

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
BOARD OF TRUSTEES
Notice of Regular Meeting / Agenda**

DATE: Thursday, February 27, 2020
TIME: 8:30 a.m.
PLACE: Human Resource Conference Room, 3rd floor East
City Hall, 255 West Alameda
Tucson, Arizona 85701

A. Consent Agenda

1. Retirement Ratifications for February 2020
2. January 2020 TSRS Budget vs. Actual Expenses
3. January 2020 Board Meeting Minutes
4. TSRS January 2020 Investment Measurement Services Monthly Review

B. Call to Audience

C. Investment Activity Report

1. J.P.Morgan Asset Management Infrastructure Investments Fund Presentation
2. IFM Investors Global Infrastructure Fund Presentation
3. TSRS Quarterly Investment Review for 12/31/2019 – Callan

D. Administrative Discussions

1. Investment Policy Statement Review
2. Mayor and Council Presentation
3. Business Services Director Recruitment Update
4. Internal Audit Update

E. Articles & Readings for Board Member Education / Discussion

1. Use Better Assumptions to Pay for Pensions
2. Can Stocks Keep Soaring as the U.S. Dollar Surges

F. Future Agenda Items

G. Adjournment

Please Note: Legal Action may be taken on any agenda item

*Pursuant to A.R.S. 38-431.03(A)(3) and (4): the board may hold an executive session for the purposes of obtaining legal advice from an attorney or attorneys for the Board or to consider its position and instruct its attorney(s) in pending or contemplated litigation. The board may also hold an executive session pursuant to A.R.S. 38-431.03(A)(1) for the discussion or consideration of matters specific to an identified public officer, appointee, or employee or pursuant to A.R.S. 38-431.03(A)(2) for purposes of discussion or consideration of records, information or testimony exempt by law from public inspection.

Report ID : FIN-COT-BA-0001

Run Date : 02/20/2020

Run Time : 09:29 AM

City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Parameter Page

Parameters and Prompts

Fiscal Year	2020
Accounting Period	7
Fund	072
Department	*
Unit	*
Object Code	*

Report Description

The Expenses vs. Actual Report shows expenditures and encumbrances for the selected accounting period and for the selected fiscal year compared against the current expense budget and the unobligated budget balance. The report is sectioned by Department, Fund and Unit and summarized by Object.

City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9001 - Normal Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	5,809,080.51	5,809,080.51	0.00	40,371,942.93	40,371,942.93	71,300,000	30,928,057.07	43.38 %
Total for 100 - PAYROLL CHGS	0.00	5,809,080.51	5,809,080.51	0.00	40,371,942.93	40,371,942.93	71,300,000	30,928,057.07	43.38 %
Total for Unit 9001 - Normal Retiree Benefit	0.00	5,809,080.51	5,809,080.51	0.00	40,371,942.93	40,371,942.93	71,300,000	30,928,057.07	43.38 %

**City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020**

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9003 - Normal Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	378,574.52	378,574.52	0.00	2,648,675.07	2,648,675.07	4,600,000	1,951,324.93	42.42 %
Total for 100 - PAYROLL CHGS	0.00	378,574.52	378,574.52	0.00	2,648,675.07	2,648,675.07	4,600,000	1,951,324.93	42.42 %
Total for Unit 9003 - Normal Retiree Beneficiary Benefit	0.00	378,574.52	378,574.52	0.00	2,648,675.07	2,648,675.07	4,600,000	1,951,324.93	42.42 %

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City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9020 - Disability Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	160,011.27	160,011.27	0.00	1,134,946.94	1,134,946.94	2,100,000	965,053.06	45.95 %
Total for 100 - PAYROLL CHGS	0.00	160,011.27	160,011.27	0.00	1,134,946.94	1,134,946.94	2,100,000	965,053.06	45.95 %
Total for Unit 9020 - Disability Retiree Benefit	0.00	160,011.27	160,011.27	0.00	1,134,946.94	1,134,946.94	2,100,000	965,053.06	45.95 %

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City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
101 - SALARIES & WAGES FOR PERMANENT EMPLOYEES	0.00	21,993.60	21,993.60	0.00	146,057.03	146,057.03	300,770	154,712.97	51.44 %
108 - DOWNTOWN ALLOWANCE & DISCOUNTED TRANSIT PASSES	0.00	103.86	103.86	0.00	648.72	648.72	2,700	2,051.28	75.97 %
113 - TSRS PENSION CONTRIBUTION	0.00	6,048.24	6,048.24	0.00	39,989.60	39,989.60	82,720	42,730.40	51.66 %
114 - FICA (SOCIAL SECURITY)	0.00	1,608.57	1,608.57	0.00	10,870.16	10,870.16	21,680	10,809.84	49.86 %
115 - WORKERS COMPENSATION INSURANCE	0.00	22.29	22.29	0.00	1,163.86	1,163.86	6,550	5,386.14	82.23 %
116 - GROUP PLAN INSURANCE	0.00	2,667.52	2,667.52	0.00	19,137.13	19,137.13	34,840	15,702.87	45.07 %
125 - ONE-TIME DISTRIBUTION	0.00	0.00	0.00	0.00	3,750.00	3,750.00	0	(3,750.00)	0.00%
196 - INTERDEPARTMENTAL LABOR	0.00	0.00	0.00	0.00	0.00	0.00	96,000	96,000.00	100.00 %
Total for 100 - PAYROLL CHGS	0.00	32,444.08	32,444.08	0.00	221,616.50	221,616.50	545,260	323,643.50	59.36 %
202 - TRAVEL	0.00	456.53	456.53	0.00	7,729.75	7,729.75	18,000	10,270.25	57.06 %
204 - TRAINING	0.00	0.00	0.00	0.00	5,615.00	5,615.00	14,000	8,385.00	59.89 %
205 - PARKING SERVICE	0.00	64.00	64.00	0.00	400.00	400.00	500	100.00	20.00 %
212 - CONSULTANTS AND SURVEYS	0.00	18,875.00	18,875.00	0.00	144,745.44	144,745.44	436,000	291,254.56	66.80 %
213 - LEGAL	0.00	0.00	0.00	0.00	19,061.50	19,061.50	50,000	30,938.50	61.88 %
215 - AUDITING AND BANK SERVICES	0.00	0.00	0.00	0.00	8,800.00	8,800.00	380,000	371,200.00	97.68 %
219 - MISCELLANEOUS PROFESSIONAL SERVICES	0.00	630.00	630.00	0.00	5,860.00	5,860.00	884,000	878,140.00	99.34 %
221 - INSUR-PUBLIC LIABILITY	0.00	15.91	15.91	0.00	110.18	110.18	2,970	2,859.82	96.29 %
228 - HAZARDOUS WASTE INSURANCE	0.00	15.91	15.91	0.00	581.87	581.87	660	78.13	11.84 %

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City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM

Fund 072 - TUCSON SUPP RETIREMENT SYSTEM

Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
232 - R&M MACHINERY & EQUIPMENT	0.00	0.00	0.00	0.00	0.00	0.00	1,200	1,200.00	100.00 %
245 - TELEPHONE	0.00	0.00	0.00	0.00	0.00	0.00	1,200	1,200.00	100.00 %
260 - COMPUTER SOFTWARE MAINTENANCE AGREEMENTS	0.00	(65,870.41)	(65,870.41)	681.26	70,935.21	71,616.47	51,000	(20,616.47)	-40.42 %
263 - PUBLIC RELATIONS	0.00	0.00	0.00	0.00	0.00	0.00	2,560	2,560.00	100.00 %
264 - INVESTMENT MGT FEES & COMMISSIONS	0.00	371,073.00	371,073.00	0.00	1,170,629.44	1,170,629.44	3,750,000	2,579,370.56	68.78 %
265 - SECURITIES LENDING (STOCK FEES)	0.00	0.00	0.00	0.00	0.00	0.00	60,000	60,000.00	100.00 %
277 - CARRIED INTEREST EXPENSE	0.00	0.00	0.00	0.00	0.00	0.00	4,500,000	4,500,000.00	100.00 %
284 - MEMBERSHIPS AND SUBSCRIPTIONS	0.00	230.00	230.00	0.00	590.00	590.00	1,500	910.00	60.67 %
Total for 200 - PROF CHARGES	0.00	325,489.94	325,489.94	681.26	1,435,058.39	1,435,739.65	10,153,590	8,717,850.35	85.86 %
311 - OFFICE SUPPLIES	0.00	32.08	32.08	0.00	571.35	571.35	8,500	7,928.65	93.28 %
312 - PRINTING,PHOTOGRAPHY,REPRODUCTION	0.00	1,529.39	1,529.39	0.00	3,828.17	3,828.17	9,000	5,171.83	57.46 %
314 - POSTAGE	0.00	1,515.91	1,515.91	0.00	3,122.03	3,122.03	12,000	8,877.97	73.98 %
317 - COMPUTER SOFTWARE < \$100,000	0.00	0.00	0.00	0.00	287.09	287.09	500	212.91	42.58 %
341 - BOOK, PERIODICALS AND RECORDS	0.00	0.00	0.00	0.00	0.00	0.00	250	250.00	100.00 %
345 - FURNISHINGS, EQUIPMENT AND TOOLS < \$5,000	0.00	0.00	0.00	0.00	0.00	0.00	1,000	1,000.00	100.00 %
346 - COMPUTER EQUIPMENT < \$5,000	0.00	51.41	51.41	0.00	642.33	642.33	1,000	357.67	35.77 %
359 - NON OFFICE SUPPLIES	0.00	0.00	0.00	0.00	2,048.97	2,048.97	0	(2,048.97)	0.00%
Total for 300 - SUPPLIES	0.00	3,128.79	3,128.79	0.00	10,499.94	10,499.94	32,250	21,750.06	67.44 %

City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
Total for Unit 9021 - Pension Fund Administration	0.00	361,062.81	361,062.81	681.26	1,667,174.83	1,667,856.09	10,731,100	9,063,243.91	84.46 %

City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9022 - Disability Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	36,405.34	36,405.34	0.00	247,822.97	247,822.97	370,000	122,177.03	33.02 %
Total for 100 - PAYROLL CHGS	0.00	36,405.34	36,405.34	0.00	247,822.97	247,822.97	370,000	122,177.03	33.02 %
Total for Unit 9022 - Disability Retiree Beneficiary Bene	0.00	36,405.34	36,405.34	0.00	247,822.97	247,822.97	370,000	122,177.03	33.02 %

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**City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020**

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9023 - ACTIVE MEMBER REFUNDS-CONTRBS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	2,883.76	2,883.76	0.00	489,978.12	489,978.12	2,736,000	2,246,021.88	82.09 %
Total for 100 - PAYROLL CHGS	0.00	2,883.76	2,883.76	0.00	489,978.12	489,978.12	2,736,000	2,246,021.88	82.09 %
Total for Unit 9023 - ACTIVE MEMBER REFUNDS-CON	0.00	2,883.76	2,883.76	0.00	489,978.12	489,978.12	2,736,000	2,246,021.88	82.09 %

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City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9025 - INTEREST ON REFUNDS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	28.18	28.18	0.00	7,877.91	7,877.91	50,000	42,122.09	84.24 %
Total for 100 - PAYROLL CHGS	0.00	28.18	28.18	0.00	7,877.91	7,877.91	50,000	42,122.09	84.24 %
Total for Unit 9025 - INTEREST ON REFUNDS	0.00	28.18	28.18	0.00	7,877.91	7,877.91	50,000	42,122.09	84.24 %

City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9026 - DWE SYSTEM BENEFIT PAYMENT

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	0.00	0.00	0.00	29,829.21	29,829.21	200,000	170,170.79	85.09 %
Total for 100 - PAYROLL CHGS	0.00	0.00	0.00	0.00	29,829.21	29,829.21	200,000	170,170.79	85.09 %
Total for Unit 9026 - DWE SYSTEM BENEFIT PAYMENT	0.00	0.00	0.00	0.00	29,829.21	29,829.21	200,000	170,170.79	85.09 %

**City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020**

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9027 - CREDITABLE SERVICE TRANS(ASRS)

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	0.00	0.00	0.00	38,999.90	38,999.90	0	(38,999.90)	0.00%
Total for 100 - PAYROLL CHGS	0.00	0.00	0.00	0.00	38,999.90	38,999.90	0	(38,999.90)	0.00%
Total for Unit 9027 - CREDITABLE SERVICE TRANS(AS	0.00	0.00	0.00	0.00	38,999.90	38,999.90	0	(38,999.90)	0.00%

**City of Tucson
Budget vs Actual Expenses
Through: January, 2020
For Fiscal Year 2020**

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9028 - EXCESS SER TRS/CTY CONT(ASRS)

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	0.00	0.00	0.00	0.08	0.08	0	(0.08)	0.00%
Total for 100 - PAYROLL CHGS	0.00	0.00	0.00	0.00	0.08	0.08	0	(0.08)	0.00%
Total for Unit 9028 - EXCESS SER TRS/CTY CONT(ASR	0.00	0.00	0.00	0.00	0.08	0.08	0	(0.08)	0.00%
Total for Fund 072 - TUCSON SUPP RETIREMENT SYS	0.00	6,748,046.39	6,748,046.39	681.26	46,637,247.96	46,637,929.22	92,087,100	45,449,170.78	49.35 %
Total for Department 900 - TUCSON SUPPL RETIREME	0.00	6,748,046.39	6,748,046.39	681.26	46,637,247.96	46,637,929.22	92,087,100	45,449,170.78	49.35 %
Grand Totals	0.00	6,748,046.39	6,748,046.39	681.26	46,637,247.96	46,637,929.22	92,087,100	45,449,170.78	49.35 %

TUCSON SUPPLEMENTAL RETIREMENT SYSTEM BOARD OF TRUSTEES MEETING MINUTES

DATE: Thursday, January 23, 2020
TIME: 8:30 a.m.
PLACE: Human Resource Conference Room, 3rd floor East
City Hall, 255 West Alameda
Tucson, Arizona 85701

Members Present: Kevin Larson, City Manager Appointee and Acting Chairman
Joyce Garland, Finance Director
James Wysocki, Elected Retiree Representative
Jorge Hernández, Elected Representative
Michael Coffey, Elected Representative (Arrived at 8:44am)

Staff Present Art Cuaron, Pension & Benefits Administrator
Pete Saxton, Pension Manager
Tammy Perry, Pension Assistant
Dave Deibel, Chief Deputy City Attorney

Guests Present Catherine Langford – TSRS Legal Counsel (via Telephone)
John O'Hare CTRA Representative

Absent/Excused: Ana Urquijo, HR Director
Mark Rubin, Chairman

Acting Chairman Kevin Larson called the meeting to order at 8:32am.

A. Consent Agenda (00:00-04:45)

1. Retirement Ratifications for December 2019
2. Retirement Ratifications for January 2020
3. November 2019 TSRS Budget vs. Actual Expenses
4. December 2019 TSRS Budget vs. Actual Expenses
5. November 2019 Board Meeting Minutes
6. TSRS November Investment Measurement Services Monthly Review
7. TSRS December Investment Measurement Services Monthly Review

Kevin Larson asks to modify and approve items 1, 2, 3, 4, 6 & 7 from the Consent Agenda, motion was made by James Wysocki, 2nd by Jorge Hernandez, passes unanimously (Ana Urquijo, Mark Rubin and Michael Coffey absent/excused).

A motion was made to approve item 5, subject to the changes distributed by Art Cuaron, by James Wysocki, 2nd by Jorge Hernandez, passes unanimously (Ana Urquijo, Mark Rubin and Michael Coffey absent/excused).

B. Call to Audience (04:46-04:55)

None heard

C. Administrative Discussions (04:56-07:08)

1. Investment Policy Statement Update

Art briefed the Board on the status of the revisions. He has reviewed the revisions with Cassie and Gordie. They are going to undertake a complete rewrite of this document to make it more reader friendly and to clearly define the Board's role as well and Callan's in the Investment Policy Statement. They will bring it back for consideration in February.

Discussion held, no formal action taken.

2. TSRS Active Board Member Election (07:08-14:23)

Art discusses the process that he undertook for Mr. Hernandez' board seat that ends at the end of January 2020. Interested candidates had until 1/10/2020. Jorge was the only person who expressed interest. The Board can appoint him without an election. Joyce asks if it's normal that we don't have a lot of interest from the general population. Art confirms that it is normal from what he's witnessed. Mr. Wysocki says that in his tenure it's always been this way. He suggests that it might help if the members reached out to others. Art thinks it might be the qualifications and well as the time commitment. Kevin asks how attention is being brought, what the general process is. Art said the process he followed was to send it to the Public Information Office and they send it out as a stand-alone email to all active employees. As well as posted in all of the regular spots for those who do not have email. Jorge said he could take on this task and would be happy to help Mr. Coffey with getting the word out.

Discussion held.

A Motion to re-appoint Jorge Hernandez was made by James Wysocki, 2nd by Michael Coffey, passes unanimously (Ana Urquijo and Mark Rubin absent/excused).

3. Review TSRS Board Rule No. 4 – Employee Member Election (14:23-26:53)

Art briefly explains what the Rule currently says. The chairman of the nominating committee is the active employee who is not up for re-election. He would pick two board members to be on the committee with him and they would be responsible for outreach to bring candidates to the table for the Boards consideration in order to have an election. Instead Art has prepared the notice and sent it out City wide through NewsNet, gauged interested candidates and then he would bring that information to the Board for consideration because it's the Boards decision to put qualified candidates on the ballot. It should really fall to the nominating committee not the administrator. Cassie suggests that we can tweak the Rule a bit to say the nominating committee is both recruitment and nominating and we could use the entire 4th quarter to recruit. We could use the retreat in October as a starting point. We don't necessarily need to change the Rule just get the process started sooner. Kevin thinks maybe we put it on the August or September meeting agenda just to get it started a little earlier.

Discussion held, no formal action taken.

Direction was provided for staff to bring back a revised Board Rule 4 to include the language that was discussed during today's meeting.

4. TSRS FY 2019 Comprehensive Annual Financial Report (26:53-33:59)

Art briefed the Board on the FY 2019 financial report. There were no weaknesses found by the external auditors, everything is sound no deficiencies. We made all of the changes that our internal auditors suggested as of last years letter of governance. Except for 1 or 2 that our ERP department is working on. Joyce asks what the issue is with ERP. Art says his understanding is it's the workflow for approvals in HRM and them not making it a priority. Joyce said they should discuss offline about that in order to get it resolved.

Discussion held, no formal action taken.

Direction was provided to have the City's Internal Audit Division provide a follow up report on the progress of the TSRS Internal Audit undertaken during 2019.

- 5. City of Tucson Deferred Compensation Recordkeeper Update (33:59-40:30)

Art briefs the board on the process that the Deferred Compensation Board has made on choosing a new recordkeeper. We had not done an RFP ever. The process took 8-10 months. They awarded the contract to Empower Retirement. There will be a change in recordkeeper services from ICMA-RC to Empower. Transition begins on 1/27/20 and it's expected to be finished by June 30, 2020. Mr. Wysocki will coordinate with CTRA to have Art speak at their next meeting and explain the changes.

Discussion held, no formal action taken.

D. Articles & Readings for Board Member Education / Discussion

- 1. Most DB Plans Saw Little Funded Improvement in 2019
- 2. US Adds 145K Jobs in December, Wage and Labor Market Gains Consistent with Fed's Outlook
- 3. Tackling the Issue of Conflict on Public Fund Boards

E. Future Agenda Items (40:30-44:57)

Joyce and Art will be going before Mayor and Council at the March 3rd study session. They will provide a preliminary budget update.

Joyce wants to discuss the role the Board will have in the recruitment of the new Business Services director. That individual will replace her as board member.

F. Adjournment

Adjourned at 9:17am

Mark Rubin
Chairman of the Board

Date

Art Cuaron
Pension & Benefits Administrator

Date

January 31, 2020



Tucson Supplemental Retirement System

**Investment Measurement Service
Monthly Review**

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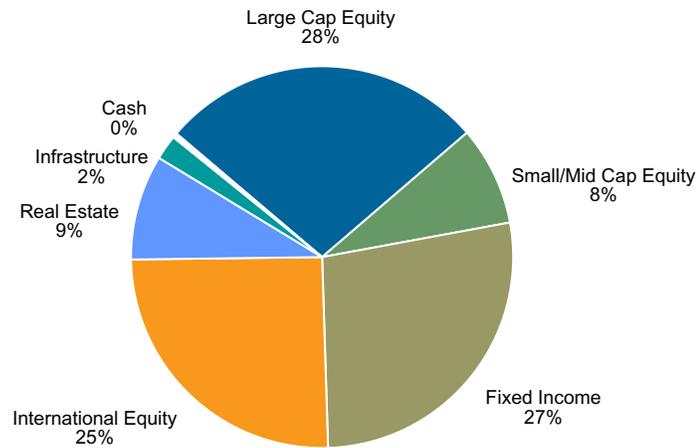
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January 31, 2020

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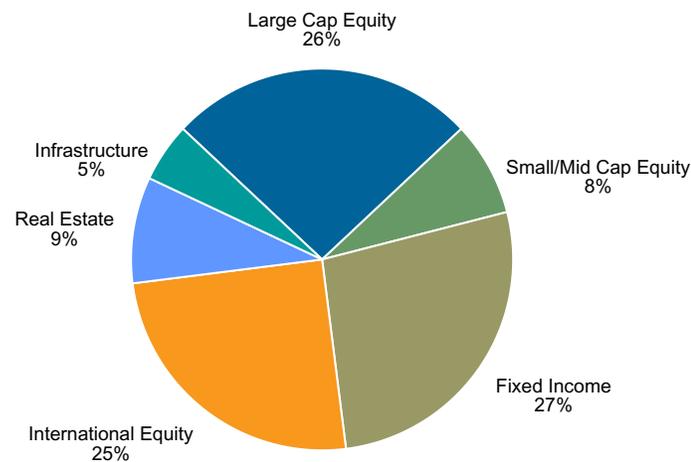
Actual vs Target Asset Allocation

The first chart below shows the Fund's asset allocation as of January 31, 2020. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

Actual Asset Allocation



Target Asset Allocation



Asset Class	\$000s Actual	Percent Actual	Percent Target	Percent Difference	\$000s Difference
Large Cap Equity	239,447	27.5%	26.0%	1.5%	13,145
Small/Mid Cap Equity	73,196	8.4%	8.0%	0.4%	3,565
Fixed Income	238,586	27.4%	27.0%	0.4%	3,580
International Equity	220,519	25.3%	25.0%	0.3%	2,921
Real Estate	77,466	8.9%	9.0%	(0.1%)	(869)
Infrastructure	17,887	2.1%	5.0%	(2.9%)	(25,633)
Cash	3,290	0.4%	0.0%	0.4%	3,290
Total	870,390	100.0%	100.0%		

*Current Month Target Performance is calculated using monthly rebalancing.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of January 31, 2020, with the distribution as of December 31, 2019. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	January 31, 2020		Net New Inv.	Inv. Return	December 31, 2019	
	Market Value	Weight			Market Value	Weight
Domestic Equity	\$312,642,750	35.92%	\$3,887	\$(656,620)	\$313,295,483	35.82%
Large Cap Equity	\$239,446,564	27.51%	\$801	\$145,350	\$239,300,412	27.36%
Alliance S&P Index	72,934,175	8.38%	0	(27,389)	72,961,564	8.34%
PIMCO StocksPLUS	37,964,120	4.36%	0	50,672	37,913,448	4.33%
BlackRock Russell 1000 Value	62,740,245	7.21%	0	(1,362,942)	64,103,188	7.33%
T. Rowe Price Large Cap Growth	65,808,023	7.56%	801	1,485,009	64,322,212	7.35%
Small/Mid Cap Equity	\$73,196,186	8.41%	\$3,086	\$(801,970)	\$73,995,071	8.46%
Champlain Mid Cap	36,604,965	4.21%	3,086	125,138	36,476,741	4.17%
Pyramis Small Cap	36,591,222	4.20%	0	(927,108)	37,518,330	4.29%
International Equity	\$220,518,659	25.34%	\$0	\$(7,742,467)	\$228,261,126	26.09%
Causeway International Opps	86,639,237	9.95%	0	(4,585,268)	91,224,505	10.43%
Aberdeen EAFE Plus	88,161,916	10.13%	0	(2,336,827)	90,498,743	10.35%
American Century Non-US SC	45,717,506	5.25%	0	(820,372)	46,537,878	5.32%
Fixed Income	\$238,585,809	27.41%	\$(15,632)	\$3,955,928	\$234,645,514	26.82%
BlackRock U.S. Debt Fund	120,720,171	13.87%	(15,632)	2,296,955	118,438,848	13.54%
PIMCO Fixed Income	117,865,638	13.54%	0	1,658,973	116,206,665	13.28%
Real Estate	\$77,466,313	8.90%	\$(512,763)	\$209,396	\$77,769,681	8.89%
JPM Strategic Property Fund	52,020,243	5.98%	(512,763)	209,396	52,323,610	5.98%
JPM Income and Growth Fund	25,446,071	2.92%	0	0	25,446,071	2.91%
Infrastructure	\$17,886,588	2.06%	\$1,552	\$3	\$17,885,032	2.04%
Macquarie European	1	0.00%	1,552	3	-1,554	(0.00%)
SteelRiver Infrastructure	17,886,587	2.06%	0	0	17,886,587	2.04%
Total Cash	\$3,289,906	0.38%	\$382,249	\$4,008	\$2,903,649	0.33%
Cash	3,289,906	0.38%	382,249	4,008	2,903,649	0.33%
Total Fund	\$870,390,025	100.0%	\$(140,707)	\$(4,229,752)	\$874,760,485	100.0%

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended January 31, 2020

	Last Month	Last 12 Months	Last 36 Months	Last 60 Months
Gross of Fees				
Domestic Equity	(0.21%)	18.76%	14.78%	12.86%
Total Domestic Equity Target (1)	(0.52%)	19.37%	13.24%	11.60%
Large Cap Equity	0.06%	19.36%	15.02%	12.69%
S&P 500 Index	(0.04%)	21.68%	14.54%	12.37%
Alliance S&P Index	(0.04%)	21.61%	14.51%	12.33%
S&P 500 Index	(0.04%)	21.68%	14.54%	12.37%
PIMCO StocksPLUS	0.13%	22.64%	14.65%	12.38%
S&P 500 Index	(0.04%)	21.68%	14.54%	12.37%
BlackRock Russell 1000 Value	(2.13%)	15.02%	8.77%	8.78%
Russell 1000 Value Index	(2.15%)	14.88%	8.63%	8.70%
T. Rowe Price Large Cap Growth	2.31%	19.37%	22.07%	17.07%
Russell 1000 Growth Index	2.24%	27.94%	20.04%	15.49%
Small/Mid Cap Equity	(1.08%)	16.82%	14.00%	13.48%
Russell 2500 Index	(2.03%)	12.25%	9.08%	8.93%
Champlain Mid Cap	0.34%	16.72%	16.77%	15.68%
Russell MidCap Index	(0.80%)	16.89%	10.87%	9.50%
Pyramis Small Cap	(2.47%)	16.91%	10.97%	11.04%
Russell 2000 Index	(3.21%)	9.21%	7.28%	8.23%
International Equity	(3.38%)	12.38%	8.16%	4.79%
Total International Equity Target (2)	(2.74%)	9.94%	7.56%	4.88%
Causeway International Opps	(5.03%)	7.89%	6.33%	4.27%
MSCI ACWI ex US	(2.69%)	9.94%	7.62%	4.96%
Aberdeen EAFE Plus	(2.58%)	14.60%	8.23%	4.34%
MSCI ACWI x US (Net)	(2.69%)	9.94%	7.62%	4.96%
American Century Non-US SC	(1.68%)	17.08%	12.46%	-
MSCI ACWI ex US Small Cap	(3.12%)	9.98%	7.14%	6.45%
Fixed Income	1.69%	11.14%	6.12%	4.87%
Blmbg Aggregate Index	1.92%	9.64%	4.62%	3.01%
BlackRock U.S. Debt Fund	1.94%	9.73%	4.73%	3.11%
Blmbg Aggregate Index	1.92%	9.64%	4.62%	3.01%
PIMCO Fixed Income	1.43%	12.54%	7.47%	6.22%
Custom Index (3)	1.41%	10.27%	5.39%	4.63%

(1) The Total Domestic Equity target is currently composed of 76% S&P 500 and 24% Russell 2500 Index.

(2) The Total International Equity Target reflects the MSCI ACWI ex-US (Net Div) through May 2016 and the MSCI ACWI ex-US IMI (Net Div) thereafter.

(3) The PIMCO custom index is composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Previously the index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended January 31, 2020

	Last Month	Last 12 Months	Last 36 Months	Last 60 Months
Gross of Fees				
Real Estate	0.27%	1.38%	5.14%	7.74%
NFI-ODCE Value Weight Gr	0.50%	5.37%	7.06%	8.84%
JPM Strategic Property Fund	0.40%	0.50%	4.93%	7.53%
JPM Income and Growth Fund**	0.00%	3.19%	5.56%	8.19%
NFI-ODCE Value Weight Gr	0.50%	5.37%	7.06%	8.84%
Infrastructure	0.00%	32.00%	22.38%	17.62%
CPI + 4%	0.68%	6.54%	6.00%	5.95%
SteelRiver Infrastructure North Amer.**	0.00%	12.40%	7.02%	9.34%
CPI + 4%	0.68%	6.54%	6.00%	5.95%
Total Fund	(0.48%)	13.78%	10.26%	8.82%
Total Fund Target	(0.26%)	12.64%	8.77%	7.42%

* Current Month Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

**SteelRiver Infrastructure and JPM I&G performance reflects prior quarter market values, as current data is not yet available.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended January 31, 2020

	Last Month	Last 12 Months	Last 36 Months	Last 60 Months
Net of Fees				
Domestic Equity				
Total Domestic Equity Target (1)	(0.21%) (0.52%)	18.75% 19.37%	14.58% 13.24%	12.60% 11.60%
Large Cap Equity				
S&P 500 Index	0.06% (0.04%)	19.35% 21.68%	14.92% 14.54%	12.56% 12.37%
Alliance S&P Index S&P 500 Index	(0.04%) (0.04%)	21.61% 21.68%	14.48% 14.54%	12.30% 12.37%
PIMCO StocksPLUS S&P 500 Index	0.13% (0.04%)	22.64% 21.68%	14.65% 14.54%	12.38% 12.37%
BlackRock Russell 1000 Value Russell 1000 Value Index	(2.13%) (2.15%)	14.98% 14.88%	8.73% 8.63%	8.74% 8.70%
T. Rowe Price Large Cap Growth Russell 1000 Growth Index	2.31% 2.24%	19.37% 27.94%	21.76% 20.04%	16.65% 15.49%
Small/Mid Cap Equity				
Russell 2500 Index	(1.08%) (2.03%)	16.82% 12.25%	13.48% 9.08%	12.79% 8.93%
Champlain Mid Cap Russell MidCap Index	0.34% (0.80%)	16.72% 16.89%	16.17% 10.87%	14.93% 9.50%
Pyramis Small Cap Russell 2000 Index	(2.47%) (3.21%)	16.91% 9.21%	10.52% 7.28%	10.40% 8.23%
International Equity				
Total International Equity Target (2)	(3.39%) (2.75%)	11.96% 9.94%	7.71% 7.56%	4.29% 4.88%
Causeway International Opps MSCI ACWI ex US	(5.03%) (2.69%)	7.89% 9.94%	6.05% 7.62%	3.89% 4.96%
Aberdeen EAFE Plus MSCI ACWI x US (Net)	(2.58%) (2.69%)	14.04% 9.94%	7.58% 7.62%	3.67% 4.96%
American Century Non-US SC MSCI ACWI ex US Small Cap	(1.76%) (3.12%)	15.97% 9.98%	11.37% 7.14%	- 6.45%
Fixed Income				
Blmbg Aggregate Index	1.68% 1.92%	11.12% 9.64%	5.95% 4.62%	4.63% 3.01%
BlackRock U.S. Debt Fund Blmbg Aggregate Index	1.93% 1.92%	9.69% 9.64%	4.69% 4.62%	3.07% 3.01%
PIMCO Fixed Income Custom Index (3)	1.43% 1.41%	12.54% 10.27%	7.17% 5.39%	5.84% 4.63%

(1) The Total Domestic Equity target is currently composed of 76% S&P 500 and 24% Russell 2500 Index.

(2) The Total International Equity Target reflects the MSCI ACWI ex-US (Net Div) through May 2016 and the MSCI ACWI ex-US IMI (Net Div) thereafter.

(3) The PIMCO custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended January 31, 2020

	Last Month	Last 12 Months	Last 36 Months	Last 60 Months
Net of Fees				
Real Estate	0.10%	0.69%	4.24%	6.76%
NFI-ODCE Value Weight Gr	0.50%	5.37%	7.06%	8.84%
JPM Strategic Property Fund	0.15%	(0.00%)	4.13%	6.62%
JPM Income and Growth Fund**	0.00%	2.12%	4.46%	7.05%
NFI-ODCE Value Weight Gr*	0.50%	5.37%	7.06%	8.84%
Infrastructure	0.00%	27.34%	16.59%	13.86%
CPI + 4%	0.68%	6.54%	6.00%	5.95%
SteelRiver Infrastructure North Amer.**	0.00%	11.83%	6.58%	8.69%
CPI + 4%	0.68%	6.54%	6.00%	5.95%
Total Fund	(0.50%)	13.42%	9.66%	8.27%
Total Fund Target	(0.26%)	12.64%	8.77%	7.42%

* Current Month Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

**SteelRiver Infrastructure and JPM I&G performance reflects prior quarter market values, as current data is not yet available.



Memorandum

To: Tucson Supplemental Retirement System (“TSRS”)
From: Callan Real Assets Consulting
CC: Paul Erlendson, Gordie Weightman
Date: November 1, 2019
Subject: Open End Infrastructure Search

Existing TSRS Infrastructure Portfolio

Callan has been monitoring TSRS’s closed end infrastructure portfolio and in regular contact with the two managers: Steel River and Macquarie. Guidance received by Callan from both managers is that TSRS can expect significant proceeds to be returned before year-end 2019 from asset sales, although it may take a few more years to complete the wind-down of those funds.¹ One Steel River asset (“People’s Gas”) is in a sale process and that sale has not had final approval by the regulator. If the regulator does not approval that sale this year, the manager will need to consider other ways to exit the asset and this may extend the life of that fund by several more years. Please see the appendix for additional detail on the two existing funds.

The table below shows the June 30, 2019 NAV for TSRS’s investment in both funds.

Fund	NAV	% of TSRS Portfolio
Macquarie European Infrastructure	\$12,707,974	1.52%
Steel River Infrastructure	\$26,255,691	3.14%
Total Infrastructure	\$38,963,665	4.66%

Open-End Infrastructure Search Update

Callan recently completed an open-end infrastructure fund search to provide options for TSRS to maintain its exposure to the sector through perpetual vehicles. These kind of perpetual vehicles are common in the institutional real estate sector (e.g. TSRS’ existing JP Morgan real estate fund investments) and allow investors to maintain exposure to a diversified portfolio of investments over a long time horizon. This helps maintain the investors’ allocation (without the reinvestment risk of entering/exiting closed end funds), collect periodic income and benefit from long-term appreciation in the portfolio. Investors can choose to collect, or reinvest, the periodic income. Investors can exit these funds by registering their interest with the fund manager, who manages in-bound and out-bound investor activity.

¹ All closed-end funds specify a fund life as part of their fund structure (typically 10 or 12 years), however these fund lives are often extended for an additional one to two (or more years). For example, as part of the investment sale process, a fund manager may be required to keep reserves for potential adjustments and contingent liabilities.

The universe of open-end infrastructure funds is relatively small, although growing. Initially Callan reviewed nine funds and eliminated four because those funds were relatively smaller and/or had insufficient track records compared to the peer set. One fund will not be open to new investors until 2021 and was removed from consideration at this time. Four funds were presented to Callan’s Manager Search Committee on October 7, 2019. Two funds were recommended for TSRS to interview: IFM’s Global Infrastructure Fund (“GIF”) and JP Morgan’s Infrastructure Investments Fund (“IIF”).

The following table contains a high-level comparison of the two offerings.

	IFM – Global Infrastructure Fund	JP Morgan – Infrastructure Investments Fund
Organization / Staffing	IFM was founded by Australian pension funds, to invest in infrastructure, in 1994. IFM has over 360 employees that are focused on infrastructure across its existing platforms, with 65 infrastructure investment specialists.	J.P. Morgan is a large asset manager, with a global footprint. The team is large and has diverse experience.
Experience, Asset & Client Base	The IFM Global Infrastructure Fund had a NAV of \$23 billion as of Q2 2019, with 335 institutional investor clients. The Global Fund has been operating since 2004 and is one of the longest-operating funds in the sector. In addition to this Fund, the Manager has infrastructure debt offerings and an Australian-only infrastructure fund.	The Fund size was \$12 billion in Q2 2019, with over 517 investors. The Fund has been operating since 2007 and is one of the longest-operating funds in the sector. In addition to this Fund, the Manager has significant other real assets offerings, including real estate and transportation funds.
Investment Strategy	The Fund’s primary focus is in Europe and the Americas and across all major sub-sectors of infrastructure, mostly in existing, or “brownfield”, assets, though development, or “greenfield” opportunities will be considered.	The Fund targets infrastructure and infrastructure-related assets located primarily in the US, Canada, Western Europe and Australia, and secondarily in other OECD ² countries.
Diversification	The existing portfolio comprises 16 assets with a high concentration of transport assets (e.g. airport, port and toll roads). The Fund’s portfolio is diversified across regions, with 36% in N. America, 25% in Continental Europe (including Turkey), 21% in the U.K., 16% in other OECD-Americas countries and the balance in non-OECD countries (e.g. Peru/Chile). The Manager reports that it is very close to making a large MLP investment in the US, which will increase sector diversity as well as the share of US investments in the portfolio.	The existing portfolio comprises 19 assets. There is a high concentration of renewables assets, followed by utilities and transport. The Fund’s portfolio is diversified across regions, with 33% in N. America, 35% in Continental Europe, 21% in the U.K, 7% in Australia and the balance in multi-region portfolios. The Manager is close to acquiring a Texas utility (El Paso Electric Company) which will increase sector diversity, as well as the share of US investments in the portfolio.

² Organisation for Economic Co-operation and Development (“OECD”): 36 member countries that represent circa 80% of world trade. Members are Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey and the United States.

	IFM – Global Infrastructure Fund	JP Morgan – Infrastructure Investments Fund
Track Record/ Performance	IFM's performance was the strongest among all candidates considered.	In the past five years, US Dollar ("USD") investors have experienced negative impacts from currency, in-part due to the pressure on sterling following Brexit.
PRI/ESG	IFM is a signatory of the UN Principles of Responsible Investment. ³	J.P. Morgan is a signatory of the UN Principles of Responsible Investment.
Fees	IFM's fee structure is the most attractive of all strategies considered, although it has a catch-up feature. (The Manager is allowed to collect 10% of all profits above an 8% preferred return to the investor. The Fund allows the Manager to 'catch-up' by collecting 33.3% of all performance above 8% until the Manager has received 10% of all returns above the 8%. After that all profits are allocated 90% to the investor and 10% to the Manager) In the past, as the Fund size increased, IFM has rebated fees investors to reflect the larger overall fee income.	J.P. Morgan's expected fee load is more than the IFM, although the Fund does not have a Manager catch-up feature. The Manager will only receive their 15% pro-rata share of excess profits above the 7% preferred return. Performance fees are limited to 13.5% of all excess profits. J.P. Morgan has recently communicated it will reduce the fund fee rate as the fund size increases.
Redemption Policy	No formal lock-up period (e.g. no minimum required investment period). Investor requests to redeem, or exit the fund, have typically been met one quarter after request. Minimal redemption activity over the life of the Fund; circa \$150 million over the last five years.	Four year soft lock-up. If a client submits a redemption within 4 years of the anniversary of their capital drawn down a 4% discount is applied to the redeemed amount. (Note: the 4% is distributed to the Fund, which benefits Fund investors, not the Manager.) The Manager has paid out \$2 billion in redemptions during the life of the Fund.
Yield / Dividend Distributions	Typically paid semi-annually. Investors have the option to retain this yield, or re-invest into the fund. Investors can change this election on an annual basis. Currently 75-80% of investors re-invest their yield.	Typically paid quarterly. Investors have the option to retain this yield, or re-invest into the fund. Investors can change this election with 60 days notice to the Manager. Currently 38% of investors re-invest their yield.
Hedging	IFM only offers new U.S. investors a USD-hedged vehicle.	JP Morgan offers USD investors both an unhedged and hedged vehicle. The hedged vehicle launched in 2019.
Capital call timing	The Fund generally holds new investor closings quarterly. The Fund has a sizeable in-bound queue (\$4.6 billion) Investors committing in Q1 2020 will likely experience a 12-18 month wait before their capital is called.	The Fund generally holds new investor closings monthly. The Fund has a sizeable in-bound queue (\$3.7 billion) Investors committing in Q1 2020 will likely experience a 6-12 month wait before their capital is called.

³ UN Principles for Responsible Investment (PRI) are a set of six principles that provide a global standard for responsible investing as it relates to environmental, social and corporate governance (ESG) factors. <https://www.unpri.org/>

Appendix - TSRS existing infrastructure fund investments

	Steel River North America ("SRIFNA")	Macquarie European Infrastructure Fund III ("MEIF III")
Vintage	2008	2008
Fund Size	USD 1.9 billion	EUR 1.2 billion
TSRS Commitment	USD 20 million	EUR 10 million
Target Return	10-12% Gross IRR (4-6% p.a. yield)	11-15% Net IRR, 1.5x net multiple
Vintage	2008	2008
Region	North America	Europe
Fund Term	20 year term	10 years, plus extensions for up to 4 years
Portfolio	5 investments	4 investments
Performance	4 investments sold	2 investments sold
Expected End of Fund	Several assets sold or in the sale process in 2019. Last asset sale ("People's Gas") is pending approval of PA State regulator. If this is delayed, the fund could require an additional one to two (or more) years to be completed.	The Brussels Airport is being sold, pending final regulatory approval and 90% of NAV expected to be returned to TSRS by year end 2019. The last asset may be sold in 2020-2021; this could be delayed.
Observations	Performance of the fund has been weak – the proceeds from the final asset sale will impact the overall investor return.	All invested capital has been returned to investors – with potential for one strong exit to provide more distributions.
6/30 NAV	\$26,255,691	\$12,707,974
Current Return	Below target	Below target for IRR, above target for multiple

Infrastructure Investments Fund

Tucson Supplemental Retirement System

February 27th, 2020

Strictly Private and Confidential. For the exclusive use of the Tucson Supplemental Retirement System

As of September 30, 2019 and in U.S. dollar terms unless otherwise specified

FOR INSTITUTIONAL/WHOLESALE/PROFESSIONAL CLIENTS AND QUALIFIED INVESTORS ONLY – NOT FOR RETAIL USE OR DISTRIBUTION

ALTs by

J.P.Morgan
Asset Management

Today's Presenters



Shawn Parris, Vice President, is a Client Advisor within J.P. Morgan Asset Management. He is responsible for providing asset management solutions for defined benefit, defined contribution, endowment and foundations for U.S. institutional investors, including corporations, municipalities, not-for-profits, higher education and healthcare systems. Shawn previously worked at Schroders Investment Management as an Institutional Manager. At Schroders he led the relationship management and business development efforts of the firm in the western region. Prior to Schroders, Shawn worked at Philadelphia International Advisors, where he marketed the firm's investment products to clients across North America. Shawn received a B.Sc. in Finance from Drexel University and an MBA from the Lebow School of Business. He holds the FINRA Series 7, 66 and 3 licenses.



Nicholas Moller, Executive Director, is an Investment Specialist within the Infrastructure Investments Group ("IIG") at J.P. Morgan Asset Management. Nick is a senior member of the team that leads the IIG's fundraising and investor relations efforts. Nick has worked at J.P. Morgan for over 13 years and joined the IIG in early 2014. Prior to joining IIG Nick was a member of the J.P. Morgan Investment Bank's Public Finance Transportation and Infrastructure Group. In that role Nick advised both public sector and private sector clients on executing infrastructure and Public Private Partnership transactions. In addition, Nick structured and executed several billion dollars of taxable and tax-exempt financings both for publicly and privately owned infrastructure assets. Nick graduated from the University of Auckland (New Zealand) with a Bachelor of Commerce in Finance (First Class Honors).

For illustrative purposes only. As of September 30, 2019.

Our Commitment to Arizona

Our Corporate Responsibility initiatives help identify solutions to some of the most pressing global economic and social challenges. We are leveraging our core strengths, capabilities, data and expertise to create meaningful and sustainable impact in our communities.

INVESTING IN SKILLS

- Contributed **\$847.9k** to **nonprofits** in support of Workforce Readiness in the state
- Our global workforce readiness initiatives are **working with employers to help develop the talent pipelines** they need to compete and providing adults and young people with critical support, education, and training to build in-demand skills that set them on stable and rewarding career paths

BUILDING THRIVING COMMUNITIES

- **\$2.7B** in commercial bank loans outstanding in the state
- **\$21.5M** in AZ state & local taxes remitted in 2017
- **\$601.9M** in financing to **local nonprofits and government entities** in the state in 2018
- **\$402.1M** in goods and services purchased in the state during 2018

J.P. MORGAN CHASE GRANT HIGHLIGHTS

- A two-year, **\$240,000** grant to **Center for the Future of Arizona** supports the **Arizona Pathways to Prosperity program**, which builds career pathways in Phoenix and Tucson.
- A **\$245,000** to **Maricopa Community District Foundation** to support development and implementation of programs to train veterans and their spouses/partners for middle skills jobs as they transition from the military to the civilian workforce.
- A **\$220,400** grant to **Science Foundation Arizona** supports the development of middle skills internships for high school and community college students throughout Arizona.

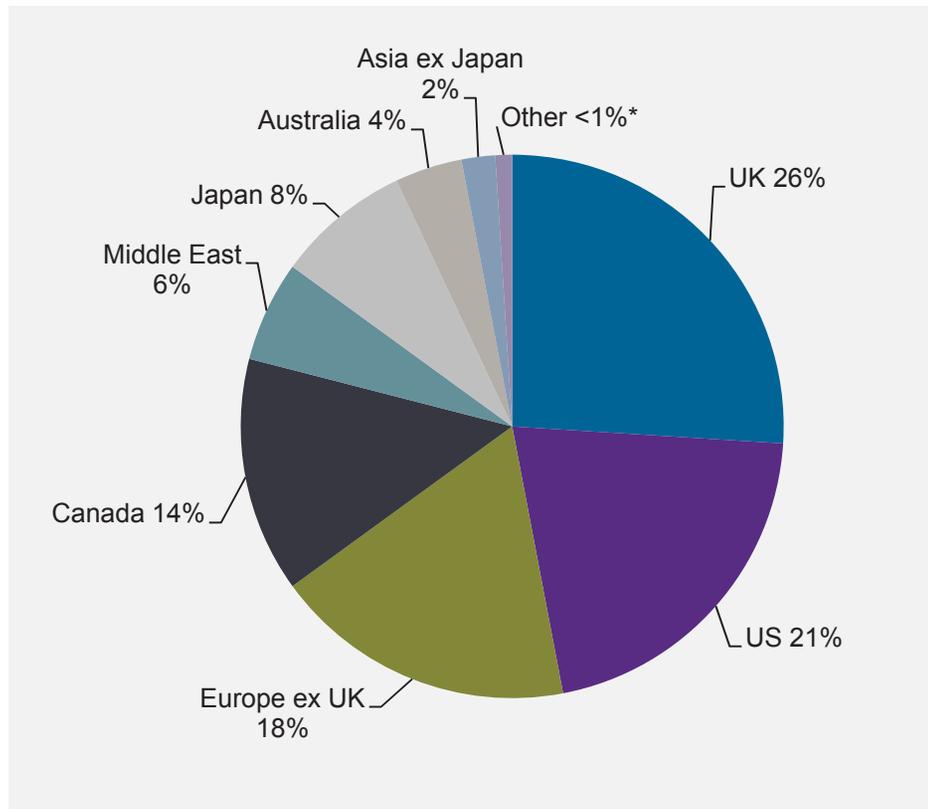
Employees based in AZ: 9.2k | 2.5M Consumer and 268.4k Business Customers in AZ

Source: J.P. Morgan Chase & Co. As at September 30th, 2019

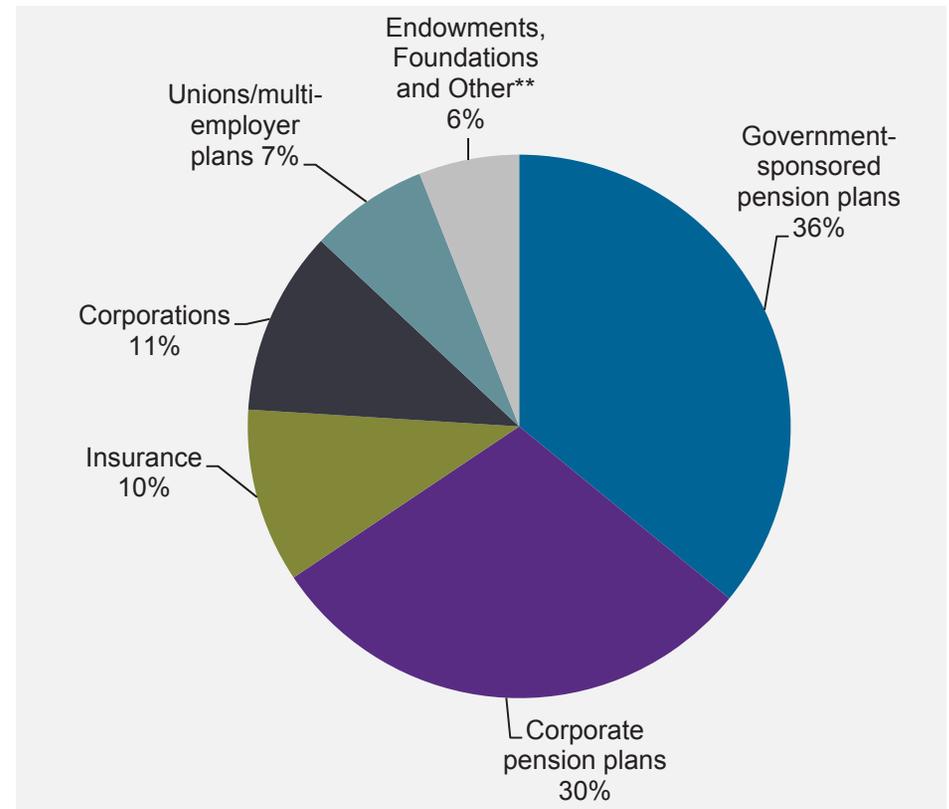
A Diversified Long Term Investor Base Built Over More Than a Decade

IIF has commitments from 574 client accounts across 26 countries

Commitments By Geography



Commitments by Investor Type



Based on committed client accounts as of September 30, 2019. *Other includes Cayman Islands, Bermuda, United Arab Emirates and Thailand. ** Other includes fund of funds, international organizations and High Net Worth Investors. Opinions, estimates, forecasts, and projections are based on current market conditions, constitute our judgment and are subject to change without notice. There can be no guarantee they will be met. Past performance is no guarantee of comparable future results.

Introduction to Infrastructure

Why Core/Core+ Infrastructure Equity?

D

Diversification

- Low correlation to other major asset classes
- Local assets with unique risk/return drivers
- Downside protection and lower volatility

I

Inflation Protection

- Core/core+ infrastructure typically exhibits strong inflation linkage
- Inflation is a pass-through under many contractual and regulatory structures

Y

Yield

- Core/core+ infrastructure typically exhibits strong cash flow generation

For illustrative purposes only.

Public and Private Market Correlations

Public and private market correlations

10-years, quarterly returns

2009 - 2019		Global Bonds	Global Equities	U.S. Core RE	Europe Core RE	APAC Core RE	Global Core Infra	Direct Lending	Venture Capital	Private Equity	Equity Long/Short	Relative Value	Macro
Financial assets	Global Bonds	1.0											
	Global Equities	0.3	1.0										
Global real estate	U.S. Core RE	-0.3	-0.5	1.0									
	Europe Core RE (Continental Europe)	-0.4	-0.3	0.6	1.0								
	APAC Core RE	-0.3	-0.4	0.8	0.7	1.0							
Other real assets	Global Core Infra	-0.2	-0.3	0.4	0.1	0.2	1.0						
Private markets	Direct Lending	0.1	0.5	-0.1	-0.3	-0.3	0.1	1.0					
	Venture Capital	-0.2	0.2	0.2	0.4	0.1	0.1	0.2	1.0				
	Private Equity	0.2	0.8	-0.3	-0.1	-0.2	-0.1	0.6	0.5	1.0			
Hedge funds	Equity Long/Short	0.2	1.0	-0.4	-0.3	-0.4	-0.3	0.6	0.3	0.9	1.0		
	Relative Value	0.3	0.9	-0.6	-0.5	-0.6	-0.3	0.7	0.1	0.7	0.9	1.0	
	Macro	0.3	0.5	-0.2	0.0	-0.2	-0.3	0.2	0.2	0.3	0.5	0.4	1.0

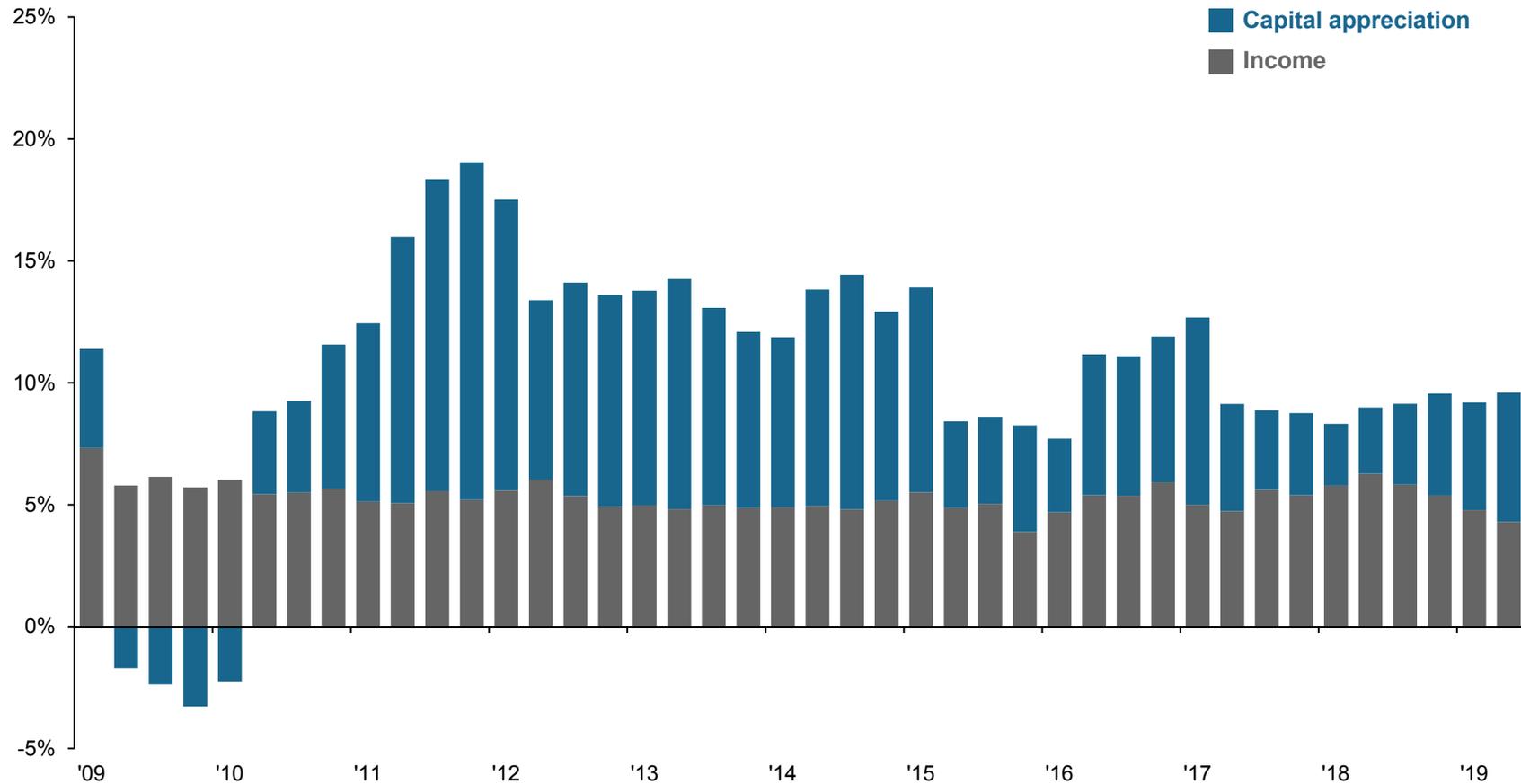
Source: MSCI, Bloomberg Barclays, NCREIF, Cliffwater, Burgiss, HFRI, J.P. Morgan Asset Management. RE – real estate. Global equities: MSCI AC World Index. Global Bonds: Bloomberg Barclays Global Aggregate Index. U.S. Core Real Estate: NCREIF Property Index – Open End Diversified Core Equity component. Europe Core Real Estate: IPD Global Property Fund Index – Continental Europe. Asia Pacific (APAC) Core Real Estate: IPD Global Property Fund Index – Asia-Pacific. Global infrastructure (Infra.): MSCI Global Quarterly Infrastructure Asset Index (equal-weighted blend). U.S. Direct Lending: Cliffwater Direct Lending Index. Global Private Equity: Cambridge Associates Global Private Equity Index. U.S. Venture Capital: Cambridge Associates U.S. Venture Capital Index. Hedge fund indices include equity long/short, relative value, and global macro and are all from HFRI. All correlation coefficients are calculated based on quarterly total return data for the period 06/30/09 – 06/30/19. Returns are denominated in USD.

Data is based on availability as of November 30, 2019.

Sources of Global Infrastructure Returns

Global core infrastructure returns

Rolling 4-quarter returns from income and capital appreciation



Source: MSCI, J.P. Morgan Asset Management.

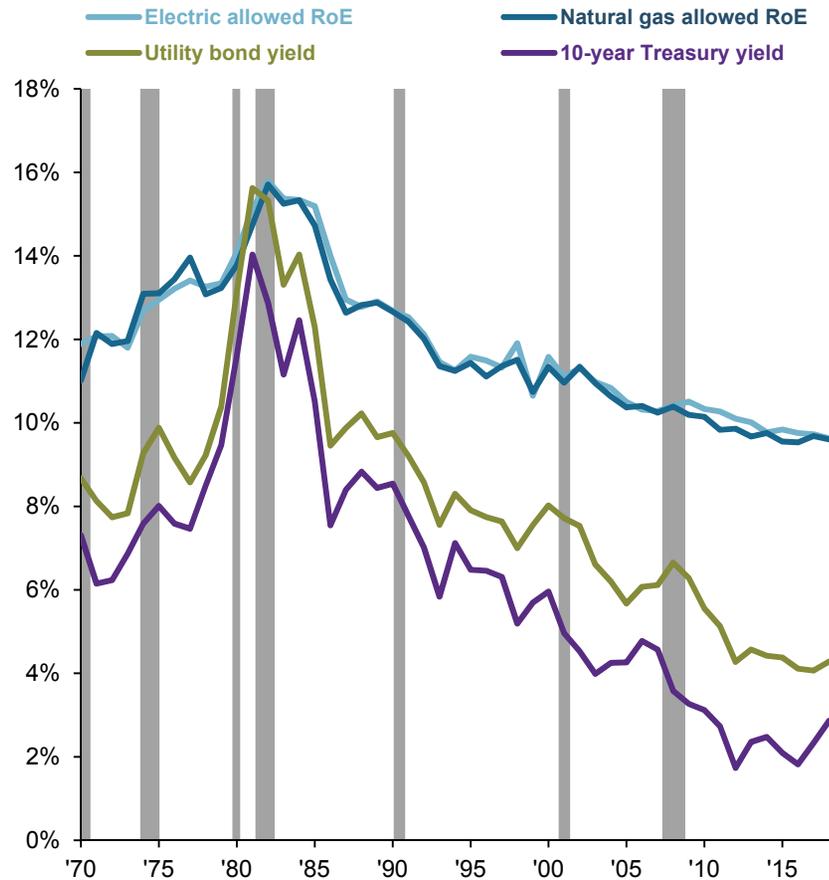
Infrastructure returns represented by the "low risk" category of the MSCI Global Quarterly Infrastructure Asset Index. Data show rolling one-year returns from income and capital appreciation. The chart shows the full index history, beginning in the first quarter of 2009.

Past performance is not indicative of future results. Alternative investments carry more risk than traditional investments and are recommended only for long-term investment. Some alternative investments may be highly leveraged and rely on speculative investments that can magnify the potential for loss or gain. Diversification does not guarantee investment returns or eliminate the risk of loss.

Data is based on availability as of November 30, 2019.

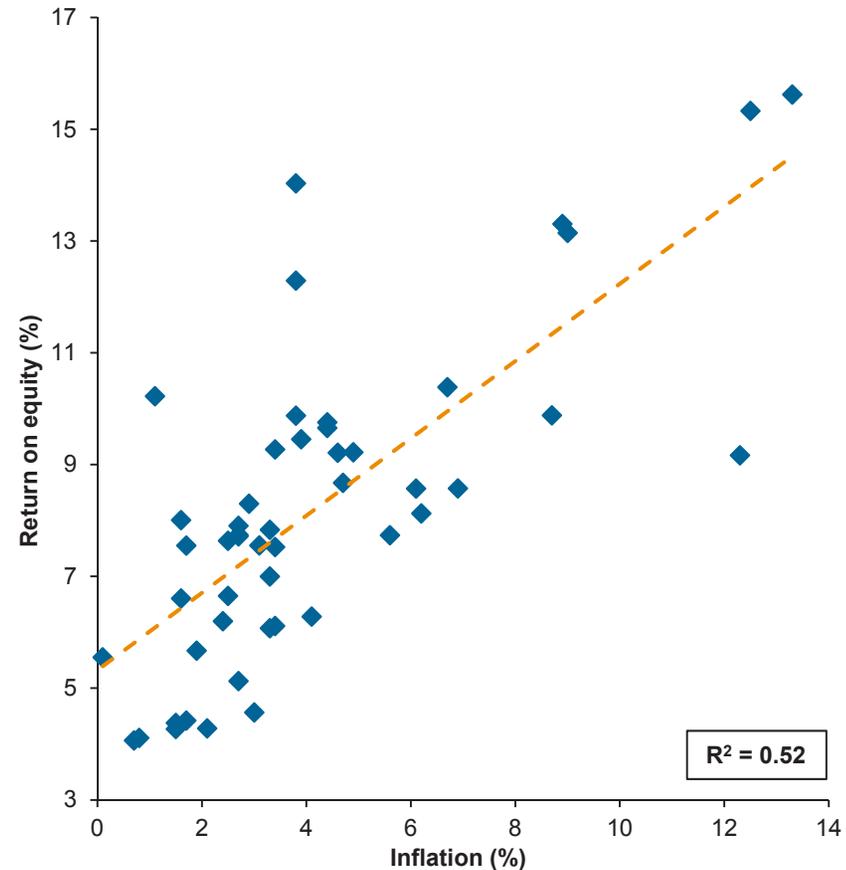
U.S. Utilities: RoE, Inflation and Rates

U.S. utilities' average allowed RoE and interest rates



U.S. utilities' return on equity and inflation

RoE (2-year lagged), CPI % change vs. prior year, 1980-2018



Source: America's Electric Utilities, Moody's, SNL.com, Bloomberg, BLS, JPMAM Global Alternatives Research, J.P. Morgan Asset Management.

RoE is return on equity, which is the amount of net income returned as a percentage of shareholders' equity. Average cost of debt is represented by the trailing 6-month average of Moody's utilities yields. Grey bars denote recessions

Data is based on availability as of November 30, 2019.

We Define Core Investment Strategy Focusing on Yield

Essential services that often operate on a monopolistic basis either by regulatory structure or long-term contract, which drives visibility into cash yield

Distribution/Regulated Assets:

Monopolistic regulatory frameworks give visibility into stable cash flows

- Water and wastewater
- Electricity distribution/transmission
- Natural gas distribution



Contracted/Power Assets:

Long-term contracts with volume minimums which typically result in yield approximating total return

- Conventional generation
- Renewable generation
- Storage



GDP-Sensitive Assets:

Mature assets with significant demand history often underpinned by long-term contracts

- Airports (*with contracts*)
- Seaports (*with contracts*)
- Rail Leasing (*with contracts*)



For illustrative purposes only.

Infrastructure Investments Fund

IIF – Open Ended Core/Core+ Infrastructure Portfolio

Seeks to deliver diversification, inflation protection, stable cash yield (“D.I.Y.”) and attractive risk-adjusted returns through market cycles

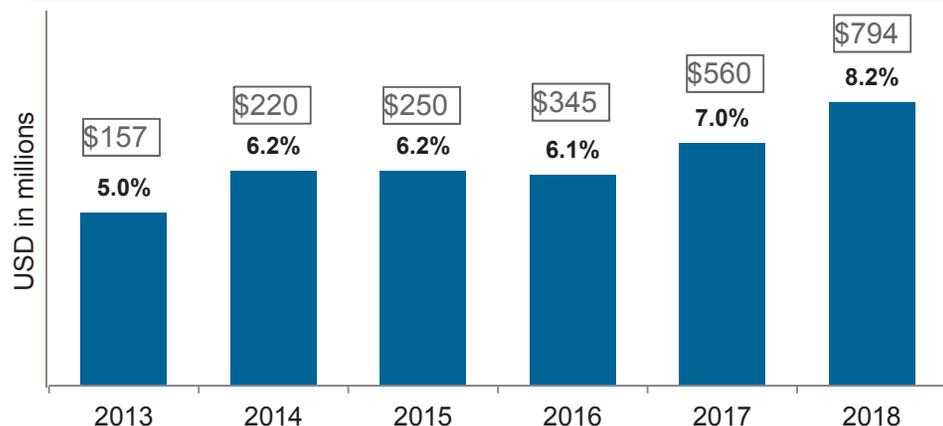
Strategy Overview

- Founded in 2006; open-ended perpetual structure
- Core/core+ infrastructure; long-term, contracted/regulated assets
- 19 portfolio companies (464 assets) in 25 countries & 12 subsectors
- Target control investments in private middle market platforms: Average equity transaction size of ~USD 75mm since 2013
- ESG integrated into investment and asset management processes
- **Estimated queue of 6 - 12 months or less from closing (subject to change)**

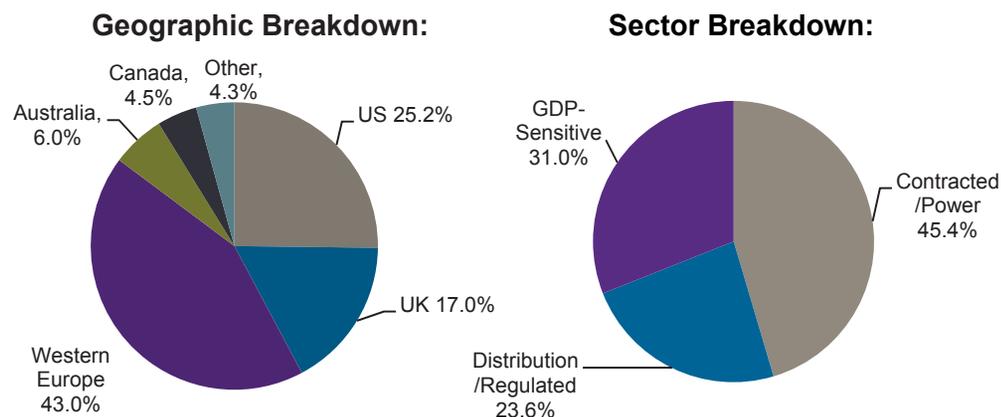
Summary of Key Strategy Elements

Net Asset Value	■ USD 12.0 billion (53% loan-to-value)
Target Return	■ 8-12% net ¹
Target Cash Yield	■ 5-7% on NAV ¹
Sector/Geographic Focus	■ Distribution/Regulated, GDP-Sensitive & Contracted/Power in OECD
Governance	■ Co-largest/controlling owner of 16 of 19 portfolio companies

Cash Yield as Foundation of Total Return (% p.a.)²

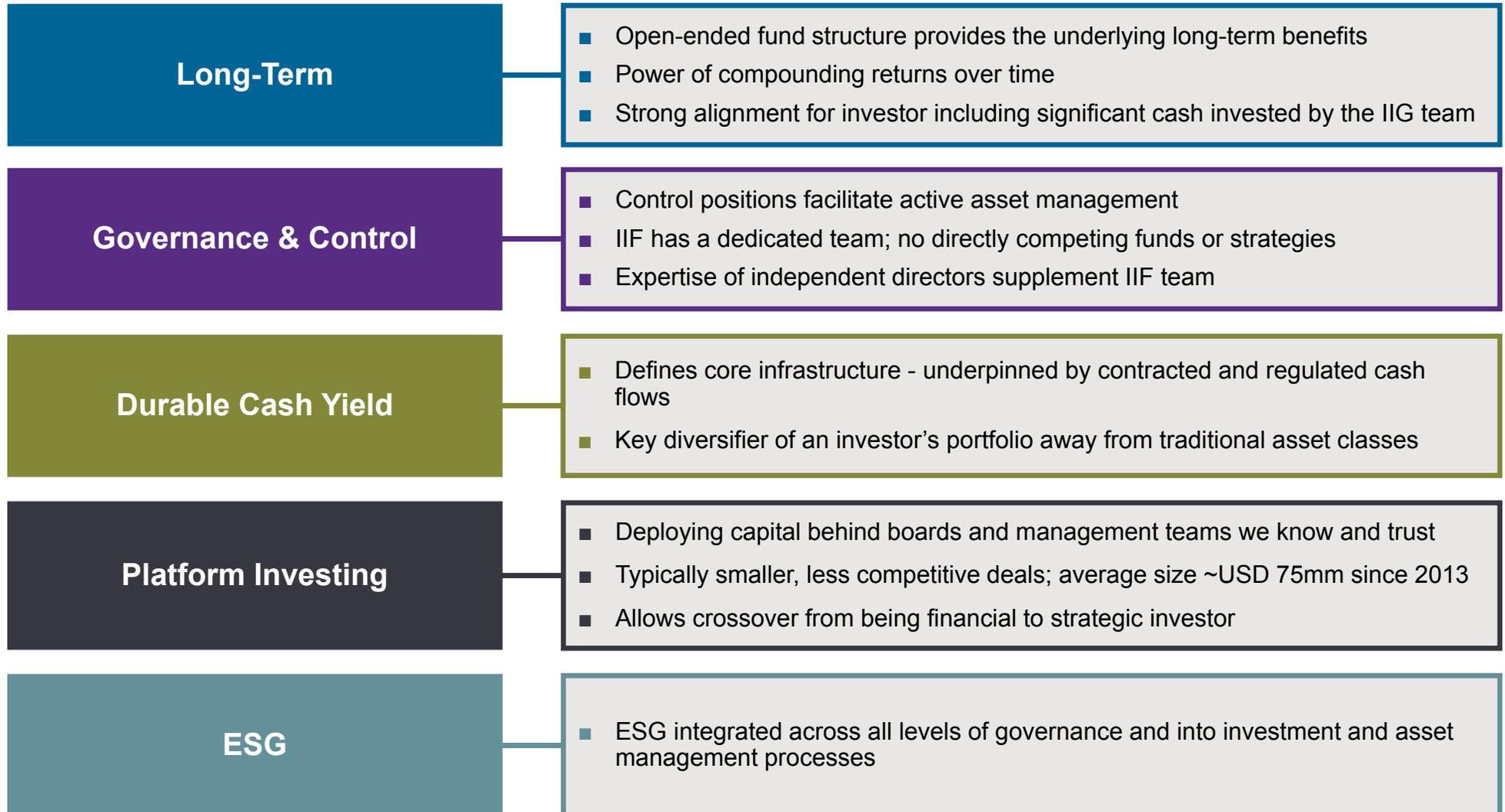


Existing Portfolio



All data as of September 30, 2019. The advisor seeks to achieve the stated objectives. There can be no guarantee the objectives will be met. ¹The target returns and cash yield are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns or yield similar to the targets shown above. Please see the complete Target Return disclosure at the conclusion of the presentation for more information on the risks and limitation of target returns. ²Yield on NAV, the one-year cash yields were calculated using individual quarterly cash yields. Majority of yield expected to be ordinary income with the balance return of capital. ³Other includes Japan, Chile and South Africa. ⁴2.4% invested in Sweden, which is denominated in SEK.

IIF Investment Philosophy – Long-Term Ownership and Accountability



For illustrative purposes only. As of September 30, 2019.

Dedicated IIG Team of 52 Supported by 80 Independent Directors Across the Portfolio



Paul Ryan, MD
Portfolio Manager
New York



Matthew LeBlanc, MD
Chief Investment Officer
New York



Brian Goodwin, MD
Head of Portfolio Asset Management
New York

Investment & Asset Management Team — New York



Landy Gilbert
Managing Director



Andrew Kapp
Managing Director



Hai-Gi Li
Managing Director



Ed Wu
Executive Director



Kathleen Lawler
Executive Director



Dan Mitaro
Executive Director



Marko Josipovic
Vice President



Preston Scherer
Vice President



Georgina Yea
Associate



Clara Lequin
Associate



Stephen Leh
Associate



Michael Karp
Associate



Sophia Sciabica
Associate



Mauricio Palazzi
Associate

Investment & Asset Management Team — London



John Lynch
Managing Director



Rob Hardy
Managing Director



Mark Walters
Managing Director



Sara Sulaiman
Executive Director



Mark Scarsella
Executive Director



Ben Francis
Vice President



Farah Meroue
Vice President



Sneha Sinha
Vice President



Gary Blackburn
Associate



Michelle van Ryneveld
Associate



Jack Gillespie
Associate



Frederico Correia
Associate



Alexandru Godoroja
Associate

Finance/Tax

Stephen Liu, ED
Manura Miriyagalla, ED
Esther Cho, VP
April Lee, VP
Sara Scoppetuolo, VP
Simon Choi, Associate

Client Strategy



Nick Moller
Executive Director
New York



Gilly Zimmer
Executive Director
New York



Dan Galinko
Vice President
New York



Chris Simard
Vice President
New York



Cassie Winn
Vice President
New York

Fund Execution



Amanda Wallace
Managing Director
New York



Hannah Logan
Executive Director
London



Ebru Sert
Executive Director
New York



Sinead Browne
Associate
New York

Research



Karthik Narayan
Vice President
New York



Katarina Roele
Associate
London

Client Service

Jonathan Schwartz, VP
Esandra Blackwood, VP
Frances Huang, Associate
Nina Maurio, Associate
Penn Sednaoui, Associate

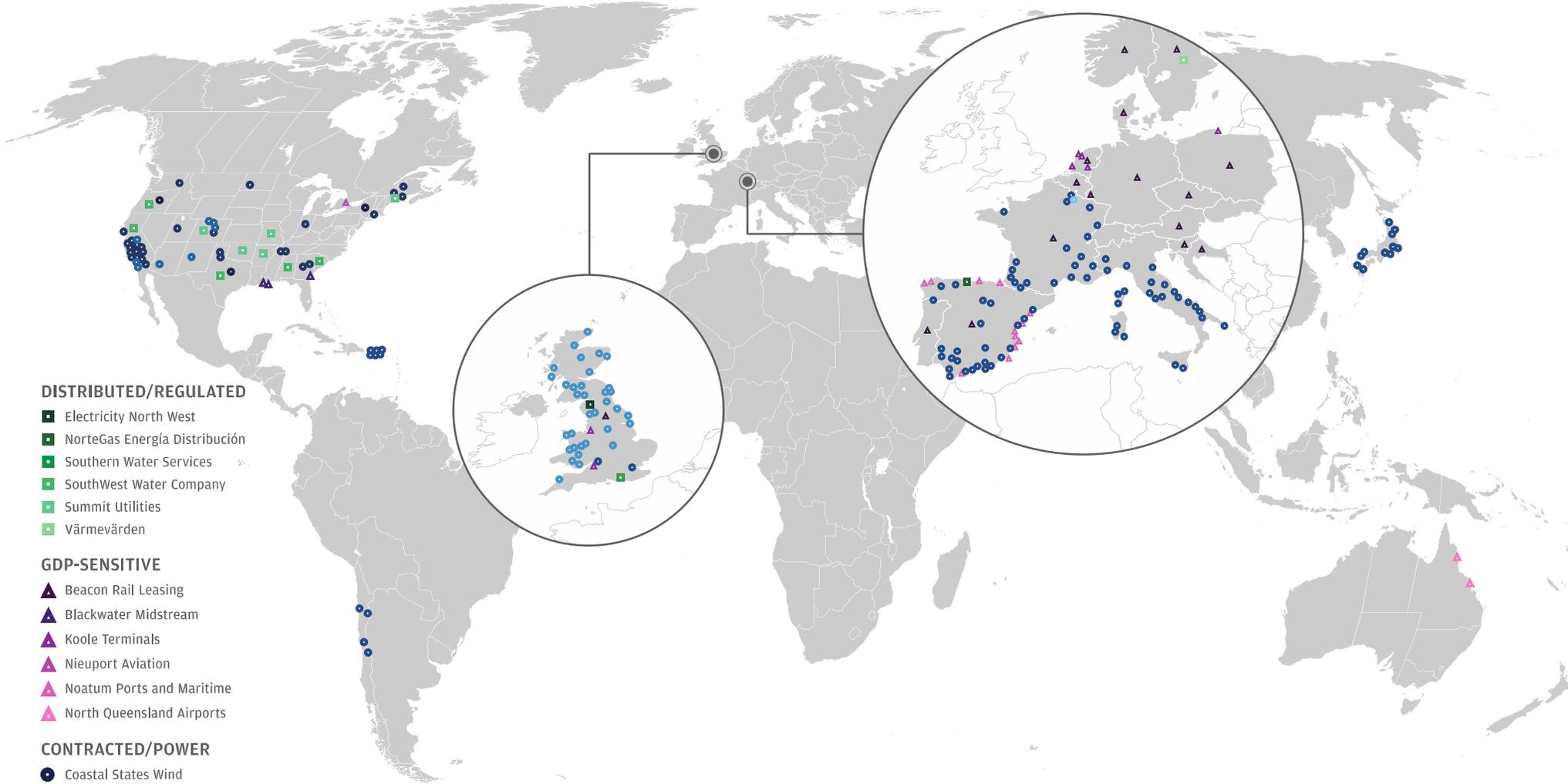
All listed individuals are employees of JPMAM. There can be no assurance that the professionals currently employed by JPMAM will continue to be employed by JPMAM or that the past performance or success of any such professional serves as an indicator of such professional's future performance or success.

Source: JPMAM, as of November 2019.

ALTs by

J.P.Morgan
Asset Management

Global Reach and Scale of the IIF Portfolio



DISTRIBUTED/REGULATED

- Electricity North West
- NorteGas Energía Distribución
- Southern Water Services
- SouthWest Water Company
- Summit Utilities
- Värmevärden

GDP-SENSITIVE

- ▲ Beacon Rail Leasing
- ▲ Blackwater Midstream
- ▲ Koole Terminals
- ▲ Nieuport Aviation
- ▲ Noatum Ports and Maritime
- ▲ North Queensland Airports

CONTRACTED/POWER

- Coastal States Wind
- Novatus Energy
- Sonnedix Power Holdings
- Southwest Generation
- Ventient Energy
- Vision Renewables

3.4GW

of renewable power:
powering ~3 million
homes for a year

3.7mm

metric tons of GHG
emissions avoided

8mm

passengers traveled
through our airports

20mm

square meters of
solar panels

20mm

customers

40mm

families pension
money invested

75bn

gallons of clean
water processed

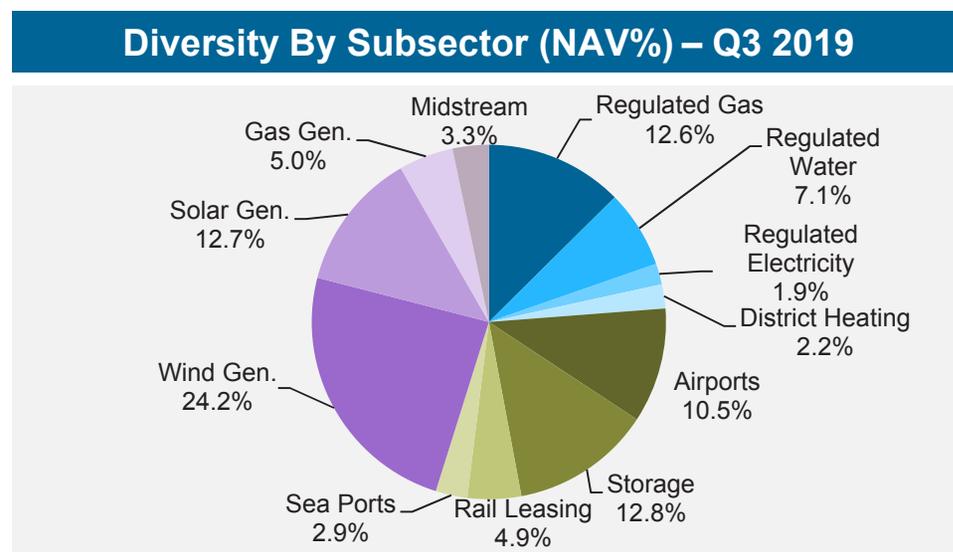
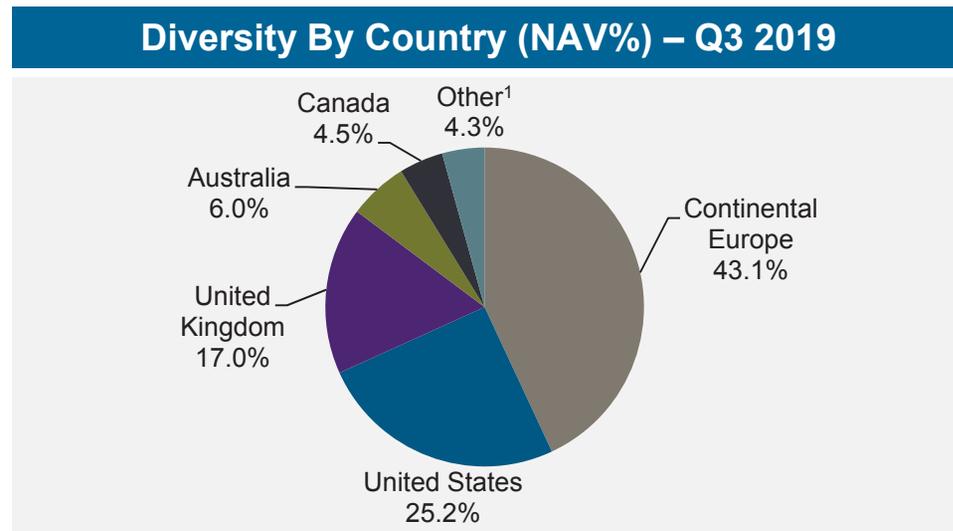
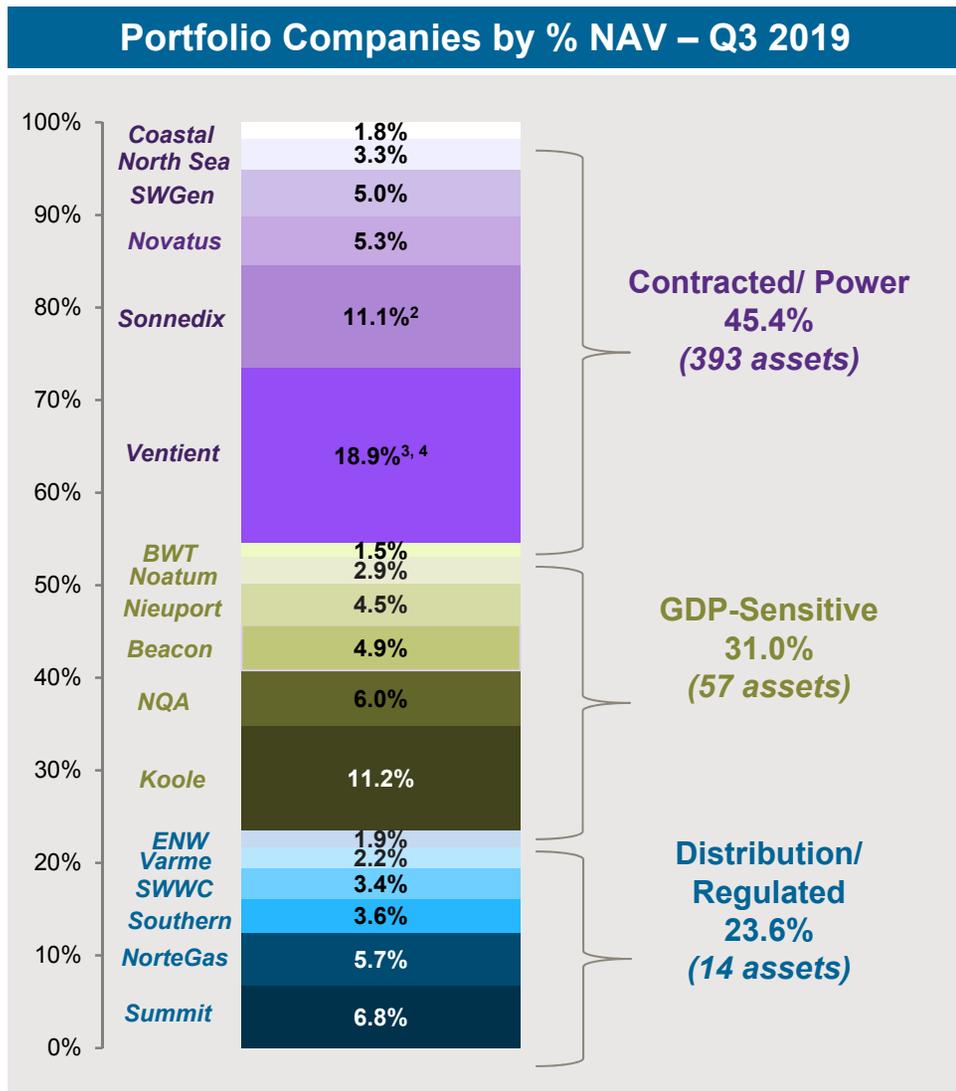
9,000

employees

For illustrative purposes only. As of December 31, 2018.

A Diversified Portfolio: USD 12.0 Billion; 19 Portfolio Companies, 464 Underlying Assets

Existing well diversified portfolio where no single asset comprises more than 5.7% of the Fund



All data as of September 30, 2019.

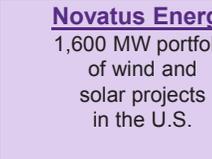
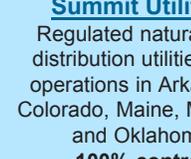
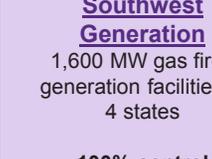
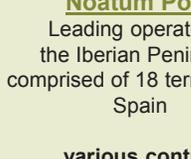
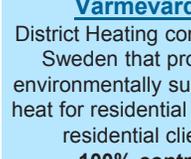
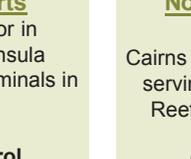
¹ Other includes Chile, Japan, and South Africa. Diversification does not guarantee investment returns and does not eliminate the risk of loss.

² Comprises 246 assets.

³ Includes the Vision Renewables platform and comprises 104 assets.

⁴ Ventient closed on an expected refinancing in Q4 2019 that decreased Ventient's percentage of the portfolio to ~10.0%

Current Portfolio – 19 Companies with 464 Underlying Assets¹

Distribution/Regulated (24%)	Contracted/Power (45%)	GDP-Sensitive (31%)
 <p>Electricity North West Regulated electric distribution network providing power to over 6mm people in northwest England 25.0% ownership</p>	 <p>Coastal States Winds North American wind portfolio in New York, Oregon, and Texas totalling 354 MW's various control</p>	 <p>Beacon Rail Rolling stock leasing company which operates in the freight and passenger train markets in the UK and Continental Europe 100% control</p>
 <p>Nortegas Second largest gas distribution company in Spain servicing over 1mm supply points with natural gas / liquefied propane gas 59.3% control</p>	 <p>Ventient Energy² Diversified portfolio of 104 contracted wind farms totalling more than 1,100 MW of capacity throughout the UK and Europe 100% control</p>	 <p>BW Terminals Liquid bulk storage business with over 2.4 million barrels of capacity located in Louisiana and Georgia 100% control</p>
 <p>Southern Water Services Regulated water and wastewater network in southeast England serving over 7mm customers 39.8% control</p>	 <p>Novatus Energy 1,600 MW portfolio of wind and solar projects in the U.S. 100% control</p>	 <p>Koole Terminals European liquid bulk storage company with c.3.6m cubic meter capacity focused on the Amsterdam-Rotterdam-Antwerp region 100.0% control</p>
 <p>SouthWest Water Company Regulated water and wastewater utilities serving over 500,000 people in 5 states 100% control</p>	 <p>Sonnedix Power Holdings Interest in global solar developer, owner and operator 100% control³</p>	 <p>Nieuport Aviation Owns and operates the passenger terminal at Billy Bishop Toronto City Airport, Toronto's second largest airport 100% control</p>
 <p>Summit Utilities Regulated natural gas distribution utilities with operations in Arkansas, Colorado, Maine, Missouri and Oklahoma 100% control</p>	 <p>Southwest Generation 1,600 MW gas fired generation facilities in 4 states 100% control</p>	 <p>Noatum Ports Leading operator in the Iberian Peninsula comprised of 18 terminals in Spain various control</p>
 <p>Värmevärden District Heating company in Sweden that provides environmentally sustainable heat for residential and non-residential clients 100% control</p>	 <p>North Sea Midstream Partners Transports and processes ~ 20% of the UK's natural gas on an average day 50% control⁴</p>	 <p>North Queensland Airports Cairns and Mackay Airports, serving the Great Barrier Reef and Bowen Basin 66.1% control</p>

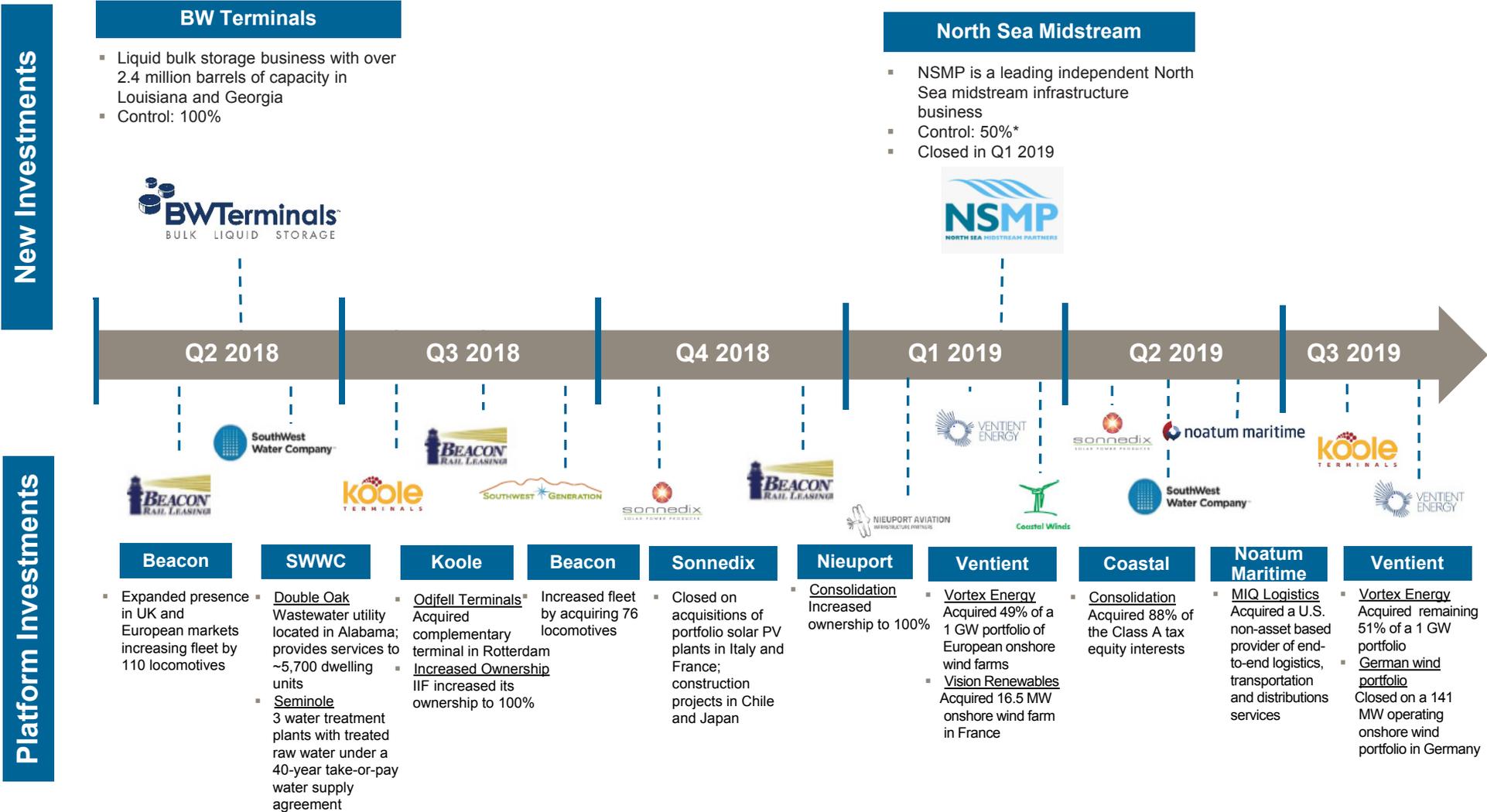


Denotes Platform Investments

Assets identified for future potential equity capital deployment. The companies above are shown for illustrative purposes only. Their inclusion should not be interpreted as a recommendation to buy or sell.

Note: Control includes managed co-investment stakes.¹ Data as of September 30, 2019. Diversification does not guarantee investment returns and does not eliminate the risk of loss. ² Includes the Vision Renewables platform. ³ Includes management stake. ⁴ Split control with financial partner and includes a management stake.

2018-2019 Acquisition Activity



As of September 30, 2019.

These examples are included solely to illustrate the investment process and strategies which have been utilized by the manager. It should not be assumed that investments within the portfolio have or will perform in a similar manner to the investment above. Please note that this investment is not necessarily representative of future investments that the manager will make. There can be no guarantee of future success. *Split control with financial partner and includes a management stake.

ALTs by

J.P.Morgan
Asset Management

ESG Overview and Initiatives — *Engagement vs. Exclusion*

We believe a focus on ESG, safety, diversity/inclusion, social license, etc. is critical to optimizing risk-adjusted returns

Governance	<ul style="list-style-type: none"> • Majority Control – key for implementation of sustainable practices • Independent Board of Directors – provides diversity of thought, relationships and experience
Stakeholders	<ul style="list-style-type: none"> • Stakeholder engagement is critical for maintaining social license to operate • Proactive approach to managing relationships, including customers, employees, communities, regulators, etc.
UN PRI & SDG	<ul style="list-style-type: none"> • “A” rating for Direct Infrastructure on the 2019 UN PRI annual assessment report² • We believe more than 75% of the IIF portfolio contributes to the achievement of the United Nations Sustainable Development Goals
GRESB	<ul style="list-style-type: none"> • Global Real Estate Sustainability Benchmark (GRESB) member³ and Fund ranked 5th out of 28 in its peer group in 2019
Diversity & Inclusion	<ul style="list-style-type: none"> • ~40% of IIF Team is female • ~20% of IIF appointed Independent Directors are female • ~88% of IIF portfolio companies are involved in efforts to promote an inclusive environment⁵

IIF ESG Initiatives

- Information Protection and Cybersecurity
- Supply Chain Management
- Resilience and Disaster Preparedness
- Stakeholder and Community Engagement



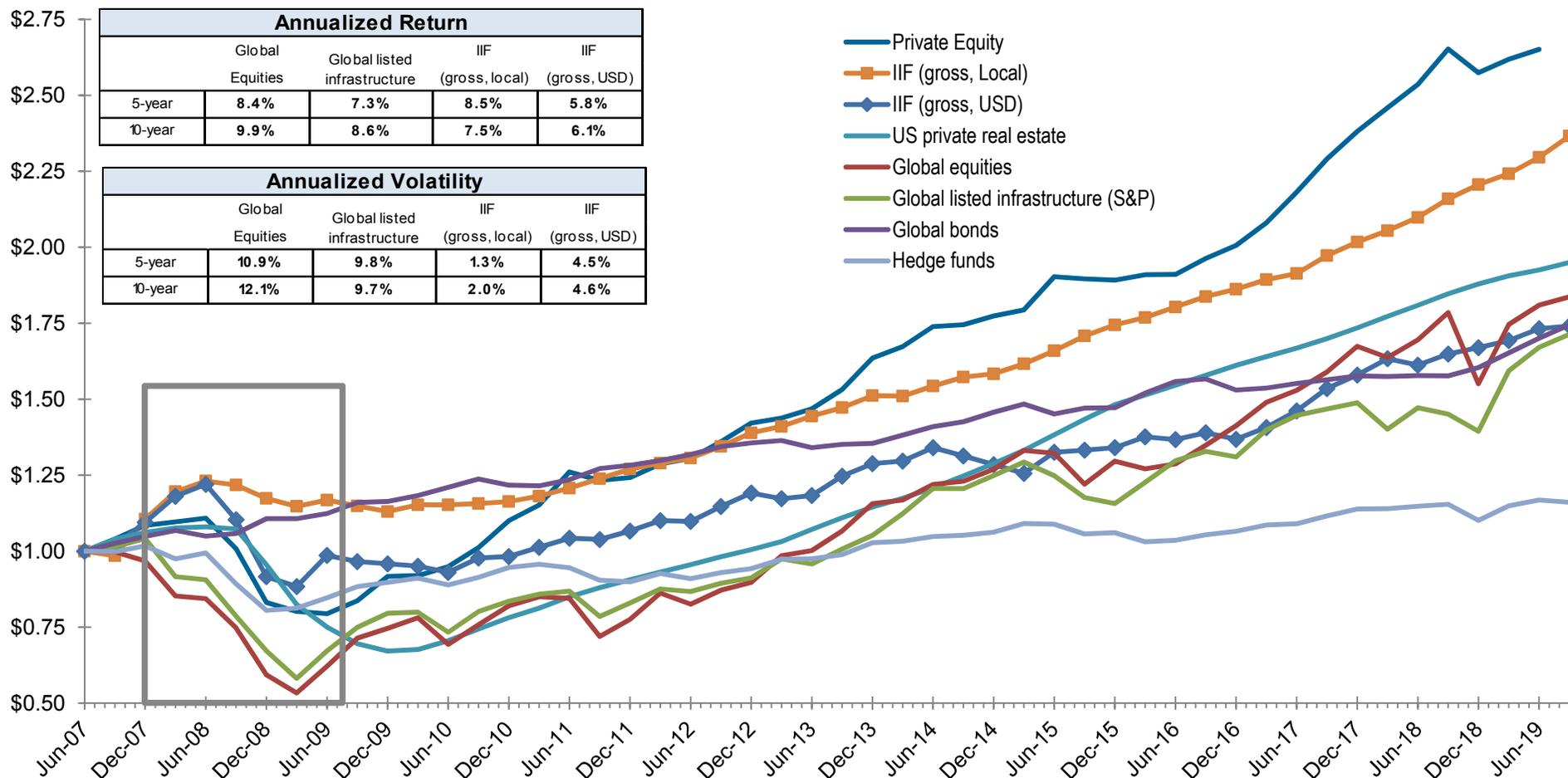
As of September 30, 2019. ¹ JPMAM is the signatory to UN PRI. ² For more information regarding the PRI assessment methodology or to view the 2019 JPMAM RI Transparency Report, please go to www.unpri.org. The 2019 JPMAM assessment Report is available upon request. ³ JPMAM is a member of GRESB Infrastructure. ⁴ 16 of 18 portfolio companies completed the 2019 GRESB submission. Coastal and BWT did not participate; BWT did not participate because ownership was less than six months of the submission period. The portfolio company submissions includes separate submissions by CSP Spain and Noatum Maritime. UNPRI and GRESB ratings are not reliable indicators of current and/or future results or performance of the underlying assets. ESG considerations are one aspect of our decision making process. We continue to only make investments that we believe will be return-enhancing and accretive to our clients' portfolios. ⁵ From 2019 D&I survey results where 16 IIF portfolio companies participated

ALTS by

IIF Has Demonstrated Strong Risk-Adjusted Returns

IIF has demonstrated robust returns with less volatility than other asset classes since inception

Evolution of USD 1 Invested in Q2 2007 to Q3 2019



Source: Bloomberg, NCREIF, J.P.Morgan Asset Management. Global equities, global listed infrastructure, global bonds, and US real estate are measured by MSCI World, S&P Global Infrastructure Index, Barclays Global Agg, and NFI-ODCE, respectively. Private Equity from 15 year quarterly Burgiss data, and available through Q2-2019. All series are based on gross of fees, net of taxes and expenses total return indices, and denominated in USD; please refer to the IIF Historical Return & Yield Summary slide for returns for IIF net of fees and full disclosure regarding fee calculations. Data as of Q3-2019. IIF Past performance is not indicative of future results. Indices do not include fees or operating expenses and are not available for actual investment.

IIF Historical Return & Yield Summary

- Net local currency returns represent significant premium to CPI +6.1% and risk-free rate +6.8% over 5 years¹
- The portfolio is currently being held at a 10.1% weighted average equity discount rate which reflects the long-term business plans of the underlying portfolio companies²

Returns for Periods Ended September 30, 2019³

	One Year ³	Three Year ³	Five Year ³	Ten Year ³	Since Inception ³	Five Year Volatility
Gross Asset Performance (Local Currency)	10.6%	9.8%	9.4%	8.5%	8.4%	
Taxes ⁴	(0.4%)	(0.4%)	(0.3%)	(0.5%)	(0.4%)	
Fund Expenses ⁴	(0.5%)	(0.5%)	(0.5%)	(0.5%)	(0.6%)	
Management Fees ⁴	(0.9%)	(0.9%)	(1.0%)	(1.2%)	(1.3%)	
Net Total Return Local Currency	8.7%	7.9%	7.5%	6.2%	5.9%	1.3%
<i>F/X Impact⁵</i>	(3.7%)	(0.9%)	(2.6%)	(1.4%)	(2.5%)	
Net Total USD Return	4.7%	6.9%	4.8%	4.8%	3.3%	4.5%
Cash Yield (Distributions / NAV)	8.1%	7.7%	7.1%	6.1%	5.5%	1.2%

Past performance is no guarantee of future results. Returns include the re-investment of income.

¹ Global weighted average CPI and risk-free rate across IIF's currency exposures (US, UK, Eurozone, Canada, Australia, and Sweden)

² Represents the weighted average equity discount rate for the portfolio as of September 30, 2019.

³ Performance numbers represent a composite return of the combined fund investor vehicles (FIVs) in existence as of September 30, 2019. Specific FIV and investor returns are shown on the quarterly investor statements. Investment performance does not include hedging gains/(losses) resulting from the Hedging Program.

⁴ Includes Fund-level income and expenses; taxes mainly relate to deferred taxes on net appreciation of the Fund

⁵ FX gains and losses at the underlying portfolio companies are included in FX and represent an impact on the One Year, Three Year, Five Year, Ten Year and Since Inception returns of 0.4%, 0.0%, 0.0%, 0.0% and 0.0% respectively.

ALTs by

J.P.Morgan
Asset Management

F/X Currency Hedging Program Performance

<i>Oct 1st, 2018 through Sept 30th, 2019</i>	USD
Net Total Return - Local Currency	9.3%
FX Impact ²	-4.2%
Net Total USD Return - Pre Hedging	5.2%
FX Translation to Home Currency ³	0.0%
Impact of Hedging ⁴	6.2%
Hedging Expense	-0.1%
Net Home Currency Return - Post Hedging	11.2%

As September 30, 2019

Past performance is no guarantee of future results. Returns include the re-investment of income.

Returns represent a composite of the returns of all investors in each particular FIV. Individual returns may vary.

USD = IIF Hedged LP.

¹ Returns for periods greater than one quarter are time-weighted rates of return calculated by linking quarterly returns. Returns of greater than one year are annualized.

² Relates to changes in the exchange rates of the underlying portfolio companies held in local currency terms and the USD, the Fund's reporting currency

³ Relates to the exchange rates of the Fund currency (USD) to an investors home currency

⁴ Relates to the gains/(losses) on the FX currency forward contracts between the underlying portfolio companies' currency and Investor's home currency.

Please refer to the PPM for important additional risks, disclosures and information.

Key Terms & Conditions

Summary of Key Terms & Conditions			
Currency	<ul style="list-style-type: none"> Denominated in USD; Unhedged and select currency hedged Fund Vehicles available¹ 		
Target Return	<ul style="list-style-type: none"> 8-12% net² 		
Target Cash Yield	<ul style="list-style-type: none"> 5-7% on NAV² (Cash distributions) 		
Distributions	<ul style="list-style-type: none"> Quarterly. <i>Can be received as cash or reinvested</i> 		
Repurchases	<ul style="list-style-type: none"> Semi-annual on best efforts basis with 4-year soft lock Repurchase requests made prior to the fourth anniversary of the final drawdown of an Investor's Commitment subject to a 4% repurchase discount 		
Minimum Commitment	<ul style="list-style-type: none"> USD 10 million May be waived at investment advisor's discretion (<i>may be subject to different terms and conditions <u>including higher fees</u></i>) 		
Management Fees (On NAV)	<table border="1"> <tr> <td> <ul style="list-style-type: none"> USD10mm to <USD100mm: <i>95bps</i> USD 100mm to <USD 300mm: <i>86bps</i> USD 300mm to <USD 500mm: <i>76bps</i> USD 500mm and above: <i>67bps</i> </td> <td> <ul style="list-style-type: none"> <i>5% further reduction in management fees each when the Fund reaches \$20bn and \$30bn of NAV respectively</i> </td> </tr> </table>	<ul style="list-style-type: none"> USD10mm to <USD100mm: <i>95bps</i> USD 100mm to <USD 300mm: <i>86bps</i> USD 300mm to <USD 500mm: <i>76bps</i> USD 500mm and above: <i>67bps</i> 	<ul style="list-style-type: none"> <i>5% further reduction in management fees each when the Fund reaches \$20bn and \$30bn of NAV respectively</i>
<ul style="list-style-type: none"> USD10mm to <USD100mm: <i>95bps</i> USD 100mm to <USD 300mm: <i>86bps</i> USD 300mm to <USD 500mm: <i>76bps</i> USD 500mm and above: <i>67bps</i> 	<ul style="list-style-type: none"> <i>5% further reduction in management fees each when the Fund reaches \$20bn and \$30bn of NAV respectively</i> 		
Incentive Fee	<ul style="list-style-type: none"> 15% over 7% net local currency return hurdle (<i>no-catch-up</i>) 1-year measurement period; vesting in year 2 and 3 subject to continued performance Cap of 13.5% return 		
Reporting	<ul style="list-style-type: none"> Snapshot: ~30 days after quarter end Client Statement: ~40 days after quarter end Quarterly Report: ~60 days after quarter end Annual Report: ~90 days after year end 		
Side Letters	<ul style="list-style-type: none"> Generally available for commitments \$50mm+ (<i>subject to agreement of mutually acceptable terms and conditions</i>) 		

Note: Please refer to the PPM for additional information.

¹ Please refer to the PPM for important additional risks, disclosures and information.

² The target returns and yield are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns or yield similar to the targets shown above. Please see the complete Target Return disclosure at the conclusion of the presentation for more information on the risks and limitation of target returns.

Key Takeaways

Existing Diversified Portfolio

- USD 12.0 billion NAV portfolio
- 464 assets (19 portfolio companies), 25 countries, 12 subsectors
- No single asset accounting for more than ~ 6.0% of portfolio

Differentiated Strategy

- Platform investing, typically focusing on smaller, less competitive opportunities
- Short commitment queue, estimated at 6 - 12 months or less from closing
- Enables strong alignment for investor through significant cash invested by the IIG team

Long-Term Contracted/Regulated Assets

- Estimated 64% of the Fund's portfolio company's 2019 revenues are contracted/regulated¹
- Visibility to 5-7% p.a. of NAV target cash yield with 8.1% p.a. for trailing 12 months²

ESG

- ESG integrated across all levels of governance and into investment and asset management processes
- Co-largest/controlling owner of 16 of 19 portfolio companies
- Management across the portfolio through a consistent framework

All data as of September 30, 2019. The advisor seeks to achieve the stated objectives. There can be no guarantee the objectives will be met. ¹Source: JPMAM, data as of June 30, 2019. Opinions, estimates, forecasts, and projections are based current market conditions, constitute our judgment and are subject to change without notice. There can be no guarantee they will be met. Past performance is no guarantee of comparable future results. ² The target returns and cash yield are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns or yield similar to the targets shown above. Please see the complete Target Return disclosure at the conclusion of the presentation for more information on the risks and limitation of target returns.

Appendix

IIF Optional Currency Hedging Program – Summary

- In October 2018, IIF established an optional currency hedging program. ~USD 3.0 billion of capital invested in the program as at July 2019
- While we believe the Fund’s long-term investment horizon alleviates the impact of currency movements over-time, certain investors have sought a ‘within the Fund’ currency hedge to reduce short-term currency volatility
- Hedged Fund Investor Vehicles (“HFIVs”) are offered as parallel vehicles to certain existing un-hedged FIVs, subject to certain tax, regulatory and legal considerations where there was a sufficient level of investor interest during the election period (i.e., there is not currently hedging options for every FIV)

Summary of IIF Currency Hedging Program

HFIVs Currently Available	<ul style="list-style-type: none"> ■ IIF Australian 1 Trust, IIF LP, IIF Canadian 1 LP, IIF Cayman 1 Ltd, IIF UK 1 LP, IIF Luxembourg & IIF ERISA LP
Currencies Offered	<ul style="list-style-type: none"> ■ AUD, CHF, EUR, GBP, JPY, SEK & USD currently
Hedging Strategy	<ul style="list-style-type: none"> ■ Anticipate rolling 3 month forwards; directly hedge portfolio company reporting currencies
Fees	<ul style="list-style-type: none"> ■ JPM does not charge any additional fees for managing the program
Estimated Costs	<ul style="list-style-type: none"> ■ Anticipate ongoing operational costs to be 7bps¹ p.a. dependent on program scale ■ Additional interest cost of use of credit facility to cover F/X mark-to-market (“MTM”) (if necessary) will be allocated to the applicable Hedging Investors ■ F/X forward market pricing also results in a benefit or cost. Depends on market conditions and currencies being hedged and evolves over time as the result of relative interest rates
F/X Settlement	<ul style="list-style-type: none"> ■ Settled with use of the Fund’s credit facility and then repaid by Hedging Investors ■ Fund distributions held back (if necessary) to recover F/X MTM ■ Ability to redeem units or call capital above commitment amount from the hedged investor to cover MTM of the hedge
Election (Existing Investors)	<ul style="list-style-type: none"> ■ Annual election anticipated May 31 for every July 1 ■ Ability to partially hedge and move into and out of HFIV
Third Party Administrator	<ul style="list-style-type: none"> ■ Chatham Financial

As of June 30, 2019.

¹ Assumes program size of USD 3.0bn, costs will be higher if interest is more muted.

Note: Please refer to the PPM for important additional risks, disclosures and information.

ALTs by

J.P.Morgan
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Target Return/Target Volatility: The annual target return/target volatility and other fund objectives have been established by JPMAAM based on its assumptions and calculations using data available to it and in light of current market conditions and available investment opportunities and is subject to the risks set forth herein and set forth more fully in the applicable offering document or investment management agreement. These portfolio objectives are for illustrative purposes only and are subject to significant limitations. An investor should not expect to achieve actual returns/actual volatility similar to the target return/target volatility shown herein. Because of the inherent limitations of the target returns/target volatility potential investors should not rely on them when making a decision on whether to invest in the portfolio. These objectives cannot account for the impact of economic, market, and other factors may have on the implementation of an actual investment program. Unlike actual results, the target return/target volatility and other fund objectives do not reflect actual trading, liquidity constraints, and other factors that could impact the future returns of the portfolio. JPMAAM's ability to achieve the target return/target volatility and fund objectives is subject to risk factors over which JPMAAM may have no or limited control. There can be no assurance that the portfolio will achieve its investment objective, the target return/target volatility, or any other portfolio objectives. The actual results achieved may be more or less than the target return/target volatility shown herein.

Investing in infrastructure assets or debt associated with infrastructure involve a variety of risks, not all of which can be foreseen or quantified, and which include, among others: the burdens of ownership of infrastructure; local, national and international economic conditions; the supply and demand for services from and access to infrastructure; the financial condition of users and suppliers of infrastructure assets; risks related to construction, regulatory requirements, labor actions, health and safety matters, government contracts, operating and technical needs, capital expenditures, demand and user conflicts, bypass attempts, strategic assets, changes in interest rates and the availability of funds which may render the purchase, sale or refinancing of infrastructure assets difficult or impracticable; changes in environmental laws and regulations, investments in other funds, troubled infrastructure assets and planning laws and other governmental rules; changes in energy prices; negative developments in the economy that may depress travel activity; force majeure acts, terrorist events, under-insured or uninsurable losses; and other factors which are beyond the reasonable control of the Fund or the Investment Adviser. Many of these factors could cause fluctuations in usage, expenses and revenues, causing the value of the Investments to decline and negatively affecting the Fund's returns.

Currency hedging and other speculative investment practices may increase investment loss. Currency transactions involve the leveraged trading of contracts denominated in foreign currency conducted with a futures commission merchant or a retail foreign exchange dealer as your counterparty. Because of the leverage, rapidly loss of some or all of the funds deposited for such trading and may lose more than deposited.

The UN PRI assessment methodology (10 assessed modules) and assessment report together aim to achieve three objectives set by the PRI Advisory Council (Facilitate learning and development; Identify areas for further improvement; and Facilitate dialogue between asset owners and investment managers) on responsible investment activities and capabilities. JPMAM Direct Infrastructure asset class was ranked with a number of firms in the United Nations Principal for Responsible Investment, which JPM is a signature. The 2018 JPMAM assessment Report is available upon request.

Risks Associated with Investing in the Strategy:

Please consult the Memorandum for other key risk factors associated with investments in the Fund.

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IFM (US) Securities, LLC

December 2019

IFM Investors

IFM Global Infrastructure Fund

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Valuation- Most of the portfolio investments will be highly illiquid, and will most likely not be publicly traded or readily marketable.

Economic conditions- Interest rates, general levels of economic activity, the price of securities and participation by other investors in the financial markets may affect the value of portfolio investments made by the Master Fund or considered for prospective investment.

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Leverage- Portfolio investments may include businesses whose capital structures may have significant leverage.

An infrastructure investment is subject to certain risks including: the burdens of ownership of infrastructure; local, national and international economic conditions; the supply and demand for services from and access to infrastructure; the financial condition of users and suppliers of infrastructure assets; changes in interest rates and the availability of funds which may render the purchase, sale or refinancing of infrastructure assets difficult or impractical; changes in environmental and planning laws and regulations, and other governmental rules; environmental claims arising in respect of infrastructure acquired with undisclosed or unknown environmental problems or as to which inadequate reserves have been established; changes in energy prices; changes in fiscal and monetary policies; negative economic developments that depress travel; uninsured casualties; force majeure acts, terrorist events, under insured or uninsurable losses; and other factors beyond reasonable control. Please consult the constituent documents for more information on risks specific to infrastructure investing.

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IFM Investors Firm Overview

Firm Overview



IFM Investors has a singular purpose – the prosperity of its investors

4 asset classes



INFRASTRUCTURE US\$47.9b
DEBT INVESTMENTS US\$34.5b
LISTED EQUITIES US\$31.4b
PRIVATE EQUITY US\$1.0b

90%



Products that have exceeded client objectives over past five years ⁽¹⁾



443

institutional investors



9 offices globally

Melbourne
Sydney
New York
London
Berlin
Zurich
Tokyo
Hong Kong
Seoul

27



Australian industry superannuation fund shareholders



115bn

funds under management



30 million+

Estimated pension fund members represented



As at 31 December 2019. Differences due to rounding.

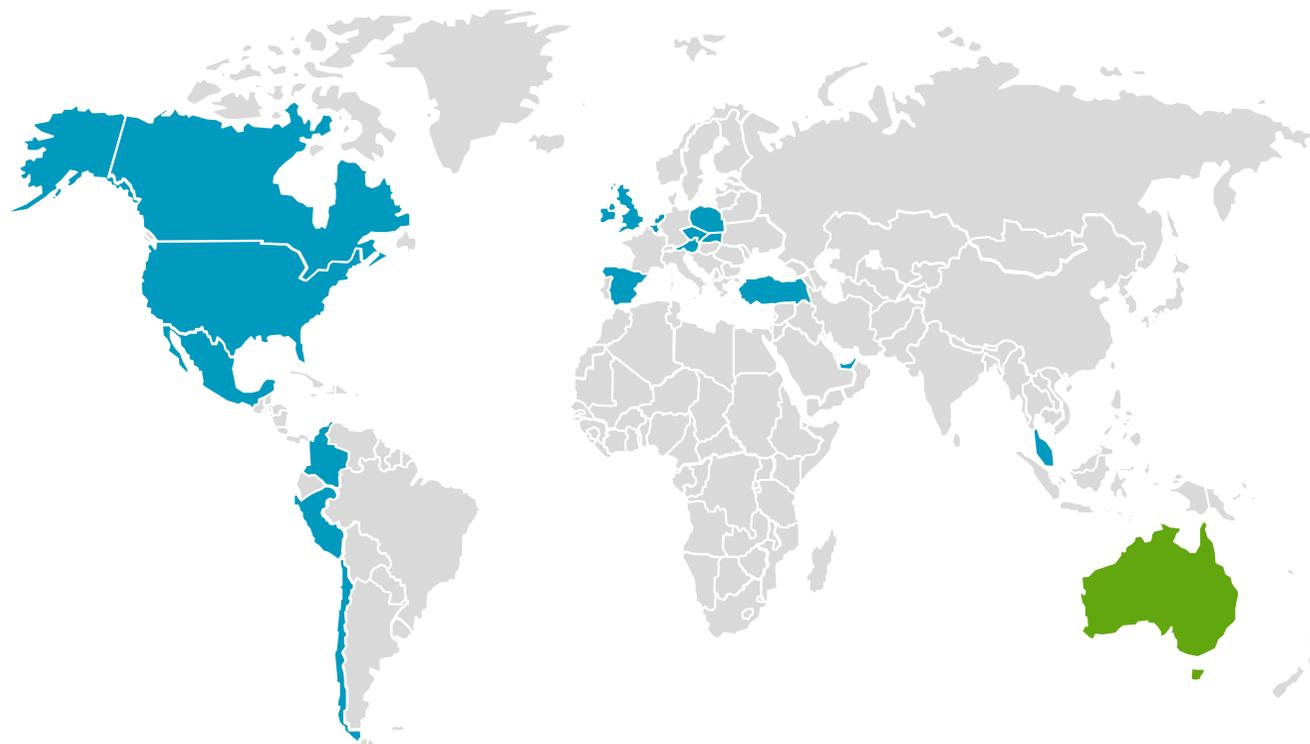
(1) After tax and management fees. Past performance does not guarantee future results.

Infrastructure Equity



With a track record over two decades, IFM Investors is an established infrastructure equity manager with global scale

US\$ 48 BN	Funds Under Management
2	Open-end infrastructure equity fund
24	Years investing in infrastructure
>90	Infrastructure investment professionals
32	Portfolio Companies
65	Board seats



Global Infrastructure Fund (GIF)
Incepted in December 2004
17 Portfolio Companies



Australia Infrastructure Fund (AIF)
Incepted in August 1995
15 Portfolio Companies

All figures as at 31 December 2019. Differences may be due to rounding.



IFM Global Infrastructure Fund

IFM Global Infrastructure Fund (GIF)



GIF is an open-ended fund with a diversified portfolio comprised of mature infrastructure assets



17
Portfolio
companies



46
Countries



US\$ **30.8** Billion
Investment
Value



IFM Global Infrastructure Fund

As of December 31, 2019



IFM Global
Infrastructure Fund
("GIF")
Net Return⁽¹⁾

	1-Year	3-Year (p.a.)	5-Year (p.a.)	7-Year (p.a.)	10-Year (p.a.)	Since Inception (p.a.)
IFM Global Infrastructure Fund ("GIF") Net Return ⁽¹⁾	14.0%	15.9%	14.4%	11.8%	12.0%	9.3%



6.7% p.a. net cash yield since inception ⁽²⁾

GIF's total return seeks a significant contribution from cash yield over the medium to long term.

Past returns are not indicative of future performance. All figures as at December 31, 2019.

(1) The IFM Global Infrastructure Master Fund ("Master Fund") has been investing in core infrastructure assets globally ex-Australia since December 1, 2004 (including investments made through predecessor vehicles). As a proxy for a Class A strategy or hedged returns without having to reflect the cost or benefit of an actual hedging strategy (which is impossible to calculate for historical periods) on the hedged portfolio, the return series shown above reflects the aggregated performance of each asset's respective local currency performance at the Master Fund level, weighted by the USD proportionate equity value of each asset. The highest Class A management and performance fees structure has been applied to this return series on a pro-forma basis. The hedging strategy and fee structure of an investor's interest may be different to that of the Master Fund the return series shown above and is subject to the terms of the feeder fund and class selected by the investor. The return series presented above, is time-weighted and does not reflect the performance of any feeder fund or an actual investor's performance, which may vary due to various factors including when investors enter the fund and their individual tax positions. Actual net feeder performance is available upon request. This information is provided for illustrative purposes only. Investment decisions should not be made solely based on the returns series shown above. Past performance is not indicative of future performance.

(2) Cash yield for the IFM Global Infrastructure Master Fund represents aggregate feeder cash yield to investors on a NAV basis net of management and performance fees. Since inception cash yield is calculated as of the Fund's first distribution to investors on June 1, 2012.

GIF Investor Base

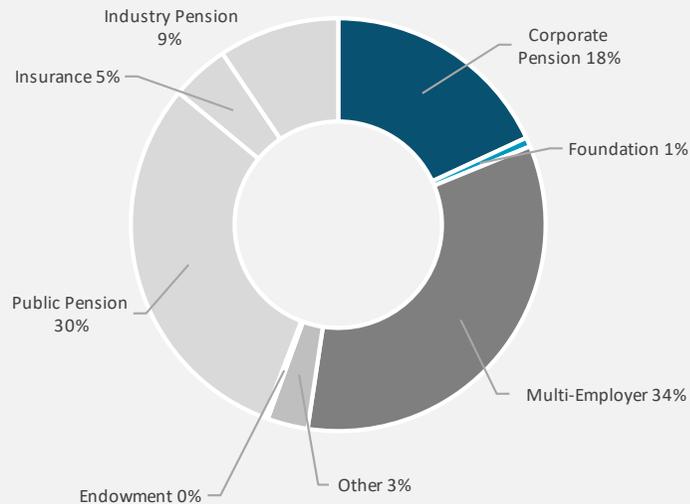


IFM Investors manages infrastructure investments for long-term institutional investors globally, with impacts on our investors' 30 million+ members and retirees.

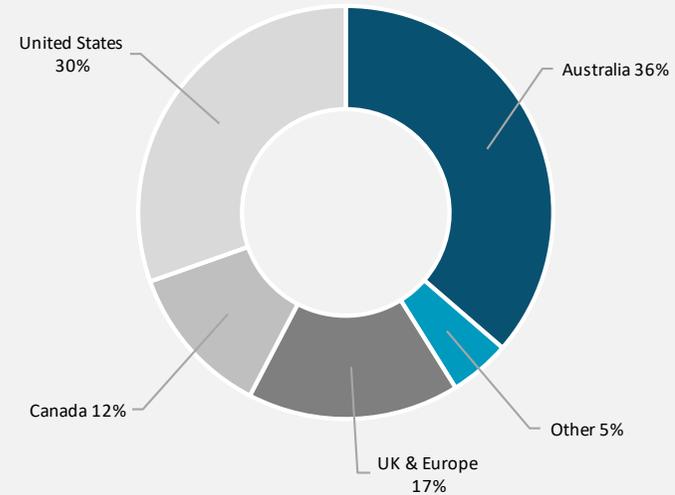


Serving 383 investors

FUM by Investor Type ⁽¹⁾



FUM by Investor Region



As of December 31, 2019

1. FUM represents total NAV of the IFM Global Infrastructure Master Fund plus all undrawn investor commitments and cash available for investment in USD. Differences due to rounding. Past returns are not indicative of future performance.

Global Infrastructure Team



Kyle Mangini

Global Head of Infrastructure



Julio Garcia

Head of North America



Christian Seymour

Head of Europe



Michael Hanna

Head of Australia

9 years average tenure at IFM Investors⁽¹⁾

20+ Languages Spoken

21 years average industry experience⁽¹⁾

200+ support staff across Legal, Tax & Ops

94 Professionals

74

Investment Team

Infrastructure specialists

- ▶ Origination and agile transactional capability
- ▶ Deal team stays with asset, ensuring optimal alignment and continuity
- ▶ Deep sector knowledge

15

Asset Management Specialists

Support investment team for value creation across portfolio

- ▶ Managing key asset risks
- ▶ Enhancing asset performance
- ▶ Leveraging portfolio's scale to generate synergies

5

Portfolio Management

Improving efficiency of portfolio

- ▶ Portfolio insight
- ▶ Determining optimal asset allocations
- ▶ FX, structuring and liquidity management

Diverse Skill Set



IB/ Capital Markets



Operations



Regulation/ Government / Legal



Project Management



HR/Labour Relations

(1) Representative of employees who are Director and above in title.

Investment Strategy



1

Essential Infrastructure

- ▶ Investment characteristics: monopolistic; high barriers to entry; limited demand elasticity; long lives; history of cash flow, predictable regulatory environment
- ▶ North America/Europe focus, primarily OECD countries with long term credit ratings; current focus on transportation, midstream energy, and utilities sectors
- ▶ Buy-and-manage strategy with opportunistic exits

2

Conservative Leverage

- ▶ Prudent and conservative approach toward leverage and interest rate risk
- ▶ Primarily investment-grade ratings with long tenors and fixed rate debt
- ▶ Weighted average leverage limit of no more than 60%

3

Active Asset Management

- ▶ Strong governance; always take board membership
- ▶ Proactive asset management with value-add initiatives and leadership in ESG
- ▶ Platform for growth through bolt-ons and capital reinvestment

4

Competitive Advantages

- ▶ Open-end fund structure: long-term ownership outlook
- ▶ Ability to execute mid and large cap transactions as a single entity (US\$500m - \$1.5b+ check size)
- ▶ Global footprint of seasoned and stable investment team of over 90 infrastructure specialists

Investments in infrastructure are subject to risks, as outlined in the "Important Disclosures" page at the beginning of the presentation. Prior to making an investment in any fund, investors should refer to the offering documents for a complete discussion of risks.

GIF Open-end Fund Benefits



IFM Investors seeks to match long-term infrastructure investment to investors' long-term liabilities



Portfolio Evolution

Buy and manage strategy with opportunistic exits



Since 2013, we have executed 20+ new and follow-on investments, deploying US\$22+ billion ⁽¹⁾

	2013	2014	2015	2016	2017	2018	2019		
	Manchester Airports Group (UK)	Freeport LNG (US)	Indiana Toll Road (US)	Vienna Airport (Austria) Follow-on	VTTI (Global) & Follow-on	OHL Mexico (Mexico)	Aleática (Mexico/Spain/Latin America)	GCT Terminals (US and Canada)	DCT Gdańsk (Poland)
		Vienna Airport (Austria)	Connex (Mexico)		M6toll (UK)	Mersin Port (Turkey)	FCC Aqualia (Spain, Czech Republic)	Impala Terminal (Peru, Spain & Mexico)	Buckeye Partners (US)
		Freeport Notes (US)			Connex (Mexico) Follow-on	Freeport Notes 2 (US)	Indiana Toll Road (US) Follow-on	VTTI (Global) Follow-on	
Acquisitions									
Divestitures		Indiana Toll Road, Partial (US)	Essential Power, Full (US)	Duquesne Light, Full (US)	Freeport Notes, Full (US)	Connex, Partial (Mexico)	50Hertz, Full (Germany)	VTTI, Partial (Global)	
Main Reasons		Portfolio Diversification	No Longer Core Infrastructure	Opportunistic Exist	Opportunistic Exist	Portfolio Diversification	Opportunistic Exist	Strategic Considerations	

(1) Investments made since 2013 have been included. This is not a representation of all investments completed since the inception of the Global Infrastructure Fund.

Global Infrastructure Fund

Diversified portfolio of investments



17 portfolio companies across 46 countries

North America



Pipelines, US
Acquired in 2007



Ports, US & Canada
Acquired in 2018



Pipelines, Terminals, US
Acquired in 2019



Natural gas liquefaction, US
Acquired in 2014



Toll Road, US
Acquired in 2015

Global



Water, Spain, Czech Republic and global
Acquired in 2018



Marine Terminals, Global
Acquired in 2017/2019



Mostly Toll Roads, Americas and Spain
Acquired in 2013-2018



Terminal facilities, Global
Announced in 2018

Europe



Telecom, UK
Acquired in 2004



District Heating, Poland
Acquired in 2006/2010/2011



Water & Sewerage, UK
Acquired in 2006



Port, Turkey
Acquired in 2017



Airports, UK
Acquired in 2013



Airports, Vienna & Malta & Slovakia
Acquired in 2014/2016



Toll Road, UK
Acquired in 2017



Port, Poland
Acquired in 2019

As at 31 December 2019.

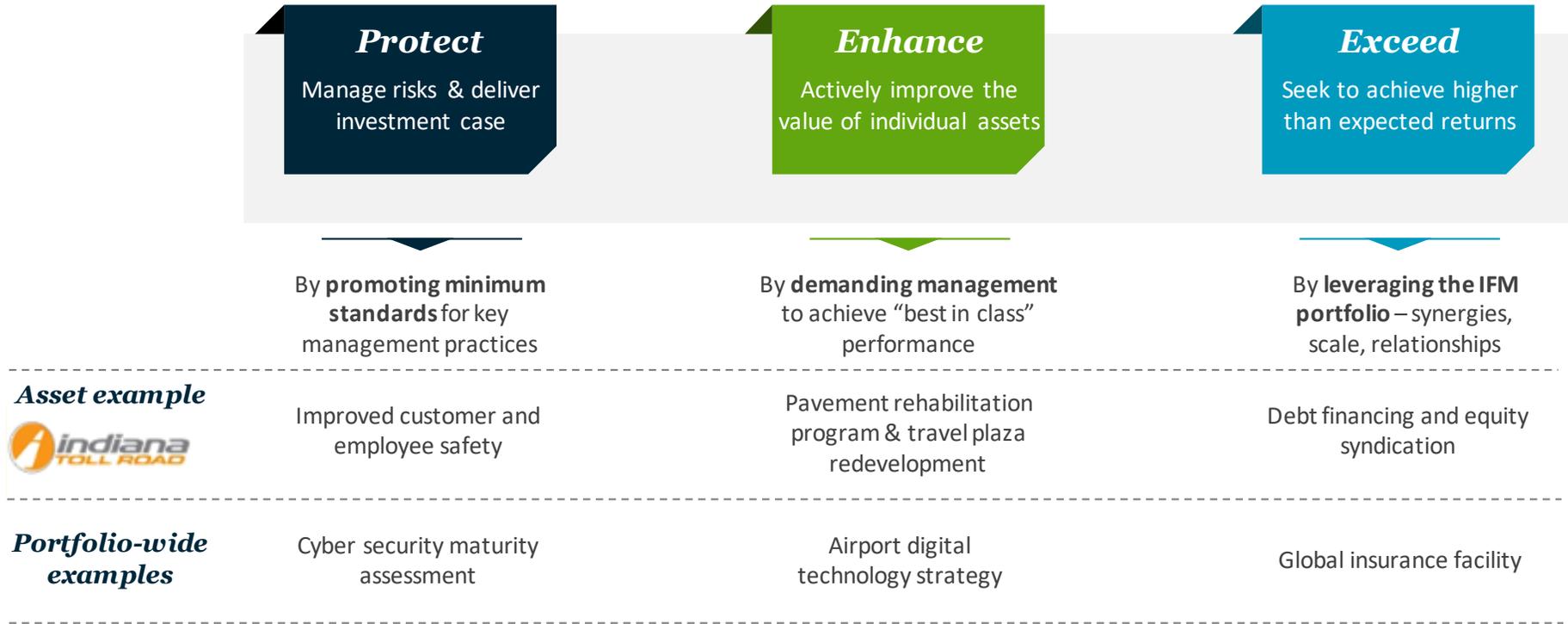


Asset Management & Responsible Investment

IFM's Asset Management Approach



IFM Investors brings operational expertise - and the team's experience in finance, engineering and regulatory management - to add value to the infrastructure portfolio.



GIF's open-end structure allows us to drive additional value through active asset management

Fund Structure



The Indiana Toll Road has been included as an example as it is the largest holding in the United States within the Global Infrastructure Fund, as of December 31, 2019

Approach to Responsible Investment



IFM Investors has been a signatory to the UNPRI since 2008.

We focus on delivering investment returns over the long term in a socially responsible and ethical manner.

Our three core beliefs:



Healthy Environment



Inclusive Society



Strong Governance

Responsible Investment Charter and ESG Policy

- ▶ The Charter and Policy articulate our core investment beliefs and how these inform our day-to-day activities

Focused principles

- ▶ Climate change
- ▶ Labour rights
- ▶ Diversity and Inclusion
- ▶ Tax Transparency

ESG framework

- ▶ We use a proprietary ESG due diligence framework to support the identification of key ESG focus areas
- ▶ Key sectors have specific guidance notes, best practices and case studies to support the due diligence process



IFM scores for PRI

Year	Firm	Infrastructure
2016	A	A
2017	A+	A
2018	A+	A
2019	A+	A+

Sustainable Investment is Fundamental to IFM



IFM looks to ensure best practice and share knowledge on ESG matters across the portfolio.



- ▶ Support **culture of safety as top priority**
 - ▶ Implementation of a new **Safety Management System** now complete
 - ▶ **Significant system integrity and maintenance spending** program implemented in 2017 / 18
 - ▶ Line 25 decommissioning, IT system upgrades, focusing capex on priority areas
 - ▶ Implementation of **two solar farms to supply power and reduce costs at key sites along corridor**
 - ▶ Recent management restructuring resulted in four women being added to the senior management team, **bringing female representation at the executive level to 55%**



- ▶ Manchester was the **first airport in the UK to be awarded Level 3+ carbon neutral status**
 - ▶ All three MAG airports are carbon-neutral and purchase 100% of their electricity from renewable sources
 - ▶ **Reduced Stansted's carbon footprint by 66% in the first year of IFM ownership**
 - ▶ In 2018, an £11m college was opened at Stansted offering technical and professional courses in aviation, engineering, business, hospitality, and retail
 - ▶ As of 2019, **Stansted Airport sends 0% of its waste to landfill** and 75% of all its waste is recycled.
 - ▶ MAG is expected to create 2,000 new direct jobs as part of the **£1bn Manchester Airport Transformation Programme** over the next 10 years



- ▶ IFM has driven a strong ESG-focused culture at ITR
- ▶ **ITRCC has seen a material improvement in customer safety** since recent the completion of Intelligent Transportation System ("ITS") project, which included installing overhead message boards, traffic speed limit signs, and incident detection cameras
 - ▶ Within the ITS area, incidents were **11% lower** from 2017 to 2018 and lane closure times **reduced by 26%**
 - ▶ In 2017, ITR made substantial investment in energy efficient LED lighting up to 60% more efficient than traditional bulbs
 - ▶ Nine new travel plazas began utilizing solar power and were **Silver LEED certified** in 2017
 - ▶ In a 6-month period, the panels produced over 55,000 kWh of energy, offsetting 41 metric tons of CO2



- ▶ Key strategic targets of AWG are the **reduction of emissions** and the conservation of the world's natural resources
- ▶ **Industry-leading performance on leakage:** cut leakage to half the national average by water lost per km of pipe in 2017
- ▶ **Efficiency savings have been shared with customers** through lower bills: Anglian bills have increased just 20p for every £1 other companies have added to their charges
- ▶ In 2019, Anglian signed a 25-year PPA with NextEnergy Capital, who will design, build, own and operate **>35MW of large-scale solar assets** and sell the power to Anglian
- ▶ Alongside other water companies in England, Anglian pledged in 2019 to achieve **net zero carbon emissions for the sector by 2030**
 - ▶ Anglian will continue to focus on renewables, particularly solar and combined heat and power (CHP)

Assets shown to provide examples of sustainable investment across different sectors within infrastructure.



One purpose. Shared prosperity.

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IFM (US) Securities, LLC

Member: FINRA/SIPC

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Name: _____

Capital Commitment Amount: _____

IFM GLOBAL INFRASTRUCTURE (US), L.P.
(A Delaware Limited Partnership)

Class A
Limited Partner Interests

Subscription Booklet

General Partner

IFM Global Infrastructure (US) GP, LLC
114 West 47th Street, 19th Floor
New York, NY 10036
Telephone: 212 784 2260

PRIVACY STATEMENT
JUNE 2018

IFM GLOBAL INFRASTRUCTURE (US), L.P.
IFM GLOBAL INFRASTRUCTURE (US) GP, LLC
IFM INVESTORS (US) ADVISOR, LLC

This Privacy Notice sets forth the policies of IFM Global Infrastructure (US) GP, LLC (the “General Partner”), IFM Investors (US) Advisor, LLC (the “Investment Advisor”) and IFM Global Infrastructure (US), L.P. (the “Partnership”) with respect to non-public personal information of investors, prospective investors, and former investors. These policies are subject to change.

The General Partner, the Investment Advisor and the Partnership receive personal investor information in subscription forms, correspondence, and other documents furnished by investors, information relating to investors’ transactions with the General Partner, the Investment Advisor and the Partnership and its affiliates, and investors’ bank and brokerage account information.

The General Partner, the Investment Advisor and the Partnership do not disclose non-public personal information about investors to any third parties, except to affiliates of the General Partner, the Investment Advisor and the Partnership, or except as necessary or appropriate in connection with the operation of the Partnership, or as required by law. None of the General Partner, the Investment Advisor or the Partnership will sell or profit in any way from disclosure of confidential investor information.

The General Partner, the Investment Advisor and the Partnership restrict access to confidential investor information to those employees and agents of the General Partner, the Investment Advisor and the Partnership and their affiliates who need to know such information in order to provide services to investors, or as required by law. The General Partner, the Investment Advisor and the Partnership maintain physical, electronic, and procedural safeguards in order to ensure security of confidential investor information and to prevent unauthorized disclosure of such information.

For more information, please refer to the IFM Group Privacy Policy that is included in the subscription package and the IFM Group Privacy Notice found on IFM’s website:
www.ifminvestors.com.

SUBSCRIPTION DOCUMENTS

IFM GLOBAL INFRASTRUCTURE (US), L.P.

IF, AFTER YOU HAVE CAREFULLY REVIEWED THE CONFIDENTIAL PRIVATE PLACEMENT MEMORANDUM RELATING TO CLASS A INTERESTS OF IFM GLOBAL INFRASTRUCTURE (US), L.P. (THE “PARTNERSHIP”), YOU HAVE DECIDED TO INVEST IN THE PARTNERSHIP, PLEASE FOLLOW THE INSTRUCTIONS BELOW.

I. INSTRUCTIONS

This Subscription Booklet relates to the offering of Class A limited partner interests (the “Interests”) in the Partnership.

This Subscription Booklet consists of:

- I. Instructions
- II. Notice
- III. Subscription Agreement
- IV. Signature Page (which constitutes the signature page for the Subscription Agreement, the Prospective Investor Questionnaire and the Amended and Restated Limited Partnership Agreement of the Partnership)
Prospective Investor Questionnaire
Form W-9
Additional Required Documents

This Subscription Booklet, including Exhibits A, B and C hereto, contains all the materials that need to be completed for you to apply to become a limited partner of the Partnership. Prior to completing such materials, prospective investors should read (i) the Confidential Private Placement Memorandum relating to Class A Interests of the Partnership, as supplemented from time to time, (ii) the Amended and Restated Limited Partnership Agreement of the Partnership (as it may be amended or restated from time to time, the “Partnership Agreement”), (iii) the Investment Management Agreement relating to the Partnership (the “Investment Management Agreement”), (iv) the Trust Deed of IFM Global Infrastructure Fund (the “Master Fund”), (v) the Advisory and Administration Deed relating to the Master Fund, and (vi) Part 2 of the Form ADV of IFM Investors (US) Advisor, LLC.

To apply to become a limited partner of the Partnership, please follow these steps:

- | | | <u>Page</u> |
|----|--|-------------------|
| 1. | Read the Notice and the Subscription Agreement | (iv), 1-14 |
| 2. | Complete the Prospective Investor Questionnaire : | Exhibit A |
| 3. | Complete and execute 3 copies of the signature page (which incorporates the Subscription Agreement, the Prospective Investor Questionnaire and the Partnership Agreement) | 15-17 |
| | If your subscription is accepted, IFM Global Infrastructure (US) GP, LLC, on its own behalf and on behalf of the Partnership, will countersign one copy of the signature page and return that copy to you for your records. | |
| 4. | U.S. investors that are not subject to back-up withholding tax should complete and execute the Form W-9 | |
| 5. | Provide the applicable additional required documents listed in the KYC/AML form (Refer to Schedule A, page 11 of the form). | |
| 6. | Return the <u>entire</u> Subscription Booklet and additional documents required by the Subscription Booklet, if any, by via e-mail to ClientOnboarding@ifminvestors.com. | |

Please direct questions regarding an investment in the Partnership to Investor Relations, e-mail investorrelations@ifminvestors.com.

Except as otherwise indicated, all documents included herein should be completed and executed in their entirety by the subscriber. All information should be typed or printed in ink. All changes must be initialed by the subscriber. The subscriber should not erase or use whiteout. Subscription documents should not be removed from this booklet. It is suggested that the subscriber make and retain copies of the completed subscription documents.

Circumstances in which Beneficial Owners of an Entity Must Also Complete Questionnaire

The beneficial owners of an entity (in addition to the entity itself) must complete a Prospective Investor Questionnaire in the following circumstances:

- the entity was formed for the purpose of purchasing an Interest;
- the entity's Capital Commitment applied for hereunder constitutes 40% or more of the entity's total assets or committed capital;
- the entity is participant-directed (which would be the case, for example, if the entity were unable to make the representations contained in Section 6(f) or 6(g) of the Subscription Agreement included herein); or
- the entity is a revocable trust.

If any of these circumstances apply, please attach as exhibits to this Subscription Booklet a completed Prospective Investor Questionnaire for each beneficial owner of the entity.

II. NOTICE

The Partnership does not intend to register the Interests under the Securities Act of 1933, as amended, in reliance upon an exemption from registration which limits the types of investors that may purchase the Interests. In addition, the Partnership does not intend to register as an investment company under the Investment Company Act of 1940, as amended, in reliance upon an exemption from registration contained in Section 3(c)(7) thereof. The Subscription Agreement and the Prospective Investor Questionnaire are designed to confirm that a prospective purchaser of Interests satisfies the requirements for these exemptions. IFM Global Infrastructure (US) GP, LLC, as general partner of the Partnership (the “General Partner”) or IFM Investors (US) Advisor, LLC, as investment advisor to the Partnership (the “Investment Advisor”) may reject any prospective purchaser that the General Partner or the Investment Advisor, in its sole discretion, believes does not satisfy these requirements.

The General Partner or the Investment Advisor, in its sole discretion, may reject any subscription in whole or in part for any reason.

The Interests have not been registered under the Securities Act of 1933, as amended, or under the securities laws of any state or foreign jurisdiction. The Interests are subject to restrictions on transferability and resale and may not be transferred or resold except in compliance with applicable federal, state and foreign securities laws, pursuant to registration thereunder or exemption therefrom. In addition, transfer, resale or other disposition of the Interests is further restricted as provided in the Partnership Agreement. Investors should be aware that they will be required to bear the financial risks of their investment for an indefinite period of time.

III. SUBSCRIPTION AGREEMENT

IFM Global Infrastructure (US), L.P.
c/o IFM Global Infrastructure (US) GP, LLC
114 West 47th Street, 19th Floor
New York, NY 10036

Ladies and Gentlemen:

1. The investor identified on the signature page hereto (the “Investor”) hereby applies to become a limited partner of IFM Global Infrastructure (US), L.P., a Delaware limited partnership (the “Partnership”), on the terms and conditions set forth in this Subscription Agreement and in the Amended and Restated Limited Partnership Agreement of the Partnership (as it may be amended or restated from time to time, the “Partnership Agreement”), a copy of which has been furnished to the Investor. Capitalized terms used but not defined in this Subscription Booklet have the meanings specified in the Partnership Agreement.

2. The Investor hereby irrevocably subscribes for a Class A limited partner interest in the Partnership (an “Interest”) and agrees to make capital contributions to the Partnership in an amount equal to the Investor’s Capital Commitment as set forth on the signature page hereto.

3. The Investor acknowledges and agrees that the General Partner will notify the Investor as to the conditional acceptance, in whole or in part, or rejection of the Investor’s subscription for an Interest. An Interest shall not be deemed to be sold or issued to, or owned by, the Investor until the Investor is admitted as a limited partner of the Partnership (notice of which shall be given promptly to the Investor). The Investor agrees that the General Partner shall have the right, in its sole discretion, to admit the Investor as a limited partner of the Partnership on the date of the initial closing of the Partnership or at any subsequent closing of the Partnership. Subject to the Investor’s admission as a limited partner of the Partnership by the General Partner, the Investor hereby adopts, accepts and agrees to be bound by the terms and conditions of the Partnership Agreement.

4. The Investor acknowledges and agrees that the General Partner shall have the right, in its sole discretion, to reject this subscription for an Interest, in whole or in part, at any time prior to the date the Investor is admitted as a limited partner of the Partnership, notwithstanding execution by or on behalf of the Investor of the signature page hereof or notice from the General Partner of its conditional acceptance of the Investor’s subscription for an Interest. The Investor also acknowledges and agrees that the General Partner shall have the right, in its sole discretion, to reject any request by the Investor to increase its Capital Commitment to the Partnership subsequent to the Investor’s admission as a limited partner of the Partnership.

5. If this subscription is rejected in full, or in the event the closing applicable to the Investor does not occur (in which event this subscription shall be deemed to be rejected), this Subscription Agreement shall thereafter have no force or effect.

6. The Investor hereby represents and warrants to, and agrees with, the Partnership, the General Partner and the Investment Advisor that, except as disclosed in writing to the General Partner and the Investment Advisor prior to the date the Investor is admitted as a limited partner of the Partnership, the following statements are true as of the date hereof and will be true as of the date such Investor is admitted as a limited partner of the Partnership and as of each date on which the Investor makes any capital contribution to the Partnership:

(a) The Investor is fully aware that (i) the offering and sale of the Interests have not been and will not be registered under the Securities Act of 1933, as amended (the "Securities Act") and are being made in reliance upon federal and state exemptions for transactions not involving a public offering, and (ii) the Partnership will not be registered as an investment company under the Investment Company Act of 1940, as amended (the "Investment Company Act") in reliance upon an exemption from registration contained in Section 3(c)(7) thereof. In furtherance thereof, the Investor (x) represents and warrants that it is an "accredited investor" (as defined in Regulation D under the Securities Act) and a "qualified purchaser" (as defined under the Investment Company Act) and that it meets any additional or different suitability standards imposed by the state or other jurisdiction of the Investor's domicile both with respect to investing in the Partnership and investing in IFM Global Infrastructure Fund, a multi-series unit trust established under the laws of the Cayman Islands (the "Master Fund"), (y) represents and warrants that the information relating to the Investor set forth in the Prospective Investor Questionnaire attached hereto and forming a part of this Subscription Agreement is complete and accurate as of the date set forth on the signature page hereto and will be complete and accurate as of the date the Investor is admitted as a limited partner of the Partnership and as of each date the Investor makes any capital contribution to the Partnership, and (z) represents and warrants that the Investor was not made aware of the offering of Interests by any form of general solicitation or general advertising.

(b) The Investor's Interest in the Partnership is being acquired for the Investor's own account solely for investment and not with a view to resale or distribution thereof, and the Investor has no present intention of selling, granting participations in or otherwise distributing the Investor's Interest.

(c) The Investor (either alone or together with any advisors retained by such Investor in connection with evaluating the merits and risks of the prospective investment) has sufficient knowledge and experience in financial and business matters so as to be capable of evaluating the merits and risks of purchasing an Interest in the Partnership, including the risks set forth under the caption "Risk Factors" in the Confidential Private Placement Memorandum relating to Class A Interests of the Partnership (as supplemented from time to time, the "Memorandum"), and is able to bear the economic risk of its investment in the Partnership for an indefinite period of time, including a complete loss of such investment.

(d) The Investor has been furnished with, and has carefully read (i) the Memorandum, (ii) the Partnership Agreement, (iii) the Investment Management Agreement (iv) the Trust Deed of the Master Fund (as it may be revised, finalized and

amended from time, the “Trust Deed”) and (v) the Advisory and Administration Deed relating to the Master Fund (collectively, the “Offering Documents”). The Investor has received (not less than 48 hours prior to entering into this Subscription Agreement) a copy of Part 2 of the Form ADV of the Investment Advisor. To the full satisfaction of the Investor, the Investor has been given the opportunity to (i) ask questions of, and receive answers from, the General Partner, the Investment Advisor and IFM Investors Pty Ltd (the “Master Fund Advisor”) concerning the terms and conditions of the offering of the Interests and other matters pertaining to an investment in the Partnership, and (ii) obtain any additional information that the General Partner or the Investment Advisor can acquire without unreasonable effort or expense that is necessary to evaluate the merits and risks of an investment in the Partnership. The Investor understands the fees and conflicts of interest to which the Partnership and the Master Fund are subject (as described in the Offering Documents) and hereby consents and agrees to the payment of such fees to the parties identified as the recipients thereof and to such conflicts of interest. In considering its investment in the Partnership, the Investor has not relied upon any representations made by, or other information (whether oral or written) furnished by or on behalf of, the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor, the trustee of the Master Fund (the “Trustee”) or any director, officer, employee, agent or affiliate of such persons or entities, other than as set forth in the Offering Documents or any “side letter” or other written agreement between the Investor and the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor and/or the Trustee in connection with the Investor’s investment in the Partnership. The Investor has carefully considered and has, to the extent it believes such discussion necessary, discussed with legal, tax, accounting and financial advisers the suitability of an investment in the Partnership in light of its particular tax and financial situation, and has determined that an investment in the Partnership is a suitable investment for it.

(e) If the Investor is an entity, it was not formed or recapitalized (*e.g.*, through new investments made in the Investor solely for the purpose of financing its acquisition of the Interest and not pursuant to a prior financial commitment) for the purpose of investing in the Partnership.

(f) If the Investor is an entity (i) its decision to invest in the Partnership was made in a centralized fashion (*e.g.*, by a board of directors, general partner, manager, trustee, investment committee or similar governing or managing body), (ii) it is not managed to facilitate the individual decisions of its beneficial owners regarding investments (including an investment in the Partnership), and (iii) its shareholders, partners, members, grantors, beneficiaries or other participants, as applicable, did not and will not (x) contribute additional capital for the purpose of acquiring an Interest in the Partnership, (y) have any discretion to determine whether or how much of the Investor’s assets are invested in any investment made by the Investor (including the Investor’s investment in the Partnership), or (z) have the ability individually to elect whether or to what extent such shareholder, partner, member, grantor, beneficiary or other participant, as applicable, will participate in the Investor’s investment in the Partnership.

(g) The Investor is not a participant-directed defined contribution plan (such as a 401(k) plan).

(h) The Investor's Capital Commitment to the Partnership represents less than 40% of the value of the Investor's total assets. The Investor is not structured or operated for the purpose or as a means of circumventing the provisions of the Investment Company Act.

(i) If the Investor is an entity, it is not (i) an "investment company" registered or required to be registered under the Investment Company Act, (ii) a "business development company" within the meaning of the Investment Advisers Act of 1940, as amended (the "Investment Advisers Act"), or (iii) a foreign investment company that is not required to register as an "investment company" under the Investment Company Act, pursuant to Section 7(d) thereunder. If the Investor is an entity that is relying upon Section 3(c)(1) or Section 3(c)(7) of the Investment Company Act to except itself from the definition of "investment company" under, or the registration provisions of, the Investment Company Act (an "Excepted Investment Company"), (w) each beneficial owner of the Investor's outstanding securities, other than short-term paper (and, if an Excepted Investment Company has invested in the Investor and directly or indirectly controls, is controlled by or is under common control with the Investor or the Partnership, each beneficial owner of the outstanding securities, other than short-term paper, of such Excepted Investment Company), in each case if such beneficial owner acquired such securities on or before April 30, 1996, has consented to the treatment of the Investor and the Partnership as a "qualified purchaser", or (x) if such Investor (or such Excepted Investment Company that has invested in the Investor) is a "family company" (as defined on page A-12 of the Prospective Investor Questionnaire), all trustees, directors, general partners or managing members of such Investor (or such Excepted Investment Company) have unanimously consented to the treatment of the Investor and the Partnership as a "qualified purchaser." In addition, if the Investor is an Excepted Investment Company and directly or indirectly controls, is controlled by or is under common control with the Partnership or the Master Fund (and/or if an Excepted Investment Company has invested in the Investor and directly or indirectly controls, is controlled by or is under common control with the Partnership), (y) each beneficial owner of the outstanding securities, other than short-term paper, of the Investor (or such Excepted Investment Company that has invested in the Investor, as applicable), in each case if such beneficial owner acquired such securities on or before April 30, 1996, has consented to the treatment of the Partnership as a "qualified purchaser", or (z) if such Investor (or such Excepted Investment Company that has invested in the Investor) is a "family company" (as defined on page A-12 of the Prospective Investor Questionnaire), all trustees, directors, general partners or managing members of such Investor (or such Excepted Investment Company, as applicable) have unanimously consented to the treatment of the Partnership as a "qualified purchaser."

(j) If the Investor's Capital Commitment and the Capital Commitments of any other Investors that are the Investor's affiliates together equal or exceed 10% of the aggregate Capital Commitments of all of the Investors, the Investor is not an "investment company" as defined in section 3(a) of the Investment Company Act, and the Investor

has not relied and does not intend to rely upon either of the exceptions from such definition set forth in sections 3(c)(1) and 3(c)(7) of the Investment Company Act in order to avoid being classified as an investment company.

(k) (i) The Investor (together, in the case of a natural person, with assets held jointly with a spouse) has a net worth that exceeds \$2,100,000, excluding the value of the primary residence of the Investor and any indebtedness that is secured by the Investor's primary residence, except for the amount of indebtedness that is secured by the Investor's primary residence that exceeds, at the time of the sale of the securities, (A) the estimated fair market value of the primary residence or (B) the amount of indebtedness outstanding 60 days before the sale of securities, other than as a result of the acquisition of the primary residence, (ii) if the Investor is an entity that would be classified as an "investment company" under section 3(a) of the Investment Company Act but for the Investor's reliance on the exclusion from the definition of "investment company" contained in section 3(c)(1) of the Investment Company Act (a "Private Investment Company"), each of the Purchaser's equity owners is either an entity (other than a Private Investment Company or an entity described in clause (iii) or (iv) below) or a natural person with, in each case, a net worth in excess of \$2,100,000 (calculated in accordance with clause (i)), (iii) the Investor is not an investment company registered or required to be registered under the Investment Company Act and (iv) the Investor is not a "business development company" as defined in section 202(a)(22) of the Advisers Act.

(l) The Investor is not (unless it has otherwise so disclosed in writing to the General Partner) and will not hereafter become an investor that is (i) a "benefit plan investor" within the meaning of Section 3(42) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), or (ii) investing assets allocated to an insurance company general or separate account in which any Investor described in clause (i) has an interest. An Investor described in either of clauses (i) or (ii) of this Section 6(l) is referred to herein as an "ERISA Investor."

(m) If the Investor is an ERISA Investor, a governmental plan within the meaning of Section 3(32) of ERISA, a "foreign plan," or any other plan or retirement arrangement or any entity that is deemed to hold the assets of any of the forgoing under applicable law, then (i) it has been informed of and understands the investment objectives and policies of, and the investment strategies that may be pursued by, the Partnership through the Master Fund, (ii) it is aware of the provisions of Section 404 of ERISA or other similar applicable law relating to fiduciary duties, (iii) it has given appropriate consideration to the facts and circumstances relevant to the investment by such Investor in the Partnership and has determined that such investment is reasonably designed, as part of such Investor's portfolio of investments, to further the purposes of the relevant plan(s), (iv) it understands that current income will not be a primary objective of the Partnership or the Master Fund, (v) its acquisition, and subsequent holding (assuming that the assets of the Master Fund are at no time "plan assets" under ERISA), of an Interest in the Partnership is not a non-exempt "prohibited transaction" within the meaning of Section 406 of ERISA or Section 4975 of the Internal Revenue Code of 1986, as amended (the "Code") or other similar applicable law, (vi) its investment in the Partnership is permissible under the documents governing the investment of its plan assets and under

ERISA or other similar applicable law, (vii) its decision to invest in the Partnership was made by fiduciaries independent of the General Partner, the Investment Advisor, the Master Fund Advisor and any placement agent who have concluded, after consideration of their fiduciary duties under applicable law, that the investment of assets of the Investor in the Partnership is prudent, (viii) upon the General Partner's request it will promptly deliver to the General Partner and the Investment Advisor (A) a list of each fiduciary (and its affiliates) who has or exercises any discretionary authority or control with respect to the investment of the Investor's assets in the Partnership or renders investment advice within the meaning of Section 3(21)(A)(ii) of ERISA with respect to those assets, and (B) such other information and documents as the General Partner or the Investment Advisor may reasonably request in order to perform its duties in accordance with ERISA and the Code, (ix) it is not relying and has not relied on the General Partner, the Investment Advisor, the Master Fund Advisor, the Trustee, or any affiliate of the General Partner, the Investment Advisor, the Master Fund Advisor or the Trustee for any evaluation or other investment advice in respect of the advisability of an investment in the Partnership in light of the plan's assets, cash needs, investment policies or strategy, overall portfolio composition or plan for diversification of assets, (x) it acknowledges and agrees that none of the General Partner, the Investment Advisor, the Master Fund Advisor, the Trustee, any placement agent, or any affiliate of the General Partner, the Investment Advisor, the Master Fund Advisor, the Trustee or any placement agent have exercised any discretionary control with respect to the Investor's investment in the Partnership, (xi) it hereby directs the General Partner and the Investment Advisor to invest its Capital Commitment, through the Partnership, solely in units of the Master Fund as contemplated by the Partnership Agreement, except to the extent necessary to defray the costs of the Partnership's administration as permitted under the Partnership Agreement, (xii) the person executing this Subscription Agreement on behalf of the Investor, acting as, or on behalf of, the "named fiduciary" of the Investor hereby appoints the Investment Advisor as an "investment manager" (within the meaning of Section 3(38) of ERISA) of the Investor's undivided interest in the Partnership to the extent underlying assets of the Partnership are treated for purposes of ERISA or Section 4975 of the Code as "plan assets," and (xiii) in the case of any governmental plan within the meaning of Section 3(32) of ERISA, "foreign plan," or other plan or retirement arrangement that is not subject to Part 4 of Title I of ERISA and with respect to which Section 4975 of the Code does not apply (such as a non-electing "church plan" within the meaning of Section 3(33) of ERISA), the Partnership's assets will not constitute the assets of such plan under the provisions of any applicable law.

(n) The Investor is not (unless it has otherwise so disclosed in writing to the General Partner) a "charitable remainder trust" within the meaning of Section 664 of the Code. If the Investor is a charitable remainder trust, the Investor acknowledges that it understands the risks, including specifically the tax risks, associated with its investment in the Partnership.

(o) The Investor will conduct its business and affairs (including its investment activities) in a manner such that it will be able to honor its obligations under the Partnership Agreement.

(p) The Investor, if it is an entity, is duly organized or formed, validly existing and in good standing under the laws of its jurisdiction of organization or formation, and the execution, delivery and performance by it of this Subscription Agreement, the Prospective Investor Questionnaire and the Partnership Agreement are within its powers, have been duly authorized by all necessary corporate or other action on its behalf, require no action by or in respect of, or filing with, any governmental body, agency or official, and do not and will not contravene, or constitute a default under, any provision of applicable law or regulation or of its certificate of incorporation or other comparable organizational documents or any agreement, judgment, injunction, order, decree or other instrument to which the Investor is a party or by which the Investor or any of its properties is bound. This Subscription Agreement and the Prospective Investor Questionnaire constitute, and if the Investor is admitted to the Partnership as a limited partner of the Partnership, the Partnership Agreement will constitute, valid and binding agreements of the Investor, enforceable against the Investor in accordance with their respective terms.

(q) If the Investor is a natural person, the execution, delivery and performance by the Investor of this Subscription Agreement, the Prospective Investor Questionnaire and the Partnership Agreement are within the Investor's legal right, power and capacity, require no action by or in respect of, or filing with, any governmental body, agency or official, and do not and will not contravene, or constitute a default under, any provision of applicable law or regulation or of any agreement, judgment, injunction, order, decree or other instrument to which the Investor is a party or by which the Investor or any of his or her properties is bound. This Subscription Agreement and the Prospective Investor Questionnaire constitute, and if the Investor is admitted to the Partnership as a limited partner of the Partnership, the Partnership Agreement will constitute, valid and binding agreements of the Investor, enforceable against the Investor in accordance with their respective terms.

(r) The Investor understands and agrees that the Trustee, the Master Fund Advisor and any other affiliate of the General Partner or the Investment Advisor (each an "IFM Affiliate") may engage in "agency cross transactions" as defined in Reg. Section 275.206(3)-2 ("Agency Cross Transactions") promulgated by the Securities and Exchange Commission under the Investment Advisers Act in which the IFM Affiliate acts as a broker for both the Master Fund and for another person or entity on the other side of the transaction. The Investor understands and agrees that the IFM Affiliate may receive commissions from, and have a potentially conflicting division of loyalties and responsibilities regarding, both parties to such Agency Cross Transactions. THIS CONSENT, AS TO AGENCY CROSS TRANSACTIONS EFFECTED ON BEHALF OF THE MASTER FUND, MAY BE REVOKED AT ANY TIME BY WRITTEN NOTICE TO THE MASTER FUND ADVISOR FROM A MAJORITY IN INTEREST OF THE INVESTORS IN THE MASTER FUND.

(s) The Investor understands and agrees that, subject to the terms of the Trust Deed, the Master Fund may enter into transactions with IFM Affiliates. Accordingly, the Master Fund may buy investments from, and sell investments to, IFM Affiliates, may retain IFM Affiliates for financing, advisory and other services, may borrow money from

IFM Affiliates, and may enter into joint ventures with IFM Affiliates, and IFM Affiliates may act as the Master Fund's counterparty in connection with swaps, options, forward contracts and other derivative instruments. The Investor understands and agrees that, to the extent the General Partner or the Master Fund Advisor determines that approval of any such transaction is required by law or by the Trust Deed, such approval may be requested from the Advisory Committee and, if such approval is given, such approval will be binding on the Investor and the Partnership. The Investor further understands and agrees that to the extent (a) any approvals on behalf of the Partnership or the Master Fund are required under the Investment Advisers Act, including, without limitation, any approvals required under Sections 205(a) or 206(3) thereof, provided that such approvals are permitted under ERISA, or (b) any consent is required under the Investment Advisers Act to a transaction that would result in the "assignment" (within the meaning of the Investment Advisers Act) of the General Partner's interest in the Partnership, to the fullest extent permitted by law, such approvals may be requested from the Advisory Committee and, if such approval is given, such approval will be binding on the Investor and the Partnership.

(t) The Investor hereby certifies under penalties of perjury that the information set forth in the Prospective Investor Questionnaire as to (x) such Investor's business or residence address and (y) whether the Investor is a "United States person" (as defined below) is true and correct. For purposes of this Section 6(t), a "United States person" means (i) an individual who is a citizen or resident of the United States, (ii) a corporation, entity taxable as a corporation, or partnership created or organized in or under the laws of the United States or of any state or political subdivision thereof or therein, including the District of Columbia (other than a partnership that is not treated as a U.S. person under U.S. Treasury Regulations, which have not yet been issued), (iii) an estate the income of which is subject to U.S. federal income tax regardless of the source thereof, or (iv) a trust with respect to which a court within the United States is able to exercise primary supervision over its administration and one or more U.S. persons have the authority to control all of its substantial decisions, or certain electing trusts that were in existence on August 20, 1996 and were treated as domestic trusts on August 19, 1996.

(u) The Investor represents that it has provided the General Partner with a properly completed and executed Form W-9, including the investor's true and correct taxpayer identification number, and agree to furnish the Partnership or the General Partner with such Form upon the expiration of any prior Form or upon request. The Investor agrees to furnish the Partnership or the General Partner with any other information, representations and forms as shall be requested by the Partnership or the General Partner from time to time to assist it in complying with any applicable law or tax requirements or determining the extent of, and in fulfilling, its withholding obligations.

(v) The Investor will not assign or transfer the Investor's Interest (or any interest therein) on or through an "established securities market" or a "secondary market or the substantial equivalent thereof," as such terms are used in Section 1.7704-1 of the U.S. Treasury Regulations.

(w) The Investor understands that the Partnership seeks to comply with all applicable laws and regulations concerning money laundering, terrorist financing and other illegal activities. The Investor also understands that United States federal regulations and Executive Orders administered by the Office of Foreign Assets Control (“OFAC”) of the U.S. Treasury Department prohibit, among other things, engaging in transactions with, and providing services to, targeted non-U.S. countries and certain entities and individuals (including, without limitation, those subject to OFAC sanctions or embargo programs or engaged in terrorist activities or narcotics trafficking). In furtherance of the Partnership’s efforts to comply with the foregoing, the Investor represents, warrants and agrees that (i) all information regarding the identity of (w) the Investor, (x) each affiliate of the Investor, (y) if the Investor is an entity that is privately owned, each person or entity having a beneficial interest in the Investor, and (z) any person or entity for whom the Investor is acting as a nominee or agent in connection with the Investor’s investment in the Partnership (collectively, the “Investor Related Parties”) provided or to be provided to the Partnership, the General Partner, the Investment Advisor or any of their affiliates is and will be accurate and complete, (ii) none of the funds that the Investor has paid or contributed, or will pay or contribute, to the Partnership has been or will be derived, directly or indirectly, from any activity that contravenes any United States federal or any state or international laws and regulations, including anti-money laundering laws and regulations, (iii) none of the Investor Related Parties is a country, territory, entity or individual named on an OFAC list¹ or is identified as a terrorist or terrorist organization on any other relevant lists maintained by any governmental authority, (iv) none of the Investor Related Parties is an individual or entity (x) that resides or has a place of business in, or is organized under the laws of, a country or territory named on an OFAC list or which is designated as a non-cooperative country or territory by the Financial Action Task Force on Money Laundering (“FATF”)² or which is designated by the Secretary of the Treasury under Section 311 or 312 of the USA PATRIOT Act as warranting special measures due to money laundering concerns³, or (y) whose payments or contributions to the Partnership have been or will be transferred from or through such a country or territory, (v) none of the Investor Related Parties is a “senior foreign political figure,”⁴ or an “immediate family member”⁵ or “close

¹ The lists of OFAC sanctioned programs and specially designated nationals and blocked persons can be found on the OFAC website at <http://www.treas.gov/ofac>.

² The FATF list of non-cooperative countries and territories can be found on the FATF website at <http://www.fatf-gafi.org>.

³ A list of these jurisdictions can be found at <http://www.fincen.gov>.

⁴ A “senior foreign political figure” means a senior official in the executive, legislative, administrative, military or judicial branches of a foreign government (whether elected or not), a senior official of a major foreign political party, or a senior executive of a foreign government-owned corporation. In addition, a “senior foreign political figure” includes any corporation, business or other entity that has been formed by, or for the benefit of, a senior foreign political figure.

⁵ The “immediate family” of a senior foreign political figure includes the figure’s parents, siblings, spouse, children and in-laws.

associate”⁶ of a senior foreign political figure within the meaning of the Guidance on Enhanced Scrutiny for Transactions That May Involve the Proceeds of Foreign Official Corruption issued by the U.S. Department of Treasury and other federal agencies, (vi) none of the Investor Related Parties is a “Foreign Shell Bank” within the meaning of the USA PATRIOT Act, *i.e.*, a foreign bank that does not have a physical presence in any country and that is not affiliated with a bank that has a physical presence and an acceptable level of regulation and supervision, and (vii) if the Investor is an entity, or is acting as an agent or nominee in connection with the Investor’s investment in the Partnership, the Investor has adopted procedures designed to elicit and verify information from all Investor Related Parties to substantiate the representations, warranties and agreements contained herein. The Investor agrees promptly to notify the Partnership if any of the representations and warranties made by the Investor herein cease to be accurate and complete. The Investor agrees to promptly provide any additional information which the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor or the Trustee deem necessary or desirable to comply with their responsibilities and policies, and applicable laws and regulations, regarding money laundering and similar activities or to satisfy their obligations in respect of the Partnership or the Master Fund with respect to money laundering and similar activities. The Investor understands and agrees that each of the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor and the Trustee may, in its sole discretion, release information regarding the Investor Related Parties to proper authorities, and to the Master Fund and direct and/or indirect portfolio investments of the Master Fund, in order to comply, or to demonstrate compliance with, applicable laws and regulations. The Investor acknowledges and agrees that if the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor or the Trustee determine that an Investor Related Party has appeared on a list of known or suspected terrorists or terrorist organizations compiled by any U.S. or non-U.S. governmental agency, or that any representation or warranty herein is no longer accurate and complete, the General Partner may require that the Investor’s entire Interest be withdrawn from the Partnership pursuant to Section 5.5(g) of the Partnership Agreement.

(x) The Investor agrees and acknowledges that any cash contributions from the Investor to the Partnership, and any cash distributions from the Partnership to the Investor, will be remitted from or paid to the same account from which the Investor’s investment in the Partnership was originally remitted, unless the General Partner, in its sole discretion, agrees otherwise.

(y) The Investor represents and warrants that the documentation provided in connection with Exhibit C to this Subscription Booklet is in each case complete, accurate and current as of the date hereof and as of the closing date and that any copies of any such documentation are true and correct copies thereof.

⁶ A “close associate” of a senior foreign political figure is a person who is widely and publicly known to maintain an unusually close relationship with the senior foreign political figure, and includes a person who is in a position to conduct substantial domestic and international financial transactions on behalf of the senior foreign political figure.

(z) If at any time on or following the date hereof, the Investor is treated as disregarded as an entity separate from its owner for U.S. federal income tax purposes (a “DRE”), then (i) none of the Investor, the Investor’s owner for U.S. federal income tax purposes (“Tax Owner”) or any other entity that is treated as a DRE of Tax Owner and that owns a direct or indirect interest in the Investor (a “DRE Affiliate”) will create or issue, or participate in the creation or issuance of, any “interest” in the Partnership within the meaning of section 1.7704-1(a)(2) of the U.S. Treasury Regulations and (ii) if as a result of (A) a sale, transfer, pledge, encumbrance or hypothecation, directly or indirectly, of all or any part of the ownership interests of the Investor or any DRE Affiliate, (B) the issuance of any security or other instrument by the Investor or any DRE Affiliate or (C) the Investor or any DRE Affiliate otherwise ceasing to be a DRE of Tax Owner (any such event described in clause (a), (b) or (c), a “Tax Transfer”), any part of the Interest would be treated as being transferred within the meaning of section 1.7704-1(a)(3) of the U.S. Treasury Regulations, then such Tax Transfer shall not be undertaken without the prior written consent of the General Partner. The Investor is not, and will not become without the prior written consent of the General Partner, (i) a trust (other than a trust forming part of a stock bonus, pension, or profit-sharing plan of an employer for the exclusive benefit of its employees or their beneficiaries) for U.S. federal income tax purposes (a “Trust”) or (ii) a DRE the Tax Owner of which is a Trust, *provided* that if the Investor is unable to make such representation and warranty, the Investor shall have so indicated to the Partnership in writing at least five Business Days prior to the date hereof and shall have provided the Partnership with evidence (including opinions of counsel), satisfactory in form and substance to the Partnership, relating to the status of the Partnership under section 7704 of the Code. If the Investor (or in the case of an Investor that is a DRE, the Investor’s Tax Owner) is a grantor trust, a partnership, a limited liability company, or an S corporation for United States federal income tax purposes (i) not more than 50% of the value of the ownership interest of any beneficial owner of the Investor (or such Tax Owner) is (or at any time during the term of the Partnership will be) attributable to the Investor’s Interest, and (ii) it is not a principal purpose of the Investor’s participation in the Partnership to permit the Partnership to satisfy the 100 partner limitation contained in Section 1.7704-1(h)(1) of the U.S. Treasury Regulations.

(aa) The Investor acknowledges and understands the following:

(i) the Investment Advisor is a wholly-owned subsidiary of IFM Investors (US), LLC which in turn is a wholly-owned subsidiary of the Master Fund Advisor;

(ii) the Master Fund Advisor is an indirect wholly-owned subsidiary of Industry Super Holdings Pty Ltd (“ISH”) and that as of January 30, 2008, ISH was owned by 40 not-for profit Australian superannuation funds (collectively, the “IFM Related Superannuation Funds”);

(iii) as of June 30, 2008, the IFM Related Superannuation Funds held in excess of 50% of the units of IFM Infrastructure Funds, a unit trust organized under the laws of the State of New South Wales, Australia (“IFM PST”);

(iv) as of June 30, 2008, the sole unit holder of the Master Fund was IFM PST; and

(v) it is anticipated that IFM PST will continue to hold a significant percentage of the units of the Master Fund for the foreseeable future.

(bb) The Investor agrees to notify the Partnership promptly if there is any change at any time with respect to the representations and warranties set forth in this Section 6.

(cc) This Subscription Agreement, including, without limitation, the foregoing representations, warranties and agreements, shall survive the date of the Investor's admission to the Partnership.

7. The Investor acknowledges and understands:

(a) The terms and conditions set forth in the Partnership Agreement relating to the drawdown of the Investor's Capital Commitment, including, without limitation, that the Investor's Capital Commitment:

(i) will not be drawn down until all capital commitments to the Partnership and to Parallel Investment Vehicles that are outstanding prior to the calendar quarter during which the Investor's Capital Commitment is accepted will be drawn down before the Investor's Capital Commitment will be drawn down; and

(ii) will thereafter be drawn down, on a *pro rata* basis with other undrawn capital commitments to the Partnership and to Parallel Investment Vehicles accepted within the same calendar quarter; and prior to any capital commitments to the Partnership or to Parallel investment Vehicles that are subsequently accepted.

(b) The terms, conditions and restrictions set forth in the Partnership Agreement relating to the Transfer of the Investor's Interest and the withdrawal of all or any portion of the Investor's Capital Account balance including, without limitation, Sections 5.3 and 5.5 of the Partnership Agreement. The Investor further acknowledges and agrees that the General Partner may in its sole discretion, at any time compel the withdrawal of all or a portion the Investor's Capital Account balance if the Investor's continued investment in the Partnership is prohibited on legal or regulatory grounds.

8. Except as otherwise agreed to in writing by the General Partner (on its own behalf or on behalf of the Partnership), to the fullest extent permitted by law, the Investor will indemnify and hold harmless the Partnership and each Indemnified Party from and against any losses, claims, damages or liabilities to which any of them may become subject arising out of or based upon any false representation or warranty, or any breach of or failure to comply with any covenant or agreement, made by the Investor in this Subscription Agreement or the Prospective Investor Questionnaire, or in any other document furnished to the Partnership, the General Partner or the Investment Advisor by the Investor in connection with the offering of the Interests.

The Investor will reimburse the Partnership and each Indemnified Party for their legal and other expenses (including the cost of any investigation and preparation) as they are incurred in connection with any action, proceeding or investigation arising out of or based upon the foregoing. The indemnity and reimbursement obligations of the Investor under this Section 8 shall survive the Investor's admission to the Partnership and shall be in addition to any liability which the Investor may otherwise have (including, without limitation, liability under the Partnership Agreement), and shall be binding upon and inure to the benefit of any successors, assigns, heirs, estates, executors, administrators and personal representatives of the Partnership and each Indemnified Party.

9. The Investor hereby acknowledges that each Indemnified Party is entitled to be indemnified out of the assets of the Partnership to the extent provided in the Partnership Agreement.

10. The Investor hereby irrevocably makes, constitutes and appoints the General Partner, with full power of substitution, the true and lawful representative and attorney-in-fact of, and in the name, place and stead of, the Investor, with the power from time to time to make, execute, sign, acknowledge, swear to, verify, deliver, record, file and/or publish (i) the Partnership Agreement and any amendment to the Partnership Agreement which complies with the provisions of the Partnership Agreement (including the provisions of Section 8.1 thereof), (ii) the Certificate of Limited Partnership and any amendment thereof required under the Act or required because the Partnership Agreement is amended, including, without limitation, an amendment necessary to effectuate any change in the membership of the Partnership or in the capital contributions of the Partners, and (iii) all such other instruments, documents and certificates which, in the opinion of legal counsel to the Partnership, may from time to time be required by the laws of the United States of America, the State of Delaware, or any other jurisdiction in which the Partnership shall determine to do business, or any political subdivision or agency thereof, or which such legal counsel may deem necessary or appropriate to effectuate, implement and continue the valid and subsisting existence and business of the Partnership as a limited partnership or to effect the dissolution, winding up or termination of the Partnership. The Investor is aware that the terms of the Partnership Agreement permit certain amendments to the Partnership Agreement to be effected and certain other actions to be taken or omitted by or with respect to the Partnership without the Investor's consent. If an amendment of the Certificate of Limited Partnership or the Partnership Agreement or any action by or with respect to the Partnership is taken by the General Partner in the manner contemplated by the Partnership Agreement, the Investor agrees that, notwithstanding any objection which the Investor may assert with respect to such action, the General Partner is authorized and empowered, with full power of substitution, to exercise the authority granted above in any manner which may be necessary or appropriate to permit such amendment to be made or action lawfully taken or omitted. The Investor is fully aware that the General Partner and each limited partner of the Partnership will rely on the effectiveness of this special power-of-attorney with a view to the orderly administration of the affairs of the Partnership. This power-of-attorney is a special power-of-attorney and is coupled with an interest in favor of the General Partner and as such (a) shall be irrevocable and survive in full force and effect and not be affected notwithstanding the subsequent death, disability or incapacity of any party granting this power-of-attorney, regardless of whether the Partnership or the General Partner shall have had notice thereof, and (b) shall survive the delivery of an assignment by the Investor of the whole or any portion of the

Investor's interest in the Partnership, except that where the assignee thereof has been approved by the General Partner for admission to the Partnership as a substituted limited partner of the Partnership, this power-of-attorney given by the assignor shall survive the delivery of such assignment for the sole purpose of enabling the General Partner to execute, acknowledge and file any instrument necessary to effect such substitution. This power of attorney may be exercised by such attorney-in-fact for the Investor by a single signature of the General Partner acting as attorney-in-fact with or without listing the Investor executing an instrument.

11. The Investor understands that the information provided herein and in connection herewith will be relied upon by the Partnership and the General Partner to determine the eligibility of the Investor to purchase the Interest. The Investor agrees to provide such additional documents and information reasonably requested by the General Partner relevant to a determination of whether (i) the Investor (x) is an "accredited investor" (as defined under the Securities Act), (y) is a "qualified purchaser" (as defined under the Investment Company Act), and (z) constitutes one beneficial owner for purposes of Section 3(c)(1) of the Investment Company Act, or (ii) the Partnership is holding "plan assets" (as defined in ERISA and the regulations thereunder).

12. Neither this Subscription Agreement nor any provision hereof may be waived, modified, discharged or terminated except by an instrument in writing signed by the party against whom such waiver, modification, discharge or termination is sought to be enforced.

13. This Subscription Agreement shall be binding upon and inure to the benefit of the Investor, the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor, the Trustee, and their successors and permitted assigns. If the Investor is more than one person or entity, the obligations of the Investor shall be joint and several, and the agreements, representations, warranties and acknowledgments herein contained shall be deemed to be made by and be binding upon each such person or entity and its successors and assigns.

14. This Subscription Agreement, the Prospective Investor Questionnaire, the Partnership Agreement, any "side letter" or other written agreement between the Investor and the Partnership, the General Partner, the Investment Advisor, the Master Fund Advisor and/or the Trustee in connection with the Investor's investment in the Partnership and the other agreements and documents referred to herein or in the Partnership Agreement contain the entire agreement of the parties hereto and supersede any prior agreement of the parties hereto, and there are no representations, covenants or other agreements except as stated or referred to herein and in such other agreements or documents.

15. To the fullest extent permitted by law, this Subscription Agreement is not transferable or assignable by the Investor.

16. This Subscription Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to the principles of conflicts of laws thereof.

17. Any term or provision of this Subscription Agreement that is invalid or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such

invalidity or unenforceability without rendering invalid or unenforceable the remaining terms or provisions of this Subscription Agreement or affecting the validity or enforceability of any of the terms or provisions of this Subscription Agreement in any other jurisdiction.

18. To the fullest extent permitted by law, in any judicial proceeding involving any dispute, controversy or claim arising out of or relating to this Subscription Agreement or the Partnership or its operations, the Investor (except as otherwise agreed to in writing by the General Partner (on its own behalf or on behalf of the Partnership) or unless the Investor is a sovereign entity that is a State of the United States or a political subdivision thereof) hereby consents to the non-exclusive jurisdiction and venue in any state or federal court located in the City and State of New York. In any such judicial proceeding, the Investor agrees that in addition to any method for the service of process permitted or required by such courts, to the fullest extent permitted by law, service of process may be made by prepaid certified mail with a proof of mailing receipt validated by the U.S. Postal Service constituting evidence of valid service. EXCEPT AS OTHERWISE AGREED TO IN WRITING BY THE GENERAL PARTNER (ON ITS OWN BEHALF OR ON BEHALF OF THE PARTNERSHIP), THE INVESTOR HEREBY WAIVES TRIAL BY JURY IN ANY JUDICIAL PROCEEDING INVOLVING ANY DISPUTE, CONTROVERSY OR CLAIM ARISING OUT OF OR RELATING TO THIS SUBSCRIPTION AGREEMENT OR THE PARTNERSHIP AGREEMENT OR RELATING TO THE PARTNERSHIP OR ITS BUSINESS OR AFFAIRS. Nothing contained herein shall affect the right of the Partnership to commence any action, suit or proceeding or otherwise to proceed against the Investor in any other jurisdiction or to serve process upon the Investor in any manner permitted by any applicable law in any relevant jurisdiction.

19. This Subscription Agreement may be executed in counterparts with the same effect as if the parties executing the counterparts had all executed one counterpart.

By executing the signature page included as Part IV of this Subscription Booklet, the Investor agrees to be bound by the foregoing.

(Please complete and sign all 3 copies of the Signature Page)

IV. SIGNATURE PAGE

This page constitutes the signature page for: (i) the Subscription Agreement; (ii) the Prospective Investor Questionnaire; and (iii) the Amended and Restated Limited Partnership Agreement of IFM Global Infrastructure (US), L.P.

Execution of this page constitutes execution of, and the undersigned hereby authorizes this page to be attached to a counterpart of, each of these documents.

The undersigned hereby applies for an Interest in the Partnership with a Capital Commitment of: \$_____

IN WITNESS WHEREOF, the undersigned has executed this signature page this ____ day of _____, 20__.

Print Name of Limited Partner (Investor)

By: _____
Signature of Authorized Signatory

By: _____
Signature of Authorized Signatory

Print Name of Authorized Signatory

Print Name of Authorized Signatory

Print Title of Authorized Signatory

Print Title of Authorized Signatory

Accepted and Agreed
as of _____, 20__

IFM Global Infrastructure (US) GP, LLC,
in its capacity as General Partner, and on behalf of IFM Global Infrastructure (US), L.P.

IFM Investors (US) Advisor, LLC
in its capacity as Investment Advisor, and for the purposes of acknowledging its appointment pursuant to clause 6(k)(xii) only.

By: IFM Investors (US), LLC

By: _____
Name:
Title:

By: _____
Name:
Title:

By: _____
Name:
Title:

By: _____
Name:
Title:

(Please complete and sign all 3 copies of the Signature Page)

IV. SIGNATURE PAGE

This page constitutes the signature page for: (i) the Subscription Agreement; (ii) the Prospective Investor Questionnaire; and (iii) the Amended and Restated Limited Partnership Agreement of IFM Global Infrastructure (US), L.P.

Execution of this page constitutes execution of, and the undersigned hereby authorizes this page to be attached to a counterpart of, each of these documents.

The undersigned hereby applies for an Interest in the Partnership with a Capital Commitment of: \$_____

IN WITNESS WHEREOF, the undersigned has executed this signature page this ____ day of _____, 20__.

Print Name of Limited Partner (Investor)

By: _____
Signature of Authorized Signatory

By: _____
Signature of Authorized Signatory

Print Name of Authorized Signatory

Print Name of Authorized Signatory

Print Title of Authorized Signatory

Print Title of Authorized Signatory

Accepted and Agreed
as of _____, 20__

IFM Global Infrastructure (US) GP, LLC,
in its capacity as General Partner, and on behalf of IFM Global Infrastructure (US), L.P.

IFM Investors (US) Advisor, LLC
in its capacity as Investment Advisor, and for the purposes of acknowledging its appointment pursuant to clause 6(k)(xii) only.

By: IFM Investors (US), LLC

By: _____
Name:
Title:

By: _____
Name:
Title:

By: _____
Name:
Title:

By: _____
Name:
Title:

(Please complete and sign all 3 copies of the Signature Page)

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Print Name of Limited Partner (Investor)

By: _____
Signature of Authorized Signatory

By: _____
Signature of Authorized Signatory

Print Name of Authorized Signatory

Print Name of Authorized Signatory

Print Title of Authorized Signatory

Print Title of Authorized Signatory

Accepted and Agreed
as of _____, 20__

IFM Global Infrastructure (US) GP, LLC,
in its capacity as General Partner, and on behalf of IFM Global Infrastructure (US), L.P.

IFM Investors (US) Advisor, LLC
in its capacity as Investment Advisor, and for the purposes of acknowledging its appointment pursuant to clause 6(k)(xii) only.

By: IFM Investors (US), LLC

By: _____
Name: _____
Title: _____

Exhibit A

Name: _____

IFM GLOBAL INFRASTRUCTURE (US), L.P.

(A Delaware Limited Partnership)

**Class A
Limited Partner Interests**

Prospective Investor Questionnaire

PROSPECTIVE INVESTOR QUESTIONNAIRE

IFM GLOBAL INFRASTRUCTURE (US), L.P.

This Prospective Investor Questionnaire relates to the offering of Class A limited partner interests (the “Interests”) in IFM Global Infrastructure (US), L.P., a Delaware limited partnership (the “Partnership”). The purpose of this Prospective Investor Questionnaire is to assist IFM Global Infrastructure (US) GP, LLC (the “General Partner”) and IFM Investors (US) Advisor, LLC (the “Investment Advisor”), in determining whether a prospective investor (the “Investor”) is eligible to invest in the Partnership. By executing the signature page included in the Subscription Booklet to which this Prospective Investor Questionnaire is attached as Exhibit A, the Investor will be executing this Questionnaire and confirming that the information contained in this Questionnaire is complete and accurate. Capitalized terms used but not defined in this Questionnaire have the meanings given to them in the Subscription Agreement.

ALL INFORMATION CONTAINED IN THIS QUESTIONNAIRE WILL BE TREATED CONFIDENTIALLY. However, the Investor understands that the General Partner or the Investment Advisor may present this Questionnaire to such parties as the General Partner or the Investment Advisor, in its sole discretion, deems appropriate if called upon to establish that (i) the proposed offer and sale of the Interests is exempt from registration under the Securities Act or meets the requirements of applicable securities laws of any state or other jurisdiction, (ii) the Partnership is exempt from registration under the Investment Company Act, (iii) the proposed offer and sale of the Interests is not a prohibited transaction under Section 406 of ERISA or Section 4975 of the Code, (iv) the Investment Advisor is in compliance with the Investment Advisers Act, (v) the General Partner, the Investment Advisor, the Master Fund Advisor, the Trustee or any service provider to the Partnership or the Master Fund is in compliance with applicable laws and regulations, including, without limitation, the USA Patriot Act, or (vi) the Partnership or the Master Fund may make a proposed investment. In addition, a copy of this Questionnaire may be provided to lenders and prospective lenders to the Partnership or the Master Fund. The General Partner, the Investment Advisor, the Master Fund Advisor or the Trustee may also disclose, as required by applicable law or as requested by any governmental body, agency or official in connection with this offering or the operations of the Partnership or the Master Fund, the name of the Investor, the amount of its capital commitment and capital contributions to the Partnership and such other information required by applicable law or as requested by any governmental body, agency or official. Furthermore, the Investor understands that the offering of Interests may be reported to the Securities and Exchange Commission or to state securities commissioners pursuant to the requirements of applicable federal law and of various state securities laws.

INSTRUCTIONS

Investors that are *entities* (including corporations, partnerships, limited liability companies and trusts) should answer all questions in Sections A, B and C, but should only answer the questions in Section D that are applicable to them.

<u>Section</u>	<u>Page</u>
Section A: General Information	A-2
Section B: Accredited Investor Questions for Entities	A-5
Section C: Other Certifications for Entities	A-7
Section D: Qualified Purchaser Questions for Entities	A-12
Question 1: <i>Plan Investors that are Qualified Institutional Buyers</i>	A-13
Question 2: <i>Entities with Investments of \$25 Million or More</i>	A-14
Question 3: <i>Family Companies</i>	A-17
Question 4: <i>Other Investors</i>	A-20

“Plan Investor” and “family company” are defined on Page A-12.

For Entities Only

Section A: General Information

1. The Investor

Name: _____

Principal Place of Business: _____

(Number and Street)

(City) (State) (Postal Code) (Country)

Address for correspondence (if different)

(Number and Street)

(City) (State) (Postal Code) (Country)

Telephone number: _____ E-mail address: _____

State or other jurisdiction in which incorporated or formed: _____

Date of incorporation or formation: _____

IRS taxpayer identification number (if any): _____

Net assets as of the end of the most recent fiscal year are in excess of: \$ _____

The Investor's year end for U.S. federal income tax purposes is December 31st.

Yes No*

*Note: If the Investor answered "No" above, please specify the Investor's year end: _____

Type of Investor (please check one that applies):

___ Corporate/Private Pension

___ Insurance

___ Public Pension

___ Financial Institution

___ Taft Hartley

___ Endowment

___ Industry Pension

___ Sovereign Wealth Fund

___ Foundation

___ Foreign Official Institutions

2. Authorized Individual Who Is Executing This Questionnaire on Behalf of the Investor

Name: _____

Current position or title: _____

Telephone number: _____ E-mail address: _____

3. Primary Contact Person

Name: _____

Address: _____

(Number and Street)

(City) (State) (Postal Code) (Country)

Telephone number: _____ E-mail address: _____

Relationship to Investor (e.g., attorney, accountant): _____

Types of information this person should receive (please circle all that apply):

All Correspondence

Capital Calls

Distribution Information

Legal Information

Tax Information

Quarterly and Annual Reports

****NOTE THAT AT LEAST ONE CONTACT PERSON MUST BE DESIGNATED AS THE RECIPIENT OF "TAX INFORMATION"**

4. Secondary Contact Person

Name: _____

Address: _____
(Number and Street)

(City) (State) (Postal Code) (Country)

Telephone number: _____ E-mail address: _____

Relationship to Investor (e.g., attorney, accountant): _____

Types of information this person should receive (please circle all that apply):

All Correspondence *Capital Calls* *Distribution Information*

Legal Information *Tax Information* *Quarterly and Annual Reports*

****NOTE THAT AT LEAST ONE CONTACT PERSON MUST BE DESIGNATED AS THE RECIPIENT OF "TAX INFORMATION"**

5. Consultant Contact Person

Name: _____

Address: _____
(Number and Street)

(City) (State) (Postal Code) (Country)

Telephone number: _____ E-mail address: _____

Relationship to Investor (e.g., attorney, accountant): _____

Types of information this person should receive (please circle all that apply):

All Correspondence *Capital Calls* *Distribution Information*

Legal Information *Tax Information* *Quarterly and Annual Reports*

****NOTE THAT AT LEAST ONE CONTACT PERSON MUST BE DESIGNATED AS THE RECIPIENT OF "TAX INFORMATION"**

6. Bank and Brokerage Account Information

a. *Bank Reference of the Investor:*

Name of primary bank reference: _____

ABA#: _____

Address of bank: _____
(Number and Street)

(City) (State) (Postal Code) (Country)

Name of banking officer: _____

Telephone number: _____ E-mail Address: _____

b. *Account information for Wire Payments to the Partnership and for Wire Payments to the Investor:*

Name of bank: _____

Address of bank: _____
(Number and Street)

(City) (State) (Postal Code) (Country)

Account Name: _____

Account Number: _____ ABA Number: _____

Further Credit Account Name (if applicable): _____
Name of banking officer: _____
Telephone number: _____ E-mail Address: _____

Please note that contributions from or distributions to accounts held in the name of persons other than the Investor will not be permitted.

7. Election to Receive Distributions

From time to time, and generally on a semi-annual basis, IFM Global Infrastructure (US), L.P. (the “Partnership”) intends to make distributions of cash to all partners, as determined by IFM Global Infrastructure (US) GP, LLC (the “General Partner”) in its discretion. There is no guarantee that any such distribution will be made with respect to a particular six-month period.

Each limited partner of the Partnership (each a “Limited Partner”) may elect to receive any such distributions in cash, or to have such distributions reinvested in the Partnership. This election may be changed by each Limited Partner on an annual basis by providing written notice to the General Partner no later than December 31st, for distributions relating to the following year.

If admitted to the Partnership as a Limited Partner, the Investor hereby elects to receive its share of each cash distribution from the Partnership as follows:

- Each distribution from the Partnership should be distributed to the Investor in cash pursuant to the wire transfer details provided in Section 5(b) above;
- Each distribution from the Partnership should be reinvested in the Partnership according to the terms described in the governing documents of the Partnership.

8. Rule 506(d) of Regulation D

The Investor has not been subject to any Regulation D Rule 506(d) disqualifying event as defined in Appendix A hereto and is not subject to any proceeding or event that could result in any such disqualifying event (“Disqualifying Event”) that would either require disclosure under the provisions of Rule 506(e) of the Securities Act or result in disqualification under Rule 506(d)(1) of the Partnership’s use of the Rule 506 exemption.

_____ True _____ False

The Investor will immediately notify the Investment Advisor in writing if the Investor becomes subject to a Disqualifying Event, or subject to any proceeding or event that could result in any such Disqualifying Event, at any date after the date hereof. In the event that the Investor is, or becomes subject to a Disqualifying Event at any date after the date hereof, the Investor agrees and covenants to use its best efforts to coordinate with the Investment Advisor (i) to provide documentation as reasonably requested by the Investment Advisor related to any such Disqualifying Event and (ii) to implement a remedy to address the Investor’s changed circumstances such that the changed circumstances will not affect in any way the Partnership’s or its affiliates’ ongoing and/or future reliance on the Rule 506 exemption under the Securities Act. The Investor acknowledges that, at the discretion of the Investment Advisor, such remedies may include, without limitation, the waiver of all or a portion of the Investor’s voting power in

the Partnership and/or the Investor's withdrawal from the Partnership through the transfer or sale of its Interest in the Partnership. The Investor also acknowledges that the Investment Advisor may periodically request assurance that the Investor has not become subject to a Disqualifying Event at any date after the date hereof, and the Investor further acknowledges and agrees that the Investment Advisor shall understand and deem the failure by the Investor to respond in writing to such requests to be an affirmation and restatement of the representations, warranties and covenants in this paragraph 7.

Section B. Accredited Investor Questions for Entities

Interests will be sold only to Investors who are “accredited investors,” as defined in Rule 501 under the Securities Act. For additional information regarding the definition of “accredited investor,” please refer to Rule 501 under the Securities Act.

Please indicate the basis of the Investor’s “accredited investor” status by checking **all** applicable statements.

The Investor is:

- (a) _____ any employee benefit plan within the meaning of ERISA, if the investment decision is made by a plan fiduciary, as defined in Section 3(21) of ERISA, which is either a bank, savings and loan association, insurance company or registered investment adviser, or if the employee benefit plan has total assets in excess of \$5,000,000;
- (b) _____ an employee benefit plan established and maintained by a state, its political subdivisions, or any agency or instrumentality of a state or its political subdivisions, if such plan has total assets in excess of \$5,000,000;
- (c) _____ a corporation, a limited liability company, a partnership, a Massachusetts or similar business trust, or an organization described in Section 501(c)(3) of the Code, in each case not formed for the specific purpose of acquiring an Interest, with total assets in excess of \$5,000,000;
- (d) _____ an entity in which each and every one of the equity owners is an “accredited investor” as defined in Rule 501 under the Securities Act;¹
- If the Investor checked this statement and did not check statement (c) above, **please provide a list of all equity owners**. Each equity owner must complete and sign a copy of this Questionnaire (insofar as is necessary to determine that such equity owner is itself an “accredited investor”). By completing the relevant pages of, and signing, this Questionnaire, such equity owner will be making the representation relating to “accredited investor” status in Section 6(a)(x) of the Subscription Agreement.
- (e) _____ a trust, with total assets in excess of \$5,000,000, not formed for the specific purpose of acquiring an Interest, whose purchase is directed by persons having such knowledge and experience in financial and business matters that they are capable of evaluating the merits and risks of the prospective investment;

¹ An individual qualifies as an “accredited investor” if the individual (i) has an individual net worth or joint net worth with the individual’s spouse, excluding the value of the primary residence of such individual, in excess of \$1,000,000 (net worth is determined by subtracting total liabilities, excluding indebtedness secured by the primary residence up to the fair market value of such residence, but including indebtedness secured by the primary residence in excess of the fair market value of such residence, from total assets) or (ii) had an individual annual adjusted gross income in excess of \$200,000, or a joint annual adjusted gross income with the individual’s spouse in excess of \$300,000, in each of the two most recently completed calendar years, and reasonably expects to have an individual annual adjusted gross income in excess of \$200,000, or joint annual adjusted gross income with the individual’s spouse in excess of \$300,000, during the current calendar year.

- (f)_____ a bank, as defined in Section 3(a)(2) of the Securities Act, or a savings and loan association, building and loan association, cooperative bank, homestead association or similar institution, as defined in Section 3(a)(5)(A) of the Securities Act, in each case whether acting in its individual or fiduciary capacity;
- (g)_____ a revocable trust of which each and every grantor is an “accredited investor” as defined in Rule 501 under the Securities Act who can amend or revoke the trust at any time and regain title to the trust assets;
- If the Investor checked this statement and did not check statements (e) or (f) above, **please provide a list of all grantors**. Each grantor must complete and sign a copy of this Questionnaire (insofar as is necessary to determine that such grantor is itself an “accredited investor”). By completing the relevant pages of, and signing, this Questionnaire, such grantor will be making the representation relating to “accredited investor” status in Section 6(a)(x) of the Subscription Agreement.
- (h)_____ a broker or dealer registered pursuant to Section 15 of the Securities Exchange Act of 1934, as amended;
- (i)_____ an insurance company as defined in Section 2(13) of the Securities Act;
- (j)_____ an investment company registered under the Investment Company Act;
- (k)_____ (i) a business development company as defined in Section 2(a)(48) of the Investment Company Act, or (ii) a Small Business Investment Company licensed by the United States Small Business Administration under Section 301(c) or (d) of the Small Business Investment Act of 1958;
- (l)_____ a self-directed employee benefit plan within the meaning of ERISA, with investment decisions made solely by persons who are “accredited investors” as defined in Rule 501 under the Securities Act; and/or
- If the Investor checked this statement, **please provide a list of all decision makers**. Each decision maker must complete and sign a copy of this Questionnaire (insofar as is necessary to determine that such decision maker is itself an “accredited investor”). By completing the relevant pages of, and signing, this Questionnaire, such decision maker will be making the representation relating to “accredited investor” status in Section 6(a)(x) of the Subscription Agreement.
- (m)_____ a private business development company as defined in Section 202(a)(22) of the Investment Advisers Act.

Section C: Other Certifications for Entities

1. The Investor was formed for the specific purpose of purchasing an Interest:

_____ Yes
_____ No

NOTE: If the Investor answers “Yes” to this Question, **please provide a list of all persons who are beneficial owners of the Investor.** Each such person must separately qualify as an “accredited investor” and a “qualified purchaser” and must complete and sign a copy of this Questionnaire as if such person were directly purchasing an Interest. By completing and signing a copy of this Questionnaire, such person will be making the representation relating to “accredited investor” and “qualified purchaser” status in Section 6(a)(x) of the Subscription Agreement.

2. (a) The Investor is a private investment company or a non-U.S. investment company that, but for the exceptions provided in Sections 3(c)(1), 3(c)(7) or 7(d) of the Investment Company Act, would be required to register as an “investment company” under the Investment Company Act (an “Excepted Investment Company”).²

_____ Yes
_____ No

NOTE: If the answer to 2(a) above is “No”, proceed to Question 3 below.

² **Explanatory Note:** The Investor (whether a trust, a partnership, a limited liability company, a corporation or another entity) is an “investment company” as defined in the Investment Company Act if it owns or proposes to acquire “investment securities” having a value exceeding 40% of the value of its assets (excluding government securities and cash items) or is engaged, proposes to engage or holds itself out as being engaged primarily in the business of investing, reinvesting, owning, holding or trading in securities. This definition therefore includes family trusts and other entities that are not themselves operating businesses, but rather hold securities and other investments for investment purposes.

An entity is generally not required to register as an “investment company” under the Investment Company Act, however, if it has fewer than 100 beneficial owners, which is the exemption referred to as Section 3(c)(1). Alternatively, an entity is generally not required to register (i) if all of its beneficial owners are “qualified purchasers” (as defined in the Investment Company Act), which is the exemption referred to as Section 3(c)(7), or (ii) if it is a foreign private investment company, which is the exemption referred to as Section 7(d).

If the Investor is a private investment company excepted from the Investment Company Act pursuant to Section 3(c)(1), 3(c)(7) or 7(d) (an “Excepted Investment Company”), each beneficial owner of the Investor that invested in the Investor on or before April 30, 1996 (a “pre-May 1996 investor”) must consent to the status of the Investor as a “qualified purchaser”. If an Excepted Investment Company has invested in the Investor, and directly or indirectly controls, is controlled by or is under common control with the Investor or the Partnership, each pre-May 1996 investor in such Excepted Investment Company also must consent to the status of the Investor as a “qualified purchaser.” If the Investor (or such Excepted Investment Company that has invested in the Investor) is a family company, unanimous consent of all of the trustees, directors or general partners of the family company is sufficient.

This explanatory note is a summary of various legal requirements under the Investment Company Act. The Investor may wish to consult its legal counsel or other advisors.

(b) If the Investor answers “Yes” to 2(a) above, did the Investor have one or more beneficial owners of its outstanding securities (determined in accordance with Section 3(c)(1)(A) of the Investment Company Act) on or before April 30, 1996?

_____ Yes
_____ No

(c) If the Investor answers “Yes” to 2(a) above, is any direct or indirect beneficial owner of the Investor itself an Excepted Investment Company that (i) directly or indirectly controls, is controlled by or is under common control with, the Investor or the Partnership and (ii) had one or more beneficial owners of its outstanding securities (determined in accordance with Section 3(c)(1)(A) of the Investment Company Act) on or before April 30, 1996?

_____ Yes
_____ No

(d) If the Investor answers “Yes” both to 2(a) above and to 2(b) and/or 2(c) above, has the Investor received the consent of all investors and beneficial owners required under the Investment Company Act in order for the Investor to be treated as a “qualified purchaser” under the Investment Company Act?

_____ Yes
_____ No

3. The Investor is a “United States person” for U.S. federal income tax purposes.

_____ Yes
_____ No

NOTE: A “United States person” includes (i) a corporation, entity taxable as a corporation, or partnership created or organized in or under the laws of the United States or of any state or political subdivision thereof or therein, including the District of Columbia (other than a partnership that is not treated as a U.S. person under U.S. Treasury Regulations, which have not yet been issued), (ii) an estate the income of which is subject to U.S. federal income tax regardless of the source thereof, or (iii) a trust with respect to which a court within the United States is able to exercise primary supervision over its administration and one or more U.S. persons have the authority to control all of its substantial decisions, or certain electing trusts that were in existence on August 20, 1996 and were treated as domestic trusts on August 19, 1996. The Investor should contact its U.S. tax advisor if the Investor is uncertain as to whether it is a United States person for U.S. federal income tax purposes.

4. (a) The Investor is a “benefit plan investor” (as such term is defined in Section 3(42) of ERISA), which includes, without limitation, an “employee benefit plan” that is subject to the provisions of Part 4 of Subtitle B of Title I of ERISA and a “plan” subject to Section 4975 of the Code.

_____ Yes
_____ No

NOTE: If the answer to 4(a) above, is “No” proceed to Question 5 below.

- (b) The Investor is a “benefit plan investor” because it is an entity or account whose underlying assets include “plan assets” by reason of a plan’s or another “benefit plan investor’s” investment in the Investor.

_____ Yes
_____ No

NOTE: If the answer to 4(b) above, is “No” proceed to Question 5 below.

- (c) (i) The participation in the Investor by “benefit plan investors”, expressed as a percentage, is ____%.
- (ii) The maximum participation in the Investor by “benefit plan investors”, expressed as a percentage, while the Investor holds interests in the Partnership will be ____%.

The Investor expressly agrees to promptly disclose any changes with respect to the percentages set forth in 4(c)(i) or (ii) above and to promptly re-confirm such percentages at any time upon the request of the General Partner.

5. The Investor is investing assets allocated to an insurance company’s general or separate account in which any Investor described in Question 4 above has an interest.

_____ Yes
_____ No

6. The Investor is a governmental plan within the meaning of Section 3(32) of ERISA, a “foreign plan,” or another plan or retirement arrangement that is not subject to Part 4 of Title I of ERISA and with respect to which Section 4975 of the Code does not apply (such as a non-electing “church plan” within the meaning of Section 3(33) of ERISA) (each, an “Other Plan Investor”) or a partnership, limited liability company or other entity in which such Other Plan Investor holds 25% of the value of any class of equity interest in such entity or that is deemed to hold the assets of an Other Plan Investor under applicable law.

_____ Yes
_____ No

7. The Investor is, or is acting on behalf of, an entity or account described under 29 C.F.R. Section 2510.3-101(h) such as, for example, a group trust, a bank common or collective trust or certain insurance company separate accounts.

_____ Yes
_____ No

8. The Investor is a “private foundation” under the Code.

_____ Yes
_____ No

9. The Investor is a “charitable remainder trust” within the meaning of Section 664 of the Code.

_____ Yes
_____ No

10. The Investor is exempt from U.S. federal income taxation under Section 501(a) of the Code.

_____ Yes
_____ No

11. (a) The Investor is organized as a limited liability company, limited partnership or general partnership.

_____ Yes
_____ No

NOTE: If the answer to 11(a) above is “No”, proceed to Question 12 below.

(b) The Investor is treated as a corporation for U.S. federal income tax purposes.

_____ Yes
_____ No

12. The Investor is subject to the U.S. Bank Holding Company Act of 1956, as amended, and the regulations promulgated thereunder (collectively, the “BHC Act”), or is directly or indirectly “controlled” (as that term is defined in the BHC Act) by a company that is subject to the BHC Act .

_____ Yes
_____ No

13. Municipal Entity or Proceeds of Municipal Securities. For purposes of compliance with Section 15B of the Securities Exchange Act of 1934 and its adopting regulations, the Investor represents and warrants that either (i) the Investor is not a municipal entity, obligated person or pooled investment vehicle; or (ii) the Investor is a municipal entity or an obligated person, and the undersigned is a knowledgeable official of Investor and no part of the fund invested or to be invested will be funded from the proceeds of municipal securities; or (iii) the Investor is a pooled investment vehicle and to the best of the Investor's knowledge after reasonable inquiry, none of the fund invested or to be invested will be funded directly or indirectly from the proceeds of municipal securities.

_____ Yes
_____ No

Section D: Qualified Purchaser Questions for Entities

Interests will be sold only to Investors who are “qualified purchasers,” as defined in Section 2(a)(51)(A) of the Investment Company Act and the related rules thereunder. For additional information regarding the definition of “qualified purchaser,” please refer to Sections 3(c)(7) and 2(a)(51)(A) of the Investment Company Act and the related provisions and rules (including Rule 2a51-1).

Please indicate the basis of the Investor’s status as a “qualified purchaser” by answering the following questions.

If the Investor is a Plan Investor that is a Qualified Institutional Buyer because it owns and invests on a discretionary basis \$100 million or more of securities, start with Question 1 on Page A-13.

A “**Plan Investor**” is (i) an employee benefit plan within the meaning of Title I of ERISA (an “ERISA Plan”), (ii) a plan established and maintained by a state, its political subdivisions or any agency or instrumentality of a state or its political subdivisions for the benefit of its employees (a “Governmental Plan”), or (iii) a trust fund whose trustee is a bank or trust company and whose participants are exclusively ERISA Plans or Governmental Plans, except trust funds that include as participants individual retirement accounts or H.R. 10 plans.

If the Investor is not a Plan Investor and Qualified Institutional Buyer, but the Investor owns investments of \$25 million or more, start with Question 2 on Page A-14.

If the Investor does not own investments of \$25 million or more, but is a “family company”, start with Question 3 on Page A-17.

A “**family company**” means any company (including a trust, partnership, limited liability company or corporation) that is owned *exclusively* directly or indirectly by or for (i)(x) two or more natural persons who are related as siblings or spouses (including former spouses), or as direct lineal descendants by birth or adoption, or (y) spouses of such persons, (ii) the estates of such persons, or (iii) foundations, charitable organizations or trusts established by or for the benefit of such persons.

All other Investors should start with Question 4 on Page A-20.

Question 1: Plan Investors that are Qualified Institutional Buyers

Instructions:

A Plan Investor will be a “qualified purchaser” if the Plan Investor is a “qualified institutional buyer” (as defined in paragraph (a) of Rule 144A under the Securities Act) that is acting for its own account. A Plan Investor will **not** be deemed to be acting for its own account if investment decisions with respect to the plan are made by the beneficiaries of the plan, except with respect to investment decisions made solely by the fiduciary, trustee or sponsor of the plan. Accordingly, a self-directed employee benefit plan (such as a “401(k)” plan) generally will **not** be a qualified purchaser.

When answering the following questions, the Investor should:

- Value securities at cost, except where the Investor reports its securities holdings in its financial statements on the basis of their market value, and no current information with respect to the cost of such securities has been published. In the latter event, securities may be valued at their market value on the most recent practicable date.
- Exclude the following instruments and interests: bank deposit notes and certificates of deposit; loan participations; repurchase agreements; securities owned but subject to a repurchase agreement; and currency, interest rate and commodity swaps.
 - (a) Does the Investor own and invest on a discretionary basis at least \$100 million in securities of issuers not affiliated with the Investor?

Yes
 No
 - (b) Are investment decisions with respect to the Investor made solely by the fiduciary, trustee or sponsor of the Investor, and not by any beneficiary or participant in the plan?

Yes
 No
- **If the answer to part (a) of Question 1 is “No”, but the answer to part (b) of Question 1 is “Yes”, proceed to Question 2 on Page A-14.**
- **If the answer to part (b) of Question 1 is “No”, the Investor may not be a qualified purchaser, and should contact the General Partner.**

Question 2: *Entities with Investments of \$25 Million or More*

Instructions:

When answering the following questions, the Investor should:

- Aggregate investments held for the account of the Investor with investments made by the Investor on a discretionary basis for other “qualified purchasers.”
- If the Investor is a company, include investments owned by majority-owned subsidiaries of the Investor, or owned by a parent company that owns a majority interest in the Investor (a “Parent Company”), or owned by other majority-owned subsidiaries of the Parent Company.
- Value investments based upon either their fair market value on the most recent practicable date or their cost, except (i) as described in footnote 9 (Question 2(e)) below with respect to Commodity Interests, and (ii) as described in the immediately following bullet point.
- When determining the amount of an investment, **deduct** the amount of any outstanding indebtedness, including margin loans, incurred to acquire, or for the purpose of acquiring, the investment.
- In the case of a Investor that would be an investment company but for the exclusion provided by Section 3(c)(1) or 3(c)(7) of the Investment Company Act, include amounts payable to the Investor pursuant to a firm agreement or other similar binding commitment pursuant to which a person has agreed to acquire an interest in, or make capital contributions to, the Investor upon the demand of the Investor.

As soon as the answer to *any* question is “Yes”, you need not respond to any further questions in this Prospective Investor Questionnaire.

- (a) Does the Investor own investments of the following types in an aggregate amount of \$25 million or more?
- securities of public companies³;
 - securities of registered investment companies, such as mutual funds (including money market funds) and publicly-traded closed-end funds;
 - securities of private investment companies (including private investment funds) that are exempt from the Investment Company Act pursuant to Section 3(c)(1) or 3(c)(7) of the Investment Company Act⁴; and/or

³ “A “public company” is a company that (i) files reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, or (ii) has a class of securities that are listed on a “designated offshore securities market” as such term is defined by Regulation S under the Securities Act. For example, a company whose equity securities are listed on a national securities exchange or traded on the National Association of Securities Dealers Automated Quotation System (NASDAQ) would be a “public company.”

- cash and cash equivalents⁵ (including foreign currencies) held for investment purposes.

_____ Yes
_____ No

- (b) Does the Investor own investments in an aggregate amount of \$25 million or more if the Investor adds real estate held for investment purposes⁶ to the amount calculated in Question 2(a)?

_____ Yes
_____ No

- (c) Does the Investor own investments in an aggregate amount of \$25 million or more if the Investor adds securities of non-public companies that have shareholders' equity⁷ of at least \$50 million to the amounts calculated in Questions 2(a) and 2(b)?

_____ Yes
_____ No

- (d) Does the Investor own investments in an aggregate amount of \$25 million or more if the Investor adds securities of non-public companies that have shareholders' equity of less than \$50 million and that do not control, are not controlled by and are not under common control with⁸ the Investor to the amounts calculated in Questions 2(a) through 2(c)?

_____ Yes
_____ No

- (e) Does the Investor own investments in an aggregate amount of \$25 million or more if the Investor adds the following types of investments (in each case held for investment purposes) to the amounts calculated in Questions 2(a) through 2(d):

⁴ The Investor may also include securities in companies that are (i) exempt from the Investment Company Act by Section 3(c)(2), (3), (4), (5), (6), (8) or (9) of the Investment Company Act, (ii) exempt from the Investment Company Act by Rule 3a-6 or 3a-7 of the Investment Company Act, or (iii) commodity pools.

⁵ Cash and cash equivalents include bank deposits, certificates of deposit, bankers acceptances and similar bank instruments held for investment purposes and the net cash surrender value of an insurance policy.

⁶ Real estate held for investment purposes excludes real estate used by the Investor as a place of business or in connection with the Investor's trade or business (unless the Investor is engaged primarily in the business of investing, trading or developing real estate and the real estate in question is owned in connection with such business).

⁷ "Shareholders' equity" means shareholders' equity (determined in accordance with generally accepted accounting principles) as reflected on the company's most recent financial statements, provided that such financial statements present the information as of a date within 16 months preceding the date on which the Investor is admitted as a Limited Partner.

⁸ For purposes of this question, the term "control," when used with respect to any entity, means (i) the possession of the power to appoint an officer or director of the entity **and** the ownership directly or indirectly of *any* voting securities of the entity, (ii) the ownership directly or indirectly of **more than 25%** of the voting securities of the entity, or (iii) the possession of the power to exercise a controlling influence over the management or policies of the entity. The terms "controlled by" or "under common control with" have meanings correlative to the foregoing.

- commodity futures contracts, options on commodity futures contracts and options on physical commodities traded on or subject to the rules of (i) a contract market designated for trading such transactions under the Commodity Exchange Act and the rules thereunder, or (ii) a board of trade or exchange outside the United States as contemplated in the rules under the Commodity Exchange Act (collectively, “Commodity Interests”)⁹;
- physical commodities with respect to which a Commodity Interest is traded on a market described in the immediately preceding bullet point; and
- to the extent not included in any previous category, financial contracts¹⁰ entered into for investment purposes.

_____ Yes
 _____ No

If the Investor cannot answer “Yes” to any of questions (a) through (e), please proceed to Question 3 on Page A-17 if the Investor is a “family company” or Question 4 on Page A-20 if the Investor is not a “family company.”

As soon as the answer to *any* question is “Yes”, you need not respond to any further questions in this Prospective Investor Questionnaire.

⁹ Commodity Interests should be valued at their initial margin or option premium deposited in connection with such Commodity Interests.

¹⁰ “Financial contracts” are defined in Section 3(c)(2)(B)(ii) of the Investment Company Act as any arrangement that (i) takes the form of an individually negotiated contract, agreement or option to buy, sell, lend, swap or repurchase, or other similar individually negotiated transaction commonly entered into by participants in the financial markets, (ii) is in respect of securities, commodities, currencies, interest or other rates, other measures of value, or any other financial or economic interest similar in purpose or function to any of the foregoing, and (iii) is entered into in response to a request from a counter party for a quotation, or is otherwise entered into and structured to accommodate the objectives of the counter party to such arrangement.

Question 3: *Family Companies*

Only an Investor that is a *family company* may complete this Question 3.

If the Investor is not a family company and cannot answer “Yes” to any question under Question 2, the Investor should proceed directly to Question 4 on Page A-20.

A “**family company**” means any company (including a trust, partnership, limited liability company or corporation) that is owned *exclusively* directly or indirectly by or for (i)(x) two or more natural persons who are related as siblings or spouses (including former spouses), or as direct lineal descendants by birth or adoption, or (y) spouses of such persons, (ii) the estates of such persons, or (iii) foundations, charitable organizations or trusts established by or for the benefit of such persons.

Instructions:

When answering the following questions, the Investor should:

- Value investments based upon either their fair market value on the most recent practicable date or their cost, except (i) as described in footnote 17 (Question 3(e)) below with respect to Commodity Interests, and (ii) as described in the immediately following bullet point.
- When determining the amount of an investment, **deduct** the amount of any outstanding indebtedness, including margin loans, incurred by the Investor or any of its owners to acquire, or for the purpose of acquiring, the investment.
- **As soon as the answer to *any* question is “Yes”, you need not respond to any further questions in this Prospective Investor Questionnaire.**

(a) Is the Investor a family company that owns investments of the following types in an aggregate amount of \$5 million or more?

- securities of public companies¹¹;
- securities of registered investment companies, such as mutual funds (including money market funds) and publicly-traded closed-end funds;
- securities of private investment companies (including private investment funds) that are exempt from the Investment Company Act pursuant to Section 3(c)(1) or 3(c)(7) of the Investment Company Act¹²; and/or

¹¹ A “public company” is a company that (i) files reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, or (ii) has a class of securities that are listed on a “designated offshore securities market” as such term is defined by Regulation S under the Securities Act. For example, a company whose equity securities are listed on a national securities exchange or traded on the National Association of Securities Dealers Automated Quotation System (NASDAQ) would be a “public company.”

➤ cash and cash equivalents¹³ (including foreign currencies) held for investment purposes.

_____ Yes

_____ No

(b) Is the Investor a family company that owns investments in an aggregate amount of \$5 million or more if the Investor adds real estate held for investment purposes¹⁴ to the amount calculated in Question 3(a)?

_____ Yes

_____ No

(c) Is the Investor a family company that owns investments in an aggregate amount of \$5 million or more if the Investor adds securities of non-public companies that have shareholders' equity¹⁵ of at least \$50 million to the amounts calculated in Questions 3(a) and 3(b)?

_____ Yes

_____ No

(d) Is the Investor a family company that owns investments in an aggregate amount of \$5 million or more if the Investor adds securities of non-public companies that have shareholders' equity of less than \$50 million and that do not control, are not controlled by and are not under common control with¹⁶ the Investor to the amounts calculated in Questions 3(a) through 3(c)?

_____ Yes

_____ No

¹² The Investor may also include securities in companies that are (i) exempt from the Investment Company Act by Section 3(c)(2), (3), (4), (5), (6), (8) or (9) of the Investment Company Act, (ii) exempt from the Investment Company Act by Rule 3a-6 or 3a-7 of the Investment Company Act, or (iii) commodity pools.

¹³ Cash and cash equivalents include bank deposits, certificates of deposit, bankers acceptances and similar bank instruments held for investment purposes and the net cash surrender value of an insurance policy.

¹⁴ Real estate held for investment purposes excludes real estate used by the Investor, any of its owners or any "related person" of its owners (a spouse or former spouse, sibling, direct lineal descendant or ancestor by birth or adoption or a spouse of such descendant or ancestor) (i) for personal purposes, (ii) as a place of business, or (iii) in connection with a trade or business of the Investor, its owners or a related person of its owners (unless the Investor is engaged primarily in the business of investing, trading or developing real estate and the real estate in question is owned in connection with such business). Residential real estate may be considered "held for investment" if deductions on the property are not disallowed by Section 280A of the Code.

¹⁵ "Shareholders' equity" means shareholders' equity (determined in accordance with generally accepted accounting principles) as reflected on the company's most recent financial statements, provided that such financial statements present the information as of a date within 16 months preceding the date the Investor is admitted as a Limited Partner.

¹⁶ For purposes of this question, the term "control," when used with respect to any entity, means (i) the possession of the power to appoint an officer or director of the entity **and** the ownership directly or indirectly of any voting securities of the entity, (ii) the beneficial ownership, directly or indirectly, of **more than 25%** of the voting securities of the entity, or (iii) the possession of the power to exercise a controlling influence over the management or policies of the entity. The terms "controlled by" or "under common control with" have meanings correlative to the foregoing.

(e) Is the Investor a family company that owns investments in an aggregate amount of \$5 million or more if the Investor adds the following types of investments (in each case held for investment purposes) to the amounts calculated in Questions 3(a) through 3(d)?

- commodity futures contracts, options on commodity futures contracts and options on physical commodities traded on or subject to the rules of (i) a contract market designated for trading such transactions under the Commodity Exchange Act and the rules thereunder, or (ii) a board of trade or exchange outside the United States as contemplated in the rules under the Commodity Exchange Act (collectively, “Commodity Interests”)¹⁷;
- physical commodities with respect to which a Commodity Interest is traded on a market described in the immediately preceding bullet point; and
- to the extent not included in any previous category, financial contracts¹⁸ entered into for investment purposes.

_____ Yes
_____ No

If the Investor cannot answer “Yes” to any of questions (a) through (e), please proceed to Question 4 on the next page.

As soon as the answer to *any* question is “Yes”, you need not respond to any further questions in this Prospective Investor Questionnaire.

¹⁷ Commodity Interests should be valued at their initial margin or option premium deposited in connection with such Commodity Interests.

¹⁸ “Financial contracts” are defined in Section 3(c)(2)(B)(ii) of the Investment Company Act as any arrangement that (i) takes the form of an individually negotiated contract, agreement or option to buy, sell, lend, swap or repurchase, or other similar individually negotiated transaction commonly entered into by participants in the financial markets, (ii) is in respect of securities, commodities, currencies, interest or other rates, other measures of value, or any other financial or economic interest similar in purpose or function to any of the foregoing, and (iii) is entered into in response to a request from a counter party for a quotation, or is otherwise entered into and structured to accommodate the objectives of the counter party to such arrangement.

Question 4: *Other Investors*

Instructions:

Question 4 should be answered only by (i) Plan Investors that cannot answer “Yes” to part (b) of Question 1 of this Section D, (ii) entities that are not family companies and cannot answer “Yes” to any part of Question 2 of this Section D, and (iii) family companies that cannot answer “Yes” to any part of Question 2 or Question 3 of this Section D.

Please answer all parts of this Question 4.

- (a) Is the Investor an entity *other than a trust* and is each beneficial owner of the Investor’s securities a “qualified purchaser”?

_____ Yes
_____ No

NOTE: If the Investor answers “Yes” to this Question 4(a), **please provide a list of all beneficial owners**. Each beneficial owner must complete and sign a copy of this Questionnaire (insofar as is necessary to determine that such beneficial owner is itself a “qualified purchaser”). By completing the relevant pages of, and signing, this Questionnaire, such beneficial owner will be making the representation relating to “qualified purchaser” status in Section 6(a)(x) of the Subscription Agreement.

- (b) Is the Investor a trust that was not formed for the specific purpose of acquiring an Interest, as to which each trustee (or other person authorized to make decisions with respect to the trust) is a “qualified purchaser” and each settlor (or other person who has contributed assets to the trust) was a “qualified purchaser” at the time such person contributed assets to the trust?

_____ Yes
_____ No

NOTE: If the Investor answers “Yes” to this Question, **please provide a list of all trustees (or other persons authorized to make decisions with respect to the trust) and all settlors (or other persons who have contributed assets to the trust)**. Each trustee (or other person authorized to make decisions with respect to the trust) and each settlor (or other person who has contributed assets to the trust) must complete and sign a copy of this Questionnaire (insofar as is necessary to determine that such person is itself a “qualified purchaser”). By completing the relevant pages of, and signing, this Questionnaire, such person will be making the representation relating to “qualified purchaser” status in Section 6(a)(x) of the Subscription Agreement.

- (c) Is the Investor a “qualified institutional buyer” (as defined in paragraph (a) of Rule 144A under the Securities Act), that is acting for its own account, the account of another “qualified institutional buyer,” or the account of a “qualified purchaser”?

➤ If the Investor is a dealer described in paragraph (a)(1)(ii) of Rule 144A, it will not qualify under this paragraph and must answer “No”, unless the Investor owns and

invests on a discretionary basis at least \$25 million in securities of issuers that are not affiliated persons of the Investor.

- If the Investor is an employee benefit plan referred to in paragraph (a)(1)(i)(D) or (a)(1)(i)(E) of Rule 144A, or a trust fund referred to in paragraph (a)(1)(i)(F) of Rule 144A that holds the assets of such a plan, the Investor will **not** be deemed to be acting for its own account if investment decisions with respect to the plan are made by beneficiaries of the plan, except with respect to investment decisions made solely by the fiduciary, trustee or sponsor of such plan. Accordingly, a self-directed employee benefit plan (such as a 401(k) plan) generally will **not** be a qualified purchaser.

_____ Yes
_____ No

APPENDIX A

Definition of “Disqualifying Event”

Each of the enumerated instances below is a “Disqualifying Event” for the purposes of the Investor’s response to paragraph 7 of the Prospective Investor Questionnaire. Capitalized terms used but not defined in this Appendix A have the meanings given to them in the Subscription Agreement. The Investor has been subject to a Disqualifying Event if the Investor:

- Has been convicted within ten years of the date hereof of any felony or misdemeanor (i) in connection with the purchase or sale of any security, (ii) involving the making of any false filing with the U.S. Securities and Exchange Commission (the “SEC”) or (iii) arising out of the conduct of the business of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities;
- Is subject to any order, judgment or decree of any court of competent jurisdiction entered within five years of the date hereof that presently restrains or enjoins the Investor from engaging or continuing to engage in any conduct or practice (i) in connection with the purchase or sale of any security, (ii) involving the making of any false filing with the SEC or (iii) arising out of the conduct of the business of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities;
- Is subject to a final order of a state securities commission (or an agency or officer of a state performing like functions); a state authority that supervises or examines banks, savings associations or credit unions; a state insurance commission (or an agency or officer of a state performing like functions); an appropriate federal banking agency; the U.S. Commodity Futures Trading Commission; or the National Credit Union Administration that (i) as of the date hereof, bars the Investor from (A) association with an entity regulated by such commission, authority, agency or officer, (B) engaging in the business of securities, insurance or banking or (C) engaging in savings association or credit union activities or (ii) constitutes a final order based on a violation of any law or regulation that prohibits fraudulent, manipulative or deceptive conduct entered within ten years of the date hereof;
- Is subject to any order of the SEC pursuant to Section 15(b) or 15B(c) of the Securities Exchange Act of 1934, as amended, or Section 203(e) or (f) of the Investment Advisers Act that as of the date hereof (i) suspends or revokes the Investor’s registration as a broker, dealer, municipal securities dealer or investment adviser, (ii) places limitations on the activities, functions or operations of the Investor or (iii) bars the Investor from being associated with any entity or from participating in the offering of any penny stock;
- Is subject to any order of the SEC entered within five years of the date hereof that presently orders the Investor to cease and desist from committing or causing a violation or future violation of (i) any scienter-based anti-fraud provision of the federal securities laws or (ii) Section 5 of the Securities Act;
- Is, as of the date hereof, suspended or expelled from membership in, or suspended or barred from association with a member of, a registered national securities exchange or a registered national or affiliated securities association for any act or omission to act constituting conduct inconsistent with just and equitable principles of trade;

- Has filed (as a registrant or issuer), or was or was named as an underwriter in, any registration statement or Regulation A offering statement filed with the SEC that, within five years of the date hereof, was the subject of a refusal order, stop order or order suspending the Regulation A exemption, or is presently the subject of an investigation or proceeding to determine whether a stop order or suspension order should be issued; or
- Is subject to a United States Postal Service false representation order entered within five years of the date hereof or is presently subject to a temporary restraining order or preliminary injunction with respect to conduct alleged by the United States Postal Service to constitute a scheme or device for obtaining money or property through the mail by means of false representations.

Callan



February 27, 2020

Tucson Supplemental Retirement System

Market Update and
Performance Review

Gordie Weightman, CFA
Senior Vice President

Paul Erlendson
Senior Vice President

Topics of Conversation

- Recent Capital Market Environment
- TSRS Investment Results

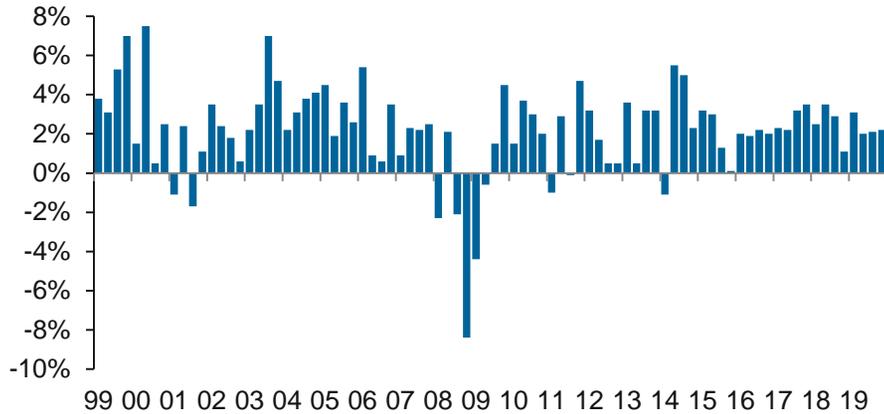
Callan

Market Overview

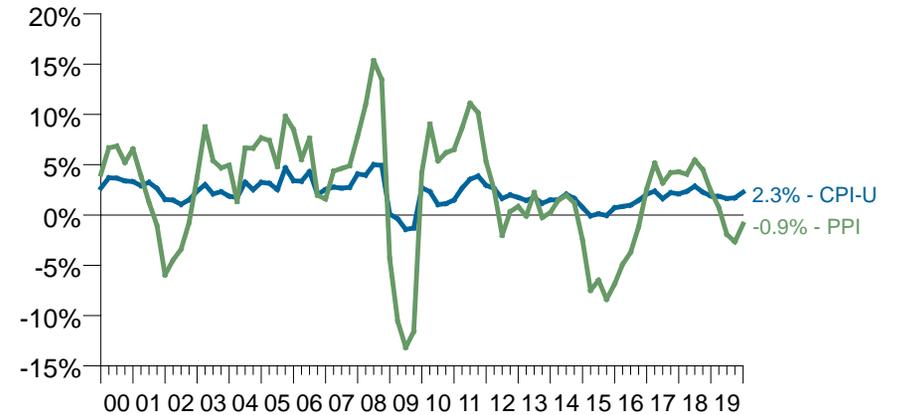
U.S. Economy—Summary

For periods ended December 31, 2019

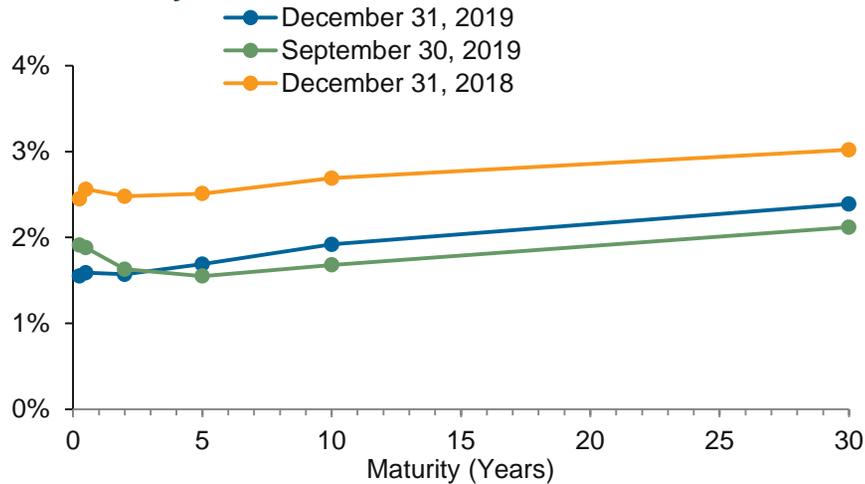
Quarterly Real GDP Growth



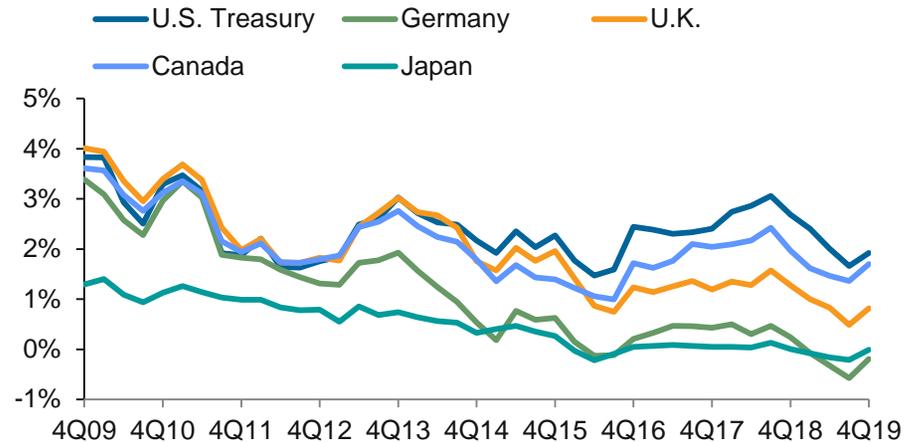
Inflation Year-Over-Year



U.S. Treasury Yield Curves



10-Year Global Government Bond Yields

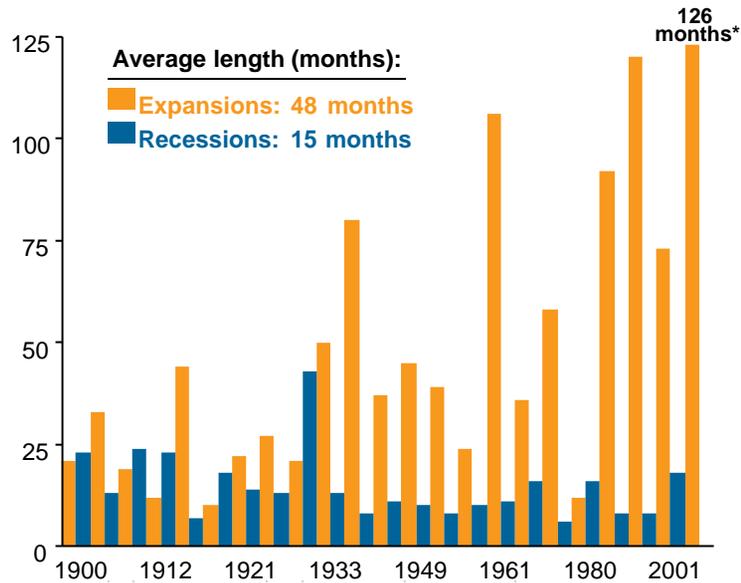


Sources: Bloomberg, Bureau of Labor Statistics, Callan

Expansion Continues, but Not Without Raising Concerns

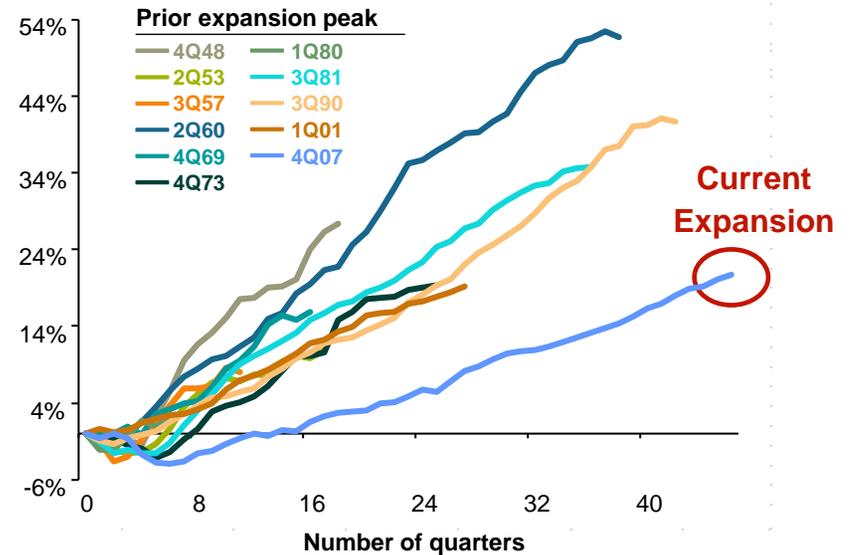
Expansions do not die of old age, but this one has become the longest

Length of Economic Expansions and Recessions



Strength of Economic Expansions

Cumulative real GDP growth since prior peak, percent



- The slow burn in the current expansion has enabled it to continue, at the risk of building back up asset price bubbles.
- The current recovery is now the longest, but also one of the slowest, averaging GDP growth in the U.S. of just 2.2%.
- Inverted yield curves typically suggest the onset of recession; the yield curve inverted mid-2019, but was no longer inverted by the end of the year.
- Long rates did not budge as short rates rose during 2017-18; long rates have since dropped over 100 bps.
- The explanatory power of an inverted yield curve has lessened in the wake of the Global Financial Crisis (GFC) and quantitative easing. Demand on the long end and limited supply are holding down the long end.

Source: JPMorgan Asset Management

Asset Class Performance

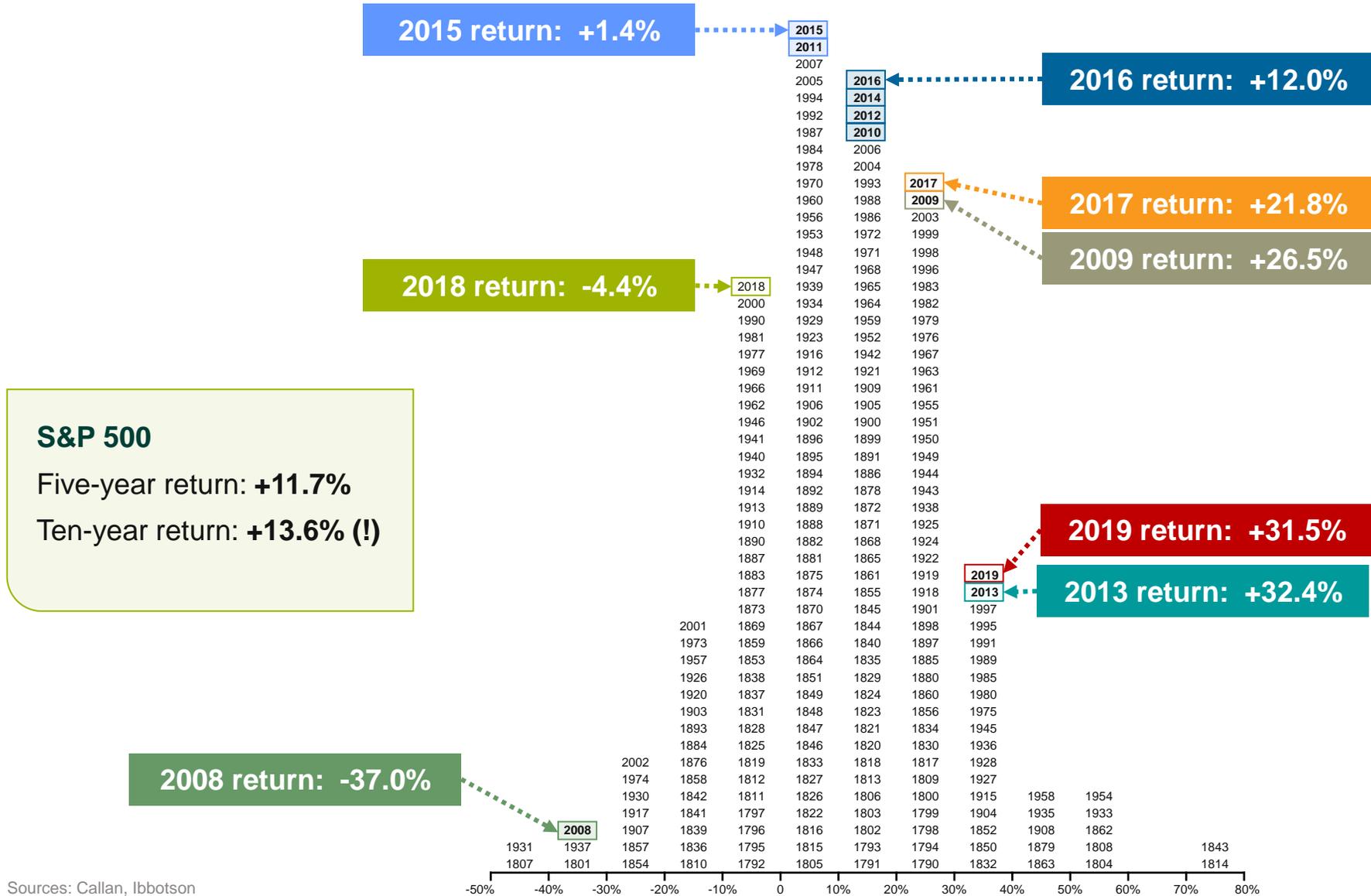
Periodic Table of Investment Returns for Periods Ended December 31, 2019



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
Best	MSCI:EM Gross 11.9%	S&P:500 31.5%	S&P:500 15.3%	S&P:500 11.7%	S&P:500 13.6%	Russell:Midcap Index 9.0%
	Russell:2000 Index 9.9%	Russell:Midcap Index 30.5%	Russell:Midcap Index 12.1%	Russell:Midcap Index 9.3%	Russell:Midcap Index 13.2%	Russell:2000 Index 7.6%
	S&P:500 9.1%	Russell:2000 Index 25.5%	MSCI:EM Gross 12.0%	Russell:2000 Index 8.2%	Russell:2000 Index 11.8%	MSCI:EM Gross 7.0%
	MSCI:EAFE 8.2%	MSCI:EAFE 22.0%	MSCI:EAFE 9.6%	MSCI:EM Gross 6.0%	MSCI:EAFE 5.5%	S&P:500 6.1%
	Russell:Midcap Index 7.1%	MSCI:EM Gross 18.9%	Russell:2000 Index 8.6%	MSCI:EAFE 5.7%	MSCI:EM Gross 4.0%	Blmbg:Aggregate 5.0%
	3 Month T-Bill 0.5%	Blmbg:Aggregate 8.7%	Blmbg:Aggregate 4.0%	Blmbg:Aggregate 3.0%	Blmbg:Aggregate 3.7%	MSCI:EAFE 3.3%
Worst	Blmbg:Aggregate 0.2%	3 Month T-Bill 2.3%	3 Month T-Bill 1.7%	3 Month T-Bill 1.1%	3 Month T-Bill 0.6%	3 Month T-Bill 1.8%

Stock Market Returns by Calendar Year

2019 performance in perspective: History of the U.S. stock market (230 years of returns)



Sources: Callan, Ibbotson

U.S. Stock Markets Renew Surge Through Q4 2019

New record for the S&P 500 reached in Q4 2019.

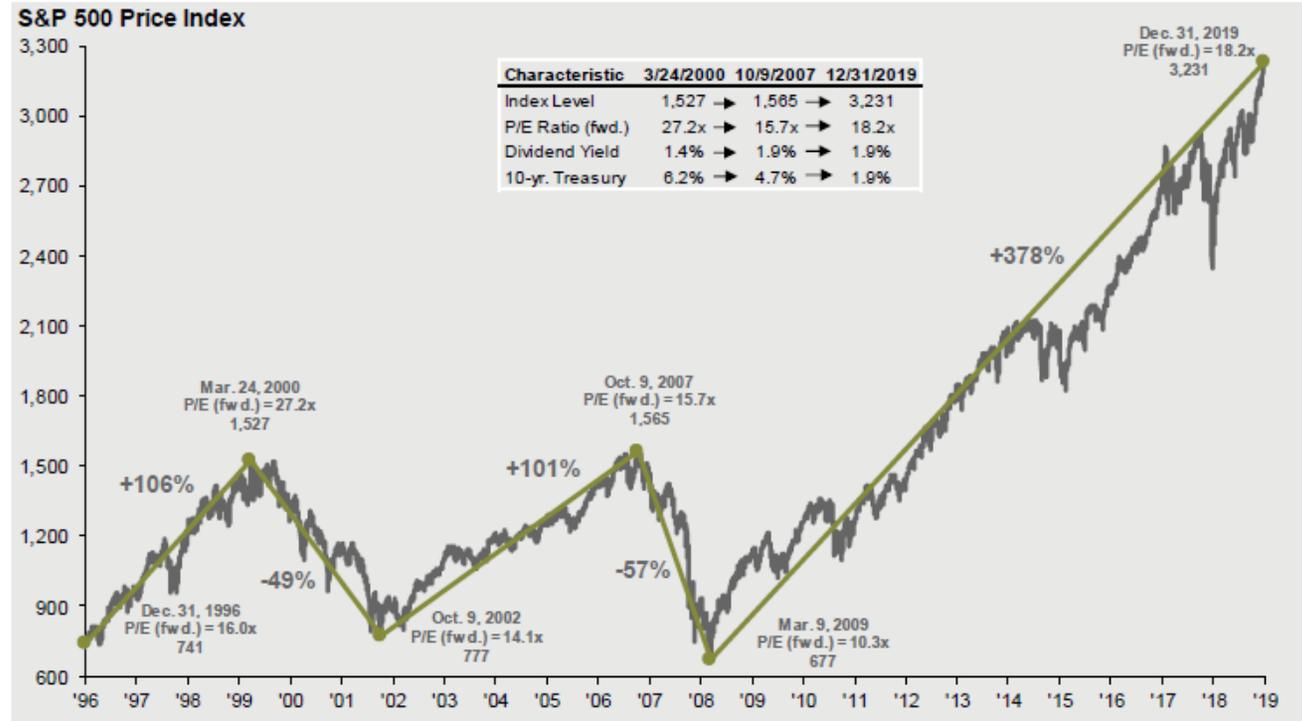
- 9% gain in Q4, after slowing to 1.7% in Q3; 31.5% total return for 2019

Forward valuation jumped to 18.2 in Q4, well above its 25-year average (16.2).

- Still nowhere near the peak set in 2000

Yield on 10-year Treasury inched back to the level of the dividend yield on stocks.

- Prior to GFC, Treasury yield typically exceeded that of the stock dividend; two yields were very close for eight years following GFC.
- Gap began to widen with Fed tightening in 2017, but narrowed again in Q2 with reversal of Fed policy.
- Vastly different relationship between stock and bond yields in 2000 and 2007



Source: Compustat, FactSet, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management. Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price to earnings ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns. Guide to the Markets – U.S. Data are as of December 31, 2019.

Source: JPMorgan Asset Management

U.S. Equity Market

December 31, 2019

- The Russell 1000 Index appreciated 9.0% in the fourth quarter and rose 31.4% for the year
 - R1000 Growth climbed 10.6% in the quarter, while R1000 Value grew 7.4%.
 - The spread between growth and value in large caps for the year was nearly 10% (9.9%)
- For the quarter, small caps outperformed, followed by large cap and finally, mid caps
- For the year, large cap was the best performing followed by mid then small.
 - Growth bested value for all capitalization ranges for the quarter and the year

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Large Cap Equity						
Russell 1000 Index	9.0	31.4	15.0	11.5	13.5	9.1
Russell 1000 Growth	10.6	36.4	20.5	14.6	15.2	10.5
Russell 1000 Value	7.4	26.5	9.7	8.3	11.8	7.6
Mid Cap Equity						
Russell Midcap Index	7.1	30.5	12.1	9.3	13.2	9.5
Russell Midcap Growth	8.2	35.5	17.4	11.6	14.2	10.1
Russell Midcap Value	6.4	27.1	8.1	7.6	12.4	8.8
Small Cap Equity						
Russell 2000 Index	9.9	25.5	8.6	8.2	11.8	7.9
Russell 2000 Growth	11.4	28.5	12.5	9.3	13.0	8.8
Russell 2000 Value	8.5	22.4	4.8	7.0	10.6	6.9

U.S. Equity: Low Volatility Outperformance

Shift away from defensive sectors toward cyclicals

- Utilities, Real Estate, and Staples took a back seat to cyclically oriented sectors during the fourth quarter.
- Investors harnessed three interest rate cuts, a potential U.S.-China trade armistice, and some clarity around Brexit in the risk-on environment.

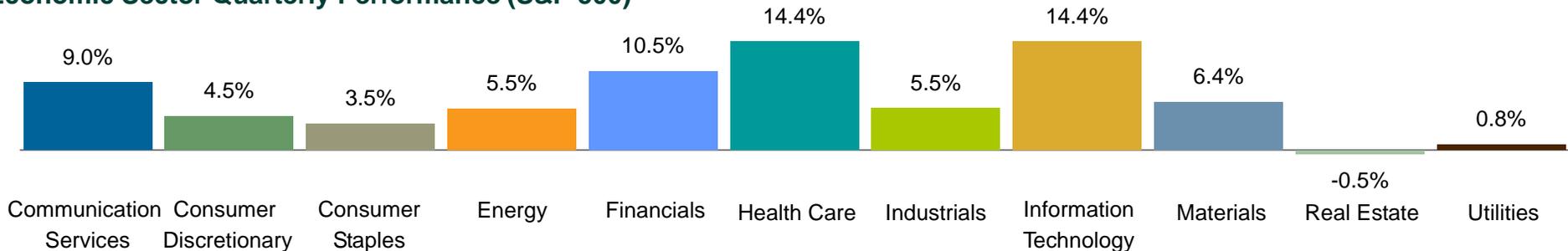
Small caps outpaced large for quarter but lagged on year.

- Heightened new drug approvals and M&A activity within Health Care's biotech and pharma industries propelled small caps.
- While small cap prevailed in the fourth quarter, large caps led for the third straight year, owing much of the gains to the Tech sector (+50.3%) and Communication Services (+32.7%).
- Apple (+85%) and Microsoft (+54%) hit over \$1 trillion in market cap, accounting for 15% of the S&P 500's annual advance.

Growth vs. value

- Growth continued its dominance over value during the quarter across the market cap spectrum, closing out a decade-long trend supported by a low-rate environment.

Economic Sector Quarterly Performance (S&P 500)

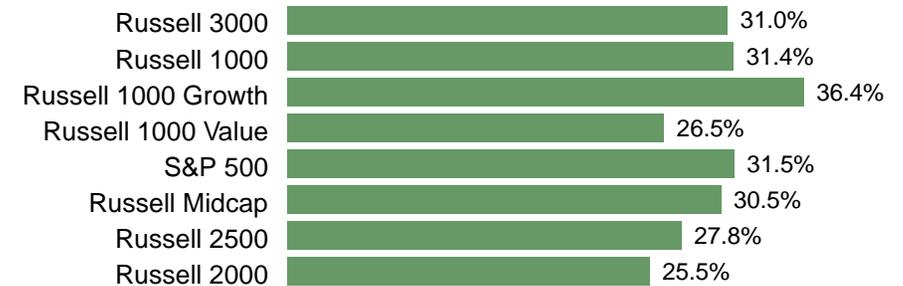


Sources: FTSE Russell, S&P Dow Jones Indices

U.S. Equity: Quarterly Returns



U.S. Equity: One-Year Returns



Global ex-U.S. Equity Performance

Trade war de-escalation and Brexit clarity turned global ex-U.S. markets positive.

- The “phase one” trade deal triggered a “risk-on” market environment.
- The Conservative Party gained command of Parliament in December, adding further clarity to the Brexit withdrawal plan and sparking the pound to rally.
- China soared 14.7% with easing trade tensions and expected fiscal and monetary stimulus packages in 2020.

Trade-related sectors prevailed.

- Technology, specifically within Asia, fueled the market as trade tensions receded.
- Factor performance favored risk, including beta and volatility, reflecting risk-on market environment.

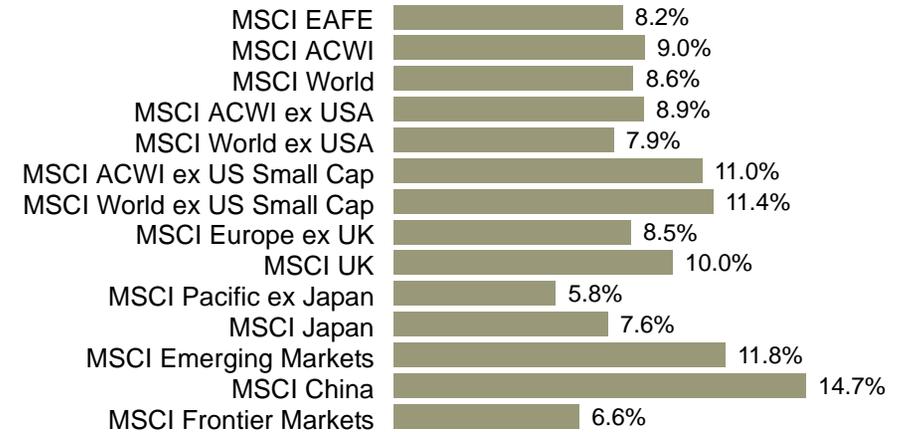
U.S. dollar vs. other developed and emerging market currencies

- Major developed and emerging market currencies declined vs. the dollar as optimism replaced market anxiety as the phase one trade deal neared.

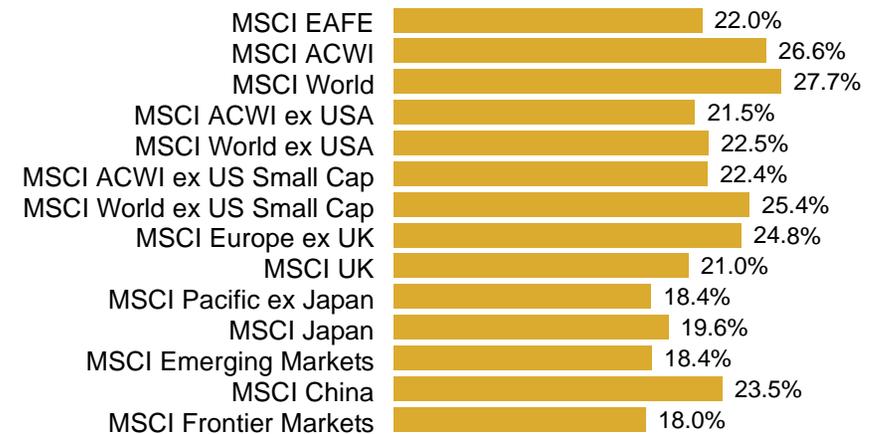
Growth vs. value

- Growth continued to outperform value within markets and capitalizations, supported by Technology and Health Care.

Global Equity: Quarterly Returns



Global Equity: Annual Returns



Source: MSCI

Fed Policy Reversal Upended Fixed Income Market Expectations

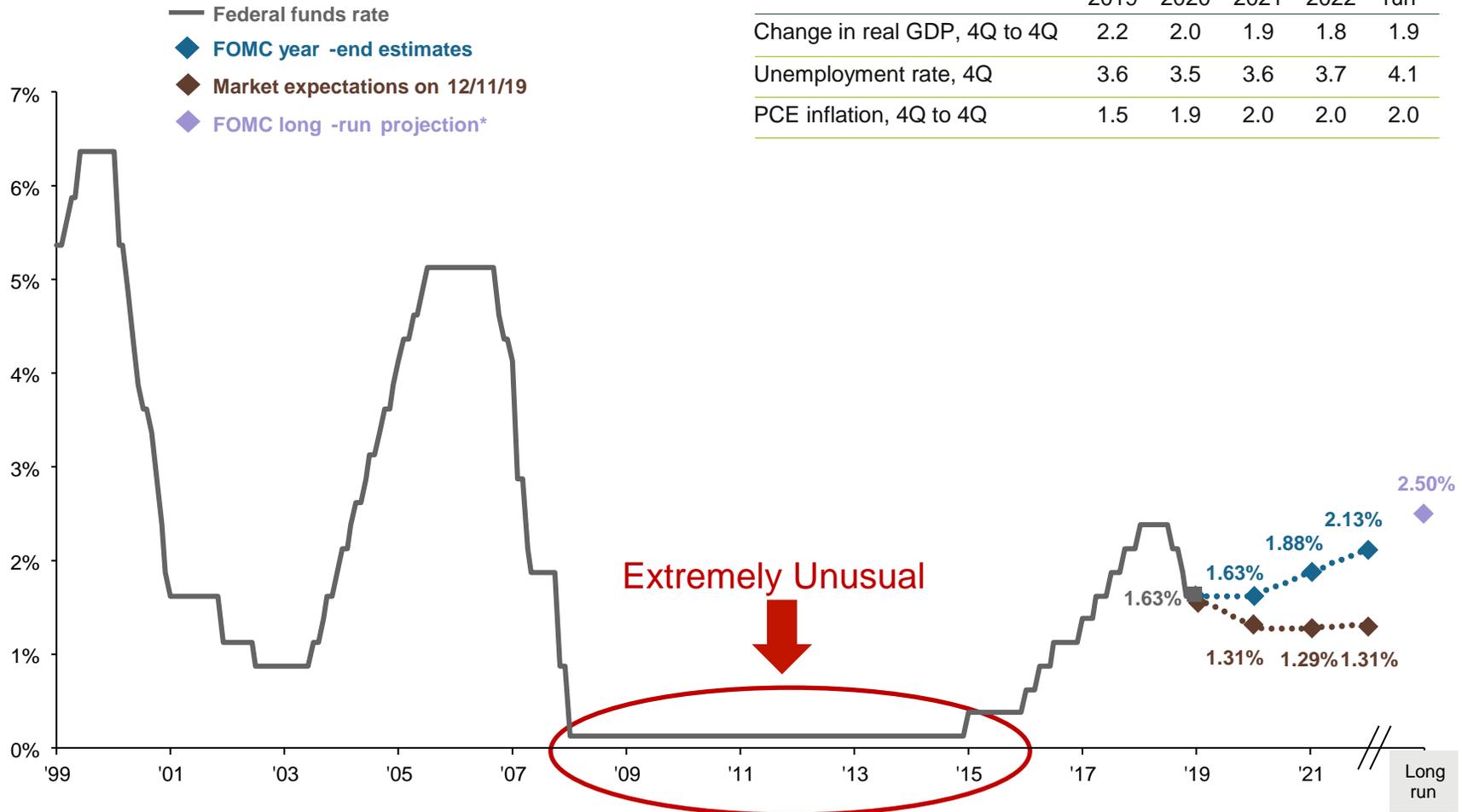
Fed halted interest rate increases in January 2019; cut twice in Q3 and once in Q4 2019

Federal Funds Rate Expectations

FOMC and market expectations for the fed funds rate

FOMC December 2019 Forecasts (%)

	2019	2020	2021	2022	Long run*
Change in real GDP, 4Q to 4Q	2.2	2.0	1.9	1.8	1.9
Unemployment rate, 4Q	3.6	3.5	3.6	3.7	4.1
PCE inflation, 4Q to 4Q	1.5	1.9	2.0	2.0	2.0



*Long-run projections are the rates of growth, unemployment, and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy.

Sources: Bloomberg, FactSet, Federal Reserve, JPMorgan Asset Management. *Guide to the Markets – U.S.* Data are as of December 18, 2019.

Market expectations are the federal funds rates priced into the fed futures market as of the date of the December 2019 FOMC meeting and are through December 2022.

U.S. Fixed Income Performance

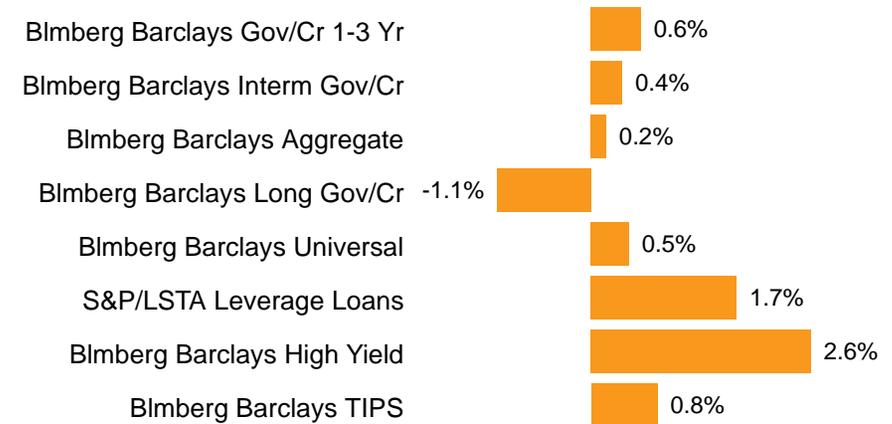
The yield curve steepened on stronger growth expectations.

- Treasuries declined 0.8% with the steepening yield curve, with yields falling on short end and rising modestly on intermediate to long end of the curve on stronger economic growth expectations.
- Spread between the 2-year and 10-year Treasuries remained positive, ending the year at 34 bps.
- Long Treasuries fell (-4.1%) as the 30-year yield rose 27 bps to end the year at 2.39% as investors favored risk assets.
- TIPS outperformed nominal Treasuries as inflation expectations rose; 10-year breakeven spread was 1.77% as of quarter-end, up from 1.53% as of Sept. 30.

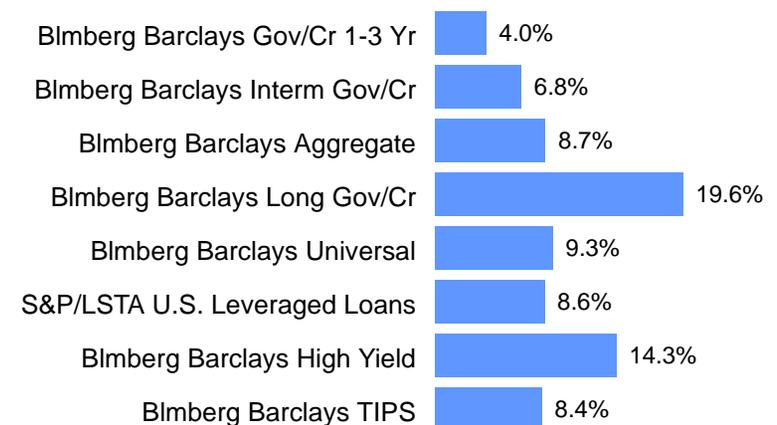
Corporate bonds rally across credit ratings spectrum.

- IG corporate spreads narrowed and posted best results within BB US Aggregate amid risk-on market; BBB-rated corporates (+1.7%) outperformed single A or higher (+0.7%), indicating investor willingness to extend risk down the credit spectrum.
- Below-investment grade CCC-rated corporates (+3.7%) outperformed BB-rated corporates (+2.5%), as the risk-on market sentiment spurred demand for lower-rated securities.
- Spreads across credit quality buckets tightened in the fourth quarter, as the market anticipated improvement in credit fundamentals.

U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: Annual Returns



Sources: Bloomberg Barclays, S&P Dow Jones Indices

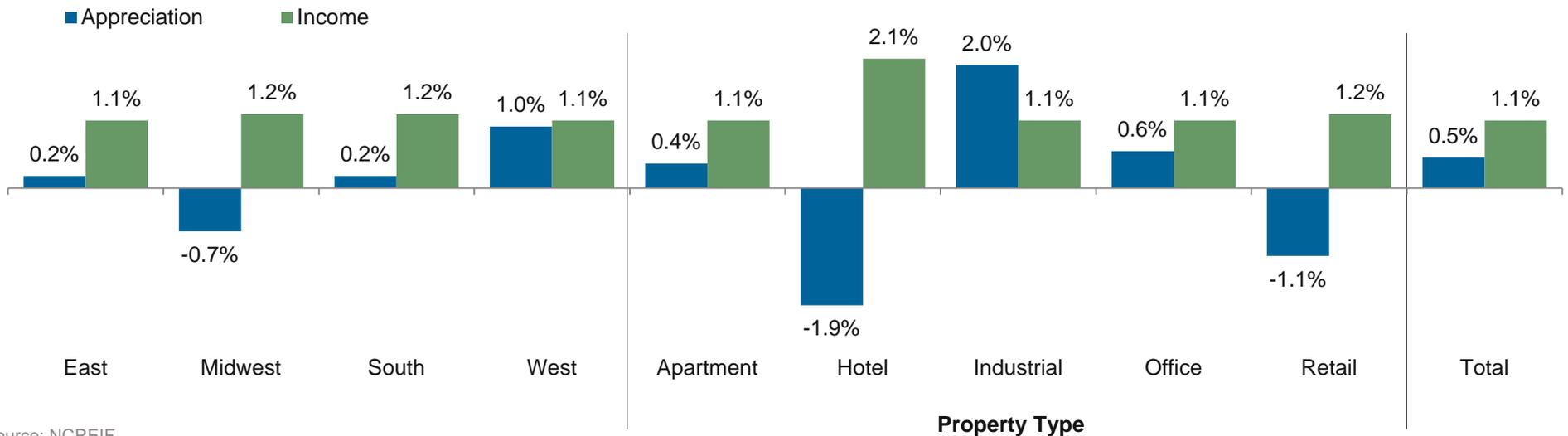
U.S. Real Estate

Returns continue to moderate.

- U.S. core real estate returns continue to be driven by income, with limited appreciation this late in the cycle.
- Returns coming from net operating income (NOI) growth rather than further cap rate compression
- Industrial real estate keeps outperforming other property types.
- Retail continues to show signs of depreciation.
- Defensive posturing and disciplined asset acquisitions are key.

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
NCREIF ODCE	1.3%	4.4%	6.1%	8.0%	9.2%
Appreciation	0.5%	1.1%	2.8%	4.4%	5.4%
Income	0.8%	3.3%	3.3%	3.5%	3.7%
NCREIF Property Index	1.6%	6.4%	6.7%	8.3%	9.1%
Appreciation	0.5%	1.8%	2.0%	3.4%	4.1%
Income	1.1%	4.5%	4.6%	4.7%	4.9%

NCREIF Property Index Returns by Region and Property Type



Source: NCREIF

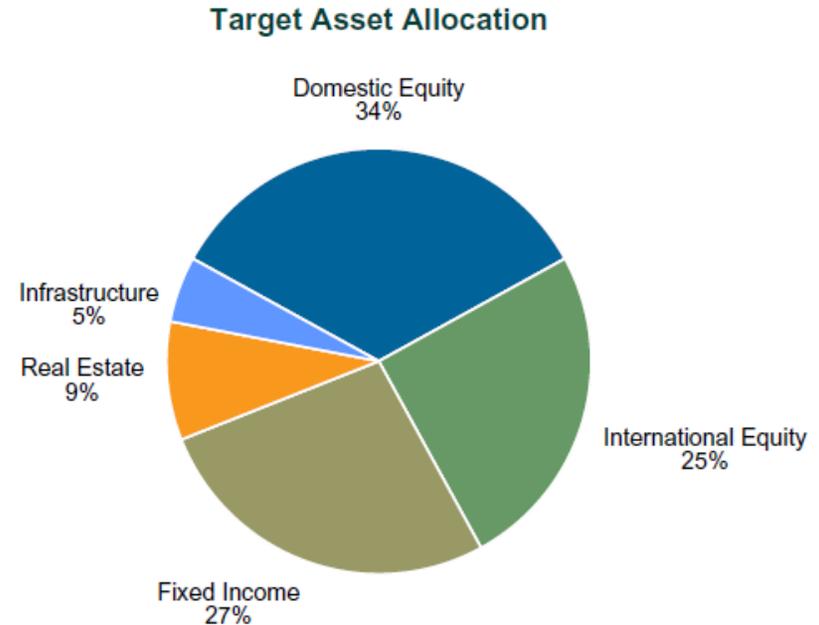
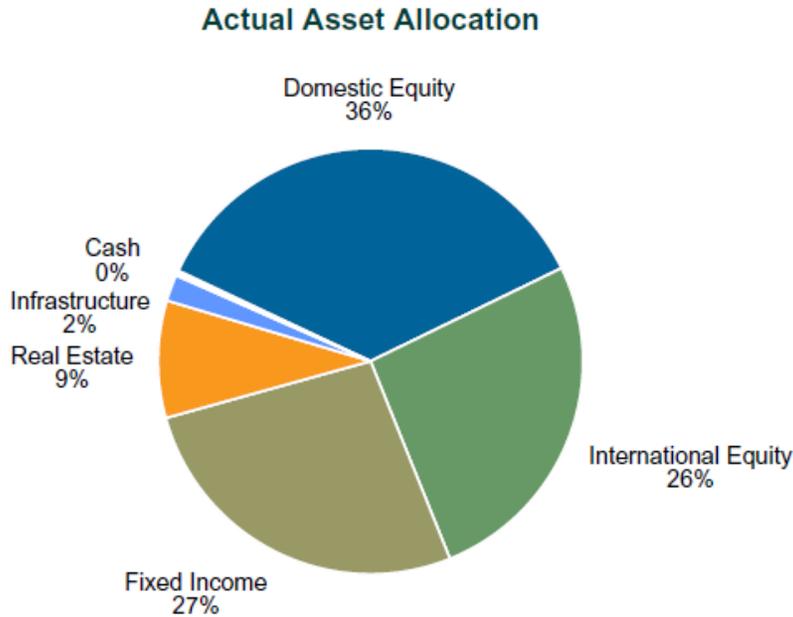
Callan

TSRS Investment Results

As of December 31, 2019

TSRS Total Fund Asset Allocation: How Close to the Strategic Policy?

As of December 31, 2019

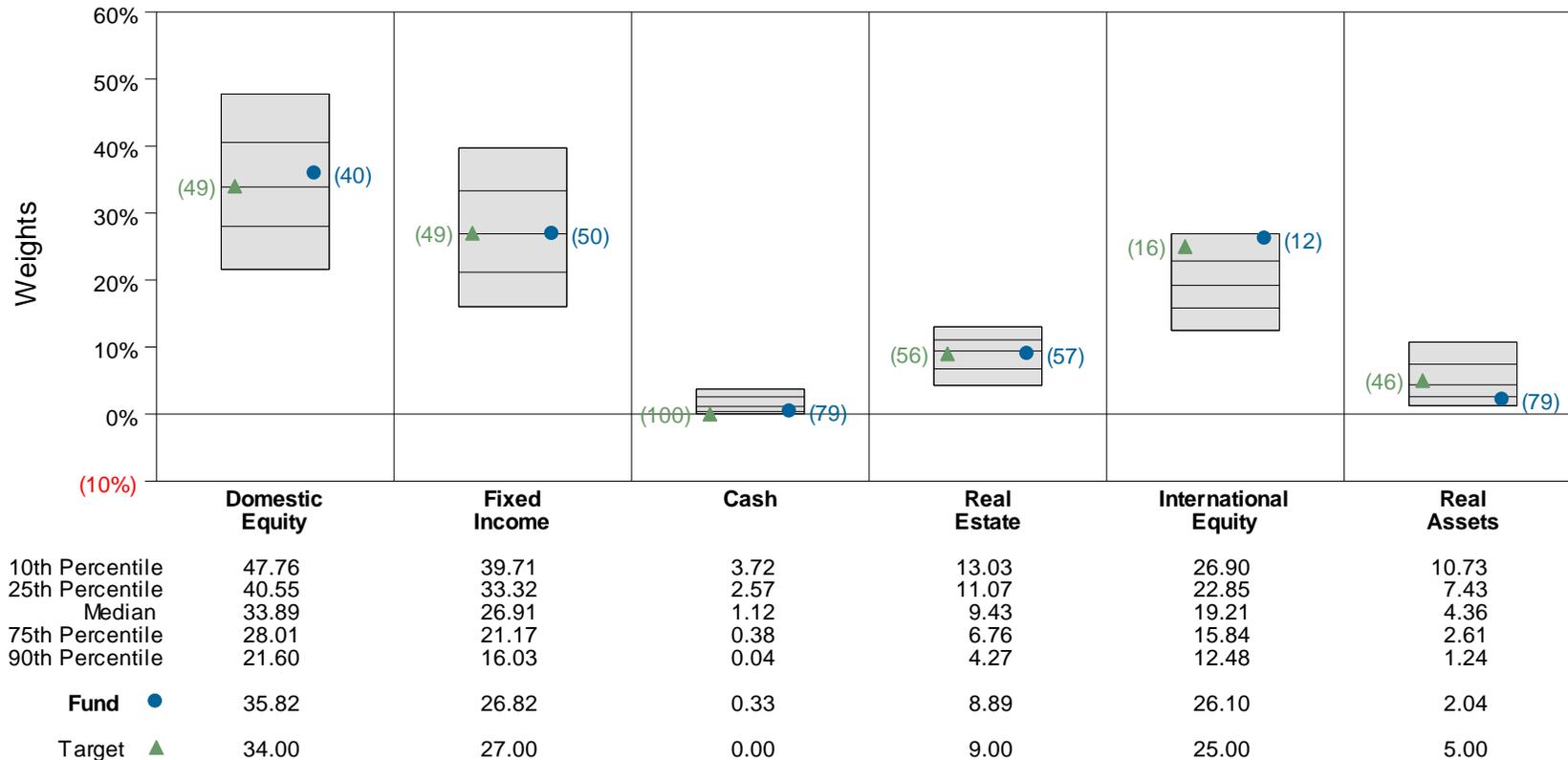


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	313,295	35.8%	34.0%	1.8%	15,903
International Equity	228,261	26.1%	25.0%	1.1%	9,590
Fixed Income	234,570	26.8%	27.0%	(0.2%)	(1,595)
Real Estate	77,770	8.9%	9.0%	(0.1%)	(952)
Infrastructure	17,885	2.0%	5.0%	(3.0%)	(25,849)
Cash	2,904	0.3%	0.0%	0.3%	2,904
Total	874,685	100.0%	100.0%		

TSRS Asset Allocation Compared to Other Public Pension Funds

As of December 31, 2019

Asset Class Weights vs Callan Public Fund Sponsor Database

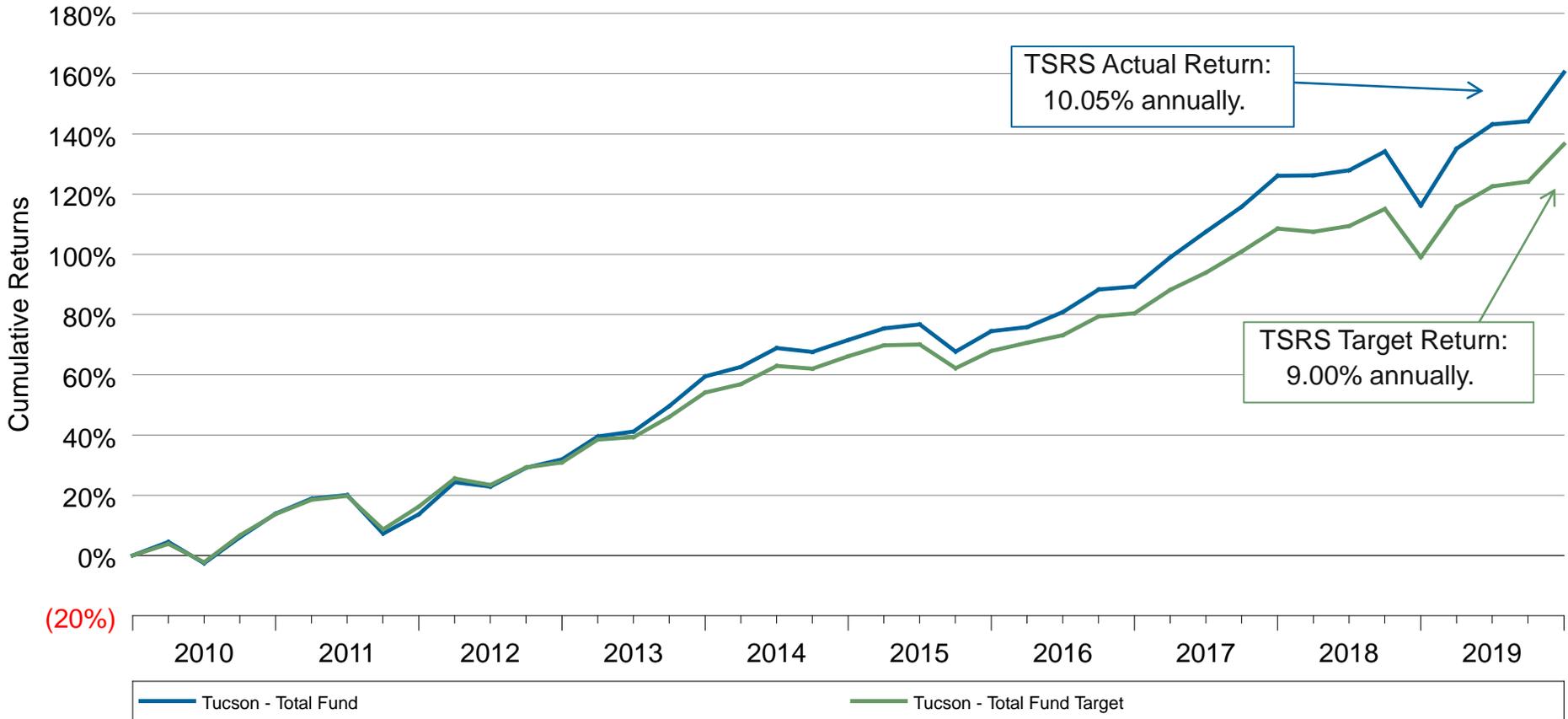


- The chart above shows TSRS's Target asset class weights (triangle) and actual weights (circle)
- The bars represent the range of allocations within asset classes by other public pension funds.
 - TSRS has more invested in international equity than most other public funds, while other asset allocations are near peer medians.

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

TSRS's investment returns over the last 10 years have exceeded those of your target

Cumulative Returns for 10 Years Ended December 31, 2019



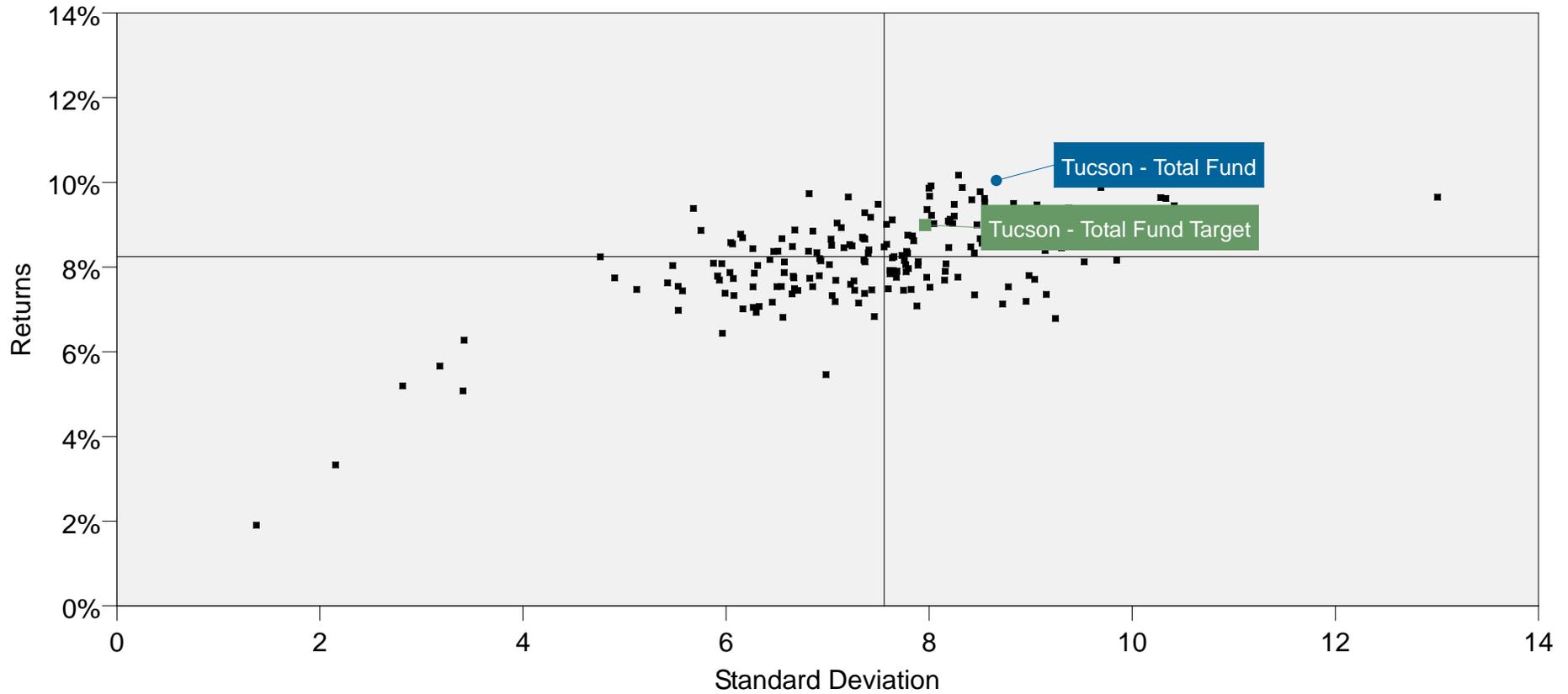
- The green line represents the return that TSRS would have achieved had each asset class matched its index.
- The blue line shows TSRS's actual returns over 10 years.

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

TSRS Risk & Return

Over the last 10 years, TSRS's volatility and return have exceeded the "average" public fund's

Risk and Return for 10 Years Ended December 31, 2019



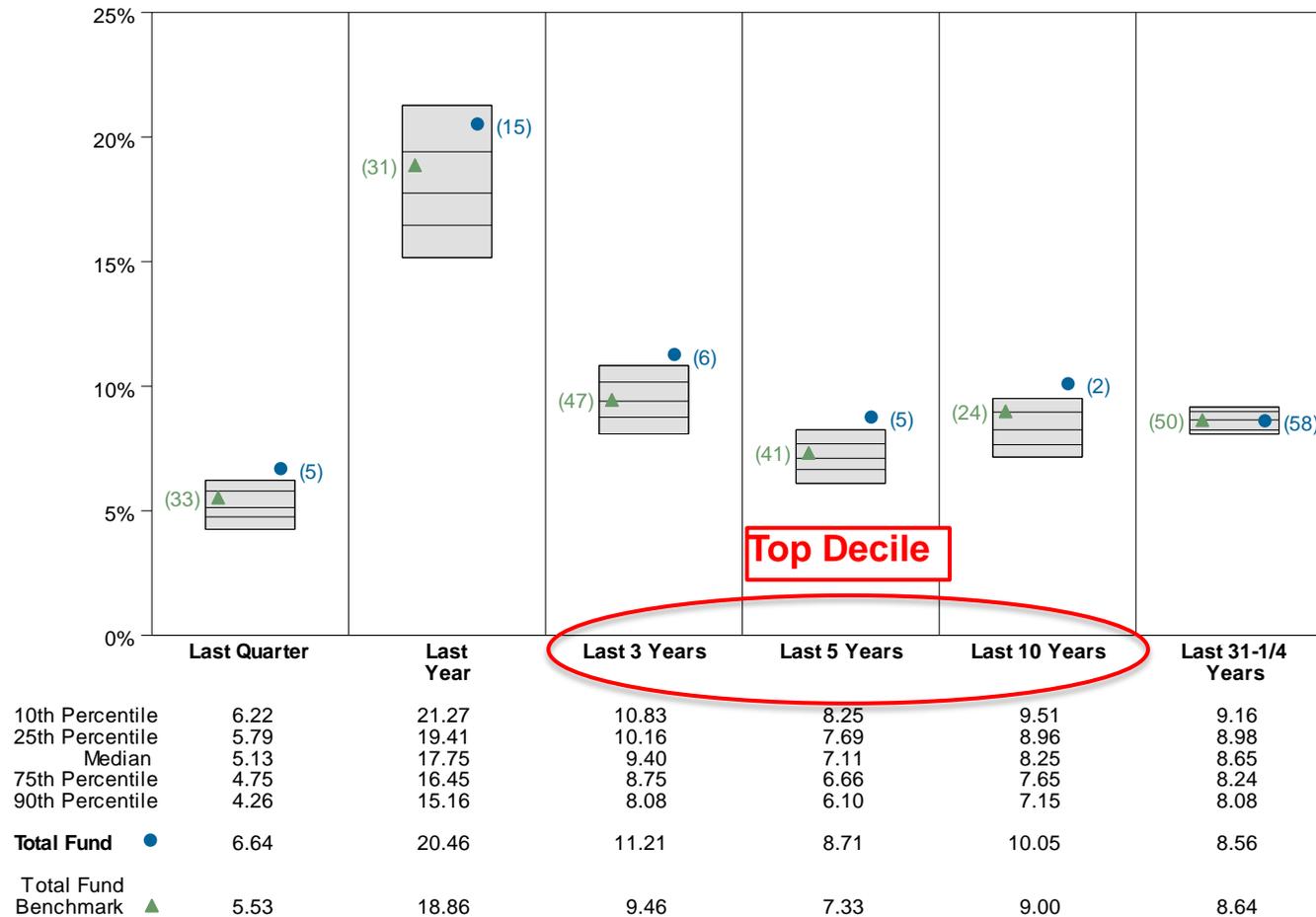
Squares represent membership of the Callan Public Fund Sponsor Database

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

TSRS Total Fund Annualized Returns versus Other Public Pension Funds

As of December 31, 2019

Performance vs Callan Public Fund Sponsor Database (Gross)

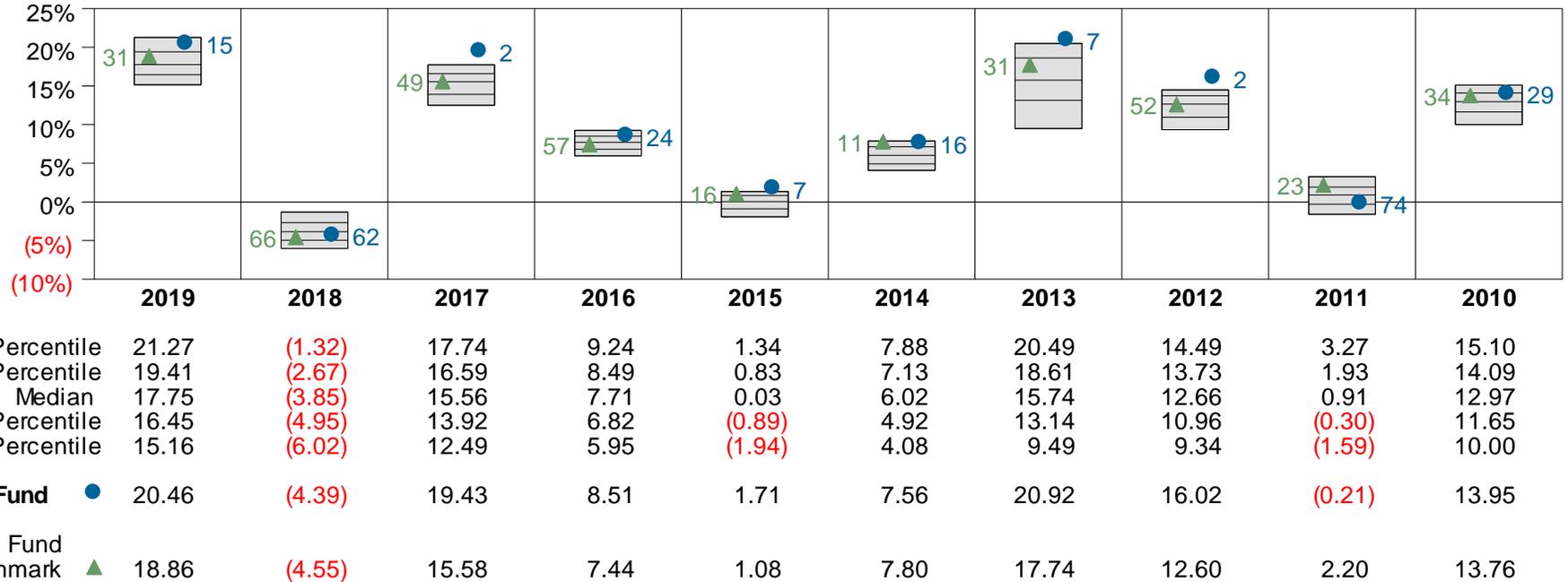


- TSRS's performance has measured near the median of peers since inception. Over the 3-, 5-, and 10-year periods the plan has ranked in the top decile, and is in the top quartile for the trailing year.

Calendar Year Returns: TSRS and Other Public Pension Funds

TSRS's rankings tend to be higher in years when risk has been rewarded

Performance vs Callan Public Fund Sponsor Database (Gross)

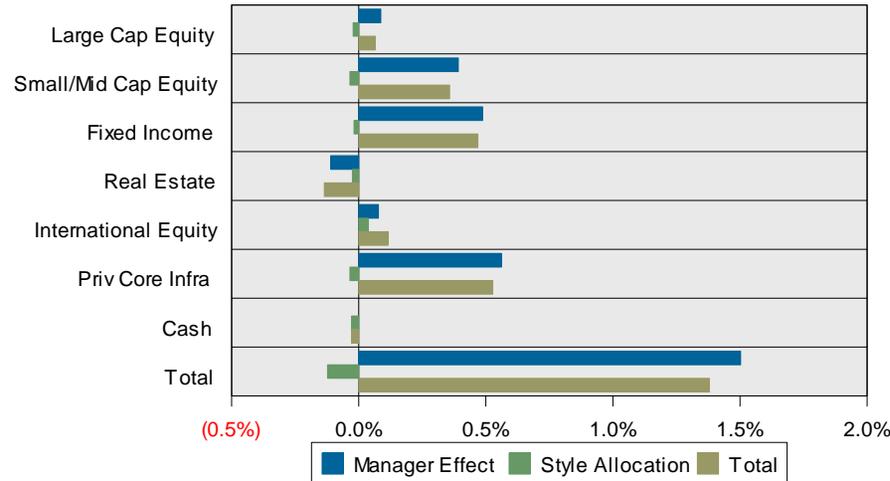


- TSRS's actual results exceed the target returns in eight out of the ten past calendar years.
- TSRS had higher returns than the "average" public pension fund in eight of those ten years and was in the top quartile for seven of those years.

Five-Year Performance and Attribution: What helped and what hurt?

As of December 31, 2019

Five Year Annualized Relative Attribution Effects



Five Year Annualized Relative Attribution Effects

Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	30%	29%	12.10%	11.70%	0.09%	(0.02%)	0.07%
Small/Mid Cap Equity	9%	9%	13.16%	8.93%	0.39%	(0.03%)	0.36%
Fixed Income	25%	27%	4.91%	3.05%	0.49%	(0.02%)	0.47%
Real Estate	9%	9%	7.79%	8.97%	(0.11%)	(0.02%)	(0.14%)
International Equity	21%	22%	5.55%	5.44%	0.08%	0.04%	0.12%
Priv Core Infra	5%	5%	16.77%	5.73%	0.56%	(0.03%)	0.53%
Cash	0%	0%	1.00%	1.00%	0.00%	(0.03%)	(0.03%)
Total			8.71%	7.33%	+ 1.50%	(0.12%)	1.38%

① shows that TSRS's 5-year return beats the target.

② shows that your managers collectively beat their bogies.

Manager Net Returns for Traditional Asset Classes

Periods Ending December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Domestic Equity	9.18%	30.04%	15.53%	12.07%	14.05%
Total Domestic Equity Target (1)	8.94%	30.60%	14.09%	11.08%	13.36%
Large Cap Equity	8.93%	29.67%	15.83%	11.97%	13.84%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	13.56%
Alliance S&P Index	9.04%	31.39%	15.21%	11.63%	13.51%
PIMCO StocksPLUS S&P 500 Index	9.24% 9.07%	32.85% 31.49%	15.36% 15.27%	11.72% 11.70%	14.85% 13.56%
BlackRock Russell 1000 Value Index	7.42%	26.62%	9.78%	8.33%	11.87%
Russell 1000 Value Index	7.41%	26.54%	9.68%	8.29%	11.80%
T. Rowe Price Large Cap Growth	10.17%	29.01%	22.87%	16.01%	16.14%
Russell 1000 Growth Index	10.62%	36.39%	20.49%	14.63%	15.22%
Small/Mid Cap Equity U.S. Equity	9.98%	31.21%	14.54%	12.45%	14.80%
Russell 2500 Index	8.54%	27.77%	10.33%	8.93%	12.58%
Champlain Mid Cap	6.96%	28.37%	17.05%	14.21%	14.94%
Russell MidCap Index	7.06%	30.54%	12.06%	9.33%	13.19%
FIAM Small Cap	13.08%	34.09%	11.76%	10.42%	14.44%
Russell 2000 Index	9.94%	25.52%	8.59%	8.23%	11.83%
International Equity	11.19%	24.42%	10.52%	5.03%	4.91%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
Causeway International Opportunities (3)	11.76%	22.62%	9.13%	5.08%	6.71%
Causeway Linked Index (3)	8.92%	21.51%	9.87%	6.00%	5.67%
Aberdeen EAFE Plus	10.18%	23.74%	10.18%	4.12%	4.91%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
American Century Non-US SC	12.14%	29.59%	14.10%	-	-
MSCI ACWI ex US Small Cap	11.01%	22.42%	9.65%	7.04%	6.92%
Fixed Income	1.07%	11.48%	5.61%	4.66%	4.97%
Blmbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
BlackRock U.S. Debt Fund	0.19%	8.78%	4.09%	3.10%	3.84%
Blmbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
PIMCO Fixed Income	1.96%	14.18%	7.02%	5.89%	5.99%
Custom Index (2)	1.90%	12.06%	5.14%	4.62%	5.21%

Manager Returns for Alternative Asset Classes

Periods Ending December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Real Estate	1.59%	0.60%	4.22%	6.81%	9.45%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
JP Morgan Strategic Property Fund	2.04%	(0.14%)	4.11%	6.69%	9.64%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
JP Morgan Income and Growth Fund	0.68%	2.12%	4.46%	7.05%	11.97%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
Infrastructure	9.06%	27.47%	17.00%	13.04%	9.01%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
SteelRiver Infrastructure	1.77%	11.83%	6.58%	8.69%	6.79%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
Cash Composite	0.38%	2.05%	1.59%	1.00%	0.56%
Total Fund	6.56%	20.11%	10.59%	8.15%	9.48%
Total Fund Benchmark*	5.53%	18.86%	9.46%	7.33%	9.00%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

December 31, 2019



Tucson Supplemental Retirement System

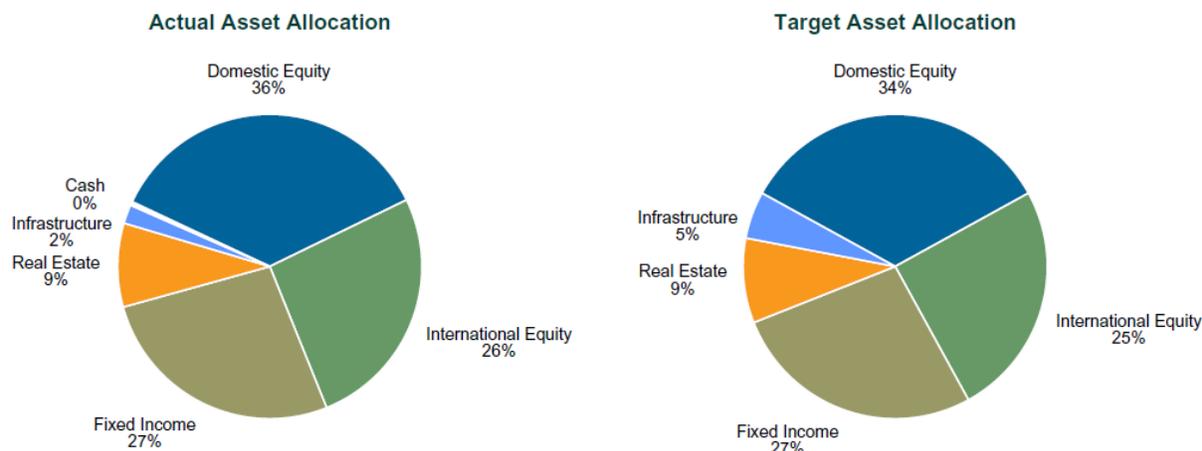
Investment Measurement Service
Quarterly Review

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Tucson Supplemental Retirement System

Executive Summary for Period Ending December 31, 2019

Asset Allocation



Total Fund Performance

Returns for Periods Ended December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Fund Gross	6.64%	20.46%	11.21%	8.71%	10.05%
Total Fund Net	6.56%	20.11%	10.59%	8.15%	9.48%
Total Fund Benchmark*	5.53%	18.86%	9.46%	7.33%	9.00%

Returns for Fiscal Years Ended June 30th

	2019	2018	2017	2016	2015
Total Fund Gross	9.30%	9.81%	14.77%	2.33%	4.63%
Total Fund Net	8.94%	8.77%	14.26%	1.89%	4.17%
Total Fund Benchmark*	8.47%	7.96%	12.04%	1.82%	4.34%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Recent Developments

- Aberdeen Standard Investments' Head of Global Equities, Stephen Docherty, announced in January that he would be stepping down for personal reasons. He will be replaced by Dominic Byrne, the current deputy head of global equities. Byrne, a former Standard Life employee, has been with the firm for 20 years and does not plan to make any meaningful process and team structure changes. Docherty's departure is meaningful, but not actionable due to the continuity Byrne provides.
- James Doyle has announced that he will be retiring from Causeway this year. James has been with the firm since its inception and is one of eight Fundamental Portfolio Managers and a

member of the six-person Operating Committee. It is expected that he will remain involved with the firm after retirement as an independent member of the Board of Managers of the firm's parent company. Brian Cho, senior fundamental research analyst, is expected to replace Doyle as portfolio manager in June when Jamie is anticipated to officially retire. We will continue to monitor Causeway's transition from the first generation of talent to second generation. While this announcement is notable, it does not warrant immediate action.

Organizational Announcements

— N/A

Active Manager Performance

Fund	Peer Group Ranking		
	Last Year	Last 3 Years	Last 5 Years
PIMCO Stocks Plus	35	48	45
T. Rowe Price Large Cap Growth	90	16	9
Champlain Mid Cap	66	20	2
FIAM Small Cap	13	29	24
Causeway International Opportunities**	59	67	74
Aberdeen EAFE Plus	46	43	89
American Century Int'l Small Cap	19	[14]	[--]
PIMCO Fixed Income	1	1	1
JP Morgan Strategic Property Fund	94	92	90
JP Morgan Income and Growth Fund	95	92	82

* Brackets indicate actual performance linked with manager composite

** Transitioned from International Value to International Opportunities in May 2016

- Aberdeen EAFE Plus produced double-digit returns in the fourth quarter and outperformed the MSCI ACWI ex US by 1.44 percentage points, gross of fees. The fund ranked in the 28th percentile among peers in the fourth quarter, and 46th during the year. Stock selection drove performance relative to the index, while asset allocation decisions detracted slightly. From a geographic perspective, investments in the U.K. and Asia ex-Japan drove gains. From a sector perspective, healthcare, IT, and financials all contributed positive attribution, while exposure in the materials sector detracted.
- TSRS has been invested in Aberdeen for seven and a half years and the portfolio has returned 5.58% annualized on a gross of fee basis versus 6.88% for the benchmark. The five-year figure is also lackluster as the manager ranked in the 89th percentile among peers. However, more recent performance has been encouraging with the fund outperforming the benchmark by nearly three percentage points during the trailing year and roughly one percentage point over the trailing three-year period. The EAFE Plus Commingled Fund has experienced a significant decline in assets under management over the past several years and Callan continues to monitor asset flows closely. The decline in assets is largely explained by difficult relative performance and the merger with Standard Life in 2017.

Gordon Weightman, CFA
Senior Vice President

Paul Erlendson
Senior Vice President

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Anticipated Recession Fails to Materialize

ECONOMY

2 GDP grew at 2.1% for the fourth quarter, **PAGE** unemployment fell to a generational low, wages and incomes showed robust gains, inflation remained contained, and, of course, stock and bond markets soared in 2019. So much for the most anticipated recession in history.

Strong Gains for Year Amid Equity Boom

INSTITUTIONAL INVESTORS

4 Corporate DB plans **PAGE** gained the most among plan types in 2019. Over the last 20 years, public DB plans topped the performance list, but all plan types rose in a narrowly bound range between 6.0%-6.1%, exceeding a 60% stocks-40% bonds benchmark.

Jump in Quarter Fuels Notable Year

EQUITY

6 The fourth quarter closed **PAGE** out a near-historic year for equity markets; the S&P 500 ended 2019 up 31.5%—enough to become the second-strongest year of the decade. Global equity markets bounced back in the fourth quarter as geopolitical uncertainties abated.

Yields Are Mixed but Returns Are Strong

FIXED INCOME

8 Yield movement was **PAGE** mixed in the U.S. as short-term rates fell and long-term rates rose amid ongoing trade negotiations. Major U.S. bond indices showed strong gains for the year. Global fixed income markets also posted broad increases for the quarter and the year.

Real Estate Healthy; Real Assets Gain

REAL ESTATE/REAL ASSETS

10 U.S. core real estate **PAGE** returns continued to moderate; Industrial outperformed other property types. REITs gained but lagged global equities. Asian and European markets were affected by geopolitical tensions. Real assets returns were strong in the quarter.

Most Activity Fell Moderately in 2019

PRIVATE EQUITY

12 Except for fundraising, **PAGE** all private equity activity measures declined moderately in 2019. The drops largely owe to record-level prices throughout the year. But overall private equity and capital market liquidity remained healthy and transaction volume is brisk.

Party Like It's 1999 ... or Not

HEDGE FUNDS/MACs

13 While stocks celebrated **PAGE** the end of 2019, hedge funds were the party's designated driver. Portfolios exposed to EM and long-short equity topped those emphasizing equity market neutral or macro strategies. MAC returns varied depending on net market exposures.

DC Index Gains, Tops Age 45 TDF

DEFINED CONTRIBUTION

15 The Callan DC Index™ **PAGE** rose 0.6% in the third quarter, compared to 0.5% for the Age 45 Target Date Fund. The Index's growth in balances of 0.1% was much smaller than the first and second quarters. Asset allocation to TDFs hit 29.6%, the lowest since the first quarter of 2017.

Broad Market Quarterly Returns

U.S. Equity
Russell 3000



9.1%

Global ex-U.S. Equity
MSCI ACWI ex USA



8.9%

U.S. Fixed Income
Bloomberg Barclays Agg



0.2%

Global ex-U.S. Fixed Income
Bloomberg Barclays GBI ex US



0.7%

Sources: Bloomberg Barclays, FTSE Russell, MSCI

The Most Anticipated Recession in History Fails to Materialize

ECONOMY | Jay Kloepfer

Real GDP grew at 2.1% for the fourth quarter of 2019, capping off a year pretty much no one anticipated for growth or the capital markets. GDP growth for the year came in at 2.3%, unemployment fell to yet another generational low, wages and incomes continued to show robust gains, and yet inflation remained contained. The Fed paused on its path to interest rate normalization in January 2019, cut rates twice in the third quarter and once more in October, before declaring its work done. The trade war dominated headlines and jerked around market sentiment, but the actual impact on U.S. GDP growth has been held below a cumulative hit of 1 percentage point.

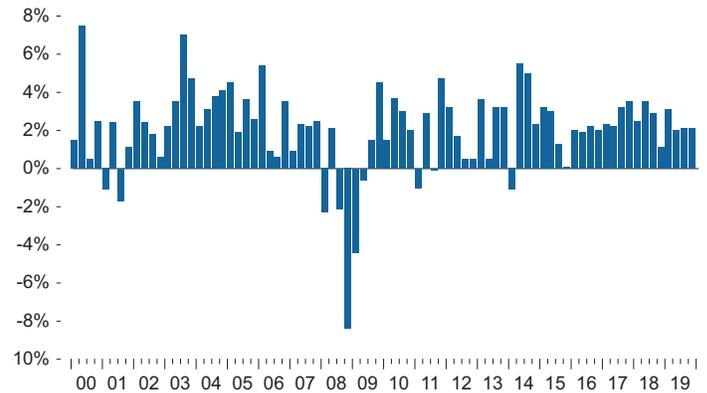
Stock markets around the globe rallied during 2019, with the **S&P 500** climbing 31.5%, **MSCI ACWI ex-USA** up 21.5%, and **MSCI Emerging Markets** up 18.4%. The most eye-opening development of the year was the bond market rally following the Fed pivot in policy, driving a gain of 8.7% for the **Bloomberg Barclays US Aggregate Bond Index** and almost 20% for the **Long Government/Credit Index**. So much for the most anticipated recession in history.

Many analysts have begun touting that we already touched bottom in the global growth cycle during the fourth quarter of 2019. The “growth recession” was over before we knew it was fully upon us. The consensus short-term outlook is far more bullish than it was a year ago, although the medium-term outlook (three to five years) contains more concerns. Persistent low inflation gives central banks the cover to continue supportive monetary policy, but this support could evaporate if inflation is resurgent. The volume of corporate credit has exploded, and much of it is lower rated; any sign of real weakness in the economy raises concerns about quality and spread widening. Finally, it is entirely unclear how the current negative interest rate environment across much of Europe evolves.

Buried in the GDP numbers are several developments that support continuing growth in the U.S. economy, at least over the shorter term. First, the 2.1% increase in the fourth quarter

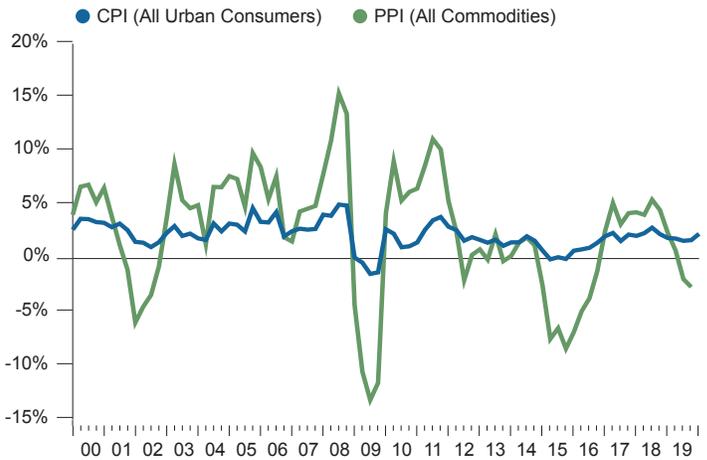
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

includes the drag on growth from the GM strike and the slow-down in Boeing 737 Max production.

Second, inventory accumulation slowed substantially in the fourth quarter, another drag on growth. The end of the GM strike, the eventual resumption of 737 Max production, and the rebuilding of inventories all point toward sustained growth in the U.S. in 2020.

Consumer spending remains strong, fueled by buoyant consumer confidence, a strong labor market, a generational low unemployment rate (3.5%), and personal income growth of just under 4%. The reversal in interest rates will find its way into lower debt costs for consumers, and household debt levels are far below pre-GFC levels. The Fed lowered the federal funds rate by 75 basis points, and given expectations for three rate INCREASES a year ago, rates now sit 150 bps lower than expected. This Fed pivot has greatly benefited interest-sensitive sectors of the economy and consumer balance sheets.

One more support for GDP growth has been a reduction in imports (which are a negative in the GDP calculation), and a corresponding increase in net exports. Imports surged in advance of the application of tariffs early in 2019. U.S. suppliers appear to have quickly found alternatives to China, increasing our imports from Asian countries ex-China to offset some of the decline in imports from China.

Not only did the recession not appear in 2019, near-term recession risks are abating. The announced phase one trade deal between the U.S. and China will suspend some tariffs and address issues of intellectual property and forced transfers of technology. The largest impact is on investor and business sentiment. World GDP growth slowed from 4% at the end of 2017 to below 3% by mid-2019, as a collection of negative shocks (Brexit, trade, geopolitical uncertainty) and lagged effects of monetary tightening hit some of the world's largest economies. The drag from these shocks has faded and monetary policy has loosened around the world. The emerging markets have already embarked on a cyclical upturn, and the developed

The Long-Term View

Index	2019 4th Qtr	Periods Ended 12/31/19			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	9.1	31.0	11.2	13.4	10.2
S&P 500	9.1	31.5	11.7	13.6	10.2
Russell 2000	9.9	25.5	8.2	11.8	9.4
Global ex-U.S. Equity					
MSCI EAFE	8.2	22.0	5.7	5.5	5.2
MSCI ACWI ex USA	8.9	21.5	5.5	5.0	--
MSCI Emerging Markets	11.8	18.4	5.6	3.7	--
MSCI ACWI ex USA Small Cap	11.0	22.4	7.0	6.9	5.9
Fixed Income					
Bloomberg Barclays Agg	0.2	8.7	3.0	3.7	5.6
90-Day T-Bill	0.5	2.3	1.1	0.6	2.5
Bloomberg Barclays Long G/C	-1.1	19.6	5.4	7.6	7.9
Bloomberg Barclays GI Agg ex US	0.7	5.1	1.6	1.5	4.4
Real Estate					
NCREIF Property	1.5	6.4	8.2	10.2	9.3
FTSE Nareit Equity	-0.8	26.0	7.2	11.9	10.6
Alternatives					
CS Hedge Fund	2.4	9.3	2.6	4.3	7.8
Cambridge PE*	0.9	9.5	12.4	13.8	15.3
Bloomberg Commodity	4.4	16.8	13.8	11.6	15.5
Gold Spot Price	3.4	18.9	5.2	3.3	5.7
Inflation – CPI-U	0.1	2.3	1.8	1.8	2.2

*Data for most recent period lags by a quarter. Data as of Sept. 30, 2019.
Sources: Bloomberg, Bloomberg Barclays, Bureau of Economic Analysis, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices, Refinitiv/Cambridge

economies are about to join them, led by the U.S. The fourth quarter of 2019 likely marked the trough in global GDP growth. The recovery in trade should help lead the way, after the collapse in trade volumes in late 2018.

Recent Quarterly Economic Indicators

	4Q19	3Q19	2Q19	1Q19	4Q18	3Q18	2Q18	1Q18
Employment Cost–Total Compensation Growth	2.7%	2.8%	2.7%	2.8%	2.9%	2.8%	2.8%	2.7%
Nonfarm Business–Productivity Growth	0.0%*	-0.2%	2.5%	3.5%	0.1%	1.2%	1.8%	0.9%
GDP Growth	2.1%	2.1%	2.0%	3.1%	1.1%	2.9%	3.5%	2.5%
Manufacturing Capacity Utilization	74.9%	75.4%	75.5%	76.4%	77.0%	76.9%	76.4%	76.1%
Consumer Sentiment Index (1966=100)	97.2	93.8	98.4	94.5	98.2	98.1	98.3	98.9

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

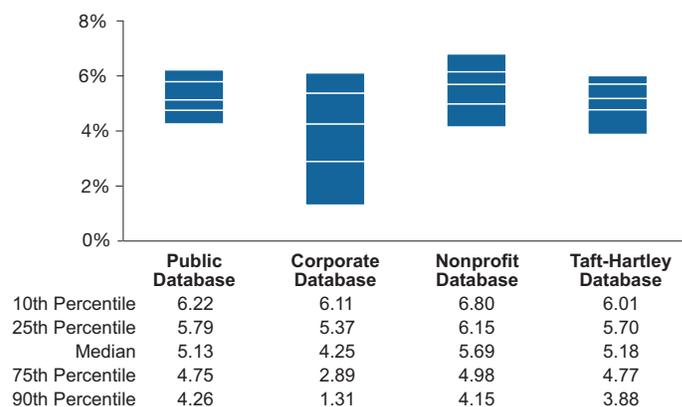
* Estimated figure provided by IHS Markit

Steady Returns Continue Amid Equities Rebound

INSTITUTIONAL INVESTORS

- A quarterly rebalanced 60% S&P 500/40% Bloomberg Barclays Aggregate portfolio increased 22.2% over the one year ended Dec. 31, 2019, driven by the stock market's huge gains and exceptionally strong returns from bonds. All broad institutional investor groups underperformed this benchmark.
- U.S. equity markets continued their pattern of outperforming global ex-U.S. equity, a pattern that has persisted since 2018.
- Corporate defined benefit (DB) plans gained the most among plan types over the one-year period. Public DB plans trailed all investor types.
- Over most longer time periods, Taft-Hartley plans have been the top performer. Over the last 20 years, public DB plans topped the performance list, but all plan types rose in a narrowly bound range between 6.0%-6.1%. In that time period, all plan types exceeded the stocks-bonds benchmark.
- In the current market environment, institutional investors are focused on reevaluating the purpose and implementation of all diversifiers, including real assets, hedge funds and liquid alternatives, fixed income, and private markets.

Quarterly Returns, Callan Database Groups



Source: Callan

- Return enhancement remains a top priority for public and corporate DB plans and nonprofits. Corporate DB plans also see funding status as a top priority. DC plans see fees as the top priority.
- Public DB plans are also concerned about their high risk exposures but resist de-risking when their shorter-horizon projected return on assets (ROA) is lower than their long-term ROA.

Callan Database Median and Index Returns* for Periods Ended 12/31/19

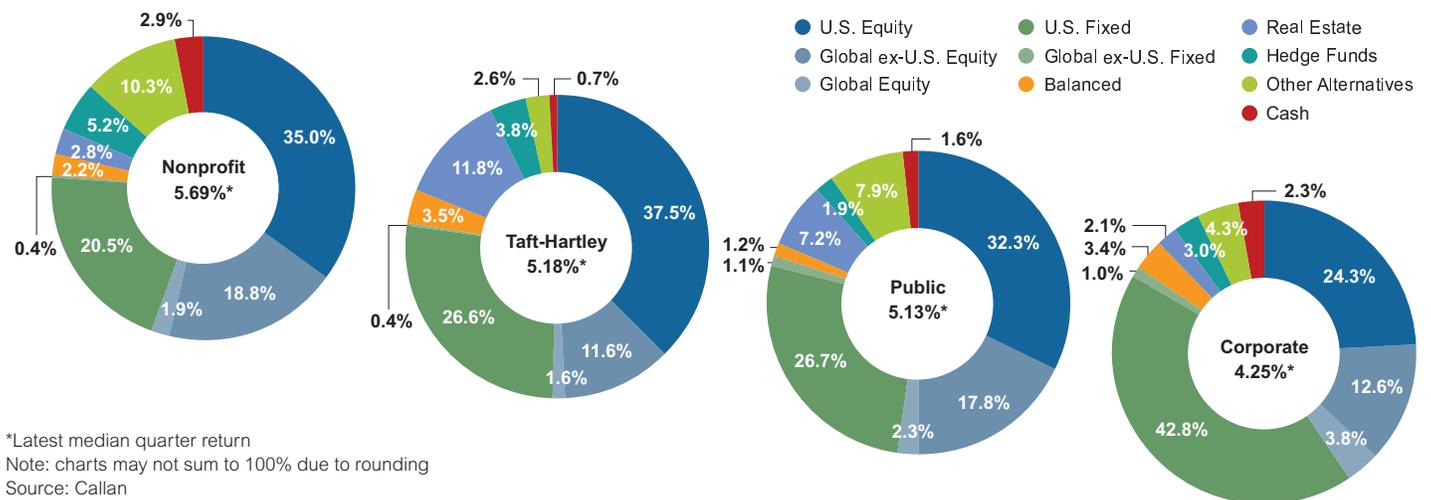
Database Group	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Public Database	5.13	17.75	9.40	7.11	8.25	6.73
Corporate Database	4.25	19.87	9.55	6.96	8.40	6.80
Nonprofit Database	5.69	18.81	9.38	6.81	8.12	6.58
Taft-Hartley Database	5.18	18.00	9.36	7.50	8.66	6.59
All Institutional Investors	5.19	18.53	9.41	7.08	8.35	6.67
Large (>\$1 billion)	4.79	17.56	9.59	7.26	8.59	6.88
Medium (\$100mm - \$1bn)	5.20	18.55	9.42	7.15	8.35	6.58
Small (<\$100 million)	5.38	18.93	9.29	6.91	8.16	6.55

*Returns less than one year are not annualized.

Source: Callan. Callan's database includes the following groups: public defined benefit, corporate defined benefit, nonprofits, and Taft-Hartley plans. Approximately 10% to 15% of the database constituents are Callan's clients. All database group returns presented gross of fees. Past performance is no guarantee of future results. Reference to or inclusion in this report of any product, service, or entity should not be construed as a recommendation, approval, affiliation, or endorsement of such product, service, or entity by Callan.

- Callan has seen a surge in asset-liability studies, with substantial changes to many policy portfolios.
- Institutional investors are also taking steps to de-risk (less equity) and looking at risk mitigation (diversification and implementation), but there is some dissatisfaction with hedge funds, risk premia, and absolute return strategies. Some DB plans have terminated their hedge fund exposures; thus far, nonprofits have largely retained confidence in their hedge fund allocations.
- There are continued signs of interest in environmental, social, and governance (ESG) factors, with many public DB plans having had some discussions around the subject.
- Defined contribution (DC) plans are grappling with the implications of the SECURE Act (for Setting Every Community Up for Retirement Enhancement), whose sweeping nature means that the impact on policy cannot be underestimated within the retirement industry, since major changes (target date funds, auto features, etc.) were largely driven by previous regulatory and legislative catalysts.
- DC plans are also continuing to examine their default option, looking at the suitability of the current option in light of other alternatives both in the same asset class (often target date funds) but also in light of other options (e.g., managed accounts).
- In assessing the capital market environment, institutional investors are focused on how long the current expansion can continue. In evaluating specific investment alternatives, they face three key questions:
 1. Is value dead?
 2. Is there any hope for active management?
 3. Why should they bother with global ex-U.S. equities?
- For investors, the reversal in Fed policy has changed the landscape. It has created an added role for central banks, that of sustaining the expansion, which is a positive for equity ownership. The new yield environment and capital market assumptions going forward also create a challenge for investors, as they try to determine how to diversify their growth/equity risk without incurring a huge opportunity cost.
- In examining alternatives, institutional investors are looking at the most effective ways they can implement allocations in the private market. Is it worth the trouble to create a bespoke program implementation, and at what size and how much effort is required? This applies to private equity, real assets, absolute return, and diversifying assets.

Average Asset Allocation, Callan Database Groups



Equity

U.S. Equities

The fourth quarter closed out a near-historic year for equity markets, in particular the S&P 500, which ended 2019 up 31.5%—enough to claim second place behind 2013 for the strongest year of the decade (during which large cap equities only saw one down year). Both Apple (+85%) and Microsoft (+54%) reached over \$1 trillion in market cap and accounted for 15% of the S&P 500's advance for the year. Investors globally were spurred by three interest rate cuts by the Fed, a potential U.S.-China trade armistice, continued low inflation, and some clarity around Brexit.

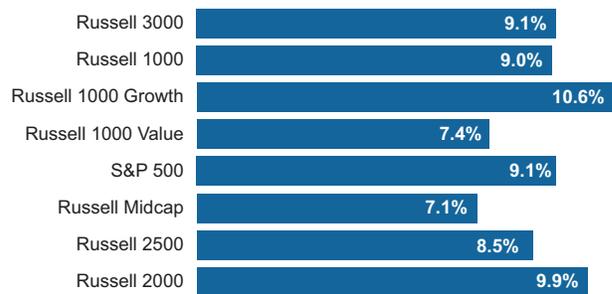
Small cap vs. large cap ▶ *Russell 2000: +9.9% | Russell 1000: +9.0%*

- Small cap trailed for most of 2019 but eclipsed large cap stocks in the fourth quarter due to notable contributions from the Health Care sector, where the biotech and pharmaceutical industries saw heightened new drug approvals and M&A activity during the quarter.
- Small growth outpaced small value for the quarter, the year, and the decade; the **Russell 2000 Growth Index** outpaced the **Russell 2000 Value Index** by 3% annualized over the past 10 years as the low interest rate environment favored growth stocks and challenged the Russell 2000 Value's heavy exposure to Financials.
- While small cap outpaced large cap in the fourth quarter, large cap stocks led for the third straight year, owing much to Tech (+50.3%) and Communication Services (+32.7%).

Growth vs. Value ▶ *Russell 1000 Growth: +10.6% | Russell 1000 Value: +7.4%*

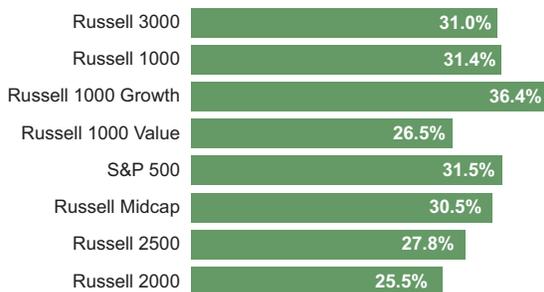
- Growth continued its dominance over value during the quarter, closing out a decade-long trend.
- Tech giants Facebook, Apple, Microsoft, and Alphabet/Google remained meaningful contributors for the quarter, with Health Care (+14.4%) also among the top sector performers.

U.S. Equity: Quarterly Returns



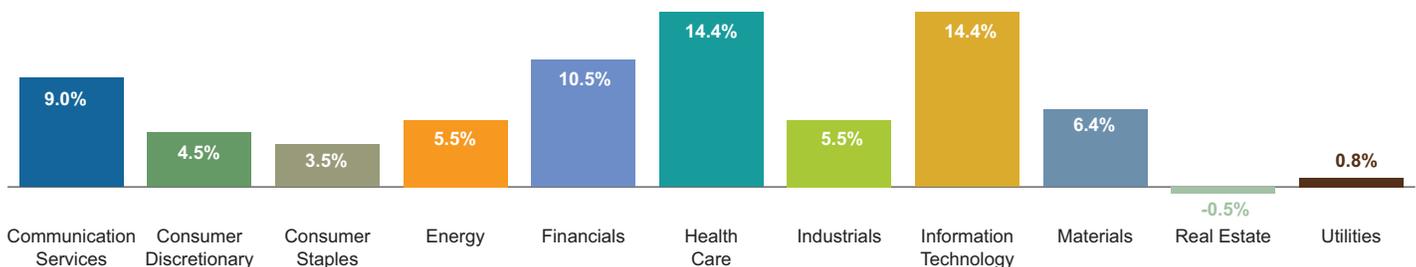
Sources: FTSE Russell and S&P Dow Jones Indices

U.S. Equity: One-Year Returns



Sources: FTSE Russell and S&P Dow Jones Indices

Quarterly Performance of Industry Sectors



Source: S&P Dow Jones Indices

- The fourth quarter saw a rotation away from the more defensive sectors (e.g., Consumer Staples (+3.5%), Utilities (+0.8%), and Real Estate (-0.5%)) and into Cyclical, further supporting growth stocks.

Global/Global ex-U.S. Equity

Global equity markets bounced back in the fourth quarter as uncertainties abated. De-escalation of the U.S.-China trade war coupled with some Brexit clarity boosted markets. With this backdrop, trade-related areas of the market led the rally.

Global/Developed ex-U.S. ► *MSCI EAFE: +8.2% | MSCI World ex USA: +8.0% | MSCI ACWI ex USA: +8.9% | MSCI Pacific ex Japan: +5.8% | MSCI Japan: +7.6%*

- British Prime Minister Boris Johnson gained command of the Parliament as a result of the Dec. 12 election, adding further clarity to Brexit and sparking the pound to its best quarterly results in a decade by rising 7.5% relative to the dollar.
- Accommodative policies such as a fiscal stimulus program and dovish monetary rhetoric continued to support the Japanese economy and its market.
- Despite GDP contraction of 3.2% and its first recession in a decade due to political protests, Hong Kong rose 7.3% as U.S.-China trade tensions improved.
- Every sector rose, led by Technology.

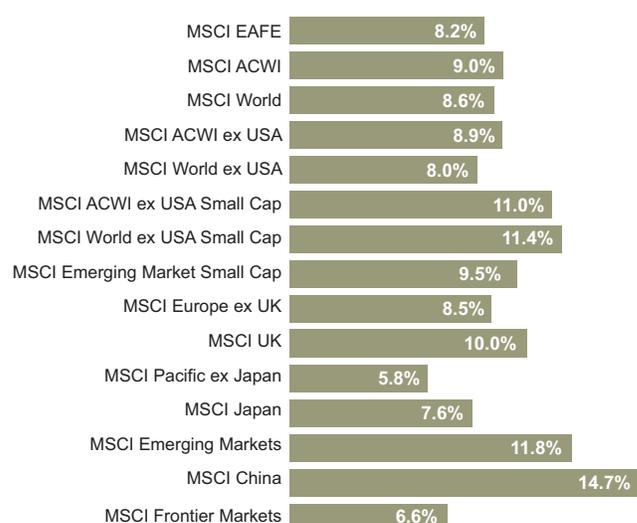
Emerging Markets ► *MSCI Emerging Markets Index: +11.8%*

- Emerging markets were the best-performing among the global ex-U.S. markets as trade war uncertainty receded.
- China soared 14.7% with easing trade tensions and expected fiscal and monetary stimulus packages in 2020.
- Brazil posted a 14.2% gain, its best quarter since late 2017, emboldened by President Jair Bolsonaro's deregulation policies, the country's 1.2% GDP growth, and pending pension reform.
- Russia was the best-performing country in 2019 (+50.9%) and a top five performer in the quarter (+16.8%) as rising oil prices over the past year helped fuel sentiment.
- Every sector generated positive returns, led by Asian technology companies, given the "phase one" trade deal, chip demands for 5G, and growth in China.

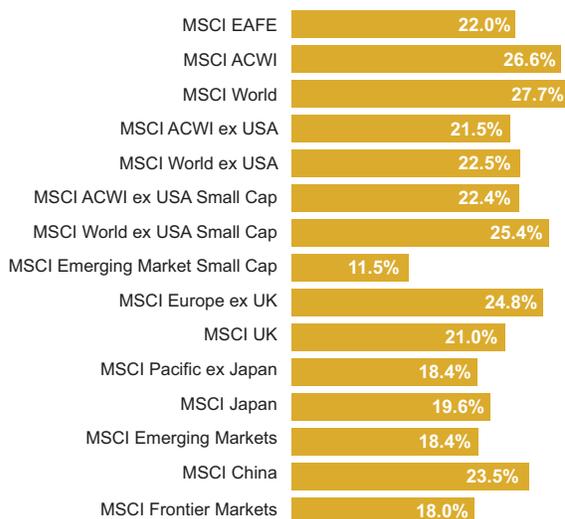
Global ex-U.S. Small Cap ► *MSCI World ex USA Small Cap: +11.4% | MSCI EM Small Cap: +9.5%*

- The "risk-on" market environment triggered by the U.S.-China trade war de-escalation enabled small caps to outperform large caps.
- Additional Brexit clarity drove the U.K. as the top country performer (+19.4%) within developed ex-U.S.
- Argentina (+33.5%) and Brazil (+24.8%) were two of the top EM country performers as key appointments in the Argentinian government, and deregulation and pension reform in Brazil, boosted market sentiment.

Global ex-U.S. Equity: Quarterly Returns (U.S. Dollar)



Global ex-U.S. Equity: One-Year Returns (U.S. Dollar)



Source: MSCI

Fixed Income

The Federal Open Market Committee (FOMC) cut short-term interest rates by 25 basis points once in the fourth quarter to 1.50%-1.75%, citing weak business investment and export data, along with muted inflation. The overall economic backdrop remained strong supported by a solid labor market, which led to a pause in rate cuts at the most recent FOMC meeting. The FOMC indicated its current monetary policy stance is appropriate to sustain the economic expansion. The European Central Bank kept rates steady while continuing to purchase assets in the open market. Yield movement was mixed in the U.S. as short-term rates fell and long-term rates rose amid ongoing trade negotiations.

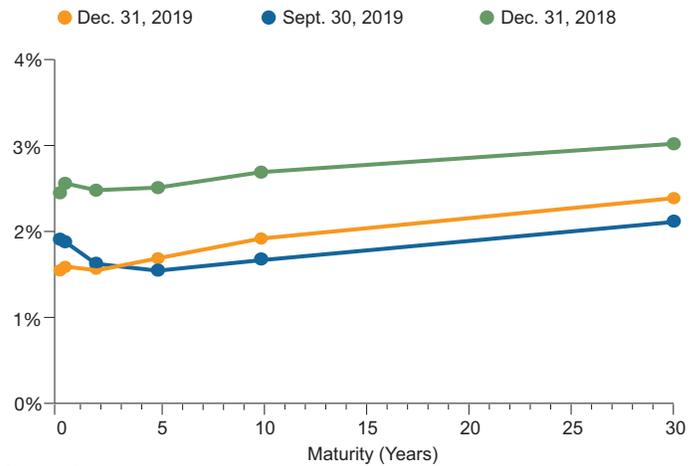
Core Fixed Income ► *Bloomberg Barclays US Agg: +0.2%*

- Treasuries fell 0.8% as the Treasury yield curve steepened, with yields falling on the short end and rising modestly in the intermediate and long end of the curve on expectations of stronger economic growth.
- The spread between the 2-year and 10-year Treasury remained positive, ending the year at 34 bps.
- Long Treasuries fell 4.1% as the 30-year yield rose 27 bps to end the year at 2.39% as investors favored risk assets.
- TIPS outperformed nominal Treasuries as inflation expectations rose; the 10-year breakeven spread was 1.77% at quarter end, up from 1.53% as of Sept. 30.

Investment-Grade Corporates ► *Bloomberg Barclays Corporate (Inv. Grade): +1.2%*

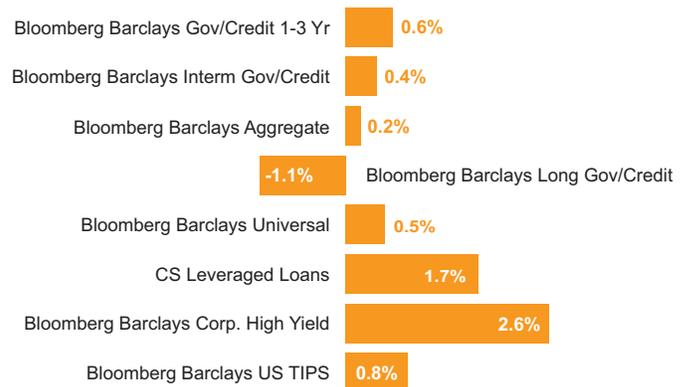
- Investment grade corporate credit spreads narrowed in the fourth quarter and posted the best results within the Bloomberg Barclays US Aggregate Bond Index amid a risk-on market environment; BBB-rated corporates (+1.7%) outperformed single A-rated or higher corporates (+0.7%), indicating investors' willingness to extend risk down the credit spectrum.
- Issuance in the corporate bond market was \$200 billion in the fourth quarter, which was \$8 billion lower than that from a year ago. Issuance was \$140 billion lower compared to

U.S. Treasury Yield Curves



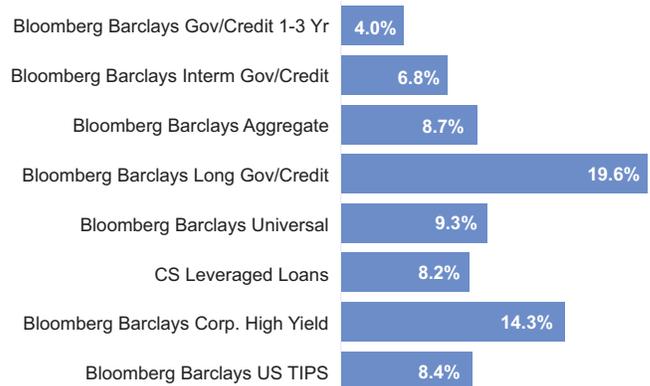
Source: Bloomberg

U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and Credit Suisse

U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and Credit Suisse

FIXED INCOME (Continued)

the third quarter, as is typical toward year-end; demand remained strong amid the risk-on market tone as global investors continued their hunt for positive-yielding assets.

High Yield ► *Bloomberg Barclays Corporate HY: +2.6%*

- CCC-rated corporates (+3.7%) outperformed BB-rated corporates (+2.5%), as the risk-on market sentiment spurred demand for lower-rated securities.
- Spreads across credit quality buckets tightened in the fourth quarter, as the market anticipated improvements in credit fundamentals.

Leveraged Loans ► *CS Leveraged Loans: +1.7%*

- Bank loans, which have floating-rate coupons, underperformed high yield as investors shunned loans in favor of high yield bonds.
- CLO issuance remained consistent, providing technical support for the leveraged loan market.

Global Fixed Income ► *Bloomberg Barclays Global Aggregate (unhedged): +0.5% | (hedged): -0.5%*

- Developed market sovereign bond yields rose modestly in the fourth quarter as global financial conditions improved, but ended lower on the year. The ECB kept the deposit rate steady at its December meeting; negative-yielding debt totaled less than \$12 trillion, down from \$17 trillion in the third quarter.
- The U.S. dollar declined in the fourth quarter versus the euro, Australian dollar, and British pound; however, it had a modest gain versus the Japanese yen.

Emerging Market Debt (\$US) ► *JPM EMBI Global Diversified: +1.8% | (Local currency) ► JPM GBI-EM Global Diversified: +5.2%*

- Broadly, emerging market debt benefited from dovish global central banks and a risk-on environment.
- Within the dollar-denominated benchmark, which posted mixed results, Lebanon (-29.4%) was an outlier as the debt-to-GDP ratio continued to swell and anti-government protests persisted; Argentina rallied (+20.8%) to end the year down 23.6% as a new president was inaugurated.

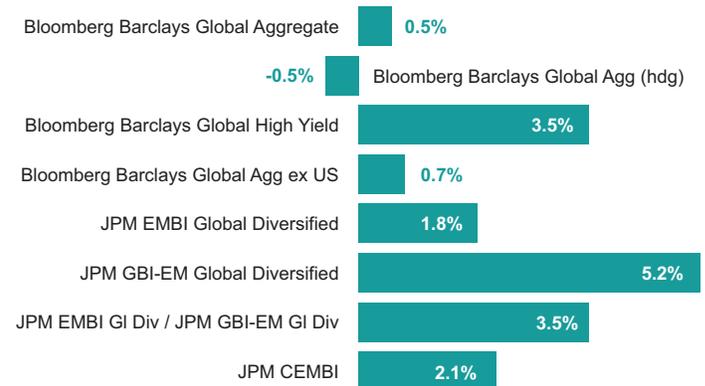
Change in 10-Year Global Government Bond Yields

3Q19 to 4Q19



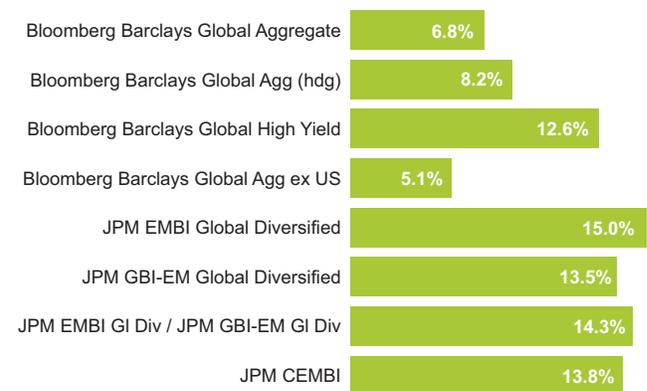
Source: Bloomberg Barclays

Global ex-U.S. Fixed Income: Quarterly Returns



Sources: Bloomberg Barclays and JPMorgan Chase

Global ex-U.S. Fixed Income: One-Year Returns



Sources: Bloomberg Barclays and JPMorgan Chase

Returns in the local debt benchmark were largely positive, with only Chile (-6.2%) and the Dominican Republic (-0.7%) declining. South Africa (+10.2%) and Russia (+10.0%) were top performers.

Real Estate Stays the Course; Real Assets See Strong Gains

REAL ESTATE/REAL ASSETS | Munir Iman and David Welsch

Returns continue to moderate

- U.S. core real estate returns continued to be driven by income, with limited appreciation this late in the cycle.
- Returns came from net operating income (NOI) growth rather than further capitalization rate compression.
- Industrial kept outperforming other property types.
- Retail continued to show signs of depreciation.
- Defensive posturing and disciplined asset acquisitions were critical.

U.S. real estate fundamentals remain healthy

- Steady returns continued, driven by above inflation-level rent growth in many metro areas.
- Within the **NCREIF Property Index**, the vacancy rate for Industrial decreased; all other property types increased.
- NOI has been growing annually and is expected to be the primary return driver. Office, Apartment, and Industrial NOI growth have fallen slightly since the third quarter of 2019.

Pricing remains expensive in the U.S.

- Transaction volumes increased and remained robust.
- Capitalization rates fell slightly; the market remained close to full valuations.

Global equities outperform REITs

- Global REITs gained 2.0% in the fourth quarter compared to 9.1% for global equities (**MSCI ACWI IMI**).
- U.S. and global ex-U.S. REITs were trading just below NAV.
- Large cap stocks, especially those with higher debt levels, modestly outperformed.
- U.S. REITs lost 1.0% in the fourth quarter, lagging the S&P 500 Index, which rose 9.1%.

Asia impacted by trade tensions

- U.S.-China trade talks and unrest in Hong Kong impacted real estate markets in the region. Managers continued to find attractive opportunities in some sectors of the market such

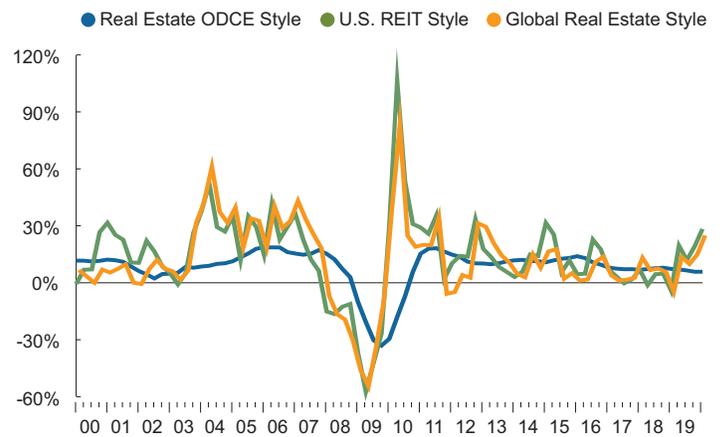
as restructuring opportunities, necessity-based retail, multi-family rental, and logistics.

- The number of open-end core funds operating in the Asia Pacific market, primarily focused on Japan, Australia, South Korea, and Singapore, increased over recent years and includes both sector-diversified and sector-specific (e.g., logistics) funds.
- India had its first successful REIT IPO in 2019, contributing to the institutionalization of the asset class in that country.

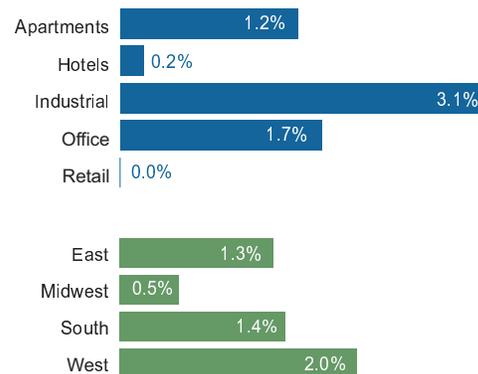
Fundamentals remain strong in Europe's gateway markets

- Political uncertainty weighed on overall economic growth throughout Europe, but real estate fundamentals remain

Rolling One-Year Returns



Sector Quarterly Returns by Property Type and Region



Source: NCREIF

REAL ESTATE/REAL ASSETS (Continued)

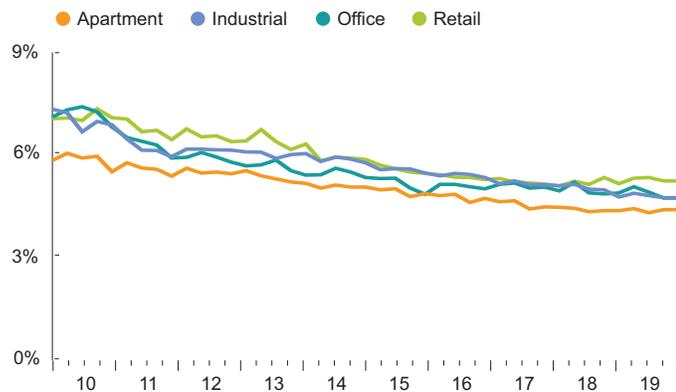
strong in key gateway markets given strong demand and the continued lack of new supply. Cap rates for prime real estate remained low, as real estate continued to be attractive as a result of low interest rates throughout the region.

- Yields between prime and secondary real estate remained wide, providing opportunities for investors targeting transitional assets.

Infrastructure continues to mature

- Open end funds raised significant capital, and the universe of investible funds increased as the sector matured.
- The closed end fund market kept expanding, with additional offerings in infrastructure debt, emerging markets, and sector-specific areas (e.g., communications and renewables).
- Two mega funds raised in excess of \$20 billion in 2019.

NCREIF Capitalization Rates by Property Type

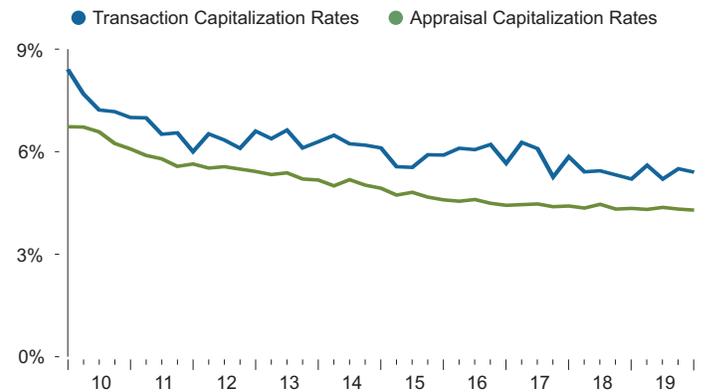


Source: NCREIF. Capitalization rates (net operating income / current market value (or sale price)) are appraisal-based.

Real assets mostly see gains

- Real assets returns were mostly strong in the fourth quarter. The **Bloomberg Commodity Index** gained 4.4% and the **S&P GSCI Commodity Index** was up 8.3%.
- MLPs, however, declined (**Alerian MLP Index**: -4.1%).
- Spot gold prices were up 3.4%.
- The **DJ-Brookfield Infrastructure Index** rose 4.0%.
- REITs (**FTSE Nareit Equity Index**) modestly fell (-0.8%).
- The **Bloomberg Barclays TIPS Index** rose 0.8%.
- For the year, returns of these indices were positive with Infrastructure (+28.7%) and REITs (+26.0%) leading the pack. MLPs (+6.6%) posted the lowest full-year return.

NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF
Note: Transaction capitalization rate is equal weighted.

Callan Database Median and Index Returns* for Periods Ended 12/31/19

	Quarter	Year to Date	Year	3 Years	5 Years	10 Years	15 Years
Private Real Assets							
Real Estate ODCE Style	1.6	5.8	5.8	6.8	8.4	10.5	6.8
NFI-ODCE (value wt net)	1.3	4.4	4.4	6.1	8.0	10.4	6.7
NCREIF Property	1.5	6.4	6.4	6.7	8.2	10.2	8.3
NCREIF Farmland	1.0	3.4	3.4	5.4	6.7	10.9	13.3
NCREIF Timberland	0.0	1.3	1.3	2.7	3.1	4.4	6.6
Public Real Estate							
Global Real Estate Style	2.8	24.9	24.9	10.3	7.2	9.9	7.2
FTSE EPRA Nareit Developed	1.7	21.9	21.9	8.3	5.6	8.4	--
Global ex-U.S. Real Estate Style	6.8	25.0	25.0	12.3	7.0	8.4	7.1
FTSE EPRA Nareit Dev ex US	5.6	21.0	21.0	10.8	5.8	6.9	--
U.S. REIT Style	0.0	28.3	28.3	9.2	7.9	12.6	8.6
EPRA Nareit Equity REITs	-0.8	26.0	26.0	8.1	7.2	11.9	7.9

*Returns less than one year are not annualized.
Sources: Callan, FTSE Russell, NCREIF

Cheap and Dear

PRIVATE EQUITY | Gary Robertson

Global private equity fundraising has now surpassed 2007's famed peak of \$615 billion for two years in a row, with \$658 billion in 2018 and \$692 billion in 2019 (unless otherwise noted, PitchBook provided all private equity data cited). Private equity market liquidity and transactions were brisk in 2019, albeit with moderate declines relative to 2018. Venture capital prices also increased year-over-year.

In 2019, the \$692 billion raised by private equity partnerships holding final closes globally was across 924 partnerships. The dollar amount rose 5% from 2018, but the number of funds fell 1%. Fourth quarter final closes totaled \$188 billion, down 11% from the third quarter. The number of funds totaled 255, up 9%.

New buyout investments for 2019 totaled 7,555, down 15% from 2018. Dollar volume fell 24% to \$522 billion. The fourth quarter saw 1,642 new investments, a 17% decline, and dollar volume fell 13% to \$137 billion.

The year produced 28,868 rounds of new investment in venture capital (VC) companies, down 12% from 2018. The year's announced volume of \$257 billion was down 13%. The fourth quarter saw 5,301 new rounds, a 27% decline, and dollar volume fell 6% to \$59 billion.

Last year also saw 2,054 buyout-backed private M&A exits, down 28% from 2018, with proceeds of \$608 billion, down 13%. The

Funds Closed 1/1/2019 to 12/31/2019

Strategy	No. of Funds	Amt (\$mm)	Share
Venture Capital	412	74,014	11%
Growth Equity	66	80,931	12%
Buyouts	256	381,368	55%
Mezzanine Debt	67	76,986	11%
Distressed	11	15,823	2%
Energy	9	9,724	1%
Secondary and Other	59	37,854	5%
Fund-of-funds	44	15,663	2%
Totals	924	692,363	100%

Source: PitchBook (Figures may not total due to rounding.)

fourth quarter had 420 private exits, down 23%, with proceeds of \$154 billion, down 35%. The year's 95 buyout-backed IPOs declined 41% from 2018, with proceeds of \$30 billion, down 32%. Fourth quarter buyout-backed IPOs were a bright spot, with 24 offerings, a jump of 41% from the third quarter, and \$7 billion of proceeds, up 17%.

Venture-backed M&A exits for the year totaled 1,554, down 8% from 2018. Announced dollar volume of \$122 billion was down 13%. The final quarter had 323 exits, down 19%, but announced value was up 22%. The year's 209 venture-backed IPOs fell 5% from 2018, with proceeds of \$42 billion, down 9%. The fourth quarter had 61 VC-backed offerings, an 11% rise, but the \$6 billion of proceeds dropped 33% from the third quarter.

Private Equity Performance (%) (Pooled Horizon IRRs through 9/30/2019*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	-0.37	13.01	14.56	14.39	14.83	11.41	11.02
Growth Equity	1.32	12.76	16.02	12.77	14.03	13.41	13.13
All Buyouts	1.43	8.85	15.32	12.83	14.59	13.65	12.04
Mezzanine	0.87	6.02	10.86	10.00	10.85	10.58	8.60
Credit Opportunities	-0.36	0.61	7.73	5.49	10.47	9.28	9.90
Control Distressed	1.05	4.38	8.86	7.83	11.17	10.52	10.58
All Private Equity	0.92	9.59	14.41	12.33	14.03	12.72	11.72
S&P 500	1.70	4.25	13.39	10.84	13.24	9.01	6.33

Note: Private equity returns are net of fees. Sources: Refinitiv/Cambridge and S&P Dow Jones Indices

*Most recent data available at time of publication

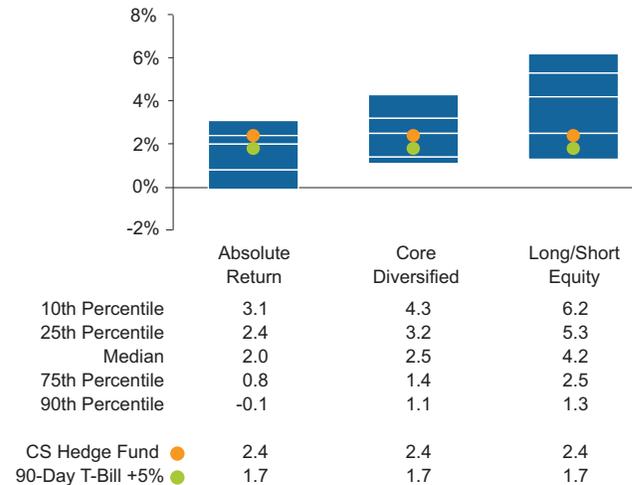
Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.

Party Like it's 1999 ... or Not

HEDGE FUNDS/MACs | Jim McKee

- Hedge funds participated more cautiously in the fourth quarter risk-on market, as expected.
- Portfolios with exposure to EM and long-short equity fared much better than those emphasizing equity market neutral or macro strategies.
- In the fourth quarter, *Long/Short Equity* (+5.1%) rode the wave of market beta, but alpha was more sporadic, leaving little extra risk-adjusted return. Tech and health care were positive outliers.
- *Equity Market Neutral* (+1.1%) barely clawed back its recent September loss, with stocks lacking dispersion to create trading opportunities.
- *Managed Futures* fell 2.6% as bond rates reversed their downward trend, but it finished 2019 with a solid 9% gain.
- *Distressed* (+1.3%) continued to struggle with chronically weak credits like energy, finishing 2019 up 1.4%, making it the **Credit Suisse Hedge Fund Index's** weakest performer for the year, just below *Equity Market Neutral* (+1.6%).

Hedge Fund-of-Funds Style Group Returns



Sources: Callan, Credit Suisse, and Federal Reserve

Callan Database Median and Index Returns* for Periods Ended 12/31/19

Hedge Fund Universe	Quarter	Year	3 Years	5 Years	10 Years	15 Years
Callan Fund-of-Funds Database	2.69	7.10	4.32	3.08	4.49	4.49
Callan Absolute Return FOF Style	1.99	5.63	3.16	3.01	4.46	4.00
Callan Core Diversified FOF Style	2.47	6.70	3.59	2.41	4.25	4.16
Callan Long/Short Equity FOF Style	4.24	12.79	5.95	4.00	5.03	5.49
Credit Suisse Hedge Fund	2.44	9.31	4.27	2.65	4.25	4.75
CS Convertible Arbitrage	3.34	8.15	3.54	3.59	4.17	3.90
CS Distressed	1.27	1.39	2.29	1.52	4.23	4.86
CS Emerging Markets	7.75	13.38	5.98	4.41	4.62	6.06
CS Equity Market Neutral	1.06	1.58	1.53	0.31	1.37	-0.58
CS Event-Driven Multi	2.66	11.42	3.79	1.11	3.17	4.73
CS Fixed Income Arb	2.29	6.10	4.54	3.69	5.44	3.80
CS Global Macro	0.75	10.38	4.04	3.16	4.73	6.18
CS Long/Short Equity	5.06	12.17	6.66	3.94	5.15	5.58
CS Managed Futures	-2.59	9.01	1.67	-0.61	1.56	2.63
CS Multi-Strategy	1.28	7.25	4.27	4.21	6.02	5.76
CS Risk Arbitrage	1.98	4.89	3.59	3.40	2.72	3.68
HFRI Asset Wtd Composite	2.32	7.57	4.45	3.21	4.46	--
90-Day T-Bill + 5%	1.67	7.28	6.67	6.07	5.58	6.39

*Gross of fees. Sources: Callan, Credit Suisse, Hedge Fund Research

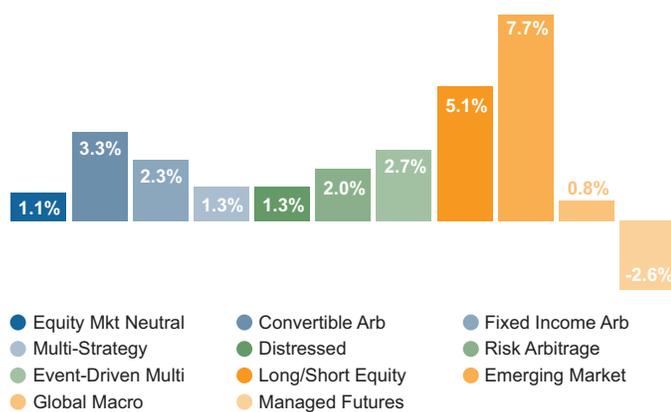
Long Biased MACs rebounded; Risk Parity settled down

- MAC performance varied depending on net market exposures.
- Last quarter’s 5.5% return of the 60% MSCI ACWI and 40% Bloomberg Aggregate benchmark was a tough hurdle to beat.
- *Long-Biased MACs* benefited from their typically heavy equity exposure, particularly EM.
- **HFR Risk Parity Index** targeting 10% volatility was moderately positive (+2.7%), reflecting strong stock gains partially offset by tepid bond returns.
- **Eurekahedge Multi-Factor Risk Premia Index** gained 3.7% based on solid returns from carry trades in risk-on markets offset by a reversal of last year’s downward trend in yields.
- *Absolute Return MACs* edged ahead with their higher-quality asset bias amid the quarter’s less discriminating risk-on market.

Volatility suppressed

- With the Fed lowering rates by another quarter point in the fourth quarter while rescuing repo funding markets with unprecedented cash infusions, the Fed openly served the punch bowl of liquidity for “risk on” investors.

Credit Suisse Hedge Fund Strategy Returns



Source: Credit Suisse

- Equity volatility, as illustrated by VIX, continued to settle at below-average levels, indicating fewer trading opportunities for hedge funds.
- While last quarter’s melt-up reflected increased comfort with today’s easy monetary and fiscal policies, a revived trade war with China or another geopolitical conflict could quickly undo that market sentiment.

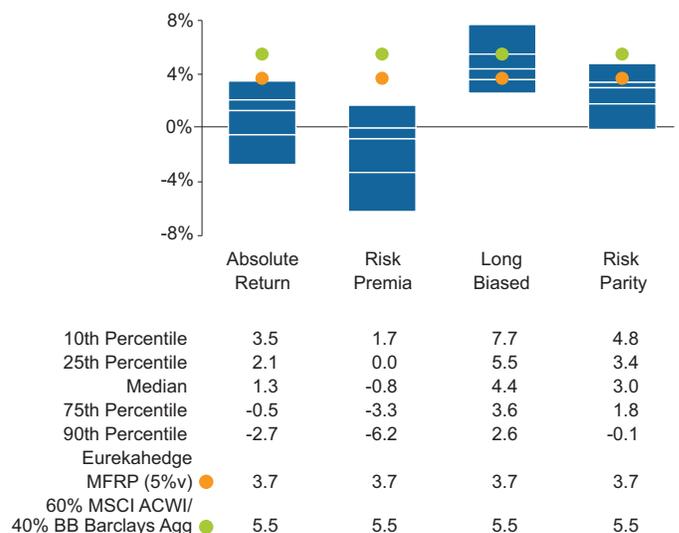
Falling cash returns remove any hint of a tailwind for hedge funds

- As short rates fell, dwindling cash returns and short interest rebates removed previously favorable trade winds from hedge fund sails.

Callan Institutional Hedge Fund Peer Group to launch

- To provide a more representative benchmark for our clients directly investing in hedge funds, Callan has created the Callan Institutional Hedge Fund Peer Group, a select collection of hedge funds meeting minimum size and other criteria that make them more attractive to institutional investors.

MAC Style Group Returns



Sources: Bloomberg Barclays, Callan, Eurekahedge, S&P Dow Jones Indices

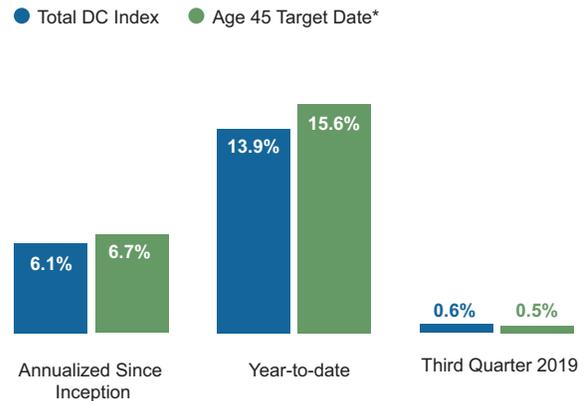
DC Index Gains Slightly but Tops Age 45 TDF

DEFINED CONTRIBUTION | Patrick Wisdom

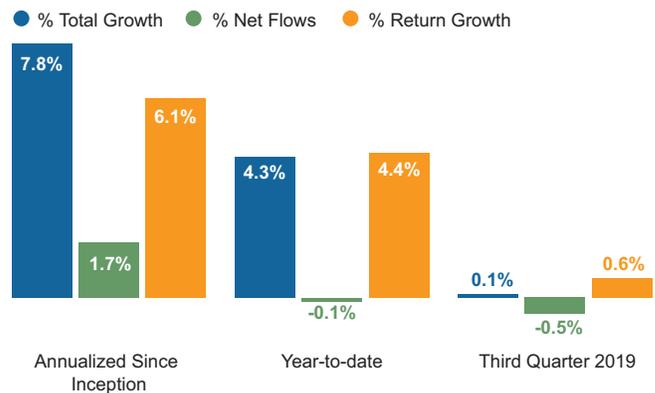
- The **Callan DC Index™** rose 0.6% in the third quarter after gains of 9.6% and 3.3% in the first and second quarters. The Age 45 Target Date Fund's smaller gain of 0.5% was largely due to its higher allocation to equity, which lagged fixed income during the quarter. The Age 45 TDF's bigger equity allocation, however, has contributed to a higher since-inception return (6.7% vs. 6.1%).
- The Index's growth in balances of 0.1% was much smaller than the first quarter (9.8%) and second quarter (3.3%).
- U.S. fixed income saw the largest inflows for the quarter (57.7%), for the first time since the third quarter of 2010. TDFs saw the second-largest inflow (26.2%), much lower than in recent quarters. U.S. large cap equity (-52.2%), and U.S. small/mid cap equity (-19.1%) had the largest outflows.
- Third-quarter turnover (i.e., net transfer activity levels within DC plans) decreased to 0.35% from the previous quarter's 0.54%.
- The allocation to equity within the Index fell to 69.5% from 70.0% in the previous quarter, after two quarters of increases.
- The percentage of assets allocated to U.S. fixed income increased by 0.5% to 6.3%. Similarly, the allocation to stable value increased by 0.3% to an overall allocation of 10.4%.
- TDFs experienced the largest decrease in asset allocation (-0.6%). With this decrease, 29.6% of assets were allocated to TDFs, the lowest since the first quarter of 2017.
- Stable value's prevalence within DC plans decreased for the first time in eight quarters and now sits at 76%, but still up nearly 3 percentage points from a year ago.
- Fees decreased across all plan sizes from the previous year, driven by a combination of increased adoption of passive mandates, as well as lower breakpoints and the use of less expensive vehicles and share classes for active options.

The Callan DC Index is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$150 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.

Investment Performance



Growth Sources



Net Cash Flow Analysis (Third Quarter 2019) (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
U.S. Fixed Income	57.73%
Target Date Funds	26.18%
U.S. Smid Cap	-19.09%
U.S. Large Cap	-52.23%
Total Turnover**	0.35%

Data provided here is the most recent available at time of publication.

Source: Callan DC Index

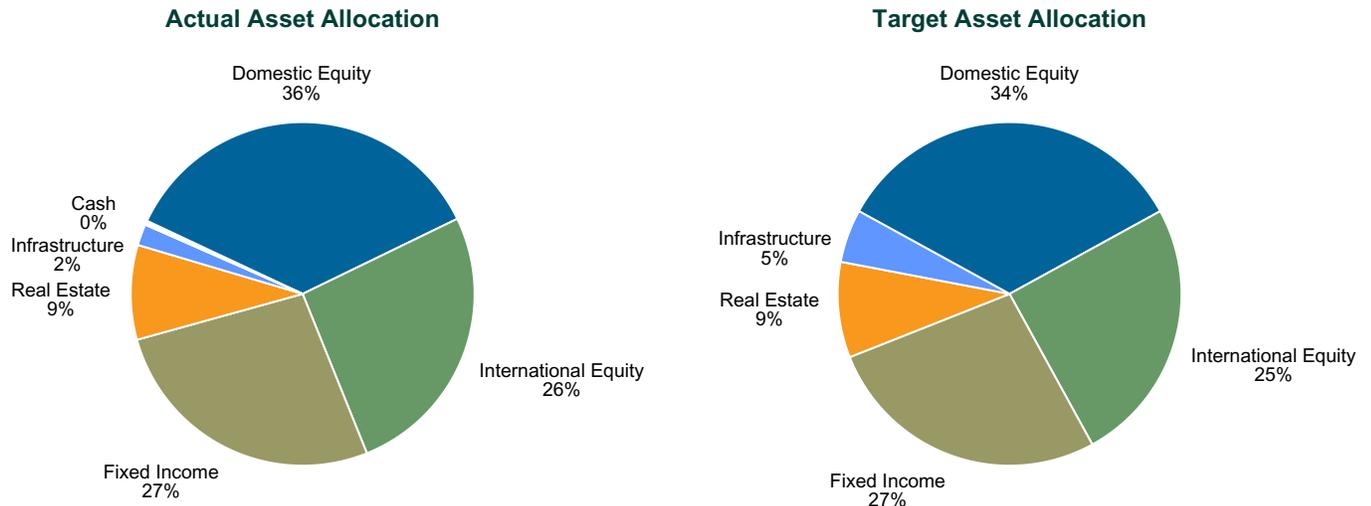
Note: DC Index inception date is January 2006.

* The Age 45 Fund transitioned from the average 2035 TDF to the 2040 TDF in June 2018.

** Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

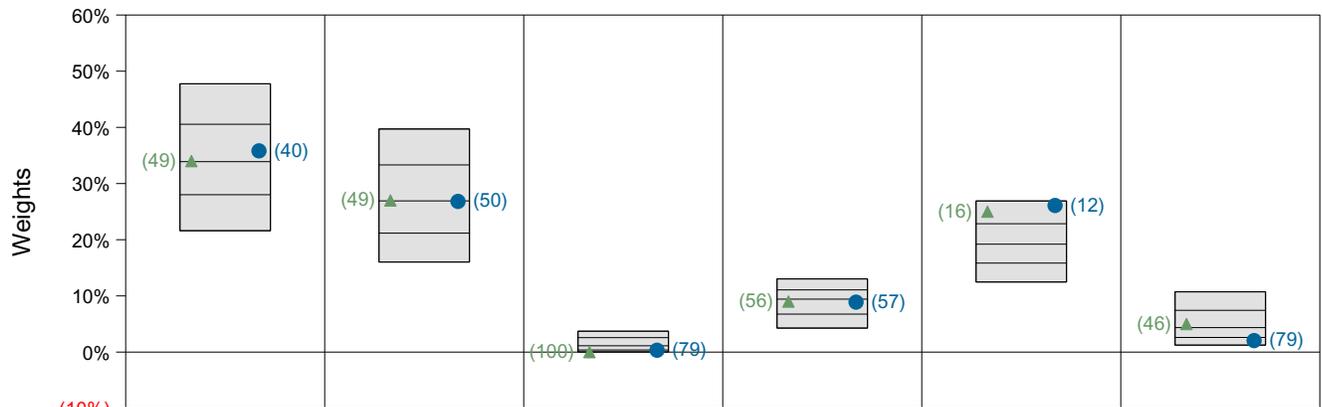
Actual vs Target Asset Allocation As of December 31, 2019

The top left chart shows the Fund's asset allocation as of December 31, 2019. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	313,295	35.8%	34.0%	1.8%	15,903
International Equity	228,261	26.1%	25.0%	1.1%	9,590
Fixed Income	234,570	26.8%	27.0%	(0.2%)	(1,595)
Real Estate	77,770	8.9%	9.0%	(0.1%)	(952)
Infrastructure	17,885	2.0%	5.0%	(3.0%)	(25,849)
Cash	2,904	0.3%	0.0%	0.3%	2,904
Total	874,685	100.0%	100.0%		

Asset Class Weights vs Callan Public Fund Sponsor Database



	Domestic Equity	Fixed Income	Cash	Real Estate	International Equity	Real Assets
10th Percentile	47.76	39.71	3.72	13.03	26.90	10.73
25th Percentile	40.55	33.32	2.57	11.07	22.85	7.43
Median	33.89	26.91	1.12	9.43	19.21	4.36
75th Percentile	28.01	21.17	0.38	6.76	15.84	2.61
90th Percentile	21.60	16.03	0.04	4.27	12.48	1.24
Fund ●	35.82	26.82	0.33	8.89	26.10	2.04
Target ▲	34.00	27.00	0.00	9.00	25.00	5.00
% Group Invested	97.87%	98.58%	76.60%	78.72%	96.45%	24.82%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2019, with the distribution as of September 30, 2019. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	December 31, 2019		Net New Inv.	Inv. Return	September 30, 2019	
	Market Value	Weight			Market Value	Weight
Domestic Equity	\$313,295,483	35.82%	\$(2,006,168)	\$26,379,292	\$288,922,358	34.56%
Large Cap Equity	\$239,300,412	27.36%	\$(2,020,065)	\$19,667,010	\$221,653,467	26.51%
Alliance S&P Index	72,961,564	8.34%	(996,338)	6,072,414	67,885,488	8.12%
PIMCO StocksPLUS	37,913,448	4.33%	0	3,206,600	34,706,848	4.15%
BlackRock Russell 1000 Value	64,103,188	7.33%	(1,011,888)	4,452,095	60,662,981	7.26%
T. Rowe Price Large Cap Growth	64,322,212	7.35%	(11,839)	5,935,900	58,398,150	6.99%
Small/Mid Cap Equity	\$73,995,071	8.46%	\$13,897	\$6,712,283	\$67,268,891	8.05%
Champlain Mid Cap	36,476,741	4.17%	10,458	2,373,545	34,092,738	4.08%
Pyramis Small Cap	37,518,330	4.29%	3,439	4,338,738	33,176,153	3.97%
International Equity	\$228,261,126	26.10%	\$8,036,473	\$22,436,998	\$197,787,656	23.66%
Causeway International Opportunities (3)	91,224,505	10.43%	5,383,418	9,142,595	76,698,492	9.17%
Aberdeen EAFE Plus	90,498,743	10.35%	(146,946)	8,506,398	82,139,291	9.83%
American Century Non-US SC [1]	46,537,878	5.32%	2,800,000	4,788,005	38,949,873	4.66%
Fixed Income	\$234,569,699	26.82%	\$651,594	\$2,463,492	\$231,454,613	27.69%
BlackRock U.S. Debt Fund	118,438,848	13.54%	3,969,224	218,689	114,250,935	13.67%
PIMCO Fixed Income	116,130,851	13.28%	(3,317,630)	2,244,803	117,203,678	14.02%
Real Estate	\$77,769,681	8.89%	\$(774,819)	\$1,414,652	\$77,129,848	9.23%
JP Morgan Strategic Property Fund	52,323,610	5.98%	(448,766)	1,174,557	51,597,819	6.17%
JP Morgan Income and Growth Fund	25,446,071	2.91%	(326,054)	240,095	25,532,029	3.05%
Infrastructure	\$17,885,032	2.04%	\$(21,225,034)	\$2,508,882	\$36,601,184	4.38%
Macquarie European Infrastructure	-1,554	(0.00%)	(14,832,150)	2,086,932	12,743,664	1.52%
SteelRiver Infrastructure	17,886,587	2.04%	(6,392,884)	421,951	23,857,520	2.85%
Cash Composite	\$2,903,649	0.33%	\$(1,250,863)	\$33,181	\$4,121,331	0.49%
Cash	2,903,649	0.33%	(1,250,863)	33,181	4,121,331	0.49%
Total Plan	\$874,684,671	100.0%	\$(16,568,817)	\$55,236,498	\$836,016,990	100.0%

[1] American Century was funded May 2016.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Gross of Fees					
Domestic Equity	9.18%	30.05%	15.76%	12.33%	14.40%
Total Domestic Equity Target (1)	8.95%	30.67%	14.19%	11.11%	13.38%
Large Cap Equity	8.94%	29.68%	15.95%	12.10%	14.04%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	13.56%
Alliance S&P Index	9.04%	31.39%	15.25%	11.66%	13.55%
PIMCO StocksPLUS	9.24%	32.85%	15.36%	11.72%	14.95%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	13.56%
BlackRock Russell 1000 Value Index	7.43%	26.67%	9.82%	8.37%	11.90%
Russell 1000 Value Index	7.41%	26.54%	9.68%	8.29%	11.80%
T. Rowe Price Large Cap Growth	10.17%	29.01%	23.23%	16.43%	16.63%
Russell 1000 Growth Index	10.62%	36.39%	20.49%	14.63%	15.22%
Small/Mid Cap Equity U.S. Equity	9.98%	31.21%	15.14%	13.16%	15.62%
Russell 2500 Index	8.54%	27.77%	10.33%	8.93%	12.58%
Champlain Mid Cap	6.96%	28.37%	17.73%	15.01%	15.82%
Russell MidCap Index	7.06%	30.54%	12.06%	9.33%	13.19%
Pyramis Small Cap	13.08%	34.09%	12.28%	11.06%	15.20%
Russell 2000 Index	9.94%	25.52%	8.59%	8.23%	11.83%
International Equity	11.31%	24.86%	10.98%	5.55%	5.57%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
Causeway International Opportunities (3)	11.76%	22.62%	9.42%	5.50%	7.27%
Causeway Linked Index (3)	8.92%	21.51%	9.87%	6.00%	5.67%
Aberdeen EAFE Plus	10.36%	24.35%	10.85%	4.78%	5.67%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
American Century Non-US SC (4)	12.40%	30.81%	15.22%	-	-
MSCI ACWI ex US Small Cap	11.01%	22.42%	9.65%	7.04%	6.92%
Fixed Income	1.07%	11.49%	5.81%	4.91%	5.25%
Bimbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
BlackRock U.S. Debt Fund	0.19%	8.81%	4.13%	3.14%	3.87%
Bimbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
PIMCO Fixed Income	1.96%	14.18%	7.36%	6.30%	6.42%
Custom Index (2)	1.90%	12.06%	5.14%	4.62%	5.21%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

(3) Causeway International Value transitioned to International Opportunities in May 2016; as such, the index has been changed accordingly from EAFE to ACWI ex-US (Net Div).

(4) American Century Non-US SC was funded during second quarter 2016.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Gross of Fees					
Real Estate	1.85%	1.12%	5.12%	7.79%	10.58%
NFI-ODCE Value Weight Gr	1.51%	5.34%	7.09%	8.97%	11.42%
JP Morgan Strategic Property Fund	2.30%	0.11%	4.91%	7.60%	10.65%
NFI-ODCE Value Weight Gr	1.51%	5.34%	7.09%	8.97%	11.42%
JP Morgan Income and Growth Fund	0.95%	3.19%	5.56%	8.19%	13.45%
NFI-ODCE Value Weight Gr	1.51%	5.34%	7.09%	8.97%	11.42%
Infrastructure	9.48%	32.14%	22.80%	16.77%	11.67%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
SteelRiver Infrastructure	1.85%	12.40%	7.02%	9.34%	8.06%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
Cash Composite	0.38%	2.05%	1.59%	1.00%	0.56%
Total Fund	6.64%	20.46%	11.21%	8.71%	10.05%
Total Fund Benchmark*	5.53%	18.86%	9.46%	7.33%	9.00%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	6/2019- 12/2019	FY 2019	FY 2018	FY 2017	FY 2016
Gross of Fees					
Domestic Equity	9.38%	9.87%	16.87%	21.35%	1.24%
Total Domestic Equity Target (1)	10.09%	8.50%	14.79%	18.34%	2.28%
Large Cap Equity	9.88%	9.94%	16.40%	21.12%	1.60%
S&P 500 Index	10.92%	10.42%	14.37%	17.90%	3.99%
Alliance S&P Index	10.90%	10.39%	14.33%	17.80%	3.97%
PIMCO StocksPLUS	11.02%	10.64%	14.13%	19.11%	2.68%
S&P 500 Index	10.92%	10.42%	14.37%	17.90%	3.99%
BlackRock Russell 1000 Value Index	8.93%	8.61%	6.88%	15.61%	2.75%
Russell 1000 Value Index	8.86%	8.46%	6.77%	15.53%	2.86%
T. Rowe Price Large Cap Growth	9.05%	10.46%	29.95%	31.65%	(2.64%)
Russell 1000 Growth Index	12.27%	11.56%	22.51%	20.42%	3.02%
Small/Mid Cap Equity U.S. Equity	7.76%	9.76%	18.33%	21.97%	0.17%
Russell 2500 Index	7.14%	1.77%	16.24%	19.84%	(3.67%)
Champlain Mid Cap	6.35%	16.06%	18.85%	22.50%	4.64%
Russell MidCap Index	7.58%	7.83%	12.33%	16.48%	0.56%
Pyramis Small Cap	9.18%	2.94%	17.78%	21.31%	(4.41%)
Russell 2000 Index	7.30%	(3.31%)	17.57%	24.60%	(6.73%)
International Equity	9.31%	(1.87%)	8.64%	20.73%	(9.40%)
MSCI ACWI x US (Net)	6.96%	1.29%	7.28%	20.45%	(10.24%)
Causeway International Opportunities (3)	9.15%	(2.57%)	7.29%	23.39%	(11.66%)
Causeway Linked Index (3)	6.96%	1.29%	7.28%	20.45%	(9.42%)
Aberdeen EAFE Plus	8.80%	3.04%	3.38%	18.30%	(7.60%)
MSCI ACWI x US (Net)	6.96%	1.29%	7.28%	20.45%	(10.24%)
American Century Non-US SC	10.66%	(9.14%)	23.86%	21.46%	-
MSCI ACWI ex US Small Cap	9.69%	(5.94%)	10.57%	20.32%	(5.46%)
Fixed Income	3.37%	9.29%	0.43%	4.58%	6.39%
Blmbg Aggregate Index	2.45%	7.87%	(0.40%)	(0.31%)	6.00%
BlackRock U.S. Debt Fund	2.48%	7.97%	(0.31%)	(0.21%)	6.13%
Blmbg Aggregate Index	2.45%	7.87%	(0.40%)	(0.31%)	6.00%
PIMCO Fixed Income	4.27%	10.57%	1.16%	7.99%	6.55%
Custom Index (2)	3.09%	9.53%	(1.05%)	3.83%	7.28%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

(3) Causeway International Value transitioned to International Opportunities in May 2016; as such, the index has been changed accordingly from EAFE to ACWI ex-US (Net Div).

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	6/2019- 12/2019	FY 2019	FY 2018	FY 2017	FY 2016
Gross of Fees					
Real Estate	1.77%	2.47%	7.72%	8.07%	10.80%
NFI-ODCE Value Weight Gr	2.84%	6.41%	8.44%	7.87%	11.82%
JP Morgan Strategic Property Fund	1.79%	1.65%	7.80%	7.94%	11.10%
NFI-ODCE Value Weight Gr	2.84%	6.41%	8.44%	7.87%	11.82%
JP Morgan Income and Growth Fund	1.71%	4.19%	7.54%	8.27%	10.06%
NFI-ODCE Value Weight Gr	2.84%	6.41%	8.44%	7.87%	11.82%
Infrastructure	14.13%	25.97%	18.95%	12.69%	12.61%
CPI + 4%	2.26%	5.44%	7.09%	5.50%	4.64%
SteelRiver Infrastructure	7.49%	15.27%	(2.94%)	7.09%	17.75%
CPI + 4%	2.26%	5.44%	7.09%	5.50%	4.64%
Cash Composite	0.91%	2.11%	1.22%	0.68%	0.12%
Total Fund	7.11%	6.69%	9.81%	14.77%	2.33%
Total Fund Benchmark*	6.30%	6.28%	7.96%	12.04%	1.82%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Domestic Equity	9.18%	30.04%	15.53%	12.07%	14.05%
Total Domestic Equity Target (1)	8.95%	30.67%	14.19%	11.11%	13.38%
Large Cap Equity	8.93%	29.67%	15.83%	11.97%	13.84%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	13.56%
Alliance S&P Index	9.04%	31.39%	15.21%	11.63%	13.51%
PIMCO StocksPLUS	9.24%	32.85%	15.36%	11.72%	14.85%
S&P 500 Index	9.07%	31.49%	15.27%	11.70%	13.56%
BlackRock Russell 1000 Value Index	7.42%	26.62%	9.78%	8.33%	11.87%
Russell 1000 Value Index	7.41%	26.54%	9.68%	8.29%	11.80%
T. Rowe Price Large Cap Growth	10.17%	29.01%	22.87%	16.01%	16.14%
Russell 1000 Growth Index	10.62%	36.39%	20.49%	14.63%	15.22%
Small/Mid Cap Equity U.S. Equity	9.98%	31.21%	14.54%	12.45%	14.80%
Russell 2500 Index	8.54%	27.77%	10.33%	8.93%	12.58%
Champlain Mid Cap	6.96%	28.37%	17.05%	14.21%	14.94%
Russell MidCap Index	7.06%	30.54%	12.06%	9.33%	13.19%
Pyramis Small Cap	13.08%	34.09%	11.76%	10.42%	14.44%
Russell 2000 Index	9.94%	25.52%	8.59%	8.23%	11.83%
International Equity	11.19%	24.42%	10.52%	5.03%	4.91%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
Causeway International Opportunities (3)	11.76%	22.62%	9.13%	5.08%	6.71%
Causeway Linked Index (3)	8.92%	21.51%	9.87%	6.00%	5.67%
Aberdeen EAFE Plus	10.18%	23.74%	10.18%	4.12%	4.91%
MSCI ACWI x US (Net)	8.92%	21.51%	9.87%	5.51%	4.97%
American Century Non-US SC	12.14%	29.59%	14.10%	-	-
MSCI ACWI ex US Small Cap	11.01%	22.42%	9.65%	7.04%	6.92%
Fixed Income	1.07%	11.48%	5.61%	4.66%	4.97%
Blmbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
BlackRock U.S. Debt Fund	0.19%	8.78%	4.09%	3.10%	3.84%
Blmbg Aggregate Index	0.18%	8.72%	4.03%	3.05%	3.75%
PIMCO Fixed Income	1.96%	14.18%	7.02%	5.89%	5.99%
Custom Index (2)	1.90%	12.06%	5.14%	4.62%	5.21%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

(3) Causeway International Value transitioned to International Opportunities in May 2016; as such, the index has been changed accordingly from EAFE to ACWI ex-US (Net Div).

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Real Estate	1.59%	0.60%	4.22%	6.81%	9.45%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
JP Morgan Strategic Property Fund	2.04%	(0.14%)	4.11%	6.69%	9.64%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
JP Morgan Income and Growth Fund	0.68%	2.12%	4.46%	7.05%	11.97%
NFI-ODCE Equal Weight Net	1.30%	5.18%	6.46%	8.34%	10.52%
Infrastructure	9.06%	27.47%	17.00%	13.04%	9.01%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
SteelRiver Infrastructure	1.77%	11.83%	6.58%	8.69%	6.79%
CPI + 4%	1.06%	6.32%	6.09%	5.73%	5.70%
Cash Composite	0.38%	2.05%	1.59%	1.00%	0.56%
Total Fund	6.56%	20.11%	10.59%	8.15%	9.48%
Total Fund Benchmark*	5.53%	18.86%	9.46%	7.33%	9.00%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	6/2019- 12/2019	FY 2019	FY 2018	FY 2017	FY 2016
Net of Fees					
Domestic Equity	9.38%	9.69%	16.55%	20.96%	0.94%
Total Domestic Equity Target (1)	10.09%	8.50%	14.79%	18.34%	2.28%
Large Cap Equity	9.88%	9.84%	16.25%	20.92%	1.44%
S&P 500 Index	10.92%	10.42%	14.37%	17.90%	3.99%
Alliance S&P Index	10.90%	10.37%	14.29%	17.76%	3.93%
PIMCO StocksPLUS	11.02%	10.64%	14.13%	19.11%	2.68%
S&P 500 Index	10.92%	10.42%	14.37%	17.90%	3.99%
BlackRock Russell 1000 Value Index	8.92%	8.57%	6.82%	15.59%	2.71%
Russell 1000 Value Index	8.86%	8.46%	6.77%	15.53%	2.86%
T. Rowe Price Large Cap Growth	9.05%	10.16%	29.47%	30.96%	(3.13%)
Russell 1000 Growth Index	12.27%	11.56%	22.51%	20.42%	3.02%
Small/Mid Cap Equity U.S. Equity	7.76%	9.31%	17.44%	20.95%	(0.61%)
Russell 2500 Index	7.14%	1.77%	16.24%	19.84%	(3.67%)
Champlain Mid Cap	6.35%	15.57%	17.80%	21.43%	3.76%
Russell MidCap Index	7.58%	7.83%	12.33%	16.48%	0.56%
Pyramis Small Cap	9.18%	2.54%	17.06%	20.34%	(5.10%)
Russell 2000 Index	7.30%	(3.31%)	17.57%	24.60%	(6.73%)
International Equity	9.06%	(2.15%)	8.12%	20.24%	(10.04%)
MSCI ACWI x US (Net)	6.96%	1.29%	7.28%	20.45%	(10.24%)
Causeway International Opportunities (3)	9.15%	(2.75%)	6.84%	22.89%	(12.24%)
Causeway Linked Index (3)	6.96%	1.29%	7.28%	20.45%	(9.42%)
Aberdeen EAFE Plus	8.45%	2.70%	2.61%	17.60%	(8.32%)
MSCI ACWI x US (Net)	6.96%	1.29%	7.28%	20.45%	(10.24%)
American Century Non-US SC	10.14%	(10.00%)	22.61%	20.31%	-
MSCI ACWI ex US Small Cap	9.69%	(5.94%)	10.57%	20.32%	(5.46%)
Fixed Income	3.36%	9.14%	0.14%	4.27%	6.05%
Blmbg Aggregate Index	2.45%	7.87%	(0.40%)	(0.31%)	6.00%
BlackRock U.S. Debt Fund	2.47%	7.96%	(0.38%)	(0.25%)	6.07%
Blmbg Aggregate Index	2.45%	7.87%	(0.40%)	(0.31%)	6.00%
PIMCO Fixed Income	4.27%	10.30%	0.65%	7.49%	6.04%
Custom Index (2)	3.09%	9.53%	(1.05%)	3.83%	7.28%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

(3) Causeway International Value transitioned to International Opportunities in May 2016; as such, the index has been changed accordingly from EAFE to ACWI ex-US (Net Div).

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

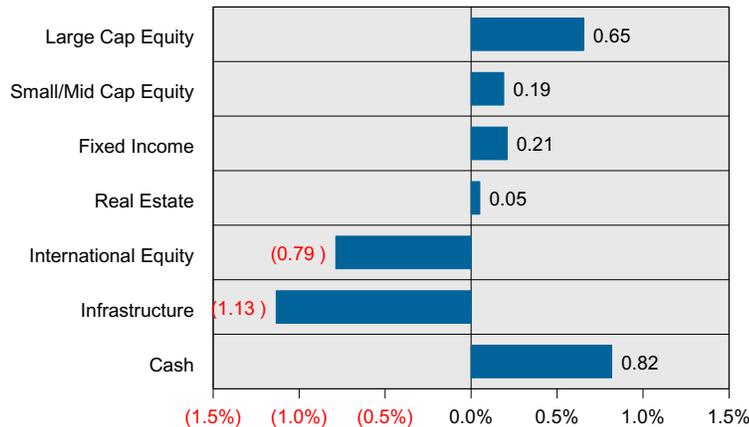
	6/2019- 12/2019	FY 2019	FY 2018	FY 2017	FY 2016
Net of Fees					
Real Estate	1.42%	1.78%	6.59%	7.07%	9.64%
NFI-ODCE Equal Weight Net	2.49%	5.99%	7.68%	7.23%	11.24%
JP Morgan Strategic Property Fund	1.53%	1.15%	6.68%	6.88%	10.02%
NFI-ODCE Equal Weight Net	2.49%	5.99%	7.68%	7.23%	11.24%
JP Morgan Income and Growth Fund	1.18%	3.11%	6.43%	7.37%	8.69%
NFI-ODCE Equal Weight Net	2.49%	5.99%	7.68%	7.23%	11.24%
Infrastructure	13.10%	21.76%	8.04%	11.42%	12.30%
CPI + 4%	2.26%	5.44%	7.09%	5.50%	4.64%
SteelRiver Infrastructure	7.27%	14.56%	(3.21%)	6.64%	17.13%
CPI + 4%	2.26%	5.44%	7.09%	5.50%	4.64%
Cash Composite	0.91%	2.11%	1.22%	0.68%	0.12%
Total Fund	6.97%	6.29%	8.77%	14.26%	1.89%
Total Fund Benchmark*	6.30%	6.28%	7.96%	12.04%	1.82%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

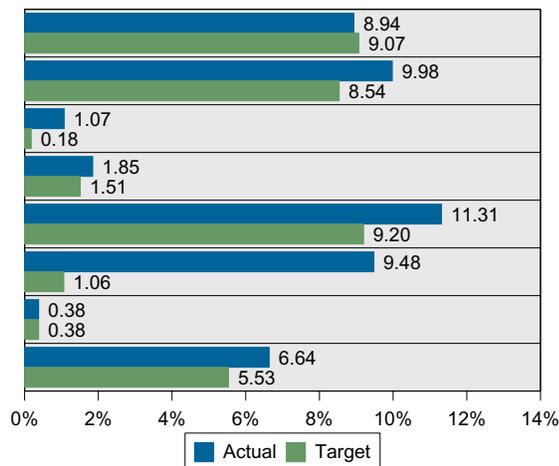
Quarterly Style Attribution - December 31, 2019

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Style Allocation Effect and Manager Selection Effect. The Style Allocation Effect represents the excess return due to the actual total fund style allocation differing from the target style allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

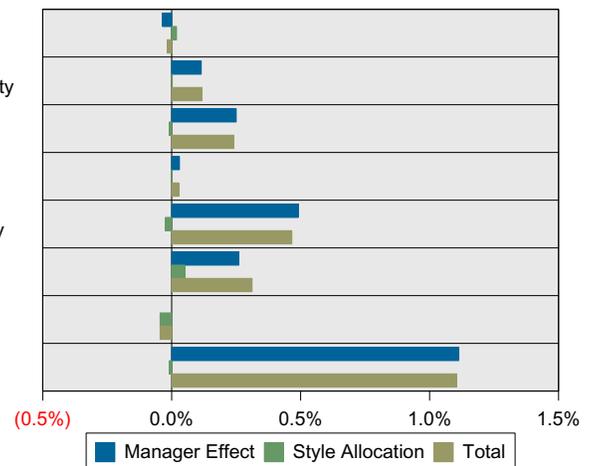
Style Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Style Class



Relative Attribution Effects for Quarter ended December 31, 2019

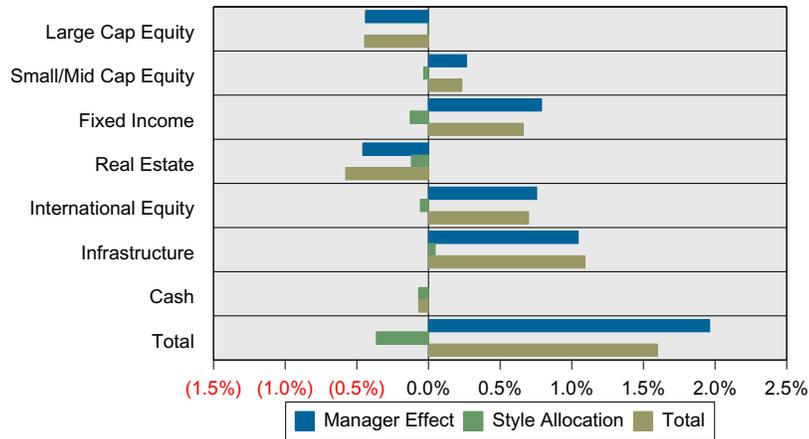
Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	27%	26%	8.94%	9.07%	(0.04%)	0.02%	(0.02%)
Small/Mid Cap Equity	8%	8%	9.98%	8.54%	0.11%	0.00%	0.12%
Fixed Income	27%	27%	1.07%	0.18%	0.25%	(0.01%)	0.24%
Real Estate	9%	9%	1.85%	1.51%	0.03%	(0.00%)	0.03%
International Equity	24%	25%	11.31%	9.20%	0.49%	(0.02%)	0.47%
Infrastructure	4%	5%	9.48%	1.06%	0.26%	0.05%	0.31%
Cash	1%	0%	0.38%	0.38%	0.00%	(0.04%)	(0.04%)
Total			6.64%	5.53%	+ 1.11%	+ (0.01%)	1.10%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

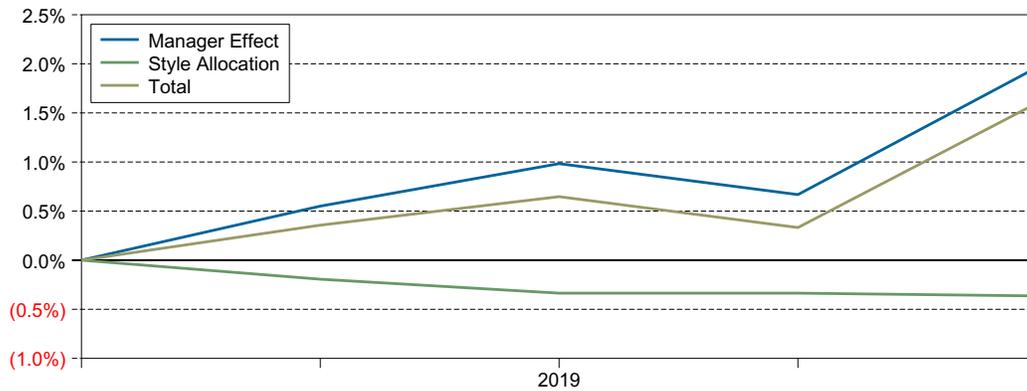
Cumulative Style Relative Attribution - December 31, 2019

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by style class. These relative attribution effects separate the cumulative sources of total fund excess return into Style Allocation Effect and Manager Selection Effect.

One Year Relative Attribution Effects



Cumulative Relative Attribution Effects



One Year Relative Attribution Effects

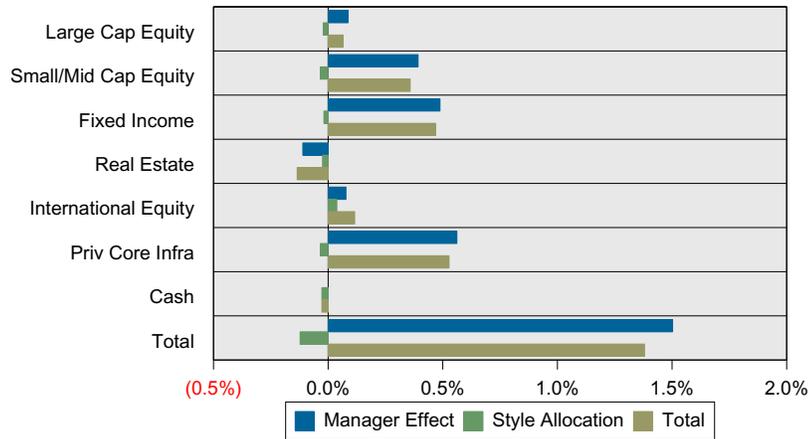
Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	26%	26%	29.68%	31.49%	(0.44%)	(0.01%)	(0.45%)
Small/Mid Cap Equity	8%	8%	31.21%	27.77%	0.27%	(0.03%)	0.23%
Fixed Income	27%	27%	11.49%	8.72%	0.79%	(0.13%)	0.66%
Real Estate	9%	9%	1.12%	5.34%	(0.46%)	(0.12%)	(0.58%)
International Equity	24%	25%	24.86%	21.63%	0.76%	(0.06%)	0.70%
Infrastructure	4%	5%	32.14%	6.32%	1.05%	0.05%	1.09%
Cash	0%	0%	2.05%	2.05%	0.00%	(0.07%)	(0.07%)
Total			20.46%	= 18.86%	+ 1.96%	+ (0.36%)	1.60%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

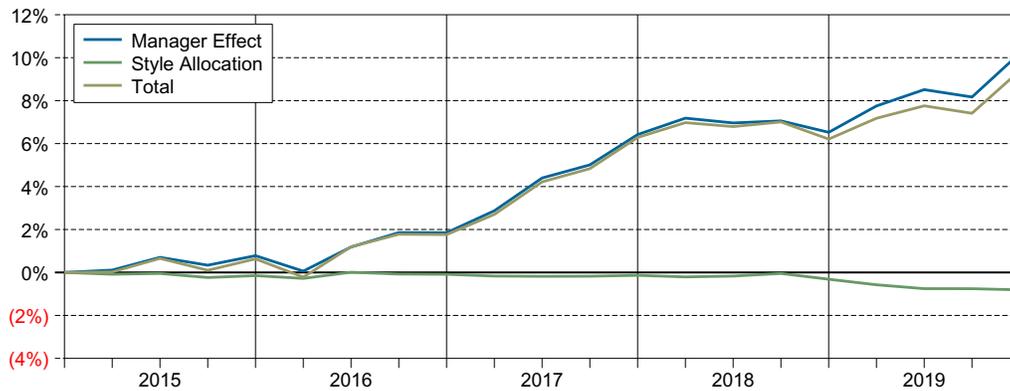
Cumulative Style Relative Attribution - December 31, 2019

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by style class. These relative attribution effects separate the cumulative sources of total fund excess return into Style Allocation Effect and Manager Selection Effect.

Five Year Annualized Relative Attribution Effects



Cumulative Relative Attribution Effects



Five Year Annualized Relative Attribution Effects

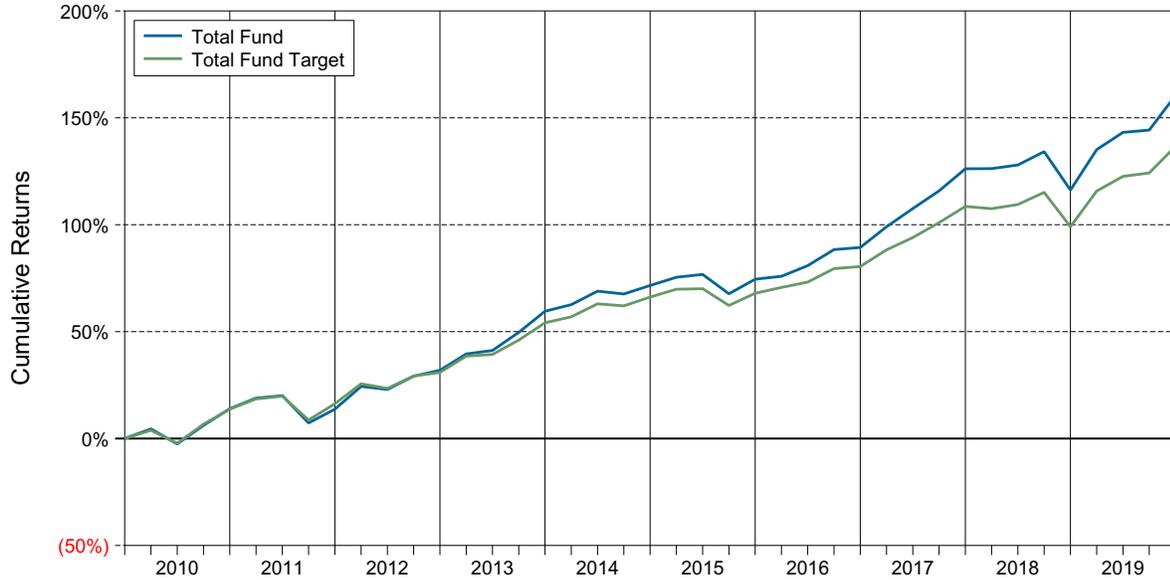
Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	30%	29%	12.10%	11.70%	0.09%	(0.02%)	0.07%
Small/Mid Cap Equity	9%	9%	13.16%	8.93%	0.39%	(0.03%)	0.36%
Fixed Income	25%	27%	4.91%	3.05%	0.49%	(0.02%)	0.47%
Real Estate	9%	9%	7.79%	8.97%	(0.11%)	(0.02%)	(0.14%)
International Equity	21%	22%	5.55%	5.44%	0.08%	0.04%	0.12%
Priv Core Infra	5%	5%	16.77%	5.73%	0.56%	(0.03%)	0.53%
Cash	0%	0%	1.00%	1.00%	0.00%	(0.03%)	(0.03%)
Total			8.71%	7.33%	+ 1.50%	+ (0.12%)	1.38%

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

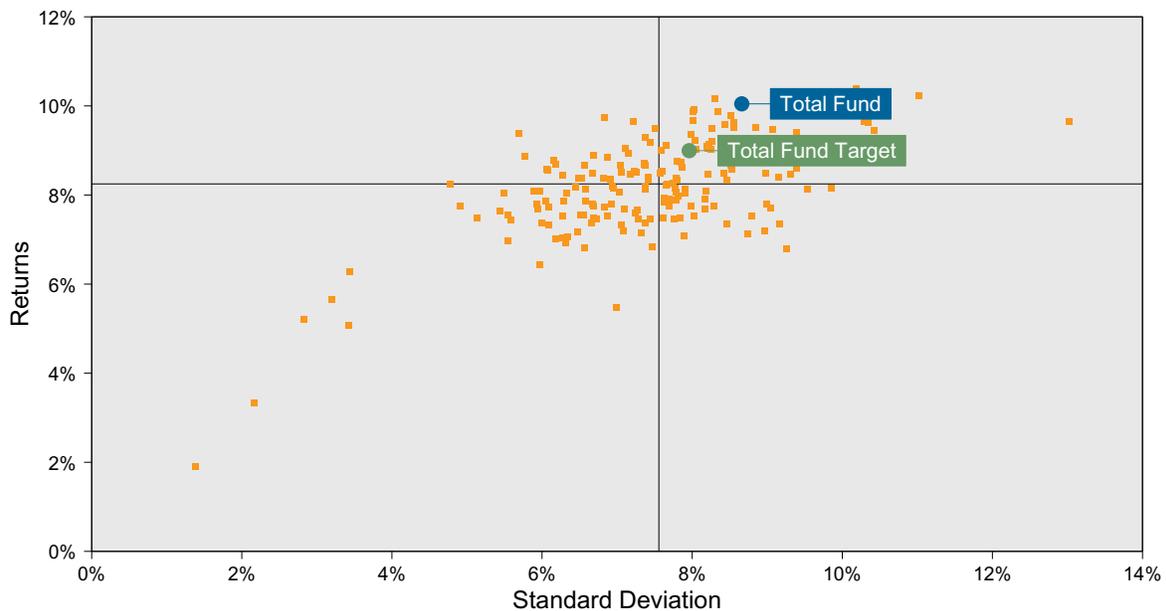
Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Callan Public Fund Sponsor Database.

Cumulative Returns Actual vs Target



Ten Year Annualized Risk vs Return



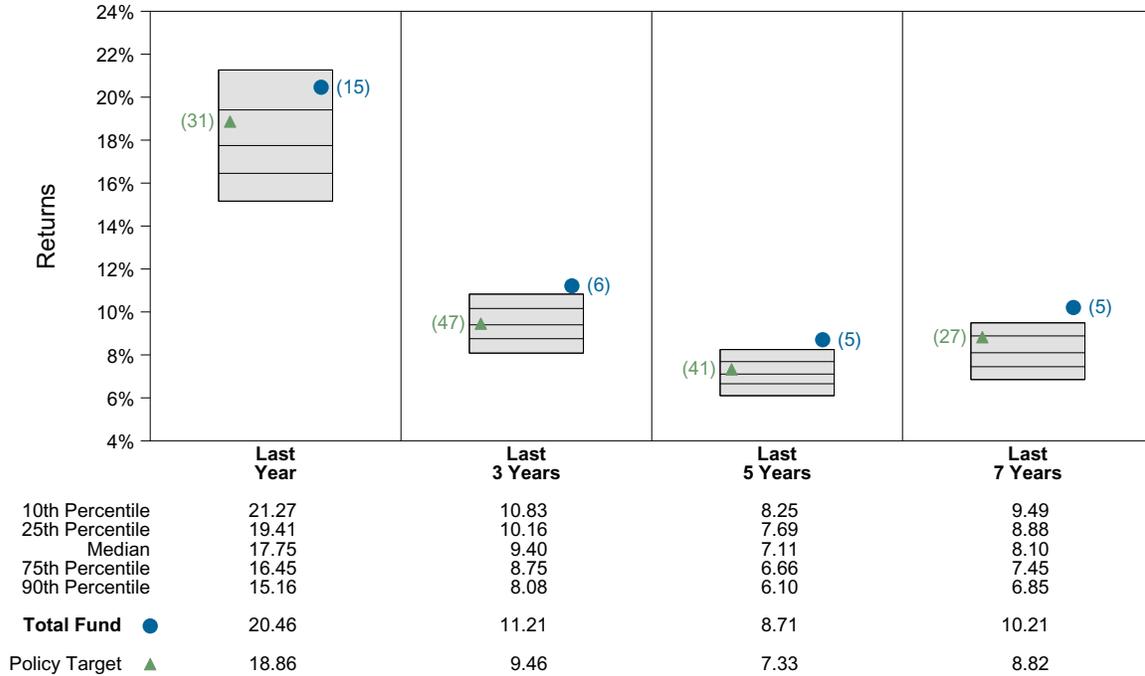
Squares represent membership of the Callan Public Fund Sponsor Database

* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

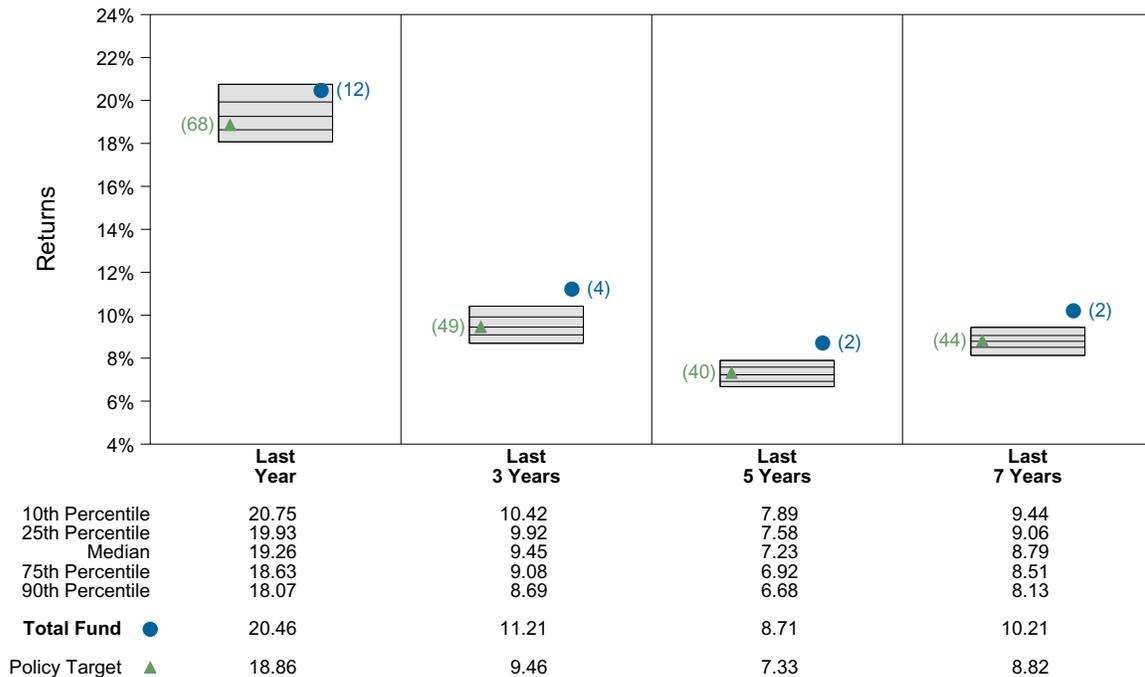
Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Callan Public Fund Sponsor Database for periods ended December 31, 2019. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

Callan Public Fund Sponsor Database



Asset Allocation Adjusted Ranking



* Current Quarter Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

Total Fund

Period Ended December 31, 2019

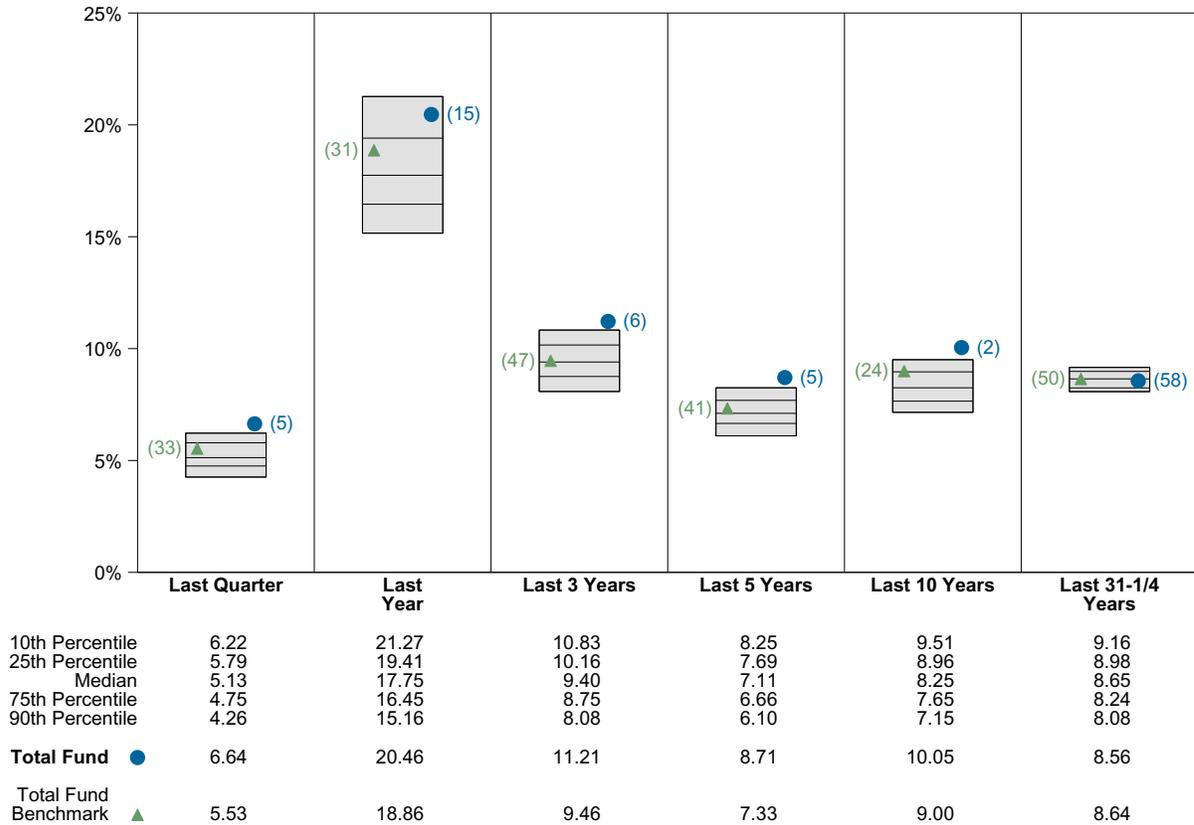
Investment Philosophy

The total fund return stream starts the third quarter of 1988.

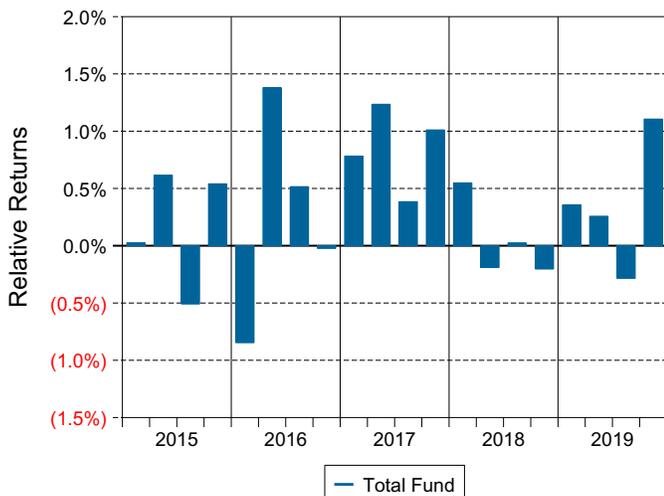
Quarterly Summary and Highlights

- Total Fund's portfolio posted a 6.64% return for the quarter placing it in the 5 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 15 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Benchmark by 1.10% for the quarter and outperformed the Total Fund Benchmark for the year by 1.60%.

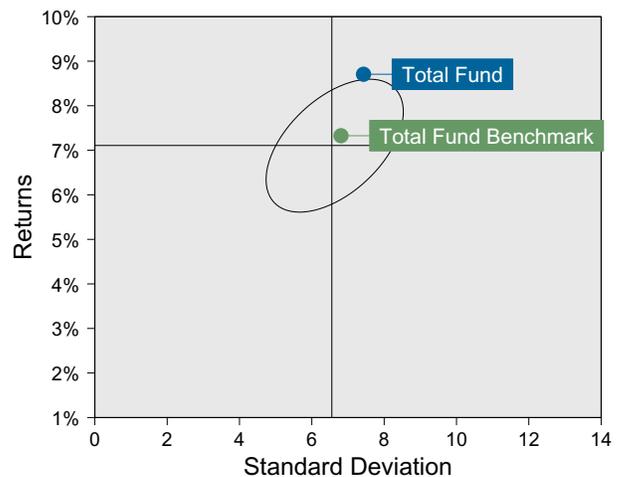
Performance vs Callan Public Fund Sponsor Database (Gross)



Relative Return vs Total Fund Benchmark



Callan Public Fund Sponsor Database (Gross) Annualized Five Year Risk vs Return



Domestic Equity

Period Ended December 31, 2019

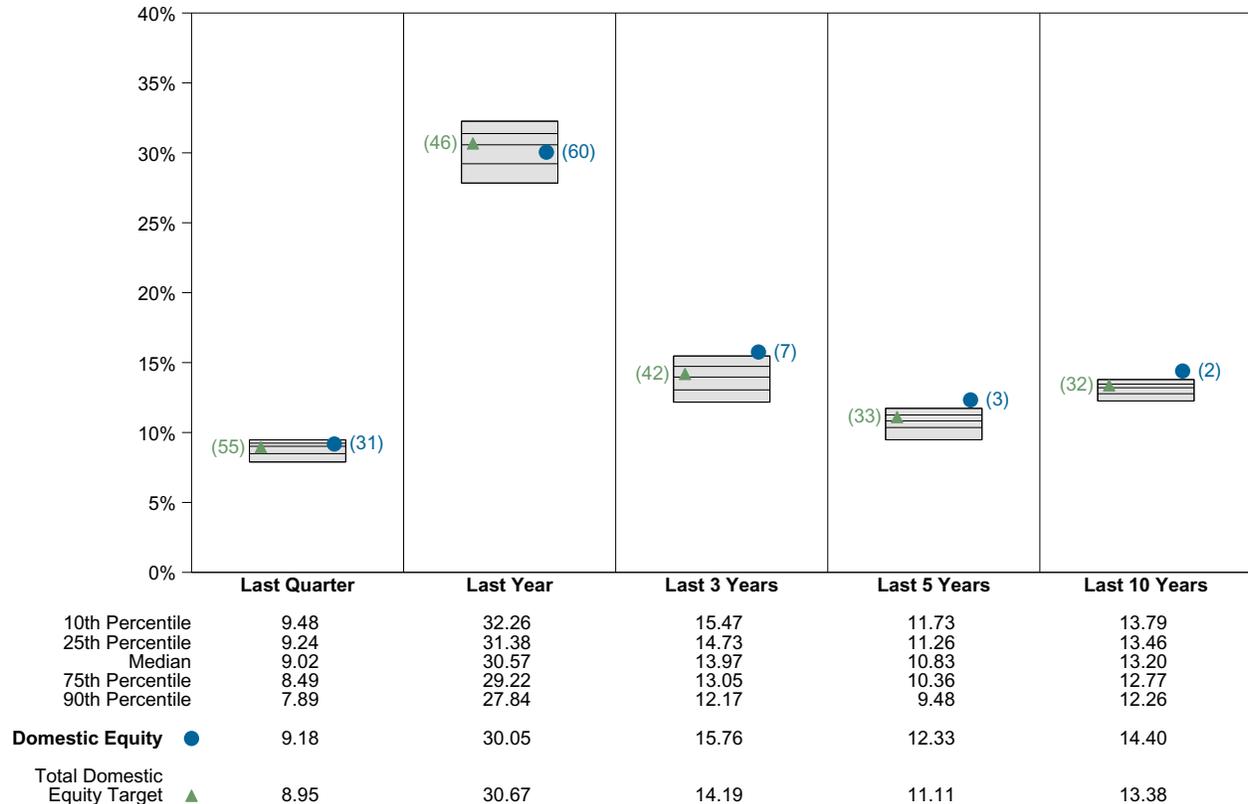
Investment Philosophy

The Total Domestic Equity target is currently composed of 78% S&P 500 Index and 22% Russell 2500 Index.

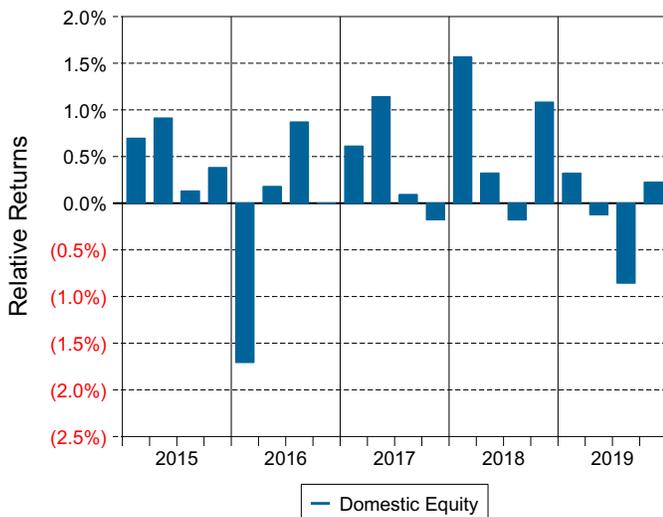
Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 9.18% return for the quarter placing it in the 31 percentile of the Public Fund - Domestic Equity group for the quarter and in the 60 percentile for the last year.
- Domestic Equity's portfolio outperformed the Total Domestic Equity Target by 0.23% for the quarter and underperformed the Total Domestic Equity Target for the year by 0.63%.

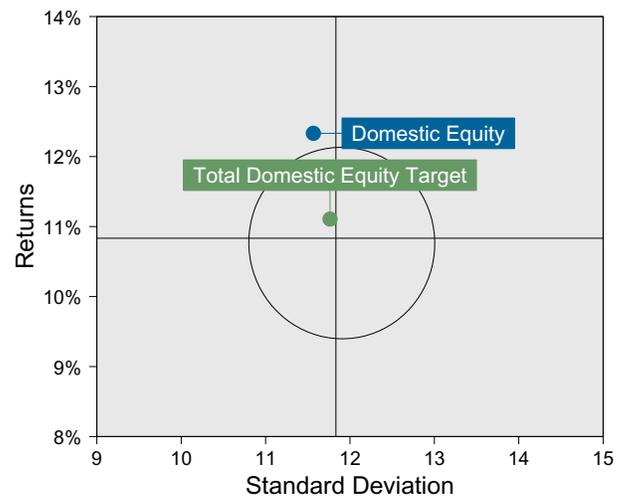
Performance vs Public Fund - Domestic Equity (Gross)



Relative Returns vs Total Domestic Equity Target



Public Fund - Domestic Equity (Gross) Annualized Five Year Risk vs Return

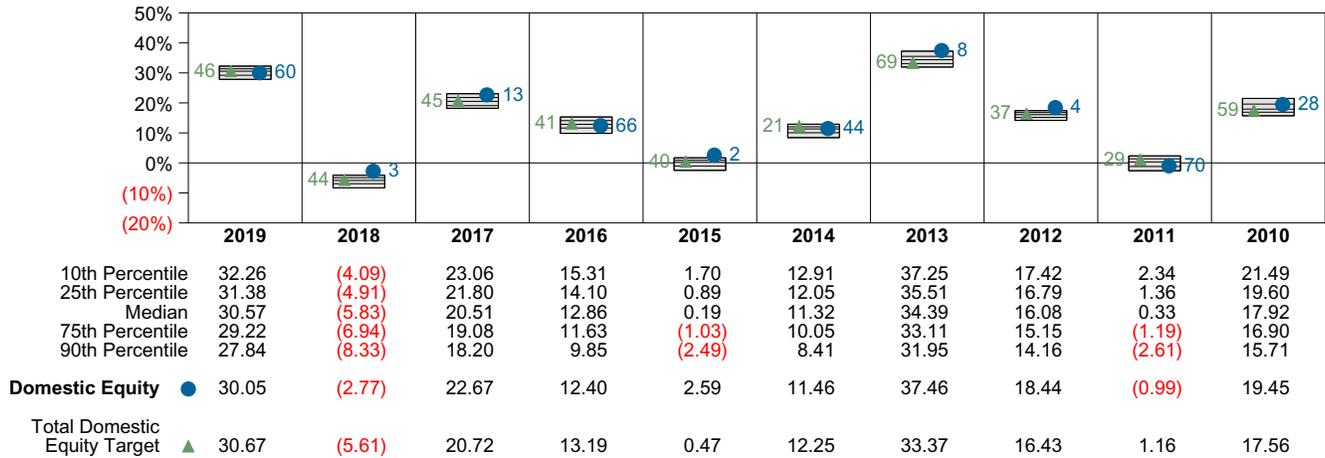


Domestic Equity Return Analysis Summary

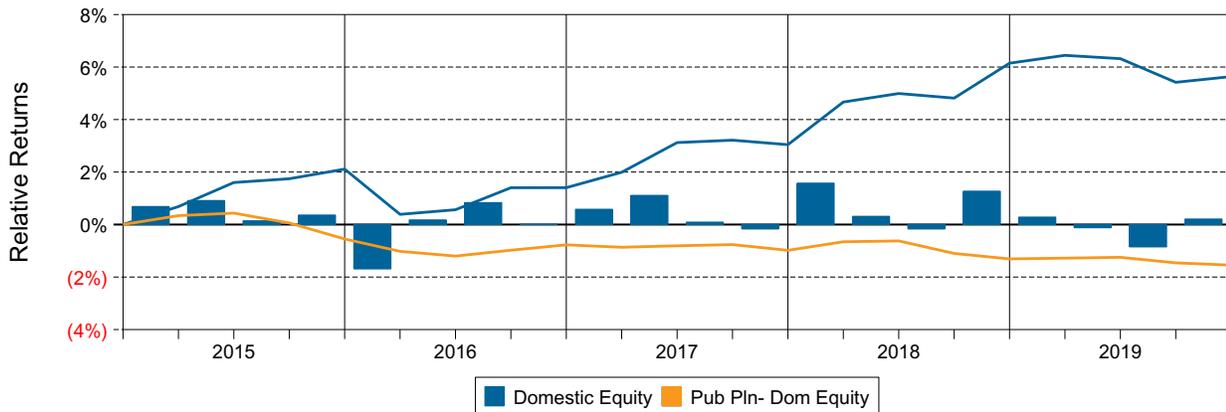
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

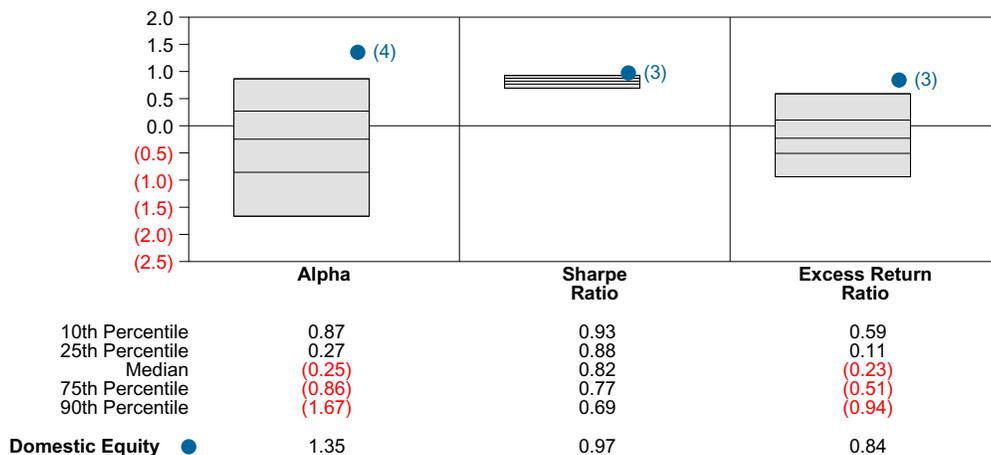
Performance vs Public Fund - Domestic Equity (Gross)



Cumulative and Quarterly Relative Return vs Total Domestic Equity Target



Risk Adjusted Return Measures vs Total Domestic Equity Target Rankings Against Public Fund - Domestic Equity (Gross) Five Years Ended December 31, 2019



Alliance S&P Index Period Ended December 31, 2019

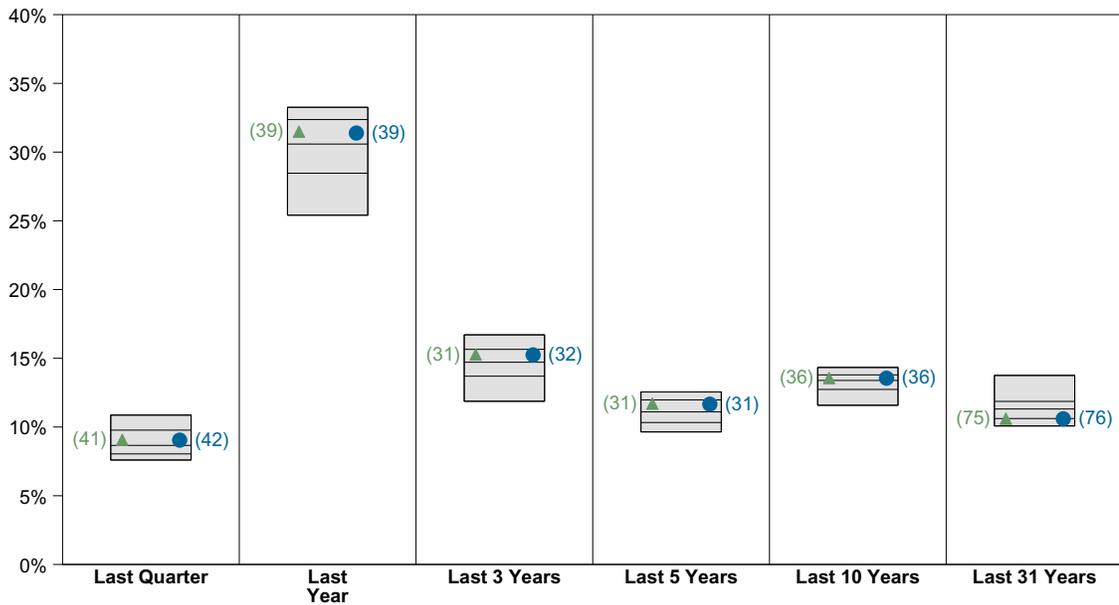
Investment Philosophy

Alliance uses a stratified sampling methodology and purchases a majority of the index stocks to replicate the Standard and Poor's 500. The product was funded during the third quarter of 1988.

Quarterly Summary and Highlights

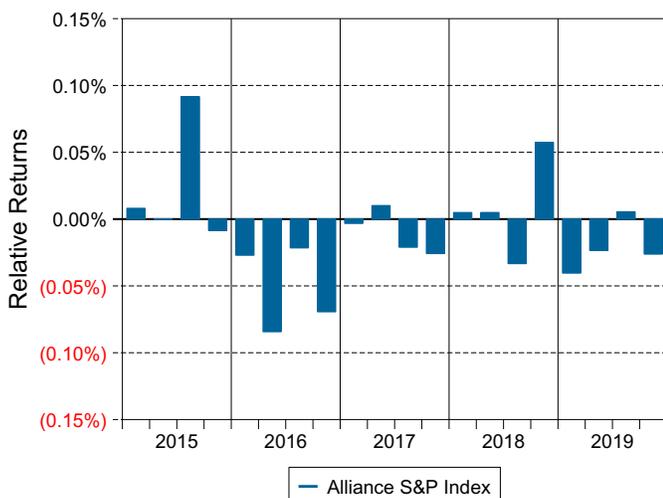
- Alliance S&P Index's portfolio posted a 9.04% return for the quarter placing it in the 42 percentile of the Callan Large Cap Core group for the quarter and in the 39 percentile for the last year.
- Alliance S&P Index's portfolio underperformed the S&P 500 Index by 0.03% for the quarter and underperformed the S&P 500 Index for the year by 0.10%.

Performance vs Callan Large Cap Core (Gross)

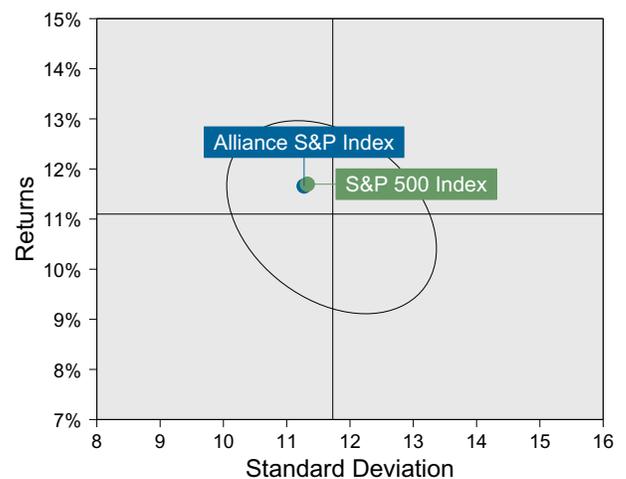


10th Percentile	10.87	33.26	16.70	12.55	14.33	13.75
25th Percentile	9.77	32.37	15.65	11.97	13.79	11.86
Median	8.66	30.59	14.71	11.10	13.39	11.31
75th Percentile	8.04	28.46	13.70	10.33	12.73	10.62
90th Percentile	7.60	25.41	11.87	9.64	11.58	10.07
Alliance S&P Index	● 9.04	31.39	15.25	11.66	13.55	10.60
S&P 500 Index	▲ 9.07	31.49	15.27	11.70	13.56	10.60

Relative Return vs S&P 500 Index



Callan Large Cap Core (Gross) Annualized Five Year Risk vs Return

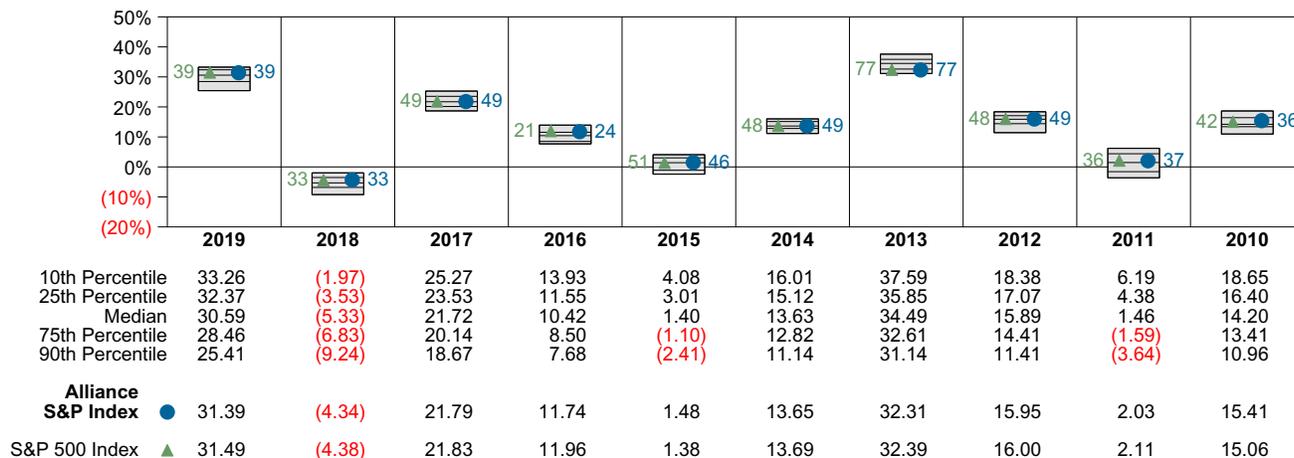


Alliance S&P Index Return Analysis Summary

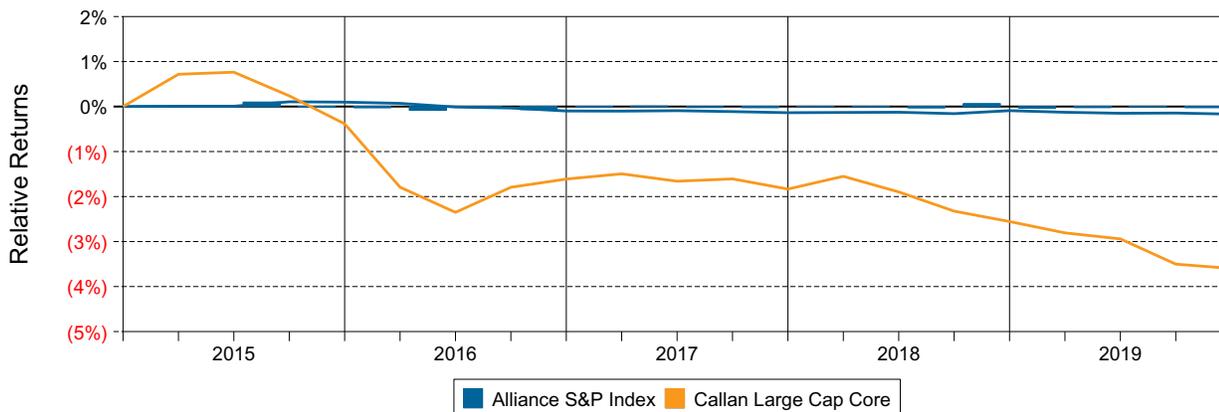
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

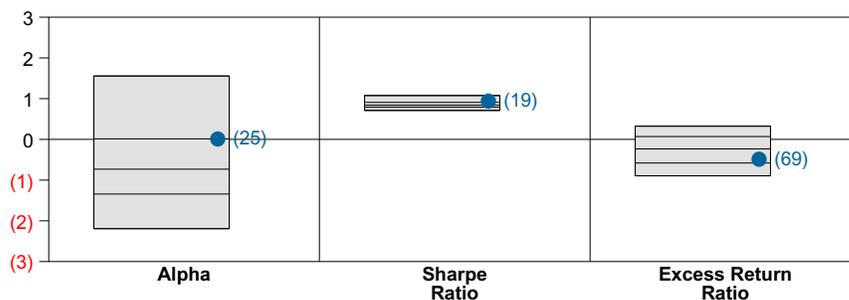
Performance vs Callan Large Cap Core (Gross)



Cumulative and Quarterly Relative Return vs S&P 500 Index



Risk Adjusted Return Measures vs S&P 500 Index Rankings Against Callan Large Cap Core (Gross) Five Years Ended December 31, 2019



PIMCO StocksPLUS

Period Ended December 31, 2019

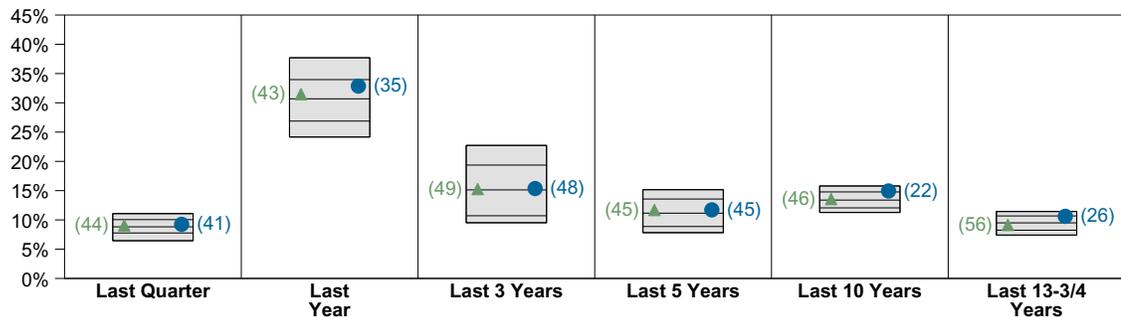
Investment Philosophy

PIMCO's StocksPLUS investment philosophy is based on the principal that stock index futures and swaps, when used as a non-leveraged vehicle for obtaining long-term equity exposure, offer an attractive means for enhancing equity market returns. The strategy seeks a longer time horizon of their investors relative to that of typical money market investors. This long time horizon allows PIMCO to use their fixed income and associated risk management skill set to seek out attractive yields relative to money market financing rates on a portion of the high quality fixed-income securities they use to back the futures contracts. Since they only require sufficient liquidity to meet a worst case margin outflow caused by a stock market decline, a portion of their fixed-income portfolio can be invested in somewhat less liquid, higher yielding securities. In addition, they generally take advantage of the typical upward slope of the short end of the yield curve by extending their duration to six months in most market environments and sometimes up to one year. PIMCO also feels that it is appropriate in most market environments to capture both the credit yield premium provided by holding a portion of the fixed-income portfolio in low duration corporate securities and the volatility yield premium provided by holding high quality mortgage securities. The product was funded during the first quarter of 2006.

Quarterly Summary and Highlights

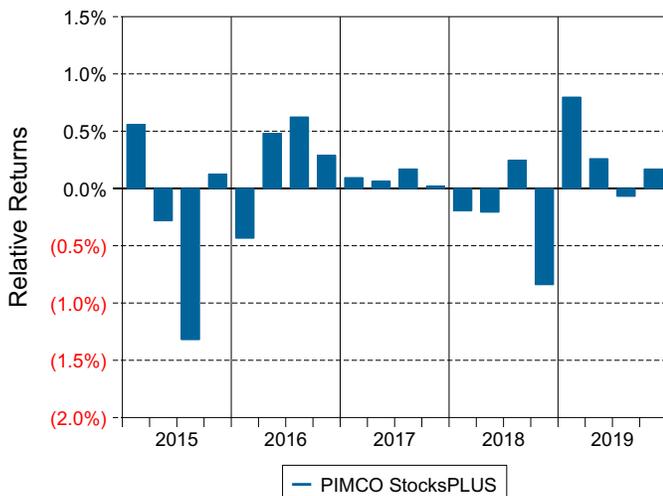
- PIMCO StocksPLUS's portfolio posted a 9.24% return for the quarter placing it in the 41 percentile of the Callan Large Capitalization group for the quarter and in the 35 percentile for the last year.
- PIMCO StocksPLUS's portfolio outperformed the S&P 500 Index by 0.17% for the quarter and outperformed the S&P 500 Index for the year by 1.37%.

Performance vs Callan Large Capitalization (Gross)

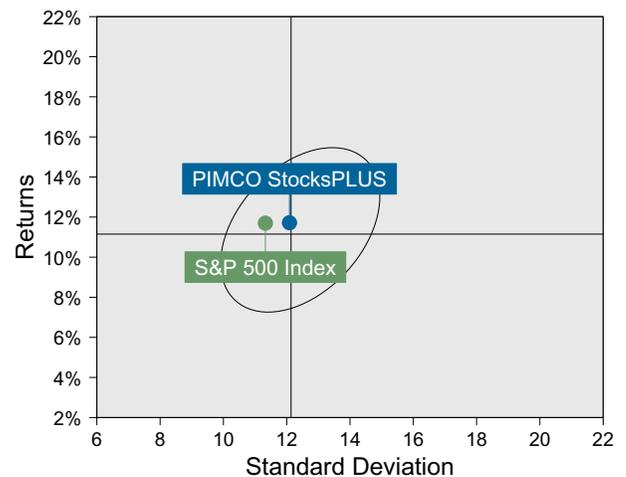


10th Percentile	11.07	37.69	22.73	15.16	15.80	11.43
25th Percentile	10.05	33.97	19.37	13.57	14.78	10.68
Median	8.82	30.68	15.13	11.15	13.39	9.50
75th Percentile	7.77	26.88	10.71	8.87	12.06	8.24
90th Percentile	6.45	24.16	9.51	7.82	11.27	7.41
PIMCO StocksPLUS	9.24	32.85	15.36	11.72	14.95	10.62
S&P 500 Index	9.07	31.49	15.27	11.70	13.56	9.15

Relative Return vs S&P 500 Index



Callan Large Capitalization (Gross) Annualized Five Year Risk vs Return

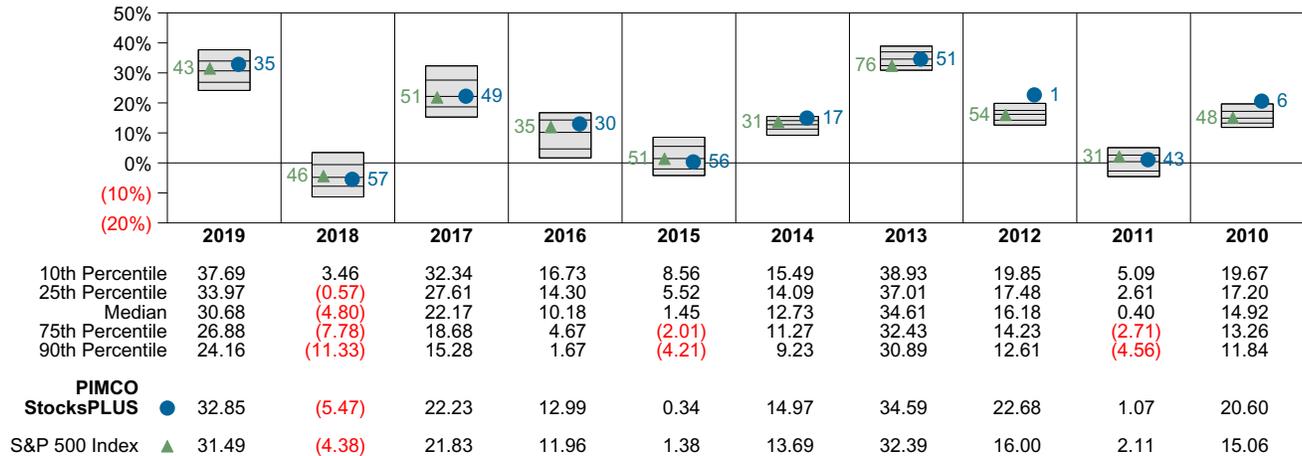


PIMCO StocksPLUS Return Analysis Summary

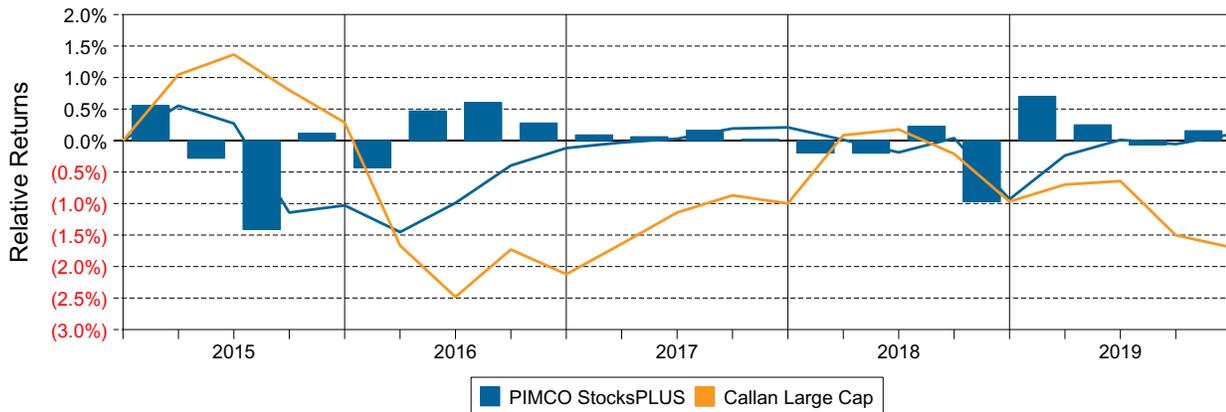
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

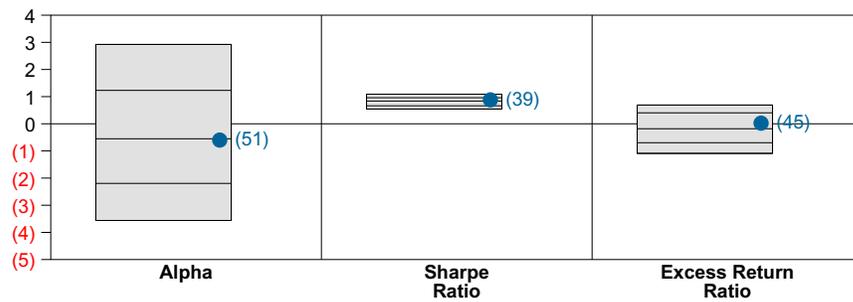
Performance vs Callan Large Capitalization (Gross)



Cumulative and Quarterly Relative Return vs S&P 500 Index



Risk Adjusted Return Measures vs S&P 500 Index Rankings Against Callan Large Capitalization (Gross) Five Years Ended December 31, 2019



10th Percentile	2.92	1.09	0.69
25th Percentile	1.23	0.96	0.40
Median	(0.55)	0.84	(0.18)
75th Percentile	(2.20)	0.66	(0.70)
90th Percentile	(3.56)	0.54	(1.09)
PIMCO StocksPLUS	● (0.60)	0.88	0.02

BlackRock Russell 1000 Value Period Ended December 31, 2019

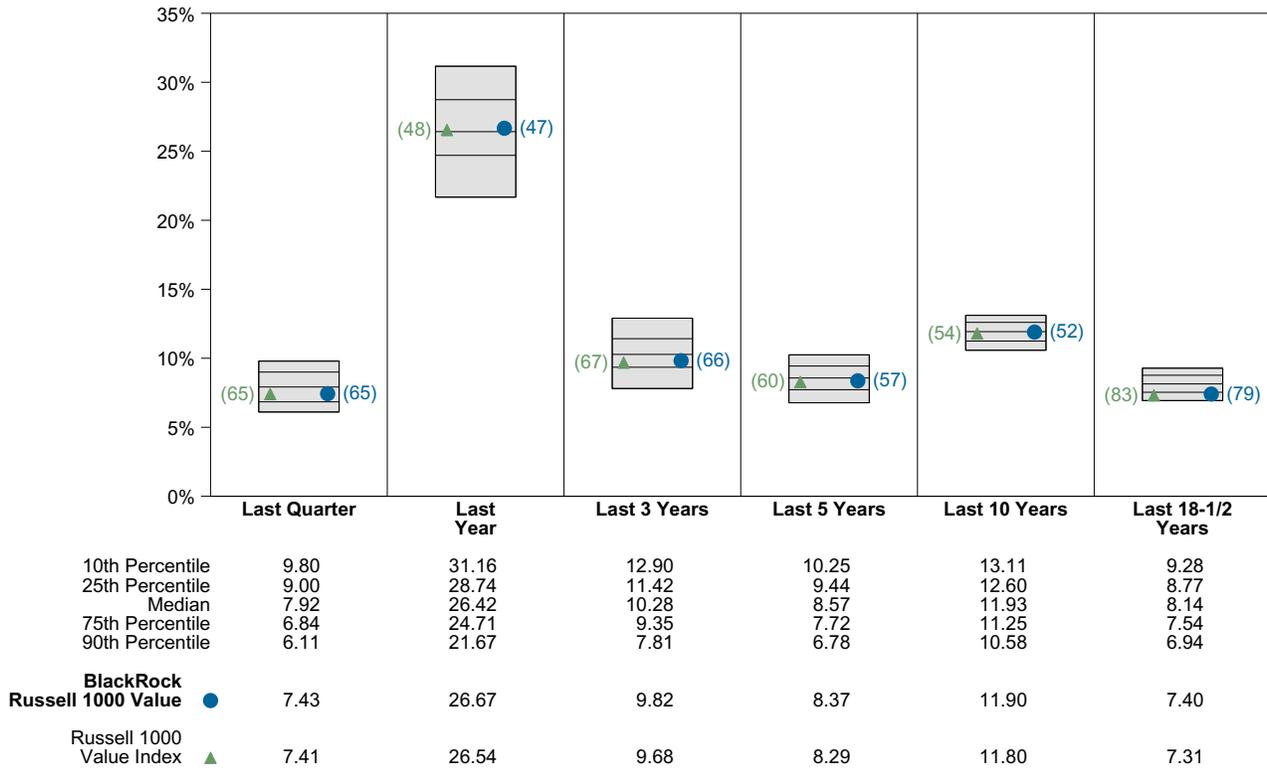
Investment Philosophy

The objective of the Russell 1000 Value Index Fund is to track the performance of its benchmark, the Russell 1000 Value Index. They seek to deliver a high quality and cost-effective index-based solution to institutional investors. The product was funded during the second quarter of 2001.

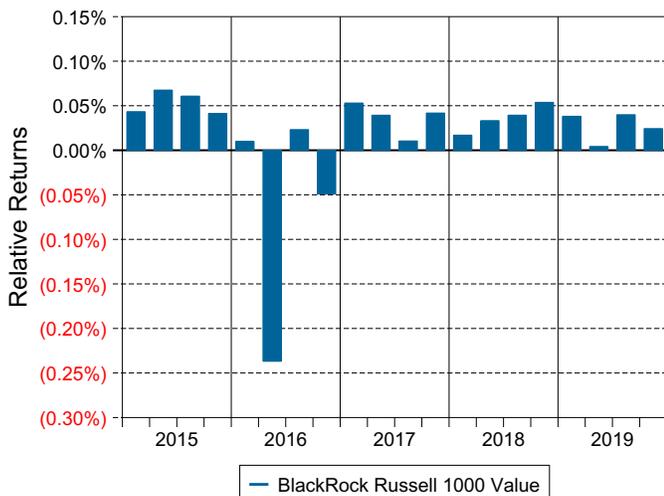
Quarterly Summary and Highlights

- BlackRock Russell 1000 Value's portfolio posted a 7.43% return for the quarter placing it in the 65 percentile of the Callan Large Cap Value group for the quarter and in the 47 percentile for the last year.
- BlackRock Russell 1000 Value's portfolio outperformed the Russell 1000 Value Index by 0.02% for the quarter and outperformed the Russell 1000 Value Index for the year by 0.13%.

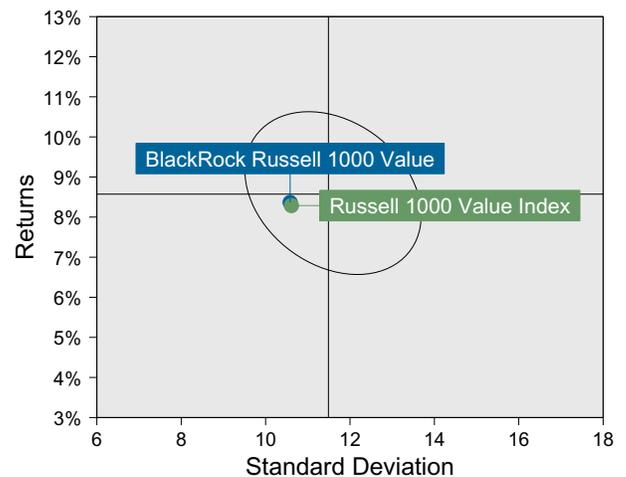
Performance vs Callan Large Cap Value (Gross)



Relative Return vs Russell 1000 Value Index



Callan Large Cap Value (Gross) Annualized Five Year Risk vs Return

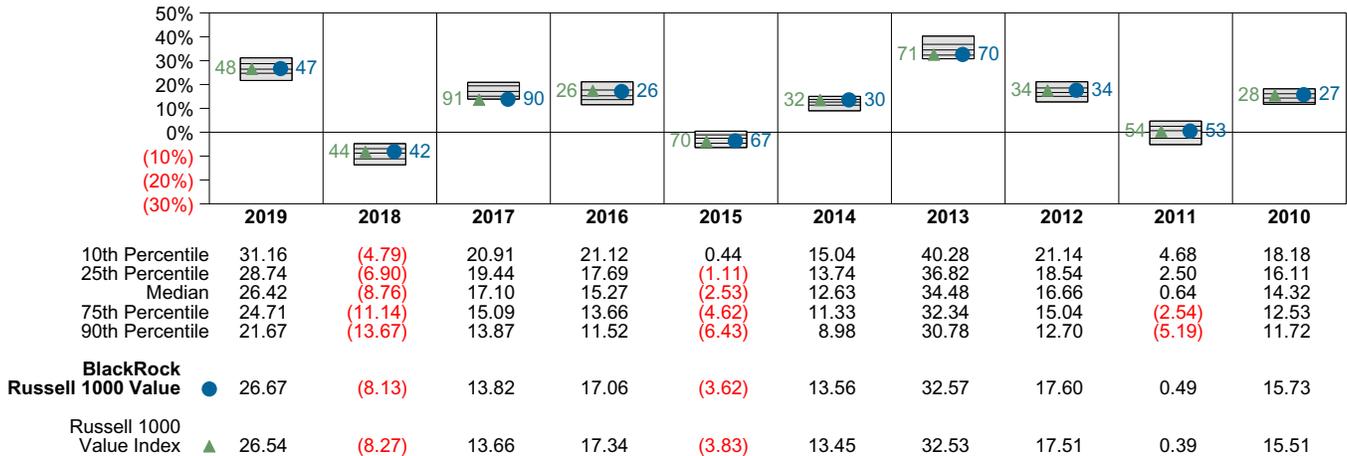


BlackRock Russell 1000 Value Return Analysis Summary

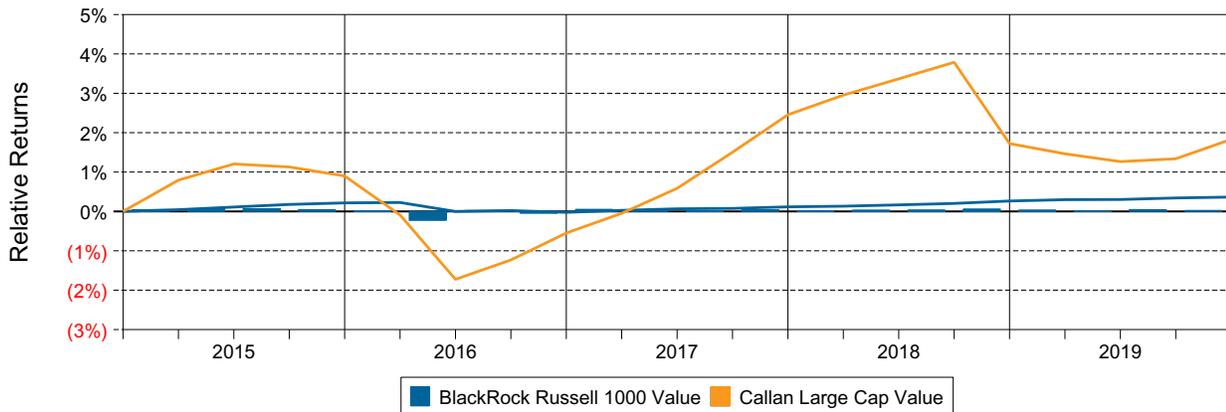
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

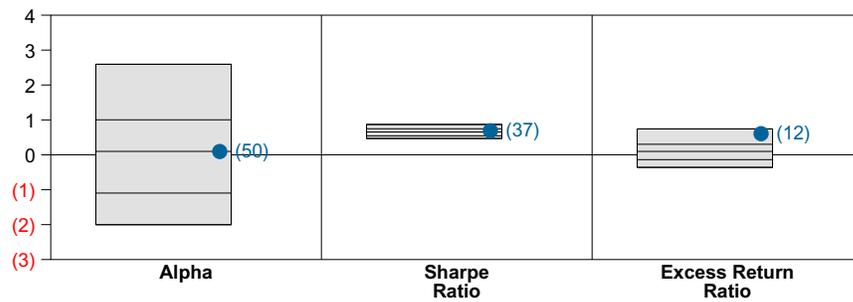
Performance vs Callan Large Cap Value (Gross)



Cumulative and Quarterly Relative Return vs Russell 1000 Value Index



Risk Adjusted Return Measures vs Russell 1000 Value Index Rankings Against Callan Large Cap Value (Gross) Five Years Ended December 31, 2019



10th Percentile	2.59	0.87	0.74
25th Percentile	1.00	0.75	0.30
Median	0.10	0.65	0.10
75th Percentile	(1.10)	0.54	(0.14)
90th Percentile	(2.00)	0.47	(0.36)
BlackRock Russell 1000 Value	● 0.09	0.69	0.61

T. Rowe Price Large Cap Growth Period Ended December 31, 2019

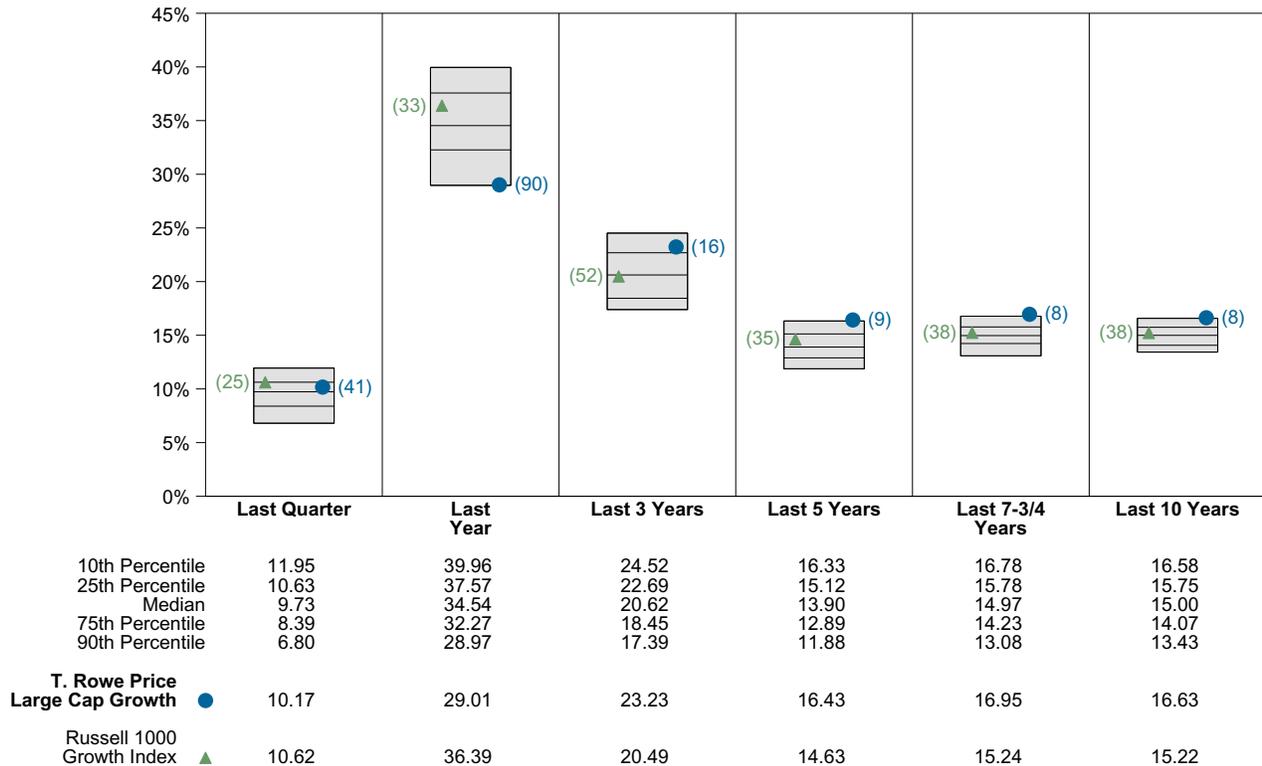
Investment Philosophy

The Large-Cap Growth Strategy is a fundamentally driven, active approach to large company growth investing. The investment philosophy is centered around the manager's belief that long-term growth in earnings and cash flow drive stockholder returns. The product was funded during the first quarter of 2012. Performance prior is that of the composite.

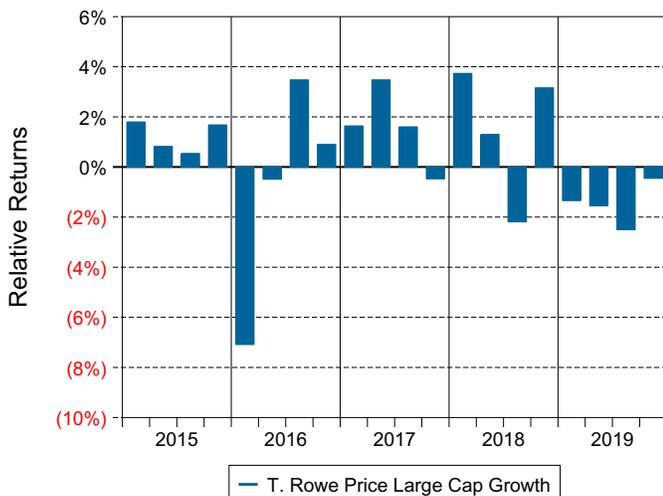
Quarterly Summary and Highlights

- T. Rowe Price Large Cap Growth's portfolio posted a 10.17% return for the quarter placing it in the 41 percentile of the Callan Large Cap Growth group for the quarter and in the 90 percentile for the last year.
- T. Rowe Price Large Cap Growth's portfolio underperformed the Russell 1000 Growth Index by 0.45% for the quarter and underperformed the Russell 1000 Growth Index for the year by 7.38%.

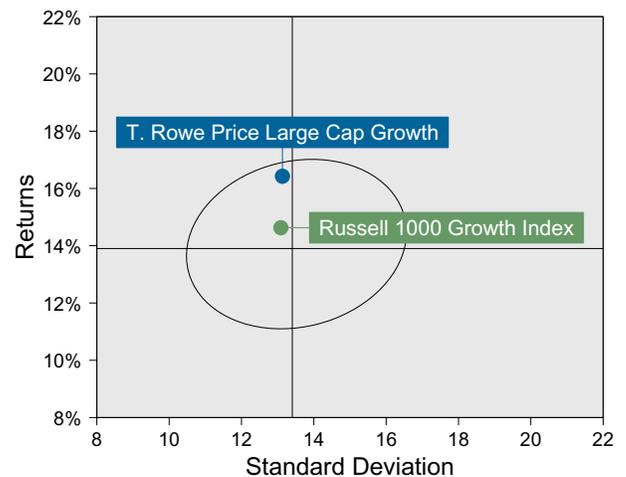
Performance vs Callan Large Cap Growth (Gross)



Relative Return vs Russell 1000 Growth Index



Callan Large Cap Growth (Gross) Annualized Five Year Risk vs Return

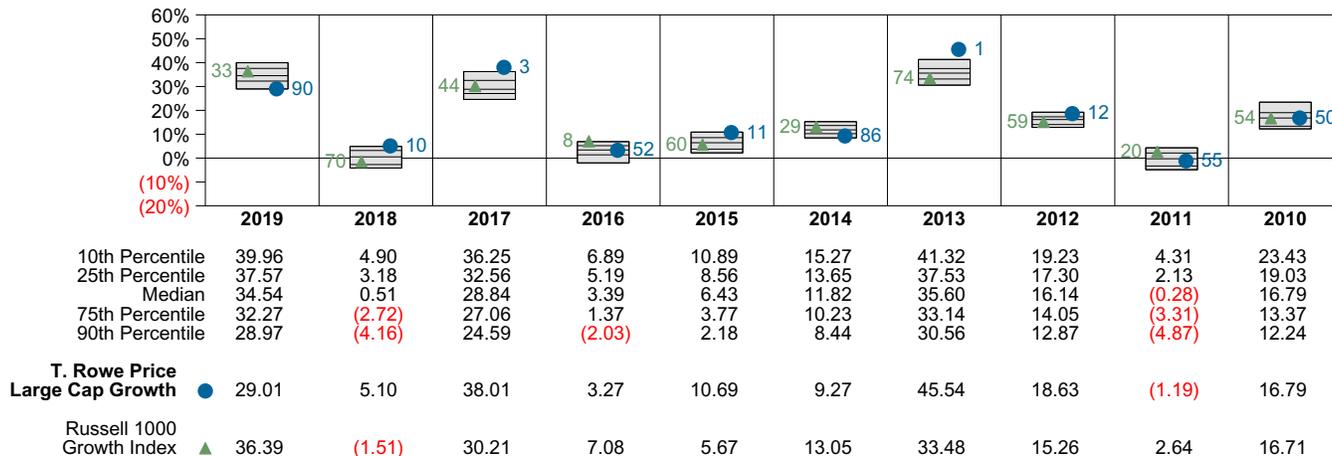


T. Rowe Price Large Cap Growth Return Analysis Summary

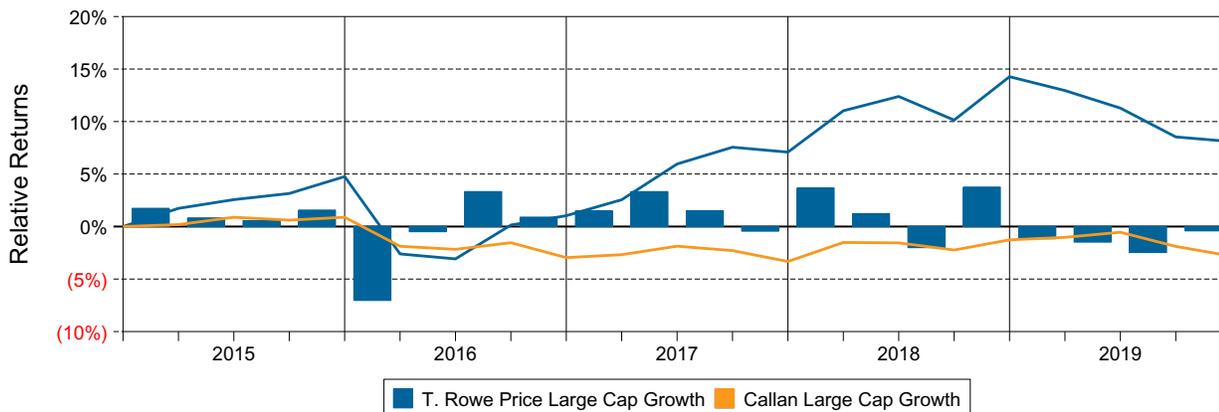
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

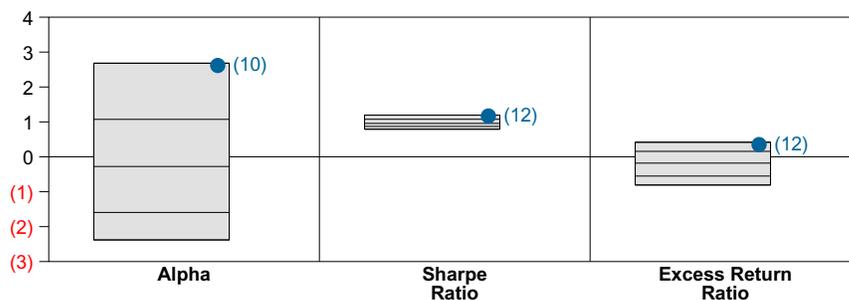
Performance vs Callan Large Cap Growth (Gross)



Cumulative and Quarterly Relative Return vs Russell 1000 Growth Index



Risk Adjusted Return Measures vs Russell 1000 Growth Index Rankings Against Callan Large Cap Growth (Gross) Five Years Ended December 31, 2019



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	2.68	1.19	0.42
25th Percentile	1.07	1.08	0.16
Median	(0.28)	0.96	(0.18)
75th Percentile	(1.59)	0.87	(0.55)
90th Percentile	(2.38)	0.79	(0.81)
T. Rowe Price Large Cap Growth	● 2.62	1.17	0.35

Champlain Mid Cap Period Ended December 31, 2019

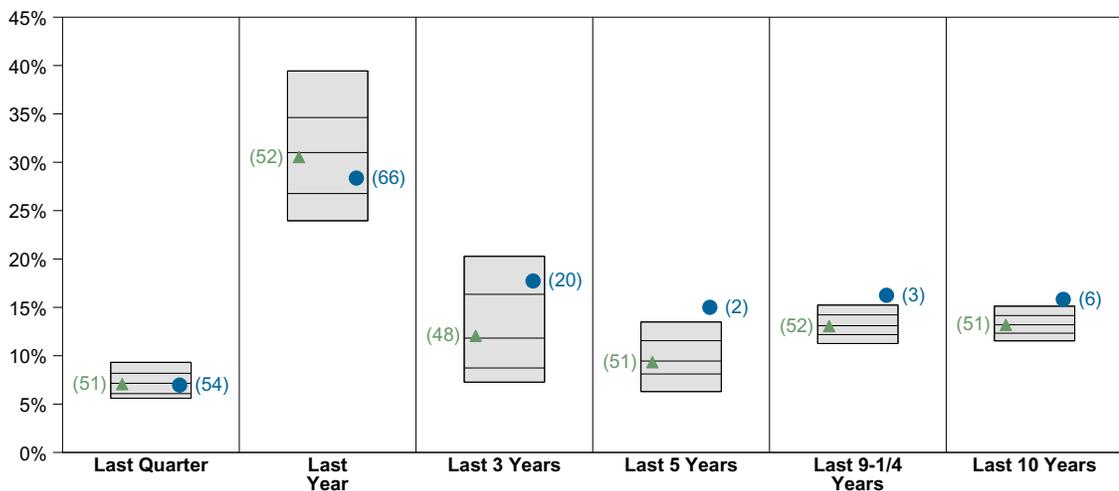
Investment Philosophy

Champlain Investment Partners believes buying the shares of superior businesses with credible and sincere managements at a discount to fair or intrinsic value gives investors several potential paths to wealth creation. First, the market may bid the shares to a premium over fair value. Second, management may grow the fair value over time at a faster rate than market appreciation. Third, the company may be bought by a larger company or private market investor. They are willing to sell over-priced stocks and harvest gains, reducing valuation risk. The product was funded during the third quarter of 2010. Performance prior is that of the composite.

Quarterly Summary and Highlights

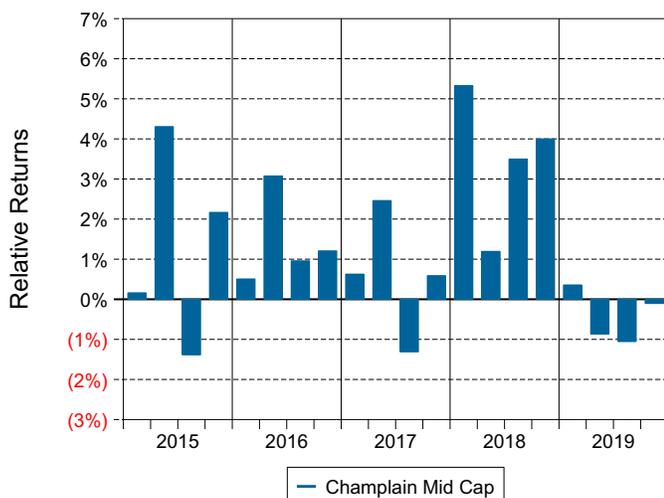
- Champlain Mid Cap's portfolio posted a 6.96% return for the quarter placing it in the 54 percentile of the Callan Mid Capitalization group for the quarter and in the 66 percentile for the last year.
- Champlain Mid Cap's portfolio underperformed the Russell MidCap Index by 0.10% for the quarter and underperformed the Russell MidCap Index for the year by 2.18%.

Performance vs Callan Mid Capitalization (Gross)

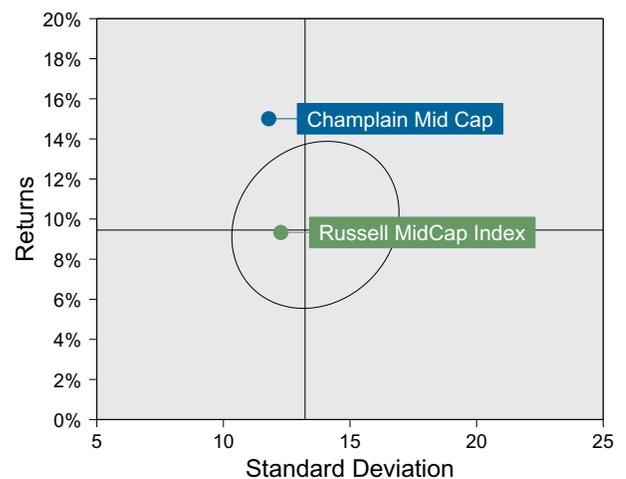


10th Percentile	9.32	39.44	20.28	13.49	15.24	15.13
25th Percentile	8.19	34.62	16.35	11.55	14.22	14.15
Median	7.15	31.00	11.82	9.45	13.11	13.20
75th Percentile	6.08	26.77	8.73	8.11	12.18	12.33
90th Percentile	5.61	23.95	7.27	6.29	11.26	11.54
Champlain Mid Cap	● 6.96	28.37	17.73	15.01	16.25	15.82
Russell MidCap Index	▲ 7.06	30.54	12.06	9.33	13.06	13.19

Relative Return vs Russell MidCap Index



Callan Mid Capitalization (Gross) Annualized Five Year Risk vs Return

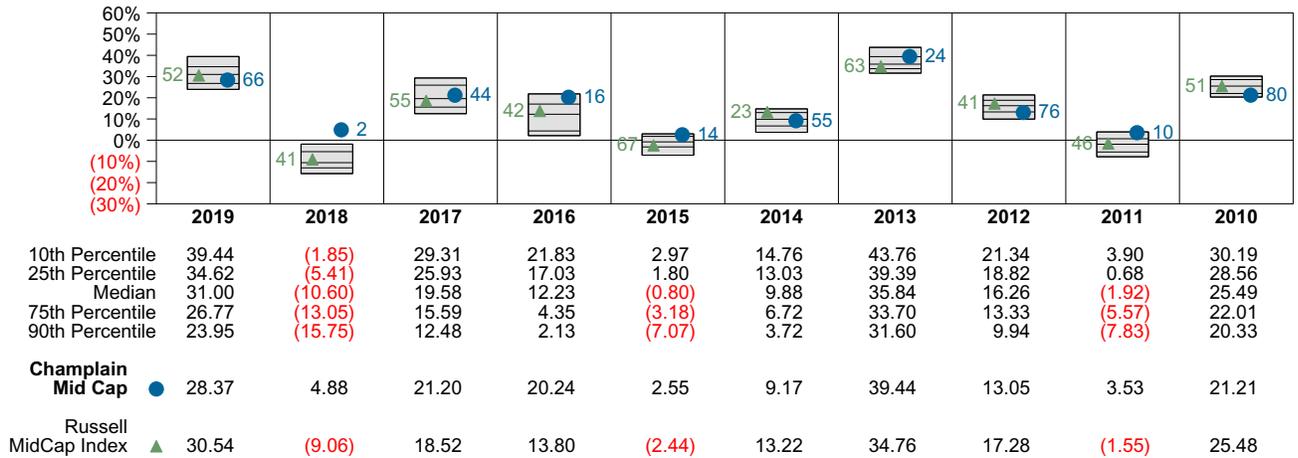


Champlain Mid Cap Return Analysis Summary

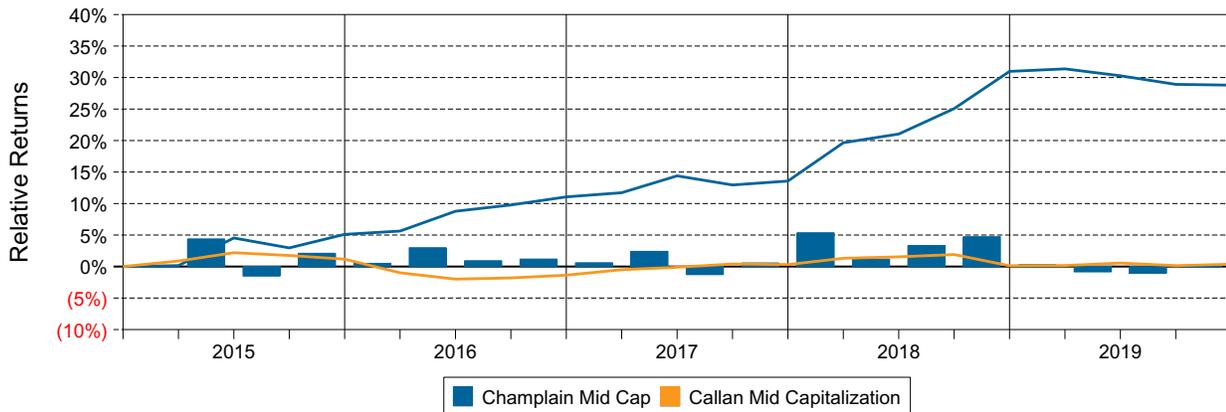
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

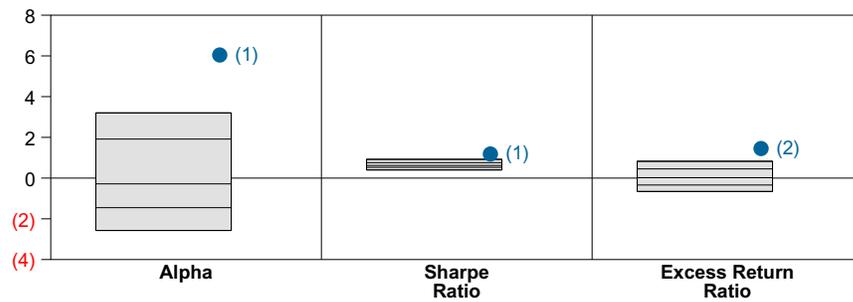
Performance vs Callan Mid Capitalization (Gross)



Cumulative and Quarterly Relative Return vs Russell MidCap Index



Risk Adjusted Return Measures vs Russell MidCap Index Rankings Against Callan Mid Capitalization (Gross) Five Years Ended December 31, 2019



10th Percentile	3.20	0.92	0.82
25th Percentile	1.92	0.76	0.45
Median	(0.28)	0.62	0.02
75th Percentile	(1.45)	0.53	(0.34)
90th Percentile	(2.57)	0.40	(0.66)
Champlain Mid Cap	● 6.04	1.18	1.45

Pyramis Small Cap Period Ended December 31, 2019

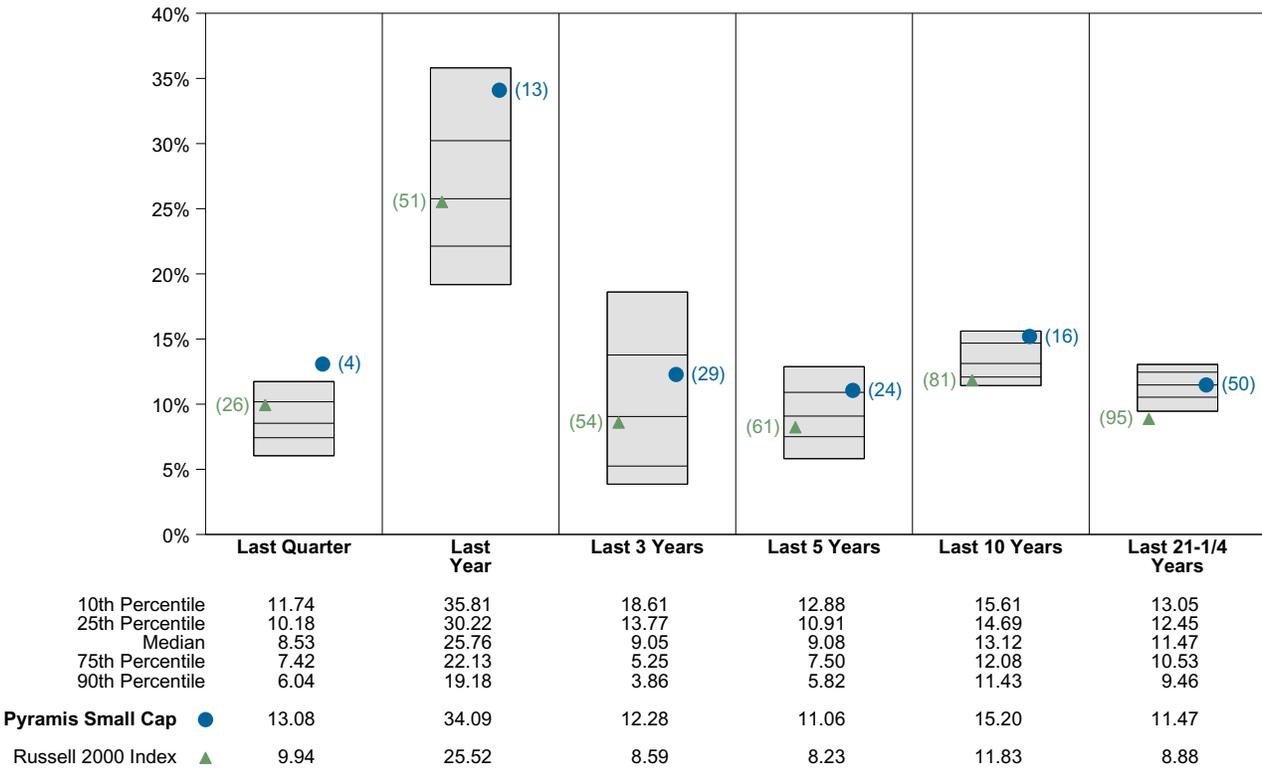
Investment Philosophy

FIAM believes that equity markets are semi-efficient and that pricing anomalies exist within the marketplace. The Small Cap Core strategy seeks to build a balanced portfolio where returns will be driven by stock selections and not by systemic biases or exposures to market factors. The product was funded during the third quarter of 1998.

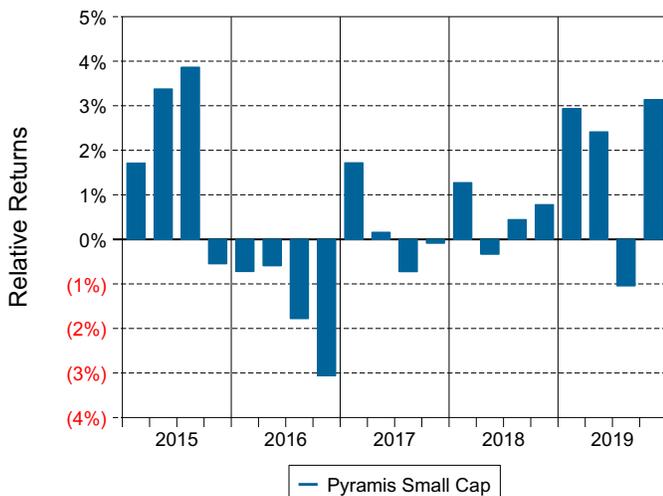
Quarterly Summary and Highlights

- Pyramis Small Cap's portfolio posted a 13.08% return for the quarter placing it in the 4 percentile of the Callan Small Capitalization group for the quarter and in the 13 percentile for the last year.
- Pyramis Small Cap's portfolio outperformed the Russell 2000 Index by 3.14% for the quarter and outperformed the Russell 2000 Index for the year by 8.57%.

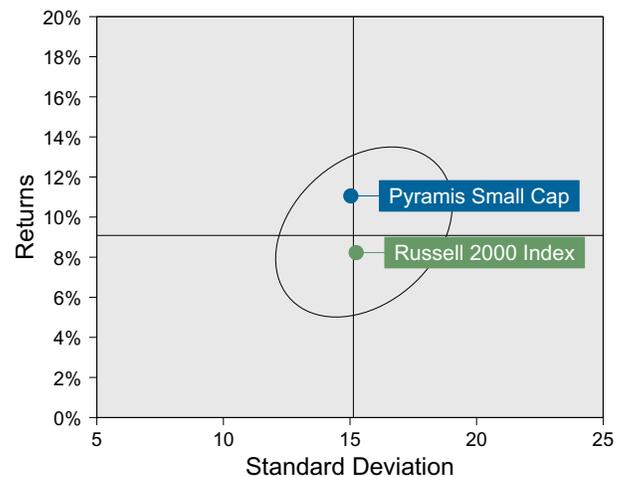
Performance vs Callan Small Capitalization (Gross)



Relative Return vs Russell 2000 Index



Callan Small Capitalization (Gross)
Annualized Five Year Risk vs Return

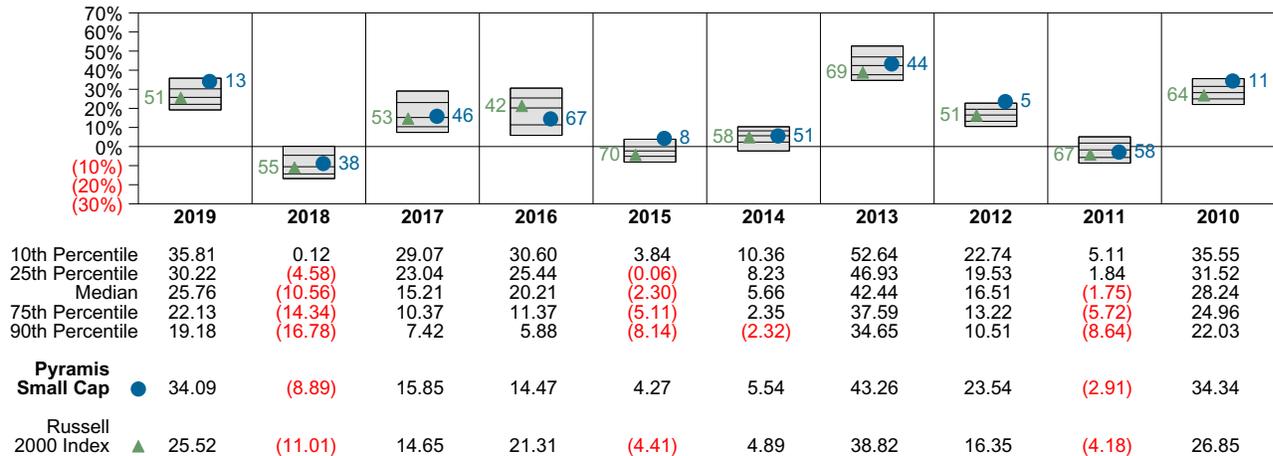


Pyramis Small Cap Return Analysis Summary

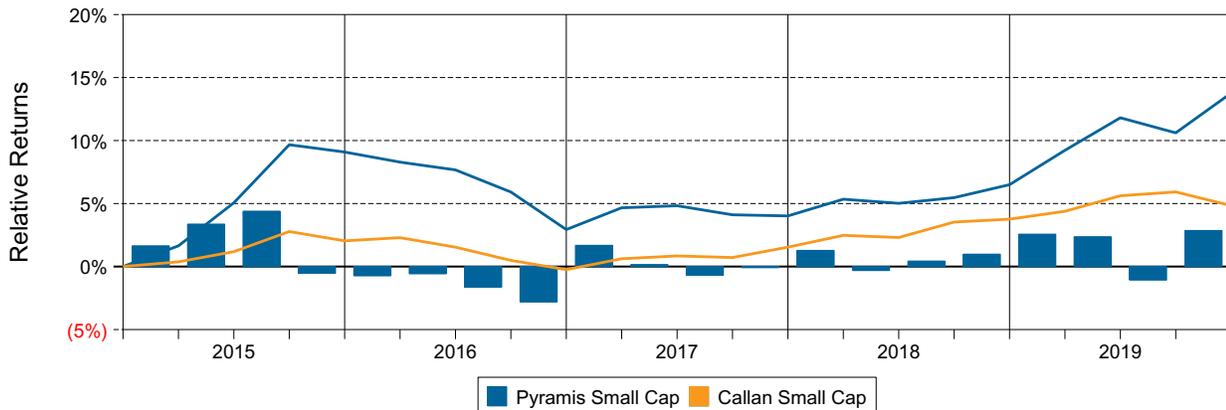
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

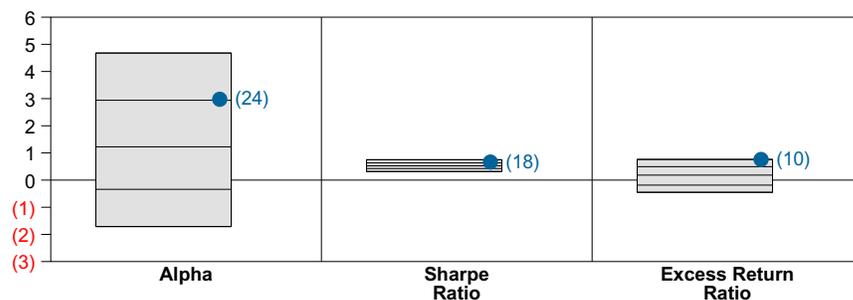
Performance vs Callan Small Capitalization (Gross)



Cumulative and Quarterly Relative Return vs Russell 2000 Index



Risk Adjusted Return Measures vs Russell 2000 Index Rankings Against Callan Small Capitalization (Gross) Five Years Ended December 31, 2019



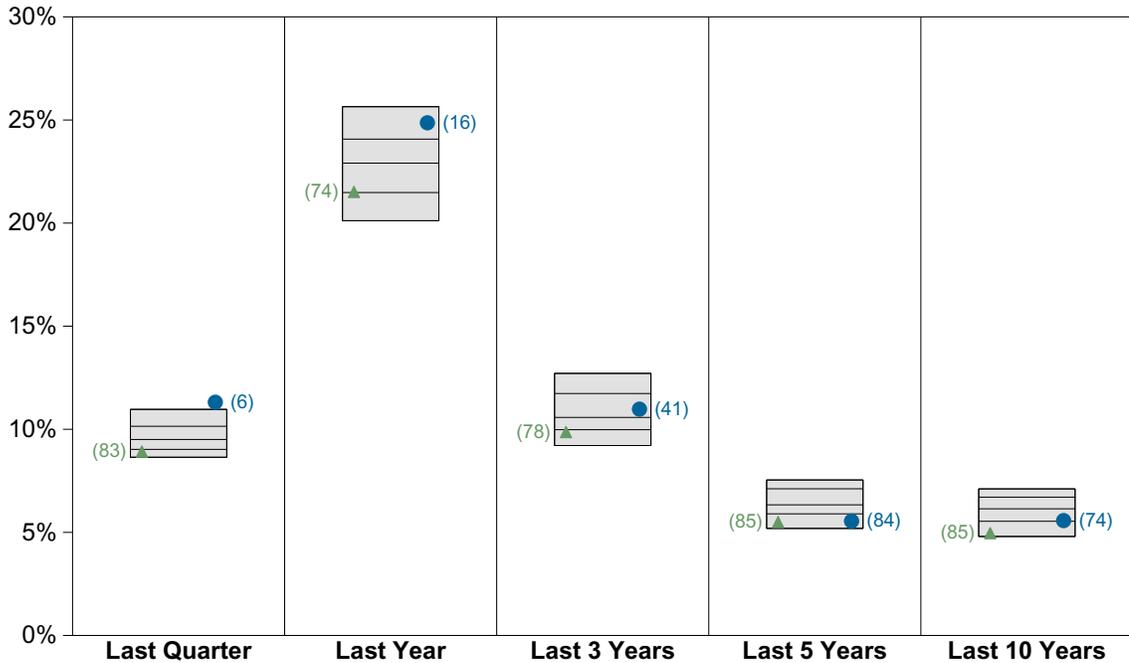
International Equity

Period Ended December 31, 2019

Quarterly Summary and Highlights

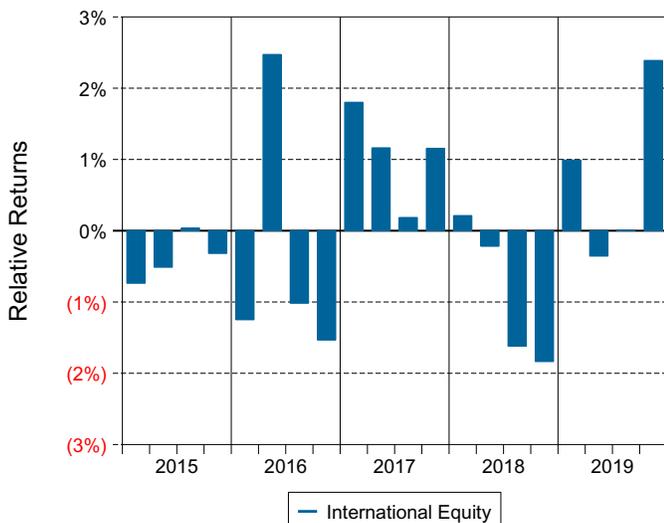
- International Equity's portfolio posted a 11.31% return for the quarter placing it in the 6 percentile of the Public Fund - International Equity group for the quarter and in the 16 percentile for the last year.
- International Equity's portfolio outperformed the MSCI ACWI ex US by 2.39% for the quarter and outperformed the MSCI ACWI ex US for the year by 3.35%.

Performance vs Public Fund - International Equity (Gross)

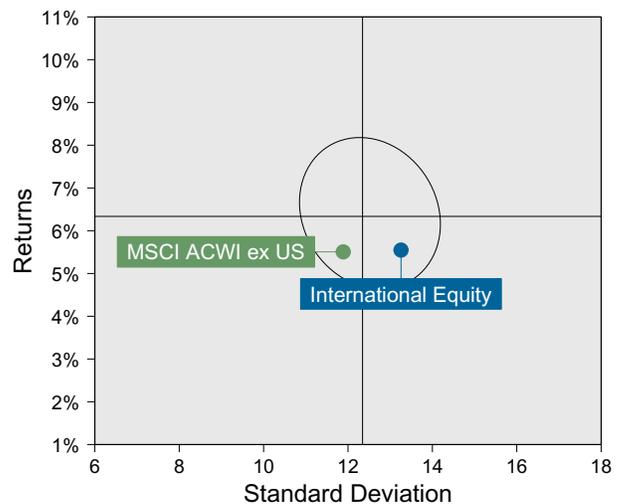


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	10.97	25.65	12.71	7.54	7.11
25th Percentile	10.15	24.07	11.73	7.11	6.71
Median	9.51	22.91	10.57	6.33	6.14
75th Percentile	9.02	21.48	9.98	5.90	5.54
90th Percentile	8.64	20.11	9.21	5.19	4.80
International Equity	11.31	24.86	10.98	5.55	5.57
MSCI ACWI ex US	8.92	21.51	9.87	5.51	4.97

Relative Return vs MSCI ACWI ex US



Public Fund - International Equity (Gross) Annualized Five Year Risk vs Return

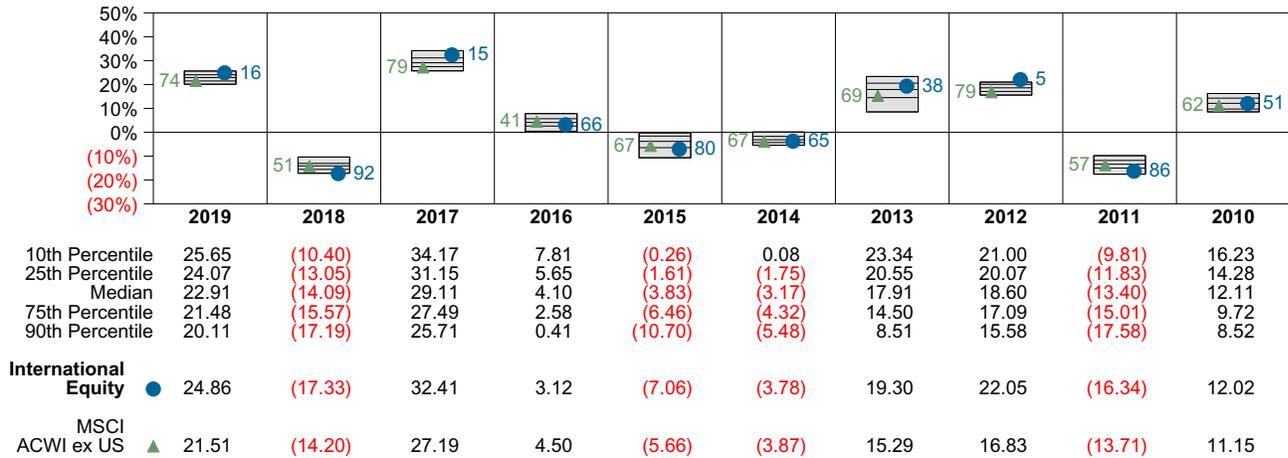


International Equity Return Analysis Summary

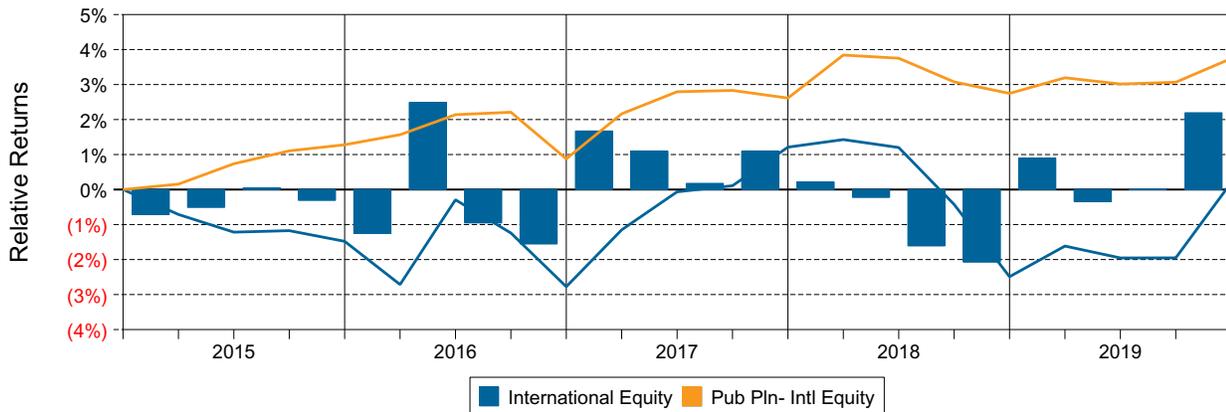
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

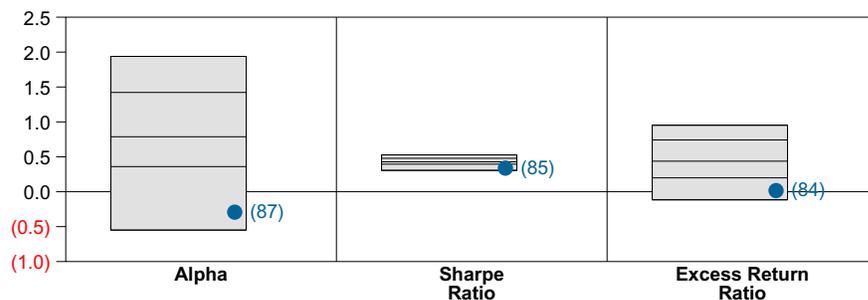
Performance vs Public Fund - International Equity (Gross)



Cumulative and Quarterly Relative Return vs MSCI ACWI ex US



Risk Adjusted Return Measures vs MSCI ACWI ex US Rankings Against Public Fund - International Equity (Gross) Five Years Ended December 31, 2019



Causeway International Opportunities

Period Ended December 31, 2019

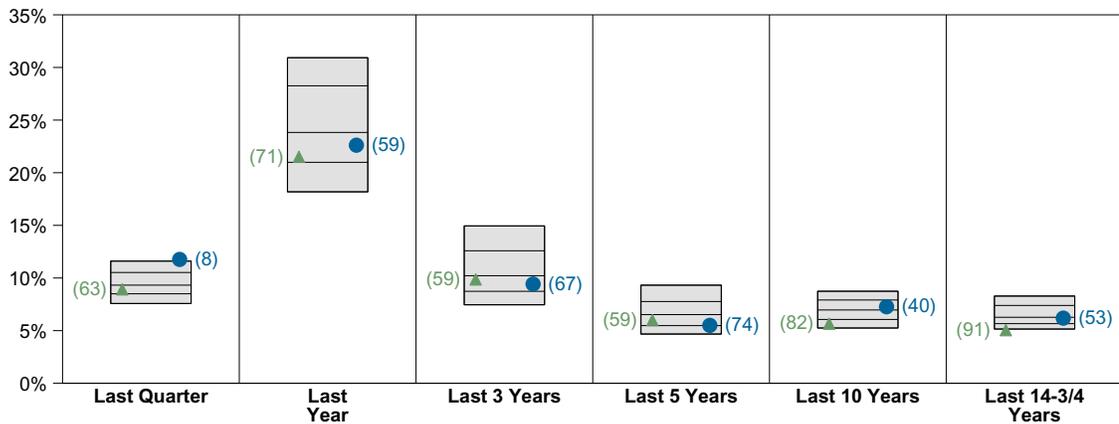
Investment Philosophy

Causeway employs a three-step process: 1) The International Value piece (developed markets only) utilizes bottom-up selection of undervalued stocks as well as the compounding of dividend returns; 2) The Emerging Markets portion implements through the use of proprietary quantitative models that are a combination of bottom-up and top-down factors; 3) The team also utilizes quantitative allocation models to tactically allocate (within specified ranges) between developed and emerging markets based on their relative attractiveness. The product was funded during the first quarter of 2005. In May 2016 the strategy transitioned from International Value to International Opportunities. As such, the index has been updated accordingly from EAFE to ACWI ex-US (Net Div).

Quarterly Summary and Highlights

- Causeway International Opportunities's portfolio posted a 11.76% return for the quarter placing it in the 8 percentile of the Callan Non-US Equity group for the quarter and in the 59 percentile for the last year.
- Causeway International Opportunities's portfolio outperformed the Causeway Linked Index by 2.84% for the quarter and outperformed the Causeway Linked Index for the year by 1.10%.

Performance vs Callan Non-US Equity (Gross)

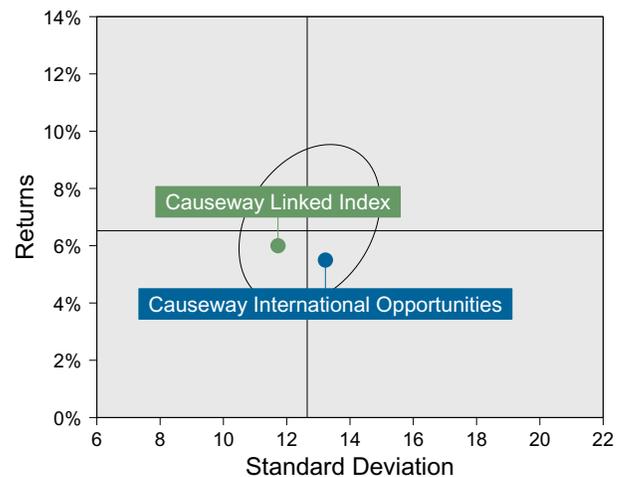


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 14-3/4 Years
10th Percentile	11.61	30.93	14.95	9.32	8.74	8.28
25th Percentile	10.52	28.26	12.58	7.76	7.91	7.39
Median	9.32	23.83	10.22	6.52	6.96	6.27
75th Percentile	8.50	20.99	8.74	5.48	6.06	5.66
90th Percentile	7.58	18.18	7.46	4.68	5.25	5.15
Causeway International Opportunities	11.76	22.62	9.42	5.50	7.27	6.19
Causeway Linked Index	8.92	21.51	9.87	6.00	5.67	5.05

Relative Return vs Causeway Linked Index



Callan Non-US Equity (Gross) Annualized Five Year Risk vs Return

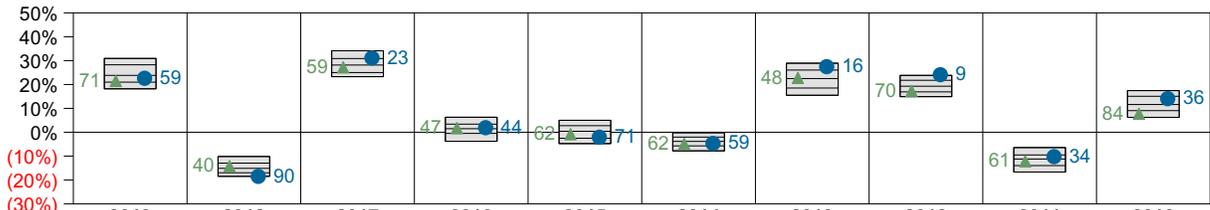


Causeway International Opportunities Return Analysis Summary

Return Analysis

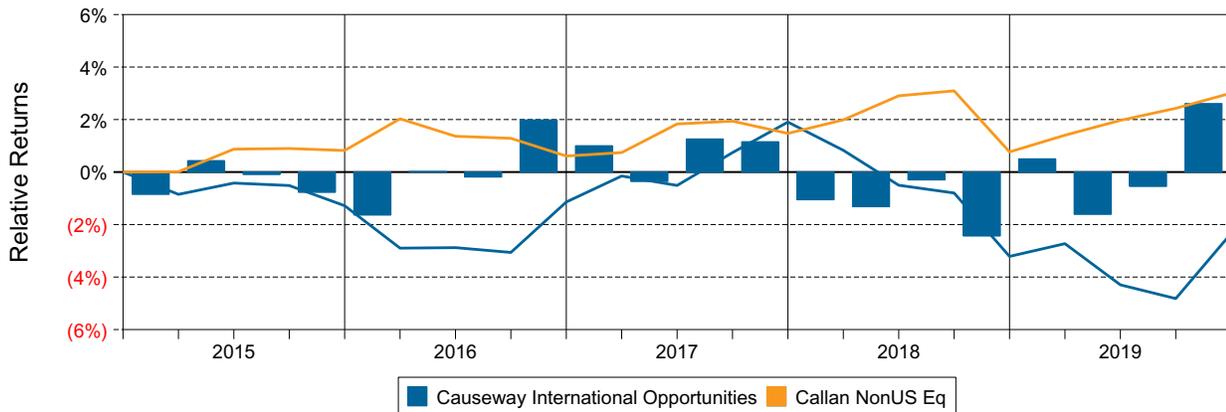
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Callan Non-US Equity (Gross)

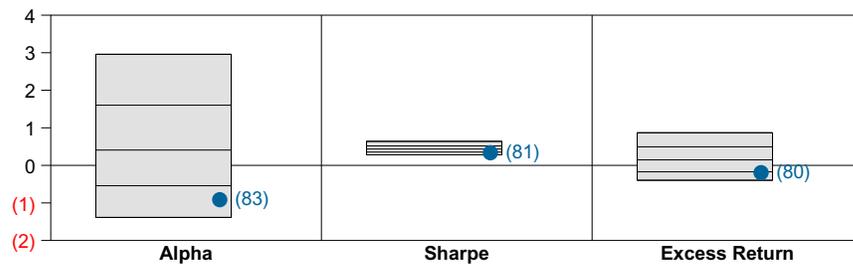


	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
10th Percentile	30.93	(10.17)	34.14	6.28	5.00	(0.22)	28.92	23.83	(6.44)	17.44
25th Percentile	28.26	(12.94)	30.88	3.39	2.74	(2.04)	26.05	21.76	(9.53)	15.07
Median	23.83	(15.13)	28.15	1.48	0.40	(3.85)	22.49	19.28	(11.24)	11.62
75th Percentile	20.99	(16.99)	25.01	(0.49)	(2.53)	(5.73)	18.53	16.91	(13.97)	9.05
90th Percentile	18.18	(18.49)	23.28	(3.79)	(4.77)	(7.82)	15.49	14.91	(16.68)	6.24
Causeway International Opportunities	● 22.62	(18.50)	31.11	1.88	(2.09)	(4.70)	27.47	24.10	(10.24)	14.06
Causeway Linked Index	▲ 21.51	(14.20)	27.19	1.74	(0.81)	(4.90)	22.78	17.32	(12.14)	7.75

Cumulative and Quarterly Relative Return vs Causeway Linked Index



Risk Adjusted Return Measures vs Causeway Linked Index Rankings Against Callan Non-US Equity (Gross) Five Years Ended December 31, 2019



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	2.96	0.64	0.87
25th Percentile	1.60	0.52	0.49
Median	0.41	0.43	0.15
75th Percentile	(0.54)	0.35	(0.17)
90th Percentile	(1.39)	0.28	(0.40)
Causeway International Opportunities	● (0.91)	0.33	(0.19)

Aberdeen EAFE Plus Period Ended December 31, 2019

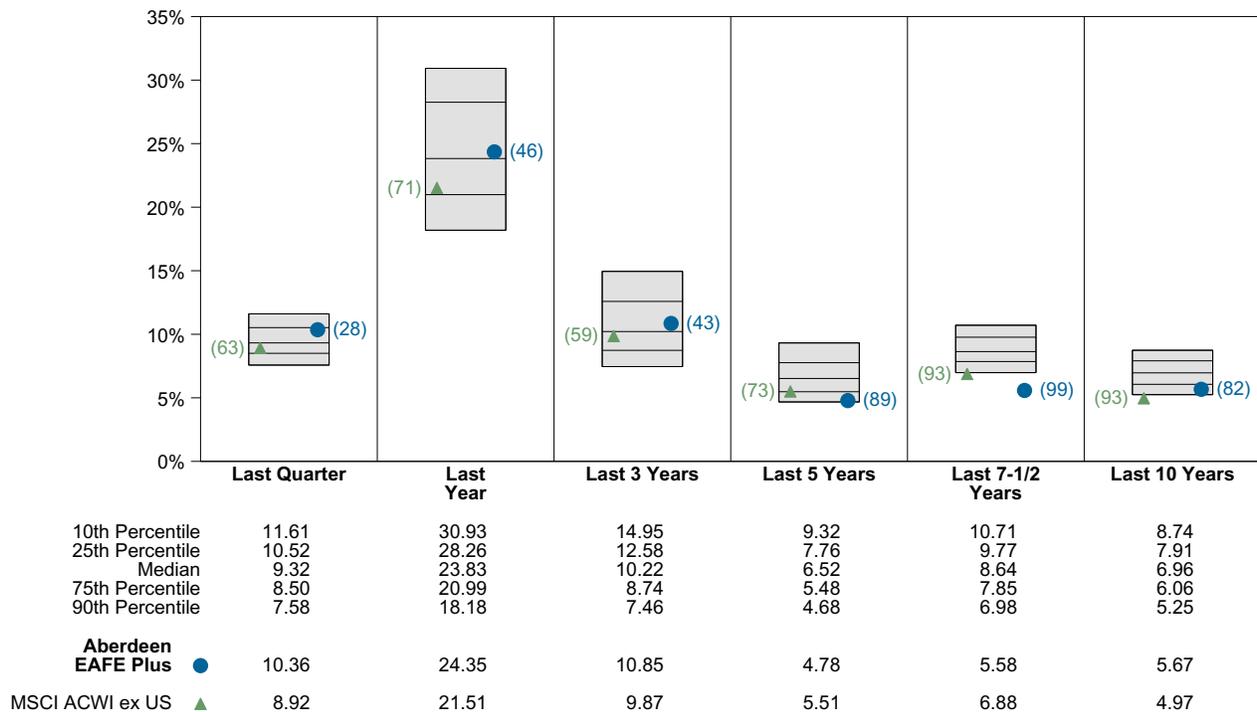
Investment Philosophy

Aberdeen believes that given the inefficiency of markets, superior long-term returns are achieved by identifying high quality stocks, buying them at reasonable/cheap prices, and ultimately investing in those securities for the long term. Absolute return is held to be of the utmost importance. The strategy is benchmark aware, but not benchmark driven. This benchmark stance is born from their belief that indices do not provide meaningful guidance to the prospects of a company or its inherent worth.

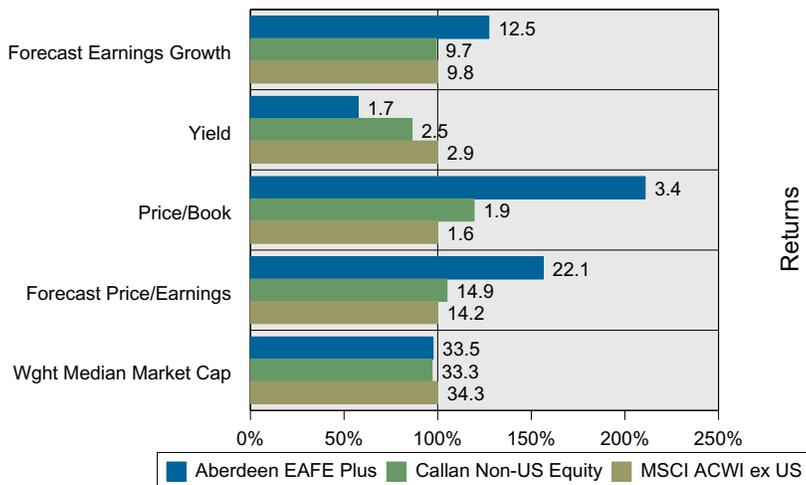
Quarterly Summary and Highlights

- Aberdeen EAFE Plus's portfolio posted a 10.36% return for the quarter placing it in the 28 percentile of the Callan Non-US Equity group for the quarter and in the 46 percentile for the last year.
- Aberdeen EAFE Plus's portfolio outperformed the MSCI ACWI ex US by 1.43% for the quarter and outperformed the MSCI ACWI ex US for the year by 2.84%.

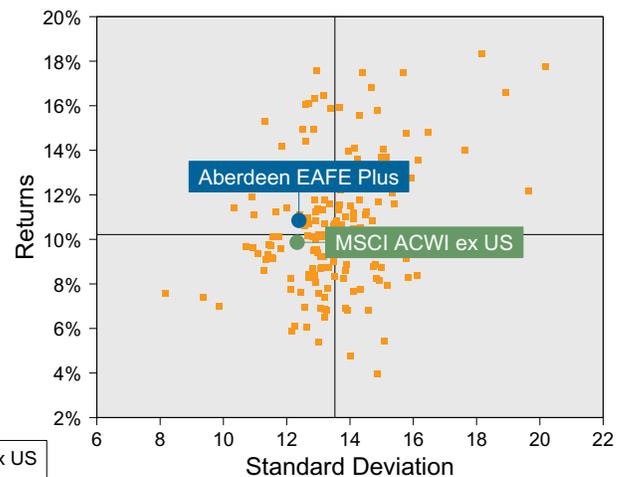
Performance vs Callan Non-US Equity (Gross)



Portfolio Characteristics as a Percentage of the MSCI ACWI ex US



Callan Non-US Equity (Gross) Annualized Three Year Risk vs Return

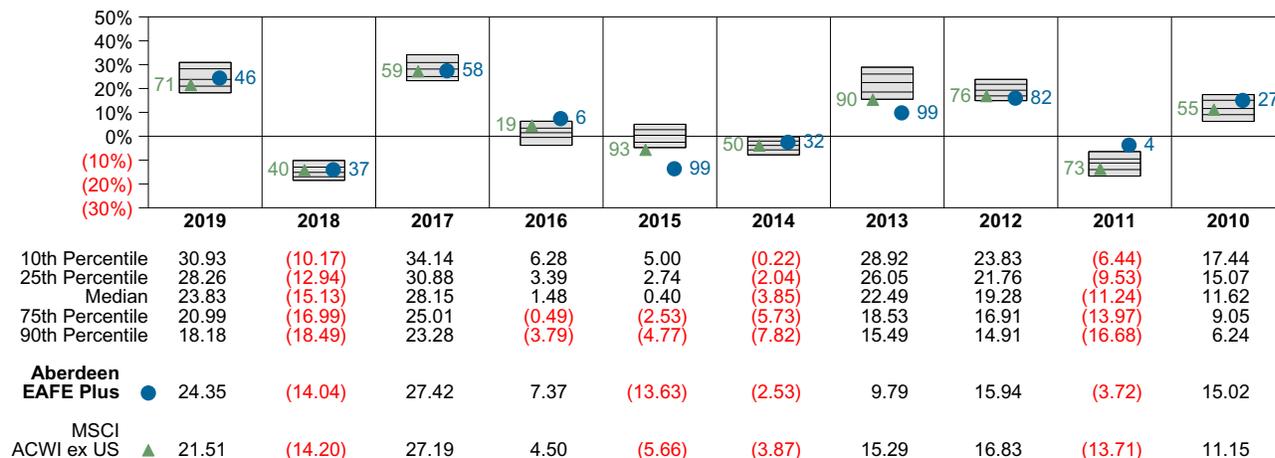


Aberdeen EAFE Plus Return Analysis Summary

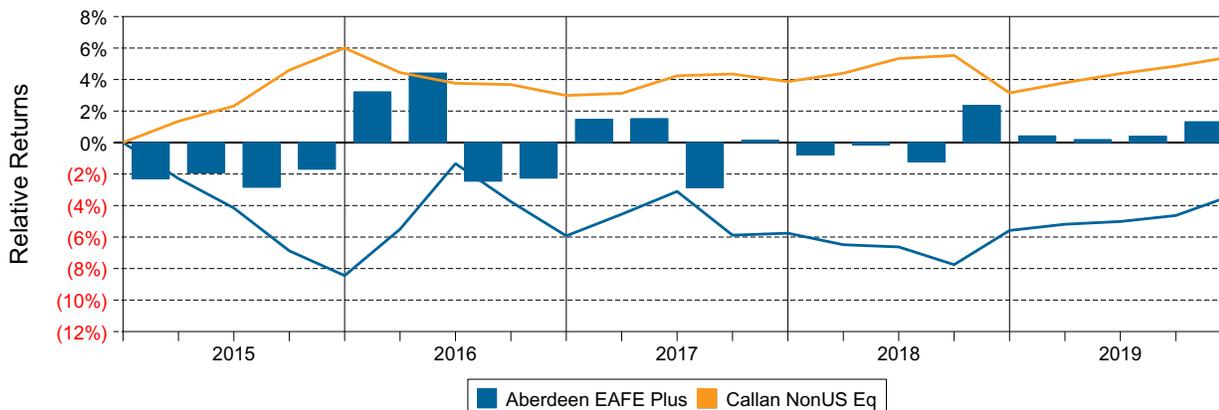
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

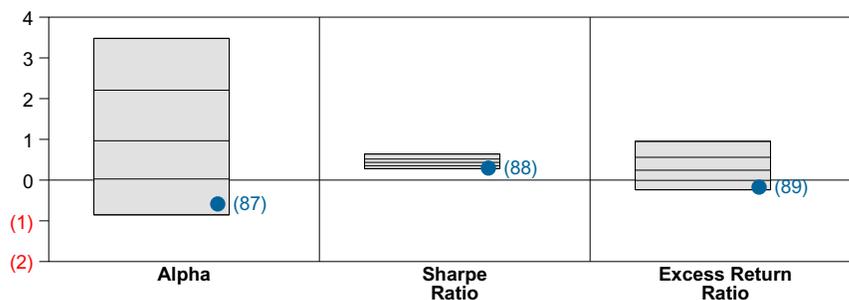
Performance vs Callan Non-US Equity (Gross)



Cumulative and Quarterly Relative Return vs MSCI ACWI ex US



Risk Adjusted Return Measures vs MSCI ACWI ex US Rankings Against Callan Non-US Equity (Gross) Five Years Ended December 31, 2019



10th Percentile	3.48	0.64	0.95
25th Percentile	2.21	0.52	0.56
Median	0.97	0.43	0.24
75th Percentile	0.03	0.35	(0.01)
90th Percentile	(0.85)	0.28	(0.24)
Aberdeen EAFE Plus	● (0.59)	0.30	(0.17)

American Century Non-US SC Period Ended December 31, 2019

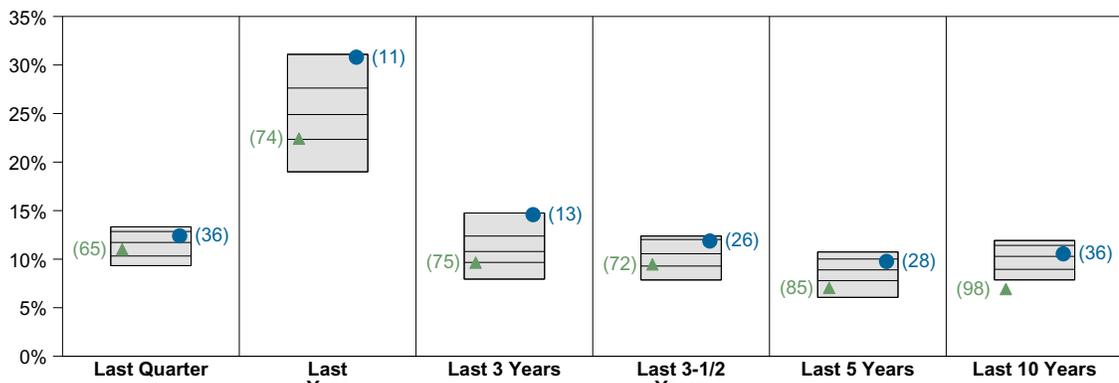
Investment Philosophy

American Century's philosophy of growth investing is centered on the belief that accelerating growth in earnings and revenues, rather than the absolute level of growth, is more highly correlated to stock price performance. This philosophy often directs analysts to research different companies than other growth managers, as they do not require an absolute threshold of earnings or revenue growth. This philosophy allows American Century to take advantage of both the normal price appreciation that results from a company's earnings growth, and the markets re-rating of a company's price-to-earnings multiple. The goal is to construct a portfolio of international stocks that are experiencing accelerating growth that are believed to be sustainable over time. The product was funded during the second quarter of 2016. Prior performance represents that of the composite for supplementary purposes.

Quarterly Summary and Highlights

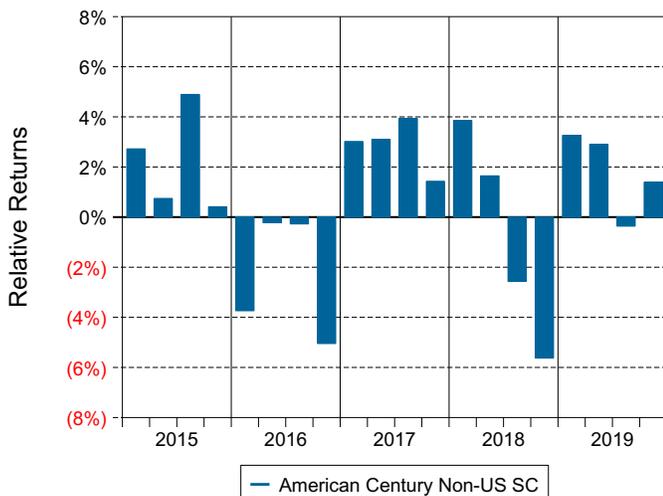
- American Century Non-US SC's portfolio posted a 12.40% return for the quarter placing it in the 36 percentile of the Callan International Small Cap group for the quarter and in the 11 percentile for the last year.
- American Century Non-US SC's portfolio outperformed the MSCI ACWI ex US Small Cap by 1.39% for the quarter and outperformed the MSCI ACWI ex US Small Cap for the year by 8.39%.

Performance vs Callan International Small Cap (Gross)

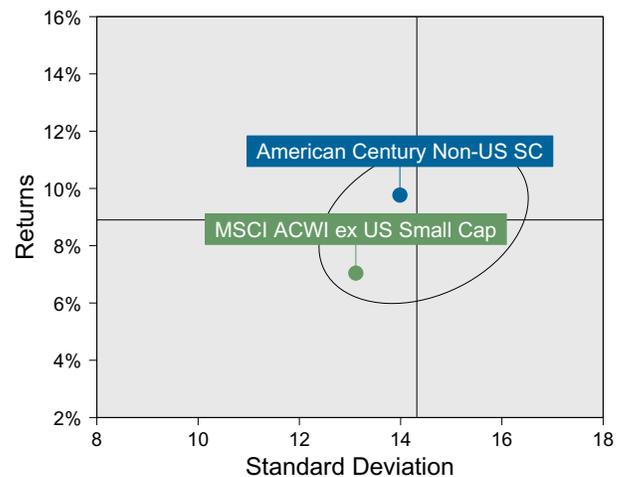


	Last Quarter	Last Year	Last 3 Years	Last 3-1/2 Years	Last 5 Years	Last 10 Years
10th Percentile	13.33	31.10	14.76	12.38	10.74	11.92
25th Percentile	12.85	27.62	12.38	12.03	10.02	11.42
Median	11.72	24.90	10.79	10.56	8.90	10.29
75th Percentile	10.33	22.34	9.67	9.29	7.79	8.95
90th Percentile	9.33	19.00	7.95	7.86	6.07	7.87
American Century Non-US SC	12.40	30.81	14.59	11.87	9.77	10.55
MSCI ACWI ex US Small Cap	11.01	22.42	9.65	9.47	7.04	6.92

Relative Returns vs MSCI ACWI ex US Small Cap



Callan International Small Cap (Gross) Annualized Five Year Risk vs Return

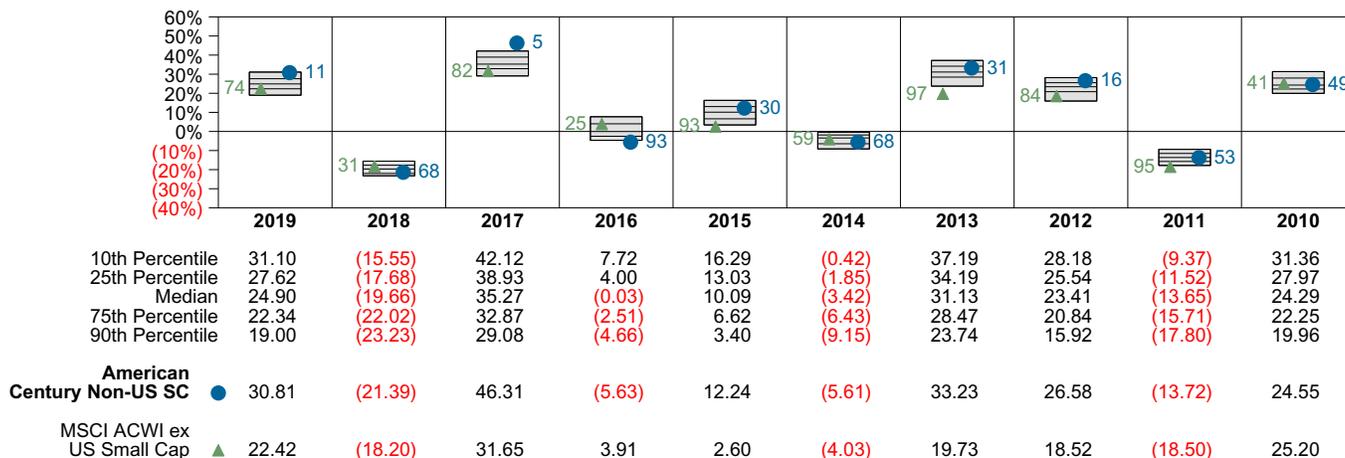


American Century Non-US SC Return Analysis Summary

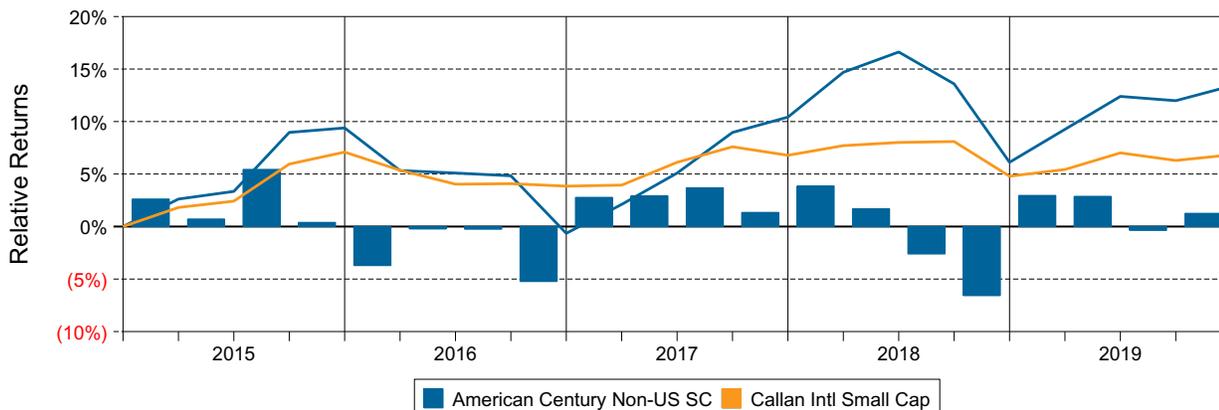
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

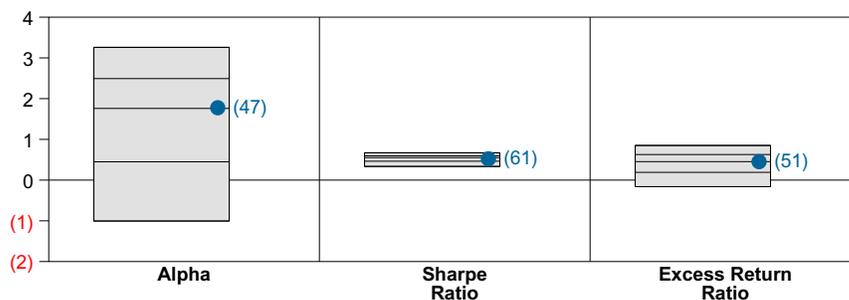
Performance vs Callan International Small Cap (Gross)



Cumulative and Quarterly Relative Return vs MSCI ACWI ex US Small Cap



Risk Adjusted Return Measures vs MSCI ACWI ex US Small Cap Rankings Against Callan International Small Cap (Gross) Five Years Ended December 31, 2019

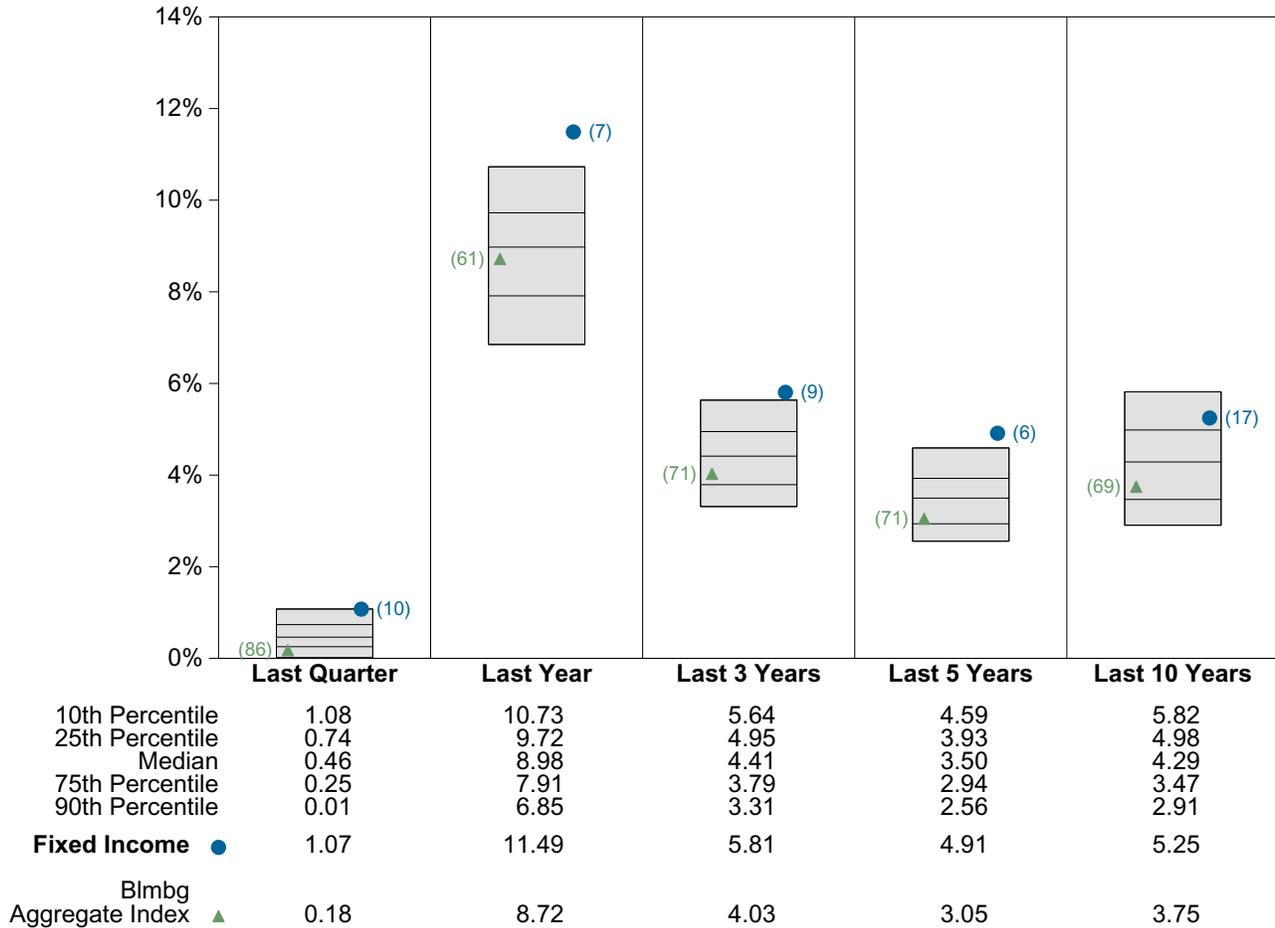


Fixed Income Period Ended December 31, 2019

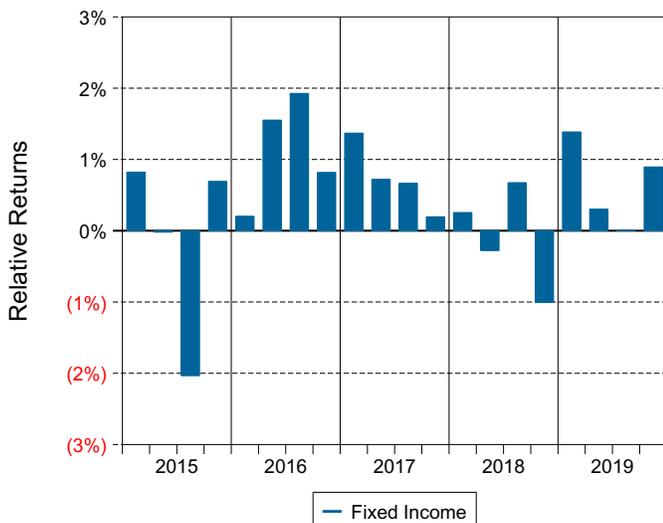
Quarterly Summary and Highlights

- Fixed Income's portfolio posted a 1.07% return for the quarter placing it in the 10 percentile of the Public Fund - Domestic Fixed group for the quarter and in the 7 percentile for the last year.
- Fixed Income's portfolio outperformed the Blmbg Aggregate Index by 0.89% for the quarter and outperformed the Blmbg Aggregate Index for the year by 2.77%.

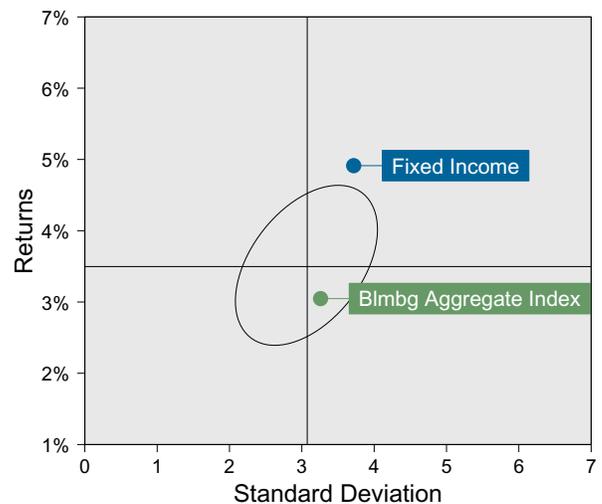
Performance vs Public Fund - Domestic Fixed (Gross)



Relative Return vs Blmbg Aggregate Index



Public Fund - Domestic Fixed (Gross) Annualized Five Year Risk vs Return

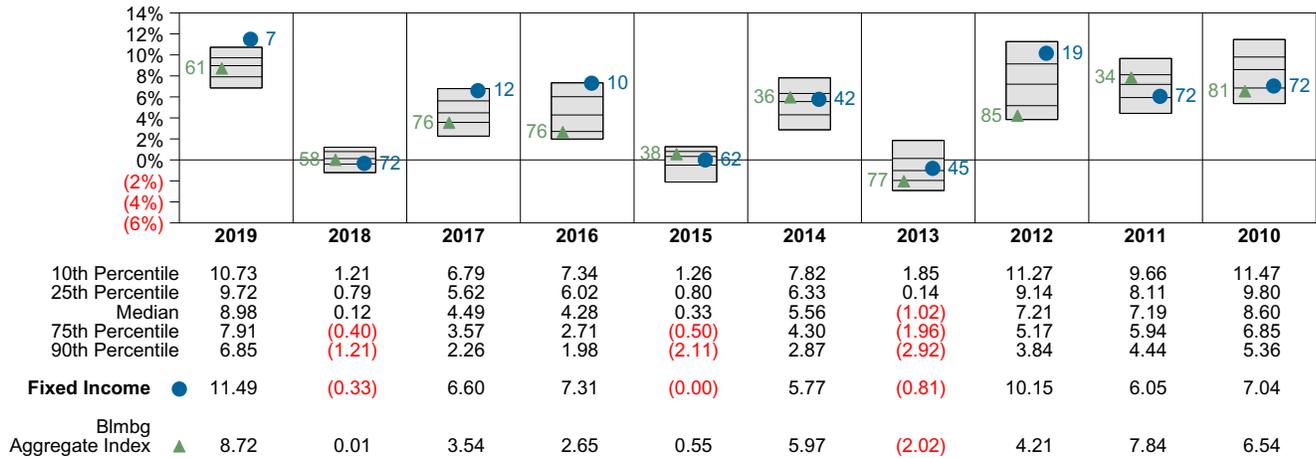


Fixed Income Return Analysis Summary

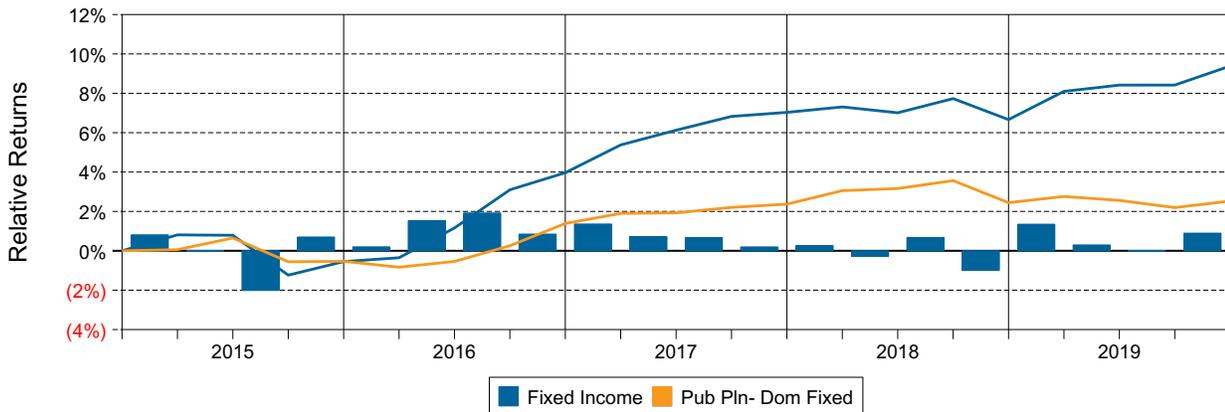
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

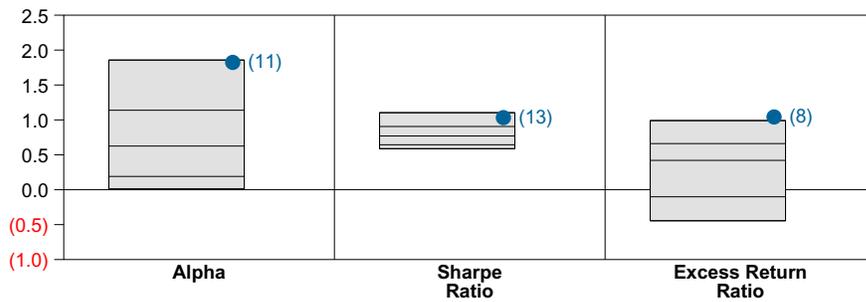
Performance vs Public Fund - Domestic Fixed (Gross)



Cumulative and Quarterly Relative Return vs Blmbg Aggregate Index



Risk Adjusted Return Measures vs Blmbg Aggregate Index Rankings Against Public Fund - Domestic Fixed (Gross) Five Years Ended December 31, 2019



BlackRock U.S. Debt Fund Period Ended December 31, 2019

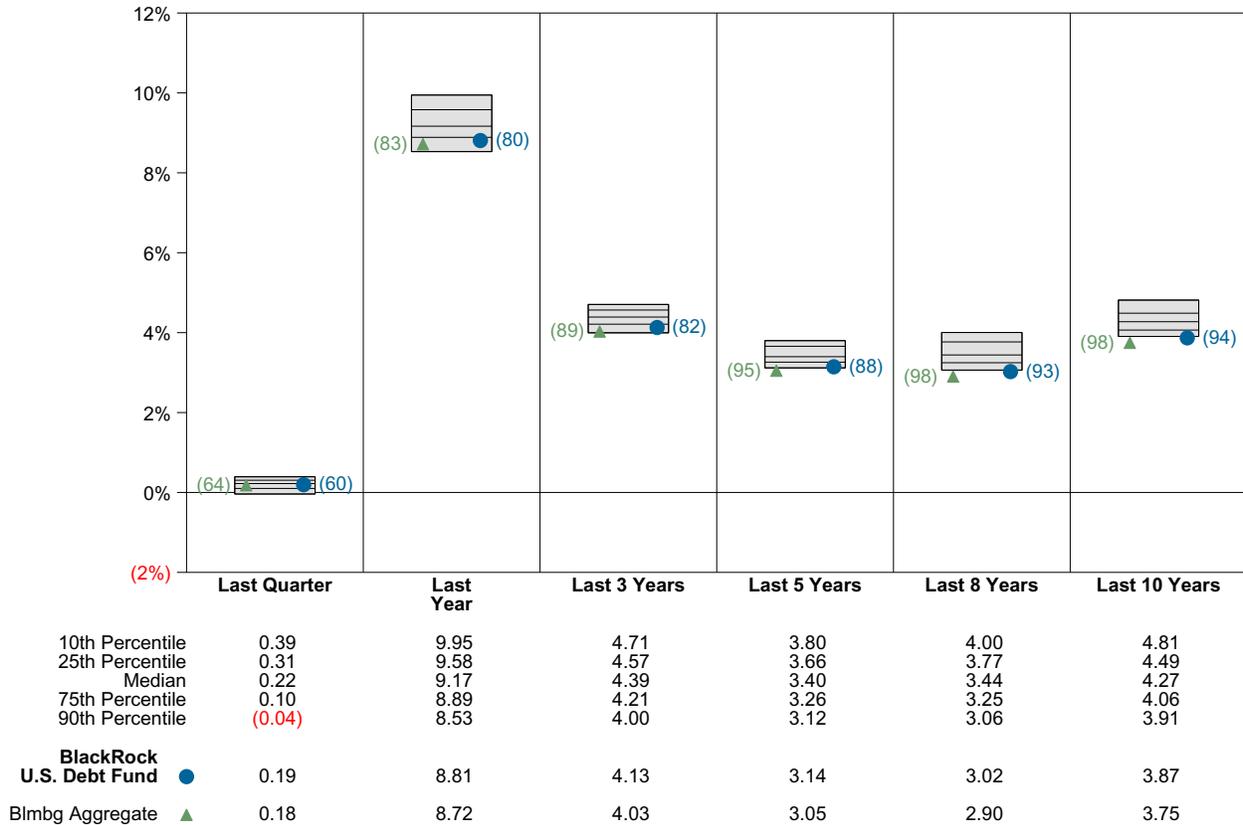
Investment Philosophy

The product was funded during the fourth quarter of 2011. Performance prior is that of the composite.

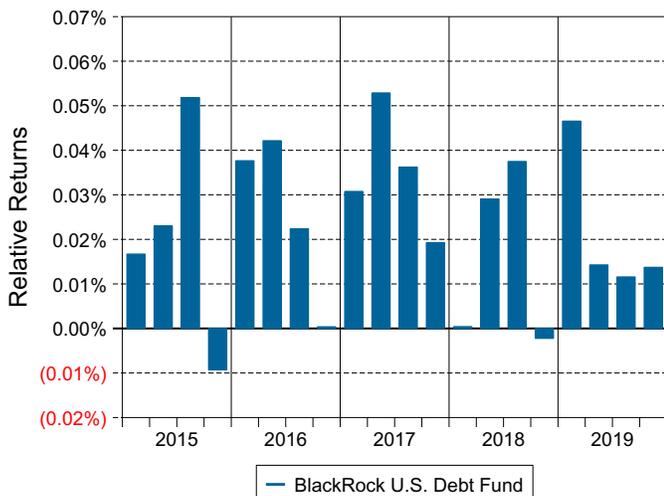
Quarterly Summary and Highlights

- BlackRock U.S. Debt Fund's portfolio posted a 0.19% return for the quarter placing it in the 60 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 80 percentile for the last year.
- BlackRock U.S. Debt Fund's portfolio outperformed the Blmbg Aggregate by 0.01% for the quarter and outperformed the Blmbg Aggregate for the year by 0.09%.

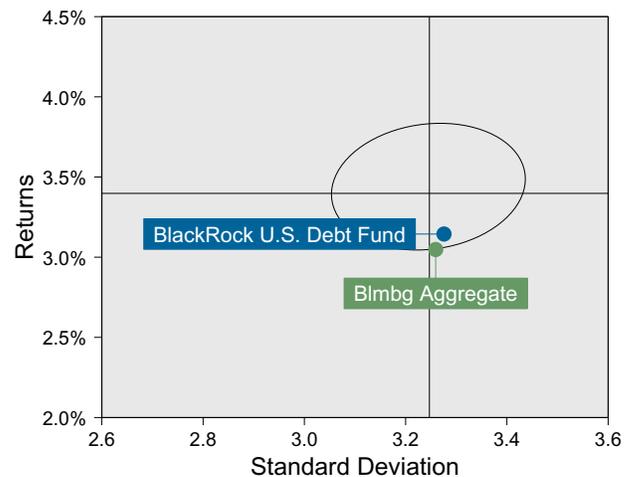
Performance vs Callan Core Bond Fixed Income (Gross)



Relative Return vs Blmbg Aggregate



Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return

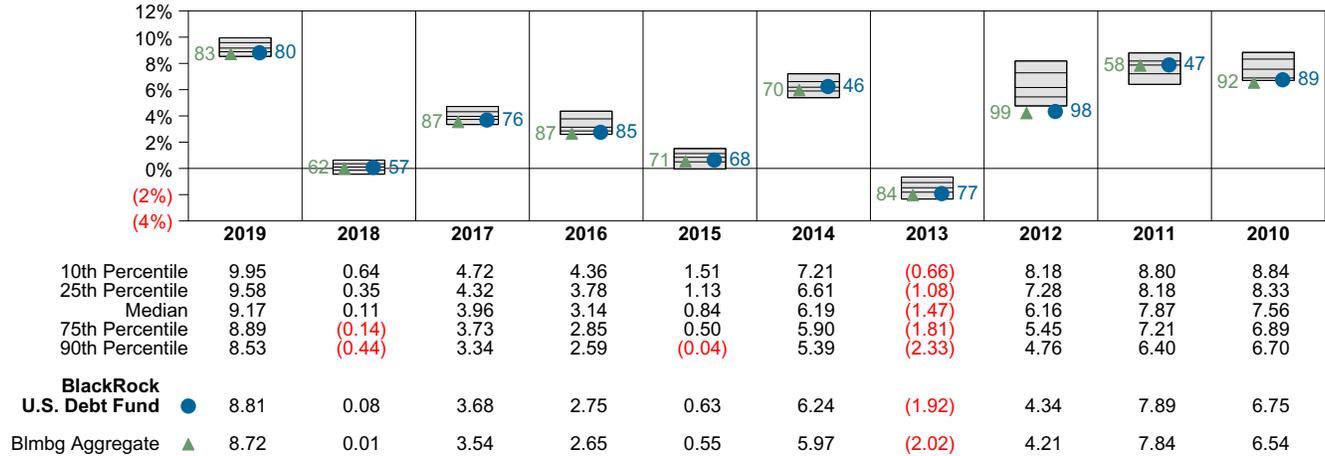


BlackRock U.S. Debt Fund Return Analysis Summary

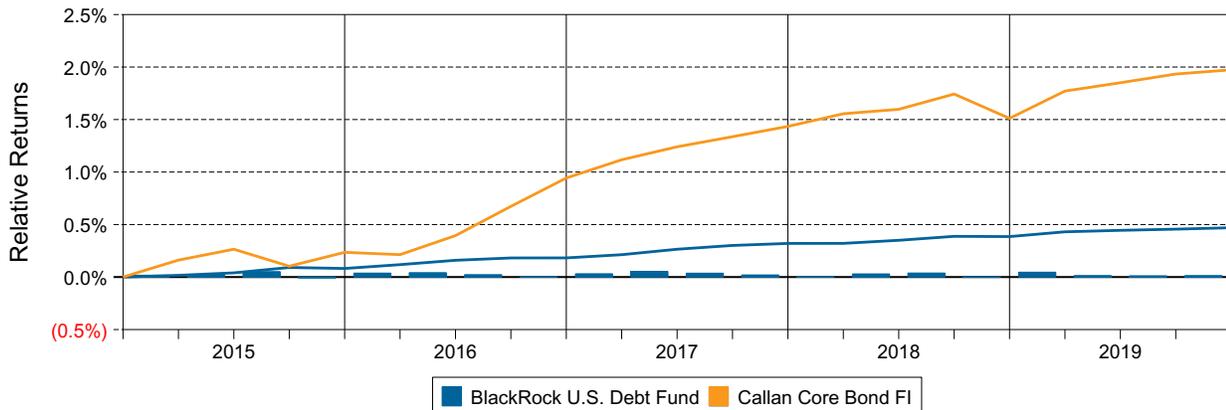
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

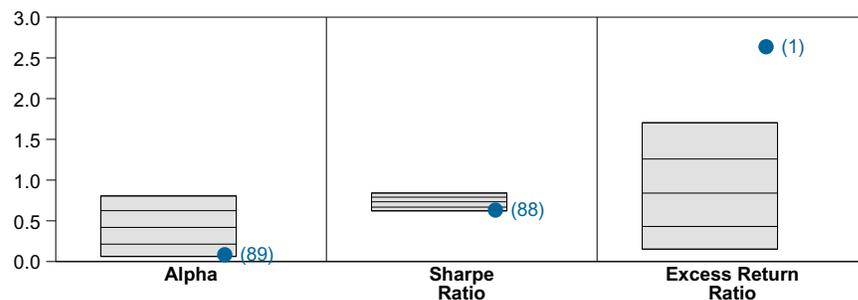
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Return vs Blmbg Aggregate



Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended December 31, 2019



10th Percentile	0.81	0.84	1.70
25th Percentile	0.62	0.79	1.26
Median	0.42	0.73	0.84
75th Percentile	0.21	0.67	0.43
90th Percentile	0.06	0.62	0.15
BlackRock U.S. Debt Fund	0.08	0.63	2.64

PIMCO Fixed Income Period Ended December 31, 2019

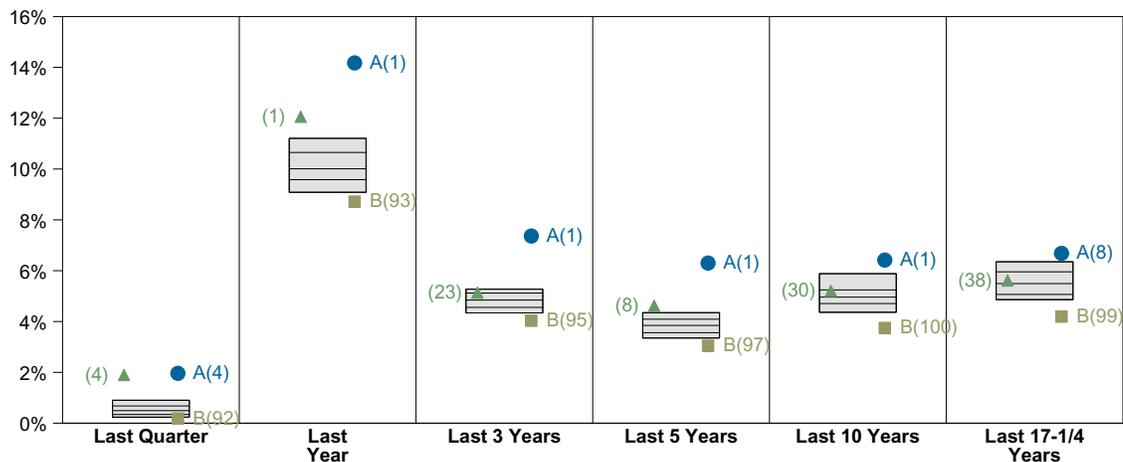
Investment Philosophy

PIMCO emphasizes adding value by rotating through the major sectors of the domestic and international bond markets. They also seek to enhance returns through duration management. The product was funded during the third quarter of 2002. The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Quarterly Summary and Highlights

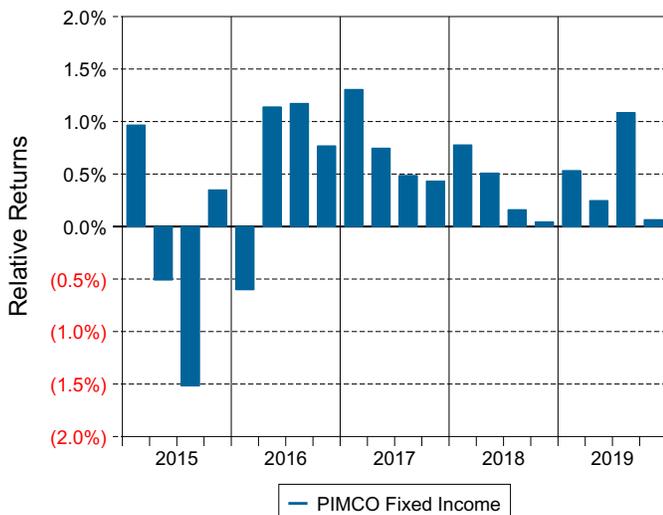
- PIMCO Fixed Income's portfolio posted a 1.96% return for the quarter placing it in the 4 percentile of the Callan Core Plus Fixed Income group for the quarter and in the 1 percentile for the last year.
- PIMCO Fixed Income's portfolio outperformed the Custom Index by 0.07% for the quarter and outperformed the Custom Index for the year by 2.12%.

Performance vs Callan Core Plus Fixed Income (Gross)

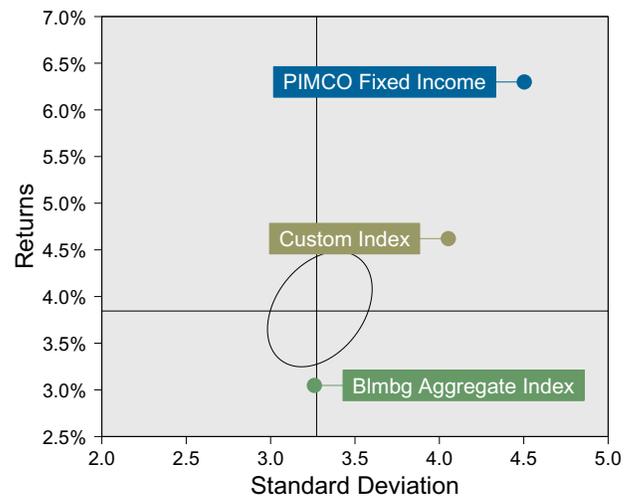


		Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 17-1/4 Years
10th Percentile		0.90	11.21	5.27	4.35	5.88	6.35
25th Percentile		0.68	10.65	5.12	4.09	5.24	5.96
Median		0.49	10.01	4.84	3.85	4.96	5.49
75th Percentile		0.34	9.58	4.55	3.56	4.71	5.07
90th Percentile		0.24	9.09	4.34	3.35	4.36	4.86
PIMCO Fixed Income	● A	1.96	14.18	7.36	6.30	6.42	6.68
Bimbg Aggregate Index	■ B	0.18	8.72	4.03	3.05	3.75	4.19
Custom Index	▲	1.90	12.06	5.14	4.62	5.21	5.61

Relative Return vs Custom Index



Callan Core Plus Fixed Income (Gross) Annualized Five Year Risk vs Return

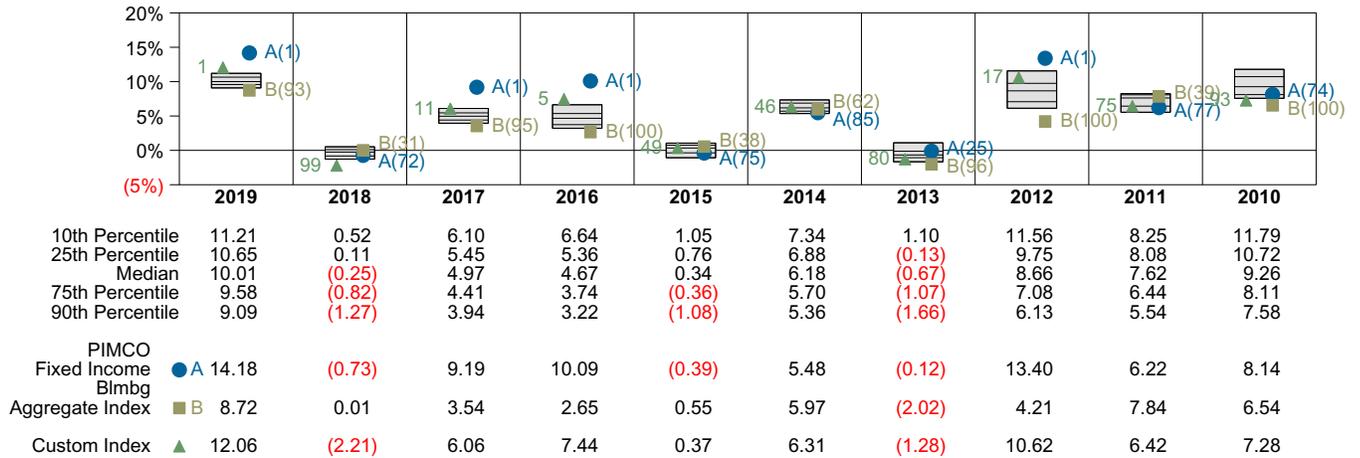


PIMCO Fixed Income Return Analysis Summary

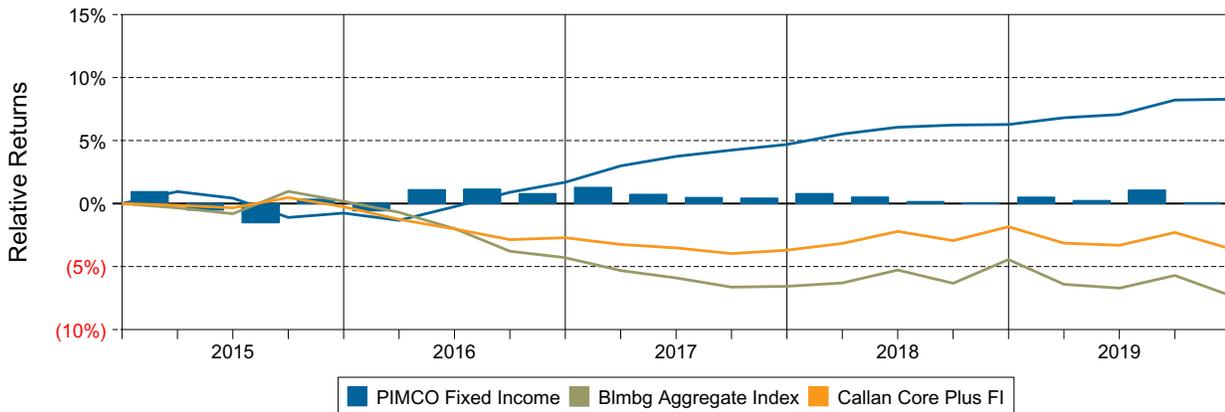
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

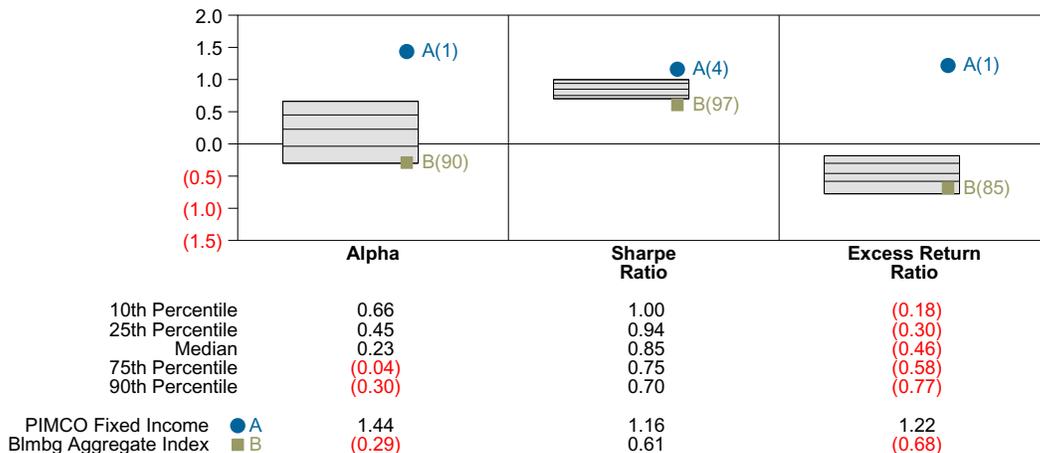
Performance vs Callan Core Plus Fixed Income (Gross)



Cumulative and Quarterly Relative Return vs Custom Index



Risk Adjusted Return Measures vs Custom Index Rankings Against Callan Core Plus Fixed Income (Gross) Five Years Ended December 31, 2019



Real Estate Period Ended December 31, 2019

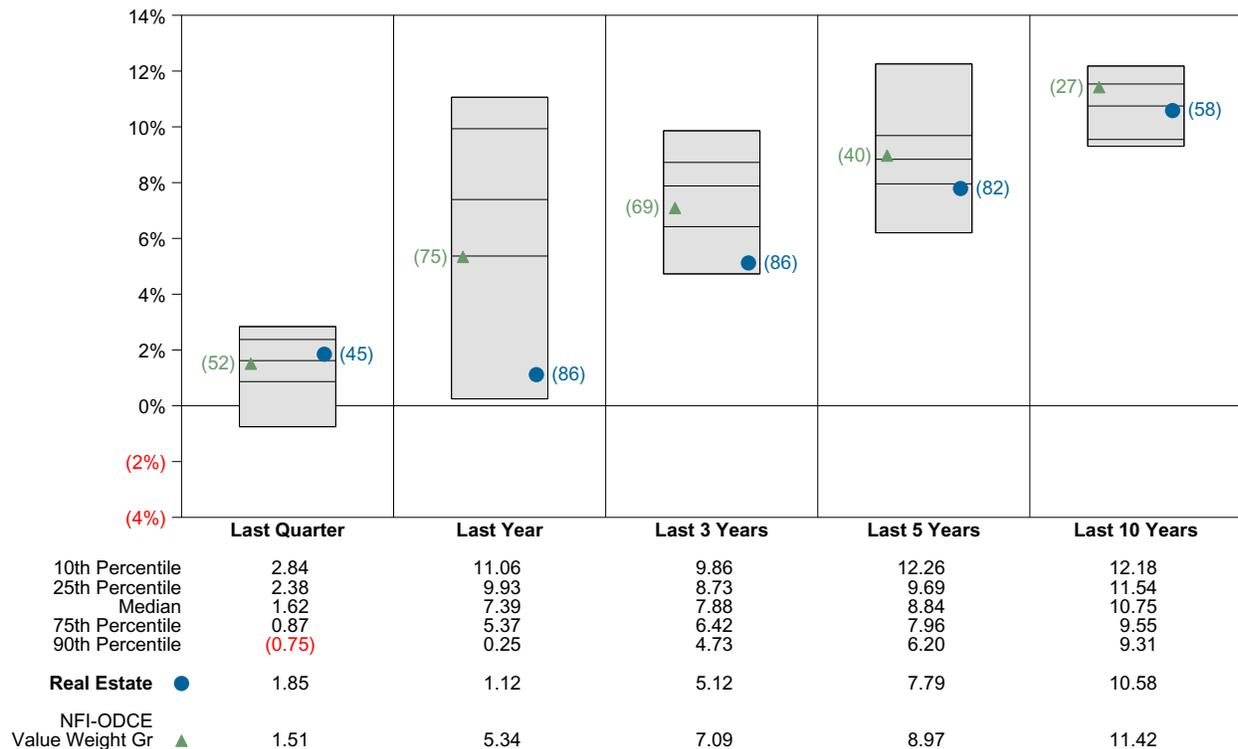
Investment Philosophy

The Total Real Estate Funds Database consists of both open and closed-end commingled funds as well as separate accounts managed by real estate firms. The returns represent the overall performance of institutional capital invested in real estate properties.

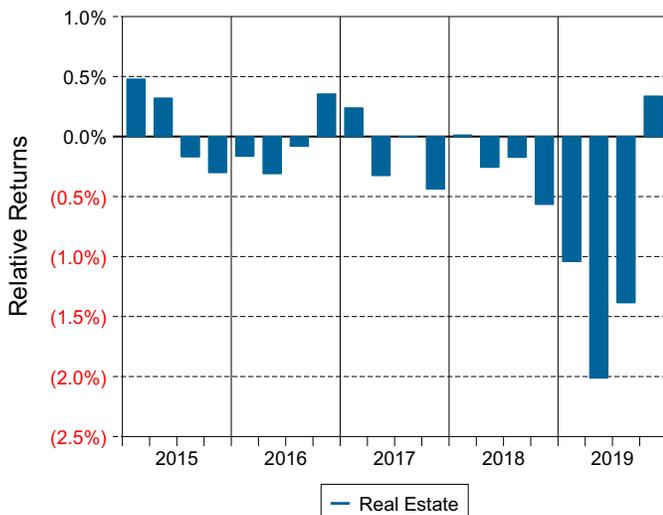
Quarterly Summary and Highlights

- Real Estate's portfolio posted a 1.85% return for the quarter placing it in the 45 percentile of the Public Fund - Real Estate group for the quarter and in the 86 percentile for the last year.
- Real Estate's portfolio outperformed the NFI-ODCE Value Weight Gr by 0.34% for the quarter and underperformed the NFI-ODCE Value Weight Gr for the year by 4.22%.

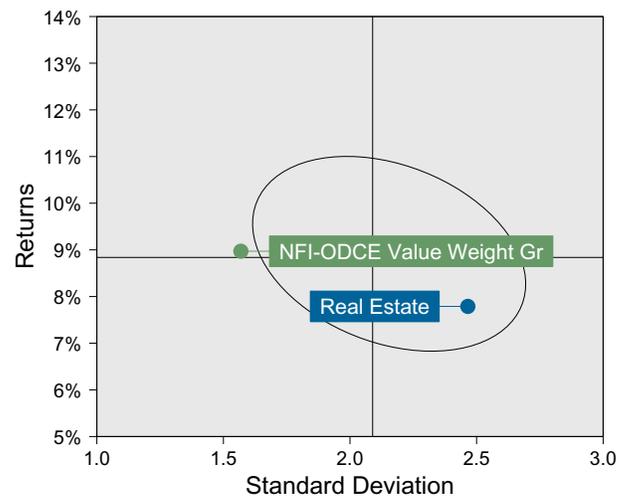
Performance vs Public Fund - Real Estate (Gross)



Relative Return vs NFI-ODCE Value Weight Gr



Public Fund - Real Estate (Gross) Annualized Five Year Risk vs Return

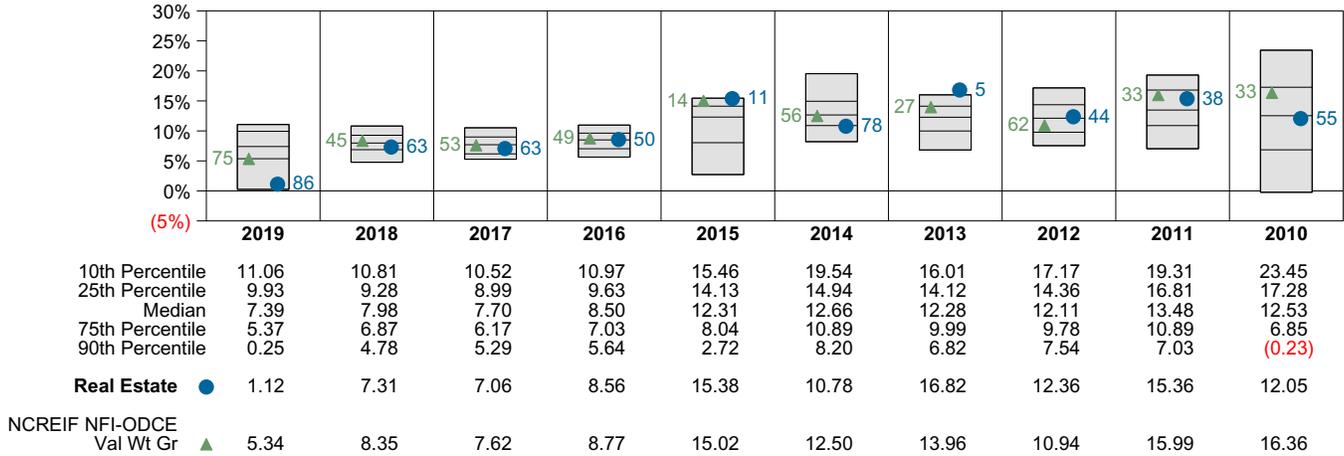


Real Estate Return Analysis Summary

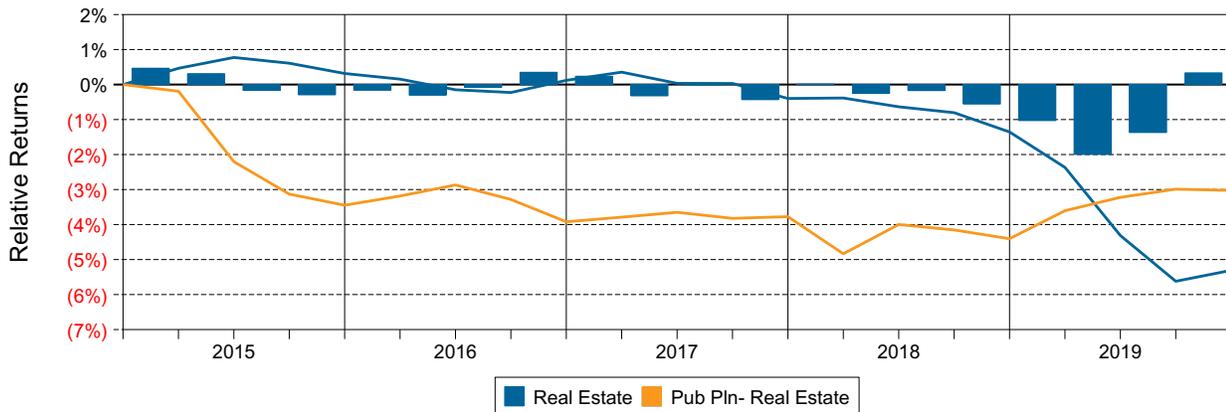
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

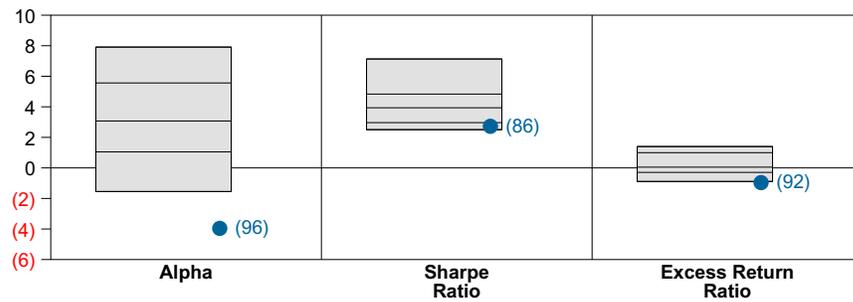
Performance vs Public Fund - Real Estate (Gross)



Cumulative and Quarterly Relative Return vs NCREIF NFI-ODCE Val Wt Gr



Risk Adjusted Return Measures vs NCREIF NFI-ODCE Val Wt Gr Rankings Against Public Fund - Real Estate (Gross) Five Years Ended December 31, 2019



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	7.91	7.13	1.40
25th Percentile	5.56	4.83	1.00
Median	3.07	3.94	0.05
75th Percentile	1.05	2.97	(0.29)
90th Percentile	(1.55)	2.50	(0.89)
Real Estate	● (3.96)	2.72	(0.96)

JP Morgan Strategic Property Fund Period Ended December 31, 2019

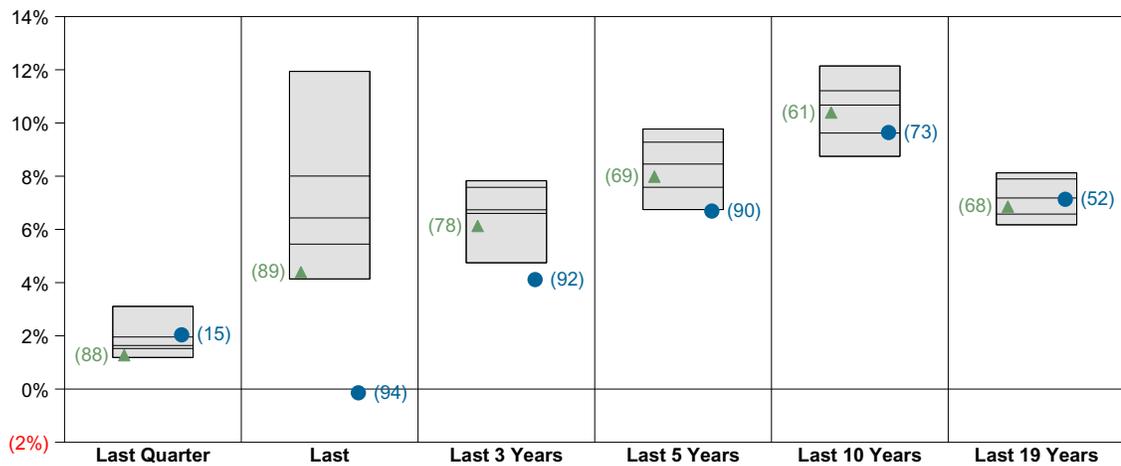
Investment Philosophy

J.P. Morgan's Strategic Property Fund is an actively managed diversified, core, open-end commingled pension trust fund. It seeks an income-driven rate of return of 100 basis points over the NFI-ODCE Equal Weight Net Index over a full market cycle (three to five year horizon) through asset, geographic and sector selection and active asset management. The Fund invests in high quality stabilized assets with dominant competitive characteristics in markets with attractive demographics throughout the United States. The product was funded in the fourth quarter of 2008.

Quarterly Summary and Highlights

- JP Morgan Strategic Property Fund's portfolio posted a 2.04% return for the quarter placing it in the 15 percentile of the Callan Open End Core Cmmingled Real Est group for the quarter and in the 94 percentile for the last year.
- JP Morgan Strategic Property Fund's portfolio outperformed the NCREIF NFI-ODCE Val Wt Nt by 0.77% for the quarter and underperformed the NCREIF NFI-ODCE Val Wt Nt for the year by 4.53%.

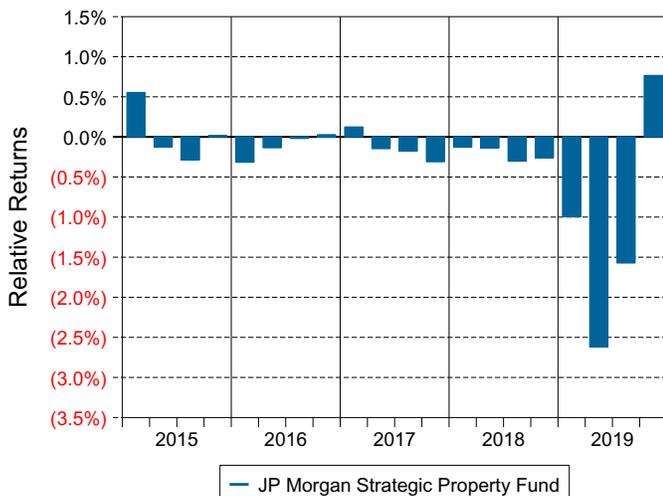
Performance vs Callan Open End Core Cmmingled Real Est (Net)



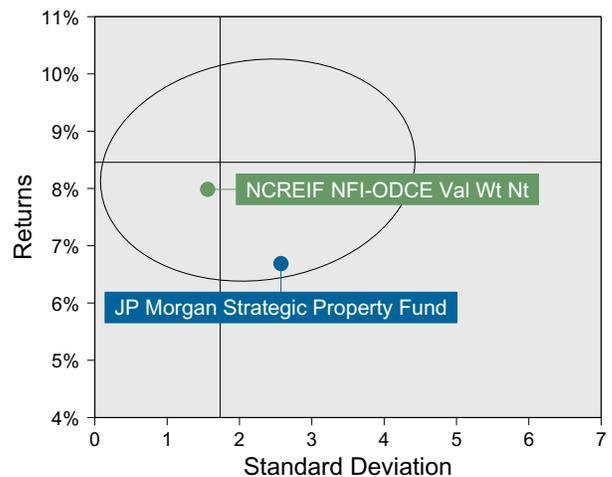
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 19 Years
10th Percentile	3.11	11.94	7.83	9.77	12.14	8.13
25th Percentile	1.96	8.01	7.58	9.28	11.21	7.90
Median	1.64	6.43	6.74	8.46	10.67	7.18
75th Percentile	1.52	5.45	6.60	7.58	9.62	6.58
90th Percentile	1.19	4.14	4.75	6.75	8.75	6.17

JP Morgan Strategic Property Fund	●	2.04	(0.14)	4.11	6.69	9.64	7.13
NCREIF NFI-ODCE Val Wt Nt	▲	1.27	4.39	6.13	7.98	10.39	6.86

Relative Returns vs NCREIF NFI-ODCE Val Wt Nt



Callan Open End Core Cmmingled Real Est (Net) Annualized Five Year Risk vs Return

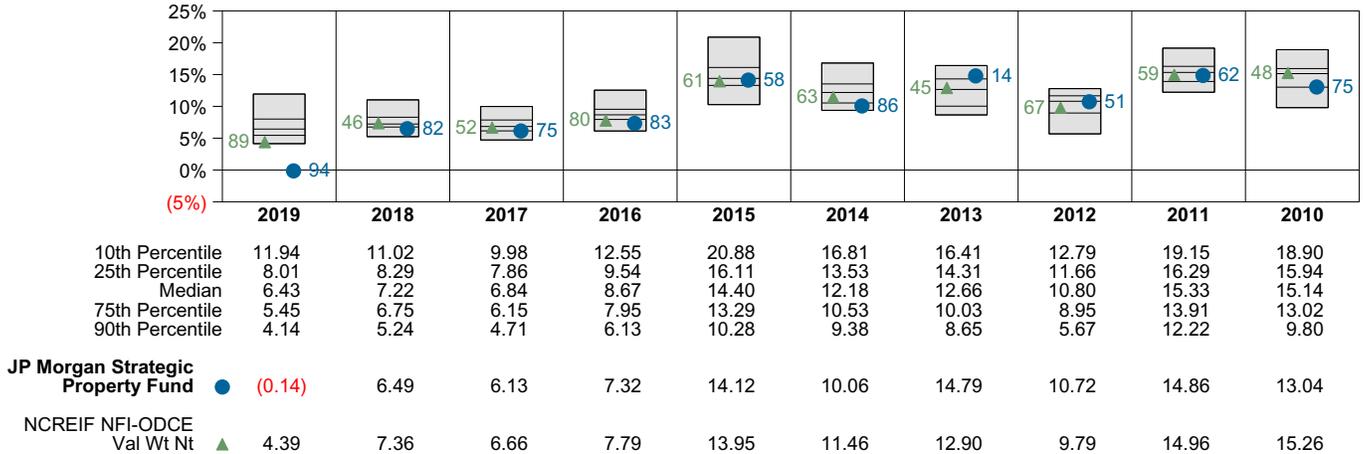


JP Morgan Strategic Property Fund Return Analysis Summary

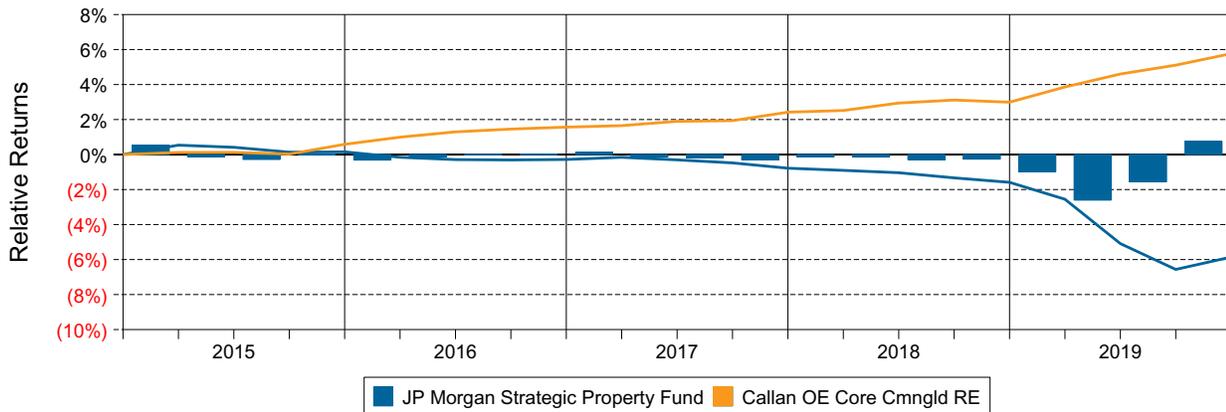
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

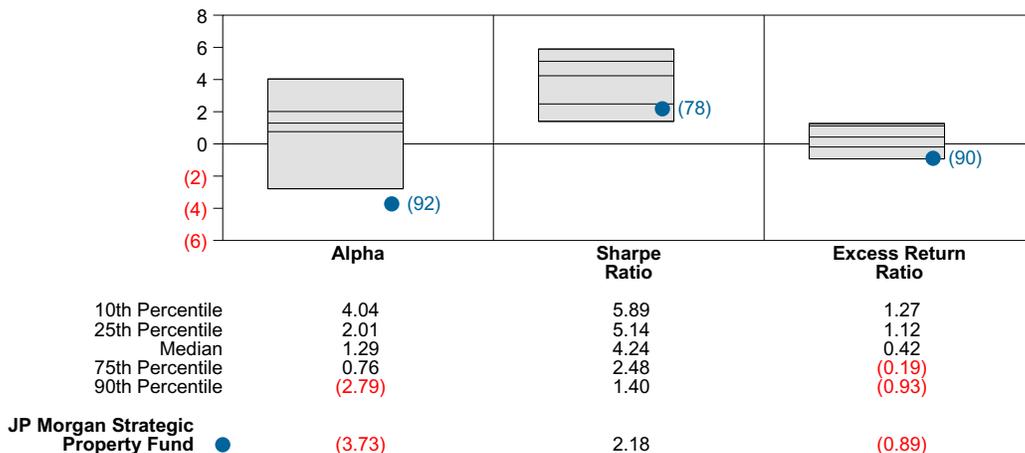
Performance vs Callan Open End Core Cmmngld Real Est (Net)



Cumulative and Quarterly Relative Return vs NCREIF NFI-ODCE Val Wt Nt



Risk Adjusted Return Measures vs NCREIF NFI-ODCE Val Wt Nt Rankings Against Callan Open End Core Cmmngld Real Est (Net) Five Years Ended December 31, 2019



JP Morgan Income and Growth Fund Period Ended December 31, 2019

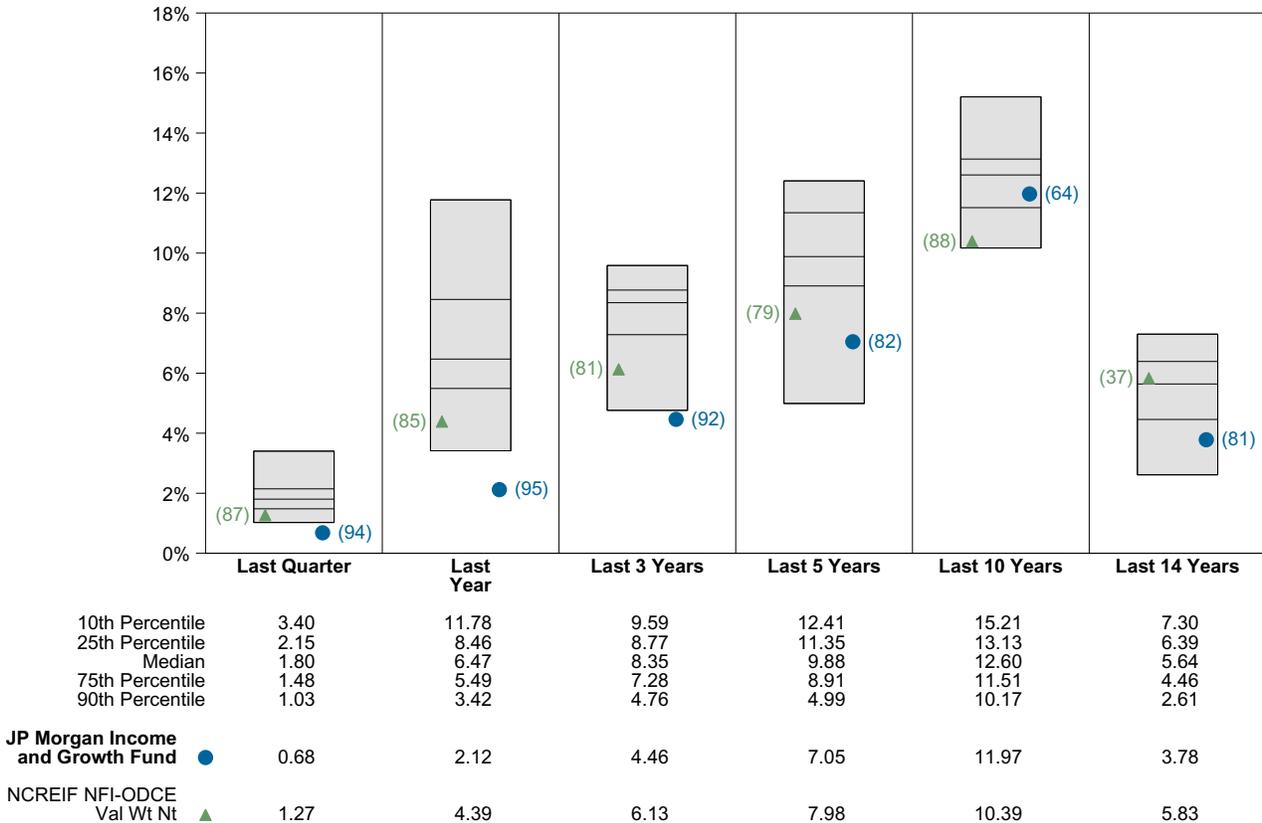
Investment Philosophy

The product was funded in the fourth quarter of 2005.

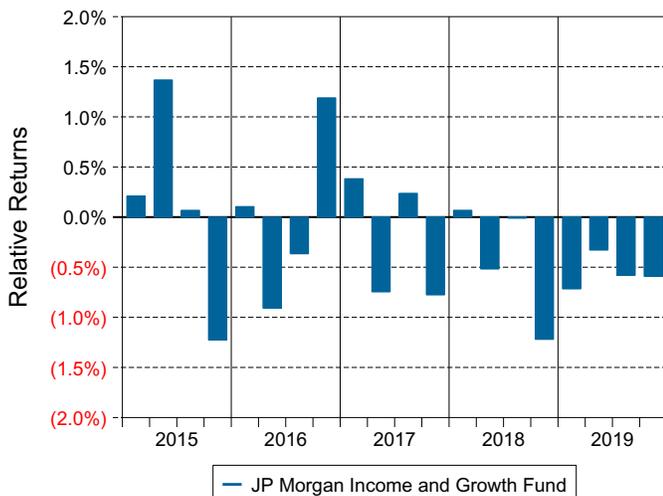
Quarterly Summary and Highlights

- JP Morgan Income and Growth Fund's portfolio posted a 0.68% return for the quarter placing it in the 94 percentile of the Callan Real Estate Val Add Open End Fds group for the quarter and in the 95 percentile for the last year.
- JP Morgan Income and Growth Fund's portfolio underperformed the NCREIF NFI-ODCE Val Wt Nt by 0.59% for the quarter and underperformed the NCREIF NFI-ODCE Val Wt Nt for the year by 2.27%.

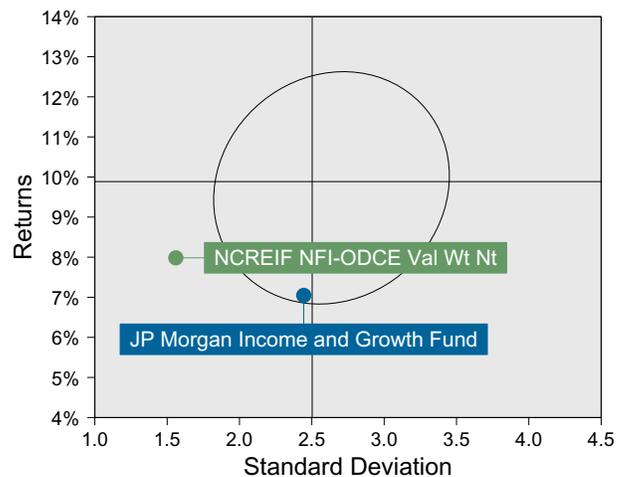
Performance vs Callan Real Estate Val Add Open End Fds (Net)



Relative Returns vs NCREIF NFI-ODCE Val Wt Nt



Callan Real Estate Val Add Open End Fds (Net) Annualized Five Year Risk vs Return

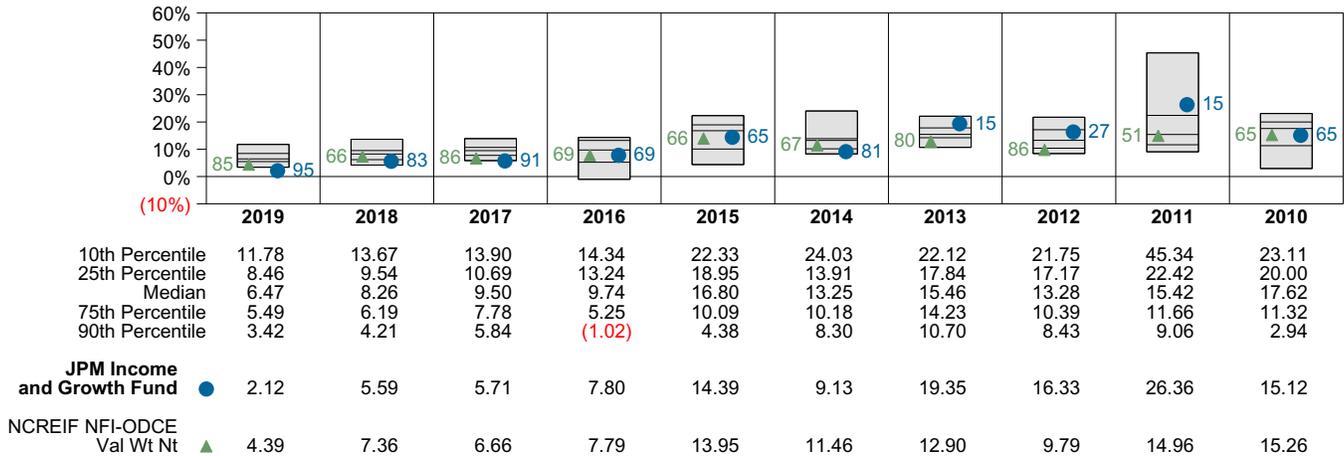


JPM Income and Growth Fund Return Analysis Summary

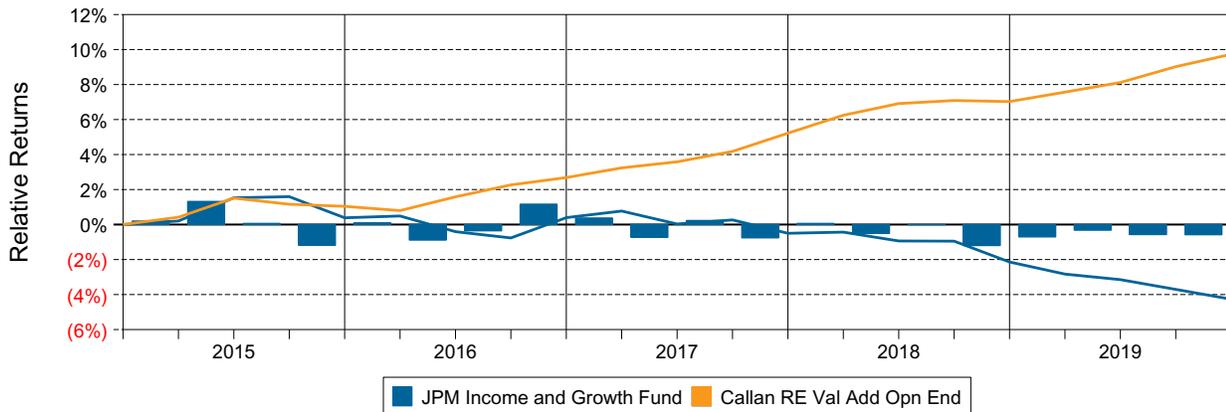
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

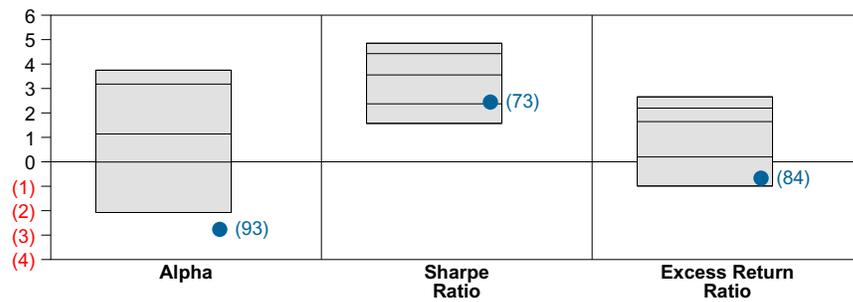
Performance vs Callan Real Estate Val Add Open End Fds (Net)



Cumulative and Quarterly Relative Return vs NCREIF NFI-ODCE Val Wt Nt



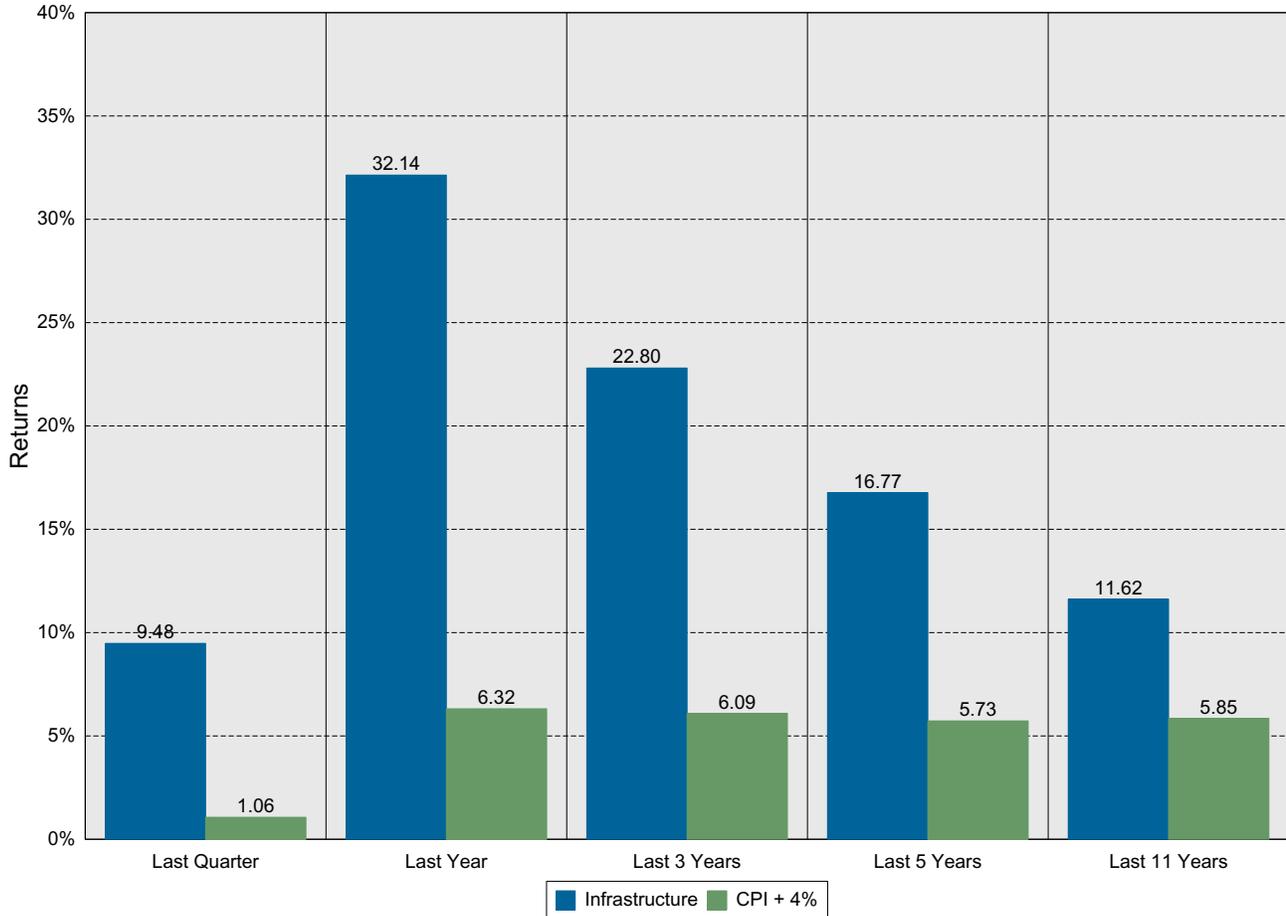
Risk Adjusted Return Measures vs NCREIF NFI-ODCE Val Wt Nt Rankings Against Callan Real Estate Val Add Open End Fds (Net) Five Years Ended December 31, 2019



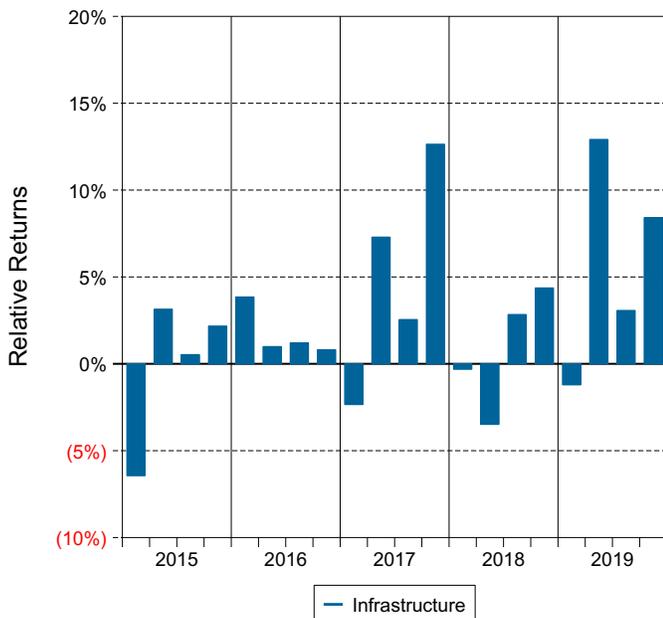
Infrastructure Period Ended December 31, 2019

Quarterly Summary and Highlights

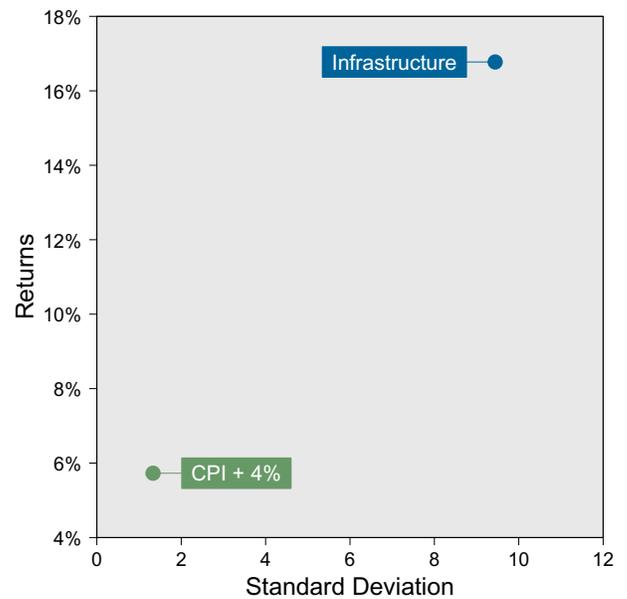
- Infrastructure's portfolio outperformed the CPI + 4% by 8.41% for the quarter and outperformed the CPI + 4% for the year by 25.82%.



Relative Return vs CPI + 4%



Annualized Five Year Risk vs Return



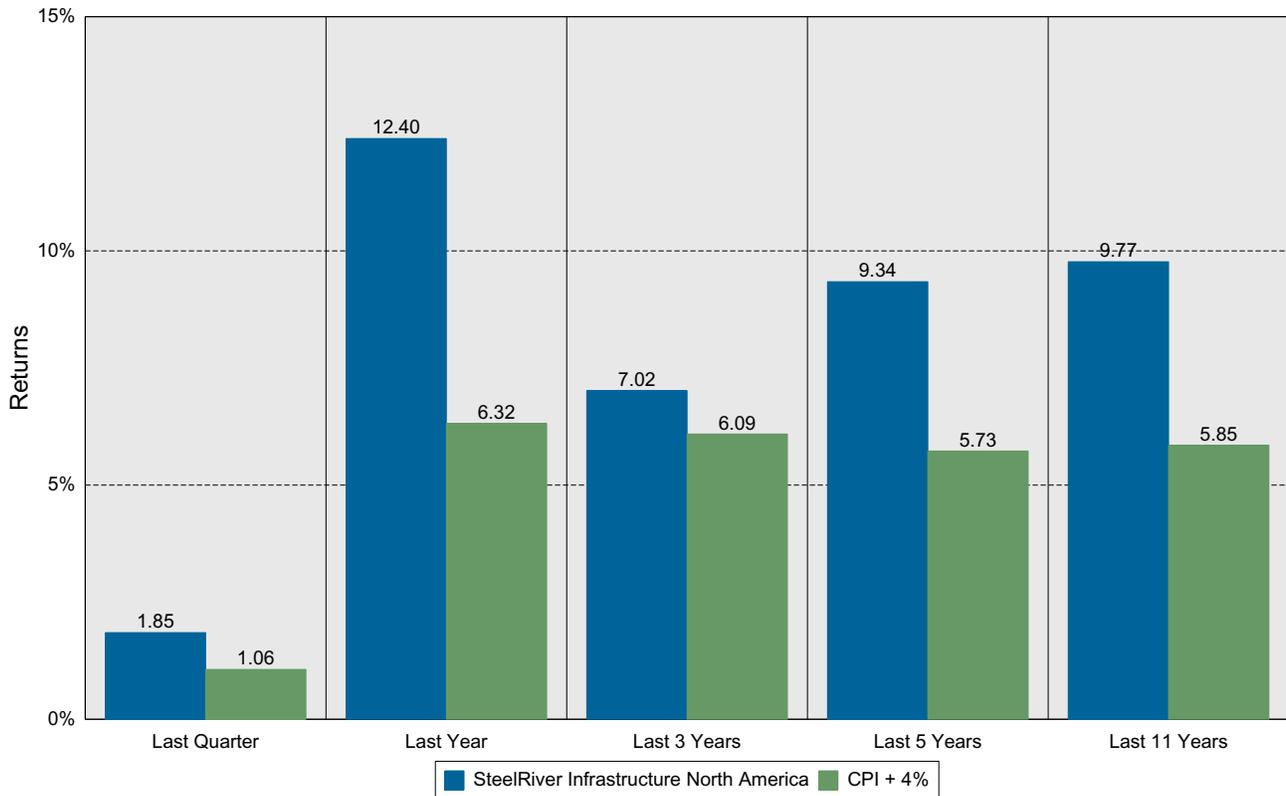
SteelRiver Infrastructure North America Period Ended December 31, 2019

Investment Philosophy

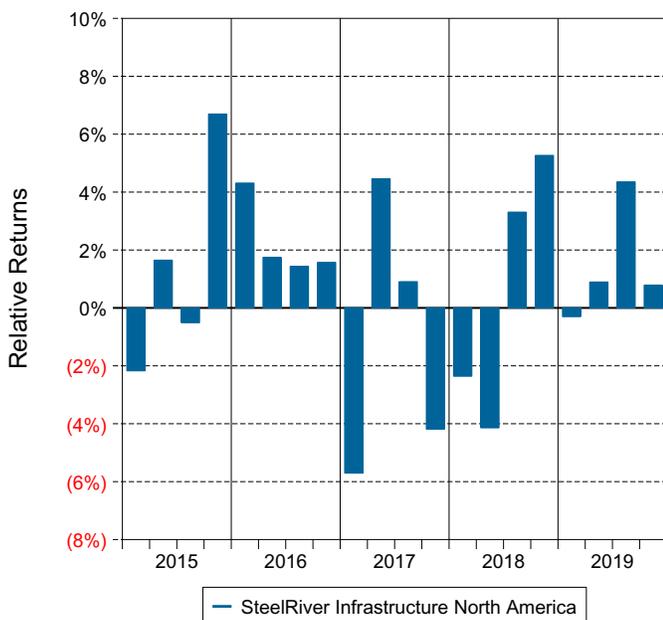
The product was funded in the fourth quarter of 2008.

Quarterly Summary and Highlights

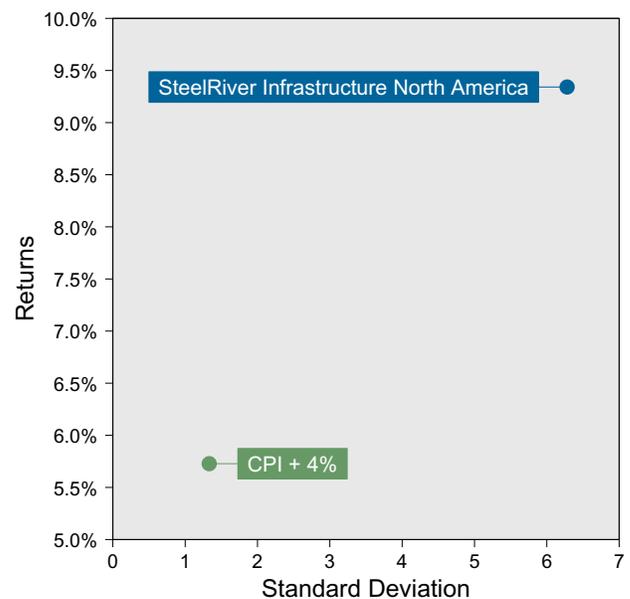
- SteelRiver Infrastructure North America's portfolio outperformed the CPI + 4% by 0.79% for the quarter and outperformed the CPI + 4% for the year by 6.08%.



Relative Return vs CPI + 4%



Annualized Five Year Risk vs Return



Research and Educational Programs

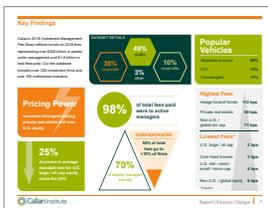
The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit www.callan.com/library to see all of our publications, and www.callan.com/blog to view our blog "Perspectives." For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

Long-Dated Private Equity Funds: More Illiquidity Please? |

In this paper, Ashley DeLuce of Callan's Private Equity Consulting Group analyzes long-dated private equity funds, which have terms of 15 years or more (some even have no fixed term), and tend to focus on stable, mature businesses that may not fit a traditional private equity investment profile. Although these companies may not generate the outsized internal rates of return associated with traditional private equity investments, they tend to have stronger downside protection. In evaluating a potential long-dated fund investment, investors need to be wary of the strategy's increased illiquidity and how it can impact annual commitment pacing.

Callan 2019 Investment Management Fee Study | This study using Callan's proprietary database is our eighth examination of



institutional investment management fee trends. The purpose of the study is to provide a detailed analysis on fee levels and trends across multiple asset classes and mandate sizes, for both active and passive management.

Gold: Real Asset, Risk Mitigator, or Pet Rock? | In this *Hedge Fund Monitor*, Jim McKee reviews the history of gold as a form



of money, the reasons behind the recent renaissance in gold, the potential roles of gold for institutional investors, and the alternative approaches to invest in gold-related themes. For some institutional investors, gold can play a useful role in diversifying risk or enhancing returns. For others, particularly those with higher risk tolerances and longer time horizons, a strategic gold allocation has about as much purpose as a Pet Rock.

Quarterly Periodicals

Private Equity Trends, 3Q19 | This newsletter from Callan's Private Equity Consulting Group provides a high-level summary of private equity activity in the quarter through all the investment stages, from fundraising to exits, as well as long-term performance data.

Monthly Periodic Table of Investment Returns, November 2019 |

A regular update to Callan's Periodic Table covering the major public equity and fixed income asset classes.

Active vs. Passive Report, 3Q19 | This series of charts compares active managers alongside relevant benchmarks over the long term.

Market Pulse Flipbook, 3Q19 | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data for U.S. and global ex-U.S. equities and fixed income, alternatives, and defined contribution plans.

Capital Market Review, 3Q19 | This newsletter provides analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes.

Hedge Fund Quarterly, 3Q19 | Callan's Jim McKee of our Hedge Fund Research Group provides commentary on developments for hedge funds and multi-asset class (MAC) strategies.

Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle? | Callan's Real Assets Consulting Group identifies seven indicators that, combined with an understanding of prevailing market dynamics, have helped signal when the institutional real estate market is overheated or cooled.

Real Assets Reporter, 3Q19 | This newsletter from our experts offers Callan's data and insights on real estate and other real asset investment topics.

Events

Miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: www.callan.com/library/

Please mark your calendar and look forward to upcoming invitations:

2020 June Regional Workshops

June 23 – San Francisco

June 25 – Chicago

2020 October Regional Workshops

October 27 – Atlanta

October 29 – Portland

Please also keep your eye out for upcoming Webinars in 2020! We will be sending invitations to register for these events and will also have registration links on our website at www.callan.com/webinarsupcoming.

For more information about events, please contact Barb Gerraty: 415-274-3093 / gerraty@callan.com

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

Attendees (on average) of the Institute's annual National Conference

3,700

Total attendees of the "Callan College" since 1994



"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer

Education

Through the "Callan College," the Callan Institute offers educational sessions for industry professionals involved in the investment decision-making process. It was founded in 1994 to provide both clients and non-clients with basic- to intermediate-level instruction.

Introduction to Investments for Institutional Investors

April 21-22, 2020 – San Francisco

July 21-22, 2020 – Chicago

October 13-14, 2020 – Chicago

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Learn more at www.callan.com/callan-college-intro-2/

Alternative Investments for Institutional Investors

June 16, 2020 – San Francisco

November 3, 2020 – Chicago

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In this one-day session, Callan experts will provide instruction about the importance of allocations to alternatives, and how to integrate, evaluate, and monitor them.

Learn from some of Callan's senior consultants and experts, including the head of Alternatives Consulting Pete Keliuotis. The session will cover private equity, private credit, hedge funds, real estate, and real assets; why invest in alternatives; risk/return characteristics and liquidity; designing and implementing an alternatives program; and trends and case studies.

Tuition is \$2,000 per person and includes instruction, all materials, and breakfast and lunch with the instructors.

Learn more at: <https://www.callan.com/callan-college-alternatives-2/>

List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g. attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
Aberdeen Standard Investments
Acadian Asset Management LLC
AEGON USA Investment Management Inc.
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
American Century Investments
Amundi Pioneer Asset Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group
Brown Brothers Harriman & Company
Cadence Capital Management
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Ceredex Value Advisers

Manager Name
Camplain Investment Partners, LLC
Chartwell Investment Partners
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
Davy Asset Management Limited
DePrince, Race & Zollo, Inc.
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
DWS
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
Financial Engines
First Hawaiian Bank Wealth Management Division
First State Investments
FIS Group, Inc.
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
Fuller & Thaler Asset Management, Inc.
GAM (USA) Inc.
Glenmeade Investment Management, LP
GlobeFlex Capital, L.P.
GMO LLC
Goldman Sachs
Green Square Capital Advisors, LLC

Manager Name
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Investment Management Co.
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Impax Asset Management Limited
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Intercontinental Real Estate Corporation
Invesco
Investec Asset Management North America, Inc.
Iridian Asset Management LLC
Ivy Investments
J.P. Morgan
Janus
Jennison Associates LLC
Jenson Investment Management
JO Hambro Capital Management Limited
Jobs Peak Advisors
John Hancock Investment Management Services, LLC
Kayne Anderson Rudnick Investment Management, LLC
KeyCorp
Lazard Asset Management
L & B Realty Advisors LLP
Legal & General Investment Management America
Lincoln Advisors
Lincoln National Corporation
Logan Circle Partners, L.P.
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
MacKenzie Investments
Macquarie Investment Management (MIM)
Manulife Investment Management
Marathon Asset Management, L.P.
McKinley Capital Management, LLC
Mellon
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
Mountain Pacific Advisors, LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management

Manager Name
Nuveen
OFI Global Asset Management
Osterweis Capital Management, LLC
Owl Rock
P/E Investments
Pacific Investment Management Company
Parametric Portfolio Associates LLC
Pathway Capital Management
Peregrine Capital Management, LLC.
Perkins Investment Management
PFM Asset Management LLC
PGIM Fixed Income
PineBridge Investments
PNC Capital Advisors, LLC
Polen Capital Management
Principal Global Investors
Putnam Investments, LLC
QMA LLC
RBC Global Asset Management
Regions Financial Corporation
Riverbridge Partners LLC
Robeco Institutional Asset Management, US Inc.
Rockefeller Capital Management
Rothschild & Co. Asset Management US
Russell Investments
Schroder Investment Management North America Inc.
Segall Bryant & Hamill
Smith Graham & Co. Investment Advisors, L.P.
South Texas Money Management, Ltd.
Sprucegrove Investment Management Ltd.
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Strategic Global Advisors
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
Vulcan Value Partners, LLC
Wasatch Global Investors
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Fargo Asset Management
Western Asset Management Company LLC
Westfield Capital Management Company, LP
William Blair & Company LLC



MEMORANDUM

DATE: February 21, 2020

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron 
Pension & Benefits Administrator

SUBJECT: Investment Policy Statement Revision

Board action is not required on this item and is for information and discussion only.

Attached is a draft of the re-write of the Investment Policy Statement for the Board's review and consideration.

The Board does not need to take action to adopt this during the February meeting, however, should the Board feel the revisions accurately capture the intent of the document, action can be taken to adopt.

Attachment: Investment Policy State Re-draft February 2020

Statement of Pension Investment Policy and Objectives

Tucson Supplemental Retirement System

Updated February 2020

Table of Contents

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Roles and Responsibilities..... 2

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Investment Manager Selection and Evaluation..... 14

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Background, Purpose and Objectives

The purpose of this Investment Policy Statement (the “IPS”) is to assist the Board of Trustees (the “Board”) in effectively establishing, monitoring, evaluating, and revising the investment program established for the Tucson Supplemental Retirement System (“TSRS”), a governmental, ERISA-exempt defined benefit plan sponsored by the city of Tucson.

TSRS was established to provide retirement benefits to city employees. The Board is comprised of one Mayor Appointee, Finance Director, Human Resources Director, one City Manager Appointee, two elected employee representatives and one retiree representative. The Board works closely with the TSRS System Administrator and TSRS staff, who all are City employees.

TSRS was organized in accordance with the Internal Revenue Code, the Arizona Revised Statutes and the Tucson City Code. This document provides a framework for the management of the assets of TSRS. The Board establishes this investment policy in accordance with applicable local, state, and federal laws.

This IPS may be modified by action of the Board. The policy identifies a set of investment objectives, guidelines, and performance standards for the investment of the assets of TSRS. This policy represents the formal document governing the investment of TSRS assets and will be used as the basis for future investment performance measurement and evaluation.

Investments will be made for the sole interest of the participants and beneficiaries of TSRS and in accordance with the following objectives:

- To ensure funds are available to meet current and future obligations of TSRS when due.
- To ensure the assets of TSRS are invested with the care, skill, and diligence that a prudent person acting in a like capacity would undertake.
- To ensure the assets of TSRS are invested in a manner that minimizes and controls the costs incurred in administering and managing the assets.
- To earn a minimum rate of return, net of investment management fees, equal to or exceeding the expected rate of return (the actuarial rate). TSRS will be managed in perpetuity indicating a long time horizon in which to evaluate investments.
- To earn the maximum rate of return that can be realistically achieved, given market conditions and risk considerations, in order to minimize future contributions.

Roles and Responsibilities

Board

The Board is generally responsible for developing, implementing, supervising and evaluating the investment policy of TSRS, hiring investment managers, custodians, consultants and transition managers (referred to as “Service Providers”) and monitoring and evaluating the effectiveness of the Service Providers in carrying out their respective duties.

The Board’s specific investment related responsibilities, which shall be carried out with professional advice and assistance from the Board’s Investment Consultant and administrative support from the TSRS Staff, include:

- Establishing the investment policy for TSRS including:
 - Asset allocation policy, which establishes and communicates the Board’s return expectations and risk tolerance;
 - Investment manager structure policy, which establishes and communicates the Board’s decisions regarding the number and types of investment managers that are appropriate for TSRS and
 - Investment manager guidelines, which establish and communicate the risk parameters set by the Board for each individual manager consistent with the overall risk level set for TSRS. The Board is able to establish investment guidelines for separately managed accounts and must accept guidelines for pooled vehicles such as collective investment trusts and mutual funds.
- Hiring a Custodian and an Investment Consultant to assist the Board and the TSRS staff in implementing investment policy and managing TSRS assets.
- Appointing investment managers to fulfill specific roles defined by the TSRS investment manager structure.
- Establishing effective communication and review procedures between the investment managers, the Investment Consultant, the Custodian and the Board.
- Monitoring and evaluating each investment manager’s success in achieving the objectives set for such manager by the Board and adhering to established guidelines.
- Approving the termination and, if appropriate, replacement of an investment manager when necessary
- Monitoring and controlling investment expenses, including investment manager fees, trustee and Custodian fees, and trading costs.
- Establishing a rebalancing policy and procedures.

Investment Managers

The specific duties and responsibilities of each of the fund’s investment managers are to manage the assets under their supervision in accordance with the guidelines and objectives outlined in their respective prospectuses, participation agreements, investment management agreements or other governing documents.

Managers should be responsive to the Board Staff, and/or Investment Consultant and provide information as necessary.

Investment Consultant

The primary role of the Investment Consultant is to assist the Board and Staff in fulfilling their responsibilities by providing information, analysis, and recommendations that support a prudent process. The responsibilities of the Investment Consultants are as follows:

- Provide perspectives on capital markets;
- Assist the Board in the development, implementation and evaluation of investment policy and objectives;
- Research and recommend structure and investments that are appropriate in furthering the plan's investment policies and objectives;
- Recommend appropriate performance measures and benchmarks and report on the effectiveness of those adopted;
- Monitor the investment management firms and products employed by TSRS on an on-going basis and inform the Board of any developments that might impact performance or TSRS;
- Measure, evaluate, and report investment managers' performance results on a quarterly basis. Such reports will evaluate the performance and risk characteristics of each investment strategy relative to targets established in this Investment Policy Statement. The Investment Consultant will also evaluate the investment style of each manager to determine if the manager is fulfilling the role for which they were hired;
- Conduct a prudent investment manager search process, as needed, to identify appropriate candidates for review and selection by the Board; and

Report quarterly to the Board.

Custodian

The responsibilities of the trustee/custodian include:

- Safekeeping of Assets – custody, valuation and accounting & reporting of assets owned by the TSRS;
- Trade Processing – track and reconcile assets that are acquired and disposed; and,
- Asset Servicing – maintain all economic benefits of ownership such as income collection, corporate actions, and proxy notification issues.

Policies and Procedures

Asset Allocation Guidelines

The asset allocation policy established by the Board is intended to reflect, and be consistent with, the Board's return objectives and risk tolerance. The asset allocation policy is designed to provide the greatest probability of meeting or exceeding TSRS's objectives at the lowest possible risk.

The Board selected the following asset allocation policy as a result of an asset liability study that examined the interaction of expected return and risk with liabilities determined by the actuary.

Percent of Total Pension Fund

Asset Class	Minimum	Target	Maximum
Equities:	53%	58%	63%
<i>Large Capitalization</i>	22%	27%	32%
<i>Small/Mid Capitalization</i>	4%	7%	10%
<i>International</i>	19%	24%	29%
Fixed Income	21%	25%	29%
Real Estate	9%	12%	15%
Infrastructure	3%	5%	7%

The asset allocation target will be reviewed annually for reasonableness in relation to significant economic and market changes or to changes in the Boards' long-term goals and objectives. A formal asset liability study will be conducted periodically to verify or provide a basis for revising the targets.

Investment Manager Structure

The Board has developed an investment manager structure that emphasizes simplicity and cost control. The Board has employed the number of managers believed to provide appropriate diversification within each asset class. The table below lists the roles to which individual investment managers are assigned, the target allocation of assets for each manager and the rebalancing ranges.

Investment Manager Structure Allocations

Portfolio Style	Investment Manager	Minimum	Target	Maximum
U.S. Equity:				
Large Cap Equity (Index)	AB	6.30%	8.30%	10.30%
Large Cap Equity (Enhanced Index)	PIMCO	2.20%	4.20%	6.20%
Large Cap Growth Equity (Active)	T. Rowe Price	5.30%	7.30%	9.30%
Large Cap Value Equity (Index)	BlackRock	5.30%	7.30%	9.30%
Mid Cap Equity (Active)	Champlain Investment Partners	1.50%	3.50%	5.50%
Small Cap Equity (Active)	Fidelity Institutional Asset Management	1.50%	3.50%	5.50%
International Equity:				
Core Style (Active)	Aberdeen Asset Management	7.60%	9.60%	11.60%
Value Style (Active)	Causeway Capital Management	7.60%	9.60%	11.60%
Small Cap (Active)	American Century Investment Management	2.80%	4.80%	6.80%
U.S. Fixed Income:				
U.S. Investment Grade Fixed Income (Index)	BlackRock	10.50%	12.50%	14.50%
Non-Government Fixed Income (Active)	PIMCO	9.50%	12.50%	15.50%
Real Estate:				
Open-end Core Properties Fund	J.P. Morgan Asset Management	6.00%	8.00%	10.00%
Open-end Value Added Real Estate	J.P. Morgan Asset Management	2.00%	4.00%	6.00%
Infrastructure:				
Open Ended Infrastructure		3.00%	5.00%	7.00%

Rebalancing Policy

The Board believes the asset allocation policy determines the majority of return and risk of TSRS. Therefore, the Board wishes to keep the actual asset allocation of TSRS close to the target asset allocation. The ranges specified in the table above are a function of the expected volatility of each asset class and the proportion of the total fund allocated to the asset class.

If TSRS experiences positive cash flow (i.e., contributions exceed disbursements), new contributions will be directed to the under-allocated assets. If TSRS experiences negative cash flow, funds will be withdrawn from over-allocated assets to make distributions. If the cash flow is not sufficient to keep an allocation within the defined ranges stated above, then purchase or sale transactions are required to rebalance TSRS assets.

Rebalancing actions are the responsibility of the TSRS Staff and shall be reported to the Board on a periodic basis. When asset allocations exceed the ranges indicated above the TSRS Staff will rebalance to the target level or to a point within the target range if the Board deems such action appropriate.

Where particular circumstances arise and Staff determines rebalancing is not prudent, because doing so may generate unnecessary costs or otherwise not be in the best interest of TSRS, a full report of the actions taken or not taken shall be made to the Board at the earliest opportunity.

TSRS' actual asset allocation shall be reviewed at the end of each quarter at a minimum and shall be based on current asset valuations. Estimated values may be used when current asset valuations are not available.

Total Fund Performance Objectives

The total fund has been designed to meet TSRS's objectives. The overall portfolio has been designed to provide the most appropriate structure and asset allocation from a risk and return perspective to meet this long term objective.

Time Horizon

The Board has adopted a time horizon of at least five-years for evaluating the TSRS Investment Program as a whole, each asset class and each investment manager relative to established benchmarks.

Performance Objectives

Based on the analysis used by the Board to develop the asset allocation principles and investment manager structure policy, the Board has identified performance benchmarks and peer groups for each investment management product.

Asset Class	Market Index ¹	Callan Style Group
Total Domestic Equity	Russell 3000 Index	Domestic Equity
Passive Large-Cap Equities	S&P 500 Index	Large Cap Style
Large Cap Value Equities	Russell 1000 Value Index	Large Cap Value Style
Large Cap Growth Equities	Russell 1000 Growth Index	Large Cap Growth Style
Mid Cap Core Equity	Russell Midcap Index	Mid Cap Style
Small Cap Core Equity	Russell 2000 Index	Small Cap Style
Total Non-U.S Equity	MSCI ACWI ex U.S. IMI	International Equity
Core Non-U.S. Equity	MSCI ACWI ex U.S.	Non-U.S. Equity Style
Non-U.S. Equity Small Cap	MSCI ACWI ex U.S. Small Cap	Non-U.S. Equity Small Cap
Fixed Income	Bloomberg Barclays Aggregate Index	Domestic Fixed
Real Estate	NFI-ODCE	Open-End Real Estate
Infrastructure	CPI+4%	NA

¹ The Investment Consultant has advised the Board that broader indexes such as the Russell 1000 and Russell 2000 are the most appropriate measures of success over the long run and that style indexes such as the Russell 1000 Value or Russell 2000 Growth are appropriate for measuring performance in the nearer term when investment managers have distinct growth or value styles.

The primary benchmark for evaluating the performance of TSRS is a Target Index consisting of asset class market indices weighted in accordance with the allocation target. The Target Index is:

S&P 500 Index	27%
Russell 2500 Index	7%
MSCI ACWI ex U.S. IMI	24%
BC Aggregate Bond Index	25%
NFI-ODCE	12%
CPI + 4%	5%

Over a rolling five-year time period the Board expects TSRS to generate returns, after payment of all fees and expenses, which exceed the returns of the Target Index.

Investment Manager Guidelines

TSRS's investment managers are expected to adhere to the investment guidelines found in this document, unless otherwise noted in an addendum or in a separate written agreement. As a general rule, the Board may specify investment guidelines for separately managed accounts and must agree to the guidelines for commingled vehicles.

An investment manager should contact TSRS when it believes that deviation from the guidelines would be in the best interest of the pension fund. Approval must be obtained in writing before an investment manager deviates from the guidelines.

General Guidelines

The following broad guidelines reflect the parameters under which the Board desires to achieve its objectives:

- The Investment Manager shall be given full discretion to manage the assets under its supervision subject to these Investment Guidelines and the laws of the State of Arizona.
- Investments will be of a prudent nature and consistent with the best investment practices.

Prohibited / Restricted Transactions

The following transactions are prohibited or restricted unless specifically authorized by TSRS in a separate written agreement:

1. Borrowing of money.
2. Purchase of securities on margin or short sales unless used for the purpose of risk control.
3. Pledging, mortgaging, or hypothecating of any securities except for loans of securities that are fully collateralized.
4. Purchase of the securities of the investment managers, its parent, or its affiliates.
5. Purchase or sale of futures or options for speculation or leverage.
6. Purchase or sale of commodities, commodity contracts, or illiquid interests in real estate or mortgages.
7. Purchase of illiquid securities.
8. Use of various futures and options strategies for hedging or for taking limited risks with a portion of the portfolio's assets.

Securities Trading

In making investment decisions, the investment manager(s) should concentrate on total return. The emphasis for securities trading shall be on "best execution"; that is, the highest proceeds to TSRS at the lowest cost, net of all transaction expenses.

Managers should report brokerage allocation to TSRS as part of the routine reporting process. Managers also should inform TSRS annually regarding any "soft dollar" arrangements between the manager and the brokers and

describe the services that are purchased with the soft dollars, if any, generated by pension fund assets. The managers also should regularly inform TSRS of the turnover within their portfolio and be prepared to document the rationale for any significant increases in portfolio turnover.

Securities Lending

TSRS may enter into securities lending agreements with the Custodian. The securities lending agreements should include credit approval, collateral management investment policies, and indemnification provisions that minimize the risk of principal loss.

Proxy Voting

The investment manager(s) are responsible for their portfolios and for making their own assessment of the issues to be voted upon. Managers are expected to vote all proxies received so as to enhance the economic interest of the pension plan. In addition, the managers should maintain records as to the voting of proxies so that TSRS can monitor both the general voting procedures and the specific actions taken. Each manager should submit quarterly reports to the TSRS that addresses proxy voting activity during the prior quarter. In addition, the Board may direct how proxies should be voted on certain issues.

Diversification

The investment manager(s) are responsible for achieving a level of diversification in their portfolio that is consistent with their investment approach and their role in TSRS's overall investment structure. Managers may be retained for portfolios that concentrate in specific market segments. General diversification guidelines may be waived (upon request) for these "special purpose" portfolios.

General Investment Objectives and Guidelines

Equity Portfolios

Each equity investment manager retained by TSRS will follow a specific investment style and will be evaluated against a specific market index that represents their investment style. In the case of active managers, investment results may also be compared to returns of a peer group of managers with similar styles.

This segment may include common and preferred stock, convertible securities, warrants, and cash equivalent securities. General equity guidelines for active managers include the following:

1. Holdings in any one economic sector (e.g. energy) should not exceed more than 4 times the weight of the sector in the benchmark index or 50% of the portfolio's market value, whichever is lower. If a sector has a greater than 50% weight in the index, the maximum exposure to that sector in the portfolio may be as high as its weight in the index. This restriction notwithstanding, the manager may invest up to 10% of the portfolio in a single sector.
2. It is expected that the portfolio will be invested primarily in stocks of companies headquartered in the United States. However, the manager has discretion to invest up to 15% of the portfolio in securities of foreign issuers listed on a major U.S. exchange or traded on a major U.S. securities market (including ADRs and ADSs). The manager may invest in other depository receipts and shares as well as non-dollar denominated securities of foreign issuers traded on non-U.S. exchanges. Restriction of depository receipts does not apply to dual listed stocks.
3. Private placements and other restricted securities (including Rule 144A eligible securities) are eligible for purchase up to 10% of the market value for the total portfolio.
4. Equity managers are expected to run fully invested portfolios. In most situations, residual or transitional cash should be no more than 5% of the portfolio market value. If, in a manager's judgment, a higher level of cash is warranted for defensive purposes, the 5% limit may be exceeded, provided prior notification has been given to an authorized representative of the Board. Non-equity assets will be high-quality cash equivalent securities maturing within one year.
5. Larger capitalization portfolios should have a weighted average market capitalization in excess of the weighted average market capitalization of the Russell Midcap Index. Middle capitalization portfolios should have a weighted average market value similar to that of the Russell Midcap Index. Smaller capitalization portfolios should have a weighted average market capitalization less than the weighted average market capitalization of the Russell Midcap Index.

Non-U.S. Equity Manager Guidelines

This segment may be invested in common and preferred stocks, convertibles, and warrants of companies headquartered outside of the United States. General non-U.S. equity guidelines for active managers include the following:

1. Issues held in the portfolio should be traded on a recognized national stock exchange with adequate liquidity, trading volume, regulations, and breadth of securities. Investments in any single country market should not exceed more than 4 times the weight of the country in the benchmark index or 50% of portfolio assets, whichever is lower. If a country has a greater than 50% weight in the index, the maximum exposure to that country in the portfolio may be as high as its weight in the index.
2. No more than 35% of each manager's portfolio should be invested in "emerging markets" (i.e., markets that are not included in the Morgan Stanley Capital International Europe, Australia, and Far East index).
3. ADRs and other depository receipts are permitted in the portfolio.
4. Private placements and other restricted securities (including Rule 144A eligible securities) are eligible for purchase up to 10% of the market value of the total portfolio.

U.S. Investment Grade Fixed Income Manager Guidelines

Permissible investments include marketable government, corporate, and mortgage-backed bonds and cash equivalent securities.

- For passive investment strategies, it is expected that the portfolio will be managed to replicate the performance of the underlying index. Therefore, overall characteristics of the portfolio should be similar to that of the index (including, but not limited to quality, sector, and duration characteristics).

Diversified Fixed Income Manager Guidelines

The manager will be allowed to invest in those securities listed in Appendix B of this document. General fixed income guidelines for active managers include the following:

- Duration of the total portfolio should be within 30% of the custom benchmark which is defined as 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, 25% JPM EMBI Global.
- The maximum position in a single issuer (excluding obligations of U.S. Government and its Agencies) should not exceed 5% of the portfolio's assets at current market value.
- The portfolio should maintain an average quality of at least "BB+".
- Money Market instruments must be rated in one of the two highest categories by a nationally recognized rating agency.
- The minimum rating for individual issues should be CCC (based on market value) as rated by Moody's, S&P, or Fitch. Should an issue be downgraded below the minimum, the manager will determine the appropriate action to be taken.

Alternative Asset Managers

The Board may employ funds, funds of funds, exchange traded funds, mutual funds or separate account management to pursue investments in “alternative assets” for the purpose of diversifying the market exposure of the Fund, to reduce correlations to equity and fixed income investments, and/or to enhance returns. These might include, without limitation, managers or partnerships investing in leveraged buyouts, distressed debt, venture capital, natural resources, hedge funds, private real estate, infrastructure, or other asset classes/strategies. These investments will not generally fall within the guidelines established for the more traditional asset classes that make up the majority of the Fund’s investments.

The Board shall consider certain criteria, including, but not limited to, the following in evaluating alternative asset managers:

1. Tenure and track record of management as a team;
2. Expertise in targeted areas of investment;
3. Diversification relative to other investments;
4. Use of Leverage;
5. Liquidity of investments;
6. General Partner investment, fees and potential conflicts of interest; and
7. Unrelated Business Income Tax.

Investment Manager Selection and Evaluation

Investment Manager Selection

The Board will utilize a process for investment manager selection that embodies the principles of procedural due diligence. Accordingly, when selecting investment managers, the Board will employ a competitive search process, including the following steps or such other steps as the Board determines in the situation:

1. Formulation of specific investment manager search criteria that reflect the requirements for the investment manager role under consideration.
2. Identification of qualified candidates from the manager search database maintained by the Investment Consultant and such other sources as determined by the Board.
3. Analysis of qualified candidates in terms of:
 - a) Quantitative characteristics, such as CFA GIPS-compliant composite return data, risk-adjusted rates of return and relevant portfolio characteristics.
 - b) Qualitative characteristics, such as key personnel, investment philosophy, investment strategy, research orientation, decision-making process, and risk controls.
 - c) Organizational factors, such as type and size of firm, ownership structure, client-servicing capabilities, ability to obtain and retain clients, and fees.
4. Selection and interview of finalist candidates based on a due diligence report prepared for the Board by the Investment Consultant summarizing the analysis described above.

Manager Communication Guidelines

TSRS will be in regular communication with their Investment Managers and will require informal and formal communication channels. There are four basic elements of the communications program: 1) on-site due-diligence meetings, 2) quarterly reporting requirements, 3) monthly reporting requirements, and 4) event-driven reporting requirements.

Manager Evaluation and Review

With the assistance of the TSRS Staff and the Investment Consultant, the Board will; evaluate each Investment Manager from a quantitative and qualitative standpoint on a quarterly basis. In evaluating all Investment Managers, the Board will consider qualitative factors likely to impact the future performance of the TSRS's assets managed in addition to current and historical rates of return.

The Board believes that it is appropriate to include “objective standards” designed to guide future decisions regarding investment managers.

1. Qualitative Review

The Board will evaluate qualitative factors relating to an investment manager, including:

- Ownership changes (e.g., key people “cash out”)
- Key people leave firm
- Conflict of Interest
- Changes in investment strategy the investment manager was employed by the Board to implement
- Investment manager is involved in material litigation or fraud
- Material client-servicing problems

2. Quantitative Review

Long-term performance standards used by the Board should measure an investment manager’s performance from inception and on a rolling five-year returns basis in relation to a broad market index or indices that the investment manager previously agreed to be measured against.

Shorter-term performance will be measured in relation to an appropriate style index and “Peer Group”. Each investment manager is to be measured against the median return of a previously agreed-upon peer group of investment managers with similar investment styles.

Managers are expected to maintain their stated investment style and philosophy. Quantitative measures of investment style and philosophy include style mapping, style attribution analysis, and tracking error relative to the benchmark. TSRS with the assistance of the Investment Consultant will monitor these factors on a quarterly basis.

Notwithstanding any other provision of this Investment Policy Statement or TSRS, the Board retains the right to terminate the contract with, and the services provided to the Board by, an investment manager at any time. The Board believes that the decision to retain or terminate an investment manager or other Service Provider should be based on reasoned judgment and confidence in the investment manager’s or other Service Provider’s ability to perform in the future.

Investment Policy Review

The Board will review this Investment Policy Statement periodically to ensure that it remains relevant and appropriate. The Investment Policy Statement may be amended at any time by majority vote.

Appendix A

Benchmarks

Investment Allocation	Benchmark Indexes
U.S. Equity	
Large Cap Core	S&P 500 Index, Russell 1000 Index
Large Cap Styles	Russell 1000 Growth and Value Indexes
Mid Cap Core	Russell Mid Cap Index
Mid Cap Styles	Russell Mid Cap Growth and Value Indexes
Small Cap	Russell 2000 Index
Small Cap Styles	Russell 2000 Growth and Value Indexes
International Equity	
Developed	MSCI EAFE Index
All Country ex-U.S.	MSCI All Country World Index ex-U.S. Index
Small Cap	MSCI All Country World Index ex-U.S. Small Cap Index
Emerging Markets	MSCI EM Index
Fixed Income	
U.S. Investment Grade	Barclays Aggregate Bond Index
Diversified	Custom benchmark: 25% Barclays Mortgage Index 25% Barclays Credit Index 25% Barclays High Yield Index 25% JP Morgan EMBI Global Index
Real Estate	
Private Real Estate	NCREIF ODCE Index
Infrastructure	
Private Infrastructure	CPI + 4%

The Board recognizes that benchmarks for private investments are imperfect, particularly for illiquid investments. The Board will evaluate performance of each strategy, taking into consideration the market environment at the time of investment. The Board may also consider the performance of traditional equity and fixed income benchmarks as part of the evaluation process.

Appendix B

The Manager will have discretion to invest in a broad array of public and private asset classes, instruments and investment vehicles including but not limited to:

- Money Market Instruments
- U.S. Treasury and Agency Notes and Bonds
- Municipal Bonds
- Corporate Securities
- Private Placements (Including 144As)
- Event-linked Bonds
- Bank Loans
- Yankee and Euro Bonds
- Mortgage-Backed Securities (including CMOs and REMICs)
- Mortgage Derivatives
- Asset-Backed Securities
- Preferred Stock
- Convertible Securities
- Non-U.S. Dollar-denominated Securities
- Emerging Market Securities
- Non-Leveraged Structure Notes
- Futures and Forwards (Including Exchange Traded Swaps Futures)
- Currencies
- Options, Caps and Floors
- Swaps
- Credit Default Swaps (Long and Short)
- PIMCO Pooled Funds



MEMORANDUM

DATE: February 21, 2020

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron
Pension & Benefits Administrator

SUBJECT: TSRS March 3 Presentation

Board action is not required on this item and is for information and discussion only.

Attached is a draft of TSRS presentation that Joyce and I will be taking before Mayor and Council during the March 3 Study Session. I welcome the Board's comments and feedback.

Please note this draft is under review by the City Manager's Office and is subject to change prior to our meeting next Thursday.

Attachment: March 3 TSRS Presentation



tucsonaz.gov

DRAFT

Tucson Supplemental Retirement System

Mayor & Council
Study Session

March 3, 2020



Agenda

- Mayor and Council Considerations
- Plan Overview
- Board of Trustee Plan Design Changes
- Funded Status as of June 30, 2019
- Contribution Rate History
- Future Projection



Mayor and Council Action

- Approval of Code Revision Amending Board Member Terms
- Approval of Employer and Employee Contribution Rates for FY 2021



Plan Overview

- Established in 1953 through City Code amendment
 - Excludes commissioned Police and Fire staff
 - Mandatory participation for non-appointed, non commissioned staff
- Defined benefit plan, qualified under IRS Code Section 401(a)
 - Formula based benefit at retirement
 - Total years of credited service x benefit multiplier x average final compensation



Overview Continued

Benefit Tiers			
	Legacy	Tier I	Tier II
Members	Hired prior to 06/30/2006	Hired 07/01/2006 – 06/30/2011	Hired after 07/01/2011
Current EE Contribution Rate	5.0%	6.75%	5.25%
Benefit Multiplier	2.25%	2.25%	2.0%
Avg. Final Compensation	Highest 3	Highest 3	Highest 5

- Governed by seven (7) member Board of Trustees



The Board and Their Role

- Seven (7) trustee members
 - Appointed by Mayor and Council, City Manager or Elected by City Employees and Retirees
- Effectuate the administration, management and operation of the System
 - Recommend City and Employer Contribution Rates
 - Investments and Investment Policy
 - Annual Actuarial Evaluation Review
 - Annual Budget Approval
 - Monthly Retirement Ratifications
 - Funding and Rounding Policy



Key Plan Design Changes

- 2006 – Creation of Tier I
- 2011 – Creation of Tier II
- 2013 – Adopted Funding & Rounding Policy
- 2020 – Modified Actuarial Assumptions
 - Reduced assumed investment rate from 7.25% to 7.00%
 - Updated mortality tables



Plan Funded Status

As of June 30, 2019

- Funded ratio of 72.8%, down from 76.2% at June 30, 2018
- Unfunded liability \$292,908,872, increase from \$230,353,506 at June 30, 2018
- Changes are direct result of modifications to actuarial assumptions
- Investment return of 6.21% for the year



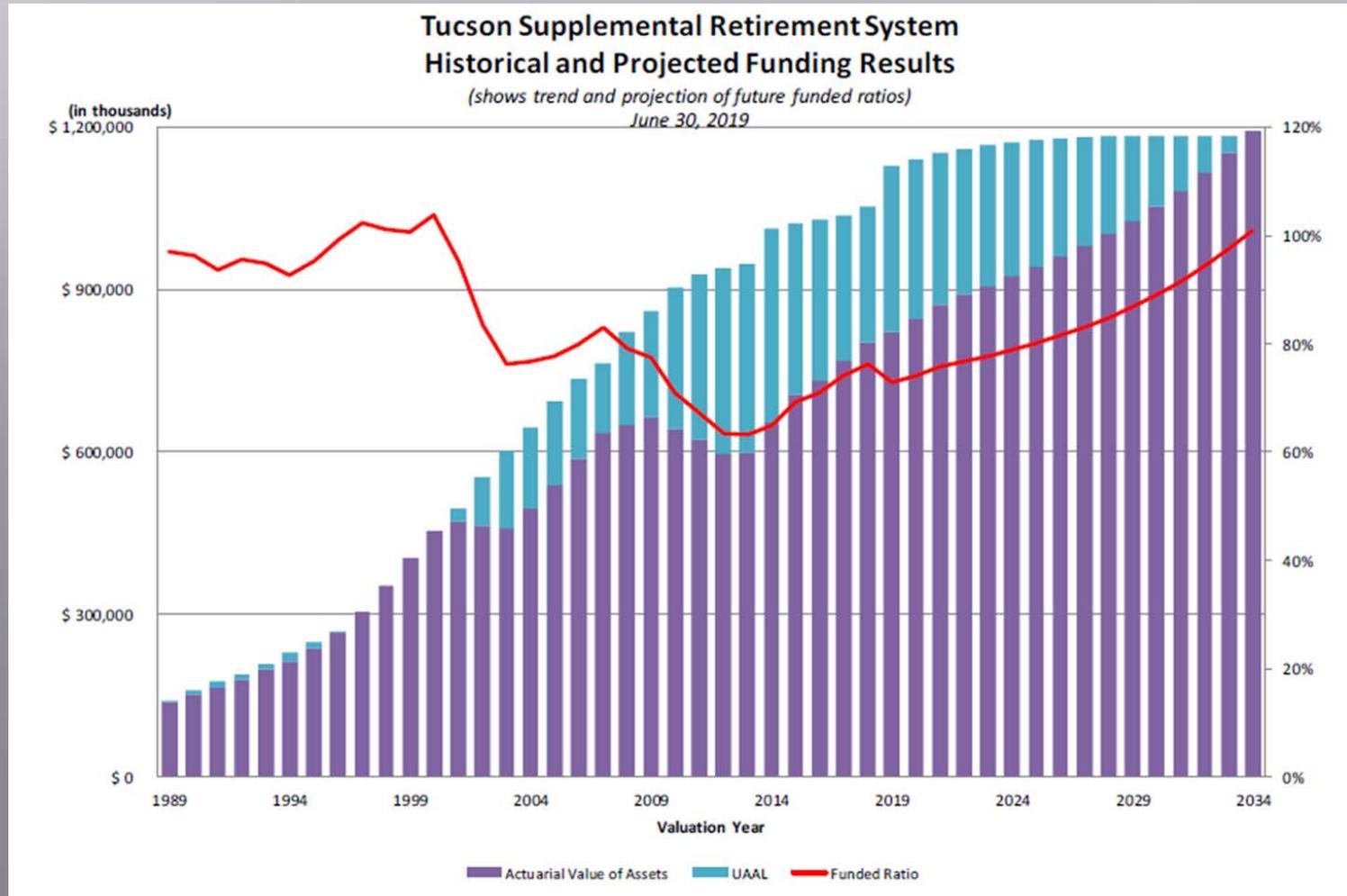
Contribution Rate History

Fiscal Year	Employee Rate			Employer Rate
	Legacy	Tier I	Tier II	
12/13	5.00	13.97	13.97	28.77
13/14	5.00	6.75	5.25	27.50
14/15	5.00	6.75	5.25	27.50
15/16	5.00	6.75	5.25	27.50
16/17	5.00	6.75	5.25	27.50
17/18	5.00	6.75	5.25	27.50
18/19	5.00	6.75	5.25	27.50
19/20	5.00	6.75	5.25	27.50
20/21	5.00	7.00	5.50	27.50

- Note: Numbers from 13/14 – 20/21 reflect rounding policy



Future Projection





tucsonaz.gov

Questions



MEMORANDUM

DATE: February 21, 2020

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron
Pension & Benefits Administrator

SUBJECT: Internal Audit Update

Board action is not required on this item and is for information and discussion only.

TSRS staff has been in contact with IT/ERP regarding implementation of the electronic workflow process for the retirement division. ERP is aware of our request and it is on the priority list of projects to complete but did not provide an anticipated completion date.

TSRS staff has also been in contact with Accounting Operations regarding the implementation of enhanced reconciliation procedures. Due to staff turnover in this division and a priority with CAFR completion, we have not been able to complete this implementation. As the division completes the FY 2019 CAFR and becomes fully staffed, TSRS will re-engage to begin implementation.

We have scheduled a follow up with Internal Audit the week of March 9th. Following our meeting, I will schedule a Board review to discuss the final findings.

Use Better Assumptions to Pay for Pensions



Lawmakers should pay close attention to state pension systems

February 19, 2020



By [James M. Hohman](#)

Michigan Rep. Thomas Albert, R-Lowell, is imploring state administrators to use better assumptions when determining how much they are going to put into the school employee retirement system. The state owes the retirees and employees in the system a lot more than it has saved, and using better assumptions can help it pay down the debt faster.

Administrators are supposed to contribute money to the pension system during each employee's career, so there is money available to fund retirement checks when the time comes. This ensures that the costs of employment are not deferred onto future taxpayers. It also means that the people who get the public service of government employees are the ones who bear the costs.

And it secures the retirements of the people who get pensions. A well-funded pension system has enough money to pay for the benefits that its members have earned. Retirees don't have to worry about whether taxpayers are going to struggle to catch up on debt, because there's enough money in the system to pay their pensions.

What employees earn for retirement is difficult to figure out, however. Their benefits are defined by how much they are paid, how many years they work and how long they will collect a pension. Likewise, how much the state pension fund earns on its

investments matters a lot, too. If administrators overestimate investment growth or underestimate the pension payouts, then the pension system gets underfunded.

Lawmakers always seem to find better uses for dollars than to put them in the pension system, however. So it's unsurprising that most government pension systems across the country are [underfunded](#).

It's good that there are lawmakers who buck this trend and want to catch up on pension debts. Making pension managers use more stringent assumptions means that taxpayers have to put more cash into these pension systems today. The demands on the government to spend cash are vast, however, so increases in pension contributions get weighed against other spending. Still, the government owes it to both pensioners and taxpayers to maintain a well-funded pension system, so pension funding ought to be a priority.

In Rep. Albert's case, he wants the state to lower its assumption about quickly the state government payroll will grow. This assumption determines how fast the state ramps up its debt payments.

The state probably shouldn't assume that payroll is growing, though. The value of paychecks covered by the system have fallen from \$10.4 billion to \$8.3 billion from 2004 to 2018. So it's good that there is agreement to stop using an assumption that is unlikely to be true, even if there is not yet a consensus about when the change should take effect.

The administration's delay costs taxpayers over the long term because it defers pension payments to the future. Doing so frees up cash in the short term and costs more over the long term. As with other debts, pension debt grows until it is paid off.

Lawmakers ought to pay close attention to state pension systems and try to pay off the state's debts. It's good for government employees and taxpayers alike.

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*any comments below is granted only for those comments written
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Can stocks keep soaring as the U.S. dollar surges? What investors need to know

By [William Watts](#)

Published: Feb 20, 2020 8:47 a.m. ET

ICE U.S. Dollar Index trades at more-than-2-year high as stocks hit records



AFP/Getty Images

Here's a market conundrum: A surging dollar doesn't appear to be putting the brakes on an equity rally that's pushed major U.S. indexes to all-time highs despite some periodic volatility tied to worries about China's COVID-19 epidemic.

A rapidly strengthening U.S. dollar can be a source of discomfort for stock-market investors for a few reasons. Most obviously, a stronger currency can make U.S. exporters less competitive overseas and dent overseas earnings for U.S.-based multinationals.

Read: [Here's a reminder that 'when the dollar moves, things break' — and vice versa](#)

Beyond earnings, a stronger dollar also represents a de facto tightening of monetary policy, noted Russ Koesterich, portfolio manager at BlackRock, in emailed comments.

"If not offset by other factors, this can lead to a broader tightening of financial conditions, which in turn can result in multiple compression and heightened volatility. Tighter financial conditions are also likely to negatively impact other risky assets, notably emerging markets," he said. Multiple compression occurs when a company's earnings rise but its stock price stays the same or falls, reducing the price-to-earnings ratio.

The ICE U.S. Dollar Index [DXY](#), [-0.55%](#), a measure of the U.S. currency against a basket of six major rivals, rose 0.1% to 99.577 after hitting an intraday high at 99.72, according to FactSet, taking out its early October high to trade at its

strongest since May 2017. For the year to date, the index is up 3.4%, so far defying consensus expectations for a 2020 decline.

The Dow Jones Industrial Average [DJIA, -0.78%](#) rose 115.84 points, or 0.4%, on Wednesday, while the S&P 500 [SPX, -1.05%](#) rallied 15.86 points or 0.6%, to [close at a record](#). The Nasdaq Composite [COMP, -1.76%](#) also logged a record finish, rising 84.44 points, or 0.9%.

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So why are stock-market bulls looking past the dollar rally?

A stronger U.S. currency eventually “could present a headwind” to stocks, but it would likely take a further run-up, said Liz Ann Sonders, chief investment strategist at Charles Schwab, in a phone interview.

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Of course, it isn't so simple to determine what magnitude of dollar rally would put a dent in stock-market sentiment, Sonders said, but she noted that a more recent episode of dollar-related equity weakness came after a much sharper currency rally.

In 2014-2015, the dollar index jump around 27% in around 10 months, with the gauge further extending gains in 2016. Stocks sold off as the dollar rally took a toll on earnings, particularly in the energy sector, where a rising dollar also contributed to weakness in oil prices, Sonders noted.

The current rally is more subdued. The index has rallied around 12% off its February 2018 low to its present level.

Koesterich noted that the dollar index also saw a bigger jump in mid-2018, when it rallied by over 8%. Stocks tumbled sharply in the fourth quarter of 2018 before rebounding sharply last year.

Moreover, the dollar index's rise still hasn't taken it far outside the range that's prevailed over the last 18 months or so. “This suggests that it will arguably take a more dramatic rise in the dollar to impact equity markets,” he said.

The dollar and equity gains have also accompanied gains by traditional haven assets, including gold and Treasuries. Indeed, gold futures [GCJ20, +1.75%](#) were up 0.3% on Wednesday and have rallied 5.7% so far this year. A stronger dollar is often seen as a negative for gold and other dollar-priced commodities, making them more expensive to users of other currencies.

Some market watchers, meanwhile, argued against the notion that the dollar itself is benefiting from haven-related buying around China's COVID-19 outbreak. In a Tuesday note, analysts at RBC observed that rather than rallying when equities and other such “risky” assets come under pressure, the dollar is showing a more positive correlation with the stock market than at any other time in the past two years.

Moreover, the dollar's overall price action is actually at odds with other more traditional havens, such as gold and Treasuries, which have both gave back some of the ground attributed to flight-to-safety buying, said Jason Draho, head of asset allocation for the Americas at UBS, in a note.

“The most plausible explanation for ongoing dollar strength is that investors globally want to own U.S. assets because they have the highest confidence in the U.S. economy doing fine, which is more of a flight-to-conviction, not safety,” Draho said.

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