

**ADMINISTRATIVE AND INVESTMENT  
RETIREMENT BOARD MEETING AGENDA  
THURSDAY, DECEMBER 12, 2019  
MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
3199 M STREET, MERCED, CA 95348**

**Please turn your cell phone or other electronic device to non-audible mode.**

**CALL TO ORDER: 8:15 A.M.**

- ROLL CALL.
- APPROVAL OF MINUTES – November 21, 2019.

**PUBLIC COMMENT**

Members of the public may comment on any item under the Board's jurisdiction. Matters presented under this item will not be discussed or acted upon by the Board at this time. For agenda items, the public may make comments at the time the item comes up for Board consideration. Persons addressing the Board will be limited to a maximum of five (5) minutes in total. Please state your name for the record.

**CLOSED SESSION**

As provided in the Ralph M. Brown Act, Government Code sections 54950 et seq., the Board may meet in closed session with members of its staff, county employees and its attorneys. These sessions are not open to the public and may not be attended by members of the public. The matters the Board will meet on in closed session are identified below. Any public reports of action taken in the closed session will be made in accordance with Government Code sections 54957.1.

**(1) DISABILITY RETIREMENT APPLICATIONS: PERSONNEL EXCEPTION**

(Govt. Code § § 54957, 31532; Cal Const. art. I, § 1)

1. Informal Hearing
  - a. Plascencia, Ramon
2. Formal Hearing
  - a. None
3. Disability update and possible action:
  - a. Arroyo, Elizabeth
  - b. Burnett, Donald
  - c. Cruz, Mary Kay
  - d. Elias Jr. Robert C.
  - e. Herrera, Yvonne
  - f. Leyro, Domingo
  - g. Ramirez, Amber
  - h. Ramirez, Linda Ann
  - i. Plascencia, Marcelino
  - j. Salgado, Jose

**RETURN TO OPEN SESSION**

Report on any action taken in closed session.

## **CONSENT CALENDAR**

Consent matters are expected to be routine and may be acted upon, without discussion, as one unit. If an item is taken off the Consent Calendar for discussion, it will be heard as the last item(s) of the Board Action/Discussion as appropriate.

### **RETIREMENTS:** Pursuant to Govt. Code § 31663.25 or § 31672

All items of earnable compensation for service or disability retirements listed below are in compliance with the pay code schedule approved by the Board of Retirement. The retirement is authorized; however, administrative adjustments may be necessary to alter the amount due to: audit, late arrival of data, court order, etc.

a. Norman, Lori	Child Support	20 Yrs. Svc. Eff. 11/09/2019
b. Stokes, Lilian	Health Services	8.12 Yrs. Svc. Eff. 11/04/2019

YTD fiscal year 2019/2020 retirees: 036\* reflects removal of SCD from prior month count

YTD fiscal year 2018/2019 retirees: 101\* reflects addition of SCD effective back to prior fiscal year count

YTD fiscal year 2017/2018 retirees: 082

**REFUND OF SERVICE PURCHASE:** None

**DEATH BENEFIT:** None

**MONTHLY BUDGET REPORT:** Submitted

## **REGULAR CALENDAR**

### **BOARD ACTION<sup>1</sup>/DISCUSSION**

1. Discussion and possible action to adopt the draft preliminary findings from the experience study, adjust MCERA's discount rate and adopt MCERA's draft contribution rates – Graham Schmidt and Anne Harper, Cheiron.
2. Discussion and possible action on quarterly and monthly Investment Performance Report with possible Board action on any funds or managers – Meketa.
3. Discussion and possible action on quarterly performance for alternative investments and any funds or managers – Cliffwater.
4. Discussion and possible action to adopt proposed interest crediting rates for December 31, 2019 – Staff.
5. Discussion on replacing Board's iPads and keyboards – Staff.
6. Discussion and possible action to add half time extra help Office Assistant to MCERA – Staff.
7. Discussion on legislative update (chaptered bills) – Staff.
8. Discussion and possible action on update of property purchase located at 690 W. 19<sup>th</sup> Street, Merced, CA – Staff.
9. Review calendar of any training sessions and authorize expenditures for Trustees and Plan Administrator. Pursuant to Govt. Code § 31522.8 and MCERA's Trustees Education and Training Policy requirements. Examples of upcoming training and educational sessions:
  - a. NCPERS Legislative Conference, January 26-28, 2020, Washington, DC.
  - b. CALAPRS General Assembly, March 7-10, 2020, Rancho Mirage, CA.

---

<sup>1</sup> "Action" means that the Board may dispose of any item by any action, including but not limited to the following acts: approve, disapprove, authorize, modify, defer, table, take no action, or receive and file.

- c. Advanced Principles of Pension Management for Trustees, March 30– April 1, 2020, Los Angeles, CA.
- d. Pension Bridge Annual Conference, April 15-20-10, 2020, San Francisco, CA.
- e. NCPERS Trustee Educational Seminal, May 9-10, 2020, Las Vegas, NV.
- f. NCPERS Accredited Fiduciary Program (Modules 1&2 and 3&4), May 9-10, 2020, Las Vegas, NV.
- g. NCPERS Annual Conference & Exhibition, May 10-13, 2020, Las Vegas, NV.
- h. SACRS Spring Conference, May 12-15, 2020, San Diego, CA.
- i. KKR's 2020 Global Investor Meeting, July 29 – July 1, 2020, Rancho Palos Verdes, CA.
- j. SACRS Public Pension Investment Management Program, July 26-29, 2020, Berkeley, CA.
- k. Principles of Pension Governance for Trustees, August 25-28, 2020 Malibu, CA.
- l. SACRS Fall Conference, November 10-13, 2020, Indian Wells, CA.

## **INFORMATION ONLY**

### **MCERA Upcoming Board Meetings:**

Please note: The MCERA Board Meeting and/or Education Day times and dates may be changed in accordance with the Ralph M. Brown Act by the MCERA Board as required.

- January 9, 2020
- January 23, 2020

## **ADJOURNMENT**

All supporting documentation is available for public review in the office of the Merced County Employees' Retirement Association, 3199 M Street, Merced, California, 95348 during regular business hours, 8:00 a.m. – 5:00 p.m., Monday through Friday.

**The Agenda is available online at [www.co.merced.ca.us/retirement](http://www.co.merced.ca.us/retirement)**

Any material related to an item on this Agenda submitted to the Merced County Employees' Retirement Association, after distribution of the Agenda packet is available for public inspection in the office of the Merced County Employees' Retirement Association.

Persons who require accommodation for a disability in order to review an agenda, or to participate in a meeting of the Merced County Employees' Retirement Association per the American Disabilities Act (ADA), may obtain assistance by requesting such accommodation in writing addressed to Merced County Employees' Association, 3199 M Street, Merced, CA 95348 or telephonically by calling (209) 726-2724. Any such request for accommodation should be made at least 48 hours prior to the scheduled meeting for which assistance is requested.

**MCERA RETIREMENT BOARD MEETING MINUTES**  
**THURSDAY, NOVEMBER 21, 2019**  
**MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**3199 M STREET, MERCED, CA 95348**

**ROLL CALL: 8:15 A.M.**

**Board Members Present:** Ryan Paskin, Scott Johnston, Al Peterson, David Ness (arrived at 8:45AM), Jason Goins and Scott Silveira, Michael Rhodes, Janey Cabral. **Counsel:** Forrest Hansen. **Staff:** Kristen Santos, Alexis Curry and Martha Sanchez.

**Absent:** Darlene Ingersoll and Karen Adams.

APPROVAL OF MINUTES: 11/21/2019.

**Motion to approve the November 21, 2019 meeting minutes.**

**Silveira/Peterson      U/A (6-0).**

**PUBLIC COMMENT**

Plan Administrator introduced MCERA's new Safety Alternate Trustee, Kalisa Rochester.

**CLOSED SESSION**

The meeting went into closed session.

**RETURN TO OPEN SESSION**

**DISABILITY RETIREMENT APPLICATIONS: PERSONNEL EXCEPTION**

(Govt. Code §54957, 31532; Cal Const. art. I, § 1)

**Motion to grant service connected disability and deny non-service connected disability for Trudy Winder.**

**Cabral/Silveira      U/A (6-0).**

**CONSENT CALENDAR**

**RETIREMENTS:** Pursuant to Govt. Code § 31663.25 or § 31672

All items of earnable compensation for service or disability retirements listed below are in compliance with the pay code schedule approved by the Board of Retirement. The retirement is authorized; however, administrative adjustments may be necessary to alter the amount due to: audit, late arrival of data, court order, etc.

a. Stum, Karen	HSA	23 Yrs. Svc.	Eff. 10/25/2019
b. Estep, Jason (SCD)	Sheriff/Corrections	13 Yrs. Svc.	Eff. 10/15/2018
c. Wakabongo, Musau	Health Dept	1 Yrs. Svc.	Eff. 10/02/2019
d. Ng, George	Sheriff/Corrections	13 Yrs. Svc.	Eff. 11/09/2019
e. Dias, Connie	HSA	21 Yrs. Svc.	Eff. 10/26/2019
f. Garcia, Javier	Sheriff/Corrections	20 Yrs. Svc.	Eff. 10/27/2019
g. Mitchell, Stephanie	Superior Courts	18 Yrs. Svc.	Eff. 04/17/2019
h. Urquidez-Ortiz, Michele	HSA	29 Yrs. Svc.	Eff. 10/29/2019

YTD fiscal year 2019/2020 retirees: 035

YTD fiscal year 2018/2019 retirees: 100

YTD fiscal year 2017/2018 retirees: 082



**REFUND OF SERVICE PURCHASE:** None

**DEATH BENEFIT:** None

**MONTHLY BUDGET REPORT:** Submitted

**Motion to approve Consent Calendar.**

**Rhodes/Goins U/A (6-0).**

### **BOARD ACTION<sup>1</sup>/DISCUSSION**

1. Presentation and possible approval of the 2020 MCERA Board of Retirement meeting calendar – Staff.

**Motion to approve MCERA's Board Calendar for 2020.**

**Silveira/Cabral U/A (6-0).**

2. Discussion and possible action on updated MCERA Board Bylaws as reviewed by Bylaws Subcommittee – Staff.

**Motion to approve draft bylaws with changes and submit to the Board of Supervisors for approval.**

**Ness/Peterson U/A (7-0)**

3. Discussion and possible action on Monthly Investment Performance Report with possible Board action on any funds or managers – Staff.

**No action taken.**

4. Discussion and possible action on update of property purchase located at 690 W. 19<sup>th</sup> Street, Merced, CA – Staff.

**No action taken.**

5. Review calendar of any training sessions and authorize expenditures for Trustees and Plan Administrator. Pursuant to Govt. Code §31522.8 and MCERA's Trustees Education and Training Policy requirements. Examples of upcoming training and educational sessions:
  - a. NCPERS Legislative Conference, January 26-28, 2020, Washington, DC.
  - b. CALAPRS General Assembly, March 7-10, 2020, Rancho Mirage, CA.
  - c. Advanced Principles of Pension Management for Trustees, March 30-April 1, 2020, Los Angeles, CA.
  - d. Pension Bridge Annual Conference, April 14-15, 2020, San Francisco, CA.
  - e. NCPERS Annual Conference & Exhibition, May 10-13, 2020, Las Vegas, NV.
  - f. SACRS Spring Conference, May 12-15, 2020, San Diego, CA.
  - g. Principles of Pension Management for Trustees, August 25-28, 2020 Malibu, CA.
  - h. SACRS Fall Conference, November 10-13, 2020, Indian Wells, CA.

**Motion for Plan Administrator to attend NCPERS Legislative Conference January 26-28, 2020 in Washington DC.**

**Silveira/Cabral U/A (7-0)**

<sup>1</sup> "Action" means that the Board may dispose of any item by any action, including but not limited to the following acts: approve, disapprove, authorize, modify, defer, table, take no action, or receive and file.

**INFORMATION ONLY**

- Trustee Rhodes informed the Board on SACRS Fall Conference voting regarding SACRS Omnibus Bill (passed 20 yes to 0 no), and Legislation regarding non-service connected disability bill (passed 16 yes to 4 no).
- Cheiron will be presenting the draft employer and employee contribution rates in December.

**ADJOURNMENT**

The meeting adjourned at 10:03 A.M.

Respectfully submitted,

---

Ryan Paskin, Chair

---

Al Peterson, Secretary

---

Date

# Consent Expenditure Report

Non-Administrative Expenses	Original Projection	Current Projection	Expended 11/2019	Expended YTD	Bal Remaining	% Exp YTD
<b>21800 · Investment Expenses</b>	<b>3,400,000.00</b>	<b>3,400,000.00</b>	<b>100,740.99</b>	<b>772,861.03</b>	<b>2,627,138.97</b>	<b>23%</b>
11/5/2019 Golden Valley Engineering - 2019-10 Due Diligence - New Building			9,357.25			
11/5/2019 Anne Rahilly - 2019-10 Notary Services			45.00			
11/5/2019 Nossaman - 2019-09 - Real Estate Purchase Related Legal			3,288.60			
11/6/2019 Cliffwater - 2019-10 PE & HF Consulting			33,333.33			
11/6/2019 PanAgora - 2019-Q3 Mgt Fee			35,757.81			
11/7/2019 KKR GII II - 2019-Q3 Mgt Fee			18,959.00			
Total 21800 · Investment Expenses			<b>100,740.99</b>			
<b>21802 · Actuarial Services</b>	<b>250,000.00</b>	<b>250,000.00</b>	<b>-</b>	<b>22,363.75</b>	<b>227,636.25</b>	<b>9%</b>
Total 21802 · Actuarial Services			<b>-</b>			
<b>21812 · Data Processing</b>	<b>120,000.00</b>	<b>120,000.00</b>	<b>199.03</b>	<b>13,867.37</b>	<b>106,132.63</b>	<b>12%</b>
11/18/2019 Comcast - 2019-11 Wifi Chgs			199.03			
Total 21812 · Data Processing			<b>199.03</b>			
<b>21834 · Legal Services</b>	<b>300,000.00</b>	<b>300,000.00</b>	<b>25,641.31</b>	<b>94,509.40</b>	<b>205,490.60</b>	<b>32%</b>
11/5/2019 Ted Cabral - 2019-09 Admin			592.00			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			129.50			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			2,605.50			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			292.00			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			7,914.00			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			436.00			
11/5/2019 Ted Cabral - 2019-09 Disab Legal Svcs			933.00			
11/12/2019 PPC - 2019-10 Legal Svcs			265.00			
11/13/2019 Ted Cabral - 2019-10 Admin			444.00			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			778.50			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			353.00			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			60.41			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			943.50			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			3,850.00			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			3,194.40			
11/13/2019 Ted Cabral - 2019-10 Disab Legal Svcs			2,850.50			
Total 21834 · Legal Services			<b>25,641.31</b>			
<b>21840 · Custodial Banking Services</b>	<b>125,000.00</b>	<b>125,000.00</b>	<b>1,367.68</b>	<b>31,211.54</b>	<b>93,788.46</b>	<b>25%</b>
11/4/2019 2019-10 Wire Fees			75.00			
11/5/2019 2019-09 NT STIF Income - Custodial Fee			1,267.68			
11/8/2019 2019-10 Wire Fees			25.00			
Total 21840 · Custodial Banking Services			<b>1,367.68</b>			
<b>22350 · Software and Technology</b>	<b>305,000.00</b>	<b>305,000.00</b>	<b>1,065.43</b>	<b>93,648.38</b>	<b>211,351.62</b>	<b>31%</b>
11/12/2019 CDW-G - Comp Monitors & Stands			622.72			
11/12/2019 LexisNexis - 2019-10 Chgs			272.70			
11/12/2019 Spriggs - Bizhub Lease			170.01			
Total 22350 · Software and Technology			<b>1,065.43</b>			
<b>Depreciation Expense</b>	<b>242,777.87</b>	<b>242,777.87</b>				
<b>Total Non-Administrative Items</b>	<b>4,742,777.87</b>	<b>4,742,777.87</b>	<b>129,014.44</b>	<b>1,028,461.47</b>	<b>3,714,316.40</b>	<b>22%</b>

**Merced County Employees' Retirement Association**  
**Non-Administrative Expenses Prev Year Comparison (Preliminary)**  
**11/30/2019**

**3:26 PM**  
**11/08/19**  
**Accrual Basis**

	<u>Nov 19</u>	<u>Nov 18</u>	<u>\$ Change</u>	<u>% Change</u>
Expense				
62025 · Non-Administrative Expenses				
21800 · Investment Expenses	\$ 100,740.99	\$ 208,950.05	\$ (108,209.06)	-51.79%
21802 · Actuarial Services	-	-	-	0.0%
21812 · Data Processing	199.03	4,090.00	(3,890.97)	-95.13%
21834 · Legal Services	25,641.31	274.75	25,366.56	9,232.6%
21840 · Custodial Banking Services	1,367.68	1,587.96	(220.28)	-13.87%
22350 · Software and Technology	1,065.43	18,983.62	(17,918.19)	-94.39%
Total 62025 · Non-Administrative Expenses	<u>\$ 129,014.44</u>	<u>\$ 233,886.38</u>	<u>\$ (104,871.94)</u>	-44.84%

**Merced County Employees' Retirement Association**  
**Non-Administrative Expenditures Report (Preliminary)**  
**For the Month Ended November 30, 2019**

<b>Administrative Budget</b>	<b>Adopted</b>	<b>Current Budget</b>	<b>Expended 11/2019</b>	<b>Expended YTD</b>	<b>Bal Remaining</b>	<b>% Exp YTD</b>
<b>10110 · Salaries &amp; Wages</b>	<b>1,240,572.00</b>	<b>1,240,572.00</b>	<b>123,551.31</b>	<b>387,613.76</b>	<b>852,958.24</b>	<b>31%</b>
11/1/2019 PP22 Office Payroll 10110-10360, 21001, 22527			40,340.28			
11/15/2019 PP23 Office Payroll 10110-10360, 21001, 22527			42,539.74			
11/27/2019 PP24 Office Payroll 10110-10360, 21001, 22527			40,671.29			
Total 10110 · Salaries & Wages			<b>123,551.31</b>			
<b>20600 · Communications</b>	<b>4,000.00</b>	<b>4,000.00</b>	<b>136.61</b>	<b>1,219.23</b>	<b>2,780.77</b>	<b>30%</b>
11/5/2019 AT&T - 2019-10 Comm Chgs			136.61			
Total 20600 · Communications			<b>136.61</b>			
<b>20900 · Household Expense</b>	<b>11,500.00</b>	<b>11,500.00</b>	<b>40.00</b>	<b>3,472.95</b>	<b>8,027.05</b>	<b>30%</b>
11/12/2019 Bob's Pest Control - 2019-10 Svcs			40.00			
Total 20900 · Household Expense			<b>40.00</b>			
<b>21000 · Insurance - Other</b>	<b>85,500.00</b>	<b>85,500.00</b>	<b>-</b>	<b>79,660.00</b>	<b>5,840.00</b>	<b>93%</b>
Total 21000 · Insurance - Other			<b>-</b>			
<b>21301 · Maintenance Structure Improvement</b>	<b>19,100.00</b>	<b>19,100.00</b>	<b>325.00</b>	<b>1,548.80</b>	<b>17,551.20</b>	<b>8%</b>
11/5/2019 Yard Masters - 2019-10 Landscape Maint			325.00			
Total 21301 · Maintenance Structure Improvement			<b>325.00</b>			
<b>21500 · Membership</b>	<b>7,200.00</b>	<b>7,200.00</b>	<b>-</b>	<b>4,570.00</b>	<b>2,630.00</b>	<b>63%</b>
Total 21500 · Membership			<b>-</b>			
<b>21700 · Office Expense - General</b>	<b>11,000.00</b>	<b>11,000.00</b>	<b>(3.08)</b>	<b>3,050.65</b>	<b>7,949.35</b>	<b>28%</b>
11/6/2019 REMCO - Abatement for REMCO 2019-Q3 Newsletter Labels/Data			(45.00)			
11/22/2019 First Choice - 2019-10 Cooler Rental			7.00			
11/22/2019 First Choice - 2019-10 Water Svc			34.92			
Total 21700 · Office Expense - General			<b>(3.08)</b>			

Merced County Employees' Retirement Association  
Non-Administrative Expenditures Report (Preliminary)  
For the Month Ended November 30, 2019

Administrative Budget	Adopted	Current Budget	Expended 11/2019	Expended YTD	Bal Remaining	% Exp YTD
<b>21710 · Office Expense - Postage</b>	<b>15,750.00</b>	<b>15,750.00</b>	<b>-</b>	<b>3,599.04</b>	<b>12,150.96</b>	<b>23%</b>
Total 21710 · Office Expense - Postage			-			
<b>21805 · Audits</b>	<b>60,000.00</b>	<b>60,000.00</b>	<b>10,477.17</b>	<b>24,159.74</b>	<b>35,840.26</b>	<b>40%</b>
11/18/2019 Brown Armstrong - FY 18-19 Audit Progress Through 2019-10			10,477.17			
Total 21805 · Audits			10,477.17			
<b>21808 · Board Membership</b>	<b>12,000.00</b>	<b>12,000.00</b>	<b>1,300.00</b>	<b>4,300.00</b>	<b>7,700.00</b>	<b>36%</b>
11/5/2019 2019-10 Bd Mtgs			200.00			
11/5/2019 2019-10 Bd Mtgs			200.00			
11/5/2019 2019-09 Bd Mtgs			200.00			
11/5/2019 2019-10 Bd Mtgs			200.00			
11/5/2019 2019-10 Bd Mtgs			200.00			
11/5/2019 2019-10 Bd Mtgs			200.00			
11/18/2019 2019-10 Subcommittee Mtg			100.00			
Total 21808 · Board Membership			1,300.00			
<b>21811 · Court Reporters</b>	<b>2,000.00</b>	<b>2,000.00</b>	<b>-</b>	<b>-</b>	<b>2,000.00</b>	<b>0%</b>
Total 21811 · Court Reporters			-			
<b>21816 · Medical Services</b>	<b>80,000.00</b>	<b>80,000.00</b>	<b>4,850.00</b>	<b>10,450.00</b>	<b>69,550.00</b>	<b>13%</b>
11/13/2019 ExamWorks - Record Review & Report			4,850.00			
Total 21816 · Medical Services			4,850.00			
<b>21872 · Investigations</b>	<b>1,000.00</b>	<b>1,000.00</b>	<b>-</b>	<b>-</b>	<b>1,000.00</b>	<b>0%</b>
Total 21872 · Investigations			-			
<b>21900 · Publications &amp; Legal Notices</b>	<b>4,500.00</b>	<b>4,500.00</b>	<b>-</b>	<b>2,846.00</b>	<b>1,654.00</b>	<b>63%</b>
Total 21900 · Publications & Legal Notices			-			

Merced County Employees' Retirement Association  
Non-Administrative Expenditures Report (Preliminary)  
For the Month Ended November 30, 2019

Administrative Budget	Adopted	Current Budget	Expended 11/2019	Expended YTD	Bal Remaining	% Exp YTD
<b>22300 · Spec Dept Exp - Other</b>	<b>500.00</b>	<b>500.00</b>	<b>-</b>	<b>52.00</b>	<b>448.00</b>	<b>10%</b>
Total 22300 · Spec Dept Exp - Other			-			
<b>22310 · Election Expense</b>	<b>13,150.00</b>	<b>13,150.00</b>	<b>-</b>	<b>6,921.73</b>	<b>6,228.27</b>	<b>53%</b>
Total 22310 · Election Expense			-			
<b>22327 · Spec Dept Exp - Cost Allocation</b>	<b>175,568.00</b>	<b>175,568.00</b>	<b>-</b>	<b>13,553.91</b>	<b>162,014.09</b>	<b>8%</b>
Total 22327 · Spec Dept Exp - Cost Allocation			-			
<b>22500 · Transportation &amp; Travel</b>	<b>400.00</b>	<b>400.00</b>	<b>-</b>	<b>-</b>	<b>400.00</b>	<b>0%</b>
Total 22500 · Transportation & Travel			-			
<b>22505 · Trans &amp; Travel - Staff Development</b>	<b>10,000.00</b>	<b>10,000.00</b>	<b>-</b>	<b>300.00</b>	<b>9,700.00</b>	<b>3%</b>
Total 22505 · Trans & Travel - Staff Development			-			
<b>22515 · Trans &amp; Travel - In State</b>	<b>55,000.00</b>	<b>55,000.00</b>	<b>-</b>	<b>10,377.58</b>	<b>44,622.42</b>	<b>19%</b>
Total 22515 · Trans & Travel - In State			-			
<b>22516 · Trans &amp; Travel - Out of State</b>	<b>15,000.00</b>	<b>15,000.00</b>	<b>-</b>	<b>995.00</b>	<b>14,005.00</b>	<b>7%</b>
Total 22516 · Trans & Travel - Out of State			-			
<b>22600 · Utilities</b>	<b>15,000.00</b>	<b>15,000.00</b>	<b>1,080.45</b>	<b>5,499.05</b>	<b>9,500.95</b>	<b>37%</b>
11/6/2019 PG&E - 2019-10 Svcs			600.05			
11/12/2019 City of Merced - 2019-10 WS&G			480.40			
Total 22600 · Utilities			1,080.45			
<b>Depreciation Expense</b>	<b>14,403.15</b>	<b>14,403.15</b>	<b>-</b>	<b>-</b>	<b>14,403.15</b>	
<b>Total Administrative Budget</b>	<b>1,853,143.15</b>	<b>1,853,143.15</b>	<b>141,757.46</b>	<b>564,189.44</b>	<b>1,288,953.71</b>	<b>30%</b>

## 2019 Preliminary Valuation and Experience Study Results

December 12, 2019

Graham A. Schmidt, ASA, FCA, MAAA, EA  
Anne D. Harper, FSA, MAAA, EA





- Preliminary 2019 Valuation Results Prior to Assumption Changes
  - Executive Summary and Highlights
  - Changes Since Last Valuation
- Historical Review
- Demographic Assumptions
- Economic Assumptions
- Next Steps



## Merced County Employees' Retirement Association Summary of Key Valuation Results (in millions)

Valuation Date Fiscal Year End	June 30, 2019 2021	June 30, 2018 2020
Actuarial Liability	\$ 1,349.5	\$ 1,301.9
Market Value of Assets	<u>866.5</u>	<u>826.7</u>
Unfunded Actuarial Liability	\$ 483.0	\$ 475.3
Funded Ratio	64.2%	63.5%
Net Employer Contribution Rate	50.14%	49.15%

# Highlights - (Prior to Assumption Changes)



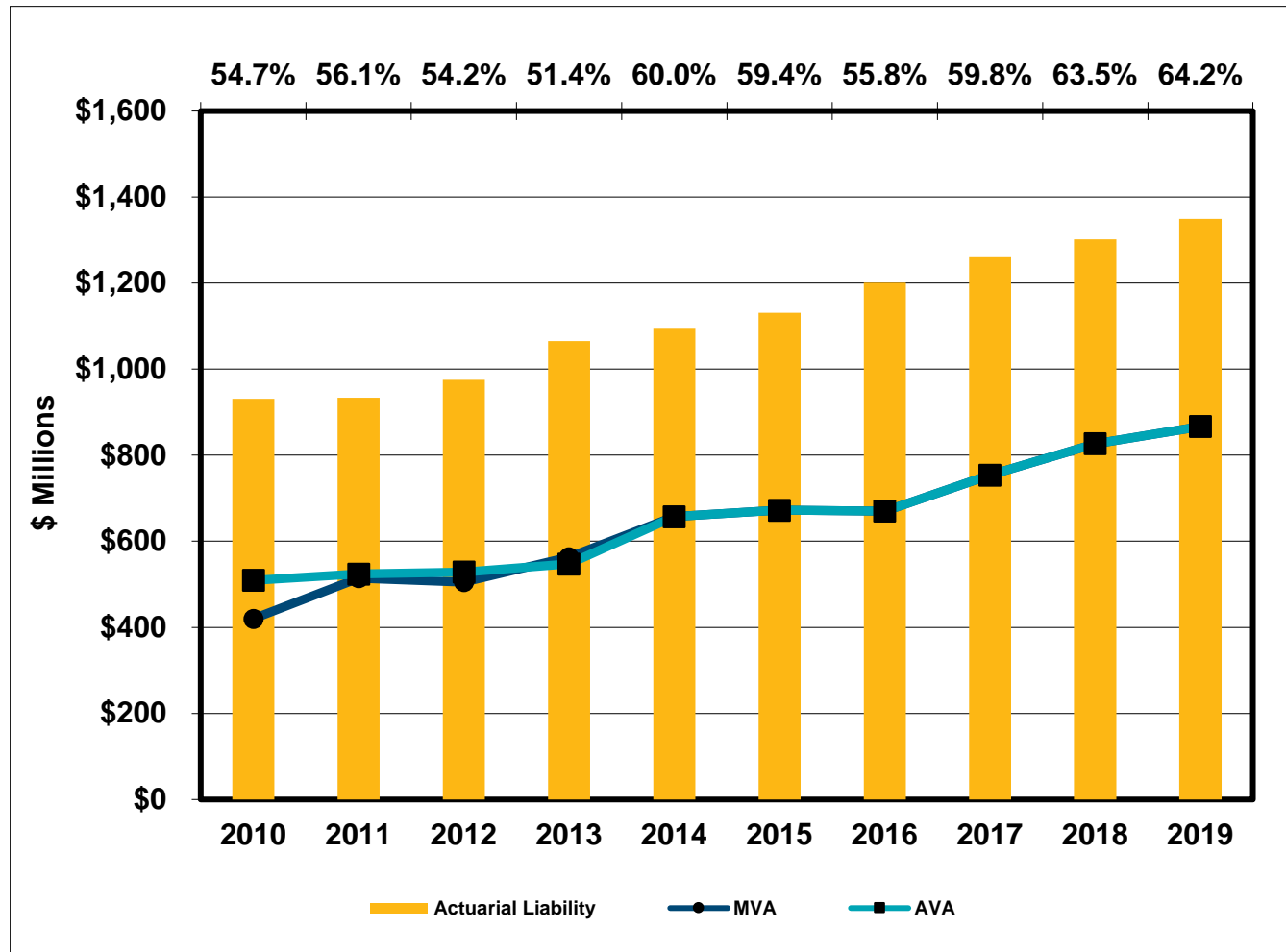
- Investment return on the market value of assets was 4.8%, net of investment expenses, compared to the 7.25% assumed rate of return. This increased the contribution rate by 0.23% of pay.
- Liability losses increased the contribution rate by 0.17%
- The expected net change due to the gains and losses from 2013-2018 under direct rate smoothing increased the contribution rate by 0.83% of pay
- PEPRA new hires decreased the contribution rate by 0.23% of pay
- Overall payroll grew slightly by more than expected, reducing the contribution rate as a percentage of payroll
- The net impact of all changes increased the contribution rate by about 0.99% of pay

# Changes Since Last Valuation (Prior to Assumption Changes)



Employer Contribution Reconciliation				
Item	Total	Normal Cost	Amortization	Expenses
FYE 2020 Net Employer Contribution Rate	49.15%	8.78%	38.93%	1.44%
Expected Change due to phase-in	0.83%	0.00%	0.83%	0.00%
Change due to investment loss	0.23%	0.00%	0.23%	0.00%
Change due to contributions less than expected	0.02%	0.00%	0.02%	0.00%
Change due to PEPRA new hires	-0.23%	-0.23%	0.00%	0.00%
Change due to demographic experience	0.17%	0.09%	0.08%	0.00%
Change due to effect of payroll on amort / expense	<u>-0.03%</u>	<u>0.00%</u>	<u>-0.04%</u>	<u>0.01%</u>
Total change	0.99%	-0.14%	1.12%	0.01%
FYE 2021 Net Employer Contribution Rate	50.14%	8.64%	40.05%	1.45%

# Historical Review (Prior to Assumption Changes)





- Overview
- Mortality
- Decrements
  - Retirement
  - Termination
  - Disability
- Merit Salary Increases
- Other Assumptions
- Terminal Pay Load (still under review)



- Experience study is performed every three years
- This presentation reviews all demographic and economic assumptions
  - There is a lot of data and analysis
  - Incorporated 2013-2016 experience from the previous study for more robust data analysis for demographic assumptions
  - This presentation is intended to capture the most important findings
- The assumptions adopted based on this experience study will be used for the 2019 through 2021 actuarial valuations, unless modified by future Board action

- Key findings and recommendations
  - Modest changes to mortality rates recommended, to reflect new base tables (Pub-2010 Safety Below Median) for Safety groups and new projection scale (MP-2019) for all groups
  - Adjustments to merit and longevity salary increases
  - Adjustments recommended for retirement, termination, and disability rates
  - Terminal pay load is still being analyzed





- Key findings and recommendations
  - Changes to other assumptions (percent married, termination type, terminated vested, and transfer commencement age)
  - Overall, the recommended demographic changes would increase the total contribution rate by about 0.58% of pay for the 2019 valuation
    - Almost no change in rates once UAL amounts fully phased-in after three years
  - If discount rate reduced to 7.00%, total contributions (employer plus employee) will increase by an additional 1.2% of pay this year, or an additional 2.6% once fully phased-in

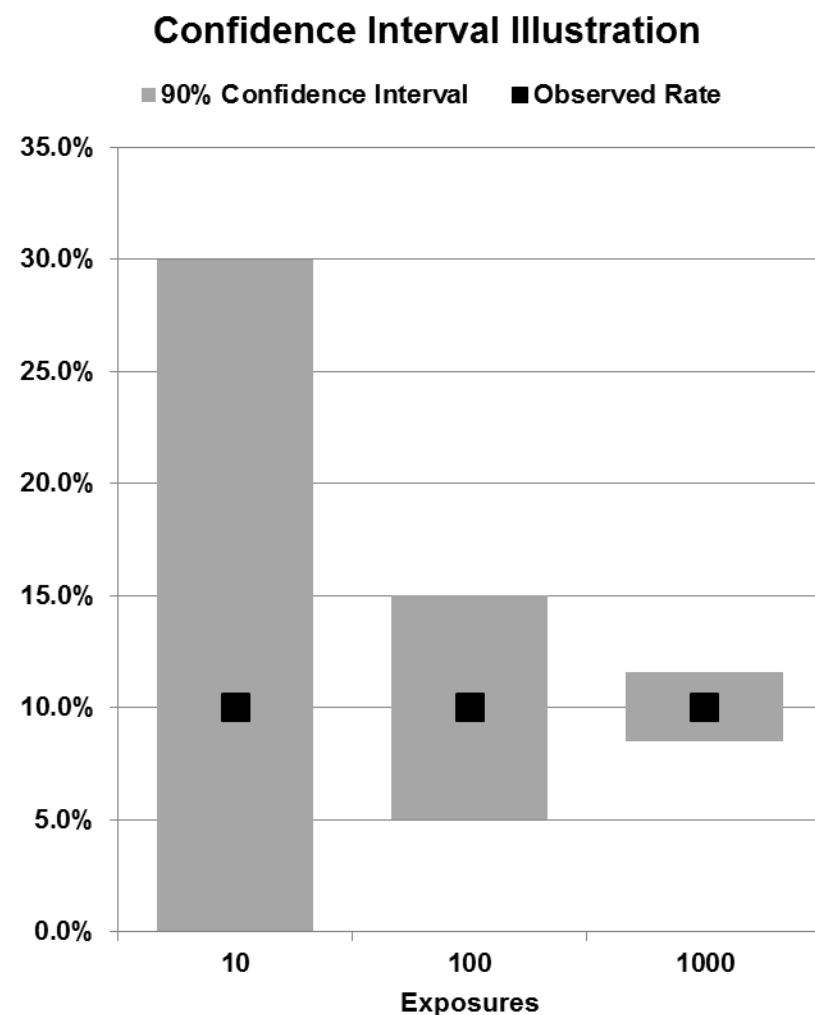


- Actual-to-Expected Ratio (A/E Ratio)
  - Actual decrements divided by expected decrements
  - Ideally equals 100%
  - Used to set overall level of assumptions
- R-Squared
  - Measures percentage of variation in experience captured by the assumption
  - Ideally equals 100%
  - Used to set pattern of assumptions
- 90% Confidence Interval
  - Range around experience within which “true” rate falls with 90% confidence
  - Used to assess credibility of experience and need to change assumptions

# Confidence Intervals



- The number of actual decrements and exposures is critical in determining how much credibility to assign to the experience
  - One actual decrement out of 10 exposures implies that the rate is somewhere between 0% and 30%
  - 100 actual decrements out of 1000 exposures implies that the rate is somewhere between 8.5% and 11.5%



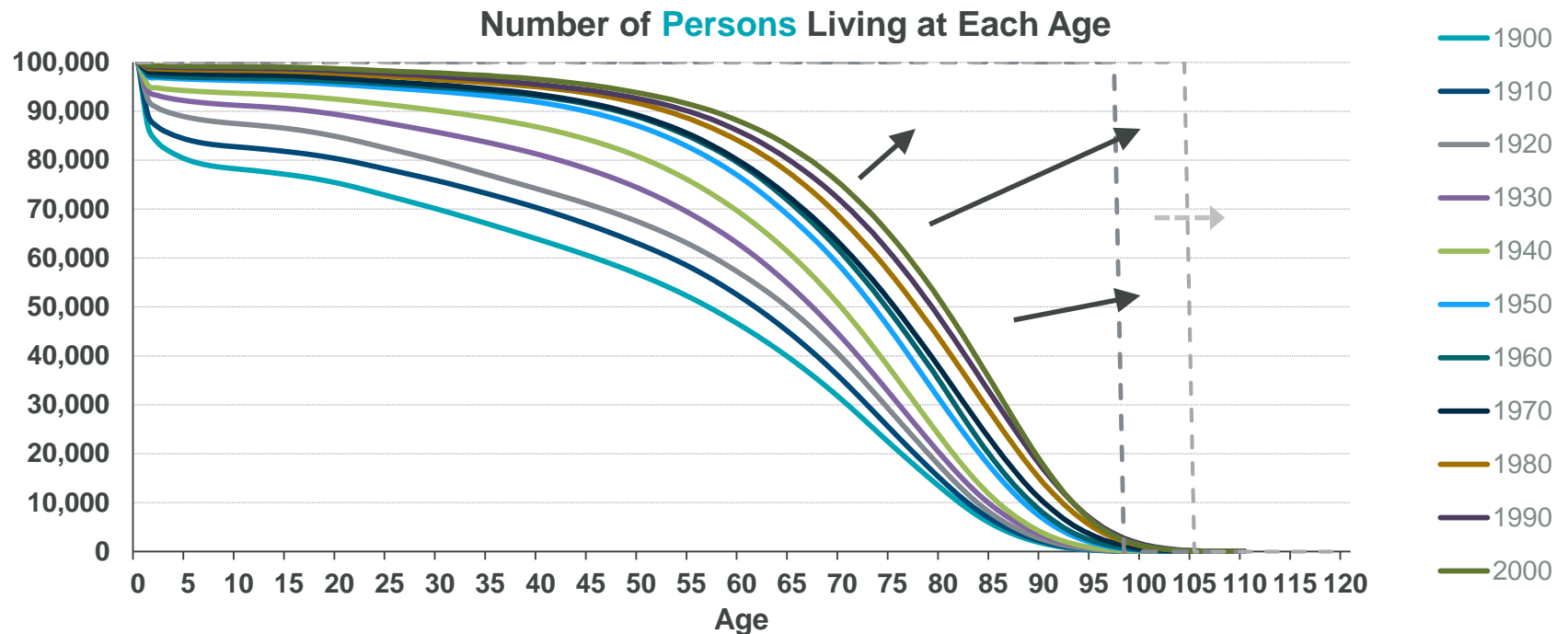


- Separate rates were developed for males and females for:
  - Healthy annuitants
  - Disabled annuitants
  - Non-annuitants (Active members)
- Similar process used for each group
- Presentation focuses on the development for healthy annuitants as this has by far the most significant impact, and reflects most robust data

# Mortality Improvement



- There has been a long history of improvements in mortality, and we expect it to continue
- The Society of Actuaries releases a new improvement scale every October
  - Starts with current rates of improvement
  - Converges to an ultimate improvement rate of 1% for ages 85 and under



Data: SSA Actuarial Study 120 – Periods 1900-2000, 50% male, 50% female



- Recommend use of MP-2019 scale to project mortality improvement, using full generational approach
  - Continue to use generational improvement for optional form factors
  - Retain static projection approach for determining employee contribution rates

# Mortality Base Tables



- Current assumptions are based on CalPERS mortality tables
  - Generational projection
  - Separate mortality table for each year of birth
- In January, Society of Actuaries issued a new mortality study based on public plan data from 2008 through 2013 (Pub-2010 Mortality Tables)
  - 46 million life-years of exposure
  - 580,000 deaths
  - Multivariate Analysis – Key Variables
    - Sex
    - Member status (Retiree, disabled retiree, active employee, contingent survivor)
    - Job category (Teachers, Public Safety, or General)
    - Income/benefit level (Total, Above Median, Below Median)

# Mortality Base Tables



- General
  - CalPERS tables provide excellent match to experience, recommend no change
- Safety
  - We propose to develop the Retiree and Employee base tables from the Below Median Safety member Pub-2010 tables (better fit than total dataset)
  - Continue to use CalPERS tables to predict disabled member experience, as they have separate duty and non-duty related tables
  - Published tables are adjusted to Merced experience to the extent it is credible
- With full credibility, published table is multiplied by the A/E ratio to adjust the table to Merced's experience
  - Full credibility requires approximately 1000 deaths
  - With 402 deaths on 27,688 exposures across all member statuses and both sexes, all of the tables are only partially adjusted for MCERA experience
- Salary/Benefit-Weighted Analysis
  - Income/benefit level is a significant predictor of longevity
  - Largest impact at earliest retirement ages



# Mortality – General Base Tables



Group	CURRENT Standard Table	RECOMMENDED Standard Table
Healthy Annuitants	CalPERS 2009 Healthy Annuitant Table	CalPERS 2009 Healthy Annuitant Table
Duty Disabled Annuitants	CalPERS 2009 Industrial Disability Table	CalPERS 2009 Industrial Disability Table
Non-Duty Disabled Annuitants	CalPERS 2009 Industrial Disability Table	CalPERS 2009 Non-Industrial Disability Table
Active Employee	CalPERS 2009 Non-Industrial Employees Table	CalPERS 2009 Non-Industrial Employees Table

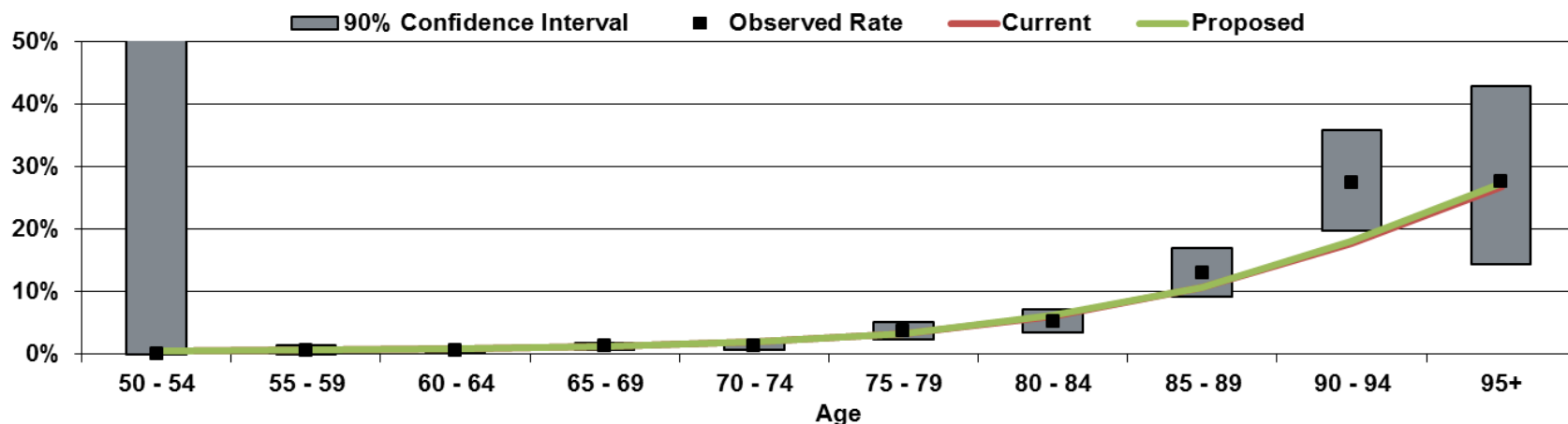
- 50% of future disabilities are assumed to be duty related and 50% are assumed to be non-duty related

# Mortality – General Base Tables



Healthy Annuitant Mortality - Base Table for Males - General								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Proposed	Current	Proposed
50 - 54	69	-	149,852	-	822	841	0%	0%
55 - 59	291	3	692,347	3,644	4,874	4,947	75%	74%
60 - 64	619	4	2,216,445	10,853	20,205	20,223	54%	54%
65 - 69	863	8	3,281,858	40,567	40,065	39,749	101%	102%
70 - 74	654	13	2,296,219	28,605	45,727	45,648	63%	63%
75 - 79	489	20	1,317,402	48,558	43,219	43,444	112%	112%
80 - 84	349	22	674,686	35,460	41,115	41,445	86%	86%
85 - 89	218	26	460,803	60,099	48,995	49,519	123%	121%
90 - 94	81	21	179,155	49,094	31,839	32,427	154%	151%
95 +	28	6	41,797	11,503	11,175	11,450	103%	100%
<b>Total</b>	<b>3,661</b>	<b>123</b>	<b>11,310,566</b>	<b>288,382</b>	<b>288,036</b>	<b>289,692</b>	<b>100%</b>	<b>100%</b>

Male Healthy Annuitant Mortality - General

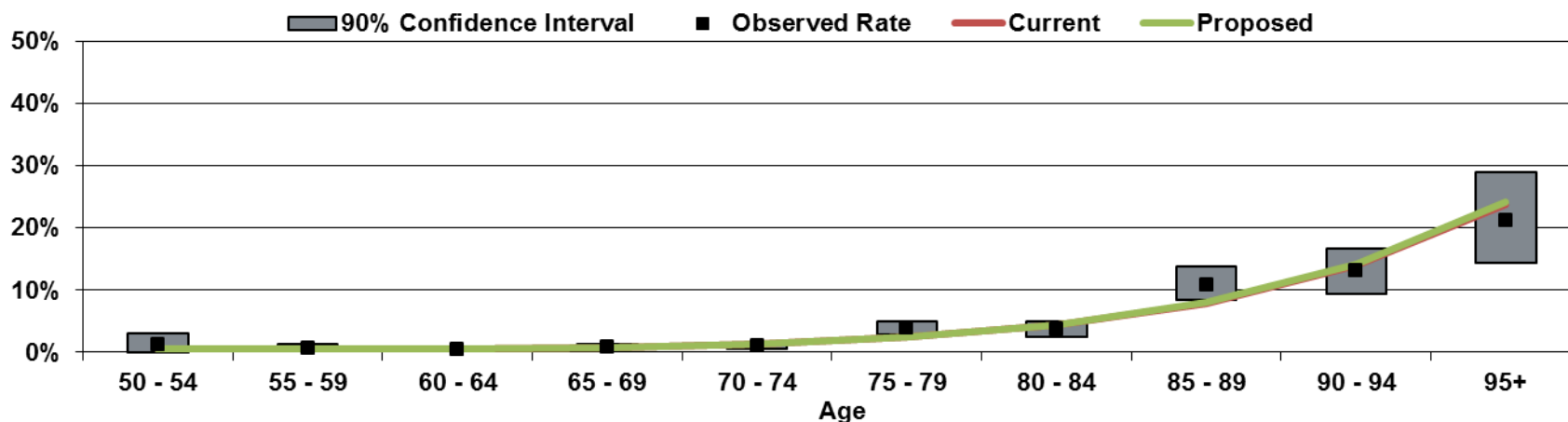


# Mortality – General Base Tables



Healthy Annuitant Mortality - Base Table for Females - General								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Proposed	Current	Proposed
50 - 54	99	1	187,232	2,250	917	934	245%	241%
55 - 59	579	5	1,440,500	10,120	7,006	7,053	144%	143%
60 - 64	1,209	7	3,114,968	13,666	18,141	18,131	75%	75%
65 - 69	1,440	11	3,460,112	29,978	29,361	29,304	102%	102%
70 - 74	1,279	16	2,372,983	25,319	33,410	33,554	76%	75%
75 - 79	834	24	1,357,378	53,070	33,571	33,848	158%	157%
80 - 84	575	23	951,829	35,711	41,369	41,705	86%	86%
85 - 89	357	33	517,906	56,559	41,133	41,522	138%	136%
90 - 94	235	35	297,246	38,888	41,709	42,422	93%	92%
95 +	83	19	115,531	24,450	27,431	28,017	89%	87%
<b>Total</b>	<b>6,690</b>	<b>174</b>	<b>13,815,685</b>	<b>290,012</b>	<b>274,048</b>	<b>276,490</b>	<b>106%</b>	<b>105%</b>

Female Healthy Annuitant Mortality - General



# Mortality – Safety Base Tables



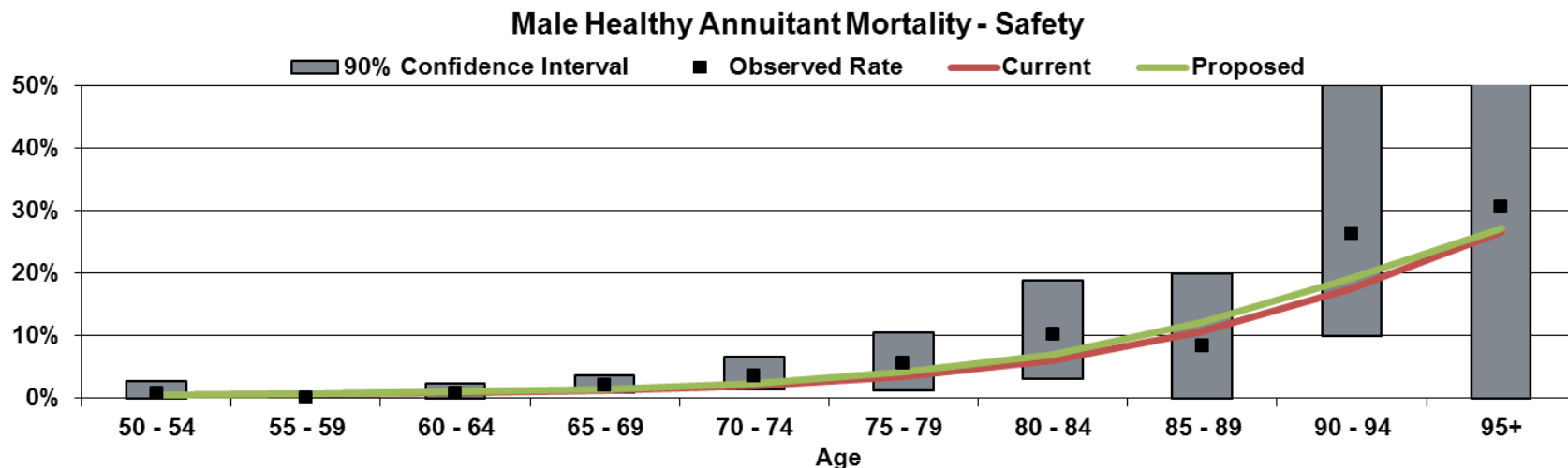
Group	CURRENT Standard Table	RECOMMENDED Standard Table
Healthy Annuitants	CalPERS 2009 Healthy Annuitant Table	1.05 times the 2010 Public Safety Below Median Mortality Table for Healthy Retirees
Duty Disabled Annuitants	CalPERS 2009 Industrial Disability Table	CalPERS 2009 Industrial Disability Table
Non-Duty Disabled Annuitants	CalPERS 2009 Industrial Disability Table	CalPERS 2009 Non-Industrial Disability Table
Active Employee	CalPERS 2009 Non-Industrial Employees Table	2010 Public Safety Below Median Mortality Table for Healthy Employees
Active Member, Line-of-Duty (Safety Only)	CalPERS 2009 Industrial Employees Table	CalPERS 2009 Industrial Employees Table

- 100% of future disabilities are assumed to be duty related

# Mortality – Safety Base Tables



Healthy Annuitant Mortality - Base Table for Males - Safety								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Proposed	Current	Proposed
50 - 54	112	2	455,540	3,602	2,432	1,871	148%	193%
55 - 59	165	1	583,458	78	4,016	3,660	2%	2%
60 - 64	176	1	648,776	5,207	5,874	6,161	89%	85%
65 - 69	246	3	910,192	18,027	11,057	12,932	163%	139%
70 - 74	137	5	403,908	14,202	7,817	9,273	182%	153%
75 - 79	77	5	243,787	13,374	8,196	10,037	163%	133%
80 - 84	32	3	125,579	12,812	7,502	8,814	171%	145%
85 - 89	25	3	68,290	5,672	7,327	8,330	77%	68%
90 - 94	10	3	42,129	11,067	7,386	8,057	150%	137%
95 +	7	2	16,103	4,934	4,290	4,362	115%	113%
<b>Total</b>	<b>987</b>	<b>28</b>	<b>3,497,761</b>	<b>88,975</b>	<b>65,899</b>	<b>73,496</b>	<b>135%</b>	<b>121%</b>

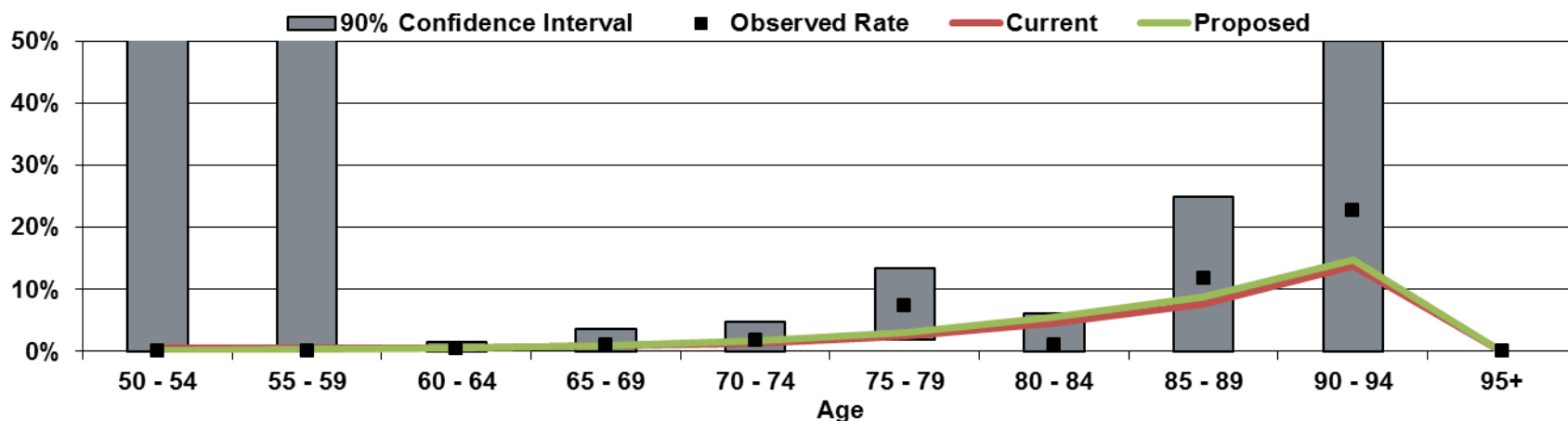


# Mortality – Safety Base Tables



Healthy Annuitant Mortality - Base Table for Females - Safety								
Age Band	Exposures	Actual Deaths	Weighted Exposures	Weighted Deaths			A/E Ratios	
				Actual	Current	Proposed	Current	Proposed
50 - 54	30	0	86,068	0	423	202	0%	0%
55 - 59	60	0	184,871	0	892	707	0%	0%
60 - 64	62	1	201,338	1,029	1,164	1,236	88%	83%
65 - 69	82	2	214,796	2,302	1,879	2,239	123%	103%
70 - 74	83	3	278,527	4,818	3,828	4,632	126%	104%
75 - 79	52	2	120,133	8,854	2,946	3,579	300%	247%
80 - 84	33	1	72,095	812	3,294	3,989	25%	20%
85 - 89	20	3	44,926	5,307	3,431	3,940	155%	135%
90 - 94	8	2	15,630	3,560	2,146	2,316	166%	154%
95 +	0	0	0	0	0	0	0%	0%
<b>Total</b>	<b>430</b>	<b>14</b>	<b>1,218,384</b>	<b>26,682</b>	<b>20,003</b>	<b>22,842</b>	<b>133%</b>	<b>117%</b>

Female Healthy Annuitant Mortality - Safety



# Retirement Rates



- Experience data indicates that rates of retirement were differing for some service groups
- Current assumptions are set separately for:
  - Safety
    - Less than 20 years of service
    - 20 or more years of service
  - General Males
    - Less than 20 years of service
    - 20 to 29 years of service
    - 30 or more years of service
  - General Females
    - Less than 20 years of service
    - 20 to 29 years of service
    - 30 or more years of service

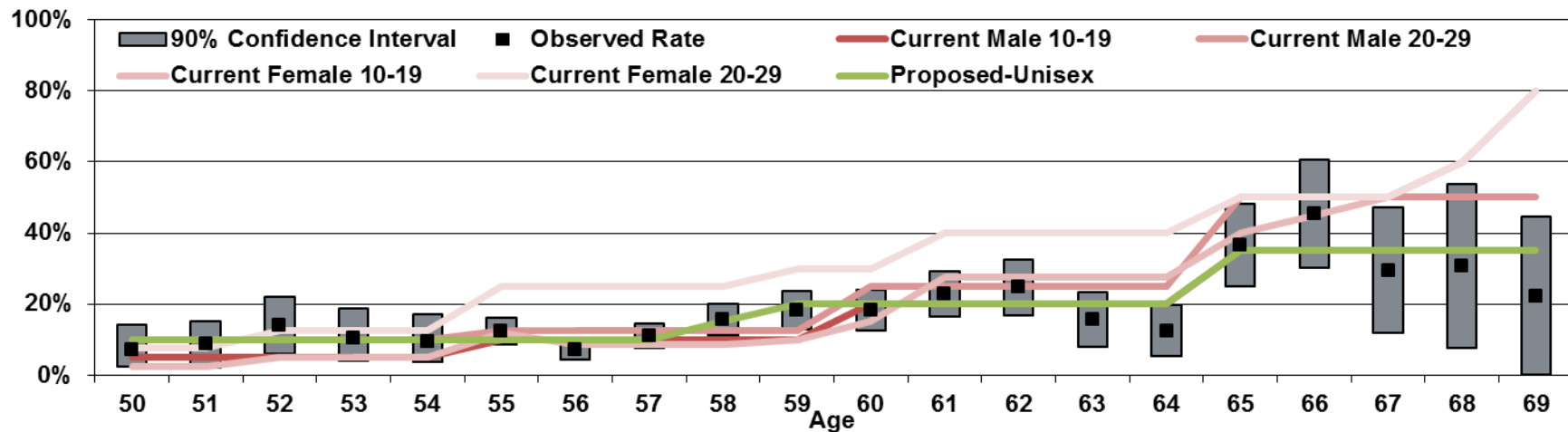
- Recommended assumptions:
  - Safety
    - Adjustments to rates for all service and ages
  - General
    - Use a unisex set of rates instead of gender specific
    - Use two service groups
      - Less than 30 years of service
      - 30 or more years of service
    - Adjusted rates for all service and ages
  - No change to approach recommended for PEPRA Tiers: no experience
    - Continue to use (new) rates for General and Safety employees



# Retirement Rates – General



General Retirement Rates For Less than 30 Years of Service



## General – less than 30 years of service:

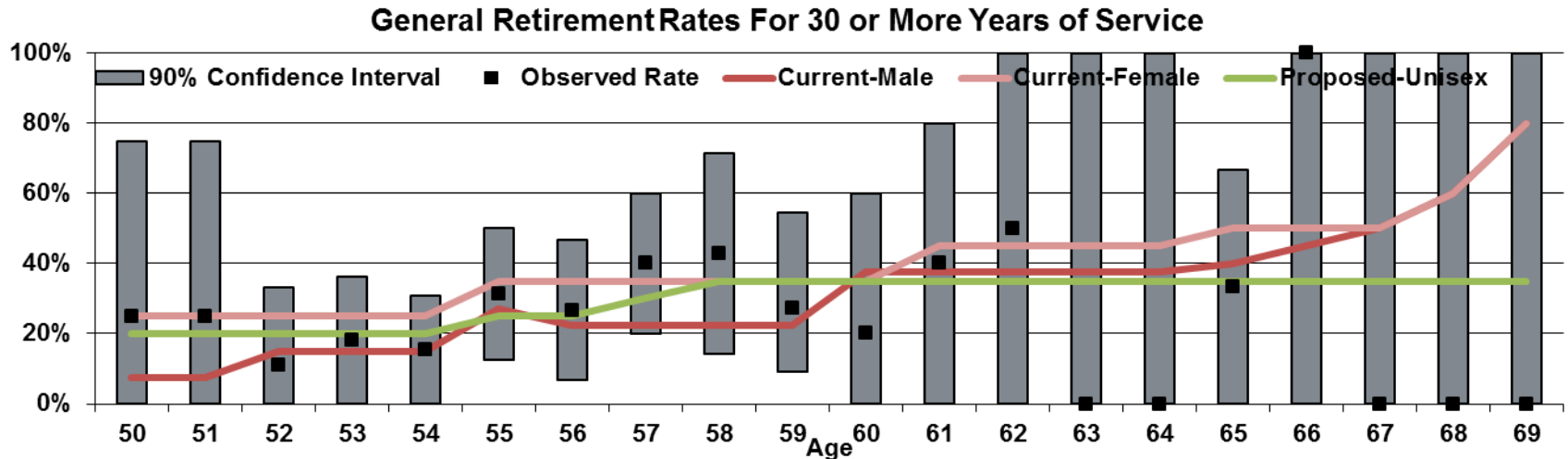
- Change from gender specific to unisex rates
- Combine less than 20 and 20-29 service groups

# Retirement Rates - General



General Retirement Rates For Less than 30 Years of Service												
Age	Exposures	Retirements			Retirement Rates						A/E Ratios	
		Actual	Current	Proposed	Actual	Current Male 10-19	Current Male 20-29	Current Female 10-19	Current Female 20-29	Proposed	Current	Proposed
50	42	3	3	4	7.1%	5.0%	10.0%	2.5%	7.5%	10.0%	89%	71%
51	46	4	4	5	8.7%	5.0%	10.0%	2.5%	7.5%	10.0%	108%	87%
52	50	7	6	5	14.0%	5.0%	10.0%	5.0%	12.5%	10.0%	126%	140%
53	48	5	5	5	10.4%	5.0%	10.0%	5.0%	12.5%	10.0%	94%	104%
54	53	5	6	5	9.4%	5.0%	10.0%	5.0%	12.5%	10.0%	91%	94%
55	210	26	30	21	12.4%	10.0%	12.5%	12.0%	25.0%	10.0%	85%	124%
56	208	15	27	21	7.2%	10.0%	12.5%	8.5%	25.0%	10.0%	56%	72%
57	200	22	26	20	11.0%	10.0%	12.5%	8.5%	25.0%	10.0%	84%	110%
58	180	28	22	27	15.6%	10.0%	12.5%	8.5%	25.0%	15.0%	125%	104%
59	147	27	20	29	18.4%	10.0%	12.5%	10.0%	30.0%	20.0%	135%	92%
60	121	22	24	24	18.2%	20.0%	25.0%	15.0%	30.0%	20.0%	93%	91%
61	109	25	30	22	22.9%	20.0%	25.0%	27.5%	40.0%	20.0%	84%	115%
62	89	22	23	18	24.7%	20.0%	25.0%	27.5%	40.0%	20.0%	94%	124%
63	64	10	17	13	15.6%	20.0%	25.0%	27.5%	40.0%	20.0%	59%	78%
64	56	7	14	11	12.5%	20.0%	25.0%	27.5%	40.0%	20.0%	48%	63%
65	52	19	21	18	36.5%	35.0%	50.0%	40.0%	50.0%	35.0%	89%	104%
66	33	15	14	12	45.5%	35.0%	50.0%	45.0%	50.0%	35.0%	105%	130%
67	17	5	8	6	29.4%	35.0%	50.0%	50.0%	50.0%	35.0%	65%	84%
68	13	4	7	5	30.8%	35.0%	50.0%	60.0%	60.0%	35.0%	59%	88%
69	9	2	5	3	22.2%	35.0%	50.0%	80.0%	80.0%	35.0%	38%	63%
<b>Total</b>	<b>1,747</b>	<b>273</b>	<b>313</b>	<b>273</b>	<b>210.0%</b>					<b>210.2%</b>	<b>87%</b>	<b>100%</b>
<b>Confidence Interval %</b>				<b>95.0%</b>								
<b>R-squared</b>			<b>80.7%</b>	<b>91.2%</b>								

# Retirement Rates – General



## General – 30 or more years of service:

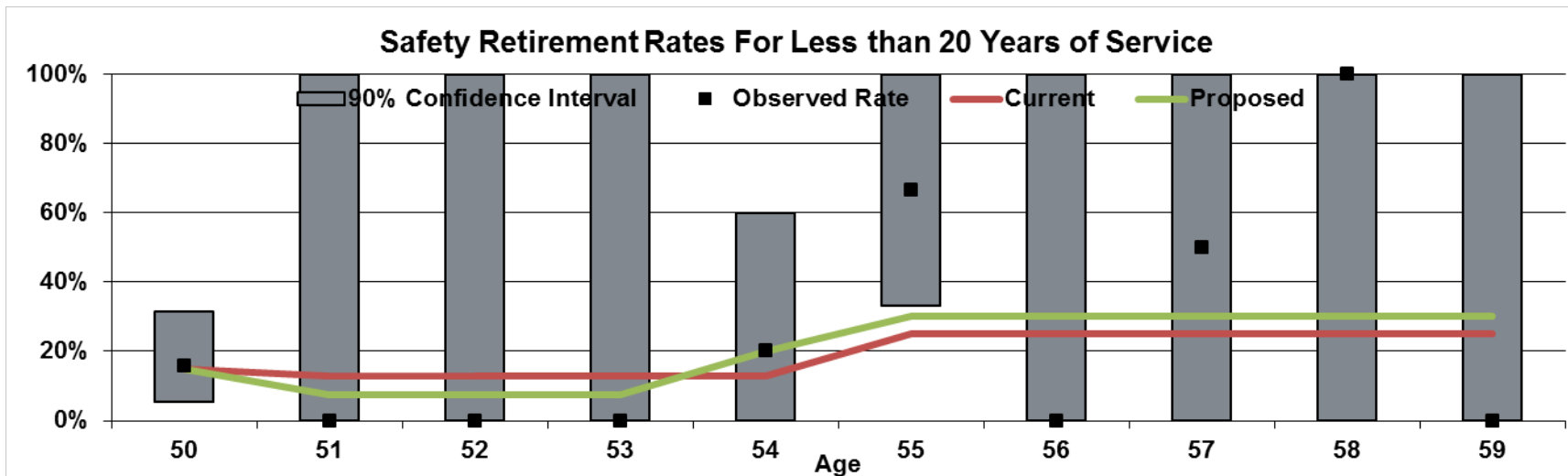
- Change from gender specific to unisex rates
- Recommended rates are lower than current male rates for most ages
- Recommended rates are higher than current female rates for younger ages and lower than current female rates for older ages

# Retirement Rates - General



General Retirement Rates For 30 or More Years of Service										
Age	Exposures	Retirements			Retirement Rates				A/E Ratios	
		Actual	Current	Proposed	Actual	Current Male	Current Female	Proposed	Current	Proposed
50	4	1	1	1	25.0%	7.5%	25.0%	20.0%	100%	125%
51	4	1	1	1	25.0%	7.5%	25.0%	20.0%	121%	125%
52	9	1	2	2	11.1%	15.0%	25.0%	20.0%	47%	56%
53	11	2	3	2	18.2%	15.0%	25.0%	20.0%	75%	91%
54	13	2	3	3	15.4%	15.0%	25.0%	20.0%	68%	77%
55	16	5	5	4	31.3%	27.0%	35.0%	25.0%	96%	125%
56	15	4	5	4	26.7%	22.5%	35.0%	25.0%	84%	107%
57	15	6	5	5	40.0%	22.5%	35.0%	30.0%	130%	133%
58	7	3	2	2	42.9%	22.5%	35.0%	35.0%	129%	122%
59	11	3	3	4	27.3%	22.5%	35.0%	35.0%	93%	78%
60	5	1	2	2	20.0%	37.5%	35.0%	35.0%	55%	57%
61	5	2	2	2	40.0%	37.5%	45.0%	35.0%	95%	114%
62	4	2	2	1	50.0%	37.5%	45.0%	35.0%	116%	143%
63	4	0	2	1	0.0%	37.5%	45.0%	35.0%	0%	0%
64	2	0	1	1	0.0%	37.5%	45.0%	35.0%	0%	0%
65	3	1	1	1	33.3%	40.0%	50.0%	35.0%	77%	95%
66	2	2	1	1	100.0%	45.0%	50.0%	35.0%	211%	286%
67	0	0	0	0	0.0%	50.0%	50.0%	35.0%	0%	0%
68	0	0	0	0	0.0%	60.0%	60.0%	35.0%	0%	0%
69	0	0	0	0	0.0%	80.0%	80.0%	35.0%	0%	0%
<b>Total</b>	<b>130</b>	<b>36</b>	<b>40</b>	<b>36</b>	<b>27.7%</b>			<b>27.3%</b>	<b>90%</b>	<b>101%</b>
<b>Confidence Interval %</b>				<b>100.0%</b>						
<b>R-squared</b>			<b>81.9%</b>	<b>81.7%</b>						

# Retirement Rates – Safety



## Safety – less than 20 years of service:

- Recommended rates are lower than the current rates for younger ages and higher than the current rates for older ages

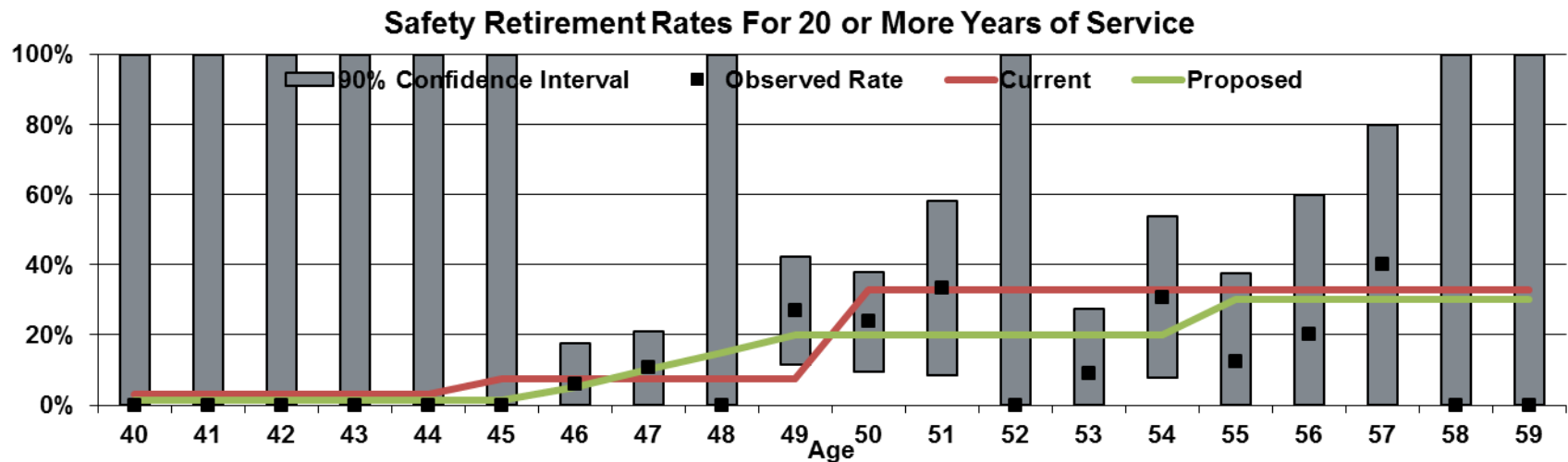
# Retirement Rates - Safety



## Safety Retirement Rates For Less than 20 Years of Service

Age	Exposures	Retirements			Retirement Rates			A/E Ratios	
		Actual	Current	Proposed	Actual	Current	Proposed	Current	Proposed
50	19	3	3	3	15.8%	15.0%	15.0%	105%	105%
51	13	0	2	1	0.0%	12.8%	7.5%	0%	0%
52	10	0	1	1	0.0%	12.8%	7.5%	0%	0%
53	7	0	1	1	0.0%	12.8%	7.5%	0%	0%
54	5	1	1	1	20.0%	12.8%	20.0%	156%	100%
55	3	2	1	1	66.7%	25.0%	30.0%	267%	222%
56	4	0	1	1	0.0%	25.0%	30.0%	0%	0%
57	2	1	1	1	50.0%	25.0%	30.0%	200%	167%
58	1	1	0	0	100.0%	25.0%	30.0%	400%	333%
59	1	0	0	0	0.0%	25.0%	30.0%	0%	0%
<b>Total</b>	<b>65</b>	<b>8</b>	<b>10</b>	<b>9</b>	<b>6.2%</b>	<b>7.8%</b>	<b>7.2%</b>	<b>79%</b>	<b>85%</b>

# Retirement Rates – Safety



## Safety – 20 or more years of service:

- Recommended rates are lower than current rates for most ages

# Retirement Rates - Safety



Safety Retirement Rates For 20 or More Years of Service									
Age	Exposures	Retirements			Retirement Rates			A/E Ratios	
		Actual	Current	Proposed	Actual	Current	Proposed	Current	Proposed
40	0	0	0	0	0.0%	3.1%	1.5%	0%	0%
41	0	0	0	0	0.0%	3.1%	1.5%	0%	0%
42	1	0	0	0	0.0%	3.1%	1.5%	0%	0%
43	6	0	0	0	0.0%	3.1%	1.5%	0%	0%
44	9	0	0	0	0.0%	3.1%	1.5%	0%	0%
45	11	0	1	0	0.0%	7.6%	1.5%	0%	0%
46	17	1	1	1	5.9%	7.6%	5.0%	77%	118%
47	19	2	1	2	10.5%	7.6%	10.0%	139%	105%
48	19	0	1	3	0.0%	7.6%	15.0%	0%	0%
49	26	7	2	5	26.9%	7.6%	20.0%	354%	135%
50	21	5	7	4	23.8%	32.9%	20.0%	72%	119%
51	12	4	4	2	33.3%	32.9%	20.0%	101%	167%
52	11	0	4	2	0.0%	32.9%	20.0%	0%	0%
53	11	1	4	2	9.1%	32.9%	20.0%	28%	45%
54	13	4	4	3	30.8%	32.9%	20.0%	94%	154%
55	8	1	3	2	12.5%	32.9%	30.0%	38%	42%
56	5	1	2	2	20.0%	32.9%	30.0%	61%	67%
57	5	2	2	2	40.0%	32.9%	30.0%	122%	133%
58	1	0	0	0	0.0%	32.9%	30.0%	0%	0%
59	1	0	0	0	0.0%	32.9%	30.0%	0%	0%
<b>Total</b>	<b>196</b>	<b>28</b>	<b>36</b>	<b>31</b>	<b>21.5%</b>	<b>28.0%</b>	<b>23.7%</b>	<b>77%</b>	<b>91%</b>





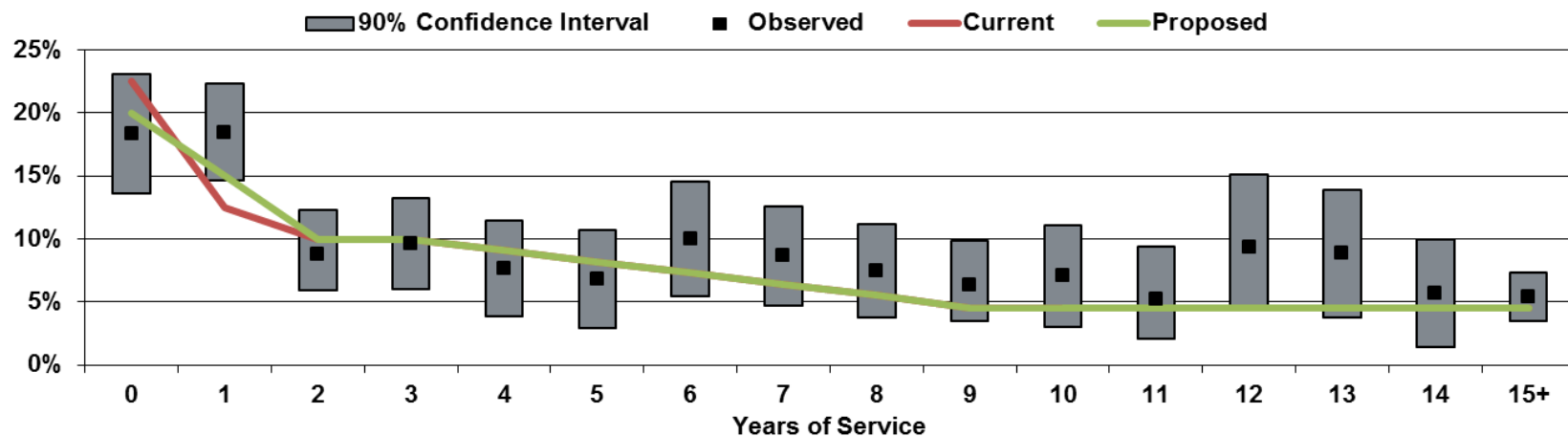
- Analyze likelihood of termination from causes other than retirement, disability, and death
  - Rates of termination are more related to years of service than age
  - Review percentage of terminations assumed to result in withdrawal of contributions or reciprocal transfer as a separate assumption
  - Rates don't apply once members are eligible for service retirement benefit

- Recommendations:
  - Adjustments to General male termination rates for service less than two
  - Adjustments to General female termination rates for service less than 15
  - Adjustments to Safety termination rates for service less than 19
  - Adjustments to withdrawal and reciprocal transfer rates

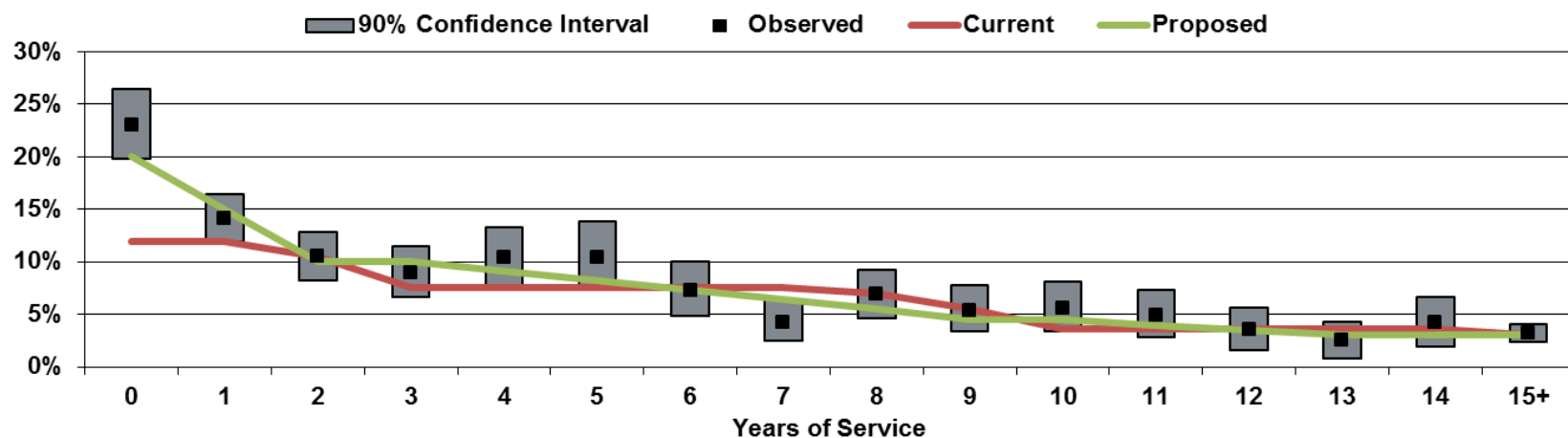
# Termination Rates - General



## General Termination Rates - Male



## General Termination Rates - Female



# Termination Rates - General



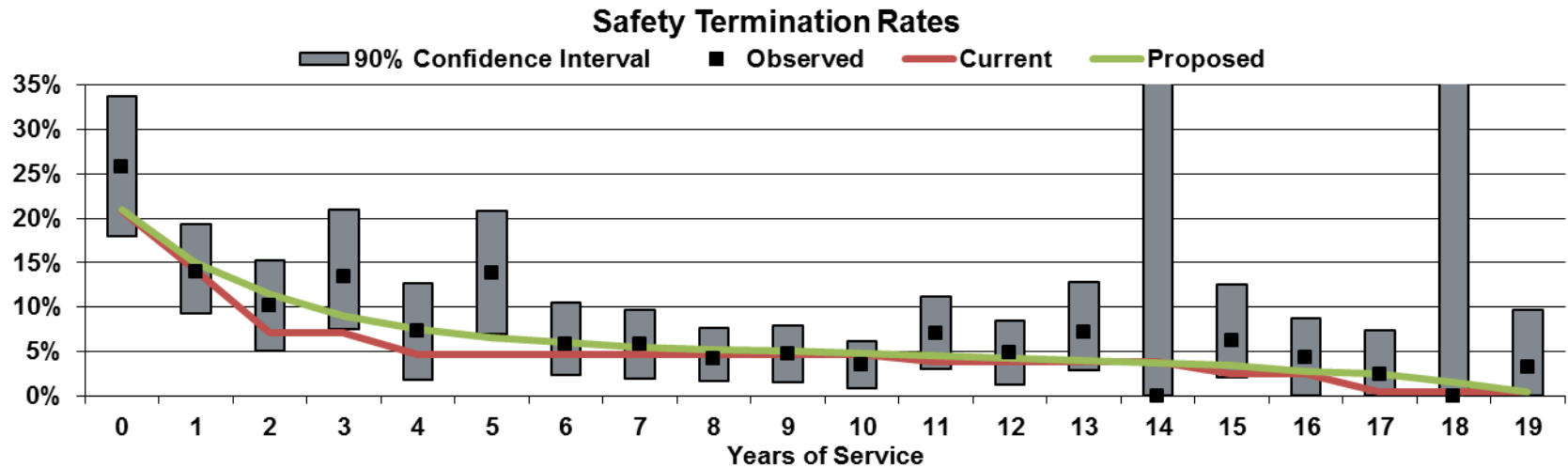
General Termination Rates - Male									
Service	Exposures	Terminations			Termination Rates			A/E Ratios	
		Actual	Current	Proposed	Actual	Current	Proposed	Current	Proposed
0	191	35	43	38	18.32%	22.50%	20.00%	81%	92%
1	287	53	36	43	18.47%	12.50%	15.00%	148%	123%
2	204	18	20	20	8.82%	10.00%	10.00%	88%	88%
3	166	16	17	17	9.64%	10.00%	10.00%	96%	96%
4	131	10	12	12	7.63%	9.10%	9.10%	84%	84%
5	103	7	8	8	6.80%	8.20%	8.20%	83%	83%
6	110	11	8	8	10.00%	7.30%	7.30%	137%	137%
7	127	11	8	8	8.66%	6.40%	6.40%	135%	135%
8	134	10	7	7	7.46%	5.50%	5.50%	136%	136%
9	142	9	6	6	6.34%	4.50%	4.50%	141%	141%
10	99	7	4	4	7.07%	4.50%	4.50%	157%	157%
11	96	5	4	4	5.21%	4.50%	4.50%	116%	116%
12	86	8	4	4	9.30%	4.50%	4.50%	207%	207%
13	79	7	4	4	8.86%	4.50%	4.50%	197%	197%
14	70	4	3	3	5.71%	4.50%	4.50%	127%	127%
15+	370	20	17	17	5.41%	4.50%	4.50%	120%	120%
<b>Total</b>	<b>2,395</b>	<b>231</b>	<b>202</b>	<b>205</b>	<b>9.65%</b>	<b>8.44%</b>	<b>8.54%</b>	<b>114%</b>	<b>113%</b>
<b>Confidence Interval %</b>			<b>87.5%</b>	<b>93.8%</b>					
<b>R-squared</b>			<b>87.9%</b>	<b>95.2%</b>					

# Termination Rates - General



General Termination Rates - Female									
Service	Exposures	Terminations			Termination Rates			A/E Ratios	
		Actual	Current	Proposed	Actual	Current	Proposed	Current	Proposed
0	443	102	53	89	23.02%	12.00%	20.00%	192%	115%
1	645	91	77	97	14.11%	12.00%	15.00%	118%	94%
2	474	50	50	47	10.55%	10.50%	10.00%	100%	105%
3	390	35	29	39	8.97%	7.50%	10.00%	120%	90%
4	308	32	23	28	10.39%	7.50%	9.10%	139%	114%
5	231	24	17	19	10.39%	7.50%	8.20%	139%	127%
6	249	18	19	18	7.23%	7.50%	7.30%	96%	99%
7	282	12	21	18	4.26%	7.50%	6.40%	57%	66%
8	304	21	21	17	6.91%	7.00%	5.50%	99%	126%
9	296	16	16	13	5.41%	5.50%	4.50%	98%	120%
10	235	13	8	11	5.53%	3.60%	4.50%	154%	123%
11	245	12	9	10	4.90%	3.60%	4.00%	136%	122%
12	249	9	9	9	3.61%	3.60%	3.50%	100%	103%
13	234	6	8	7	2.56%	3.60%	3.00%	71%	85%
14	212	9	8	6	4.25%	3.60%	3.00%	118%	142%
15+	1,101	35	33	33	3.18%	3.00%	3.00%	106%	106%
<b>Total</b>	<b>5,898</b>	<b>485</b>	<b>403</b>	<b>460</b>	<b>8.22%</b>	<b>6.83%</b>	<b>7.81%</b>	<b>120%</b>	<b>105%</b>
<b>Confidence Interval %</b>			<b>87.5%</b>	<b>93.8%</b>					
<b>R-squared</b>			<b>89.6%</b>	<b>98.0%</b>					

# Termination Rates - Safety



# Termination Rates - Safety



Safety Termination Rates									
Service	Exposures	Terminations			Termination Rates			A/E Ratios	
		Actual	Current	Proposed	Actual	Current	Proposed	Current	Proposed
0	89	23	19	19	25.84%	20.80%	21.00%	124%	123%
1	129	18	18	19	13.95%	14.20%	15.00%	98%	93%
2	98	10	7	11	10.20%	7.10%	11.50%	144%	89%
3	67	9	5	6	13.43%	7.10%	9.00%	189%	149%
4	55	4	3	4	7.27%	4.60%	7.50%	158%	97%
5	72	10	3	5	13.89%	4.60%	6.50%	302%	214%
6	86	5	4	5	5.81%	4.60%	6.00%	126%	97%
7	103	6	5	6	5.83%	4.60%	5.50%	127%	106%
8	118	5	5	6	4.24%	4.60%	5.25%	92%	81%
9	126	6	6	6	4.76%	4.60%	5.00%	104%	95%
10	115	4	5	5	3.48%	4.60%	4.75%	76%	73%
11	99	7	4	4	7.07%	3.90%	4.50%	181%	157%
12	83	4	3	4	4.82%	3.90%	4.25%	124%	113%
13	70	5	3	3	7.14%	3.90%	4.00%	183%	179%
14	60	0	2	2	0.00%	3.90%	3.75%	0%	0%
15	48	3	1	2	6.25%	2.50%	3.50%	250%	179%
16	46	2	1	1	4.35%	2.50%	2.75%	174%	158%
17	41	1	0	1	2.44%	0.50%	2.50%	488%	98%
18	35	0	0	1	0.00%	0.50%	1.50%	0%	0%
19	31	1	0	0	3.23%	0.50%	0.50%	645%	645%
<b>Total</b>	<b>1,571</b>	<b>123</b>	<b>95</b>	<b>111</b>	<b>7.83%</b>	<b>6.02%</b>	<b>7.04%</b>	<b>130%</b>	<b>111%</b>
<b>Confidence Interval %</b>			<b>90.0%</b>	<b>95.0%</b>					
<b>R-squared</b>			<b>86.9%</b>	<b>88.3%</b>					

- Withdrawal Rates
  - Represents likelihood that member will take a refund of contributions; rate should decrease as service (and value of benefit) increases
  - Recommend increase in rates for Safety and General members with service less than five years, and decrease in rates for those with more than five years
    - Use different rates for those with 5-9 and 10+ years of service
    - Further split 10-14 vs 15+ years of service for General members only



# Types of Termination



- Reciprocal Transfers

- Likelihood of member who leaves contributions in Plan will go on to work for a reciprocal employer
- Increases value of benefit because member's MCERA benefit will be based on final average salary with reciprocal employer
- Discrepancy between rates of those reported as reciprocal transfers upon termination, versus the proportion of members retiring from deferred vested status who have reciprocity
  - Some members do not report reciprocity until retirement application submitted
  - Not uncommon for 1937 Act systems
- Recommend significant increase in rates of reciprocity for those with deferred vested benefits
  - Increase from less than 20% to 50% for General members
  - Increase from about 35% up to 67% for Safety

# Types of Termination

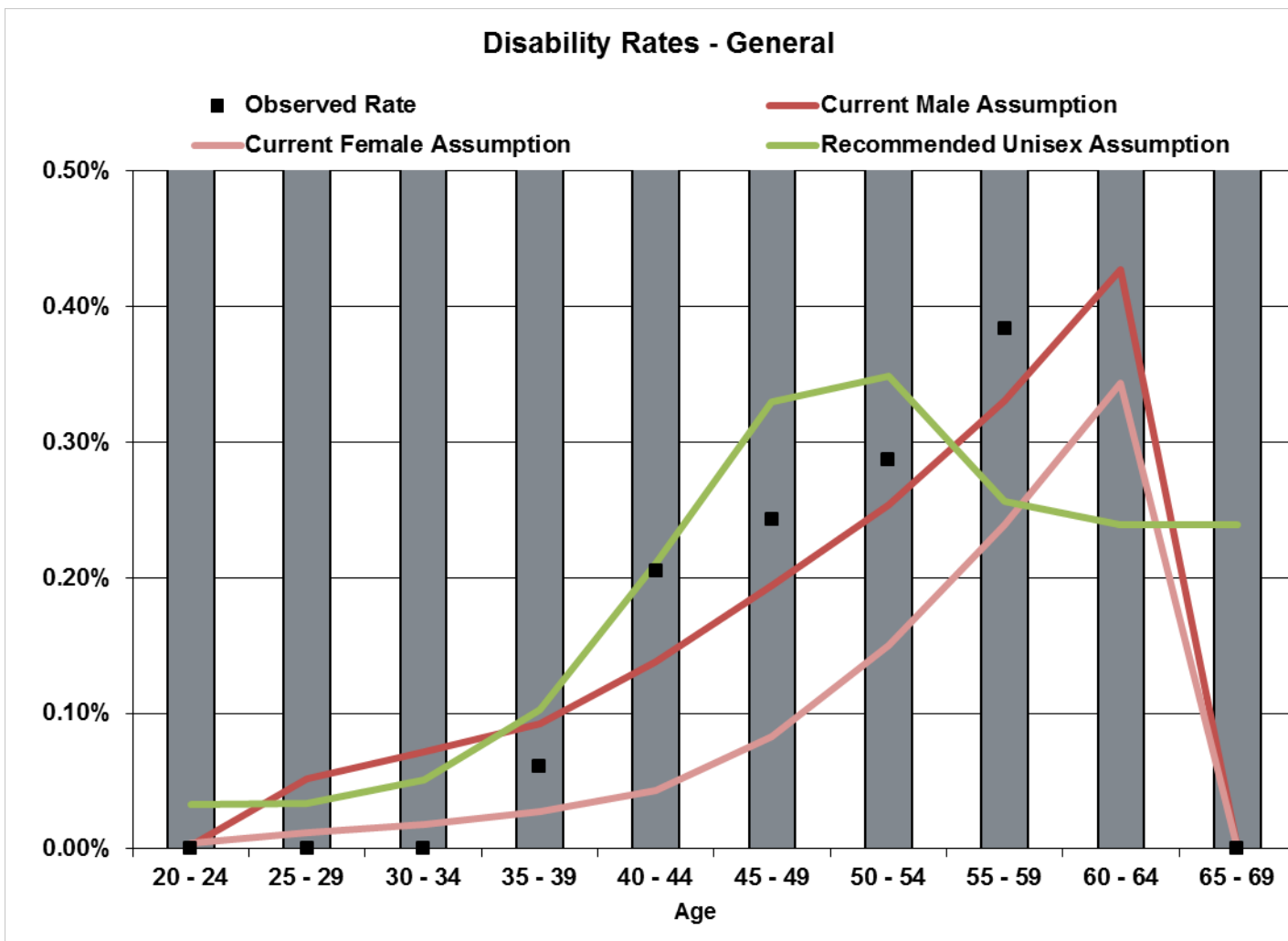


Termination from Active Status							
Type	Years of Service						
	General				Safety		
	0 to 4	5-9	10-14	15+	0 to 4	5-9	10+
<b>Withdrawal</b>							
Current Assumption	90.0%	40.0%	40.0%	10.0%	90.0%	30.0%	30.0%
Actual Experience	95.0%	32.1%	19.1%	5.3%	95.4%	30.0%	0.0%
Proposed Assumption	92.5%	30.0%	20.0%	5.0%	92.5%	25.0%	15.0%
<b>Transfers</b>							
Current Assumption	10.0%	10.0%	10.0%	10.0%	10.0%	25.0%	25.0%
Actual Experience	4.7%	6.9%	5.6%	10.5%	4.6%	8.0%	0.0%
Proposed Assumption	7.5%	35.0%	40.0%	47.5%	7.5%	50.0%	56.7%
<b>Vested Terms</b>							
Current Assumption	0.0%	50.0%	50.0%	80.0%	0.0%	45.0%	45.0%
Actual Experience	0.0%	61.1%	75.3%	84.2%	0.0%	62.0%	0.0%
Proposed Assumption	0.0%	35.0%	40.0%	47.5%	0.0%	25.0%	28.3%

Retirement from Terminated Status					
Type		General		Safety	
		Retirements	Fraction	Retirements	Fraction
<b>Transfers</b>		70	50.4%	15	78.9%
<b>Vested Terms</b>		69	49.6%	4	21.1%

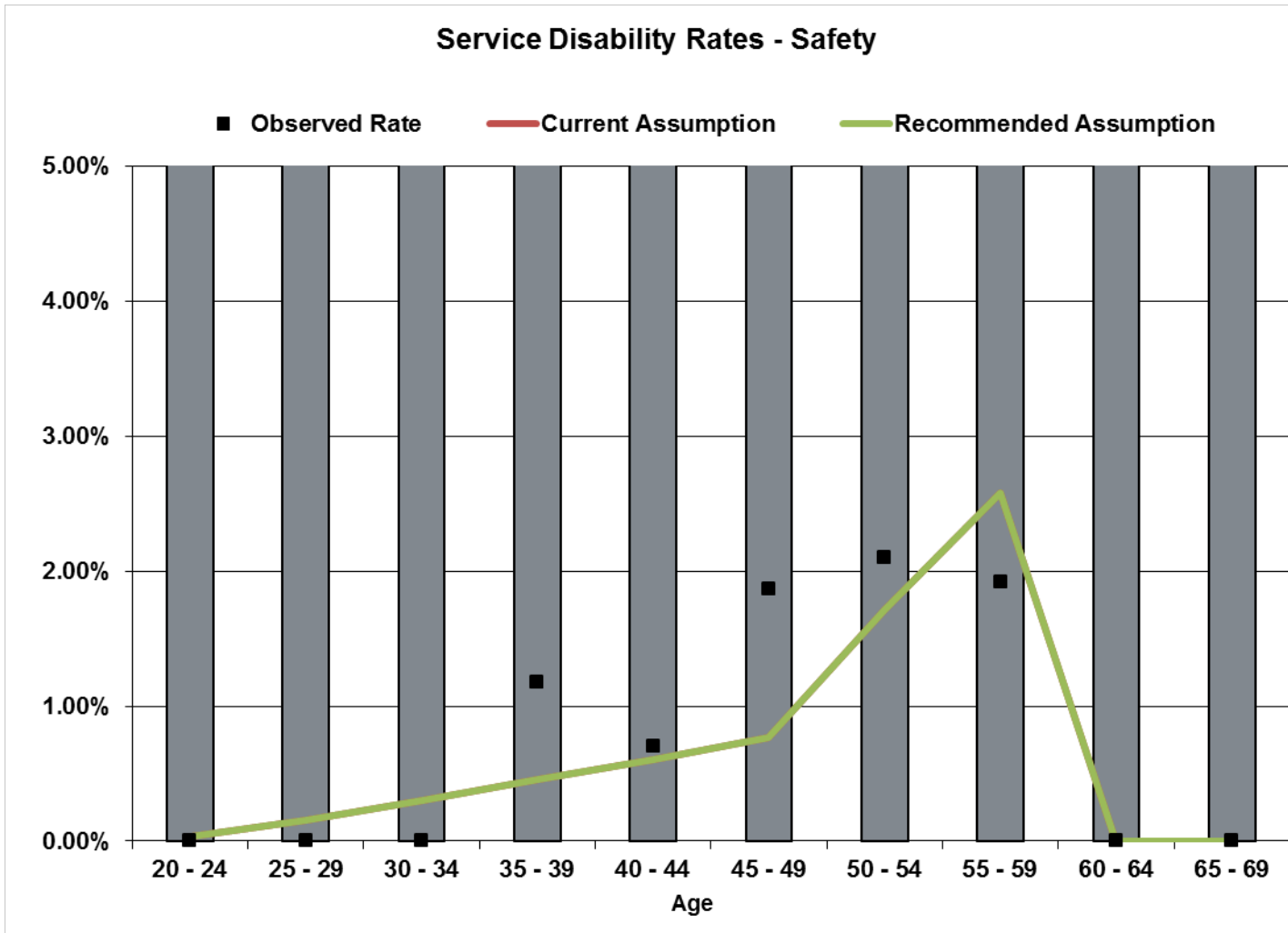
- Very little experience available
- Safety
  - Slightly more disabilities than expected for females
  - No recommended change
- General
  - More disabilities than expected
  - Recommend changing the rates to the CalPERS Public Agency State Miscellaneous Non Industrial
    - Blended 30% male and 70% female

# General Disability Rates



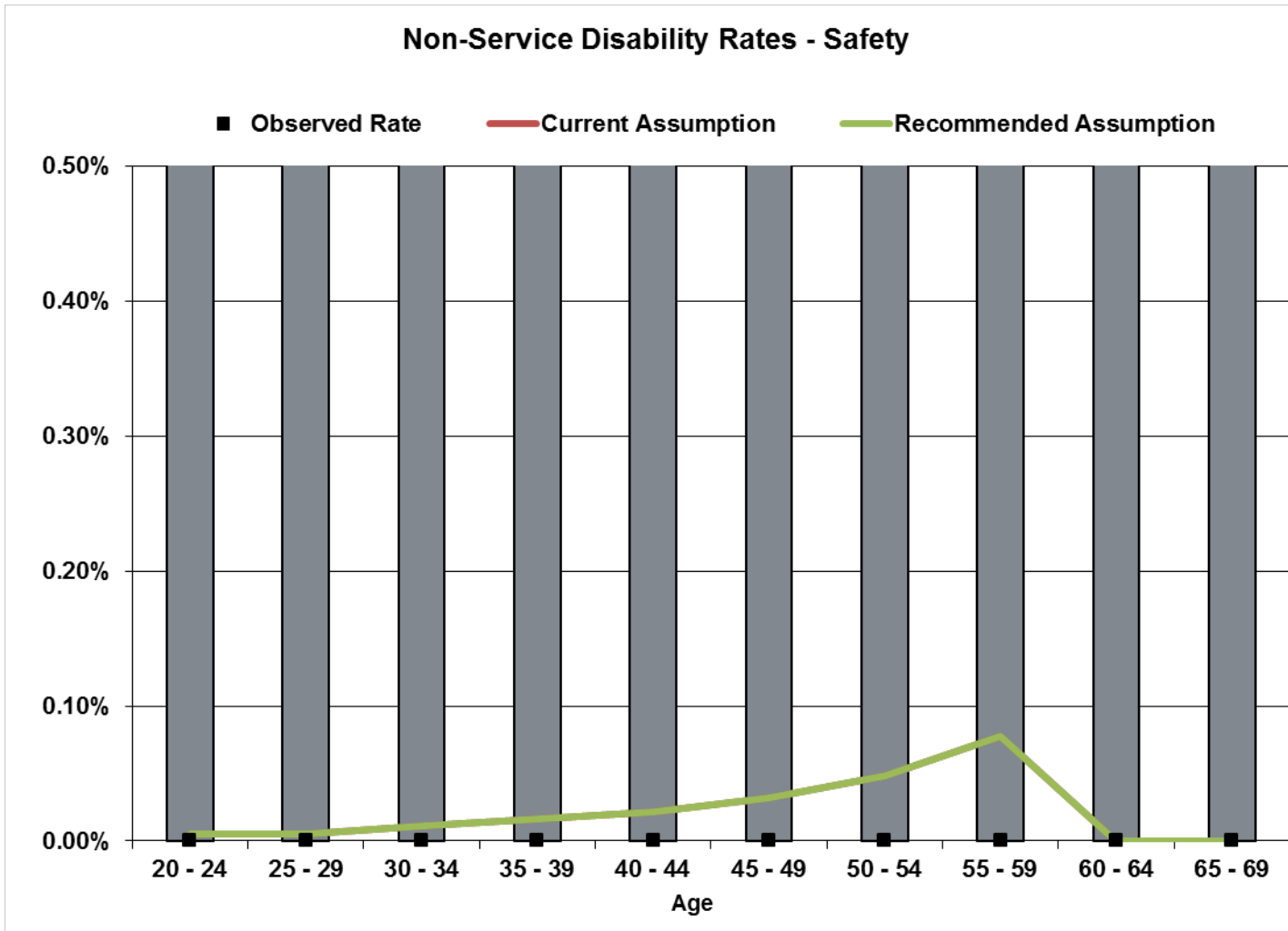
50% of disabilities are assumed to be duty related and 50% are assumed to be non-duty related

# Safety Disability Rates



No change in rates. Current and Proposed rates are equal.

# Safety Disability Rates



No change in rates. Current and Proposed rates are equal.

# Merit Salary Increases



- Merit / longevity salary increases reflect growth in pay for individual members, in excess of base wage inflation (economic assumption)
  - Assumption should reflect:
    - Step increases
    - Promotions
    - Longevity bonuses
    - *And anything else that causes a member's pensionable pay to increase by more than the standard COLA increase*
  - Typical pattern (for public sector, not just MCERA):
    - Higher increases early in career as members move through steps
    - Lower (but still positive) increases in later career, as members receive promotions, longevity bonuses, or seniority-based opportunities to increase pensionable pay

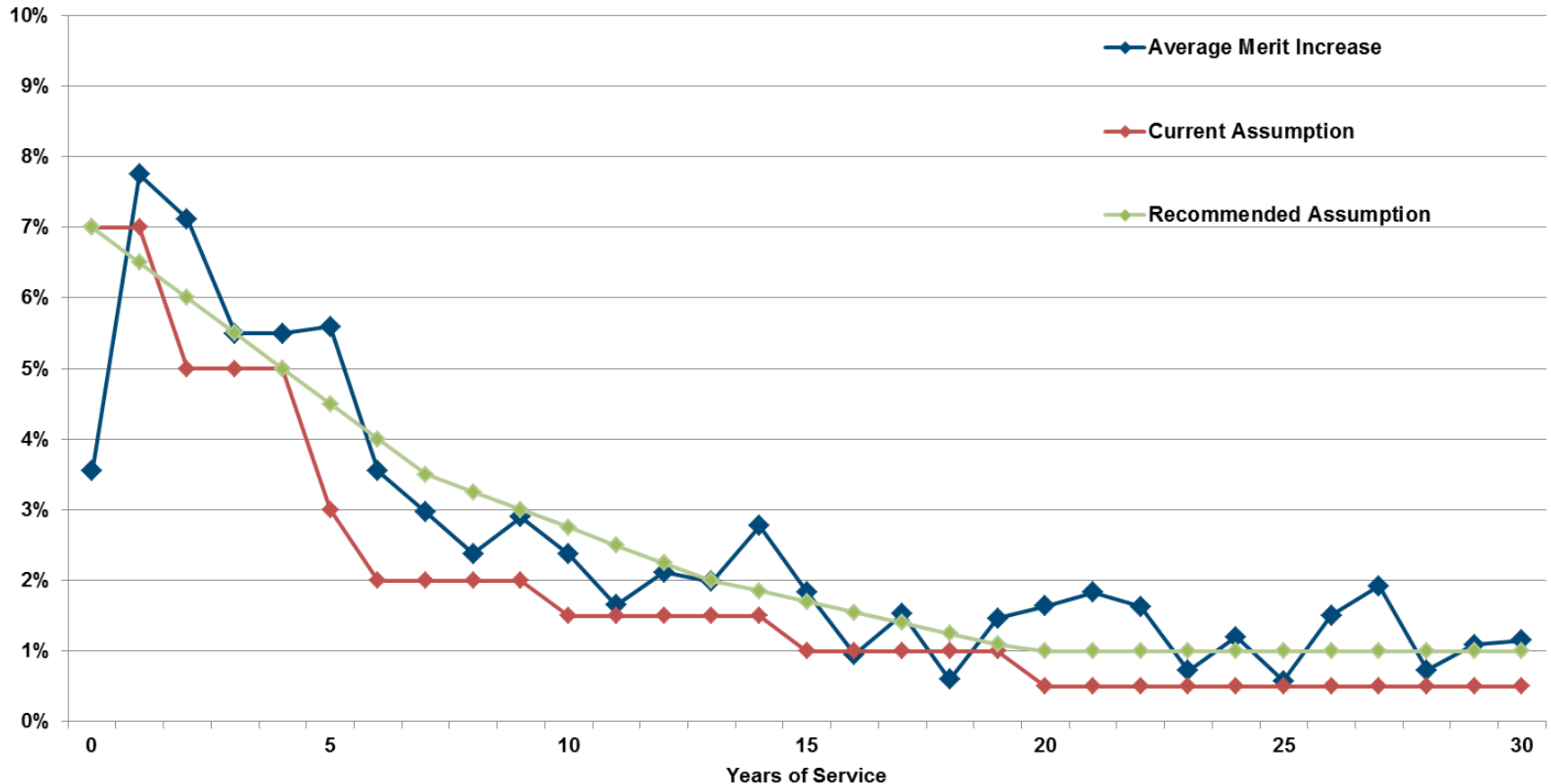
- Our recommendations are to update the merit salary increase assumption for both General and Safety
  - Increase rates at most service levels for General
  - Increase early career and late career rates for Safety (no change from 9-19 years of service)



# General Merit Salary Increases



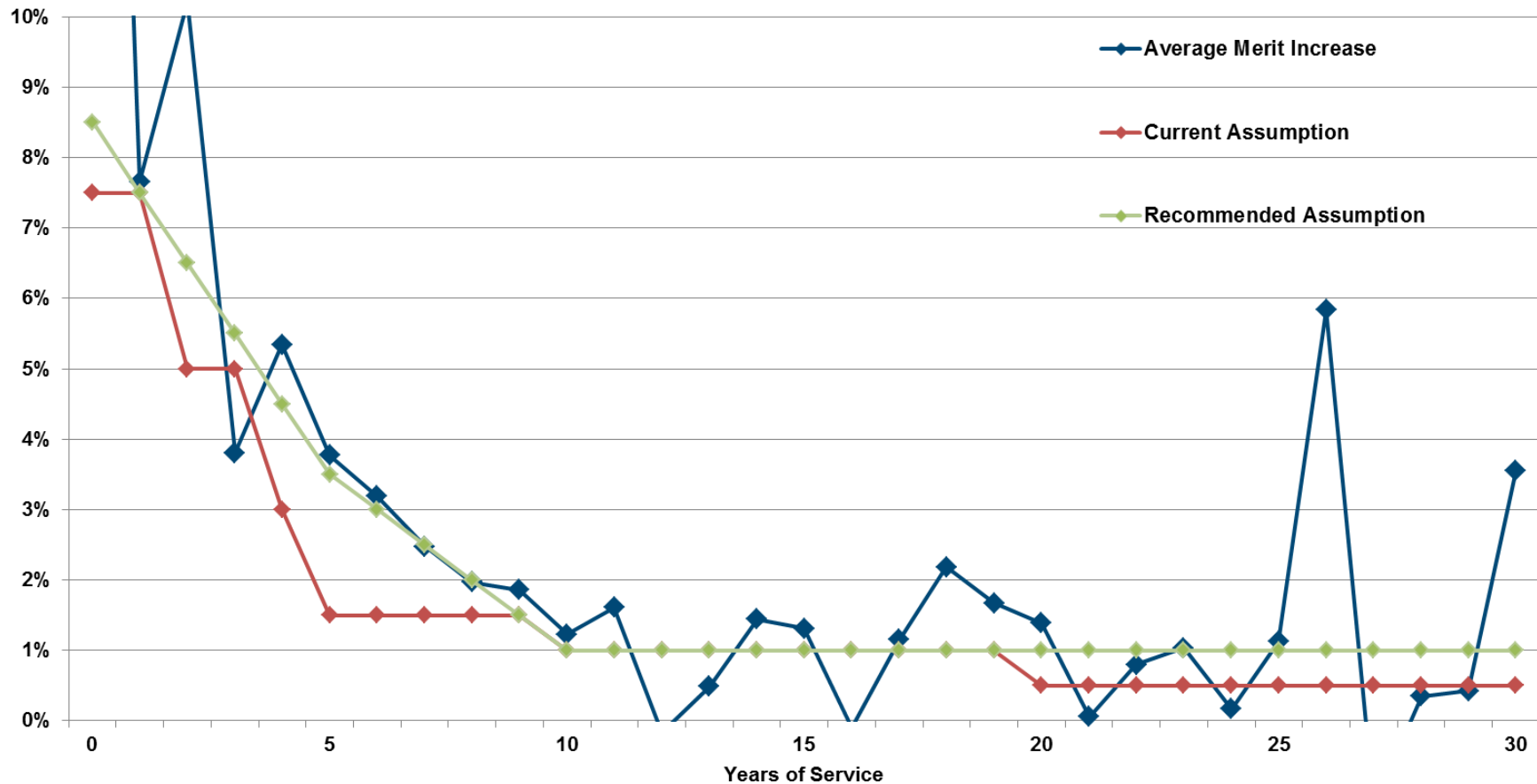
General Merit Salary Increase by Service



# Safety Merit Salary Increases



Safety Merit Salary Increase by Service





- Deferred Retirement Commencement Age
  - Non-reciprocal terminated vested members
    - Recommend increase in deferral age for General members from 59 to 60
    - Recommend decrease in deferral age for Safety members from 53 to 51
  - Reciprocal members
    - No change for General members (age 61)
    - Recommend increase in deferral age for Safety members from 55 to 57



- Family Composition (Marital Status at Retirement, Spousal Age Difference)
  - Spousal age difference
    - No change; current assumptions consistent with recent retirements
  - Marital status at retirement
    - Recommend increasing the percent of General male participants that are married from 70% to 75%
    - Recommend increasing the percent of General female participants that are married from 50% to 55%
    - Recommend decreasing the percent of Safety participants that are married from 90% to 85%

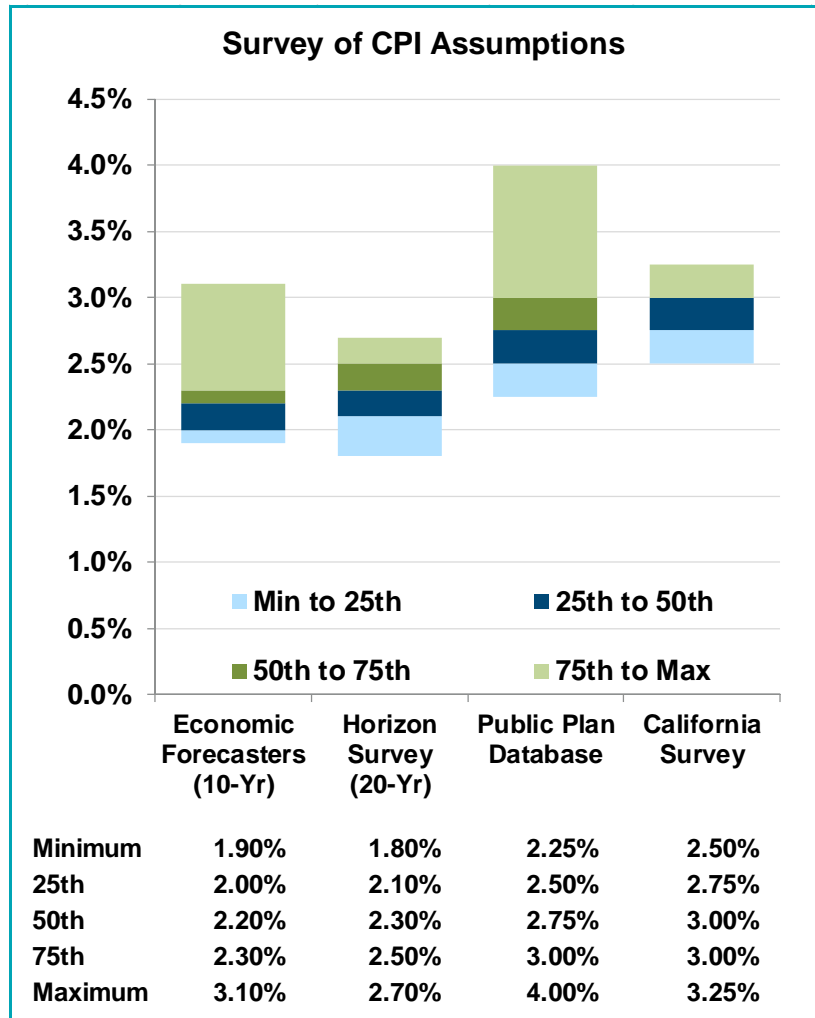
- Background
- Assumptions
  - Inflation
  - Wage Growth
  - COLAs
  - Expected Return on Assets
  - Administrative Expenses





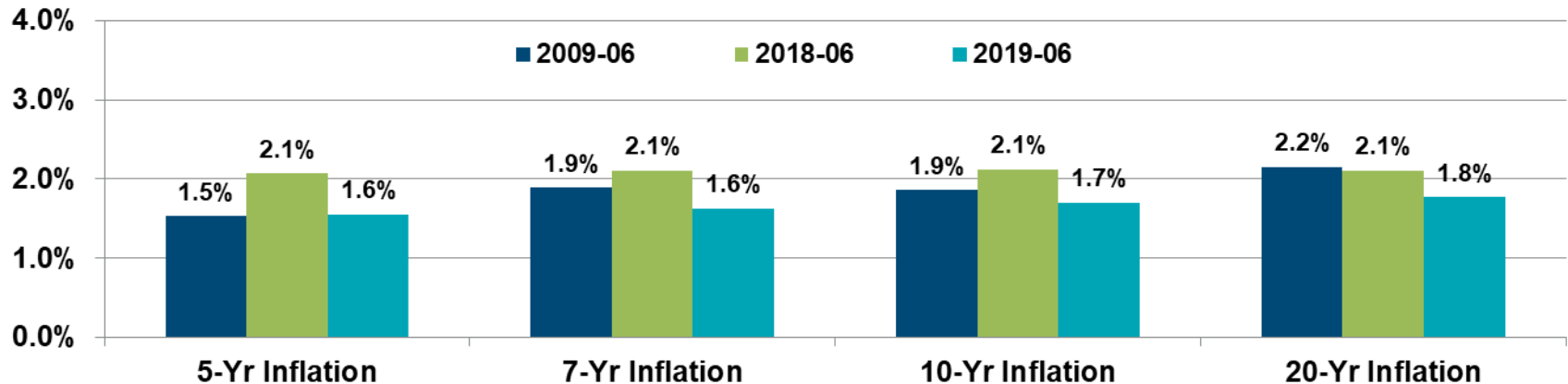
- Building block approach
  - Inflation is the foundation for all economic assumptions
    - Expected Return (Nominal) = Inflation + Real Return
    - Base Wage growth = Inflation + Real Wage Growth
  - Assumptions must be reasonable, both individually AND in aggregate
  - Current Assumptions
    - Inflation - 2.50%, Wage Growth - 2.75%, COLAs - 2.40%
    - Expected Return: 7.25% nominal (net of investment expenses), 4.75% real

# Price Inflation



- Economic professionals/ investment consultants forecast lower inflation than public plan assumptions
- Professionals  
Median = 2.20% - 2.30%
- Public Plan Assumptions  
Median = 2.75% - 3.00%,  
CA higher than National
- Meketa Assumption -  
2.60%

## Break-Even Inflation



- Markets provide data on investors' inflation assumptions
- Break-even inflation
  - Yield on Treasury Securities minus TIPS
  - Ranges from 1.6% to 1.8%
  - 30 to 50 bps lower than last year



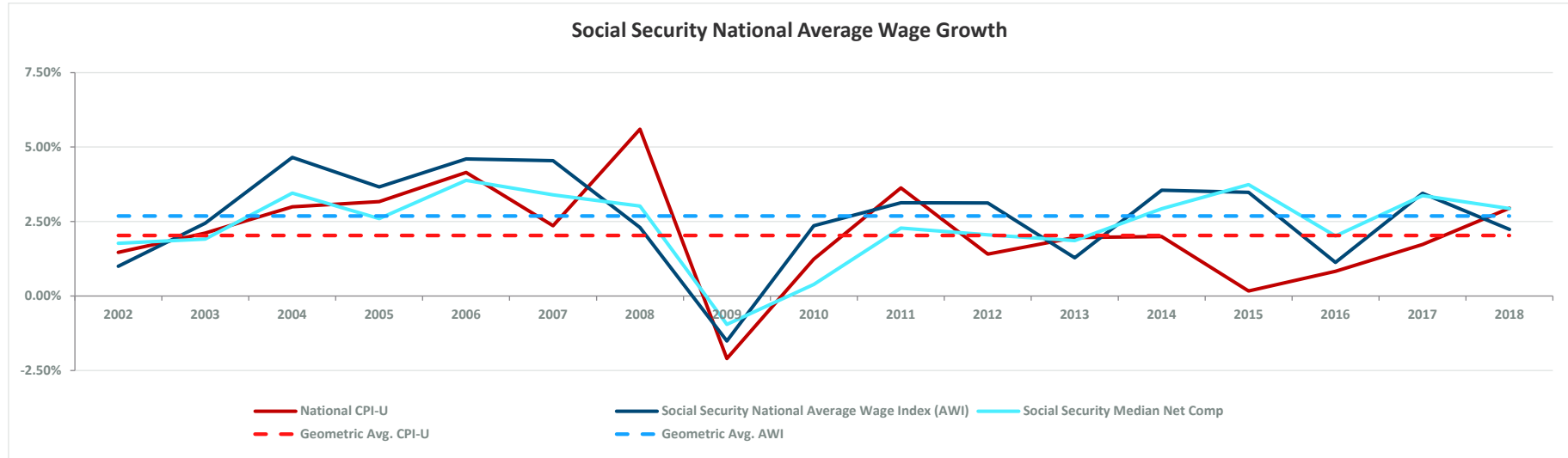
- Markets predicting low inflation (less than 2.50%) over short and long-term
- Median assumption in public plan surveys, and MCERA's investment consultant, still higher than MCERA assumption
- Recommendation: Maintain 2.50%, still reasonable, especially as basis for local wage and COLA inflation

- Pay for members expected to grow by
  - Base wage growth (economic assumption)
  - Plus individual amount based on longevity (demographic assumption)
- Base wage growth
  - Inflation, plus possible real-wage factor
  - Current assumption: 0.25% annual base wage growth above inflation



- Arguments for little-to-no real wage growth assumption
  - Budgetary environment (short, medium, long-term)
    - Particularly for Merced County
  - Political environment
  - Crowding out of wages from other areas of compensation (healthcare and pension costs)
  - Although evidence shows presence of historical real wage growth, increase in *mean* real wages higher than *median*

# Wage Growth



- Social Security Average Wage Index has grown by 2.7% since 2002 (0.7% higher than inflation), but **median** compensation has only grown by 2.3% (0.3% higher)



- Arguments for maintaining a positive real-wage growth assumption
  - Relaxing of some pressures
    - Improved budgetary environment
    - Slowing of other compensation cost increases (i.e. lower medical trend rates)
  - Many experts predict return of some level of real wage growth (Social Security projections based on 0.6% - 1.8% assumed real wage growth)
- Recommendation: maintain 0.25% real wage growth assumption

- Operation of COLA
  - Tier 1 benefits grow by Bay Area CPI (rounded to 0.5%), subject to 3% cap
  - Bank accumulated if CPI growth exceeds cap
- If inflation equals the assumption every year, average COLA growth should equal minimum of cap, inflation
  - Example: 3.00% inflation each year, cap of 3.0%, average COLA growth = 3.0%



- If inflation NOT the same every year, average COLA growth should be less than the cap (though possibly only slightly)
  - Assume 2% inflation for first 10 years of retirement, 4% next 10 years
  - Average inflation over time period equals 3%, but with a 3.0% cap, average COLA growth equals 2.5%
    - Inflation auto-correlated (influenced by prior year's rate), so impact will be greater in low inflation environment

- Cheiron performed preliminary stochastic testing of COLA growth
  - Recommendation: retain 2.40% COLA growth with 2.50% inflation



- Steps for calculation of expected returns
  - Collect assumptions of returns, risks, and correlations from investment consultant(s)
  - Model adopted target portfolio using inputs
- Current assumption
  - Nominal return: 7.25%, Inflation: 2.50%,
  - Real Return =  $7.25\% - 2.50\% = 4.75\%$
  - Beginning in 2013, net of investment, not administrative expenses
    - Administrative expenses addressed as separate assumption

# Expected Rate of Return



## Summary of Meketa Long-Term Capital Market Projections (for Merced)

MCERA Portfolio Geometric 2019 Expectations		MCERA Portfolio Geometric 2018 Expectations	
Annual Standard Deviation	12.36%	Annual Standard Deviation	13.23%
Expected Return 20 yrs Nominal	8.04%	Expected Return 20 yrs Nominal	7.42%
Inflation Expectation 20 yrs	2.60%	Inflation Expectation 20 yrs	2.60%
Expected Return 20 yrs Real	5.30%	Expected Return 20 yrs Real	4.70%
Sharpe Ratio	0.42	Sharpe Ratio	0.34
<u>Asset Classes</u>	<u>Weights</u>	<u>Asset Classes</u>	<u>Weights</u>
Short-term Investment Grade Bonds	4.0%	Short-term Investment Grade Bonds	4.0%
Investment Grade Bonds	14.0%	Investment Grade Bonds	14.0%
High Yield Bonds	2.5%	High Yield Bonds	2.5%
Bank Loans	2.5%	Bank Loans	2.5%
US Equity	21.0%	US Equity	21.0%
Developed Market Equity (non-US)	10.0%	Developed Market Equity (non-US)	10.0%
Emerging Market Equity	8.0%	Emerging Market Equity	8.0%
Private Equity/Debt	15.0%	Private Equity/Debt	15.0%
Real Estate	8.0%	Real Estate	8.0%
Natural Resources (Private)	2.5%	Natural Resources (Private)	2.5%
Core Infrastructure	2.5%	Core Infrastructure	2.5%
Hedge Funds	10.0%	Hedge Funds	10.0%

Source: Meketa

- Modeling Results
  - Average nominal return of 8.00% (5.40% real) under Meketa assumptions
    - Very close to Meketa-computed geometric return (8.04%)
    - Significantly higher than 2018 expectations (7.29% nominal, 4.69% real)
  - Reran results using capital market assumptions
    - From Verus (10-year for 2018 and 2019, 30-year for 2019 only)
    - From broader survey (Horizon Actuarial Services) [10- and 20-year expectations, 2018 and 2019]



- Modeling Results
  - Simulated returns should be adjusted for investment expenses of consultant, custodian and fees for passively-managed portfolios
    - Should be minimal (i.e. five -10 basis points)
    - Assumed returns already net of active management expenses for private / non-traditional classes

- Modeling Results

## MercedCERA Target Portfolio Return Expectations (2019 Capital Market Expectations)

Source	Nominal	Inflation	Real
<b>Meketa (20-year)</b>	8.00%	2.60%	5.40%
<b>Verus (10-year)</b>	6.97%	2.00%	4.97%
<b>Verus (30-year)</b>	<u>7.01%</u>	<u>1.80%</u>	<u>5.21%</u>
<b>Verus (Average)</b>	6.99%	1.90%	5.09%
<b>Horizon (Survey, 10-year)</b>	6.84%	2.22%	4.62%
<b>Horizon (Survey, 20-year)</b>	<u>7.83%</u>	<u>2.29%</u>	<u>5.54%</u>
<b>Horizon (Average)</b>	7.33%	2.26%	5.08%
<b>Average (Mek/Ver/Hor)</b>	7.44%	2.25%	5.19%

- Modeling Results

## MercedCERA Target Portfolio Return Expectations (2018 Capital Market Expectations)

Source	Nominal	Inflation	Real
<b>Meketa (20-year)</b>	7.29%	2.60%	4.69%
<b>Verus (10-year)</b>	6.19%	2.10%	4.09%
<b>Verus (30-year)</b>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<b>Verus (Average)</b>	6.19%	2.10%	4.09%
<b>Horizon (Survey, 10-year)</b>	6.65%	2.24%	4.41%
<b>Horizon (Survey, 20-year)</b>	<u>7.84%</u>	<u>2.48%</u>	<u>5.36%</u>
<b>Horizon (Average)</b>	7.25%	2.36%	4.89%
<b>Average (Mek/Ver/Hor)</b>	6.91%	2.35%	4.56%

- Modeling Results
  - Likelihood of achieving various returns over various horizons (2019 expectations)

Likelihood of Achieving Average Returns (2019)				
Consultant	Nominal		Real	
	7.00%	7.25%	4.50%	4.75%
<b>Meketa (20)</b>	60%	58%	59%	57%
<b>Verus (10)</b>	50%	47%	55%	52%
<b>Verus (30)</b>	50%	47%	58%	55%
<b>Horizon (10)</b>	48%	45%	51%	49%
<b>Horizon (20)</b>	<u>63%</u>	<u>59%</u>	<u>66%</u>	<u>62%</u>
<b>Average</b>	54%	51%	58%	55%

- Modeling Results
  - Rerun using 2018 expectations

## Likelihood of Achieving Average Returns (2018)

Consultant	Nominal		Real	
	7.00%	7.25%	4.50%	4.75%
<b>Meketa (20)</b>	53%	50%	52%	49%
<b>Verus (10)</b>	42%	39%	46%	43%
<b>Horizon (10)</b>	46%	44%	49%	46%
<b>Horizon (20)</b>	<u>63%</u>	<u>59%</u>	<u>63%</u>	<u>59%</u>
<b>Average</b>	51%	48%	53%	49%





- Current real return assumption (4.75%) is reasonable
  - Meketa projects 57% chance of achieving 4.75% real return over 20 years under 2019 capital market assumptions
  - Average likelihood of 55% over various time periods, including Verus (10-year and 30-year) and Horizon survey (10-year and 20-year)
  - Significantly lower chance (about 49% on average) under 2018 expectations

- On nominal basis, slightly higher than 50-50 chance of achieving 7.25% return based on 2019, but less than 50% based on 2018 expectations (48% average across all assumption sets)
  - 51% chance of achieving 7.25%, when averaged across all 2019 expectations
  - 48% change on average for 2018 expectations
  - Chance of achieving 7.00% return averaged 54% for 2019, and 51% for 2018
  - If consultants had generated Capital Market Assumptions in 2<sup>nd</sup> quarter 2019 – after markets had recovered – expectations would likely be more in line with 2018



- Recommendation
  - Multiple sets of reasonable assumptions are possible
  - Trustees should consider whether they desire a margin for conservatism (i.e. > 50% chance of achieving return), on a real or nominal basis, and the size of margin
  - Have produced preliminary results with and without a 25 basis point reduction in the real return assumption
    - Keep 4.75% real, 7.25% nominal, OR
    - Reduce return to 4.50% real, 7.00% nominal
    - No other changes to economic assumptions



- Actual administrative expenses for past two years have been very close to expected
  - \$2,255,000 expected vs. \$2,283,000 actual for FYE 2018
  - \$2,311,000 expected vs. \$2,351,000 actual for FYE 2019
- Recommendation
  - Continue approach of using prior year expected expenses, plus assumed inflation (at 2.50%)
    - \$2,369,000 for FYE 2020
  - Confirm with Staff whether any significant changes in expense level expected

# Impact Based on Preliminary 2019 Valuation Results



## Initial Impact on Total (ER+EE) Contribution Rates from Recommended Assumption Changes

	General Contribution Rate	Safety Contribution Rate	Total Contribution Rate
Retirement Rates	-0.24%	-0.29%	-0.25%
Disability Rates	0.28%	-0.01%	0.22%
Termination Rates	-0.02%	-0.68%	-0.12%
Termination Type	0.45%	0.42%	0.44%
Vested / Reciprocal Deferral Age	-0.11%	-0.20%	-0.13%
Percent Married	0.06%	-0.10%	0.05%
Mortality	-0.43%	-0.69%	-0.48%
Merit Scale	<u>0.92%</u>	<u>0.49%</u>	<u>0.85%</u>
<b>Total Effect of Demographic Changes</b>	<b>0.91%</b>	<b>-1.06%</b>	<b>0.58%</b>
Impact of Reducing Discount Rate to 7.0%	1.16%	1.53%	1.21%
<b>Total Effect of Assumption Changes</b>	<b>2.07%</b>	<b>0.47%</b>	<b>1.79%</b>

Results on this slide are preliminary and subject to review.

Calculations based on the data, methods, assumptions and provisions outlined in our forthcoming June 30, 2019 Actuarial Valuation Report.

# Impact Based on Preliminary 2019 Valuation Results



## Ultimate Impact on Total Contribution Rates from Recommended Assumption Changes (After Phase-In)

	General Contribution Rate	Safety Contribution Rate	Total Contribution Rate
Retirement Rates	-0.45%	-0.57%	-0.47%
Disability Rates	0.25%	0.00%	0.20%
Termination Rates	0.01%	-0.65%	-0.10%
Termination Type	0.55%	0.49%	0.53%
Vested / Reciprocal Deferral Age	-0.18%	-0.24%	-0.19%
Percent Married	0.11%	-0.16%	0.08%
Mortality	-1.09%	-1.72%	-1.19%
Merit Scale	<u>1.24%</u>	<u>0.70%</u>	<u>1.12%</u>
<b>Total Effect of Demographic Changes</b>	<b>0.44%</b>	<b>-2.15%</b>	<b>-0.02%</b>
Impact of Reducing Discount Rate to 7.0%	2.45%	3.28%	2.59%
<b>Total Effect of Assumption Changes</b>	<b>2.89%</b>	<b>1.13%</b>	<b>2.57%</b>

Results on this slide are preliminary and subject to review.

Calculations based on the data, methods, assumptions and provisions outlined in our forthcoming June 30, 2019 Actuarial Valuation Report.

- Board to provide direction to Actuary on assumptions to use to complete actuarial valuation
  - In particular: discount rate
- Finalize Actuarial Valuation results
  - Compute impact of assumption changes on employee and employer rates
  - Results shown in this presentation are preliminary (proceeding with peer review)
  - Present results by Tier and General / Safety
- Collect feedback from Actuarial Audit
- Adopt June 30, 2019 Actuarial Valuation and FYE 2021 Contribution Rates

# Required Disclosures



The purpose of this presentation is to present the preliminary results of the annual actuarial valuation and experience study of the Merced County Employees' Retirement Association. This presentation is for the use of the Merced County Employees' Retirement Board in accordance with applicable law.

In preparing our presentation, we relied on information (some oral and some written) supplied by the Merced County Employees' Retirement Association. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This presentation was prepared exclusively for the Merced County Employees' Retirement Board for the purpose described herein. This presentation is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

*The actuarial assumptions, data and methods are those that will be used in the preparation of the actuarial valuation report as of July 1, 2019.*

*The assumptions reflect our understanding of the likely future experience of the Plans, and the assumptions as a whole represent our best estimate for the future experience of the Plans. The results of this presentation are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the plan could vary from our results.*

Graham A. Schmidt ASA, FCA, MAAA, EA  
Consulting Actuary

Anne Harper, FSA, MAAA, EA  
Principal Consulting Actuary



Classic Values, Innovative Advice

December 12, 2019



MEETING MATERIALS

---

**Merced County Employees' Retirement Association**

Third Quarter 2019 Full Review

December 12, 2019



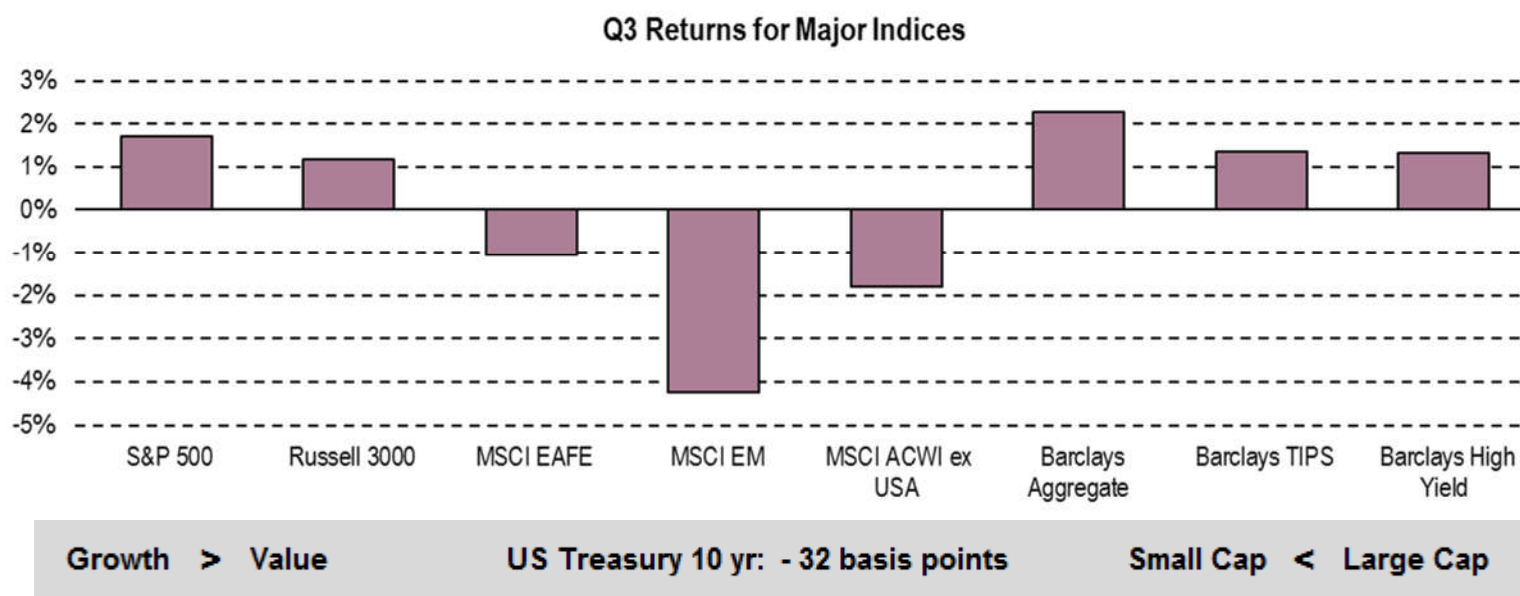
- 1. Executive Summary**
- 2. World Markets Third Quarter of 2019**
- 3. Capital Markets Outlook & Risk Metrics**
- 4. Quarterly Review As of September 30, 2019**
- 5. Performance Update As of October 31, 2019**
- 6. Disclaimer, Glossary, and Notes**

## **Executive Summary**

### **As of September 30, 2019**

### Market Summary for the Third Quarter 2019

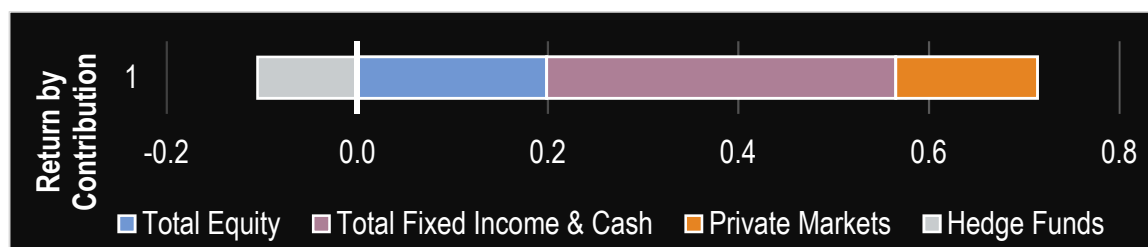
The combination of economic data reflecting a deceleration of growth and continued trade tensions has pushed Global Equity markets sideways. US Equity was up +1.2%, while International Developed Equity was down -1.1%, as expressed by the Russell 3000 and MSCI EAFE Indexes, respectively. Emerging Equity markets experienced the most significant declines, with the asset class benchmark (MSCI Emerging Markets Index) posting a -4.2% return. Fixed Income markets were up in the quarter, as recent interest rate movements were historically consistent with oncoming recessions.



## Executive Summary – Q3 2019

Total Market Value		QTD Absolute Results		QTD Relative Results
Q3 2019	\$866,302,483	MCERA	+0.6	
Q2 2019	\$862,466,585	Policy Benchmark	+0.0	MCERA vs Policy Benchmark <b>+0.6</b>

## Contribution to QTD Return



Major aggregates posted mixed results for Q3 2019.

In Q3, Total Fixed Income & Cash was the key positive contributor, mainly from the U.S. Fixed Income composite, which posted a return of +1.9%. Opportunistic Credit and Cash did not meaningfully contribute to overall returns for the quarter.

The US Equity sleeve was responsible for all of the positive contribution within Total Equity, as it reported +1.5% for the period. International Developed Equity and Emerging Markets Equity both detracted, posting returns of -1.1% and -0.9%, respectively.

Within Private Markets, positive contributions came from Private Equity and Real Assets. Hedge Funds detracted, posting a return of -1.2%.

Policy Target Check		Overall Portfolio Trailing Performance				
2 assets class not within range: <i>U.S. Equity &amp; Private Equity</i>		Trailing Returns			5-Year Std Dev	5-Year Sharpe
		1-Year	3-Year	5-Year		
		3.4	7.7	6.3		
		2.8	7.9	6.6		
		MCERA				
Policy BMK				6.7	0.8	
				6.4	0.9	

## Public Manager Highlights Q3 2019

**6 out of 9 Active Public Managers<sup>1</sup> either outpaced or matched their respective benchmarks for Q3 2019.**

### Total Equity (Active):

- The US Equity sleeve (+1.5%) exceeded the custom segment benchmark (+0.7%) by 80 basis points. In this space, Mellon Dynamic continued to record strong results, reporting a +2.9% return, and largely responsible for the positive excess return at the segment level. The outperformance is attributable to the month of August, as the fund's long Treasury exposure offset most of the losses from the US equity positions. The fund ended the quarter with 109% exposure to US stocks, 9% US bonds, and -18% cash. Relative to its peers, this manager was top quartile.
- The two U.S. small cap managers (DFA & PanAgora), posted negative absolute returns, but both were able to exceed the Russell 2000 by 90 basis points. PanAgora exceeded the benchmark primarily through strong security selection, especially in the Consumer Discretionary and Communication Services sectors.

### Total Fixed Income (Active):

- The U.S. Fixed Income composite posted a return of +1.9 for the quarter. The only active manager in this sleeve, Barrow Hanley reported a return of +2.4%, outperforming the Barclays U.S. Aggregate Index by 10 basis points. The manager's overweight to Industrials and Utilities, along with its longer duration in US Treasuries, helped relative performance.
- PIMCO and GoldenTree did not meaningfully contribute during the quarter. PIMCO's exposure to local currency emerging market debt (including Argentina) and short exposure to non-U.S. developed market duration detracted. GoldenTree had a challenging August, as only its bond holdings contributed on a positive basis.

### Public Passive Managers:

- Nothing to report for all passive managers (including SSgA Real Asset Fund).

<sup>1</sup> Excludes Private Markets and Hedge Fund managers.

## **Manager Updates / Recommendations / Watch List**

### **Asset Allocation and Manager Update**

- We expect Private Equity to remain underweight relative to targets for the next several years. As such, other asset classes will be overweight during that time, including Public Equities and Fixed Income.
- The Board approved to fully replace Mellon International with a 50/50 allocation to GQG International Equity and First Eagle International Value Equity, respectively. Meketa is working with staff on the replacement process.
- The Board approved to terminate Wells Fargo Berkeley Street Emerging Markets strategy with a 70/30 allocation to Artisan Developing World and RWC Emerging Markets Equity, respectively. Meketa is working with staff on the replacement process.

### **Performance Report Update**

- For Q1 2020, Meketa will be evaluating the current benchmarks in place for MCERA, as most are still carry overs from the previous consultant. Meketa feels that with all the changes to the asset allocation and manager line up, it would be prudent to confirm that the benchmarks are appropriate, valid and effective in measuring the performance at the segment and total portfolio levels.

### **Watch List**

No funds on the watch list.

### Active Manager Expectations

Manager	Strategy Description	Beta (High/Low/Neutral)	Tracking Error Range (bps)	Environments Manager Underperforms
<b>Domestic Equity</b>				
DFA U.S. Small Cap Trust	Very diversified small cap portfolio, tilts toward value	Neutral	2.0% to 2.7%	In growth-oriented markets
PanAgora U.S. Small Cap Core Stock Selector	Diversified, quantitatively managed small cap portfolio	Neutral	2.5% to 4.0%	In low quality rallies or at market inflection points
Mellon Capital MCM Dynamic U.S. Equity	Very diversified, quantitative, large cap core portfolio	Neutral (higher in more recent periods)	2.5% to 5.0%	When investors misprice forward looking return/risk characteristics; when returns are concentrated in one sector
<b>Developed Markets Equity (Non-U.S.)</b>				
Driehaus International Small Cap Growth	Diversified growth manager that seeks to invest in companies experiencing positive growth inflections, using a combination of fundamental and macroeconomic analysis.	Low	4.0% to 7.0%	At market inflection points, with abrupt leadership change. Deep value, low quality market environments.
Acadian ACWI ex US Small Cap Equity	Very diversified international small cap portfolio, employing highly adaptive quantitative models	Neutral	2.5% to 4.5%	During narrow markets, abrupt changes in leadership. In "value" challenged periods.
<b>Emerging Markets Equity</b>				
Wells Capital Berkeley St Emerging Markets	Diversified, quality-at-a-reasonable price manager	Low	3.5% to 4.0%	Deep value, low quality market environments
<b>Investment Grade Bonds</b>				
Barrow Hanley Core Fixed Income	Conservative, low tracking-error core strategy focused on bottom-up security selection	Neutral	0.2% to 0.7%	At market Inflection points, but should track the index very closely
<b>Opportunistic Credit</b>				
PIMCO Income	Global multi-sector, benchmark agnostic approach, utilizing firm's resources to identify best income ideas while staying senior in the capital structure	Low	1.5% to 3.5%	During periods of lower quality bond rallies and volatility in interest rates and certain currencies
GoldenTree Multi-Sector Credit	Bottom-up security selection, managing risk and adding value through credit sector rotation	Low	2.5% to 4.5%	During initial periods of economic recovery and rapid spread tightening



## Manager Monitor

Manager	Significant Events (Yes/No)	Last Meeting with Board of Retirement	Last Meeting with MIG	Comments
<b>Domestic Equity Assets</b>				
Mellon Capital BNY Mellon MCM Dynamic US Equity Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
Mellon Capital EB DV Large Cap Stock Index Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
DFA US Small Cap Trust	No	-	Sep 2019	On site with DFA to discuss non-U.S. equities in September of this year.
PanAgora US Small Cap Core Stock Selector	No	-	Aug 2018	CEO Eric Sorensen, who is credited with turning the firm around, has not announced a plan to retire and no formal succession plan is in place. We do not recommend any changes at this time.
<b>Developed Markets Equity (Non-U.S.) Assets</b>				
Driehaus International Small Cap Growth	No	-	Aug 2019	Review of strategy, no changes to conviction level.
Acadian ACWI ex US Small Cap Equity	No	-	Mar 2019	Onsite meeting to go over Non-US small cap strategies.
Mellon Capital EB DV International Stock Index Fund	No	-	Mar 2017	Merger of smaller boutiques – Met Mellon in March 2017 to go over HY Beta Strategy & conference call for Carbon Efficiency strategy.
<b>Emerging Markets Equity Assets</b>				
Wells Capital Berkeley Street Emerging Markets Fund	No	-	July 2019	Met with Bob Hrabchak (product specialist) with overview of EM strategy – very quality oriented and valuation sensitive with a long-term view.
<b>US Fixed Income Assets</b>				
Barrow Hanley Core Fixed Income Fund	No	Apr 2019	Apr 2019	Standard update from Barrow team – review of Core Fixed and Short Duration.
Vanguard Short Term Treasury Index Fund	No	-	Aug 2019	Review of High Yield strategy.
<b>Opportunistic Credit</b>				
PIMCO Income Fund	No	-	Mar 2019	Regular high-level meeting discussing positioning and detractors for Income and Total Return strategies.
GoldenTree Multi-Sector Credit	No	-	July 2019	Meeting in London for regular strategy update.
<b>Private Equity Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.
<b>Real Assets Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.
<b>Hedge Fund Program</b>	N/A	N/A	N/A	Oversight by Cliffwater.

### Active Manager Peer Rankings

Investment Managers	Product	Peer Group	Market Value (\$ mm)	YTD September	1 YR	3 YR	5 YR	10 YR	Client Inception	Years in portfolio
DFA	US Small Cap Equity Strategy	US Small Cap Core	17.6	63	61	62	60	52	Jun-14	5.3
PanAgora	US Small Cap Core Stock Selector	US Small Cap Core	17.9	48	70	53	48	6	Sep-13	6.0
Mellon Capital	Dynamic US Equity Strategy	US Large Cap Core	94.2	4	29	6	3	1	Dec-12	6.8
Acadian	All-Country World ex US Small Cap	Non-US Div Small Cap	9.8	77	65	35	56	29	May-19	0.3
Driehaus	International Small Cap Growth	Non-US Div Small Cap	10.4	9	16	10	9	7	May-19	0.3
Wells Capital	Berkeley Street Emerging Markets	Emerging Markets	67.9	11	11	30	20	32	Mar-12	7.5
Barrow Hanley	Core Fixed Income	US Core Fixed Income	61.1	62	46	68	57	77	Mar-10	9.5
PIMCO	Income Fund	GI Multi-Sector Fixed Income	20.4	81	48	17	7	1	May-19	0.3
GoldenTree	Multi-Sector Credit Strategy	GI Multi-Sector Fixed Income	20.8	63	79	20	12	--	Jun-19	0.3

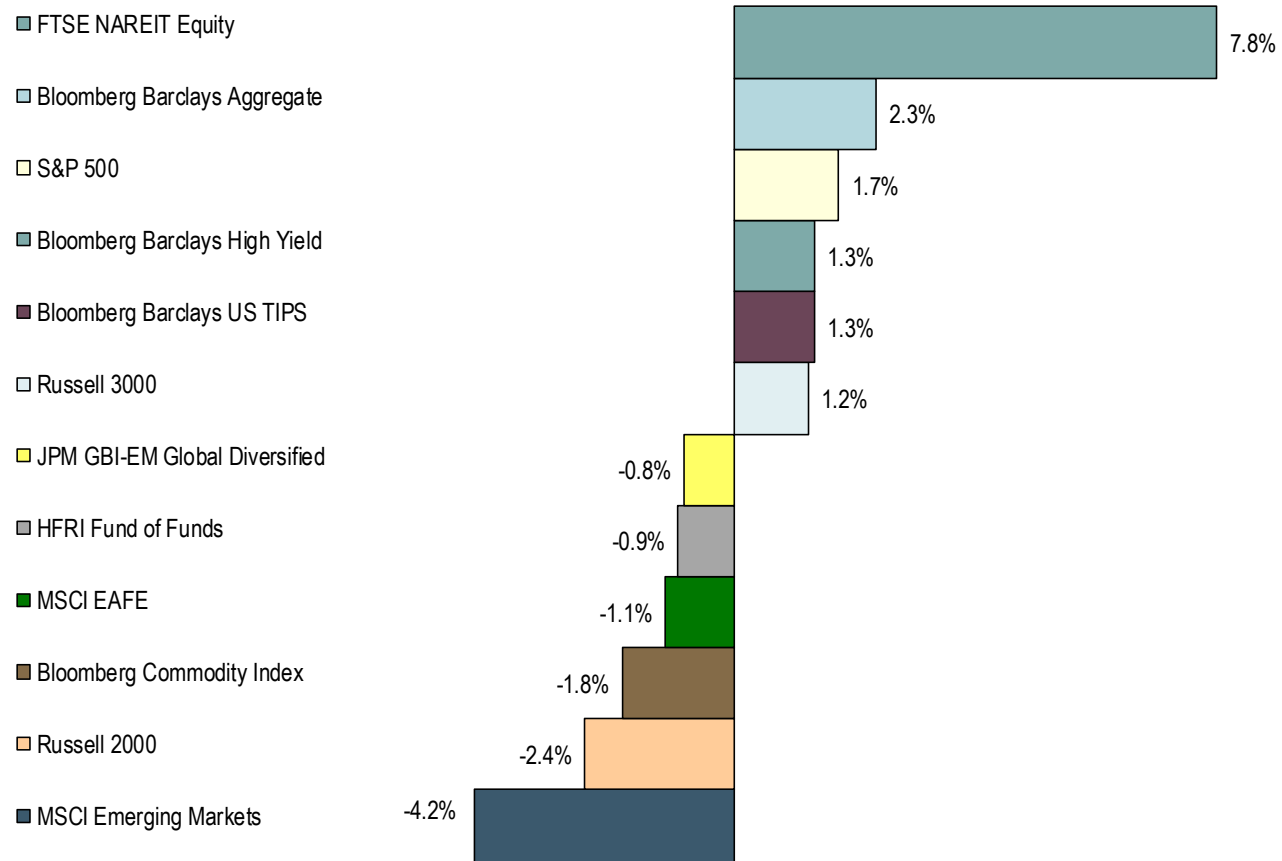
Source: eVestment universe data.

Shaded values are rankings prior to Client inception in the strategy.

Ranks are based on gross of fee returns for extended periods (shaded values).

## **The World Markets Third Quarter of 2019**

## The World Markets<sup>1</sup> Third Quarter of 2019



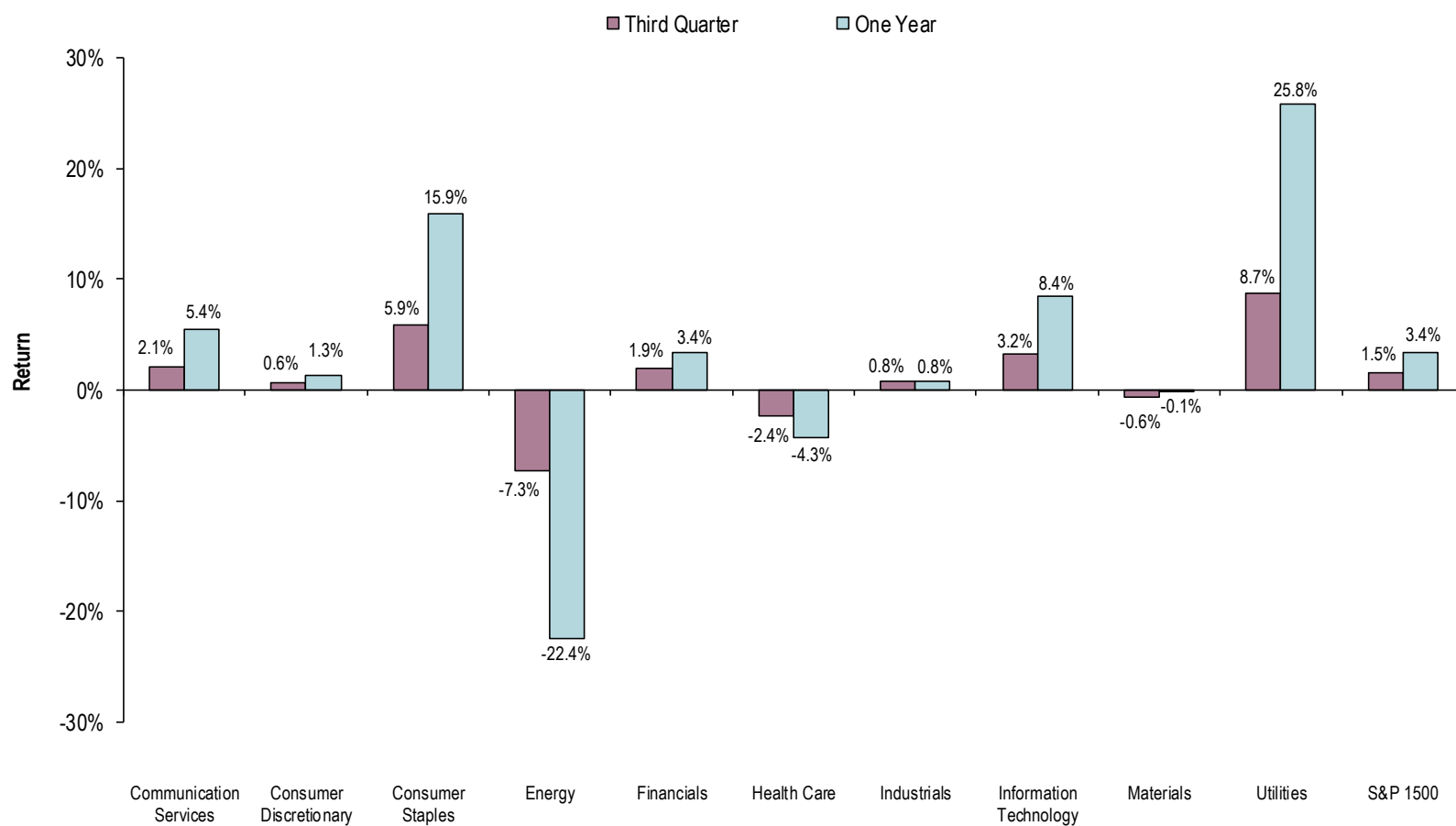
<sup>1</sup> Source: InvestorForce.

Index Returns<sup>1</sup>

	3Q19 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Domestic Equity</b>						
S&P 500	1.7	20.6	4.3	13.4	10.8	13.2
Russell 3000	1.2	20.1	2.9	12.8	10.4	13.1
Russell 1000	1.4	20.5	3.9	13.2	10.6	13.2
Russell 1000 Growth	1.5	23.3	3.7	16.9	13.4	14.9
Russell 1000 Value	1.4	17.8	4.0	9.4	7.8	11.5
Russell MidCap	0.5	21.9	3.2	10.7	9.1	13.1
Russell MidCap Growth	-0.7	25.2	5.2	14.5	11.1	14.1
Russell MidCap Value	1.2	19.5	1.6	7.8	7.6	12.3
Russell 2000	-2.4	14.2	-8.9	8.2	8.2	11.2
Russell 2000 Growth	-4.2	15.3	-9.6	9.8	9.1	12.2
Russell 2000 Value	-0.6	12.8	-8.2	6.5	7.2	10.1
<b>Foreign Equity</b>						
MSCI ACWI (ex. US)	-1.8	11.6	-1.2	6.3	2.9	4.5
MSCI EAFE	-1.1	12.8	-1.3	6.5	3.3	4.9
MSCI EAFE (Local Currency)	1.8	15.7	1.6	8.3	6.0	7.0
MSCI EAFE Small Cap	-0.4	12.1	-5.9	5.9	6.0	7.5
MSCI Emerging Markets	-4.2	5.9	-2.0	6.0	2.3	3.4
MSCI Emerging Markets (Local Currency)	-2.1	7.8	-0.2	7.6	5.5	5.9
<b>Fixed Income</b>						
Bloomberg Barclays Universal	2.1	8.8	10.1	3.2	3.6	4.1
Bloomberg Barclays Aggregate	2.3	8.5	10.3	2.9	3.4	3.7
Bloomberg Barclays US TIPS	1.3	7.6	7.1	2.2	2.4	3.5
Bloomberg Barclays High Yield	1.3	11.4	6.4	6.1	5.4	7.9
JPM GBI-EM Global Diversified	-0.8	7.9	10.1	3.1	0.6	2.4
<b>Other</b>						
FTSE NAREIT Equity	7.8	27.0	18.4	7.4	10.3	13.0
Bloomberg Commodity Index	-1.8	3.1	-6.6	-1.5	-7.2	-4.3
HFRI Fund of Funds	-0.9	5.2	0.0	3.2	2.0	2.7

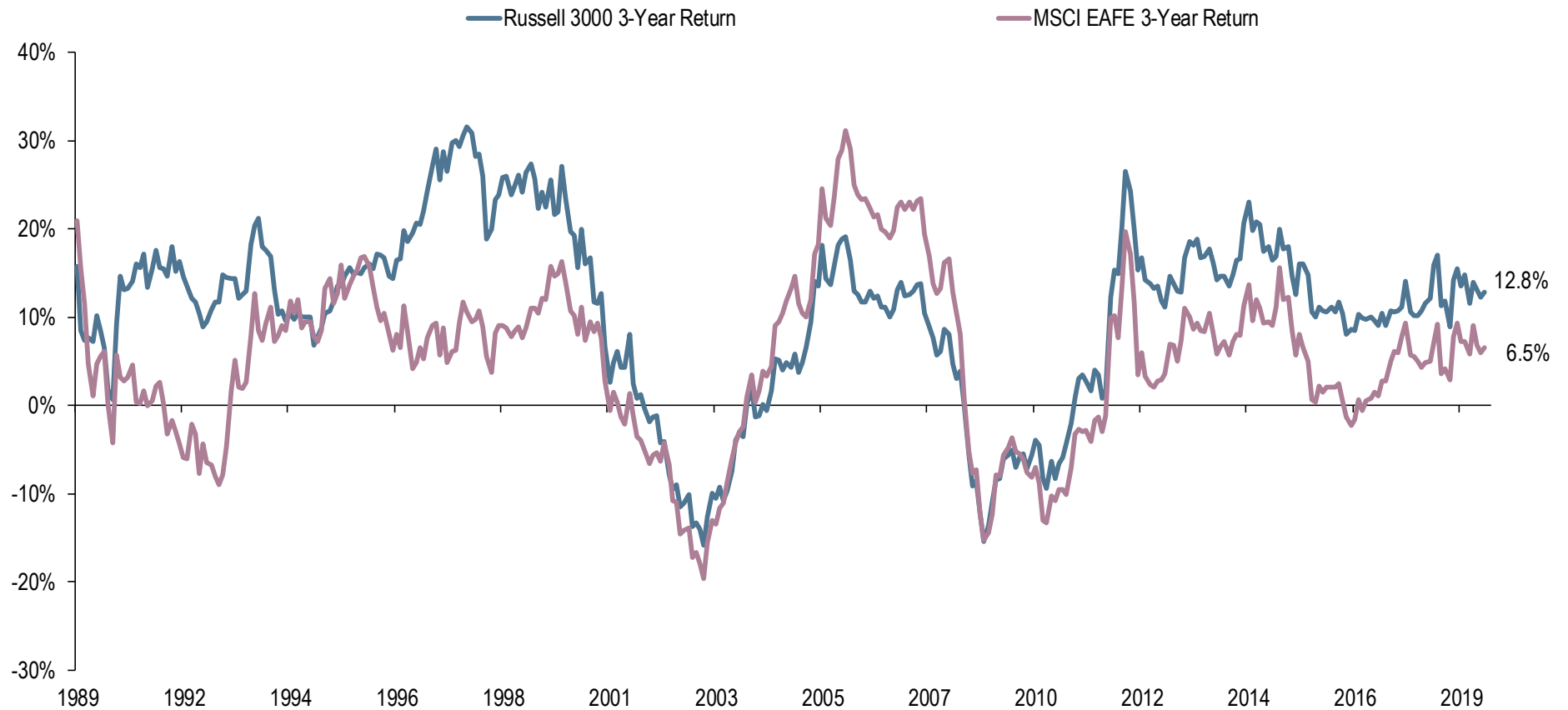
<sup>1</sup> Source: InvestorForce.

## S&P Sector Returns<sup>1</sup>



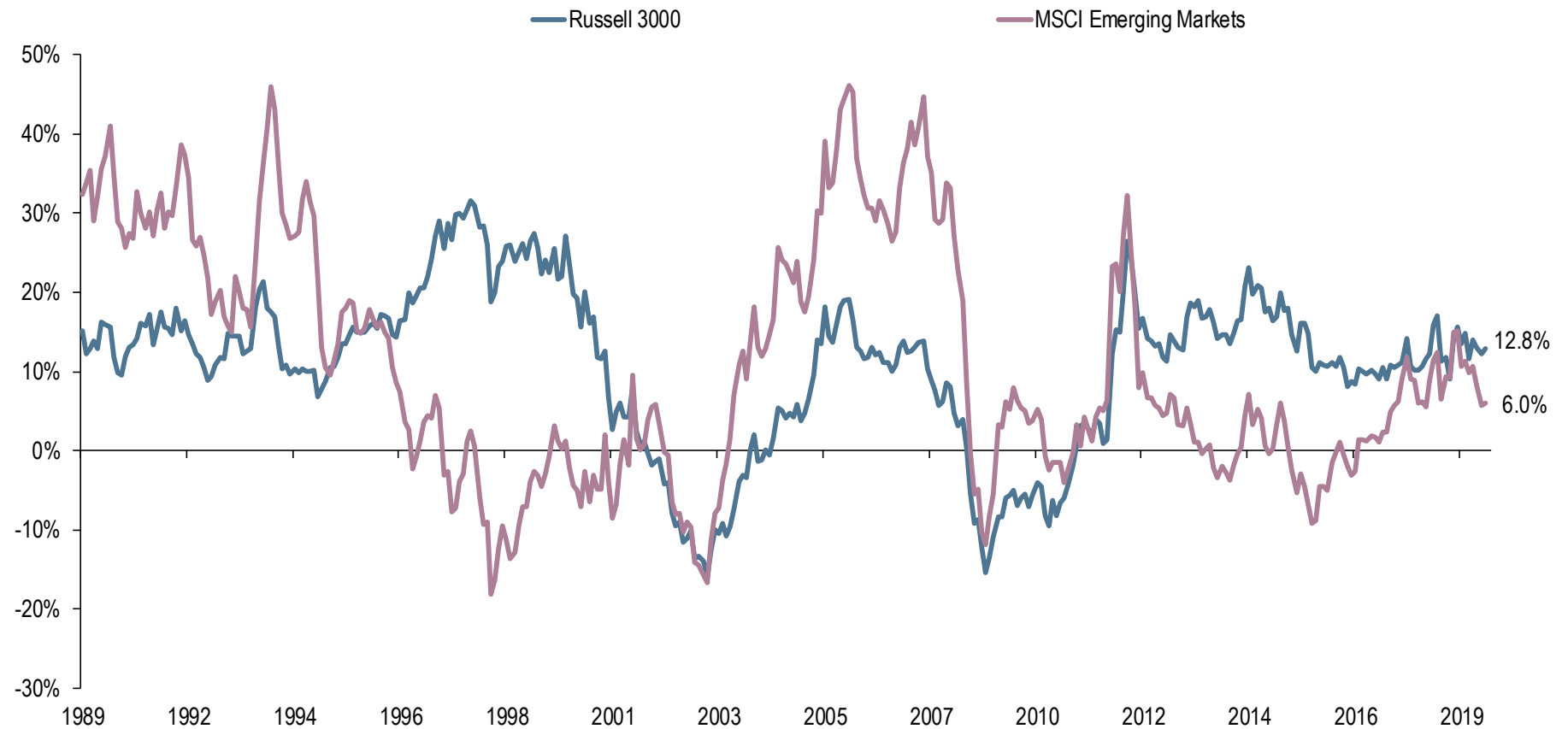
<sup>1</sup> Source: InvestorForce. Represents S&P 1500 (All Cap) data.

## US and Developed Market Foreign Equity Rolling Three-Year Returns<sup>1</sup>



<sup>1</sup> Source: InvestorForce.

## US and Emerging Market Equity Rolling Three-Year Returns<sup>1</sup>

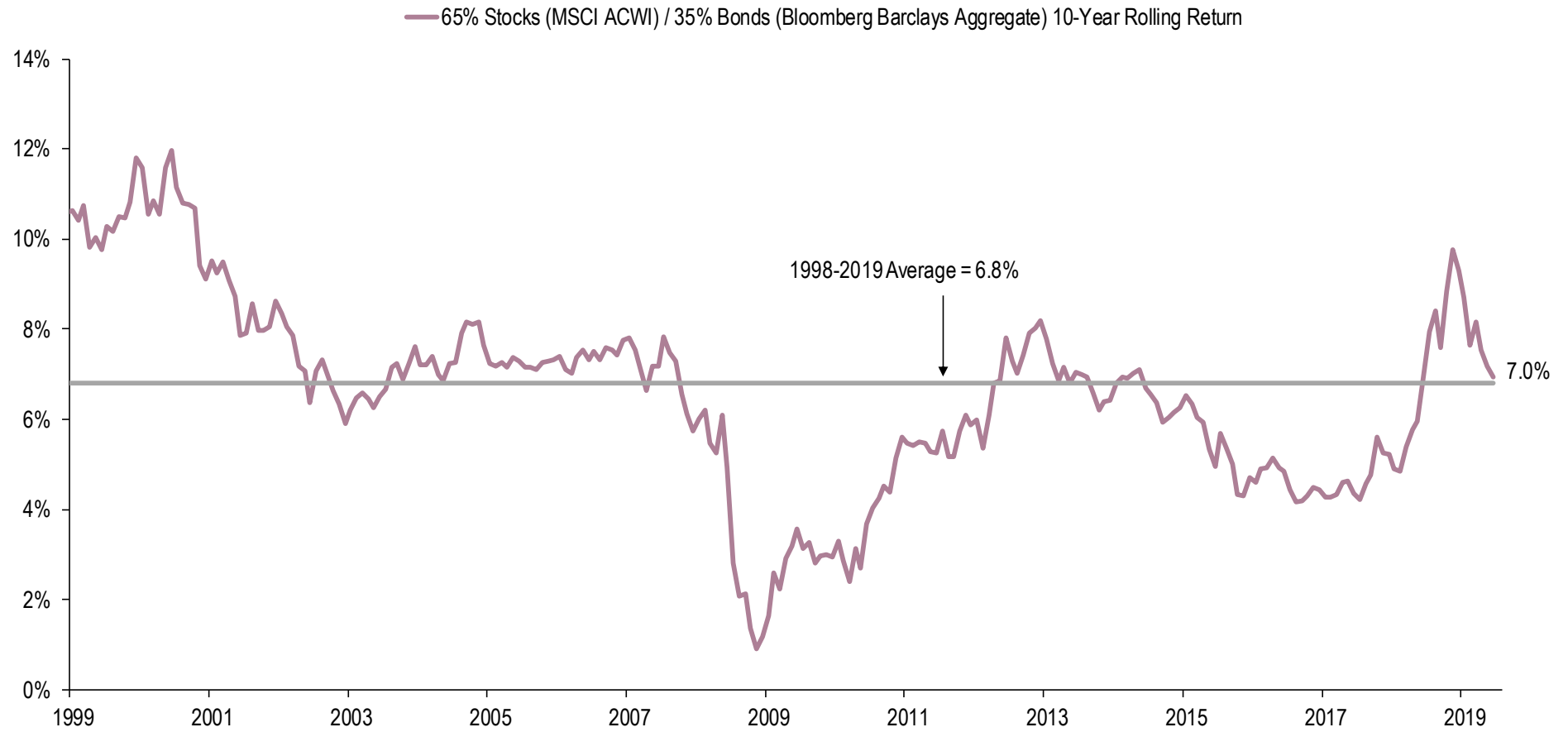


<sup>1</sup> Source: InvestorForce.



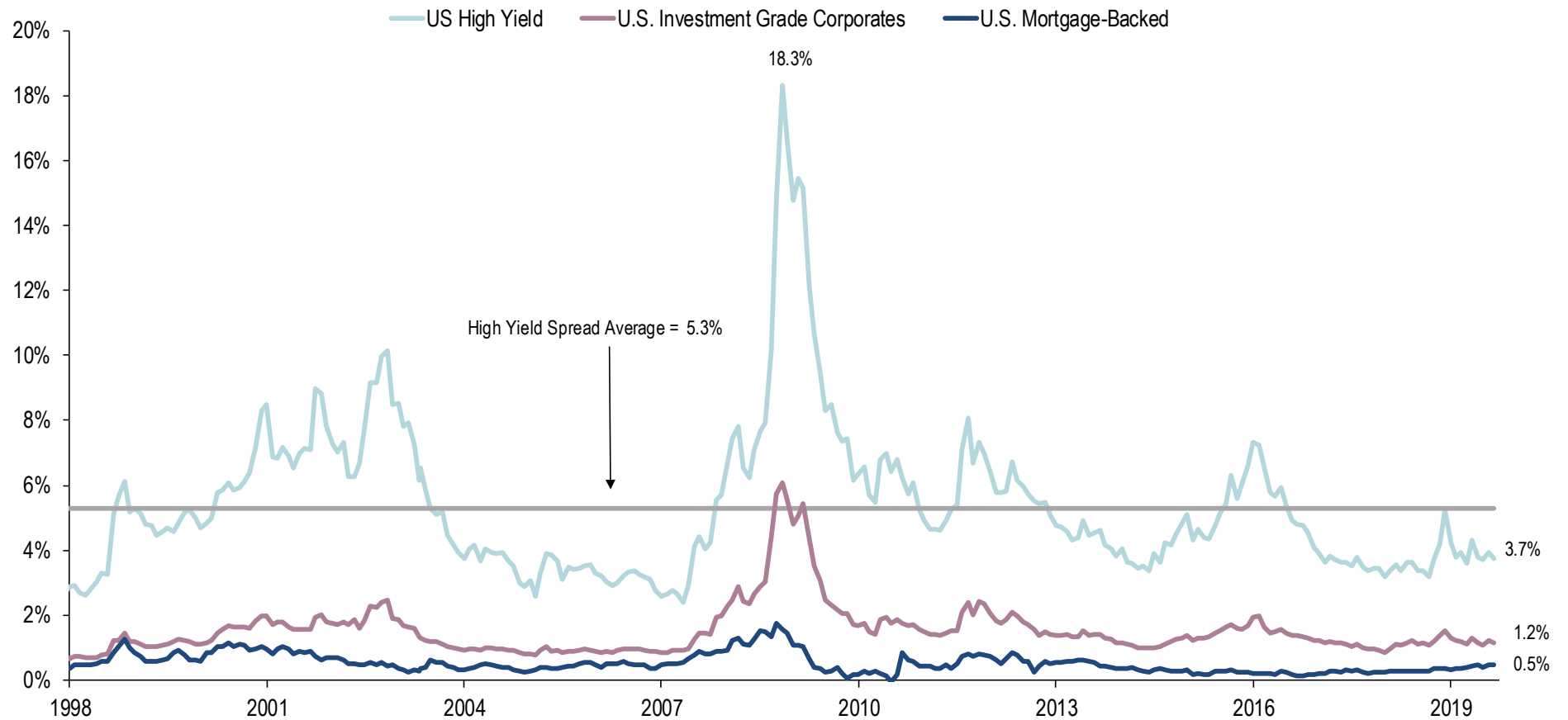


## Rolling Ten-Year Returns: 65% Stocks and 35% Bonds<sup>1</sup>



<sup>1</sup> Source: InvestorForce.

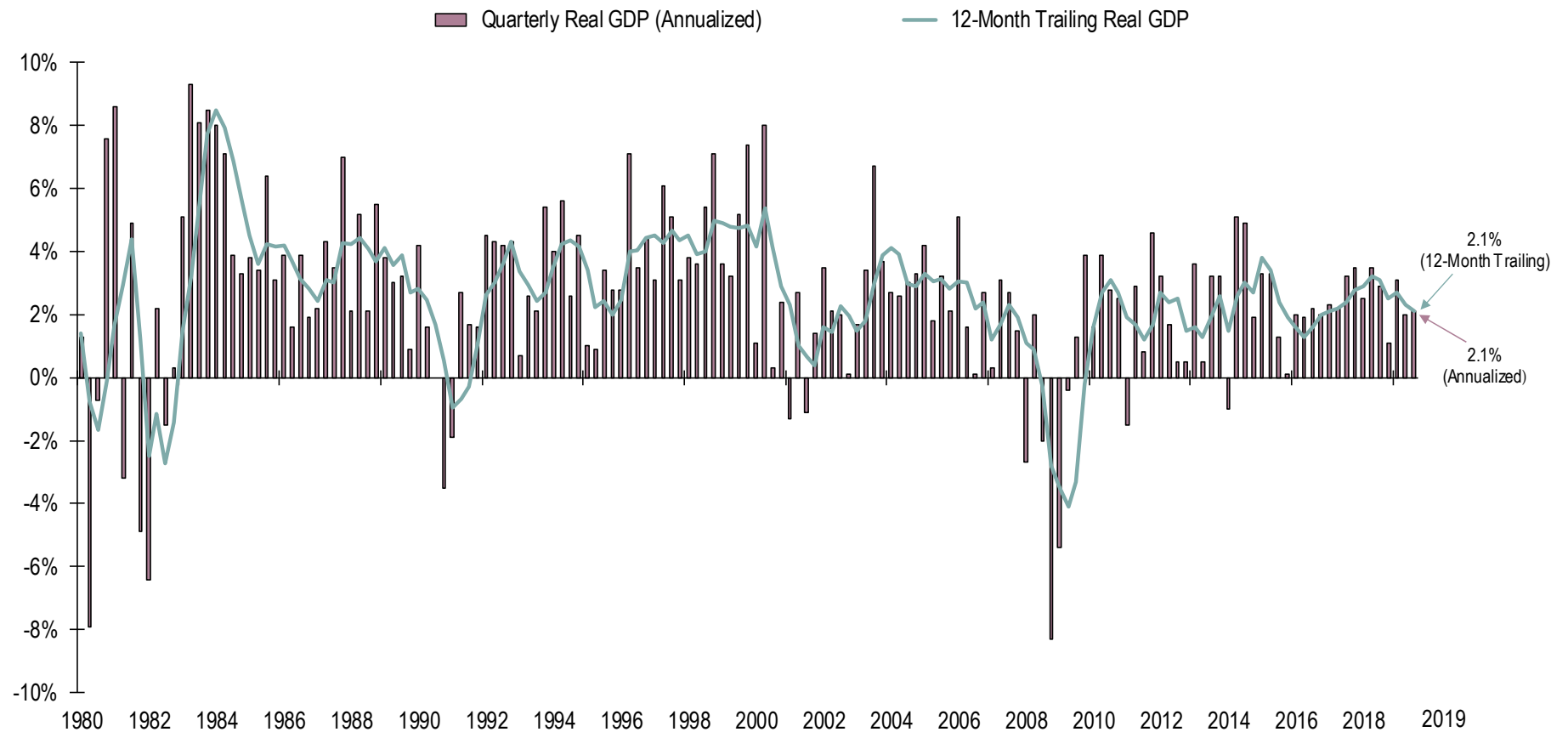
## Credit Spreads vs. US Treasury Bonds<sup>1,2</sup>



<sup>1</sup> Source: Barclays Live.

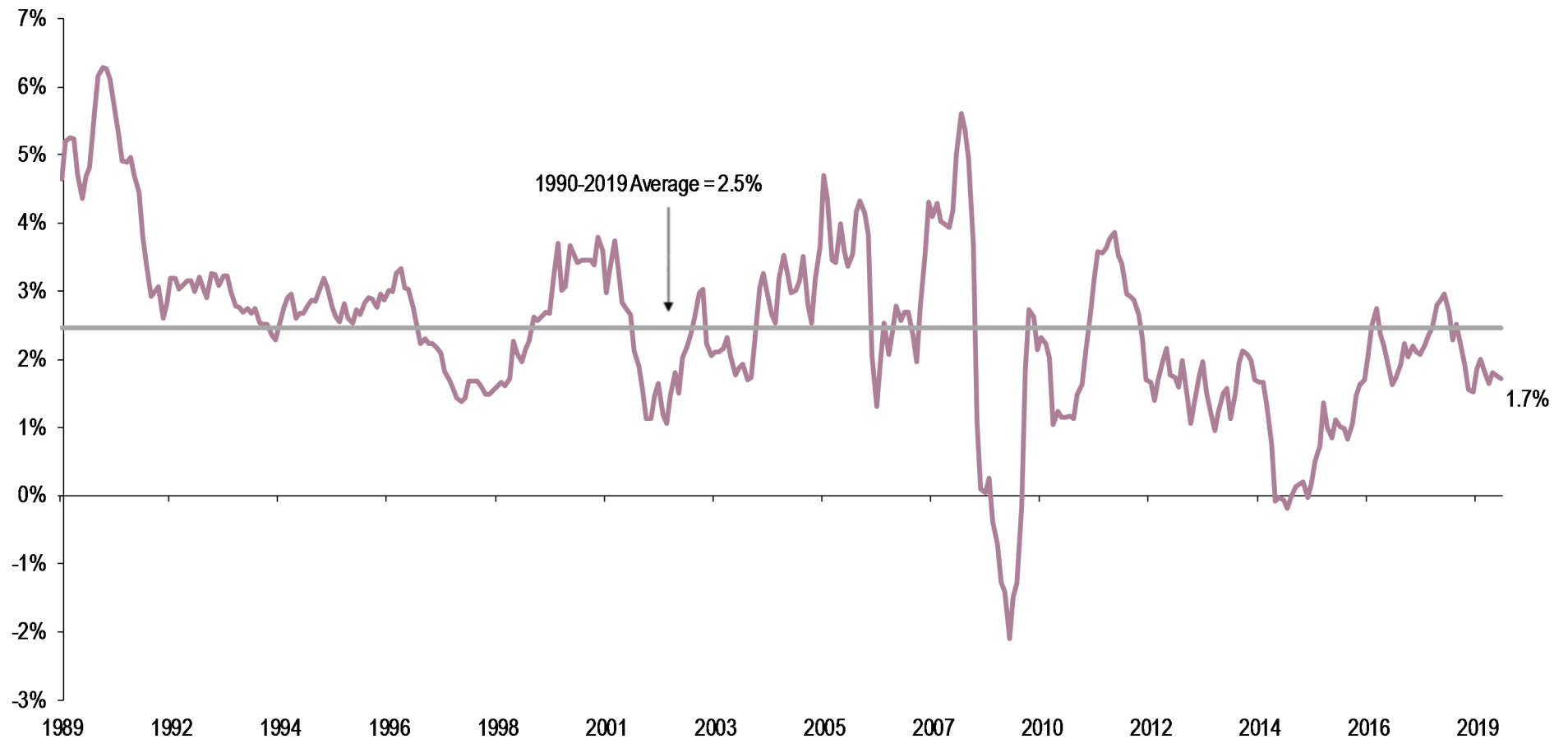
<sup>2</sup> The median high yield spread was 4.8% from 1997-2019.

## US Real Gross Domestic Product (GDP) Growth<sup>1</sup>



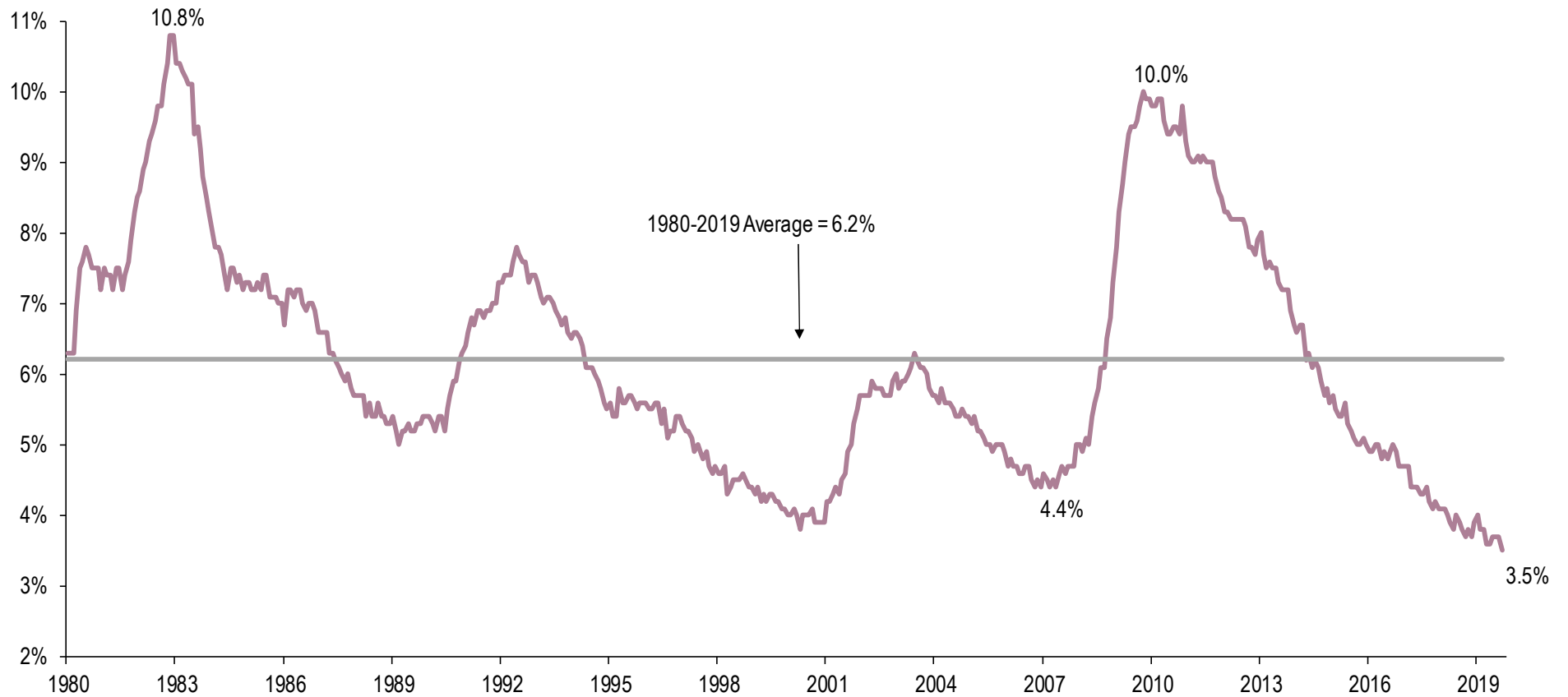
<sup>1</sup> Source: Bureau of Economic Analysis. Data is as of Q3 2019 and represents the second estimate.

## US Inflation (CPI) Trailing Twelve Months<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is non-seasonally adjusted CPI, which may be volatile in the short-term. Data is as of September 30, 2019.

## US Unemployment<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is as of September 30, 2019.

# **Capital Markets Outlook & Risk Metrics**

As of November 30, 2019

## Capital Markets Outlook

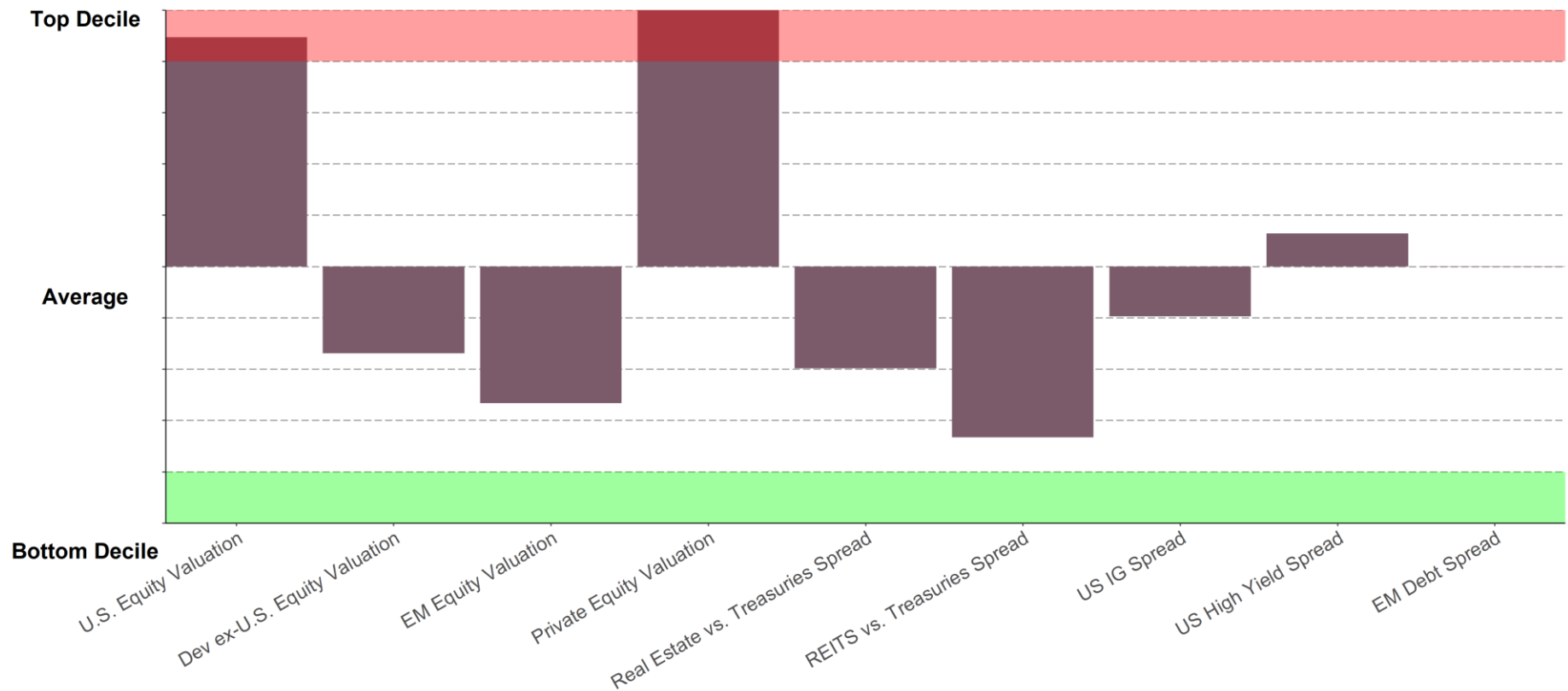
### Takeaways

- From a market performance perspective, November saw most Global Equity markets, with the exception of Emerging Markets, continue their extraordinary year-to-date run. While certain trends continued to hold (e.g., growth outpacing value, US besting Non-US, and large cap outperforming small cap), bearing any kind of equity risk has been a profitable position as most indices have produced returns in the 10-30% range in 2019. Of note, this strong rebound followed the sharp declines during Q4 2018.
- US interest rates were relatively unchanged during November. As a reminder, in October the Federal Reserve lowered rates for a third time in 2019 and subsequently indicated a pause to any further lowering.
- After a short hiatus, trade war-related discussions once again returned to the forefront as a market driver. While several discussions in November pertained to tariff rollbacks, this situation remains in flux and is likely to continue as such over the near-term. These events remain complex and unpredictable.
- US Equity markets remain expensive whereas Non-US Equity markets remain reasonably valued relative to their histories.
- US Credit and Emerging Markets Debt spreads remain reasonably valued relative to their histories.
- Implied equity market volatility<sup>1</sup> remained at relatively low levels throughout November, generally staying below 13 throughout the entire month (the historical average is ≈19).
- The Market Sentiment Indicator<sup>2</sup> stayed **green** at month end.
- Market uncertainty, as measured by Systemic Risk, declined during November. Despite this sort of statistical behavior, recent economic data suggests that the global economy is in a slowing, but not yet recessionary, phase.

<sup>1</sup> As measured by VIX Index.

<sup>2</sup> See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

### Risk Overview/Dashboard (1) (As of November 30, 2019)<sup>1</sup>

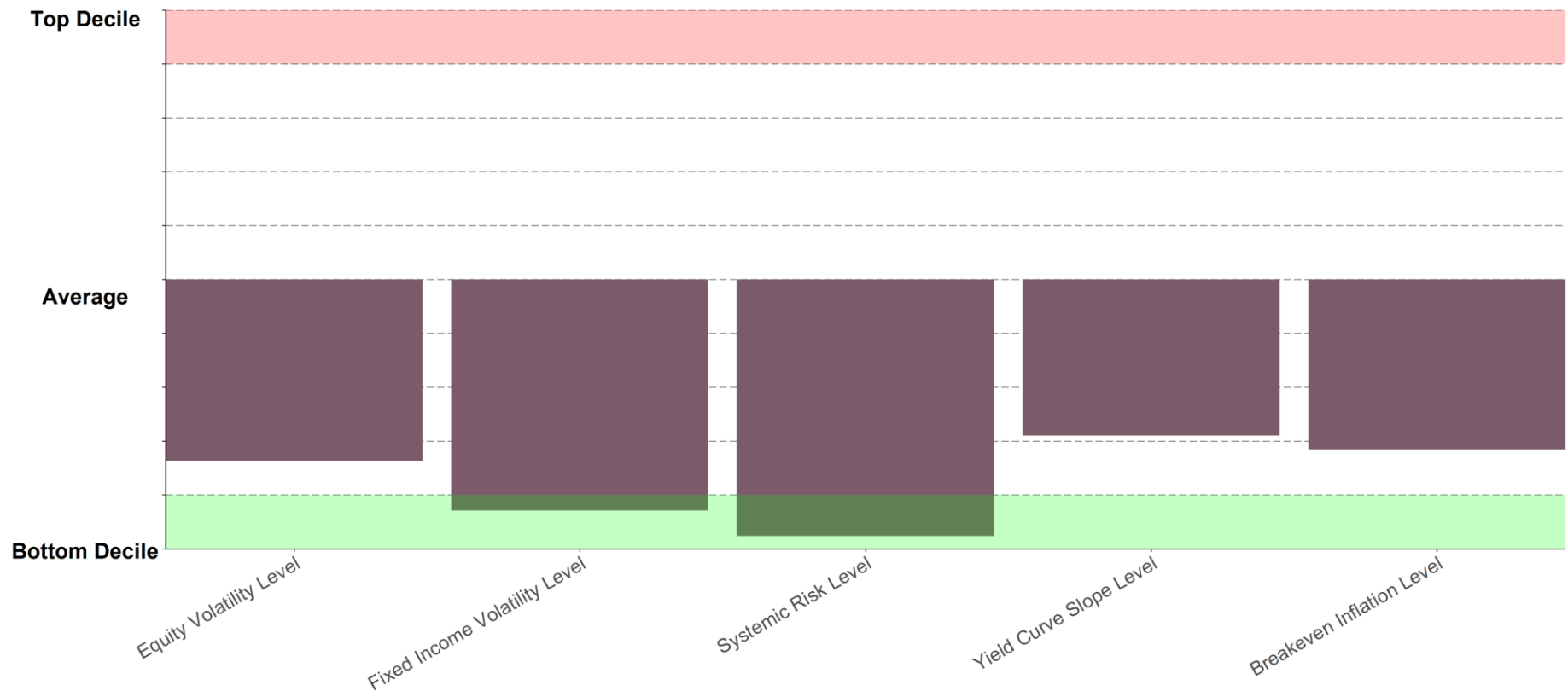


- Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

<sup>1</sup> With the exception of Private Equity Valuation that are available annually and data is as of December 31, 2018.

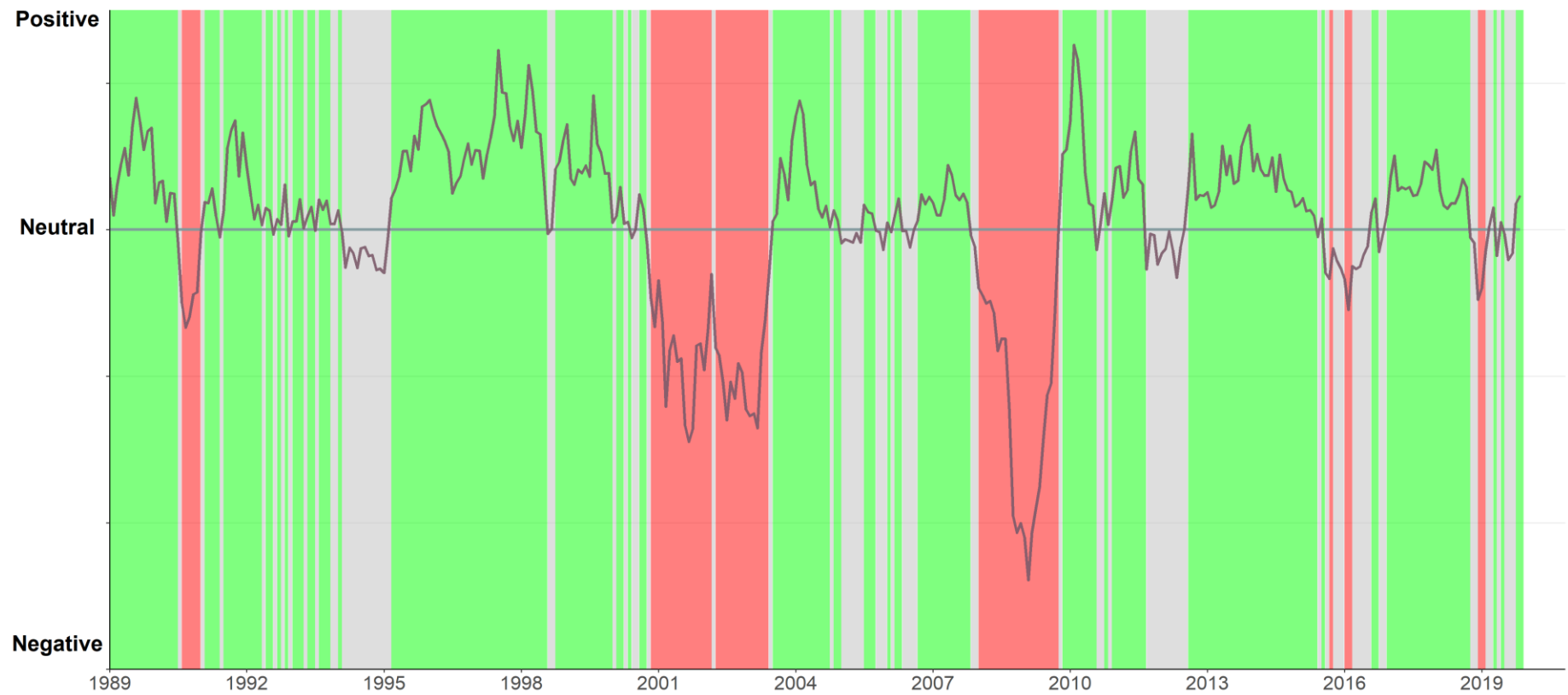


### Risk Overview/Dashboard (2) (As of November 30, 2019)

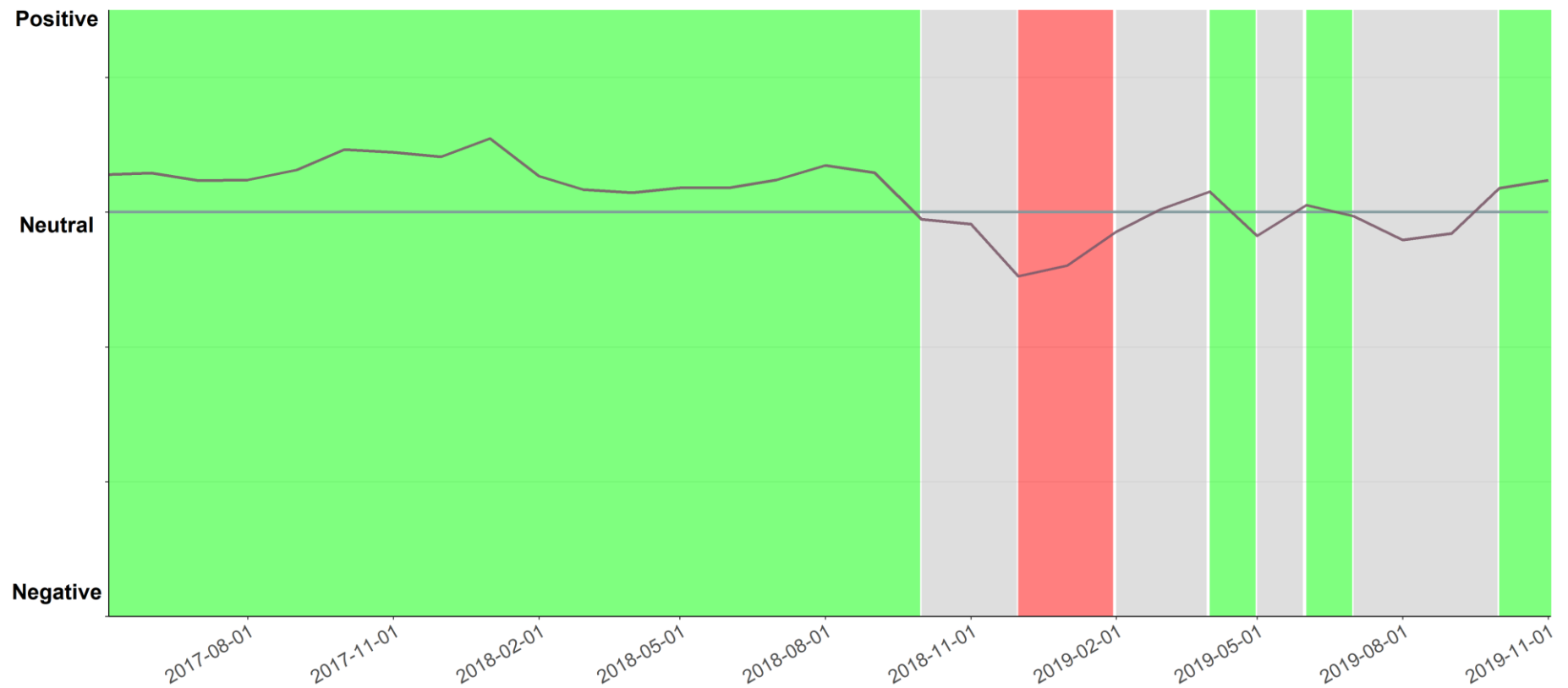


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

# **Market Sentiment Indicator (All History)** (As of November 30, 2019)



### Market Sentiment Indicator (Last Three Years) (As of November 30, 2019)



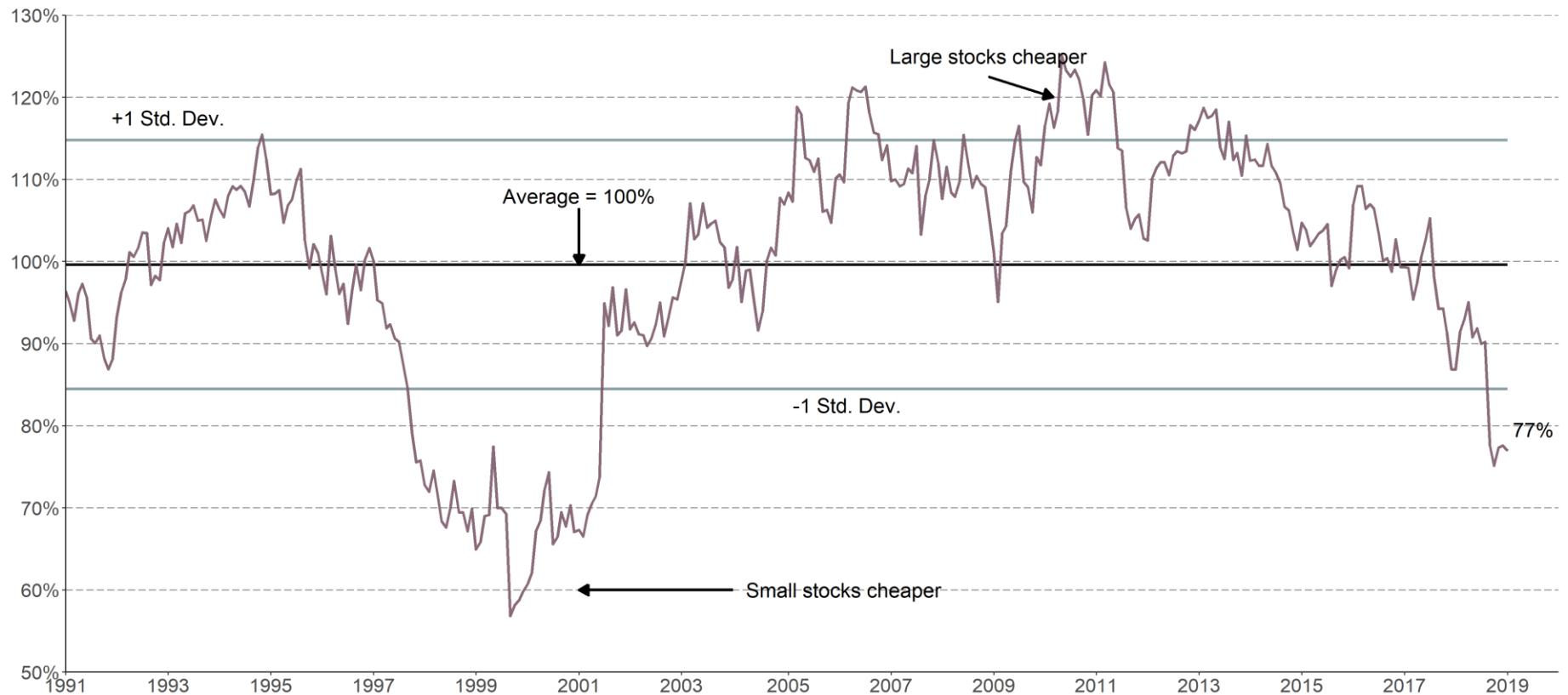
### US Equity Cyclically Adjusted P/E<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for US equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller, Yale University and Meketa Investment Group.

### Small Cap P/E vs. Large Cap P/E<sup>1</sup> (As of November 30, 2019)



- This chart compares the relative attractiveness of small cap US equities vs. large cap US equities on a valuation basis. A higher (lower) figure indicates that large cap (small cap) is more attractive.

<sup>1</sup> Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

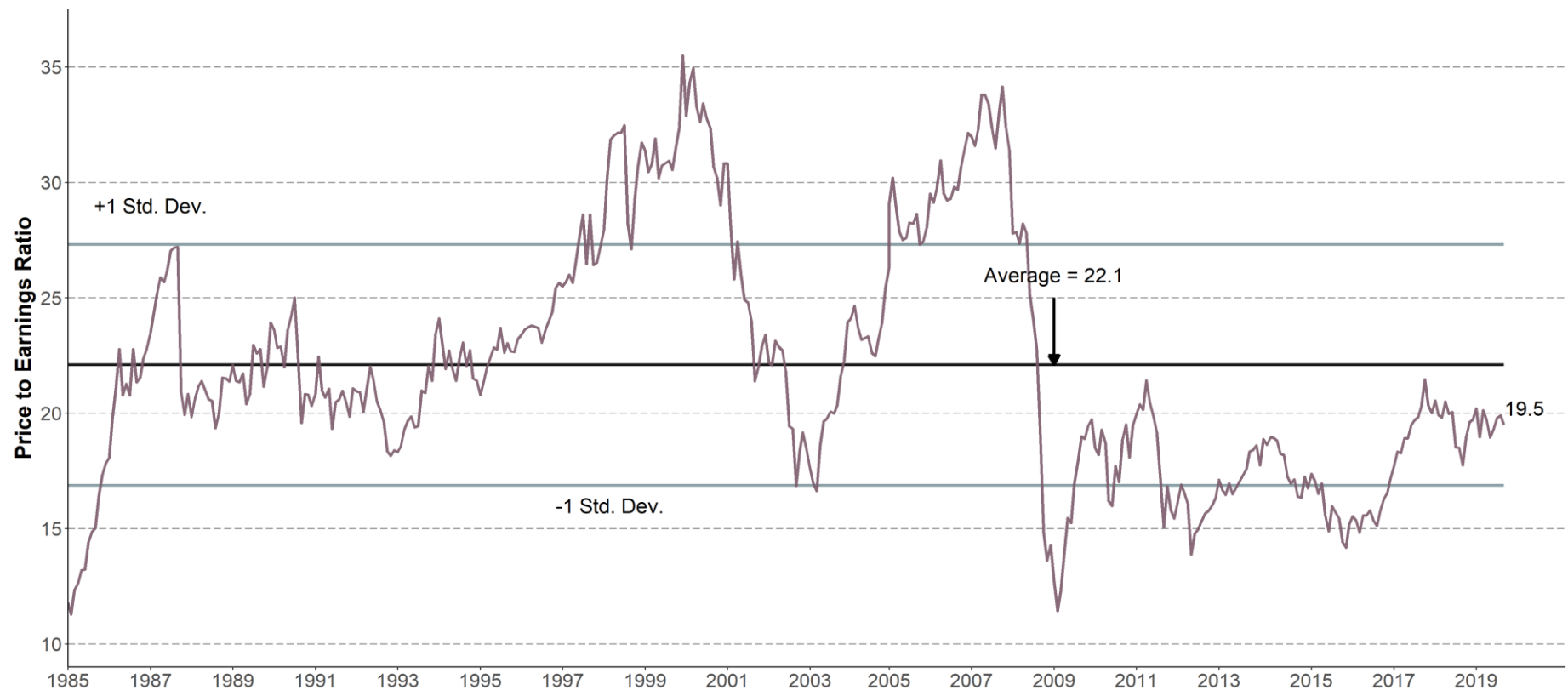
### Growth P/E vs. Value P/E<sup>1</sup> (As of November 30, 2019)



- This chart compares the relative attractiveness of US growth equities vs. US value equities on a valuation basis. A higher (lower) figure indicates that value (growth) is more attractive.

<sup>1</sup> Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

## Developed International Equity Cyclically Adjusted P/E<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for developed international equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Developed International Equity (MSCI EAFE ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.

## Emerging Market Equity Cyclically Adjusted P/E<sup>1</sup> (As of November 30, 2019)

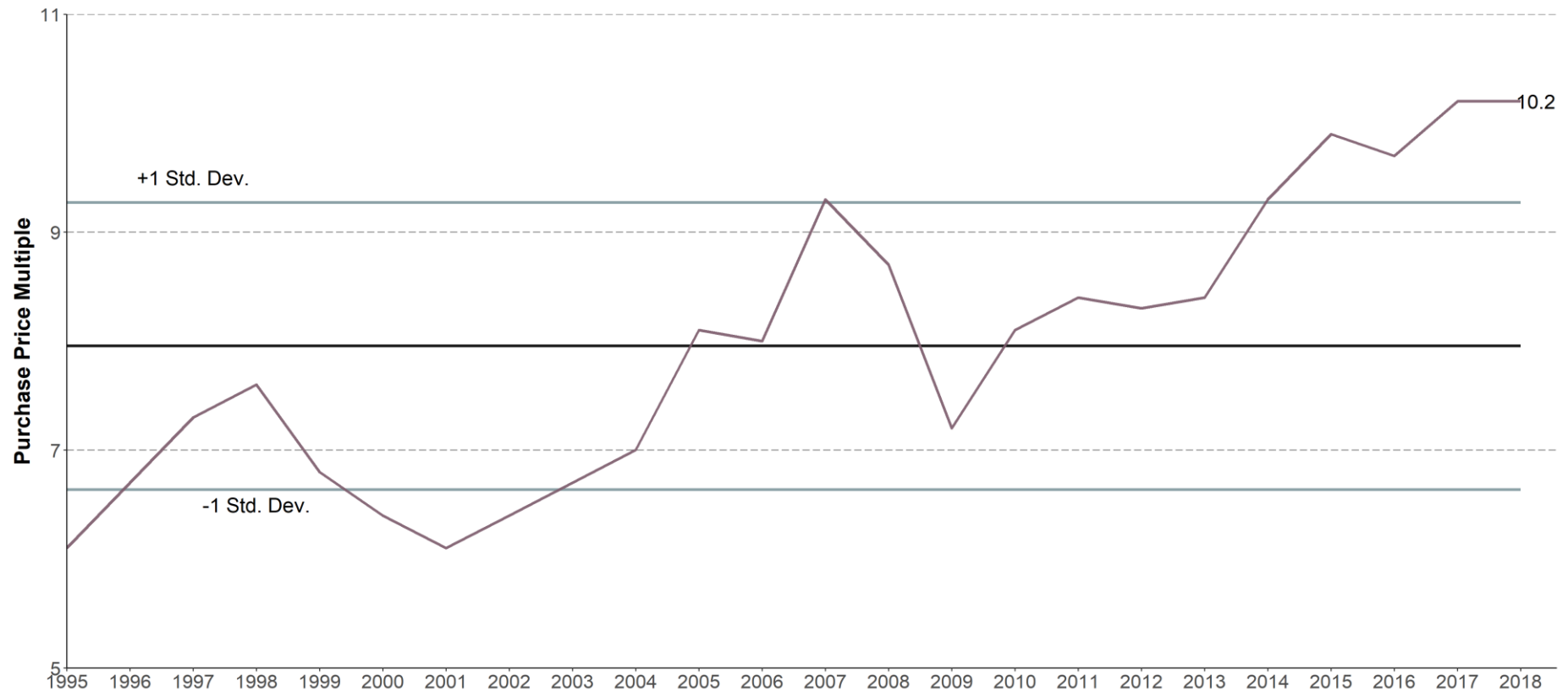


- This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.



### Private Equity Multiples<sup>1</sup> (As of December 31, 2018)<sup>2</sup>

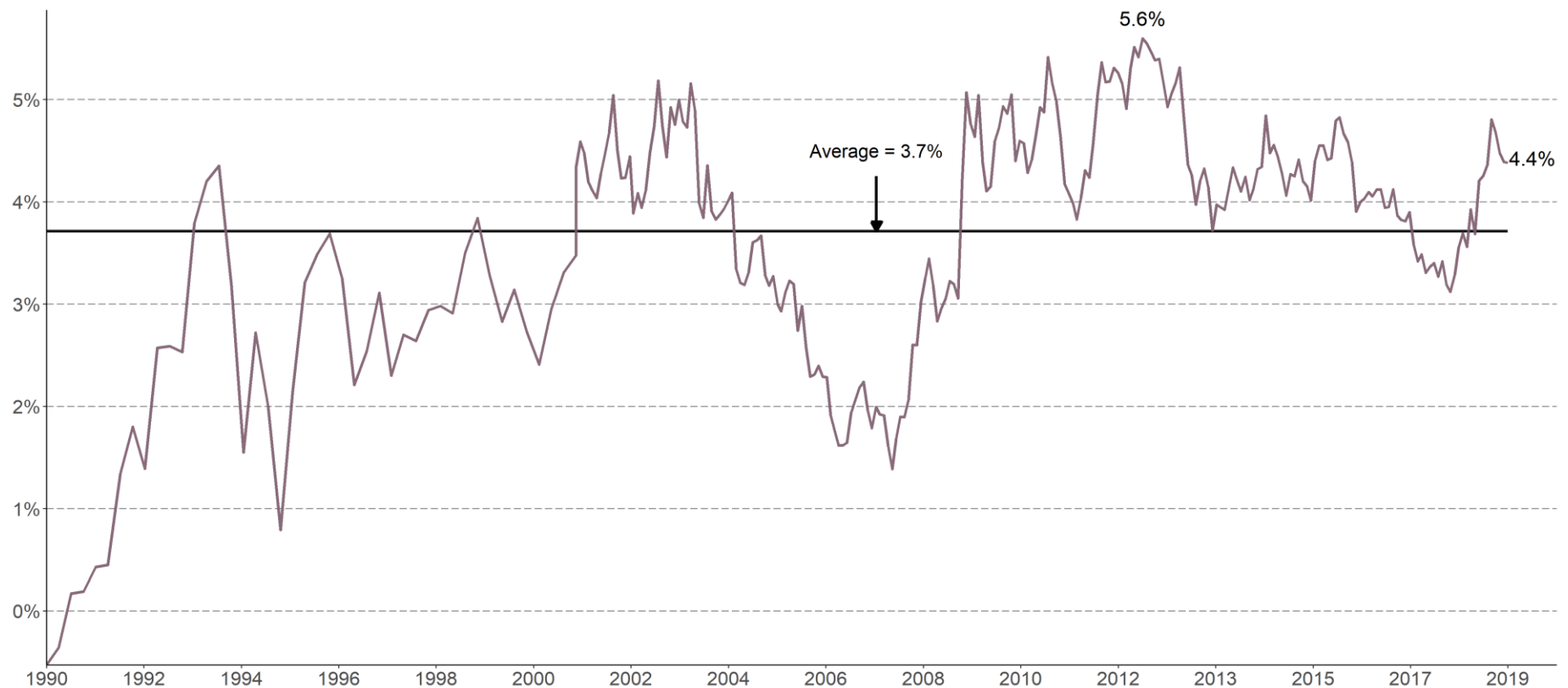


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

<sup>2</sup> Only annual figures available.

### Core Real Estate Spread vs. Ten-Year Treasury<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for the private core real estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

<sup>1</sup> Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.

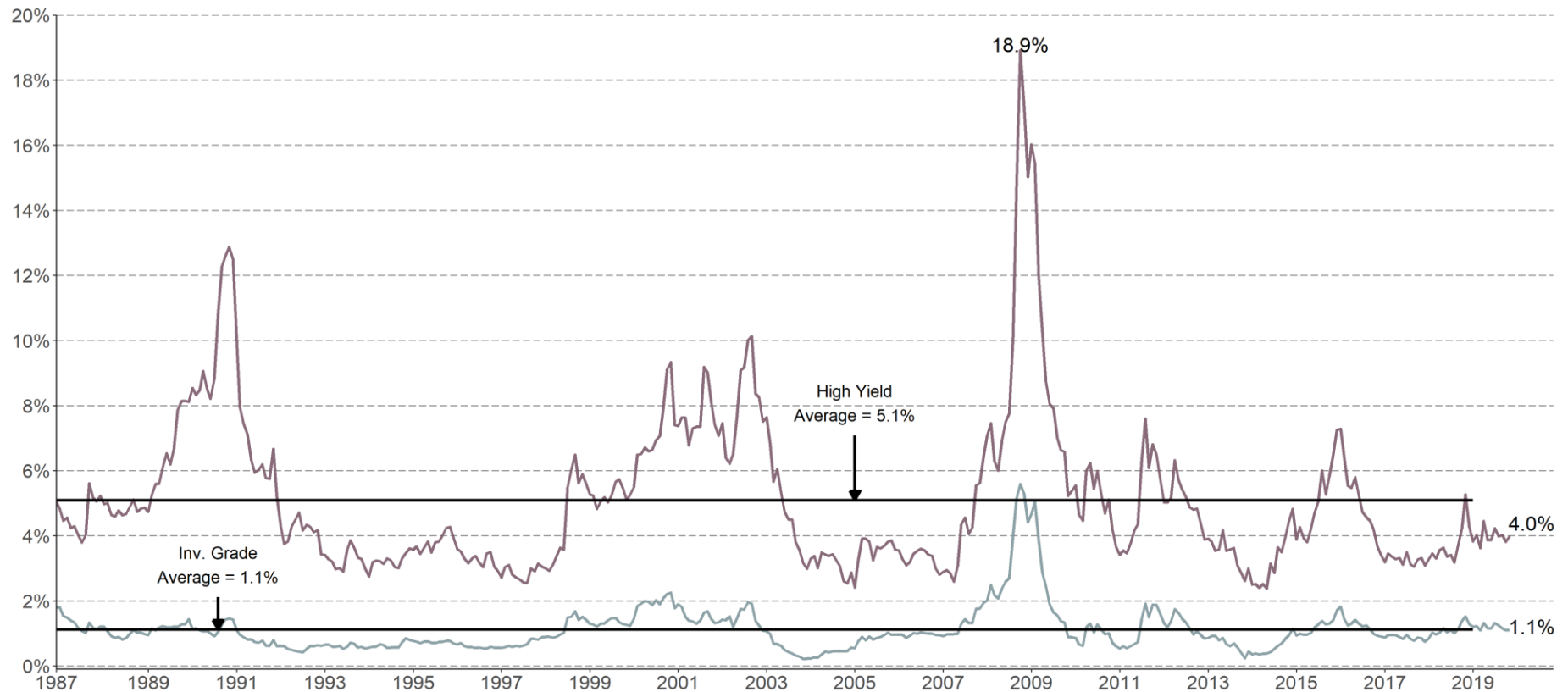
## REITs Dividend Yield Spread vs. Ten-Year Treasury<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for the public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

<sup>1</sup> REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity index.

## Credit Spreads<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for the US credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

<sup>1</sup> Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays US Corporate Investment Grade index.

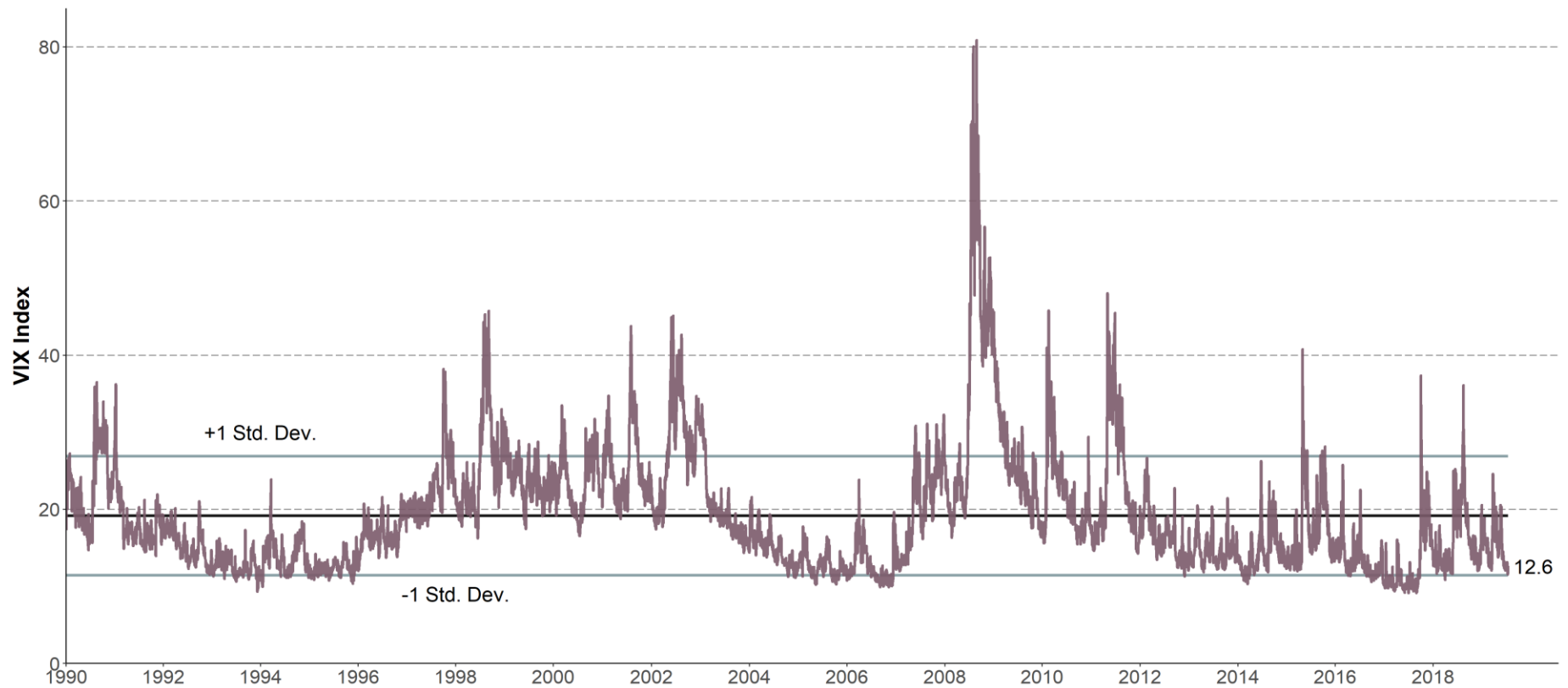
## Emerging Market Debt Spreads<sup>1</sup> (As of November 30, 2019)



- This chart details one valuation metric for the EM debt markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

<sup>1</sup> EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg Barclays EM USD Aggregate Index.

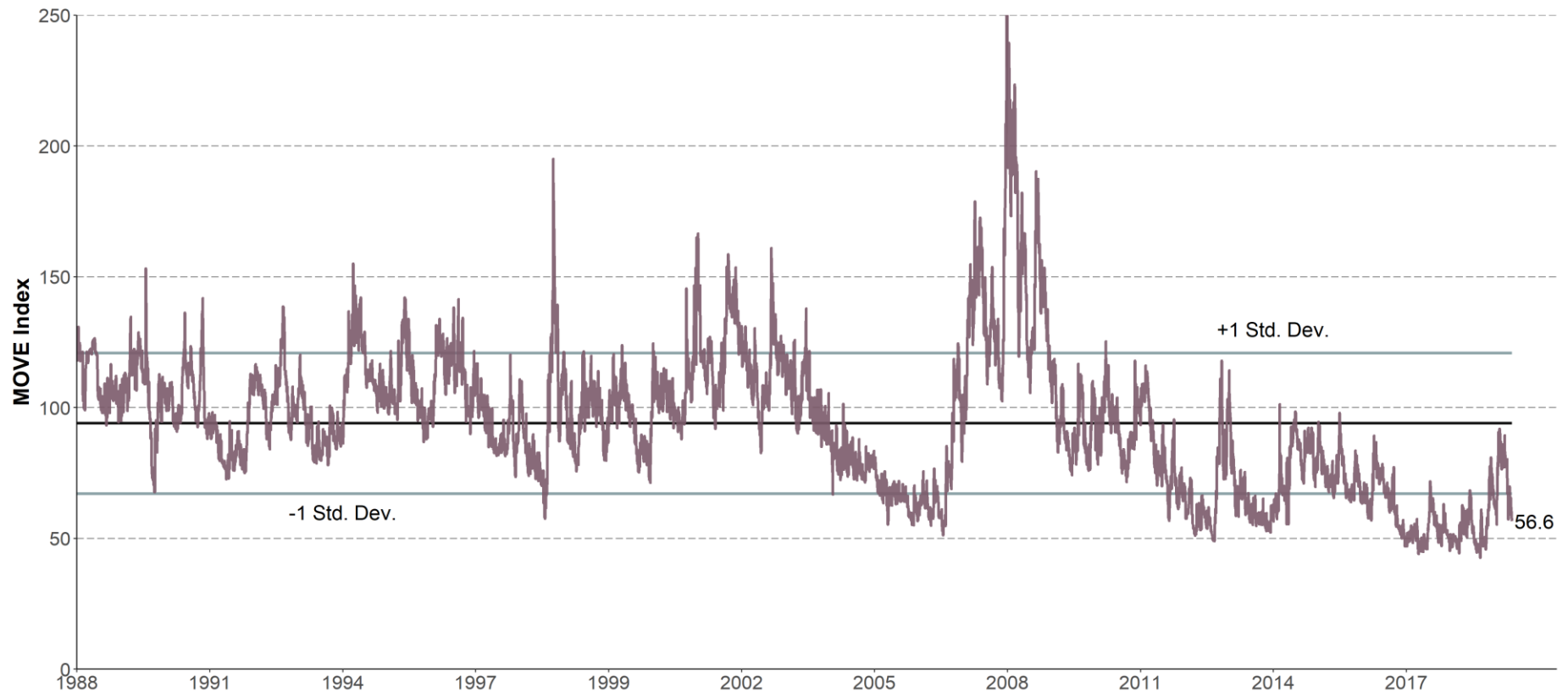
## Equity Volatility <sup>1</sup> (As of November 30, 2019)



- This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

<sup>1</sup> Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

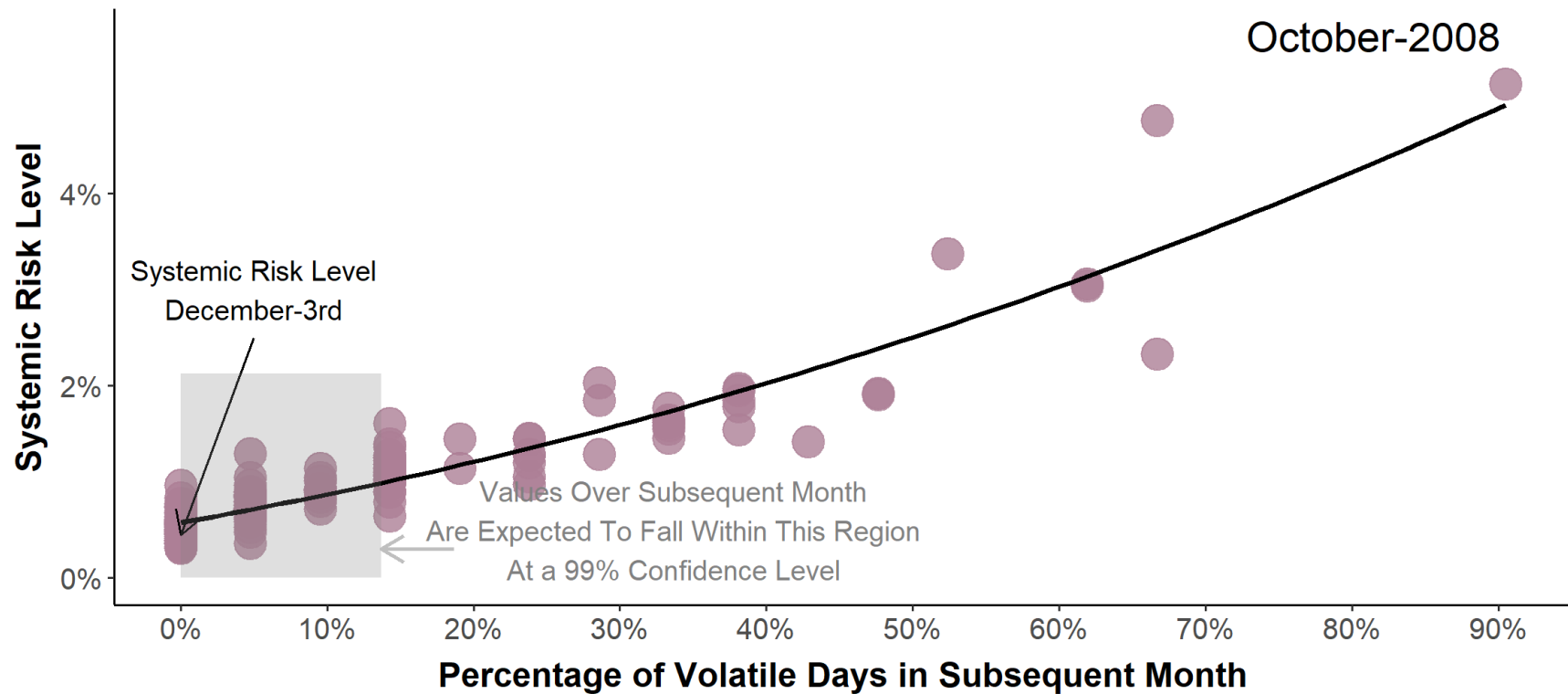
### Fixed Income Volatility <sup>1</sup> (As of November 30, 2019)



- This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

<sup>1</sup> Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Fixed Income Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

### Systemic Risk and Volatile Market Days<sup>1</sup> (As of December 3, 2019)

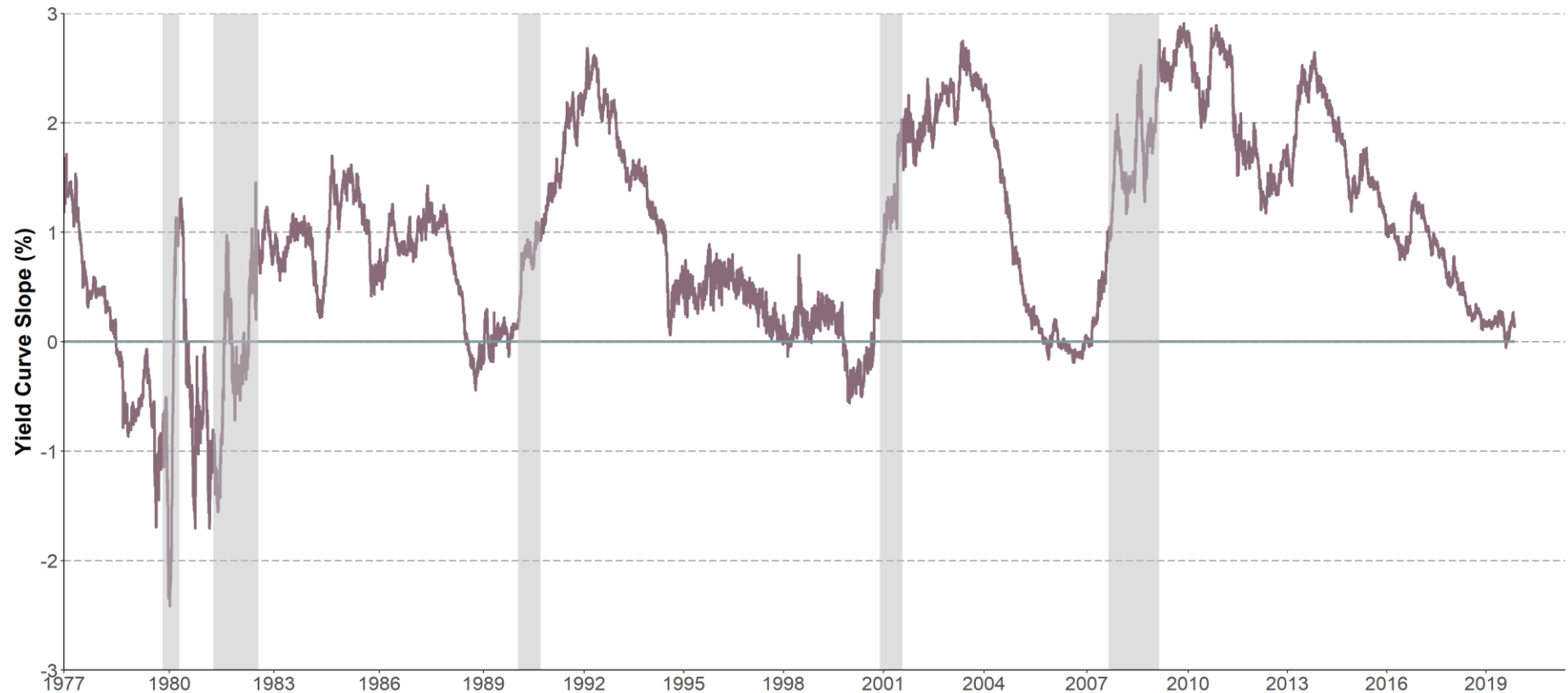


- Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior. This measure declined materially during September.

<sup>1</sup> Source: Meketa Investment Group, as of December 3, 2019. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.



### Yield Curve Slope (Ten Minus Two)<sup>1</sup> (As of October 31, 2019)



- This chart details the historical difference in yields between ten-year and two-year US Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

<sup>1</sup> Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

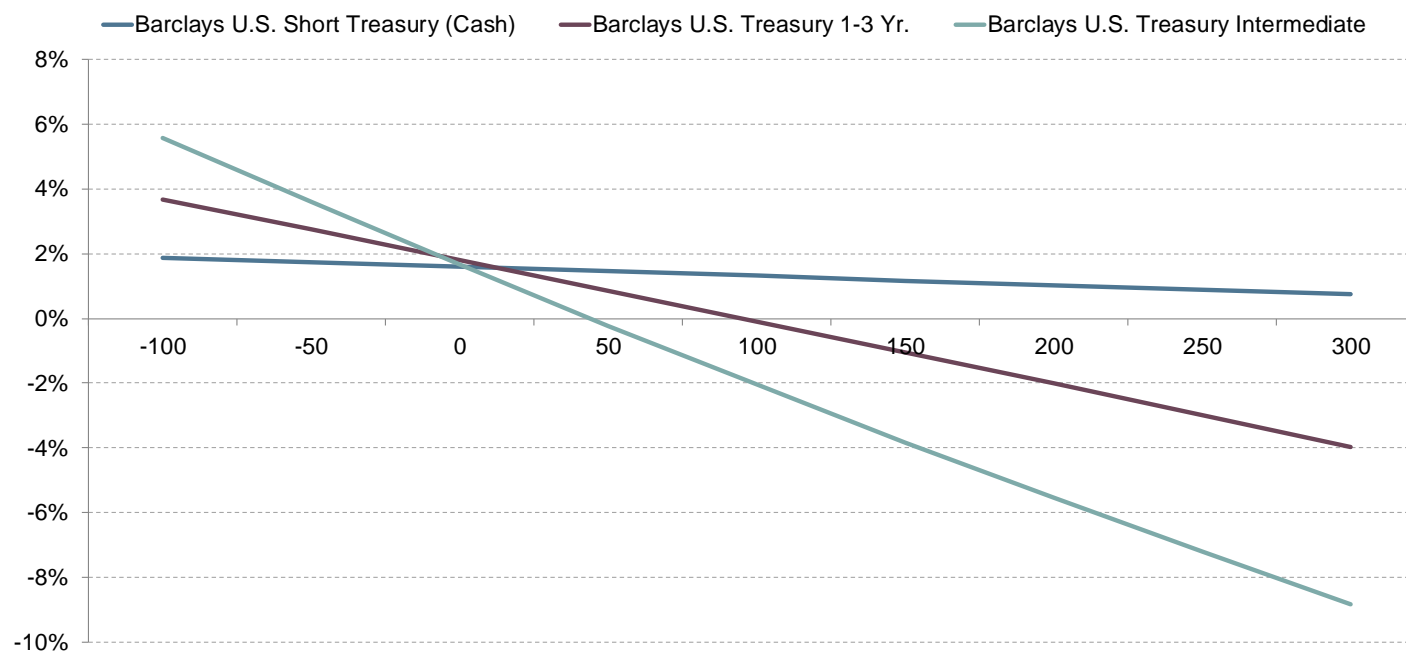
### Ten-Year Breakeven Inflation<sup>1</sup> (As of November 30, 2019)



- This chart details the difference between nominal and inflation-adjusted US Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

<sup>1</sup> Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Data is as of November 30, 2019 for TIPS and Treasuries. Inflation is measured by the Consumer Price Index (CPI-U NSA).

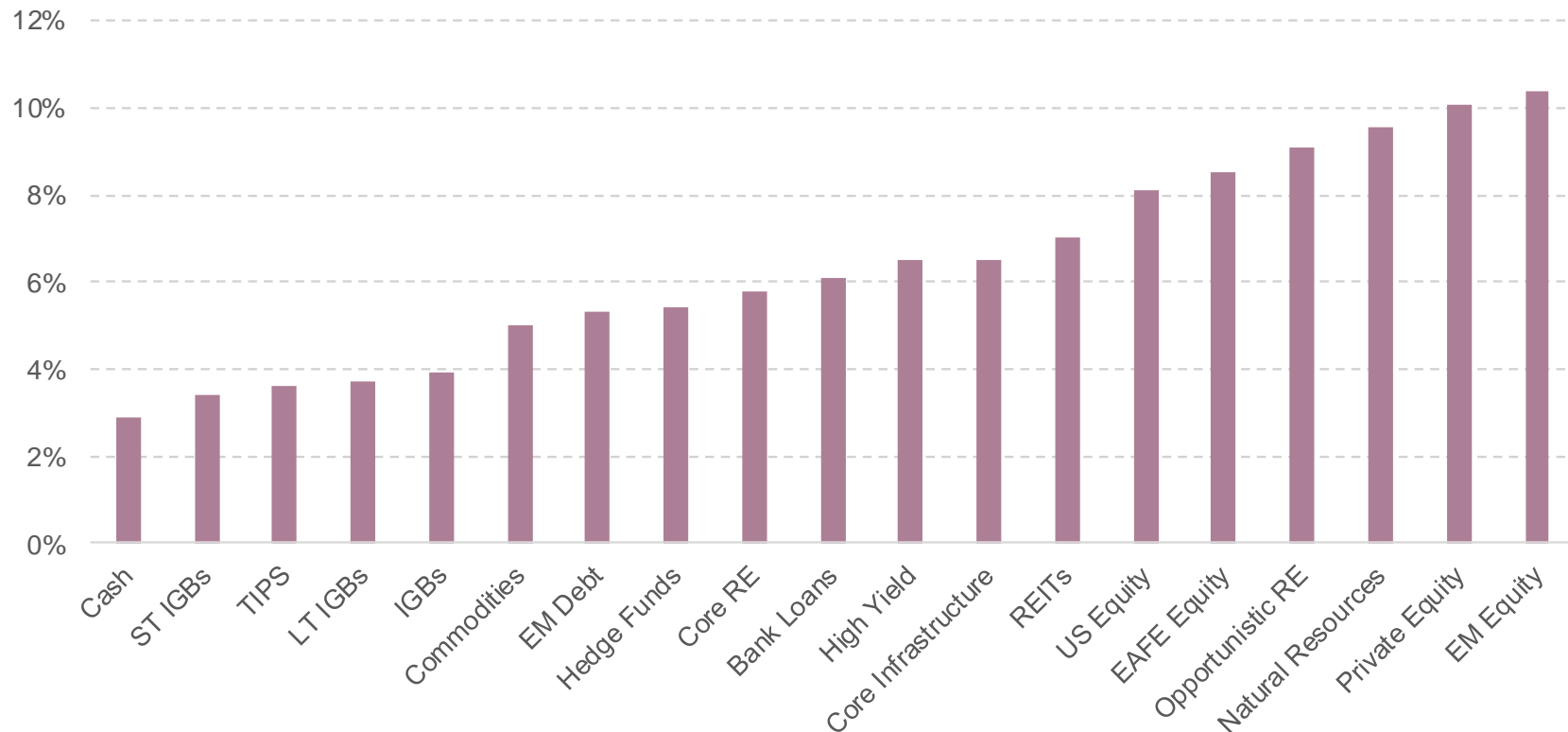
### Total Return Given Changes in Interest Rates (bps)<sup>1</sup> (As of November 30, 2019)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	1.9%	1.7%	1.6%	1.5%	1.3%	1.2%	1.0%	0.9%	0.8%	0.28	1.59%
Barclays US Treasury 1-3 Yr.	3.7%	2.7%	1.8%	0.9%	-0.1%	-1.0%	-2.0%	-3.0%	-4.0%	1.88	1.81%
Barclays US Treasury Intermediate	5.6%	3.6%	1.7%	-0.2%	-2.1%	-3.8%	-5.5%	-7.2%	-8.8%	3.82	1.66%
Barclays US Treasury Long	22.5%	11.8%	2.2%	-6.4%	-14.0%	-20.4%	-25.9%	-30.3%	-33.6%	18.22	2.17%

<sup>1</sup> Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Source: Bloomberg, and Meketa Investment Group.

### Long-Term Outlook – 20-Year Annualized Expected Returns<sup>1</sup>



- This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

<sup>1</sup> Source: Meketa Investment Group's 2019 Annual Asset Study.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.
- Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month “as reported” earnings.
- Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month “as reported” earnings.
- Developed International Equity (MSCI EAFE ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.
- Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years
- Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs
- Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.
- REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity index.
- Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays US Corporate Investment Grade index.

<sup>1</sup> All Data as of November 30, 2019 unless otherwise noted.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- EM Debt Spreads – Source: Bloomberg, and Meketa Investment Group. Option Adjusted Spread (OAS) for the Bloomberg Barclays EM USD Aggregate Index.
- Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.
- Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.
- Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.
  - Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.
- Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.
- Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

<sup>1</sup> All Data as of November 30, 2019 unless otherwise noted.

# **Meketa Market Sentiment Indicator**

## Explanation, Construction and Q&A

Meketa has created the MIG Market Sentiment Indicator (MIG-MSI) to complement our valuation-focused Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This appendix explores:

- What is the Meketa Market Sentiment Indicator?
- How do I read the indicator graph?
- How is the Meketa Market Sentiment Indicator constructed?
- What do changes in the indicator mean?



**Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.**

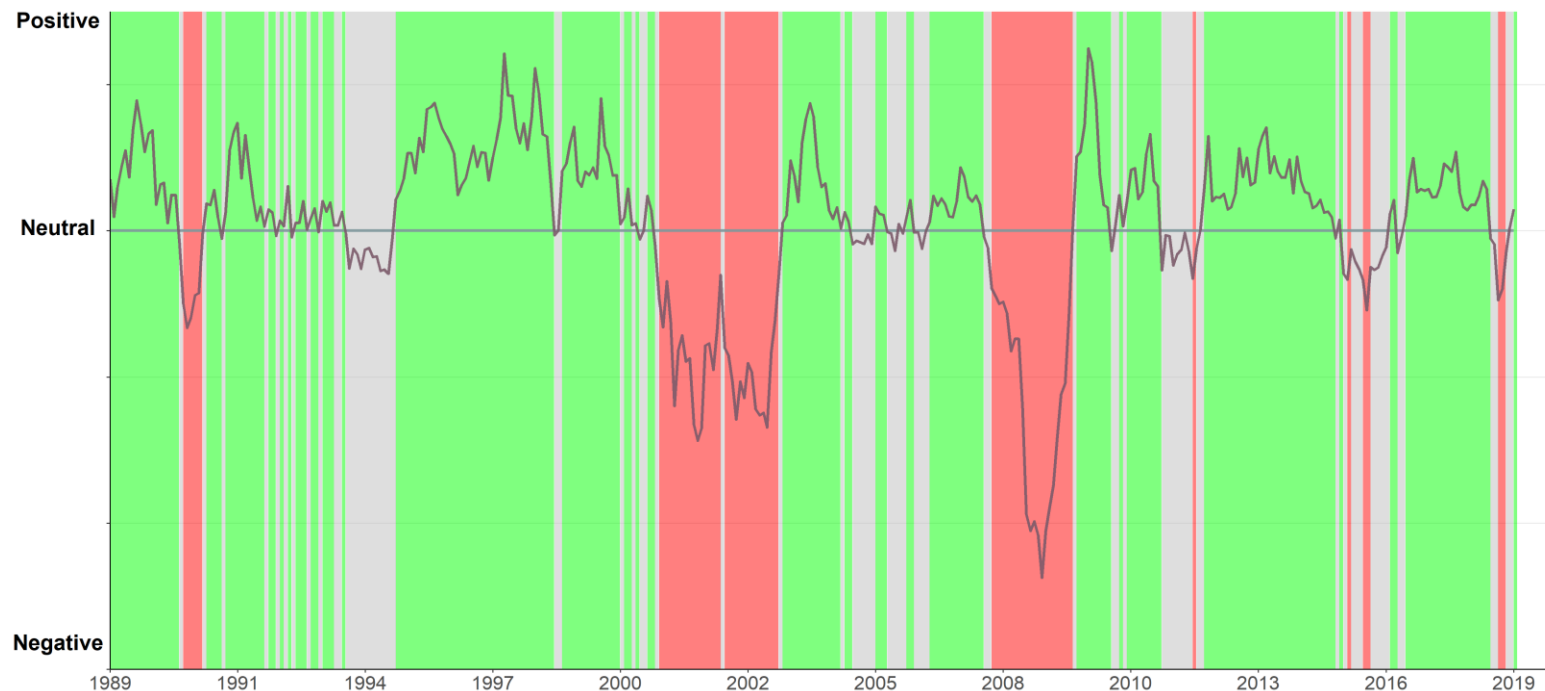
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market corrections take place. The MIG-MSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation based concerns. Once the MIG-MSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, Meketa believes the Risk Metrics and MIG-MSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the Meketa MIG-MSI:

#### **What is the Meketa Market Sentiment Indicator (MIG-MSI)?**

- The MIG-MSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The MIG-MSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

## How do I read the Meketa Market Sentiment Indicator graph?

- Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.
- Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



## How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
  - Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
  - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
  - Both measures are converted to Z-scores and then combined to get an “apples to apples” comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure.<sup>1</sup> The color reading on the graph is determined as follows:
  - If both stock return momentum and bond spread momentum are positive = GREEN (positive)
  - If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
  - If both stock return momentum and bond spread momentum are negative = RED (negative)

<sup>1</sup> Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

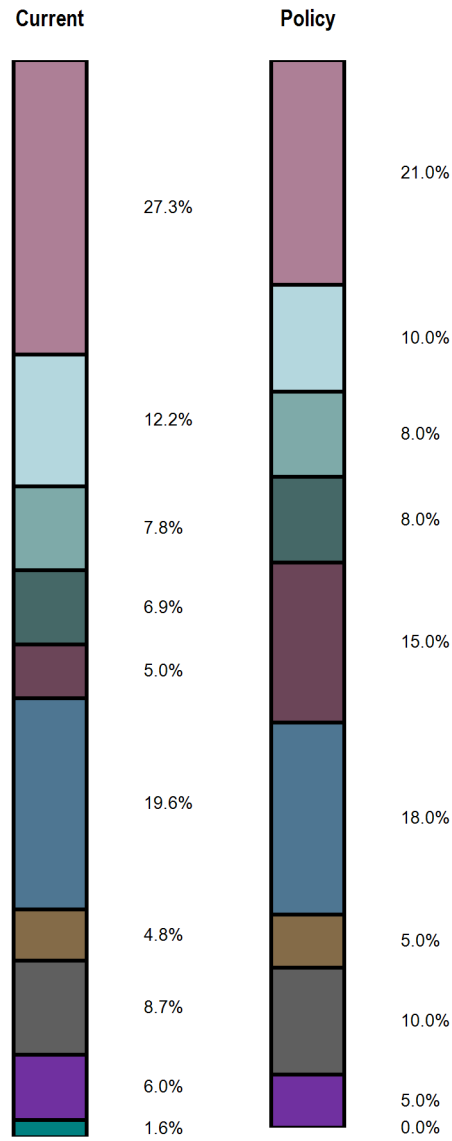
“Time Series Momentum” Moskowitz, Ooi, Pedersen, August 2010. <http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

**What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?**

- There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

## **Quarterly Review As of September 30, 2019**

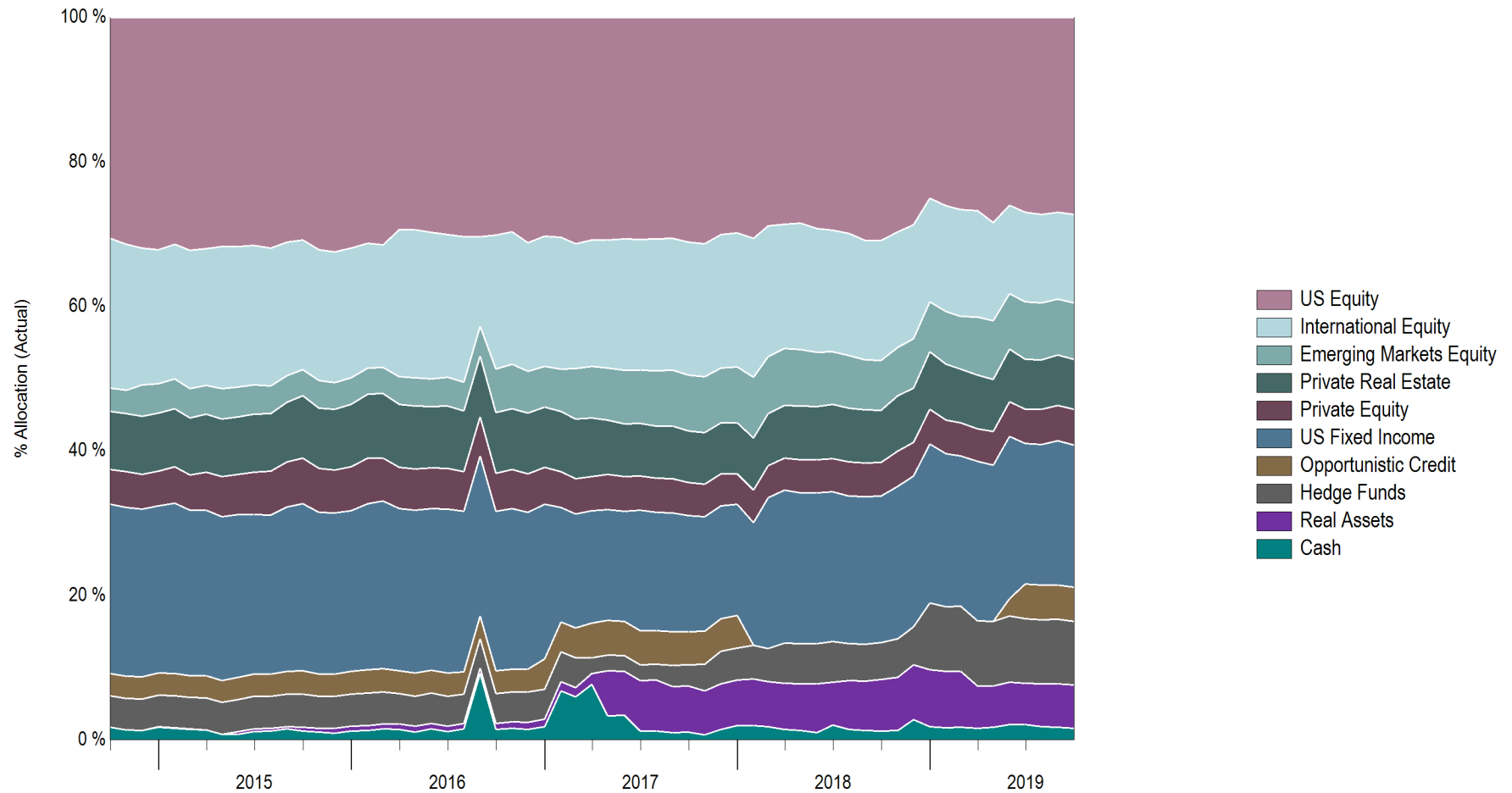
As of September 30, 2019



Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?
US Equity	\$236,326,502	27.3%	21.0%	6.3%	15.0% - 26.0%	No
International Equity	\$105,927,768	12.2%	10.0%	2.2%	5.0% - 15.0%	Yes
Emerging Markets Equity	\$67,877,673	7.8%	8.0%	-0.2%	4.0% - 12.0%	Yes
Private Real Estate	\$59,673,599	6.9%	8.0%	-1.1%	6.0% - 10.0%	Yes
Private Equity	\$43,142,905	5.0%	15.0%	-10.0%	5.0% - 20.0%	No
US Fixed Income	\$170,143,788	19.6%	18.0%	1.6%	13.0% - 23.0%	Yes
Opportunistic Credit	\$41,229,459	4.8%	5.0%	-0.2%	3.0% - 7.0%	Yes
Hedge Funds	\$75,795,104	8.7%	10.0%	-1.3%	5.0% - 15.0%	Yes
Real Assets	\$52,368,824	6.0%	5.0%	1.0%	3.0% - 7.0%	Yes
Cash	\$13,816,860	1.6%	0.0%	1.6%	0.0% - 5.0%	Yes
<b>Total</b>	<b>\$866,302,483</b>	<b>100.0%</b>	<b>100.0%</b>			

Asset Allocation History  
5 Years Ending September 30, 2019



As of September 30, 2019

## Asset Class Performance Summary

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund (Net)*</b>	<b>866,302,483</b>	<b>100.0</b>	<b>0.6</b>	<b>11.6</b>	<b>3.4</b>	<b>7.7</b>	<b>6.3</b>	<b>8.0</b>	<b>7.9</b>	<b>Dec-94</b>
<b>Total Fund (Gross)*</b>			<b>0.7</b>	<b>11.8</b>	<b>3.6</b>	<b>8.0</b>	<b>6.6</b>	<b>8.4</b>	<b>8.0</b>	
<i>Policy Index</i>			<i>0.0</i>	<i>10.7</i>	<i>2.8</i>	<i>7.9</i>	<i>6.6</i>	<i>8.5</i>	<i>5.9</i>	<i>Dec-94</i>
<b>Total Fund w/o Alternatives (Net)</b>	<b>621,505,190</b>	<b>71.7</b>	<b>0.8</b>	<b>14.5</b>	<b>3.5</b>	<b>8.2</b>	<b>6.4</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<b>Total Fund w/o Alternatives (Gross)</b>			<b>0.9</b>	<b>14.7</b>	<b>3.7</b>	<b>8.5</b>	<b>6.7</b>	<b>--</b>	<b>--</b>	
<i>Policy Index w/o AI</i>			<i>0.1</i>	<i>12.9</i>	<i>3.1</i>	<i>7.9</i>	<i>6.2</i>	<i>--</i>	<i>--</i>	<i>Dec-94</i>
<b>US Equity (Net)</b>	<b>236,326,502</b>	<b>27.3</b>	<b>1.5</b>	<b>21.7</b>	<b>2.7</b>	<b>13.3</b>	<b>11.4</b>	<b>13.3</b>	<b>10.0</b>	<b>Dec-94</b>
<b>US Equity (Gross)</b>			<b>1.6</b>	<b>21.9</b>	<b>2.9</b>	<b>13.6</b>	<b>11.7</b>	<b>13.4</b>	<b>10.1</b>	
<i>80% R1000 / 20% R2000</i>			<i>0.7</i>	<i>19.3</i>	<i>1.2</i>	<i>12.2</i>	<i>10.2</i>	<i>12.8</i>	<i>9.8</i>	<i>Dec-94</i>
<b>International Equity (Net)</b>	<b>173,805,441</b>	<b>20.1</b>	<b>-1.0</b>	<b>13.4</b>	<b>0.0</b>	<b>6.3</b>	<b>2.9</b>	<b>5.3</b>	<b>5.1</b>	<b>Dec-98</b>
<b>International Equity (Gross)</b>			<b>-0.9</b>	<b>13.7</b>	<b>0.4</b>	<b>6.7</b>	<b>3.4</b>	<b>5.8</b>	<b>5.3</b>	
<i>International Equity Custom</i>			<i>-2.4</i>	<i>10.2</i>	<i>-1.9</i>	<i>6.7</i>	<i>3.3</i>	<i>4.8</i>	<i>4.2</i>	<i>Dec-98</i>
<b>Developed International Equity (Net)</b>	<b>105,927,768</b>	<b>12.2</b>	<b>-1.1</b>	<b>13.1</b>	<b>-2.1</b>	<b>6.1</b>	<b>2.8</b>	<b>5.6</b>	<b>3.1</b>	<b>Jan-08</b>
<b>Developed International Equity (Gross)</b>			<b>-1.1</b>	<b>13.2</b>	<b>-2.0</b>	<b>6.2</b>	<b>3.2</b>	<b>6.1</b>	<b>3.5</b>	
<i>MSCI EAFE</i>			<i>-1.1</i>	<i>12.8</i>	<i>-1.3</i>	<i>6.5</i>	<i>3.3</i>	<i>4.9</i>	<i>2.3</i>	<i>Jan-08</i>
<b>Emerging Markets Equity (Net)</b>	<b>67,877,673</b>	<b>7.8</b>	<b>-0.9</b>	<b>14.3</b>	<b>5.5</b>	<b>7.0</b>	<b>4.1</b>	<b>--</b>	<b>3.2</b>	<b>Apr-12</b>
<b>Emerging Markets Equity (Gross)</b>			<b>-0.7</b>	<b>15.1</b>	<b>6.4</b>	<b>8.0</b>	<b>5.1</b>	<b>--</b>	<b>4.2</b>	
<i>MSCI Emerging Markets</i>			<i>-4.2</i>	<i>5.9</i>	<i>-2.0</i>	<i>6.0</i>	<i>2.3</i>	<i>3.4</i>	<i>2.2</i>	<i>Apr-12</i>
<b>US Fixed Income (Net)</b>	<b>170,143,788</b>	<b>19.6</b>	<b>1.9</b>	<b>7.2</b>	<b>8.7</b>	<b>3.3</b>	<b>3.5</b>	<b>4.3</b>	<b>5.4</b>	<b>Dec-94</b>
<b>US Fixed Income (Gross)</b>			<b>1.9</b>	<b>7.3</b>	<b>8.9</b>	<b>3.5</b>	<b>3.7</b>	<b>4.7</b>	<b>5.5</b>	
<i>US Fixed Custom</i>			<i>1.9</i>	<i>7.5</i>	<i>9.2</i>	<i>3.4</i>	<i>3.7</i>	<i>3.9</i>	<i>5.7</i>	<i>Dec-94</i>
<b>Opportunistic Credit (Net)</b>	<b>41,229,459</b>	<b>4.8</b>	<b>0.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.8</b>	<b>May-19</b>
<b>Opportunistic Credit (Gross)</b>			<b>0.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.8</b>	
<i>50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans</i>			<i>1.7</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>3.5</i>	<i>May-19</i>

Data prior to March 2018 provided by prior consultant.





As of September 30, 2019

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Estate (Net)</b>	<b>59,673,599</b>	<b>6.9</b>	<b>-0.8</b>	<b>1.6</b>	<b>2.9</b>	<b>5.8</b>	<b>7.1</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Private Real Estate (Gross)</b>			<b>-0.8</b>	<b>1.6</b>	<b>2.9</b>	<b>5.9</b>	<b>7.8</b>	<b>9.2</b>	<b>8.4</b>	
<i>NCREIF ODCE (net)</i>			<i>1.1</i>	<i>3.1</i>	<i>4.6</i>	<i>6.3</i>	<i>8.4</i>	<i>9.8</i>	<i>7.4</i>	<i>Mar-99</i>
<b>Private Equity (Net)</b>	<b>43,142,905</b>	<b>5.0</b>	<b>2.5</b>	<b>6.4</b>	<b>8.3</b>	<b>12.6</b>	<b>9.5</b>	<b>10.7</b>	<b>8.1</b>	<b>Jun-05</b>
<b>Private Equity (Gross)</b>			<b>2.5</b>	<b>6.4</b>	<b>8.3</b>	<b>12.6</b>	<b>9.5</b>	<b>10.9</b>	<b>8.3</b>	
<i>Thomson Reuters Cambridge Private Equity Index</i>			<i>0.0</i>	<i>10.2</i>	<i>9.9</i>	<i>16.9</i>	<i>13.1</i>	<i>--</i>	<i>--</i>	<i>Jun-05</i>
<b>Hedge Fund (Net)</b>	<b>75,795,104</b>	<b>8.7</b>	<b>-1.2</b>	<b>4.9</b>	<b>-0.1</b>	<b>5.9</b>	<b>3.7</b>	<b>--</b>	<b>3.6</b>	<b>Jun-14</b>
<b>Hedge Fund (Gross)</b>			<b>-1.2</b>	<b>5.1</b>	<b>0.1</b>	<b>6.1</b>	<b>3.8</b>	<b>--</b>	<b>3.7</b>	
<i>Hedge Fund Custom</i>			<i>-0.9</i>	<i>5.2</i>	<i>0.0</i>	<i>3.3</i>	<i>2.6</i>	<i>--</i>	<i>2.5</i>	<i>Jun-14</i>
<b>Real Assets (Net)</b>	<b>52,368,824</b>	<b>6.0</b>	<b>1.4</b>	<b>10.3</b>	<b>9.5</b>	<b>7.3</b>	<b>8.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Real Assets (Gross)</b>			<b>1.4</b>	<b>10.4</b>	<b>9.6</b>	<b>7.5</b>	<b>8.6</b>	<b>--</b>	<b>--</b>	
<i>Real Asset Custom</i>			<i>-2.7</i>	<i>13.9</i>	<i>9.3</i>	<i>9.1</i>	<i>7.7</i>	<i>--</i>	<i>--</i>	<i>Mar-99</i>
<b>Private Infrastructure (Net)</b>	<b>22,243,376</b>	<b>2.6</b>	<b>2.8</b>	<b>9.1</b>	<b>12.7</b>	<b>12.0</b>	<b>--</b>	<b>--</b>	<b>7.7</b>	<b>Dec-14</b>
<b>Private Infrastructure (Gross)</b>			<b>2.8</b>	<b>9.1</b>	<b>12.7</b>	<b>12.0</b>	<b>--</b>	<b>--</b>	<b>7.7</b>	
<i>S&amp;P Global Infrastructure Net TR USD</i>			<i>0.4</i>	<i>19.9</i>	<i>13.5</i>	<i>7.0</i>	<i>4.8</i>	<i>6.9</i>	<i>4.8</i>	<i>Dec-14</i>
<b>Private Natural Resources (Net)</b>	<b>13,462,988</b>	<b>1.6</b>	<b>2.0</b>	<b>8.1</b>	<b>9.3</b>	<b>12.5</b>	<b>--</b>	<b>--</b>	<b>16.9</b>	<b>Sep-15</b>
<b>Private Natural Resources (Gross)</b>			<b>2.0</b>	<b>8.1</b>	<b>9.3</b>	<b>12.5</b>	<b>--</b>	<b>--</b>	<b>16.9</b>	
<i>S&amp;P Global Natural Resources Index TR USD</i>			<i>-6.0</i>	<i>7.0</i>	<i>-11.0</i>	<i>7.0</i>	<i>1.1</i>	<i>1.7</i>	<i>11.2</i>	<i>Sep-15</i>
<b>Cash (Net)</b>	<b>13,816,860</b>	<b>1.6</b>	<b>0.4</b>	<b>1.0</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>Cash (Gross)</b>			<b>0.4</b>	<b>1.0</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

Real Assets includes State Street Real Asset NL Fund



As of September 30, 2019

## Trailing Net Performance

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund*</b>	<b>866,302,483</b>	<b>100.0</b>	<b>--</b>	<b>0.6</b>	<b>11.6</b>	<b>3.4</b>	<b>7.7</b>	<b>6.3</b>	<b>8.0</b>	<b>7.9</b>	<b>Dec-94</b>
Policy Index				0.0	10.7	2.8	7.9	6.6	8.5	5.9	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Median				0.5	12.5	3.4	7.8	6.1	8.0	7.5	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Rank				40	70	53	52	38	46	39	Dec-94
<b>Total Fund w/o Alternatives</b>	<b>621,505,190</b>	<b>71.7</b>	<b>71.7</b>	<b>0.8</b>	<b>14.5</b>	<b>3.5</b>	<b>8.2</b>	<b>6.4</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
Policy Index w/o AI				0.1	12.9	3.1	7.9	6.2	--	--	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Median				0.5	12.5	3.4	7.8	6.1	8.0	7.5	Dec-94
InvMetrics Public DB \$250mm-\$1B Net Rank				28	6	49	25	34	--	--	Dec-94
<b>US Equity</b>	<b>236,326,502</b>	<b>27.3</b>	<b>38.0</b>	<b>1.5</b>	<b>21.7</b>	<b>2.7</b>	<b>13.3</b>	<b>11.4</b>	<b>13.3</b>	<b>10.0</b>	<b>Dec-94</b>
80% R1000 / 20% R2000				0.7	19.3	1.2	12.2	10.2	12.8	9.8	Dec-94
InvMetrics All DB US Eq Net Median				0.9	19.8	2.0	12.2	9.9	12.4	9.6	Dec-94
InvMetrics All DB US Eq Net Rank				15	9	40	13	4	8	26	Dec-94
Mellon Dynamic US Equity	94,239,708	10.9	39.9	2.9	26.1	6.5	15.8	13.5	--	17.1	Dec-12
S&P 500				1.7	20.6	4.3	13.4	10.8	13.2	13.8	Dec-12
eV US Large Cap Core Equity Net Median				1.7	19.6	3.3	12.1	9.7	12.5	12.9	Dec-12
eV US Large Cap Core Equity Net Rank				22	4	29	6	3	--	1	Dec-12
Mellon Large Cap	106,567,610	12.3	45.1	1.4	20.5	3.9	13.2	--	--	13.3	Mar-16
Russell 1000				1.4	20.5	3.9	13.2	10.6	13.2	13.3	Mar-16
eV US Large Cap Core Equity Net Median				1.7	19.6	3.3	12.1	9.7	12.5	12.1	Mar-16
eV US Large Cap Core Equity Net Rank				59	39	45	29	--	--	24	Mar-16
DFA Small Cap	17,640,282	2.0	7.5	-1.5	12.6	-9.3	7.5	8.0	--	6.2	Jun-14
Russell 2000				-2.4	14.2	-8.9	8.2	8.2	11.2	6.2	Jun-14
eV US Small Cap Core Equity Net Median				-1.4	15.0	-8.0	8.1	8.3	11.6	6.5	Jun-14
eV US Small Cap Core Equity Net Rank				53	63	61	62	60	--	59	Jun-14

Historical returns for the US Equity Composite prior to January 2012 and for the International Equity Composite prior to December 2010 are gross only.



As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
PanAgora	17,878,903	2.1	7.6	-1.5	15.3	-10.3	8.1	8.4	--	8.2	Sep-13
Russell 2000				-2.4	14.2	-8.9	8.2	8.2	11.2	7.5	Sep-13
eV US Small Cap Core Equity Net Median				-1.4	15.0	-8.0	8.1	8.3	11.6	7.9	Sep-13
eV US Small Cap Core Equity Net Rank				52	48	70	53	48	--	41	Sep-13
<b>International Equity</b>	<b>173,805,441</b>	<b>20.1</b>	<b>28.0</b>	<b>-1.0</b>	<b>13.4</b>	<b>0.0</b>	<b>6.3</b>	<b>2.9</b>	<b>5.3</b>	<b>5.1</b>	<b>Dec-98</b>
International Equity Custom				-2.4	10.2	-1.9	6.7	3.3	4.8	4.2	Dec-98
InvMetrics All DB ex-US Eq Net Median				-1.8	11.8	-1.7	6.0	3.1	4.9	4.9	Dec-98
InvMetrics All DB ex-US Eq Net Rank				15	24	20	35	56	32	43	Dec-98
<b>Developed International Equity</b>	<b>105,927,768</b>	<b>12.2</b>	<b>60.9</b>	<b>-1.1</b>	<b>13.1</b>	<b>-2.1</b>	<b>6.1</b>	<b>2.8</b>	<b>5.6</b>	<b>3.1</b>	<b>Jan-08</b>
MSCI EAFE				-1.1	12.8	-1.3	6.5	3.3	4.9	2.3	Jan-08
Mellon International	85,667,396	9.9	80.9	-1.1	13.2	-1.0	6.9	--	--	7.4	Mar-16
MSCI EAFE				-1.1	12.8	-1.3	6.5	3.3	4.9	7.0	Mar-16
eV All EAFE Equity Net Median				-1.4	12.1	-4.1	5.8	3.9	6.3	6.3	Mar-16
eV All EAFE Equity Net Rank				41	40	24	30	--	--	30	Mar-16
Acadian ACWI ex U.S. Small Cap Equity	9,839,767	1.1	9.3	-3.1	--	--	--	--	--	-3.2	May-19
MSCI ACWI ex US Small Cap				-1.2	10.3	-5.6	4.6	4.0	6.1	-2.2	May-19
eV ACWI ex-US Small Cap Equity Net Median				-2.5	12.4	-6.1	6.2	5.6	8.2	-2.4	May-19
eV ACWI ex-US Small Cap Equity Net Rank				65	--	--	--	--	--	68	May-19
Driehaus International Small Cap Growth	10,420,605	1.2	9.8	0.3	--	--	--	--	--	2.7	May-19
MSCI ACWI ex US Small Cap Growth NR USD				-1.3	12.1	-5.6	4.8	4.6	6.7	-2.2	May-19
eV ACWI ex-US Small Cap Equity Net Median				-2.5	12.4	-6.1	6.2	5.6	8.2	-2.4	May-19
eV ACWI ex-US Small Cap Equity Net Rank				2	--	--	--	--	--	2	May-19

Developed International Equity and Emerging Markets Equity composites were only reported as one composite prior to March 2018.

As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets Equity</b>	<b>67,877,673</b>	<b>7.8</b>	<b>39.1</b>	<b>-0.9</b>	<b>14.3</b>	<b>5.5</b>	<b>7.0</b>	<b>4.1</b>	<b>--</b>	<b>3.2</b>	<b>Apr-12</b>
MSCI Emerging Markets				-4.2	5.9	-2.0	6.0	2.3	3.4	2.2	Apr-12
Wells Capital	67,877,673	7.8	100.0	-0.9	14.3	5.5	7.0	4.1	--	3.0	Mar-12
MSCI Emerging Markets				-4.2	5.9	-2.0	6.0	2.3	3.4	2.0	Mar-12
eV Emg Mkts Equity Net Median				-3.8	7.7	-0.6	5.7	2.5	4.0	2.8	Mar-12
eV Emg Mkts Equity Net Rank				5	11	11	30	20	--	44	Mar-12
<b>US Fixed Income</b>	<b>170,143,788</b>	<b>19.6</b>	<b>27.4</b>	<b>1.9</b>	<b>7.2</b>	<b>8.7</b>	<b>3.3</b>	<b>3.5</b>	<b>4.3</b>	<b>5.4</b>	<b>Dec-94</b>
US Fixed Custom				1.9	7.5	9.2	3.4	3.7	3.9	5.7	Dec-94
InvMetrics All DB US Fix Inc Net Median				1.8	8.0	8.5	3.4	3.5	4.5	5.8	Dec-94
InvMetrics All DB US Fix Inc Net Rank				48	64	49	56	50	59	79	Dec-94
Barrow Hanley	61,124,016	7.1	35.9	2.4	8.7	10.3	2.9	3.4	--	3.7	Mar-10
BBgBarc US Aggregate TR				2.3	8.5	10.3	2.9	3.4	3.7	3.7	Mar-10
eV US Core Fixed Inc Net Median				2.3	8.9	10.3	3.1	3.5	4.0	3.9	Mar-10
eV US Core Fixed Inc Net Rank				34	62	46	68	57	--	70	Mar-10
Vanguard Short-Term Treasury Index Fund	48,554,400	5.6	28.5	0.6	3.0	4.4	--	--	--	3.1	Feb-18
BBgBarc US Govt 1-3 Yr TR				0.6	3.1	4.4	1.5	1.3	1.2	3.2	Feb-18
BBgBarc US Govt 1-5 Yr TR				0.8	3.9	5.7	1.6	1.7	1.7	3.9	Feb-18
eV US Short Duration Fixed Inc Net Median				0.8	3.8	4.6	2.0	1.8	2.0	3.5	Feb-18
eV US Short Duration Fixed Inc Net Rank				92	89	71	--	--	--	83	Feb-18
Vanguard Total Bond Market Index Fund	60,465,372	7.0	35.5	2.4	--	--	--	--	--	5.5	May-19
BBgBarc US Aggregate TR				2.3	8.5	10.3	2.9	3.4	3.7	5.4	May-19
eV US Core Fixed Inc Net Median				2.3	8.9	10.3	3.1	3.5	4.0	5.4	May-19
eV US Core Fixed Inc Net Rank				20	--	--	--	--	--	35	May-19

Historical returns for the US Fixed Income Composite prior to December 2010 and for Barrow Hanley prior to June 2010 are gross only.



As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Opportunistic Credit</b>	<b>41,229,459</b>	<b>4.8</b>	<b>6.6</b>	<b>0.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.8</b>	<b>May-19</b>
50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans				1.7	--	--	--	--	--	3.5	May-19
PIMCO Income Fund	20,424,232	2.4	49.5	-0.1	--	--	--	--	--	1.4	Apr-19
BBgBarc US Aggregate TR				2.3	8.5	10.3	2.9	3.4	3.7	5.4	Apr-19
Multisector Bond MStar MF Median				1.3	9.1	6.8	4.3	4.0	5.9	3.5	Apr-19
Multisector Bond MStar MF Rank				95	--	--	--	--	--	93	Apr-19
GoldenTree Multi-Sector Credit	20,805,227	2.4	50.5	0.3	--	--	--	--	--	1.7	Jun-19
50% BBgBarc US High Yield TR/50% Credit Suisse Leveraged Loans				1.1	8.9	4.7	5.4	4.8	6.7	2.4	Jun-19
<b>Private Real Estate</b>	<b>59,673,599</b>	<b>6.9</b>	<b>6.9</b>	<b>-0.8</b>	<b>1.6</b>	<b>2.9</b>	<b>5.8</b>	<b>7.1</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
NCREIF ODCE (net)				1.1	3.1	4.6	6.3	8.4	9.8	7.4	Mar-99
InvMetrics All DB Real Estate Pub+Priv Net Median				1.3	4.2	5.7	6.8	8.6	9.9	7.7	Mar-99
InvMetrics All DB Real Estate Pub+Priv Net Rank				98	85	87	68	88	--	--	Mar-99
Greenfield Gap VII	8,839,742	1.0	14.8	9.7	14.4	14.9	14.2	--	--	14.0	Dec-14
Patron Capital V	7,258,825	0.8	12.2	5.6	7.8	12.2	21.1	--	--	14.5	Jan-16
UBS Trumbull Property	40,756,248	4.7	68.3	-3.9	-1.8	-0.4	2.9	5.6	7.7	6.9	Mar-99
Carlyle Realty VIII	660,213	0.1	1.1	2.8	-5.1	-27.8	--	--	--	-30.7	Dec-17
Taconic CRE Dislocation Fund II	1,757,721	0.2	2.9	3.3	3.2	--	--	--	--	3.2	Nov-18
Carmel Partners Investment Fund VII	89,058	0.0	0.1	-19.5	--	--	--	--	--	-35.9	Apr-19

Private Real Estate results prior to 1/1/2019 were included in the Real Assets composite. All results for the Private Real Estate composite that include the period prior to 1/1/2019 will reflect only the latest lineup of managers that Meketa received information for, therefore it may not reflect the entire Private Real Estate composite at that given time.

All private markets performance and market values reflect a 6/30/2019 capital account balance unless otherwise noted.

Historical returns for Invesco IV prior to April 2012 are gross only.



As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
AG Realty Value Fund X, L.P.	311,793	0.0	0.5	-16.9	--	--	--	--	--	-16.9	Jun-19
<b>Private Equity</b>	<b>43,142,905</b>	<b>5.0</b>	<b>5.0</b>	<b>2.5</b>	<b>6.4</b>	<b>8.3</b>	<b>12.6</b>	<b>9.5</b>	<b>10.7</b>	<b>8.1</b>	<b>Jun-05</b>
<i>Thomson Reuters Cambridge Private Equity Index</i>				0.0	10.2	9.9	16.9	13.1	--	--	Jun-05
<i>InvMetrics All DB Private Eq Net Median</i>				1.7	6.1	8.3	12.2	10.2	10.9	10.3	Jun-05
<i>InvMetrics All DB Private Eq Net Rank</i>				40	46	50	43	59	55	80	Jun-05
Adams Street	7,570,058	0.9	17.5	-0.1	4.5	8.9	13.0	11.5	13.0	7.1	Sep-05
Invesco IV	218,400	0.0	0.5	0.0	0.0	-18.6	5.8	6.4	9.8	7.9	Jun-05
Invesco VI	6,331,897	0.7	14.7	0.0	2.7	4.3	12.7	13.5	--	11.3	Jun-13
Ocean Avenue II	9,986,598	1.2	23.1	5.4	16.5	21.1	24.3	14.8	--	12.9	Jun-14
Pantheon I	870,662	0.1	2.0	-0.9	-2.0	-0.9	6.4	3.8	7.7	3.5	Dec-05
Pantheon II	4,092,220	0.5	9.5	4.7	10.3	13.0	16.0	12.4	--	12.3	Dec-11
Pantheon Secondary	961,201	0.1	2.2	-1.9	-0.9	3.5	7.2	2.7	4.1	3.9	Jun-07
Raven Asset Fund II	3,452,122	0.4	8.0	1.6	5.8	8.0	0.8	-0.6	--	-0.6	Aug-14
Davidson Kempner Long-Term Distressed Opportunities Fund IV	3,633,980	0.4	8.4	0.3	4.1	7.7	--	--	--	11.3	Apr-18
GTCR Fund XII	1,006,503	0.1	2.3	9.0	-21.4	-21.4	--	--	--	-16.5	Jun-18
Carrick Capital Partners III	1,304,132	0.2	3.0	20.1	8.1	2.9	--	--	--	2.5	Aug-18
Cressey & Company Fund VI	1,050,879	0.1	2.4	2.8	-13.2	--	--	--	--	-13.2	Jan-19

Adams Street includes Adams Street 2005, Adams Street 2007, and Adams Street 2011.

Pantheon I includes Pantheon US Fund VI and Pantheon Europe Fund IV.

Pantheon II Includes Pantheon US Fund IX, Pantheon Asia Fund VI, and Pantheon Europe Fund VII.

Pantheon Secondary includes Pantheon GLO SEC III B.



As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
TCV X	1,597,666	0.2	3.7	-6.6	--	--	--	--	--	-6.6	Apr-19
Accel-KKR Growth Capital Partners III	301,989	0.0	0.7	0.0	--	--	--	--	--	0.0	Jul-19
Genstar Capital Partners IX	764,598	0.1	1.8	--	--	--	--	--	--	0.0	Jul-19
<b>Hedge Fund</b>	<b>75,795,104</b>	<b>8.7</b>	<b>8.7</b>	<b>-1.2</b>	<b>4.9</b>	<b>-0.1</b>	<b>5.9</b>	<b>3.7</b>	<b>--</b>	<b>3.6</b>	<b>Jun-14</b>
<i>Hedge Fund Custom</i>				-0.9	5.2	0.0	3.3	2.6	--	2.5	Jun-14
<i>InvMetrics All DB Hedge Funds Net Median</i>				0.0	5.4	0.3	4.0	2.4	4.2	2.2	Jun-14
<i>InvMetrics All DB Hedge Funds Net Rank</i>				82	55	55	16	27	--	25	Jun-14
Sculptor (OZ) Domestic II	10,251,161	1.2	13.5	-2.8	10.4	4.5	7.9	5.6	--	5.5	Jun-14
Graham Absolute Return	7,429,313	0.9	9.8	-1.6	6.1	3.0	--	--	--	2.8	Aug-17
Wellington-Archipelago	11,781,876	1.4	15.5	-1.4	9.0	0.1	--	--	--	3.7	Aug-17
KLS Diversified	9,124,169	1.1	12.0	-1.1	0.5	-4.7	--	--	--	1.2	Oct-17
Winton	6,265,143	0.7	8.3	3.1	3.1	0.4	--	--	--	2.6	Oct-17
Marshall Wace Eureka	3,255,221	0.4	4.3	0.6	6.6	0.3	--	--	--	3.6	Nov-17
Silver Point Capital	12,031,278	1.4	15.9	-2.9	1.2	-4.9	--	--	--	0.4	Nov-17
Laurion Capital	5,309,732	0.6	7.0	-1.9	3.9	5.3	--	--	--	6.1	Aug-18
Taconic Opportunity Fund	10,347,212	1.2	13.7	0.1	3.9	--	--	--	--	3.9	Dec-18
<b>Real Assets</b>	<b>52,368,824</b>	<b>6.0</b>	<b>6.0</b>	<b>1.4</b>	<b>10.3</b>	<b>9.5</b>	<b>7.3</b>	<b>8.0</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<i>Real Asset Custom</i>				-2.7	13.9	9.3	9.1	7.7	--	--	Mar-99
<i>InvMetrics All DB Real Assets/Commodities Net Median</i>				0.1	5.5	5.1	5.0	3.7	7.6	--	Mar-99
<i>InvMetrics All DB Real Assets/Commodities Net Rank</i>				26	14	14	30	23	--	--	Mar-99

As of September 30, 2019

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
SSgA	16,662,460	1.9	31.8	-0.8	9.5	1.6	--	--	--	3.6	Apr-17
Real Asset NL Custom Blended Index				-0.7	9.9	2.0	--	--	--	3.9	Apr-17
<b>Private Infrastructure</b>	<b>22,243,376</b>	<b>2.6</b>	<b>42.5</b>	<b>2.8</b>	<b>9.1</b>	<b>12.7</b>	<b>12.0</b>	<b>--</b>	<b>--</b>	<b>7.7</b>	<b>Dec-14</b>
S&P Global Infrastructure Net TR USD				0.4	19.9	13.5	7.0	4.8	6.9	4.8	Dec-14
KKR Global II	11,120,059	1.3	50.0	2.7	7.9	13.0	12.1	--	--	10.6	Dec-14
North Haven Infrastructure II	8,409,094	1.0	37.8	3.3	11.4	13.3	13.2	--	--	8.0	May-15
ISQ Global Infrastructure Fund II	1,777,697	0.2	8.0	1.9	12.9	16.0	--	--	--	-18.9	Jul-18
KKR Global Infrastructure Investors III	936,526	0.1	4.2	-2.9	-17.8	--	--	--	--	-17.8	Jan-19
<b>Private Natural Resources</b>	<b>13,462,988</b>	<b>1.6</b>	<b>25.7</b>	<b>2.0</b>	<b>8.1</b>	<b>9.3</b>	<b>12.5</b>	<b>--</b>	<b>--</b>	<b>16.9</b>	<b>Sep-15</b>
S&P Global Natural Resources Index TR USD				-6.0	7.0	-11.0	7.0	1.1	1.7	11.2	Sep-15
EnCap XI	869,898	0.1	6.5	-2.8	-7.9	-12.3	--	--	--	-29.3	Jul-17
EnCap IV	908,460	0.1	6.7	0.1	15.2	13.8	--	--	--	-2.8	Feb-18
GSO Energy Opportunities	4,376,635	0.5	32.5	1.0	3.5	5.1	12.0	--	--	16.0	Nov-15
Taurus Mining	3,643,454	0.4	27.1	2.9	12.3	14.4	12.2	--	--	17.7	Sep-15
Taurus Mining Annex	3,184,505	0.4	23.7	4.7	16.7	19.2	--	--	--	28.8	Jan-17
BlackRock Global Energy and Power Infrastructure Fund III LP	480,036	0.1	3.6	--	--	--	--	--	--	--	Jul-19
<b>Cash</b>	<b>13,816,860</b>	<b>1.6</b>	<b>1.6</b>	<b>0.4</b>	<b>1.0</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
Cash	10,921,399	1.3	79.0	0.6	1.5	2.2	1.4	1.0	--	--	Sep-03
Treasury Cash	2,895,460	0.3	21.0								

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.



As of September 30, 2019

### Benchmark History

As of September 30, 2019

Total Fund		
7/1/2019	Present	21% US Equity Custom / 18% International Equity Custom / 18% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net) / 5% 50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans
1/1/2019	6/30/2019	21% US Equity Custom / 18% International Equity Custom / 23% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net)
1/1/2017	12/31/2018	27% US Equity Custom / 23% International Equity Custom / 22% US Fixed Custom / 5% Hedge Fund Custom / 9% Thomson Reuters Cambridge Private Equity Index / 14% Real Asset Custom
US Equity		
12/31/1994	Present	80% Russell 1000 / 20% Russell 2000
International Equity		
1/1/2019	Present	56% MSCI EAFE Gross / 44% MSCI Emerging Markets Gross
1/1/2017	12/31/2018	69.56% MSCI EAFE Gross / 30.44% MSCI Emerging Markets Gross
7/1/2013	12/31/2016	MSCI ACWI ex USA Gross
US Fixed Income		
3/1/2018	Present	77.27% BBgBarc US Aggregate TR / 22.73% BBgBarc US Govt 1-5 Yr TR
1/1/2017	2/28/2018	77.27% BBgBarc US Aggregate TR / 22.73% Credit Suisse Leveraged Loans
8/1/2014	12/31/2016	71.93% BBgBarc US Aggregate TR / 17.54% ICE BofAML US High Yield TR / 10.53% Credit Suisse Leveraged Loans
Hedge Fund		
7/1/2017	Present	100% HFRI Fund of Funds Composite Index
1/1/2015	6/30/2017	50% HFRI Fund of Funds Composite Index / 50% HFRI RV: Multi-Strategy Index
Real Assets		
1/1/2019	Present	50% S&P Global Natural Resources Index TR USD / 50% S&P Global Infrastructure TR USD
6/1/2013	12/31/2018	57.14% NCREIF ODCE (net) / 21.43% S&P Global Natural Resources Index TR USD / 21.43% S&P Global Infrastructure TR USD

As of September 30, 2019

Benchmark History  
As of September 30, 2019

SSgA		
4/30/2017	Present	25% Bloomberg Roll Select Commodities Index TR USD / 25% S&P Global LargeMidCap Commodity and Resources NR USD / 10% S&P Global Infrastructure TR USD / 15% DJ US Select REIT TR USD / 25% BBgBarc US TIPS TR

As of September 30, 2019

**Statistics Summary**  
**5 Years Ending September 30, 2019**

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Total Fund	6.32%	6.66%	-0.22	1.03	0.80	1.17%
Policy Index	6.58%	6.36%	--	1.00	0.88	0.00%
InvMetrics Public DB \$250mm-\$1B Net Median	6.10%	6.94%	-0.13	0.99	0.72	1.09%

As of September 30, 2019

## Annual Investment Expense Analysis

As Of September 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
<b>Total Fund w/o Alternatives</b>		<b>\$621,505,190</b>		
<b>US Equity</b>		<b>\$236,326,502</b>		
Mellon Dynamic US Equity	0.30% of Assets	\$94,239,708	0.30%	\$282,719
Mellon Large Cap	0.04% of First 100.0 Mil, 0.02% Thereafter	\$106,567,610	0.04%	\$41,314
DFA Small Cap	0.35% of Assets	\$17,640,282	0.35%	\$61,741
PanAgora	0.80% of Assets	\$17,878,903	0.80%	\$143,031
<b>International Equity</b>		<b>\$173,805,441</b>		
<b>Developed International Equity</b>		<b>\$105,927,768</b>		
Mellon International	0.04% of Assets	\$85,667,396	0.04%	\$34,267
Acadian ACWI ex U.S. Small Cap Equity	0.99% of Assets	\$9,839,767	0.99%	\$97,414
Driehaus International Small Cap Growth	0.90% of Assets	\$10,420,605	0.90%	\$93,785
<b>Emerging Markets Equity</b>		<b>\$67,877,673</b>		
Wells Capital	0.90% of First 100.0 Mil, 0.85% Thereafter	\$67,877,673	0.90%	\$610,899
<b>US Fixed Income</b>		<b>\$170,143,788</b>		
Barrow Hanley	0.30% of First 50.0 Mil, 0.20% of Next 100.0 Mil, 0.15% Thereafter	\$61,124,016	0.28%	\$172,248
Vanguard Short-Term Treasury Index Fund	0.05% of Assets	\$48,554,400	0.05%	\$24,277
Vanguard Total Bond Market Index Fund	0.04% of Assets	\$60,465,372	0.04%	\$21,163
<b>Opportunistic Credit</b>		<b>\$41,229,459</b>		
PIMCO Income Fund	0.50% of Assets	\$20,424,232	0.50%	\$102,121
GoldenTree Multi-Sector Credit	0.75% of Assets	\$20,805,227	0.75%	\$156,039
<b>Private Real Estate</b>		<b>\$59,673,599</b>		
Greenfield Gap VII		\$8,839,742		
Patron Capital V		\$7,258,825		
UBS Trumbull Property		\$40,756,248		
Carlyle Realty VIII		\$660,213		

As of September 30, 2019

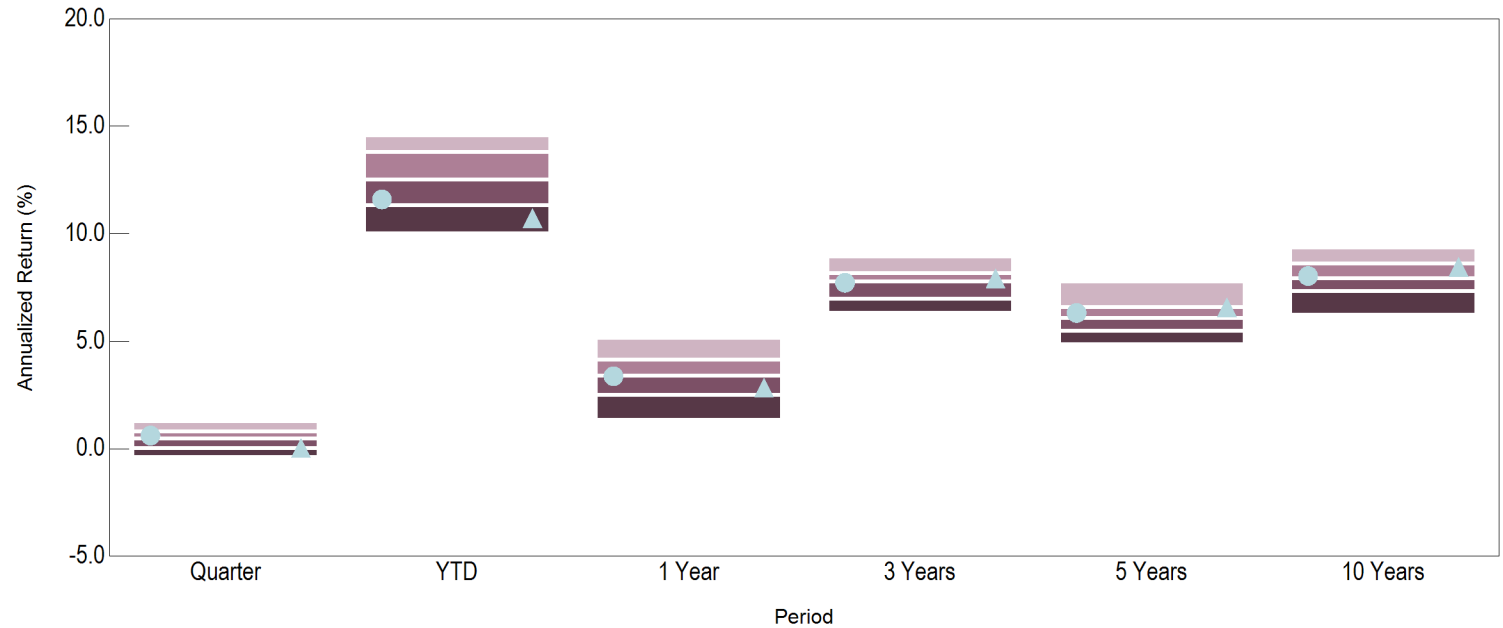
Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
Taconic CRE Dislocation Fund II		\$1,757,721		
Carmel Partners Investment Fund VII		\$89,058		
AG Realty Value Fund X, L.P.		\$311,793		
Invesco IV		\$218,400		
Invesco VI		\$6,331,897		
Ocean Avenue II		\$9,986,598		
Pantheon I		\$870,662		
Pantheon II		\$4,092,220		
Pantheon Secondary		\$961,201		
Raven Asset Fund II		\$3,452,122		
Davidson Kempner Long-Term Distressed Opportunities Fund IV		\$3,633,980		
GTCR Fund XII		\$1,006,503		
Carrick Capital Partners III		\$1,304,132		
Cressey & Company Fund VI		\$1,050,879		
TCV X		\$1,597,666		
Accel-KKR Growth Capital Partners III		\$301,989		
Genstar Capital Partners IX		\$764,598		
<b>Hedge Fund</b>		<b>\$75,795,104</b>		
Sculptor (OZ) Domestic II	Performance-based 1.50 and 20.00	\$10,251,161	1.50%	\$153,767
Graham Absolute Return	Performance-based 1.75 and 20.00	\$7,429,313	1.75%	\$130,013
Wellington-Archipelago	Performance-based 1.00 and 20.00	\$11,781,876	1.00%	\$117,819
KLS Diversified	Performance-based 2.00 and 20.00	\$9,124,169	2.00%	\$182,483
Winton	Performance-based 0.90 and 20.00	\$6,265,143	0.90%	\$56,386
Marshall Wace Eureka	Performance-based 2.00 and 20.00	\$3,255,221	2.00%	\$65,104
Silver Point Capital	Performance-based 2.00 and 20.00	\$12,031,278	2.06%	\$248,235
Laurion Capital		\$5,309,732		
Taconic Opportunity Fund		\$10,347,212		

## Merced County Employees' Retirement Association

As of September 30, 2019

Name	Fee Schedule	Market Value	Estimated Fee	Estimated Fee Value
<b>Real Assets</b>		<b>\$52,368,824</b>		
SSgA	0.30% of First 50.0 Mil, 0.27% of Next 50.0 Mil, 0.25% Thereafter	\$16,662,460	0.30%	\$49,987
<b>Private Infrastructure</b>		<b>\$22,243,376</b>		
KKR Global II		\$11,120,059		
North Haven Infrastructure II		\$8,409,094		
ISQ Global Infrastructure Fund II		\$1,777,697		
KKR Global Infrastructure Investors III		\$936,526		
<b>Private Natural Resources</b>		<b>\$13,462,988</b>		
EnCap XI		\$869,898		
EnCap IV		\$908,460		
GSO Energy Opportunities		\$4,376,635		
Taurus Mining		\$3,643,454		
Taurus Mining Annex		\$3,184,505		
BlackRock Global Energy and Power Infrastructure Fund III LP		\$480,036		
<b>Cash</b>		<b>\$13,816,860</b>		
Cash		\$10,921,399		
Treasury Cash		\$2,895,460		

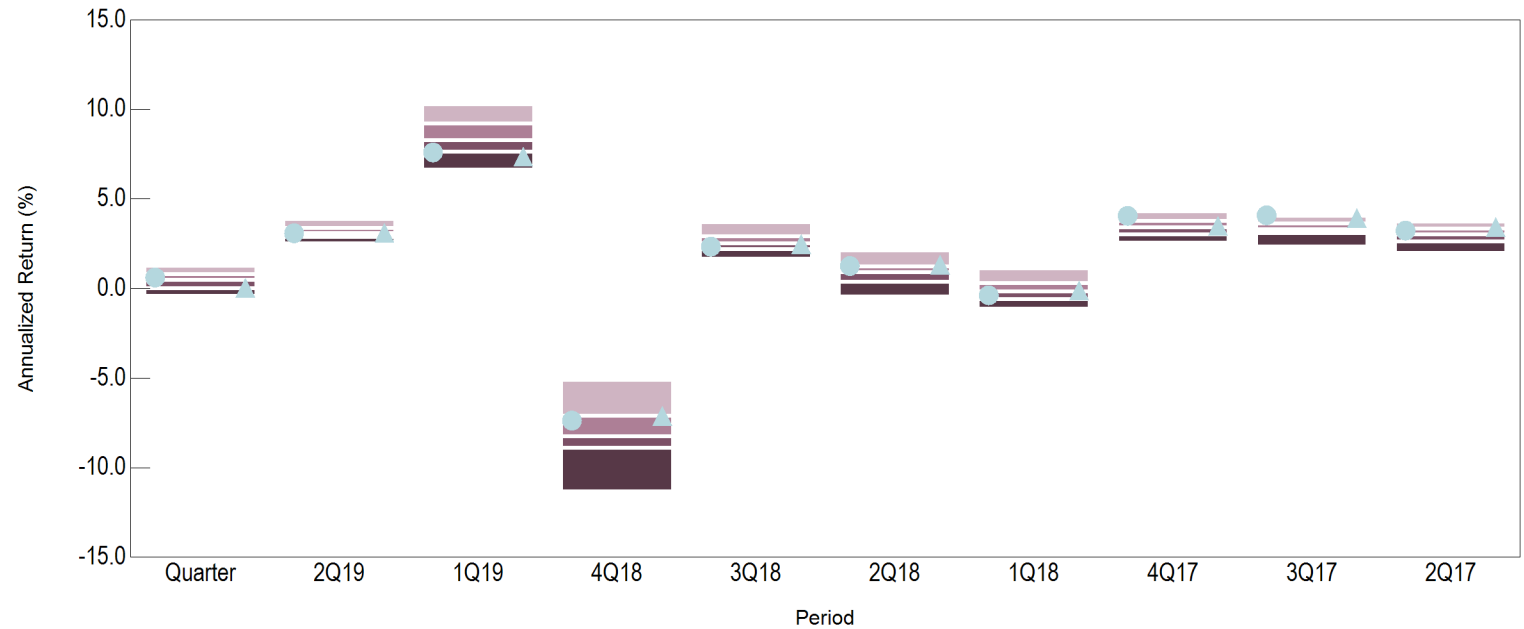
InvMetrics Public DB \$250mm-\$1B Net Return Comparison  
Ending September 30, 2019



	Return (Rank)											
5th Percentile	1.3		14.6		5.1		8.9		7.8		9.3	
25th Percentile	0.8		13.8		4.2		8.2		6.6		8.6	
Median	0.5		12.5		3.4		7.8		6.1		8.0	
75th Percentile	0.0		11.3		2.5		7.0		5.5		7.4	
95th Percentile	-0.4		10.0		1.4		6.3		4.9		6.3	
# of Portfolios	69		68		68		67		61		48	
<div><div></div>Total Fund</div>	0.6	(40)	11.6	(70)	3.4	(53)	7.7	(52)	6.3	(38)	8.0	(46)
<div><div></div>Policy Index</div>	0.0	(76)	10.7	(89)	2.8	(70)	7.9	(40)	6.6	(27)	8.5	(33)

As of September 30, 2019

### InvMetrics Public DB \$250mm-\$1B Net Return Comparison Ending September 30, 2019

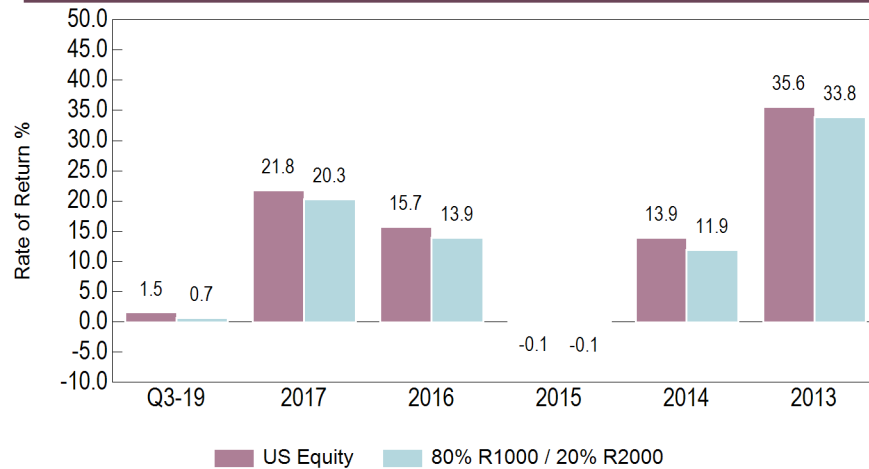


	Return (Rank)									
5th Percentile	1.3	3.9	10.3	-5.1	3.7	2.1	1.1	4.3	4.1	3.7
25th Percentile	0.8	3.4	9.2	-7.1	2.9	1.3	0.3	3.8	3.6	3.4
Median	0.5	3.1	8.3	-8.2	2.5	0.9	-0.1	3.4	3.3	3.0
75th Percentile	0.0	2.9	7.6	-8.9	2.2	0.4	-0.6	3.1	3.1	2.7
95th Percentile	-0.4	2.5	6.7	-11.3	1.7	-0.4	-1.1	2.6	2.4	2.0
# of Portfolios	69	74	77	73	57	61	56	59	61	61
● Total Fund	0.6 (40)	3.1 (56)	7.6 (77)	-7.4 (33)	2.3 (68)	1.3 (25)	-0.4 (66)	4.1 (16)	4.1 (4)	3.2 (29)
▲ Policy Index	0.0 (76)	3.1 (53)	7.4 (84)	-7.1 (29)	2.5 (56)	1.3 (23)	-0.1 (50)	3.5 (43)	3.9 (10)	3.4 (23)

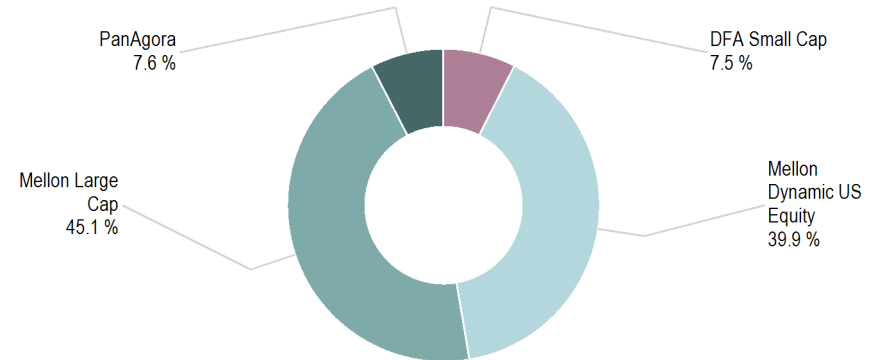


As of September 30, 2019

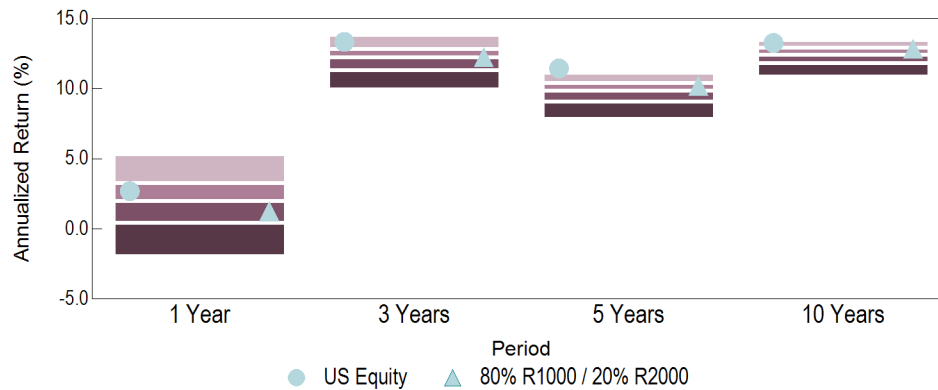
### Return Summary



### Current Allocation

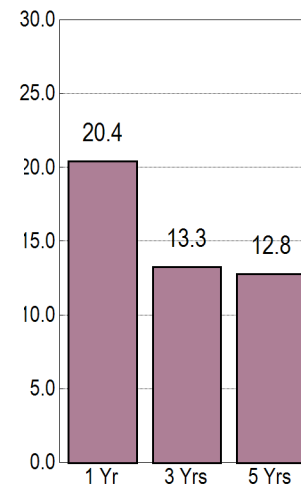


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>US Equity</b>	<b>2.7</b>	<b>13.3</b>	<b>11.4</b>	<b>13.3</b>
80% R1000 / 20% R2000	1.2	12.2	10.2	12.8
InvMetrics All DB US Eq Net Median	2.0	12.2	9.9	12.4
InvMetrics All DB US Eq Net Rank	40	13	4	8



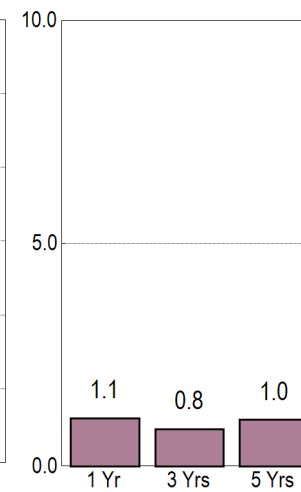
### Anzld. Std. Deviation

#### US Equity



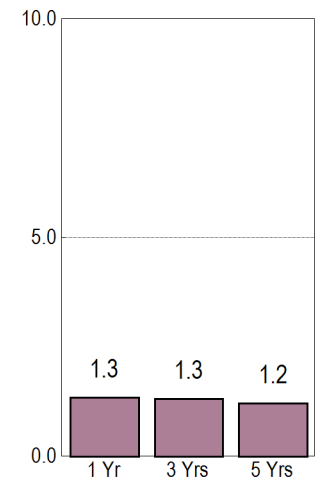
### Tracking Error

#### US Equity



### Information Ratio

#### US Equity



## US Equity

As of September 30, 2019

US Equity Characteristics  
vs Russell 3000

	Portfolio Q3-19	Index Q3-19
<b>Characteristics</b>		
Weighted Avg. Market Cap. (\$B)	182.2	195.3
Median Market Cap (\$B)	4.2	1.6
P/E Ratio	19.6	20.5
Yield	1.9	1.9
EPS Growth - 5 Yrs.	12.8	13.5
Price to Book	3.1	3.5
Beta (holdings; domestic)	1.0	1.0

US Equity Sector Distribution  
vs Russell 3000

	Portfolio Q3-19	Index Q3-19
<b>Sector Distribution</b>		
Energy	4.2	4.3
Materials	2.8	2.9
Industrials	10.0	10.2
Consumer Discretionary	9.8	10.4
Consumer Staples	6.2	6.6
Health Care	11.7	13.5
Financials	13.7	13.6
Information Technology	18.5	21.5
Communication Services	8.1	9.5
Utilities	3.0	3.4
Real Estate	3.4	4.2

## Top Holdings

UST Bill 12/19/19	6.3%
MICROSOFT	3.1%
APPLE	2.9%
CASH - USD	2.2%
AMAZON.COM	2.1%
FACEBOOK CLASS A	1.2%
BERKSHIRE HATHAWAY 'B'	1.2%
JP MORGAN CHASE & CO.	1.1%
ALPHABET 'C'	1.1%
ALPHABET A	1.1%

## Best Performers

	Return %
DURECT	182.2%
CIM COMMERCIAL TRUST	177.1%
IMPAC MORTGAGE HDG.	153.9%
STAGE STORES	144.2%
DIXIE GP.'A'	137.9%
FRANCESCA'S HOLDINGS	135.7%
ATLANTICUS HOLDINGS	106.2%
SEACHANGE INTL.	101.4%
WW INTERNATIONAL	98.0%
R R DONNELLEY & SONS	94.7%

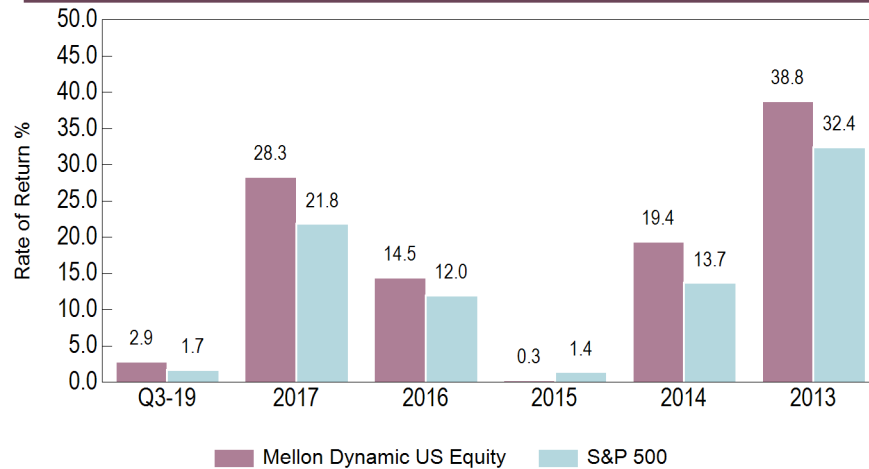
## Worst Performers

	Return %
TOCAGEN	-90.1%
SUPERIOR ENERGY SERVICES	-90.0%
NEUROTROPE	-89.9%
MCDERMOTT INTL.	-79.1%
PIONEER ENERGY SERVICES	-78.3%
SIENNA BIOPH.	-77.0%
SYNLOGIC	-74.8%
MALLINCKRODT	-73.7%
CLOVIS ONCOLOGY	-73.6%
SANCHEZ ENERGY (XSC)	-70.0%

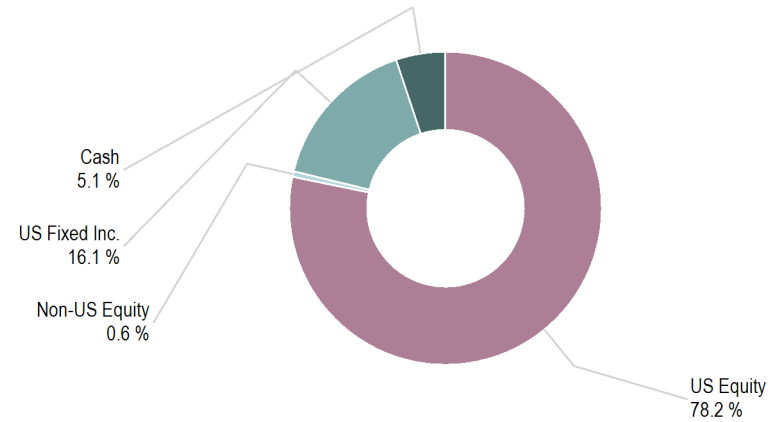
Mellon Dynamic US Equity

As of September 30, 2019

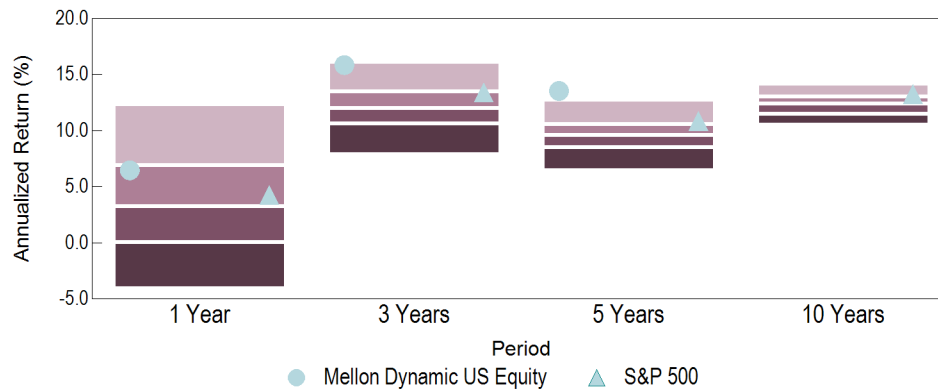
Return Summary



Current Allocation

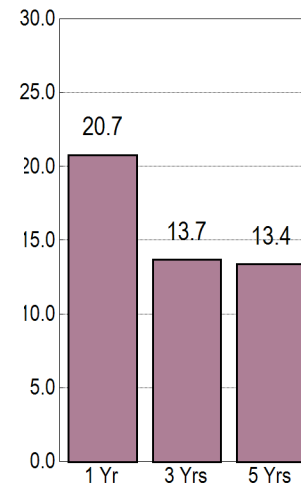


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon Dynamic US Equity	6.5	15.8	13.5	--
S&P 500	4.3	13.4	10.8	13.2
eV US Large Cap Core Equity Net Median	3.3	12.1	9.7	12.5
eV US Large Cap Core Equity Net Rank	29	6	3	--



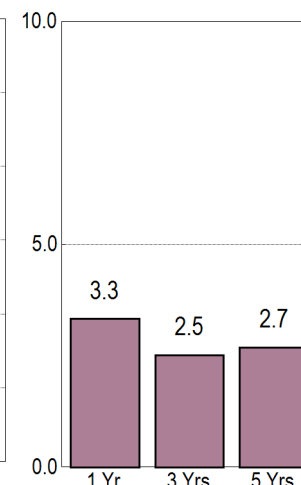
Anzld. Std. Deviation

Mellon Dynamic US Equity



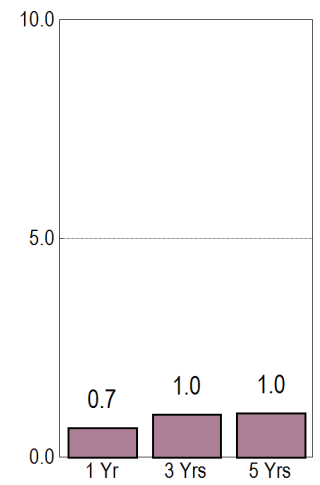
Tracking Error

Mellon Dynamic US Equity



Information Ratio

Mellon Dynamic US Equity



## Mellon Dynamic US Equity

As of September 30, 2019

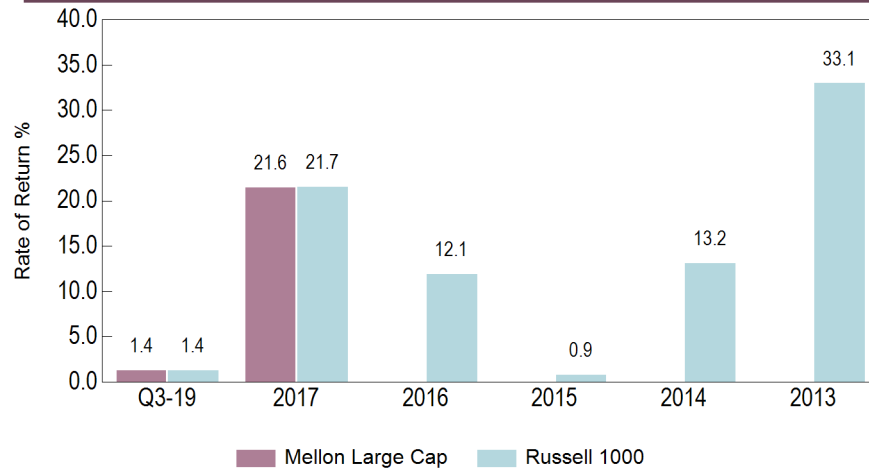
Account Information		Account Characteristics		Sector Distribution			
Account Name	Mellon Dynamic US Equity	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Active	Characteristics		Sector Distribution			
Inception Date	12/31/12	Weighted Avg.	230.0	230.5	Energy	3.6	4.6
Account Type	US Equity	Market Cap. (\$B)			Materials	2.2	2.7
Benchmark	S&P 500	Median Market Cap (\$B)	22.4	22.5	Industrials	7.4	9.4
Universe	eV US Large Cap Core Equity Net	P/E Ratio	20.6	20.5	Consumer Discretionary	8.0	10.1
		Yield	2.0	2.0	Consumer Staples	6.0	7.4
		EPS Growth - 5 Yrs.	13.4	13.5	Health Care	10.8	13.6
		Price to Book	3.7	3.6	Financials	10.2	13.1
		Beta (holdings; domestic)	1.0	1.0	Information Technology	17.3	21.9
					Communication Services	8.2	10.5
					Utilities	2.8	3.4
					Real Estate	2.5	3.2

Top Holdings		Best Performers		Worst Performers	
UST Bill 12/19/19	15.8%		Return %		Return %
CASH - USD	5.1%	KLA	35.7%	NEKTAR THERAPEUTICS	-48.8%
MICROSOFT	3.4%	WESTERN DIGITAL	25.4%	DXC TECHNOLOGY	-46.2%
APPLE	3.0%	TARGET	24.4%	CONCHO RESOURCES	-34.1%
AMAZON.COM	2.3%	LAM RESEARCH	23.6%	ALIGN TECHNOLOGY	-33.9%
FACEBOOK CLASS A	1.4%	NEWELL BRANDS (XSC)	23.1%	ABIOMED	-31.7%
BERKSHIRE HATHAWAY 'B'	1.3%	D R HORTON	22.6%	ULTA BEAUTY	-27.7%
JP MORGAN CHASE & CO.	1.2%	HUNT JB TRANSPORT SVS.	21.4%	NETFLIX	-27.1%
ALPHABET 'C'	1.2%	KELLOGG	21.2%	MACY'S	-26.0%
ALPHABET A	1.2%	SHERWIN-WILLIAMS	20.2%	ALEXION PHARMS.	-25.2%
		KROGER	19.6%	L BRANDS	-23.8%

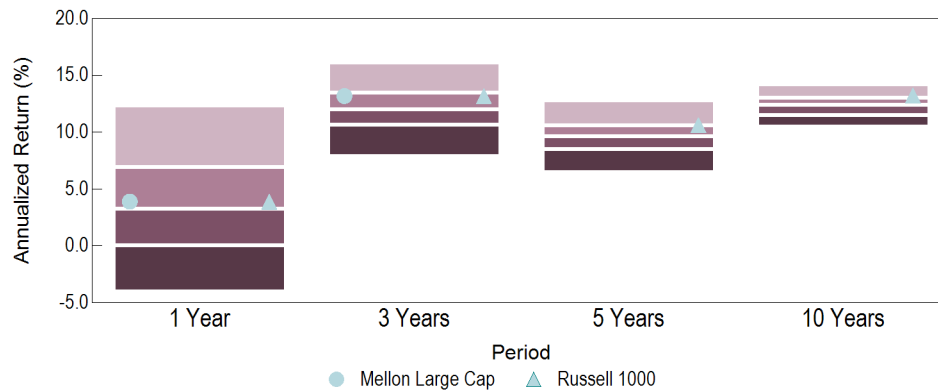
Current Allocations do not depict asset class weights based on long/short positions.



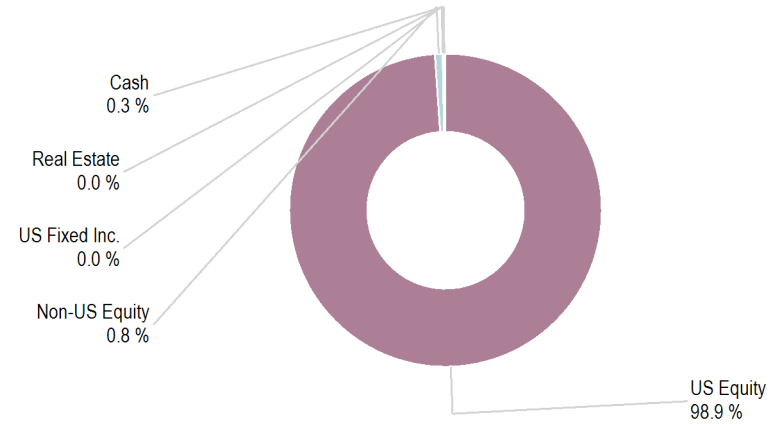
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon Large Cap	3.9	13.2	--	--
Russell 1000	3.9	13.2	10.6	13.2
eV US Large Cap Core Equity Net Median	3.3	12.1	9.7	12.5
eV US Large Cap Core Equity Net Rank	45	29	--	--

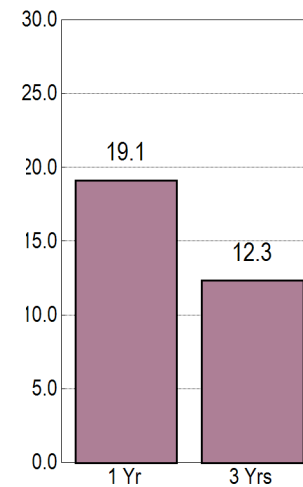


### Current Allocation



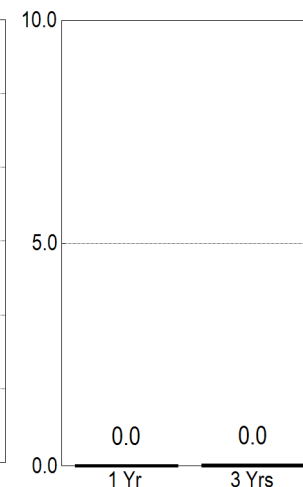
### Anzld. Std. Deviation

#### Mellon Large Cap



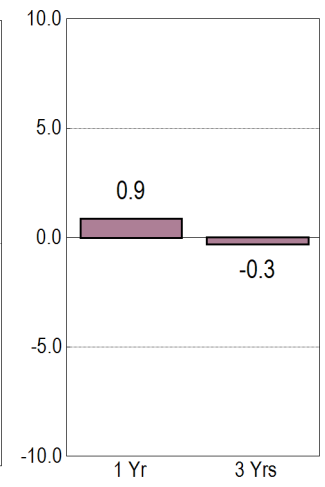
### Tracking Error

#### Mellon Large Cap



### Information Ratio

#### Mellon Large Cap



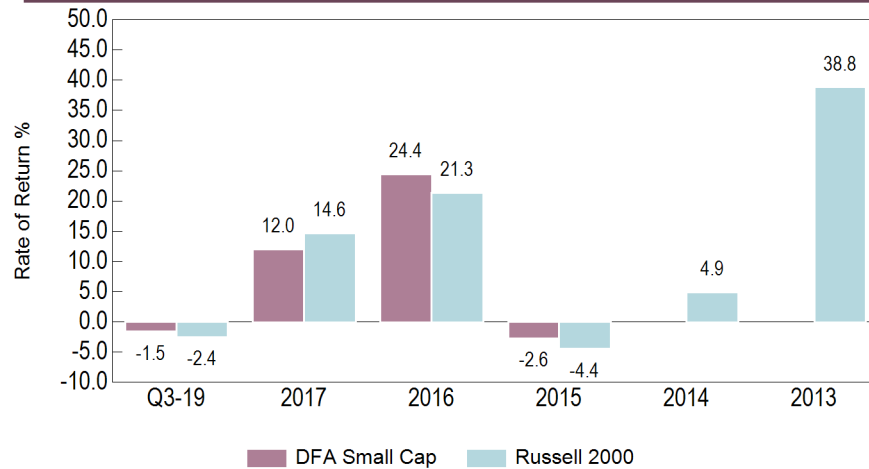
## Mellon Large Cap

As of September 30, 2019

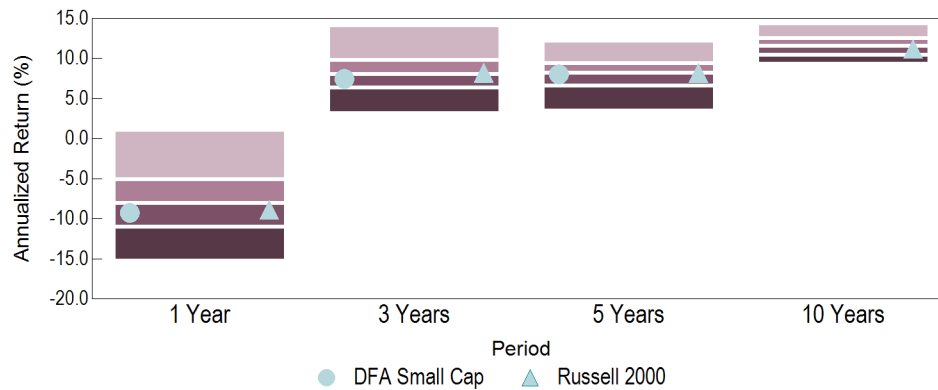
Account Information		Account Characteristics		Sector Distribution			
Account Name	Mellon Large Cap	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Passive	Characteristics		Sector Distribution			
Inception Date	3/31/16	Weighted Avg. Market Cap. (\$B)	209.2	208.9	Energy	4.2	4.4
Account Type	US Stock Large	Median Market Cap (\$B)	9.7	9.8	Materials	2.8	2.8
Benchmark	Russell 1000	P/E Ratio	20.8	20.7	Industrials	9.7	9.7
Universe	eV US Large Cap Core Equity Net	Yield	1.9	1.9	Consumer Discretionary	10.3	10.4
		EPS Growth - 5 Yrs.	13.6	13.7	Consumer Staples	7.0	6.8
		Price to Book	3.6	3.6	Health Care	13.3	13.3
		Beta (holdings; domestic)	1.0	1.0	Financials	13.2	13.3
					Information Technology	22.0	22.0
					Communication Services	9.8	10.0
					Utilities	3.4	3.3
					Real Estate	4.0	3.9

Top Holdings		Best Performers		Worst Performers	
MICROSOFT	3.8%		Return %		Return %
APPLE	3.7%	INSULET	38.2%	2U	-56.7%
AMAZON.COM	2.6%	CYRUSONE	37.9%	PG&E	-56.4%
FACEBOOK CLASS A	1.5%	KLA	35.7%	COVETRUS	-51.4%
BERKSHIRE HATHAWAY 'B'	1.5%	NEW YORK COMMUNITY BANCORP	27.6%	SAREPTA THERAPEUTICS	-50.4%
JP MORGAN CHASE & CO.	1.4%	ENTEGRIS	26.3%	NEKTAR THERAPEUTICS	-48.8%
ALPHABET 'C'	1.3%	PILGRIMS PRIDE	26.2%	DXC TECHNOLOGY	-46.2%
ALPHABET A	1.3%	WESTERN DIGITAL	25.4%	ANTERO RESOURCES	-45.4%
JOHNSON & JOHNSON	1.2%	DOCUSIGN	24.6%	RANGE RES.	-45.0%
PROCTER & GAMBLE	1.1%	TARGET	24.4%	PLURALSIGHT A	-44.6%
		XPO LOGISTICS	23.8%	FLUOR	-42.5%

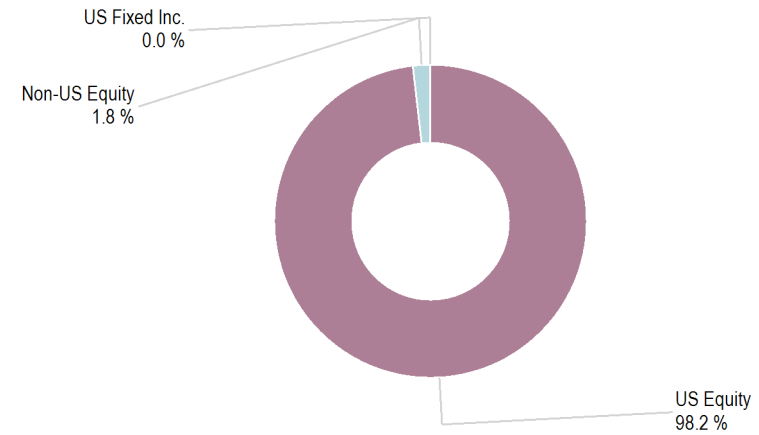
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
DFA Small Cap	-9.3	7.5	8.0	--
Russell 2000	-8.9	8.2	8.2	11.2
eV US Small Cap Core Equity Net Median	-8.0	8.1	8.3	11.6
eV US Small Cap Core Equity Net Rank	61	62	60	--

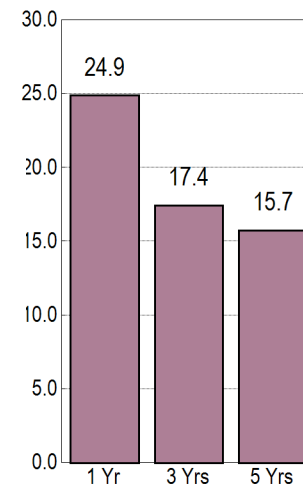


### Current Allocation



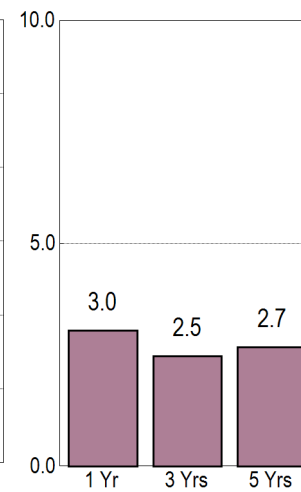
### Anzld. Std. Deviation

#### DFA Small Cap



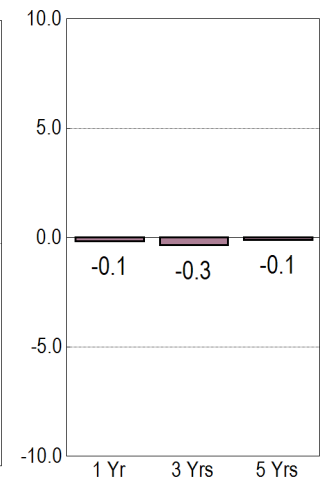
### Tracking Error

#### DFA Small Cap



### Information Ratio

#### DFA Small Cap



## DFA Small Cap

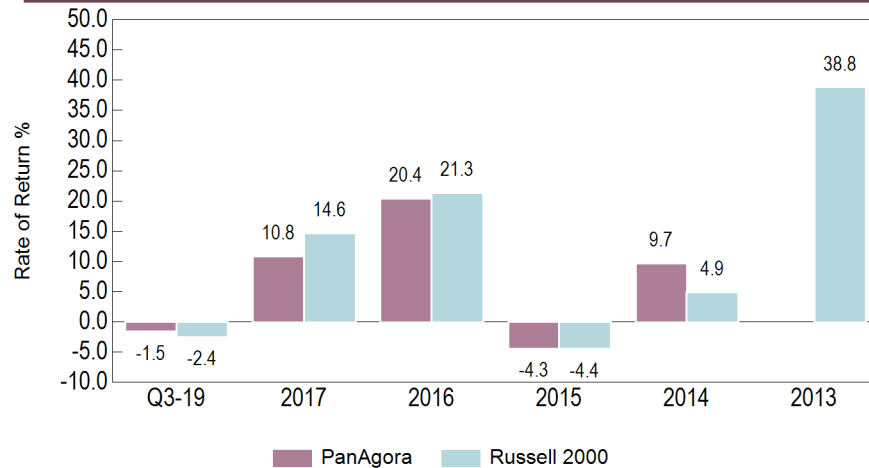
As of September 30, 2019

Account Information		Account Characteristics		Sector Distribution			
Account Name	DFA Small Cap	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Active	Characteristics		Sector Distribution			
Inception Date	6/30/14	Weighted Avg.	2.1	2.2	Energy	8.7	3.5
Account Type	US Stock Small	Market Cap. (\$B)			Materials	6.6	3.9
Benchmark	Russell 2000	Median Market Cap (\$B)	0.6	0.7	Industrials	18.9	16.0
Universe	eV US Small Cap Core Equity Net	P/E Ratio	13.4	18.5	Consumer Discretionary	14.1	11.1
		Yield	1.8	1.5	Consumer Staples	4.1	2.9
		EPS Growth - 5 Yrs.	7.4	9.6	Health Care	3.1	16.5
		Price to Book	1.4	2.4	Financials	29.5	18.0
		Beta (holdings; domestic)	1.3	1.2	Information Technology	10.7	13.6
					Communication Services	3.8	2.5
					Utilities	0.2	3.9
					Real Estate	0.3	8.0

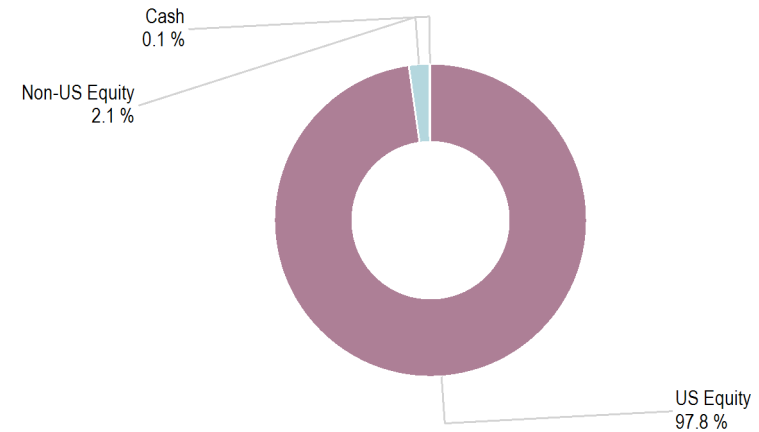
Top Holdings		Best Performers		Worst Performers	
MERITAGE HOMES	0.9%		Return %		Return %
TECH DATA	0.8%	IMPAC MORTGAGE HDG.	153.9%	TOCAGEN	-90.1%
CACI INTERNATIONAL 'A'	0.7%	STAGE STORES	144.2%	SUPERIOR ENERGY SERVICES	-90.0%
DARLING INGREDIENTS	0.7%	DIXIE GP.'A'	137.9%	NEUROTROPE	-89.9%
FTI CONSULTING	0.7%	FRANCESCA'S HOLDINGS	135.7%	MCDERMOTT INTL.	-79.1%
WASHINGTON FEDERAL	0.7%	ATLANTICUS HOLDINGS	106.2%	PIONEER ENERGY SERVICES	-78.3%
CNO FINANCIAL GROUP	0.7%	SEACHANGE INTL.	101.4%	SIENNA BIOPH.	-77.0%
GATX	0.7%	WW INTERNATIONAL	98.0%	SYNOLOGIC	-74.8%
SKYWEST	0.7%	R R DONNELLEY & SONS	94.7%	MALLINCKRODT	-73.7%
AARON'S	0.7%	PC-TEL	91.9%	SANCHEZ ENERGY (XSC)	-70.0%
		INFINERA	87.3%	DESTINATION MATERNITY	-68.6%



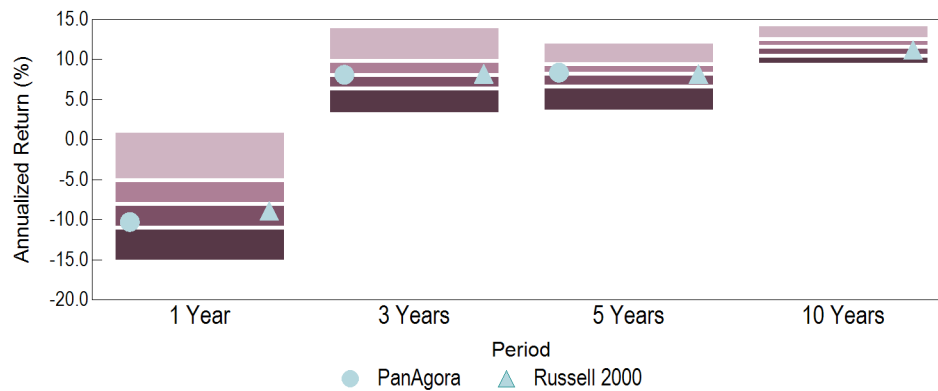
### Return Summary



### Current Allocation

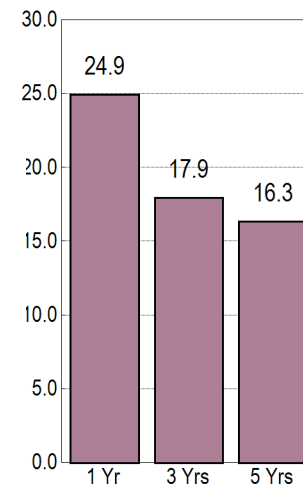


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PanAgora	-10.3	8.1	8.4	--
Russell 2000	-8.9	8.2	8.2	11.2
eV US Small Cap Core Equity Net Median	-8.0	8.1	8.3	11.6
eV US Small Cap Core Equity Net Rank	70	53	48	--



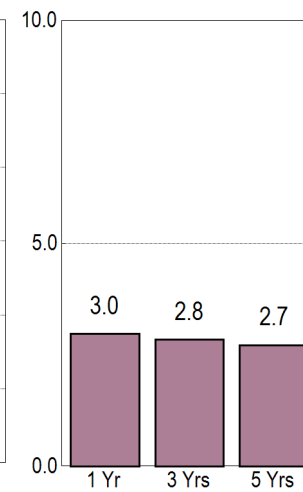
### Anzld. Std. Deviation

#### PanAgora



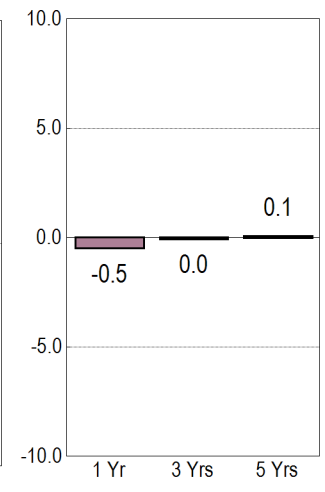
### Tracking Error

#### PanAgora



### Information Ratio

#### PanAgora



As of September 30, 2019

Account Information		Account Characteristics		Sector Distribution	
Account Name	PanAgora	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	9/30/13	Weighted Avg.	2.2	Energy	3.4
Account Type	US Stock Small Cap Core	Market Cap. (\$B)	2.2	Materials	2.6
Benchmark	Russell 2000	Median Market Cap (\$B)	0.7	Industrials	17.2
Universe	eV US Small Cap Core Equity Net	P/E Ratio	17.1	Consumer Discretionary	11.7
		Yield	1.4	Consumer Staples	4.7
		EPS Growth - 5 Yrs.	10.0	Health Care	16.1
		Price to Book	2.3	Financials	19.4
		Beta (holdings; domestic)	1.2	Information Technology	12.1
				Communication Services	2.5
				Utilities	3.3
				Real Estate	6.8
					8.0

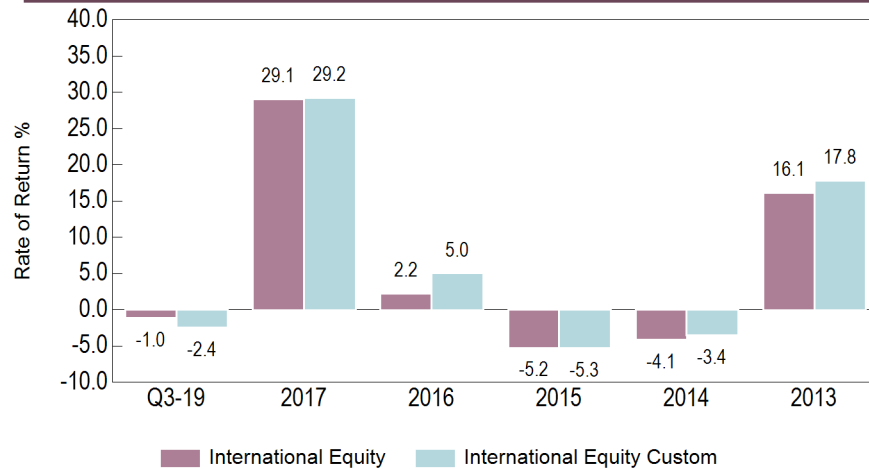
  

Top Holdings		Best Performers		Worst Performers	
PORTLAND GEN.ELEC.	1.5%		Return %		Return %
PNM RESOURCES	1.5%	DURECT	182.2%	PIONEER ENERGY SERVICES	-78.3%
FIVE9	1.3%	CIM COMMERICAL TRUST	177.1%	MALLINCKRODT	-73.7%
INSPERITY	1.2%	WW INTERNATIONAL	98.0%	CLOVIS ONCOLOGY	-73.6%
HMS HOLDINGS	1.2%	R R DONNELLEY & SONS	94.7%	FLUIDIGM	-62.4%
DECKERS OUTDOOR	1.1%	OWENS & MINOR	81.6%	LSC COMMUNICATIONS	-62.4%
UNITED COMMUNITY BANKS	1.0%	STAMPS.COM	64.5%	UNIT	-62.0%
INTERNATIONAL BCSH.	1.0%	PALOMAR HOLDINGS	64.0%	MERSANA THERAPEUTICS	-61.0%
MEDICINES COMPANY	1.0%	OMNOVA SOLUTIONS	61.6%	KLX ENERGY SERVICES HOLDINGS	-57.7%
PERFORMANCE FOOD GROUP	1.0%	NEOPHOTONICS	45.7%	FORUM ENERGY TECHS.	-54.7%
		CATO 'A'	45.7%	CONCERT PHARMACEUTICALS	-51.0%

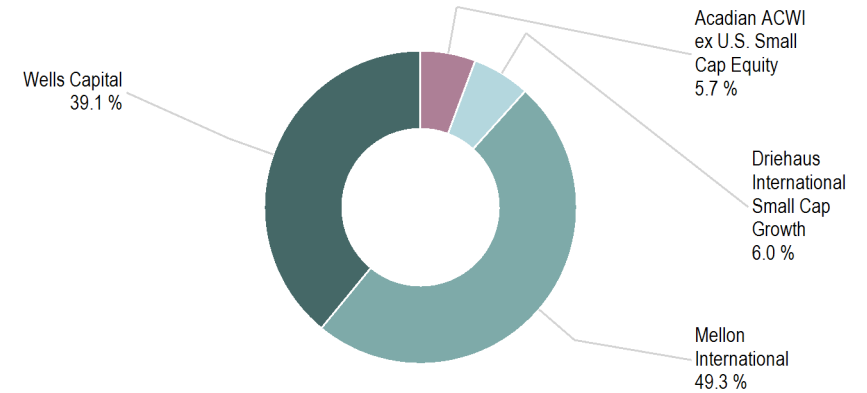
# International Equity

As of September 30, 2019

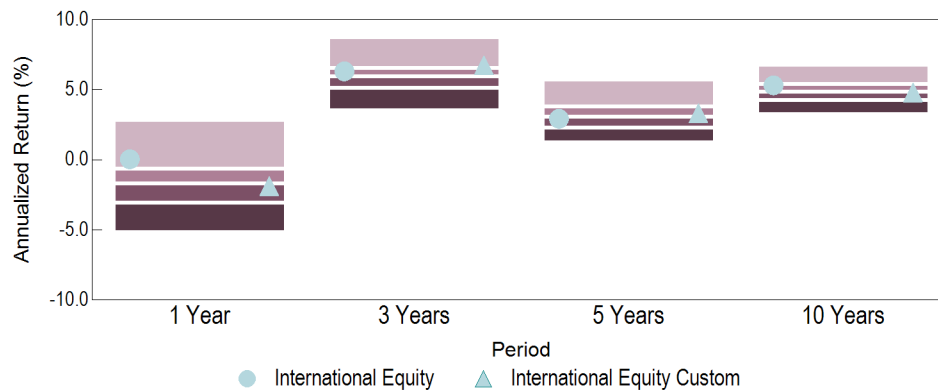
## Return Summary



## Current Allocation

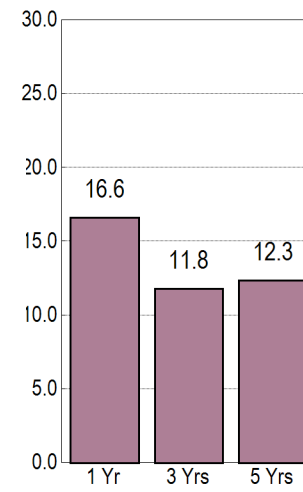


	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>International Equity</b>	<b>0.0</b>	<b>6.3</b>	<b>2.9</b>	<b>5.3</b>
<i>International Equity Custom</i>	-1.9	6.7	3.3	4.8
<i>InvMetrics All DB ex-US Eq Net Median</i>	-1.7	6.0	3.1	4.9
<i>InvMetrics All DB ex-US Eq Net Rank</i>	20	35	56	32



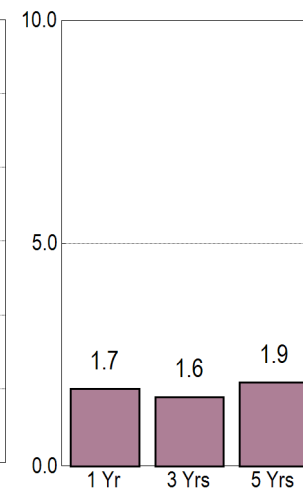
## Anzld. Std. Deviation

### International Equity



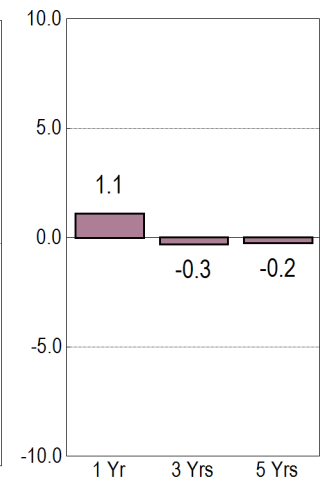
## Tracking Error

### International Equity



## Information Ratio

### International Equity



## International Equity

As of September 30, 2019

International Equity Characteristics  
vs MSCI ACWI ex USA

	Portfolio Q3-19	Index Q3-19
<b>Characteristics</b>		
Weighted Avg. Market Cap. (\$B)	60.3	64.0
Median Market Cap (\$B)	4.0	7.3
P/E Ratio	16.1	15.0
Yield	3.0	3.3
EPS Growth - 5 Yrs.	8.1	9.0
Price to Book	2.5	2.3
Beta (holdings; domestic)	1.0	1.0

International Equity Sector Distribution  
vs MSCI ACWI ex USA

	Portfolio Q3-19	Index Q3-19
<b>Sector Distribution</b>		
Energy	5.0	6.8
Materials	5.0	7.5
Industrials	10.6	12.0
Consumer Discretionary	13.8	11.4
Consumer Staples	13.3	10.0
Health Care	7.2	8.4
Financials	17.6	21.8
Information Technology	11.0	8.8
Communication Services	10.3	6.9
Utilities	2.0	3.5
Real Estate	3.1	3.2

## Top Holdings

SAMSUNG ELECTRONICS	1.9%
TENCENT HOLDINGS	1.4%
AIA GROUP	1.3%
TAIWAN SEMICON.SPN.ADR 1:5	1.3%
NESTLE 'R'	1.2%
HDFC BANK ADR 1:3	1.2%
CHINA MOBILE	1.1%
ALIBABA GROUP HOLDING ADR 1:8	1.0%
LI NING	0.9%
RELIANCE INDUSTRIES GDR	0.9%

## Best Performers

	Return %
BEIJING CHUNLIZHENGDA MED.INSTS.'H'	148.2%
SUNREX TECHNOLOGY	90.5%
AVALUE TECHNOLOGY	77.1%
PERION NETWORK	68.0%
ADVANTEST	60.5%
REAL MATTERS	59.1%
NICKEL MINES	58.6%
LASERTEC	57.8%
MIGROS TICARET	57.2%
PINDUODUO ADR 1:4	56.2%

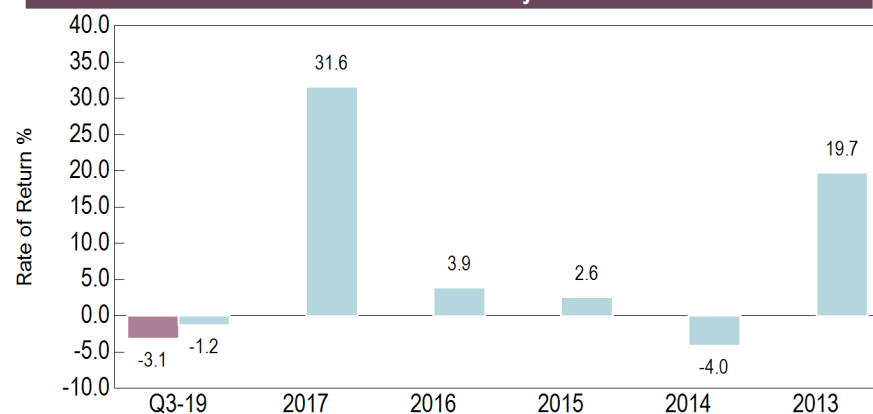
## Worst Performers

	Return %
JUMIA TECHS.AMER. DEPY. SHS.1:2	-70.0%
PGG WRIGHTSON	-57.1%
HARBIN ELECTRIC 'H'	-48.2%
NORANDA INCOME FUND UNITS A	-46.7%
PENDRAGON	-45.6%
MICRO FOCUS INTL.	-44.4%
XIWANG SPECIAL STEEL CO.	-42.7%
FERREXPO	-42.3%
PRECISION DRILLING	-39.0%
YANGZIJIANG SHIPBUILDING (HOLDINGS)	-38.6%

# Acadian ACWI ex U.S. Small Cap Equity

As of September 30, 2019

## Return Summary

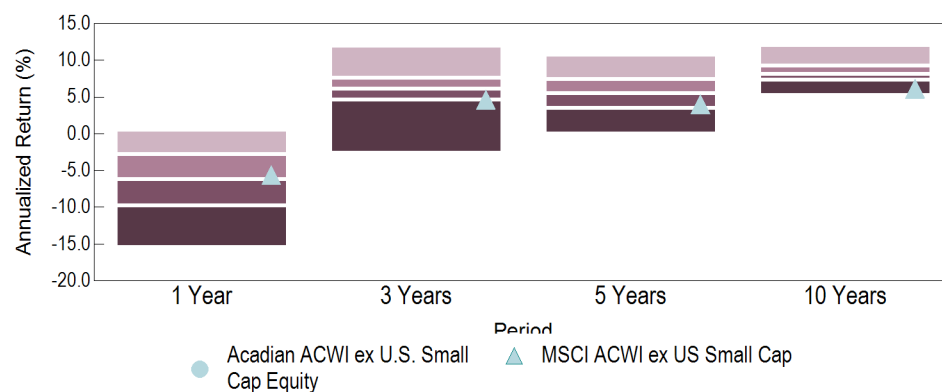
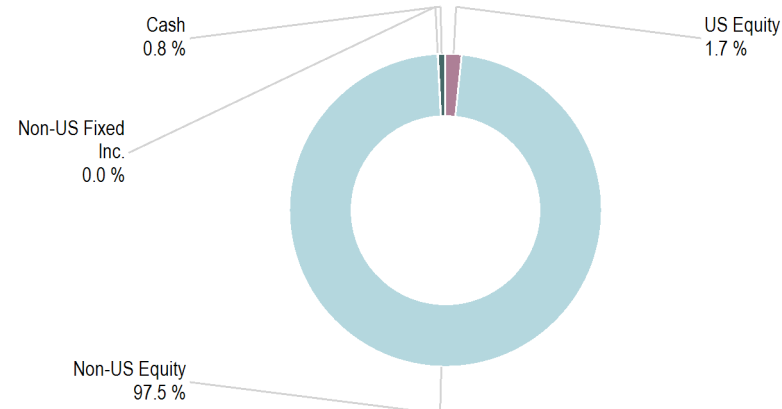


Acadian ACWI ex U.S. Small Cap Equity

MSCI ACWI ex US Small Cap

	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Acadian ACWI ex U.S. Small Cap Equity	--	--	--	--
MSCI ACWI ex US Small Cap	-5.6	4.6	4.0	6.1
eV ACWI ex-US Small Cap Equity Net Median	-6.1	6.2	5.6	8.2
eV ACWI ex-US Small Cap Equity Net Rank	--	--	--	--

## Current Allocation



## Acadian ACWI ex U.S. Small Cap Equity

As of September 30, 2019

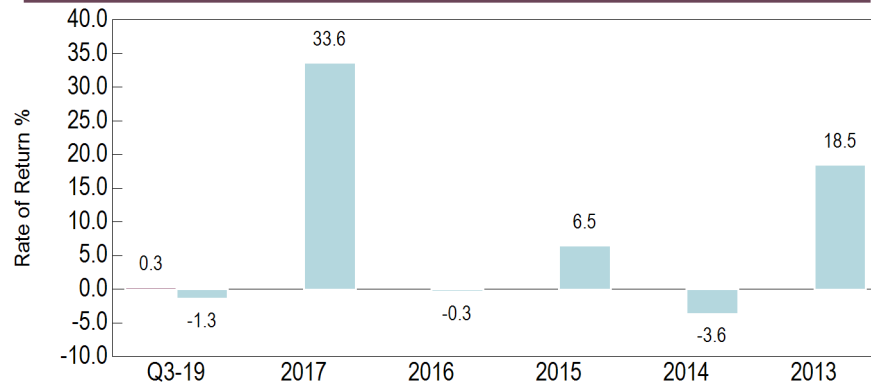
Account Information		Account Characteristics		Sector Distribution			
Account Name	Acadian ACWI ex U.S. Small Cap Equity	Portfolio	Index	Portfolio	Index		
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Active	Characteristics		Sector Distribution			
Inception Date	5/01/19	Weighted Avg.	2.0	2.5	Energy	3.0	3.8
Account Type	International	Market Cap. (\$B)			Materials	11.3	9.6
Benchmark	MSCI ACWI ex US Small Cap	Median Market Cap (\$B)	0.3	1.0	Industrials	11.4	20.6
Universe	eV ACWI ex-US Small Cap Equity Net	P/E Ratio	10.4	15.6	Consumer Discretionary	10.8	12.1
		Yield	3.2	2.8	Consumer Staples	2.1	6.2
		EPS Growth - 5 Yrs.	15.0	11.0	Health Care	9.0	6.9
		Price to Book	2.1	2.1	Financials	17.3	10.3
		Beta (holdings; domestic)	0.9	0.9	Information Technology	17.3	9.1
					Communication Services	5.5	4.9
					Utilities	1.4	3.0
					Real Estate	7.2	13.3

Top Holdings		Best Performers		Worst Performers	
IA FINANCIAL	1.8%		Return %		Return %
CANADIAN WESTERN BANK	1.8%	BEIJING CHUNLIZHENGDA MED.INSTS.'H'	148.2%	PGG WRIGHTSON	-57.1%
ASR NEDERLAND	1.7%	SUNREX TECHNOLOGY	90.5%	HARBIN ELECTRIC 'H'	-48.2%
QUEBECOR 'B'	1.6%	AVALUE TECHNOLOGY	77.1%	NORANDA INCOME FUND UNITS A	-46.7%
DISCOUNT	1.3%	PERION NETWORK	68.0%	PENDRAGON	-45.6%
EVOLUTION MINING	1.2%	REAL MATTERS	59.1%	XIWANG SPECIAL STEEL CO.	-42.7%
UNIPOL GRUPPO FINANZIARI	1.2%	NICKEL MINES	58.6%	FERREXPO	-42.3%
CYBER ARK SOFTWARE	1.1%	CODAN	56.0%	PRECISION DRILLING	-39.0%
EVRAZ	1.1%	TOYO SECURITIES	55.4%	PROACT IT GROUP	-38.5%
DAR ALARKAN RLST.DEV.	1.1%	BUSINESS ENGINEERING	50.1%	GROUPE OPEN	-36.8%
		ECKERT & ZIEGLER STRAHLEN & MEDZI.	48.1%	MCBRIDE	-35.4%

Driehaus International Small Cap Growth

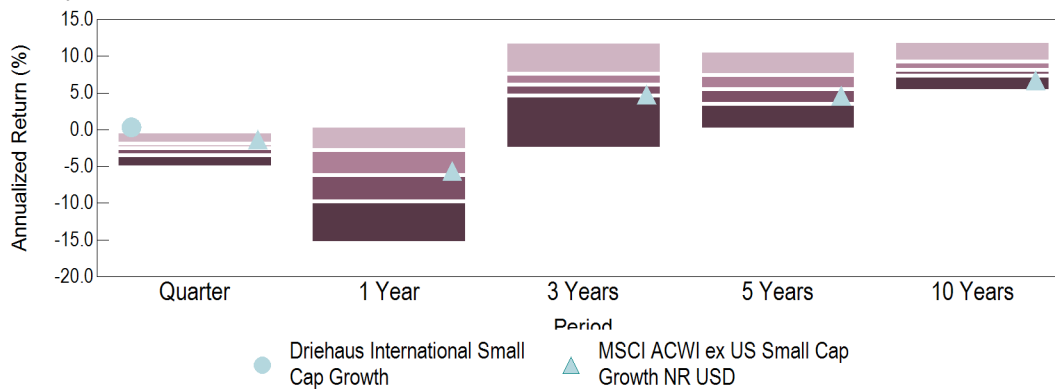
As of September 30, 2019

Return Summary

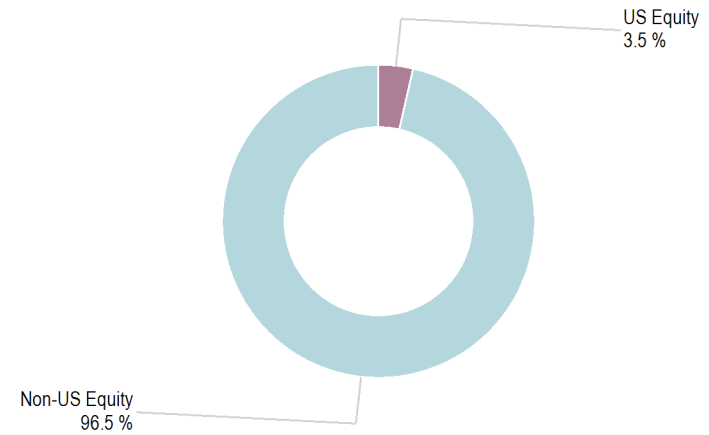


■ Driehaus International Small Cap Growth  
■ MSCI ACWI ex US Small Cap Growth NR USD

	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Driehaus International Small Cap Growth	0.3	--	--	--	--
MSCI ACWI ex US Small Cap Growth NR USD	-1.3	-5.6	4.8	4.6	6.7
eV ACWI ex-US Small Cap Equity Net Median	-2.5	-6.1	6.2	5.6	8.2
eV ACWI ex-US Small Cap Equity Net Rank	2	--	--	--	--



Current Allocation



## Driehaus International Small Cap Growth

As of September 30, 2019

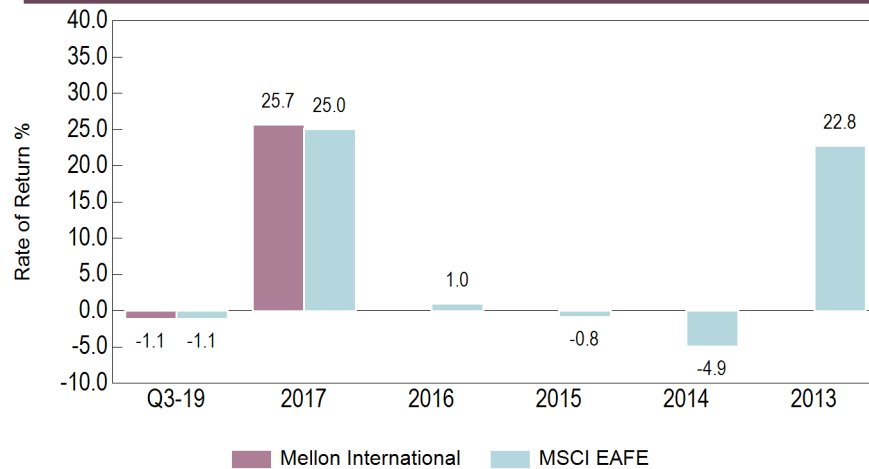
Account Information		Account Characteristics		Sector Distribution	
Account Name	Driehaus International Small Cap Growth	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	5/01/19	Weighted Avg.	4.6	Energy	2.7
Account Type	International	Market Cap. (\$B)	2.5	Materials	5.6
Benchmark	MSCI ACWI ex US Small Cap Growth NR USD	Median Market Cap (\$B)	3.5	Industrials	23.2
Universe	eV ACWI ex-US Small Cap Equity Net	P/E Ratio	23.2	Consumer Discretionary	11.9
		Yield	1.5	Consumer Staples	8.1
		EPS Growth - 5 Yrs.	13.6	Health Care	10.1
		Price to Book	3.4	Financials	4.1
		Beta (holdings; domestic)	0.9	Information Technology	19.5
				Communication Services	10.1
				Utilities	0.0
				Real Estate	3.7
					13.3

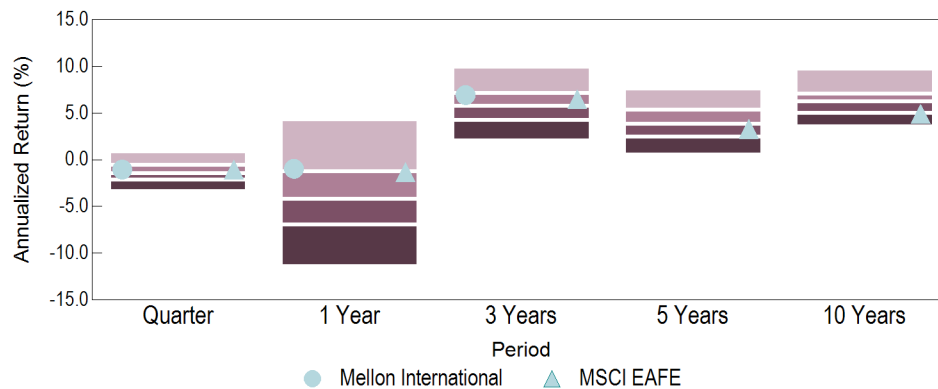
Top Holdings		Best Performers		Worst Performers	
CELLNEX TELECOM	2.3%		Return %		Return %
PARKLAND FUEL	2.0%	BEIJING CHUNLIZHENGDA MED.INSTS.'H'	148.2%	CIMC ENRIC HOLDINGS	-28.7%
LEONARDO	1.9%	LASERTEC	57.8%	OXFORD BIOMEDICA	-24.3%
SCOUT24 (XET)	1.9%	MIGROS TICARET	57.2%	CYBER ARK SOFTWARE	-21.9%
KINAXIS	1.7%	SQUARE ENIX HOLDINGS	52.0%	ZHUZHOU CRRC TIMES ELECTRIC 'H'	-21.4%
SQUARE ENIX HOLDINGS	1.6%	WIN SEMICONDUCTORS	43.4%	PICK N PAY STORES	-19.7%
CONSTELLUM SE A	1.6%	ASM INTERNATIONAL	41.2%	QIAGEN (FRA)	-19.3%
TOKYO TATEMONO	1.6%	ENTERTAINMENT ONE (DI)	38.5%	ARGENX	-19.1%
NET ONE SYSTEMS	1.5%	PEGASUS HAVA TASIMACILIGI A LTD.	36.4%	VESUVIUS	-18.5%
LI NING	1.5%	MEGAPORT	33.8%	CCL INDS.'B'	-17.6%
		CONSTELLUM SE A	26.6%	SPIRAX-SARCO ENGR.	-17.3%



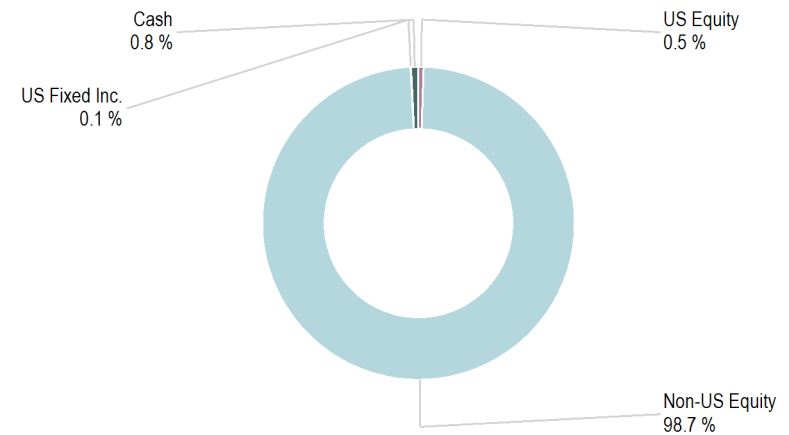
### Return Summary



	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Mellon International	-1.1	-1.0	6.9	--	--
MSCI EAFE	-1.1	-1.3	6.5	3.3	4.9
eV All EAFE Equity Net Median	-1.4	-4.1	5.8	3.9	6.3
eV All EAFE Equity Net Rank	41	24	30	--	--

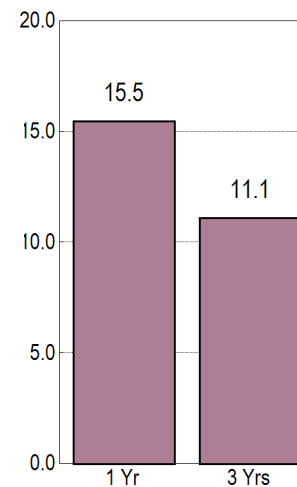


### Current Allocation



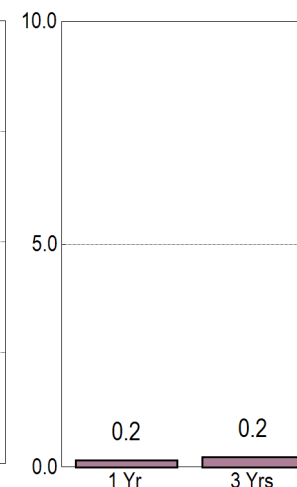
### Anzld. Std. Deviation

#### Mellon International



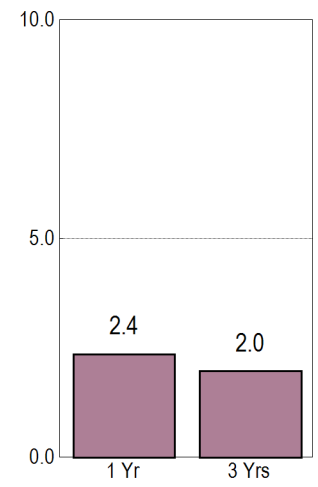
### Tracking Error

#### Mellon International



### Information Ratio

#### Mellon International



## Mellon International

As of September 30, 2019

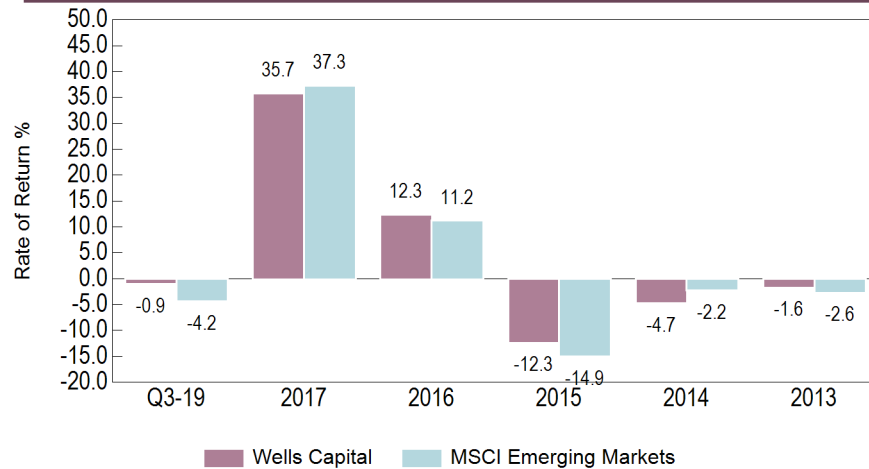
Account Information		Account Characteristics		Sector Distribution	
Account Name	Mellon International	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19
Investment Style	Passive	Characteristics		Sector Distribution	
Inception Date	3/31/16	Weighted Avg.	60.3	Energy	5.1
Account Type	International	Market Cap. (\$B)	59.7	Materials	6.9
Benchmark	MSCI EAFE	Median Market Cap (\$B)	9.9	Industrials	14.6
Universe	eV All EAFE Equity Net	P/E Ratio	15.9	Consumer Discretionary	11.2
		Yield	3.3	Consumer Staples	11.9
		EPS Growth - 5 Yrs.	7.0	Health Care	11.5
		Price to Book	2.3	Financials	18.4
		Beta (holdings; domestic)	1.0	Information Technology	6.7
				Communication Services	5.3
				Utilities	3.8
				Real Estate	3.5

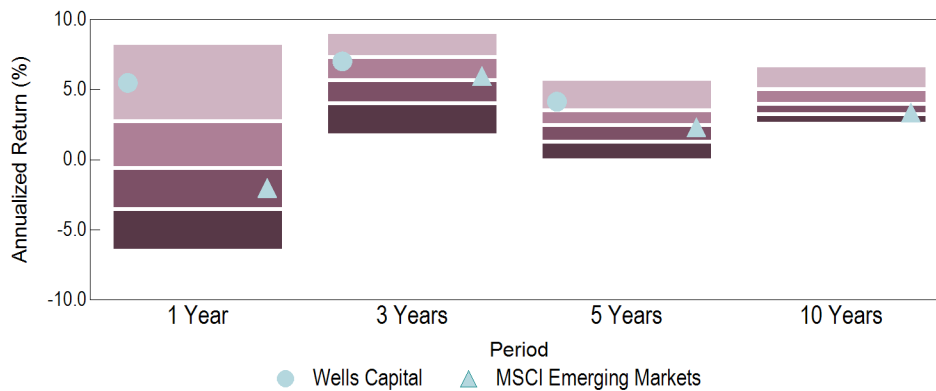
Top Holdings		Best Performers		Worst Performers	
NESTLE 'R'	2.4%		Return %		Return %
ROCHE HOLDING	1.5%	ADVANTEST	60.5%	MICRO FOCUS INTL.	-44.4%
NOVARTIS 'R'	1.3%	CASINO GUICHARD-P	39.7%	YANGZIJIANG SHIPBUILDING (HOLDINGS)	-38.6%
HSBC HOLDINGS	1.1%	TOKYO ELECTRON	36.9%	CIMIC GROUP	-31.0%
TOYOTA MOTOR	1.1%	NIPPON PAINT HOLDINGS	33.8%	IPSEN	-30.5%
BP	0.9%	LENLEASE GROUP STAPLED UNITS	32.2%	EVRAZ	-28.0%
ROYAL DUTCH SHELL A(LON)	0.9%	M3	31.7%	AIB GROUP	-27.5%
TOTAL	0.9%	RENESAS ELECTRONICS	30.8%	KONICA MINOLTA	-27.1%
ASTRAZENECA	0.8%	LONDON STOCK EX.GROUP	29.4%	TEVA PHARM.INDS.ADR 1:1	-25.5%
SAP	0.8%	BANDAI NAMCO HDG.	28.7%	KERRY PROPERTIES	-25.5%
		KAKAKU.COM	28.4%	YAMATO HDG.	-25.4%

As of September 30, 2019

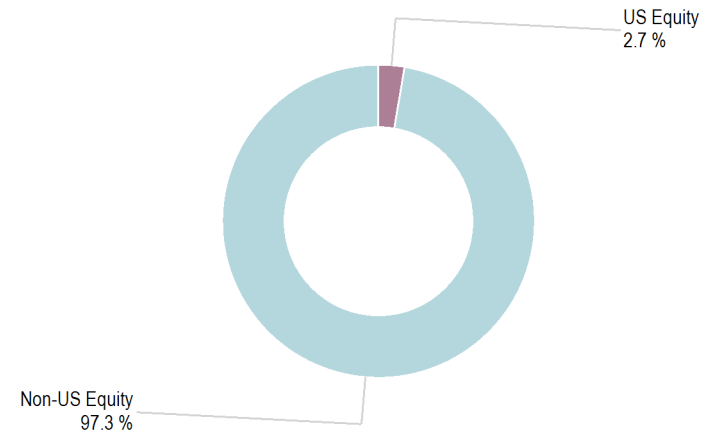
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Wells Capital	5.5	7.0	4.1	--
MSCI Emerging Markets	-2.0	6.0	2.3	3.4
eV Emg Mkts Equity Net Median	-0.6	5.7	2.5	4.0
eV Emg Mkts Equity Net Rank	11	30	20	--

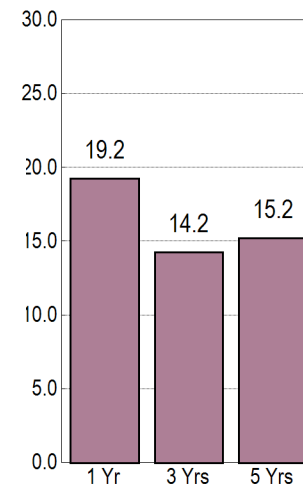


### Current Allocation



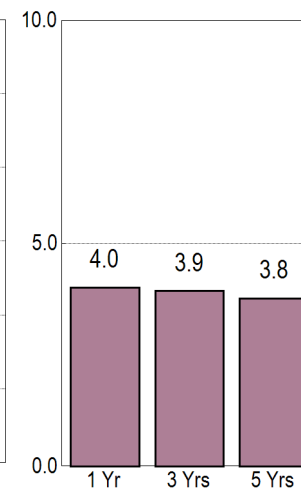
### Anzld. Std. Deviation

#### Wells Capital



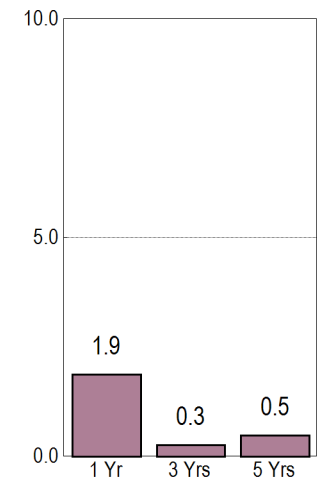
### Tracking Error

#### Wells Capital



### Information Ratio

#### Wells Capital



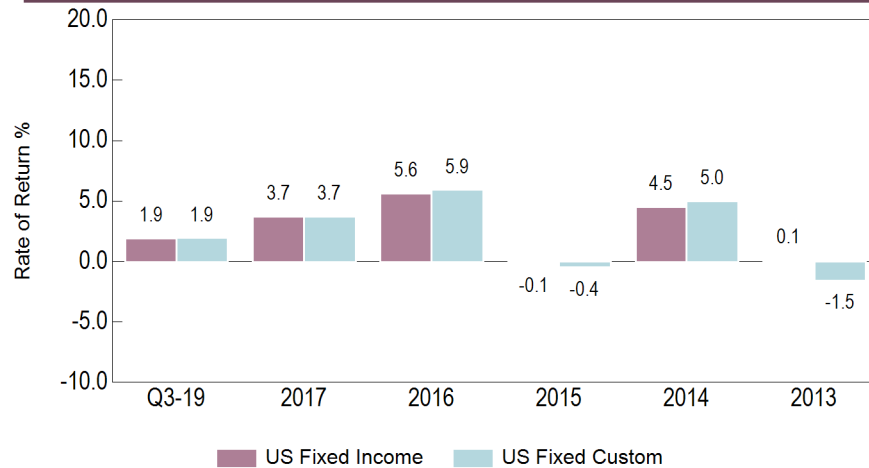
As of September 30, 2019

Account Information		Account Characteristics		Sector Distribution	
Account Name	Wells Capital	Portfolio	Index	Portfolio	Index
Account Structure	Commingled Fund	Q3-19	Q3-19	Q3-19	Q3-19
Investment Style	Active	Characteristics		Sector Distribution	
Inception Date	3/31/12	Weighted Avg.	77.8	Energy	5.6
Account Type	International Emerging Stocks	Market Cap. (\$B)	80.2	Materials	1.3
Benchmark	MSCI Emerging Markets	Median Market Cap (\$B)	9.9	Industrials	3.1
Universe	eV Emg Mkts Equity Net	P/E Ratio	17.6	Consumer Discretionary	18.2
		Yield	2.6	Consumer Staples	17.7
		EPS Growth - 5 Yrs.	7.9	Health Care	0.7
		Price to Book	2.7	Financials	18.6
		Beta (holdings; domestic)	1.0	Information Technology	14.5
				Communication Services	17.8
				Utilities	0.0
				Real Estate	1.8
					2.9

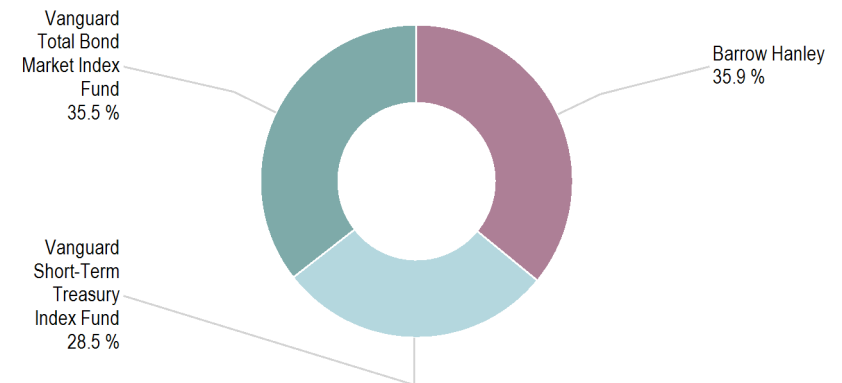
  

Top Holdings		Best Performers		Worst Performers	
SAMSUNG ELECTRONICS	5.0%		Return %		Return %
TENCENT HOLDINGS	3.7%	PINDUODUO ADR 1:4	56.2%	JUMIA TECHS.AMER. DEPY. SHS.1:2	-70.0%
TAIWAN SEMICON.SPN.ADR 1:5	3.4%	B2W COMPANHIA DIGITAL ON	37.6%	FINVOLUTION GROUP ADR 1:5	-33.3%
HDFC BANK ADR 1:3	3.2%	NAVER	32.9%	JIANPU TECHNOLOGY ADR 2:5	-33.2%
CHINA MOBILE	3.0%	CHINA MEIDONG AUTO HDG.	28.2%	CHINA LITERATURE	-27.8%
ALIBABA GROUP HOLDING ADR 1:8	2.6%	HAPVIDA PARTP.E INVMS.ON	26.2%	SHOPRITE	-26.6%
RELIANCE INDUSTRIES GDR	2.4%	LI NING	21.7%	GREENTREE HOSPLTY. GP. ADR 1:1	-23.1%
AIA GROUP	2.3%	MEDIATEK	21.0%	IQIYI ADS.1:7 ADR	-21.9%
LI NING	2.3%	BRF SPONSORED ADR 1:1	20.5%	TRIP COM GROUP ADR 8:1	-20.6%
UNI-PRESIDENT ENTS.	2.1%	TAIWAN SEMICON.SPN.ADR 1:5	19.5%	SAMSUNG LIFE INSURANCE	-17.9%
		HEADHUNTER GROUP ADR 1:1	18.7%	BNC.STDR.M XICO INSTITUCI N DBA.M LTIPL	-17.6%

### Return Summary



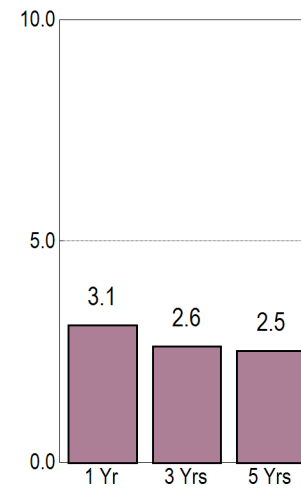
### Current Allocation



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>US Fixed Income</b>	<b>8.7</b>	<b>3.3</b>	<b>3.5</b>	<b>4.3</b>
US Fixed Custom	9.2	3.4	3.7	3.9
InvMetrics All DB US Fix Inc Net Median	8.5	3.4	3.5	4.5
InvMetrics All DB US Fix Inc Net Rank	49	56	50	59

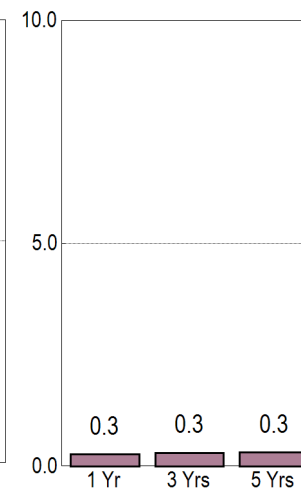
### Anzld. Std. Deviation

#### US Fixed Income



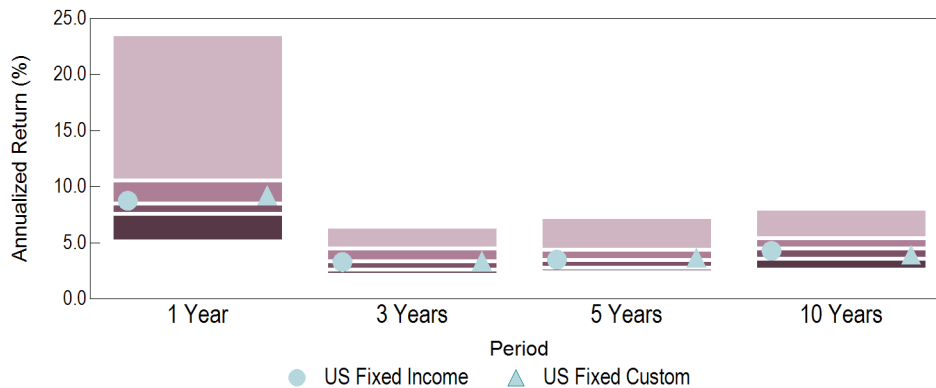
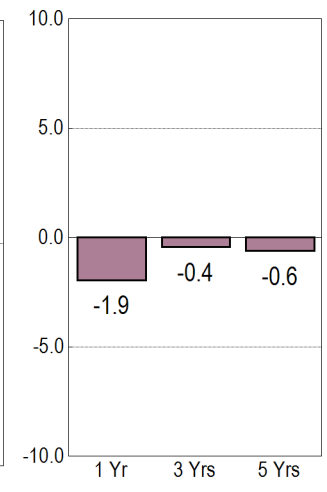
### Tracking Error

#### US Fixed Income



### Information Ratio

#### US Fixed Income



## US Fixed Income

As of September 30, 2019

**US Fixed Income Fixed Income Characteristics**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q3-19	Q3-19	Q2-19	Q2-19
<b>Fixed Income Characteristics</b>				
Yield to Maturity	2.13	2.27	2.33	2.42
Average Duration	4.81	6.32	4.74	6.14
Average Quality	AA	AA	AA	AA
Weighted Average Maturity	8.14	13.11	8.13	13.01

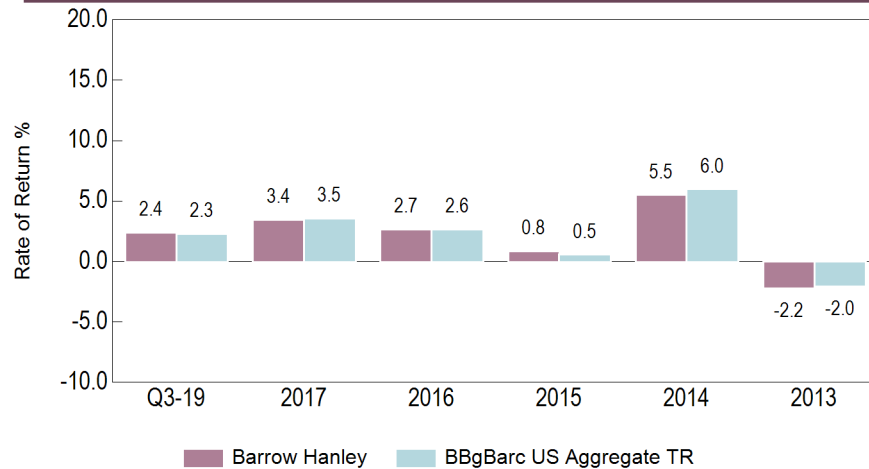
**US Fixed Income Fixed Income Duration**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q3-19	Q3-19	Q2-19	Q2-19
<b>Credit Quality Allocation</b>				
AAA	74.51	71.98	75.27	72.16
AA	2.52	3.46	2.42	3.44
A	10.27	10.68	10.01	10.68
BBB	12.71	13.86	12.30	13.72

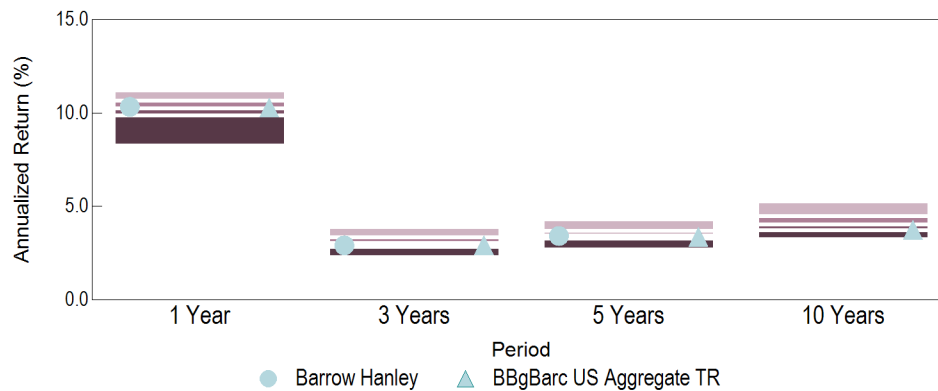
**US Fixed Income Fixed Income Sector Allocation**  
**vs. BBgBarc US Aggregate TR**

	Portfolio	Index	Portfolio	Index
	Q3-19	Q3-19	Q2-19	Q2-19
<b>US Sector Allocation</b>				
UST/Agency	52.10	42.29	51.59	42.04
Corporate	23.06	25.15	22.49	25.00
MBS	19.50	28.87	20.27	29.22
ABS	2.41	0.45	2.54	0.46
Foreign	2.36	2.31	1.93	2.35
Muni	--	0.93	0.65	0.92
Other	0.02	--	0.02	--
Cash	0.54	--	0.52	--

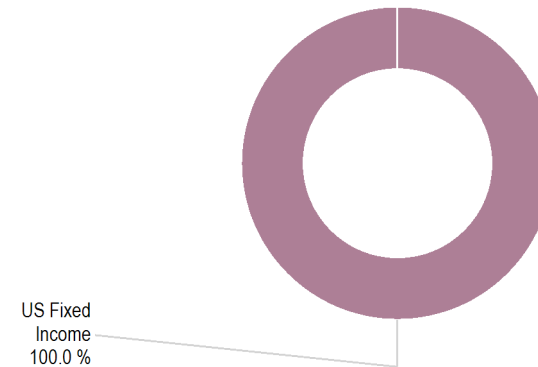
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Barrow Hanley	10.3	2.9	3.4	--
BBgBarc US Aggregate TR	10.3	2.9	3.4	3.7
eV US Core Fixed Inc Net Median	10.3	3.1	3.5	4.0
eV US Core Fixed Inc Net Rank	46	68	57	--

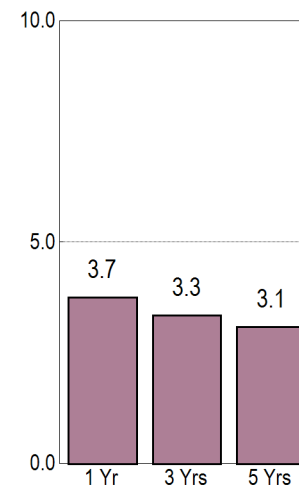


### Current Allocation



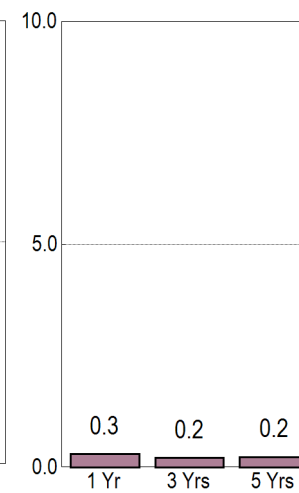
### Anzld. Std. Deviation

Barrow Hanley



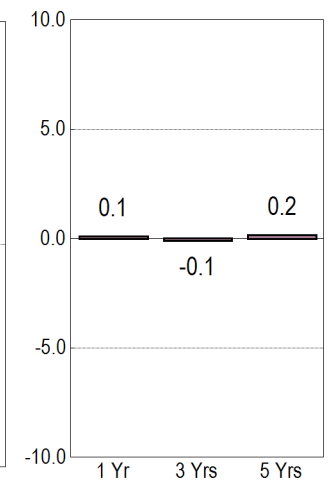
### Tracking Error

Barrow Hanley



### Information Ratio

Barrow Hanley



As of September 30, 2019

Account Information		Fixed Income Characteristics		Fixed Income Characteristics			
Account Name	Barrow Hanley	Portfolio	Index	Portfolio	Index		
Account Structure	Separate Account	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Active						
Inception Date	3/31/10	Fixed Income Characteristics		Credit Quality Allocation			
Account Type	US Fixed Income Core	Yield to Maturity	2.35	2.27	AAA	61.61	71.98
Benchmark	BBgBarc US Aggregate TR	Average Duration	5.75	6.32	AA	3.53	3.46
Universe	eV US Core Fixed Inc Net	Average Quality	AA	AA	A	17.53	10.68
		Weighted Average Maturity	7.99	13.11	BBB	17.34	13.86



## Vanguard Short-Term Treasury Index Fund

As of September 30, 2019

## Description:

The investment seeks to track the performance of a market-weighted government bond index with a short-term dollar-weighted average maturity.

The fund employs an indexing investment approach designed to track the performance of the Bloomberg Barclays US Treasury 1-3 Year Bond Index. This index includes fixed income securities issued by the U.S. Treasury (not including inflation-protected securities), all with maturities between 1 and 3 years. At least 80% of the fund's assets will be invested in bonds included in the index.

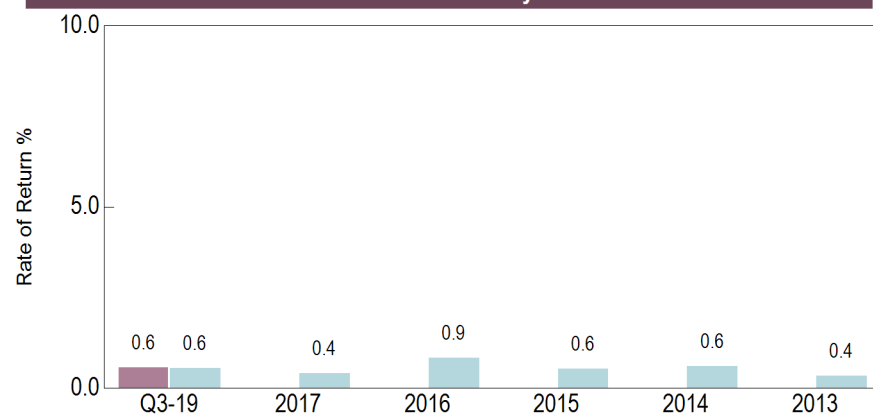
Portfolio Fund Information as of September 30, 2019		Top Holdings as of September 30, 2019		Fund Characteristics as of September 30, 2019	
Ticker	VSBIX	UNITED STATES TREASURY NOTES 1.25%	2.46%	Sharpe Ratio (3 Year)	
Morningstar Category	Short Government	UNITED STATES TREASURY NOTES 2.25%	2.28%	Average Duration	1.91
Average Market Cap (\$mm)		UNITED STATES TREASURY NOTES 2.62%	2.24%	Effective Duration	1.91
Net Assets (\$mm)	981.91	UNITED STATES TREASURY NOTES 1.38%	2.13%	Modified Duration	
% Assets in Top 10 Holdings	21.07	UNITED STATES TREASURY NOTES 1.75%	2.12%	Average Coupon	2.01%
Total Number of Holdings	94	UNITED STATES TREASURY NOTES 1.75%	2.10%	Average Effective Maturity	2.00
Manager Name	Joshua C. Barrickman	UNITED STATES TREASURY NOTES 1.88%	1.99%	R-Squared (3 Year)	
Manager Tenure	7	UNITED STATES TREASURY NOTES 2.12%	1.97%	Alpha (3 Year)	
Expense Ratio	0.05%	UNITED STATES TREASURY NOTES 1.75%	1.91%	Beta (3 Year)	
Closed to New Investors	No	UNITED STATES TREASURY NOTES 1.25%	1.87%		

Maturities as of September 30, 2019		Fixed Income Sectors as of September 30, 2019		Credit Quality as of September 30, 2019	
1 to 3 Years	99.02%	GOVERNMENT	99.66%	AAA	99.66%
3 to 5 Years	0.98%	MUNICIPAL	0.00%	AA	0.00%
5 to 7 Years	0.00%	CORPORATE	0.00%	A	0.00%
7 to 10 Years	0.00%	SECURITIZED	0.00%	BBB	0.34%
10 to 15 Years	0.00%	CASH & EQUIVALENTS	0.34%	BB	0.00%
15 to 20 Years	0.00%	DERIVATIVE	0.00%	B	0.00%
20 to 30 Years	0.00%			Below B	0.00%
Greater than 30 Years	0.00%			Not Rated	0.00%

## Vanguard Short-Term Treasury Index Fund

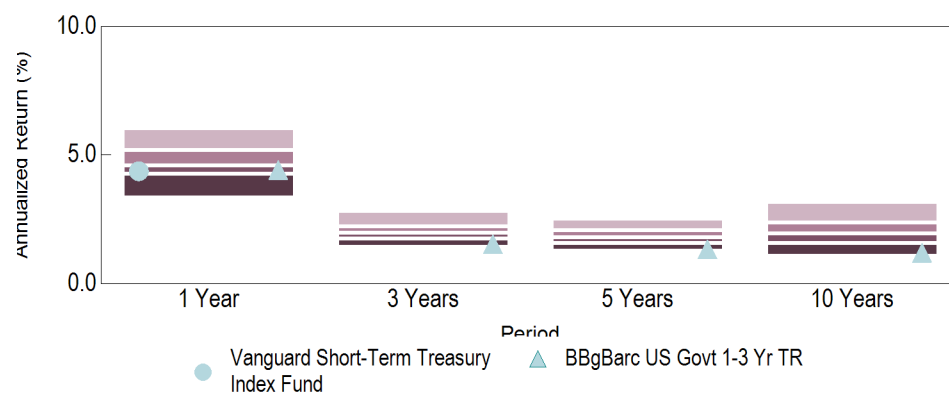
As of September 30, 2019

## Return Summary



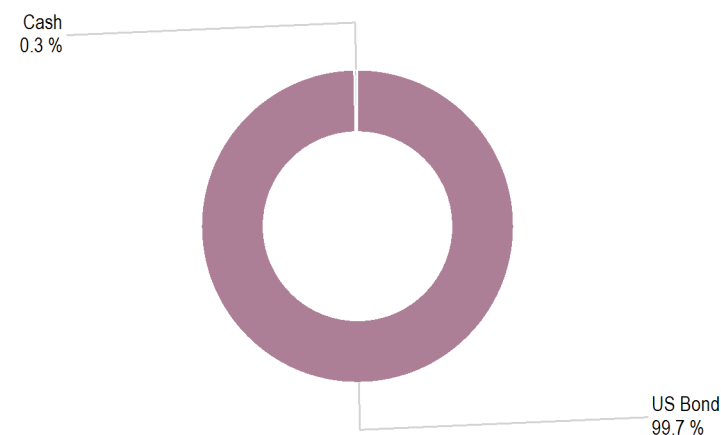
Vanguard Short-Term Treasury Index Fund BBgBarc US Govt 1-3 Yr TR

	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Vanguard Short-Term Treasury Index Fund	4.4	--	--	--
BBgBarc US Govt 1-3 Yr TR	4.4	1.5	1.3	1.2
eV US Short Duration Fixed Inc Net Median	4.6	2.0	1.8	2.0
eV US Short Duration Fixed Inc Net Rank	71	--	--	--



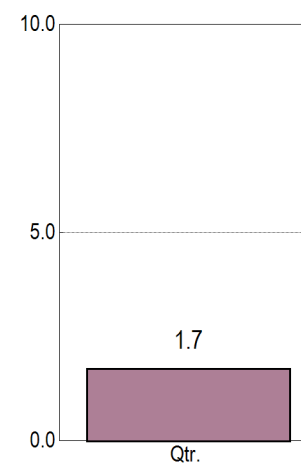
Vanguard Short-Term Treasury Index Fund BBgBarc US Govt 1-3 Yr TR

## Mutual Fund Allocation as of September 30, 2019



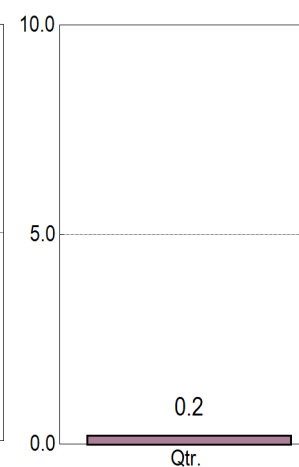
## Anzld. Std. Deviation

Vanguard Short-Term Treasury Index Fund



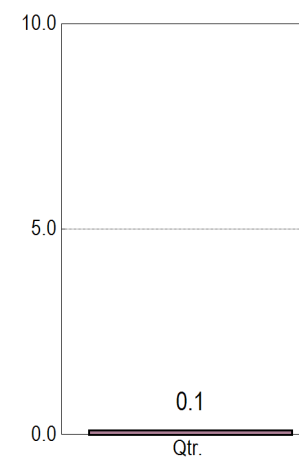
## Tracking Error

Vanguard Short-Term Treasury Index Fund



## Information Ratio

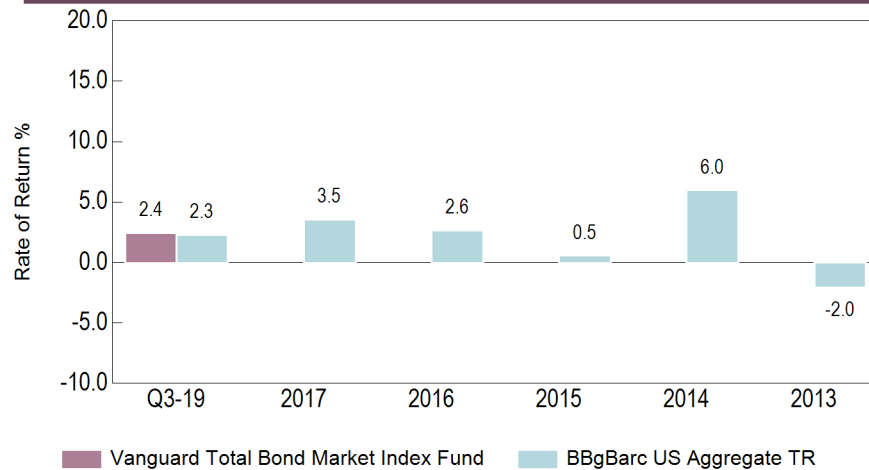
Vanguard Short-Term Treasury Index Fund



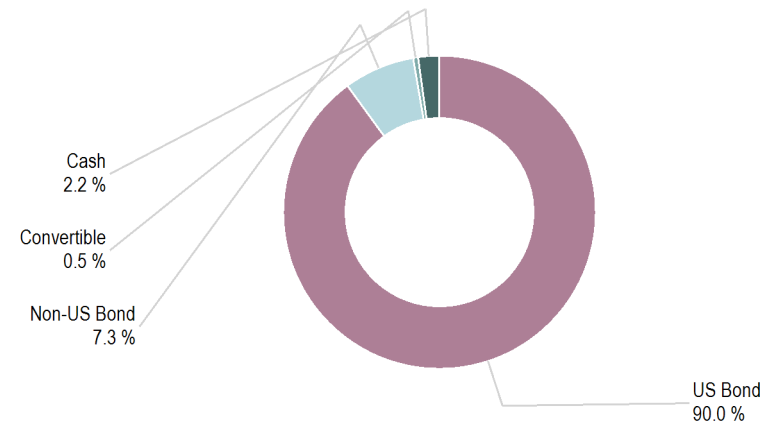
# Vanguard Total Bond Market Index Fund

As of September 30, 2019

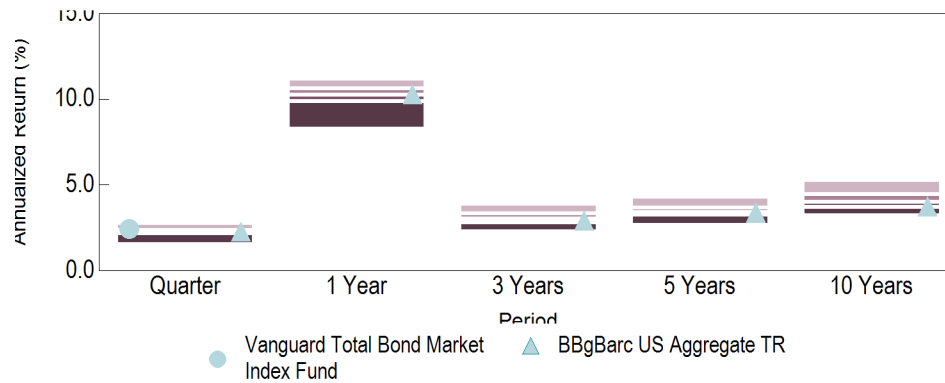
Return Summary



Mutual Fund Allocation as of September 30, 2019



	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Vanguard Total Bond Market Index Fund	2.4	--	--	--	--
BBgBarc US Aggregate TR	2.3	10.3	2.9	3.4	3.7
eV US Core Fixed Inc Net Median	2.3	10.3	3.1	3.5	4.0
eV US Core Fixed Inc Net Rank	20	--	--	--	--

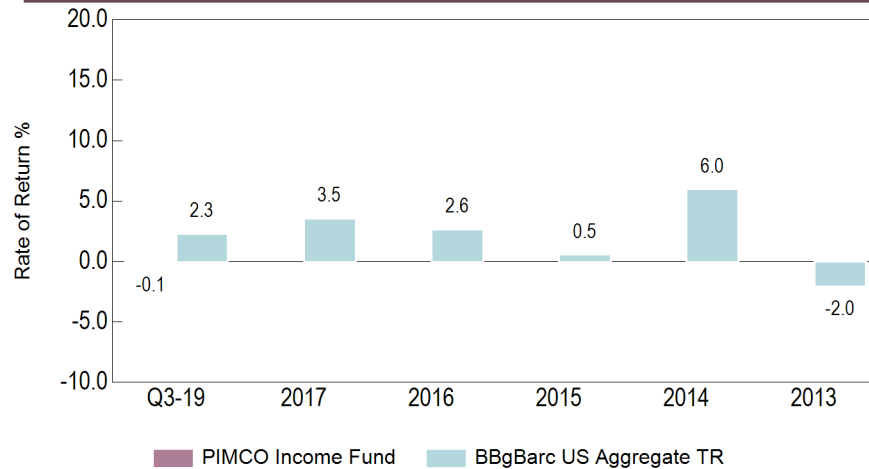


## Vanguard Total Bond Market Index Fund

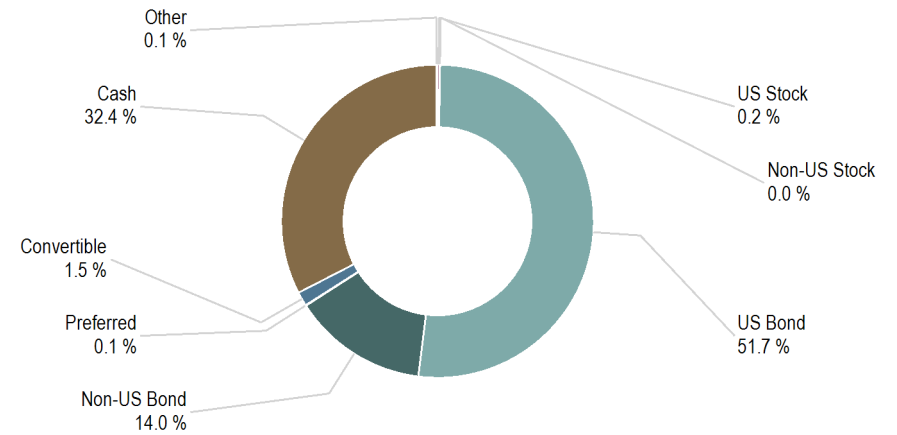
As of September 30, 2019

Account Information		Fixed Income Characteristics		Fixed Income Characteristics			
Account Name	Vanguard Total Bond Market Index Fund	Portfolio	Index	Portfolio	Index		
Account Structure	Mutual Fund	Q3-19	Q3-19	Q3-19	Q3-19		
Investment Style	Passive						
Inception Date	5/01/19	Fixed Income Characteristics		Credit Quality Allocation			
Account Type	US Fixed Income	Yield to Maturity	2.27	2.27	AAA	67.35	71.98
Benchmark	BBgBarc US Aggregate TR	Average Duration	6.20	6.32	AA	3.51	3.46
Universe	eV US Core Fixed Inc Net	Average Quality	AA	AA	A	11.17	10.68
		Weighted Average Maturity	8.30	13.11	BBB	17.97	13.86

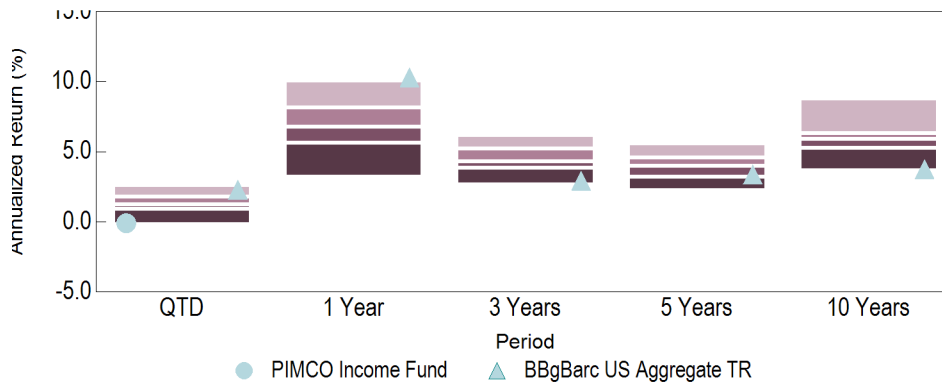
Return Summary



Mutual Fund Allocation as of June 30, 2019



	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
PIMCO Income Fund	-0.1	--	--	--	--
BBgBarc US Aggregate TR	2.3	10.3	2.9	3.4	3.7
Multisector Bond MStar MF Median	1.3	6.8	4.3	4.0	5.9
Multisector Bond MStar MF Rank	95	--	--	--	--



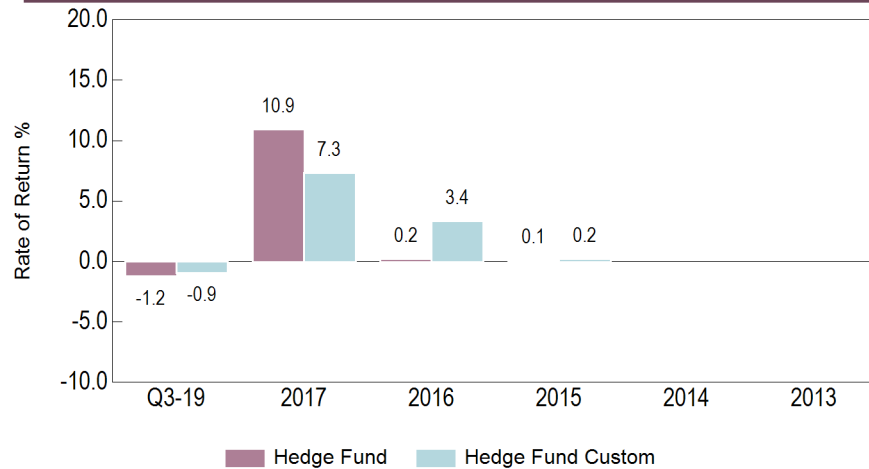
## PIMCO Income Fund

As of September 30, 2019

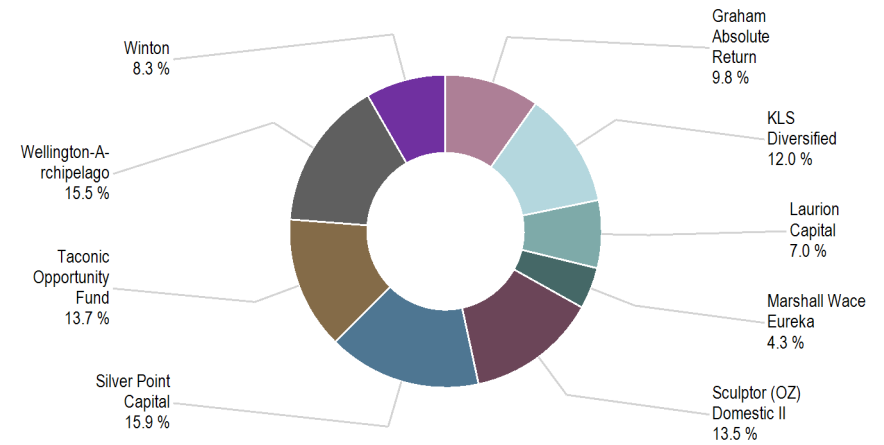
Account Information		Fixed Income Characteristics		Fixed Income Characteristics	
Account Name	PIMCO Income Fund	Portfolio	Index	Portfolio	Index
Account Structure	Mutual Fund	Q3-19	Q3-19	Q3-19	Q3-19
Investment Style	Active	Fixed Income Characteristics		Credit Quality Allocation	
Inception Date	4/30/19	Yield to Maturity	-- 2.27	AAA	36.90 71.98
Account Type	Client Directed Opportunistic	Average Duration	0.41 6.32	AA	4.20 3.46
Benchmark	BBgBarc US Aggregate TR	Average Quality	BBB AA	A	8.80 10.68
Universe	Multisector Bond MStar MF	Weighted Average Maturity	-- 13.11	BBB	9.50 13.86
				BB	12.80 --
				B	14.30 --
				CCC	13.50 --

As of September 30, 2019

### Return Summary



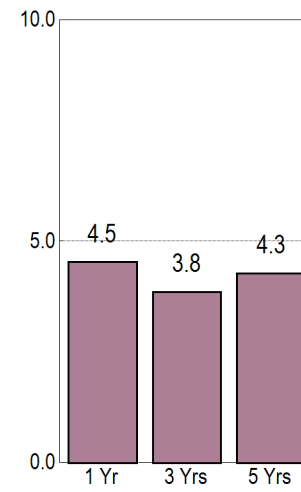
### Current Allocation



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Hedge Fund</b>	<b>-0.1</b>	<b>5.9</b>	<b>3.7</b>	<b>--</b>
Hedge Fund Custom	0.0	3.3	2.6	--
InvMetrics All DB Hedge Funds Net Median	0.3	4.0	2.4	4.2
InvMetrics All DB Hedge Funds Net Rank	55	16	27	--

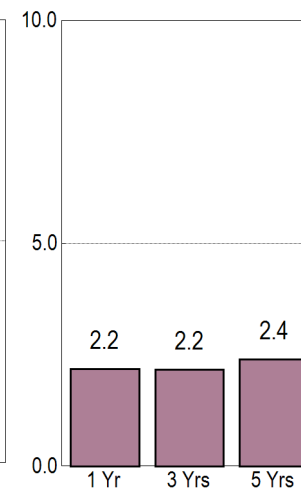
### Anzld. Std. Deviation

#### Hedge Fund



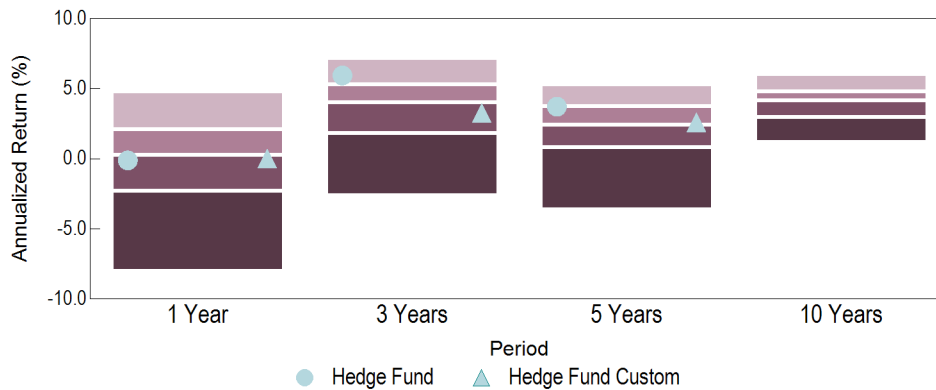
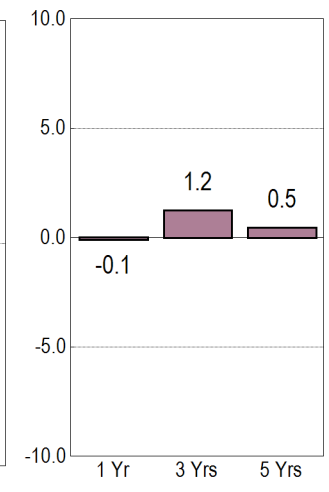
### Tracking Error

#### Hedge Fund



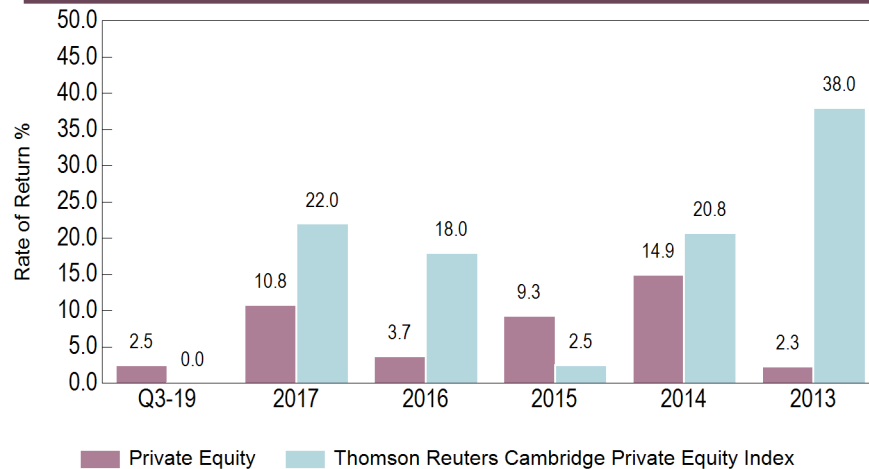
### Information Ratio

#### Hedge Fund

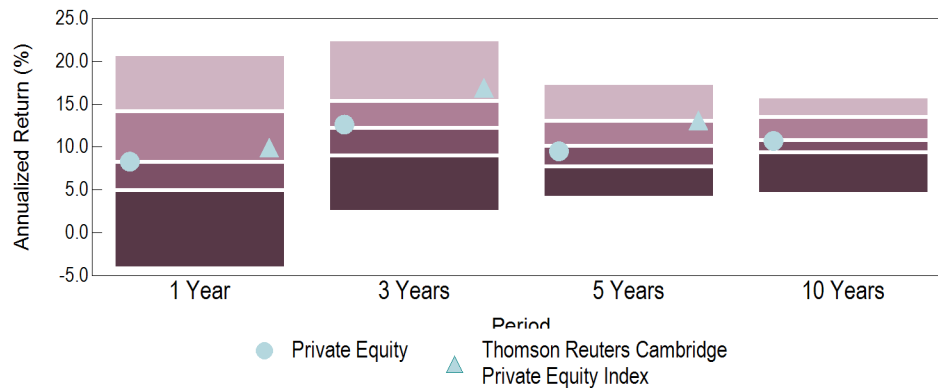


As of September 30, 2019

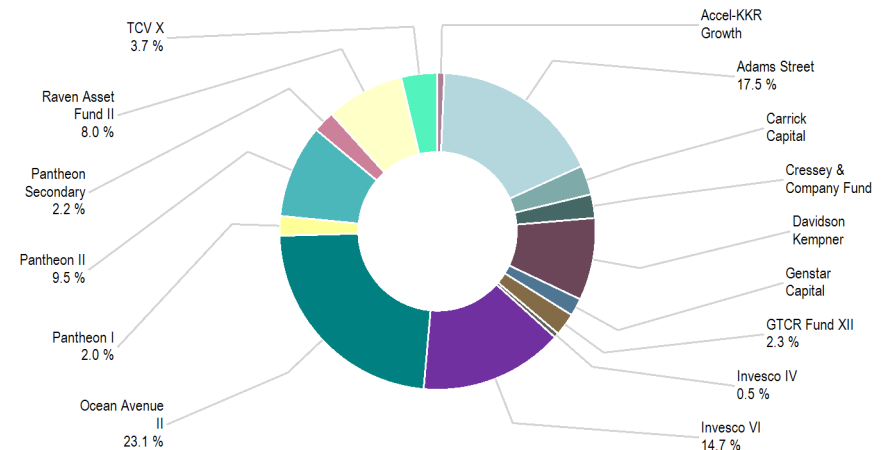
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Private Equity</b>	<b>8.3</b>	<b>12.6</b>	<b>9.5</b>	<b>10.7</b>
Thomson Reuters Cambridge Private Equity Index	9.9	16.9	13.1	--
InvMetrics All DB Private Eq Net Median	8.3	12.2	10.2	10.9
InvMetrics All DB Private Eq Net Rank	50	43	59	55

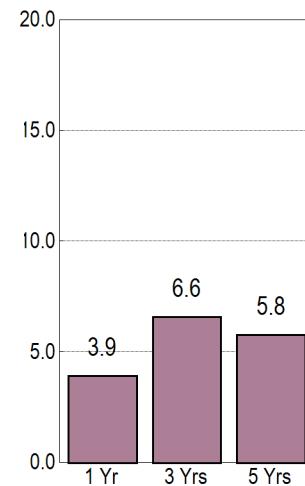


### Current Allocation



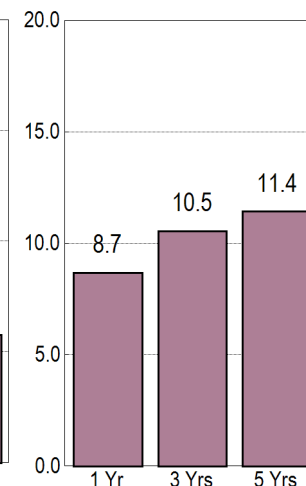
### Anzld. Std. Deviation

Private Equity



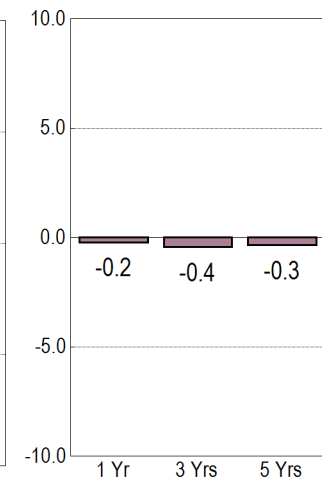
### Tracking Error

Private Equity



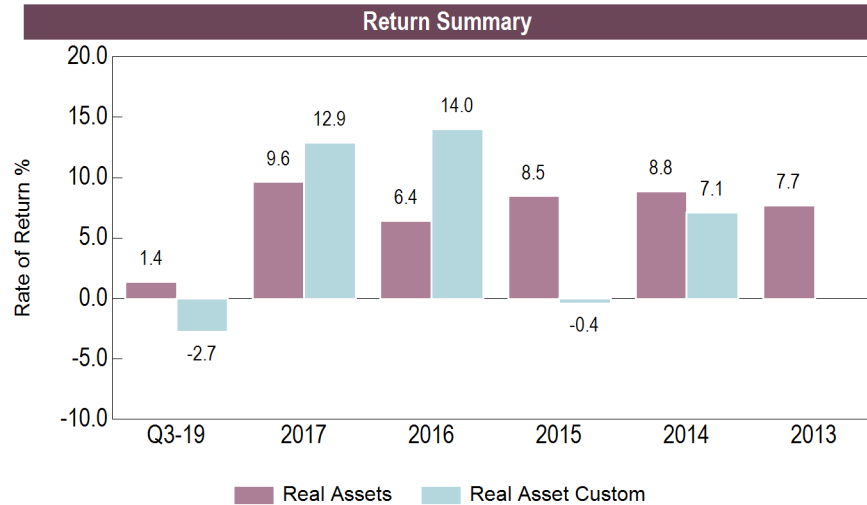
### Information Ratio

Private Equity

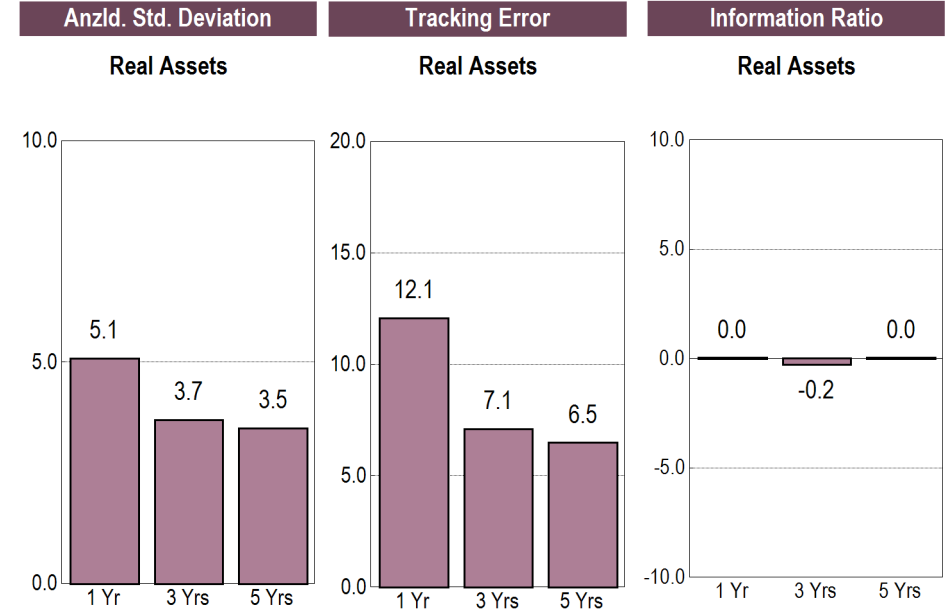
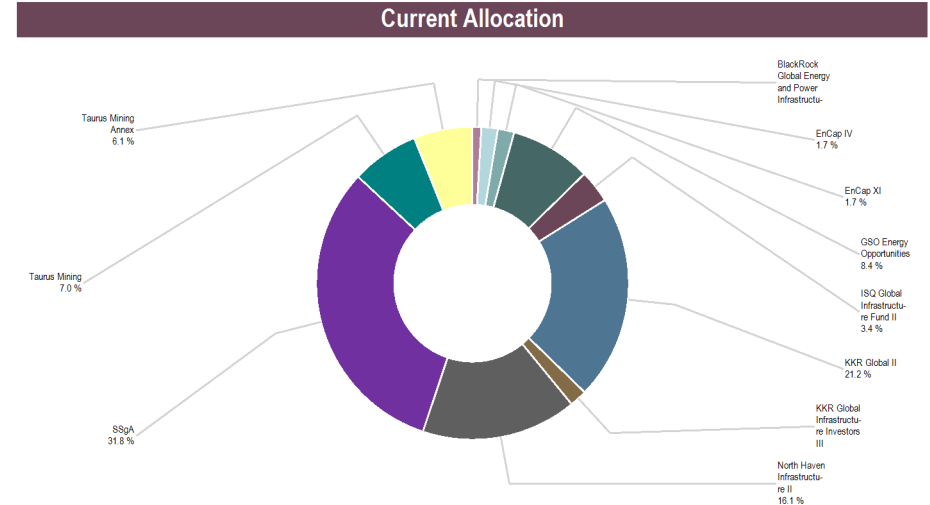




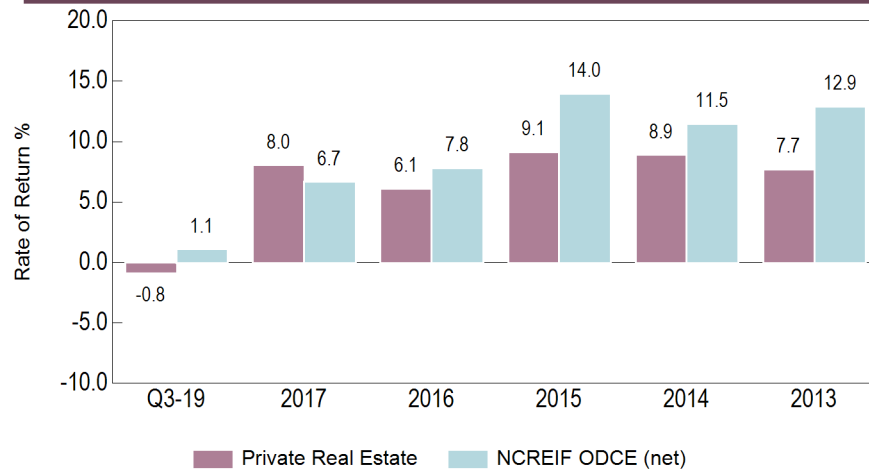
As of September 30, 2019



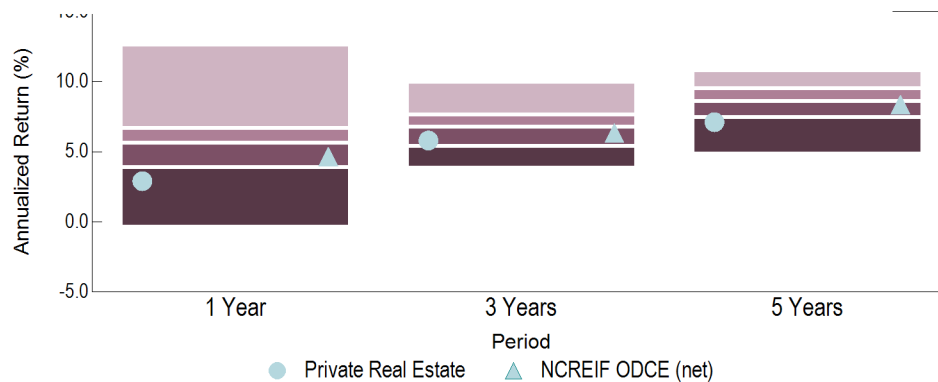
	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Real Assets</b>	<b>9.5</b>	<b>7.3</b>	<b>8.0</b>	<b>--</b>
Real Asset Custom	9.3	9.1	7.7	--
InvMetrics All DB Real Assets/Commodities Net Median	5.1	5.0	3.7	7.6
InvMetrics All DB Real Assets/Commodities Net Rank	14	30	23	--



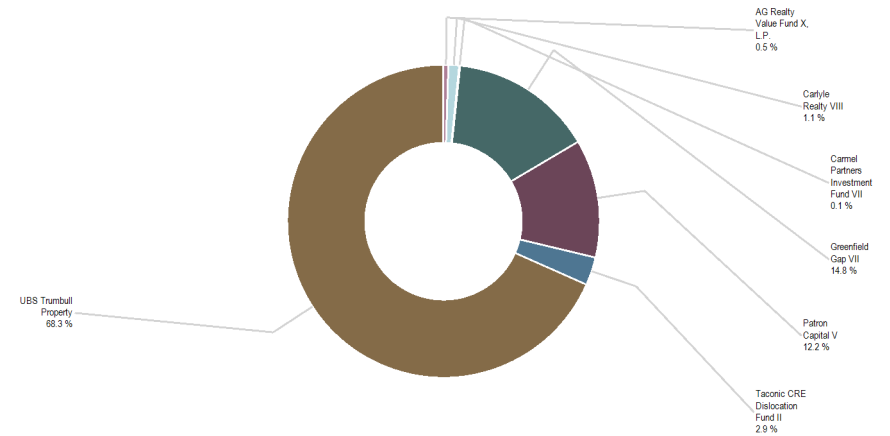
### Return Summary



	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Private Real Estate	2.9	5.8	7.1	--
NCREIF ODCE (net)	4.6	6.3	8.4	9.8
InvMetrics All DB Real Estate Pub+Priv Net Rank	87	68	88	--
InvMetrics All DB Real Estate Pub+Priv Net Median	5.7	6.8	8.6	9.9

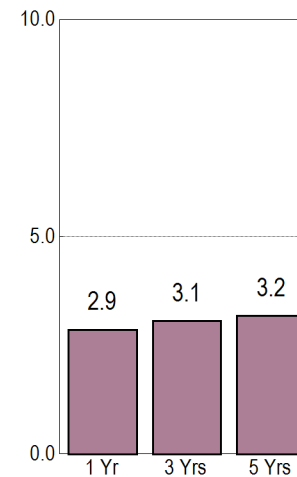


### Current Allocation



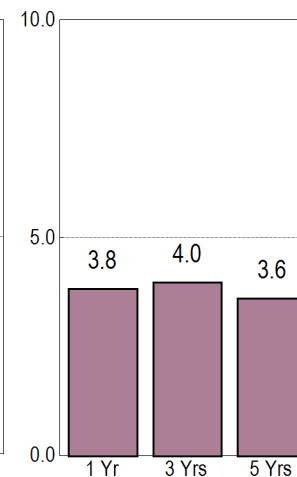
### Anzld. Std. Deviation

#### Private Real Estate



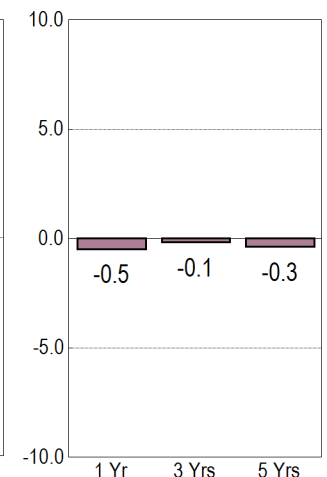
### Tracking Error

#### Private Real Estate

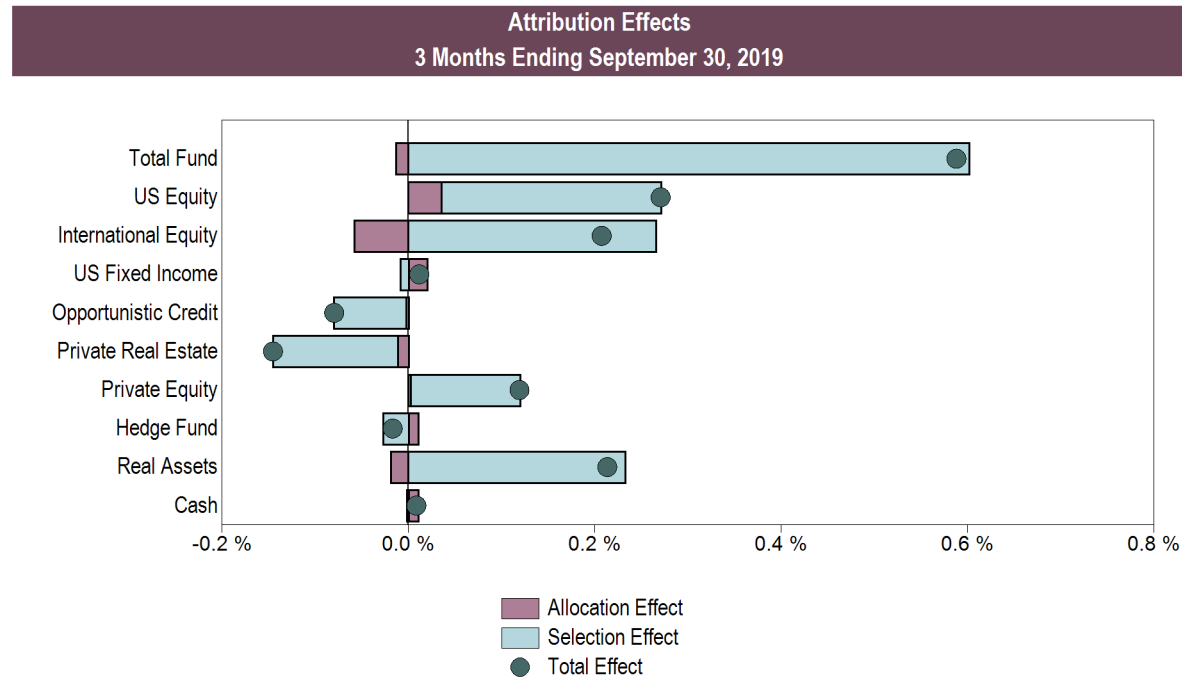


### Information Ratio

#### Private Real Estate



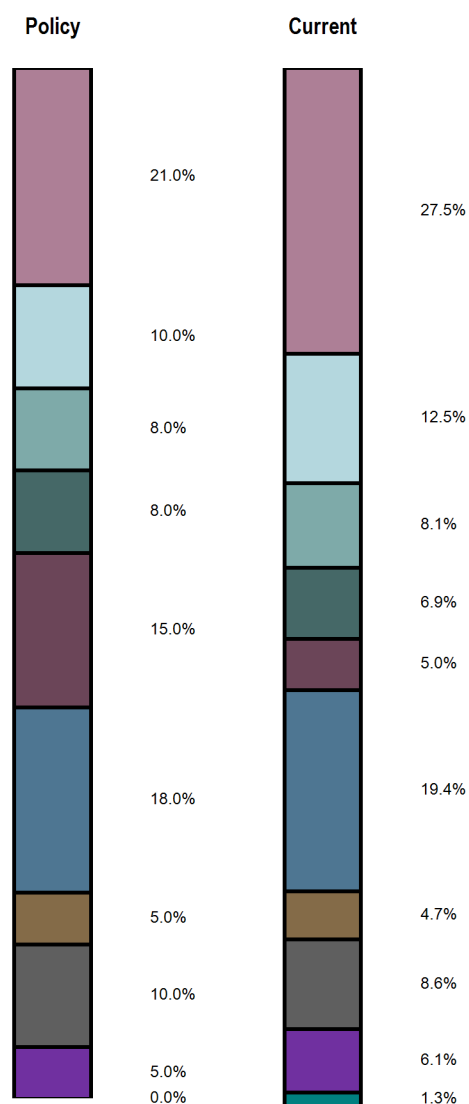
As of September 30, 2019



3 Months Ending September 30, 2019							
	Policy Wtd. Weight	Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
US Equity	21.0%	1.5%	0.7%	0.9%	0.2%	0.0%	0.3%
International Equity	18.0%	-1.0%	-2.4%	1.3%	0.3%	-0.1%	0.2%
US Fixed Income	18.0%	1.9%	1.9%	0.0%	0.0%	0.0%	0.0%
Opportunistic Credit	5.0%	0.1%	1.7%	-1.6%	-0.1%	0.0%	-0.1%
Private Real Estate	8.0%	-0.8%	1.1%	-1.9%	-0.1%	0.0%	-0.1%
Private Equity	15.0%	2.5%	0.0%	2.5%	0.1%	0.0%	0.1%
Hedge Fund	10.0%	-1.2%	-0.9%	-0.3%	0.0%	0.0%	0.0%
Real Assets	5.0%	1.4%	-2.7%	4.1%	0.2%	0.0%	0.2%
Cash	0.0%	0.4%	0.5%	-0.1%	0.0%	0.0%	0.0%
<b>Total</b>	<b>100.0%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.6%</b>

## **Performance Update As of October 31, 2019**

As of October 31, 2019

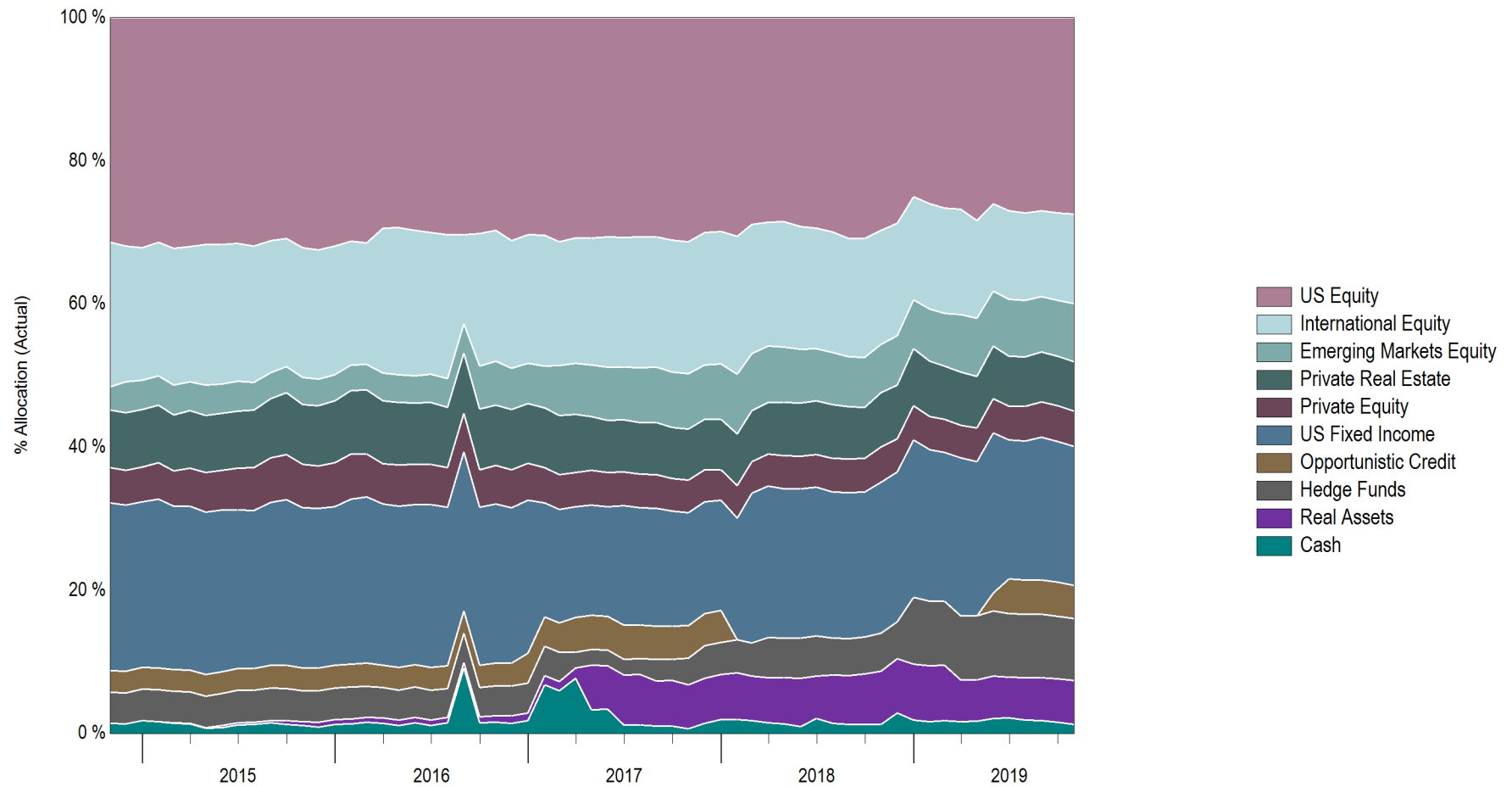


Allocation vs. Targets and Policy							
	Current Balance	Current Allocation	Policy	Difference	Policy Range	Within IPS Range?	
US Equity	\$241,560,374	27.5%	21.0%	6.5%	15.0% - 26.0%	No	
International Equity	\$109,818,401	12.5%	10.0%	2.5%	5.0% - 15.0%	Yes	
Emerging Markets Equity	\$71,566,148	8.1%	8.0%	0.1%	4.0% - 12.0%	Yes	
Private Real Estate	\$60,598,787	6.9%	8.0%	-1.1%	6.0% - 10.0%	Yes	
Private Equity	\$43,552,022	5.0%	15.0%	-10.0%	5.0% - 20.0%	No	
US Fixed Income	\$170,361,190	19.4%	18.0%	1.4%	13.0% - 23.0%	Yes	
Opportunistic Credit	\$41,269,725	4.7%	5.0%	-0.3%	3.0% - 7.0%	Yes	
Hedge Funds	\$75,962,795	8.6%	10.0%	-1.4%	5.0% - 15.0%	Yes	
Real Assets	\$53,719,160	6.1%	5.0%	1.1%	3.0% - 7.0%	Yes	
Cash	\$11,311,990	1.3%	0.0%	1.3%	0.0% - 5.0%	Yes	
<b>Total</b>	<b>\$879,720,591</b>	<b>100.0%</b>	<b>100.0%</b>				

Cash range displayed for illustrative purposes only.



Asset Allocation History  
5 Years Ending October 31, 2019



As of October 31, 2019

## Asset Class Performance Summary

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund (Net)*</b>	<b>879,720,591</b>	<b>100.0</b>	<b>1.6</b>	<b>1.6</b>	<b>2.2</b>	<b>13.4</b>	<b>10.1</b>	<b>8.8</b>	<b>6.4</b>	<b>8.4</b>	<b>8.0</b>	<b>Dec-94</b>
<b>Total Fund (Gross)*</b>			<b>1.6</b>	<b>1.6</b>	<b>2.3</b>	<b>13.6</b>	<b>10.3</b>	<b>9.0</b>	<b>6.7</b>	<b>8.7</b>	<b>8.1</b>	
<i>Policy Index</i>			<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>12.2</i>	<i>9.3</i>	<i>8.7</i>	<i>6.7</i>	<i>8.6</i>	<i>6.0</i>	<i>Dec-94</i>
<b>Total Fund w/o Alternatives (Net)</b>	<b>634,575,838</b>	<b>72.1</b>	<b>2.1</b>	<b>2.1</b>	<b>3.0</b>	<b>17.0</b>	<b>12.7</b>	<b>9.6</b>	<b>6.6</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<b>Total Fund w/o Alternatives (Gross)</b>			<b>2.2</b>	<b>2.2</b>	<b>3.0</b>	<b>17.2</b>	<b>12.9</b>	<b>9.9</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	
<i>Policy Index w/o AI</i>			<i>2.2</i>	<i>2.2</i>	<i>2.3</i>	<i>15.4</i>	<i>11.7</i>	<i>9.2</i>	<i>6.4</i>	<i>--</i>	<i>--</i>	<i>Dec-94</i>
<b>US Equity (Net)</b>	<b>241,560,374</b>	<b>27.5</b>	<b>2.2</b>	<b>2.2</b>	<b>3.8</b>	<b>24.3</b>	<b>14.4</b>	<b>15.3</b>	<b>11.1</b>	<b>13.8</b>	<b>10.1</b>	<b>Dec-94</b>
<b>US Equity (Gross)</b>			<b>2.2</b>	<b>2.2</b>	<b>3.8</b>	<b>24.6</b>	<b>14.7</b>	<b>15.5</b>	<b>11.3</b>	<b>14.0</b>	<b>10.1</b>	
<i>80% R1000 / 20% R2000</i>			<i>2.2</i>	<i>2.2</i>	<i>2.9</i>	<i>21.9</i>	<i>12.3</i>	<i>14.0</i>	<i>10.0</i>	<i>13.4</i>	<i>9.9</i>	<i>Dec-94</i>
<b>International Equity (Net)</b>	<b>181,384,549</b>	<b>20.6</b>	<b>4.3</b>	<b>4.3</b>	<b>3.2</b>	<b>18.3</b>	<b>13.7</b>	<b>8.5</b>	<b>4.1</b>	<b>5.9</b>	<b>5.2</b>	<b>Dec-98</b>
<b>International Equity (Gross)</b>			<b>4.4</b>	<b>4.4</b>	<b>3.4</b>	<b>18.7</b>	<b>14.2</b>	<b>8.9</b>	<b>4.6</b>	<b>6.4</b>	<b>5.5</b>	
<i>International Equity Custom</i>			<i>3.9</i>	<i>3.9</i>	<i>1.4</i>	<i>14.5</i>	<i>11.0</i>	<i>8.6</i>	<i>4.3</i>	<i>5.3</i>	<i>4.3</i>	<i>Dec-98</i>
<b>Developed International Equity (Net)</b>	<b>109,818,401</b>	<b>12.5</b>	<b>3.7</b>	<b>3.7</b>	<b>2.5</b>	<b>17.2</b>	<b>10.7</b>	<b>8.3</b>	<b>4.0</b>	<b>6.1</b>	<b>3.4</b>	<b>Jan-08</b>
<b>Developed International Equity (Gross)</b>			<b>3.7</b>	<b>3.7</b>	<b>2.6</b>	<b>17.4</b>	<b>10.8</b>	<b>8.4</b>	<b>4.3</b>	<b>6.6</b>	<b>3.8</b>	
<i>MSCI EAFE</i>			<i>3.6</i>	<i>3.6</i>	<i>2.5</i>	<i>16.9</i>	<i>11.0</i>	<i>8.5</i>	<i>4.3</i>	<i>5.4</i>	<i>2.6</i>	<i>Jan-08</i>
<b>Emerging Markets Equity (Net)</b>	<b>71,566,148</b>	<b>8.1</b>	<b>5.4</b>	<b>5.4</b>	<b>4.4</b>	<b>20.4</b>	<b>20.7</b>	<b>8.9</b>	<b>4.9</b>	<b>--</b>	<b>3.9</b>	<b>Apr-12</b>
<b>Emerging Markets Equity (Gross)</b>			<b>5.4</b>	<b>5.4</b>	<b>4.7</b>	<b>21.4</b>	<b>21.8</b>	<b>9.9</b>	<b>5.9</b>	<b>--</b>	<b>4.9</b>	
<i>MSCI Emerging Markets</i>			<i>4.2</i>	<i>4.2</i>	<i>-0.2</i>	<i>10.4</i>	<i>11.9</i>	<i>7.4</i>	<i>2.9</i>	<i>3.8</i>	<i>2.7</i>	<i>Apr-12</i>
<b>US Fixed Income (Net)</b>	<b>170,361,190</b>	<b>19.4</b>	<b>0.3</b>	<b>0.3</b>	<b>2.2</b>	<b>7.5</b>	<b>9.7</b>	<b>3.5</b>	<b>3.4</b>	<b>4.2</b>	<b>5.4</b>	<b>Dec-94</b>
<b>US Fixed Income (Gross)</b>			<b>0.3</b>	<b>0.3</b>	<b>2.2</b>	<b>7.6</b>	<b>9.9</b>	<b>3.7</b>	<b>3.6</b>	<b>4.5</b>	<b>5.5</b>	
<i>US Fixed Custom</i>			<i>0.3</i>	<i>0.3</i>	<i>2.2</i>	<i>7.8</i>	<i>10.2</i>	<i>3.6</i>	<i>3.5</i>	<i>3.9</i>	<i>5.7</i>	<i>Dec-94</i>
<b>Opportunistic Credit (Net)</b>	<b>41,269,725</b>	<b>4.7</b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.1</b>	<b>May-19</b>
<b>Opportunistic Credit (Gross)</b>			<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.1</b>	
<i>50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans</i>			<i>0.1</i>	<i>0.1</i>	<i>1.8</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>3.6</i>	<i>May-19</i>

Data prior to March 2018 provided by prior consultant



As of October 31, 2019

	Market Value (\$)	% of Portfolio	1 Mo (%)	QTD (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Estate (Net)</b>	<b>60,598,787</b>	<b>6.9</b>	<b>0.0</b>	<b>0.0</b>	<b>-0.8</b>	<b>1.6</b>	<b>1.6</b>	<b>6.0</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Private Real Estate (Gross)</b>			<b>0.0</b>	<b>0.0</b>	<b>-0.8</b>	<b>1.6</b>	<b>1.6</b>	<b>6.0</b>	<b>7.5</b>	<b>9.1</b>	<b>8.4</b>	
<i>NCREIF ODCE (net)</i>			<i>0.0</i>	<i>0.0</i>	<i>1.1</i>	<i>3.1</i>	<i>4.6</i>	<i>6.3</i>	<i>8.4</i>	<i>9.8</i>	<i>7.3</i>	<i>Mar-99</i>
<b>Private Equity (Net)</b>	<b>43,552,022</b>	<b>5.0</b>	<b>0.0</b>	<b>0.0</b>	<b>2.5</b>	<b>6.4</b>	<b>6.4</b>	<b>11.8</b>	<b>9.6</b>	<b>10.7</b>	<b>8.1</b>	<b>Jun-05</b>
<b>Private Equity (Gross)</b>			<b>0.0</b>	<b>0.0</b>	<b>2.5</b>	<b>6.4</b>	<b>6.4</b>	<b>11.8</b>	<b>9.6</b>	<b>10.9</b>	<b>8.2</b>	
<i>Thomson Reuters Cambridge Private Equity Index</i>			<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>10.2</i>	<i>9.9</i>	<i>15.3</i>	<i>13.5</i>	<i>--</i>	<i>--</i>	<i>Jun-05</i>
<b>Hedge Fund (Net)</b>	<b>75,962,795</b>	<b>8.6</b>	<b>0.2</b>	<b>0.2</b>	<b>-1.0</b>	<b>5.0</b>	<b>2.0</b>	<b>6.0</b>	<b>3.8</b>	<b>--</b>	<b>3.6</b>	<b>Jun-14</b>
<b>Hedge Fund (Gross)</b>			<b>0.2</b>	<b>0.2</b>	<b>-0.9</b>	<b>5.3</b>	<b>2.4</b>	<b>6.2</b>	<b>3.9</b>	<b>--</b>	<b>3.7</b>	
<i>Hedge Fund Custom</i>			<i>0.4</i>	<i>0.4</i>	<i>-0.5</i>	<i>5.6</i>	<i>3.4</i>	<i>3.4</i>	<i>2.8</i>	<i>--</i>	<i>2.6</i>	<i>Jun-14</i>
<b>Real Assets (Net)</b>	<b>53,719,160</b>	<b>6.1</b>	<b>0.3</b>	<b>0.3</b>	<b>1.7</b>	<b>10.6</b>	<b>9.6</b>	<b>7.6</b>	<b>7.8</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<b>Real Assets (Gross)</b>			<b>0.3</b>	<b>0.3</b>	<b>1.7</b>	<b>10.7</b>	<b>9.7</b>	<b>7.7</b>	<b>8.4</b>	<b>--</b>	<b>--</b>	
<i>Real Asset Custom</i>			<i>1.7</i>	<i>1.7</i>	<i>-1.1</i>	<i>15.7</i>	<i>14.3</i>	<i>9.9</i>	<i>8.2</i>	<i>--</i>	<i>--</i>	<i>Mar-99</i>
<b>Private Infrastructure (Net)</b>	<b>22,243,376</b>	<b>2.5</b>	<b>0.0</b>	<b>0.0</b>	<b>2.8</b>	<b>9.1</b>	<b>9.1</b>	<b>12.1</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	<b>Dec-14</b>
<b>Private Infrastructure (Gross)</b>			<b>0.0</b>	<b>0.0</b>	<b>2.8</b>	<b>9.1</b>	<b>9.1</b>	<b>12.1</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	
<i>S&amp;P Global Infrastructure Net TR USD</i>			<i>1.5</i>	<i>1.5</i>	<i>1.9</i>	<i>21.7</i>	<i>19.9</i>	<i>8.6</i>	<i>4.8</i>	<i>7.3</i>	<i>5.1</i>	<i>Dec-14</i>
<b>Private Natural Resources (Net)</b>	<b>14,656,887</b>	<b>1.7</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>8.1</b>	<b>8.1</b>	<b>11.4</b>	<b>--</b>	<b>--</b>	<b>16.6</b>	<b>Sep-15</b>
<b>Private Natural Resources (Gross)</b>			<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>8.1</b>	<b>8.1</b>	<b>11.4</b>	<b>--</b>	<b>--</b>	<b>16.6</b>	
<i>S&amp;P Global Natural Resources Index TR USD</i>			<i>1.8</i>	<i>1.8</i>	<i>-4.4</i>	<i>8.9</i>	<i>-0.3</i>	<i>7.6</i>	<i>2.1</i>	<i>1.6</i>	<i>11.4</i>	<i>Sep-15</i>
<b>Cash (Net)</b>	<b>11,311,990</b>	<b>1.3</b>	<b>0.1</b>	<b>0.1</b>	<b>0.6</b>	<b>1.2</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>Cash (Gross)</b>			<b>0.1</b>	<b>0.1</b>	<b>0.6</b>	<b>1.2</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

Real Assets includes State Street Real Asset NL Fund





As of October 31, 2019

## Trailing Net Performance

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund(Net)*</b>	<b>879,720,591</b>	<b>100.0</b>	<b>--</b>	<b>1.6</b>	<b>2.2</b>	<b>13.4</b>	<b>10.1</b>	<b>8.8</b>	<b>6.4</b>	<b>8.4</b>	<b>8.0</b>	<b>Dec-94</b>
<i>Policy Index</i>				1.4	1.4	12.2	9.3	8.7	6.7	8.6	6.0	Dec-94
<b>Total Fund w/o Alternatives(Net)</b>	<b>634,575,838</b>	<b>72.1</b>	<b>72.1</b>	<b>2.1</b>	<b>3.0</b>	<b>17.0</b>	<b>12.7</b>	<b>9.6</b>	<b>6.6</b>	<b>--</b>	<b>--</b>	<b>Dec-94</b>
<i>Policy Index w/o AI</i>				2.2	2.3	15.4	11.7	9.2	6.4	--	--	Dec-94
<b>US Equity(Net)</b>	<b>241,560,374</b>	<b>27.5</b>	<b>38.1</b>	<b>2.2</b>	<b>3.8</b>	<b>24.3</b>	<b>14.4</b>	<b>15.3</b>	<b>11.1</b>	<b>13.8</b>	<b>10.1</b>	<b>Dec-94</b>
<i>80% R1000 / 20% R2000</i>				2.2	2.9	21.9	12.3	14.0	10.0	13.4	9.9	Dec-94
Mellon Dynamic US Equity(Net)	96,357,968	11.0	39.9	2.2	5.2	28.9	19.5	18.0	13.2	--	17.3	Dec-12
<i>S&amp;P 500</i>				2.2	3.9	23.2	14.3	14.9	10.8	13.7	14.0	Dec-12
Mellon Large Cap(Net)	108,830,293	12.4	45.1	2.1	3.6	23.1	14.2	14.7	--	--	13.6	Mar-16
<i>Russell 1000</i>				2.1	3.6	23.1	14.2	14.7	10.5	13.7	13.6	Mar-16
DFA Small Cap(Net)	17,984,194	2.0	7.4	1.9	0.3	14.8	2.4	9.4	7.1	--	6.5	Jun-14
<i>Russell 2000</i>				2.6	0.2	17.2	4.9	11.0	7.4	12.3	6.6	Jun-14
PanAgora(Net)	18,387,918	2.1	7.6	2.8	1.2	18.5	4.1	11.1	7.5	--	8.6	Sep-13
<i>Russell 2000</i>				2.6	0.2	17.2	4.9	11.0	7.4	12.3	7.8	Sep-13
<b>International Equity(Net)</b>	<b>181,384,549</b>	<b>20.6</b>	<b>28.6</b>	<b>4.3</b>	<b>3.2</b>	<b>18.3</b>	<b>13.7</b>	<b>8.5</b>	<b>4.1</b>	<b>5.9</b>	<b>5.2</b>	<b>Dec-98</b>
<i>International Equity Custom</i>				3.9	1.4	14.5	11.0	8.6	4.3	5.3	4.3	Dec-98
<b>Developed International Equity(Net)</b>	<b>109,818,401</b>	<b>12.5</b>	<b>60.5</b>	<b>3.7</b>	<b>2.5</b>	<b>17.2</b>	<b>10.7</b>	<b>8.3</b>	<b>4.0</b>	<b>6.1</b>	<b>3.4</b>	<b>Jan-08</b>
<i>MSCI EAFE</i>				3.6	2.5	16.9	11.0	8.5	4.3	5.4	2.6	Jan-08
Mellon International(Net)	88,745,754	10.1	80.8	3.6	2.5	17.2	11.4	8.9	--	--	8.3	Mar-16
<i>MSCI EAFE</i>				3.6	2.5	16.9	11.0	8.5	4.3	5.4	7.9	Mar-16
Acadian ACWI ex U.S. Small Cap Equity(Net)	10,210,023	1.2	9.3	3.9	0.7	--	--	--	--	--	0.5	May-19
<i>MSCI ACWI ex US Small Cap</i>				4.1	2.8	14.7	8.8	7.0	5.3	6.7	1.8	May-19

Developed International Equity and Emerging Markets Equity composites were only reported as one composite prior to March 2018.  
Historical returns for the US Equity Composite prior to January 2012 and for the International Equity Composite prior to December 2010 are gross only.



As of October 31, 2019

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Driehaus International Small Cap Growth(Net)	10,862,624	1.2	9.9	4.2	4.6	--	--	--	--	--	7.0	May-19
MSCI ACWI ex US Small Cap Growth NR USD				4.0	2.6	16.6	10.4	7.5	5.9	7.2	1.7	May-19
<b>Emerging Markets Equity(Net)</b>	<b>71,566,148</b>	<b>8.1</b>	<b>39.5</b>	<b>5.4</b>	<b>4.4</b>	<b>20.4</b>	<b>20.7</b>	<b>8.9</b>	<b>4.9</b>	<b>--</b>	<b>3.9</b>	<b>Apr-12</b>
MSCI Emerging Markets				4.2	-0.2	10.4	11.9	7.4	2.9	3.8	2.7	Apr-12
Wells Capital(Net)	71,566,148	8.1	100.0	5.4	4.4	20.4	20.7	8.9	4.9	--	3.7	Mar-12
MSCI Emerging Markets				4.2	-0.2	10.4	11.9	7.4	2.9	3.8	2.5	Mar-12
<b>US Fixed Income(Net)</b>	<b>170,361,190</b>	<b>19.4</b>	<b>26.8</b>	<b>0.3</b>	<b>2.2</b>	<b>7.5</b>	<b>9.7</b>	<b>3.5</b>	<b>3.4</b>	<b>4.2</b>	<b>5.4</b>	<b>Dec-94</b>
US Fixed Custom				0.3	2.2	7.8	10.2	3.6	3.5	3.9	5.7	Dec-94
Barrow Hanley(Net)	61,173,768	7.0	35.9	0.3	2.7	9.1	11.6	3.3	3.3	--	3.7	Mar-10
BBgBarc US Aggregate TR				0.3	2.6	8.8	11.5	3.3	3.2	3.7	3.7	Mar-10
Vanguard Short-Term Treasury Index Fund(Net)	48,719,169	5.5	28.6	0.3	0.9	3.4	4.6	--	--	--	3.2	Feb-18
BBgBarc US Govt 1-3 Yr TR				0.3	0.9	3.4	4.6	1.7	1.3	1.2	3.2	Feb-18
Vanguard Total Bond Market Index Fund(Net)	60,468,253	6.9	35.5	0.2	2.7	--	--	--	--	--	5.8	May-19
BBgBarc US Aggregate TR				0.3	2.6	8.8	11.5	3.3	3.2	3.7	5.7	May-19
<b>Opportunistic Credit(Net)</b>	<b>41,269,725</b>	<b>4.7</b>	<b>6.5</b>	<b>0.3</b>	<b>0.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.1</b>	<b>May-19</b>
50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans				0.1	1.8	--	--	--	--	--	3.6	May-19
PIMCO Income Fund(Net)	20,475,298	2.3	49.6	0.7	0.6	--	--	--	--	--	2.1	Apr-19
BBgBarc US Aggregate TR				0.3	2.6	8.8	11.5	3.3	3.2	3.7	5.7	Apr-19
GoldenTree Multi-Sector Credit(Net)	20,794,427	2.4	50.4	-0.1	0.3	--	--	--	--	--	1.6	Jun-19
50% BBgBarc US High Yield TR/50% Credit Suisse Leveraged Loans				-0.1	1.0	8.8	5.5	5.1	4.6	6.5	2.3	Jun-19

GoldenTree Multi-Sector Credit is based off manager estimate.

Historical returns for the US Fixed Income Composite prior to December 2010 and for Barrow Hanley prior to June 2010 are gross only.



As of October 31, 2019

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Estate(Net)</b>	<b>60,598,787</b>	<b>6.9</b>	<b>6.9</b>	<b>0.0</b>	<b>-0.8</b>	<b>1.6</b>	<b>1.6</b>	<b>6.0</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<i>NCREIF ODCE (net)</i>				<i>0.0</i>	<i>1.1</i>	<i>3.1</i>	<i>4.6</i>	<i>6.3</i>	<i>8.4</i>	<i>9.8</i>	<i>7.3</i>	<i>Mar-99</i>
Greenfield Gap VII(Net)	8,839,742	1.0	14.6	0.0	9.7	14.4	14.4	14.0	--	--	13.7	Dec-14
Patron Capital V(Net)	7,258,825	0.8	12.0	0.0	5.6	7.8	7.8	21.1	--	--	14.1	Jan-16
UBS Trumbull Property(Net)	40,389,133	4.6	66.7	0.0	-3.9	-1.8	-1.8	3.0	5.6	7.7	6.9	Mar-99
Carlyle Realty VIII(Net)	846,639	0.1	1.4	0.0	2.8	-5.1	-5.1	--	--	--	-29.5	Dec-17
Taconic CRE Dislocation Fund II(Net)	2,473,122	0.3	4.1	0.0	3.3	3.2	3.2	--	--	--	3.2	Nov-18
Carmel Partners Investment Fund VII(Net)	142,341	0.0	0.2	0.0	-19.5	--	--	--	--	--	-35.9	Apr-19
AG Realty Value Fund X, L.P.(Net)	648,985	0.1	1.1	0.0	-16.9	--	--	--	--	--	-16.9	Jun-19
<b>Private Equity(Net)</b>	<b>43,552,022</b>	<b>5.0</b>	<b>5.0</b>	<b>0.0</b>	<b>2.5</b>	<b>6.4</b>	<b>6.4</b>	<b>11.8</b>	<b>9.6</b>	<b>10.7</b>	<b>8.1</b>	<b>Jun-05</b>
<i>Thomson Reuters Cambridge Private Equity Index</i>				<i>0.0</i>	<i>0.0</i>	<i>10.2</i>	<i>9.9</i>	<i>15.3</i>	<i>13.5</i>	<i>--</i>	<i>--</i>	<i>Jun-05</i>
Adams Street(Net)	7,404,729	0.8	17.0	0.0	-0.1	4.5	4.5	11.5	11.3	13.0	7.0	Sep-05
Invesco IV(Net)	218,400	0.0	0.5	0.0	0.0	0.0	0.0	3.9	5.9	9.8	7.9	Jun-05
Invesco VI(Net)	6,331,897	0.7	14.5	0.0	0.0	2.7	2.7	11.4	12.7	--	11.2	Jun-13
Ocean Avenue II(Net)	9,986,598	1.1	22.9	0.0	5.4	16.5	16.5	25.2	16.5	--	12.6	Jun-14

Invesco IV and Invesco VI market values reflect the cash adjusted 9/30 value. They do not reflect any cash flows through 10/31.

Private Real Estate results prior to 1/1/2019 were included in the Real Assets composite. All results for the Private Real Estate composite that include the period prior to 1/1/2019 will reflect only the latest lineup of managers that Meketa received information for, therefore it may not reflect the entire Private Real Estate composite at that given time.

All private markets performance and market values reflect a 6/30/2019 capital account balance unless otherwise noted.

Adams Street includes Adams Street 2005, Adams Street 2007, and Adams Street 2011.

Historical returns for Invesco IV prior to April 2012 are gross only.



As of October 31, 2019

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Pantheon I(Net)	870,662	0.1	2.0	0.0	-0.9	-2.0	-2.0	5.7	4.2	7.7	3.5	Dec-05
Pantheon II(Net)	3,986,220	0.5	9.2	0.0	4.7	10.3	10.3	15.3	12.6	--	12.1	Dec-11
Pantheon Secondary(Net)	861,201	0.1	2.0	0.0	-1.9	-0.9	-0.9	6.6	3.8	4.1	3.8	Jun-07
Raven Asset Fund II(Net)	3,392,863	0.4	7.8	0.0	1.6	5.8	5.8	0.3	-0.6	--	-0.6	Aug-14
Davidson Kempner Long-Term Distressed Opportunities Fund IV(Net)	3,633,980	0.4	8.3	0.0	0.3	4.1	4.1	--	--	--	10.7	Apr-18
GTCR Fund XII(Net)	1,269,003	0.1	2.9	0.0	9.0	-21.4	-21.4	--	--	--	-15.6	Jun-18
Carrick Capital Partners III(Net)	1,304,132	0.1	3.0	0.0	20.1	8.1	8.1	--	--	--	2.3	Aug-18
Cressey & Company Fund VI(Net)	1,050,879	0.1	2.4	0.0	2.8	-13.2	--	--	--	--	-13.2	Jan-19
TCV X(Net)	1,597,666	0.2	3.7	0.0	-6.6	--	--	--	--	--	-6.6	Apr-19
Accel-KKR Growth Capital Partners III(Net)	628,291	0.1	1.4	0.0	0.0	--	--	--	--	--	0.0	Jul-19
Genstar Capital Partners IX(Net)	1,015,501	0.1	2.3	0.0	--	--	--	--	--	--	0.0	Jul-19
<b>Hedge Fund(Net)</b>	<b>75,962,795</b>	<b>8.6</b>	<b>8.6</b>	<b>0.2</b>	<b>-1.0</b>	<b>5.0</b>	<b>2.0</b>	<b>6.0</b>	<b>3.8</b>	<b>--</b>	<b>3.6</b>	<b>Jun-14</b>
<i>Hedge Fund Custom</i>				<i>0.4</i>	<i>-0.5</i>	<i>5.6</i>	<i>3.4</i>	<i>3.4</i>	<i>2.8</i>	<i>--</i>	<i>2.6</i>	<i>Jun-14</i>
Sculptor (OZ) Domestic II(Net)	10,422,136	1.2	13.7	1.5	-1.3	12.0	8.9	8.2	6.0	--	5.7	Jun-14
Graham Absolute Return(Net)	7,528,866	0.9	9.9	1.2	-0.5	7.3	3.2	--	--	--	3.2	Aug-17
Wellington-Archipelago(Net)	11,857,205	1.3	15.6	0.5	-0.8	9.6	6.1	--	--	--	3.9	Aug-17
KLS Diversified(Net)	9,059,387	1.0	11.9	-0.7	-1.8	-0.2	-4.5	--	--	--	0.7	Oct-17

Panthion I includes Pantheon US Fund VI and Pantheon Europe Fund IV.

Panthion II includes Pantheon US Fund IX, Pantheon Asia Fund VI, and Pantheon Europe Fund VII.

Panthion Secondary includes Pantheon GLO SEC III B.



As of October 31, 2019

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Winton(Net)	6,192,149	0.7	8.2	-1.2	1.8	1.8	1.8	--	--	--	1.9	Oct-17
Marshall Wace Eureka(Net)	3,275,728	0.4	4.3	0.5	1.1	7.1	4.8	--	--	--	3.7	Nov-17
Silver Point Capital(Net)	11,862,443	1.3	15.6	-1.4	-4.2	-0.2	-5.2	--	--	--	-0.4	Nov-17
Laurion Capital(Net)	5,386,468	0.6	7.1	1.4	-0.5	5.4	6.3	--	--	--	6.9	Aug-18
Taconic Opportunity Fund(Net)	10,378,412	1.2	13.7	0.3	0.4	4.2	--	--	--	--	4.2	Dec-18
<b>Real Assets(Net)</b>	<b>53,719,160</b>	<b>6.1</b>	<b>6.1</b>	<b>0.3</b>	<b>1.7</b>	<b>10.6</b>	<b>9.6</b>	<b>7.6</b>	<b>7.8</b>	<b>--</b>	<b>--</b>	<b>Mar-99</b>
<i>Real Asset Custom</i>				1.7	-1.1	15.7	14.3	9.9	8.2	--	--	Mar-99
SSgA(Net)	16,818,897	1.9	31.3	0.9	0.1	10.5	6.3	--	--	--	3.9	Apr-17
<i>Real Asset NL Custom Blended Index</i>				0.9	0.2	10.9	6.8	--	--	--	4.2	Apr-17
<b>Private Infrastructure(Net)</b>	<b>22,243,376</b>	<b>2.5</b>	<b>41.4</b>	<b>0.0</b>	<b>2.8</b>	<b>9.1</b>	<b>9.1</b>	<b>12.1</b>	<b>--</b>	<b>--</b>	<b>7.5</b>	<b>Dec-14</b>
<i>S&amp;P Global Infrastructure Net TR USD</i>				1.5	1.9	21.7	19.9	8.6	4.8	7.3	5.1	Dec-14
KKR Global II(Net)	11,120,059	1.3	50.0	0.0	2.7	7.9	7.9	12.1	--	--	10.4	Dec-14
North Haven Infrastructure II(Net)	8,409,094	1.0	37.8	0.0	3.3	11.4	11.4	13.4	--	--	7.8	May-15
ISQ Global Infrastructure Fund II(Net)	1,777,697	0.2	8.0	0.0	1.9	12.9	12.9	--	--	--	-17.9	Jul-18
KKR Global Infrastructure Investors III(Net)	936,526	0.1	4.2	0.0	-2.9	-17.8	--	--	--	--	-17.8	Jan-19

As of October 31, 2019

	Market Value (\$)	% of Portfolio	% of Sector	1 Mo (%)	Fiscal YTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Natural Resources(Net)</b>	<b>14,656,887</b>	<b>1.7</b>	<b>27.3</b>	<b>0.0</b>	<b>2.0</b>	<b>8.1</b>	<b>8.1</b>	<b>11.4</b>	<b>--</b>	<b>--</b>	<b>16.6</b>	<b>Sep-15</b>
<i>S&amp;P Global Natural Resources Index TR USD</i>				1.8	-4.4	8.9	-0.3	7.6	2.1	1.6	11.4	Sep-15
EnCap XI(Net)	922,475	0.1	6.3	0.0	-2.8	-7.9	-7.9	--	--	--	-28.4	Jul-17
EnCap IV(Net)	925,647	0.1	6.3	0.0	0.1	15.2	15.2	--	--	--	-2.7	Feb-18
GSO Energy Opportunities(Net)	4,408,643	0.5	30.1	0.0	1.0	3.5	3.5	9.3	--	--	15.7	Nov-15
Taurus Mining(Net)	3,731,324	0.4	25.5	0.0	2.9	12.3	12.3	12.2	--	--	17.3	Sep-15
Taurus Mining Annex(Net)	3,342,148	0.4	22.8	0.0	4.7	16.7	16.7	--	--	--	27.8	Jan-17
BlackRock Global Energy and Power Infrastructure Fund III LP(Net)	480,036	0.1	3.3	0.0	--	--	--	--	--	--	--	Jul-19
Tailwater Energy Fund IV, LP(Net)	846,614	0.1	5.8	0.0	--	--	--	--	--	--	0.0	Oct-19
<b>Cash(Net)</b>	<b>11,311,990</b>	<b>1.3</b>	<b>1.3</b>	<b>0.1</b>	<b>0.6</b>	<b>1.2</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
Cash(Net)	8,416,529	1.0	74.4	0.2	0.8	1.7	2.2	1.4	1.1	--	--	Sep-03
Treasury Cash(Net)	2,895,460	0.3	25.6									

\*One or more accounts have been excluded from the composite for the purposes of performance calculations and market value.

Treasury Cash value is lagged.



## Benchmark History

As of October 31, 2019

Total Fund		
7/1/2019	Present	21% US Equity Custom / 18% International Equity Custom / 18% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net) / 5% 50% Barclays US Aggregate / 25% Barclays US High Yield / 25% Credit Suisse Leveraged Loans
1/1/2019	6/30/2019	21% US Equity Custom / 18% International Equity Custom / 23% US Fixed Custom / 10% Hedge Fund Custom / 15% Thomson Reuters Cambridge Private Equity Index / 5% Real Asset Custom / 8% NCREIF ODCE (net)
1/1/2017	12/31/2018	27% US Equity Custom / 23% International Equity Custom / 22% US Fixed Custom / 5% Hedge Fund Custom / 9% Thomson Reuters Cambridge Private Equity Index / 14% Real Asset Custom
7/1/2014	12/31/2016	22.7% Russell 1000 / 5.7% Russell 2000 / 23.6% International Equity Custom / 28.5% US Fixed Custom / 4.5% Hedge Fund Custom / 8% NCREIF ODCE (net) / 7% Cambridge Assoc. U.S. Private Equity Legacy Index
US Equity		
12/31/1994	Present	80% Russell 1000 / 20% Russell 2000
International Equity		
1/1/2019	Present	56% MSCI EAFE Gross / 44% MSCI Emerging Markets Gross
1/1/2017	12/31/2018	69.56% MSCI EAFE Gross / 30.44% MSCI Emerging Markets Gross
7/1/2013	12/31/2016	MSCI ACWI ex USA Gross
US Fixed Income		
3/1/2018	Present	77.27% BBgBarc US Aggregate TR / 22.73% BBgBarc US Govt 1-5 Yr TR
1/1/2017	2/28/2018	77.27% BBgBarc US Aggregate TR / 22.73% Credit Suisse Leveraged Loans
8/1/2014	12/31/2016	71.93% BBgBarc US Aggregate TR / 17.54% ICE BofAML US High Yield TR / 10.53% Credit Suisse Leveraged Loans
Hedge Fund		
7/1/2017	Present	100% HFRI Fund of Funds Composite Index
1/1/2015	6/30/2017	50% HFRI Fund of Funds Composite Index / 50% HFRI RV: Multi-Strategy Index
Real Assets		
1/1/2019	Present	50% S&P Global Natural Resources Index TR USD / 50% S&P Global Infrastructure TR USD
6/1/2013	12/31/2018	57.14% NCREIF ODCE (net) / 21.43% S&P Global Natural Resources Index TR USD / 21.43% S&P Global Infrastructure TR USD

**Benchmark History**  
**As of October 31, 2019**

SSgA

4/30/2017	Present	25% Bloomberg Roll Select Commodities Index TR USD / 25% S&P Global LargeMidCap Commodity and Resources NR USD / 10% S&P Global Infrastructure TR USD / 15% DJ US Select REIT TR USD / 25% BBgBarc US TIPS TR
-----------	---------	---



As of October 31, 2019

## Annual Investment Expense Analysis

As Of October 31, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
<b>Total Fund w/o Alternatives</b>		<b>\$634,575,838</b>		
<b>US Equity</b>		<b>\$241,560,374</b>		
Mellon Dynamic US Equity	0.30% of Assets	\$96,357,968	\$289,074	0.30%
Mellon Large Cap	0.04% of First 100.0 Mil, 0.02% Thereafter	\$108,830,293	\$41,766	0.04%
DFA Small Cap	0.35% of Assets	\$17,984,194	\$62,945	0.35%
PanAgora	0.80% of Assets	\$18,387,918	\$147,103	0.80%
<b>International Equity</b>		<b>\$181,384,549</b>		
<b>Developed International Equity</b>		<b>\$109,818,401</b>		
Mellon International	0.04% of Assets	\$88,745,754	\$35,498	0.04%
Acadian ACWI ex U.S. Small Cap Equity	0.99% of Assets	\$10,210,023	\$101,079	0.99%
Driehaus International Small Cap Growth	0.90% of Assets	\$10,862,624	\$97,764	0.90%
<b>Emerging Markets Equity</b>		<b>\$71,566,148</b>		
Wells Capital	0.90% of First 100.0 Mil, 0.85% Thereafter	\$71,566,148	\$644,095	0.90%
<b>US Fixed Income</b>		<b>\$170,361,190</b>		
Barrow Hanley	0.30% of First 50.0 Mil, 0.20% of Next 100.0 Mil, 0.15% Thereafter	\$61,173,768	\$172,348	0.28%
Vanguard Short-Term Treasury Index Fund	0.05% of Assets	\$48,719,169	\$24,360	0.05%
Vanguard Total Bond Market Index Fund	0.04% of Assets	\$60,468,253	\$21,164	0.04%
<b>Opportunistic Credit</b>		<b>\$41,269,725</b>		
PIMCO Income Fund	0.50% of Assets	\$20,475,298	\$102,376	0.50%
GoldenTree Multi-Sector Credit	0.75% of Assets	\$20,794,427	\$155,958	0.75%
<b>Private Real Estate</b>		<b>\$60,598,787</b>		
Greenfield Gap VII		\$8,839,742		
Patron Capital V		\$7,258,825		

As of October 31, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
UBS Trumbull Property		\$40,389,133		
Carlyle Realty VIII		\$846,639		
Taconic CRE Dislocation Fund II		\$2,473,122		
Carmel Partners Investment Fund VII		\$142,341		
AG Realty Value Fund X, L.P.		\$648,985		
Invesco IV		\$218,400		
Invesco VI		\$6,331,897		
Ocean Avenue II		\$9,986,598		
Pantheon I		\$870,662		
Pantheon II		\$3,986,220		
Pantheon Secondary		\$861,201		
Raven Asset Fund II		\$3,392,863		
Davidson Kempner Long-Term Distressed Opportunities Fund IV		\$3,633,980		
GTCR Fund XII		\$1,269,003		
Carrick Capital Partners III		\$1,304,132		
Cressey & Company Fund VI		\$1,050,879		
TCV X		\$1,597,666		
Accel-KKR Growth Capital Partners III		\$628,291		
Genstar Capital Partners IX		\$1,015,501		
<b>Hedge Fund</b>		<b>\$75,962,795</b>		
Sculptor (OZ) Domestic II	Performance-based 1.50 and 20.00	\$10,422,136	\$188,264	1.81%
Graham Absolute Return	Performance-based 1.75 and 20.00	\$7,528,866	\$151,933	2.02%
Wellington-Archipelago	Performance-based 1.00 and 20.00	\$11,857,205	\$133,734	1.13%
KLS Diversified	Performance-based 2.00 and 20.00	\$9,059,387	\$181,188	2.00%
Winton	Performance-based 0.90 and 20.00	\$6,192,149	\$55,729	0.90%

As of October 31, 2019

Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee
Marshall Wace Eureka	Performance-based 2.00 and 20.00	\$3,275,728	\$69,642	2.13%
Silver Point Capital	Performance-based 2.00 and 20.00	\$11,862,443	\$237,249	2.00%
Laurion Capital		\$5,386,468		
Taconic Opportunity Fund		\$10,378,412		
<b>Real Assets</b>		<b>\$53,719,160</b>		
SSgA	0.30% of First 50.0 Mil, 0.27% of Next 50.0 Mil, 0.25% Thereafter	\$16,818,897	\$50,457	0.30%
<b>Private Infrastructure</b>		<b>\$22,243,376</b>		
KKR Global II		\$11,120,059		
North Haven Infrastructure II		\$8,409,094		
ISQ Global Infrastructure Fund II		\$1,777,697		
KKR Global Infrastructure Investors III		\$936,526		
Ardian Infrastructure Fund V		\$0		
<b>Private Natural Resources</b>		<b>\$14,656,887</b>		
EnCap XI		\$922,475		
EnCap IV		\$925,647		
GSO Energy Opportunities		\$4,408,643		
Taurus Mining		\$3,731,324		
Taurus Mining Annex		\$3,342,148		
BlackRock Global Energy and Power Infrastructure Fund III LP		\$480,036		
Tailwater Energy Fund IV, LP		\$846,614		
<b>Cash</b>		<b>\$11,311,990</b>		
Cash		\$8,416,529		
Treasury Cash		\$2,895,460		

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

## **Disclaimer, Glossary, and Notes**

WE HAVE PREPARED THIS QUARTERLY REPORT FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT MERCED COUNTY EMPLOYEES' RETIREMENT ASSOCIATION.

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.



**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

Sources: [Investment Terminology](#), International Foundation of Employee Benefit Plans, 1999.  
[The Handbook of Fixed Income Securities](#), Fabozzi, Frank J., 1991.

The Russell Indices<sup>®</sup>, TM, SM are trademarks/service marks of the Frank Russell Company.

Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.



INVESTMENT ADVISORY SERVICES

Los Angeles • New York

Alternative Investment Performance  
Merced County Employees' Retirement Association

December 12, 2019

# MCERA Private Equity Capital Budget & Implementation Plan

## 15% fund level target

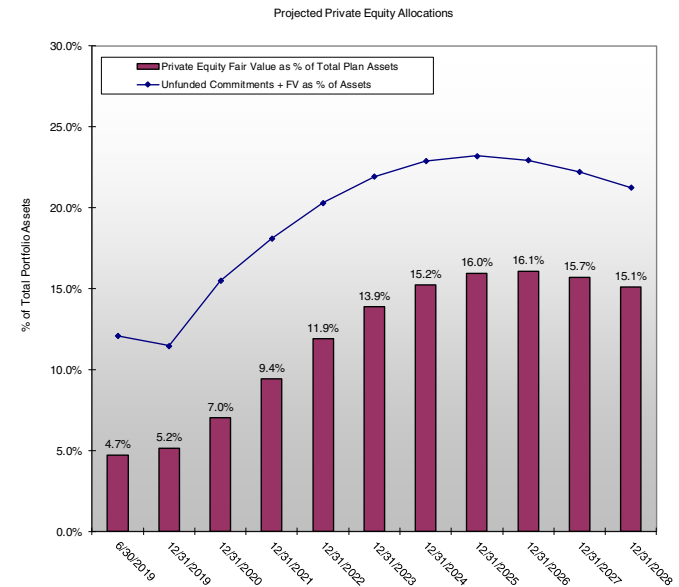
- Annual capital budget target of \$40 million, range of \$30-\$50 million
- Target 4-7 investments, range of \$5-\$15 million per inv; average size of \$8 million per

## Performance comparisons:

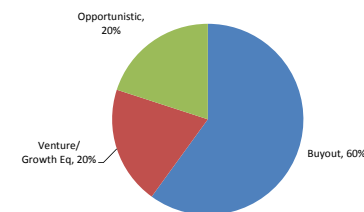
- *Long term investment objective:* Earn a return premium over public equity (Russell 3000 + 3%)
- *Recommended primary asset class benchmark:* Cambridge Associates Global Private Equity & VC Index
- *Recommended fund benchmarks:* Each fund will be compared to the Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to Cambridge Associates Global Private Equity & VC Index

## MCERA CY 2019 commitments:

- Summit X – growth capital (VY 2019), \$8 mm
- Genstar IX – mid market buyout (VY 2019), \$8 mm
- Spark Capital VI – early stage VC (VY 2019), \$3 mm
- Spark Capital Growth III – late stage VC (VY 2019), \$6 mm
- Accel-KKR Capital VI – software buyout (VY 2019), \$5 mm
- Cortec VII – lower mid mkt buyout (VY 2020), \$10 mm



## Target Strategy Diversification



	Target	Ranges
Buyout	60%	40-80%
Venture/Growth Eq	20%	10-30%
Opportunistic	20%	10-30%
	100%	

Note: MCERA's existing private equity portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical category averages. Total fund growth of 5.5%.

# MCERA Private Equity Investment Structure & Portfolio Assessment

## Investment structure (15% fund target; 4.7% invested as of Jun 2019):

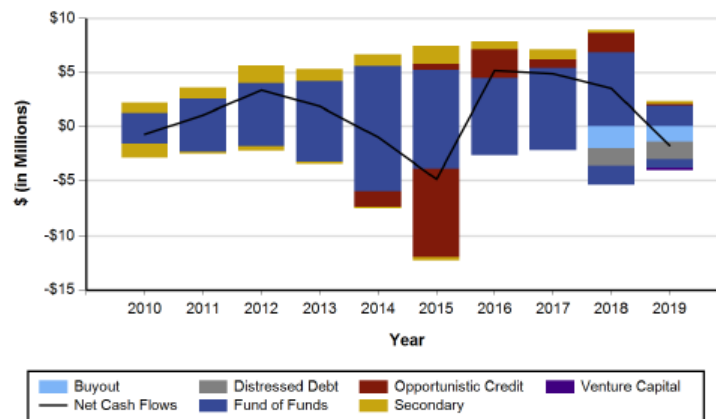
- Current portfolio is barbelled with half of commitments in 2007 & earlier FoFs and half in 2011 & later FoFs
  - Overall portfolio has not met performance expectations; 2011 & later portfolio is still in development with the funds in VY 2017 and 2018 beginning their investment period
  - Quarterly performance improvement due to VY 2007 & 2011 funds; contributions & distributions are similar over the past year as the newer portfolios are being built out
  - Portfolio is diversified by strategy but overall it is in a negative cash flow situation

### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2018	23	\$89,049	\$60,664	\$50,134	\$38,868	\$89,002	\$28,338	8.51%	10.90%
June 30, 2019	30	\$130,973	\$68,676	\$58,769	\$42,006	\$100,775	\$32,100	8.60%	11.44%
Annual Change	7	\$41,924	\$8,012	\$8,635	\$3,138	\$11,773	\$3,762		

Annual Cash Flow



Note: Net cash flow is the for the respective calendar year.

## MCERA Private Equity Performance – as of Jun 30, 2019

Partnership Name (\$000)	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
<b>Vintage Year 2004</b>												
Invesco Partnership Fund IV, L.P.	Fund of Funds	10,000	2,417	7,898	76%	15,814	188	16,002	8,105	11.62%	7.19%	2.03
Vintage Year 2004 Total		10,000	2,417	7,898	76%	15,814	188	16,002	8,105	11.62%	7.85%	2.03
<b>Vintage Year 2005</b>												
ASP 2005 Non-US Fund	Fund of Funds	1,500	74	1,426	95%	1,634	324	1,958	532	4.91%	5.12%	1.37
ASP 2005 US Fund	Fund of Funds	3,500	177	3,323	95%	4,358	800	5,159	1,835	6.95%	7.47%	1.55
Pantheon Ventures Euro Fund IV	Fund of Funds	1,137	54	1,278	95%	1,535	135	1,671	393	4.72%	5.12%	1.31
Pantheon Ventures USA Fund VI	Fund of Funds	3,750	206	3,544	95%	4,695	854	5,549	2,005	6.96%	7.47%	1.57
Vintage Year 2005 Total		9,887	511	9,570	95%	12,222	2,114	14,336	4,766	6.40%	7.39%	1.50
<b>Vintage Year 2006</b>												
Pantheon Global Secondary Fund III "B"	Secondary	10,000	540	9,460	95%	9,630	1,041	10,671	1,211	2.17%	N/A	1.13
Vintage Year 2006 Total		10,000	540	9,460	95%	9,630	1,041	10,671	1,211	2.17%	7.29%	1.13
<b>Vintage Year 2007</b>												
ASP 2007 Direct Fund	Fund of Funds	450	14	436	97%	745	292	1,037	601	12.21%	10.57%	2.38
ASP 2007 Non-US Fund	Fund of Funds	1,575	78	1,497	95%	1,613	719	2,332	835	7.90%	7.76%	1.56
ASP 2007 US Fund	Fund of Funds	2,475	115	2,360	95%	3,049	1,382	4,431	2,071	12.12%	10.57%	1.88
Vintage Year 2007 Total		4,500	207	4,293	95%	5,408	2,392	7,800	3,507	10.80%	9.22%	1.82
<b>Vintage Year 2011</b>												
ASP 2011 Direct Fund	Fund of Funds	500	43	457	91%	482	383	865	408	15.66%	15.95%	1.89
ASP 2011 Emerging Markets Fund	Fund of Funds	500	64	436	87%	142	607	749	313	12.97%	11.56%	1.72
ASP 2011 Non-US Developed Fund	Fund of Funds	1,500	322	1,178	79%	830	1,087	1,917	739	13.20%	11.56%	1.63
ASP 2011 US Fund	Fund of Funds	2,500	326	2,175	87%	1,229	2,483	3,713	1,538	14.75%	15.95%	1.71
Pantheon Asia Fund VI	Fund of Funds	1,000	139	862	86%	358	989	1,347	484	11.07%	11.56%	1.56
Pantheon Euro Fund VII	Fund of Funds	1,586	228	1,478	86%	896	1,293	2,189	711	9.93%	11.56%	1.48
Pantheon Ventures USA Fund IX	Fund of Funds	2,000	254	1,746	87%	1,122	1,892	3,014	1,268	13.82%	15.95%	1.73
Vintage Year 2011 Total		9,586	1,377	8,332	86%	5,058	8,735	13,793	5,462	13.07%	13.46%	1.66
<b>Vintage Year 2013</b>												
Invesco Partnership Fund VI, L.P.	Fund of Funds	5,000	1,548	3,958	69%	989	6,750	7,739	3,780	18.04%	18.53%	1.96
Vintage Year 2013 Total		5,000	1,548	3,958	69%	989	6,750	7,739	3,780	18.04%	13.36%	1.96

Note: The benchmark represents the Cambridge Associates LLC median for the respective strategy and vintage year. At the vintage year level, the Cambridge Associates LLC Global Private Equity & VC ® median is used for the respective vintage year.

## MCERA Private Equity Performance – as of Jun 30, 2019

Partnership Name (\$000)	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
<b>Vintage Year 2014</b>												
Ocean Avenue Fund II	Fund of Funds	10,000	1,300	8,700	87%	3,647	10,487	14,133	5,433	16.60%	13.97%	1.62
Raven Asset-Based Opportunity Fund II	Opportunistic Credit	10,000	474	9,526	95%	5,958	3,452	9,410	-116	-0.43%	8.32%	0.99
<b>Vintage Year 2014 Total</b>		<b>20,000</b>	<b>1,774</b>	<b>18,226</b>	<b>91%</b>	<b>9,604</b>	<b>13,939</b>	<b>23,543</b>	<b>5,317</b>	<b>8.71%</b>	<b>15.48%</b>	<b>1.29</b>
<b>Vintage Year 2017</b>												
GTCR XII	Buyout	5,000	3,762	1,238	25%	44	1,002	1,047	-191	N/M	N/M	0.85
<b>Vintage Year 2017 Total</b>		<b>5,000</b>	<b>3,762</b>	<b>1,238</b>	<b>25%</b>	<b>44</b>	<b>1,002</b>	<b>1,047</b>	<b>-191</b>	<b>N/M</b>	<b>N/M</b>	<b>0.85</b>
<b>Vintage Year 2018</b>												
Carrick Capital Partners III, L.P.	Buyout	5,000	3,850	1,150	23%	0	1,240	1,240	90	N/M	N/M	1.08
Cressey & Company Fund VI LP	Buyout	5,000	3,900	1,100	22%	0	1,051	1,051	-49	N/M	N/M	0.96
Davidson Kempner Long-Term Distressed Opportunit Distressed Debt		5,000	1,800	3,200	64%	0	3,384	3,384	184	N/M	N/M	1.06
<b>Vintage Year 2018 Total</b>		<b>15,000</b>	<b>9,550</b>	<b>5,450</b>	<b>36%</b>	<b>0</b>	<b>5,675</b>	<b>5,675</b>	<b>225</b>	<b>N/M</b>	<b>N/M</b>	<b>1.04</b>
<b>Vintage Year 2019</b>												
Accel-KKR Capital Partners VI, LP	Buyout	8,000	8,000	0	0%	0	0	0	0	N/M	N/M	N/A
Accel-KKR Growth Capital Partners III	Buyout	5,000	5,000	0	0%	0	0	0	0	N/M	N/M	N/A
Genstar Capital Partners IX, L.P.	Buyout	7,000	7,000	0	0%	0	-29	-29	-29	N/M	N/M	N/A
Summit Partners Growth Equity Fund X-A, L.P.	Buyout	8,000	8,000	0	0%	0	0	0	0	N/M	N/M	N/A
Spark Capital Growth Fund III, L.P.	Venture Capital	6,000	6,000	0	0%	0	0	0	0	N/M	N/M	N/A
Spark Capital VI, L.P.	Venture Capital	3,000	3,000	0	0%	0	0	0	0	N/M	N/M	N/A
TCV X, L.P.	Venture Capital	5,000	4,750	250	5%	0	199	199	-51	N/M	N/M	N/A
<b>Vintage Year 2019 Total</b>		<b>42,000</b>	<b>41,750</b>	<b>250</b>	<b>1%</b>	<b>0</b>	<b>169</b>	<b>169</b>	<b>-81</b>	<b>N/M</b>	<b>N/M</b>	<b>N/A</b>
<b>Total Portfolio:</b>		<b>130,973</b>	<b>63,437</b>	<b>68,675</b>	<b>52%</b>	<b>58,770</b>	<b>42,006</b>	<b>100,776</b>	<b>32,100</b>	<b>8.60%</b>	<b>11.44%</b>	<b>1.47</b>
<b>Portfolio Strategy Totals</b>												
Buyout		43,000	39,512	3,488	8%	44	3,264	3,308	-180	N/M		0.95
Distressed Debt		5,000	1,800	3,200	64%	0	3,384	3,384	184	N/M		1.06
Fund of Funds		40,175	6,401	34,597	84%	36,131	25,511	61,642	27,045	11.41%		1.78
Non-US		8,798	960	8,155	89%	7,007	5,155	12,162	4,008	7.70%		1.49
Opportunistic Credit		10,000	474	9,526	95%	5,958	3,452	9,410	-116	-0.43%		0.99
Secondary		10,000	540	9,460	95%	9,630	1,041	10,671	1,211	2.17%		1.13
Venture Capital		14,000	13,750	250	2%	0	199	199	-51	N/M		N/A
<b>Total Portfolio:</b>		<b>130,973</b>	<b>63,437</b>	<b>68,675</b>	<b>52%</b>	<b>58,770</b>	<b>42,006</b>	<b>100,776</b>	<b>32,100</b>	<b>8.60%</b>	<b>11.44%</b>	<b>1.47</b>

Note: The benchmark represents the Cambridge Associates LLC median for the respective strategy and vintage year. At the vintage year level, the Cambridge Associates LLC Global Private Equity & VC ® median is used for the respective vintage year.

# MCERA Real Estate Capital Budget & Implementation Plan

## 8% fund level target

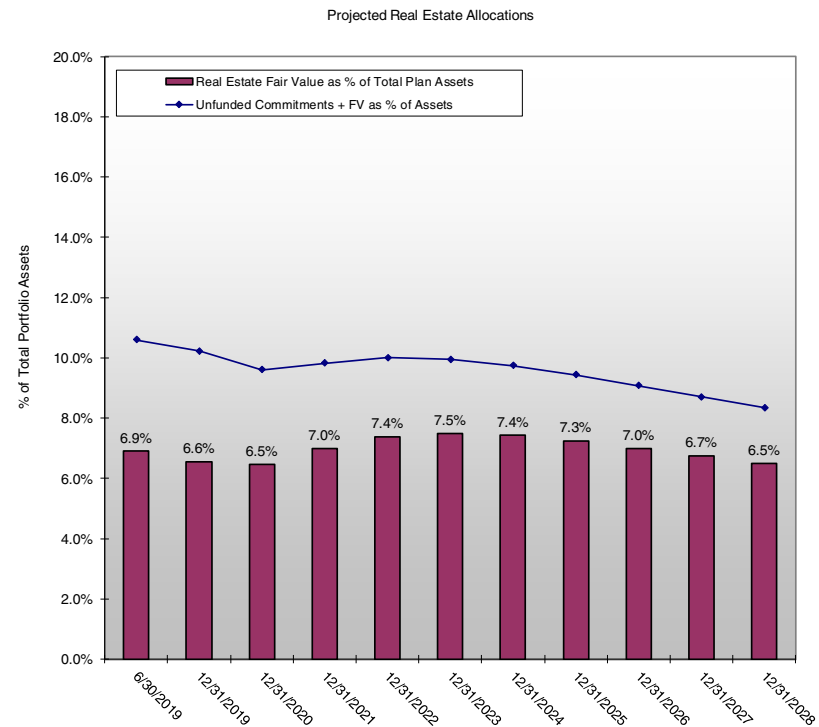
- Annual capital budget target of \$15 million, range of \$10-\$25 million
- Target 2-4 investments, range of \$4-\$7 million per inv
  - Average investment size of \$5 million
  - If an average of 2-4 GP partnership commitments per year, expect a total of 8-16 GP relationships over a 4 year fund raising cycle
- Retain core real estate exposure but lower it to 25% of the portfolio due to current valuations; use REITS as a substitute until funding private real estate investments is needed

## Performance comparisons:

- *Long term investment objective:* Earn a return premium over inflation (CPI-U + 5%)
- *Recommended primary asset class benchmark:* NCREIF NFI-ODCE; revisit over time as the structure of the portfolio changes
- *Recommended fund benchmarks:* Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to Cambridge Associates Global Real Estate Index

## MCERA CY 2019 commitments (\$5 mm):

- Rockpoint VI –opportunistic RE (VY 2019)



Note: MCERA's existing real estate portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical averages. Total fund growth rate of 5.5%.



## MCERA Real Estate Investment Structure & Portfolio Assessment

### Real estate investment structure (8% target, 7% actual as of Jun 2019)

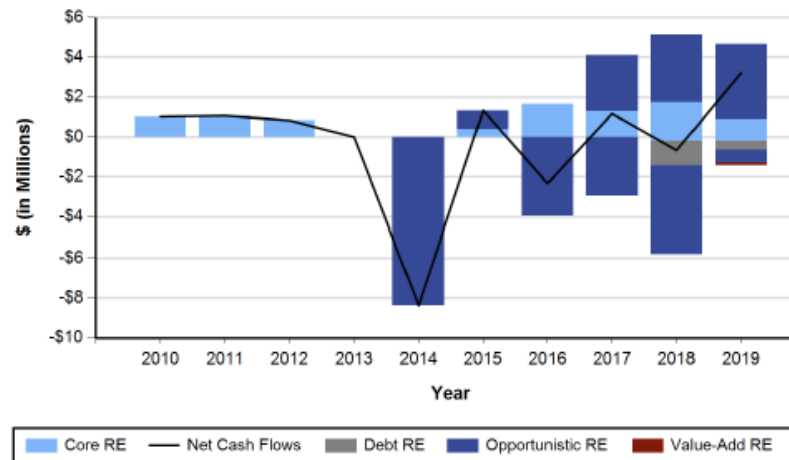
- MCERA invested in 1999 in a private core real estate fund; gains have been re-invested in the fund
- Distributions exceed contributions by \$5 million over the past year as overall RE activity has declined and Greenfield has been making distributions

#### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2018	4	\$48,908	\$34,704	\$23,777	\$62,598	\$86,375	\$51,671	9.37%	8.57%
June 30, 2019	8	\$68,529	\$38,616	\$32,415	\$59,653	\$92,069	\$53,452	9.09%	8.92%
Annual Change	4	\$19,621	\$3,912	\$8,638	-\$2,945	\$5,694	\$1,781		

Annual Cash Flow



Note: Net cash flow is the for the respective calendar year.

## MCERA Real Estate Performance – as of Jun 30, 2019

### Real Estate Portfolio

- MCERA began investing in the UBS Trumbull core real estate fund in 1999 and this represents the bulk of the real estate portfolio
  - Opportunistic funds began being added in 2014 and they are in the early stages of development with the VY 2016 fund now out of its “j-curve”
  - Valuation declined for the quarter due to UBS write down of retail properties
- Overall performance has met objectives, driven by the core RE fund; opportunistic fund performance is not meaningful

Partnership Name	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
(in thousands)												
<b>Vintage Year 1999</b>												
UBS Trumbull Property Fund	Core RE	17,000	0	17,371	100%	22,359	41,122	63,482	46,111	8.89%	10.20%	3.65
Vintage Year 1999 Total		17,000	0	17,371	100%	22,359	41,122	63,482	46,111	8.89%	12.95%	3.65
<b>Vintage Year 2014</b>												
Greenfield Acquisition Partners VII, L.P.	Opportunistic RE	13,000	1,876	12,662	86%	8,921	9,989	18,909	6,248	13.38%	13.09%	1.49
Vintage Year 2014 Total		13,000	1,876	12,662	86%	8,921	9,989	18,909	6,248	13.38%	11.70%	1.49
<b>Vintage Year 2016</b>												
Patron Capital Fund V	Opportunistic RE	13,529	7,801	5,841	42%	1,135	5,960	7,095	1,254	12.05%	10.53%	1.21
Vintage Year 2016 Total		13,529	7,801	5,841	42%	1,135	5,960	7,095	1,254	12.05%	11.30%	1.21
<b>Vintage Year 2017</b>												
Carlyle Realty Partners VIII, L.P.	Opportunistic RE	5,000	4,459	541	11%	0	424	424	-117	N/M	N/M	0.78
Vintage Year 2017 Total		5,000	4,459	541	11%	0	424	424	-117	N/M	N/M	0.78
<b>Vintage Year 2018</b>												
Taconic CRE Dislocation Fund II	Debt RE	5,000	3,300	1,700	34%	0	1,758	1,758	58	N/M	N/M	1.03
AG Realty Value Fund X, L.P.	Opportunistic RE	5,000	4,625	375	8%	0	312	312	-63	N/M	N/M	0.83
Vintage Year 2018 Total		10,000	7,925	2,075	21%	0	2,070	2,070	-5	N/M	N/M	1.00
<b>Vintage Year 2019</b>												
Rockpoint Real Estate Fund VI, L.P.	Opportunistic RE	5,000	5,000	0	0%	0	0	0	0	N/M	N/M	0.00
Carmel Partners Investment Fund VII, L.P. Value-Add RE		5,000	4,874	126	3%	0	89	89	-37	N/M	N/M	0.71
Vintage Year 2019 Total		10,000	9,874	126	1%	0	89	89	-37	N/M	N/M	0.71
<b>Total Portfolio:</b>		<b>68,529</b>	<b>31,935</b>	<b>38,616</b>	<b>53%</b>	<b>32,415</b>	<b>59,653</b>	<b>92,069</b>	<b>53,452</b>	<b>9.09%</b>	<b>8.92%</b>	<b>2.38</b>

Note: The benchmark at the total portfolio level is NCREIF NFI-ODCE . Private real estate benchmark at the fund level is the Cambridge Value Add or Opportunistic RE Indices while the Cambridge Global Real Estate Index at the vintage year level.

# MCERA Real Asset Capital Budget & Implementation Plan

## 5% fund level target

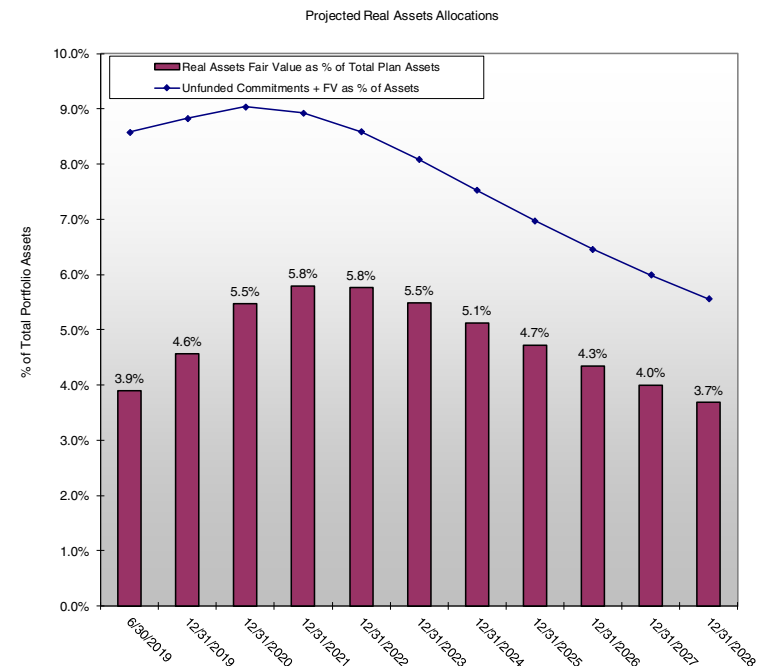
- Annual capital budget target of \$10 million, range of \$5-\$15 million
- Target 2-4 investments, range of \$3-\$7 million per inv
  - Average investment size of \$5 million
  - If an average of 2-4 GP partnership commitments per year, expect a total of 8-16 GP relationships over a 4 year fund raising cycle
- Portfolio targeted to be equally split between infrastructure and energy/natural resource funds

## Performance comparisons:

- *Long term investment objective:* Earn a return premium over inflation (CPI-U + 5%)
- *Recommended primary asset class benchmark:* 50/50 Cambridge Global Infrastructure/Cambridge Energy Upstream & Royalties and Private Energy Index
- *Recommended fund benchmarks:* Each fund will be compared to the Cambridge Associates strategy universe for the respective vintage years and each vintage year will be compared to the 50/50 index

## MCERA CY 2019 commitments (\$5 mm):

- Tailwater IV – mid-stream energy (VY 2019)



Note: MCERA's existing real asset portfolio was modeled using vintage year drawdown/return of capital assumptions patterned after historical category averages. Total fund growth rate of 5.5%.

## MCERA Real Assets Investment Structure & Portfolio Assessment

### Real assets investment structure (5% target, 5.7% actual as of Jun 2019)

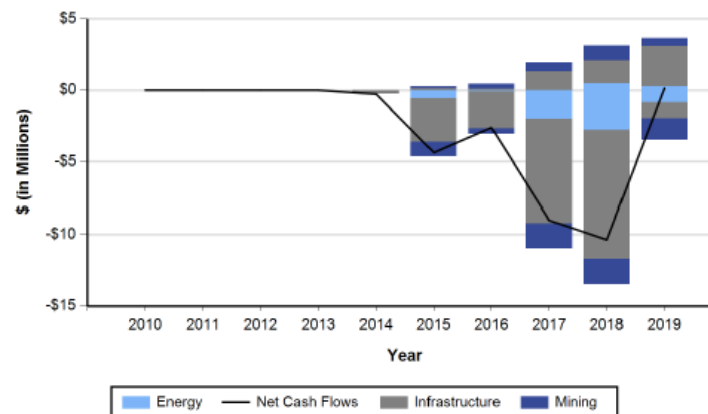
- Program is designed to be equally divided between private infrastructure and natural resource funds along with a public real asset component
- Private fund commitments began in 2014 to infrastructure and 2015 to natural resources
- The overall portfolio is immature with the funds in the early stage of development
  - Contributions exceed distributions by \$7 mm as the newer funds are being built out

#### Annual Summary

(in thousands)

	Total Partnerships	Total Commitments	(A) Contributions	(B) Distributions	(C) Fair Value	(B+C) Total Value	(B+C-A) Gain/ Loss	Net IRR	Benchmark
June 30, 2018	9	\$55,500	\$24,034	\$4,217	\$23,593	\$27,810	\$3,776	12.88%	5.02%
June 30, 2019	12	\$69,890	\$35,859	\$9,386	\$33,617	\$43,003	\$7,145	12.43%	1.06%
Annual Change	3	\$14,390	\$11,825	\$5,169	\$10,024	\$15,193	\$3,369		

Annual Cash Flow



Note: As of Dec 31, 2017. Net cash flow is the for the respective calendar year.

## MCERA Real Assets Performance – as of Jun 30, 2019

### Real Asset Portfolio

- MCERA began allocating to real assets in 2014 via direct fund commitments
- Portfolio is in its early stages of development so performance is not meaningful; the 2014-16 funds had valuation improvements for the quarter; the VY 2017-19 funds are being built out

Partnership Name (in thousands)	Strategy	(A) Commit. Amount	Unfund. Amount	(B) Cumulat. Cont.	% Drawn	(C) Cumulat. Dist.	(D) Fair Value	(C+D) Total Value	(C+D-B) Gain/ Loss	Net IRR	IRR Bench.	TVPI
<b>Vintage Year 2014</b>												
KKR Global Infrastructure II	Infrastructure	10,000	813	10,386	92%	1,681	11,180	12,861	2,475	11.53%	9.12%	1.24
Vintage Year 2014 Total		10,000	813	10,386	92%	1,681	11,180	12,861	2,475	11.53%		1.24
<b>Vintage Year 2015</b>												
GSO Energy Select Opportunities Fund	Energy	7,500	3,789	4,167	49%	743	4,448	5,191	1,024	12.20%	11.40%	1.25
North Haven Infrastructure Partners II LP	Infrastructure	10,000	1,650	10,758	83%	4,197	8,678	12,875	2,117	12.16%	9.30%	1.20
Taurus Mining Finance Fund	Mining	5,000	2,179	3,698	56%	1,693	2,932	4,624	926	16.79%	N/A	1.25
Vintage Year 2015 Total		22,500	7,618	18,622	66%	6,633	16,057	22,690	4,068	13.00%		1.22
<b>Vintage Year 2016</b>												
Taurus Mining Finance Annex Fund	Mining	5,000	2,957	2,649	41%	944	2,365	3,309	660	31.38%	N/A	1.25
Vintage Year 2016 Total		5,000	2,957	2,649	41%	944	2,365	3,309	660	31.38%		1.25
<b>Vintage Year 2017</b>												
EnCap Energy Capital Fund XI, L.P.	Energy	5,000	4,093	907	18%	0	756	756	-151	N/M	N/M	0.83
ISQ Global Infrastructure Fund II	Infrastructure	5,000	3,750	1,377	25%	129	1,371	1,499	122	N/M	N/M	1.09
Vintage Year 2017 Total		10,000	7,844	2,284	22%	129	2,127	2,255	-29	N/M		0.99
<b>Vintage Year 2018</b>												
EnCap Flatrock Midstream IV, L.P.	Energy	3,000	2,113	887	30%	0	963	963	76	N/M	N/M	1.09
KKR Global Infrastructure Investors III	Infrastructure	5,000	4,370	630	13%	0	560	560	-70	N/M	N/M	N/A
Vintage Year 2018 Total		8,000	6,483	1,517	19%	0	1,524	1,524	6	N/M		1.00
<b>Vintage Year 2019</b>												
BlackRock Global Energy & Power Infrastructure Fund III	Energy	5,000	4,802	198	4%	0	185	185	-13	N/M	N/M	0.93
Global Energy & Power Infrastructure Fund III	Energy	5,000	4,802	198	4%	0	185	185	-13	N/M	N/M	0.93
Ardian Infrastructure Fund V	Infrastructure	4,390	4,386	4	0%	0	-5	-5	-10	N/M	N/M	N/A
Vintage Year 2019 Total		14,390	13,990	400	3%	0	365	365	-35	N/M		0.91
<b>Total Portfolio:</b>		<b>69,890</b>	<b>39,704</b>	<b>35,859</b>	<b>43%</b>	<b>9,386</b>	<b>33,617</b>	<b>43,003</b>	<b>7,145</b>	<b>12.43%</b>	<b>1.06%</b>	<b>1.20</b>
<b>Portfolio Strategy Totals</b>												
Energy		20,500	14,797	6,158	28%	743	6,352	7,095	937	9.56%		1.15
Infrastructure		25,000	6,833	21,774	73%	5,878	20,418	26,297	4,522	11.59%		1.21
Non-US		24,390	18,074	7,926	26%	2,765	6,847	9,612	1,686	19.56%		1.21
<b>Total Portfolio:</b>		<b>69,890</b>	<b>39,704</b>	<b>35,859</b>	<b>43%</b>	<b>9,386</b>	<b>33,617</b>	<b>43,003</b>	<b>7,145</b>	<b>12.43%</b>	<b>1.06%</b>	<b>1.20</b>

Note: Benchmark is 50% S&P Natural Resources and 50% S&P Infrastructure. Benchmarks for individual funds are the respective Cambridge strategy benchmark.

# MCERA Hedge Fund Performance – as of Oct 31, 2019

Equity oriented managers have been the best performers CYTD while credit has lagged

Fund	Market Value	Actual %	Oct	QTD	YTD	Returns 1 Year	3 Year	5 Year	Incep	Std Dev	Sharpe Ratio	Incep Date
<b>Market Neutral</b>												
KLS Diversified Fund LP	9,059,387	11.9%	-0.71%	-0.71%	-0.18%	-4.79%	-	-	0.87%	3.89%	-0.33	Oct-17
Laurion Capital, Ltd.	5,386,468	7.1%	1.37%	1.37%	5.29%	6.14%	-	-	5.74%	4.60%	0.72	Jul-18
Market Neutral - HF Total	14,445,855	19.0%	0.06%	0.06%	1.79%	-0.21%	-	-	3.18%	2.89%	0.32	Oct-17
HFRI Relative Value (Total) Index			0.37%	0.37%	5.97%	3.66%	-	-	3.13%	2.87%	0.31	Oct-17
<b>Credit/Distressed</b>												
Silver Point Capital Fund, L.P.	11,862,443	15.6%	-1.40%	-1.40%	-0.18%	-5.46%	-	-	-0.37%	4.77%	-0.54	Dec-17
Credit/Distressed - HF Total	11,862,443	15.6%	-1.40%	-1.40%	-0.18%	-5.46%	-	-	-0.37%	4.77%	-0.54	Dec-17
HFRI ED: Distressed/Restructuring Index			-0.25%	-0.25%	2.77%	-1.40%	-	-	1.23%	4.33%	-0.23	Dec-17
<b>Event Driven</b>												
Taconic Opportunity Fund L.P.	10,378,412	13.7%	0.28%	0.28%	4.19%	-	-	-	3.78%	1.68%	-	Dec-18
Event Driven - HF Total	10,378,412	13.7%	0.28%	0.28%	4.19%	-	-	-	3.78%	1.68%	-	Dec-18
HFRI Event-Driven (Total) Index			0.75%	0.75%	5.33%	-	-	-	2.88%	5.27%	-	Dec-18
<b>Equity Long/Short</b>												
Archipelago Partners, L.P.	11,857,205	15.6%	0.55%	0.55%	9.94%	6.69%	-	-	4.15%	7.08%	0.30	Sep-17
Marshall Wace Funds LP - MW Eureka (US) Fund	3,275,728	4.3%	0.63%	0.63%	8.65%	6.59%	-	-	4.69%	5.37%	0.45	Dec-17
Equity Long/Short - HF Total	15,132,933	19.9%	0.56%	0.56%	9.66%	6.81%	-	-	4.54%	6.17%	0.39	Sep-17
HFRI Equity Hedge (Total) Index			1.31%	1.31%	9.25%	4.85%	-	-	2.87%	7.33%	0.12	Sep-17
<b>Global Macro-Discretionary</b>												
Graham Absolute Return Trading Ltd.	7,528,866	9.9%	1.34%	1.34%	7.47%	3.39%	-	-	3.51%	6.95%	0.21	Sep-17
Global Macro-Discretionary - HF Total	7,528,866	9.9%	1.34%	1.34%	7.47%	3.39%	-	-	3.51%	6.95%	0.21	Sep-17
HFRI Macro (Total) Index			-1.29%	-1.29%	5.38%	5.00%	-	-	1.20%	5.12%	-0.17	Sep-17
<b>Global Macro-Systematic</b>												
Winton Fund Limited	6,192,149	8.2%	-1.17%	-1.17%	2.20%	2.08%	-	-	2.08%	7.50%	0.01	Nov-17
Global Macro-Systematic - HF Total	6,192,149	8.2%	-1.17%	-1.17%	2.20%	2.08%	-	-	2.08%	7.50%	0.01	Nov-17
HFRI Macro (Total) Index			-1.29%	-1.29%	5.38%	5.00%	-	-	0.75%	5.12%	-0.27	Nov-17
<b>Multi-Strategy</b>												
Sculptor Domestic Partners II, L.P.	10,422,136	13.7%	1.84%	1.84%	12.47%	9.98%	8.31%	6.01%	5.70%	5.69%	0.78	Jul-14
Multi-Strategy - HF Total	10,422,136	13.7%	1.84%	1.84%	12.47%	9.98%	8.31%	6.01%	5.70%	5.69%	0.78	Jul-14
HFRI Relative Value (Total) Index			0.37%	0.37%	5.97%	3.66%	4.06%	3.51%	3.19%	2.80%	0.68	Jul-14
MCERA Hedge Fund Portfolio	75,962,795	100.0%	0.22%	0.22%	5.26%	2.72%	6.08%	3.80%	3.58%	4.11%	0.57	Jul-14
HFRI Fund of Funds Composite Index			0.45%	0.45%	5.76%	3.56%	3.43%	2.18%	1.98%	3.62%	0.21	Jul-14
<b>Market Indices</b>												
Libor3Month			0.16%	0.16%	1.97%	2.44%	1.93%	1.35%	1.28%	0.25%	-	Jul-14
Bloomberg Barclays US Aggregate Bond Index			0.30%	0.30%	8.86%	11.53%	3.30%	3.25%	3.26%	3.04%	0.66	Jul-14
Bloomberg Barclays US High Yield Bond Index			0.28%	0.28%	11.70%	8.37%	6.03%	5.18%	4.71%	5.37%	0.65	Jul-14
S&P 500 TR			2.17%	2.17%	23.16%	14.33%	14.91%	10.78%	10.80%	11.72%	0.83	Jul-14
MSCI AC World Index Free - Net			2.74%	2.74%	19.38%	12.59%	11.33%	7.08%	6.30%	11.54%	0.48	Jul-14
MSCI EAFE - Net			3.59%	3.59%	16.86%	11.04%	8.48%	4.31%	2.58%	12.11%	0.17	Jul-14
MSCI EMF (Emerging Markets Free) - Net			4.22%	4.22%	10.37%	11.86%	7.36%	2.93%	2.29%	15.56%	0.14	Jul-14

# Cliffwater Disclosures

## Important Notice

This presentation was prepared exclusively for information and discussion purposes, and is not meant to be, nor shall it be construed as, an attempt to define all information that may be material to you. All information including opinions or facts expressed herein are current as of the date appearing in this presentation and is subject to change without notice. All information has been obtained from sources believed to be reliable. No representation, warranty, or undertaking, express or implied, is given as to the accuracy or completeness of the information or opinions contained in this presentation. Past performance does not guarantee future performance.

This presentation may include sample or pro forma performance. Such information is presented for illustrative purposes only and is based on various assumptions, not all of which are described herein. Such assumptions, data, or projections may have a material impact on the returns shown.

References to market or composite indices (such as the S&P 500), benchmarks or other measures of relative market performance over a specified period of time (each, an “index”) are provided for information only. Reference to an index does not imply that a portfolio will achieve returns, volatility or other results similar to the index. The composition of an index may not reflect the manner in which a portfolio is constructed in relation to expected or achieved returns, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility or tracking error targets, all of which are subject to change over time.

- Hedge Fund Research, Inc. (“HFR”) is the source and owner of the HFR data contained or reflected in this report and all trademarks related thereto.
- Frank Russell Company (“FRC”) is the source and owner of the Russell Index data contained or reflected in this material and all trademarks and copyrights related thereto. The Russell Index data may contain confidential information and unauthorized use, disclosure, copying, dissemination or redistribution is strictly prohibited.
- Thomson Financial Inc. is the owner and/or licensor of the Cambridge Associates data contained or reflected in this material.

**Merced County Employees' Retirement Association (MCERA)**  
**RETIREMENT BOARD AGENDA ITEM**

---

**DATE:** December 12, 2019

**TO:** MCERA Board of Retirement

**FROM:** Mark Harman, Fiscal Manager

**SUBJECT:** Interest Crediting Rates for December 2019

**ITEM NUMBER:** 4

**ITEM TYPE:** Action

**STAFF RECOMMENDATION:**

1. Adopt the proposed interest credit rate of 1.29% to be credited to the active reserves balances and 3.56% to retiree and employer reserves balances.

**DISCUSSION:** Pursuant to the Interest Crediting Policy adopted by the MCERA Retirement Board on September 14, 2017 and in accordance with Section 31591 of the County Employees' Retirement Law of 1937, the Retirement Board shall determine a rate of interest to be credited on December 31, 2019 to all contributions in the retirement fund which have been on deposit for six months immediately prior to that date.

Active Member Reserves shall be credited first. The policy provides a range of 0% to 7.25% (the actuarial rate of return originally adopted November 2016). The policy provides guidance for establishing the amount to be credited by using the Bank of America Merrill Lynch Six Month Treasury Bill index. For the six-month period, ending November 30, 2019, the index return was 1.29%, as reported to MCERA by Meketa.

Employer and Retiree Reserves shall be credited semi-annually at the actuarial discount rate, if there are sufficient funds. MCERA will only credit interest to the extent that there is a current fiscal year net investment revenue or any balance in the Interest Fluctuation Reserve.

The amounts available for interest crediting and to be credited on December 31, 2019 are estimated to be as follows:

Balance in the Interest Fluctuation Reserve as of July 01, 2019	\$81,842,477.07
Total Estimated Investment Gain as of December 31, 2019*	6,674,258.66
Total Estimated Expenses as of December 31, 2019*	(1,448,069.64)
Total Estimated Available for Interest Crediting	87,068,666.09
Proposed crediting of 1.29% to the Active Member Reserves and 3.56% to the Retiree and Employer Reserves on December 31, 2019	(20,181,471.45)
Estimated Balance in the Interest Fluctuation Reserve as of December 31, 2019	\$66,887,194.64

*\*Investment gains and expenses are based on a blend of actuals and best estimates and may vary greatly between now and the final accounting for transactions occurring during the months of November and December.*



**Merced County Employees' Retirement Association (MCERA)  
RETIREMENT BOARD AGENDA ITEM**

---

**DATE:** December 12, 2019**TO:** MCERA Board of Retirement  
**FROM:** Kristie Santos, Plan Administrator**SUBJECT:** Replacement of iPads for Trustees**ITEM NUMBER:** 5**ITEM TYPE:** Information Only**DISCUSSION:**

The Merced County Employees' Retirement Association (MCERA) staff are replacing the Trustees' iPads due to hardware malfunctions and outdated hardware.

Several Trustees have had issues with their iPads not charging, memory errors or the iPad has 'locked up' and staff are unable to unlock or wipe the iPad. Currently, there are no replacement iPads. As a result, staff are replacing all Trustees' iPads.

Item Description	Quantity	Total Cost
Apple 10.2-inch iPad with Wifi, 128GB	12	4,942.08
Keyboards	12	1,594.79
Recycle Fee & Sales Tax		599.29
Total Cost		\$7,136.16

The Plan Administrator has designated authority to purchase up to \$10,000 of goods. The iPads are not included in the County Employees' Retirement Law (CERL) administrative cap because the iPads are technology related. The iPad replacements were not included as a line item in the Association's technology projection for FY 2019-2020.

**DATE:** December 12, 2019

**TO:** MCERA Board of Retirement  
**FROM:** Kristie Santos, Plan Administrator

**SUBJECT:** Addition of Extra Help Office Assistant

**ITEM NUMBER:** 6

**ITEM TYPE:** Action

**STAFF RECOMMENDATION:**

1. Adopt the proposal of adding one extra help Office Assistant to MCERA.

**DISCUSSION:**

The full time Office Assistant (OA) I/II position is responsible for the Retirement Board's agendas, minutes, posting, travel arrangements, tracking education hours, paying invoices through the County's AP process using the OneSolution system, greeting and working with MCERA's members who visit the office, fielding all phone calls, copying, scanning, and many more administrative duties that are required for MCERA's day-to-day business. The duties completed by the OA I/II are vital to the success of MCERA.

Because MCERA is a small organization, the workload attributable to the OA I/II position constitutes the addition of an extra help position. MCERA staff are requesting the addition of an extra help Office Assistant I/II to be cross-trained with the full time Office Assistant I/II. This would insure that all vital administrative functions are properly allocated between 1.5 staff persons and each would be cross-trained, accordingly.

Staff left the extra help allocation in the budget and therefore no amendments or budget increases will be needed. The cost of the position for the remaining six months of the fiscal year will be approximately \$9,725.00. MCERA follows the County's procedure for all recruitments and new hires.

MCERA staff recommends the MCERA Board of Retirement approve the extra help Office Assistant I/II position.

## **2019 Chaptered Legislation**

This is a summary of legislation signed by the Governor in 2019 that affects public pension plans governed by the *County Employees' Retirement Law of 1937* and *PEPRA*.

### **AB 1819** – *amends Government Code 6253 as follows:*

The *California Public Records Act*, requires state and local agencies to make public records available upon receipt of a request that reasonably describes an identifiable record not otherwise exempt from disclosure, and upon payment of fees to cover costs.

Section 6253 now grants the requester the right to use the requester's own equipment, without being charged any fees or costs, to photograph or otherwise copy or reproduce any record upon inspection and on the premises of the agency, unless the means of copy or reproduction would result in damage to the record, or unauthorized access to a computer system of the agency or secured network, as specified. However, the agency may impose any reasonable limits on the use of the requester's equipment that are necessary to protect the safety of the records or to prevent the copying of records from being an unreasonable burden to the orderly function of the agency and its employees. The agency may also impose any limit that is necessary to maintain the integrity of, or ensure the long-term preservation of, historic or high-value records. By imposing additional duties and responsibilities upon local agencies in connection with requests for inspection of records, section 6253 constitutes a state-mandated local program.

See Attachment A.

## Attachment A

### **Government Code Section 6253**

(a) Public records are open to inspection at all times during the office hours of the state or local agency and every person has a right to inspect any public record, except as hereafter provided. Any reasonably segregable portion of a record shall be available for inspection by any person requesting the record after deletion of the portions that are exempted by law.

(b) Except with respect to public records exempt from disclosure by express provisions of law, each state or local agency, upon a request for a copy of records that reasonably describes an identifiable record or records, shall make the records promptly available to any person upon payment of fees covering direct costs of duplication, or a statutory fee if applicable. Upon request, an exact copy shall be provided unless impracticable to do so.

(c) Each agency, upon a request for a copy of records, shall, within 10 days from receipt of the request, determine whether the request, in whole or in part, seeks copies of disclosable public records in the possession of the agency and shall promptly notify the person making the request of the determination and the reasons therefor. In unusual circumstances, the time limit prescribed in this section may be extended by written notice by the head of the agency or their designee to the person making the request, setting forth the reasons for the extension and the date on which a determination is expected to be dispatched. No notice shall specify a date that would result in an extension for more than 14 days. When the agency dispatches the determination, and if the agency determines that the request seeks disclosable public records, the agency shall state the estimated date and time when the records will be made available. As used in this section, "unusual circumstances" means the following, but only to the extent reasonably necessary to the proper processing of the particular request:

(1) The need to search for and collect the requested records from field facilities or other establishments that are separate from the office processing the request.

(2) The need to search for, collect, and appropriately examine a voluminous amount of separate and distinct records that are demanded in a single request.

(3) The need for consultation, which shall be conducted with all practicable speed, with another agency having substantial interest in the determination of the request or among two or more components of the agency having substantial subject matter interest therein.

(4) The need to compile data, to write programming language or a computer program, or to construct a computer report to extract data.

(d) Nothing in this chapter shall be construed to permit an agency to delay or obstruct the inspection or copying of public records.

(1) A requester who inspects a disclosable record on the premises of the agency has the right to use the requester's equipment on those premises, without being charged any fees or costs, to photograph or otherwise copy or reproduce the record in a manner that does not require the equipment to make physical contact with the record, unless the means of copy or reproduction would result in either of the following:

(A) Damage to the record.

**PUBLIC PENSION CONSULTANTS**

6510 A South Academy Blvd., #283 Colorado Springs, CO 80906

Tel: (719) 999-5941, E-mail: [Lance@kjeldgaard-ppc.com](mailto:Lance@kjeldgaard-ppc.com)

(B) Unauthorized access to the agency's computer systems or secured networks by using software, equipment, or any other technology capable of accessing, altering, or compromising the agency's electronic records.

(2) The agency may impose any reasonable limits on the use of the requester's equipment that are necessary to protect the safety of the records or to prevent the copying of records from being an unreasonable burden to the orderly function of the agency and its employees. In addition, the agency may impose any limit that is necessary to maintain the integrity of, or ensure the long-term preservation of, historic or high-value records.

(3) The notification of denial of any request for records required by Section 6255 shall set forth the names and titles or positions of each person responsible for the denial.

(e) Except as otherwise prohibited by law, a state or local agency may adopt requirements for itself that allow for faster, more efficient, or greater access to records than prescribed by the minimum standards set forth in this chapter.

(f) In addition to maintaining public records for public inspection during the office hours of the public agency, a public agency may comply with subdivision (a) by posting any public record on its internet website and, in response to a request for a public record posted on the internet website, directing a member of the public to the location on the internet website where the public record is posted. However, if after the public agency directs a member of the public to the internet website, the member of the public requesting the public record requests a copy of the public record due to an inability to access or reproduce the public record from the internet website, the public agency shall promptly provide a copy of the public record pursuant to subdivision (b).