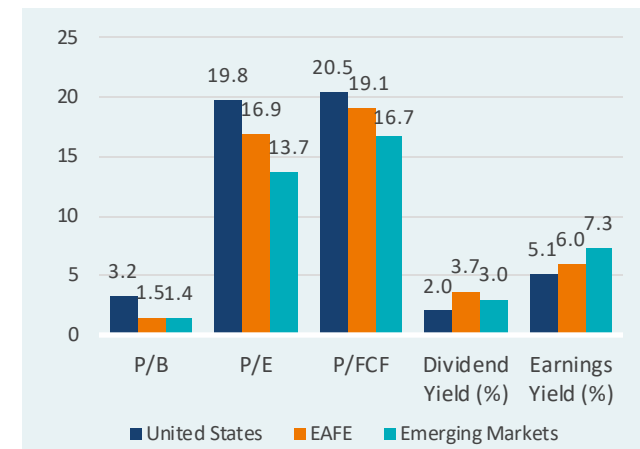
Source: Bloomberg, as of 3/31/20

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 3/31/20

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 3/31/20

Commodities

- The Bloomberg Commodity Index declined -12.8% for the month, bringing year-to-date performance to -23.3%. While the entire commodity complex performed poorly, the decline in the overall index was driven primarily by a rout in the crude oil markets resulting in a -46.8% decline in the Petroleum component.
- A dearth in global oil demand driven by COVID-19 related economic disruptions and the concurrent emergence of a supply shock in the form of a price war between Saudi Arabia and Russia led the price of a barrel of West Texas Intermediate crude oil to fall from \$44.94 to \$20.48.

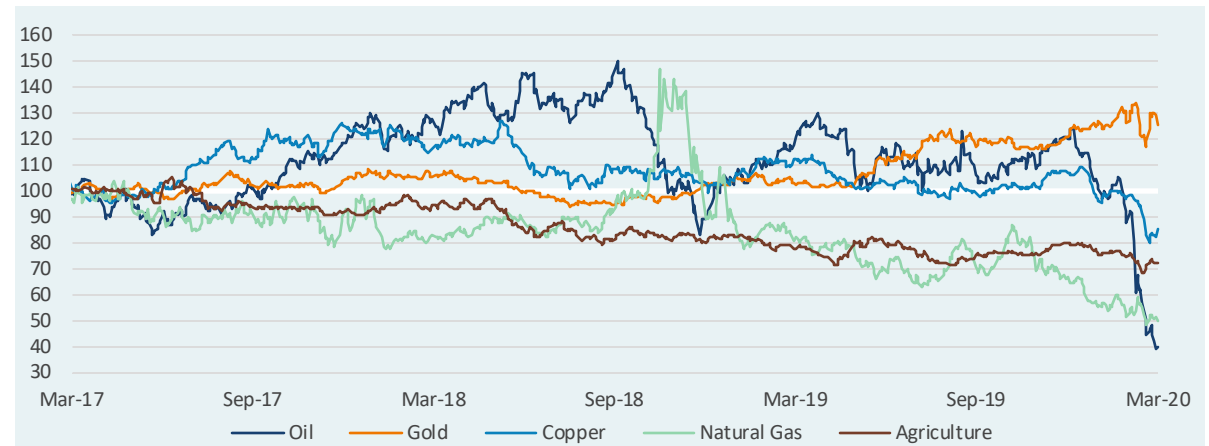
- At its March 6th meeting, OPEC elected not to extend the production cuts it had kept in place since December 2016. With the production cuts expiring at the end of March, the U.S. Energy Information Administration increased its forecast for OPEC liquid fuels production by 150,000 and 200,000 barrels per day in 2020 and 2021, respectively.
- The Bloomberg Precious Metals Sub-Index outperformed the overall index but still posted a return of -1.4%. Spot gold prices fell 0.5% to \$1,577 per ounce, faced with the dual pressures of rebalancing activity following strong relative performance, as well as a stronger U.S. dollar.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(12.8)	(23.3)	(23.3)	(22.3)	(8.6)	(7.8)	(6.7)
Bloomberg Agriculture	(3.3)	(9.9)	(9.9)	(5.3)	(9.1)	(7.2)	(3.5)
Bloomberg Energy	(35.1)	(51.1)	(51.1)	(52.9)	(19.8)	(18.8)	(17.1)
Bloomberg Grains	(0.6)	(7.2)	(7.2)	(2.6)	(7.9)	(8.7)	(3.6)
Bloomberg Industrial Metals	(9.7)	(18.5)	(18.5)	(22.7)	(5.5)	(3.4)	(6.1)
Bloomberg Livestock	(13.5)	(28.1)	(28.1)	(35.5)	(11.0)	(9.7)	(5.6)
Bloomberg Petroleum	(46.8)	(60.1)	(60.1)	(57.6)	(19.6)	(18.2)	(14.5)
Bloomberg Precious Metals	(1.4)	(1.1)	(1.1)	15.7	3.7	3.2	1.7
Bloomberg Softs	(12.4)	(16.8)	(16.8)	(13.7)	(15.5)	(7.5)	(6.1)

Source: Morningstar, as of 3/31/20

COMMODITY PERFORMANCE



Source: Bloomberg, as of 3/31/20

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
US Bonds	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	3.1	10.4	13.0
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	0.4	7.5	10.4
Real Estate	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	0.0	6.2	10.1
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	-6.0	3.4	8.9
60/40 Global Portfolio	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	-13.3	3.0	7.7
Large Cap Growth	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	-14.1	1.9	6.9
Large Cap Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	-20.2	1.7	4.8
International Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	-22.8	1.1	4.7
Commodities	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	-23.3	0.6	3.9
Emerging Markets Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	-23.6	-0.2	2.7
Small Cap Growth	-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	-25.8	-0.4	2.1
Large Cap Value	-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	-26.7	-0.6	0.7
Small Cap Equity	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	-30.6	-2.4	0.6
Small Cap Value	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-35.7	-7.8	-6.7

Large Cap Equity

Large Cap Value

Large Cap Growth

Small Cap Equity

Small Cap Value

Small Cap Growth

International Equity

Emerging Markets Equity

US Bonds

Cash

Commodities

Real Estate

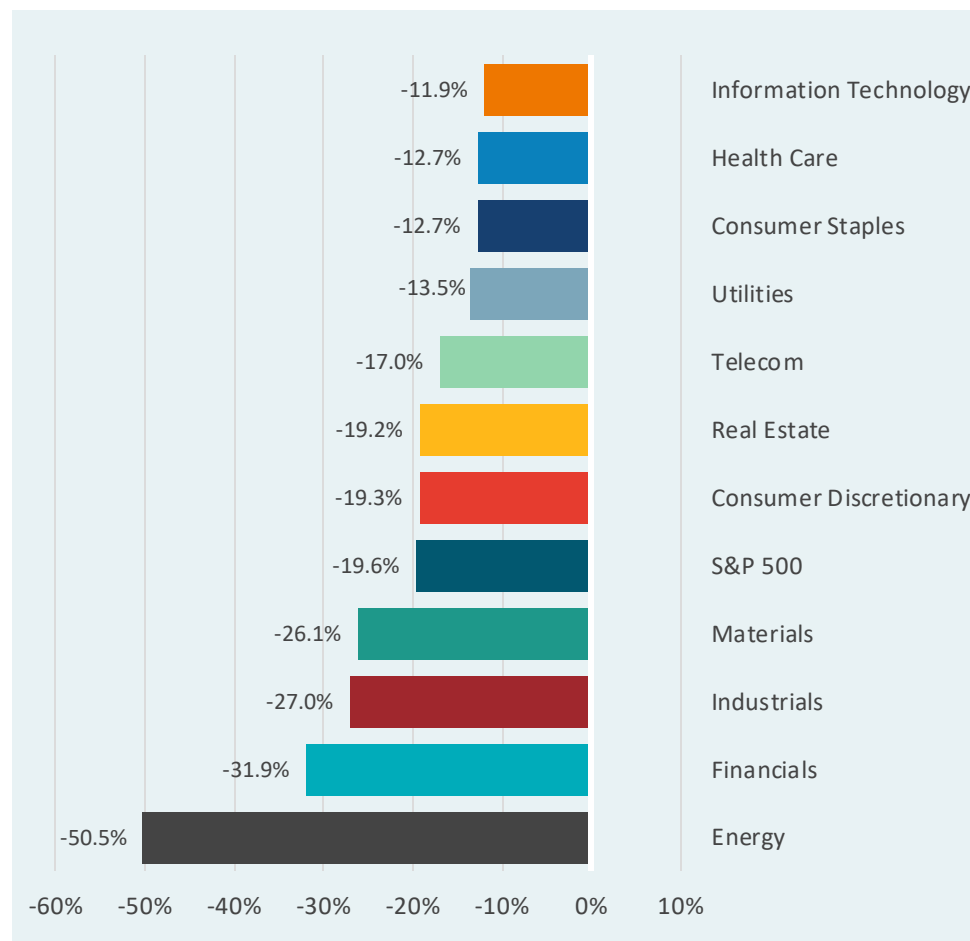
Hedge Funds of Funds

60% MSCI ACWI/40% BBgBarc Global Bond

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

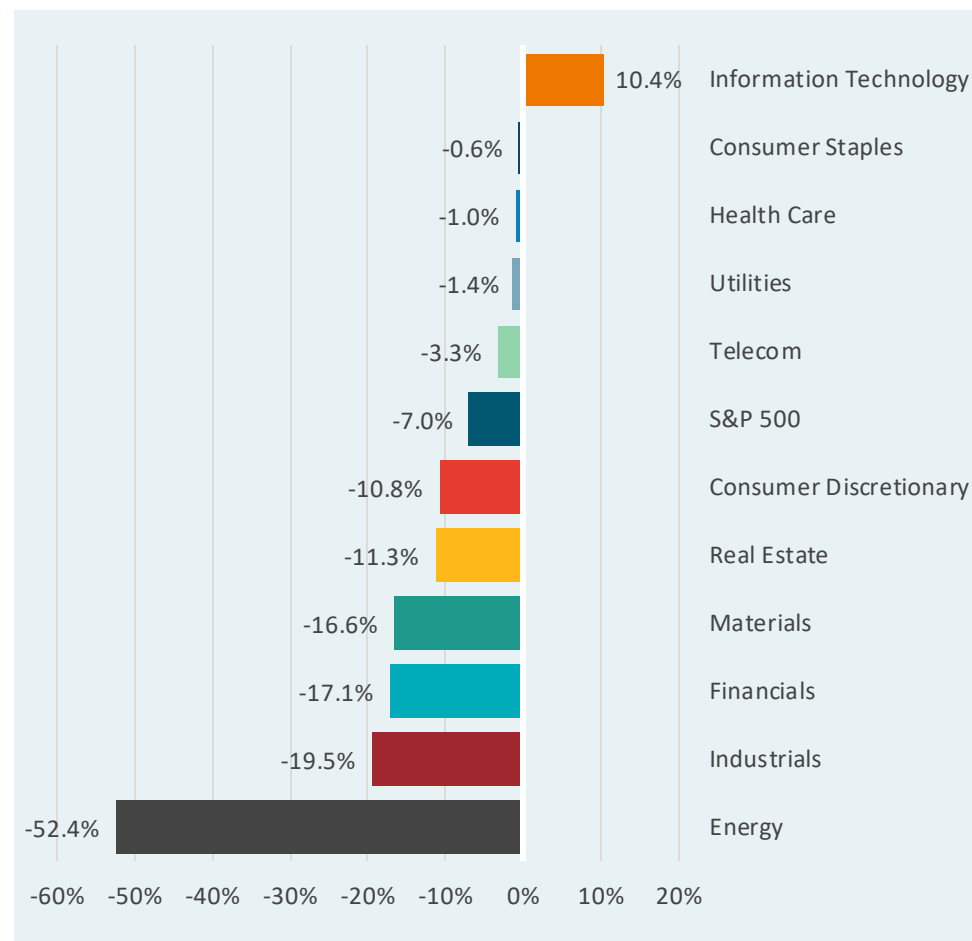
S&P 500 sector returns

Q1 2020



Source: Morningstar, as of 3/31/20

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/20

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(12.4)	(19.6)	(19.6)	(7.0)	5.1	6.7	10.5
S&P 500 Equal Weighted	(18.0)	(26.7)	(26.7)	(17.6)	(0.4)	2.8	9.2
DJ Industrial Average	(13.6)	(22.7)	(22.7)	(13.4)	4.4	6.9	10.0
Russell Top 200	(11.0)	(17.7)	(17.7)	(4.1)	6.7	7.9	11.0
Russell 1000	(13.2)	(20.2)	(20.2)	(8.0)	4.6	6.2	10.4
Russell 2000	(21.7)	(30.6)	(30.6)	(24.0)	(4.6)	(0.2)	6.9
Russell 3000	(13.8)	(20.9)	(20.9)	(9.1)	4.0	5.8	10.1
Russell Mid Cap	(19.5)	(27.1)	(27.1)	(18.3)	(0.8)	1.8	8.8
Style Index							
Russell 1000 Growth	(9.8)	(14.1)	(14.1)	0.9	11.3	10.4	13.0
Russell 1000 Value	(17.1)	(26.7)	(26.7)	(17.2)	(2.2)	1.9	7.7
Russell 2000 Growth	(19.1)	(25.8)	(25.8)	(18.6)	0.1	1.7	8.9
Russell 2000 Value	(24.7)	(35.7)	(35.7)	(29.6)	(9.5)	(2.4)	4.8

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	(13.5)	(21.4)	(21.4)	(11.3)	1.5	2.8	5.9
MSCI ACWI ex US	(14.5)	(23.4)	(23.4)	(15.6)	(2.0)	(0.6)	2.1
MSCI EAFE	(13.3)	(22.8)	(22.8)	(14.4)	(1.8)	(0.6)	2.7
MSCI EM	(15.4)	(23.6)	(23.6)	(17.7)	(1.6)	(0.4)	0.7
MSCI EAFE Small Cap	(17.2)	(27.5)	(27.5)	(18.1)	(2.9)	1.0	4.8
Style Index							
MSCI EAFE Growth	(9.2)	(17.5)	(17.5)	(5.8)	3.0	2.5	4.7
MSCI EAFE Value	(17.7)	(28.2)	(28.2)	(22.8)	(6.7)	(3.8)	0.6
Regional Index							
MSCI UK	(16.0)	(28.8)	(28.8)	(23.0)	(4.9)	(3.3)	1.6
MSCI Japan	(7.1)	(16.8)	(16.8)	(6.7)	1.0	1.8	3.8
MSCI Euro	(17.2)	(27.0)	(27.0)	(18.3)	(4.4)	(2.3)	1.1
MSCI EM Asia	(11.7)	(18.1)	(18.1)	(12.1)	1.3	1.4	3.5
MSCI EM Latin American	(34.5)	(45.6)	(45.6)	(40.8)	(13.0)	(5.9)	(6.7)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	(1.8)	1.7	1.7	6.8	3.5	2.7	3.5
BBgBarc US Treasury Bills	0.3	0.6	0.6	2.4	1.8	1.2	0.7
BBgBarc US Agg Bond	(0.6)	3.1	3.1	8.9	4.8	3.4	3.9
Duration							
BBgBarc US Treasury 1-3 Yr	1.3	2.8	2.8	5.4	2.7	1.8	1.4
BBgBarc US Treasury Long	6.1	20.9	20.9	32.6	13.4	7.3	9.0
BBgBarc US Treasury	2.9	8.2	8.2	13.2	5.8	3.6	3.8
Issuer							
BBgBarc US MBS	1.1	2.8	2.8	7.0	4.0	2.9	3.3
BBgBarc US Corp. High Yield	(11.5)	(12.7)	(12.7)	(6.9)	0.8	2.8	5.6
BBgBarc US Agency Interm	0.9	2.9	2.9	6.1	3.2	2.3	2.2
BBgBarc US Credit	(6.6)	(3.1)	(3.1)	5.1	4.2	3.3	4.7

OTHER

Index							
Bloomberg Commodity	(12.8)	(23.3)	(23.3)	(22.3)	(8.6)	(7.8)	(6.7)
Wilshire US REIT	(20.0)	(25.6)	(25.6)	(19.4)	(2.5)	5.7	12.7
CS Leveraged Loans	(12.5)	(13.2)	(13.2)	(9.5)	(0.7)	4.6	5.0
Alerian MLP	(48.1)	(58.1)	(58.1)	(61.9)	(29.9)	(21.1)	(4.7)
Regional Index							
JPM EMBI Global Div	(13.8)	(13.4)	(13.4)	(6.8)	0.4	2.8	4.9
JPM GBI-EM Global Div	(11.1)	(15.2)	(15.2)	(6.5)	(0.8)	0.3	0.5
Hedge Funds							
HFRI Composite	(5.9)	(8.3)	(8.3)	(4.0)	0.7	1.3	2.9
HFRI FOF Composite	(4.9)	(6.0)	(6.0)	(2.6)	1.0	0.6	2.1
Currency (Spot)							
Euro	(0.1)	(2.3)	(2.3)	(2.3)	0.9	0.4	(2.1)
Pound	(2.9)	(6.4)	(6.4)	(4.8)	(0.3)	(3.5)	(2.0)
Yen	(0.1)	0.7	0.7	2.5	1.1	2.1	(1.4)

Source: Morningstar, HFR, as of 3/31/20

Notices & disclosures

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Pension Trust

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



Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 6: Social Security Agreement - Resolution 2020-03

Recommendation:

It is recommended that the Board of Trustees approve the attached Resolution authorizing the intent of SLOCPT to provide coverage of its employees under the old age, survivors, disability and health insurance system established by the Federal Social Security Act retroactively to January 1, 1989, and that an election be held of current employees on the question of whether service in positions that participate in the Pension Trust should be excluded or included under the insurance system established under the Social Security Act.

Discussion:

Since 1955, CalPERS has been designated as the State Social Security Administrator (SSSA) for California. As the SSSA, CalPERS is primarily responsible for administering Section 218 Agreements between the federal Social Security Administration and state and local government employers that have chosen to provide Social Security benefits to their employees. The agreements detail benefits and coverage amount authorized by Section 218 of the Social Security Act.

SLOCPT staff was recently contacted by the CalPERS State Social Security Administrator Program and notified that it does not currently have a Section 218 Agreement in place. SLOCPT has been deducting and paying for Social Security benefits through payroll deductions since its staff became SLOCPT employees instead of County employees starting in 1989. This communication from CalPERS is the first time staff has been made aware that SLOCPT needs its own 218 Agreement.

CalPERS advised staff of two optional remedies:

1. Choose not to establish a 218 agreement with CalPERS. Employees of SLOCPT would no longer be eligible for Social Security benefit and amounts deducted for these benefits in the prior 3 years would be refunded to the employees and SLOCPT. Amounts deducted prior to that would not be refunded.
2. Chose to retroactively establish a 218 Agreement with CalPERS so that Employees maintain Social Security benefits.

Of course, the second option is the appropriate course of action.

As such the attached Resolution will begin the process of establishing the Section 218 Agreement with CalPERS so that SLOCPT employees' and retired employees Social Security benefits are not adversely affected.

Respectfully submitted,

**SAN LUIS OBISPO COUNTY
PENSION TRUST**

PRESENT:

ABSENT:

RESOLUTION NO. 2020-03

A Resolution to provide coverage under the old age, survivors, disability and health insurance system established by the Federal Social Security Act for eligible employees of the San Luis Obispo County Pension Trust.

WHEREAS, San Luis Obispo County Pension Trust hereinafter designated as “Public Agency”, desires to include services performed by its employees in positions covered by San Luis Obispo County Pension Trust in the California State Social Security Agreement of March 9, 1951, providing for the coverage of public employees under the old age, survivors, disability and health insurance system established by the Federal Social Security Act, as amended; and

WHEREAS, State and Federal laws require, as a condition of such coverage, that an election first be authorized by the Board of Administration, Public Employee’s Retirement System, and conducted among the “eligible employees” (as defined in Section 218(d)(3) of the Social Security Act) of the Public Agency; and

WHEREAS, it is necessary that the “Public Agency” now designate any classes of positions covered by said retirement system which it desires to exclude from coverage under said insurance system;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Administration, Public Employees’ Retirement System be, and hereby is requested to authorize the foregoing election; and

BE IT FURTHER RESOLVED, that upon receipt of authorization from the Board of Administration, an election shall be conducted in accordance with the requirements of Section 218(d) of the Social Security Act, and applicable State and Federal law and regulations; that such election shall be held on the question of whether service in positions covered by said retirement system should be excluded from or included under an agreement under the insurance system established under the Social Security Act, as hereinbefore provided, with such coverage effective as to services performed on and after January 1, 1989; and

BE IT FURTHER RESOLVED, that the following classes of positions covered by said retirement system of the “Public Agency” shall be excluded from coverage under said agreement:

1. All services excluded from coverage under the agreement by Section 218 of the Social Security Act; and

2. Services excluded by option of the Public Agency (Check a or b; fill in b if checked):

a. No option exclusions desired.

b. Service performed: Elective Officials, Agricultural Labor

BE IT FURTHER RESOLVED, that no less than ninety days' notice of such election be given to all "eligible employees" as hereinabove provided; and that Jennifer Alderete, Accountant is hereby designated and appointed to conduct such election on behalf of the "Public Agency" in accordance with law, regulations, and this resolution, including the giving of proper notice thereof to all such "eligible employees"; and

BE IT FURTHER RESOLVED, that with respect to eligible members thereof, the benefits and contributions of the said retirement system shall not be modified in any way and

BE IT FURTHER RESOLVED, that the Public Agency will pay and reimburse the State at such time and in such amounts as may be determined by the State the approximate cost of any and all work and services relating to such election.

Adopted: _____, 2020

Approved as to Form and Legal Effect

Chris Waddell
General Counsel

SIGNED: _____
Guy Savage
President, Board of Trustees
San Luis Obispo County Pension Trust

DATE: _____

ATTEST: _____
Carl Nelson, Executive Director

Pension Trust

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www.SLOPensionTrust.org



Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 9: January 1, 2020 Experience Study - Report and Alternative Actions to be Considered - Presentation by Paul Wood, ASA, FCA, MAAA – Plan Actuary, Gabriel Roeder Smith

Recommendation:

Receive and discuss the recommendations of SLOCPT’s actuary, Paul Wood of Gabriel Roeder Smith, on the 2020 Experience Study. The Board of Trustees may direct the Actuary relative to specific components of the 2020 Experience Study.

Staff recommends that the Board of Trustees approve the 2020 Experience Study after such discussion.

The specific direction to the Actuary on assumptions to use in finalizing the 2020 Annual Actuarial Valuation will be covered in a separate agenda item at this meeting.

Discussion:

It is the policy of SLOCPT to have an annual Actuarial Valuation to set the total level of contributions necessary to fund the retirement system – the Total Combined Actuarially Determined Contribution (Total ADC). In support of that annual Actuarial Valuation, SLOCPT has performed a biennial Actuarial Experience Study. In these Experience Studies the Actuary analyzes the trailing five years of Plan demographic and financial experience to determine what actuarial assumptions to recommend to the Board of Trustees to use in the annual Actuarial Valuation.

The attached presentation and draft Experience Study report summarizes the findings of the January 1, 2020 Actuarial Experience Study.

Expected Results:

In the attached draft 2020 Actuarial Experience Study in the “Summary of Recommendations” section on pages 33-34 –

- The results of the preliminary 2020 Actuarial Valuation are shown under the “Baseline” column heading.
- The results of the preliminary 2020 Actuarial Valuation with the Actuary’s recommended assumption changes are shown under the “New Assumptions with 7.000% Discount Rate” column heading. 7.000% is the Discount Rate used in the 2019 Actuarial Valuation.
- The results of the preliminary 2020 Actuarial Valuation including the Actuary’s recommended assumption changes at 7.000%, 6.875% and 6.750% Discount Rates are shown in additional columns.

Following the approval of actuarial assumptions in a separate Board of Trustees item, GRS will finalize the 2020 Actuarial Valuation and present it for approval at the June 22nd Board of Trustees meeting.

Attachments:

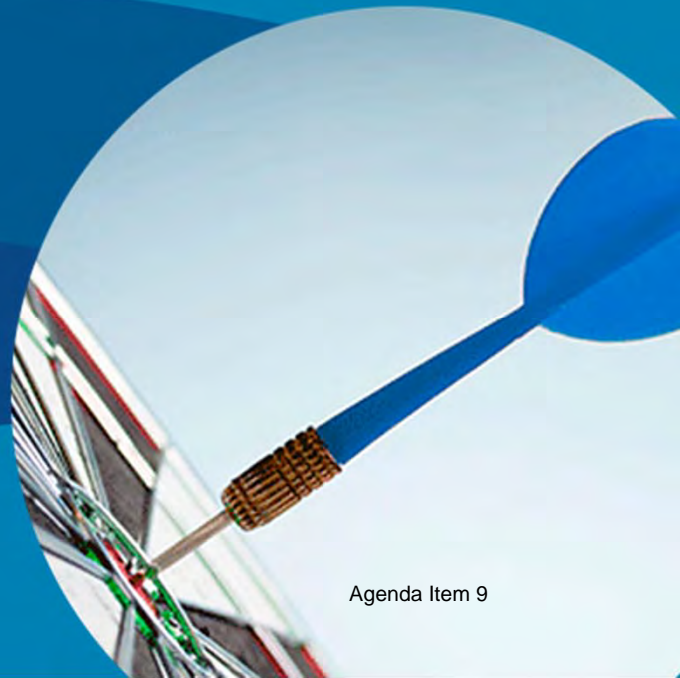
1. Presentation – 2020 Actuarial Experience Study
2. Report – draft 2020 Actuarial Experience Study



San Luis Obispo County Pension Trust

**Actuarial Experience Study for the Five-Year
Period Ending December 31, 2019**

**Paul Wood, ASA, FCA, MAAA
May 18, 2020**



2020 Experience Study

Purpose

- Experience was last studied in 2018
- Assumptions are not static; they should occasionally change to reflect
 - New information and changing knowledge
 - Mortality improvement
 - Changing patterns of retirements, terminations, etc.
 - Implementation of improved technology and processes
- The analysis will address these questions for each assumption
 - What was the plan's actual experience?
 - How does that compare with current assumptions?
 - Is a change warranted?

2020 Experience Study

Projecting the Liability for Each Member

What is the probability
the member reaches
retirement?
(Termination assumption)

When will the
member retire?
(Retirement assumption)

How much will
the benefit be?
(Benefit Provisions,
Salary increase assumption)

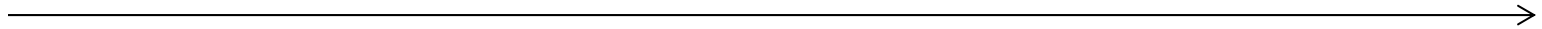
How long will
the benefit be paid?
(Mortality assumption)



Hired at age 30

**Retire
with annual benefit**

**Receive benefit
for remaining lifetime**



**What investment earnings will be
available to help pay the benefits?**

**What overall payroll will be available
to provide contributions?**



2020 Experience Study

How assumptions factor in...

- Over time, the true cost of benefits will be borne out in actual experience
 - Ultimate benefits paid are NOT affected by actuarial assumptions or methods
 - Determined by actual participant behavior (termination, retirement), plan provisions, and actual investment returns
- Assumptions help us develop a reasonable starting point for decision making and budgeting today

“Projections are difficult, especially ones about the future”

2020 Experience Study

Data Used

- We analyzed experience data from the last five years from January 1, 2015 through December 31, 2019
- Surveyed 14 investment firms for capital market assumptions
- Used local and national indicators for inflation

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Assumptions Studied

- Economic Assumptions
 - Inflation Rate
 - Discount Rate
 - Plan Specific COLA Increase Rate
 - Individual Salary Increase
 - Payroll Growth Rate

- Demographic Assumptions
 - Mortality
 - Termination
 - Disability
 - Retirement
 - Other



ECONOMIC ASSUMPTIONS

2020 Experience Study

Building Internally Consistent Assumptions

- Inflation underlies all of the economic assumptions
- Nominal Rate of Return equals real return plus inflation
- Salary increases are usually a rate above inflation

2020 Experience Study

Economic Assumptions – History of Changes

San Luis Obispo County Pension Trust					
Historical Review of Economic Assumption Changes					
Assumption	Pre 2012	2012	2014	2016	2018
Inflation	3.750%	2.750%	2.750%	2.625%	2.500%
Real Return	4.000%	4.500%	4.500%	4.500%	4.500%
Total Return (inflation plus real return)	7.750%	7.250%	7.250%	7.125%	7.000%
Tier 1 COLA	3.750%	2.750%	2.750%	2.625%	2.500%
Payroll Growth	4.250%	3.750%	3.750%	3.375%	3.00% in 2018 and 2.75% thereafter
Interest credited on employee accounts	7.250%	6.750%	6.750%	6.125%	6.000%
Salary increases	3.75% inflation plus 1.75% productivity across-the-board plus merit for recent hires	2.75% inflation plus 0.5% productivity across-the-board plus merit for recent hires	2.75% inflation plus 0.5% productivity across-the-board plus merit for recent hires	2.625% inflation plus 0.25% productivity across-the-board plus merit for recent hires	2.50% inflation plus 0.25% productivity across-the-board plus merit for recent hires

- Changes in many of the economic assumptions have been driven by changes in inflation
- Inflation is the assumption that underlies the economic assumptions (building block approach)



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Economic Assumptions – Inflation Rate

- Current Assumption: 2.50%
- 2019 survey of 14 investment consulting firms shows an annual inflation expectation of 2.18%
- Relationship of long term bonds to Treasury Inflation-Protected Securities (TIPS) gives market expected inflation of less than 1.86%
- Social Security Administration is projecting long-term inflation of 2.60%
- Verus' current expectation is 1.9% which is down from 2.1% in 2018
- **Recommendation: Lower inflation assumption to 2.25%**

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Economic Assumptions – Discount Rate

- The investment return rate is used to discount future expected cash flows (benefits and refunds), in order to determine the actuarial present values (liabilities)
- This is a critical assumption, since even small changes in the assumption, say 25 basis points on the real return, will usually change the required contribution rate by up to 3.0% of pay

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Economic Assumptions – Discount Rate

- Current Assumption: 7.00%, net of all administrative and investment expenses
 - 2.50% inflation plus
 - 4.50% real return
- Verus' 10 and 30 year expectation is 6.2%
- GRS surveyed 14 investment consulting firms on the capital market expectations
 - Tables on next couple of slides are based on the 2019 survey
 - There is a strong indication that the 2020 expectations may be down 25 to 50 basis points as a result of the strong 2019 asset returns

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Economic Assumptions – Average 1-Year Return

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)–(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Plan Incurred Administrative Expenses	Expected Nominal Return Net of Expenses (6)-(7)	Standard Deviation of Expected Return (1-Year)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	5.376%	2.200%	3.176%	2.250%	5.426%	0.200%	5.226%	11.66%
2	6.765%	2.500%	4.265%	2.250%	6.515%	0.200%	6.315%	12.10%
3	6.912%	2.500%	4.412%	2.250%	6.662%	0.200%	6.462%	12.12%
4	6.381%	2.200%	4.181%	2.250%	6.431%	0.200%	6.231%	9.36%
5	6.699%	2.000%	4.699%	2.250%	6.949%	0.200%	6.749%	10.41%
6	7.232%	2.250%	4.982%	2.250%	7.232%	0.200%	7.032%	12.07%
7	7.382%	2.260%	5.122%	2.250%	7.372%	0.200%	7.172%	13.22%
8	7.292%	2.213%	5.079%	2.250%	7.329%	0.200%	7.129%	12.29%
9	7.363%	2.305%	5.058%	2.250%	7.308%	0.200%	7.108%	11.21%
10	7.529%	2.000%	5.529%	2.250%	7.779%	0.200%	7.579%	11.97%
11	7.779%	2.300%	5.479%	2.250%	7.729%	0.200%	7.529%	11.17%
12	8.080%	2.148%	5.932%	2.250%	8.182%	0.200%	7.982%	12.31%
13	7.697%	1.700%	5.997%	2.250%	8.247%	0.200%	8.047%	12.24%
14	7.840%	2.000%	5.840%	2.250%	8.090%	0.200%	7.890%	9.28%
Average	7.166%	2.184%	4.982%	2.250%	7.232%	0.200%	7.032%	11.53%

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Economic Assumptions – Average 20-Year Return

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 7.000%	Probability of exceeding 6.750%	Probability of exceeding 6.50%
	40th	50th	60th	7.000%	6.750%	6.50%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	3.933%	4.586%	5.242%	17.78%	20.35%	23.14%
2	4.956%	5.633%	6.314%	30.61%	33.91%	37.36%
3	5.102%	5.779%	6.461%	32.55%	35.94%	39.45%
4	5.295%	5.821%	6.349%	28.65%	32.83%	37.25%
5	5.662%	6.246%	6.832%	37.24%	41.38%	45.62%
6	5.682%	6.357%	7.037%	40.53%	44.17%	47.87%
7	5.628%	6.366%	7.109%	41.44%	44.78%	48.17%
8	5.743%	6.431%	7.122%	41.74%	45.34%	48.98%
9	5.898%	6.526%	7.158%	42.46%	46.42%	50.42%
10	6.250%	6.919%	7.593%	48.79%	52.55%	56.30%
11	6.329%	6.954%	7.583%	49.26%	53.29%	57.29%
12	6.598%	7.287%	7.980%	54.19%	57.82%	61.39%
13	6.676%	7.360%	8.049%	55.30%	58.93%	62.50%
14	6.971%	7.493%	8.017%	59.46%	64.10%	68.56%
Average	5.766%	6.411%	7.061%	41.43%	45.13%	48.88%

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Economic Assumptions – Discount Rate

- Reasonable range for the discount rate based on 2019 Capital Market Expectations is between 6.4% (median return) and 7.00% (mean return)
- 2020 expectations will most certainly be lower
- COVID-19 will have significant impact on the expectation of returns going forward
- Ultimate decision will depend heavily on the risk tolerance of the Board
- **Recommendation is to consider a rate between:**
 - 7.00% nominal return (2.25% inflation + 4.75% real return)
 - 6.75% nominal return (2.25% inflation + 4.50% real return)

2020 Experience Study

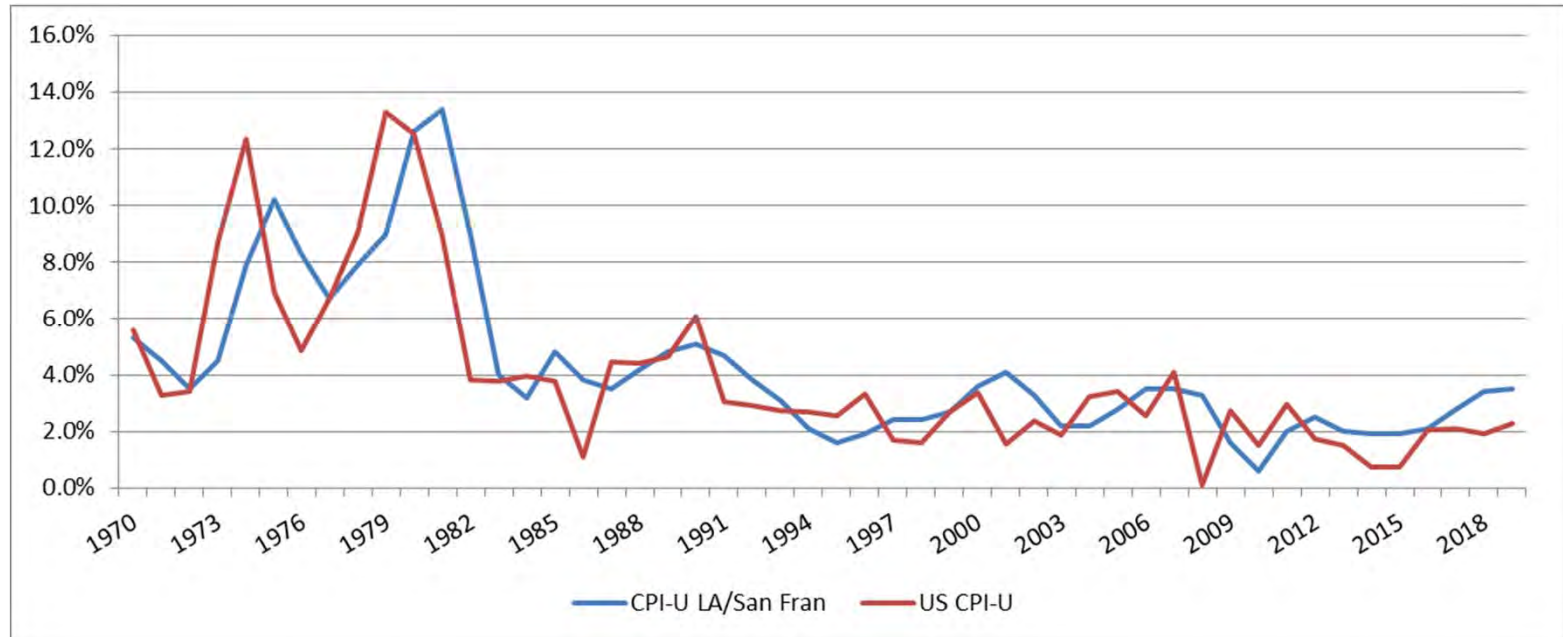
Economic Assumptions – Plan Specific Inflation

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

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Economic Assumptions – Plan Specific Inflation

- COLA is based on an average of the CPI-U for Los Angeles and San Francisco



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Economic Assumptions – Plan Specific Inflation

- Average spread between LA/San Fran – CPI-U and US - CPI-U has been increasing

	LA/San Fran - CPI-U	US CPI-U	Spread
5 Year Average	2.74%	1.82%	0.92%
10 Year Average	2.27%	1.75%	0.51%
20 Year Average	2.64%	2.14%	0.50%
30 Year Average	2.75%	2.40%	0.35%
Since 1970	4.24%	3.91%	0.33%

- Current Tier 1 COLA Assumption: 2.50%
- Tier 2 and 3 COLA assumption 2.00% (max allowed)
- **Recommendation: 2.50% (implies 25bp spread between LA/San Fran – CPI-U and US - CPI-U)**

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Individual Salary Increases

- Assumption is based on three components:
 - (Price) Inflation
 - Productivity (together with inflation equals wage inflation)
 - Merit/Promotion
- Current assumption 2.75% wage inflation (2.50% inflation + 0.25% productivity) with merit increases during the first seven years of employment
- Overall salary increases slightly higher than expected

2020 Experience Study

Individual Salary Increases – Productivity

- Longer service employees' wages are assumed to grow at the overall rate of wage inflation
- Current assumption of 2.75% (2.50% price inflation plus 0.25% productivity increases)
- Actual experience observed in the study indicates productivity increases of about 0.60% above the observed price inflation over the last five years
- **Recommendation: 2.75% (with 2.25% price inflation plus 0.50% productivity increases)**

2020 Experience Study

Individual Salary Increases – Merit/Promotion

- Merit increases are based on years of service and actual results are higher than expected
- A large increase in 2017 is pushing up actual rates, but this type of increase is not expected in the future

Service Index Index	Actual Merit Increase	Expected Merit Increase
1	6.47%	5.25%
2	6.23%	5.00%
3	5.75%	4.00%
4	4.56%	3.00%
5	3.10%	2.00%
6	2.66%	1.00%
7	1.70%	0.50%
>7	0.00%	0.00%

- **Recommendation: No change to merit based increases**

2020 Experience Study

Economic Assumptions – Payroll Growth Rate

- Used in amortizing unfunded liability, not in projecting benefits
- Current assumption is 2.75%
- History of Payroll Growth

Valuation Date	Annual Payroll	Percent Increase in Total Annual Payroll	Average Annual Earnings	Percent Increase in Average Annual Earning
1/01/2014	\$164,704,467		\$65,333	
1/01/2015	\$167,695,432	1.8%	\$65,763	0.7%
1/01/2016	\$177,003,887	5.6%	\$67,844	3.2%
1/01/2017	\$185,019,748	4.5%	\$69,166	1.9%
1/01/2018	\$196,848,084	6.4%	\$72,317	4.6%
1/01/2019	\$200,537,472	1.9%	\$73,592	1.8%
1/01/2020	\$205,694,036	2.6%	\$74,743	1.6%
Six Year Average		3.8%		2.3%

- Payroll has grown through a combination of salary increases and an increase in headcount

2020 Experience Study

Economic Assumptions – Payroll Growth Rate

- Current assumption: 2.75% (2.50% inflation plus 0.25% productivity)
- Historical average has been above 2.75%, albeit, with some modest headcount growth
- **Recommendation: 2.75% (2.25% inflation plus 0.50% productivity)**

DEMOGRAPHIC ASSUMPTIONS

2020 Experience Study

Demographic Assumption Analysis

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

2020 Experience Study

Mortality Assumption

- Current Retired Mortality Assumption:
 - Base Table: RP-2014 with White Collar Adjustments and 105% multiplier for males and 115% for females
 - Projection Scale: MP-2017
- Active and disabled mortality based on a variation of the RP-2014 tables
- Society of Actuaries has recently released a new set of Public Retirement Plans Mortality Tables – Pub-2010
- No longer have white and blue collar adjustments, rather they are adjusted for income level (above or below median income)

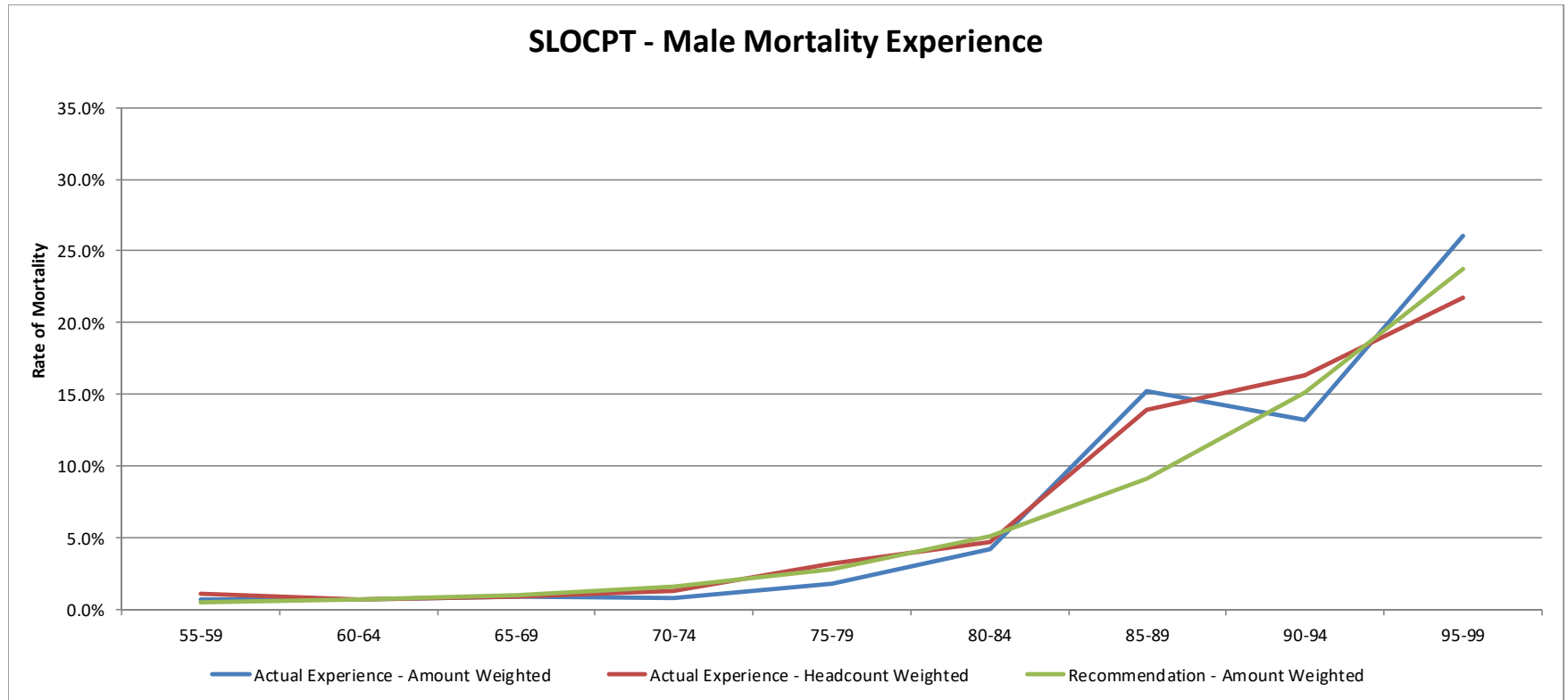
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Mortality Assumption

- Data for SLOCPT is only partially credible due to its size
 - Data in the aggregate is approximately 20% credible for males and 23% credible for females
- **Recommendation:**
 - **Retiree Mortality: Pub-2010, Amount-Weighted, Above-Median Income, General, Healthy Retiree with 99% multiplier for males and 101% for females**
 - **Projection Scale: MP-2019**

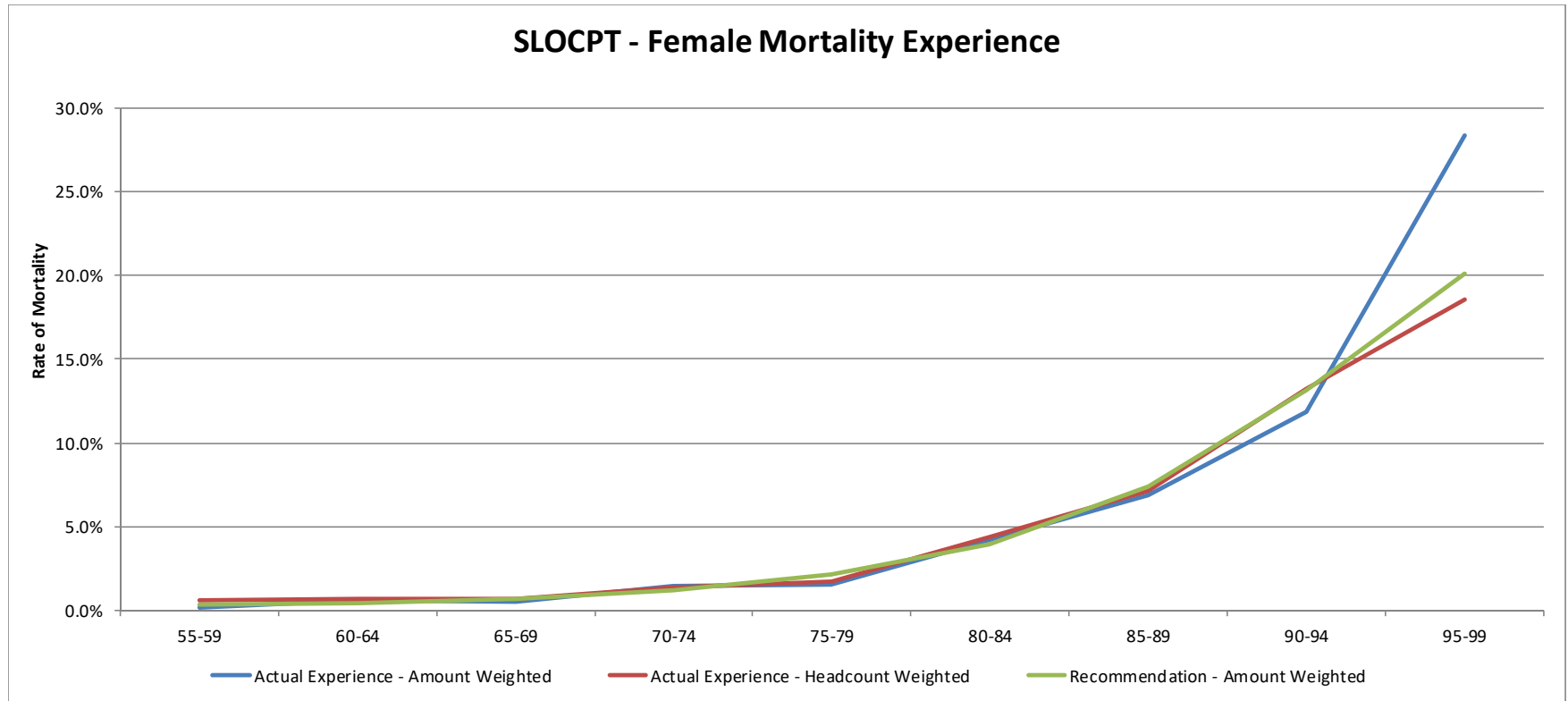
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Mortality Assumption – Male Retiree Experience



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Mortality Assumption – Female Retiree Experience



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Mortality Assumption

Life Expectancy from Age 65				
	Male		Female	
Birth Year	Current	Preliminary Recommendation	Current	Preliminary Recommendation
1950	87.2 Years	86.8 Years	88.0 Years	88.7 Years
1970	88.7 Years	88.3 Years	89.5 Years	90.2 Years
1990	90.2 Years	89.9 Years	91.1 Years	91.7 Years
2000	91.0 Years	90.7 Years	91.8 Years	92.5 Years
2010	91.8 Years	91.5 Years	92.6 Years	93.2 Years

- The slight reduction in male mortality is attributable to the new projection scale
- Increase in cost as a result of the change in mortality assumption

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Active and Disabled Mortality Rates

- Not enough information to reliably analyze the mortality rates
- **Recommendation:**
 - **Active Mortality: Pub-2010, Amount-Weighted, Above-Median Income, General, Employee**
 - **Disabled Mortality: Pub-2010, Amount-Weighted, General, Disabled Retiree**
 - **Projection Scale: MP-2019**

2020 Experience Study

Rates of Disability

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

	<u>Safety</u>	<u>Misc/Prob.</u>
– Expected number of disabilities	5	8
– Actual number of disabilities	9	6
– Ratio	191%	75%

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

2020 Experience Study

Rates of Retirement

- Current retirement rates for members age 50 and over; with five years of service

	Misc.	Probation	Safety
Expected	522	8	40
Actual	498	16	67
Ratio of Actual to Expected	95%	205%	168%

- **Recommendation: Adjust rates to better match experience**

2020 Experience Study

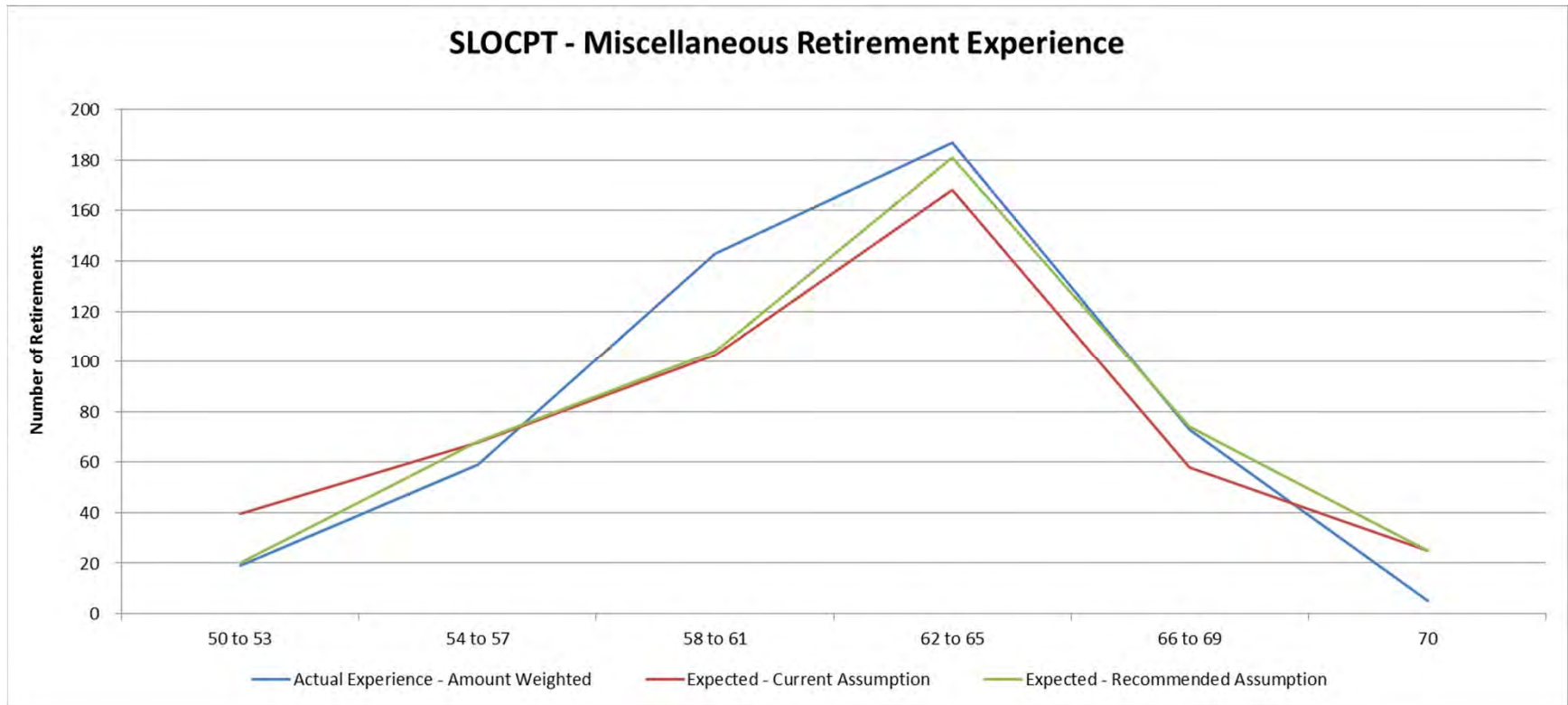
Rates of Retirement

- Recommended retirement rates for members age 50 and over; with five years of service

	Misc.	Probation	Safety
Expected	533	12	56
Actual	498	16	67
Ratio of Actual to Expected	93%	133%	120%

2020 Experience Study

Rates of Retirement



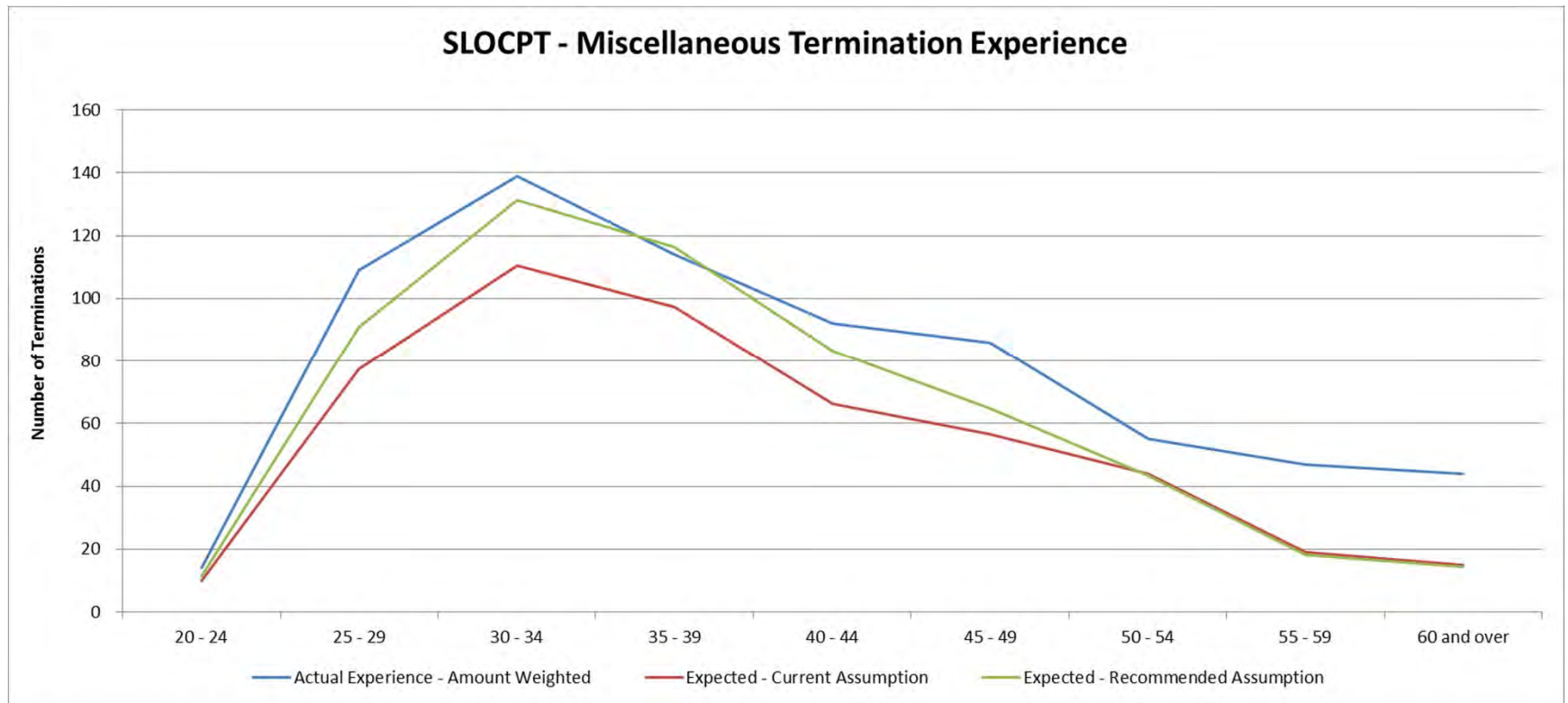
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Rates of Termination

- Termination rates reflect members who leave for reasons other than retirement, death or disability
- Current termination rates vary between Miscellaneous, Probation, and Safety members
- There are three main categories of termination with different assumed rates:
 - Vested members who leave with more than five years of service;
 - Members who take a refund and who have less than five years of service and;
 - Members who take a refund and who have five or more years of service.
- Vested Terminations (greater than 5 years of service)
 - Expected number 134
 - Actual number 227
 - Ratio 169%
- Ordinary withdrawal (refund rates, all years of service)
 - Expected number 414
 - Actual number 525
 - Ratio 127%
- **Recommendation: Adjust rates for Miscellaneous group to better match experience and no change to Probation or Safety**

2020 Experience Study

Rates of Termination



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Summary

- Changes recommended:
 - Decrease inflation from 2.50% to 2.25%
 - Assumed rate of return between 7.00% and 6.75%
 - Realign mortality assumptions using the latest base tables and projection scales
 - Retirement Rates
 - Termination Rates and Reciprocal and Reserve Members Ratio
- We recommend no changes to these other assumptions and methods
 - Individual Payroll Growth
 - Total Payroll Growth
 - Plan Specific COLA
 - Marriage Assumptions
 - Age Difference Between Spouses (3 years)
 - Entry Age Normal Cost Method
 - Middle of Year Decrement Timing
 - Assumed retirement age for deferred vested of age 57 for Reciprocal and Reserve members
 - 100% of safety plan active deaths are assumed to be duty related

2020 Experience Study

Contribution and Charged Rate Impact

	Baseline	New Assumptions with 7.00% Discount Rate	New Assumptions with 6.875% Discount Rate	New Assumptions with 6.75% Discount Rate
	(1)	(2)	(3)	(4)
Actuarial Liabilities and Funded Ratio				
• Actuarial Accrued Liability (000s)				
- Active Members	\$ 611,097	\$ 624,104	\$ 637,693	\$ 651,704
- Retirees and Beneficiaries	1,434,934	1,441,997	1,460,305	1,479,024
- Inactive, Vested	70,669	70,988	72,074	73,221
- Total	\$ 2,116,700	\$ 2,137,090	\$ 2,170,071	\$ 2,203,949
• Actuarial Value of Assets (000s)	\$ 1,416,763	\$ 1,416,763	\$ 1,416,763	\$ 1,416,763
• Unfunded Actuarial Accrued Liability (UAAL) (000s)	\$ 699,938	\$ 720,327	\$ 753,309	\$ 787,187
• Funded Ratio	66.9%	66.3%	65.3%	64.3%
Annual Required Contribution				
• Total Normal Cost	20.35%	20.53%	21.04%	21.58%
• Member Contributions	16.31%	16.31%	16.31%	16.31%
• County Normal Cost	4.04%	4.22%	4.73%	5.27%
• Amortization Payment	25.23%	25.97%	26.88%	27.80%
• Total County Cost (ADC)	29.27%	30.19%	31.61%	33.07%
• Total Combined ADC	45.58%	46.50%	47.92%	49.38%
Impact on Charged Rate				
• Total Charged Rate*	44.32%	44.32%	44.32%	44.32%
• Total Required Rate	45.58%	46.50%	47.92%	49.38%
• Rate Difference	1.26%	2.18%	3.60%	5.06%

* Includes 2.68% increase to charged rate effective July 1, 2020



2020 Experience Study

Cost Impact by Category of Change

	Valuation Results as of January 1, 2020									
	UAAL (\$ in 000s)		Funded Ratio		Normal Cost %		Amort %		Total ADC %	
Baseline	\$ 699,938		66.9%		20.35%		25.23%		45.58%	
Assumption Updated:	Change	Total	Change	Total	Change	Total	Change	Total	Change	Total
Retirement	\$ 11,796	\$ 711,734	-0.4%	66.6%	0.18%	20.53%	0.43%	25.66%	0.61%	46.19%
Withdrawal	(1,883)	709,851	0.1%	66.6%	-0.06%	20.47%	-0.07%	25.59%	-0.13%	46.06%
Mortality	<u>10,476</u>	720,327	<u>-0.3%</u>	66.3%	<u>0.06%</u>	20.53%	<u>0.38%</u>	25.97%	<u>0.44%</u>	46.50%
Using Recommended Assumptions and 7.00% Discount Rate	\$ 720,327		66.3%		20.53%		25.59%		46.50%	
Recommended Assumptions and 6.875% Discount Rate	32,982	\$ 753,309	-1.0%	65.3%	0.51%	21.04%	0.91%	26.88%	1.42%	47.92%
Recommended Assumptions and 6.75% Discount Rate	66,860	787,187	-2.0%	64.3%	1.05%	21.58%	1.83%	27.80%	2.88%	49.38%



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San Luis Obispo County Pension Trust

Actuarial Experience Study
As of December 31, 2019

Draft





May 5, 2020

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

Members of the Board:

Subject: Results of the Actuarial Experience Study for the Five-Year Period ending December 31, 2019

We are pleased to present our report on the results of the 2019 Experience Study for the San Luis Obispo County Pension Trust (SLOCPT). We have reviewed each of the actuarial assumptions and compared them to actual experience over a five-year period ending December 31, 2019. This report summarizes the findings. It is our recommendation that changes be made to the actuarial assumptions and methods used for the SLOCPT actuarial valuations.

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

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

Sincerely,

A handwritten signature in black ink that reads "Paul T. Wood". The signature is written in a cursive, flowing style.

Paul T. Wood, ASA, FCA, MAAA
Consultant

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SECTION I

EXECUTIVE SUMMARY

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Executive Summary

The purpose of this report is to review actual experience for the five-year period of January 1, 2015 to December 31, 2019 and to compare this to the current actuarial assumptions and methods. If the actual experience shows significant deviations from the assumptions, or our expectations for future experience have changed significantly, we offer recommendations for changes in the assumptions or methods.

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

Actuarial Assumption	Current	Proposed	Comments*
Inflation	2.50%	2.25%	
Investment Return	7.00%	7.00% to 6.75%	Based on risk tolerance of Board
Salary Increase-			
Inflation component	2.50%	2.25%	
Productivity component	0.25%	0.50%	
Merit component	5.25%- 0.00%	5.25%- 0.00%	
Payroll growth	2.75%	2.75%	
Interest Credit Rate on Member Contributions	6.00%	6.00%	
Post Retirement Mortality- Base table	RP 2014	Pub 2010	With modifications
Post Retirement Mortality- projection scale	MP 2017	MP 2019	
Active member mortality- Base table	RP 2014	Pub 2010	
Active member mortality- projection scale	MP 2017	MP 2019	
Disabled member mortality- Base table	RP 2014- disabled table	Pub 2010- disabled table	
Active member mortality- projection scale	MP 2017	MP 2019	
Retirement Rates	SLOCPT rates	SLOCPT rates	With changes to reflect experience
Vested termination	SLOCPT rates	SLOCPT rates	With changes to reflect experience
Disability rates	SLOCPT rates	SLOCPT rates	No change
Refunds	SLOCPT rates	SLOCPT rates	With changes to reflect experience
Percent married	80% males 60% females	80% males 60% females	No change
COLA – Tier 1	2.50%	2.50%	
COLA – Tier 2 & 3	2.00%	2.00%	No change
Reserve/Reciprocal	60%/40%	70%/30%	

*Modifications to tables explained more fully later in this study



SECTION II

INTRODUCTION

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Introduction

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

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

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

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

In an experience study, we first determine the number of deaths, retirements, etc. that occurred during the period. Then we determine the number expected to occur, based on the current actuarial assumptions. The number "expected" is determined from using the probability of the occurrence at the given age, times the "exposures" at that same age. For example, for a rate of retirement of 50% at age 55, the number of exposures can only be those members who are age 55 and eligible for retirement at that time. Thus, they are considered "exposed" to that assumption. Finally, we calculate the A/E ratio, where "A" is the actual number (of retirements, for example) and "E" is the expected number. If the current assumptions were "perfect", the A/E



ratio would be 100%. For some assumptions (e.g. termination), an A/E ratio greater than 100% is conservative (i.e. generates actuarial gains for the System) while for other assumptions (e.g. retirement) an A/E ratio less than 100% is conservative. When the A/E ratio varies much from 100%, it is a sign that new assumptions may be needed. Additionally, each assumption is reviewed for how well it fits the actual results by sex, by age, and by service.

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

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

Structure of This Report

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

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SECTION III

ANALYSIS OF EXPERIENCE AND RECOMMENDATION

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Analysis of Experience and Recommendations

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

Economic Assumptions

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

Generally, the economic assumptions are much more subjective in nature than the demographic assumptions. As no one knows what the future holds, it is necessary for the actuary to estimate possible future economic outcomes. These estimates are based on a mixture of experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. Furthermore, the current COVID-19 pandemic has injected an unprecedented level of uncertainty into the economic assumption discussion.

Inflation rate

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

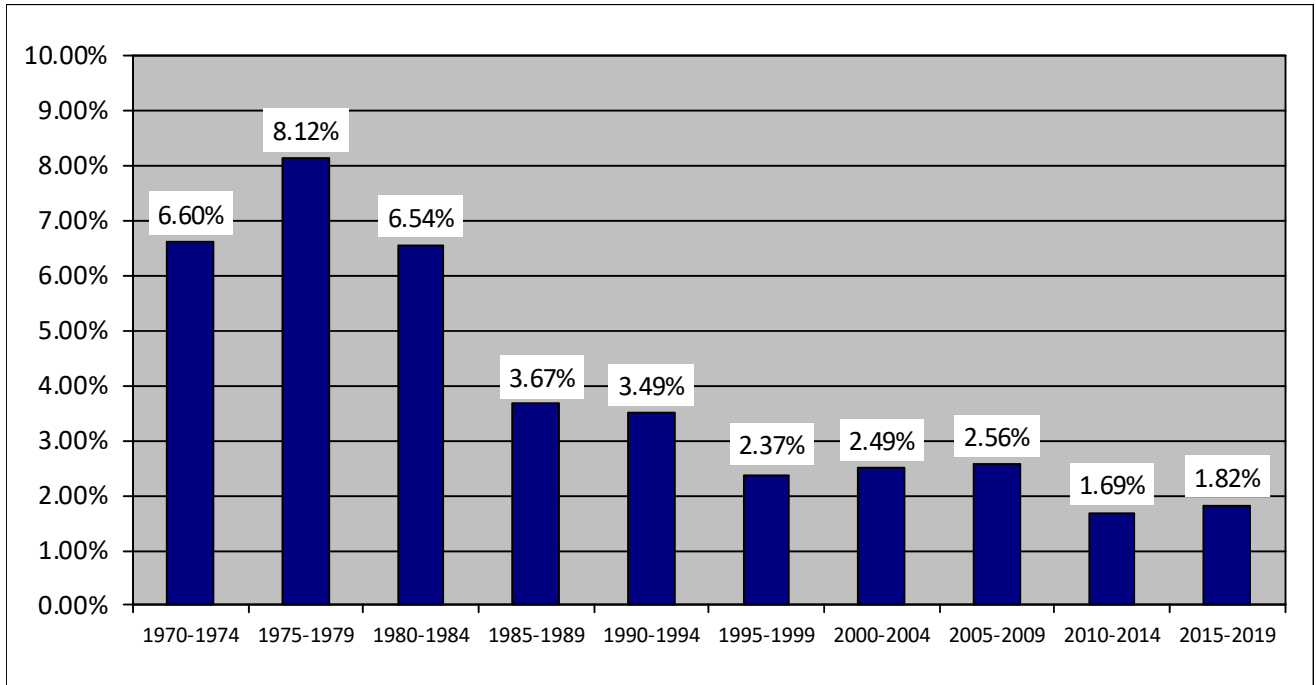
San Luis Obispo County Pension Trust (SLOCPT) currently assumes a 2.50% price inflation rate. The last time the inflation assumption was changed was in 2018 when the assumption was lowered from 2.625% to 2.50%.

Over the five-year period from January 1, 2015 through December 31, 2019, the CPI-U has increased at an average rate of 1.82%. However, the assumed inflation rate is only weakly tied to past results, and this has been a period of relatively low inflation.

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



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



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The table below shows the average inflation over various periods, ending December 2019:

Periods Ending December 2019	Average Annual Increase in CPI-U
Last five (5) years	1.82%
Last ten (10) years	1.75%
Last fifteen (15) years	2.02%
Last twenty (20) years	2.14%
Last thirty (30) years	2.40%
Since 1913 (first available year)	3.11%

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

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

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

Investment Consulting Firms

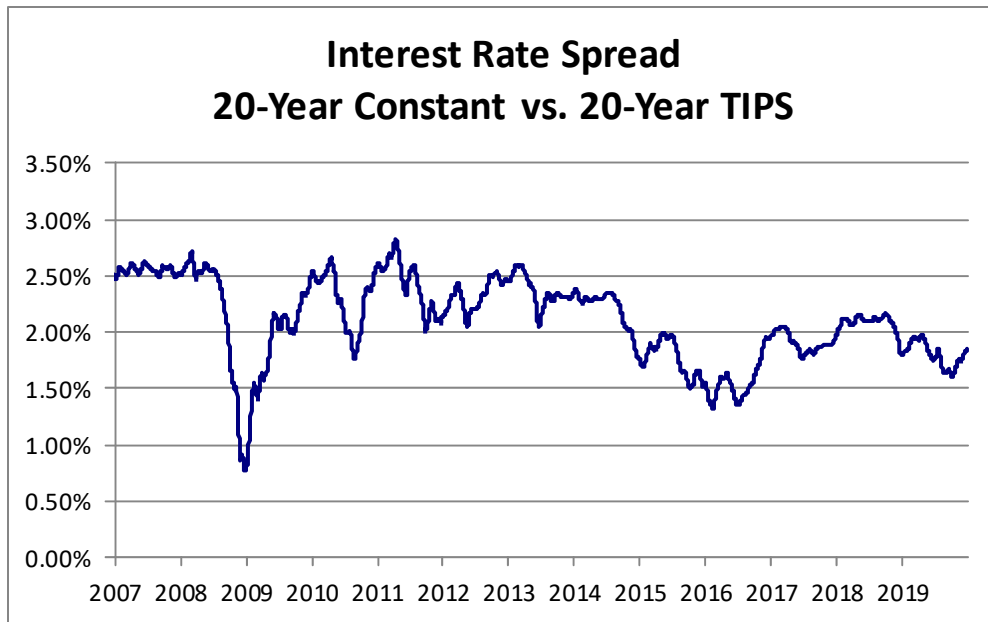
Most investment-consulting firms develop an underlying inflation assumption for their forecasting and derivation of forward-looking capital market assumptions. The 2019 capital market assumption sets for fourteen investment-consulting firms were examined. The average assumption for short-term inflation among these firms was 2.18%, with a range of 1.70% to 2.50%. Verus Associates, the plan's investment consultant, assume 1.90% inflation over the next 10 years (*2020 Capital Market Assumptions*). It should be noted that investment-consulting firms typically set their assumptions based on a five to ten year outlook, while actuaries must make projections encompassing a longer time period. This horizon difference may create a difference between the inflation assumption in the valuation and the inflation assumption used by the investment consultant.

Bond Market

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

For example, the December 31, 2019 yield for 20-year TIPS was 0.39% plus actual inflation. The yield for 20-year non-indexed US Treasury bonds was 2.25%. Simplistically, this means that on that day the bond market was predicting that inflation over the next twenty years would average 1.86% ($2.25\% - 0.39\%$) per year. However, this analysis is known to be imperfect. It ignores the inflation risk premium that buyers of US Treasury bonds should ask for, and it ignores the differences in liquidity between US Treasury bonds and TIPS.

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



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

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The Federal Reserve Bank of Cleveland has developed a model that combines information from a number of sources to address the shortcomings of the "break-even" rate illustrated above. Based on the results of its model, the Federal Reserve Bank of Cleveland reported in April 2020 that it estimates the 10-year expected inflation to be 1.19%. This estimate as of April 2020 is significantly down from the December 2019 estimate of 1.71%. This implies expectations for inflation to be below 2.00% on average for the next decade.

Other Sources of Inflation Forecasts

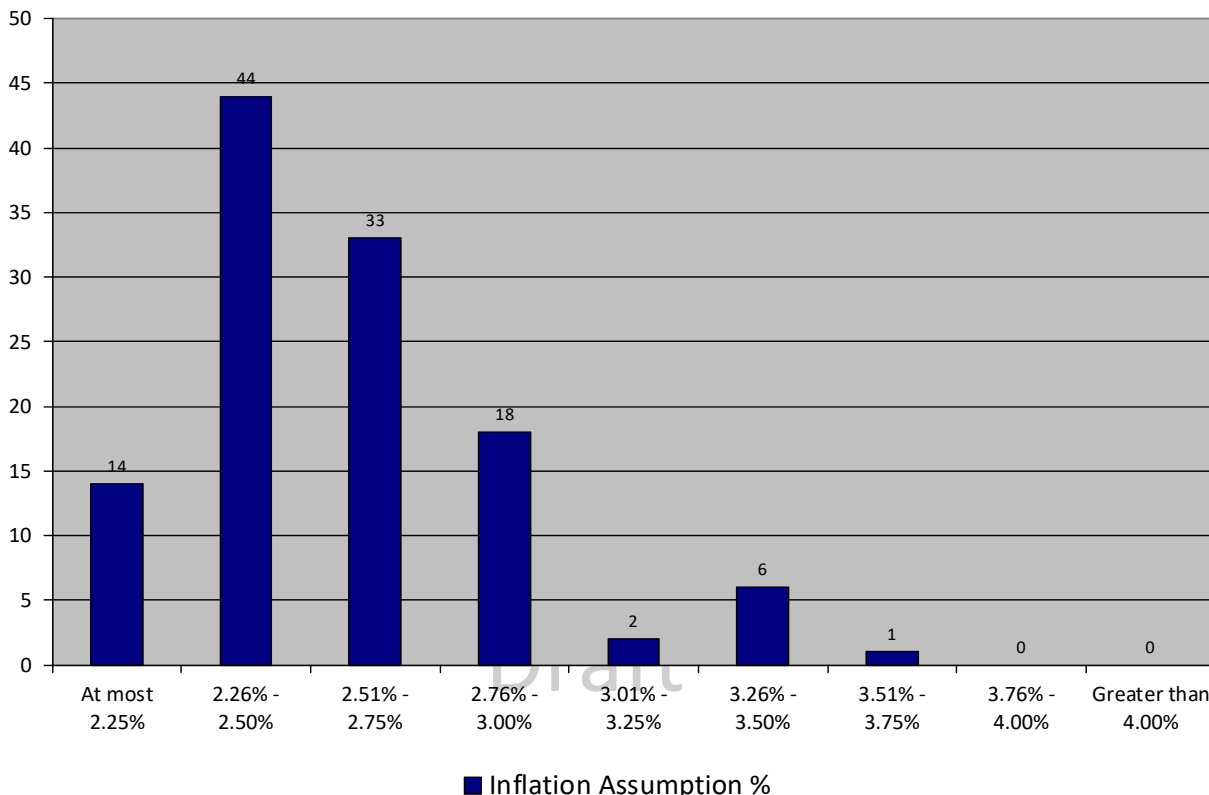
In the Social Security Administration's 2019 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.60% under the intermediate cost assumption. (The inflation assumptions are 2.40% and 3.20% respectively in the low cost and high cost projection scenarios.) These inflation assumptions were lowered slightly in recent years.

The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. Its most recent forecast (first quarter of 2020) was for inflation over the next ten years to average 2.20%.

Another source of information about this assumption is the Public Funds Survey that is prepared on behalf of the National Association of State Retirement Administrators (NASRA) and the

National Council on Teacher Retirement (NCTR). This report surveys about 118 plans, including all of the largest public funds covering state employees or teachers.

Price Inflation Assumption Frequency of Plans in Public Funds Survey



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

The current survey shows that the median inflation rate assumed for large public retirement systems in the U.S. is 2.60%, with the most prevalent assumption also at 2.50%. Approximately 77% of the surveyed systems use an assumption of 2.75% or less. The information in the Public Funds Survey for many of the systems is more than a year old and it is possible that some systems have subsequently updated their assumptions. In fact, several statewide public retirement systems have lowered this assumption in recent years.

Recommendation

Based on all of this information, we believe a reasonable long-term inflation assumption range is between 2.00% and 2.50%. The recommendation to the Board is to decrease the inflation assumption from 2.50% to 2.25%. While the 2.25% assumption is slightly higher than the expected rates of inflation for many of the various sources above, it is within a reasonable range of acceptable long-term assumptions. In addition, the cost-of-living increase for Tier 1 retirees is

tied to inflation. However, the local inflation has exceeded the national inflation historically. Therefore, we recommend that the COLA assumption for Tier 1 be maintained at 2.50%.

Investment return rate

Currently, San Luis Obispo County Pension Trust assumes an investment return rate of 7.00%, net of investment and administrative expenses. This is the rate used in discounting future payments and in calculating the actuarial present value of those payments. The current assumption assumes inflation of 2.50% per annum and an annual real rate of return of 4.50% net of expenses. This assumption was last changed in 2018 when it was decreased from 7.125% to 7.00%.

Expenses

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

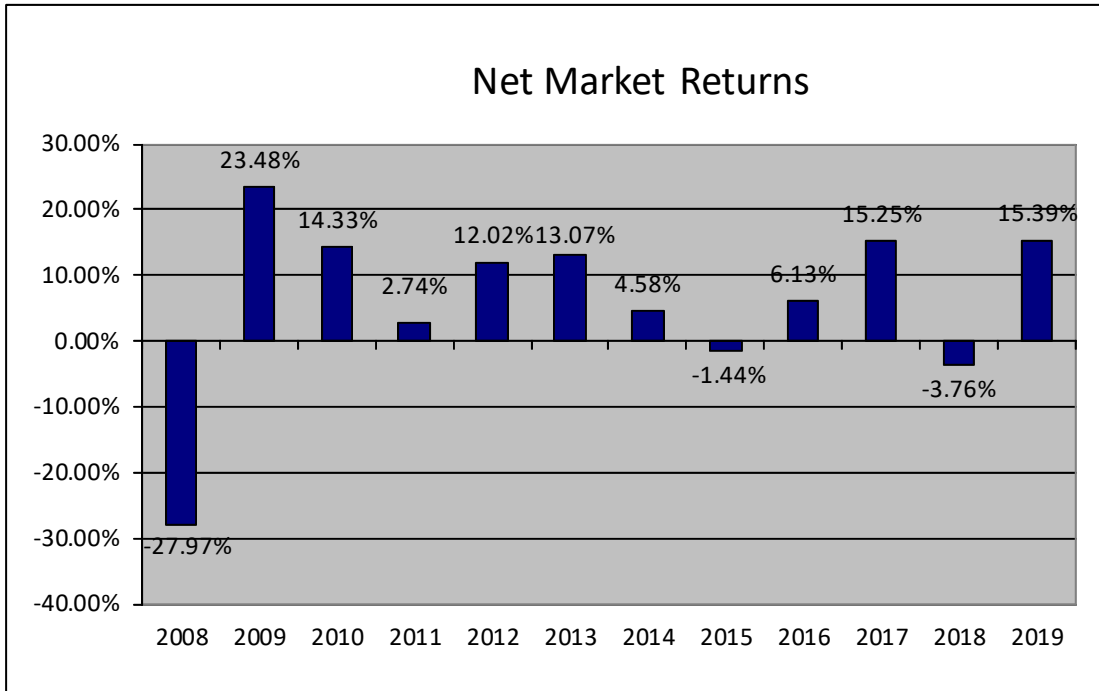
There are two common approaches to incorporating these expenses into the actuarial valuation. Plan expenses may be explicitly assumed as a direct increase to the annual recommended contribution or implicitly assumed by developing an investment return assumption that is expected to meet the return target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

We developed an estimate of the administrative expense assumption of 0.20% used in the analysis below by reviewing the past five years of expenses in relation to total pension assets. The market returns assumed for the various asset classes discussed below are already assumed to be net of investment expenses.

Historical Information

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





For the last five years, the average market return, net of investment and administrative expenses, has been 6.01% and over the last 10 years has been 7.61%. However, for this assumption, past performance, even averaged over five years or longer, is not a reliable indicator of future performance.

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Asset Allocation

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

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

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

Source: SLOCPT Investment Policy Statement, February 2020

Capital Market Assumptions

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

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

- BNY Mellon
- JP Morgan
- RVK
- NEPC
- Wilshire
- Marquette
- Mercer
- Cambridge
- BlackRock
- Aon
- VOYA
- Callan
- Verus
- Meketa

These investment-consulting firms periodically issue reports that describe their capital market assumptions, that is, their estimates of expected returns, volatility, and correlations. While these assumptions are developed based upon historical analysis, many of these firms also incorporate forward-looking adjustments to better reflect near-term expectations. The estimates for core investments (i.e. fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds that are net of investment related fees. Investment return expectations for the alternative asset class such as private equity and hedge



funds are net of investment expenses. Therefore, we did not make any additional adjustments to account for investment related expenses. Please note that the actuarial standards generally do not allow us to consider alpha that may be generated by active management.

Using capital market assumptions developed for calendar year 2019 from these fourteen large investment consulting entities and using the above asset allocation targets for the Plan, the following range for assumptions was developed, net of investment and administrative expenses.

The following analysis assumes an inflation assumption of 2.25%, which is the recommended inflation rate assumption from the prior section of this report.

Investment Consultant	Investment Consultant Expected Nominal Return	Investment Consultant Inflation Assumption	Expected Real Return (2)-(3)	Actuary Inflation Assumption	Expected Nominal Return (4)+(5)	Plan Incurred Administrative Expenses	Expected Nominal Return Net of Expenses (6)-(7)	Standard Deviation of Expected Return (1-Year)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	5.376%	2.200%	3.176%	2.250%	5.426%	0.200%	5.226%	11.66%
2	6.765%	2.500%	4.265%	2.250%	6.515%	0.200%	6.315%	12.10%
3	6.912%	2.500%	4.412%	2.250%	6.662%	0.200%	6.462%	12.12%
4	6.381%	2.200%	4.181%	2.250%	6.431%	0.200%	6.231%	9.36%
5	6.699%	2.000%	4.699%	2.250%	6.949%	0.200%	6.749%	10.41%
6	7.232%	2.250%	4.982%	2.250%	7.232%	0.200%	7.032%	12.07%
7	7.382%	2.260%	5.122%	2.250%	7.372%	0.200%	7.172%	13.22%
8	7.292%	2.213%	5.079%	2.250%	7.329%	0.200%	7.129%	12.29%
9	7.363%	2.305%	5.058%	2.250%	7.308%	0.200%	7.108%	11.21%
10	7.529%	2.000%	5.529%	2.250%	7.779%	0.200%	7.579%	11.97%
11	7.779%	2.300%	5.479%	2.250%	7.729%	0.200%	7.529%	11.17%
12	8.080%	2.148%	5.932%	2.250%	8.182%	0.200%	7.982%	12.31%
13	7.697%	1.700%	5.997%	2.250%	8.247%	0.200%	8.047%	12.24%
14	7.840%	2.000%	5.840%	2.250%	8.090%	0.200%	7.890%	9.28%
Average	7.166%	2.184%	4.982%	2.250%	7.232%	0.200%	7.032%	11.53%

We have determined for each firm the expected nominal return rate, then subtracted that firm’s expected inflation to arrive at their expected real return in col. (4). Then we added 2.25% for the plan’s inflation assumption and 0.20% for expenses to get the expected nominal return, net of administrative and investment expenses. As the table shows, the average net one-year real return of the seven firms is 4.98% and the average expected nominal return net of expenses is 7.032%, compared to the plan’s assumptions of 4.50% and 7.00%, respectively.

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

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

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding	Probability of exceeding	Probability of exceeding
	40th	50th	60th	7.000%	6.750%	6.50%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	3.933%	4.586%	5.242%	17.78%	20.35%	23.14%
2	4.956%	5.633%	6.314%	30.61%	33.91%	37.36%
3	5.102%	5.779%	6.461%	32.55%	35.94%	39.45%
4	5.295%	5.821%	6.349%	28.65%	32.83%	37.25%
5	5.662%	6.246%	6.832%	37.24%	41.38%	45.62%
6	5.682%	6.357%	7.037%	40.53%	44.17%	47.87%
7	5.628%	6.366%	7.109%	41.44%	44.78%	48.17%
8	5.743%	6.431%	7.122%	41.74%	45.34%	48.98%
9	5.898%	6.526%	7.158%	42.46%	46.42%	50.42%
10	6.250%	6.919%	7.593%	48.79%	52.55%	56.30%
11	6.329%	6.954%	7.583%	49.26%	53.29%	57.29%
12	6.598%	7.287%	7.980%	54.19%	57.82%	61.39%
13	6.676%	7.360%	8.049%	55.30%	58.93%	62.50%
14	6.971%	7.493%	8.017%	59.46%	64.10%	68.56%
Average	5.766%	6.411%	7.061%	41.43%	45.13%	48.88%

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

Finally, the current investment consultant for SLOCPT, Verus Associates, has a ten and 30 year investment return expectation of 6.2%.

Recommendation

Please note that the preceding information is based on capital market expectations for calendar year 2019. As we know, calendar year 2019 was a strong year for investments and, although not yet available, we would expect that the expectations for 2020 would be lower. With that said, the impact of the COVID-19 pandemic is not yet known either.

Based on all of this information, we believe a reasonable investment return assumption range is between 6.40% (median return) and 7.00% (mean return). The recommendation to the Board is to retain the real rate of return assumption between 4.50% and 5.00% and to decrease the investment return assumption based on the recommended decrease in the inflation assumption. Therefore, the recommendation to the Board is to set the investment return assumption between 7.00% and 6.75% net of investment and administrative expenses. The ultimate decision will be based on the risk tolerance of the Board.

Salary increase rates

The current salary increase rates assumed for the valuation vary by service. The assumed increase rates range from 8.00% for new members to 2.75% for members with eight or more years of service.

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

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

Wage Inflation

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Salary increases for longer-service employees are almost entirely driven by wage inflation. Many of the factors that result in pay increases are largely inapplicable or have diminished importance for longer-service employees. Thus, longer service employees' wages are assumed to grow at the overall rate of wage inflation, which is currently assumed 2.75% (2.50% price inflation plus 0.25% productivity increases). Actual experience observed in the study indicates productivity increases of about 0.60% above the observed price inflation over the last five years. We recommend a maintaining the wage inflation assumption at 2.75%, with 2.25% price inflation plus 0.50% productivity increases.

Merit and Promotion

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

Service Index Index	Actual Merit Increase	Expected Merit Increase
1	6.47%	5.25%
2	6.23%	5.00%
3	5.75%	4.00%
4	4.56%	3.00%
5	3.10%	2.00%
6	2.66%	1.00%
7	1.70%	0.50%
>7	0.00%	0.00%

For example, active members with one year of service received an average merit increase of 6.47% compared to our current assumption of 5.25%. And merit increases for member with seven years of service were 1.70% compared to the assumption of 0.50%. The increases for members with one to four years of service are slightly higher than the current assumption but the ten-year data showed slightly smaller differences. We have noticed an upward trend in merit rates, but it has not been sufficient to justify a change. The actual increases for members with five to seven years of service were generally in line with the current assumptions. Furthermore, there may be some salary pressures in the short term that may keep future increases at a minimum. Based on this coupled with the fact that we have recommended a decrease in the inflation assumption and no change in wage inflation, we recommend no change to the assumption regarding merit increases for the first seven years.

Draft Payroll growth rate

The salary increase rates discussed above are assumptions applied to individuals. These rates are used in projecting future benefits. A separate payroll growth assumption, currently 2.75% is used in determining the charge needed to amortize the unfunded actuarial accrued liability. The amortization payments are calculated to be a level percentage of payroll, so as payroll increases over time, these charges also increase. The amortization payment is dependent on the rate at which payroll is assumed to increase.

Payroll can grow at a rate different from the average pay increase for individual members. There are two reasons for this. First, when older, longer-service members terminate, retire or die, they are generally replaced with new members who have a lower salary. Because of this, in most populations that are not growing in size, the growth in total payroll will be smaller than the average pay increase for members. Second, payroll can grow due to an increase in the size of the group. The table on the next page shows the six year history of total payroll growth.

Valuation Date	Annual Payroll	Percent Increase	
		in Total Annual Payroll	Average Annual Earnings
1/01/2014	\$164,704,467		\$65,333
1/01/2015	\$167,695,432	1.8%	\$65,763
1/01/2016	\$177,003,887	5.6%	\$67,844
1/01/2017	\$185,019,748	4.5%	\$69,166
1/01/2018	\$196,848,084	6.4%	\$72,317
1/01/2019	\$200,537,472	1.9%	\$73,592
1/01/2020	\$205,694,036	2.6%	\$74,743
Six Year Average		3.8%	2.3%

As shown, total payroll growth of 3.8% has exceeded the current assumption. Although, a significant portion of that increase is due to increases in active headcount as shown in the difference between the average increase in total payroll of 3.8% and the average increase in average payroll of 2.3%. We recommend that the payroll growth assumption be maintained at 2.75%.

DEMOGRAPHIC ASSUMPTIONS

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

Post-retirement mortality rates

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

The mortality table currently being used for non-disabled retirees and beneficiaries receiving benefits is a standard table published by the Society of Actuaries (SOA) called the RP-2014



Combined Mortality table, a 105% multiplier males and a 115% multiplier for females, and a projection scale of MP-2017. This type of table (or series of tables) is called generational mortality. By using this type of table, future mortality rates will be projected to continually decrease each year in the future. Therefore, the life expectancy at age 60 for someone reaching 60 now will not be as long as the life expectancy for someone reaching 60 in 2030, and their life expectancy will not be as long as someone reaching 60 in 2040, etc. The table has separate rates for males and females.

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

The generational improvements are currently modelled by using a MP-2017 scale. Scale MP-2017 has been updated twice by the SOA publishing MP-2018 and MP-2019. Both the new projection scales have dampened the expect increase in future mortality improvements.

The mortality was analyzed based on an amount-weighted methodology. This accounts for the value of the benefits when determining mortality rates, but it does not represent actual deaths. Based on the current tables, the mortality experience produced A/E ratios of 89% for males and 84% for females. It is generally desired to have an A/E ratio of 100% when using generational mortality because margin is built into future mortality improvement rates. The tables below show the development of the actual to expected ratios based on the current assumption.

Post-Retirement Mortality (non-disabled) – Males			
RP-2014 White Collar with Scale MP-2017			
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	0	N/A
55 - 59	32	22	148%
60 - 64	61	60	102%
65 - 69	107	112	96%
70 - 74	54	108	50%
75 - 79	47	71	66%
80 - 84	42	47	90%
85 - 89	62	36	175%
90 and	17	18	91%
Totals	423	473	89%

Post-Retirement Mortality (non-disabled) – Females			
RP-2014 White Collar with Scale MP-2017			
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	0	0%
55 - 59	5	14	36%
60 - 64	49	45	109%
65 - 69	46	82	57%
70 - 74	78	74	105%
75 - 79	30	47	65%
80 - 84	32	33	98%
85 - 89	24	28	88%
90 and	32	33	97%
Totals	296	354	84%

Since the prior experience study, the Society of Actuaries has released mortality rates that are specific to public sector employees. Additionally, the members in this plan tend to have higher salaries and life expectancy than the average public sector employee. Therefore, we recommend changing to the Pub-2010, Amount-Weighted, Above Median Income, General Healthy Retiree table with 99% multiplier for males and 101% multiplier for females, using the MP-2019 table for the projection scale. The adjustments to the standard tables are based on credibility procedures and imply that the SLOCPT does not have enough data to be fully credible.

Disabled mortality rates

This is a minor assumption, and it has little impact on the total plan liabilities. Among the disabled retirees during the five-year study period, the A/E ratios of 53% and 39% respectively. The current assumption is a generational table using the standard RP-2014 Disabled Mortality Table, with MP-2017.

Disability Mortality – Males			
RP-2014 Disabled with Scale MP-2017			
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	7	0%
55 - 59	0	12	0%
60 - 64	9	9	95%
65 - 69	10	12	80%
70 - 74	7	7	99%
75 - 79	0	2	0%
80 - 84	2	2	75%
85 - 89	1	1	125%
90 and over	0	0	0%
Totals	28	53	53%

Disability Mortality – Females			
RP-2014 Disabled with Scale MP-2017			
Age	Actual deaths	Expected deaths	A/E ratio
50 - 54	0	2	0%
55 - 59	3	5	68%
60 - 64	3	7	50%
65 - 69	1	4	19%
70 - 74	2	3	65%
75 - 79	0	1	0%
80 - 84	0	1	0%
85 - 89	0	1	0%
90 and over	0	0	N/A
Totals	9	24	39%

For similar reasons as discussed for the post-retirement assumption, we recommend changing to the Pub-2010, Amount-Weighted, Above Median Income, General Disabled Retiree table with 100% multiplier for males and 100% multiplier for females, using the MP-2019 table for the projection scale.

Active mortality rates

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

		RP-2014 with Scale MP-2015	
	Actual Deaths	Expected Deaths	A/E ratio
Males	7	43	16%
Females	8	12	64%
Total	14	54	26%

The current assumption is based on the standard RP-2014 Employee Mortality Tables, with generational improvements using scale MP-2017, setback one year with a 105% multiplier for males, and setback two years with a 50% multiplier for females, applied to RP-2014. Since the counts are so small and the credibility of actual experience is not statistically significant, we recommend changing to the Pub-2010, Amount-Weighted, Above Median Income, General Employee table with 100% multiplier for males and 100% multiplier for females, using the MP-2019 table for the projection scale.

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Disability rates

Disability is an assumption with a minor impact on the liabilities of the trust. The A/E ratio on a combined basis for Miscellaneous and Probation members (combined since these are all assumed to be non-duty disabilities) was 75% and 191% for Safety members (assumed to be all duty-related). This assumption is based on actual plan experience instead of a standard table since experience can differ significantly for each population based on various factors such as occupation, local culture, plan requirements for meeting the definition of disability, etc. The Board adopted significant decreases to this assumption as of the 2012 experience study and we recommend no new changes to this assumption. The results of this analysis are shown below:

		Current Assumption	
	Actual Disabilities	Expected Disabilities	A/E ratio
Miscellaneous	5	8	63%
Probation	1	0	N/A
Safety	9	5	191%

Retirement rates

Retirement rates vary by age and for this assumption A/E ratios under 100% are conservative (fewer actual retirements generally leads to a retirement gain for the Plan). There were 498 retirements during the five-year period for Miscellaneous members, 16 retirements for Probation members, and 67 retirements for Safety members. This includes only members who retired from active status. It excludes those who were inactive for over a year before retiring.

The analysis shows A/E ratios of 95% for Miscellaneous members, 205% for Probation members, and 168% for Safety members. The Board adopted changes to this assumption as of the 2012 experience study (decrease Miscellaneous rates and increase Probation and Safety rates). The results of the current analysis are shown below:

Retirement (Current Assumption)*									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 50	0	0	N/A	0	0.0	N/A	0	0.0	N/A
50	4	9	45%	3	1.1	273%	14	10.4	135%
51	4	10	42%	0	0.8	0%	9	4.9	184%
52	5	10	48%	1	0.9	111%	9	3.4	265%
53	6	11	56%	1	0.9	111%	2	3.0	67%
54	11	11	100%	2	1.1	182%	4	3.5	114%
55	15	18	85%	5	1.3	385%	12	4.3	279%
56	22	17	127%	0	1.0	0%	7	1.9	368%
57	11	22	50%	3	0.7	429%	3	1.3	231%
58	29	24	121%	1	0.0	N/A	0	1.1	0%
59	33	24	136%	0	0.0	N/A	1	1.4	71%
60	38	29	133%	0	0.0	N/A	4	2.0	200%
61	43	26	166%	0	0.0	N/A	1	0.9	111%
62	67	48	141%	0	0.0	N/A	1	0.4	250%
63	37	37	101%	0	0.0	N/A	0	0.4	0%
64	30	30	101%	0	0.0	N/A	0	0.0	N/A
65	53	54	98%	0	0.0	N/A	0	0.0	N/A
66	32	26	123%	0	0.0	N/A	0	0.0	N/A
67	19	16	123%	0	0.0	N/A	0	0.0	N/A
68	15	11	143%	0	0.0	N/A	0	1.0	0%
69	7	6	121%	0	0.0	N/A	0	0.0	N/A
70	5	25	20%	0	0.0	N/A	0	0.0	N/A
Over 70	12	61	20%	0	0.0	N/A	0	0.0	N/A
Total	498	522	95%	16	7.8	205%	67	39.9	168%

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

The data shows the expected retirements in total were less than the number of actual retirements. In order to better match the actual retirement patterns, we recommend updating the retirement rates for all groups. Specifically, we recommend increases to the rates for Probation and Safety members between ages 55 and 57, move the 100% rate for Probation to age 65, and adjusting various rates for Miscellaneous members.

The recommended assumption changes result in A/E ratios of 93% for Miscellaneous members, 133% for Probation members, and 120% for Safety members as shown in the table below:

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Retirement (Proposed Assumption)									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 50	0	0	N/A	0	0.0	N/A	0	0.0	N/A
50	4	5	80%	3	1.0	300%	14	13.0	108%
51	4	5	80%	0	1.0	0%	9	7.0	129%
52	5	5	100%	1	1.0	100%	9	3.0	300%
53	6	5	120%	1	1.0	100%	2	3.0	67%
54	11	11	100%	2	1.0	200%	4	3.0	133%
55	15	18	83%	5	3.0	167%	12	12.0	100%
56	22	17	129%	0	2.0	0%	7	5.0	140%
57	11	22	50%	3	2.0	150%	3	3.0	100%
58	29	24	121%	1	0.0	N/A	0	1.0	0%
59	33	25	132%	0	0.0	N/A	1	1.0	100%
60	38	29	131%	0	0.0	N/A	4	2.0	200%
61	43	26	165%	0	0.0	N/A	1	1.0	100%
62	67	60	112%	0	0.0	N/A	1	0.0	N/A
63	37	37	100%	0	0.0	N/A	0	1.0	0%
64	30	30	100%	0	0.0	N/A	0	0.0	N/A
65	53	54	98%	0	0.0	N/A	0	0.0	N/A
66	32	35	91%	0	0.0	N/A	0	0.0	N/A
67	19	19	100%	0	0.0	N/A	0	0.0	N/A
68	15	13	115%	0	0.0	N/A	0	1.0	0%
69	7	7	100%	0	0.0	N/A	0	0.0	N/A
70	5	25	20%	0	0.0	N/A	0	0.0	N/A
Over 70	12	61	20%	0	0.0	N/A	0	0.0	N/A
Total	498	533	93%	16	12.0	133%	67	56.0	120%

Termination rates

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

- Rates for members who withdraw with less than five years of service and are assumed to take a refund



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

Taken together for all three-withdrawal decrements, the current assumptions produce an A/E ratio for Miscellaneous members of 141%, for Probation members of 131%, and for Safety members of 76%. For this assumption, A/E ratios over 100% are conservative (when there are more terminations than expected, the Plan usually experiences a gain).

During the study period, the plan had greater than the expected withdrawals for Miscellaneous, whereas the experience for Probation and Safety was closer to the expected amount. Since the Probation and Safety use the same rate and the combined A/E is close to 100%, we do not recommend a change. However, due to a recent increase in withdrawals for Miscellaneous members, we recommend updating the Miscellaneous withdraw rates for members eligible to receive a vested benefit, and for less than five years of service. There are no recommended changes for the other rates. The below tables show the actual experiences versus the expected experience:

Refunds with Less Than 5 Years of Service – Males and Females									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20									
20 - 24	14	10	140%	3	1	300%	2	1	200%
25 - 29	99	73	136%	9	4	225%	2	5	40%
30 - 34	105	87	121%	3	2	150%	2	5	40%
35 - 39	70	60	117%	3	1	300%	0	3	0%
40 - 44	58	33	176%	1	1	100%	1	2	50%
45 - 49	36	22	164%	1	0	N/A	0	0	N/A
50 - 54	20	18	111%	0	0	N/A	0	0	N/A
55 - 59	23	19	121%	0	0	N/A	2	0	N/A
60 and over	32	15	213%	0	0	N/A	0	0	N/A
Totals	457	337	136%	20	9	222%	9	16	56%

Refunds with 5 or More Years of Service – Males and Females									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	0	0	N/A	0	0	N/A	0	0	N/A
25 - 29	3	3	100%	0	0	N/A	1	0	N/A
30 - 34	3	12	25%	1	2	50%	0	1	0%
35 - 39	4	14	29%	3	2	150%	2	1	200%
40 - 44	5	10	50%	1	1	100%	0	1	0%
45 - 49	9	5	180%	0	0	N/A	0	0	N/A
50 - 54	3	0	N/A	0	0	N/A	0	0	N/A
55 - 59	2	0	N/A	0	0	N/A	0	0	N/A
60 and over	2	0	N/A	0	0	N/A	0	0	N/A
Totals	31	44	70%	5	5	100%	3	3	100%

Vested Terminations – Males and Females									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	0	0	N/A	0	0	N/A	0	0	N/A
25 - 29	7	1	506%	0	0	0%	0	0	67%
30 - 34	31	11	270%	0	2	0%	1	1	102%
35 - 39	40	23	171%	4	2	166%	3	3	100%
40 - 44	29	23	124%	1	2	50%	3	3	102%
45 - 49	41	30	139%	0	2	0%	4	4	100%
50 - 54	32	26	124%	0	0	N/A	0	0	N/A
55 - 59	22	0	N/A	0	0	N/A	0	0	N/A
60 and over	10	0	N/A	0	0	N/A	0	0	N/A
Totals	212	115	184%	5	9	56%	10	10	100%

Since there is a relatively small amount of experience, we also considered how the withdrawals assumptions compared on aggregate bases. The table below shows that most of the results are consistent with our expectation. However, the Miscellaneous group had higher than expected turnover. Therefore, we recommend updating the Miscellaneous group terminations rates and no changes to the termination assumption for Probation and Safety.

Aggregate Terminations – Males and Females									
Age	Miscellaneous			Probation			Safety		
	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio	Actual	Expected	A/E ratio
Under 20	0	0	N/A	0	0	N/A	0	0	N/A
20 - 24	14	10	140%	3	1	300%	2	1	200%
25 - 29	109	77	141%	9	4	210%	3	5	60%
30 - 34	139	110	126%	4	6	66%	3	7	47%
35 - 39	114	97	117%	10	5	185%	5	7	70%
40 - 44	92	66	139%	3	4	75%	4	6	65%
45 - 49	86	57	152%	1	2	48%	4	4	100%
50 - 54	55	44	125%	0	0	N/A	0	0	N/A
55 - 59	47	19	247%	0	0	N/A	2	0	N/A
60 and over	44	15	293%	0	0	N/A	0	0	N/A
Totals	700	496	141%	30	23	131%	22	29	76%

The table below shows the A/E ratios based on the recommended assumptions for the Miscellaneous group:

Aggregate Terminations – Males and Females (Proposed Assumptions)			
Age	Miscellaneous		
	Actual	Expected	A/E ratio
Under 20	0	0	N/A
20 - 24	14	11	122%
25 - 29	109	91	120%
30 - 34	139	131	106%
35 - 39	114	117	98%
40 - 44	92	83	110%
45 - 49	86	65	132%
50 - 54	55	44	126%
55 - 59	47	18	260%
60 and over	44	15	303%
Totals	700	575	122%

Additionally, based on prior experience, we recommend changing the reserve member vs reciprocal member assumptions from 60%/40% to 70%/30%, respectively.

Other assumptions and refunds

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

Actuarial methods

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

The current funding policy is a level-percent-of-pay amortization using a closed period of 30 years from January 1, 2010 (20 years remaining as of the January 1, 2020 valuation) with 20 year layers on new gains and a losses beginning with the January 1, 2019 valuation. The level-percent-of-pay and layering method is a CAAP Model practice. We recommend no change in the amortization policy at this time.

SECTION IV

SUMMARY AND ACTUARIAL IMPACT OF RECOMMENDATIONS

Draft

Summary of Recommendations

We recommend changes to the following assumptions:

- Use an assumed rate of investment return 7.00%, 6.875% or 6.75%
- Decrease inflation from 2.50% to 2.25%
- Update all mortality projection scales based on the latest SOA tables
- Update the retirement rates for all groups
- Update the withdraw assumption for the Miscellaneous group

The total impact of these changes is shown below based on the January 1, 2020 valuation results. The required rate is expected to increase by up to 3.80% due to the assumption changes depending on the ultimate rate of return assumption selected. Results shown here are based on the most recent census and asset data as of January 1, 2020. The January 1, 2020 results are calculated under both the old assumption set and the newly proposed assumption set.

	Baseline	New Assumptions with 7.00% Discount Rate	New Assumptions with 6.875% Discount Rate	New Assumptions with 6.75% Discount Rate
	(1)	(2)	(3)	(4)
Actuarial Liabilities and Funded Ratio				
• Actuarial Accrued Liability (000s)				
- Active Members	\$ 611,097	\$ 624,104	\$ 637,693	\$ 651,704
- Retirees and Beneficiaries	1,434,934	1,441,997	1,460,305	1,479,024
- Inactive, Vested	70,669	70,988	72,074	73,221
- Total	<u>\$ 2,116,700</u>	<u>\$ 2,137,090</u>	<u>\$ 2,170,071</u>	<u>\$ 2,203,949</u>
• Actuarial Value of Assets (000s)	\$ 1,416,763	\$ 1,416,763	\$ 1,416,763	\$ 1,416,763
• Unfunded Actuarial Accrued Liability (UAAL) (000s)	\$ 699,938	\$ 720,327	\$ 753,309	\$ 787,187
• Funded Ratio	66.9%	66.3%	65.3%	64.3%
Annual Required Contribution				
• Total Normal Cost	20.35%	20.53%	21.04%	21.58%
• Member Contributions	16.31%	16.31%	16.31%	16.31%
• County Normal Cost	4.04%	4.22%	4.73%	5.27%
• Amortization Payment	25.23%	25.97%	26.88%	27.80%
• Total County Cost (ADC)	29.27%	30.19%	31.61%	33.07%
• Total Combined ADC	45.58%	46.50%	47.92%	49.38%
Impact on Charged Rate				
• Total Charged Rate*	44.32%	44.32%	44.32%	44.32%
• Total Required Rate	45.58%	46.50%	47.92%	49.38%
• Rate Difference	1.26%	2.18%	3.60%	5.06%

* Includes 2.68% increase to charged rate effective July 1, 2020

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

	Valuation Results as of January 1, 2020									
	UAAL (\$ in 000s)		Funded Ratio		Normal Cost %		Amort %		Total ADC %	
Baseline	\$ 699,938		66.9%		20.35%		25.23%		45.58%	
Assumption Updated:	Change	Total	Change	Total	Change	Total	Change	Total	Change	Total
Retirement	\$ 11,796	\$ 711,734	-0.4%	66.6%	0.18%	20.53%	0.43%	25.66%	0.61%	46.19%
Withdrawal	(1,883)	709,851	0.1%	66.6%	-0.06%	20.47%	-0.07%	25.59%	-0.13%	46.06%
Mortality	<u>10,476</u>	720,327	<u>-0.3%</u>	66.3%	<u>0.06%</u>	20.53%	<u>0.38%</u>	25.97%	<u>0.44%</u>	46.50%
Using Recommended Assumptions and 7.00% Discount Rate	\$ 720,327		66.3%		20.53%		25.59%		46.50%	
Recommended Assumptions and 6.875% Discount Rate	32,982	\$ 753,309	-1.0%	65.3%	0.51%	21.04%	0.91%	26.88%	1.42%	47.92%
Recommended Assumptions and 6.75% Discount Rate	66,860	787,187	-2.0%	64.3%	1.05%	21.58%	1.83%	27.80%	2.88%	49.38%

In addition to updating the assumptions used in the actuarial valuations (beginning with the valuation as of January 1, 2020), it is our recommendation that all actuarial factors be updated to reflect these new assumptions including benefit option factors and military service purchase programs.



SECTION IV

SUMMARY OF ASSUMPTIONS AND METHODS INCORPORATING THE RECOMMENDED ASSUMPTIONS

Draft

Summary of Assumptions and Methods

Incorporating the Recommended Assumptions

I. Valuation Date

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

II. Actuarial Cost Method

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

- (i) the annual normal costs for each active member, payable from the date of entry into the system to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- (ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

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

Amortization of Unfunded Actuarial Accrued Liabilities is done as a level percent of payroll over a closed 30-year period (20 years as of January 1, 2020) for funding computations. Starting January 1, 2019, all new gains and losses, including the loss from this year, will be amortized over a closed 20-year layer each year.

III. Actuarial Value of Assets

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



IV. Actuarial Assumptions

A. Economic Assumptions

- Investment return: 6.75%, compounded annually, net of administrative expenses. This is made up of a 2.25% inflation rate and a 4.50% real rate of return.
- Salary increase rate: Inflation rate of 2.25% plus productivity increase rate of 0.50% plus an additional service-related merit component as shown below:

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

- Cost-of-living increases:

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

- Payroll growth:

2.75% per year (Inflation 2.25%, productivity of 0.50%)

- Increase to maximum earnings limit for Tier 3 members:

2.50% per year

- Contribution accumulation: Contributions are credited with 6.00% interest, compounded biweekly.

B. Demographic Assumptions

1. Mortality projection – The projection calculation for MP-2017
2. Mortality after termination or retirement -
 - a. Healthy males – Pub-2010, Amount-Weighted, Above-Median Income, General, Healthy Retiree, with generational mortality improvements using scale MP-2019, and a multiplier of 99%
 - b. Healthy females - Pub-2010, Amount-Weighted, Above-Median Income, General, Healthy Retiree, with generational mortality improvements using scale MP-2019, and a multiplier of 101%

See sample rates below:

Ages	% Dying Within Next Year Retirees	
	Men	Women
45	0.09%	0.06%
50	0.25%	0.21%
55	0.38%	0.29%
60	0.57%	0.40%
65	0.82%	0.58%
70	1.29%	0.96%
75	2.23%	1.72%
80	4.06%	3.14%
85	7.45%	5.88%

3. Mortality rates of active members – Pub-2010, Amount-Weighted, Above-Median Income, General, Employee with a 100% multiplier for males and females and projected with scale MP-2019as shown below for selected ages:

Ages	% of Active Members Dying Within Next Year	
	Men	Women
30	0.04%	0.02%
35	0.05%	0.03%
40	0.07%	0.04%
45	0.08%	0.05%
50	0.12%	0.07%
55	0.19%	0.12%
60	0.29%	0.18%
65	0.41%	0.26%
70	0.57%	0.41%

4. Disability mortality after termination or retirement- Pub-2010, Amount-Weighted, General, Disabled Retiree, with generational improvements using scale MP-2019, with a 100% multiplier for males and females, as shown below for selected ages:

Ages	% of Disabled Members Dying Within Next Year	
	Men	Women
30	0.46%	0.33%
35	0.61%	0.51%
40	0.75%	0.70%
45	1.00%	0.96%
50	1.51%	1.44%
55	2.09%	1.83%
60	2.61%	2.06%
65	3.06%	2.17%
70	3.67%	2.62%

5. Retirement –

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

Age	Percent of Eligible Active Members Retiring Within Next Year		
	Miscellaneous	Probation	Safety
50	2.0%	7.5%	25.0%
51	2.0%	7.5%	20.0%
52	2.0%	7.5%	10.0%
53	2.0%	7.5%	10.0%
54	4.0%	7.5%	12.0%
55	6.0%	25.0%	40.0%
56	6.0%	25.0%	30.0%
57	8.0%	25.0%	30.0%
58	8.0%	12.0%	12.0%
59	8.0%	12.0%	18.0%
60	10.0%	15.0%	25.0%
61	10.0%	15.0%	30.0%
62	25.0%	20.0%	40.0%
63	20.0%	20.0%	50.0%
64	20.0%	20.0%	75.0%
65	40.0%	100.0%	100.0%
66	40.0%		
67	30.0%		
68	30.0%		
69	30.0%		
70	100.0%		

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

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

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

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

Sample Ages	% of Active Members Separating Within Next Year			
	Miscellaneous Members			
	Disability	Withdrawal < 5 years	Withdrawal ≥ 5 years	Vested Termination
20	0.00%	14.50%	8.50%	10.00%
25	0.00%	13.00%	7.75%	10.00%
30	0.01%	11.50%	3.75%	7.50%
35	0.04%	10.00%	2.00%	5.00%
40	0.06%	10.00%	1.25%	4.00%
45	0.09%	8.00%	0.50%	4.00%
50	0.11%	6.00%	0.00%	3.00%
55	0.14%	6.00%	0.00%	2.00%
60	0.16%	6.00%	0.00%	0.00%
64	0.18%	6.00%	0.00%	0.00%
GRS Table No.	762			1521

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

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

30% of Vested Terminations are assumed to be Reciprocal.

Based on Member Contribution Totals provided by Pension Trust, we are assuming that 1.00% of members' contribution account balances are for supplemental/additional benefits.

C. Other Assumptions

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

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

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

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

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

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

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

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

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Pension Trust

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San Luis Obispo County Pension Trust *SLOOPT*

Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 10: Actuarial Valuation – 2020 Actuarial Assumptions Approval

Recommendation:

Following the receipt and discussion of SLOOPT’s Actuary’s findings from the 2020 Actuarial Experience Study (Item 9 on the agenda), direct the Actuary to use the following changes in Actuarial Assumptions in the preparation of the 2020 annual Actuarial Valuation -

	2018 & 2019 Valuations	Recommended for 2020 Valuation
Inflation	2.500%	2.250%
Real Rate of Return	<u>4.500%</u>	<u>4.750%</u> - <u>4.500%</u>
Earnings Assumption & Discount Rate	7.000%	7.000% - 6.750%
Retiree COLAs		
Tier 1	2.500%	2.500%
<i>SLO specific rate</i>		
Tiers 2 & 3 (<i>max.</i>)	2.000%	2.000%
Salary Increase	2.750% + merit <i>2.50% inflation + 0.25% productivity</i>	2.750% + merit <i>2.25% inflation + 0.50% productivity</i>

	2018 & 2019 Valuations	Recommended for 2020 Valuation
Payroll Growth	2.750%	2.750%
Mortality – Post Retirement	RP 2014 (base table) & MP2017 projection scale (Generational mortality)	Pub 2010 (base table) (<i>public sector & above median income</i>) with adj. & MP2019 projection scale (<i>Generational mortality</i>)
Mortality – Disability	RP 2014 (disabled) base table & MP2017 projection scale (Generational mortality- Calibrated to actual experience)	Pub-2010 base table (<i>amt. wtd. for Disabled</i>) & MP2019 projection scale (<i>Generational mortality</i>)
Mortality – Active Service	RP 2014 base table & MP2017 projection scale (Generational mortality- Calibrated to actual experience)	Pub-2010 base table (<i>amt. wtd. for Active</i>) & MP2019 projection scale (<i>Generational mortality</i>)
Rates of Disability		No change
Rates of Retirement		Adjust to match earlier experience
Rates of Termination		Adjust to match higher experience
All other demographic assumptions		No change
Interest crediting rate on member accounts	6.00%	6.00%

Discussion:

It is the policy of SLOCPT to have an annual Actuarial Valuation to assist in setting the total level of contributions necessary to fund the retirement system – the Total Combined Actuarially Determined Contribution (Total ADC). In support of that annual Actuarial Valuation, SLOCPT engages an Actuarial Experience Study every other year to ensure future projections are consistent with past experience. In these Experience Studies the Actuary analyzes the trailing five years of Plan demographic and financial experience to determine what actuarial assumptions should be recommend to the Board of Trustees for use in the annual Actuarial Valuation.

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

A planned, phased, annual implementation of changes is also reasonable. For example, a reduction in the Discount Rate could be phased over several years.

Based on the 2020 Actuarial Experience Study, SLOCPT’s Actuary recommends changes to major assumptions noted above. The Discount Rate is a highly sensitive assumption and is recommended by the Actuary to be in a range of 6.400% to 7.000%. The approved Discount Rate will determine the resulting Actuarially Determined Contribution (ADC) rate increase.

Expected Results:

As discussed in Agenda Item 9, the adoption of the recommended changes, if applied to the results of the preliminary 2020 Actuarial Valuation, is estimated to lead to an increase in pension contribution rates. The current Charged Rate is compared to the Actuarially Determined Contribution rate to determine if the current charged rate is enough to fund future promised benefits.

Current Pension Contribution Charged Rate (% of pensionable payroll) –

Charged Rate as of 12/31/2019	41.64%
Plus future rate increase effective 7/1/20 for 1/1/19	
Actuarial Valuation	<u>+ 2.68%</u>
	44.32%

Note – the results of the 2019 Valuation called for an ADC of 44.52%. The actual Charged Rate will naturally vary as the demographics of the Plan change through the year. The erosion in the Charged Rate due to demographic changes is approximately 0.20%.

Actuarially Determined Contribution (ADC) rate consists of:

Normal Cost – base rate required to fund promised benefits as of the Actuarial Valuation date using approved Actuarial Assumption.

Unfunded Actuarial Accrued Liability (UAAL) Amortization – the rate required to pay off the difference between the actuarially calculated liability of future promised benefits and the actuarial value of assets (financial statement gains and losses smoothed over a 5-year period). The UAAL payment is spread over a 20-year layered period.

Contributions as a % of pensionable pay	7.000% Discount Rate	6.875% Discount Rate	6.750% Discount Rate
Total Normal Cost	20.53%	21.04%	21.58%
UAAL Amortization	<u>25.97%</u>	<u>26.88%</u>	<u>27.80%</u>
TOTAL ADC	46.50%	47.92%	49.38%
Current Charged Rate	44.32%	44.32%	44.32%
Difference in Charged Rate to ADC = Recommended Rate Increase *	2.18%	3.60%	5.06%
UAAL \$ millions	\$720	\$753	\$787
Funded Ratio	66.3%	65.3%	64.3%

* Assumes implementation of increase on Jan. 1, 2020. Later implementation dates (e.g. July 1, 2021) will require a slightly higher rate increase. This difference will be included in the Actuarial Valuation.

The allocation of the contribution rate increase between Employer and Employee is determined by the sponsoring Employer and its various collective bargaining and unrepresented employee agreements.

Contribution rates shown are aggregate across the entire Plan and will differ based on Classification (Miscellaneous/Probation/Safety), Tier, and Member's age at entry into the Plan.

These results are subject to change upon final delivery of the 2020 Actuarial Valuation to be presented at the June 22, 2020 Board of Trustees meeting.

Pension Trust

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Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 11: Administrative and Capital Expenditures Budget for Fiscal Year 2020-2019

Recommendation:

It is recommended that the Board of Trustees approve the Proposed Administrative Budget and Capital Expenditures Budget for the Fiscal Year 2020-2021 (“FY20/21”) (Attachments A & D).

Discussion:

Minor revisions have been incorporated in the proposed budgets based on updated projections. Additionally items within the Capital Expenditures Budget, previously included in the original Board Item presented to the Board on March 27, have been moved to the appropriate line items within the Administrative Budget based off of guidance from SLOCPT’s Auditors on recommended capital expenditure threshold limits. Additionally, line items originally approved in the Capital Expenditures budget for Fiscal Year 2019-2020 have been moved to the current proposed Administrative Budget since these expenses are not expected to occur until FY20/21 and are under the recommend Capital Expenditure threshold amount. Please see Building & Maintenance Expense and the Capital Expenditures items below for more detail.

The expense categories presented in the attached **Proposed Administrative Budget** for the FY20/21 have been updated based upon varied assumptions, prior year experiences and staff’s best estimates of future events. **Overall staff believes a 2.3% increase in the total budgeted amount when compared to the Fiscal Year 2019-2020 Administrative Budget is appropriate. This represents a \$65,500 increase compared to prior year from \$2.83 million to \$2.89 million.**

Staff's basis for components of this change are further detailed in the sections bellow. This proposed amount represents 0.20% of the total unaudited Net Position of SLOCPT as of December 31, 2019.

- **Investment Expense (discretionary)** – Expense includes Investment Consultant (Verus – a flat rate contract) and Custodian Bank (JP Morgan – contract and market value dependent) fees (does not include Investment Management fees). This prediction uses assumptions based on the unaudited market value of investment assets as of December 31, 2019 where appropriate and adds a 6.20% investment return that was taken from Verus' Capital Market Expectations report presented earlier this year. Adjustments have not been made regarding the current investment volatility related to the Covid-19 pandemic. Custodial fees that are semi-dependent on asset values may be lower than budgeted given the current uncertainty surrounding the investment environment.
- **Personnel Services** – (see Attachment B) Includes all expenses related to SLOCPT's staff. Assumes the following: 1) 2% increase in salaries for FY20-21 (dependent on the County's implementation of prevailing wage adjustments), 2) payroll tax rates will stay consistent with 2020 rates currently in place, 3) cafeteria benefit of \$11,700 (employee only), \$12,500 (employee +1) and \$15,000 (family) annually per eligible employee (benchmarked to County positions in Bargain Units 7 & 11), 4) employer pension rate increase of 1.42% effective with the pay period that includes 7/1/20 (dependent on the County's implementation), and 5) applicable salary increases and promotions for staff members determined to be eligible based on annual review cycles.

Note: Salary ranges presented in Attachment B do not included the 2.0% prevailing wage increase. However, the 2.0% increase is included in the overall Administrative budget presented in Attachment A.

- **Professional Services** –
 - Accounting & Auditing: Based on quoted price from 2019 engagement letter with Brown Armstrong (SLOCPT's annual financial statement audit firm). The 2019 Audit is the second of the current 5-year engagement letter with Brown Armstrong.
 - Actuarial: Based on 2020 engagement letter with Gabriel, Roeder, Smith (SLOCPT's Actuary). Also includes estimate of expected costs relating to additional Actuarial services performed throughout the year. The decrease in expense is attributable to the removal of associated biennial Experience Study costs that were performed during the prior budget cycle.
 - Legal: Based on General Counsel Retainer and legal consultation relating to investment contracts, taxes and disability hearings. Future unforeseen legal expense will be handled with either a Board approved budget amendment or the use of contingency funds.

- Medical Evaluations – Disabilities: Assumes costs associated with medical review services to be performed by MMRO and other Independent Medical Examiners (IMEs) as necessary.
 - Human Resources Consulting: Based on estimated costs associated with services provided by the County’s Human Resources Department.
 - Information Technology Services: Includes expenses relating to PensionGold software system maintenance (per contract) and County IT’s services. The decrease in budgeted expense is directly related to the decommissioning of SLOCPT’s old software system RAD and removal of the costs associated with its maintenance.
 - Banking & Payroll: Includes estimated banking fees for SLOCPT’s two banking relationships (Union Bank and Pacific Premier Bank) and fees associated with payroll services provided by Paychex.
 - Other Professional Services: Based on estimated expense for professional services not related to categories listed above.
- **Other Expenses –**
 - Trustee Election Expenses: County Clerk Recorder fees relating to annual Trustee elections. Actual cost will be lower if there is an uncontested candidacy.
 - Property Taxes: Costs associated with property taxes for SLOCPT’s office building. The decrease in budgeted expense is due to the reclassification of building ownership to a public entity.
 - Insurance: Includes Fiduciary, General, Property and Cyber liability coverages. Estimate is based on current year expense plus 5%.
 - Building & Maintenance: Estimate based on current year expenses. Staff’s request to resurface the parking lot that was originally reported as part of the Capital Expenditures Budget at the March meeting has been moved here. Additionally, interior office building painting and flooring replacement costs, as well as the security system upgrade costs, that were originally approved as part of the FY19-20 Capital Expenditures Budget, have been moved here.
 - Office Expense: Expense includes general office supplies, printing and mailing services provided by ASAP Reprographics, and document destruction services provided by Docuteam.
 - Memberships & Publications: Includes industry specific memberships and publications.
 - Postage: Estimate based on current year expenses.

- Communications: Includes cost associated with telephone services provided by County IT. Estimate is based on County supplied budget document.
 - Training & Travel: (see Attachment C) Based on current year actual costs.
 - Information Technology: Expense includes all purchases relating to tangible IT equipment. Assumes staggered four-year replacement cycle for office computers. Increase in budgeted expense is due to increase in anticipated software costs. Staff's request for software upgrades and improvement cost originally reported as part of the Capital Expenditures Budget have been moved here.
 - Equipment: Includes expenses associated with copier lease and office furniture purchases.
- **Contingencies** – 5% of total budget to be used for unexpected expenses.
 - **Capital Expenditures** – (see Attachment D) With the transition to PensionGold and the reclassification of SLOCPT's office building from an investment asset to an operational asset, Staff has added a Capital Expenditures Budget to plan for and obtain approval for costs that would be capitalized. These costs will be directly related to substantial software upgrades or improvements, building improvements and large equipment purchases. Since these costs are typically depreciated over their useful lives on SLOCPT's income statement, Staff has chosen to present these on a different schedule and account for them using the balance sheet totals rather than the annual depreciation that is expensed. This year Staff does not anticipate any major costs that would need to be capitalized. Additionally, interior painting, flooring replacement and security system upgrade costs originally approved as part of the FY19-20 budget have been deferred and moved to the Administrative Budget for FY20-21.

Attachments:

Attachment A – Proposed Administrative Budget for Fiscal Year 2020--2021

Attachment B – Proposed Staffing

Attachment C – Proposed Training & Travel

Attachment D – Proposed Capital Expenditures

San Luis Obispo County Pension Trust
PROPOSED ADMINISTRATIVE BUDGET:
Fiscal Year 2020-2021

	FY18-19 Actual Expenses	FY19-20 Estimated Expenses	FY19-20 Adopted Budget	FY20-21 Proposed Budget	Increase/ Decrease From PY
INVESTMENT EXPENSE:					
Invest. Exp. (Custody, Consultant)	\$ 450,931	\$ 505,000	\$ 505,000	\$ 511,000	\$ 6,000
ADMINISTRATIVE EXPENSE:					
Personnel Services	\$ 1,096,016	\$ 1,120,000	\$ 1,111,000	\$ 1,197,000	\$ 86,000
Professional Service					
Accounting & Auditing	64,146	60,000	60,000	60,000	-
Actuarial	93,376	125,000	136,000	87,500	(48,500)
Legal	197,511	218,000	220,500	220,000	(500)
Medical Evaluations - Disabilities	22,703	25,000	21,500	25,000	3,500
Human Resources Consulting	5,000	5,000	5,000	5,000	-
Information Technology Services	152,934	278,000	271,500	253,000	(18,500)
Banking and Payroll	18,129	21,000	21,000	21,000	-
Other Professional Services	1,514	2,000	2,500	2,000	(500)
Total Professional Services	\$ 555,313	\$ 734,000	\$ 738,000	\$ 673,500	\$ (64,500)
Other Expenses					
Trustee Election Expenses	-	6,000	6,000	6,000	-
Property Taxes	-	3,000	22,000	3,000	(19,000)
Insurance	116,402	126,000	126,000	126,000	-
Building Maintenance	26,056	46,000	58,000	74,000	16,000
Office Expense	22,510	31,000	28,500	28,000	(500)
Memberships & Publications	5,522	5,000	5,000	6,500	1,500
Postage	27,016	35,000	32,000	32,000	-
Communications	1,557	3,000	3,000	3,500	500
Training & Travel	18,394	36,000	43,000	47,500	4,500
Information Technology	900	25,000	4,500	36,500	32,000
Equipment	3,712	4,000	10,000	10,000	-
Total Other Expenses	\$ 222,069	\$ 320,000	\$ 338,000	\$ 373,000	\$ 35,000
Contingencies	\$ -	\$ -	\$ 135,000	\$ 138,000	\$ 3,000
TOTAL ADMINISTRATIVE	\$ 1,873,398	\$ 2,174,000	\$ 2,322,000	\$ 2,381,500	\$ 59,500
ADMIN. + INVESTMENT	\$ 2,324,329	\$ 2,679,000	\$ 2,827,000	\$ 2,892,500	\$ 65,500

Increase from Prior Year Budget

2.3%

San Luis Obispo County Pension Trust PROPOSED STAFFING:	FY18-19	FY19-20	FY19-20	FY20-21	Increase /	Projected	Projected	Projected	Projected
	Actual	Amended Budget	Actual	Proposed Budget	(Decrease) From PY	FY21-22	FY22-23	FY23-24	FY24-25
Positions (FTEs):									
Executive Director	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Deputy Directory	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Retirement Programs Spec. III	-	2.00	2.00	2.00	-	2.00	2.00	2.00	2.00
Retirement Programs Spec. II	2.00	-	-	-	-	-	-	-	-
Retirement Programs Spec. I	-	-	-	-	-	-	-	-	-
Retirement Technician	1.75	1.75	1.75	1.80	0.05	1.80	1.80	1.80	1.80
Accountant IV	-	0.80	0.80	0.80	-	0.80	0.80	0.80	0.80
Accountant III	0.80	-	-	-	-	-	-	-	-
Accountant II	-	-	-	-	-	-	-	-	-
Accountant I	-	-	-	-	-	-	-	-	-
Administrative Asst. III	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00
Administrative Asst. II	-	-	-	-	-	-	-	-	-
Part-Time Temporary Office Asst.	-	0.75	-	0.65	(0.10)	0.65	0.65	0.65	0.65
TOTAL POSITIONS	7.55	8.30	7.55	8.25	(0.05)	8.25	8.25	8.25	8.25

PROPOSED SALARY & BENEFIT BENCHMARKS:

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

FY 19-20	Step 1	Step 2	Step 3	Step 4	Step 5	Benefits: (health, pension, other)
Executive Director <i>Subject to change per Contract Approval</i>	72.62	76.22	80.05	84.06	88.25	Benchmarked to County BU 7 + \$450/month auto allowance (not pensionable)
Deputy Director <i>80% of Executive Director</i>	58.10	60.98	64.04	67.25	70.60	Benchmarked to County BU 7
Retirement Programs Spec. III <i>#9663 Risk Mgmt. Analyst III</i>	41.94	44.04	46.24	48.55	50.98	Benchmarked to County BU 7

PROPOSED SALARY & BENEFIT BENCHMARKS: (continued)

FY 19-20	Step 1	Step 2	Step 3	Step 4	Step 5	Benefits: (health, pension, other)
Retirement Programs Spec. II <i>#9658 Risk Mgmt. Analyst II</i>	35.85	37.64	39.52	41.50	43.58	Benchmarked to County BU 7
Retirement Programs Spec. I <i>#9657 Risk Mgmt. Analyst I</i>	30.93	32.48	34.10	35.81	37.60	Benchmarked to County BU 7
Accountant IV <i>#2055 Auditor-Analyst III</i>	41.94	44.04	46.24	48.55	50.98	Benchmarked to County BU 7
Accountant III <i>#907 Accountant III</i>	35.26	37.02	38.87	40.81	42.85	Benchmarked to County BU 7
Accountant II <i>#906 Accountant II</i>	30.45	31.97	33.57	35.24	37.01	Benchmarked to County BU 7
Accountant I <i>#905 Accountant I</i>	25.99	27.29	28.65	30.08	31.58	Benchmarked to County BU 7
Retirement Technician <i>#913 Accounting Technician - Conf.</i>	23.91	25.11	26.37	27.69	29.07	Benchmarked to County BU 11
Administrative Asst. III <i>#2203 Administrative Asst. III - Conf.</i>	19.51	20.49	21.51	22.59	23.72	Benchmarked to County BU 11
Administrative Asst. II <i>#2222 Administrative Asst. II - Conf.</i>	17.74	18.63	19.56	20.54	21.57	Benchmarked to County BU 11
Administrative Asst. I <i>#2221 Administrative Asst. I - Conf.</i>	16.09	16.89	17.73	18.62	19.55	Benchmarked to County BU 11
Part-Time Temporary Office Assistant <i>#911 Account Clerk</i>	18.90	19.85	20.84	21.88	22.97	N/A

**San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:**

	FY18-19 Actual	Current FY19-20 YTD	FY19-20 Amended Budget	FY20-21 Proposed Budget	Increase / (Decrease) From PY Budget
<i>CALAPRS General Assembly</i>					
Attendees - Board	5	2	3	3	-
Attendees - Staff	2	1	2	2	-
Total Expense	6,361	3,463	6,500	7,250	750
<i>CALAPRS Advanced Trustee Institute (UCLA)</i>					
Attendees - Board	-	-	1	1	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	3,450	3,450	-
<i>CALAPRS Trustees Training-Pepperdine</i>					
Attendees - Board	-	-	1	2	1
Attendees - Staff	-	-	-	-	-
Total Expense	3,000	-	3,300	6,600	3,300
<i>SACRS Trustees Training- Berkeley (new)</i>					
Attendees - Board	-	-	1	1	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	3,750	3,750	-
<i>SACRS Semi-Annual Conferences</i>					
Attendees - Board	-	-	1	1	-
Attendees - Staff	-	1	-	-	-
Total Expense	240	1,315	1,370	1,550	180
<i>CALAPRS Administrators Institute</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	1	1	1	-
Total Expense	1,422	1,250	1,600	1,600	-
<i>CALAPRS Trustees Roundtables (2/yr)</i>					
Attendees - Board	-	-	2	2	-
Attendees - Staff	-	-	-	-	-
Total Expense	-	-	1,200	1,200	-
<i>CALAPRS Administrators Roundtables (2/yr)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	2	2	2	-
Total Expense	425	554	1,200	1,200	-

**San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:**

	FY18-19 Actual	Current FY19-20 YTD	FY19-20 Amended Budget	FY20-21 Proposed Budget	Increase / (Decrease) From PY Budget
<i>CALAPRS Investment Officers Roundtables (2/yr)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	2	2	-
Total Expense	-	-	1,250	1,250	-
<i>CALAPRS Attorneys Roundtables (3/yr)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	3	1	3	3	-
Total Expense	375	125	375	375	-
<i>CALAPRS Operations Roundtables (4/yr)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	3	3	4	4	-
Total Expense	2,202	837	2,500	2,500	-
<i>CALAPRS Disability training</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	1	1	-
Total Expense	-	-	625	625	-
<i>CALAPRS Overview Course (3 class series)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	1	-	3	3	-
Total Expense	1,024	-	3,750	3,750	-
<i>CALAPRS - Board, Faculty, and related travel</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	3	3	4	4	-
Total Expense	691	984	1,900	2,200	300
<i>Investment Seminars</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	1	2	2	-
Total Expense	-	1,086	3,200	3,200	-
<i>Investment Due Diligence On-site visits (combined w/other travel if possible)</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	-	-	1	1	-
Total Expense	-	-	2,450	2,450	-

**San Luis Obispo County Pension Trust
PROPOSED TRAINING & TRAVEL:**

	FY18-19 Actual	Current FY19-20 YTD	FY19-20 Amended Budget	FY20-21 Proposed Budget	Increase / (Decrease) From PY Budget
<i>Software Training</i>					
Attendees - Board	-	-	-	-	-
Attendees - Staff	2	1	2	2	-
Total Expense	2,431	2,002	3,000	3,000	-
<i>Misc. Board and Staff Training</i>					
Total Expense	225	847	1,580	1,550	(30)
Subtotal Training and Travel					
Training	6,865	3,430	14,500	17,970	3,470
Travel (air, hotel, food)	8,001	6,383	18,600	18,900	300
Mileage Reimb.	3,097	2,515	9,350	10,050	700
Misc. Travel	433	136	550	580	30
Total Training and Travel	18,396	12,464	43,000	47,500	4,500

San Luis Obispo County Pension Trust
PROPOSED CAPITAL EXPENDITURES BUDGET:
Fiscal Year 2020-2021

	FY18-19 Actual Expenditures	FY19-20 Estimated Expenditures	FY19-20 Adopted Budget	FY20-21 Proposed Budget	Increase/ Decrease From PY
BUILDING EXPENDITURES:					
Exterior					
Roof	-	-	-	-	-
Windows	-	-	-	-	-
Paint	-	-	-	-	-
Parking Lot	-	-	-	-	-
Landscape	-	-	-	-	-
Total Exterior	\$ -	\$ -	\$ -	\$ -	\$ -
Interior					
HVAC	-	-	-	-	-
Paint	-	7,500	7,500	-	(7,500)
Flooring	-	5,000	5,000	-	(5,000)
Plumbing	-	-	-	-	-
Elevator	-	-	-	-	-
Security System	-	6,000	10,000	-	(10,000)
Total Interior	\$ -	\$ 18,500	\$ 22,500	\$ -	\$ (22,500)
SOFTWARE EXPEDITURES:					
Software Purchases ***	\$ 3,003,699	\$ 3,112,922	\$ -	\$ -	\$ -
Software Upgrades and Improvements	\$ -	\$ -	\$ 20,000	\$ -	\$ (20,000)
EQUIPMENT EXPEDITURES:					
Capitalized Equipment Purchases	\$ -	\$ -	\$ -	\$ -	\$ -
CONTINGENCIES	\$ -	\$ -	\$ 2,125	\$ -	\$ (2,125)
TOTAL CAPITAL EXPENDITURES	\$ 3,003,699	\$ 3,131,422	\$ 44,625	\$ -	\$ (44,625)

***Note: costs associated with 3 year Pension Gold software implementation, budget approved May 23, 2016

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Board of Trustees

1000 Mill Street
San Luis Obispo, CA 93408
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www.SLOPensionTrust.org



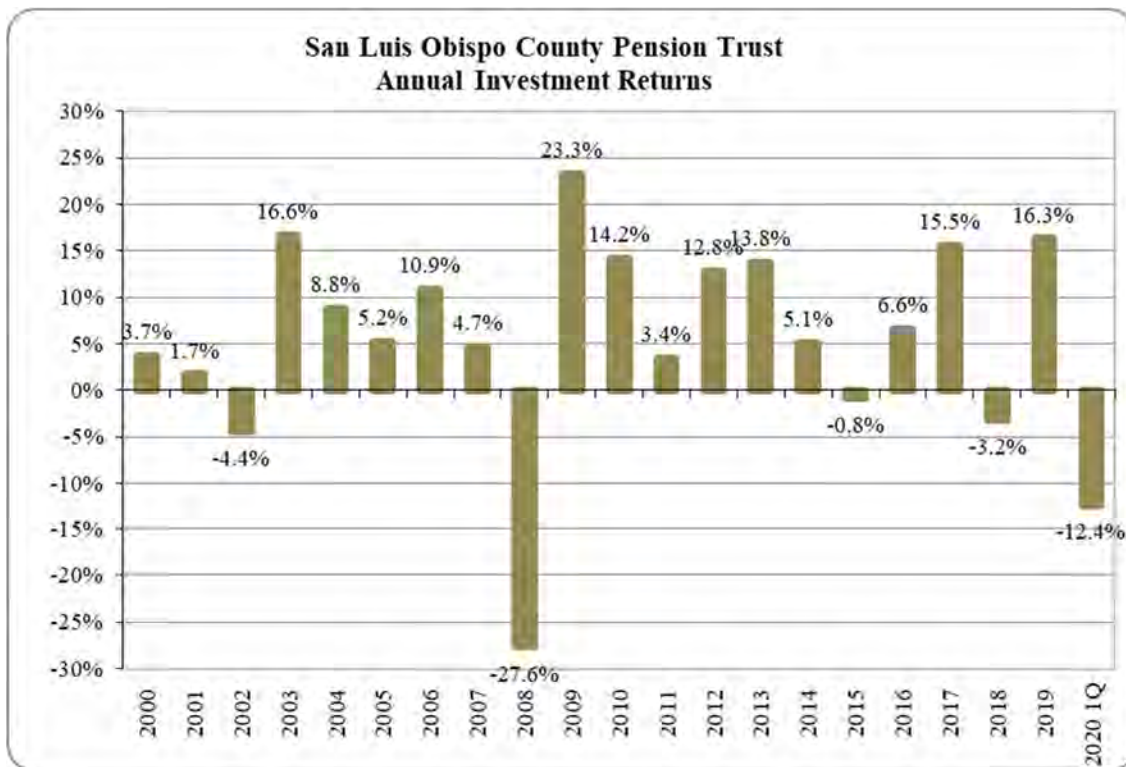
Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 13: Quarterly Investment Report for the 1st Quarter of 2020

Attached to this memo is the 1Q20 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: MARCH 31, 2020

Investment Performance Review for

San Luis Obispo County Pension Trust

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Investment Landscape

TAB I

Investment Performance
Review

TAB II



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

2ND QUARTER 2020
Investment Landscape

Recent Verus research

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

Annual outlooks

ACTIVE MANAGEMENT ENVIRONMENT

Our work on active management addresses some shortfalls of the traditional analysis, which uses the median product to describe the active management universe as a whole. These improvements and insights have allowed us to better understand product behavior and may allow for more informed selection in the future.

Sound thinking

TEN THOUGHTS FOR 2020

A new year begins, and with it comes an opportunity to assess whether the correct areas were focused on in the previous year, and to create new suggested topics of interest for the year ahead. In this piece, our CIO, Ian Toner, will try to help investors prioritize shorter-term actions they might take, while addressing longer-term issues to improve their success.

THE JUDGMENTAL WAITER

In this piece our CIO, Ian Toner, lays out how Verus is approaching the challenge of building customized ESG advice and service to each of our clients, and outlines the significant resource commitment Verus is making during 2020 and beyond to provide that tailored support.

COVID-19

MARKET UPDATE 3/17/20

The first few weeks of March have been almost unprecedented in terms of market volatility and behavior. The combination of health concerns and oil market disruption has led to market moves of a type that we rarely see. Underlying this, there is also a real human concern about our families, and the human effect on people we love as the coronavirus spreads. So what are long term investors to do?

MARKET UPDATE 4/9/20

The COVID-19 crisis has had a sudden impact on the capital markets, which has been made worse by the recent disruption in the oil market. Now is a good time for investors to take stock of the possible intermediate and long-term implications of these disruptions, as well as to try to assess the possible short-term factors which might cause further market disruption.

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1st quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate). Companies drew down inventories, which detracted 1% from growth. Investors appear to be bracing for an unprecedented slowdown of the economy during the first half of 2020, due to the coronavirus outbreak. Forecasts of Q2 GDP growth have varied between -15% to -35%. **p. 9**
- The U.S. government quickly crafted and implemented historic stimulus measures to combat the economic impact of the virus. Support of this magnitude has not been seen since the Great Depression of the 1930s. **p. 10**

PORTFOLIO IMPACTS

- U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19. During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%. **p. 25**
- U.S. core inflation increased 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have persistent effects in future months. Downward pressure could be compounded as households slow spending due to loss of income and a greater propensity to save rather than spend. **p. 11**

THE INVESTMENT CLIMATE

- In mid-March, the Federal Open Market Committee cut interest rates by a full 1.00% to a new range of 0 – 0.25%. This surprise action was taken on a Sunday with the intent to get out ahead of economic impacts of COVID-19. **p. 19**
- Implied volatility spiked in March to a record daily close of 82.7%, surpassing the high of 80.9% reached in November 2008 during the depths of the global financial crisis. **p. 32**
- Central banks are facing an economic slowdown and need for monetary policy support, but very little room to cut interest rates. This is a risk that has been discussed for years. We believe fiscal policies will play a much larger role in addressing the inevitable economic slowdown. **p. 19**

ASSET ALLOCATION ISSUES

- Risk markets experienced one of the most sudden corrections on record, amidst extreme volatility. The S&P 500 showed its largest one-day drop since 1987 (March 16 -11.98%) and its largest one-day gain since 2008 (March 24 +9.38%). Implied volatility reached global financial crisis levels, and high yield credit spreads temporarily expanded above 11%. Some of these losses were recovered toward the end of March as the market rebounded. **p. 27**
- The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in losses for investors with unhedged currency exposure. **p. 36**

An underweight risk stance appears appropriate in today's environment

We remain watchful for investment opportunities

What drove the market in Q1?

“World Health Organization declares the coronavirus outbreak a global pandemic”

GLOBAL CONFIRMED COVID-19 CASES

1/31	2/15	2/29	3/15	3/31	4/15
11,374	69,267	86,351	164,403	857,778	2,077,469

Article Source: CNBC, March 11th, 2020

“Vix Hits Highest Level Since the Financial Crisis as Volatility Soars”

CBOE VIX INDEX

Oct	Nov	Dec	Jan	Feb	Mar
13.22	12.62	13.78	18.84	40.11	53.54

Article Source: Barron's, March 9th, 2020

“Fed announces unlimited QE and sets up several new lending programs”

FEDERAL RESERVE BALANCE SHEET (USD TRILLIONS)

3/4	3/11	3/18	3/25	4/1	4/8
4.3	4.4	4.7	5.3	5.9	6.1

Article Source: MarketWatch, March 23rd, 2020

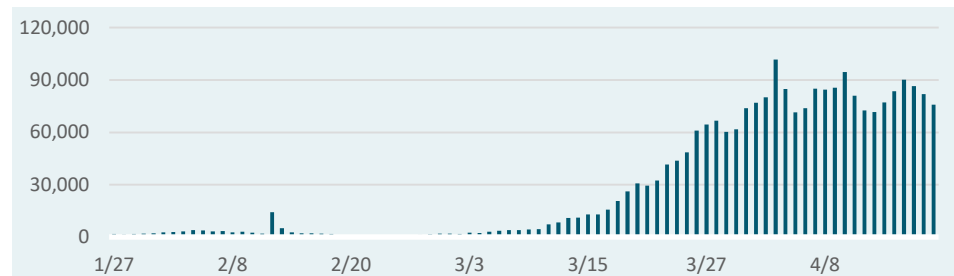
“Coronavirus job losses could total 47 million, unemployment rate may hit 32 percent, Fed estimates”

INITIAL WEEKLY JOBLESS CLAIMS

3/6	3/13	3/20	3/27	4/3	4/10
211,000	282,000	3,307,000	6,867,000	6,615,000	5,245,000

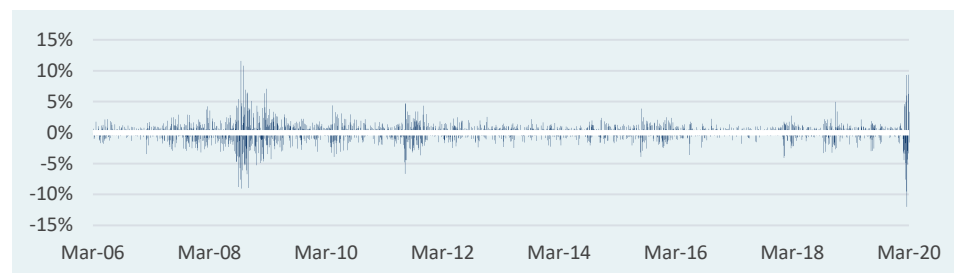
Article Source: NBC News, March 30th, 2020

DAILY NEW COVID-19 CASES (WORLDWIDE)



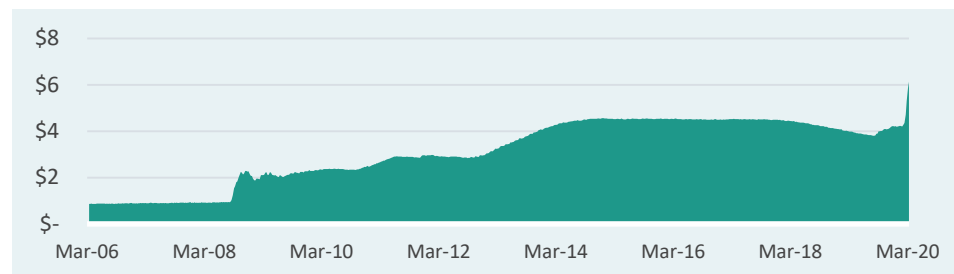
Source: Worldometer, as of 4/19/20

S&P 500 INDEX 1-DAY PERCENTAGE PRICE MOVE



Source: Standard & Poor's, Bloomberg, as of 3/31/20

FEDERAL RESERVE BALANCE SHEET (USD TRILLIONS)



Source: Federal Reserve, as of 4/8/20

Economic environment

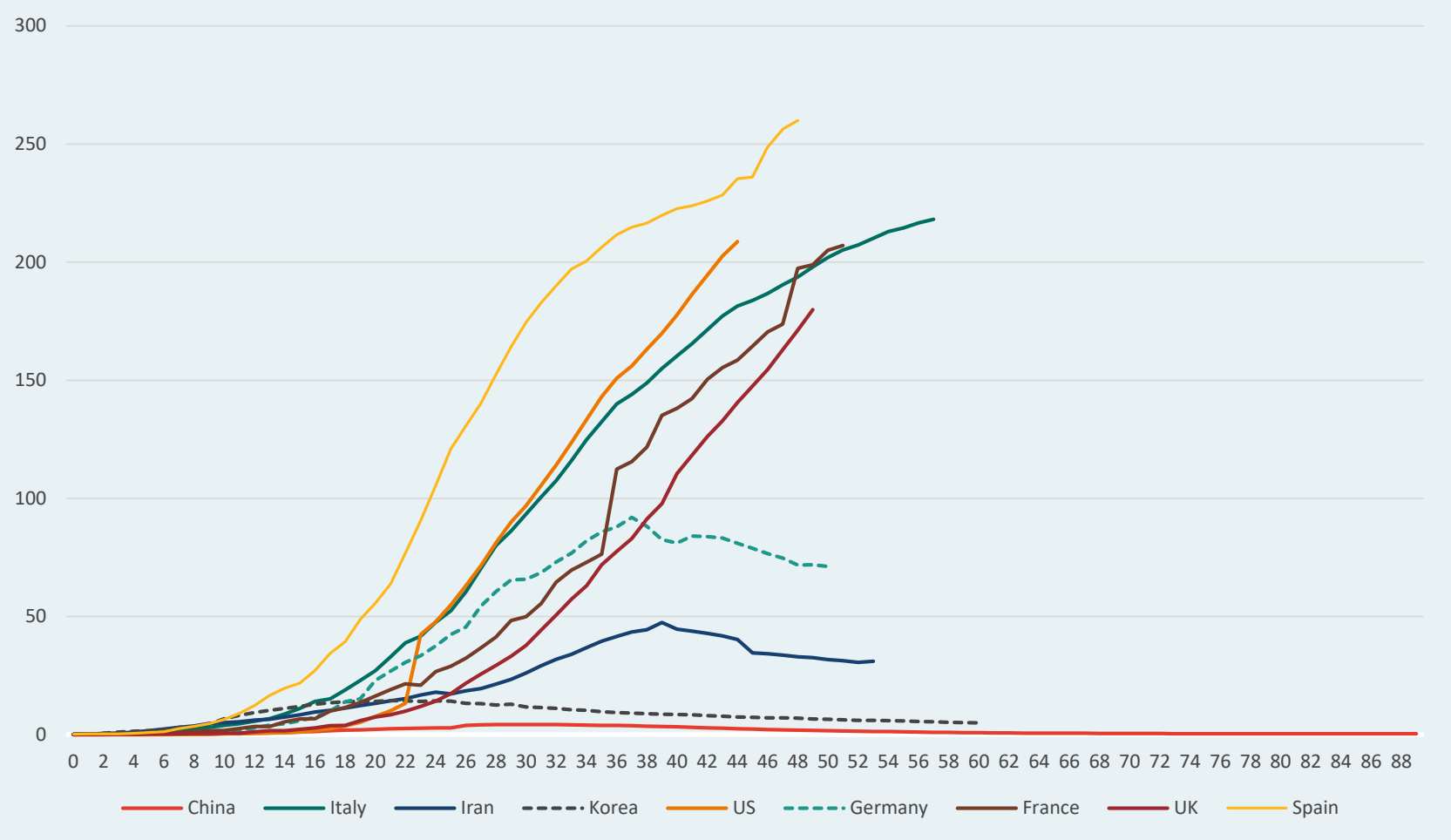
U.S. economics summary

- Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate). Companies drew down inventories, which detracted -1% from growth. Investors appear to be bracing for an unprecedented slowdown of the economy during the first half of 2020, due to COVID-19. Forecasts of Q2 GDP growth have varied between -15% to -35%.
- The U.S. government quickly crafted and implemented historic stimulus measures to combat the economic impacts of the virus. Support of this magnitude has not been seen since the Great Depression of the 1930s.
- U.S. core inflation rose 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have persistent effects in the coming months. This downward pressure could be compounded as households slow spending due to loss of income and show a greater propensity to save.
- The U.S. labor market exhibited a sharp weakening in March, as unemployment jumped to 4.4%. Some have estimated the true unemployment rate in April to be above 10%.
- March economic data should not be expected to fully reflect the extent of COVID-19. We are watching daily data releases to gain a better understanding of how conditions are evolving.
- The Bloomberg Consumer Comfort Index exhibited its sharpest two week drop since 1985, from 63.0 to 56.3, dipping from a 20-year high of 67.3 that was achieved in January.
- Existing homes sales increased +7.2% in February YoY, and new homes sales were up +14.3%. The 30-year fixed mortgage interest rate has continued to fall, finishing Q1 at 3.33%.

	Most Recent	12 Months Prior
GDP (YoY)	2.3% <i>12/31/19</i>	2.5% <i>12/31/18</i>
Inflation (CPI YoY, Core)	2.1% <i>3/31/20</i>	2.0% <i>3/31/19</i>
Expected Inflation (5yr-5yr forward)	1.3% <i>3/31/20</i>	2.4% <i>3/31/19</i>
Fed Funds Target Range	0% – 0.25% <i>3/31/20</i>	2.25% – 2.50% <i>3/31/19</i>
10 Year Rate	0.7% <i>3/31/20</i>	2.4% <i>3/31/19</i>
U-3 Unemployment	4.4% <i>3/31/20</i>	3.8% <i>3/31/19</i>
U-6 Unemployment	8.7% <i>3/31/20</i>	7.4% <i>3/31/19</i>

COVID-19 update

ACTIVE CASES PER 100,000 PEOPLE



The COVID-19 crisis has quickly become a global pandemic

Source: Bloomberg, aggregated official country statistics, x-axis indexed to when the country first reached 100 cases, as of 4/17/20

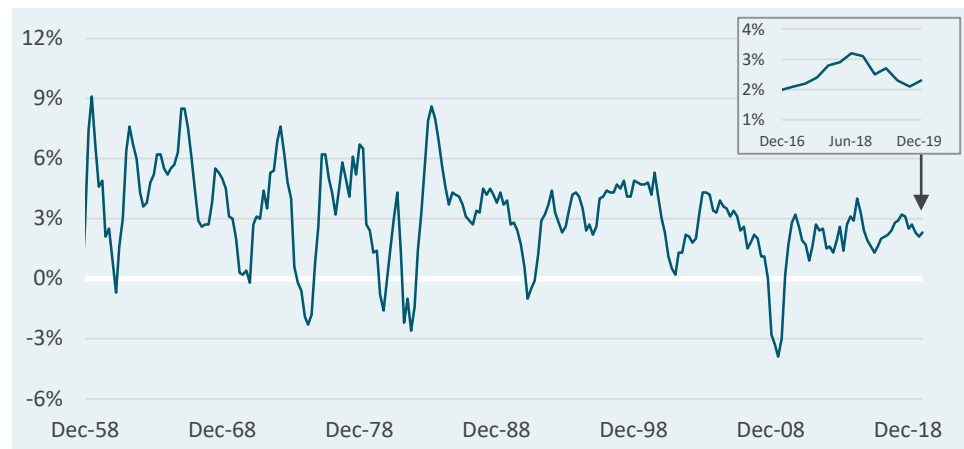
GDP growth

Real GDP grew at a 2.3% rate year-over-year in the fourth quarter (2.1% quarterly annualized rate). Companies drew down inventories, which detracted -1% from growth. Investors are bracing for an unprecedented slowdown of the economy during the first half of 2020 due to the coronavirus. Forecasts of Q2 GDP growth have varied between -15% to -35%.

The United States fiscal and monetary response to COVID-19 is unparalleled. The first response was from the Federal Reserve, swiftly cutting interest rates to zero, though 0% was not far away from levels at the time. The administration then rolled out the Families First

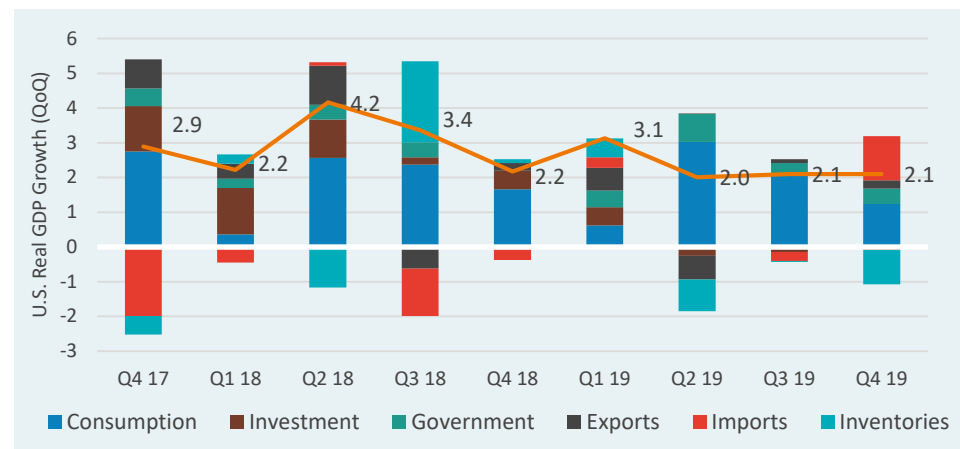
Coronavirus Response Act, which guaranteed sick days to full-time workers, prorated for part-time workers. Next was an expansion of the Family and Medical Leave Act, which provided paid leave for employees of businesses with fewer than 500 staff. For workers requiring more than two weeks of leave, the act covered those employees for up to 14 weeks. The most recent CARES Act was the largest in modern history, at \$2.2 Trillion in size. It included up to \$1,200 payments to every American, a \$600 increase in weekly unemployment benefits, expansion of unemployment to many of those not previously eligible, \$350 Billion in loans to small businesses, \$500 Billion in aid to corporations, and additional funding to individual states and government programs.

U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 12/31/19

U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 12/31/19

U.S. fiscal response

Families First Coronavirus Response Act:

- 10 sick days to full-time workers, prorated for part-time workers. This legislation applies to most U.S. workers, though some restrictions exist.
- Food support for low-income families increased through programs such as: increased SNAP coverage for jobless and lower-income Americans, emergency food allotments, and guaranteed school lunches.

Family and Medical Leave Act:

- This existing act has been amended to provide paid leave for employees of businesses with fewer than 500 staff in size.
- For workers who still require time off after the first two weeks, this act covers these employees for up to 14 weeks.

\$2.2 Trillion Coronavirus Relief Package

- \$1,200 checks to every American, which begin to be phased out for Americans with more than \$75,000 of income and fully phased out for Americans with more than \$99,000 in income. It was communicated that these non-taxable checks would be issued within weeks.
- Weekly unemployment benefits were increased by \$600 per week for up to 4 months and were made available to many who previously did not qualify, such as freelance workers and furloughed employees.
- \$350 Billion in loans to small businesses.
- Companies with fewer than 500 employees could be eligible for up to \$10 Million in forgivable loans to meet payroll needs.
- \$500 Billion in aid to corporations, \$100 Billion in aid to hospitals, \$150 Billion for state and local governments.
- 60-day delays in home foreclosures. Optional 6-month student loan deferrals.

Inflation

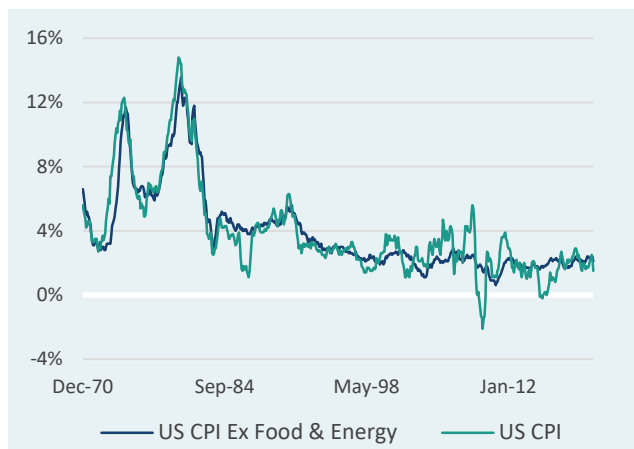
U.S. core inflation increased 2.1% YoY in March. Headline inflation slowed to 1.5%, pushed lower by a sharp decline in energy prices which will likely have continued effects over the coming months. This downward pressure could be compounded as households slow spending due to loss of income and show a greater propensity to save rather than spend.

During the sudden market sell-off in March, the U.S. TIPS inflation breakeven rate fell drastically from 1.7% to a low of 0.5%, ending the month at 0.9%. U.S. TIPS breakevens have historically tended to plummet in times of market turmoil.

We believe these moves may partially reflect the illiquidity of TIPS in volatile environments, rather than falling inflation expectations. This draws into question the usefulness of TIPS breakeven rates as a pure indication of investors' inflation forecasts. Inflation swaps, such as the 5-year Inflation Swap Forward Rate, may offer a cleaner reflection of true inflation expectations.

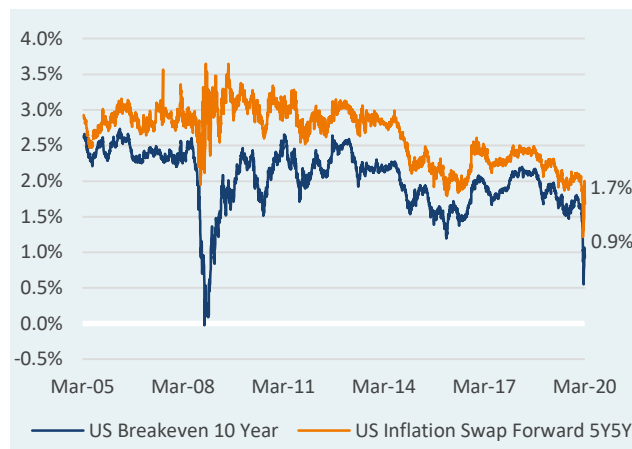
Consumer inflation surveys indicate that expectations were relatively flat, moving from 2.3% in December to 2.2% in March.

U.S. CPI (YOY)



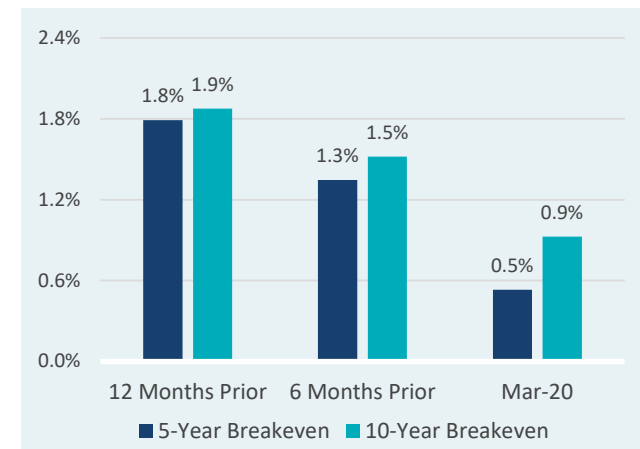
Source: Bloomberg, as of 3/31/20

U.S. INFLATION INDICATORS



Source: FRED, Bloomberg, as of 3/31/20

INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/20

Labor market

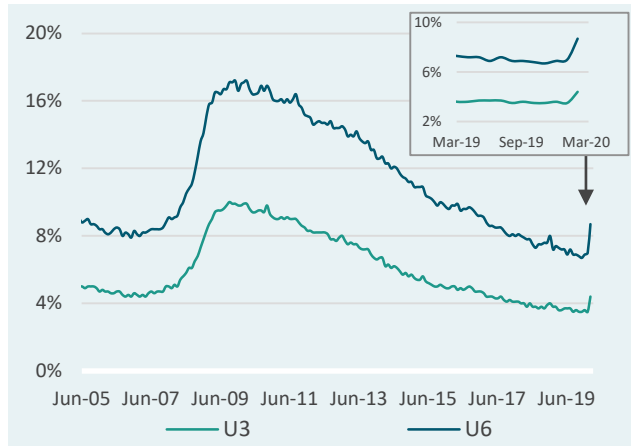
The U.S. labor market exhibited a sharp weakening in March, as unemployment jumped to 4.4%. Some have estimated the true unemployment rate in April to be above 10%.

The total number of Americans applying for unemployment skyrocketed to 6.65 Million at the end of March – a number historically unthinkable. This figure may stay elevated due to shelter-in-place mandates and widespread business closures across the country.

The NFIB Small Business Optimism Index decreased by 8.1 in March to 96.4, which was the largest drop of the series' history. Survey respondents indicated greater uncertainty on the horizon, contracting business conditions, falling sales in the coming six months, and fewer job openings. NFIB stated that "Small business orders are bracing themselves for a significant reduction in consumer spending and future orders." The organization also reported that around half of small businesses indicated that they cannot survive a shutdown of more than two months under current conditions.

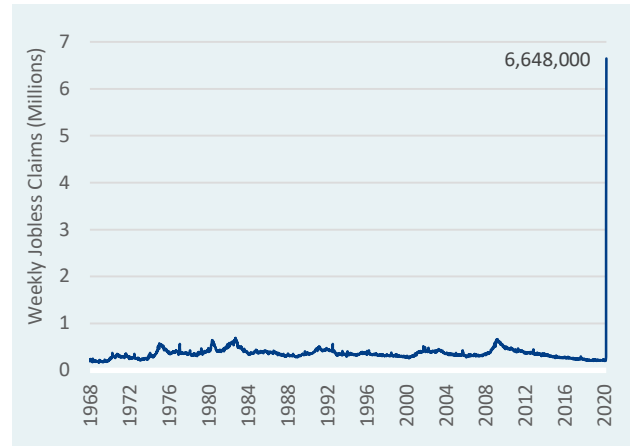
U.S. labor market is experiencing the largest negative shock in modern history

U.S. UNEMPLOYMENT



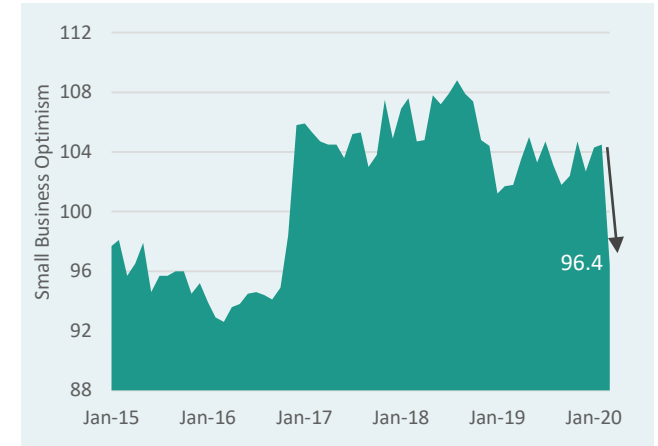
Source: FRED, as of 3/31/20

WEEKLY JOBLESS CLAIMS



Source: FRED, as 3/31/20

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 3/31/20

The consumer

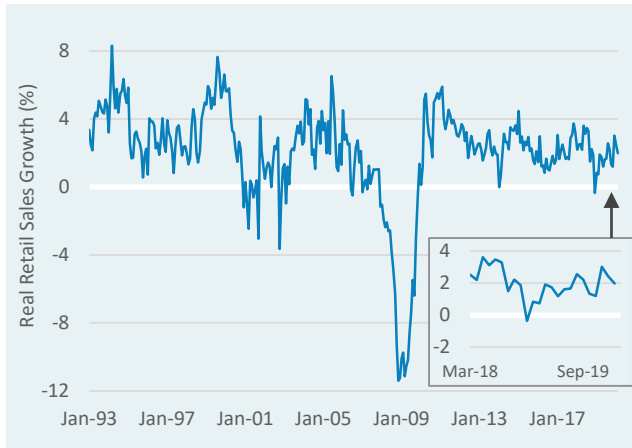
The U.S. consumer has been the greatest support to moderate domestic economic growth of recent years. At the same time, spending and use of credit has been conservative, and household balance sheets have remained robust. The relatively strong position of households at the onset of the crisis may help mitigate some pain of the COVID-19 economic slowdown.

U.S. retail sales declined -8.7% in March from the prior month, the largest ever decline since the series' inception in 1992. Big ticket discretionary purchases are likely to see severe slowdowns due to coronavirus.

Consumers appear to be paring back more elective purchases and allocating more of their income toward staple goods. In March, sales at clothing and home furnishing stores fell -51% and -27% respectively, while food and beverage purchases (+27%) posted a record advance.

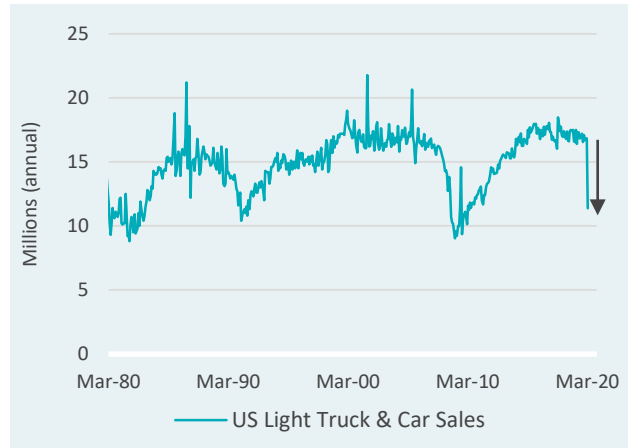
Data from Google suggests that consumers have been travelling far less as of late, and whether that trend continues will be interesting to observe as we move into spring in the United States. Filling station receipts fell around 17% in March, and those revenues are less likely to be "made up" later in the year.

REAL RETAIL SALES GROWTH (YOY)



Source: FRED, as of 2/29/20

U.S. AUTO SALES



Source: Bloomberg, as of 3/31/20

HOUSEHOLD DEBT BURDEN



Source: FRED, as of 12/31/19

Sentiment

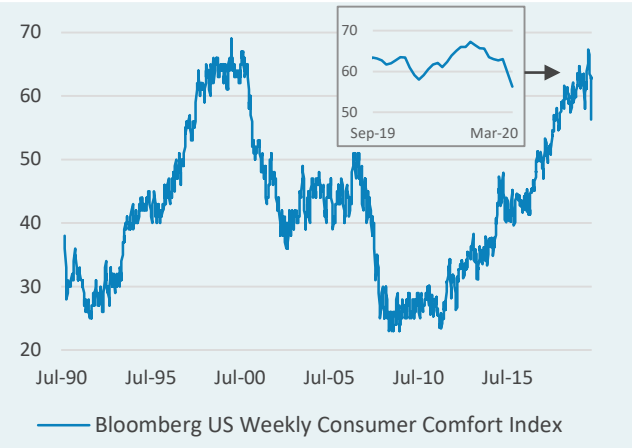
The Bloomberg Consumer Comfort Index exhibited its sharpest two week drop since 1985, falling from 63.0 to 56.3, down from a 20-year high of 67.3 that was achieved in January. Slowing business activity, rising unemployment, and greater uncertainty has led to a broad deterioration in consumer confidence.

Small business owners have been among the hardest hit by the COVID-19 economic disruptions. The NFIB Small Business Optimism Index registered its largest ever single month drop

in March, falling -8.1 points to 96.4. Plummeting expectations for real sales over the next six months drove the decline in the overall index, and it appears Main Street business owners are anticipating and bracing themselves for continued economic disruptions moving forward.

While hiring activity remained relatively healthy in early March, hiring plans showed a significant drop-off in February, a signal of a strong downturn in the coming months.

CONSUMER COMFORT



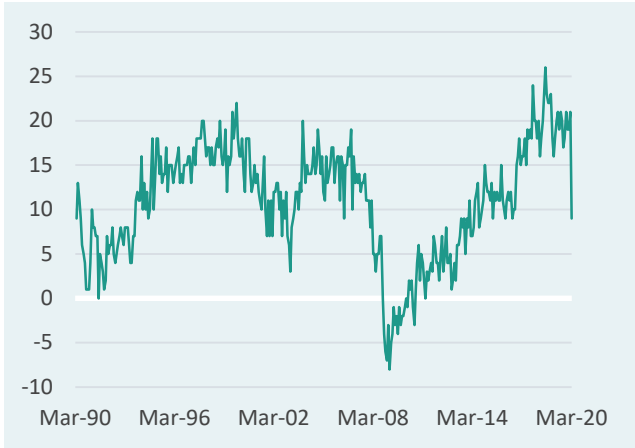
Source: Bloomberg, as of 3/31/20

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 3/31/20

SMALL BUSINESS HIRING PLANS INDEX



Source: NFIB, as of 3/31/20

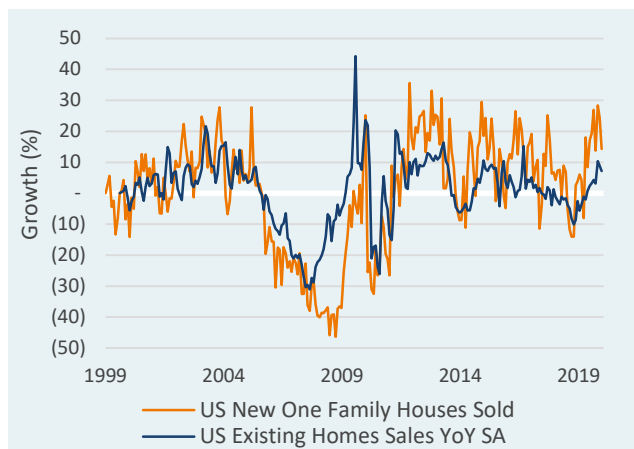
Housing

The housing market exhibited strength to start the year, with February existing homes sales rising 7.2% YoY, and new home sales up 14.3%. The 30-year fixed mortgage interest rate has continued to fall, finishing Q1 at 3.33%. Near record-low interest rates will likely continue to support housing prices and demand, as home affordability improves for Americans.

It is difficult to forecast the effect that COVID-19 will have on the housing market, as there are perhaps two opposing forces at work. The first effect is falling mortgage rates, which should be supportive of home values and purchase activity, assuming U.S. interest rates remain lower as they

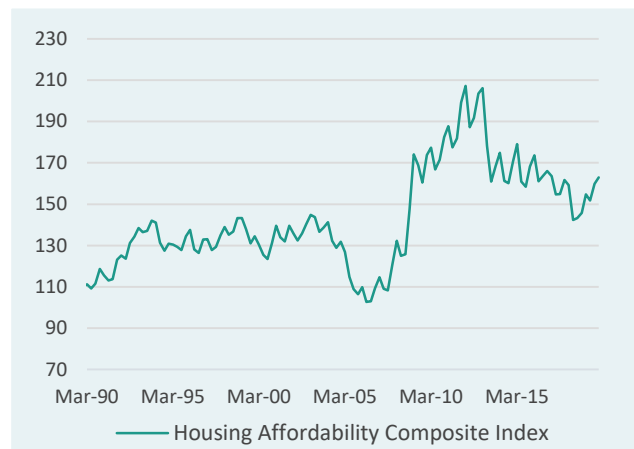
typically do during market strain. The second effect – a slowing U.S. economy – is of course negative on housing values and demand. Millions of job losses have occurred in the first few weeks of the COVID-19 nationwide shutdown, and many Americans will soon struggle to meet mortgage payments. Under the new CARES Act, homeowners with Federally-backed mortgages who have been affected by COVID-19 can request forbearance on mortgage payments for up to 180 days, with an option to extend for an additional 180 days. This intervention will hopefully ease some of the strains and mitigate some downside risk during a time of historically unprecedented spikes in unemployment.

U.S. HOME SALES (YOY)



Source: FRED, as of 2/29/20

HOUSING AFFORDABILITY INDEX



Source: Bloomberg, NAHB, as of 12/31/19 (see appendix)

30YR FIXED RATE MORTGAGE



Source: FRED, as of 3/31/20

International economics summary

- Most international developed economies grew at a rate of 0.5% to 2.5% in Q4. The low and stable expansion of recent years has changed suddenly with the onset of COVID-19. Many global economies will enter recession in 2020. On April 14th the IMF revised their 2020 global growth forecast from +3.3% to -3.0%.
- Governments are using monetary and fiscal policies to fill the large hole in spending and lending that the slowdown may cause. These policies vary in their characteristics and aggressiveness.
- Governments with limited ability to implement stimulus policies may face tougher economic fallout. Specifically, European Union member nations that cannot exercise independent actions may see greater difficulties ahead as income gaps cannot be supplemented with fiscal spending.
- The World Trade Organization (WTO) forecast a 13%-32% fall in global trade in 2020 – a larger decrease than witnessed during the global financial crisis. This forecast was paired with the expectation of a 21%-24% rebound in trade throughout 2021.
- While not yet reflected in the most recent economic data, unemployment rates around the world are certain to rise considerably.
- The COVID-19 virus breakout originated in China, and many investors have pointed to China as a testcase for how the virus might play out economically. Although the data released by China suggests the outbreak has been defeated, there is increasing evidence that the severity of virus has been underreported – perhaps severely.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.3% <i>12/31/19</i>	1.5% <i>3/31/20</i>	4.4% <i>3/31/20</i>
Eurozone	1.0% <i>12/31/19</i>	0.7% <i>3/31/20</i>	7.3% <i>2/29/20</i>
Japan	(0.7%) <i>12/31/19</i>	0.4% <i>3/31/20</i>	2.3% <i>2/29/20</i>
BRICS Nations	5.0% <i>12/31/19</i>	4.9% <i>3/31/20</i>	5.0% <i>12/31/19</i>
Brazil	1.7% <i>12/31/19</i>	3.3% <i>3/31/20</i>	11.6% <i>2/29/20</i>
Russia	2.1% <i>12/31/19</i>	2.6% <i>3/31/20</i>	4.6% <i>2/29/20</i>
India	4.7% <i>12/31/19</i>	5.9% <i>3/31/20</i>	8.5% <i>12/31/17</i>
China	6.0% <i>12/31/19</i>	4.3% <i>3/31/20</i>	3.6% <i>12/31/19</i>

International economics

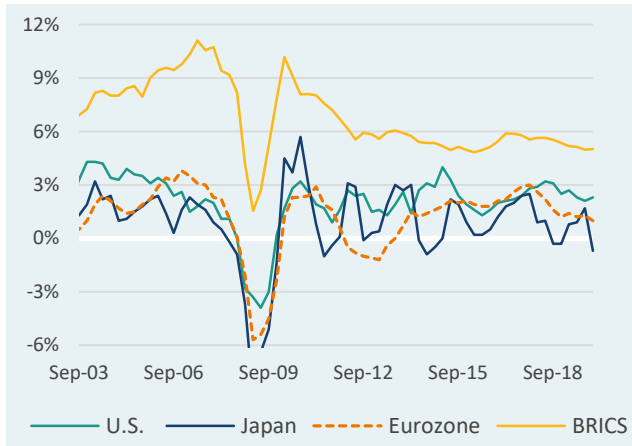
Most international developed economies grew at a rate of 0.5% to 2.5% in Q4. The low and stable expansion of recent years has changed suddenly with the onset of COVID-19. Many global economies will enter recession in 2020. On April 14th the IMF revised their 2020 global growth forecast from +3.3% to -3.0%.

Governments are using monetary and fiscal policies to fill the potentially large hole in spending and lending that the slowdown may cause. These policies vary in their characteristics. For example, the UK government has taken a more aggressive stance, committing to subsidize 80% of the salaries of workers who become unemployed, up to £2,500 per month for a three-month period.

The World Trade Organization (WTO) forecast a 13%-32% fall in global trade in 2020 – a larger decrease than witnessed during the global financial crisis due to broader restrictions on labor and travel that are not involved with a typical recession. This forecast was paired with the expectation of a 21%-24% rebound in trade throughout 2021, though forecasts of the shape and nature of the recovery may be more speculative in nature.

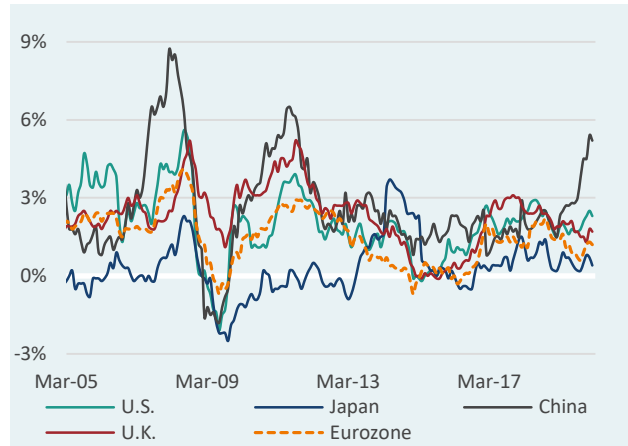
Due to the extremely quick onset of COVID-19 and its economic impacts, many traditional economic metrics do not yet reflect the effects of the virus since these metrics are released with a one-month or greater lag.

REAL GDP GROWTH (YOY)



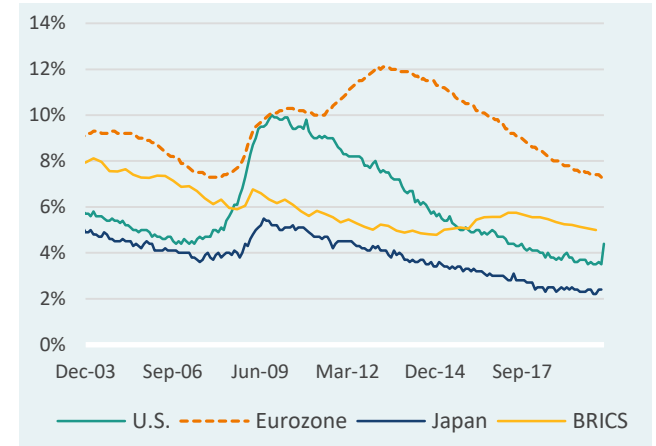
Source: Bloomberg, as of 12/31/19

INFLATION (CPI YOY)



Source: Bloomberg, inflation range of past 5 years, as of 2/29/20

UNEMPLOYMENT RATE



Source: Bloomberg, as of 3/31/20 or most recent release

Fixed income rates & credit

Interest rate environment

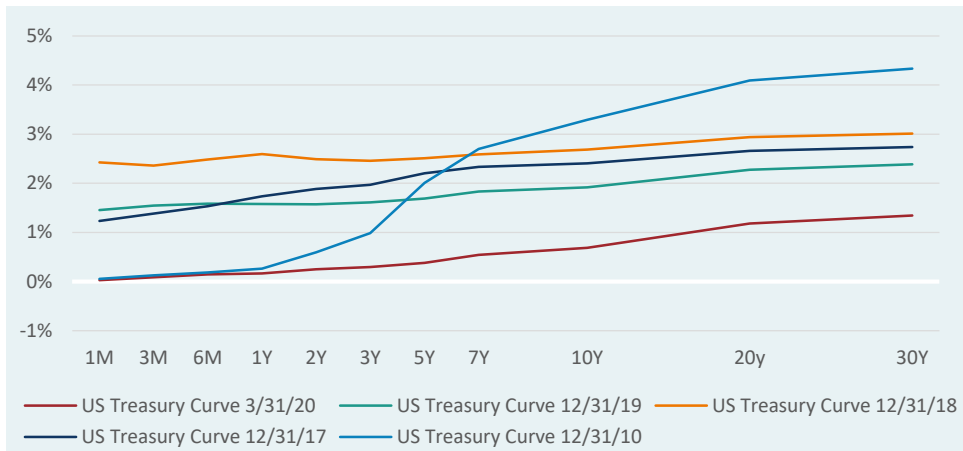
- In mid-March, the Federal Open Market Committee cut interest rates by a full 1.00% to a new range of 0 – 0.25%. This surprise action was taken on a Sunday with the intent to get out ahead of the economic impacts of COVID-19.
- On April 9th, the Federal Reserve announced an additional \$2.3 Trillion program aimed towards providing financing to small businesses and municipalities. The program included \$1M-\$25M sized loans at an interest rate of 2.5%-4.0% with a four-year maturity. This move involved Fed purchases of certain types of low-grade speculative debt, a reversal from comments just weeks earlier that the Federal Reserve would stick to investment-grade debt purchases.
- The European Central Bank (ECB) announced a €750B asset purchase program in March to address effects of the virus. ECB President Christine Lagarde claimed that there are “no limits to our commitment to the euro”. Bond yields of Euro member countries fell on the news.
- Central banks are now facing a unique problem – an immediate economic slowdown and need for monetary policy support, but very little room to cut interest rates to provide that support. This is a risk that has been discussed by investors for years, only now becoming reality. We believe fiscal policies will play a much larger role in addressing the inevitable economic slowdown.
- The Federal Reserve rolled out several liquidity programs which were components of its Global Financial Crisis playbook and are aimed at ensuring the flow of credit to U.S. households and businesses, as well as financial market stability. The New York Fed began offering up to \$500B in overnight liquidity through repurchase agreements and has expanded dollar swap lines to alleviate any possible strains in global U.S. dollar funding markets.

Area	Short Term (3M)	10-Year
United States	0.09%	0.67%
Germany	(0.71%)	(0.47%)
France	(0.50%)	(0.02%)
Spain	(0.23%)	0.67%
Italy	(0.05%)	1.52%
Greece	0.16%	1.63%
U.K.	0.03%	0.36%
Japan	(0.30%)	0.01%
Australia	0.37%	0.76%
China	1.34%	2.58%
Brazil	3.37%	7.77%
Russia	5.47%	6.70%

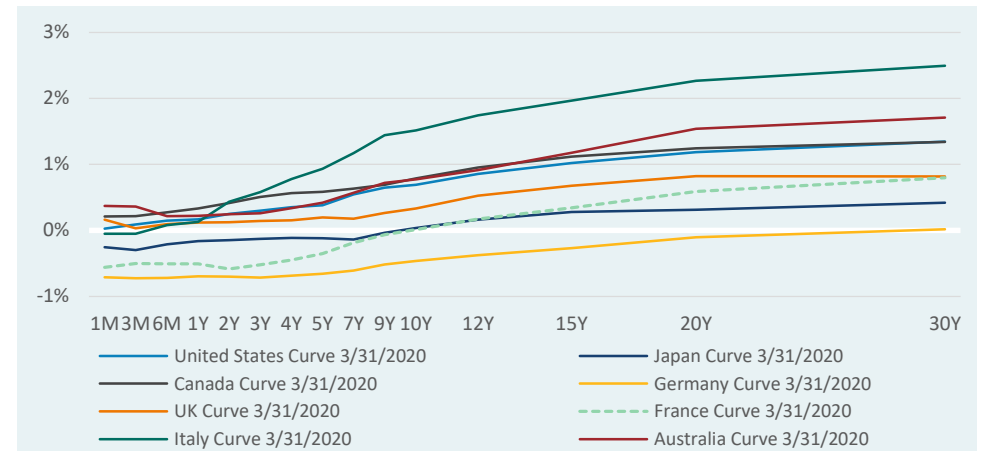
Source: Bloomberg, as of 3/31/20

Yield environment

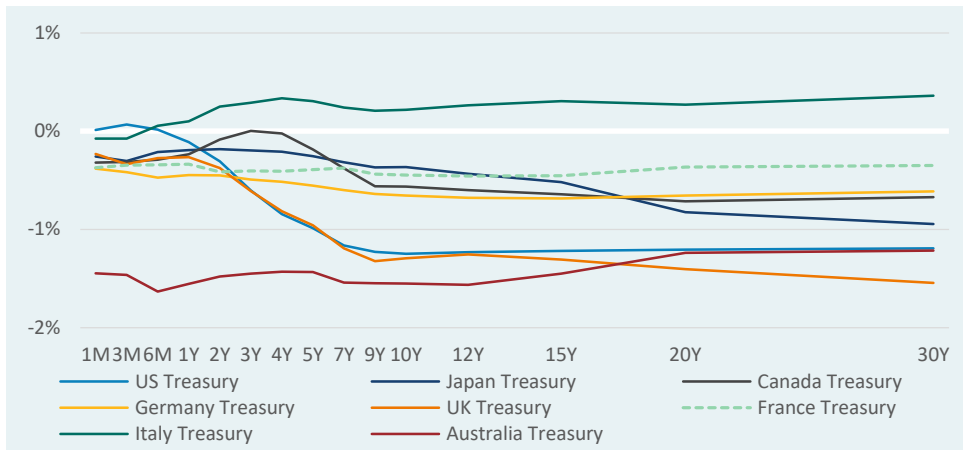
U.S. YIELD CURVE



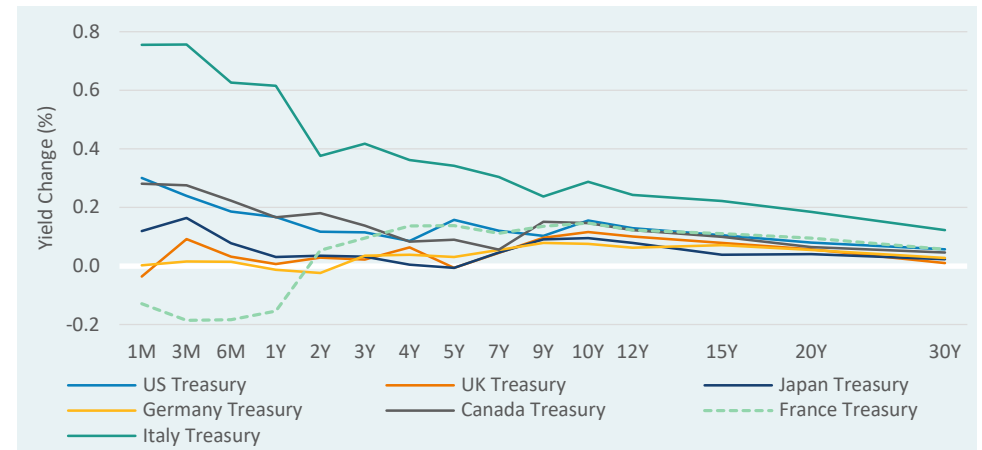
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/20

Credit environment

After a positive start to the year following the completion of phase one of the US-China trade deal, the impacts of the COVID-19 pandemic struck fear into credit markets, causing a broad-based sell-off and liquidity crisis in early March. This volatility prompted decisive Fed action, including but not limited to announcing unlimited QE and the reopening of several financial crisis-era liquidity facilities, which collectively incited a partial recovery in the last week of the quarter and restored a reasonable level of liquidity to credit markets.

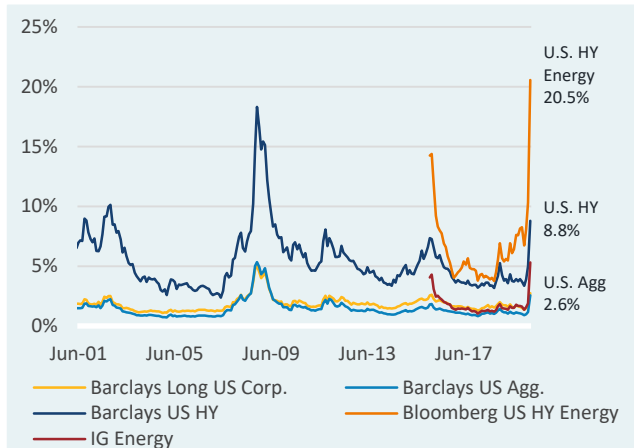
U.S. investment grade credit spreads widened from 93 bps at the end of 2019 to 272 bps at the end of the quarter after reaching highs of 373 bps in March. Similarly, high yield credit spreads spiked from 336 bps to 880 bps over the quarter, after March highs of 1100 bps. High yield ex-

Energy spreads increased from 295 bps to 749 bps over the same period.

The US Aggregate finished the quarter up 3.15%, while investment grade credit fell -3.63% followed by high yield -12.68% and leveraged loans -13.05%. In general, higher quality bonds meaningfully outperformed lower quality.

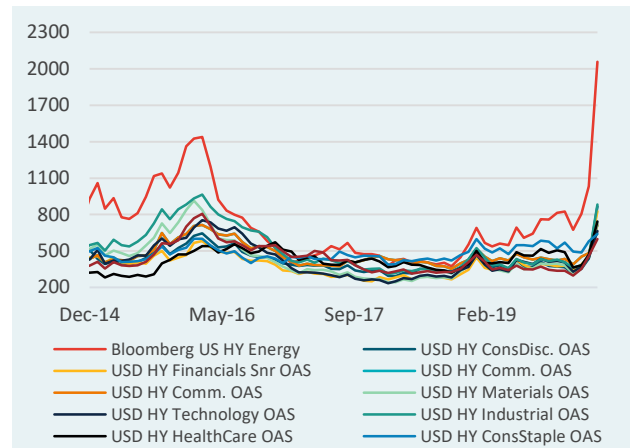
While the energy sector within high yield was the top performer in Q4 2019, the sector was faced with both a supply and demand shock with the Saudi Arabia-Russia production conflict and COVID-19 outbreak, causing it to decline by -38.94% in Q1 2020. The utility and technology sectors held up relatively well, declining -5.1% and -5.3%, respectively.

SPREADS



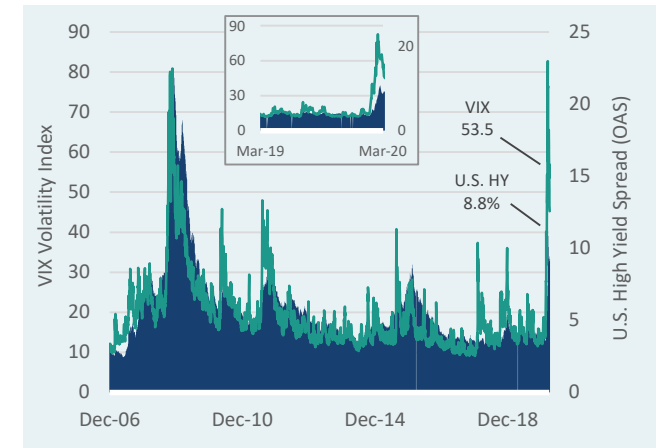
Source: Barclays, Bloomberg, as of 3/31/20

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/20

CREDIT SPREADS MOVING WITH VOLATILITY



Source: CBOE, BofA, as of 3/31/20

Default & issuance

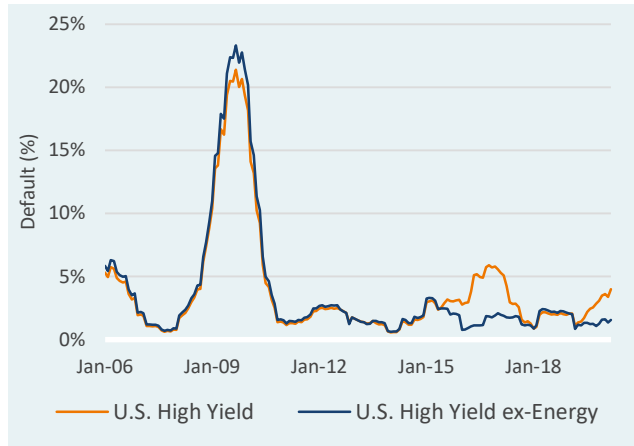
The first quarter saw 13 defaults affecting \$23.5 Billion in bonds and loans. However, one company, Frontier Communications, accounted for \$16.7 Billion of the total. For context, this quarterly amount compares with 43 defaults affecting \$51.5 Billion in bonds and loans for the full year of 2019. While this quarter ranks as the seventh highest in default volume on record, fixed income investors are expecting the worst is yet to come as companies grapple with the COVID-19-induced economic shutdown.

In March, the par-weighted U.S. high-yield default rate rose to a three-year high of 3.4%, up from 2.6% at the end of last year. Loan default rates rose less dramatically, to 1.9% over the trailing 12 months, up from 1.6% at year end.

Energy has driven around 45% of total defaults over the last 12 months, and in Q1 the full year 2020 outlook for the sector worsened dramatically. The trailing 12-month energy default rate in high yield ended the quarter at 9.8% (high yield ex-energy was 2.2%) while the trailing 12-month energy default rate in loans ended at 13.0% (loan ex-energy was 1.8%). In addition to energy, travel and tourism, gaming, leisure, retail, and restaurants appear particularly vulnerable in the current economic environment.

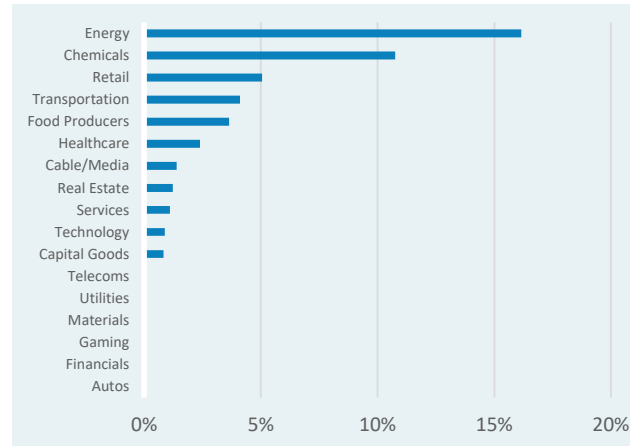
Investment grade bond issuance boomed in Q1 as companies tried to shore up liquidity for the coming recession. This was particularly pronounced in March, which saw a record \$262 Billion in investment grade issuance. Q1 also saw \$73 Billion in high yield volume and loan issuance spike to \$199 Billion.

HY DEFAULT RATE (ROLLING 1-YEAR)



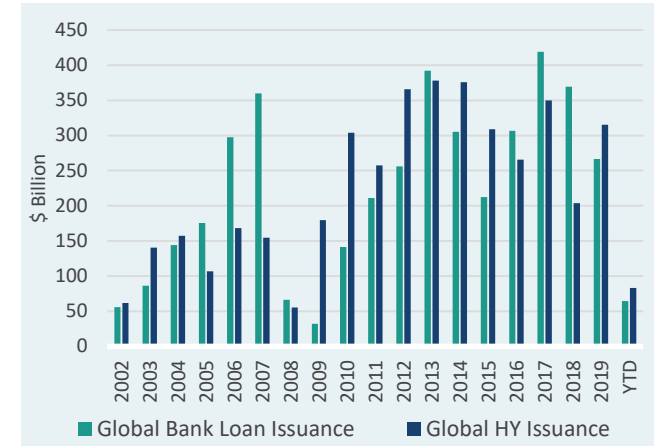
Source: BofA Merrill Lynch, as of 3/31/20

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



Source: BofA Merrill Lynch, as of 3/31/20 – par weighted

GLOBAL ISSUANCE (\$ BILLIONS)



Source: Bloomberg, BofA Merrill Lynch, as of 3/31/20

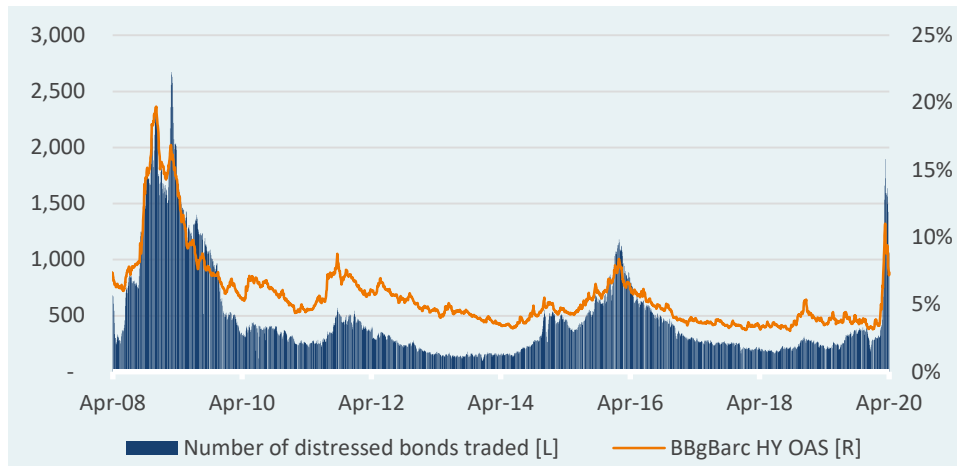
High yield – what happened?

The considerable economic fallout from the COVID-19 pandemic and collapsing oil prices broadly impacted credit markets. Credit spreads topped 1,000 basis points for the first time since the global financial crisis and the number of distressed bonds soared from 218 at the beginning of the year to a peak of 1,896. Higher defaults typically follow slowing growth and credit spread widening. J.P. Morgan’s estimates of credit defaults increased from a 3% rate to an 8% rate for the near-term.

rung on the investment grade scale. Some market participants now expect more than \$200 Billion to fall from the investment grade to the high yield space. Because the BBB sector alone totals more the twice the size of the entire high yield market, downgrades and subsequent forced selling are likely to add pressure to that already stressed market segment throughout the rest of the year. These dislocations have already impacted strategies across the space as investors redeem capital, resulting in suspensions and even closures.

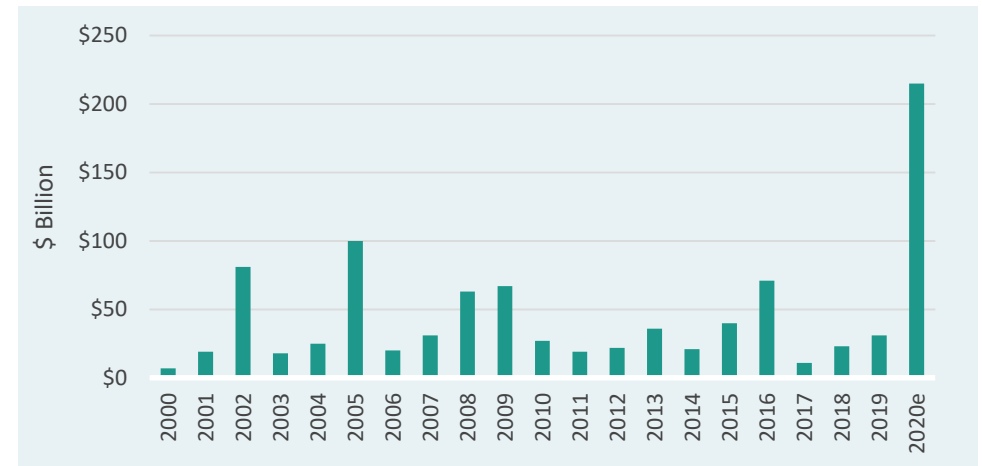
Approximately half of the investment grade bond market now sits within the BBB rated segment, which is the lowest

VOLUME AND SPREADS



Source: J.P. Morgan, Bloomberg, as of 4/16/20

FALLEN ANGELS



Equity

Equity environment

- U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19 spread. During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%.
- The greatest influence on equity performance in 2020 will perhaps be the path of corporate earnings. The degree to which corporate earnings will fall is largely unknown with few reliable estimates.
- Implied volatility spiked in March to a record daily close of 82.7%, surpassing the high of 80.9% in November 2008 during the depths of the global financial crisis.
- In March, a squabble between OPEC+ members led to a historic drop in energy prices. The energy sector faces sharply falling demand and potentially significant oversupply due to oil producers' decision to ramp up production in an oil war. The energy sector experienced a loss of -50.5% in Q1.
- The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in large losses for investors with unhedged currency exposure. As is often the case during higher risk market environments, demand for safe-haven currencies positively impacted the dollar.
- Value stocks severely underperformed growth stocks during the first quarter (Russell 1000 Value -26.7%, Russell 1000 Growth -14.1%). Small cap stocks underperformed large cap stocks by a similar magnitude (Russell 2000 -30.6%, Russell 1000 -20.2%). Value and size factors continue to experience an extended period of relative underperformance.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	(19.6%)		(7.0%)	
US Small Cap (Russell 2000)	(30.6%)		(24.0%)	
US Large Value (Russell 1000 Value)	(26.7%)		(17.2%)	
US Large Growth (Russell 1000 Growth)	(14.1%)		(0.9%)	
International Large (MSCI EAFE)	(22.8%)	(19.9%)	(14.4%)	(10.3%)
Eurozone (Euro Stoxx 50)	(27.0%)	(24.8%)	(16.6%)	(12.0%)
U.K. (FTSE 100)	(28.8%)	(23.0%)	(22.0%)	(16.4%)
Japan (NIKKEI 225)	(18.6%)	(18.8%)	(6.7%)	(6.8%)
Emerging Markets (MSCI Emerging Markets)	(23.6%)	(18.5%)	(17.7%)	(12.7%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/20

Q1 performance



Riskier assets performed the worst in Q1...

...and this relationship was fairly consistent across most asset classes

Source: Verus, as of 3/31/20 – Volatility is based on our forward looking 10-year Capital Market Assumptions

Domestic equity

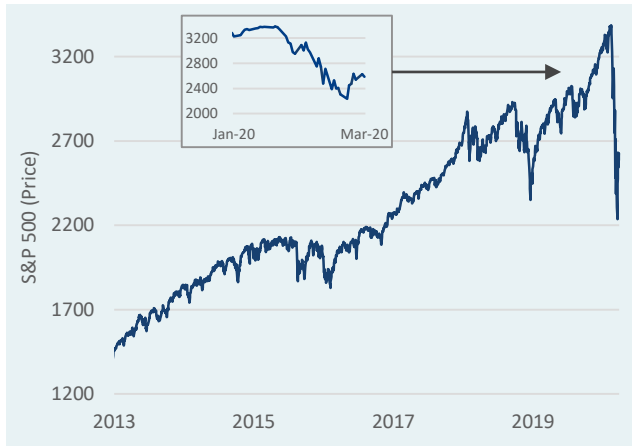
U.S. equities experienced an unusually sudden and significant sell-off in March as investors grew fearful of the health and economic impacts of COVID-19 spread. During Q1 the S&P 500 fell -19.6%, international developed equities (MSCI EAFE) fell -22.8% and emerging markets (MSCI EM) fell -23.6%.

At the same time that COVID-19 was spreading throughout the U.S., a squabble between OPEC+ members led to a historic drop in energy prices. The energy sector faces a perfect storm – sharply falling demand due to a global economic slowdown, and potentially significant oversupply due to oil producers’ decision to ramp up production in an oil war. The energy sector experienced a loss of -50.5% in Q1.

The greatest influence on equity performance in 2020 will perhaps be the path of corporate earnings. The degree to which corporate earnings will fall throughout the year is largely unknown with few reliable estimates.

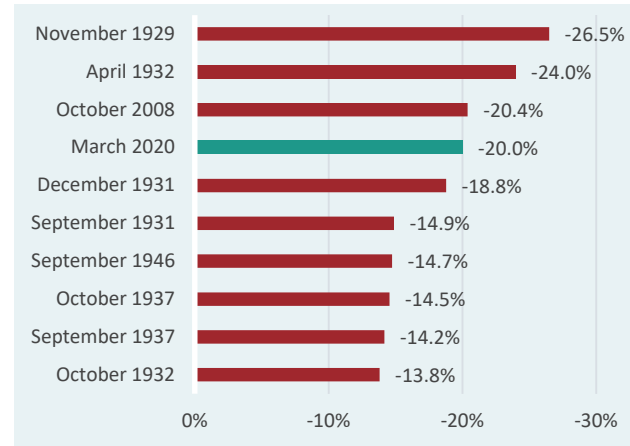
We continue to believe an underweight to international developed equities is appropriate. The economic pain that European Union member countries face may be significant, and membership to the EU inherently limits the ability of these countries to enact certain changes to address weakening economies. The U.S. market may continue to perform relatively well throughout the economic recovery.

S&P 500



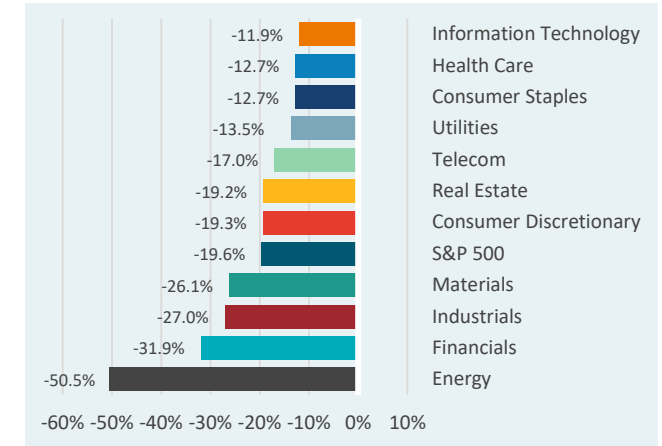
Source: Standard & Poor's, as of 3/31/20

WORST S&P 500 MAX MONTHLY DRAWDOWNS



Source: Standard & Poor's, as of 3/31/20

Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/20

Domestic equity size & style

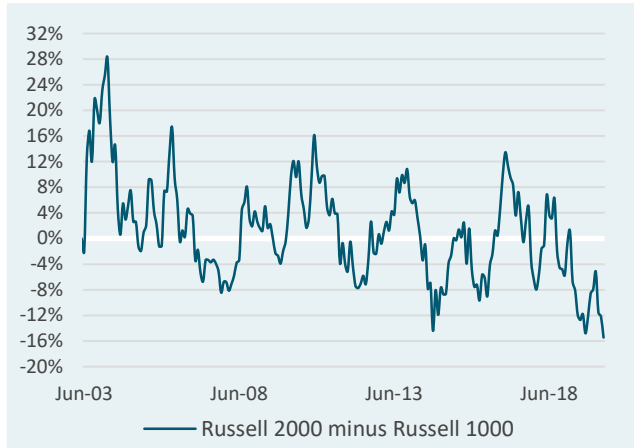
Value stocks severely underperformed growth stocks during the first quarter (Russell 1000 Value -26.7%, Russell 1000 Growth -14.1%). Small cap stocks underperformed large cap stocks by a similar magnitude (Russell 2000 -30.6%, Russell 1000 -20.2%). Value and size factors continue to experience a surprisingly long period of relative underperformance.

Once again, the impact of sector performance on the value premium in Q1 was notable – specifically energy and financial sectors (-50.5% and -31.9%, respectively) which tend to be value-tilted. Energy prices saw a historic drop fueled by OPEC+ infighting and likely the intent of the cartel to push out U.S. energy producers. Financial stocks delivered losses as

falling interest rates hurt profitability. Information Technology (-11.9%), a sector that tends to contain more growth stocks, was the best performer.

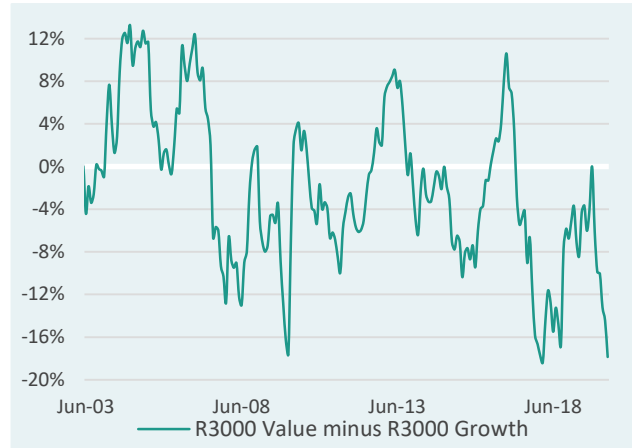
We believe that it is extremely difficult to successfully make short-term bets on style factors. Factor performance can be incredibly noisy and vulnerable to sector randomness. Market events of the past month seem to support this belief. While value in particular continues to be historically cheap, price itself does not translate to short-term outperformance – a catalyst for a turnaround should also be clearly identified and understood. We remain watchful and believe that consistent long-term exposure to these style factors is an ideal implementation approach for most investors, most of the time.

SMALL CAP VS LARGE CAP (YOY)



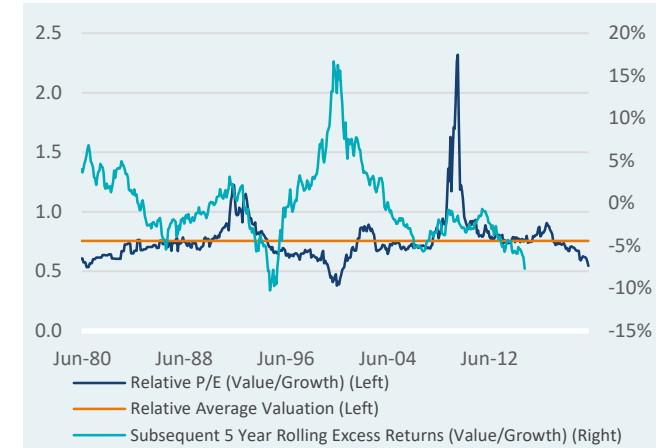
Source: FTSE, as of 3/31/20

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/20

VALUE HISTORICALLY CHEAP



Source: Russell, Bloomberg, as of 3/31/20

International developed equity

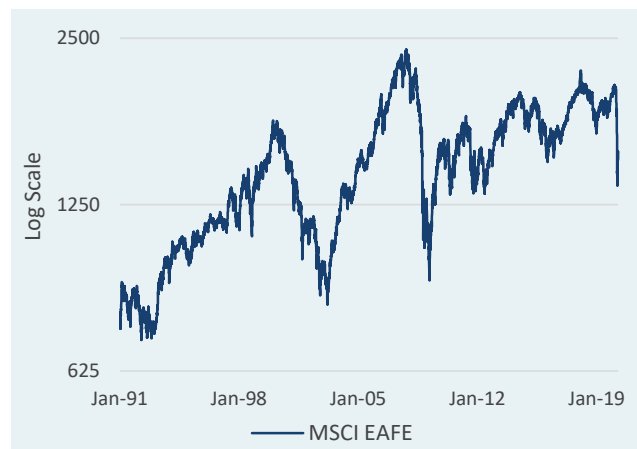
Equity markets around the world sold off broadly in the first quarter, down between -16% to -29%. Japanese equities were among the best performing (MSCI Japan -17%) while the U.K. was one of the worst performing (MSCI U.K. -29%).

As the global transactional currency, demand for U.S. dollars tends to ramp up when markets become stressed and companies abroad require dollars to pay down dollar-denominated liabilities. In the first quarter, the U.S. dollar gained +2.3% against the Euro and +6.4% against the British pound, resulting in losses for U.S. investors in European

equities with unhedged currency exposure. In mid-March, the Federal Reserve expanded its dollar swap liquidity lines and opened a FIMA repo facility which will allow foreign monetary authorities to enter repurchase agreements with the Fed. Both measures worked to help improve U.S. dollar liquidity abroad, and as a result, slow the pace of appreciation of the U.S. dollar relative to international pairs.

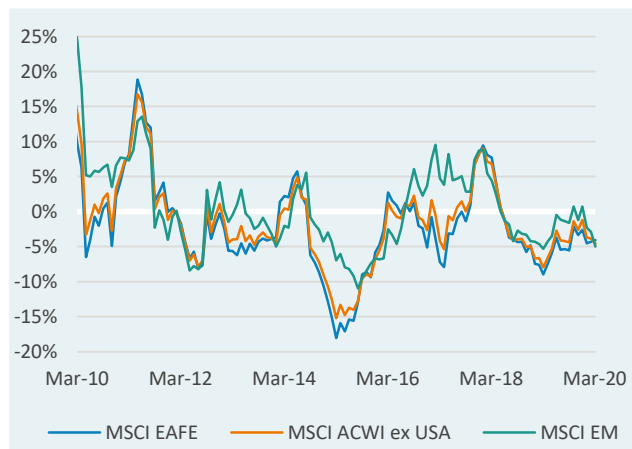
Cross-currency basis, which measure the additional premia investors must pay to swap one currency for another over a term, narrowed in March, signaling that the Fed's efforts to ease dollar funding strains have proved effective thus far.

INTERNATIONAL DEVELOPED EQUITIES



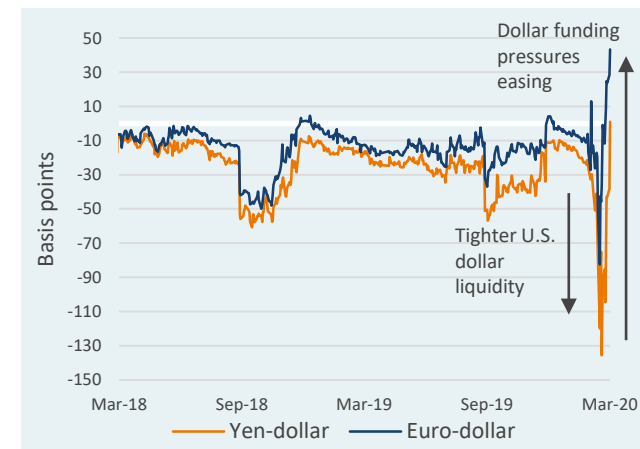
Source: MSCI, as of 3/31/20

EFFECT OF CURRENCY (1-YEAR ROLLING)



Source: MSCI, as of 3/31/20

3M/3M CROSS CURRENCY BASIS SWAPS



Source: Bloomberg, as of 3/31/20

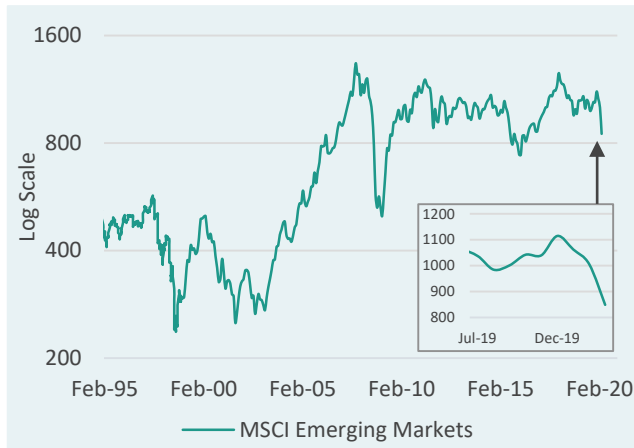
Emerging market equity

Emerging market equities (MSCI EM -23.6%) underperformed both U.S. (S&P 500 -19.6%) and international developed equities (MSCI EAFE -22.8%) over the quarter. Within the complex, Latin American equities (MSCI EM Latin American -45.6%) dramatically underperformed Asian equities (MSCI EM Asia -18.1%), which were propped up by remarkably resilient Chinese equity markets. Currency exposure also played a big role in the outperformance of EM Latin America over EM Asia, as the U.S. dollar strengthened significantly against the Brazilian real, and the Mexican peso, and was little changed against the Chinese renminbi.

Inflation remains low in emerging economies and may face downward pressure in the coming months as energy prices have fallen. Central banks may have more room to maneuver relative to developed economies with regard to monetary policy, as interest rates are closer to average levels.

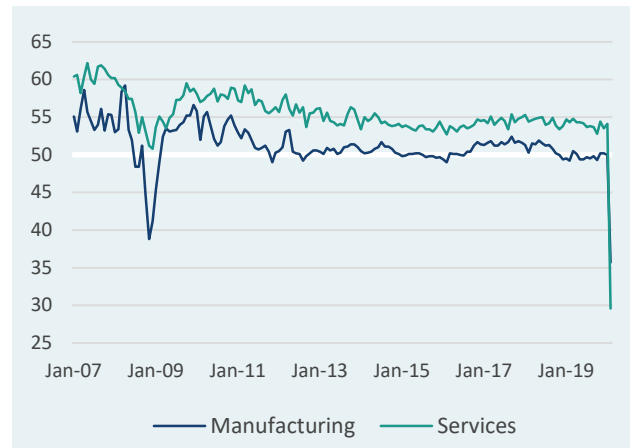
Countries viewed as having poor health infrastructure as well as economic dependence on oil prices fared the worst. Mexico's sovereign debt rating was downgraded by several rating agencies, and Moody's downgraded South Africa's sovereign debt rating below investment-grade.

EMERGING MARKET EQUITY



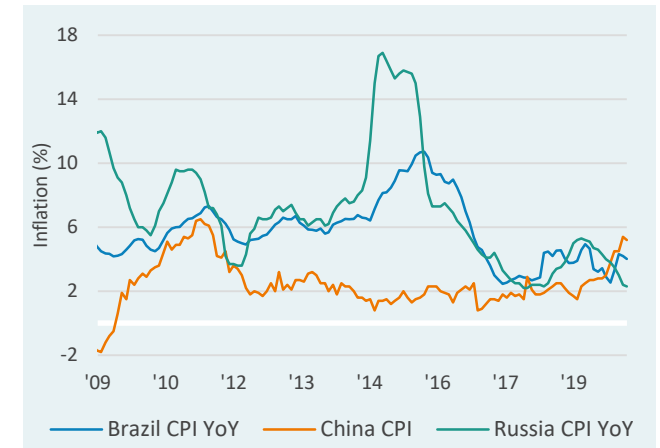
Source: MSCI, as of 3/31/20

CHINA PURCHASING MANAGERS' INDICES



Source: China Federation of Logistics and Purchasing, as of 2/29/20

INFLATION (CPI YOY)



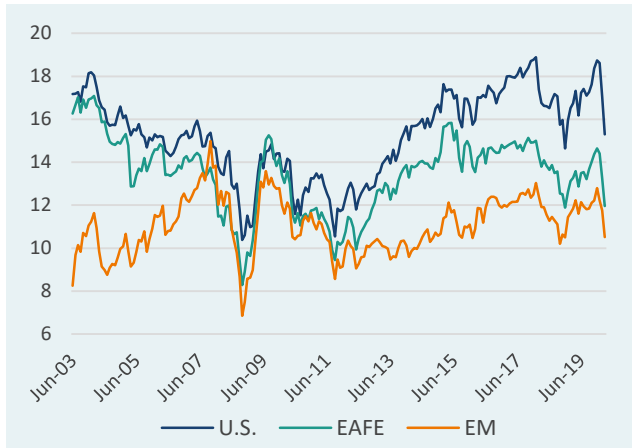
Source: Bloomberg, as of 2/29/20

Equity valuations

Throughout the significant Q1 market sell-off, losses across global markets have been fairly similar. This has resulted in U.S. equities retaining their status as the most expensive market, though we believe this may be justified as governments with limited ability to implement stimulus policies could face tougher economic fallout. Specifically, European Union member nations that cannot exercise independent actions may see greater difficulties ahead as income gaps cannot be supplemented with government spending.

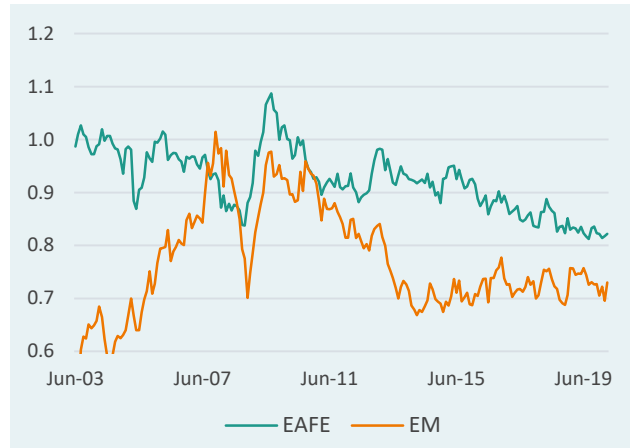
In 2005, Thomas Friedman put forth the notion that “The World is Flat”, and that the 21st century will be characterized by globalization, with historical and geographical divisions becoming less relevant. In Friedman’s world, companies produce their goods where it is cheapest to do so, often in emerging and developing economies with fewer labor protections. Supply chains are built within profit maximization frameworks often with little regard for the risks associated with having a supply chain concentrated in one or a few countries. Looking ahead, it will be interesting to follow whether Friedman’s world becomes slightly bumpier.

FORWARD P/E RATIOS



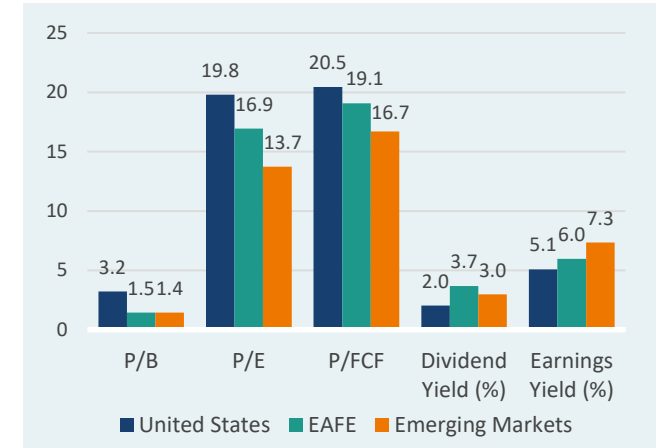
Source: MSCI, 12m forward P/E, as of 3/31/20

FORWARD P/E RATIOS (RELATIVE TO THE U.S.)



Source: MSCI, 12m forward P/E, as of 3/31/20

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 3/31/20 - trailing P/E

Equity volatility

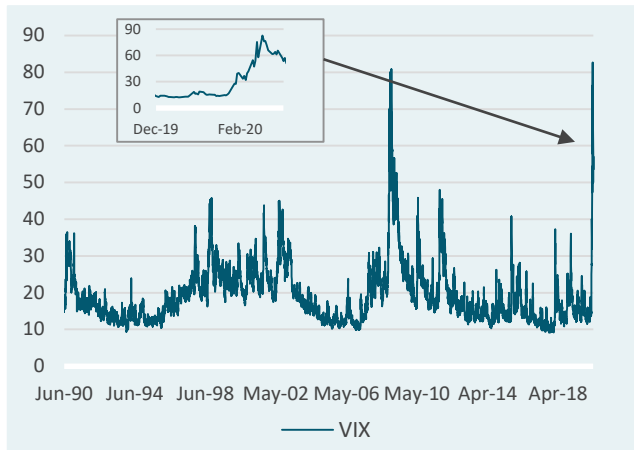
Risk markets experienced one of the most sudden corrections on record, amidst extreme volatility. The S&P 500 showed its largest one-day drop since 1987 (March 16 -11.9%) and its largest one-day gain since 2008 (March 24 +9.4%). The transition from a very low- to a very high-volatility environment likely caught many investors off guard.

Implied volatility (CBOE VIX Index) spiked in March to a record daily close of 82.7, surpassing the high of 80.9 on November 20th, 2008 during the depths of the global financial crisis. Such extreme levels of market volatility can

create difficulties for investors in managing portfolios. Processes such as portfolio rebalancing that are often systematic can become complex and subjective when equities are exhibiting nearly double-digit daily moves.

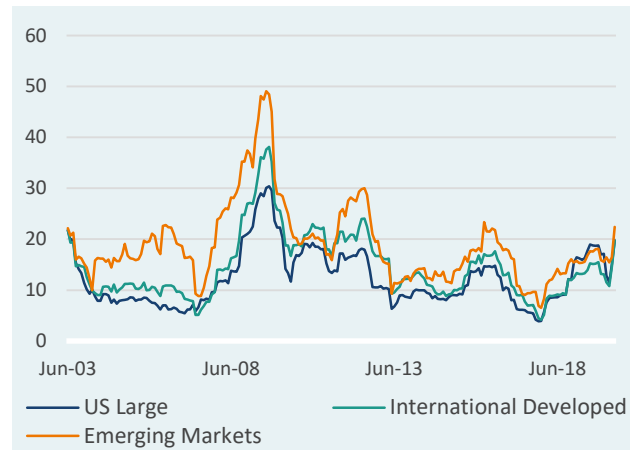
The S&P 500 Price Index closed at 2237 on March 23rd, -33.9% below February 19th peaks. Since then, U.S. equities have staged a remarkable rebound in the foreground of a historically bleak economic background. Debate over whether the rebound is justified has continued as economic uncertainty remains at unprecedented levels.

U.S. IMPLIED VOLATILITY (VIX)



Source: CBOE, as of 3/31/20

ROLLING 1-YEAR REALIZED VOLATILITY



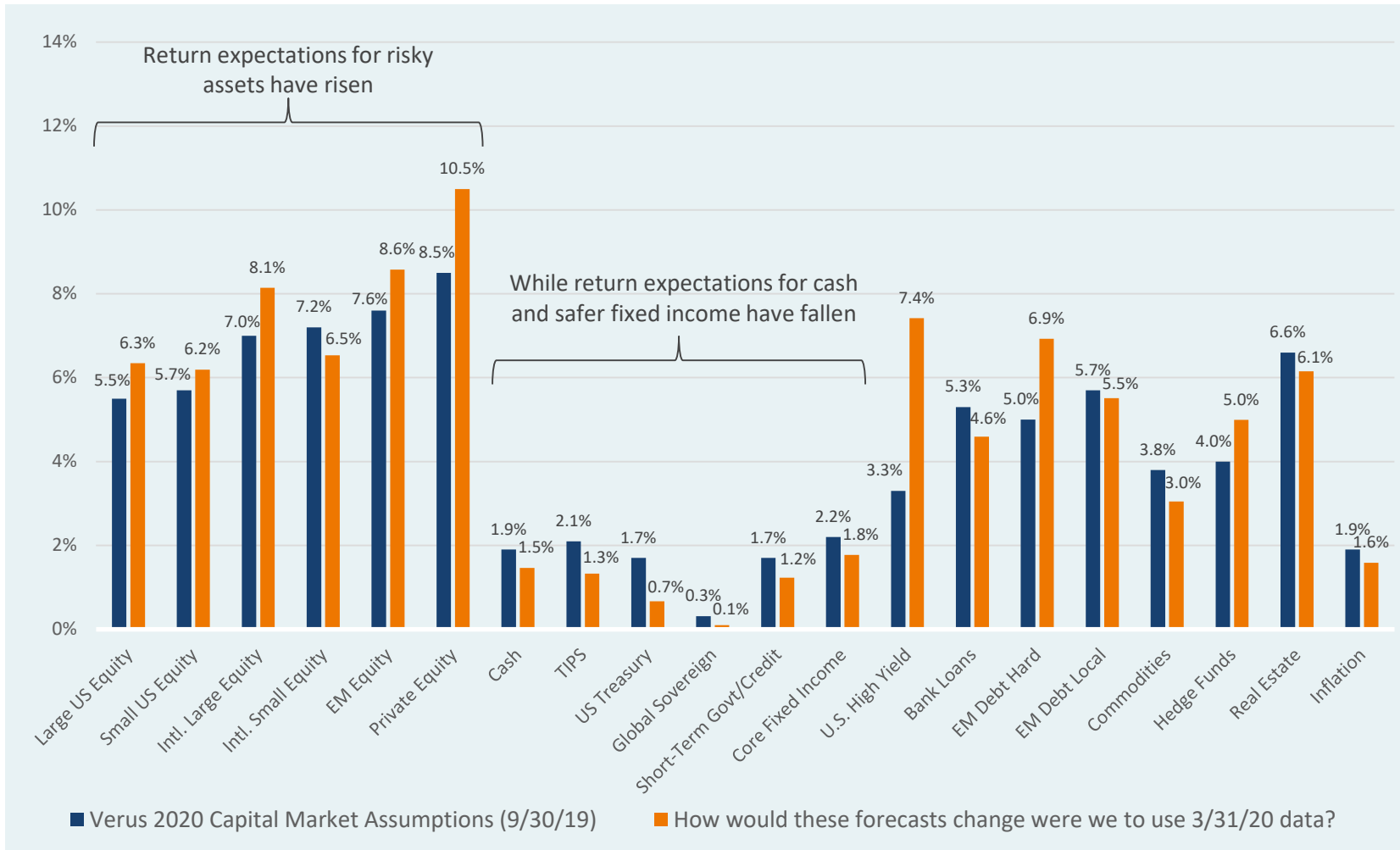
Source: Standard & Poor's, MSCI, Bloomberg, as of 3/31/20

MAX DRAWDOWN FROM PRIOR PEAKS



Source: Standard & Poor's, Bloomberg, as of 3/31/20

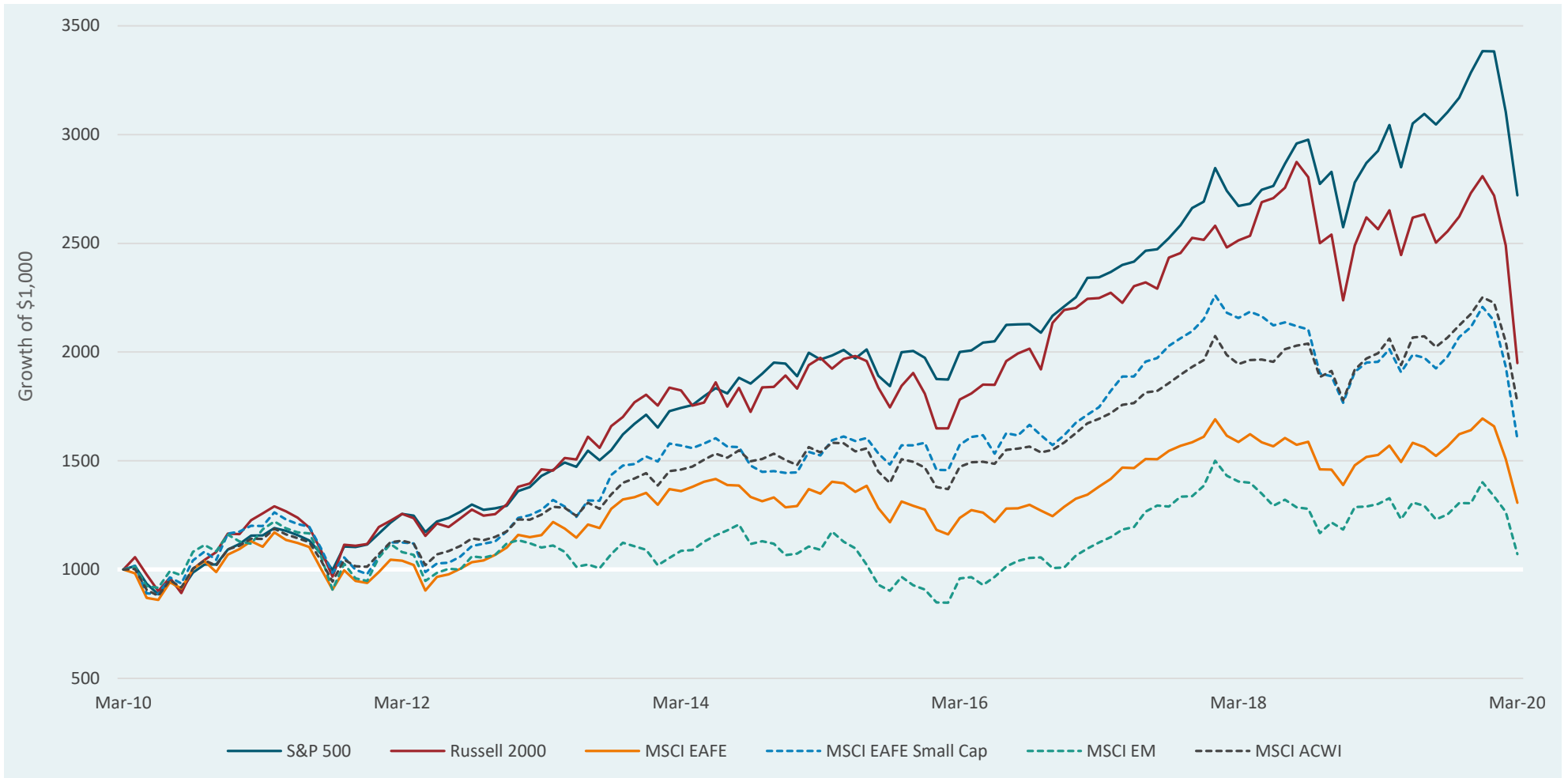
How have return expectations changed?



The overall portfolio's expected return may have risen or fallen during Q1, depending on the asset allocation & risk level

Source: Verus

Long-term equity performance



Source: Morningstar, as of 3/31/20

Other assets

Currency

The U.S. dollar appreciated significantly in the first quarter, rising 7.1% on a trade-weighted basis, resulting in losses for investors with unhedged currency exposure. As is often the case during higher risk market environments, demand for safe-haven currencies contributed to the rising dollar.

Historically speaking, environments where the U.S. dollar was much more expensive than average tended to be followed by an eventual mean-reversion. However, this mean-reversion effect is not a sure bet, and it can take years (or perhaps decades) to occur. As recent years have shown,

leaving currency exposure unhedged tends to result in uncompensated volatility, and occasional (or frequent) large and sharp losses or gains.

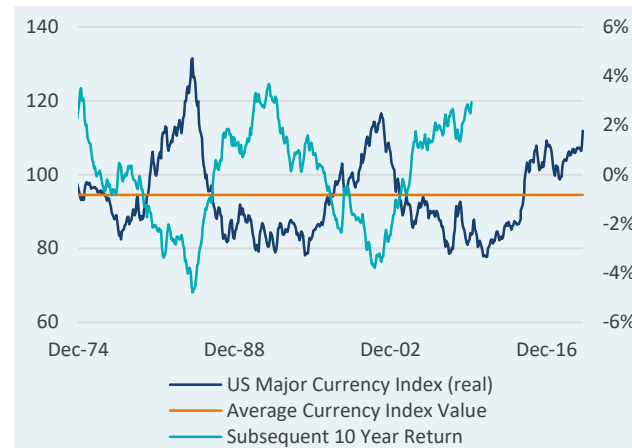
The MSCI Currency Factor Mix Index, constructed as a combination of individual Currency Factor indices (carry, value, momentum) advanced 1.2% in Q1. The momentum factor (+8.7%) posted strong gains as appreciating currencies continued to strengthen while the carry factor (-7.2%) lagged as the exchange rate adjustments implied by local interest rate differentials occurred faster than expected.

BLOOMBERG DOLLAR SPOT INDEX



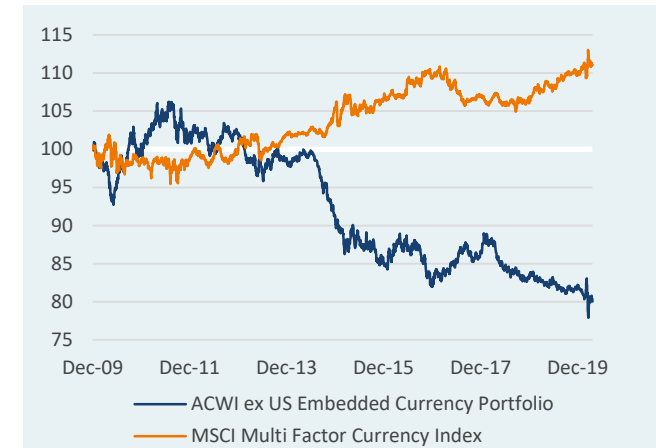
Source: Bloomberg, as of 3/31/20

USD CURRENCY LEVEL & SUBSEQUENT RETURN



Source: Federal Reserve, Verus, as of 3/31/20

EMBEDDED CURRENCY VS CURRENCY BETA



Source: MSCI, Bloomberg, as of 3/31/20

Oil crisis

In mid-March, the price of oil experienced a sudden drop as Russia refused to join the OPEC recommended production cuts. In retribution, Saudi Arabia signaled that they would increase production drastically in April upon expiration of the OPEC pact. These events led to a 30% one-day drop in price, and historically volatile trading.

Russia's actions are likely linked to increased U.S. sanctions on its energy producers, which have negatively impacted the economy. Sanctions have prevented Russia from completing the Nord Stream 2 gas pipeline in the Baltic Sea, a project that \$11 Billion had previously been invested in, which would

carry Russian Gas directly to Germany and would circumvent the Ukraine. Sanctions were also levied against Russia's Rosneft for allegedly supporting the Nicolas Maduro regime in Venezuela. It is estimated that 70% of oil production in Venezuela was going through Rosneft.

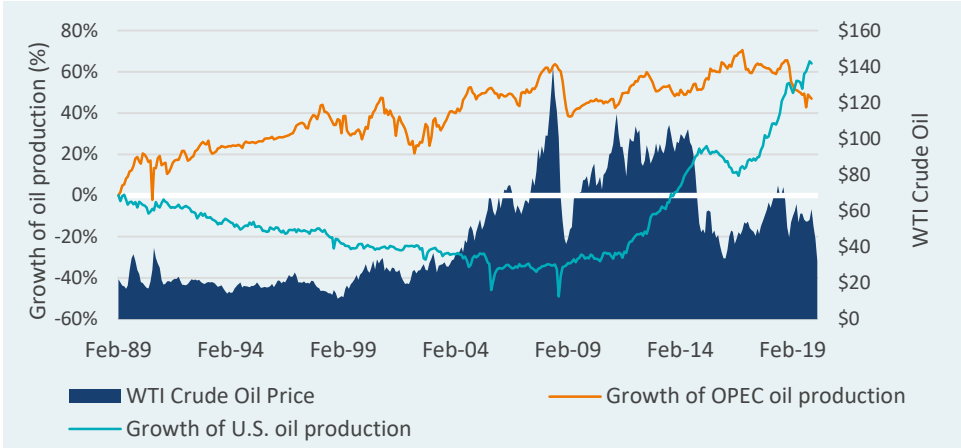
A similar dynamic occurred during the oil crash of 2014 as OPEC let oil plummet, arguably with the intent to put U.S. oil producers out of business. American oil production has been ramped up drastically over the last decade, at a time when OPEC producers were working to minimize their own production in order to balance global supply.

WTI OIL PRICE



Source: FRED, as of 3/31/20

GLOBAL OIL PRODUCER CONFLICT



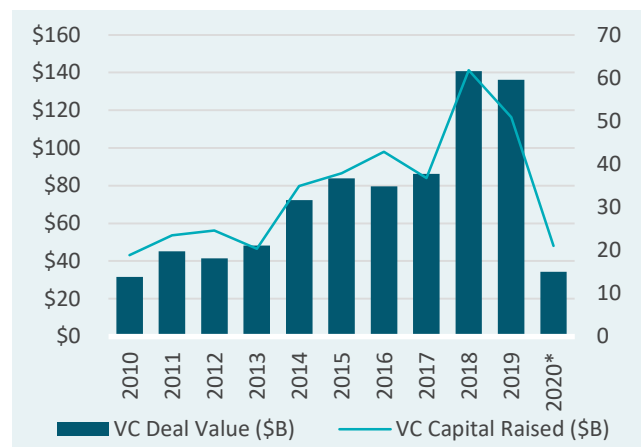
Source: Bloomberg, U.S. Energy Information Administration, as of 3/31/20

Private markets

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

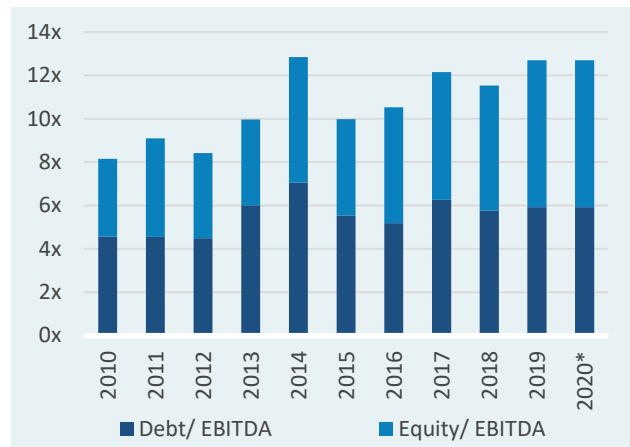
- Before the impending market dislocation, venture capital fundraising was on pace to eclipse 2019, while total deal volume and number of deals had plateaued. \$21 Billion of venture capital was raised in the U.S. in Q1 2020, constituting 40% of capital raised in 2019. Deal value and number of deals in the quarter represented 25% and 19% of 2019's totals, respectively.
- Buyout activity continued to decrease in Q1 2020 from 2019. Through the first quarter, buyouts dollar value and number of transactions amounted to 18% and 19% of 2019 levels, respectively. The size of the average buyout, \$135.6M, has decreased from 2019, \$145.2M. Similarly, fundraising has also slowed. Only 46 buyout funds representing \$45 Billion closed in Q1 2020, down from 249 funds representing \$315 Billion in 2019.
- Pricing multiples on completed buyout deals remained in line with 2019's. Median EV/EBITDA is 12.9x (up slightly from 12.7x in 2019) with debt multiples unchanged at 5.9x. Debt as a percentage of transaction value hovers around 45%.

VENTURE DEAL VOLUME & FUNDRAISING



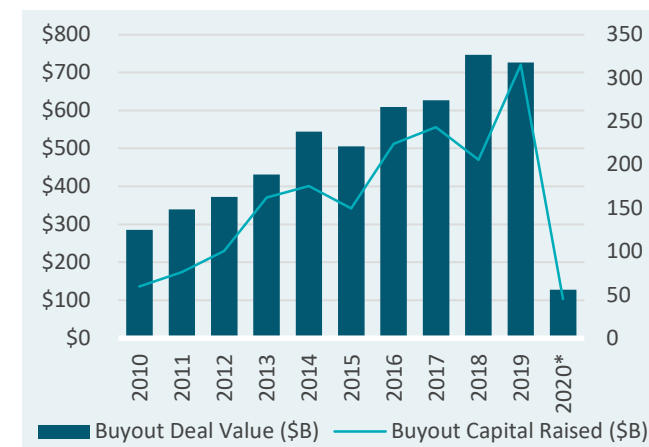
*2020 figures through 3/31/20
Source: PitchBook

TRANSACTION MULTIPLES



*2020 figures through 3/31/20
Source: PitchBook

BUYOUTS DEAL VOLUME & CAPITAL RAISED



*2020 figures through 3/31/20
Source: PitchBook

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD	5-Year	10-Year
US Bonds	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	3.1	10.4	13.0
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	0.4	7.5	10.4
Real Estate	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	0.0	6.2	10.1
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	-6.0	3.4	8.9
60/40 Global Portfolio	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	-13.3	3.0	7.7
Large Cap Growth	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	-14.1	1.9	6.9
Large Cap Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	-20.2	1.7	4.8
International Equity	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	-22.8	1.1	4.7
Commodities	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	-23.3	0.6	3.9
Emerging Markets Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	-23.6	-0.2	2.7
Small Cap Growth	-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	-25.8	-0.4	2.1
Large Cap Value	-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	-26.7	-0.6	0.7
Small Cap Equity	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	-30.6	-2.4	0.6
Small Cap Value	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-35.7	-7.8	-6.7

Large Cap Equity

Large Cap Value

Large Cap Growth

Small Cap Equity

Small Cap Value

Small Cap Growth

International Equity

Emerging Markets Equity

US Bonds

Cash

Commodities

Real Estate

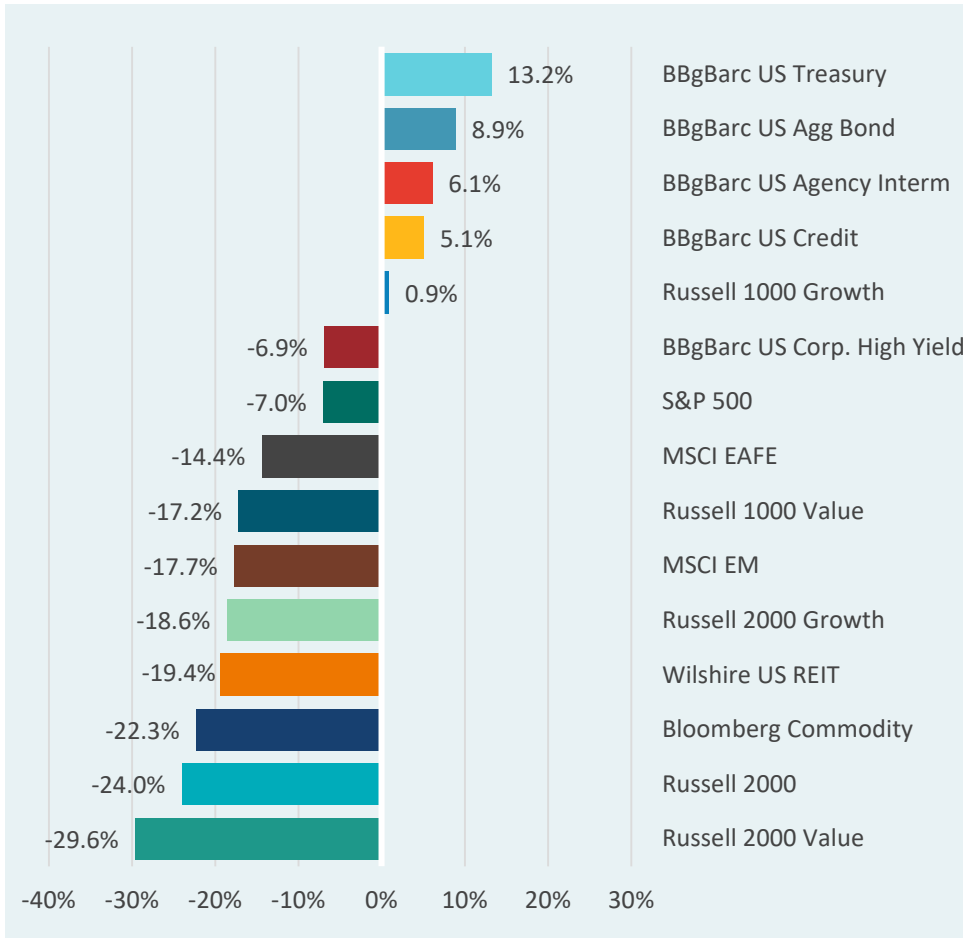
Hedge Funds of Funds

60% MSCI ACWI/40% BBgBarc Global Bond

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

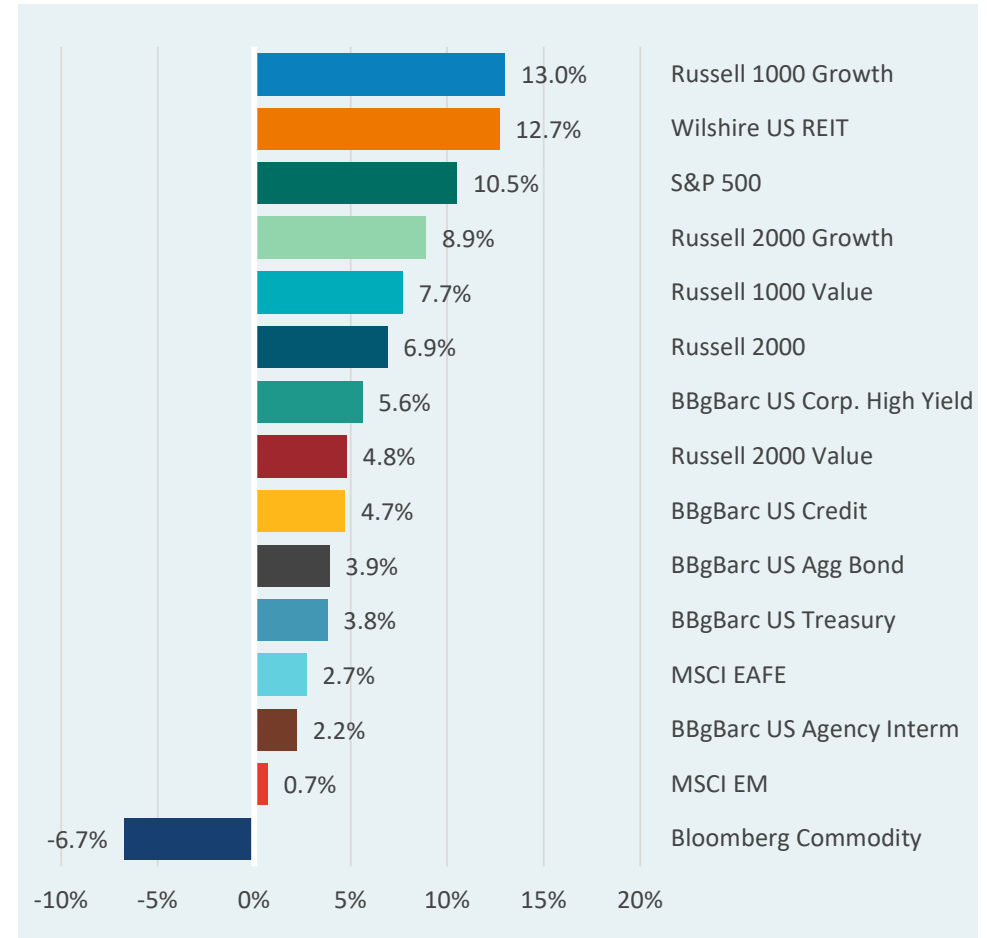
Major asset class returns

ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/20

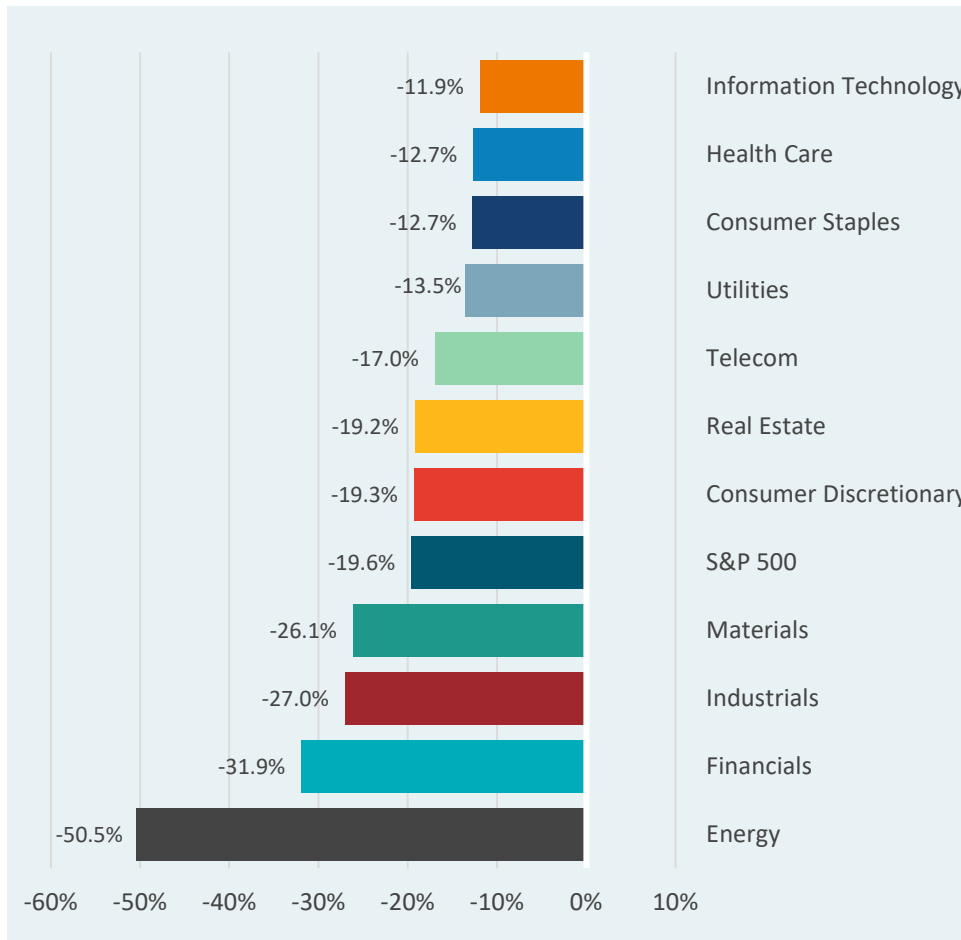
TEN YEARS ENDING MARCH



Source: Morningstar, as of 3/31/20

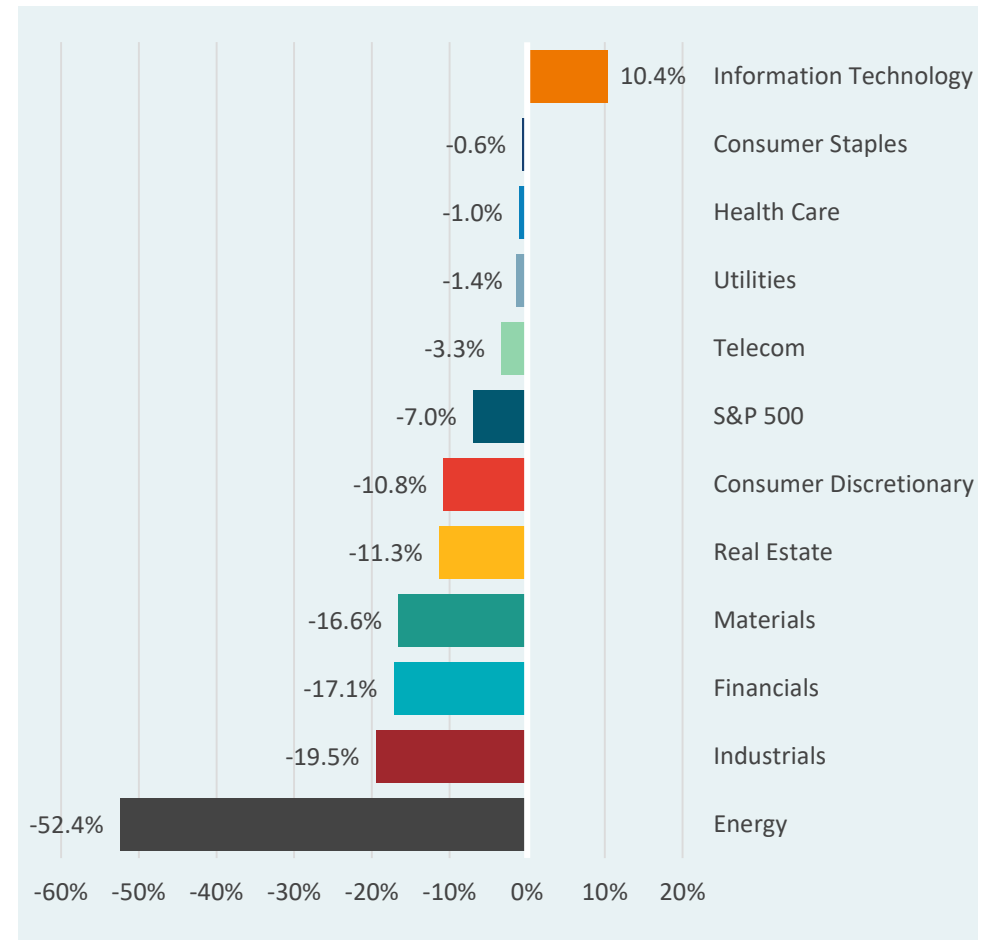
S&P 500 sector returns

Q1 2020



Source: Morningstar, as of 3/31/20

ONE YEAR ENDING MARCH

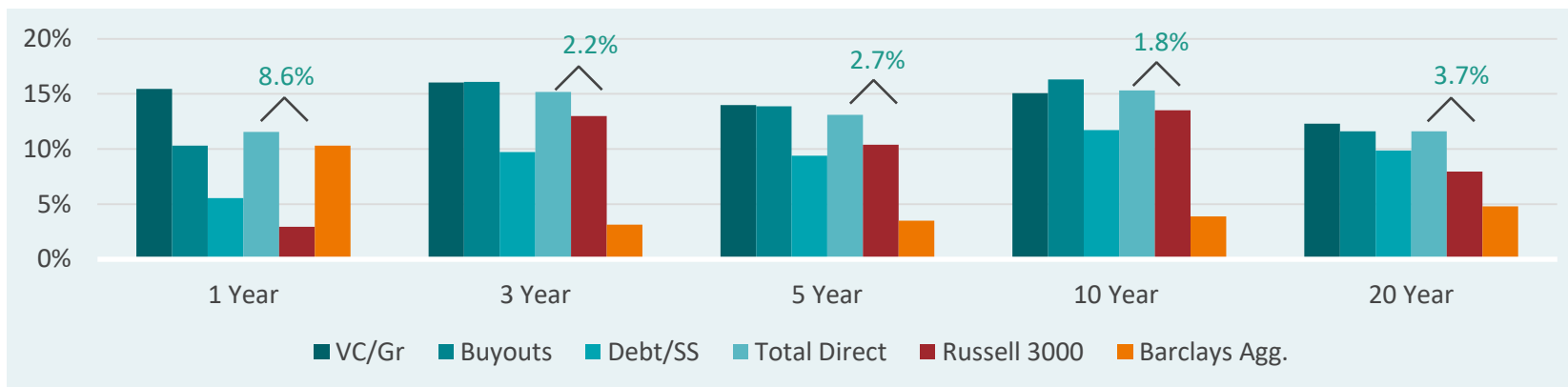


Source: Morningstar, as of 3/31/20

Private equity vs. public performance

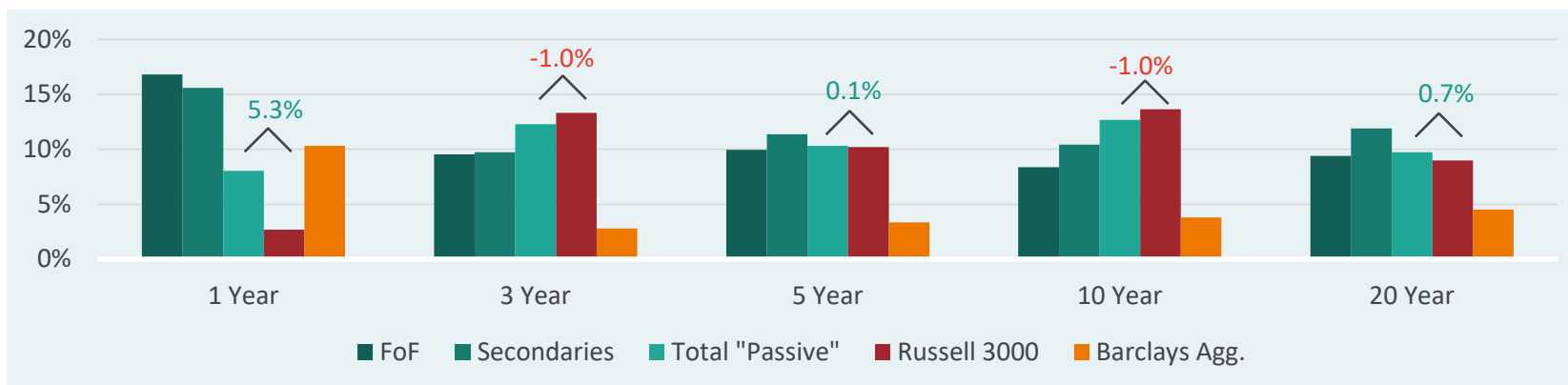
As of 9/30/2019

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods

“PASSIVE” STRATEGIES



“Passive” strategies outperformed comparable public equities on a 1-, 5-, and 20-year basis, and underperformed on a 3- and 10-year basis

Sources: Thomson Reuters Cambridge Universe's PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2019. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

Private equity vs. liquid real assets performance

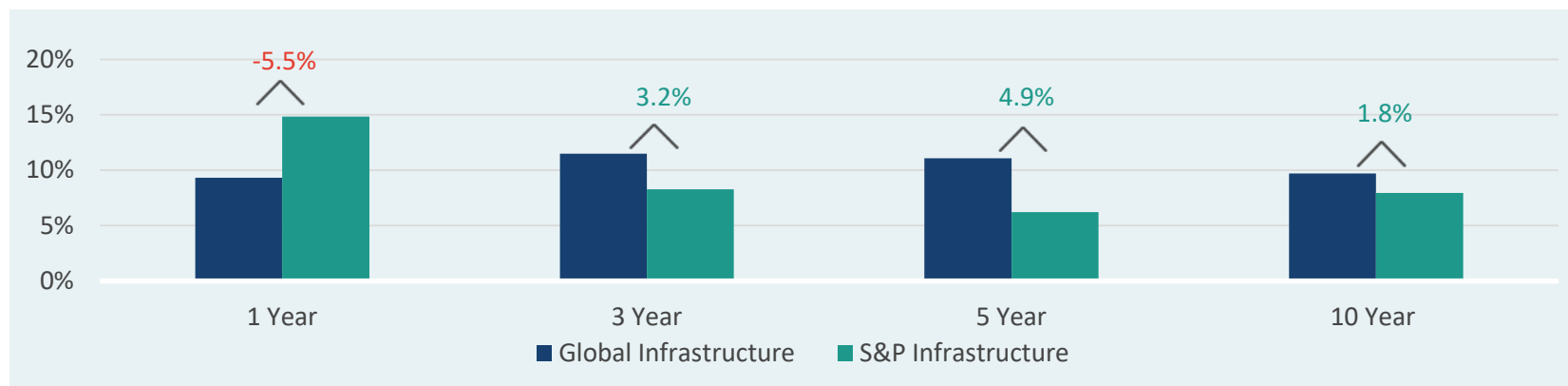
As of 9/30/2019

GLOBAL NATURAL RESOURCES FUNDS



N.R. funds outperformed the MSCI World Natural Resources benchmark across all time periods

GLOBAL INFRASTRUCTURE FUNDS



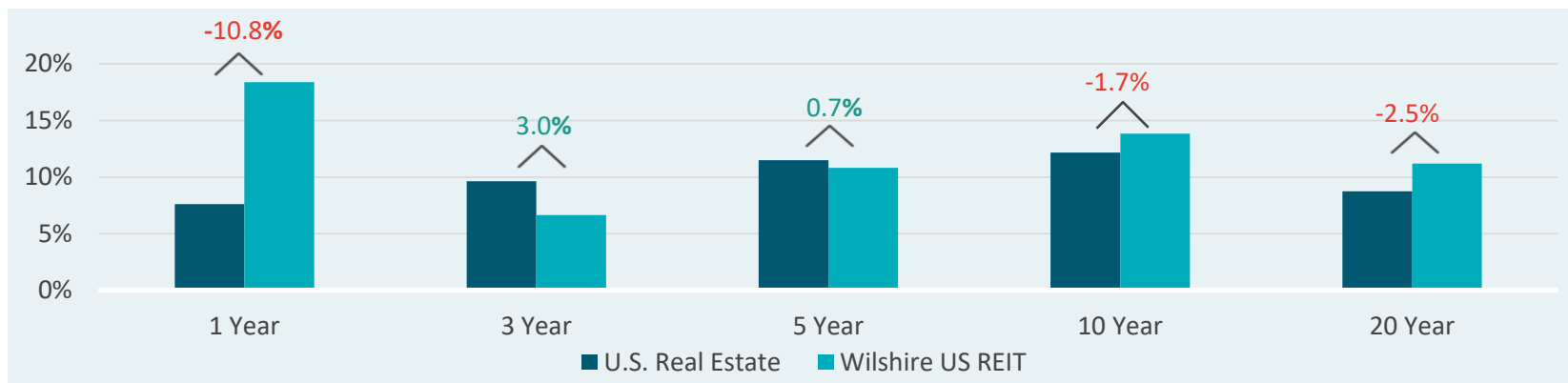
Infra. funds outperformed the S&P Infra. across all periods, except on a 1-year basis

Sources: Thomson Reuters C|A PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of September 30, 2019. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

Private vs. liquid & core real estate performance

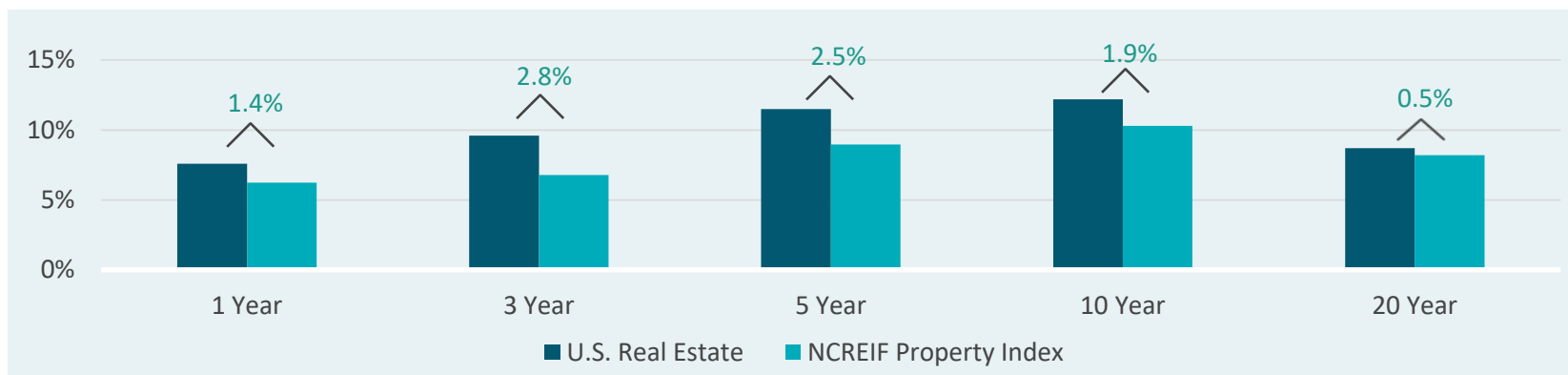
As of 9/30/2019

U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index on a 1-, 10-, and 20-year basis, but not over 3- and 5-years

U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index over all time periods

Sources: Thomson Reuters CJA PME: Global and U.S. Real Estate universes as of September 30, 2019. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(12.4)	(19.6)	(19.6)	(7.0)	5.1	6.7	10.5
S&P 500 Equal Weighted	(18.0)	(26.7)	(26.7)	(17.6)	(0.4)	2.8	9.2
DJ Industrial Average	(13.6)	(22.7)	(22.7)	(13.4)	4.4	6.9	10.0
Russell Top 200	(11.0)	(17.7)	(17.7)	(4.1)	6.7	7.9	11.0
Russell 1000	(13.2)	(20.2)	(20.2)	(8.0)	4.6	6.2	10.4
Russell 2000	(21.7)	(30.6)	(30.6)	(24.0)	(4.6)	(0.2)	6.9
Russell 3000	(13.8)	(20.9)	(20.9)	(9.1)	4.0	5.8	10.1
Russell Mid Cap	(19.5)	(27.1)	(27.1)	(18.3)	(0.8)	1.8	8.8
Style Index							
Russell 1000 Growth	(9.8)	(14.1)	(14.1)	0.9	11.3	10.4	13.0
Russell 1000 Value	(17.1)	(26.7)	(26.7)	(17.2)	(2.2)	1.9	7.7
Russell 2000 Growth	(19.1)	(25.8)	(25.8)	(18.6)	0.1	1.7	8.9
Russell 2000 Value	(24.7)	(35.7)	(35.7)	(29.6)	(9.5)	(2.4)	4.8

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(13.5)	(21.4)	(21.4)	(11.3)	1.5	2.8	5.9
MSCI ACWI ex US	(14.5)	(23.4)	(23.4)	(15.6)	(2.0)	(0.6)	2.1
MSCI EAFE	(13.3)	(22.8)	(22.8)	(14.4)	(1.8)	(0.6)	2.7
MSCI EM	(15.4)	(23.6)	(23.6)	(17.7)	(1.6)	(0.4)	0.7
MSCI EAFE Small Cap	(17.2)	(27.5)	(27.5)	(18.1)	(2.9)	1.0	4.8
Style Index							
MSCI EAFE Growth	(9.2)	(17.5)	(17.5)	(5.8)	3.0	2.5	4.7
MSCI EAFE Value	(17.7)	(28.2)	(28.2)	(22.8)	(6.7)	(3.8)	0.6
Regional Index							
MSCI UK	(16.0)	(28.8)	(28.8)	(23.0)	(4.9)	(3.3)	1.6
MSCI Japan	(7.1)	(16.8)	(16.8)	(6.7)	1.0	1.8	3.8
MSCI Euro	(17.2)	(27.0)	(27.0)	(18.3)	(4.4)	(2.3)	1.1
MSCI EM Asia	(11.7)	(18.1)	(18.1)	(12.1)	1.3	1.4	3.5
MSCI EM Latin American	(34.5)	(45.6)	(45.6)	(40.8)	(13.0)	(5.9)	(6.7)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	(1.8)	1.7	1.7	6.8	3.5	2.7	3.5
BBgBarc US Treasury Bills	0.3	0.6	0.6	2.4	1.8	1.2	0.7
BBgBarc US Agg Bond	(0.6)	3.1	3.1	8.9	4.8	3.4	3.9
Duration							
BBgBarc US Treasury 1-3 Yr	1.3	2.8	2.8	5.4	2.7	1.8	1.4
BBgBarc US Treasury Long	6.1	20.9	20.9	32.6	13.4	7.3	9.0
BBgBarc US Treasury	2.9	8.2	8.2	13.2	5.8	3.6	3.8
Issuer							
BBgBarc US MBS	1.1	2.8	2.8	7.0	4.0	2.9	3.3
BBgBarc US Corp. High Yield	(11.5)	(12.7)	(12.7)	(6.9)	0.8	2.8	5.6
BBgBarc US Agency Interm	0.9	2.9	2.9	6.1	3.2	2.3	2.2
BBgBarc US Credit	(6.6)	(3.1)	(3.1)	5.1	4.2	3.3	4.7

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(12.8)	(23.3)	(23.3)	(22.3)	(8.6)	(7.8)	(6.7)
Wilshire US REIT	(20.0)	(25.6)	(25.6)	(19.4)	(2.5)	5.7	12.7
CS Leveraged Loans	(12.5)	(13.2)	(13.2)	(9.5)	(0.7)	4.6	5.0
Alerian MLP	(48.1)	(58.1)	(58.1)	(61.9)	(29.9)	(21.1)	(4.7)
Regional Index							
JPM EMBI Global Div	(13.8)	(13.4)	(13.4)	(6.8)	0.4	2.8	4.9
JPM GBI-EM Global Div	(11.1)	(15.2)	(15.2)	(6.5)	(0.8)	0.3	0.5
Hedge Funds							
HFRI Composite	(5.9)	(8.3)	(8.3)	(4.0)	0.7	1.3	2.9
HFRI FOF Composite	(4.9)	(6.0)	(6.0)	(2.6)	1.0	0.6	2.1
Currency (Spot)							
Euro	(0.1)	(2.3)	(2.3)	(2.3)	0.9	0.4	(2.1)
Pound	(2.9)	(6.4)	(6.4)	(4.8)	(0.3)	(3.5)	(2.0)
Yen	(0.1)	0.7	0.7	2.5	1.1	2.1	(1.4)

Source: Morningstar, HFR, as of 3/31/20

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: March 31, 2020



VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

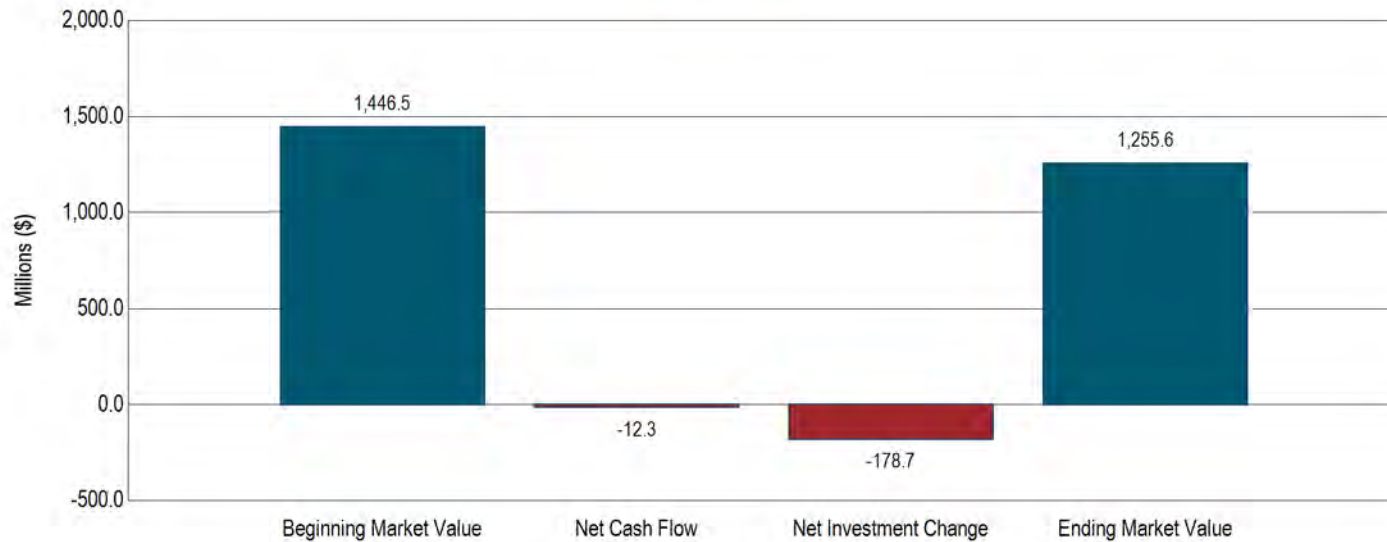
LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

Portfolio Reconciliation

	Last Three Months	One Year
Beginning Market Value	\$1,446,514,955	\$1,344,691,625
Net Cash Flow	-\$12,251,582	-\$33,372,544
Net Investment Change	-\$178,685,174	-\$55,740,881
Ending Market Value	\$1,255,578,200	\$1,255,578,200

Change in Market Value
Last Three Months



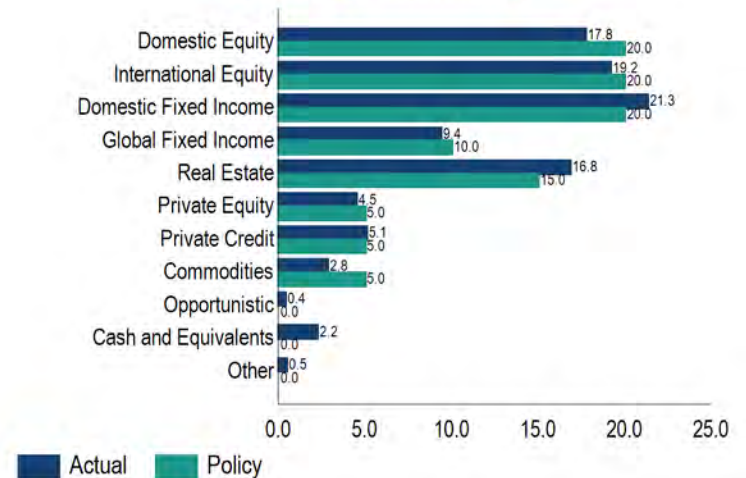
Contributions and withdrawals may include intra-account transfers between managers/funds.

Total Fund Executive Summary (Gross of Fees)

Period Ending: March 31, 2020

	QTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	-12.4	31	-4.1	31	2.9	45	3.5	54
<i>Policy Index</i>	-8.8	4	-0.2	2	4.1	11	4.2	20
Total Domestic Equity	-23.2	71	-12.3	67	3.5	24	5.7	14
<i>Russell 3000</i>	-20.9	14	-9.1	8	4.0	13	5.8	12
Total International Equity	-23.0	32	-10.2	8	0.8	9	1.1	15
<i>MSCI ACWI ex USA Gross</i>	-23.3	34	-15.1	39	-1.5	31	-0.2	46
Total Domestic Fixed Income	-2.4	86	3.3	77	3.5	65	3.1	27
<i>BBgBarc US Aggregate TR</i>	3.1	7	8.9	5	4.8	5	3.4	20
Total Global Fixed	-17.0	--	-13.0	--	-3.5	--	-1.8	--
<i>FTSE World Govt Bond Index</i>	2.0	--	6.2	--	4.3	--	3.0	--
Total Real Estate	1.5	--	5.4	--	6.3	--	8.7	--
<i>NCREIF Property Index</i>	0.7	--	5.3	--	6.4	--	7.6	--
Total Commodities	-25.1	--	-24.2	--	-8.5	--	-7.7	--
<i>Bloomberg Commodity Index TR USD</i>	-23.3	--	-22.3	--	-8.6	--	-7.8	--
Total Private Equity	1.1	--	10.9	--	13.1	--	14.1	--
<i>Russell 3000 +3% (Lagged)</i>	9.9	--	34.9	--	18.0	--	15.1	--
Total Private Credit	3.6	--	12.2	--	8.5	--	--	--
<i>BBgBarc High Yield +2% (Lagged)</i>	3.1	--	16.6	--	8.5	--	--	--
Total Cash	0.5	--	2.3	--	1.7	--	1.2	--
<i>91 Day T-Bills</i>	0.4	--	1.9	--	1.7	--	1.1	--
Total Opportunistic	1.5	--	2.8	--	9.5	--	7.4	--
<i>Russell 3000 + 3%</i>	-20.3	--	-6.4	--	7.1	--	8.9	--

Actual vs Target Allocation (%)



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



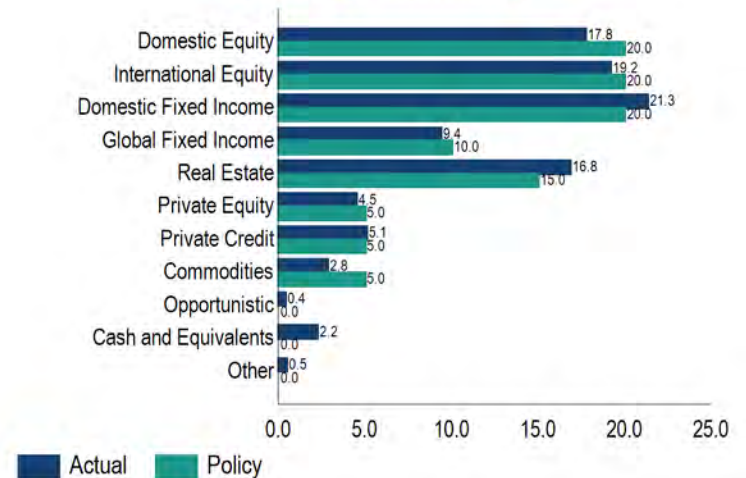
New Policy Index as of 1/1/2017: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. 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. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020. 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: March 31, 2020

	QTD	Rank	1 Yr	Rank	3 Yrs	Rank	5 Yrs	Rank
Total Fund	-12.4	32	-4.5	38	2.5	63	3.0	75
<i>Policy Index</i>	-8.8	4	-0.2	2	4.1	11	4.2	20
Total Domestic Equity	-23.3	73	-12.7	71	3.0	37	5.3	32
<i>Russell 3000</i>	-20.9	14	-9.1	8	4.0	13	5.8	12
Total International Equity	-23.1	33	-10.8	10	0.1	16	0.4	28
<i>MSCI ACWI ex USA Gross</i>	-23.3	34	-15.1	39	-1.5	31	-0.2	46
Total Domestic Fixed Income	-2.5	86	3.0	81	3.1	75	2.8	52
<i>BBgBarc US Aggregate TR</i>	3.1	7	8.9	5	4.8	5	3.4	20
Total Global Fixed	-17.1	--	-13.6	--	-4.1	--	-2.4	--
<i>FTSE World Govt Bond Index</i>	2.0	--	6.2	--	4.3	--	3.0	--
Total Real Estate	1.5	--	5.4	--	6.3	--	8.4	--
<i>NCREIF Property Index</i>	0.7	--	5.3	--	6.4	--	7.6	--
Total Commodities	-25.1	--	-24.2	--	-8.5	--	-7.9	--
<i>Bloomberg Commodity Index TR USD</i>	-23.3	--	-22.3	--	-8.6	--	-7.8	--
Total Private Equity	1.1	--	10.9	--	13.1	--	13.4	--
<i>Russell 3000 +3% (Lagged)</i>	9.9	--	34.9	--	18.0	--	15.1	--
Total Private Credit	3.6	--	12.2	--	8.5	--	--	--
<i>BBgBarc High Yield +2% (Lagged)</i>	3.1	--	16.6	--	8.5	--	--	--
Total Cash	0.5	--	2.3	--	1.7	--	1.2	--
<i>91 Day T-Bills</i>	0.4	--	1.9	--	1.7	--	1.1	--
Total Opportunistic	1.5	--	2.8	--	9.5	--	7.0	--
<i>Russell 3000 + 3%</i>	-20.3	--	-6.4	--	7.1	--	8.9	--

Actual vs Target Allocation (%)



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

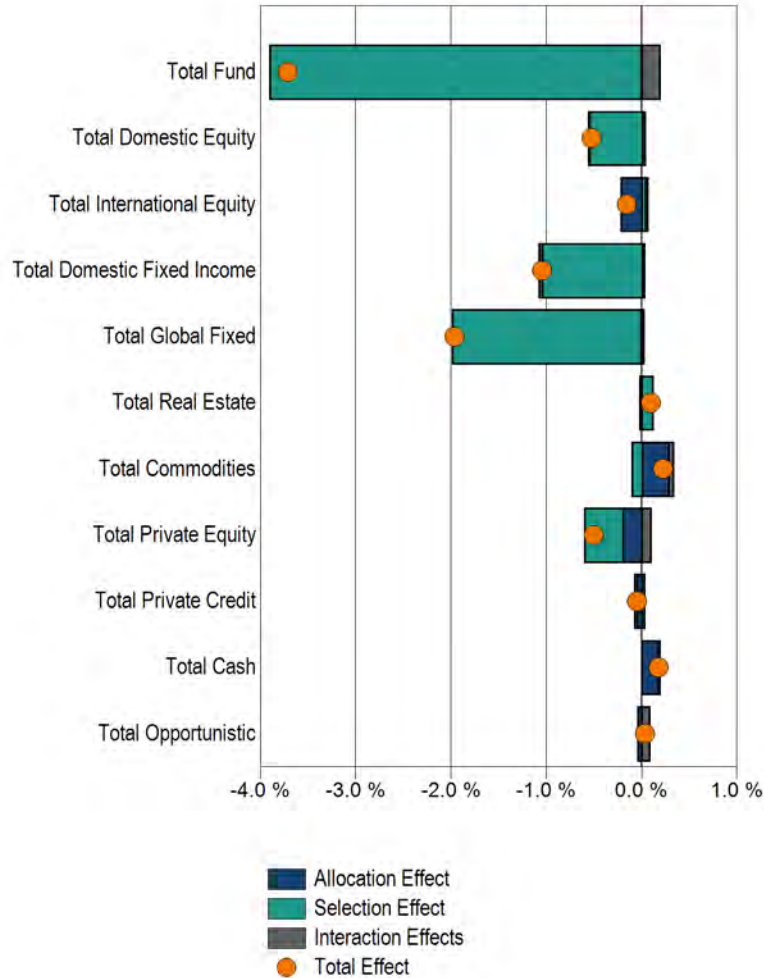


New Policy Index as of 1/1/2017: 20% Russell 3000, 20% MSCI ACWI ex. US, 30% BBgBarc Aggregate, 15% NCREIF Property, 5% Bloomberg Commodity Index, 5% Russell 3000 +3% (Lagged), 5% BBgBarc High Yield +2% (Lagged). Private Equity, Private Credit and Opportunistic composite returns are lagged by one quarter. 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. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020. 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
Attribution (Net of Fees)

Period Ending: March 31, 2020

Attribution Effects
3 Months Ending March 31, 2020



Performance Attribution

	Last 3 Mo.
Wtd. Actual Return	-12.51%
Wtd. Index Return *	-8.80%
Excess Return	-3.71%
Selection Effect	-3.88%
Allocation Effect	-0.01%
Interaction Effect	0.18%

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

Attribution Summary
3 Months Ending March 31, 2020

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Domestic Equity	-23.33%	-20.90%	-2.43%	-0.55%	0.03%	-0.01%	-0.53%
Total International Equity	-23.13%	-23.26%	0.14%	0.05%	-0.21%	0.01%	-0.16%
Total Domestic Fixed Income	-2.47%	3.15%	-5.61%	-1.05%	0.03%	-0.02%	-1.05%
Total Global Fixed	-17.11%	3.15%	-20.25%	-1.97%	-0.01%	0.02%	-1.96%
Total Real Estate	1.51%	0.71%	0.80%	0.11%	-0.01%	-0.01%	0.10%
Total Commodities	-25.10%	-23.29%	-1.81%	-0.10%	0.28%	0.04%	0.22%
Total Private Equity	1.14%	9.88%	-8.74%	-0.40%	-0.20%	0.09%	-0.50%
Total Private Credit	3.62%	3.12%	0.50%	0.02%	-0.05%	-0.02%	-0.05%
Total Cash	0.51%	0.37%	0.14%	0.00%	0.18%	0.00%	0.18%
Total Opportunistic	1.49%	-20.26%	21.75%	0.00%	-0.04%	0.08%	0.03%
Total	-12.51%	-8.80%	-3.71%	-3.88%	-0.01%	0.18%	-3.71%

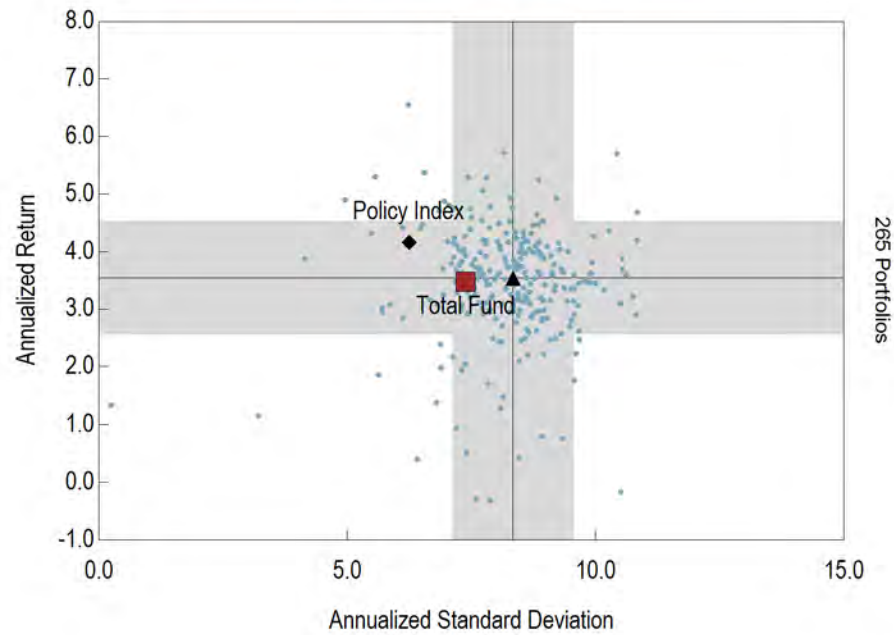
Attribution does not account for effects of overlay program. Weighted returns shown in attribution analysis may differ from actual returns. Wtd. Actual Return is the sum of the products of each group's return and its respective weight at the beginning of the period.

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

Period Ending: March 31, 2020

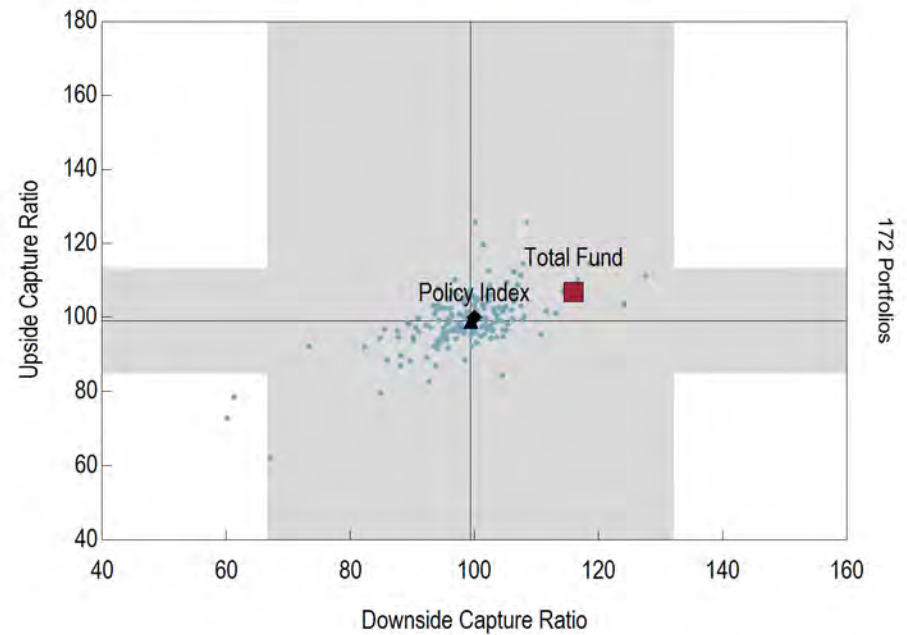
	Anlzd Ret	Ann Excess BM Return	Anlzd Std Dev	Anlzd Alpha	Beta	Tracking Error	R-Squared	Sharpe Ratio	Info Ratio	Up Mkt Cap Ratio	Down Mkt Cap Ratio
Total Fund	3.48%	-0.68%	7.38%	-1.33%	1.16	1.84%	0.96	0.32	-0.37	106.90%	115.96%

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

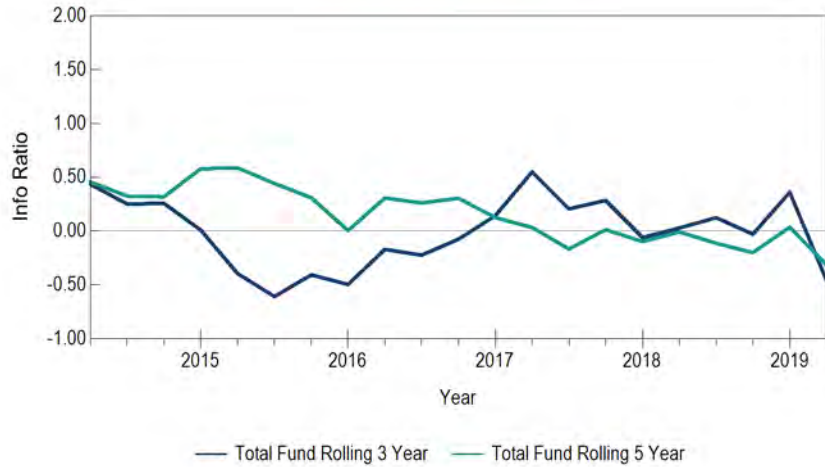


- Total Fund
- ◆ Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Gross

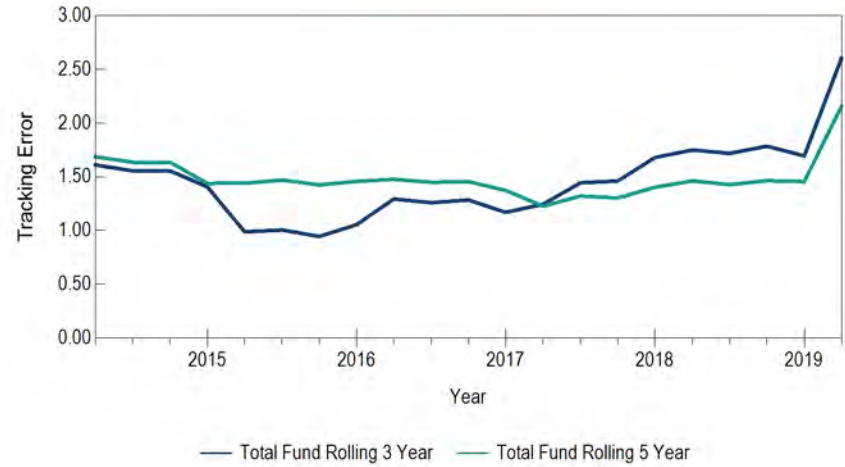
Total Fund
Rolling Risk Statistics (Gross of Fees)

Period Ending: March 31, 2020

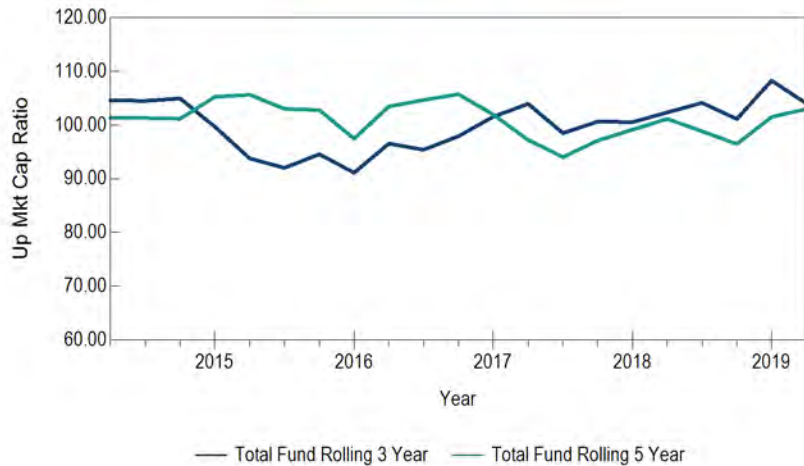
Rolling Information Ratio



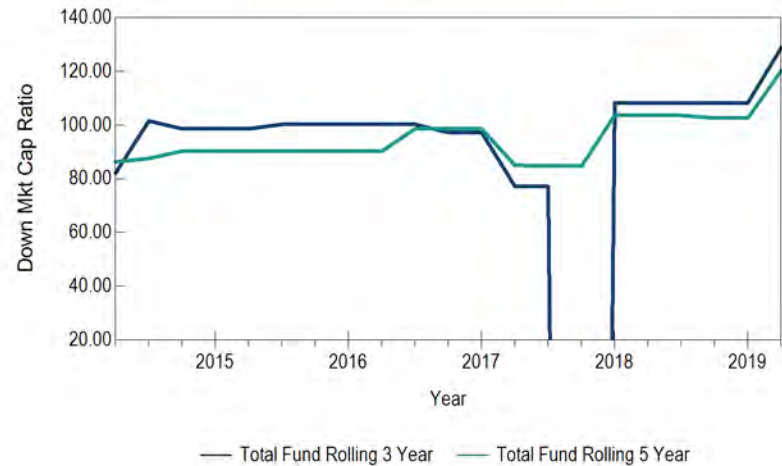
Rolling Tracking Error



Rolling Up Market Capture Ratio (%)



Rolling Down Market Capture Ratio (%)



Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Fund	1,255,578,200	100.0	-12.4	-4.1	2.9	3.5	6.3	16.3	-3.1	15.5	6.6	-0.8		
Policy Index			-8.8	-0.2	4.1	4.2	6.3	15.3	-2.1	13.3	7.8	-0.5		
InvMetrics Public DB Gross Rank			31	31	45	54	51	81	25	47	84	74		
Total Domestic Equity	222,919,536	17.8	-23.2	-12.3	3.5	5.7	10.5	29.4	-5.2	25.1	13.0	1.2		
Russell 3000			-20.9	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5		
InvMetrics Public DB US Eq Gross Rank			71	67	24	14	10	66	36	4	48	18		
PIMCO RAE Fundamental PLUS Instl	44,990,913	3.6	-27.8	-18.7	-1.5	2.3	8.4	25.5	-6.6	17.0	15.9	-2.7	5.4	Nov-07
S&P 500			-19.6	-7.0	5.1	6.7	10.5	31.5	-4.4	21.8	12.0	1.4	6.9	Nov-07
eV US Large Cap Core Equity Gross Rank			99	99	98	95	92	83	72	89	6	86	94	Nov-07
Loomis Sayles Large Cap Growth	73,595,133	5.9	-11.2	1.4	12.6	--	--	32.7	-1.7	34.1	--	--	14.5	Dec-16
Russell 1000 Growth			-14.1	0.9	11.3	--	--	36.4	-1.5	30.2	--	--	13.3	Dec-16
eV US Large Cap Growth Equity Gross Rank			15	29	29	--	--	68	58	16	--	--	30	Dec-16
Boston Partners Large Cap Value	57,706,877	4.6	-29.0	-19.4	-2.4	--	--	24.3	-8.5	--	--	--	-1.2	Jan-17
Russell 1000 Value			-26.7	-17.2	-2.2	--	--	26.5	-8.3	--	--	--	-1.3	Jan-17
eV US Large Cap Value Equity Gross Rank			76	75	68	--	--	77	54	--	--	--	52	Jan-17
Atlanta Capital Mgmt	46,626,613	3.7	-27.1	-15.1	4.1	6.9	--	35.1	-4.5	26.6	12.6	10.4	13.8	Aug-10
Russell 2500			-29.7	-22.5	-3.1	0.5	--	27.8	-10.0	16.8	17.6	-2.9	9.2	Aug-10
eV US Small-Mid Cap Equity Gross Rank			45	34	24	12	--	14	25	15	62	1	2	Aug-10
Total International Equity	240,682,405	19.2	-23.0	-10.2	0.8	1.1	5.0	30.2	-12.2	26.6	2.2	-4.3		
MSCI ACWI ex USA Gross			-23.3	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3		
InvMetrics Public DB ex-US Eq Gross Rank			32	8	9	15	6	1	9	81	82	68		
Dodge & Cox Intl Stock	103,270,223	8.2	-30.4	-21.8	-6.8	-3.8	2.2	23.6	-17.5	24.7	9.0	-10.8	0.1	Dec-07
MSCI EAFE Gross			-22.7	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4	0.2	Dec-07
eV All EAFE Equity Gross Rank			92	88	95	98	90	48	73	74	3	99	80	Dec-07
WCM International Growth	137,412,182	10.9	-16.4	0.9	8.3	--	--	36.7	-6.7	--	--	--	9.4	Feb-17
MSCI ACWI ex USA Gross			-23.3	-15.1	-1.5	--	--	22.1	-13.8	--	--	--	-0.6	Feb-17
eV ACWI ex-US All Cap Growth Eq Gross Rank			23	8	14	--	--	11	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. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020.

Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2020

	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	267,755,346	21.3	-2.4	3.3	3.5	3.1	4.1	9.9	0.4	4.3	4.5	1.1		
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6		
<i>InvMetrics Public DB US Fix Inc Gross Rank</i>			86	77	65	27	25	11	55	50	49	17		
BlackRock Core Bond	103,766,873	8.3	0.6	6.8	4.4	--	--	10.2	0.3	--	--	--	4.4	Jan-17
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	--	--	8.7	0.0	--	--	--	4.8	Jan-17
<i>eV US Core Fixed Inc Gross Rank</i>			79	76	76	--	--	10	27	--	--	--	75	Jan-17
Dodge & Cox Income Fund	100,271,640	8.0	-0.6	5.5	4.3	--	--	10.2	0.1	--	--	--	4.4	Jan-17
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	--	--	8.7	0.0	--	--	--	4.8	Jan-17
<i>eV US Core Fixed Inc Gross Rank</i>			90	90	80	--	--	11	43	--	--	--	76	Jan-17
Pacific Asset Corporate Loan	63,716,833	5.1	-9.4	-4.8	1.1	2.8	--	9.1	1.0	4.9	9.2	2.5	2.7	Sep-14
<i>S&P/LSTA Leveraged Loan Index</i>			-13.0	-9.2	-0.8	1.1	--	8.6	0.4	4.1	10.2	-0.7	1.2	Sep-14
<i>eV US Float-Rate Bank Loan Fixed Inc Gross Rank</i>			11	14	10	4	--	36	29	26	51	9	6	Sep-14
Total Global Fixed	117,843,644	9.4	-17.0	-13.0	-3.5	-1.8	0.7	7.9	-6.6	14.4	5.8	-11.8		
<i>FTSE World Govt Bond Index</i>			2.0	6.2	4.3	3.0	2.2	5.9	-0.8	7.5	1.6	-3.6		
<i>InvMetrics Public DB Gbl Fix Inc Gross Rank</i>			--	--	--	--	--	83	99	29	67	95		
Brandywine Global Fixed Income	60,408,812	4.8	-12.2	-8.5	-1.4	-1.1	1.8	6.2	-4.1	12.5	2.2	-9.3	2.6	Nov-07
<i>FTSE WGBI ex US TR</i>			-1.9	1.8	3.1	2.4	1.4	5.3	-1.8	10.3	1.8	-5.5	2.0	Nov-07
<i>eV All Global Fixed Inc Gross Rank</i>			77	87	93	96	85	84	80	14	75	92	86	Nov-07
Ashmore EM Blended Debt Fund	57,434,832	4.6	-21.4	-17.3	--	--	--	--	--	--	--	--	-17.3	Mar-19
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+</i>			-12.6	-6.2	--	--	--	--	--	--	--	--	-6.2	Mar-19
<i>eV All Emg Mkts Fixed Inc Gross Rank</i>			98	98	--	--	--	--	--	--	--	--	98	Mar-19
Total Real Estate	211,516,434	16.8	1.5	5.4	6.3	8.7	9.1	4.3	7.5	7.8	7.8	18.0		
<i>NCREIF Property Index</i>			0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3		
JP Morgan Core Real Estate	173,113,721	13.8	1.3	4.6	5.4	7.4	10.9	3.4	7.0	6.1	8.4	15.2	5.5	Mar-08
<i>NCREIF-ODCE</i>			1.0	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0	5.4	Mar-08
<i>NCREIF Property Index</i>			0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3	6.2	Mar-08
ARA American Strategic Value Realty	38,402,713	3.1	2.3	8.2	7.8	--	--	7.3	9.1	7.4	--	--	8.5	Jun-16
<i>NCREIF-ODCE</i>			1.0	4.9	6.8	--	--	5.3	8.3	7.6	--	--	7.1	Jun-16
<i>NCREIF Property Index</i>			0.7	5.3	6.4	--	--	6.4	6.7	7.0	--	--	6.5	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. 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. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020.

Total Fund Performance Summary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015	Inception	Inception Date
Total Commodities	35,481,350	2.8	-25.1	-24.2	-8.5	-7.7	-6.4	8.7	-12.4	6.2	12.6	-25.2		
<i>Bloomberg Commodity Index TR USD</i>			-23.3	-22.3	-8.6	-7.8	-6.7	7.7	-11.2	1.7	11.8	-24.7		
Gresham MTAP Commodity Builder	35,481,350	2.8	-25.1	-24.2	-8.5	-7.7	--	8.7	-12.4	6.2	12.6	-25.2	-9.5	Aug-13
<i>Bloomberg Commodity Index TR USD</i>			-23.3	-22.3	-8.6	-7.8	--	7.7	-11.2	1.7	11.8	-24.7	-9.9	Aug-13
Total Private Equity	56,613,827	4.5												
Harbourvest Partners IX Buyout Fund L.P.	14,895,591	1.2												
Pathway Private Equity Fund Investors 9 L.P.	34,373,940	2.7												
Harbourvest 2018 Global Fund L.P.	6,772,192	0.5												
Pathway Private Equity Fund Investors 10 L.P.	572,104	0.0												
Total Private Credit	63,836,942	5.1												
TPG Diversified Credit Program	63,836,942	5.1												
Total Cash	28,126,918	2.2	0.5	2.3	1.7	1.2	0.8	2.2	1.5	1.0	0.5	0.4		
<i>91 Day T-Bills</i>			0.4	1.9	1.7	1.1	0.6	2.1	1.9	0.9	0.3	0.0		
Cash Account	28,126,918	2.2	0.5	2.3	1.7	1.2	0.8	2.2	1.5	1.0	0.5	0.4		
<i>91 Day T-Bills</i>			0.4	1.9	1.7	1.1	0.6	2.1	1.9	0.9	0.3	0.0		
Total Opportunistic	4,884,598	0.4												
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,782,478	0.4												
PIMCO Distressed Credit Fund	102,120	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. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020.

Total Fund Performance Summary (Net of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Fund	1,255,578,200	100.0	-12.4	-4.5	2.5	3.0	5.8	15.8	-3.5	15.0	6.0	-1.3
<i>Policy Index</i>			-8.8	-0.2	4.1	4.2	6.3	15.3	-2.1	13.3	7.8	-0.5
Total Domestic Equity	222,919,536	17.8	-23.3	-12.7	3.0	5.3	10.0	28.7	-5.7	24.5	12.7	0.8
<i>Russell 3000</i>			-20.9	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5
PIMCO RAE Fundamental PLUS Instl	44,990,913	3.6	-27.9	-19.0	-1.9	1.8	8.0	25.0	-7.0	16.5	15.4	-3.2
<i>S&P 500</i>			-19.6	-7.0	5.1	6.7	10.5	31.5	-4.4	21.8	12.0	1.4
Loomis Sayles Large Cap Growth	73,595,133	5.9	-11.3	1.0	12.1	--	--	32.1	-2.1	33.5	--	--
<i>Russell 1000 Growth</i>			-14.1	0.9	11.3	--	--	36.4	-1.5	30.2	--	--
Boston Partners Large Cap Value	57,706,877	4.6	-29.0	-19.7	-2.7	--	--	23.8	-8.9	--	--	--
<i>Russell 1000 Value</i>			-26.7	-17.2	-2.2	--	--	26.5	-8.3	--	--	--
Atlanta Capital Mgmt	46,626,613	3.7	-27.3	-15.8	3.3	6.0	--	34.1	-5.3	25.6	11.7	9.6
<i>Russell 2500</i>			-29.7	-22.5	-3.1	0.5	--	27.8	-10.0	16.8	17.6	-2.9
Total International Equity	240,682,405	19.2	-23.1	-10.8	0.1	0.4	4.3	29.3	-12.8	25.8	1.6	-4.9
<i>MSCI ACWI ex USA Gross</i>			-23.3	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3
Dodge & Cox Intl Stock	103,270,223	8.2	-30.5	-22.3	-7.4	-4.4	1.6	22.8	-18.0	23.9	8.3	-11.4
<i>MSCI EAFE Gross</i>			-22.7	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4
WCM International Growth	137,412,182	10.9	-16.6	0.2	7.6	--	--	35.8	-7.4	--	--	--
<i>MSCI ACWI ex USA Gross</i>			-23.3	-15.1	-1.5	--	--	22.1	-13.8	--	--	--
Total Domestic Fixed Income	267,755,346	21.3	-2.5	3.0	3.1	2.8	3.8	9.5	0.0	3.9	4.2	0.9
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
BlackRock Core Bond	103,766,873	8.3	0.5	6.5	4.1	--	--	9.9	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
Dodge & Cox Income Fund	100,271,640	8.0	-0.7	5.1	3.9	--	--	9.7	-0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>			3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
Pacific Asset Corporate Loan	63,716,833	5.1	-9.5	-5.2	0.8	2.5	--	8.7	0.7	4.6	8.8	2.1
<i>S&P/LSTA Leveraged Loan Index</i>			-13.0	-9.2	-0.8	1.1	--	8.6	0.4	4.1	10.2	-0.7
Total Global Fixed	117,843,644	9.4	-17.1	-13.6	-4.1	-2.4	0.0	7.2	-7.2	13.7	5.1	-12.4
<i>FTSE World Govt Bond Index</i>			2.0	6.2	4.3	3.0	2.2	5.9	-0.8	7.5	1.6	-3.6
Brandywine Global Fixed Income	60,408,812	4.8	-12.3	-8.9	-1.8	-1.5	1.3	5.7	-4.5	12.0	1.7	-9.7
<i>FTSE WGBI ex US TR</i>			-1.9	1.8	3.1	2.4	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 liquidatrf as of 12/19/2019. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020.

Total Fund Performance Summary (Net of Fees)

Period Ending: March 31, 2020

	Market Value	% of Portfolio	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Ashmore EM Blended Debt Fund	57,434,832	4.6	-21.6	-18.1	--	--	--	--	--	--	--	--
50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+			-12.6	-6.2	--	--	--	--	--	--	--	--
Total Real Estate	211,516,434	16.8	1.5	5.4	6.3	8.4	8.6	4.3	7.5	7.8	6.8	16.9
NCREIF Property Index			0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	173,113,721	13.8	1.3	4.6	5.4	7.0	10.2	3.4	7.0	6.1	7.3	14.1
NCREIF-ODCE			1.0	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0
NCREIF Property Index			0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	38,402,713	3.1	2.3	8.2	7.8	--	--	7.3	9.1	7.4	--	--
NCREIF-ODCE			1.0	4.9	6.8	--	--	5.3	8.3	7.6	--	--
NCREIF Property Index			0.7	5.3	6.4	--	--	6.4	6.7	7.0	--	--
Total Commodities	35,481,350	2.8	-25.1	-24.2	-8.5	-7.9	-6.7	8.7	-12.4	6.2	11.8	-25.8
Bloomberg Commodity Index TR USD			-23.3	-22.3	-8.6	-7.8	-6.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	35,481,350	2.8	-25.1	-24.2	-8.5	-7.9	--	8.7	-12.4	6.2	11.8	-25.8
Bloomberg Commodity Index TR USD			-23.3	-22.3	-8.6	-7.8	--	7.7	-11.2	1.7	11.8	-24.7
Total Private Equity	56,613,827	4.5										
Harbourvest Partners IX Buyout Fund L.P.	14,895,591	1.2										
Pathway Private Equity Fund Investors 9 L.P.	34,373,940	2.7										
Harbourvest 2018 Global Fund L.P.	6,772,192	0.5										
Pathway Private Equity Fund Investors 10 L.P.	572,104	0.0										
Total Private Credit	63,836,942	5.1										
TPG Diversified Credit Program	63,836,942	5.1										
Total Cash	28,126,918	2.2	0.5	2.3	1.7	1.2	0.8	2.2	1.5	1.0	0.5	0.4
91 Day T-Bills			0.4	1.9	1.7	1.1	0.6	2.1	1.9	0.9	0.3	0.0
Cash Account	28,126,918	2.2	0.5	2.3	1.7	1.2	0.8	2.2	1.5	1.0	0.5	0.4
91 Day T-Bills			0.4	1.9	1.7	1.1	0.6	2.1	1.9	0.9	0.3	0.0
Total Opportunistic	4,884,598	0.4										
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,782,478	0.4										
PIMCO Distressed Credit Fund	102,120	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 liquidatrf as of 12/19/2019. Pathway Private Equity Fund Investors 10 L.P. funded 3/25/2020.

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

Period Ending: March 31, 2020

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	-1.91%	-7.01%	17.67%	-7.68%	1.13	4.44%	0.95	-0.21	-1.58	87.32%	119.10%
Loomis Sayles Large Cap Growth	12.07%	0.74%	15.23%	1.27%	0.95	4.13%	0.93	0.68	0.18	98.31%	95.26%
Boston Partners Large Cap Value	-2.74%	-0.57%	17.70%	-0.47%	1.04	2.76%	0.98	-0.25	-0.21	103.95%	103.77%
Atlanta Capital Mgmt	3.29%	6.39%	18.30%	5.96%	0.86	6.00%	0.92	0.08	1.07	100.74%	82.35%
Dodge & Cox Intl Stock	-7.42%	-6.09%	18.98%	-5.76%	1.25	6.39%	0.92	-0.48	-0.95	112.77%	126.62%
WCM International Growth	7.59%	9.08%	13.36%	8.78%	0.80	6.37%	0.82	0.44	1.43	98.61%	63.79%
BlackRock Core Bond	4.07%	-0.75%	3.75%	-1.02%	1.05	1.65%	0.81	0.63	-0.46	98.85%	129.01%
Dodge & Cox Income Fund	3.86%	-0.96%	2.98%	0.49%	0.70	2.19%	0.56	0.72	-0.44	76.95%	75.45%
Pacific Asset Corporate Loan	0.76%	1.55%	5.82%	1.33%	0.73	2.27%	0.98	-0.16	0.68	97.51%	75.73%
Brandywine Global Fixed Income	-1.84%	-4.98%	8.78%	-5.21%	1.07	6.20%	0.50	-0.41	-0.80	74.61%	133.33%
JP Morgan Core Real Estate	5.38%	-1.44%	0.93%	4.87%	0.07	2.81%	0.05	3.91	-0.51	27.82%	--
ARA American Strategic Value Realty	7.78%	0.97%	3.43%	11.34%	-0.52	5.35%	0.19	1.77	0.18	--	--
Gresham MTAP Commodity Builder	-8.55%	0.06%	13.59%	0.67%	1.07	3.81%	0.93	-0.76	0.02	116.80%	105.25%

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	1.83%	-4.90%	15.24%	-5.46%	1.08	3.86%	0.94	0.05	-1.27	85.34%	111.91%
Atlanta Capital Mgmt	6.04%	5.55%	15.97%	5.63%	0.84	5.94%	0.89	0.31	0.93	94.09%	81.28%
Dodge & Cox Intl Stock	-4.39%	-4.26%	17.92%	-4.23%	1.21	6.34%	0.90	-0.31	-0.67	113.49%	115.97%
Pacific Asset Corporate Loan	2.47%	1.33%	4.72%	1.65%	0.72	1.94%	0.97	0.29	0.69	91.13%	66.32%
Brandywine Global Fixed Income	-1.50%	-3.89%	8.55%	-3.67%	0.90	5.75%	0.55	-0.31	-0.68	64.45%	106.39%
JP Morgan Core Real Estate	7.03%	-1.43%	1.15%	6.12%	0.11	3.48%	0.12	5.13	-0.41	27.57%	--
Gresham MTAP Commodity Builder	-7.90%	-0.14%	13.72%	0.11%	1.03	3.27%	0.94	-0.66	-0.04	109.23%	102.68%

Private Markets

Non-Marketable Securities Overview

Period Ending: March 31, 2020

Vintage	Manager & Fund Name	Estimated 3/31 Market Value ³	Total Commitment	Capital Called	% Called	Remaining Commitment	Capital Returned	Market Value as of IRR date	Distrib./ Paid-In (DPI) ¹	Tot. Value/ Paid-In (TVPI) ²	Net IRR Since Inception ⁵	IRR Date
2011	HarbourVest Partners IX-Buyout Fund L.P.	\$14,895,591	\$20,000,000	\$16,550,000	83%	\$3,450,000	\$13,416,381	-	81.1%	171.1%	-	-
2018	HarbourVest Partners 2018 Global Fund L.P.	\$6,772,192	\$20,000,000	\$6,422,400	32%	\$13,577,600	-	-	-	-	-	-
2010	KKR Mezzanine Partners I L.P. ⁶	\$4,782,478	\$20,000,000	\$20,000,000	100%	\$0	\$29,566,840	\$4,766,761	147.8%	171.7%	8.2%	12/31/19
2010	PIMCO Distressed Credit Fund ⁴	\$102,120	\$20,000,000	\$20,000,000	100%	\$0	\$27,950,093	\$102,120	139.8%	140.3%	12.3%	12/31/19
2016	TPG Diversified Credit Program	\$63,836,942	\$75,000,000	\$58,511,774	78%	\$16,488,226	\$5,530,445	\$60,746,825	9.5%	118.6%	10.0%	12/31/19
2017	Pathway Private Equity Fund Investors 9 L.P.	\$34,373,940	\$65,000,000	\$33,844,883	52%	\$31,155,117	\$243,611	-	0.7%	102.3%	-	-
2020	Pathway Private Equity Fund Investors 10 L.P.	\$572,104	\$20,000,000	\$572,104	3%	\$19,427,896	\$0	-	0.0%	100.0%	-	-

Total Alternative Illiquids	\$125,335,366	\$240,000,000	\$155,901,161	65%	\$84,098,839	\$76,707,370	\$65,615,706	42.1%	91.3%
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% of Portfolio (Market Value)	10.0%
--------------------------------------	--------------

	Management Fee	Admin Fee	Interest Expense	Other Expense	Total Expense ⁷
HarbourVest Partners IX-Buyout Fund L.P.	\$49,826	\$0	\$0	\$0	\$49,826
HarbourVest Partners 2018 Global Fund L.P.	\$32,665	\$0	\$0	\$36,277	\$68,942
KKR Mezzanine Partners I L.P.	\$15,717	\$0	\$0	\$4,410	\$20,127
PIMCO Distressed Credit Fund ⁴	\$0	\$0	\$0	\$12	\$12
TPG Diversified Credit Program	\$0	\$0	\$0	\$233,021	\$233,021
Pathway Private Equity Fund Investors 9 L.P.	\$99,375	\$0	\$0	\$0	\$99,375
Pathway Private Equity Fund Investors 10 L.P.	\$0	\$0	\$0	\$0	\$0
	\$197,583	\$0	\$0	\$273,720	\$471,303

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

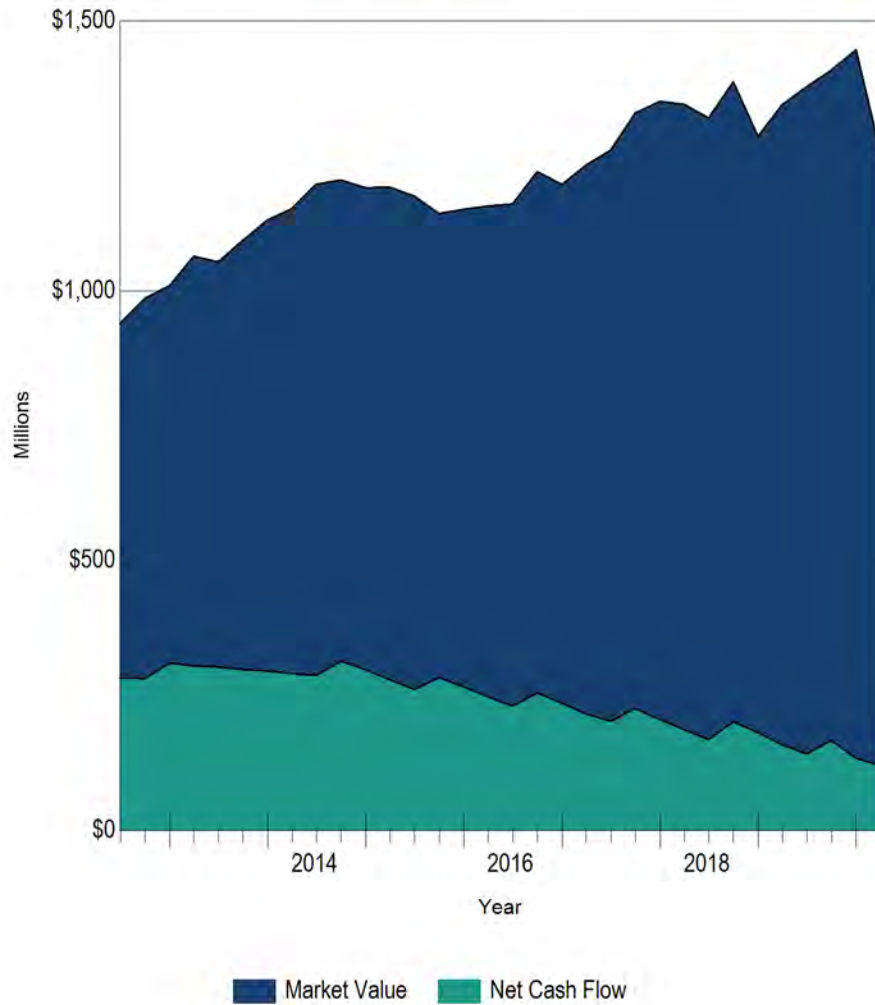
⁴Investment period ended, no further capital to be called.

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.

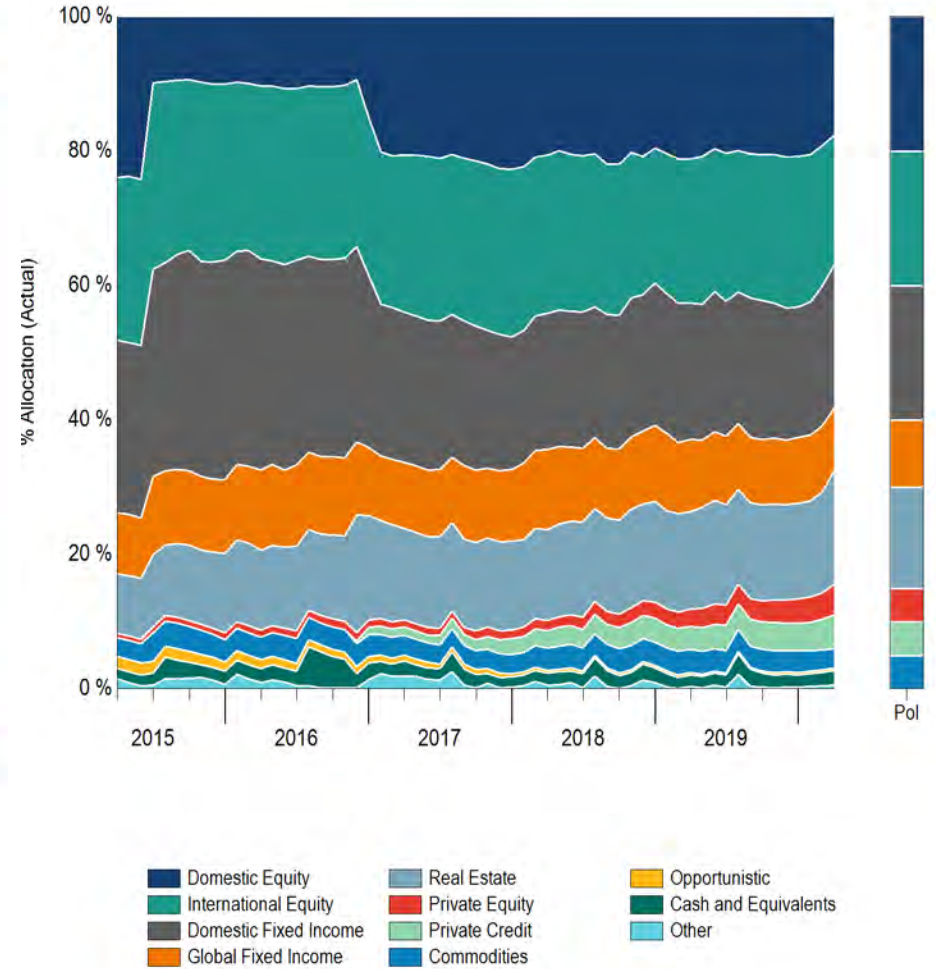
⁶KKR: As of 4Q2019, total capital called is \$23,714,418, which includes recycled distributions. Unused capital commitment is \$1,988,589 after including distribution proceeds available for reinvestment

⁷All fees and expenses are for 4Q 2019, except for Pathway 9 and HarbourVest 2018, for which 3Q19 fees are shown.

Market Value History



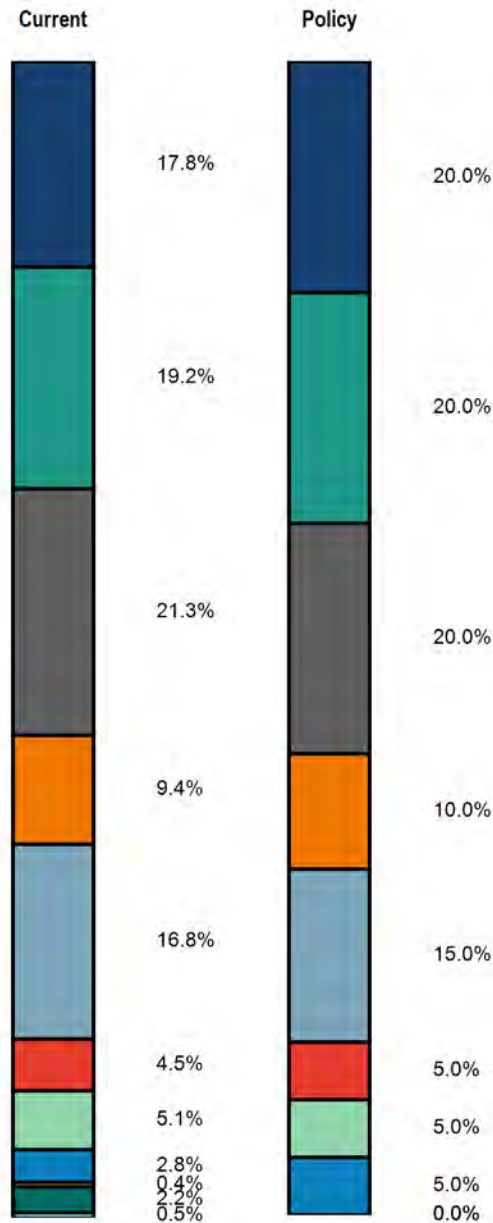
Asset Allocation History



*Other balance represents Clifton Group

Total Fund
Asset Allocation vs. Policy

Period Ending: March 31, 2020



	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
Domestic Equity	\$222,919,536	17.8%	20.0%	-\$28,196,104	15.0% - 30.0%	Yes
International Equity	\$240,682,405	19.2%	20.0%	-\$10,433,235	15.0% - 30.0%	Yes
Domestic Fixed Income	\$267,755,346	21.3%	20.0%	\$16,639,707	10.0% - 30.0%	Yes
Global Fixed Income	\$117,843,644	9.4%	10.0%	-\$7,714,176	0.0% - 20.0%	Yes
Real Estate	\$211,516,434	16.8%	15.0%	\$23,179,704	5.0% - 20.0%	Yes
Private Equity	\$56,613,827	4.5%	5.0%	-\$6,165,083	0.0% - 10.0%	Yes
Private Credit	\$63,836,942	5.1%	5.0%	\$1,058,032	0.0% - 10.0%	Yes
Commodities	\$35,481,350	2.8%	5.0%	-\$27,297,560	0.0% - 10.0%	Yes
Opportunistic	\$4,884,598	0.4%	0.0%	\$4,884,598	0.0% - 10.0%	Yes
Cash and Equivalents	\$28,126,918	2.2%	0.0%	\$28,126,918	0.0% - 5.0%	Yes
Other	\$5,917,201	0.5%	--	\$5,917,201	--	No
Total	\$1,255,578,200	100.0%	100.0%			

*Other balance represents Clifton Group

Total Fund Investment Fund Fee Analysis

Period Ending: March 31, 2020

Account	Fee Schedule	Market Value As of 3/31/2020	% 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	\$38,402,713	3.1%	\$452,430	1.18%
Ashmore EM Blended Debt Fund	1.00% of Assets	\$57,434,832	4.6%	\$574,348	1.00%
Atlanta Capital Mgmt	0.80% of First 50.0 Mil, 0.70% of Next 100.0 Mil, 0.60% Thereafter	\$46,626,613	3.7%	\$373,013	0.80%
BlackRock Core Bond	0.28% of First 100.0 Mil, 0.26% Thereafter	\$103,766,873	8.3%	\$289,794	0.28%
Boston Partners Large Cap Value	0.40% of Assets	\$57,706,877	4.6%	\$230,828	0.40%
Brandywine Global Fixed Income	0.45% of First 50.0 Mil, 0.40% of Next 50.0 Mil, 0.35% Thereafter	\$60,408,812	4.8%	\$266,635	0.44%
Cash Account	No Fee	\$28,126,918	2.2%	--	--
Dodge & Cox Income Fund	0.42% of Assets	\$100,271,640	8.0%	\$421,141	0.42%
Dodge & Cox Intl Stock	0.64% of Assets	\$103,270,223	8.2%	\$660,929	0.64%
Gresham MTAP Commodity Builder	0.75% of First 50.0 Mil, 0.50% Thereafter	\$35,481,350	2.8%	\$266,110	0.75%
Harbourvest 2018 Global Fund L.P.	282,000 Annually	\$6,772,192	0.5%	\$282,000	4.16%
Harbourvest Partners IX Buyout Fund L.P.	200,000 Annually	\$14,895,591	1.2%	\$200,000	1.34%
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	\$173,113,721	13.8%	\$1,504,910	0.87%
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	300,000 Annually	\$4,782,478	0.4%	\$300,000	6.27%
Loomis Sayles Large Cap Growth	0.45% of First 100.0 Mil, 0.40% Thereafter	\$73,595,133	5.9%	\$331,178	0.45%
Pacific Asset Corporate Loan	0.37% of Assets	\$63,716,833	5.1%	\$235,752	0.37%
Pathway Private Equity Fund Investors 10 L.P.	Please see footnote	\$572,104	0.0%	--	--
Pathway Private Equity Fund Investors 9 L.P.	Please see footnote	\$34,373,940	2.7%	--	--
PIMCO Distressed Credit Fund	150,000 Annually	\$102,120	0.0%	\$150,000	146.89%
PIMCO RAE Fundamental PLUS Instl	0.40% of Assets	\$44,990,913	3.6%	\$179,964	0.40%
The Clifton Group	50,000 Annually	\$5,917,201	0.5%	\$50,000	0.84%
TPG Diversified Credit Program	Please see footnote	\$63,836,942	5.1%	--	--
WCM International Growth	0.70% of Assets	\$137,412,182	10.9%	\$961,885	0.70%
Investment Management Fee		\$1,255,578,200	100.0%	\$7,730,917	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.

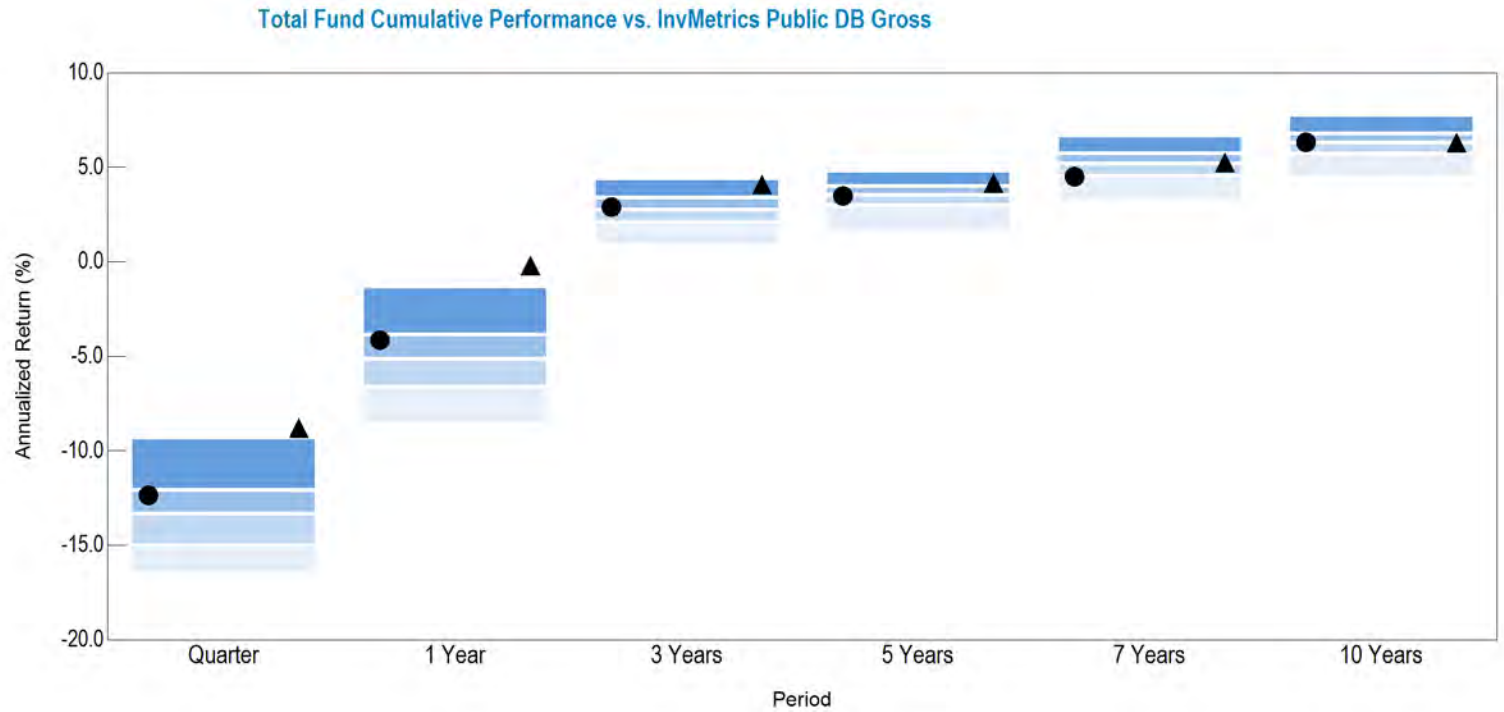
*Clifton Group fee schedule represents contractual minimum fee. Actual fee charged is \$1,500 per month through at least 6/30/2015.

*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: March 31, 2020

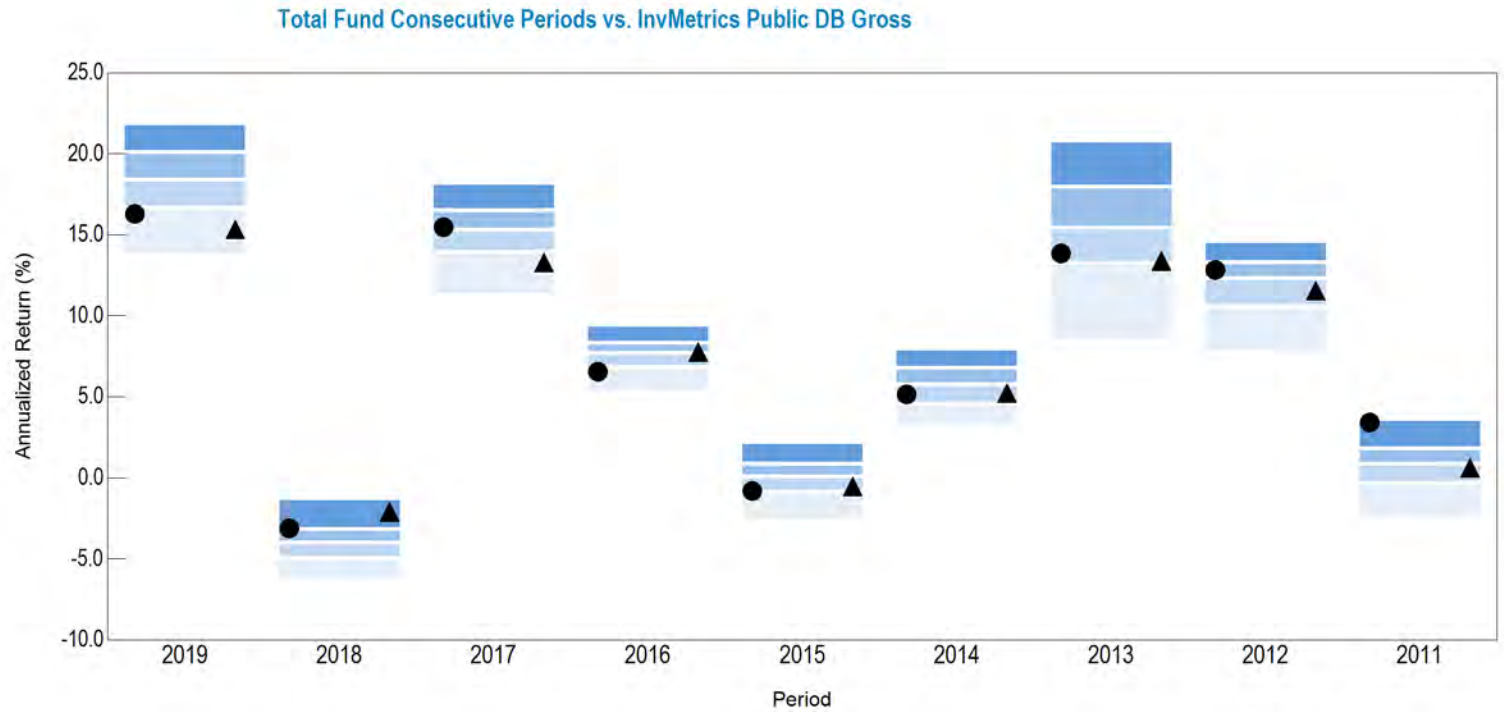


	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-9.3		-1.3		4.4		4.8		6.7		7.8	
25th Percentile	-12.1		-3.8		3.4		4.0		5.8		6.8	
Median	-13.3		-5.1		2.8		3.5		5.2		6.3	
75th Percentile	-15.0		-6.6		2.1		3.0		4.6		5.8	
95th Percentile	-16.5		-8.5		0.9		1.5		3.3		4.5	
# of Portfolios	284		282		273		265		248		227	
● Total Fund	-12.4	(31)	-4.1	(31)	2.9	(45)	3.5	(54)	4.5	(77)	6.3	(51)
▲ Policy Index	-8.8	(4)	-0.2	(2)	4.1	(11)	4.2	(20)	5.3	(48)	6.3	(53)

Total Fund

Peer Universe Comparison: Consecutive Periods (Gross of Fees)

Period Ending: March 31, 2020

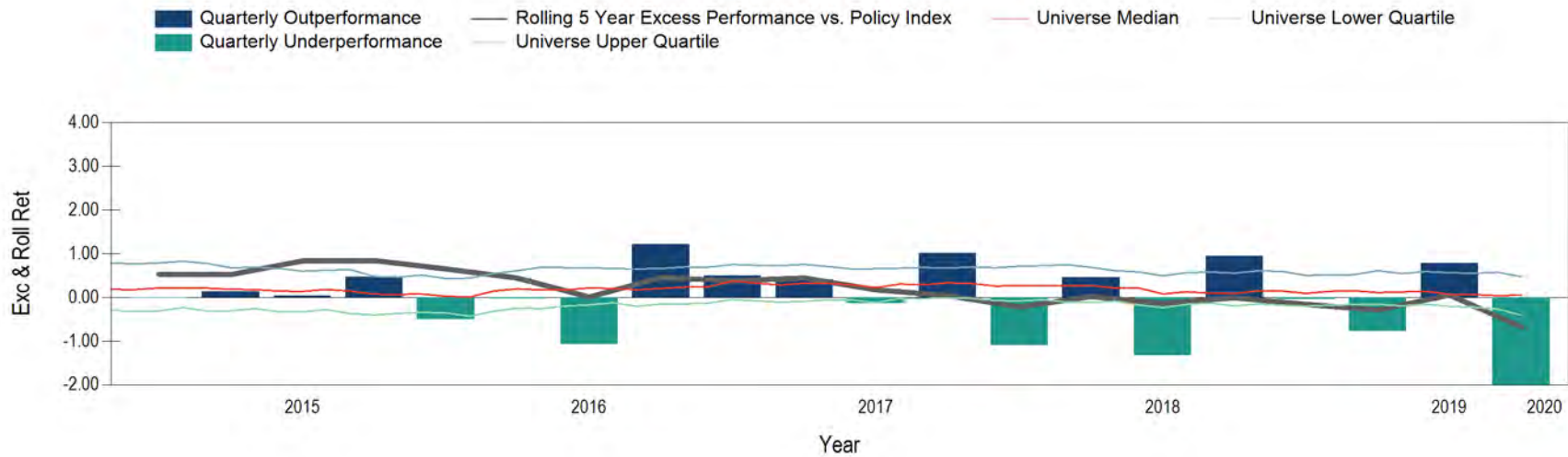


	Return (Rank)									
5th Percentile	21.9	-1.3	18.2	9.4	2.2	8.0	20.8	14.6	3.6	
25th Percentile	20.1	-3.1	16.5	8.4	0.9	6.8	18.0	13.4	1.9	
Median	18.4	-4.0	15.3	7.7	0.1	5.8	15.5	12.4	0.9	
75th Percentile	16.7	-4.9	14.0	6.9	-0.9	4.6	13.3	10.7	-0.3	
95th Percentile	13.7	-6.3	11.3	5.3	-2.6	3.2	8.5	7.8	-2.5	
# of Portfolios	330	319	304	305	316	248	231	236	206	
● Total Fund	16.3 (81)	-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	15.3 (90)	-2.1 (10)	13.3 (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)

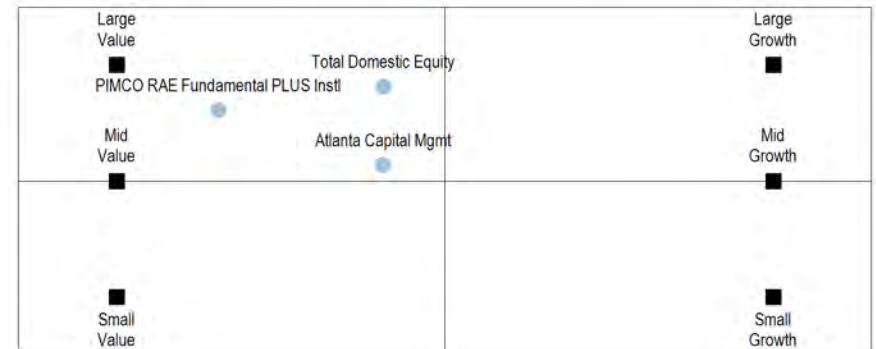
Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	222,919,536	-23.2	-12.3	3.5	5.7	10.5	29.4	-5.2	25.1	13.0	1.2
<i>Russell 3000</i>		-20.9	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5
<i>InvMetrics Public DB US Eq Gross Rank</i>		71	67	24	14	10	66	36	4	48	18
PIMCO RAE Fundamental PLUS Instl	44,990,913	-27.8	-18.7	-1.5	2.3	8.4	25.5	-6.6	17.0	15.9	-2.7
<i>S&P 500</i>		-19.6	-7.0	5.1	6.7	10.5	31.5	-4.4	21.8	12.0	1.4
<i>eV US Large Cap Core Equity Gross Rank</i>		99	99	98	95	92	83	72	89	6	86
Loomis Sayles Large Cap Growth	73,595,133	-11.2	1.4	12.6	--	--	32.7	-1.7	34.1	--	--
<i>Russell 1000 Growth</i>		-14.1	0.9	11.3	--	--	36.4	-1.5	30.2	--	--
<i>eV US Large Cap Growth Equity Gross Rank</i>		15	29	29	--	--	68	58	16	--	--
Boston Partners Large Cap Value	57,706,877	-29.0	-19.4	-2.4	--	--	24.3	-8.5	--	--	--
<i>Russell 1000 Value</i>		-26.7	-17.2	-2.2	--	--	26.5	-8.3	--	--	--
<i>eV US Large Cap Value Equity Gross Rank</i>		76	75	68	--	--	77	54	--	--	--
Atlanta Capital Mgmt	46,626,613	-27.1	-15.1	4.1	6.9	--	35.1	-4.5	26.6	12.6	10.4
<i>Russell 2500</i>		-29.7	-22.5	-3.1	0.5	--	27.8	-10.0	16.8	17.6	-2.9
<i>eV US Small-Mid Cap Equity Gross Rank</i>		45	34	24	12	--	14	25	15	62	1

U.S. Effective Style Map
3 Years Ending March 31, 2020



U.S. Effective Style Map
5 Years Ending March 31, 2020



Total Domestic Equity
Asset Class Overview (Net of Fees)

Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Equity	222,919,536	-23.3	-12.7	3.0	5.3	10.0	28.7	-5.7	24.5	12.7	0.8
<i>Russell 3000</i>		-20.9	-9.1	4.0	5.8	10.1	31.0	-5.2	21.1	12.7	0.5
PIMCO RAE Fundamental PLUS Instl	44,990,913	-27.9	-19.0	-1.9	1.8	8.0	25.0	-7.0	16.5	15.4	-3.2
<i>S&P 500</i>		-19.6	-7.0	5.1	6.7	10.5	31.5	-4.4	21.8	12.0	1.4
Loomis Sayles Large Cap Growth	73,595,133	-11.3	1.0	12.1	--	--	32.1	-2.1	33.5	--	--
<i>Russell 1000 Growth</i>		-14.1	0.9	11.3	--	--	36.4	-1.5	30.2	--	--
Boston Partners Large Cap Value	57,706,877	-29.0	-19.7	-2.7	--	--	23.8	-8.9	--	--	--
<i>Russell 1000 Value</i>		-26.7	-17.2	-2.2	--	--	26.5	-8.3	--	--	--
Atlanta Capital Mgmt	46,626,613	-27.3	-15.8	3.3	6.0	--	34.1	-5.3	25.6	11.7	9.6
<i>Russell 2500</i>		-29.7	-22.5	-3.1	0.5	--	27.8	-10.0	16.8	17.6	-2.9

Total Domestic Equity
 Asset Class Overview (Net of Fees)

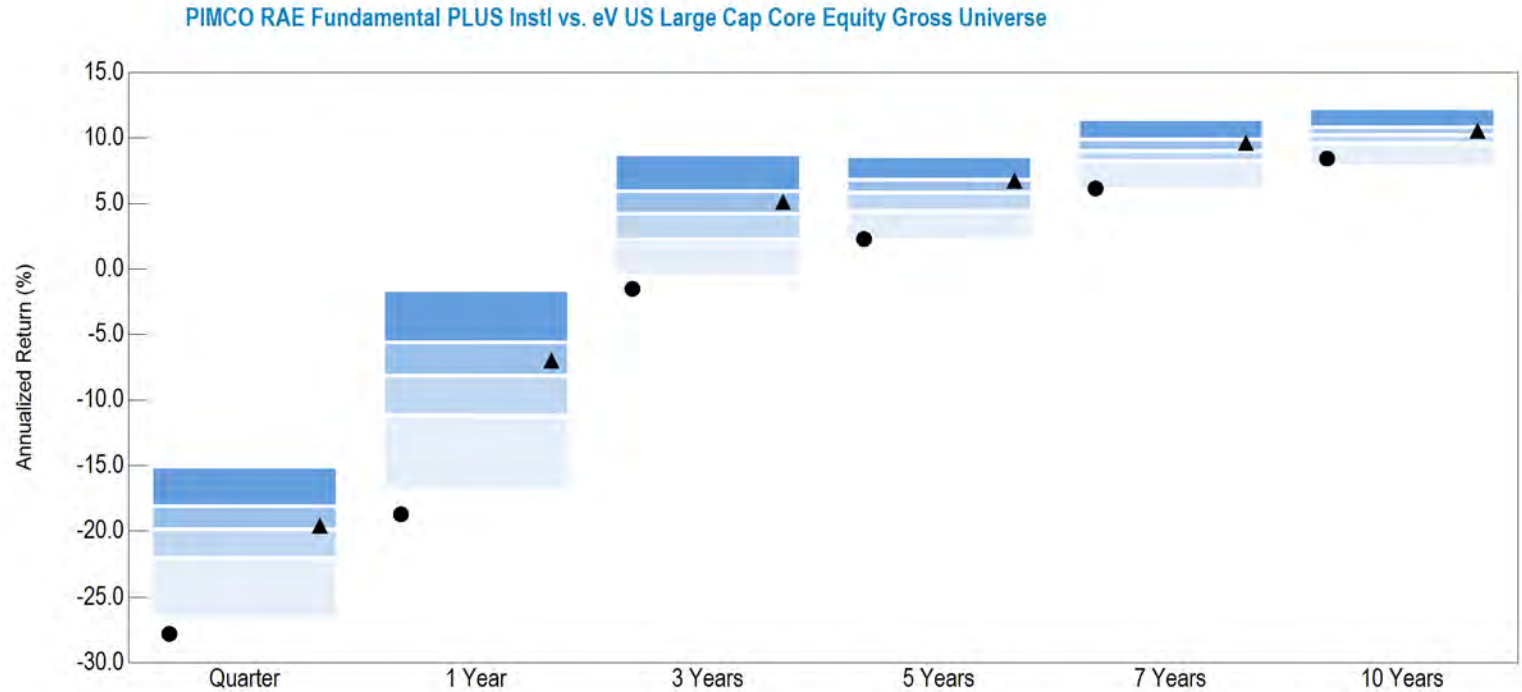
Period Ending: March 31, 2020

Correlation Matrix
 Last 1 Year

	Total Domestic Equity	PIMCO RAE Fundamental PLUS Instl	Loomis Sayles Large Cap Growth	Boston Partners Large Cap Value	Atlanta Capital Mgmt	Russell 3000
Total Domestic Equity	1.00	--	--	--	--	--
PIMCO RAE Fundamental PLUS Instl	1.00	1.00	--	--	--	--
Loomis Sayles Large Cap Growth	0.94	0.93	1.00	--	--	--
Boston Partners Large Cap Value	1.00	1.00	0.93	1.00	--	--
Atlanta Capital Mgmt	0.97	0.96	0.87	0.97	1.00	--
Russell 3000	1.00	1.00	0.96	1.00	0.96	1.00

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

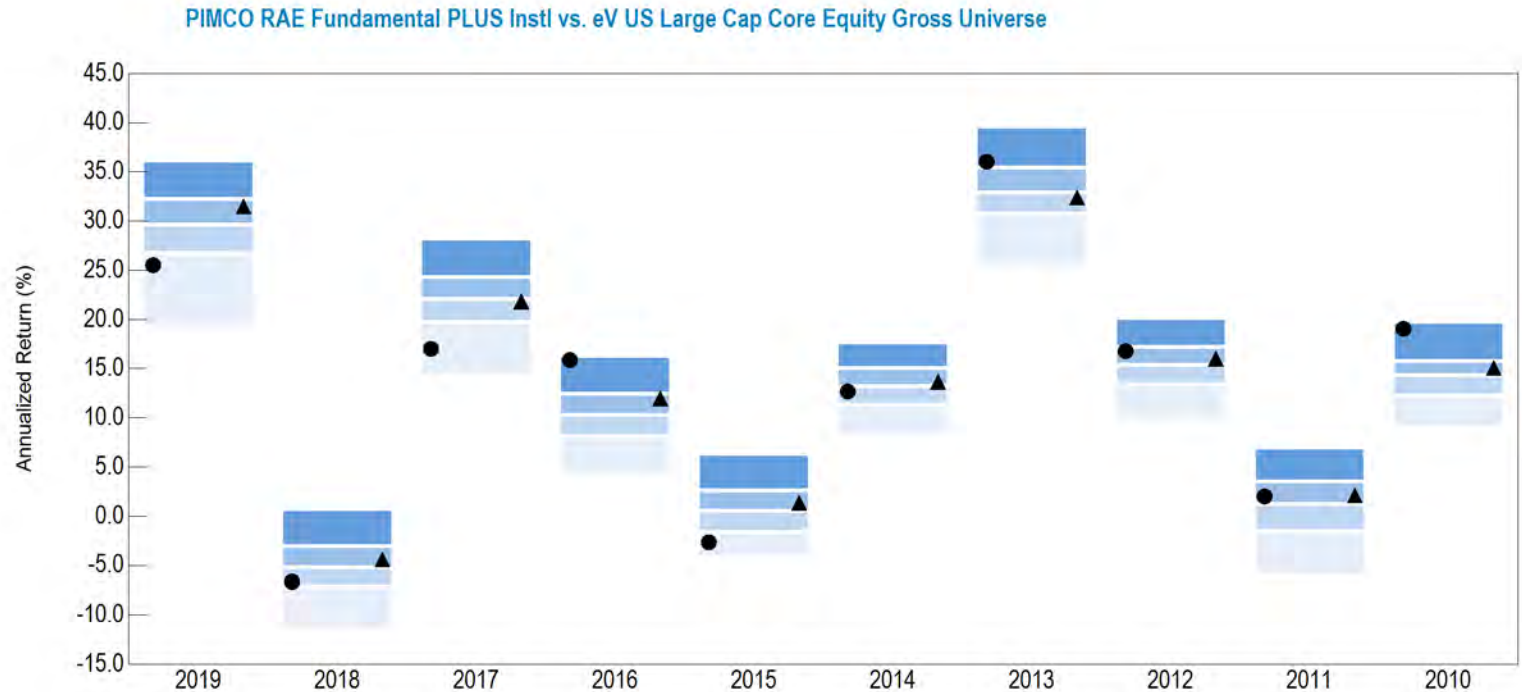
Period Ending: March 31, 2020



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-15.1		-1.6		8.7		8.6		11.4		12.3	
25th Percentile	-18.1		-5.6		6.0		6.8		9.9		10.8	
Median	-19.8		-8.1		4.2		5.8		9.0		10.3	
75th Percentile	-22.0		-11.2		2.3		4.5		8.2		9.6	
95th Percentile	-26.5		-16.8		-0.5		2.2		6.1		7.9	
# of Portfolios	312		312		297		279		258		214	
● PIMCO RAE Fundamental PLUS Instl	-27.8	(99)	-18.7	(99)	-1.5	(98)	2.3	(95)	6.1	(95)	8.4	(92)
▲ S&P 500	-19.6	(47)	-7.0	(41)	5.1	(35)	6.7	(27)	9.6	(33)	10.5	(37)

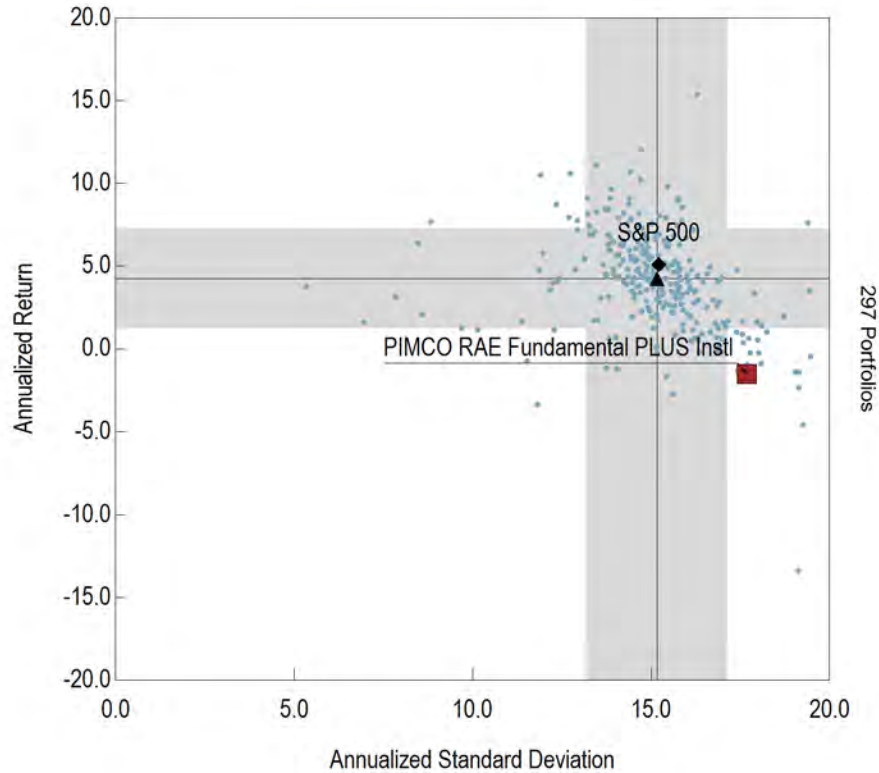
PIMCO RAE Fundamental PLUS Instl
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020



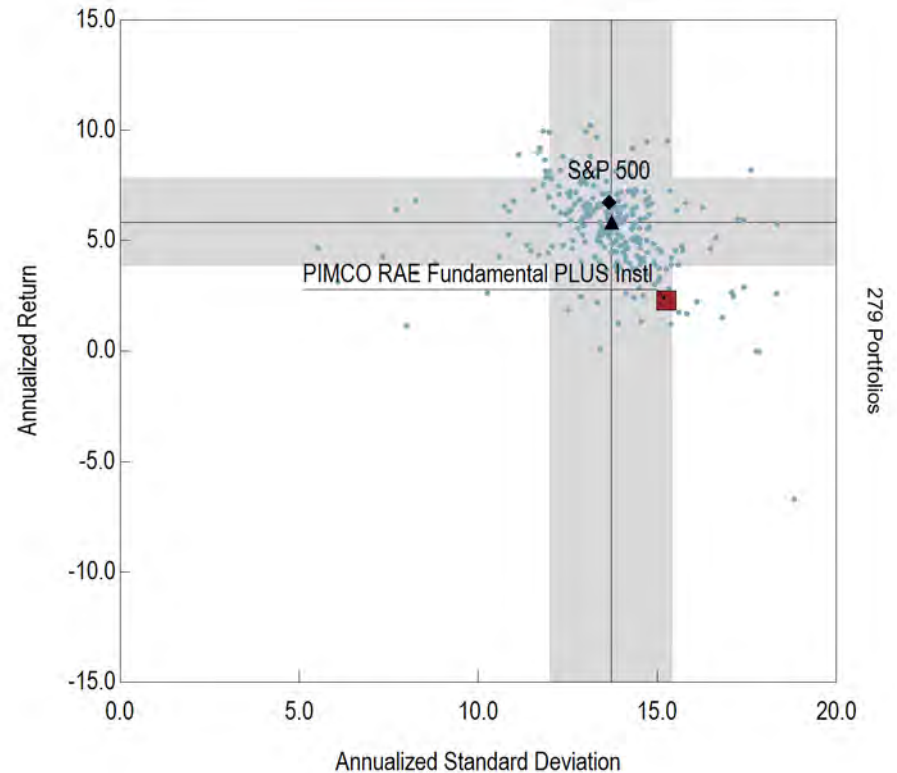
	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	36.1	0.7	28.2	16.3	6.3	17.7	39.6	20.1	7.0	19.7
25th Percentile	32.3	-3.0	24.3	12.5	2.7	15.1	35.5	17.2	3.6	15.8
Median	29.7	-5.1	22.1	10.4	0.6	13.3	32.9	15.4	1.3	14.4
75th Percentile	26.8	-7.1	19.8	8.2	-1.6	11.4	30.8	13.4	-1.5	12.3
95th Percentile	19.2	-11.4	14.4	4.3	-4.1	8.2	25.4	9.8	-5.9	9.1
# of Portfolios	318	316	318	308	267	267	261	254	259	254
● PIMCO RAE Fundamental PLUS Instl	25.5 (83)	-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 (33)	-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 March 31, 2020

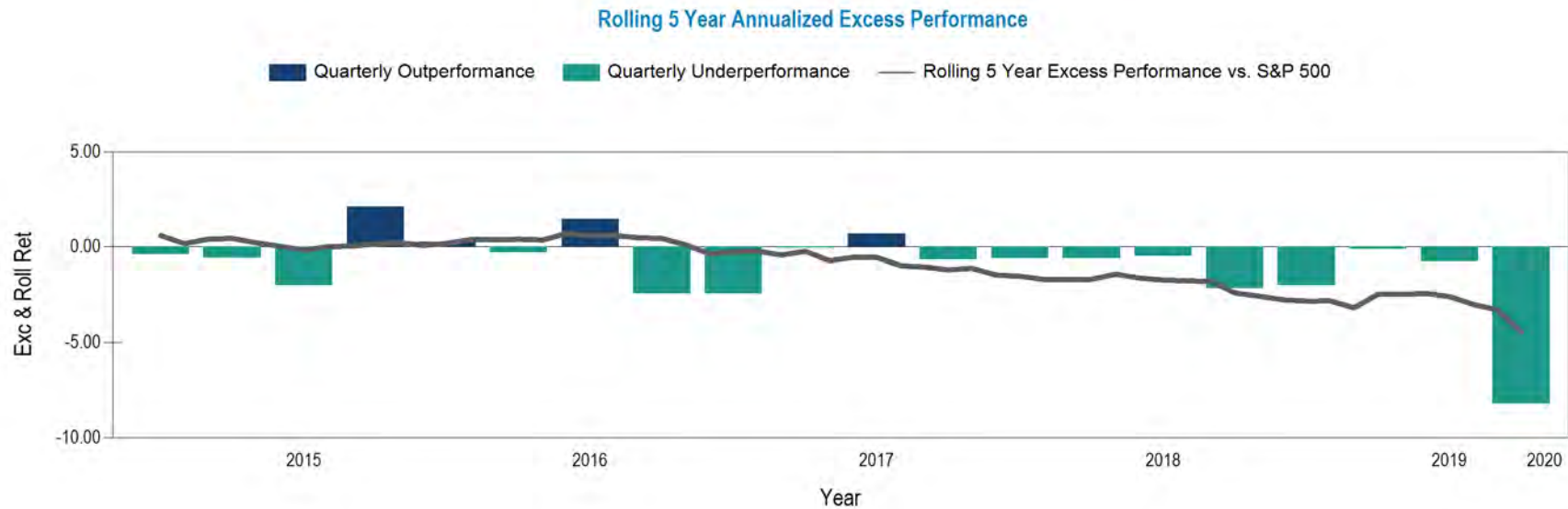
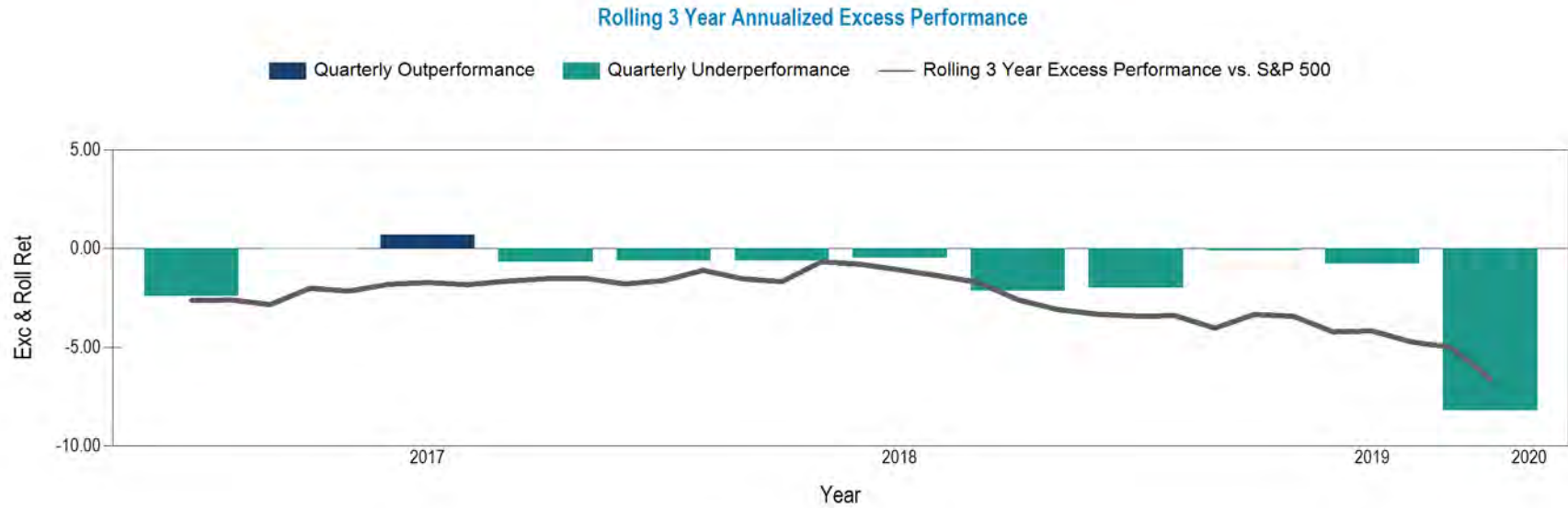


- PIMCO RAE Fundamental PLUS Instl
- ◆ S&P 500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending March 31, 2020

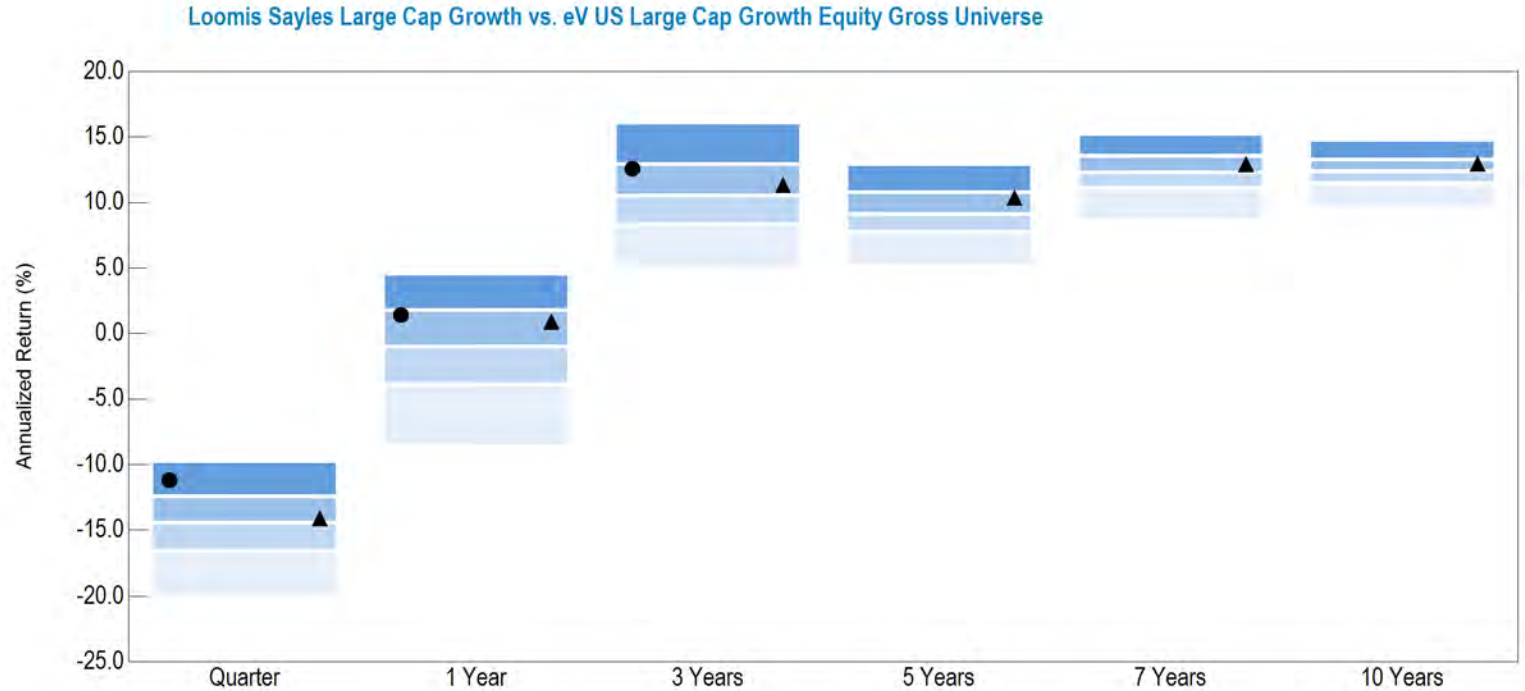


- PIMCO RAE Fundamental PLUS Instl
- ◆ S&P 500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Large Cap Core Equity Gross



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

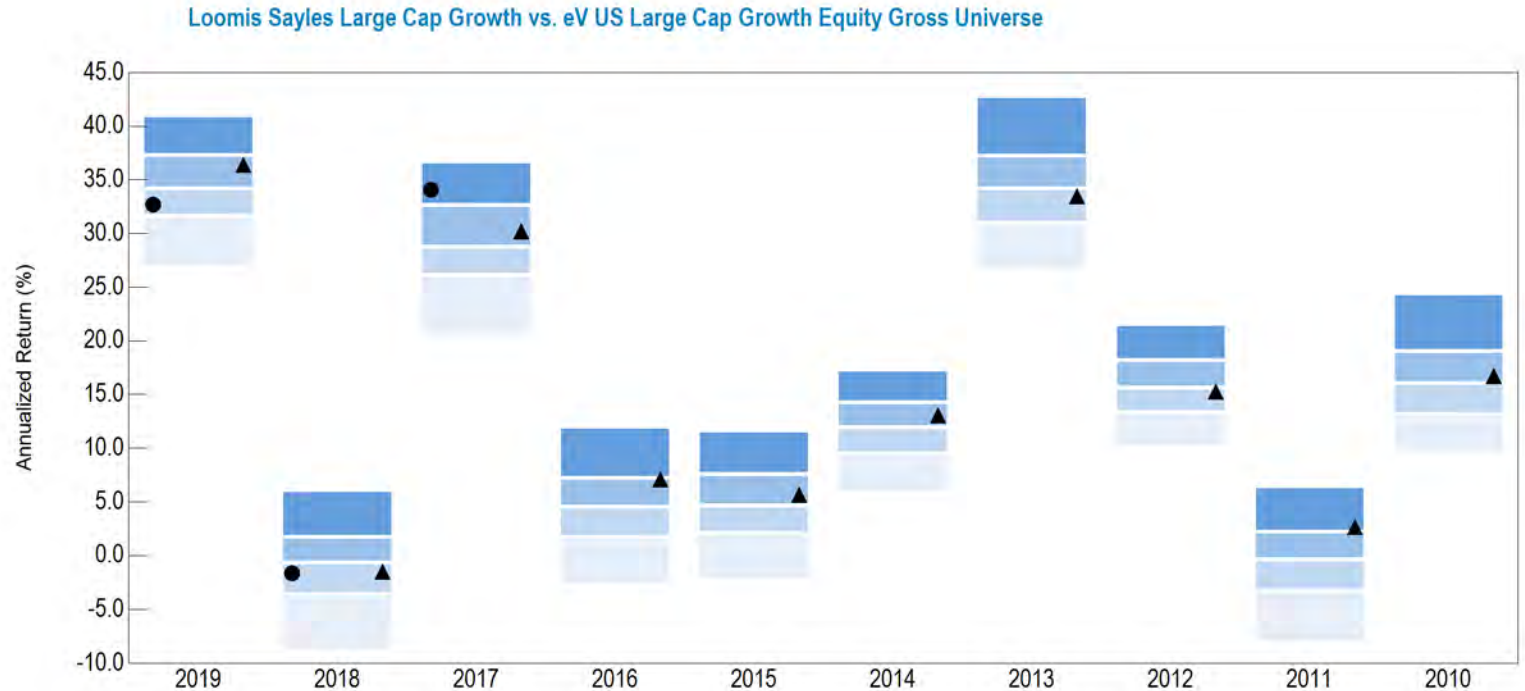
Period Ending: March 31, 2020



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-9.8		4.5		16.1		12.9		15.2		14.8	
25th Percentile	-12.4		1.8		13.0		10.8		13.6		13.3	
Median	-14.4		-1.0		10.5		9.1		12.3		12.4	
75th Percentile	-16.6		-3.9		8.4		7.8		11.1		11.5	
95th Percentile	-20.0		-8.6		4.9		5.1		8.7		9.5	
# of Portfolios	244		244		238		231		225		206	
● Loomis Sayles Large Cap Growth	-11.2	(15)	1.4	(29)	12.6	(29)	--	(--)	--	(--)	--	(--)
▲ Russell 1000 Growth	-14.1	(47)	0.9	(33)	11.3	(41)	10.4	(33)	12.9	(35)	13.0	(34)

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

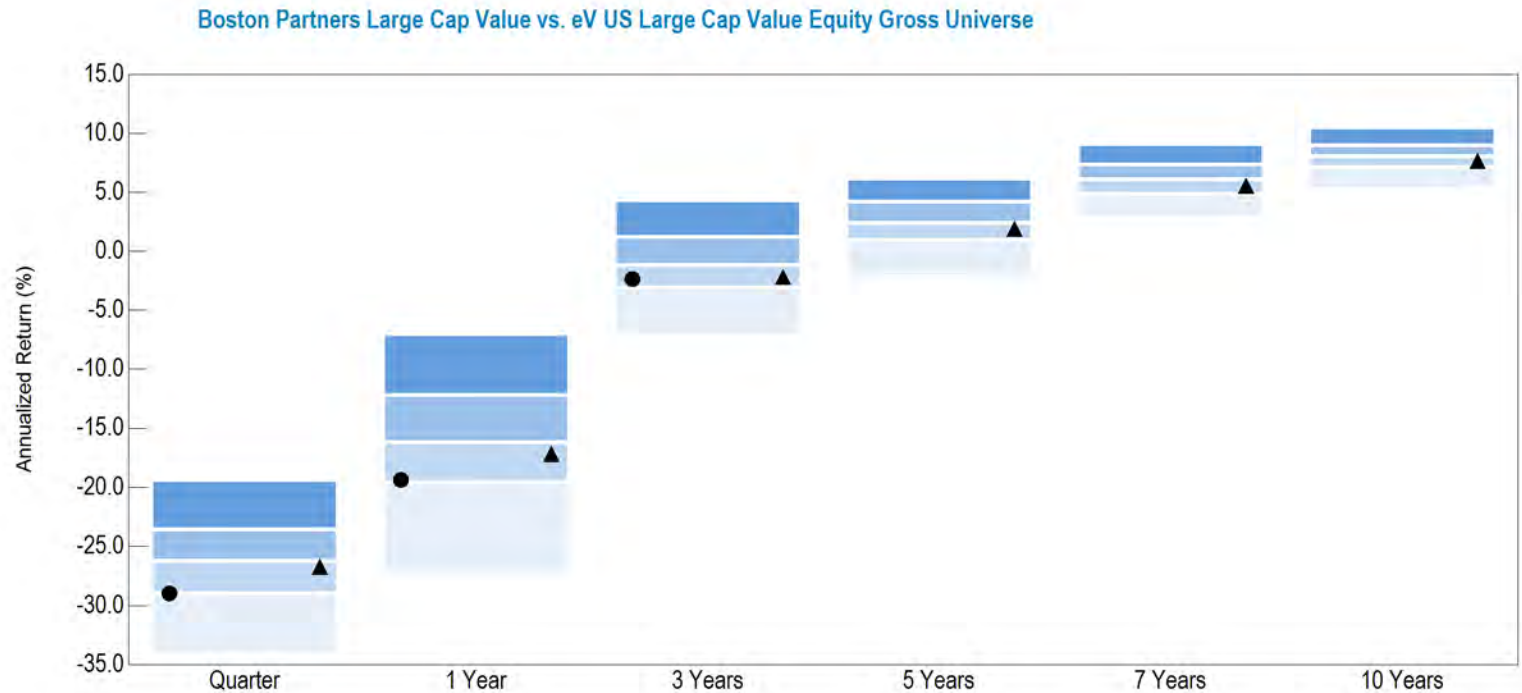
Period Ending: March 31, 2020



	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	31.7	-3.5	26.2	1.8	2.1	9.5	31.0	13.4	-3.2	13.2
95th Percentile	26.9	-8.8	20.5	-2.7	-2.4	5.8	26.6	10.2	-8.0	9.6
# of Portfolios	253	255	265	282	270	291	274	274	294	304
● Loomis Sayles Large Cap Growth	32.7 (68)	-1.7 (58)	34.1 (16)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)	-- (--)
▲ Russell 1000 Growth	36.4 (32)	-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)

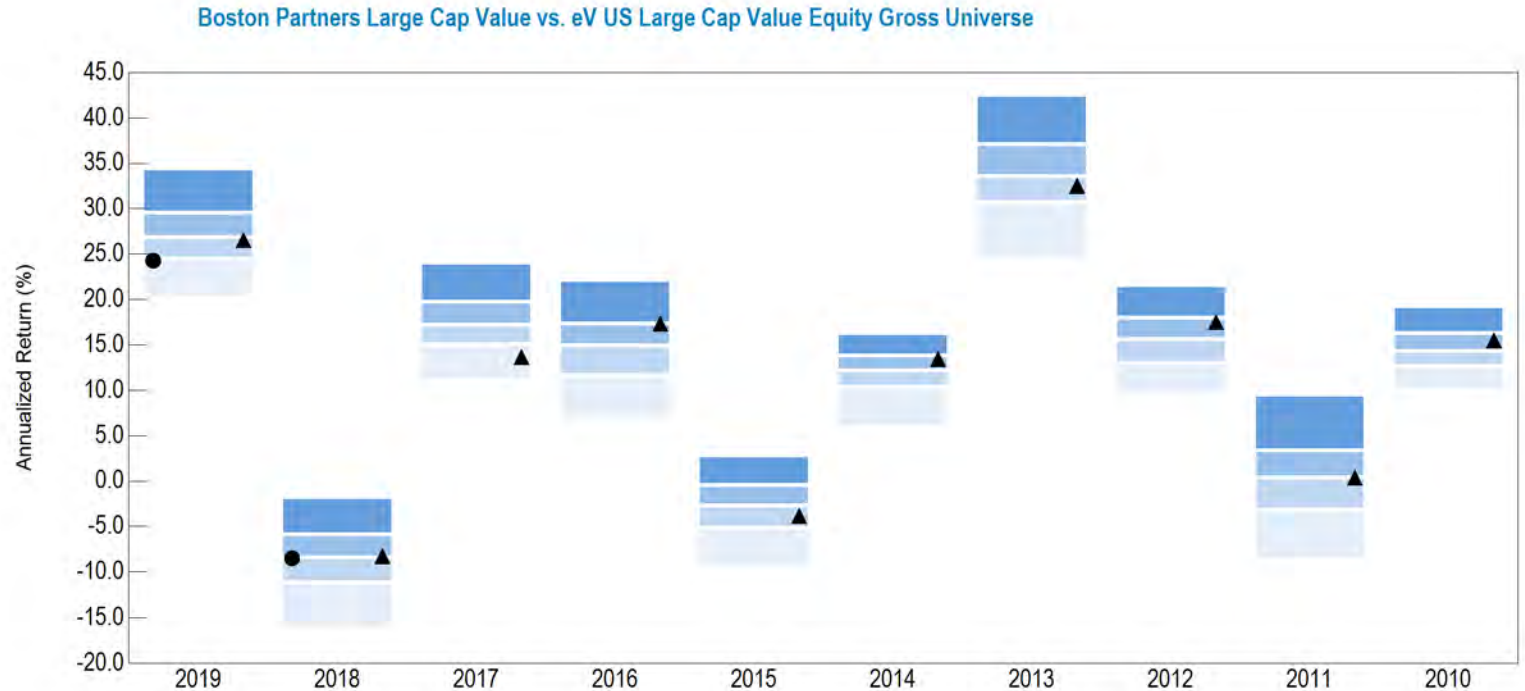
Period Ending: March 31, 2020



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-19.4		-7.1		4.3		6.1		9.1		10.5	
25th Percentile	-23.5		-12.1		1.3		4.2		7.4		9.0	
Median	-26.2		-16.2		-1.1		2.4		6.1		8.1	
75th Percentile	-28.9		-19.5		-3.0		1.0		4.9		7.1	
95th Percentile	-34.0		-27.4		-7.1		-2.1		2.9		5.4	
# of Portfolios	320		320		315		305		296		261	
● Boston Partners Large Cap Value	-29.0	(76)	-19.4	(75)	-2.4	(68)	--	(--)	--	(--)	--	(--)
▲ Russell 1000 Value	-26.7	(57)	-17.2	(59)	-2.2	(65)	1.9	(62)	5.6	(65)	7.7	(63)

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

Period Ending: March 31, 2020

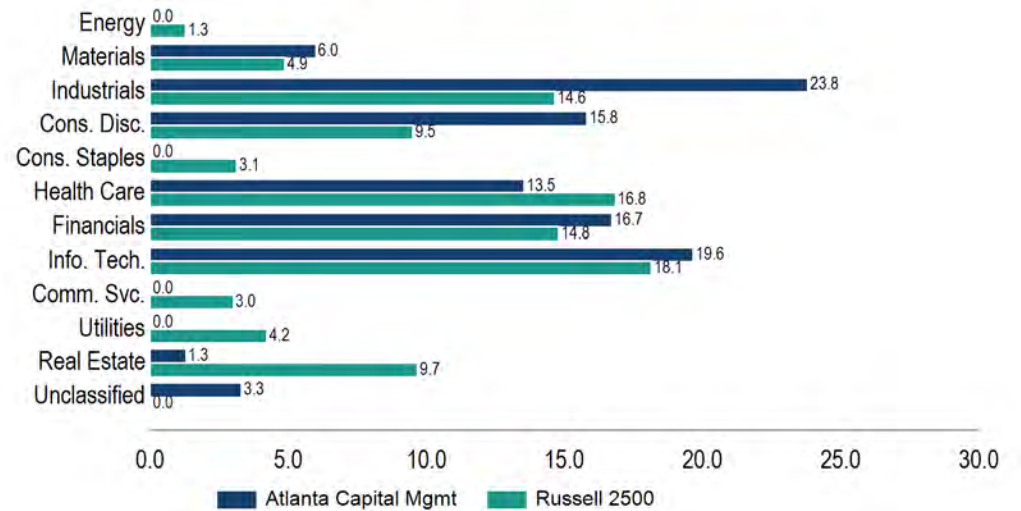


	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Return (Rank)										
5th Percentile	34.4	-1.8	24.0	22.1	2.8	16.3	42.5	21.5	9.5	19.2
25th Percentile	29.6	-5.8	19.8	17.4	-0.4	13.9	37.2	18.0	3.4	16.3
Median	26.9	-8.3	17.2	15.0	-2.6	12.2	33.6	15.7	0.5	14.3
75th Percentile	24.5	-11.1	15.1	11.8	-5.1	10.4	30.8	13.0	-3.1	12.7
95th Percentile	20.3	-16.1	11.2	7.0	-9.4	5.9	24.6	9.6	-8.6	10.1
# of Portfolios	331	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 (54)	-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	59	2,484
Weighted Avg. Market Cap. (\$B)	7.14	4.70
Median Market Cap. (\$B)	6.96	0.74
Price To Earnings	18.10	13.92
Price To Book	2.99	2.68
Price To Sales	2.38	1.76
Return on Equity (%)	23.05	6.58
Yield (%)	1.11	2.18
Beta	0.93	1.00

Sector Allocation (%) vs Russell 2500



*Unclassified includes Cash

Top Holdings
 Ending Period Weight

W R BERKLEY	4.33%
TELEFLEX	4.26%
JPMORGAN FEDERAL MMKT - AGENCY SHR FUND 355 MONTHLY VARIABLE 12312049	3.28%
HUNT JB TRANSPORT SVS.	3.21%
ARAMARK	3.18%
SERVICEMASTER GLB.HDG.	2.97%
TRANSUNION	2.95%
CARLISLE COS.	2.90%
APTARGROUP	2.87%
WEX	2.32%
Total	32.27%

Top Contributors

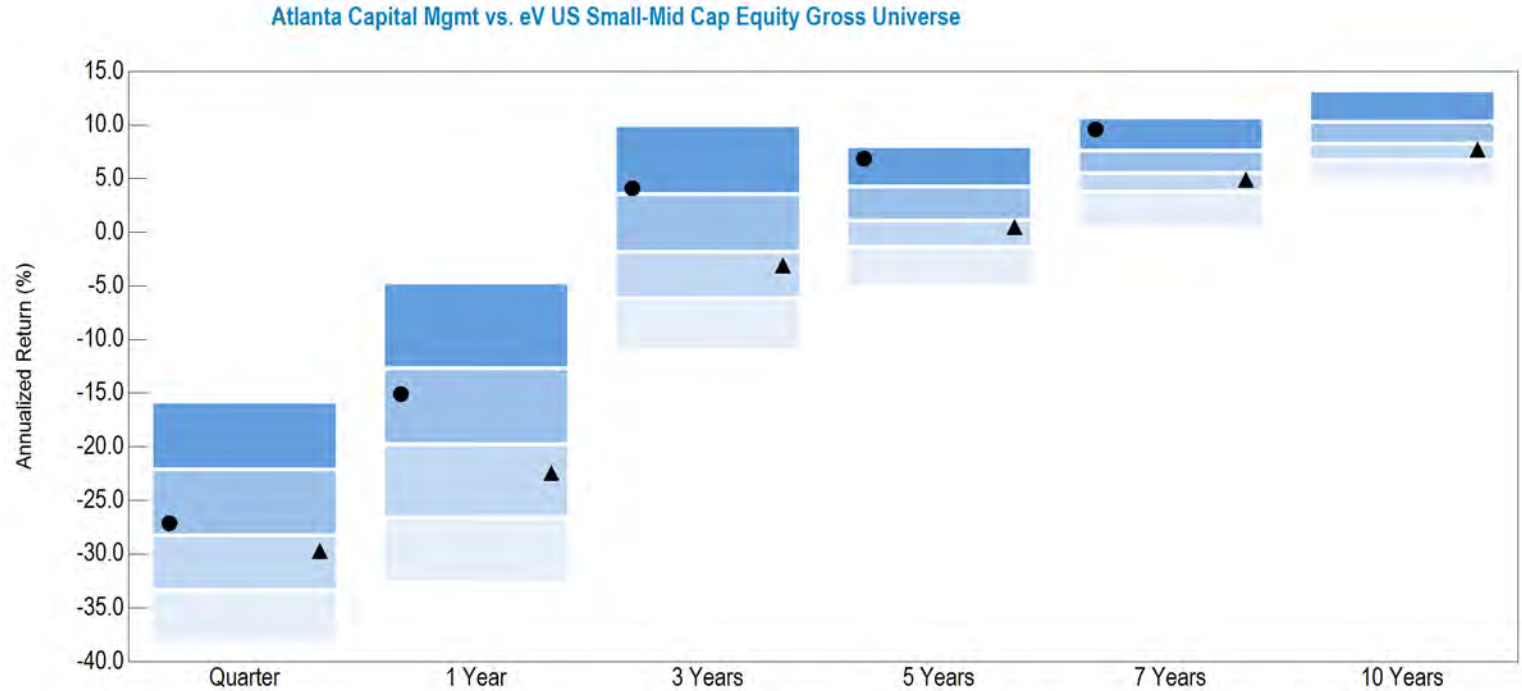
	Avg Wgt	Return	Contribution
JACK HENRY AND ASSOCIATES	1.25	6.87	0.09
FACTSET RESEARCH SYS.	1.00	-2.59	-0.03
GRACO	1.05	-5.98	-0.06
POOL	1.06	-7.10	-0.08
CACI INTERNATIONAL 'A'	0.49	-15.54	-0.08
BIO-RAD LABORATORIES 'A'	1.50	-5.26	-0.08
WESTAMERICA BANCORP.	1.02	-12.70	-0.13
SERVICE CORP.INTL.	1.09	-14.65	-0.16
FAIR ISAAC	1.02	-17.88	-0.18
LANDSTAR SYSTEM	1.46	-14.19	-0.21

Bottom Contributors

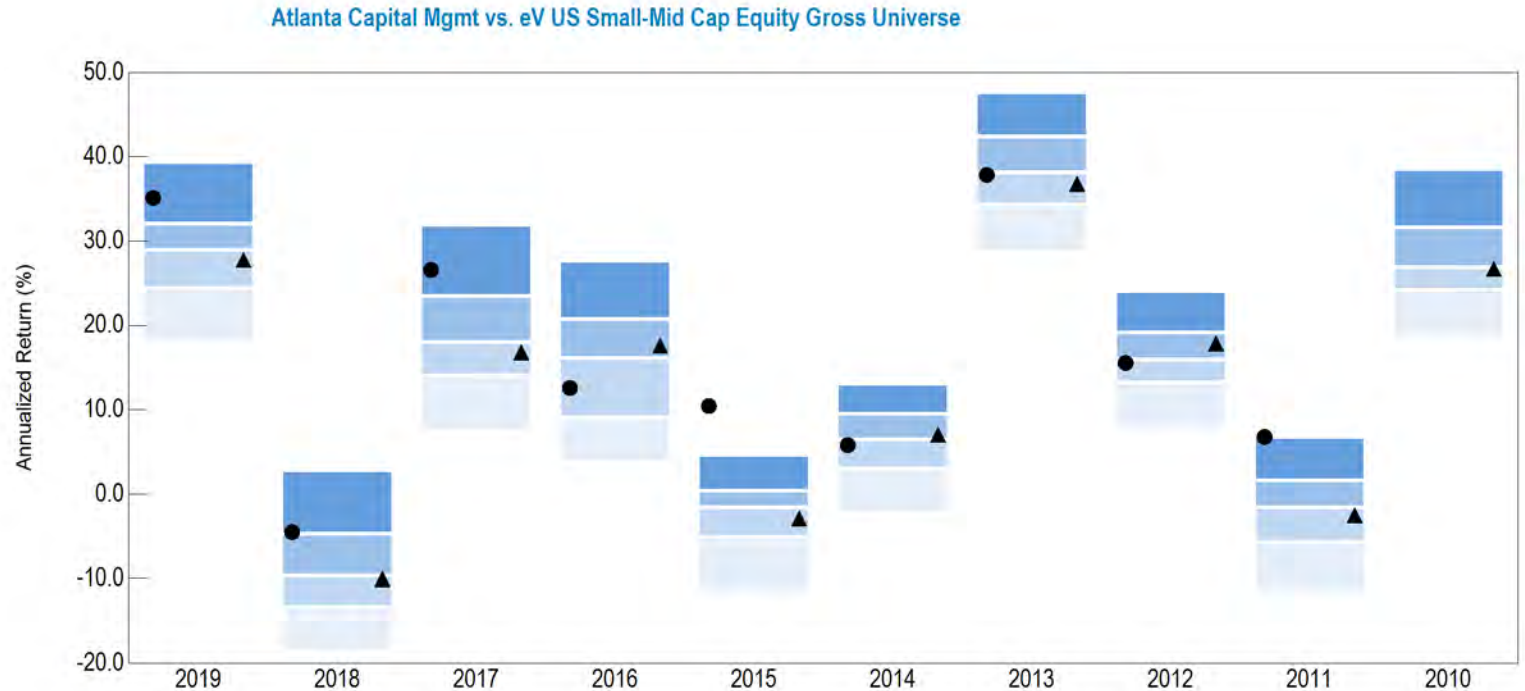
	Avg Wgt	Return	Contribution
ARAMARK	4.69	-53.86	-2.53
WEX	3.10	-50.09	-1.55
W R BERKLEY	4.64	-24.37	-1.13
KIRBY	2.15	-51.45	-1.11
TRANSUNION	4.39	-22.62	-0.99
SERVICEMASTER GLB.HDG.	3.10	-30.16	-0.94
TELEFLEX	4.18	-22.12	-0.93
CDW	2.52	-34.51	-0.87
CHOICE HOTELS INTL.	1.91	-40.78	-0.78
MANHATTAN ASSOCS.	1.96	-37.53	-0.74

Atlanta Capital Mgmt
 Cumulative Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020

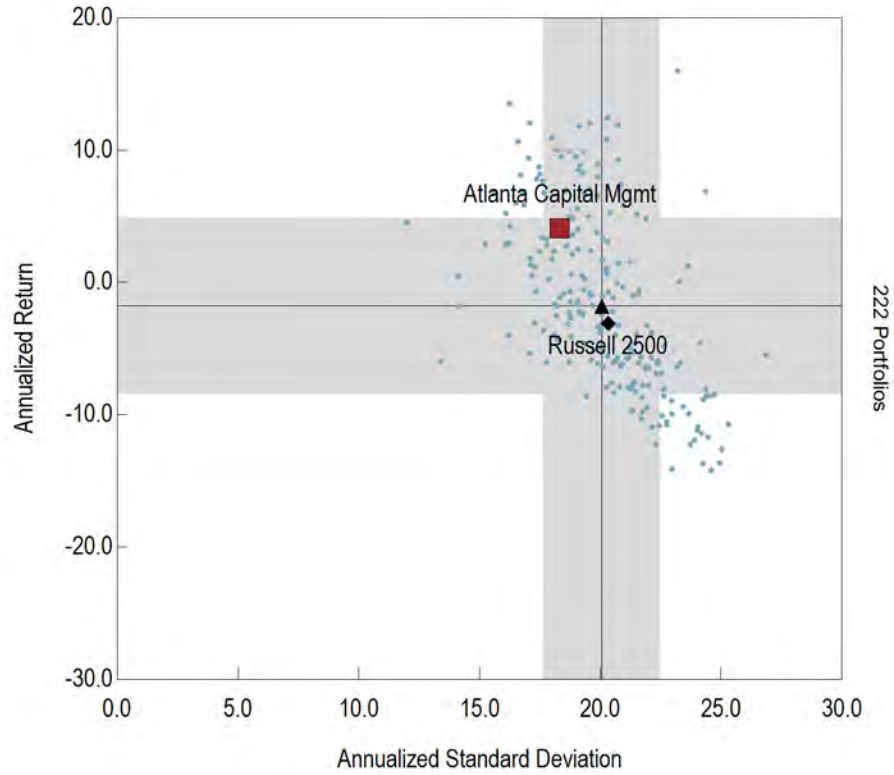


	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-15.8		-4.7		9.9		8.0		10.7		13.2	
25th Percentile	-22.1		-12.7		3.6		4.3		7.7		10.3	
Median	-28.2		-19.7		-1.8		1.1		5.5		8.3	
75th Percentile	-33.2		-26.6		-6.2		-1.3		3.8		6.8	
95th Percentile	-38.2		-32.6		-10.9		-4.9		0.4		4.7	
# of Portfolios	236		235		222		201		180		149	
● Atlanta Capital Mgmt	-27.1	(45)	-15.1	(34)	4.1	(24)	6.9	(12)	9.6	(13)	--	(--)
▲ Russell 2500	-29.7	(56)	-22.5	(60)	-3.1	(55)	0.5	(57)	4.9	(59)	7.7	(57)



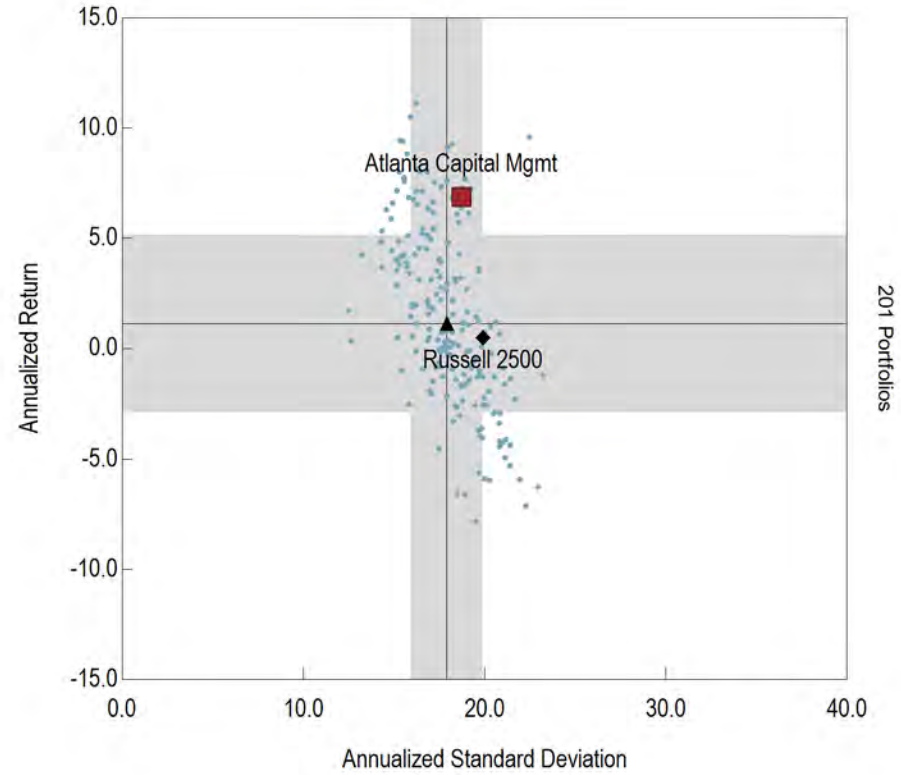
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Return (Rank)										
5th Percentile	39.4	2.8	31.9	27.6	4.6	13.0	47.6	24.1	6.8	38.5
25th Percentile	32.1	-4.6	23.5	20.8	0.4	9.6	42.5	19.2	1.7	31.7
Median	29.0	-9.6	18.1	16.1	-1.5	6.5	38.2	16.0	-1.5	26.9
75th Percentile	24.5	-13.3	14.1	9.2	-5.0	3.1	34.4	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	237	236	233	238	215	210	210	216	211	210
● Atlanta Capital Mgmt	35.1 (14)	-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 (58)	-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 March 31, 2020

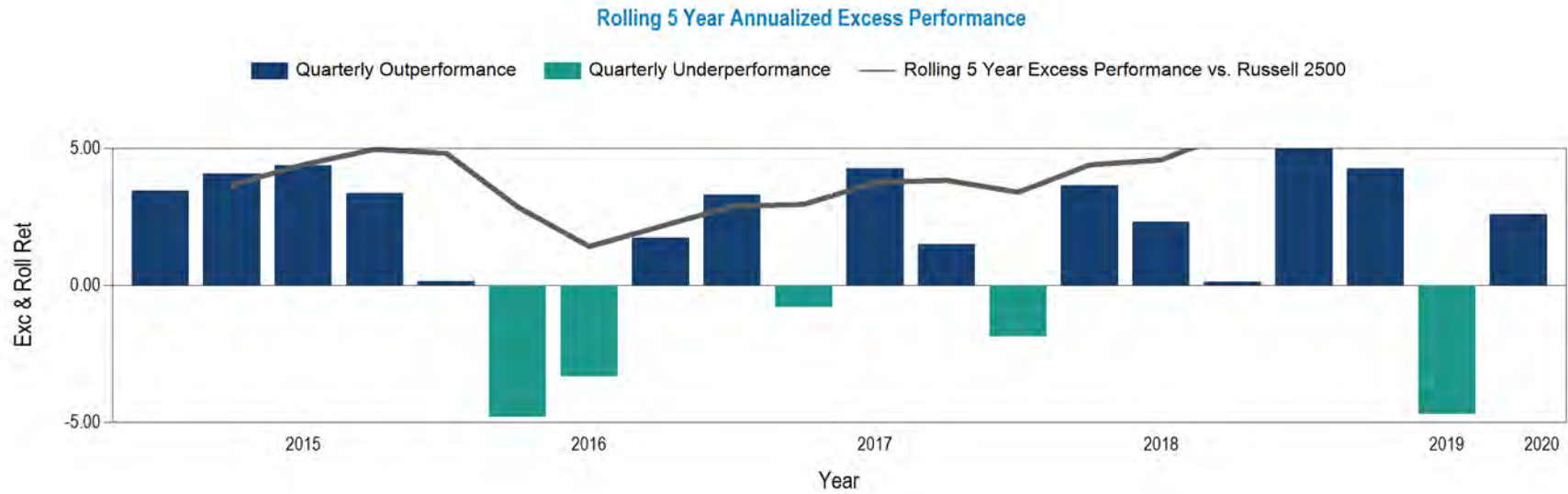
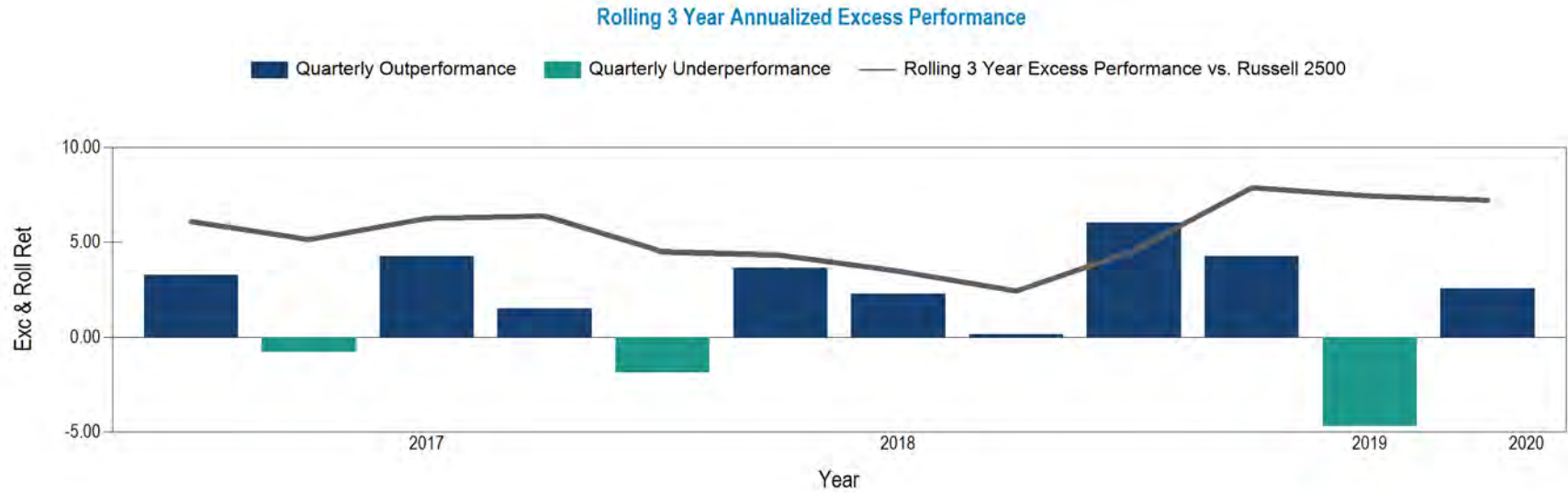


- Atlanta Capital Mgmt
- ◆ Russell 2500
- ▲ Universe Median
- 68% Confidence Interval
- eV US Small-Mid Cap Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending March 31, 2020



- 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: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	240,682,405	-23.0	-10.2	0.8	1.1	5.0	30.2	-12.2	26.6	2.2	-4.3
MSCI ACWI ex USA Gross		-23.3	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3
InvMetrics Public DB ex-US Eq Gross Rank		32	8	9	15	6	1	9	81	82	68
Dodge & Cox Intl Stock	103,270,223	-30.4	-21.8	-6.8	-3.8	2.2	23.6	-17.5	24.7	9.0	-10.8
MSCI EAFE Gross		-22.7	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4
eV All EAFE Equity Gross Rank		92	88	95	98	90	48	73	74	3	99
WCM International Growth	137,412,182	-16.4	0.9	8.3	--	--	36.7	-6.7	--	--	--
MSCI ACWI ex USA Gross		-23.3	-15.1	-1.5	--	--	22.1	-13.8	--	--	--
eV ACWI ex-US All Cap Growth Eq Gross Rank		23	8	14	--	--	11	1	--	--	--

EAFE Effective Style Map
3 Years Ending March 31, 2020



EAFE Effective Style Map
5 Years Ending March 31, 2020



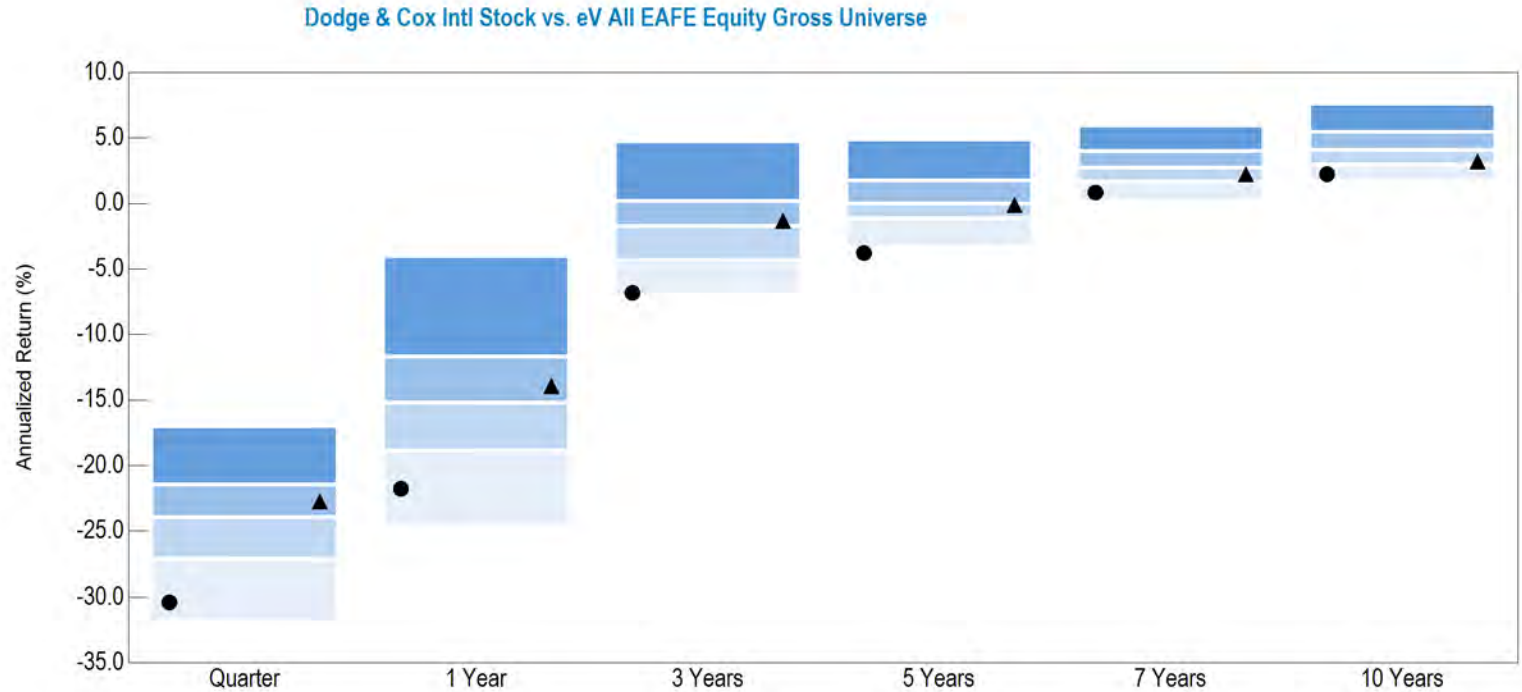
Total International Equity
 Asset Class Overview (Net of Fees)

Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total International Equity	240,682,405	-23.1	-10.8	0.1	0.4	4.3	29.3	-12.8	25.8	1.6	-4.9
<i>MSCI ACWI ex USA Gross</i>		-23.3	-15.1	-1.5	-0.2	2.5	22.1	-13.8	27.8	5.0	-5.3
Dodge & Cox Intl Stock	103,270,223	-30.5	-22.3	-7.4	-4.4	1.6	22.8	-18.0	23.9	8.3	-11.4
<i>MSCI EAFE Gross</i>		-22.7	-13.9	-1.3	-0.1	3.2	22.7	-13.4	25.6	1.5	-0.4
WCM International Growth	137,412,182	-16.6	0.2	7.6	--	--	35.8	-7.4	--	--	--
<i>MSCI ACWI ex USA Gross</i>		-23.3	-15.1	-1.5	--	--	22.1	-13.8	--	--	--

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

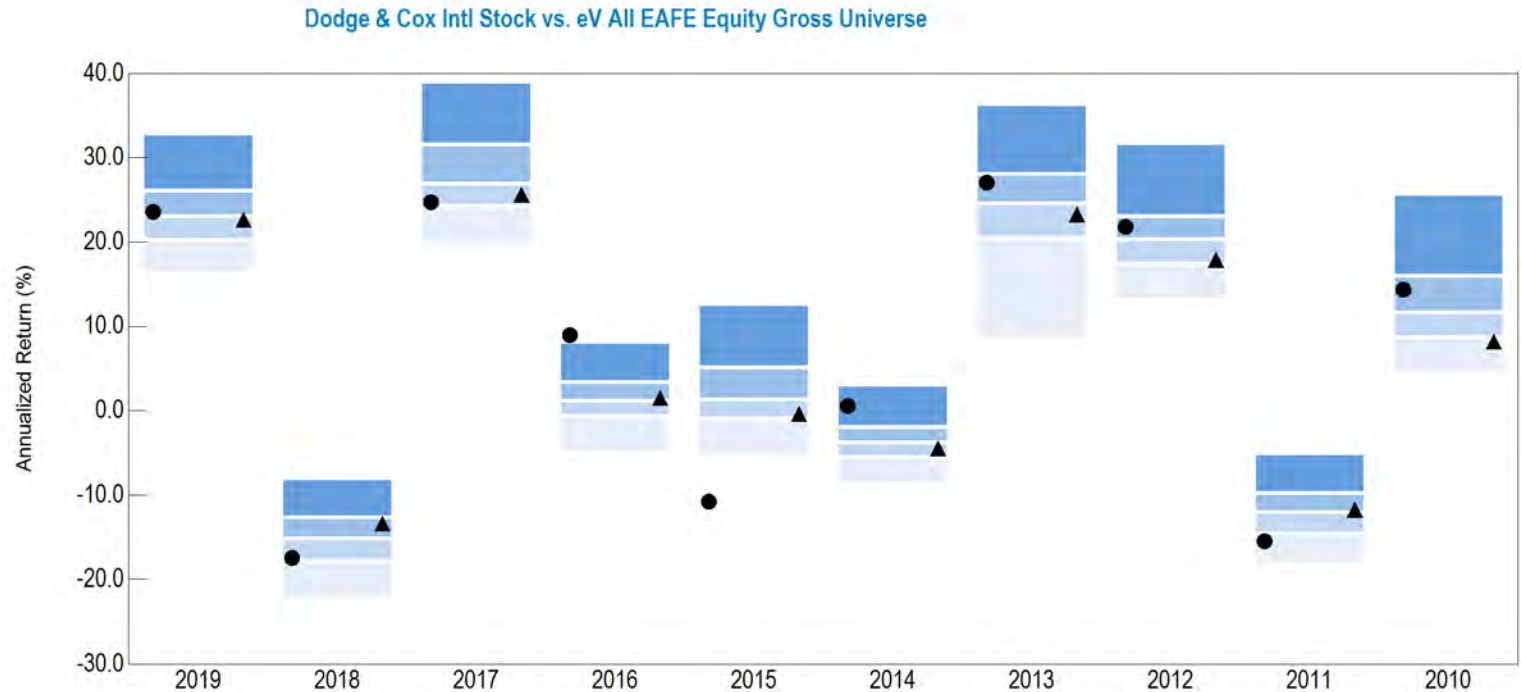
Period Ending: March 31, 2020



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-17.0		-4.0		4.7		4.9		6.0		7.6	
25th Percentile	-21.4		-11.7		0.2		1.8		4.0		5.5	
Median	-23.9		-15.2		-1.7		0.0		2.8		4.1	
75th Percentile	-27.1		-18.8		-4.3		-1.1		1.7		3.0	
95th Percentile	-31.7		-24.6		-7.1		-3.3		0.2		1.7	
# of Portfolios	393		392		373		331		290		257	
● Dodge & Cox Intl Stock	-30.4	(92)	-21.8	(88)	-6.8	(95)	-3.8	(98)	0.8	(91)	2.2	(90)
▲ MSCI EAFE Gross	-22.7	(37)	-13.9	(37)	-1.3	(42)	-0.1	(53)	2.2	(62)	3.2	(70)

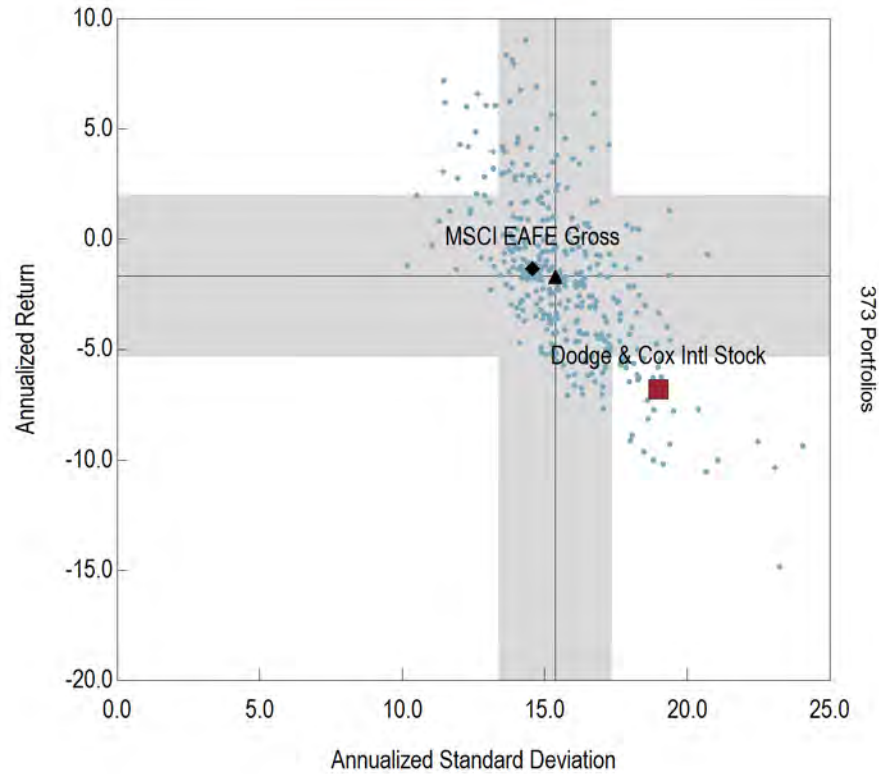
Dodge & Cox Intl Stock
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020



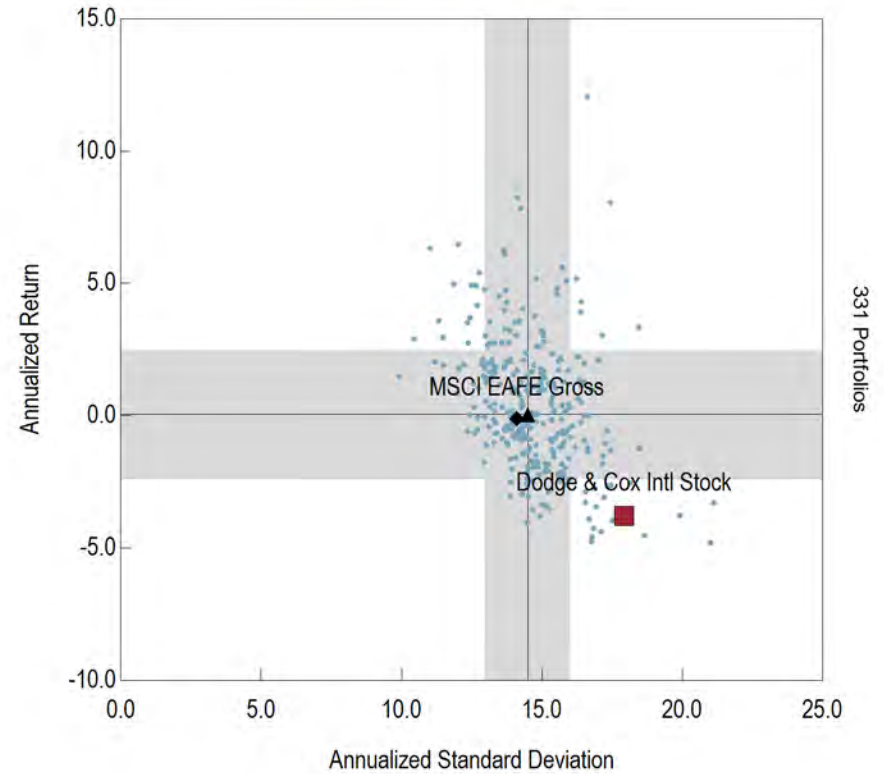
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Return (Rank)										
5th Percentile	32.9	-8.0	39.0	8.1	12.6	3.0	36.3	31.7	-5.1	25.7
25th Percentile	26.1	-12.6	31.6	3.4	5.2	-1.9	28.1	23.1	-9.7	16.1
Median	23.2	-15.1	27.0	1.3	1.4	-3.7	24.6	20.4	-12.0	11.7
75th Percentile	20.3	-17.8	24.3	-0.6	-0.9	-5.4	20.5	17.5	-14.5	8.7
95th Percentile	16.4	-22.2	19.7	-4.9	-5.4	-8.6	8.6	13.3	-18.2	4.6
# of Portfolios	397	391	370	350	325	314	284	263	278	352
● Dodge & Cox Intl Stock	23.6 (48)	-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 March 31, 2020

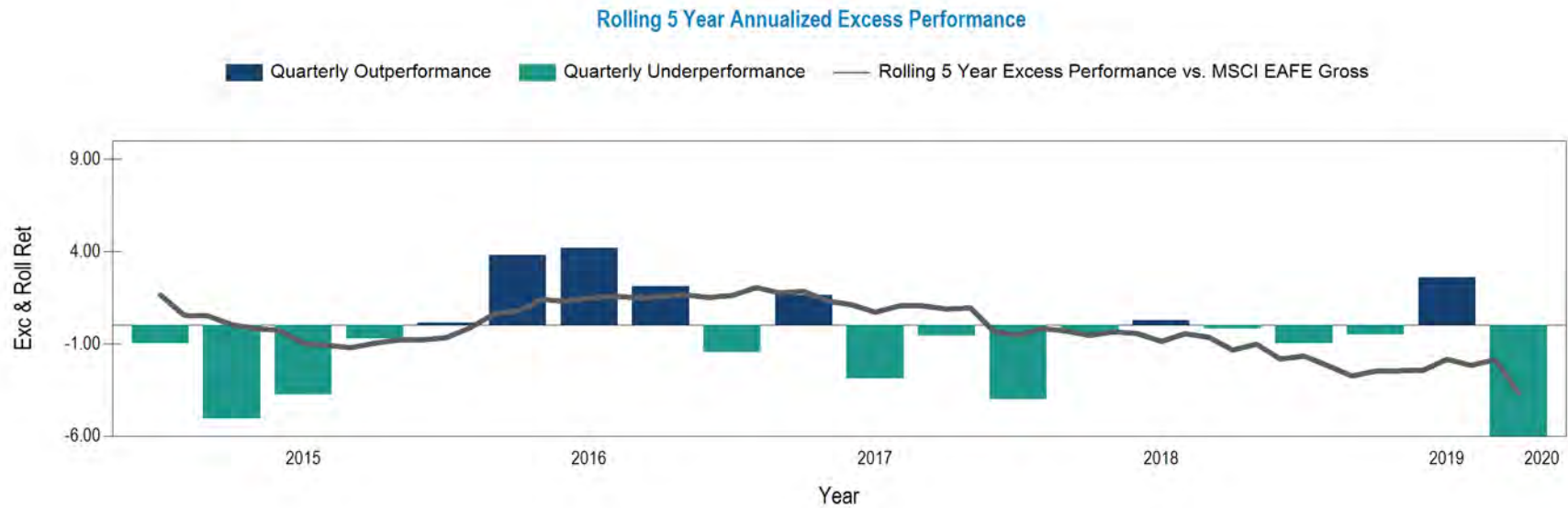
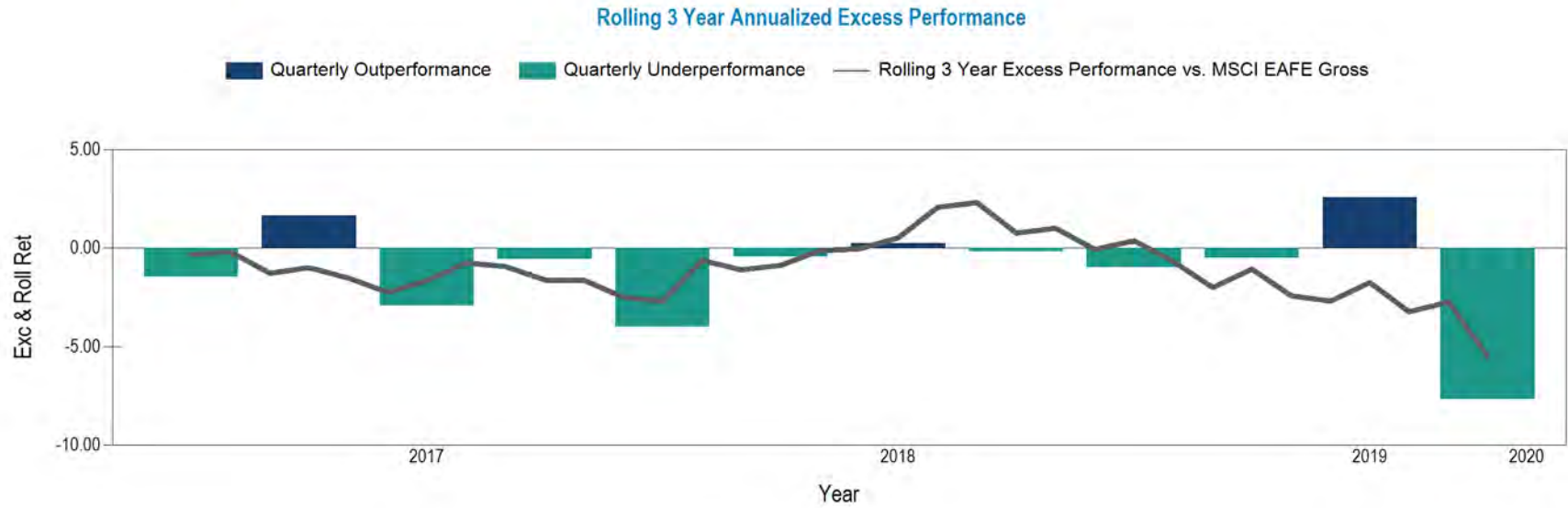


- Dodge & Cox Intl Stock
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending March 31, 2020

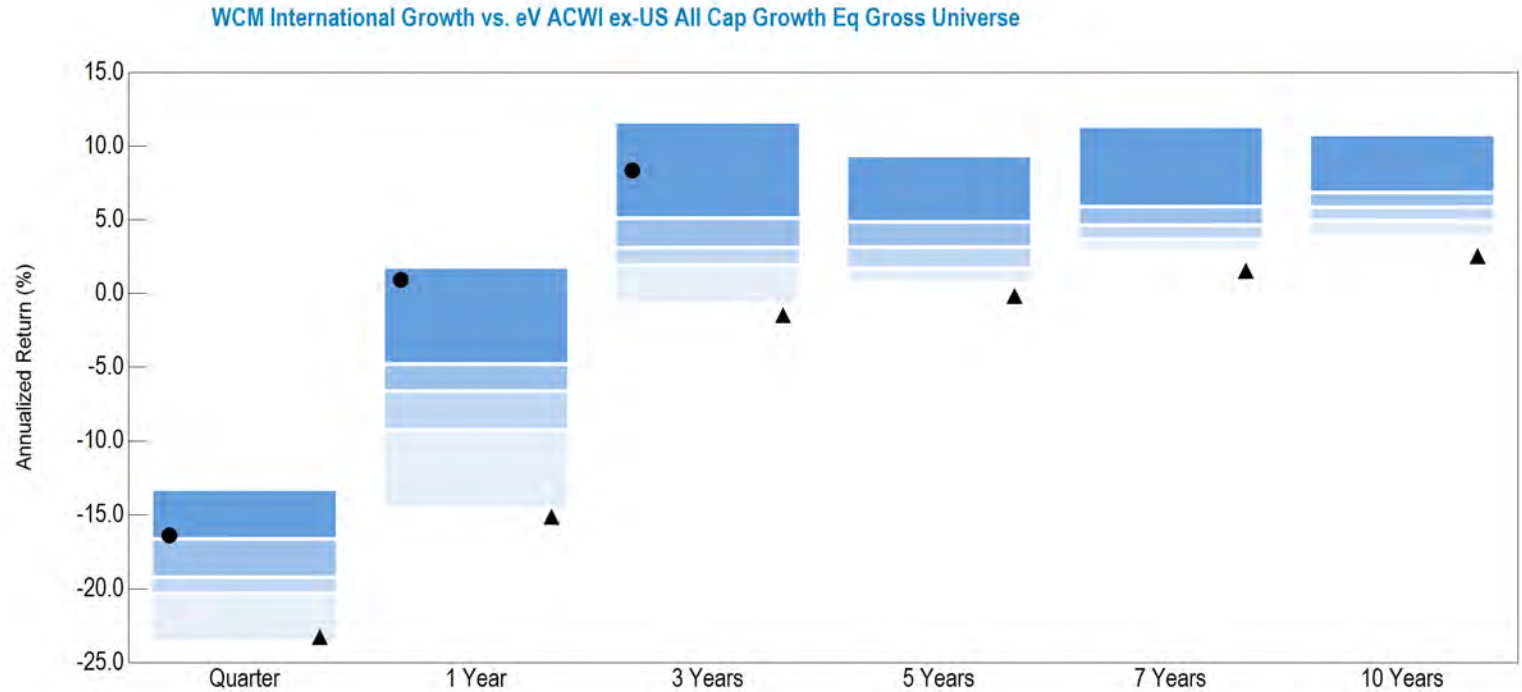


- Dodge & Cox Intl Stock
- ◆ MSCI EAFE Gross
- ▲ Universe Median
- 68% Confidence Interval
- eV All EAFE Equity Gross



WCM International Growth
Cumulative Performance Comparison (Gross of Fees)

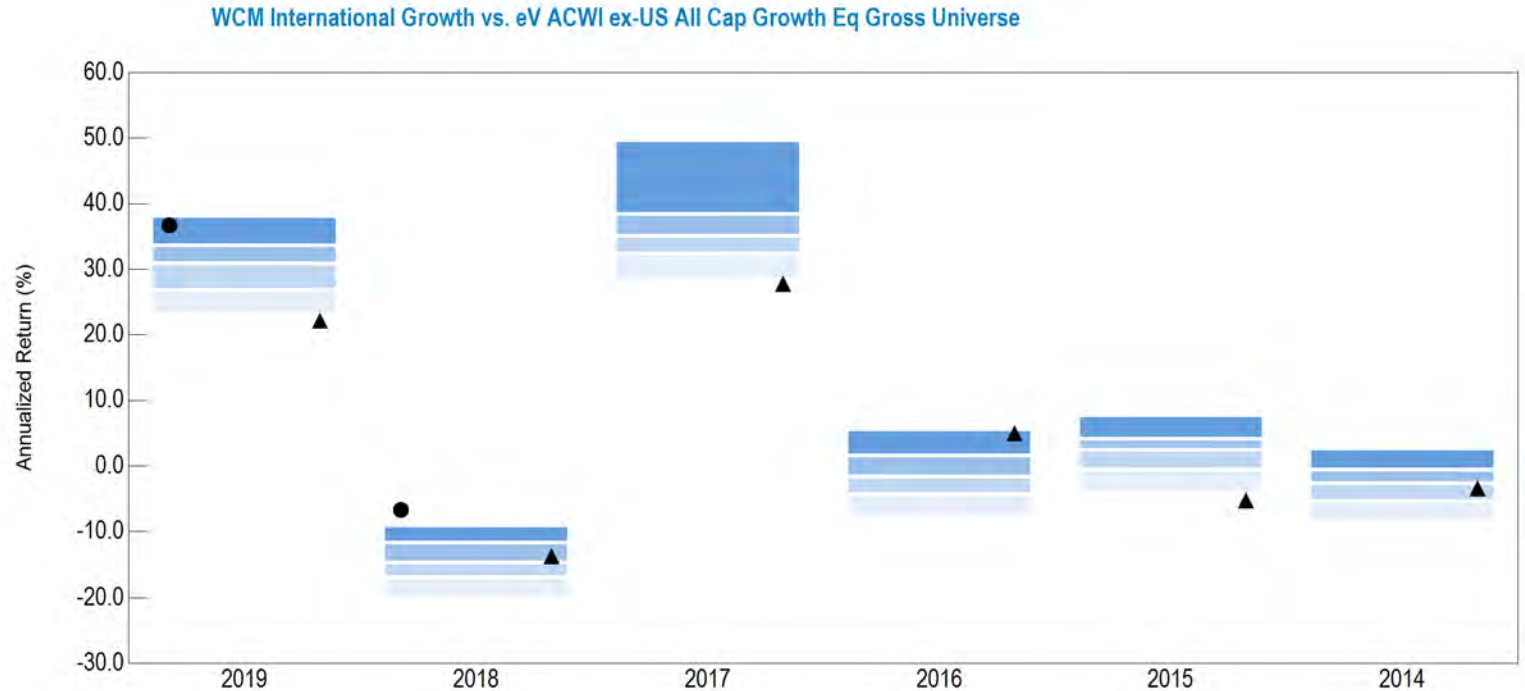
Period Ending: March 31, 2020



	Return (Rank)											
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-13.3	1.8	11.6	9.3	11.3	10.8						
25th Percentile	-16.6	-4.8	5.1	4.9	5.9	6.9						
Median	-19.2	-6.6	3.1	3.2	4.7	5.9						
75th Percentile	-20.3	-9.2	2.0	1.8	3.7	5.0						
95th Percentile	-23.5	-14.6	-0.7	0.7	3.0	3.9						
# of Portfolios	37	37	35	32	30	27						
● WCM International Growth	-16.4	(23)	0.9	(8)	8.3	(14)	--	(--)	--	(--)	--	(--)
▲ MSCI ACWI ex USA Gross	-23.3	(95)	-15.1	(98)	-1.5	(97)	-0.2	(98)	1.5	(99)	2.5	(99)

WCM International Growth
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020



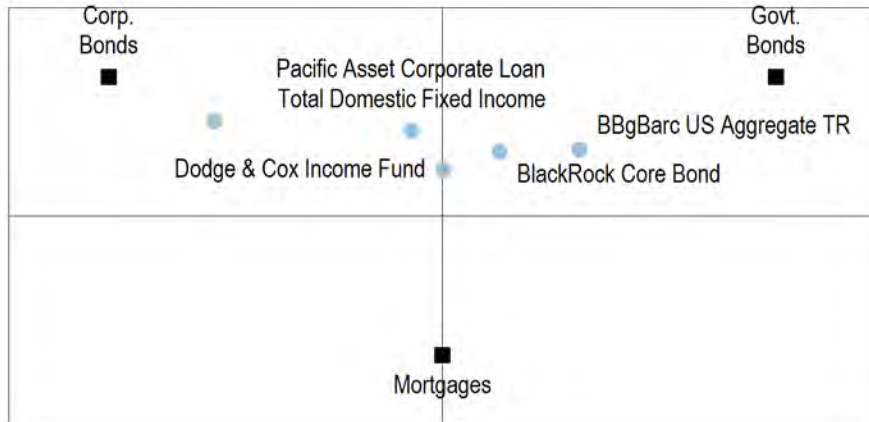
	2019		2018		2017		2016		2015		2014	
5th Percentile	38.1		-9.1		49.7		5.5		7.7		2.6	
25th Percentile	33.7		-11.6		38.5		1.7		4.2		-0.5	
Median	31.0		-14.6		35.2		-1.6		2.5		-2.5	
75th Percentile	26.9		-16.9		32.4		-4.2		-0.5		-5.2	
95th Percentile	23.3		-19.8		28.5		-7.7		-3.9		-8.4	
# of Portfolios	35		28		29		28		25		23	
● WCM International Growth	36.7	(11)	-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)

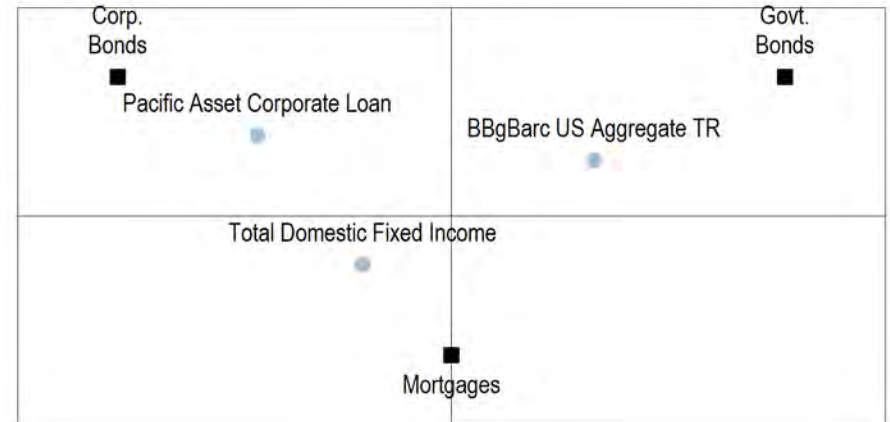
Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Fixed Income	267,755,346	-2.4	3.3	3.5	3.1	4.1	9.9	0.4	4.3	4.5	1.1
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
<i>InvMetrics Public DB US Fix Inc Gross Rank</i>		86	77	65	27	25	11	55	50	49	17
BlackRock Core Bond	103,766,873	0.6	6.8	4.4	--	--	10.2	0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
<i>eV US Core Fixed Inc Gross Rank</i>		79	76	76	--	--	10	27	--	--	--
Dodge & Cox Income Fund	100,271,640	-0.6	5.5	4.3	--	--	10.2	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
<i>eV US Core Fixed Inc Gross Rank</i>		90	90	80	--	--	11	43	--	--	--
Pacific Asset Corporate Loan	63,716,833	-9.4	-4.8	1.1	2.8	--	9.1	1.0	4.9	9.2	2.5
<i>S&P/LSTA Leveraged Loan Index</i>		-13.0	-9.2	-0.8	1.1	--	8.6	0.4	4.1	10.2	-0.7
<i>eV US Float-Rate Bank Loan Fixed Inc Gross Rank</i>		11	14	10	4	--	36	29	26	51	9

Fixed Income Effective Style Map
3 Years Ending March 31, 2020



Fixed Income Effective Style Map
5 Years Ending March 31, 2020



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

Period Ending: March 31, 2020

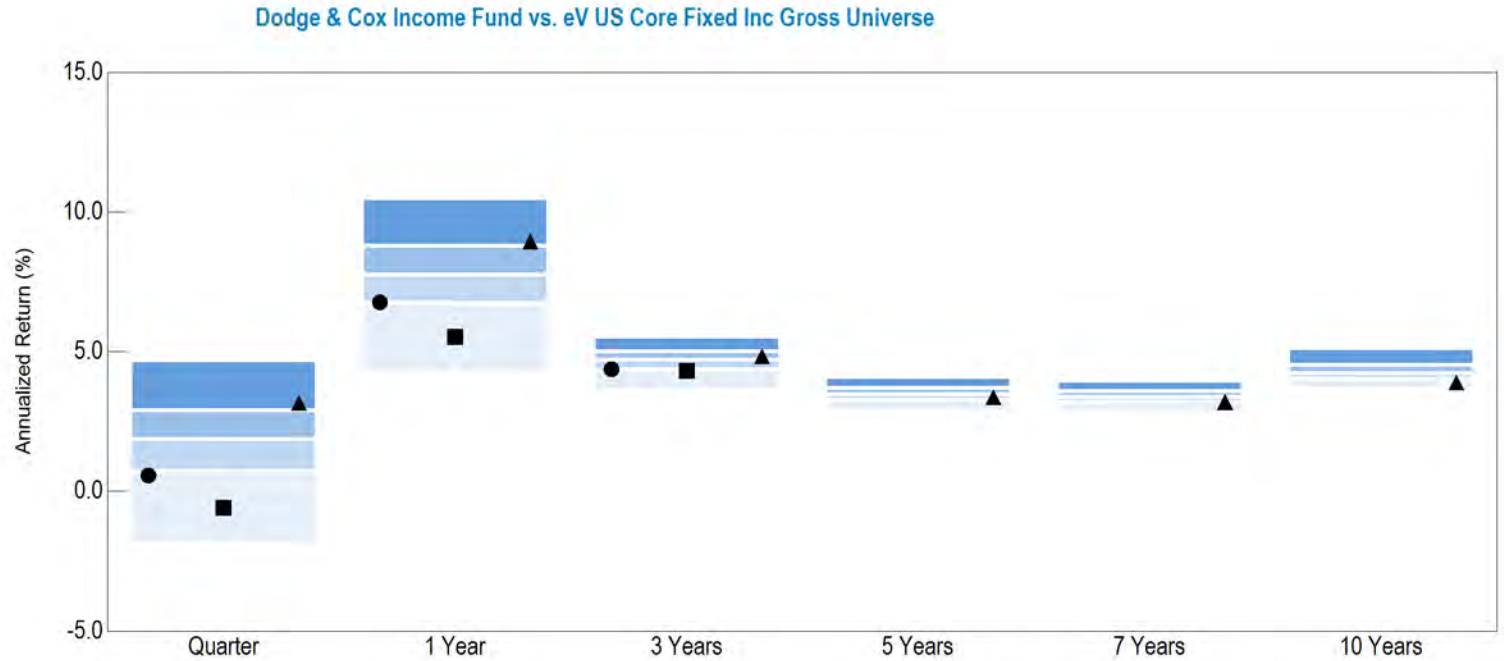
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Domestic Fixed Income	267,755,346	-2.5	3.0	3.1	2.8	3.8	9.5	0.0	3.9	4.2	0.9
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	3.4	3.9	8.7	0.0	3.5	2.6	0.6
BlackRock Core Bond	103,766,873	0.5	6.5	4.1	--	--	9.9	0.1	--	--	--
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
Dodge & Cox Income Fund	100,271,640	-0.7	5.1	3.9	--	--	9.7	-0.3	--	--	--
<i>BBgBarc US Aggregate TR</i>		3.1	8.9	4.8	--	--	8.7	0.0	--	--	--
Pacific Asset Corporate Loan	63,716,833	-9.5	-5.2	0.8	2.5	--	8.7	0.7	4.6	8.8	2.1
<i>S&P/LSTA Leveraged Loan Index</i>		-13.0	-9.2	-0.8	1.1	--	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	0.76	1.00	--	--	--
Dodge & Cox Income Fund	0.98	0.87	1.00	--	--
Pacific Asset Corporate Loan	0.94	0.50	0.86	1.00	--
BBgBarc US Aggregate TR	-0.13	0.54	0.06	-0.46	1.00

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

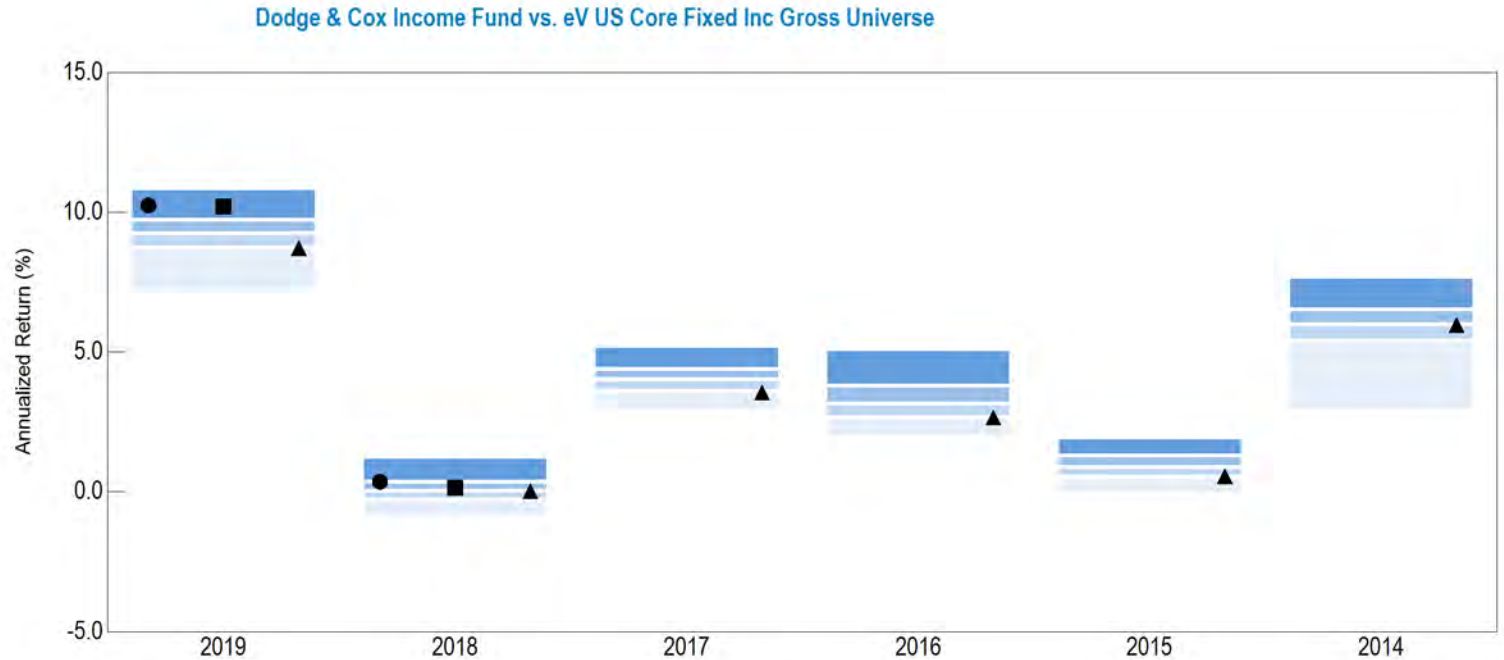
Period Ending: March 31, 2020



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	4.7		10.5		5.5		4.1		3.9		5.1	
25th Percentile	2.9		8.8		5.0		3.7		3.6		4.5	
Median	1.9		7.8		4.7		3.5		3.4		4.2	
75th Percentile	0.7		6.8		4.4		3.3		3.2		4.0	
95th Percentile	-1.8		4.3		3.6		2.9		2.8		3.7	
# of Portfolios	214		214		212		208		206		196	
● BlackRock Core Bond	0.6	(79)	6.8	(76)	4.4	(76)	--	(--)	--	(--)	--	(--)
■ Dodge & Cox Income Fund	-0.6	(90)	5.5	(90)	4.3	(80)	--	(--)	--	(--)	--	(--)
▲ BBgBarc US Aggregate TR	3.1	(21)	8.9	(21)	4.8	(41)	3.4	(66)	3.2	(77)	3.9	(89)

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

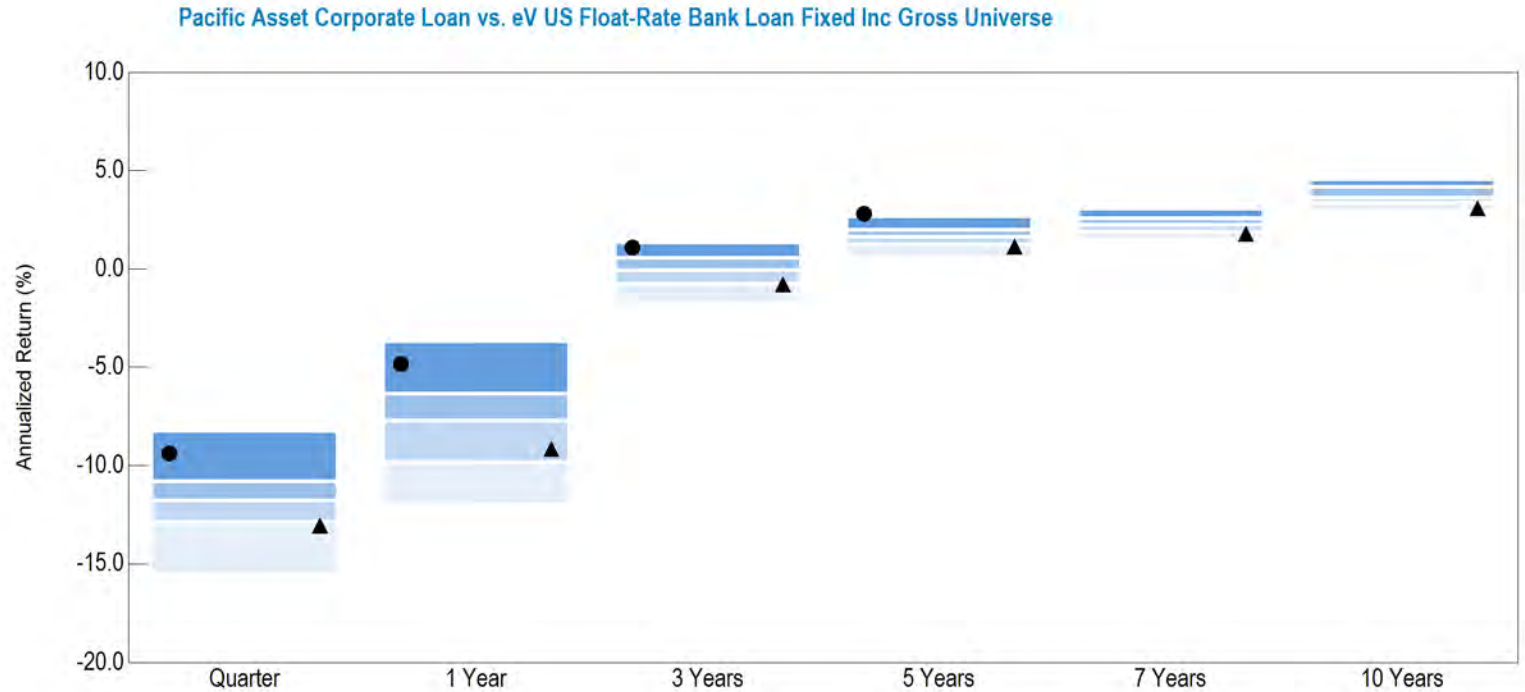
Period Ending: March 31, 2020



	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	9.3		0.0		4.0		3.2		0.9		6.0	
75th Percentile	8.7		-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	228		240		233		223		196		213	
● BlackRock Core Bond	10.2	(10)	0.3	(27)	--	(--)	--	(--)	--	(--)	--	(--)
■ Dodge & Cox Income Fund	10.2	(11)	0.1	(43)	--	(--)	--	(--)	--	(--)	--	(--)
▲ BBgBarc US Aggregate TR	8.7	(77)	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)

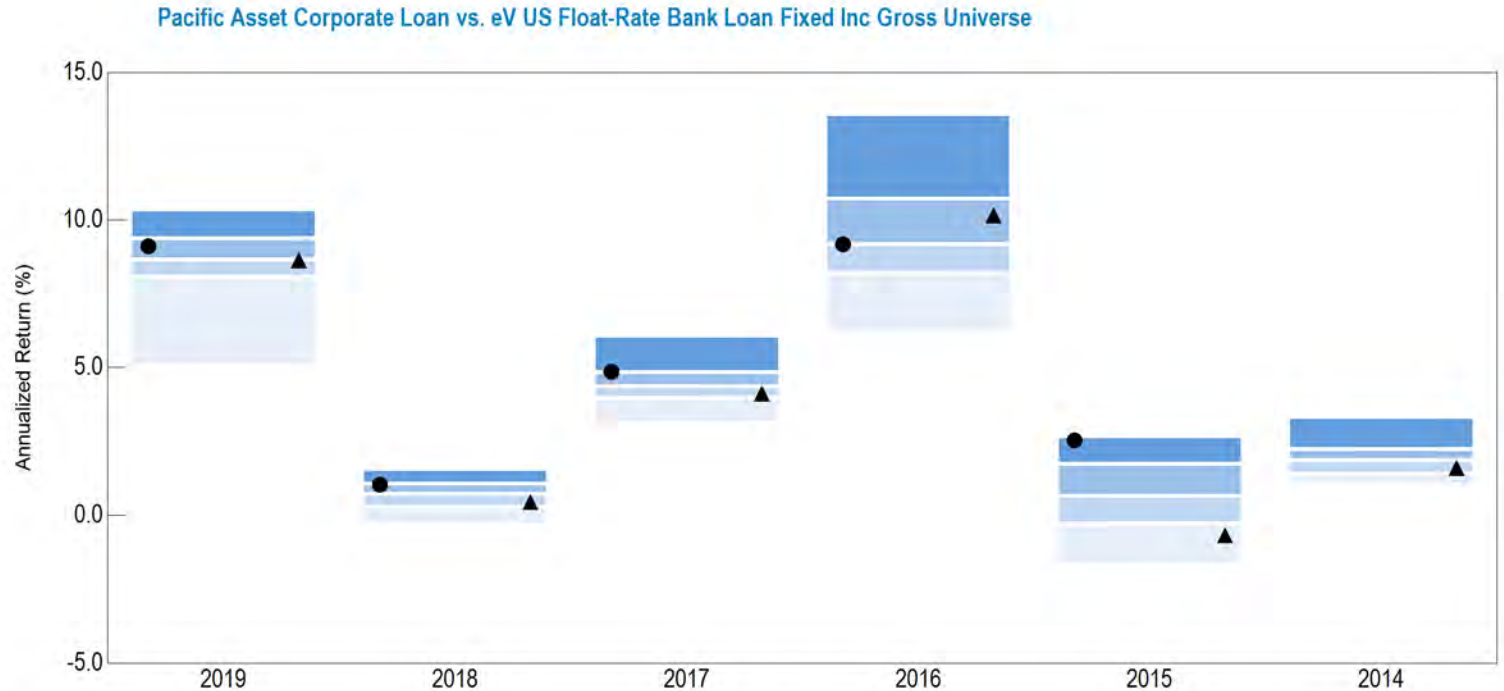
Period Ending: March 31, 2020



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-8.3		-3.7		1.3		2.7		3.0		4.6	
25th Percentile	-10.8		-6.3		0.6		2.0		2.6		4.2	
Median	-11.8		-7.7		0.0		1.7		2.3		3.6	
75th Percentile	-12.8		-9.8		-0.7		1.3		1.9		3.4	
95th Percentile	-15.5		-11.9		-1.8		0.6		1.5		3.0	
# of Portfolios	73		73		71		69		62		51	
● Pacific Asset Corporate Loan	-9.4	(11)	-4.8	(14)	1.1	(10)	2.8	(4)	--	(--)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	-13.0	(78)	-9.2	(70)	-0.8	(78)	1.1	(80)	1.8	(86)	3.1	(93)

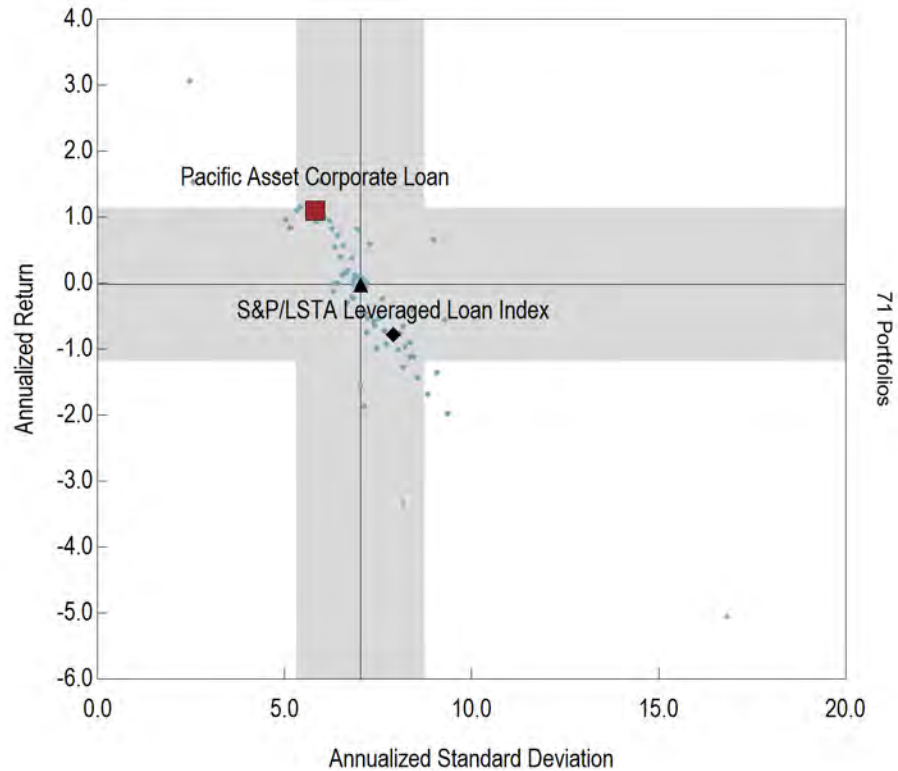
Pacific Asset Corporate Loan
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020



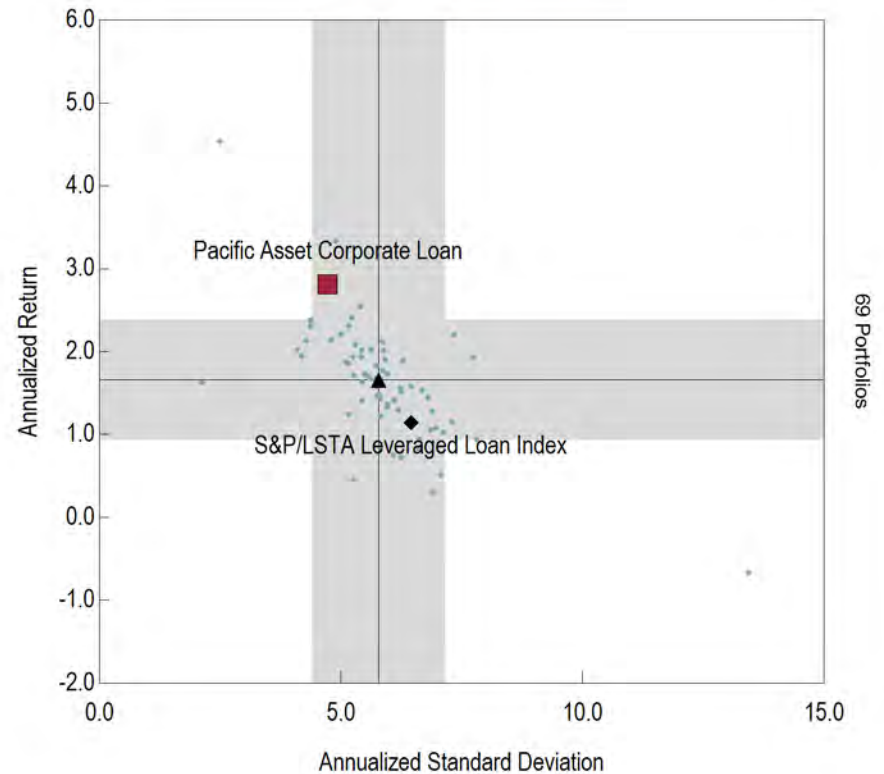
	2019		2018		2017		2016		2015		2014	
5th Percentile	10.3		1.6		6.1		13.6		2.7		3.3	
25th Percentile	9.4		1.1		4.9		10.7		1.8		2.3	
Median	8.7		0.7		4.4		9.2		0.7		1.9	
75th Percentile	8.1		0.3		4.0		8.2		-0.3		1.4	
95th Percentile	5.1		-0.3		3.1		6.2		-1.7		1.1	
# of Portfolios	76		76		75		69		54		48	
● Pacific Asset Corporate Loan	9.1	(36)	1.0	(29)	4.9	(26)	9.2	(51)	2.5	(9)	--	(--)
▲ S&P/LSTA Leveraged Loan Index	8.6	(52)	0.4	(68)	4.1	(71)	10.2	(35)	-0.7	(82)	1.6	(68)

Annualized Return vs. Annualized Standard Deviation
 3 Years Ending March 31, 2020



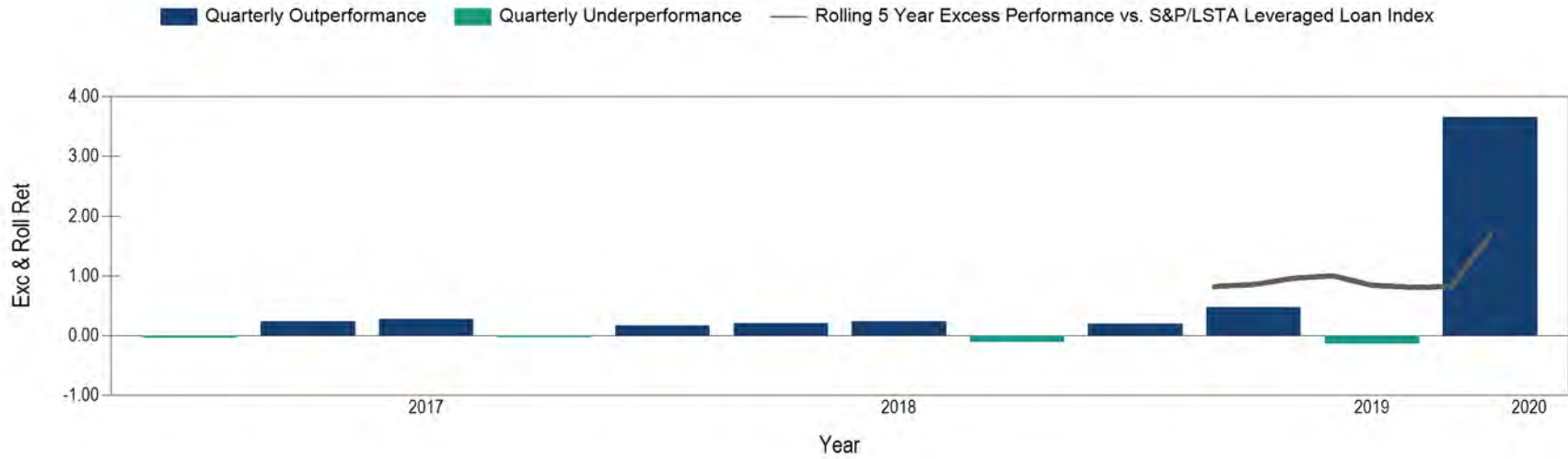
- Pacific Asset Corporate Loan
- ◆ S&P/LSTA Leveraged Loan Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Float-Rate Bank Loan Fixed Inc Gross

Annualized Return vs. Annualized Standard Deviation
 5 Years Ending March 31, 2020

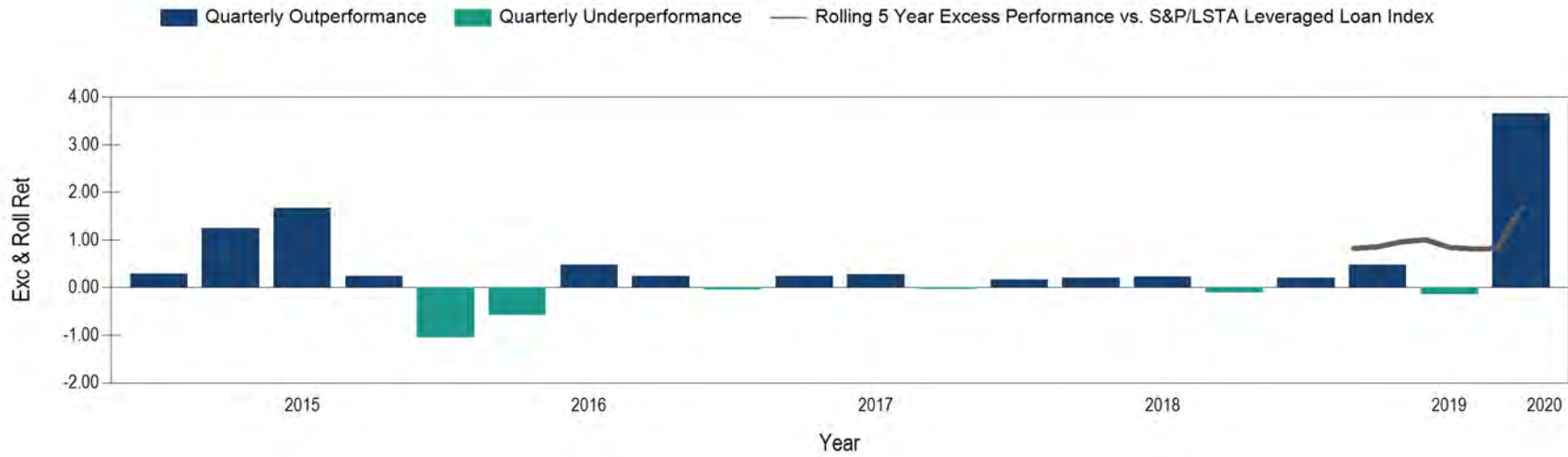


- Pacific Asset Corporate Loan
- ◆ S&P/LSTA Leveraged Loan Index
- ▲ Universe Median
- 68% Confidence Interval
- eV US Float-Rate Bank Loan Fixed Inc Gross

Rolling 3 Year Annualized Excess Performance



Rolling 5 Year Annualized Excess Performance



Total Global Fixed
Asset Class Overview (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Global Fixed	117,843,644	-17.0	-13.0	-3.5	-1.8	0.7	7.9	-6.6	14.4	5.8	-11.8
<i>FTSE World Govt Bond Index</i>		2.0	6.2	4.3	3.0	2.2	5.9	-0.8	7.5	1.6	-3.6
<i>InvMetrics Public DB Gbl Fix Inc Gross Rank</i>		--	--	--	--	--	83	99	29	67	95
Brandywine Global Fixed Income	60,408,812	-12.2	-8.5	-1.4	-1.1	1.8	6.2	-4.1	12.5	2.2	-9.3
<i>FTSE WGBI ex US TR</i>		-1.9	1.8	3.1	2.4	1.4	5.3	-1.8	10.3	1.8	-5.5
<i>eV All Global Fixed Inc Gross Rank</i>		77	87	93	96	85	84	80	14	75	92
Ashmore EM Blended Debt Fund	57,434,832	-21.4	-17.3	--	--	--	--	--	--	--	--
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+</i>		-12.6	-6.2	--	--	--	--	--	--	--	--
<i>eV All Emg Mkts Fixed Inc Gross Rank</i>		98	98	--	--	--	--	--	--	--	--

Total Global Fixed
Asset Class Overview (Net of Fees)

Period Ending: March 31, 2020

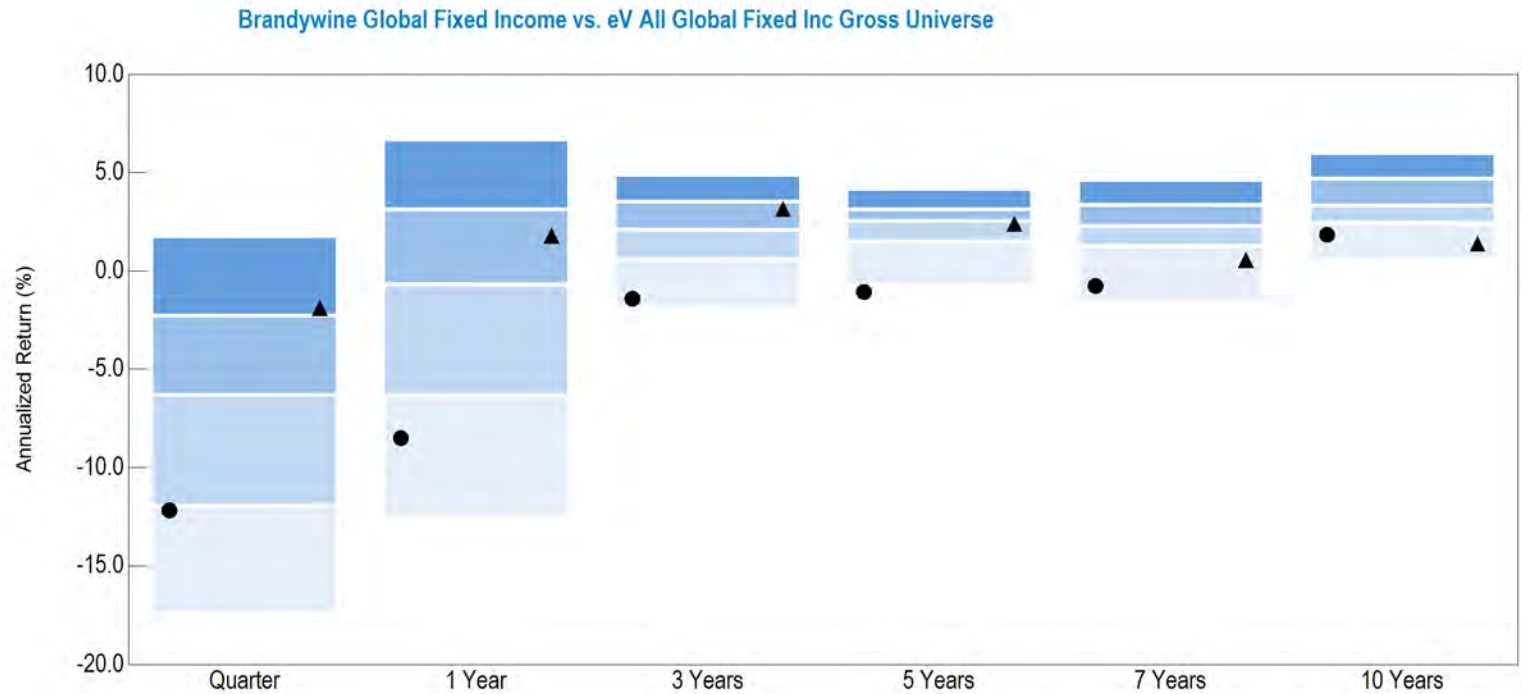
	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Global Fixed	117,843,644	-17.1	-13.6	-4.1	-2.4	0.0	7.2	-7.2	13.7	5.1	-12.4
<i>FTSE World Govt Bond Index</i>		2.0	6.2	4.3	3.0	2.2	5.9	-0.8	7.5	1.6	-3.6
Brandywine Global Fixed Income	60,408,812	-12.3	-8.9	-1.8	-1.5	1.3	5.7	-4.5	12.0	1.7	-9.7
<i>FTSE WGBI ex US TR</i>		-1.9	1.8	3.1	2.4	1.4	5.3	-1.8	10.3	1.8	-5.5
Ashmore EM Blended Debt Fund	57,434,832	-21.6	-18.1	--	--	--	--	--	--	--	--
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELMI+</i>		-12.6	-6.2	--	--	--	--	--	--	--	--

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	0.99	1.00	--	--
Ashmore EM Blended Debt Fund	1.00	0.97	1.00	--
FTSE World Govt Bond Index	-0.15	-0.24	-0.09	1.00

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

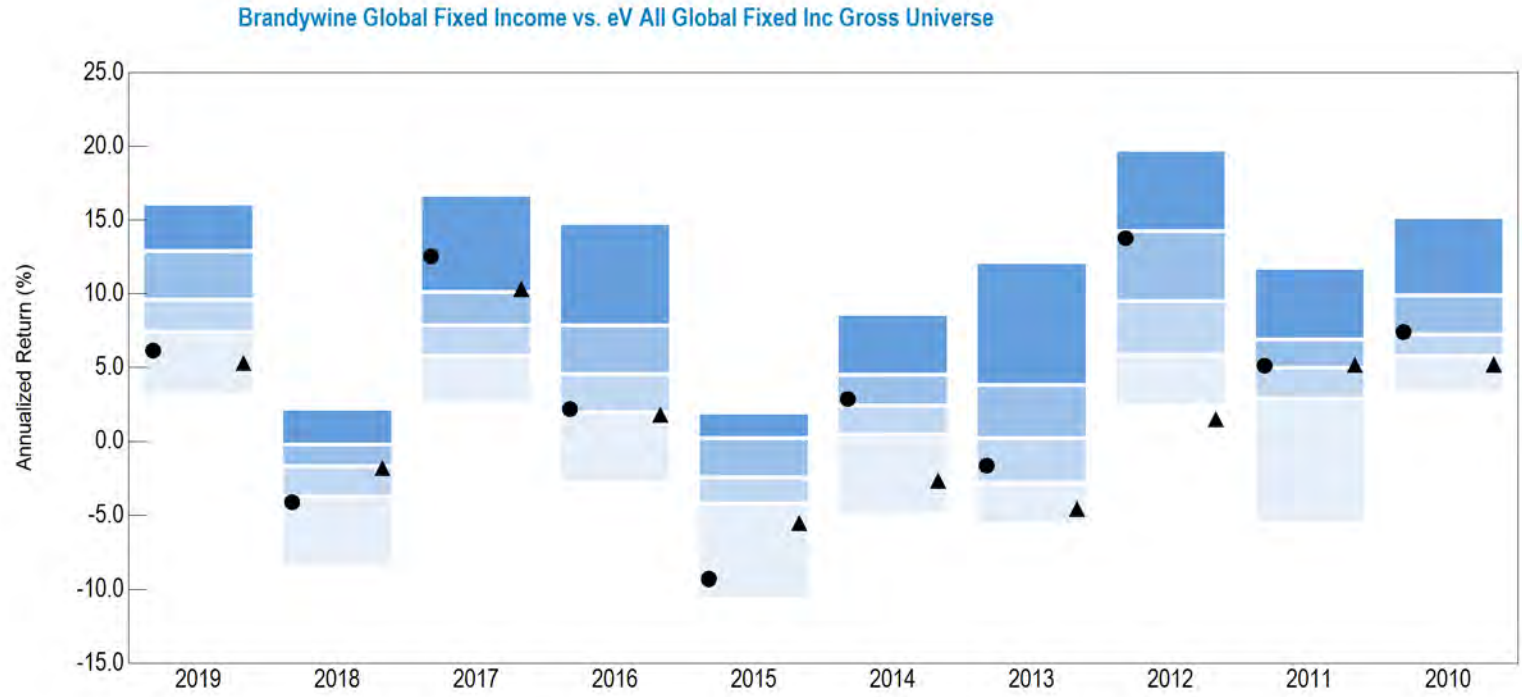
Period Ending: March 31, 2020



	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	1.8	6.7	4.9	4.2	4.6	6.0						
25th Percentile	-2.3	3.2	3.5	3.2	3.4	4.7						
Median	-6.3	-0.6	2.1	2.6	2.3	3.3						
75th Percentile	-11.9	-6.3	0.6	1.5	1.3	2.5						
95th Percentile	-17.4	-12.5	-1.8	-0.7	-1.6	0.6						
# of Portfolios	484	484	457	417	356	251						
● Brandywine Global Fixed Income	-12.2 (77)	-8.5 (87)	-1.4 (93)	-1.1 (96)	-0.8 (94)	1.8 (85)						
▲ FTSE WGBI ex US TR	-1.9 (23)	1.8 (36)	3.1 (35)	2.4 (55)	0.6 (86)	1.4 (90)						

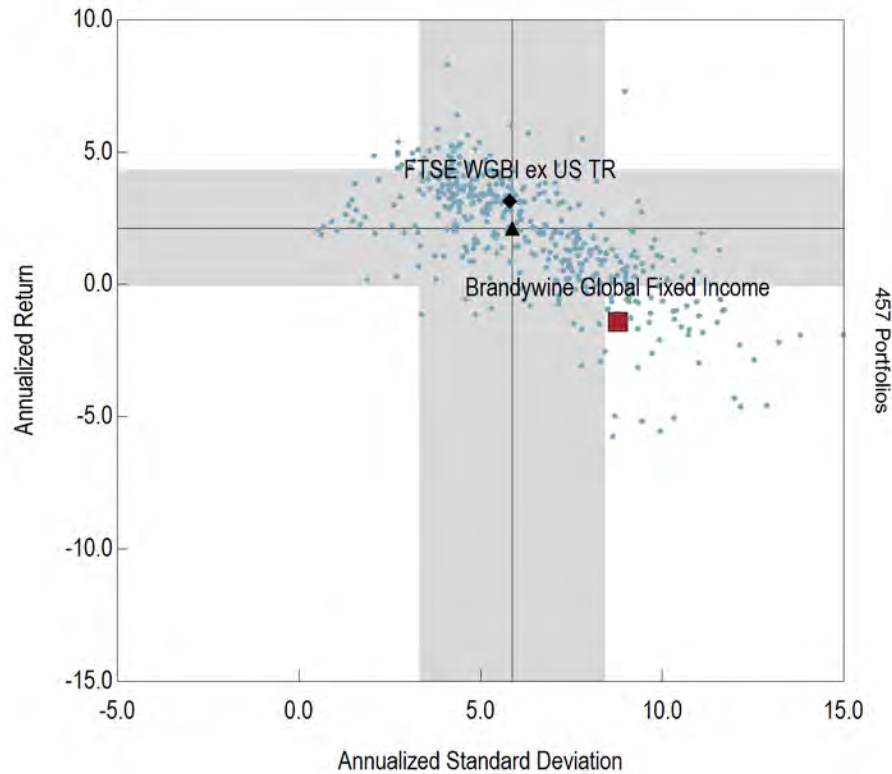
Brandywine Global Fixed Income
 Consecutive Performance Comparison (Gross of Fees)

Period Ending: March 31, 2020

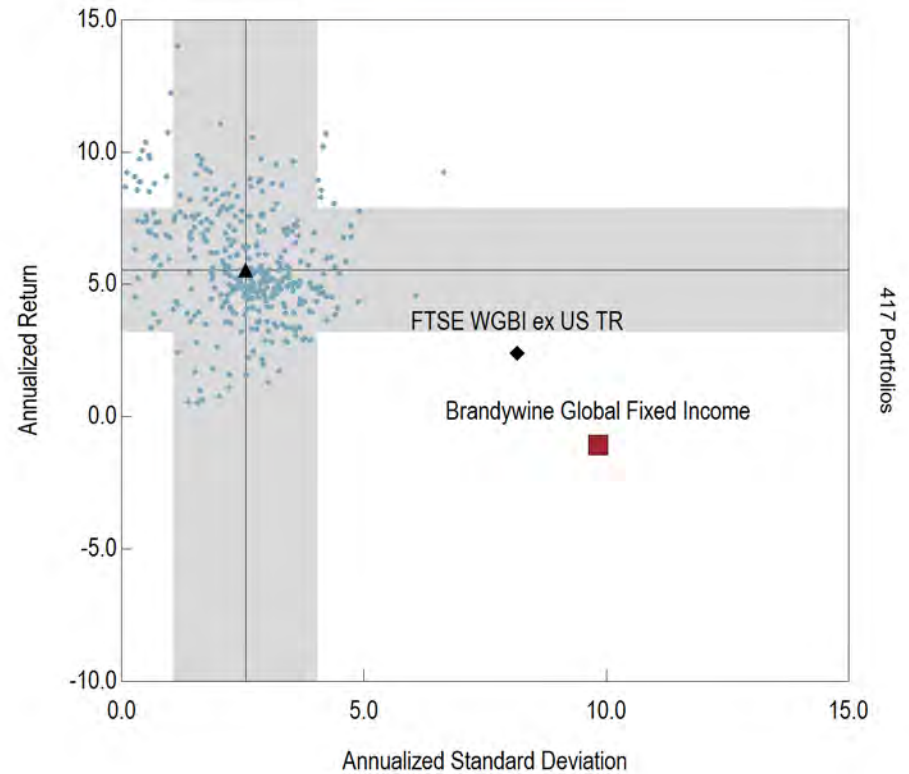


	Return (Rank)									
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
5th Percentile	16.1	2.2	16.7	14.8	1.9	8.6	12.1	19.7	11.7	15.2
25th Percentile	12.9	-0.2	10.1	7.9	0.3	4.5	3.9	14.3	6.9	9.9
Median	9.6	-1.7	7.9	4.6	-2.4	2.5	0.2	9.5	5.0	7.3
75th Percentile	7.5	-3.7	5.8	2.0	-4.2	0.5	-2.8	5.9	2.9	5.8
95th Percentile	3.1	-8.4	2.6	-2.8	-10.6	-4.9	-5.6	2.5	-5.5	3.4
# of Portfolios	491	458	445	432	332	263	225	197	171	100
● Brandywine Global Fixed Income	6.2 (84)	-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 March 31, 2020



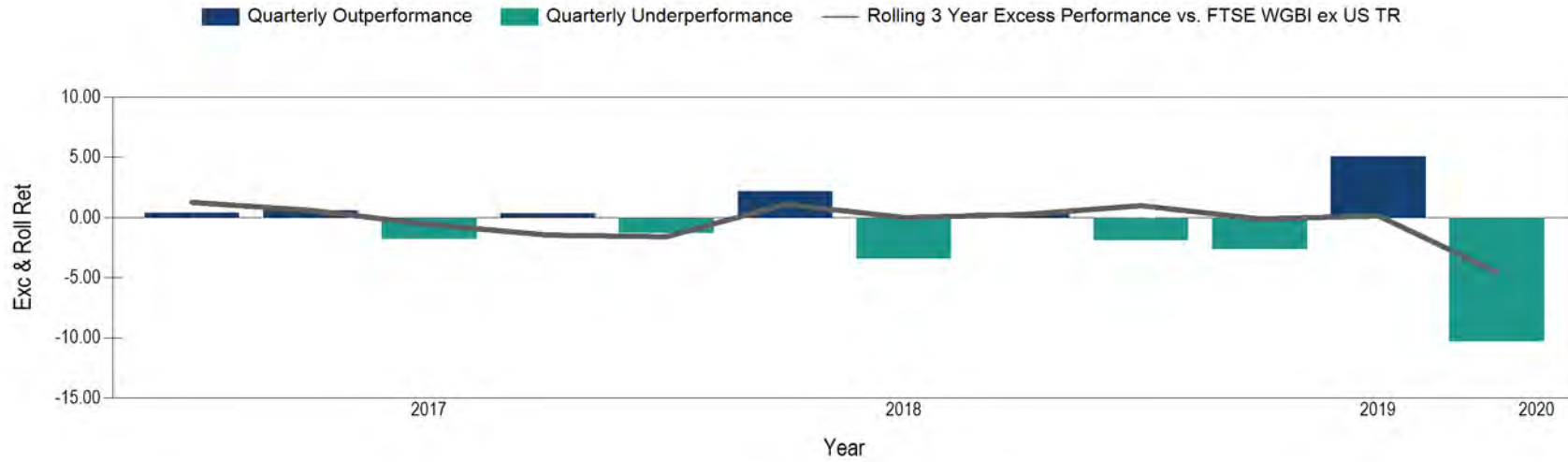
Annualized Return vs. Annualized Standard Deviation
 5 Years Ending March 31, 2020



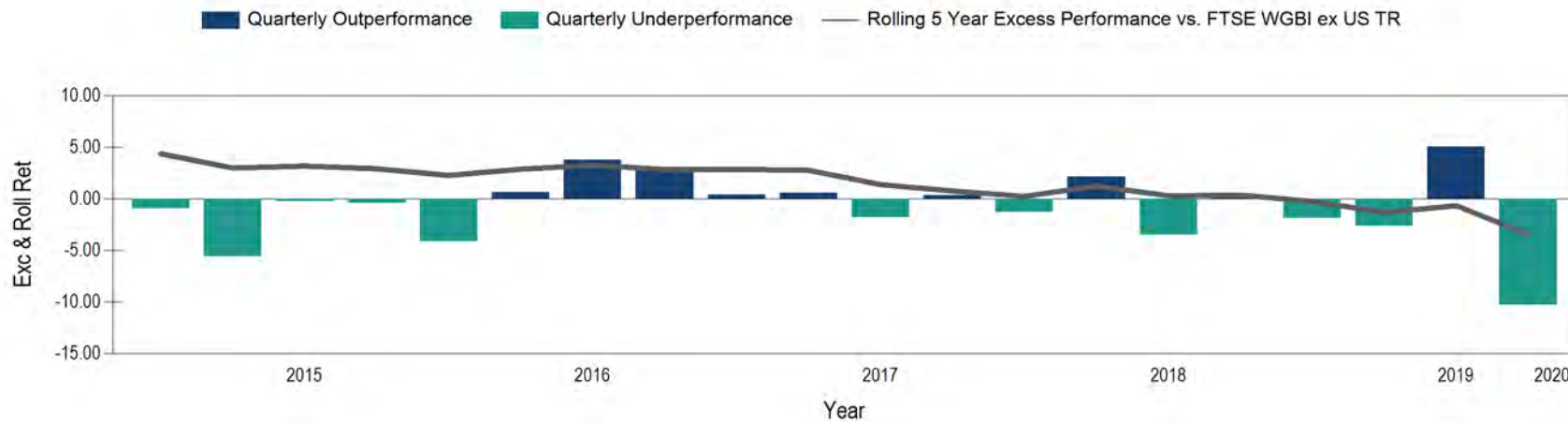
- Brandywine Global Fixed Income
- ◆ FTSE WGBI ex US TR
- ▲ Universe Median
- 68% Confidence Interval
- eV All Global Fixed Inc Gross

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

Rolling 3 Year Annualized Excess Performance

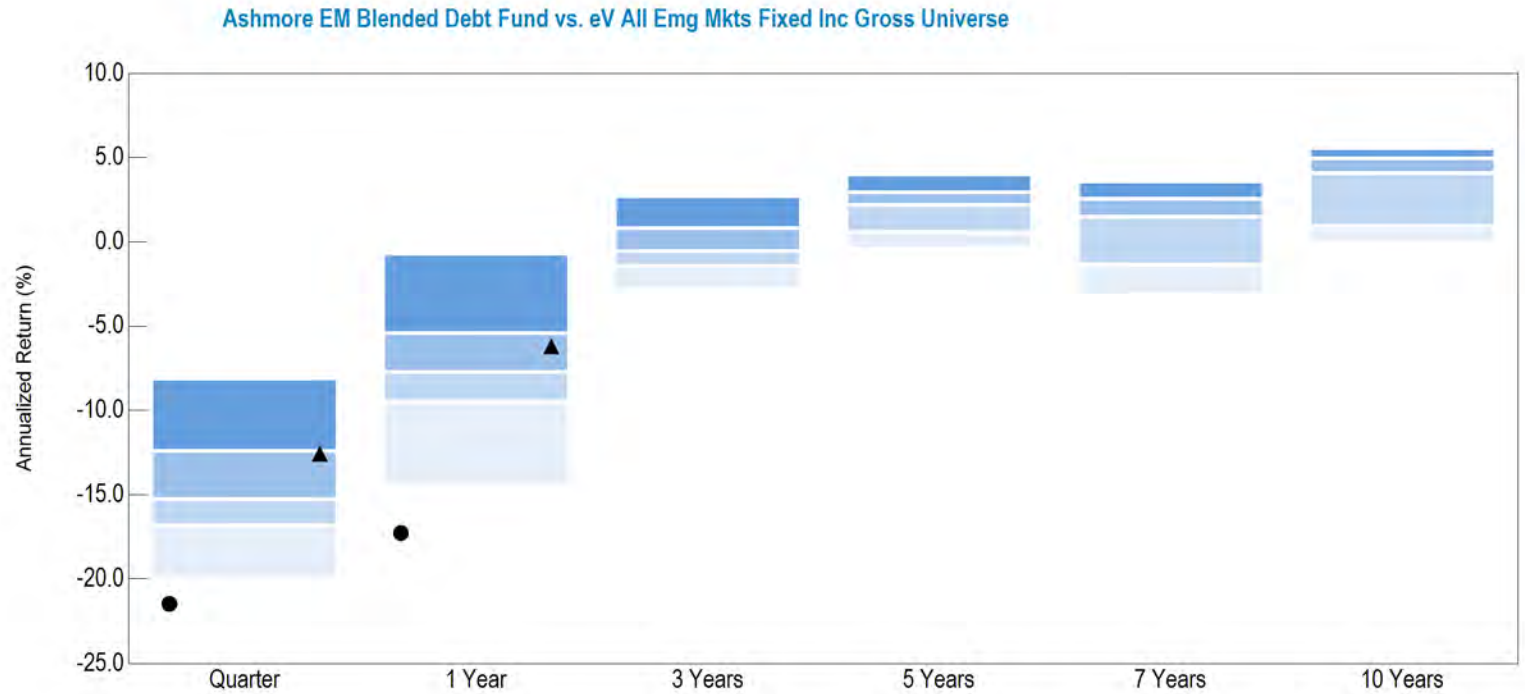


Rolling 5 Year Annualized Excess Performance



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

Period Ending: March 31, 2020



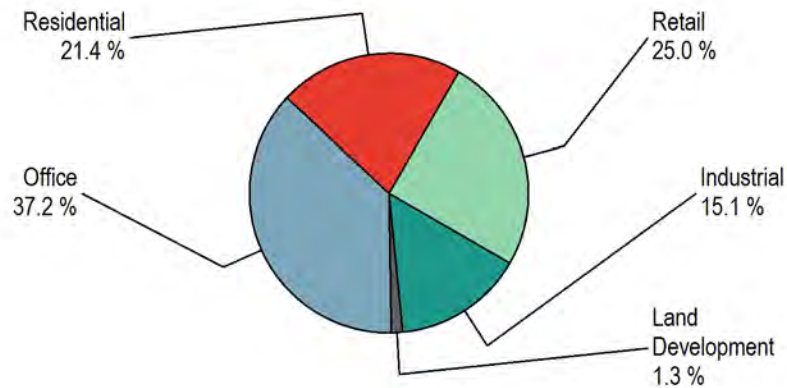
	Quarter		1 Year		3 Years		5 Years		7 Years		10 Years	
5th Percentile	-8.1		-0.7		2.7		4.0		3.6		5.6	
25th Percentile	-12.4		-5.4		0.8		3.0		2.6		5.0	
Median	-15.2		-7.7		-0.5		2.2		1.5		4.1	
75th Percentile	-16.8		-9.5		-1.4		0.6		-1.3		1.0	
95th Percentile	-20.0		-14.4		-2.8		-0.4		-3.1		0.0	
# of Portfolios	278		278		268		241		191		111	
● Ashmore EM Blended Debt Fund	-21.4	(98)	-17.3	(98)	--	(--)	--	(--)	--	(--)	--	(--)
▲ 50% JPM EMBI GD/25% JPM GBI EM GD/25%	-12.6	(27)	-6.2	(32)	--	(--)	--	(--)	--	(--)	--	(--)

Total Real Estate
Asset Class Overview (Gross of Fees)

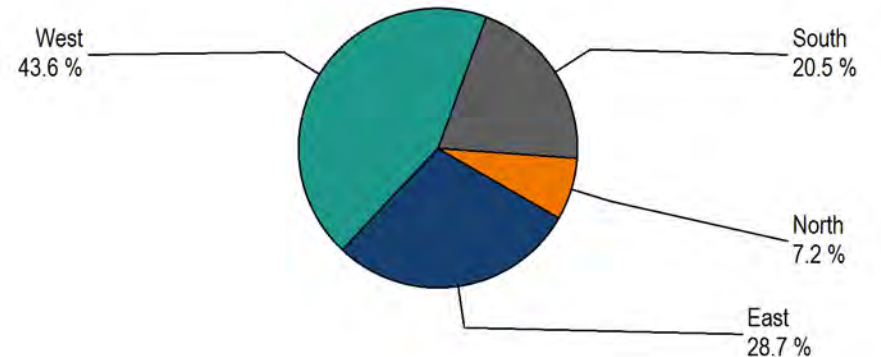
Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Real Estate	211,516,434	1.5	5.4	6.3	8.7	9.1	4.3	7.5	7.8	7.8	18.0
<i>NCREIF Property Index</i>		0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	173,113,721	1.3	4.6	5.4	7.4	10.9	3.4	7.0	6.1	8.4	15.2
<i>NCREIF-ODCE</i>		1.0	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0
<i>NCREIF Property Index</i>		0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	38,402,713	2.3	8.2	7.8	--	--	7.3	9.1	7.4	--	--
<i>NCREIF-ODCE</i>		1.0	4.9	6.8	--	--	5.3	8.3	7.6	--	--
<i>NCREIF Property Index</i>		0.7	5.3	6.4	--	--	6.4	6.7	7.0	--	--

Property Type Allocation
Allocation as of March 31, 2020



Geographic Diversification
Allocation as of March 31, 2020



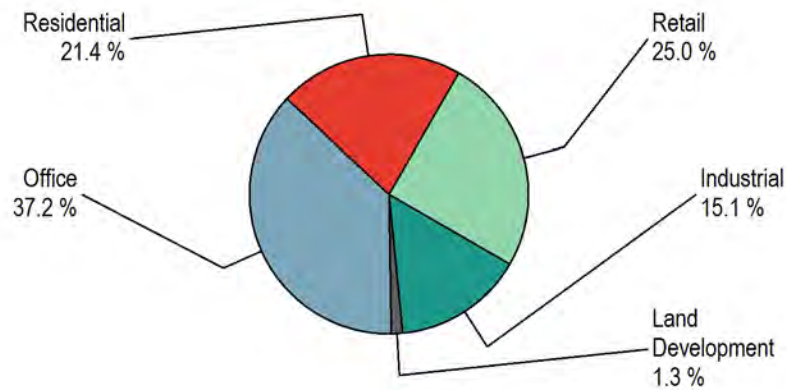
ARA American Strategic Value Realty is lagged one quarter.

Total Real Estate
Asset Class Overview (Net of Fees)

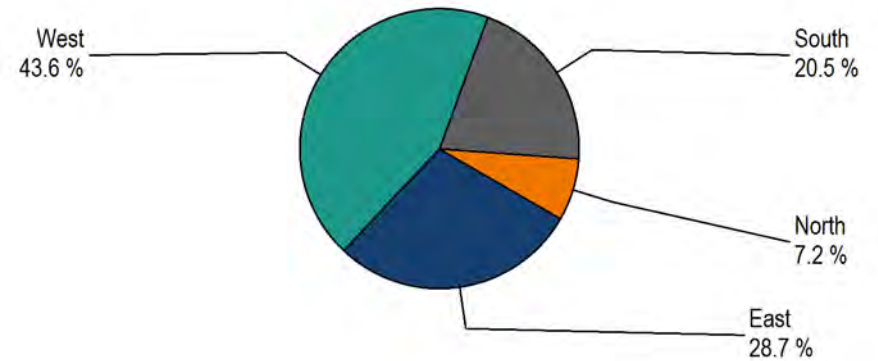
Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Real Estate	211,516,434	1.5	5.4	6.3	8.4	8.6	4.3	7.5	7.8	6.8	16.9
<i>NCREIF Property Index</i>		0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
JP Morgan Core Real Estate	173,113,721	1.3	4.6	5.4	7.0	10.2	3.4	7.0	6.1	7.3	14.1
<i>NCREIF-ODCE</i>		1.0	4.9	6.8	8.5	11.4	5.3	8.3	7.6	8.8	15.0
<i>NCREIF Property Index</i>		0.7	5.3	6.4	7.6	10.2	6.4	6.7	7.0	8.0	13.3
ARA American Strategic Value Realty	38,402,713	2.3	8.2	7.8	--	--	7.3	9.1	7.4	--	--
<i>NCREIF-ODCE</i>		1.0	4.9	6.8	--	--	5.3	8.3	7.6	--	--
<i>NCREIF Property Index</i>		0.7	5.3	6.4	--	--	6.4	6.7	7.0	--	--

Property Type Allocation
Allocation as of March 31, 2020



Geographic Diversification
Allocation as of March 31, 2020



ARA American Strategic Value Realty is lagged one quarter.

Total Commodities
 Asset Class Summary (Gross of Fees)

Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Commodities	35,481,350	-25.1	-24.2	-8.5	-7.7	-6.4	8.7	-12.4	6.2	12.6	-25.2
<i>Bloomberg Commodity Index TR USD</i>		-23.3	-22.3	-8.6	-7.8	-6.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	35,481,350	-25.1	-24.2	-8.5	-7.7	--	8.7	-12.4	6.2	12.6	-25.2
<i>Bloomberg Commodity Index TR USD</i>		-23.3	-22.3	-8.6	-7.8	--	7.7	-11.2	1.7	11.8	-24.7

Total Commodities
 Asset Class Summary (Net of Fees)

Period Ending: March 31, 2020

	Market Value	3 Mo	1 Yr	3 Yrs	5 Yrs	10 Yrs	2019	2018	2017	2016	2015
Total Commodities	35,481,350	-25.1	-24.2	-8.5	-7.9	-6.7	8.7	-12.4	6.2	11.8	-25.8
<i>Bloomberg Commodity Index TR USD</i>		-23.3	-22.3	-8.6	-7.8	-6.7	7.7	-11.2	1.7	11.8	-24.7
Gresham MTAP Commodity Builder	35,481,350	-25.1	-24.2	-8.5	-7.9	--	8.7	-12.4	6.2	11.8	-25.8
<i>Bloomberg Commodity Index TR USD</i>		-23.3	-22.3	-8.6	-7.8	--	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	Pathway Private Equity Fund 10	3/25/2020	Pathway

¹ Represents fund vintage year.

Policy & Custom Index Composition

Policy Index (1/1/2017-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 (lagged), 5% BBgBarc High Yield +2% (lagged).
Policy Index (10/1/2016-12/31/2016)	20% Russell 3000, 20% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 15% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps, 5% BBgBarc High Yield +2% (lagged).
Policy Index (7/1/2014-9/30/2016)	23% Russell 3000, 22% MSCI ACWI ex-US (Gross), 35% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (7/1/2013-6/30/2014)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 30% BBgBarc U.S. Aggregate, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Policy Index (4/1/2011-6/30/2013)	27% Russell 3000, 23% MSCI ACWI ex-US (Gross), 20% BBgBarc U.S. Aggregate, 5% Citi World Gov't Bond, 5% Barclays US TIPS, 10% NCREIF Property Index, 5% Bloomberg Commodity Index, 5% Russell 3000+ 300 bps.
Private Equity Index (1/1/2017-Current)	Russell 3000 +3% (Lagged)
Private Equity Index (6/1/2011-12/31/2016)	Russell 3000 +3%

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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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.

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Board of Trustees

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Date: May 22, 2020

To: Board of Trustees

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

Item 14: Monthly Investment Report for April 2020

	April	Year to Date 2020		2019	2018	2017	2016	2015
Total Trust Investments (\$ millions)	\$1,308			\$1,446 year end	\$1,285 year end	\$1,351 year end	\$1,196 year end	\$1,148 year end
Total Fund Return	4.7% Gross	-8.2% Gross		16.3 % Gross	-3.2 % Gross	15.5 % Gross	6.6 % Gross	-0.8% Gross
Policy Index Return (r)	5.0%	-4.3%		16.4 %	-3.2 %	13.4 %	7.7 %	-0.5 %

(r) Policy index as of April 1, 2020 revision to Strategic Asset Allocation Policy: 21% domestic equity, 21% international equity, 15% core bonds, 6% bank loans, 5% global bonds, 5% emerging market debt, 17% real estate, 0% commodities, 5% private equity, 5% private credit.

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 April. The attached market commentary from Verus details market conditions in April, but subsequent activity in May is not yet factored into these numbers.

Staff estimates on a preliminary basis that Total Fund Return in **May month-to-date is approximately 0%.**

The Economy and Capital Markets:

➤ **Covid-19 Pandemic Impact -**

- The rapid global spread of the SARS-CoV-2 virus continues, but with some “flattening of the curve in the U.S. While infection rates in New York have declined from very high peaks in April, the remainder of the U.S. continues to see modest increase in the rate of infection. This stretches out hopes for reopening of economic activity as the danger abates.
- Comparisons of the Covid-19 outbreak to previous outbreaks of SARS, MERS, Ebola, and Swine Flu illustrate why this pandemic is more widespread and economically disruptive.
 - SARS-CoV-2 has a high rate of transmissibility – still to be accurately measured but, estimated at an R_0 factor of about 1.5 to 3.5. The R_0 factor is the number of people infected by one infected person – i.e., a R_0 factor of 2 = a squared exponential growth rate. The mortality rate for SARS-CoV-2 is around 1.4% or 14x higher than seasonal influenza.
 - In contrast the mortality rate for SARS (9.6%), MERS (34%), and Ebola (50%) are far higher, but the R_0 transmissibility factor is a fraction of that of SARS-CoV-2. These diseases are transmissible generally only during and after symptoms are apparent and with close contact. Hence, these other diseases are dangerous, but infect exponentially smaller numbers.
 - The 2009 pandemic of Swine Flu – H1N1 – was highly transmissible like SARS-CoV-2 including pre-symptomatic transmission. The R_0 factor for transmissibility of H1N1 is about 1.4 to 1.6. H1N1 may have infected over 1 billion people by the end of 2010. However, H1N1’s symptoms were far milder and had a mortality rate less than 0.1%.
 - SARS-CoV-2 as the virus that causes Covid-19 combines the potent combination of a high R_0 transmissibility factor, pre-symptomatic transmission, highly damaging health impairments and a moderately high mortality rate. Hence, the economic disruption caused by efforts to limit Covid-19 is necessarily severe.

➤ **Global Recession -**

- Fed Chair Powell at a May 12th address included comments that were sobering to the capital markets –
 - On the topic of fiscal policy responses Powell commented “The recovery may take some time to gather momentum, and the passage of time can turn liquidity problems into solvency problems.”... “Additional fiscal support could be costly, but worth it if it helps avoid long-term economic damage and leaves us with a stronger recovery”
 - Powell commented that the Fed had the ability to act as a “bridge across temporary disruptions to liquidity” but suggested that far more than a temporary bridge may be needed to counter the large and uncertain impact on the economy.

- “While the economic response has been both timely and appropriately large, it may not be the final chapter, given that the path ahead is both highly uncertain and subject to significant downside risk. Since the answers are currently unknowable, policies will need to be ready to address a range of possible outcomes.”
- On unemployment, Mr. Powell said that America’s unemployment rate will probably peak “over the course of the next month or so” and might come down sharply as the economy recovers, but that it will probably take some time to get back to the very-low jobless levels that prevailed before the coronavirus.”

➤ **Policy Responses**

- Monetary Policy – The Fed continued with its 0% Fed Funds rate floor and unprecedented provision of liquidity to the financial markets through nine emergency lending programs.
- Fiscal Policy – The Federal government continues to debate new phases of economic stimulus. The initial rounds of stimulus with an unprecedented addition to the deficit from a rapid \$2+ trillion series of measures. Pending points of contention include stimulus aid to state and local governments that face massive shortfalls in revenue and increases in necessary social expenditures.

➤ **Economic Recovery**

- Forecasts of whether the U.S. economic recovery will be a protracted “U-shaped” recovery are highly speculative and depend on complex variables for unprecedented circumstances. In other words – no one really knows.
- The apparent most common outlooks are for a protracted U-shaped recovery with negative GDP growth in 2Q20 and 3Q20 and flat for 4Q20. Followed by a mild bounce back in 2021. While the underlying economic conditions going into the pandemic crises were strong which encourages a rapid return to normal, lingering effects of a protracted pandemic on consumer spending may slow the return to growth and employment.
- A more positive outlook for a V-shaped recovery was recently published by Beacon Economics, a well-known Central Coast economics firm. The following are excerpts from the conclusions of Beacon’s May report – “*The Post Covid-19 Economy – A Case for the “V”.*”

“There is no doubt that the 10 million plus people who are entering into unemployment will face a challenging period even with expanded unemployment benefits and direct payments from the Federal government. Many small businesses are also being pushed close to the edge as they wait to restart operations. But among much of the consuming public, savings rates are good, debt burdens are low, and consumers are maintaining their earnings. For this group the inability to spend money during the public health mandated shutdowns will lead to a surge in savings and significant pent up demand. While some households will not be able to spend as much post-pandemic, others will likely spend considerably more than usual. The same applies to businesses and investors.”

“All this does not suggest a “U”, but a very large and rapid “V”. The second quarter will definitely post record negatives, but that will be followed by record positives in the last half of the year as we quickly return to normalcy. We see GDP growth as follows: 0% in Q1, -30% in Q2, 25% in Q3, and 5% in Q4, with unemployment falling back to the low 4’s over the year. Not all of the damage will be erased, but much of it will and things should largely return to normal faster than many expect. Indeed, we may find that the second quarter will be the only negative growth quarter of the year, which will cause plenty of debate over whether this was or wasn’t a true recession.” ...

“The Fed has now injected trillions of dollars into short term credit markets, but it looks like much of the panic has already passed. Credit markets are settling down and the economy will, in the short term at least, enjoy record low interest rates along with lower gas prices and all the other benefits that come from falling commodity prices. This will also help with the third quarter bounce.”...

“While we believe that the most likely outcome for the U.S. economy is better than what most forecasts are currently suggesting, we must also be humble in the face of such an unprecedented shock. In this case there are two major wildcards. The first, of course, is the virus itself. They are wily things and can take strange and unanticipated twists and turns. If the spread of the Coronavirus should spiral out of control again, public health mandates will once again take over and more damage will be done. But even in such a case, public response should be faster and more forceful the second time around, allowing us to weather the storm better. The global population has experienced a big learning curve and we are likely to continue behaving vigilantly, which will help limit negative outcomes.”

The second wildcard is whether there will be a dramatic shift in consumer behavior after the pandemic ends. Certainly, people will wash their hands more often and handshakes may well become a thing of the past, but will consumers stop going to ballgames and music festivals? Will they be too afraid to go to restaurants?”...

“While we believe a “V” recovery is ahead, we say so very cautiously, and hope the false narrative that the ‘cure is worse than the disease’ is not allowed to push us off our current path.”

Let’s hope Beacon Economics is right.

➤ **Equity Markets**

- Equity markets globally responded to the pandemic and its economic fallout with unprecedented rapidity of their falls in March. The U.S. domestic stock S&P 500 index declined from a high of 3,386 in mid-February to a bottom on March 23rd at 2,237 – a 33% drop. Since that date, the S&P 500 has rallied – albeit with heightened volatility – to 2,955 on May 22nd. Thus far the S&P 500 has retraced about over half of its fall and is +32% off its March 23rd bottom and down -12% from its February peak.

➤ **Debt Markets**

- With the aggressive monetary policy response Treasury Bond yields fell precipitously with the 10-year Treasury bond going from about a 1.50% yield in mid-February to a 0.66% yield on May 22nd. The March expansion of credit spreads (corporate debt yields less the corresponding maturity Treasury yield) that severely lowered total bond returns abated somewhat in April.

➤ **Fed Policy and Interest Rates –**

- At the April 29th FOMC meeting the Fed reiterated its commitment to support the economy and investment market functioning through near-unlimited provision of liquidity via asset purchases. The Fed indicated no hurry to increase interest rates and intends to keep the Fed Funds rate near its lower bound of 0% until economic recovery.

➤ **Oil Prices –**

- Oil prices recovered to more normal levels in the \$33/barrel range in mid-May. The global reduction in oil demand and the production cutbacks of OPEC and Russia stabilized the oil market. However, oil prices are roughly half of what they were in 2019.

➤ **Inflation –**

- The outlook for inflation is another source of uncertainty in the pandemic and recovery.
- In the near/medium term the demand shock of a global contraction due to the pandemic and oil market turmoil is likely disinflationary (a falling rate of inflation, but not necessarily widespread deflation). The disinflationary/deflationary impact may fall more heavily on sectors suffering longer term demand contractions such as airlines and hotels.
- In the longer term, inflationary pressures are less clear and may be impacted by –
 - Cost-Push Inflation – As many suppliers to the consumer economy contend with cost impacts (e.g., restaurants operating at ½ capacity) some consumer prices may increase. Also, supply chain reorganization as globalization partially recedes and producers seeking resiliency in their sources shorten their supply chains may contribute to higher costs.
 - Monetary Policy based Inflation - The unprecedented creation of money supply through deficit spending may tap into the classic source of inflation – too many dollars chasing too few goods. However, this interpretation is suspect given that the monetary policy response is primarily building central bank balance sheets as they purchase debt instruments – not wholesale pouring of money out to the populace.

➤ **Employment and Wages –**

- The April DOL report from the BLS on nonfarm employment showed that Unemployment surged to 14.7% - from its February low of 3.5%. A 20% unemployment rate is conceivable on a short-term basis.
- Unemployment - by May 21st, applications for unemployment benefits in the U.S. over the last nine weeks surged past 36 million. Effectively about ¼ of the workforce. While many job losses are temporary layoffs that may be reversed within months as the economy reopens in stages, it is likely that unemployment will be above 10% through year end.
- The impact on income from the Covid crisis is substantially softened by the large stimulus contained in the CARES Act. Michael Cembalest of JP Morgan in his May 4th Eye on the Market newsletter commented on income effects –

“Is US fiscal stimulus “enough”? Hard to define exactly, but here are some metrics we have seen that put stimulus in context. Overall worker incomes may only decline by 3% in 2020; the original 11% hit to incomes may be offset by 8% from government transfers. Furthermore, 65%-75% of workers laid off may be receiving more state and local unemployment benefits than lost wages (at least through the program’s initial expiration date at the end of July), all of which may result in a remarkable 0.5% increase in personal disposable income this year vs 2019.”

Respectfully Submitted,

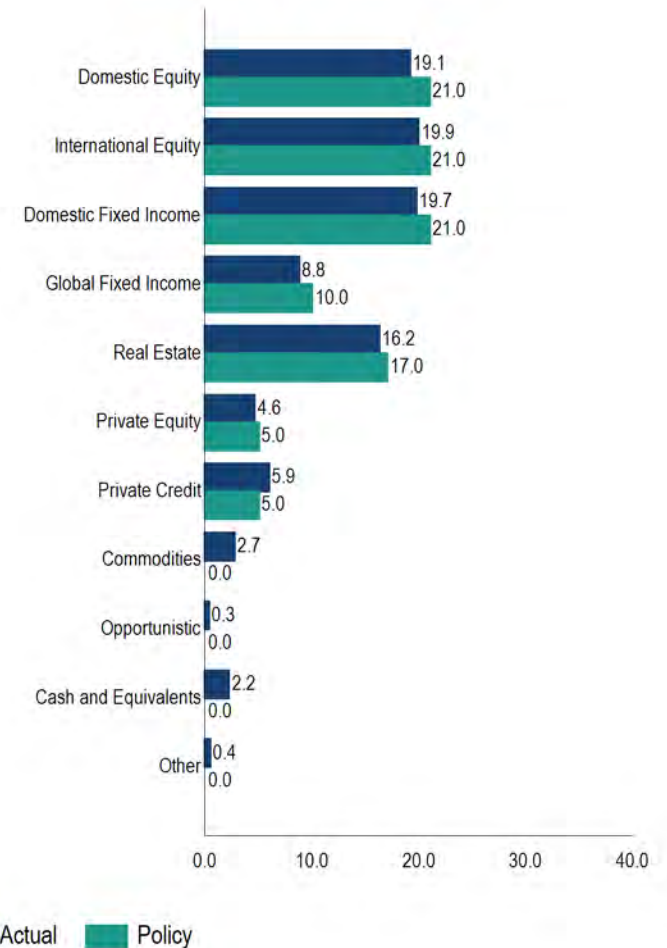
San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: April 30, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Fund	1,307,925,345	100.0	4.7	-8.2
<i>Policy Index</i>			5.0	-4.3
Total Domestic Equity	249,982,907	19.1	12.2	-13.9
<i>Russell 3000</i>			13.2	-10.4
PIMCO RAE Fundamental PLUS Instl	50,049,700	3.8	11.3	-19.7
<i>S&P 500</i>			12.8	-9.3
Loomis Sayles Large Cap Growth	82,403,120	6.3	12.1	-0.4
<i>Russell 1000 Growth</i>			14.8	-1.4
Boston Partners Large Cap Value	64,653,104	4.9	12.1	-20.4
<i>Russell 1000 Value</i>			11.2	-18.5
Atlanta Capital Mgmt	52,876,983	4.0	13.4	-17.4
<i>Russell 2500</i>			14.6	-19.5
Total International Equity	260,685,673	19.9	8.4	-16.5
<i>MSCI ACWI ex USA Gross</i>			7.6	-17.4
Dodge & Cox Intl Stock	111,075,134	8.5	7.6	-25.1
<i>MSCI EAFE Gross</i>			6.5	-17.7
WCM International Growth	149,610,539	11.4	8.9	-8.9
<i>MSCI ACWI ex USA Gross</i>			7.6	-17.4
Total Domestic Fixed Income	258,046,296	19.7	3.2	0.8
<i>BBgBarc US Aggregate TR</i>			1.8	5.0
BlackRock Core Bond	94,985,717	7.3	3.4	4.0
<i>BBgBarc US Aggregate TR</i>			1.8	5.0
Dodge & Cox Income Fund	97,246,382	7.4	3.0	2.4
<i>BBgBarc US Aggregate TR</i>			1.8	5.0
Pacific Asset Corporate Loan	65,814,196	5.0	3.3	-6.4
<i>S&P/LSTA Leveraged Loan Index</i>			4.5	-9.1
Total Global Fixed	114,642,970	8.8	2.6	-14.8
<i>FTSE World Govt Bond Index</i>			1.2	3.2
Brandywine Global Fixed Income	55,723,089	4.3	2.5	-10.0
<i>FTSE WGBI ex US TR</i>			1.5	-0.4
Ashmore EM Blended Debt Fund	58,919,881	4.5	2.6	-19.4
<i>50% JPM EMBI GD/25% JPM GBI EM GD/25% JPM ELM+</i>			2.4	-10.5

Actual vs Target Allocation (%)



*Other balance represents Clifton Group.

Policy Index (4/1/2020): 21% Russell 3000, 21% MSCI ACWI ex. US, 31% BBgBarc Aggregate, 17% NCREIF Property, 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. Pathway 10 funded 3/25/2020. TPG Adjacent Opportunities Partners funded 4/16/2020. 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.

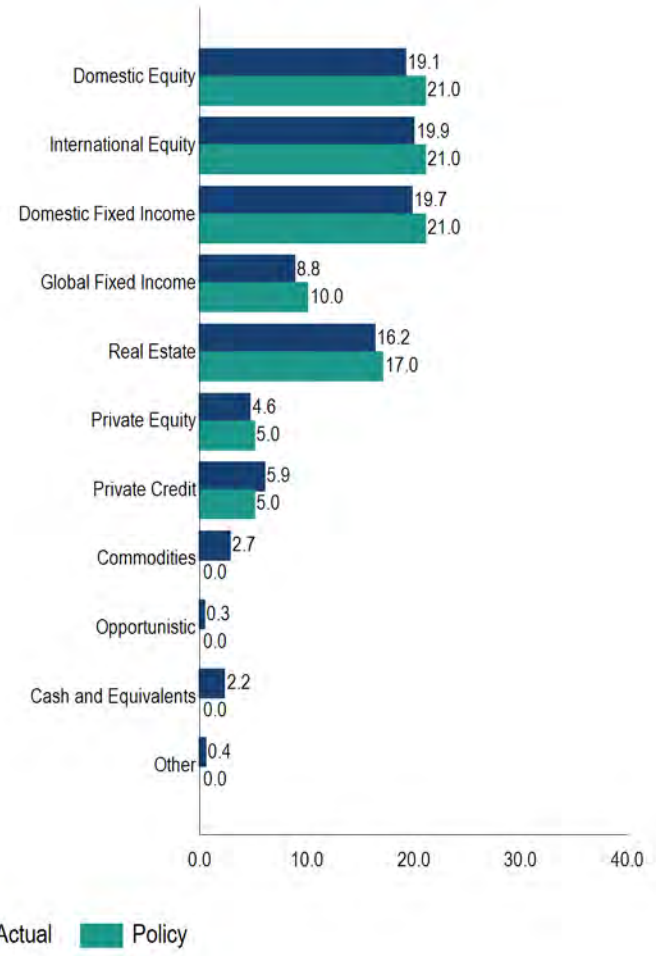
San Luis Obispo County Pension Trust

Executive Summary - Preliminary (Gross of Fees)

Period Ending: April 30, 2020

	Market Value	% of Portfolio	1 Mo	YTD
Total Real Estate	212,494,111	16.2	0.4	1.9
NCREIF Property Index			0.0	0.7
JP Morgan Core Real Estate	173,625,226	13.3	0.2	1.6
NCREIF-ODCE			0.0	1.0
NCREIF Property Index			0.0	0.7
ARA American Strategic Value Realty	38,868,885	3.0	1.2	3.5
NCREIF-ODCE			0.0	1.0
NCREIF Property Index			0.0	0.7
Total Commodities	35,343,674	2.7	-0.4	-25.4
Bloomberg Commodity Index TR USD			-1.5	-24.5
Gresham MTAP Commodity Builder	35,343,674	2.7	-0.4	-25.4
Bloomberg Commodity Index TR USD			-1.5	-24.5
Total Private Equity	60,123,930	4.6		
Harbourvest Partners IX Buyout Fund L.P.	15,820,636	1.2		
Pathway Private Equity Fund Investors 9 L.P.	35,304,431	2.7		
Harbourvest 2018 Global Fund L.P.	7,898,185	0.6		
Pathway Private Equity Fund Investors 10 L.P.	1,100,678	0.1		
Total Private Credit	69,922,012	5.3		
TPG Diversified Credit Program	69,922,012	5.3		
Total Cash	28,780,721	2.2	0.5	1.0
91 Day T-Bills			0.0	0.4
Cash Account	28,780,721	2.2	0.5	1.0
91 Day T-Bills			0.0	0.4
Total Opportunistic	12,108,230	0.9		
Kohlberg Kravis Roberts & Co. Mezzanine Partners I	4,225,695	0.3		
PIMCO Distressed Credit Fund	100,628	0.0		
TPG Adjacent Opportunities Partners	7,781,907	0.6		

Actual vs Target Allocation (%)



*Other balance represents Clifton Group.

Policy Index (4/1/2020): 21% Russell 3000, 21% MSCI ACWI ex. US, 31% BBgBarc Aggregate, 17% NCREIF Property, 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. Pathway 10 funded 3/25/2020. TPG Adjacent Opportunities Partners funded 4/16/2020. 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**

APRIL 2020
Capital Markets Update

Market commentary

U.S. ECONOMICS

- In Q1, real GDP contracted at an annualized quarterly rate of -4.8% (exp. -3.7%). Personal consumption expenditures, which account for nearly 70% of the economy, detracted -5.3% from total growth. On a year-over-year basis, GDP expanded 0.3%. Growth in the second quarter is still expected to be far worse than Q1 growth.
- In April, total nonfarm payrolls fell by 20.5 million (exp. 22m) and unemployment rose to 14.7%, the highest level since the Great Depression. The underemployment rate, which includes part-time workers who would prefer full-time jobs and workers in full-time jobs not using all their skills, spiked from 8.7% to 22.8%.
- The ISM Manufacturing PMI contracted further in April, dropping to 41.5 from 49.1 in March. The ISM Services PMI fell from 52.5 to 41.8 dropping into the contractionary territory below 50.0, and to its lowest level since April 2009.

U.S. EQUITIES

- The S&P 500 climbed 12.8% in April, marking the highest monthly return for the index since 1974. Despite posting its first monthly advance of the year, the S&P 500 was still down -9.3% year-to-date.
- With roughly 88% of S&P 500 companies reporting Q1 earnings, aggregate sales and earnings growth have come in at 1.0% and -7.5%, respectively. Sales growth has exceeded expectations by 1.1% and earnings growth has beaten estimates by 0.6%.
- The forward 12-month P/E ratio of the S&P 500 was 20.5 at month-end, above the 16.3x multiple which was recorded at the end of the first quarter (March 31). The last time the forward 12-month P/E was above 20.0 was in April 2002.

U.S. FIXED INCOME

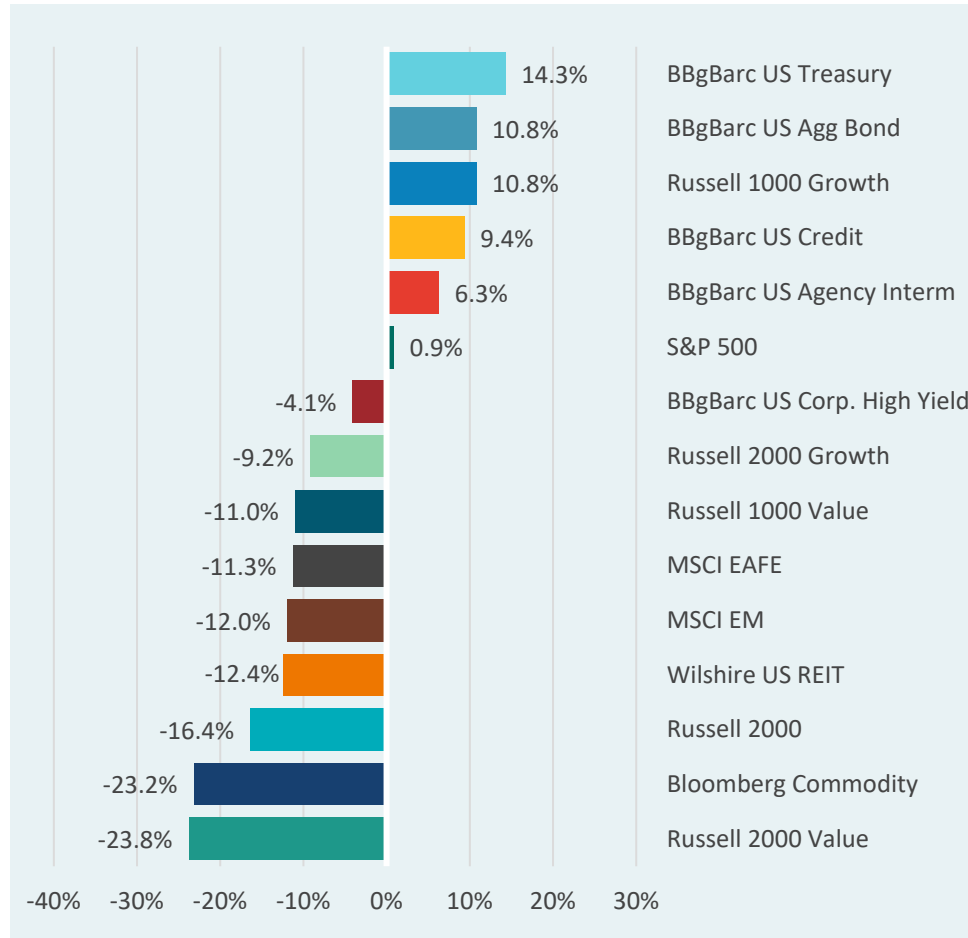
- In the May FOMC meeting, the Federal Reserve guided that interest rates would remain near zero percent for as long as necessary to achieve its dual mandate of full employment and stable prices. The Federal Reserve balance sheet has grown by \$2.4 trillion over the past two months.
- On April 9th, the Federal Reserve created the Municipal Liquidity Facility which will backstop \$500 billion in municipal borrowing. During the Global Financial Crisis, the Federal Reserve elected not to intervene in the municipal and state funding markets.
- In order to finance the large amount of fiscal stimulus spending approved by Congress, the Treasury has begun issuing long-term debt, taking advantage of historically low financing costs.

INTERNATIONAL MARKETS

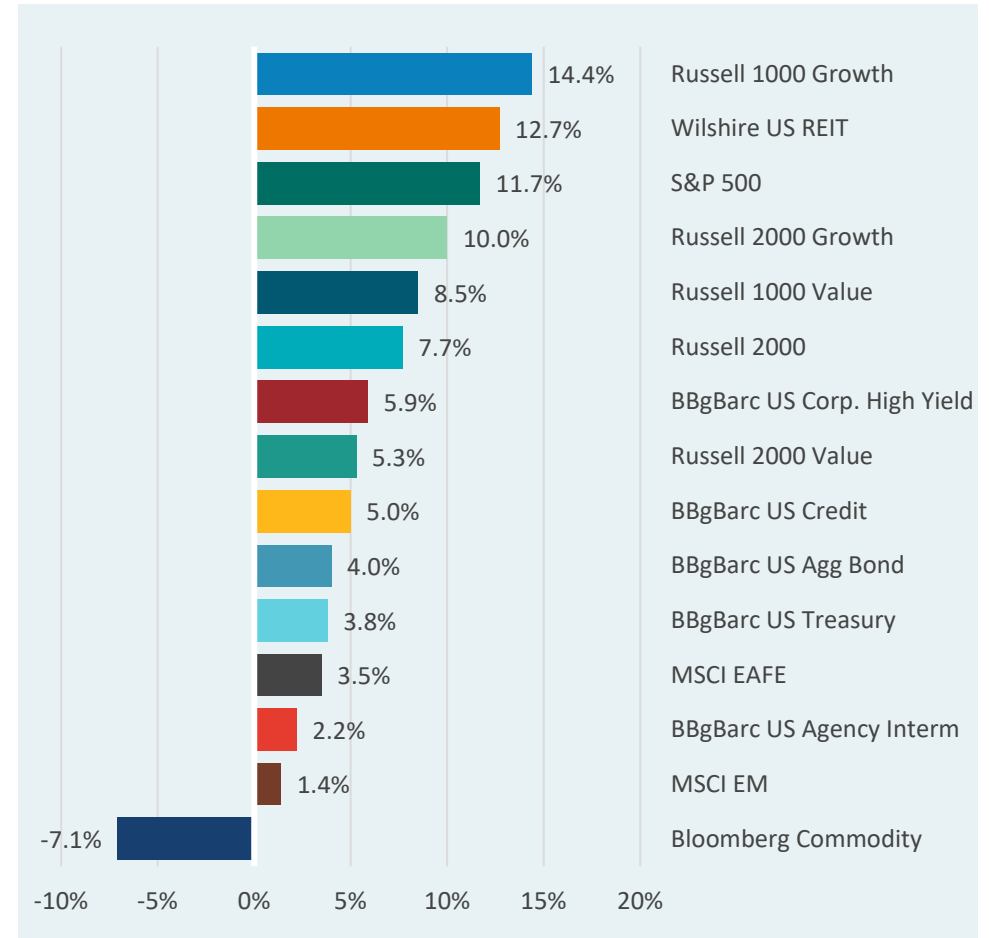
- COVID-19 left few places in the world untouched. Global confirmed cases increased by 2.3 million people in April, and the death toll climbed to 233,824. After months of government-enforced lockdowns and halts to international travel, countries are beginning to set the stage for a gradual reopening.
- In Q1 2020, GDP contracted at a quarterly annualized rate of -3.3% in the Eurozone, -4.1% in Spain, -4.8% in Italy, and -5.4% in France. Global governments have stepped in, providing an unprecedented amount of stimulus to combat mass layoffs and other economic fallout from COVID-19.
- The European Central Bank's Public Sector Purchase Program, which was introduced as quantitative easing in 2015, was ruled by German authorities to be in violation of E.U. treaties.

Major asset class returns

ONE YEAR ENDING APRIL



TEN YEARS ENDING APRIL



*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 4/30/20

Source: Morningstar, as of 4/30/20

U.S. large cap equities

- In April, the S&P 500 Index bounced back, returning 12.9% following a precipitous slide in equity prices in the first quarter. The advance was likely supported by evidence that the transmission of COVID-19 was slowing in certain hot spots, as well as promises of both fiscal and monetary support.
- Analysts slashed earnings estimates for S&P 500 companies. During the month of April, the median EPS estimate for the index declined -28.4%. The largest decline in quarterly EPS estimates during the Global Financial Crisis was -20.6% back in Q1 2009.
- All eleven GICS sectors contributed positively to returns, and the Energy sector (+29.8%) was the top performer as concerns around oversupply faded following an OPEC+ decision to cut oil production. The Consumer Discretionary sector (+20.5%) fueled the move higher for the overall index.
- The CBOE VIX Index of implied volatility fell 19.8 points in April, starting the month at 57.1 and closing the month at 37.2. The popular “fear gauge” is still well above its 3-year average of 18.7.

S&P 500 PRICE INDEX



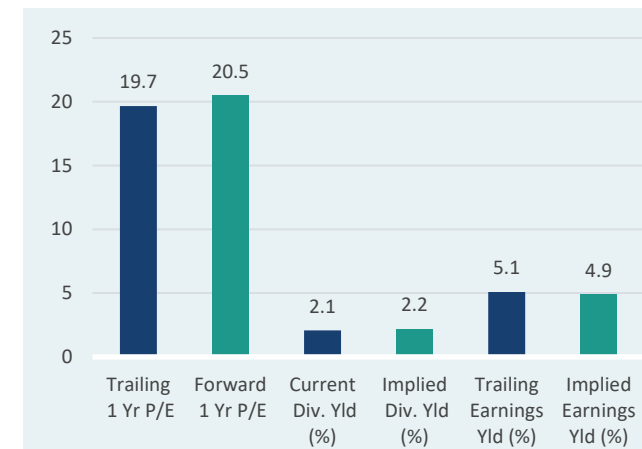
Source: Bloomberg, as of 4/30/20

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 4/30/20

S&P 500 VALUATION SNAPSHOT

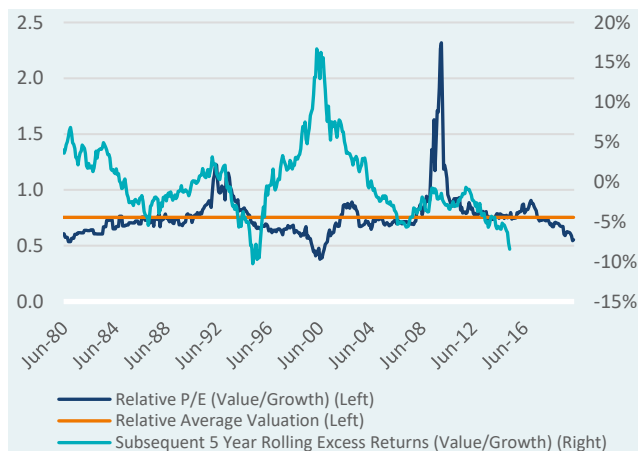


Source: Bloomberg, as of 4/30/20

Domestic equity size and style

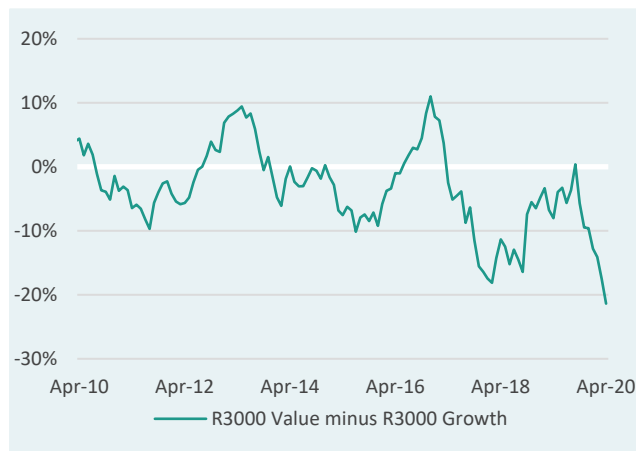
- The Russell 3000 Value Index (+11.3%) continued to underperform the Russell 3000 Growth Index (+14.8%). The underperformance of the value factor relative to the growth factor was attributable to the Health Care and Consumer Discretionary sectors being more highly weighted in the growth index.
- The Russell 2000 Index advanced 13.7% while the Russell 1000 Index gained 13.2%. Small-cap equities, which tend to outperform in anticipation of higher economic growth, notched their best monthly performance since April 2011.
- The Russell Mid-Cap Index (+14.4%) outperformed the small- and large-cap indexes measured, respectively, by the Russell 2000 (+13.7%) and the Russell Top 200 (+12.8%). Some analysts have argued mid-caps are well positioned, being large enough to weather the impact of the pandemic and small enough that global supply chain disruptions may not affect them quite as hard.
- The S&P 500 Low Volatility High Dividend Index (+10.7%) underperformed the S&P 500 Index (+12.8%). Mega-cap tech stocks powered the S&P 500 rebound in April while safer, higher-yielding stocks lagged.

VALUE VS. GROWTH RELATIVE VALUATIONS



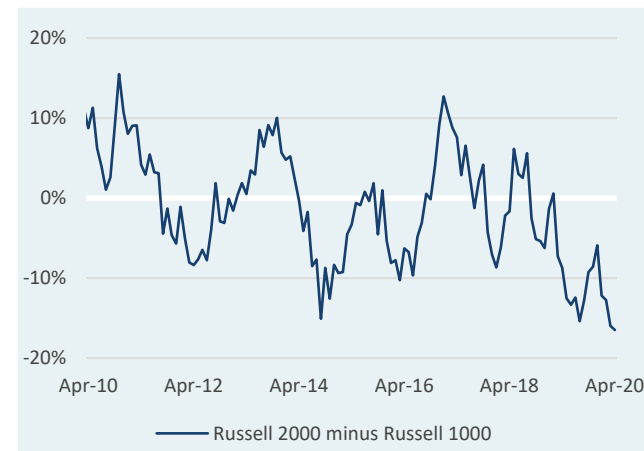
Source: Russell, Bloomberg, as of 4/30/20

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 4/30/20

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

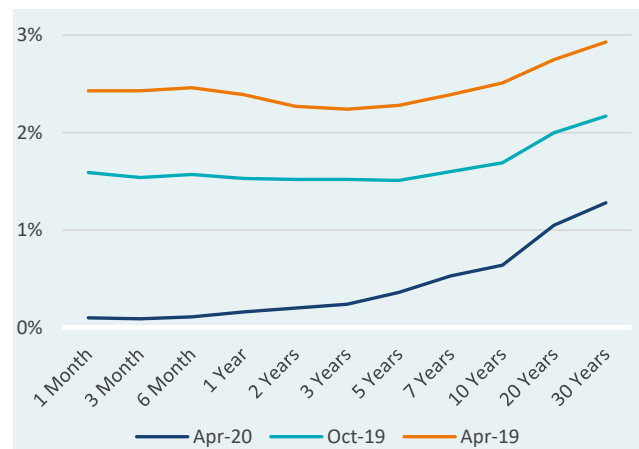


Source: FTSE, Bloomberg, as of 4/30/20

Fixed income

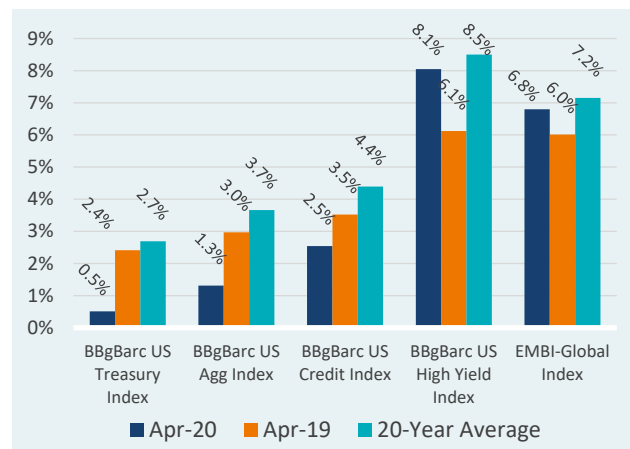
- On April 9th, the Federal Reserve announced that the Primary and Secondary Corporate Credit Facilities, which were initially slated to support \$100 billion in new financing, were expanded. The facilities will now backstop up to \$750 billion in corporate debt.
- The Fed also announced the establishment of the Main Street Lending Program aimed at supporting businesses too large to participate in the Paycheck Protection Program and too small to qualify for the Corporate Credit Facility loans. The program will fund up to \$600 billion in four-year loans.
- In a bounce-back month for riskier credit, local-currency denominated emerging market debt (J.P. Morgan GBI-EM +3.9%) outperformed hard-currency denominated emerging market debt (J.P. Morgan EMBI +2.2%). Outperformance was partly attributed to emerging market currency tailwinds.
- Five-year breakeven inflation rates have fallen 1.2% since April 2019. Some analysts have expressed the view that despite the massive fiscal and monetary policy response, the pandemic is likely to introduce disinflationary, rather than inflationary pressures.

U.S. TREASURY YIELD CURVE



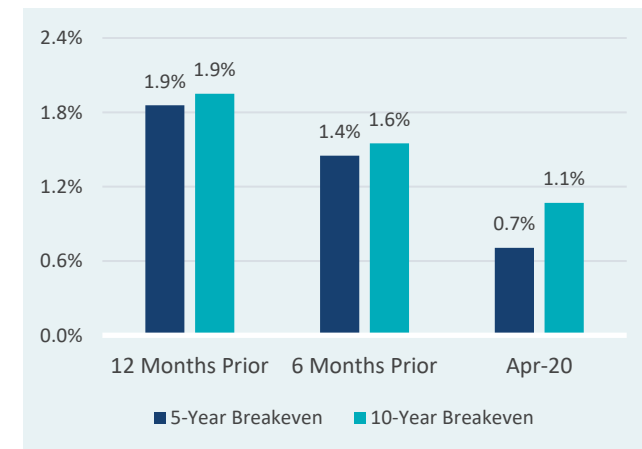
Source: Bloomberg, as of 4/30/20

NOMINAL YIELDS



Source: Morningstar, as of 4/30/20

BREAKEVEN INFLATION RATES

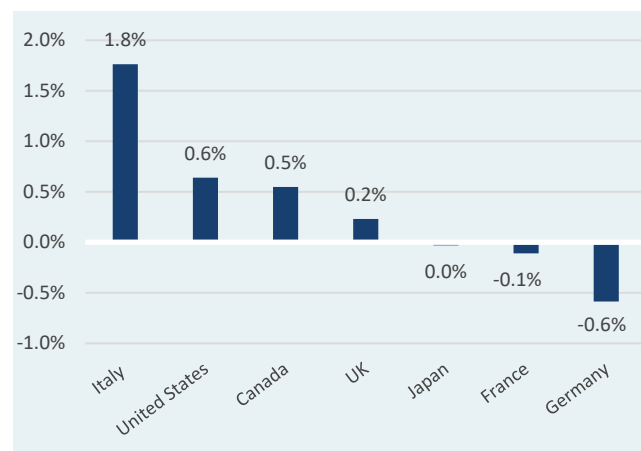


Source: Bloomberg, as of 4/30/20

Global markets

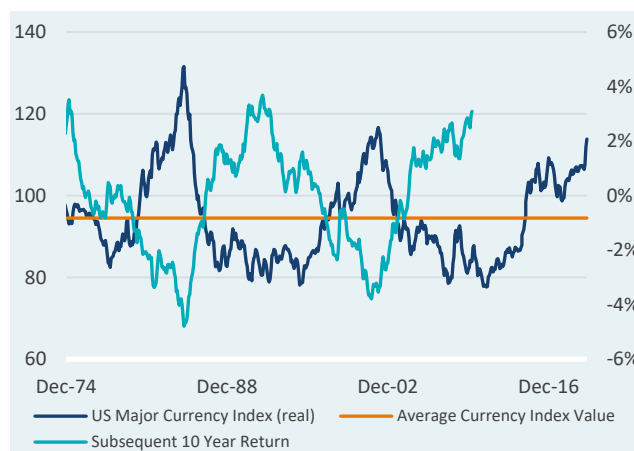
- The pound rallied +1.7% against the U.S. dollar, resulting in currency tailwinds for unhedged U.S. investors in U.K. equities. The MSCI United Kingdom Index, hedged to U.S. dollars, returned +3.5%, while the unhedged index returned +5.1%.
- In Q1 2020, Chinese GDP contracted at a -6.8% quarter over quarter annualized rate, marking the first contraction since 1992. The People’s Bank of China has stepped forward to provide support to its economy, which was battered by COVID-19 related disruptions in Q1. Aggregate financing to the real economy increased 12.0% year-over-year in April, a 22-month high.
- Global equities (MSCI ACWI +10.7%) outperformed both emerging market equities (MSCI EM +9.2%) and international developed equities (MSCI EAFE +6.5%), likely buoyed by a bounce back in U.S. equities. The four countries with the largest economies in the Eurozone were among the top six countries in terms of confirmed COVID-19 cases.
- The J.P. Morgan Global FX Volatility Index declined from 11.0% to 8.6%, after hitting multi-year peaks at 15.0% in mid-March. Currency markets have calmed down markedly following the Fed’s rollout of liquidity programs which have eased dollar funding pressures.

GLOBAL SOVEREIGN 10-YEAR YIELDS



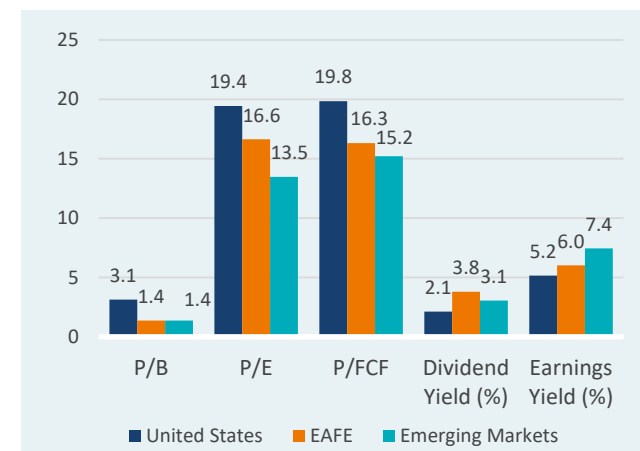
Source: Bloomberg, as of 4/30/20

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 4/30/20

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 4/30/20

Commodities

- The Bloomberg Commodity Index fell -1.5% during the month of April. Precious Metals (+5.9%) and Industrial Metals (+2.3%) significantly outperformed the index overall. The Petroleum component (-14.9%) was a major laggard for the second month in row.
- WTI crude oil futures pricing briefly dropped into negative territory prior to the rolling of the front-month contract from May to June. The precipitous decline in oil demand resulted in a supply glut and the eventual depletion of storage capacity. This forced investors unable to take physical receipt of oil to sell their contracts at negative prices, namely, paying other investors to take their oil.

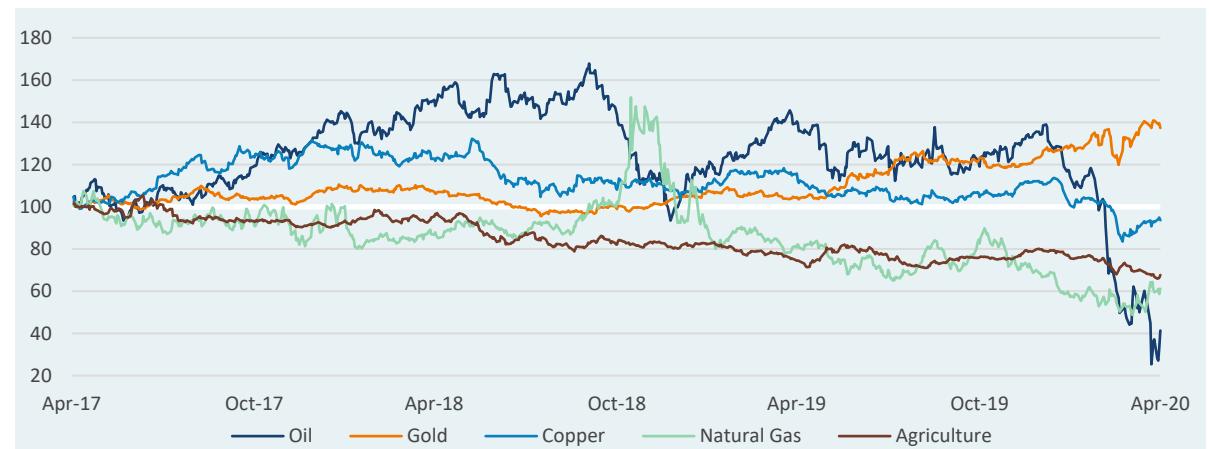
- On April 12th, to prop up oil prices amidst withered demand, OPEC+ agreed to cut production by 9.7 million barrels per day effective May 1st and extending through June. The U.S. Secretary of Energy said about two to three million barrels per day will be taken offline in the U.S. this year due to low prices.
- The Bloomberg Precious Metals Sub-Index posted a +5.9% return for the month as investors sought a store of value amidst many economies' vast stimulus spending. Gold prices rose +6.1% in April to \$1,690 per ounce. Other precious metals including platinum showed their largest monthly gains in almost four years.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(1.5)	(1.5)	(24.5)	(23.2)	(8.6)	(9.1)	(7.1)
Bloomberg Agriculture	(5.7)	(5.7)	(15.0)	(7.6)	(10.5)	(8.2)	(4.4)
Bloomberg Energy	(3.5)	(3.5)	(52.8)	(56.4)	(20.0)	(21.4)	(17.6)
Bloomberg Grains	(6.0)	(6.0)	(12.7)	(4.7)	(9.6)	(9.0)	(4.8)
Bloomberg Industrial Metals	2.3	2.3	(16.6)	(18.1)	(3.7)	(4.4)	(5.5)
Bloomberg Livestock	(5.1)	(5.1)	(31.8)	(37.3)	(14.6)	(11.0)	(6.2)
Bloomberg Petroleum	(14.9)	(14.9)	(66.0)	(66.3)	(22.6)	(23.4)	(16.1)
Bloomberg Precious Metals	5.9	5.9	4.7	23.6	5.9	4.6	1.7
Bloomberg Softs	(3.6)	(3.6)	(19.8)	(14.5)	(15.5)	(9.5)	(6.2)

Source: Morningstar, as of 4/30/20

COMMODITY PERFORMANCE



Source: Bloomberg, as of 4/30/20

Appendix

Periodic table of returns



WORST

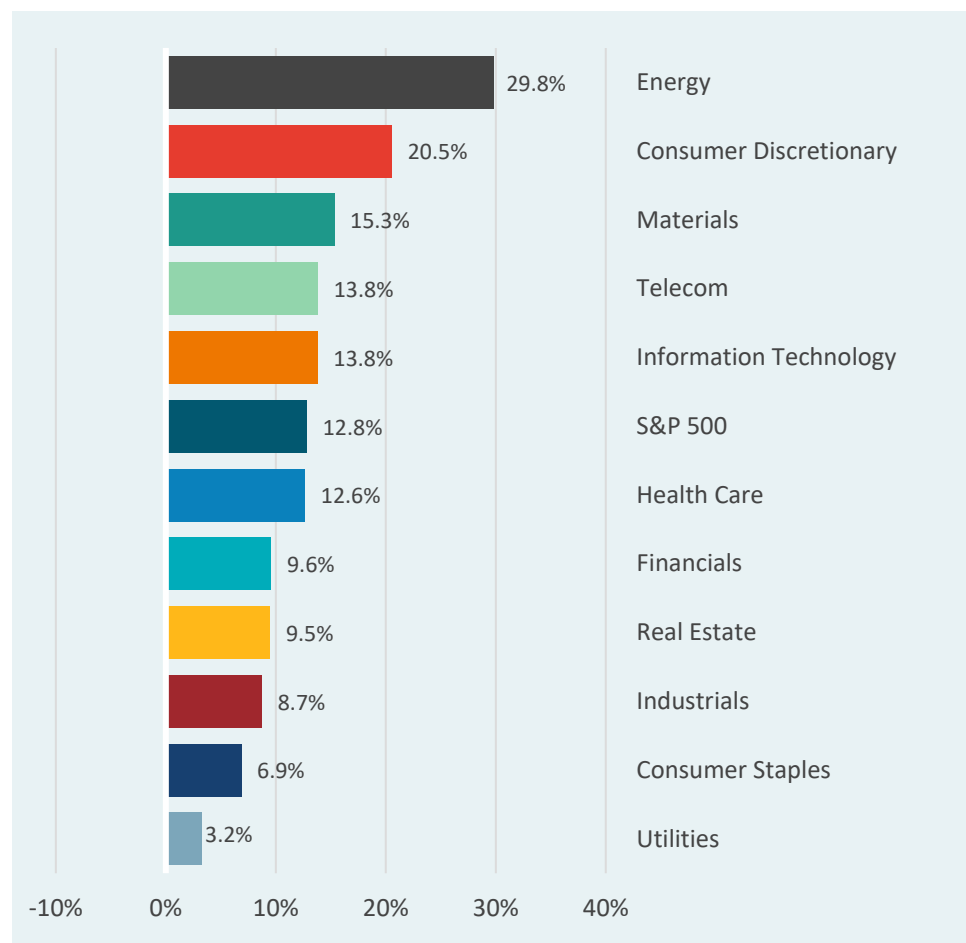
BEST



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 3/31/20.

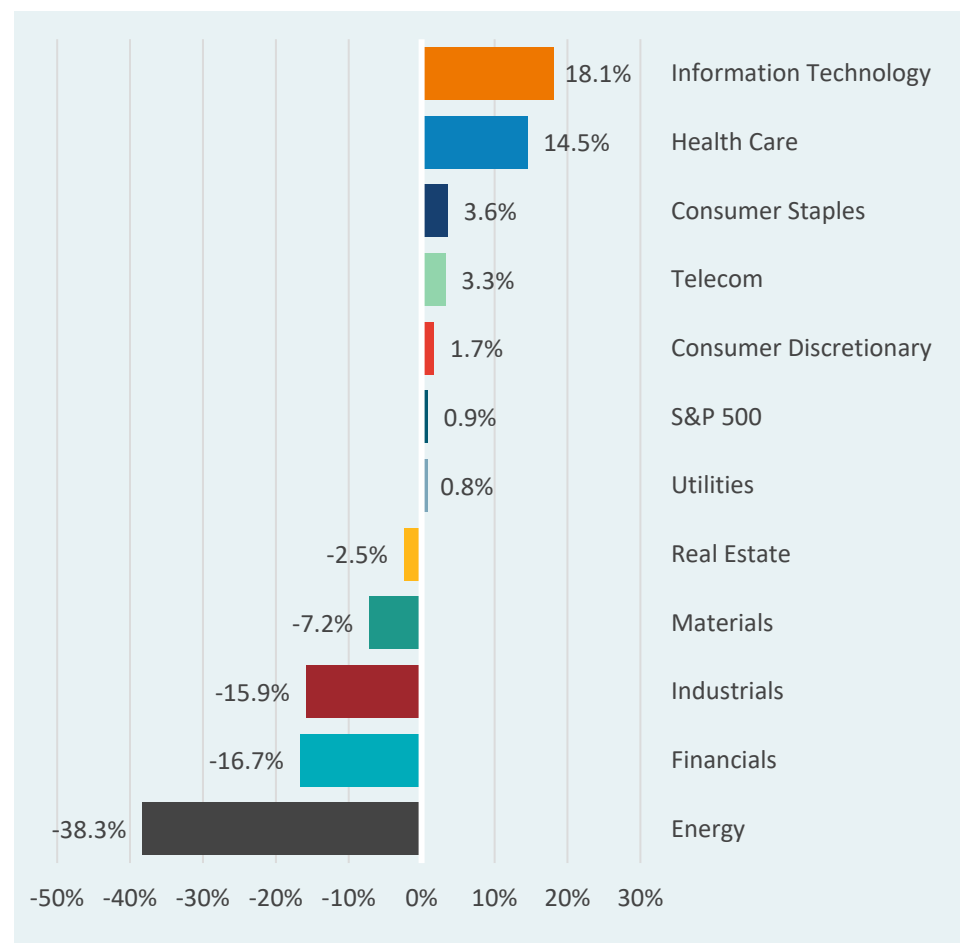
S&P 500 sector returns

QTD



Source: Morningstar, as of 4/30/20

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/20

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	12.8	12.8	(9.3)	0.9	9.0	9.1	11.7
S&P 500 Equal Weighted	14.4	14.4	(16.1)	(8.9)	3.9	5.5	10.4
DJ Industrial Average	11.2	11.2	(14.1)	(6.2)	7.7	9.1	11.0
Russell Top 200	12.8	12.8	(7.1)	3.9	10.7	10.3	12.2
Russell 1000	13.2	13.2	(9.7)	0.1	8.7	8.7	11.6
Russell 2000	13.7	13.7	(21.1)	(16.4)	(0.8)	2.9	7.7
Russell 3000	13.2	13.2	(10.4)	(1.0)	8.0	8.3	11.3
Russell Mid Cap	14.4	14.4	(16.6)	(10.0)	3.5	4.8	9.8
Style Index							
Russell 1000 Growth	14.8	14.8	(1.4)	10.8	15.7	13.3	14.4
Russell 1000 Value	11.2	11.2	(18.5)	(11.0)	1.4	3.9	8.5
Russell 2000 Growth	14.9	14.9	(14.7)	(9.2)	4.2	5.2	10.0
Russell 2000 Value	12.3	12.3	(27.7)	(23.8)	(6.1)	0.3	5.3

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	10.7	10.7	(12.9)	(5.0)	4.5	4.4	6.9
MSCI ACWI ex US	7.6	7.6	(17.5)	(11.5)	(0.3)	(0.2)	2.9
MSCI EAFE	6.5	6.5	(17.8)	(11.3)	(0.6)	(0.2)	3.5
MSCI EM	9.2	9.2	(16.6)	(12.0)	0.6	(0.1)	1.4
MSCI EAFE Small Cap	10.4	10.4	(20.0)	(12.3)	(1.0)	2.1	5.7
Style Index							
MSCI EAFE Growth	7.4	7.4	(11.4)	(2.1)	4.4	3.2	5.6
MSCI EAFE Value	5.4	5.4	(24.4)	(20.5)	(5.7)	(3.7)	1.3
Regional Index							
MSCI UK	5.1	5.1	(25.1)	(20.8)	(3.9)	(3.7)	2.2
MSCI Japan	5.4	5.4	(12.3)	(3.0)	2.4	2.2	4.4
MSCI Euro	5.7	5.7	(22.9)	(17.8)	(3.8)	(1.7)	2.1
MSCI EM Asia	9.2	9.2	(10.6)	(5.7)	3.6	1.8	4.2
MSCI EM Latin American	6.3	6.3	(42.2)	(37.3)	(11.2)	(6.6)	(6.1)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	2.8	2.8	4.5	9.5	4.2	3.1	3.5
BBgBarc US Treasury Bills	0.0	0.0	0.6	2.2	1.8	1.2	0.7
BBgBarc US Agg Bond	1.8	1.8	5.0	10.8	5.2	3.8	4.0
Duration							
BBgBarc US Treasury 1-3 Yr	0.1	0.1	2.9	5.3	2.7	1.9	1.4
BBgBarc US Treasury Long	2.0	2.0	23.4	37.8	13.6	8.4	8.9
BBgBarc US Treasury	0.6	0.6	8.9	14.3	5.8	3.9	3.8
Issuer							
BBgBarc US MBS	0.6	0.6	3.5	7.8	4.0	3.1	3.3
BBgBarc US Corp. High Yield	4.5	4.5	(8.8)	(4.1)	1.9	3.4	5.9
BBgBarc US Agency Interm	0.4	0.4	3.3	6.3	3.2	2.4	2.2
BBgBarc US Credit	4.6	4.6	1.3	9.4	5.4	4.3	5.0

OTHER

Index							
Bloomberg Commodity	(1.5)	(1.5)	(24.5)	(23.2)	(8.6)	(9.1)	(7.1)
Wilshire US REIT	8.4	8.4	(19.4)	(12.4)	0.2	5.7	12.7
CS Leveraged Loans	4.3	4.3	(9.5)	(7.1)	0.5	4.6	5.0
Alerian MLP	47.6	47.6	(38.2)	(43.1)	(19.7)	(15.6)	(1.3)
Regional Index							
JPM EMBI Global Div	2.2	2.2	(11.4)	(5.0)	0.7	2.9	5.1
JPM GBI-EM Global Div	3.9	3.9	(11.9)	(2.7)	0.1	0.4	0.7
Hedge Funds							
HFRI Composite	4.8	4.8	(6.6)	(3.4)	1.2	1.5	3.0
HFRI FOF Composite	2.7	2.7	(6.0)	(3.4)	0.8	0.6	2.0
Currency (Spot)							
Euro	(0.2)	(0.2)	(2.4)	(2.3)	0.2	(0.5)	(1.9)
Pound	1.7	1.7	(4.8)	(3.2)	(0.8)	(3.9)	(1.9)
Yen	1.0	1.0	1.6	4.2	1.4	2.3	(1.3)

Source: Morningstar, HFR, as of 4/30/20

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Board of Trustees

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www.SLOPensionTrust.org



Date: May 18, 2020

To: Board of Trustees

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

Item 15: Asset Allocation Policy – Verus

Recommendation:

That the Board of Trustees receive Verus’ presentation discussing Strategic Asset Allocation policy in the context of a Functionally Focused Portfolio methodology, discuss the concept, and direct staff and Verus how to proceed.

Staff and Verus’ recommendation is to –

1. Approve the use of a Functionally Focused Portfolio (FFP) asset allocation method in concept
2. Direct staff and Verus to bring back a revised Investment Policy Statement built on the FFP method at a future Board meeting.
3. Direct staff and Verus to bring back recommendations on the specific asset allocation policy targets and investment strategies to populate an FFP based portfolio structure over the following 2020 and 2021 Board meetings.

Discussion:

Staff and Verus have discussed the concept of a Functionally Focused Portfolio asset allocation methodology with the Board over several prior meetings. With that education behind us, we are recommending the Board’s agreement to proceed. As Scott Whalen from Verus has noted in the past and addresses in this presentation, the realignment to an FFP policy should take place over a year or more as the various asset allocations to the functional elements are decided.

The advantages of proceeding with an FFP based methodology include –

- Based on functional goals and conceptually simple.
- Diversification across risk factors is improved.
- Higher Sharpe ratio (amount of excess return per unit of risk) can be higher.
- Based on providing a structured and explicit level of liquidity.
- Allows Growth assets to focus on higher risk-adjusted returns with lessened need for liquid assets (e.g., more Private Equity and less Public Market Equity).

Depending on the specifics of the FFP policy to be approved as part of a revised Investment Policy Statement, the level of risk – expressed as the Standard Deviation of expected returns – may be lower for a similar level of expected return. This in turn is expected to translate into a slightly less variable future path for the key metrics of a DB pension system – contribution rates and funded status.

Respectfully Submitted,



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



MAY 2020

Strategic Asset Allocation Update

San Luis Obispo County Pension Trust

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VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

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FFP Review

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)

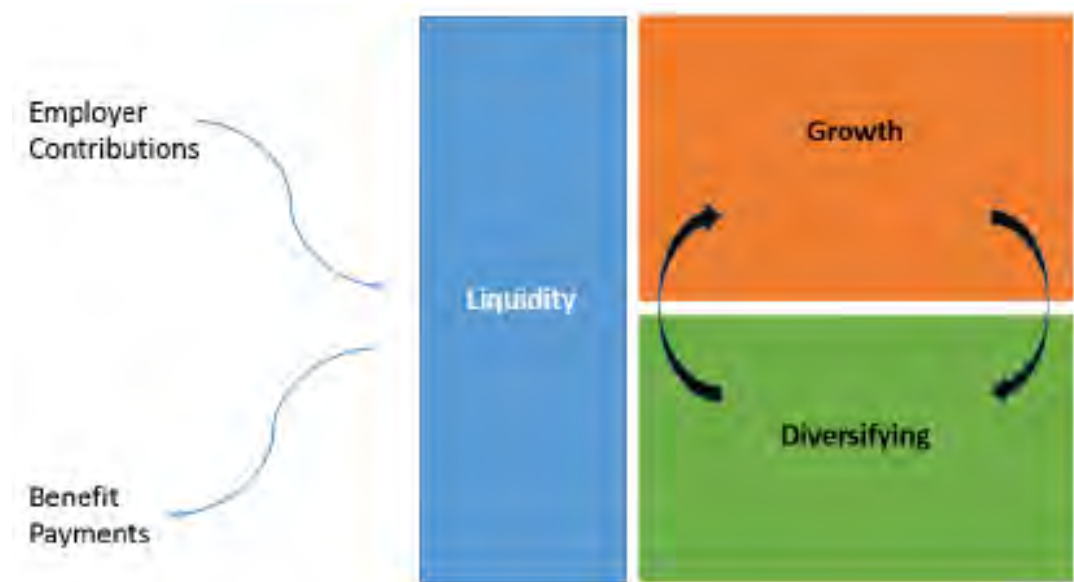
FFP generally calls for a barbell approach with much higher cash and equivalents, much more illiquidity, and highly liquid, low correlation assets in between

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"> • Sovereign debt • Other diversifying assets

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



Asset Allocation

Mean Variance Analysis (updated with 3/31/20 CMAs)

	Policy	FFP	Original Return	Updated Return
US Large	16.0	11.0	5.5	6.3
US Small	4.0	3.0	5.7	6.2
Total Domestic Equity	20	14		
International Developed	13.0	8.0	7.0	8.1
Emerging Markets	7.0	3.0	7.6	8.6
Total Int'l Equity	20	11		
Total Equity	40	25		
Core Plus Fixed Income	15.0	0.0	2.7	2.7
US Treasury	0.0	10.0	1.7	0.7
Short-Term Gov't/Credit	0.0	10.0	1.7	1.2
Bank Loans	5.0	0.0	5.3	4.6
Global Aggregate	5.0	0.0	1.2	1.2
Emerging Market Debt (Hard)	2.5	0.0	5.0	6.9
Emerging Market Debt (Local)	2.5	0.0	5.7	5.5
Total Fixed Income	30	20		
Commodities	5.0	0.0	3.8	3.0
Core Real Estate	10.0	10.0	6.6	6.1
Value Add Real Estate	5.0	5.0	8.6	8.1
Total Real Assets	20	15		
Other Diversifying Assets	0.0	10.0	4.0	5.0
Private Equity	5.0	15.0	8.5	10.5
Private Credit	5.0	10.0	7.0	9.4
Total Non-Public Investments	10	35		
Cash	0.0	5.0	1.9	1.5
Total Allocation	100	100		
	Policy	FFP		
Mean Variance Analysis				
Forecast 10 Year Return	6.6	6.5		
Standard Deviation	11.0	9.6		
Return/Std. Deviation	0.6	0.7		

The recent market dislocation has increased our expectation of 10-year prospective returns by approximately 40 bps per year.

Note: The FFP asset allocation is preliminary, and adjustments may be made through the implementation process.

Transitioning to an FFP allocation

Current Allocation /
Traditional Buckets

Asset Class	Allocation
Domestic Equity	20
International Equity	20
Total Public Equity	40
Core+ Fixed Income	15
Bank Loans	5
Global Bonds	5
Emerging Market Debt	5
Total Fixed Income	30
Commodities	5
Core Real Estate	10
Value-Added Real Estate	5
Total Real Assets	20
Private Equity	5
Private Credit	5
Total Illiquid Assets	10
Total Assets	100



FFP Allocation/
Traditional Buckets

Asset Class	Allocation
Domestic Equity	14
International Equity	11
Total Public Equity	25
Cash	5
Short-Term Gov/Credit	10
US Treasury Bonds	10
Total Fixed Income	25
Core Real Estate	10
Value-Added Real Estate	5
Total Real Assets	15
Private Equity	15
Private Credit	10
Total Illiquid Assets	25
Other Diversifying Assets	10
Total Assets	100



FFP Allocation /
Functional Buckets

Functional Bucket	Allocation
Public Markets Equity	25
Private Equity	10
Private Credit	15
Real Estate	15
Total Growth Assets	65
Cash	5
Short-Term Gov/Credit	10
Total Liquid Assets	15
Treasuries	10
Other Diversifiers	10
Total Diversifying Assets	20
Total Assets	100

Note: The FFP asset allocation is preliminary, and adjustments may be made throughout the implementation process.

Building a diversified growth bucket

Primary Exposures

- Public Equity
- Private Equity
- Private Credit
- Real Estate

Potential Additional Exposures

- Real Estate Debt
- Infrastructure
- Timber
- Agriculture
- Life Settlements
- Insurance-Linked Securities / (“CAT”) Bonds
- Royalties

Additional illiquid investments may help to diversify risk and increase risk-adjusted return when added to primary growth-bucket exposures.

Implementation

Implementation

Activity	2020				2021	2022	2023
	Q1	Q2	Q3	Q4			
Revise IPS		■					
Develop detailed preliminary implementation plan		■					
Design liquidity portfolio		■					
Identify liquidity portfolio managers		■					
Assess alternative private markets approaches		■					
Design diversifying portfolio				■			
Design growth portfolio				■			
Implement				■			

Transitioning from a traditional portfolio to an FFP approach occurs in multiple steps over multiple years as growth portfolio is funded over time.

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Board of Trustees

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Date: May 18, 2020

To: Board of Trustees

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

Item 16: Cash Overlay Strategy Review – Verus

Recommendation:

That the Board of Trustees receive Verus' memo discussing the previously adopted Cash Overlay Strategy, review and discuss the strategy and direct staff and Verus how to proceed.

Staff and Verus' recommendation is to –

1. Based on the previously approved Cash Overlay Strategy, reactivate the use of the Cash Overlay managed by Parametric.

Discussion:

The attached memo from Verus addresses the history and current deactivated status of the Cash Overlay strategy. Staff and Verus recommend that in the wake of the current pandemic impacted market disruptions that now is appropriate to reactivate the Cash Overlay strategy.

Under the previously approved strategy managed by Parametric (formerly named The Clifton Group) this reactivation is an administrative matter for Staff.

The use of a Cash Overlay strategy is consistent with any asset allocation policy including the Functionally Focused Portfolio methodology recommended in the previous item the Board agenda.

Respectfully Submitted,

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Memorandum

To: Board or Trustees, San Luis Obispo County Pension Trust

Cc: Carl Nelson, Executive Director

From: Scott J. Whalen, CFA, CAIA

Date: May 18, 2020

Re: Re-starting Cash Equitization Program

Introduction

The Board entered into an agreement with Parametric (f/k/a The Clifton Group) in early 2009 to provide overlay services designed to reduce the cash drag on the portfolio's investment return. This program was suspended a few years later as concerns over market pricing and valuations emerged, and we have been looking for a reasonable re-entry point ever since. The current market dislocation may provide such an opportunity, and this memo aims to refamiliarize the Board with the overlay program and inform the Board of the potential to re-start it.

Program Review

Objectives

The primary objective of a cash overlay program is to improve the expected return of the overall portfolio by ensuring residual portfolio cash is invested in accordance with the policy asset allocation. A secondary objective is to help simplify the management of SLOCPT's liquidity needs.

Program Description

A Cash Overlay program can be defined as an investment process that allows an investor to more efficiently implement an investment strategy using financial tools and information technology to reduce value leakage. The value leakage in this case comes from operational and residual investment manager cash not invested in accordance with the target asset allocation defined in SLOCPT's investment policy. This may be remedied through the use of an overlay services manager who uses fully collateralized financial futures to gain investment market exposure in approximate proportion with the policy target allocation.

Program Benefits

The clear benefit of the program comes from the fact that over time, the policy allocation is expected to return more than cash. This is particularly true in the current market environment where the return on cash is near zero. If un-invested cash approximates 3% of the total portfolio,

and one conservatively assumes a long-term excess return over cash of 3-4%, SLOCPT is experiencing around 10 basis points of annual value leakage. For SLOCPT's portfolio, this equates roughly to \$1.25 million in lost investment returns each year.

Program Risks

Of course, nothing is gained without some risk, and several risks exist with this program as well, although are modest and manageable.

The most obvious risk is that cash may outperform the investment portfolio over the life of the program. While this is often the case in the short-term, it occurs much less frequently over longer time periods, and our high-conviction expectation is that the policy portfolio return will exceed a cash return over the life of the program.

Another risk is that a portfolio of financial futures cannot be constructed to precisely mirror SLOCPT's policy allocation. This is due to the absence of or limited availability of futures contracts in certain asset classes. Therefore, the performance of an overlay program will experience some tracking error relative to the performance of the rest of the Plan's investment portfolio. This is a minor risk, and one that at times could actually favor the Plan.

A third risk is that increased volatility may lead to program losses, which could result in a margin call at a time when an investor can least afford it. This risk is managed by maintaining sufficient margin to act as a buffer through extreme market conditions.

Potential Next Steps

When SLOCPT's overlay program was suspended, we were concerned that market valuations were high and the residual cash in the portfolio would provide attractive optionality in the event of a significant market dislocation. The current global health crisis has led to such a dislocation and provides a potentially attractive point at which to re-initiate the program.

We will continue to monitor the situation with SLOCPT Staff and provide a recommendation to re-start the program, as appropriate.

Board of Trustees

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Date: May 18, 2020

To: Board of Trustees

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

Agenda Item 17: Asset Allocation & Rebalancing - May 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 2Q20 are in process throughout the quarter. Additional transfers for the purpose of rebalancing are planned during the remainder of 2Q20 and through 3Q20 as recommended by Verus. The anticipated changes are administrative matters pursuant to the adopted investment policy and are summarized below.

Operational Transfers – 2Q20				
Timing	Source	Amount	To	Comment
5/1/20	Pacific Asset Mgmt. Bank Loans	\$6m	Cash	Liquidity
Late May	Cash + Treasury	\$9m	Retiree payroll	Mthly liquidity
June	Dodge & Cox Bonds	~\$9m	Cash	liquidity
June	BlackRock Bonds	~\$9m	Cash	Liquidity
May-Jun	Cash	~\$11m	Private Credit & Private Equity	Est. capital calls
Late June	Cash + Treasury	~\$9m	Retiree payroll	Mthly liquidity

Rebalancing Transfers – 2Q20 and 3Q20				
Timing	Source	Amount	To	Comment
TBD	Gresham Commodities	-\$2m	Cash	Gradual drawdown
TBD	Dodge & Cox Bonds	-\$2m	Cash	rebalance
TBD	BlackRock Bonds	-\$2m	Cash	rebalance
TBD	Cash	+\$1m	PIMCO RA US equity	rebalance
TBD	Cash	+\$1m	Loomis Sayles US equity	rebalance
TBD	Cash	+\$2m	Boston Partners US equity	rebalance
TBD	Cash	+\$2m	Dodge & Cox Intl. equity	rebalance
Pending	JP Morgan Core Real Estate	-\$35m	TBD	Multi-qtr drawdown for rebalance to Value-Add Real estate and others TBD

Respectfully submitted