



Notice of Public Meeting

The Board of Retirement of the San Mateo County Employees' Retirement Association will meet on **Tuesday, July 28, 2020, at 10:00 A.M.**

In accordance with the Governor's Executive Order N-29-20 (3) the Members of the Board will be participating via Zoom video conference and teleconference. Pursuant to Government Code §54954.3, members of the public, to the extent required by law, will have the opportunity to directly address the Board concerning matters within the jurisdiction of the Board. The public can participate and provide comment using the instructions below:

To Join the Meeting

- To join the meeting via video conference, click here: <https://zoom.us/j/93421198525>
- To join the meeting via telephone, dial: (669) 900-9128, and enter Meeting ID: 934 2119 8525

Public Comment During the Meeting

Persons wishing to address the Board should follow the steps below:

- If joining via video conference, please use the "raise your hand" feature in Zoom during the Oral Communications from the Public period.
- If joining via teleconference dial in, please dial *9 to "raise your hand" during the Oral Communications from the Public period.

You will be called on at the appropriate time. At the beginning of your comment, please state your name.

Public Comment Prior to the Meeting

Persons who wish to address the Board may submit written comments via email to samcera@samcera.org at least 30 minutes before the start of the Board meeting. Please include your name, agenda item, and your comment. The Board will have the email read into the record and attached to the minutes.

For help joining a Zoom meeting, see: <https://support.zoom.us/hc/enus/articles/201362193>

PUBLIC SESSION – The Board will meet in Public Session at 10:00 a.m.

- 1. Call to Order, Roll Call and Miscellaneous Business**
 - 1.1 Election of Board Officers
 - 1.2 Announcement of Appointment of Board Committees
- 2. Oral Communications**
 - 2.1 Oral Communications from the Board
 - 2.2 Oral Communications from the Public
- 3. Approval of the Minutes**
 - 3.1 Approval of Board Meeting Minutes from June 2, 2020

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4. Approval of the Consent Agenda*

- 4.1 Disability Retirements (2)
 - Suheil Azar
 - Barbara Caruana
- 4.2 Survivor Death Benefits
- 4.3 Service Retirements
- 4.4 Continuances
- 4.5 Deferred Retirements
- 4.6 Member Account Refunds
- 4.7 Member Account Rollovers
- 4.8 Member Account Redeposits
- 4.9 Acceptance of Trustees' Reports of Educational Activities (Pension Bridge, SACRS, NCPERS)
- 4.10 Report on Gov Code Section 7514.7 Annual Disclosure for 2019
- 4.11 Approval of Questions for Annual Review of Milliman, Inc.
- 4.12 Acceptance of Semi-Annual Compliance Certification Statements for Period Ended June 30, 2020
- 4.13 Reaffirmation of Conflict of Interest Code

5. Benefit & Actuarial Services

- 5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda
- 5.2 Acceptance of Milliman Inc.'s Investigation of Experience July 1, 2017 – April 30, 2020
- 5.3 Acceptance of Cheiron Inc's Actuarial Audit of Experience Study July 1, 2017-April 30, 2020
- 5.4 Approval of Resolution Adopting Recommended Changes To Assumptions Based on Milliman's Investigation of Experience, July 1, 2017 – April 30, 2020

6. Investment Services

- 6.1 Report on Preliminary Monthly Portfolio Performance Report for the Period Ended June 30, 2020
- 6.2 Report on Core Equity and Low Volatility Equity Manager Annual Reviews
- 6.3 Report on International Equity Manager Annual Reviews
- 6.4 Approval of Resolution Amending the Investment Policy Statement
- 6.5 Approval to Change FIAM Core Bond and QMA Small-Cap Equity to Separate Account Structure

7. Board & Management Support

- 7.1 Approval of Resolution Adopting a Surplus Property Policy

8. Management Reports

- 8.1 Chief Executive Officer's Report
- 8.2 Assistant Executive Officer's Report
- 8.3 Chief Investment Officer's Report
- 8.4 Chief Legal Counsel's Report

CLOSED SESSION – The Board may meet in closed session prior to adjournment

- C1 Consideration of Disability Items, if any, removed from the Consent Agenda

9. Report on Actions Taken in Closed Session

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10. Adjournment in Memory of the Following Deceased Members:

Doran, John	May 14, 2020	Sheriff's
Dorris, Jimmy Lee	May 20, 2020	Sheriff's
Whitmer, Irene	May 22, 2020	Sheriff's
McNary, Darlene	May 23, 2020	Social Services
Engeli, Miriam	May 20, 2020	DAO
Hernandez, Frank	May 24, 2020	Probation
Pagmanua, Roberto	May 30, 2020	Planning
Kauscha, Theresa	June 2, 2020	SMMC
Nygren, Marilyn	June 6, 2020	Courts
Skalisky, Beverly	June 16, 2020	ISD
Grover, Maureen	June 24, 2020	ACRE
Mendoza, Charles	June 29, 2020	ISD
Tomita, Helen	July 8, 2020	Health and Welfare
Seager, Linda	July 11, 2020	Social Services



Scott Hood, Chief Executive Officer

Posted: July 22, 2020

(* ALL ITEMS ON THE CONSENT AGENDA ARE APPROVED BY ONE ROLL CALL MOTION UNLESS A REQUEST IS MADE BY A BOARD MEMBER THAT AN ITEM BE WITHDRAWN OR TRANSFERRED TO THE REGULAR AGENDA. ANY ITEM ON THE REGULAR AGENDA MAY BE TRANSFERRED TO THE CONSENT AGENDA. ANY 4.1 ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER CLOSED SESSION; ALL OTHER ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER ITEM 5.1.)

THE BOARD NORMALLY MEETS AT 100 MARINE PARKWAY, SUITE 160, WHICH IS LOCATED ON THE SE CORNER OF TWIN DOLPHIN & MARINE PARKWAY IN REDWOOD CITY. Detailed directions are available on the "Contact Us" page of the website www.samcera.org. Free Parking is available in all lots in the vicinity of the building. A copy of the Board of Retirement's open session agenda packet is available for review at the SamCERA offices and on our website unless the writings are privileged or otherwise exempt from disclosure under the provisions of the California Public Records Act. Office hours are Monday through Thursday 7 a.m.– 6 p.m.

IN COMPLIANCE WITH THE CALIFORNIA GOVERNMENT CODE AND THE AMERICANS WITH DISABILITIES ACT: SamCERA's facilities and board and committee meetings are accessible to individuals with disabilities. Contact SamCERA at (650) 599-1234 at least three business days prior to the meeting if (1) you need special assistance or a disability-related modification or accommodation, including auxiliary aids or services, in order to participate in this meeting; or (2) you have a disability and wish to receive the agenda, meeting notice, agenda packet or other writings that may be distributed at the meeting in an alternative format. Notification in advance of the meeting will enable SamCERA to make reasonable arrangements to ensure full accessibility to this meeting and the materials related to it.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 1.1

TO: Board of Retirement

FROM: Ad Hoc Nominating Committee – Katherine O’Malley (Chair), Mark Battey and Robert Raw

SUBJECT: Election of 2020-2021 Board Officers

Recommendation

Accept report of the Ad Hoc Nominating Committee and hold election for Board Officers.

Background

Pursuant to the Board’s Regulations, an election of Board officers is to be held at the first regular meeting in July.

At the Board’s June 2, 2020 meeting, Chair, Kurt Hofer, appointed an Ad Hoc Nominating Committee to recommend a nomination slate for the Board of Retirement officer positions for the 2020-2021 term.

Discussion


The Ad Hoc Nominating Committee met and now recommends that the Board:

- Ask for a motion and a second to place the Committee’s following slate of candidates in nomination:
 - Al David, Chair
 - Robert Raw, Vice-chair
 - Katherine O’Malley, Secretary
- Open the floor to additional nominations, and
- Conduct a vote for the officer positions

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 1.2

TO: Board of Retirement
FROM: Scott Hood, Chief Executive Officer 
SUBJECT: Announcement of Appointment of Board Committees

Recommendation

Chair announces appointments to the Investment Committee and the Audit Committee as the Chair deems appropriate.

Background

The Board Chair is authorized by the Regulations of the Board of Retirement to appoint all committees.

“2.1 Election of Chair: At the first regular meeting in July, the Board of Retirement shall elect one of its members chair for a term of one year or until his or her successor is duly elected and qualified. The Chair shall preside at all meetings of the Board, **shall appoint all committees** (*emphasis added*) and shall perform all duties incidental to that office.”

Committee assignments for FY19-20 were as follows:

- Audit Committee- Mark Battey, Alma Salas and Robert Raw, Chair
- Investment Committee- Al David, Katherine O’Malley, Eric Tashman and Sandra Arnott, Chair

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

JUNE 2, 2020 – REGULAR BOARD MEETING MINUTES

2006.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Mr. Hoefer, Chair, called the Regular Meeting of the Board of Retirement to order at 10:00 a.m. via teleconference.

Roll Call:

Present: Sandie Arnott, Mark Battey, Ben Bowler, Al David, Paul Hackleman, Kurt Hoefer, Katherine O'Malley and Robert Raw.

Absent: Alma Salas and Eric Tashman.

Alternates present: Susan Lee.

Staff: Brenda Carlson, Tat-Ling Chow, Michael Coultrip, Lili Dames, Scott Hood, Doris Ng, Gladys Smith and Anne Trujillo.

Consultants and speakers: Nick Collier (Milliman, Inc.); Joe Abdou, Margaret Jadallah, John Nicolini and Faraz Shooshani (Verus).

2006.1.1 Appointment by Chair of Ad Hoc Nominating Committee for Board Members: Mr. Hoefer announced the appointment of Mark Battey, Robert Raw and Katherine O'Malley (Chair) to the Ad Hoc Nominating Committee for Board Officers.

2006.2.1 Oral Communications from the Board: None.

2006.2.2 Oral Communications from the Public: Ms. Trujillo reported that there were no public comments submitted by the public for today's meeting.

2006.3.1 Approval of Regular Board Meeting Minutes from April 25, 2020: Mr. Hoefer asked if there were any changes or corrections, or objections, to the meeting minutes from the Board meeting held on April 25, 2020.

Action: Mr. Hackleman moved to approve the minutes from the Board meeting on April 25, 2020. The motion was seconded by Mr. David and carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hoefer, O'Malley and Raw all in favor; none opposed.

2006.4.0 Approval of the Consent Agenda: Mr. Hoefer asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed.

Action: Mr. Hackleman moved to approve the items on the Consent Agenda, and the motion was seconded by Ms. Arnott. The motion carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hoefer, O'Malley, and Raw all in favor; none opposed.

2006.4.1 Disability Retirements: None.

2006.4.2 Survivor Death Benefits: None.

2006.4.3 Service Retirements:

Name	Effective Retirement Date	Department
Aguilar, Liberty	March 21, 2020	Assessor, Clerk-Recorder
Anderson, Susan	March 27, 2020	Public Safety Communications
Anorico, Evelyn	March 31, 2020	San Mateo County Health
Aragaki, Brandee	April 1, 2020	Probation
Astesano, Margaret	March 3, 2020	Deferred - Superior Court
Baird, Catherine	April 1, 2020	Aging & Adult Services
Barron, Amy	April 1, 2020	Aging & Adult Services
Bassett-McConnell, Theresa	March 28, 2020	Behavioral Health & Recovery Services
Benitez, Irma	March 28, 2020	Public Health
Brodie, Barbara	March 28, 2020	Correctional Health
Brown, Dora	March 28, 2020	San Mateo County Health
Buchanan, Paul	March 21, 2020	Aging & Adult Services
Burch, Thomas	April 1, 2020	Human Resources Dept.
Buttram, Mary	April 1, 2020	Deferred – Behavioral Health & Recovery Services
Capovilla, Leo	March 28, 2020	Sheriff's Office
Carter, Georgia	March 28, 2020	Sheriff's Office
Catalon, Joel	March 14, 2020	San Mateo County Health
Chiang, William	April 1, 2020	Deferred - Board of Supervisors
Chilton, Gisele	March 28, 2020	Aging & Adult Services
Cody, Mark	March 22, 2020	Sheriff's Office
Costa, Julie	March 22, 2020	Sheriff's Office
Crowder, Fred	March 28, 2020	Agriculture, Weights & Measures
DeMarco, Toni	March 28, 2020	Behavioral Health & Recovery Services
DiMauro, Jody	March 28, 2020	Probation
Edwards, Larry	March 29, 2020	Sheriff's Office
Eggemeyer, James	April 1, 2020	Sustainability Office
Enrico, Virginia	March 28, 2020	Aging & Adult Services
Escobar, Leticia	March 29, 2020	San Mateo County Health
Farris, Lisa	March 14, 2020	Probation
Foucrault, Robin	April 1, 2020	Sheriff's Office
Fox, Aida	April 1, 2020	Family Health Services
Gandolfi, Phyllis	March 17, 2020	QDRO of Brendon Donegan
Gonzales, John	March 31, 2020	Sheriff's Office
Gorman, Linda	March 28, 2020	Probation
Guan, Jing	April 1, 2020	San Mateo County Health
Hansen, Marguerite	March 31, 2020	Def'd - San Mateo County Health
Haritakis, Sylvia	March 31, 2020	Sheriff's Office
Harris, Sandra	April 1, 2020	Superior Court
Herranz, Pamela	April 1, 2020	Superior Court
Huerta, Gabriel	April 1, 2020	Sheriff's Office
Joy, Stephen	April 1, 2020	Information Services Dept.
King, Scott	March 27, 2020	Sheriff's Office
Kresevich, Charlene	April 1, 2020	Superior Court
Kudszus, Alexander	April 1, 2020	San Mateo County Health
Labrenz, Karina	March 28, 2020	Library
Lino, Cristina	April 1, 2020	San Mateo County Health
LoCoco, Joseph	April 1, 2020	Public Works

Maciel, Maria	March 21, 2020	San Mateo County Health
Madlambayan, Gayla	March 31, 2020	San Mateo County Health
Maharaj, Amita	April 1, 2020	Probation
Makela, Linda	April 1, 2020	Superior Court
Manio, Melanie	April 1, 2020	Human Services Agency
Martin, Bradley	April 1, 2020	Sheriff's Office
Martin, Cheryl	March 7, 2019	Sheriff's Office
McCarthy, Vielka	March 21, 2020	Probation
McCulloh, Craig	April 1, 2020	Aging & Adult Services
McDuffie, Marvin	March 5, 2020	Sheriff's Office
Meren, Julieta	April 1, 2020	San Mateo County Health
Mitchell, Michael	March 21, 2020	Sheriff's Office
Morris, Thomas	March 4, 2020	Aging & Adult Services
Newby, June	March 28, 2020	Sheriff's Office
Nielsen, Donna	March 15, 2020	Sheriff's Office
Nita, Martha	March 28, 2020	San Mateo County Health
O'Shaugnessy, Sophie	April 1, 2020	San Mateo County Health
Parra, Victoria	March 27, 2020	San Mateo County Health
Paterson, James	April 1, 2020	Sheriff's Office
Portillo, Melby	March 20, 2020	San Mateo County Health
Powell-Cobb, Cynthia	March 14, 2020	Probation
Rangel, Robert	March 31, 2020	Sheriff's Office
Recio, Justa	March 28, 2020	San Mateo County Health
Reeves, Laura	March 14, 2020	Assessor Clerk Recorder
Reyes-Avila, Maria	April 1, 2020	Human Services Agency
Rosier, Marty	April 1, 2020	Family Health Services
Rushworth, Rose	April 1, 2020	Controller
Sanchez, Christopher	March 14, 2020	Probation
Santos-Herbert, Helen	March 28, 2020	San Mateo County Health
Scheff, Paul	March 28, 2020	Sheriff's Office
Schneider, Mark	March 31, 2020	Parks Dept.
Sheridan, Kellyann	March 21, 2020	Behavioral Health & Recovery Services
Sierra-Caronongan, Belle	March 20, 2020	Human Resources Dept
Silvestri Ellerhorst, Ann Marie	March 28, 2020	San Mateo County Health
Soosaipillai, Miruni	March 31, 2020	Deferred - County Counsel
Sosa, Jim	March 28, 2020	Behavioral Health & Recovery Services
Sparks, Marni	March 19, 2020	Deferred - Probation
Sugiyama, Glen	March 19, 2020	Probation
Sullivan, Connie	March 27, 2020	San Mateo County Health
Trabucco, Joseph	March 28, 2020	Aging & Adult Services
Trabucco, Norma	March 28, 2020	Behavioral Health & Recovery Services
Umali, Brenda	March 21, 2020	San Mateo County Health
Vazquez, Elizabeth	March 28, 2020	Public Works
Walsh, Gregory	March 10, 2020	Def'd - Assessor, Clerk-Recorder
Whelan, Carol	March 28, 2020	Assessor, Clerk-Recorder

2006.4.4 **Continuances:**

Survivor's Name

Finck, Phuong Le
Wyman, Kay

Beneficiary of:

Finck, Peter
Wyman, Donald

2006.4.5 **Deferred Retirements:**

The Board ratified the actions as listed below for the following members regarding deferred retirements:

Name

Anaya, Olga
Bandoma, Danna
Brandon, Clifford
Flores, Felicia
Joisha, Ahalya
Kaye, Ana
Lee, YickYee
Liang, Laura
Miller, Gregory
Padua, Jessica
Porras, Adrianna
Tayama, Tricia

Retirement Plan Type

G4, Vested - Reciprocity
G7, Vested
G4, Vested - Auto Defer - Code 31700
G7, Vested - Reciprocity
G7, Vested
G7, Vested - Reciprocity
G5, Vested - Reciprocity
G7, Non-vested - Reciprocity
S4, Vested
G4, Vested - Auto Defer - Code 31700
P4, Vested - Auto Defer - Code 31700
G4, Vested

2006.4.6 **Member Account Refunds:**

The Board ratified the actions as listed below for the following members regarding refunds:

Name

Castronova, Brandon
Guzman, Andrew
Hernandez, Rodrigo
Maldonado, David
Martins, Eduardo
Richardson, Isaac
Romo Mendoza, Esther
Stovall, Robert
Thomas, Nancy (FBO: Thomas, Jennifer)
Walters, Markus
Walker, Alayna
Wostenberg, Darren

Retirement Plan Type

G7, Non-vested
G7, Non-vested
G7, Non-vested
G7, Non-vested
G7, Non-vested
G4, Non-vested
G7, Non-vested
G4, Non-vested
G2, Vested
G7, Non-vested
G7, Non-vested
G4, Non-vested

2004.4.7 **Member Account Rollovers:**

The Board ratified the actions as listed below for the following members regarding rollovers:

Name	Retirement Plan Type
Alegria, Lilian	G4, Non-vested
Cabaj, Robert (FBO: Ferma, Bennie)	G2, Vested
Higley-Anderson, Brieana	G7, Non-vested
Jurow, John	G4, Vested
Kaur, Sareeda (FBO: Vednaigam, Sharon)	G2, Vested
Lee, Megan	G7, Non-vested
Menezes, Nicholas	S4, Non-vested
Navarro, Michael	G4, Vested
Reyes, Maria Celeste	G7, Non-vested
Scholl, Daniel	G7, Vested

2006.4.8 **Member Account Redeposits:** None.

2006.4.9 **Acceptance of Trustees' Reports of Educational Activities:** The Board accepted the submitted report for educational activity attended by Ms. Lee.

2006.5.2 **Approval of Economic Assumptions to be used in the June 30, 2020 Actuarial Valuation:** Mr. Collier discussed Milliman Inc.'s opinion to retain all the economic assumptions used from the June 30, 2019 annual valuation.

Action: Mr. David motioned to approve that the economic assumptions remain set at: Investment return at 6.5%, inflation at 2.50%, wage at 3.00% and payroll growth at 3.00% and COLA assumption for Plans 1 and 2 be set in accordance with the inflation assumption. The motion was seconded by Mr. Raw and carried a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hoefler, O'Malley, and Raw all in favor; none opposed.

2006.6.1 **Report on Preliminary Monthly Portfolio Performance Report for the Period Ended April 30, 2020:** Mr. Coultrip reported that SamCERA's net preliminary return for April was 5.6% bringing the preliminary trailing twelve month return ending April 2020 to -1.1% net. This item was informational and for discussion only, no action was taken.

2006.6.2 **Report on Quarterly Investment Performance for the Period Ended March 31, 2020:** Mr. Coultrip and Ms. Jadallah reported that the 1st quarter net total return for the SamCERA portfolio was -12.6%, which was 150 bps lower than the -11.1% policy benchmark return. Absolute return and public real assets were the primary source of underperformance during the quarter. This item was informational and for discussion only, no action was taken.

2006.6.3 **Report on Real Estate Manager Annual Reviews:** Ms. Ng reviewed the meeting notes of the annual review of SamCERA's real estate managers, INVESCO and PGIM. Staff spoke with INVESCO and PGIM on April 2nd and April 16th via teleconference. The discussion included a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook. This item was informational and for discussion only, no action was taken.

2006.6.4 **Report on the Core Equity and Passive Manager Annual Reviews:** Ms. Ng reported that staff held annual review meetings through teleconference on May 7th, with core equity manager, Quantitative Management Associates (QMA), and passive index strategies with Blackrock. The discussion included a firm/organizational update, investment process review, performance review and attribution, and

current positioning/market outlook. There were no significant concerns identified during the portfolio review. Ms. Ng also mentioned that the annual review for SamCERA's other core equity manager, D.E. Shaw, and low volatility equity managers, PanAgora and Acadian, took place on May 21st and will be reported at the next Board meeting. This item was informational and for discussion only, no action was taken.

- 2006.6.5 **Presentation of Private Asset Semi-Annual Performance Reports as of December 31, 2019:** Mr. Shooshani and Mr. Nicolini reviewed the performance reports and answered questions from the Board. This item was informational and for discussion only, no action was taken.
- 2006.6.6 **Report on Status of Absolute Return Portfolio:** Ms. Jadallah discussed potential options for replacing the AQR DELTA allocation within absolute return. This item was informational and for discussion only, no action was taken.
- 2006.7.1 **Approval of SamCERA Fiscal Year 2020-21 Budget:** Ms. Chow reviewed the three components of SamCERA's budget (Professional Services, Administrative and Technology) and discussed the changes from last year within each category. SamCERA's FY 2020-21 budget totals \$38.7 million, which is a 5% increase from the prior fiscal year due to an increase in the professional services and administrative budget.
- Action:** Mr. David motioned to approve the budget as presented for FY 2020-21. The motion was seconded by Ms. O'Malley and carried by a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hofer, O'Malley and Raw and all in favor; none opposed.
- 2006.8.1 **Chief Executive Officer's Report:** Mr. Hood shared staff's updated remobilization plan with hopes to reopen on July 6, however, will readjust as necessary based on guidance from the County Health Officer and County Manager's Office. He also shared that staff continues to hold weekly check-ins. Mr. Hood reported that the doors to the office building have reopened and that a drop box is now available for mail delivery and any documents members would like to submit. Mr. Hood mentioned the format for the July 28th meeting is still uncertain but would keep the Board updated. Mr. Hood also mentioned a few agenda items for next month's Board meeting including the election of Board officers, appointment of committees, triennial experience report, approval of demographic assumptions for the 2020 valuation and reaffirmation of the Conflict of Interest Code.
- 2006.8.2 **Assistant Executive Officer's Report:** Ms. Smith reminded Board members and staff to mail in their \$25 non-recourse renewal check.
- 2006.8.3 **Chief Investment Officer's Report:** Mr. Coultrip reported staff will be holding the international equity annual manager reviews via teleconference on June 4th with Baillie Gifford at 8:00 a.m. and Mondrian at 9:30 a.m. Mr. Coultrip provided the Board with updates such as the addition of the TIPS allocation to the State Street public real asset portfolio and funding of the NISA Core Bonds Strategy with the proceeds from the risk parity allocation.
- 2006.8.4 **Chief Legal Counsel's Report:** Ms. Carlson updated the Board on a filing requirement in a litigation matter pending in *The High Court of Justice Claim Business and Property Courts of England And Wales Financial List* against Tesco PC, an English grocery store chain. SamCERA invested in Tesco and became a claimant in 2015. As the securities are held in the name of SamCERA, SamCERA is listed as the claimant. However, the Board of Retirement needs to be listed to confirm SamCERA's standing to bring the claim as an independent body. To do so, the Board Chair is to execute a document substituting the Board of Retirement as the claimant. The Board was asked if it had any questions or objection to submitting the form and none were raised. Ms. Carlson also updated the Board on the May 5th oral argument before California Supreme Court in the *Alameda County Deputy Sheriff's Assn.*

v. Alameda County Employees' Retirement Assn. She generally described the focus of the arguments and questions by the Court and noted that the Court's opinion will be issued within 90 days of May 5th.

2006.10 **Adjournment:** Mr. Hoefler adjourned the meeting at 11:41 a.m. in memory of the deceased members listed below.

Balisteri, Rosemary	April 1, 2020	Human Services
Hoover, Dorothy	April 20, 2020	Probation
Kai, Edward	April 14, 2020	Human Services
Reilly, Julie	April 8, 2020	Behavioral Health
Parkin-Holzman, Patricia	April 6, 2020	Aging and Adult Services
Friday, Robert	April 23, 2020	General Services
Richards-Reiss, Dianne	April 25, 2020	Health & Welfare
Rojas, Donald	April 24, 2020	DPW
Boyle, Gretchen	May 9, 2020	H.S.A.
McDonough, Vera	May 12, 2020	Library
Fonseca, Evelyn	May 11, 2020	General Services

Kurt Hoefler
Board Chair

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board find that **Suheil Azar** (1) is permanently incapacitated from the performance of his usual and customary duties as a Deputy Sheriff, (2) find that his disability was the result of an injury arising out of and in the course of his employment and (3) grant his application for a service-connected disability retirement.

- b) The Board find that **Barbara Caruana** (1) is permanently incapacitated from the performance of her usual and customary duties as a Legal Secretary II, (2) find that her disability was the result of an injury arising out of and in the course of her employment and (3) grant her application for a service-connected disability retirement.

4.2 Survivor Death Benefits

None.

4.3 Service Retirements

The Board ratifies the service retirement for the individuals listed below as follows:

Name	Effective Retirement Date	Department
Abrams, Emina	April 1, 2020	Deferred - Superior Court
Aguirre-Alberto, Sylvia	May 23, 2020	Deferred – Probation
Boesseneker, Mark	May 15, 2020	Def'd from District Attorney's Office
Carlos, Hector	May 1, 2020	Planning
Dunbar-Street, Linda	May 21, 2020	Deferred - Superior Court
Fernandez, Irene	May 1, 2020	Aging & Adult Services
Galassi, Patrick	April 25, 2020	Information Services Dept (Plan 3)
Grado, Ronald	April 29, 2020	Dept. of Public Works
Javier, Maristella	May 31, 2020	Def'd – Human Services Agency

Lynch, Angela	May 12, 2020	Deferred - Probation
Marion, William	May 26, 2020	Already Retired - Plan 3 Portion
Melendez, Reina	April 11, 2020	San Mateo County Health
Mullane, Jenell	May 30, 2020	Superior Court
O'Laughlin, Leroy	May 16, 2020	Sheriff's Office
Ramirez, Luz	March 28, 2020	Public Health
Torrea, Nora	May 16, 2020	San Mateo County Health
Trujillo, Miguel	May 2, 2020	Deferred - Environmental Health
Vermillion, David	April 8, 2020	Sheriff's
Vitalicio, Gloria	May 1, 2020	San Mateo County Health

4.4 Continuances

The Board ratifies the granting of a continuance to the following individuals:

Survivor's Name	Beneficiary of:
Boyle, James	Boyle, Gretchann
Doran, Merlanne	Doran, John
Gates, Angelika	Gates, David
Hoover, Perry	Hoover, Dorothy
Moore, Dorothy	Moore, Joseph
Rojas, Marcia	Rojas, Donald

4.5 Deferred Retirements

The Board ratifies the deferred retirements as listed below for the following individuals:

Name	Retirement Plan Type
Menjivar, Ana	G4, Vested
Meola, Kathryn	G2, Vested - Reciprocity
Morris, Geoffrey	S7, Vested - Auto Defer - Code 31700
Reyes, Katherine	G4, Vested - Auto Defer - Code 31700
Wendler, Michael	G4, Vested
Wright, Jason	G7, Non-vested - Reciprocity

4.6 Member Account Refunds

The Board ratifies the refunds as listed below for the following individuals:

Name	Retirement Plan Type
Dickinson, Rebecca	G7, Non-vested
Ferreira, Timothy	G7, Non-vested
Guereca, Sandra	G5, Vested
Hawkins, Ofelia	G4, Non-vested
Lycett, Blake	S5, Vested
Reilly, Julie (FBO: Silva, Jody)	G4, Vested
Senger, Carolyn	G7, Non-vested
Wonacott, Kathleen	G7, Non-vested

4.7 Member Account Rollovers

The Board ratifies the rollovers as listed below for the following individuals:

Name	Retirement Plan Type
Abenojar, Jimmark	G4, Non-vested
Bahrami, Sanaz	G7, Non-vested
Cecil, Cameron	G7, Non-vested
Council, Katherine (QDRO)	S4, Non-vested
Senger, Carolyn	G7, Non-vested

4.8 Member Account Redeposits

The Board ratifies the redeposits as listed below for the following individuals:

Name	Retirement Plan Type
Biggs, Arter	G7, Non-vested

4.9 Acceptance of Trustees' Reports of Educational Activities Through Outside Provider


None.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 4.10

TO: Board of Retirement

FROM: Lilibeth Dames, Investment Analyst 

SUBJECT: California Government Code Section 7514.7 Annual Disclosure For 2019

Recommendation

Accept the Report on California Government Code Section 7514.7 Annual Disclosure for 2019.

Background

California Government Code Section 7514.7 requires public pension funds in California to annually disclose certain information regarding its alternative investments. Staff has prepared SamCERA's required disclosure report which covers calendar year 2019.

Discussion

Since 2007, SamCERA has been required, if requested under the Public Records Act, to provide the following information regarding its alternative investments:

1. The name, address, and vintage year of each alternative investment vehicle.
2. The dollar amount of the commitment made to each alternative investment vehicle by the public investment fund since inception.
3. The dollar amount of cash contributions made by the public investment fund to each alternative investment vehicle since inception.
4. The dollar amount, on a fiscal yearend basis, of cash distributions received by the public investment fund from each alternative investment vehicle.
5. The dollar amount, on a fiscal yearend basis, of cash distributions received by the public investment fund plus remaining value of partnership assets attributable to the public investment fund's investment in each alternative investment vehicle.
6. The net internal rate of return of each alternative investment vehicle since inception.
7. The investment multiple of each alternative investment vehicle since inception.
8. The dollar amount of the total management fees and costs paid on an annual fiscal yearend basis, by the public investment fund to each alternative investment vehicle.
9. The dollar amount of cash profit received by public investment funds from each alternative investment vehicle on a fiscal year-end basis.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Under section 7514.7, effective in 2017, SamCERA is required to disclose the above information annually to the Board at a public meeting. The report, which will be provided by the meeting date, will reflect this data for all of our alternative investments.

In addition, SamCERA is required to disclose certain information, if applicable, that is listed below for the sixteen alternative investment contracts entered into between January 1, 2017 and December 31, 2019. We are also required to make disclosures for alternative investment contracts entered into before 2017 if an additional capital commitment was made to that investment after 2017. SamCERA made no such additional commitments to these investments. We also undertook reasonable efforts to obtain the information listed below from all our pre-2017 alternative investments to include in our disclosure.

The report will also reflect the following data for the applicable alternative investments:

1. The fees and expenses that the public investment fund pays directly to the alternative investment vehicle, the fund manager, or related parties.
2. The public investment fund's pro rata share of fees and expenses not included in paragraph 1 that are paid from the alternative investment vehicle to the fund manager or related parties. The public investment fund may independently calculate this information based on information contractually required to be provided by the alternative investment vehicle to the public investment fund. If the public investment fund independently calculates this information, then the alternative investment vehicle shall not be required to provide the information identified in this paragraph.
3. The public investment fund's pro rata share of carried interest distributed to the fund manager or related parties.
4. The public investment fund's pro rata share of aggregate fees and expenses paid by all of the portfolio companies held within the alternative investment vehicle to the fund manager or related parties.
5. The gross and net rate of return of each alternative investment vehicle, since inception, in which the public investment fund participates.

Similar to last year, not all of our funds had data to report for each of the listed categories due to the maturity of the specific fund. For example, our new funds did not have any carried interest to report at this early stage. We anticipate that future annual reports for these funds will contain more information as the funds mature.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 4.11

TO: Board of Retirement

FROM: Gladys Smith, Assistant Executive Officer



SUBJECT: Questions for Annual Review of Milliman Inc.

Recommendation

Approve the evaluation questions in the "Questions for Annual Actuarial Consultant Evaluation."

Discussion

The questions in the attached document will be submitted to SamCERA's actuary, Milliman Inc., prior to the annual review, which will be scheduled for the September 22, 2020, Board meeting. In addition, there will be a survey of trustees and staff regarding Milliman's performance.

Staff will provide Milliman's responses to the questionnaire as well as the survey results at the September meeting.

Attachment

Questions for Annual Actuarial Consultant Evaluation

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Questions for Annual Actuarial Consultant Evaluation

Please provide information about the following events and activities and whether they occurred during Fiscal Year 2019-20.

Organizational Update

- 1) Has the ownership structure of your firm changed? If so, describe.
- 2) Provide an update on your firm's organization, with particular emphasis on (a) changes to your management structure over the past eighteen months, and (b) clients gained or lost in the past eighteen months. All significant changes should be accompanied by an explanation. An organizational chart should accompany this response.
- 3) Has your firm's policy regarding adding public pension plan clients and other actuarial business changed, if so how?
- 4) Update all significant personnel changes or expected changes to the "SamCERA Team." Describe the relative strength and longevity of your staff.
- 5) Please confirm if there were any lawsuits or legal proceedings requiring notification to SamCERA under section 16 of our agreement. If yes, please described.
- 6) Has any of your operations related to your services provided to SamCERA been outsourced? If the answer is yes, provide details regarding the firm(s) with which your firm has contracted.
- 7) Other than the actuarial audit performed by SamCERA's actuarial auditor on your SamCERA actuarial services, was an actuarial audit been performed on any of your firm's actuarial products? If yes, discuss the audit and the findings. Any material findings or recommendations must be accompanied by an explanation.
- 8) Has Milliman experienced any problems with its "mission critical" systems? Were any upgrades made and if not, when were these systems implemented and when were they last upgraded? Do you anticipate any changes to these systems in the next twelve months?
- 9) Please describe how your firm monitored and managed cyber security risks as they relate to SamCERA's Confidential Information. Were there any problems with cyber security? If so, was your cyber security breach policy applied? If not, why not? Have your procedures for cyber security been updated? Please describe. Please confirm that there has not been any release of SamCERA Confidential Information requiring notification to SamCERA as set forth in Schedule A Section 5(E).
- 10) Please describe any changes to Milliman's business continuity plan.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Actuarial Process

- 11) Provide a description, in detail, of your actuarial process used when providing services to SamCERA and highlight any changes to the process.
- 12) Provide a description, in detail, of the peer review procedures you used when providing services to SamCERA and include whether and the extent it involves other actuarial firms, highlight any changes to that process.

Outlook Beyond Fiscal Year 2019-20

- 13) What current issues are your clients concerned with regarding products, services, education and governance?
- 14) Describe your assessment of the relationship between your firm and SamCERA. How can SamCERA better assist you in accomplishing the goals it has established for your firm? How can we better utilize your firm's capabilities?

Conclusion

- 15) What actuarial related changes should SamCERA consider?
- 16) Relative to your expertise, what trends are occurring in the public pension industry that SamCERA should be tracking?

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 4.12

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Semi-Annual Compliance Certification Statement for Period Ended June 30, 2020

Recommendation

Accept the semi-annual Compliance Certification Statement for SamCERA's non-alternative investment managers and investment consultant, as of June 30, 2020.

Background

As part of SamCERA's ongoing due diligence process, the Compliance Certification Statement is completed by each of the association's public equity, fixed income, real estate, real asset and cash overlay investment managers and investment consultant on a semi-annual basis.

These statements are used to update SamCERA on any firm-wide compliance issues and to provide strategic-level information regarding such things as derivatives and portfolio positioning. For investment managers whose investments are considered "alternative investment vehicles" per the California Government Section Code §6254.26, the Compliance Certification Statements are not provided in the public board packet and will be sent separately to the Board.

Discussion

The attached Compliance Certification Statements report that SamCERA's investment managers and investment consultants are in compliance with SamCERA's Investment Policy as of June 30, 2020. There were no reported significant developments in portfolio construction, investment approach, firm ownership or organizational structure of concern relating to the association's public investments. There were no notable issues regarding industry or regulatory actions that impact SamCERA. The managers were also requested to provide data regarding the characteristics and composition of their portfolios. No prominent issues were identified during the review. Any items that raise concern will be brought to the manager's or investment consultant's attention and will be thoroughly vetted by staff.

Please note the fully completed Compliance Certification Statements for BlackRock and PIMCO were not received in time to be included in the mailing but will be included in the August board packet.

Attachments

Compliance Certification Statement Matrix 6-2020

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Compliance Certification Statements (13)

- A. Domestic Equity: Acadian, PanAgora, QMA
- B. International Equity - Developed: Baillie Gifford, Mondrian
- C. Fixed Income: Fidelity Institutional Asset Management, Franklin Templeton, Western Asset Management
- D. Real Estate: Harrison Street, INVESCO
- E. Real Assets: State Street Global Advisors
- F. Overlay: Parametric Portfolio Associates
- G. Investment Consultant: Verus Advisory

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Domestic Equity					
Acadian		No Concerns	No Concerns	No Concerns	<ul style="list-style-type: none"> • Largest single security Microsoft Corp 1.47% • Largest single industry Pharmaceuticals, Biotechnology & Life Sciences 16.73% vs bmk 8.04% • 6.56% Small Cap
BlackRock Russell 1000		Pending			
DE Shaw	<i>Confidential under California Gov. Section Code §6254.26</i>				
PanAgora (Low Volatility strategy)		No Concerns	No Concerns	No Concerns	<ul style="list-style-type: none"> • Largest single security by risk weight is Championx Corp 3.54% • Largest sector risk weight is Consumer Discretionary 11.47% v. R1000 bmk 11.18%
QMA		<ul style="list-style-type: none"> • July 2020-George Patterson replace Roy Henriksson as CIO. Stacie Mintz and Gavin Smith also promoted to co-Hd of Quant 	Largest exposure to single-counterparty: JP Morgan (serves as FCM) 2% of the fund	No Concerns	<ul style="list-style-type: none"> • Largest holding, Decker Outdoor Corp 0.88% • Largest industry: Biotechnology 10.38% vs. Russell 2000 bmk 10.86%

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
		Equities and Hd of Quant Equity Rsrch, respectively			
International Equity - Developed					
Baillie Gifford		No Concern	No Concern	No Concern	<ul style="list-style-type: none"> • 7.1% ADR • 20.8% Emerging Market
Mondrian		No Concern	No Concern	No Concern	<ul style="list-style-type: none"> • 26.65% Emerging Market MIP LP
Fixed Income					
Beach Point		<i>Confidential under California Gov. Section Code §6254.26</i>			
BlackRock Intermediate Government Bond Index		Pending			
Blackrock (Direct Lending Fund VIII)		<i>Confidential under California Gov. Section Code §6254.26</i>			
Blackrock (Direct Lending Fund IX)		<i>Confidential under California Gov. Section Code §6254.26</i>			

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Brigade		<i>Confidential under California Gov. Section Code §6254.26</i>			
Fidelity Institutional Asset Management (FIAM) BMD Bond		<ul style="list-style-type: none"> July 2020 – Jamie Pagliocco succeed Nancy Prior as Presid of Fixed Income. Will fill co-CIO role within next few months. 	No Concerns	No Concerns	<ul style="list-style-type: none"> 2.17% below inv grade (inv grade at purchase) 13.02% in Rule 144A securities
Franklin Templeton		<ul style="list-style-type: none"> July 2020-FAV and affiliated IA reached SEC settlement regarding U.S. investment company limit violations in certain Franklin Templeton fnds May 2020-To acquire AdvisorEngine, Inc. (digital platform for financial advisors) May 2020-Added quant rsrch analyst Jens Waechter, Ph.D. 	No Concerns	No Concerns	<ul style="list-style-type: none"> 15.29% Cash & Equiv. 8.88% Rule 144A 16.20% non-rated or below IG 7.87% Korea Treasury Bond, Sr. Note 1.375%, 12/10/29

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
		<ul style="list-style-type: none"> • Mar 2020-To acquire Athena Capital Advisors (wealth mngr) • Feb 2020-To acquire Legg Mason (expect close 3Q2020) • Jan 2020-Added quantitative rsrch analyst Adam Drutel 			
PIMCO (Diversified Income Fund)		Pending			
PIMCO (Private Income Fund)		<i>Confidential under California Gov. Section Code §6254.26</i>			
Western		No Concerns	<ul style="list-style-type: none"> • Largest cntrprty exposure to JPM 0.216% 	No Concerns	<ul style="list-style-type: none"> • 19.89% Rule 144A securities
White Oak		<i>Confidential under California Gov. Section Code §6254.26</i>			
Real Estate					
Harrison Street (Core Property Fund)		No Concerns	Not Applicable	No Concerns	No Concerns

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Invesco (U.S. Core Real Estate Fund)		No Concerns	Not Applicable	No Concerns	No Concerns
Invesco (U.S. Value-Add Fund IV)	<i>Confidential under California Gov. Section Code §6254.26</i>				
Invesco (U.S. Value-Add Fund V)	<i>Confidential under California Gov. Section Code §6254.26</i>				
PGIM (US Real Estate Debt)	<i>Confidential under California Gov. Section Code §6254.26</i>				
Real Assets					
State Street Global Advisors (Custom Real Asset Account)		No Concerns	<ul style="list-style-type: none"> • Largest single counterparty: BNP Paribas 19.9% 	No Concerns	<ul style="list-style-type: none"> • 1.65 % ADRs • 25.20% Derivatives • 1.33% Rule 144A • 1.27% largest single security Archer Daniels Midland Co Common Stock USD
Parametric Portfolio Associates		No Concerns	No Concerns	No Concerns	No Concerns

Compliance Certification Statement Matrix – June 30, 2020

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Investment Consultant					
Verus Advisory		<ul style="list-style-type: none"> • 5 new hires w/in General Consulting, 1 w/in Private Mkts, 1 new hire & 1 promotion w/in Rsrch 	Not Applicable	Not Applicable	Not Applicable
26 Total		 13 Completed	 3 Pending Information	 10 Confidential	

Acadian Asset Management U.S. Managed Volatility – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Has the firm acted as a fiduciary and invested its assets for the sole benefit of *SamCERA*?
 Yes / **No: Please explain.**
2. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
3. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
4. Do *SamCERA's* guidelines require your firm to manage the portfolio significantly differently than other similar portfolios?
 Yes: Please explain. / **No**
5. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
6. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA* and in a manner consistent with the Board's proxy policies?
 Yes / **No: Please explain.**
7. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**
8. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. Are derivative investments in compliance with *SamCERA's* investment policies?
 Yes / **No: Please explain.**
3. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
4. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes**/ **No: Please explain.**
5. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ **No: Please explain.**
6. Is individual counter-party exposure well diversified? **Yes**/ **No: Please explain.**
a) What is the largest exposure to a single counter-party within the portfolio?
b) Please specify the name of the counter-party and the amount of exposure.
c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
7. Are the investment purposes for a derivative investment consistent with the four purposes stated *SamCERA's* policies? **Yes** / **No: Please explain.**

- a) Has the firm developed any new purposes for derivative investments? **Yes: Please explain.** / **No**
8. List all limited allocation derivative investments individually and the percentage of the portfolio's assets represented by each investment.
- a) State if the firm has evaluated the exposure to market value losses that can occur from each of these derivatives. **Yes** / **No: Please explain.**
- b) State if these derivative investments in total represent more than 5% of the portfolio's market value. If more than 5%, please explain.
9. State if any restricted derivative investments are held in *SamCERA's* portfolios.
 Yes / **No**
- a) If any are held, state the percentage of the portfolio's assets held in such derivatives and why the firm is not in compliance with the investment policies.
10. For derivative investments with allocation limits, has the firm tested and measured these investments' sensitivities to changes in key risk factors? **Yes** / **No: Please explain.**
11. Have all derivative investments been made in a manner consistent with the derivative investment process specified in the policy statement? **Yes** / **No: Please explain.**
12. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.
13. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.
14. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**
2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Cash & Equivalents

1. Does the firm directly invest in short term fixed income investments? Yes / No

a) If Yes, do the investments comply with the policies? Yes / No: Please explain.

Domestic Equity Portfolio (Large, Mid & Small)

1. Specify the percentage of the portfolio held in each of the following types of securities:

<i>Common Stock</i>	99.56%
<i>Preferred Stock</i>	0%
<i>Convertible Securities</i>	0%
<i>ADRs</i>	
<i>Cash & Equivalents</i>	0.44%

2. Specify the large, mid and small capitalization exposure of the portfolios.

<i>Large-Cap</i>	42.35%
<i>Mid-Cap</i>	50.65%
<i>Small-Cap</i>	6.56%

3. Specify the percentage of the portfolio that is invested in American Depository Receipts (ADR's). Also, specify the percentage of the portfolio invested in ADR securities that are 144A securities. If greater than 10%, explain why.

<i>ADRs</i>	0%
-------------	----

4. What is the largest percentage of the portfolio represented by a single security? Please specify the security and percentage amount. If any securities were above 1.5% at the time of purchase, please list and explain why.

<i>Security</i>	<i>Cusip</i>	<i>Portfolio Weight</i>
Microsoft Corp	59491810	1.47%

5. What is the largest percentage of the portfolio represented by a single industry? Specify the name of the industry, percentage amount and size relative to benchmark. Please specify all industries above 15%.

<i>Industry</i>	<i>Portfolio Weight</i>	<i>Benchmark Weight</i>
Pharmaceuticals, Biotechnology & Life Sciences	16.73%	8.04%

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

	<i>SamCERA* %</i>
<i>Firm AUM</i>	<i>0.17%</i>
<i>U.S Managed Volatility Strategy</i>	<i>40.26%</i>



Signed by: _____

Dated: 7/13/2020

Acadian Asset Management LLC

PanAgora Asset Management Defensive Equity U.S. Low Volatility –

June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Has the firm acted as a fiduciary and invested its assets for the sole benefit of *SamCERA*?
 Yes / **No: Please explain.**
2. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
3. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
4. Do *SamCERA's* guidelines require your firm to manage the portfolio significantly differently than other similar portfolios?
 Yes: Please explain. / **No**
5. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
6. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA* and in a manner consistent with the Board's proxy policies?
 Yes / **No: Please explain.**
7. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**
8. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No: The investment management fee schedule applicable to SamCERA's investment in Defensive U.S. Large Cap Low Volatility represents the most beneficial (lowest) fee schedule offered to other institutional clients who hold a substantially similar account investment in such investment strategy.**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. Are derivative investments in compliance with *SamCERA's* investment policies?
 Yes / **No: Please explain.**
3. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
4. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
- b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes** / **No: Please explain.**
5. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
- b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes / **No: Please explain.**
6. Is individual counter-party exposure well diversified? **Yes** / **No: Please explain.**
- a) What is the largest exposure to a single counter-party within the portfolio?
- b) Please specify the name of the counter-party and the amount of exposure.
- c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

7. Are the investment purposes for a derivative investment consistent with the four purposes stated *SamCERA's* policies? **Yes** / **No: Please explain.**
- a) Has the firm developed any new purposes for derivative investments? **Yes: Please explain.** / **No**
8. List all limited allocation derivative investments individually and the percentage of the portfolio's assets represented by each investment.
- a) State if the firm has evaluated the exposure to market value losses that can occur from each of these derivatives. **Yes** / **No: Please explain.**
- b) State if these derivative investments in total represent more than 5% of the portfolio's market value. If more than 5%, please explain.
9. State if any restricted derivative investments are held in *SamCERA's* portfolios.
 Yes / **No**
- a) If any are held, state the percentage of the portfolio's assets held in such derivatives and why the firm is not in compliance with the investment policies.
10. For derivative investments with allocation limits, has the firm tested and measured these investments' sensitivities to changes in key risk factors? **Yes** / **No: Please explain.**
11. Have all derivative investments been made in a manner consistent with the derivative investment process specified in the policy statement? **Yes** / **No: Please explain.**
12. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.
13. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.
14. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**

2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Cash & Equivalents

1. Does the firm directly invest in short term fixed income investments? **Yes** / **No**
- a) If **Yes**, do the investments comply with the policies? **Yes** / **No: Please explain.**

Domestic Equity Portfolio (Large, Mid & Small)

1. Specify the percentage of the portfolio held in each of the following types of securities:

<i>Common Stock</i>	<i>99.84%</i>
<i>Preferred Stock</i>	<i>%</i>
<i>Convertible Securities</i>	<i>%</i>
<i>ADRs</i>	<i>%</i>
<i>Cash & Equivalents</i>	<i>0.16%</i>

2. Specify the large, mid and small capitalization exposure of the portfolios.

<i>Large-Cap</i>	<i>66.57%</i>
<i>Mid-Cap</i>	<i>29.23%</i>
<i>Small-Cap</i>	<i>4.2%</i>

3. Specify the percentage of the portfolio that is invested in American Depository Receipts (ADR's). Also, specify the percentage of the portfolio invested in ADR securities that are 144A securities. If greater than 10%, explain why. **The account holds 0% in ADR's and ADR securities that are 144A's.**
4. What is the largest percentage of the portfolio represented by a single security? Please specify the security and percentage amount. If any securities were above 4% at the time of purchase, please list and explain why. **The largest security risk weight percentage held in the account is Championx Corp (CHX US) 3.54%.**
5. What is the largest percentage of the portfolio represented by a single industry? Specify the name of the industry, percentage amount and size relative to benchmark. Please specify all industries above 15%. **The largest sector risk weight percentage held in the account is Consumer Discretionary 11.47%. The benchmark's risk weight percentage for Consumer Discretionary is 11.18%.**
6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets? **PanAgora's Defensive U.S. Low**

Volatility products make up 0.47% of the total AUM of the firm. SamCERA's account comprises 98.8% of the total product assets.

Signed by: Chris Tsapatsaris, Sr. Investment Compliance Analyst

Dated: July 7th, 2020

Name of Firm: PanAgora Asset Management, Inc.

Quantitative Management Associates U.S. Small Cap Core – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

- 1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?**

Yes: Please explain. / **No**

In July 2020, QMA appointed a new chief investment officer (CIO) as part of a broad restructuring plan for its equity business. Effective immediately, **George Patterson**, previously the firm's co-head of Quantitative Equities, has been named CIO, overseeing both the quantitative equity and multi-asset platforms, replacing Roy Henriksson. Roy will remain with the firm until October. In addition, the following changes have been made:

- **Stacie Mintz**, head of Equity Portfolio Management and portfolio manager, has been promoted to co-head of the Quantitative Equities team, alongside existing co-head, Peter Xu.
- **Gavin Smith**, portfolio manager, will take on additional responsibility as head of Quantitative Equity Research, more closely integrating QMA's research team with the investment process.

QMA is committed to putting our clients first, and we believe these changes, while challenging in the short-term, reflect that commitment.

- 2. Have there been any changes in the firm's investment approach?**

Yes: Please explain. / **No**

- 3. Have there have been any industry or regulatory disciplinary actions taken against the firm?** **Yes: Please explain.** / **No**

- 4. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA*?**

Yes / **No: Please explain.**

- 5. Has the firm's insurance coverage been sustained?**

Yes / No: Please explain.

Investment Management Fees

1. Is *SamCERA*'s investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes: Please explain. / No

Derivative Investments

1. Are derivatives used in the management of the investment strategy?

Yes: Please ANSWER the remaining questions in this section.

No: Please SKIP the remaining questions in this section.

We may use fully collateralized exchange-listed stock index futures or ETFs to remain fully invested.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?

Yes / No: Please explain.

N/A. We only utilize exchange-listed derivatives in this strategy.

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?

Yes / No

N/A. We only utilize exchange-listed derivatives in this strategy.

If Yes:

a) Do the counter-parties have investment grade debt? Yes/ No

b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? Yes/ No: Please explain.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?

Yes / No

N/A. We only utilize exchange-listed derivatives in this strategy.

If Yes:

a) Do the counter-parties have investment grade debt? Yes/ No

- b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ No: Please explain.

5. Is individual counter-party exposure well diversified? Yes/ No: Please explain.

a) What is the largest exposure to a single counter-party within the portfolio?

Futures exposure at JP Morgan accounted for approximately 2% of the Fund as of 6/30/2020.

b) Please specify the name of the counter-party and the amount of exposure.

The exposure in futures at JP Morgan was approximately \$4.5 million as of 6/30/2020.

c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

There were no changes over the past six months.

6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchange traded derivative positions.

N/A. We do not utilize non-exchange-listed derivatives in this strategy.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

QMA's use of derivatives in the strategy is limited to fully collateralized stock index futures. The Compliance unit monitors derivative positions on a daily basis to verify client portfolios, unless otherwise permitted, have not employed leverage in these transactions. Additionally, all transactions are reviewed daily by senior investment supervisors.

In addition, we monitor and manage counterparty and credit risk in the following ways:

- Potential counterparty and credit risk related to designated prime brokers will be monitored by the Chief Investment Officer and the credit risk advisory group; all potential counterparties are subject to initial due diligence, as well as ongoing daily monitoring
- For existing or potential prime brokers, credit-specific risk metrics such as credit spread, credit rating and equity value will be monitored daily, as well as QMA-specific equity valuation rankings
- 2. On a semi-annual basis, relevant financial measures for the prime broker will be monitored by the credit risk advisory group for any significant deterioration, requiring further investigation

On an annual basis, all prime brokers must be reviewed by the Chief Investment Officer, with the support of the credit risk advisory group

8. **State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months.** Yes: Please explain. / No

Domestic Equity Portfolios (Large, Mid & Small)

1. **Please state the percentage of the portfolio held in each of the following types of securities**

<i>Common Stock</i>	98.57%
<i>Preferred Stock</i>	%
<i>Convertible Securities</i>	%
<i>Cash & Equivalents</i>	1.43%

2. **Specify the large, mid and small capitalization exposure of the portfolios? Please specify percentages.**

<i>Large-Cap</i>	0.54%
<i>Mid-Cap</i>	43.53%
<i>Small-Cap</i>	55.93%

3. **Specify the percentage of the portfolio that is invested in American Depository Receipts (ADR's). Also, specify the percentage of the portfolio invested in ADR securities that are 144A securities. If greater than 10%, explain why.**

0%

4. **What is the largest percentage of the portfolio represented by a single security? Specify the name of the security and percentage amount. If any securities were above 5% at the time of purchase, please list and explain why.**

The largest single security is Decker Outdoor Corp 0.88%.

5. **What is the largest percentage of the portfolio represented by a single industry? Specify the industry, percentage amount and size relative to benchmark. Please specify all industries above 15%.**

As of 6/30/2020, the largest industry in your portfolio was the Biotechnology industry, which made up 10.38% of the portfolio. By contrast the Russell 2000® Index held 10.86% in the Financial industry, which is a difference of -0.48%.

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

Account	As of 3/31/2020 (\$M)	% of Firm AUM
US Small Cap Core	\$1,275	1.4%
SamCERA	\$71.4	0.08%
Firm	\$90,841	100%

Signed by: Patrick McMenamin
Dated: 07/13/20
Name of Firm QMA LLC

Baillie Gifford Overseas International Growth – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Has the firm acted as a fiduciary and invested its assets for the sole benefit of *SamCERA*?
 Yes / **No: Please explain.**
2. Are *SamCERA's* market benchmarks in the respective asset class areas acceptable to the firm?
 Yes / **No: Please explain.**
3. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**

There were no ownership changes to the firm during this period, however, as part of our annual partnership changes, the following partners retired in April 2020; Patrick Edwardson, Alan Paterson, Richard Sneller and Hamish Dingwall.

The following were appointed to the partnership in May 2020: Helen Xiong, Kate Fox, Gavin Scott, Iain Campbell, Michael Gush, Michael Wylie and Lawrence Burns.

4. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
5. Do *SamCERA's* guidelines require your firm to manage the portfolio significantly different from other similar portfolios?
 Yes: Please explain. / **No**
6. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
7. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA* and in a manner consistent with the Board's proxy policies?
 Yes / **No: Please explain.**

8. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**
9. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Current fee scale for strategy;

First \$25m – 0.60%, Next \$75m – 0.50%, Next \$300m – 0.40%, Next \$600m – 0.30%, Next \$2500m – 0.25%, thereafter 0.225%

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. Are derivative investments in compliance with *SamCERA's* investment policies?
 Yes / **No: Please explain.**
3. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
4. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
- b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes**/ **No: Please explain.**
5. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**

- b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ No: **Please explain.**
6. Is individual counter-party exposure well diversified? Yes/ No: **Please explain.**
- a) What is the largest exposure to a single counter-party within the portfolio?
b) Please specify the name of the counter-party and the amount of exposure.
c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
7. Are the investment purposes for a derivative investment consistent with the four purposes stated *SamCERA's* policies? Yes / No: **Please explain.**
- a) Has the firm developed any new purposes for derivative investments? Yes: **Please explain.** / No
8. List all limited allocation derivative investments individually and the percentage of the portfolio's assets represented by each investment.
- a) State if the firm has evaluated the exposure to market value losses that can occur from each of these derivatives. Yes / No: **Please explain.**
b) State if these derivative investments in total represent more than 5% of the portfolio's market value. If more than 5%, please explain.
9. State if any restricted derivative investments are held in *SamCERA's* portfolios.
 Yes / No
- a) If any are held, state the percentage of the portfolio's assets held in such derivatives and why the firm is not in compliance with the investment policies.
10. For derivative investments with allocation limits, has the firm tested and measured these investments' sensitivities to changes in key risk factors? Yes / No: **Please explain.**
11. Have all derivative investments been made in a manner consistent with the derivative investment process specified in the policy statement? Yes / No: **Please explain.**
12. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.
13. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

14. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**
2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Cash & Equivalents

1. Does the firm directly invest in short term fixed income investments? **Yes** / **No**
- a) If **Yes**, do the investments comply with the policies? **Yes** / **No: Please explain.**

International Equity Portfolios - Developed

1. Specify the percentage of the portfolio held in each of the following types of securities:

<i>Foreign Ordinary Shares</i>	92%
<i>ADR's</i>	7.1%
<i>Cash & Equivalents (Foreign)</i>	0%
<i>Cash & Equivalents (Domestic)</i>	0.9%

2. Specify the large, mid and small capitalization exposure of the portfolios.

<i>Large-Cap (>\$10bn)</i>	74.27%
<i>Mid-Cap (\$2-10bn)</i>	24.12%
<i>Small-Cap (<\$2bn)</i>	0.71%

3. Is the firm monitoring the country, currency, sector and security selection risks associated with its portfolio? **Yes** / **No: Please explain**
4. Does the portfolio invest in emerging and/or frontier markets? **Yes** / **No**
- a) If **Yes**, please specify the percentage(s) of the portfolio invested in emerging and/or frontier markets.

20.8% is invested in Emerging Markets

5. Does the portfolio currently employ a currency hedging strategy? **Yes** / **No**

Mondrian Investment Partners International Value – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Has the firm acted as a fiduciary and invested its assets for the sole benefit of *SamCERA*?
 Yes / **No: Please explain.**
2. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
3. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
4. Do *SamCERA's* guidelines require your firm to manage the portfolio significantly differently than other similar portfolios?
 Yes: Please explain. / **No**
5. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
6. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA* and in a manner consistent with the Board's proxy policies?
 Yes / **No: Please explain.**
7. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**
8. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA*'s investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

In accordance with the terms of Clause 2.2 of the investment management agreement, during the term of the agreement, Mondrian has not agreed to charge any other institutional client an effective fee lower than the fees charged to SamCERA for an account substantially similar to the SamCERA assets in terms of size, investment objectives and guidelines and degree of services provided.

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. Are derivative investments in compliance with *SamCERA*'s investment policies?
 Yes / **No: Please explain.**
3. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
4. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
- b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes**/ **No: Please explain.**
5. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
- b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ **No: Please explain.**

6. Is individual counter-party exposure well diversified? **Yes/** **No: Please explain.**
- a) What is the largest exposure to a single counter-party within the portfolio?
 - b) Please specify the name of the counter-party and the amount of exposure.
 - c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
7. Are the investment purposes for a derivative investment consistent with the four purposes stated *SamCERA's* policies? **Yes /** **No: Please explain.**
- a) Has the firm developed any new purposes for derivative investments? **Yes: Please explain.** / **No**
8. List all limited allocation derivative investments individually and the percentage of the portfolio's assets represented by each investment.
- a) State if the firm has evaluated the exposure to market value losses that can occur from each of these derivatives. **Yes /** **No: Please explain.**
 - b) State if these derivative investments in total represent more than 5% of the portfolio's market value. If more than 5%, please explain.
9. State if any restricted derivative investments are held in *SamCERA's* portfolios.
 Yes / **No**
- a) If any are held, state the percentage of the portfolio's assets held in such derivatives and why the firm is not in compliance with the investment policies.
10. For derivative investments with allocation limits, has the firm tested and measured these investments' sensitivities to changes in key risk factors? **Yes /** **No: Please explain.**
11. Have all derivative investments been made in a manner consistent with the derivative investment process specified in the policy statement? **Yes /** **No: Please explain.**
12. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.
13. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.
14. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**
2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Cash & Equivalents

1. Does the firm directly invest in short term fixed income investments? **Yes** / **No**
 - a) If **Yes**, do the investments comply with the policies? **Yes** / **No: Please explain.**

International Equity Portfolios - Developed

1. Specify the percentage of the portfolio held in each of the following types of securities.

<i>Foreign Ordinary Shares</i>	<i>71.64%</i>
<i>ADR's</i>	<i>NIL</i>
<i>MIP Limited Partnership</i>	<i>26.65%</i>
<i>Cash & Equivalents (Foreign)</i>	<i>1.14%</i>
<i>Cash & Equivalents (Domestic)</i>	<i>0.57%</i>

2. Specify the large, mid and small capitalization exposure of the portfolios.

<i>Large-Cap >11bn</i>	<i>83.19%</i>
<i>Mid-Cap 3.5bn-11bn</i>	<i>11.75%</i>
<i>Small-Cap <3.5bn</i>	<i>3.04%</i>

3. Is the firm monitoring the country, currency, sector and security selection risks associated with its portfolio? **Yes** / **No: Please explain**
4. Does the portfolio invest in emerging and/or frontier markets? **Yes** / **No**
 - a) If **Yes**, please specify the percentage(s) of the portfolio invested in emerging and/or frontier markets

The portfolio gains exposure to emerging markets through the Mondrian Emerging Markets Equity Fund L.P. As at 30th June the portfolio held 26.65% in this fund.

5. Does the portfolio currently employ a currency hedging strategy? **Yes** / **No**

6. What proportion of total AUM do the assets in this product make-up of the firm? **7.74%**

What size does SamCERA's account comprise of total product assets? **5.11%**

A handwritten signature in black ink, appearing to read 'Ed Lambert', written in a cursive style.

Signed by: **Ed Lambert**

Dated: **9 July 2020**

Name of Firm **Mondrian Investment Partners Limited**

SamCERA I Compliance Certification Questionnaire**Compliance Certification Statement**

FIAM U.S. Core Bonds – June 30, 2020

FIAM Broad Market Duration**June 30, 2020**

Firm Name	Fidelity Institutional Asset Management Trust Company (FIAMTC)
Product Name	FIAM Broad Market Duration
Asset Class	Investment Grade Fixed Income
Respondent/Contact	Art Greenwood, Senior Vice President, Sales Relationship Manager
Address	900 Salem Street, Smithfield, RI 02917
Telephone	401-292-4729
Email Address	Art.Greenwood@fmr.com

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General Compliance Issues**1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?** **Yes: Please explain.** / **No**

Since the last Compliance Certification statement, the following material senior leadership changes have taken place at FIAM and Fidelity:

- Effective July 1, 2020, Jamie Pagliocco will succeed Nancy Prior, president, Fixed Income upon her retirement. A successor for his current role as co-chief investment officer of bonds will be named in the coming months.
- Effective June 1, 2020 the following changes took place within Asset Management Compliance (AMC):
 - Ken Robins succeeded John McGinty as Chief Compliance Officer (CCO) for Fidelity's Fixed Income and Asset Allocation mutual funds and for leading the compliance program for FIAM. Mr. McGinty took a new senior role in Fidelity Institutional Compliance.
 - Jason Pogorelec, previously vice president and associate general counsel in Asset Management Legal, succeeded Ken Robins as CCO for Fidelity's Equity and High Income mutual funds.
- Effective April 1, 2020, the following Fidelity Institutional Executive Leadership changes were made which underscore Fidelity's commitment to meeting the rapidly evolving and sophisticated needs of our clients.
 - Fidelity Institutional serves a wide range of wealth management firms and institutions. Previously, we've had two separate business units serving those clients—Fidelity Clearing &

SamCERA I Compliance Certification Questionnaire

Custody Solutions and Fidelity Institutional Asset Management—under the Fidelity Institutional umbrella. Moving forward, we are merging those groups and aligning the client-facing teams and the solutions teams.

- Judy Marlinski, previously the head of Fidelity Institutional Asset Management, will lead the Product & Advisory Solutions group, focusing on delivering a range of solutions to clients across the wide spectrum of their investment, business, and practice management needs.
- Sanjiv Mirchandani, previously the head of Fidelity Clearing & Custody Solutions, will lead the Client Relationship group, overseeing clients across the spectrum of wealth management and institutional client segments, including registered investment advisors, broker-dealer firms, retirement recordkeepers, plan sponsors, liquidity managers, banks, insurance firms, and family offices.
- Carolyn Clancy, previously the head of the broker-dealer segment in Fidelity Clearing & Custody Solutions, will take on a new role leading Strategy, Analytics & Market Readiness. This group will lead our efforts to invest in advanced data and analytics and other critical tools to help run the Fidelity Institutional business and better serve our clients.
- Also, effective April 1, 2020, the following Asset Management Leadership Changes took place:
 - Vadim Zlotnikov assumed leadership responsibilities for Fidelity Asset Management’s institutional capabilities. Vadim was named president of Fidelity Institutional Asset Management Trust Company and FIAM LLC. Vadim was previously president and chief investment officer of Fidelity’s Global Asset Allocation (GAA) division, which he will continue to lead, reporting to Bart Grenier, head of Asset Management.
- Effective February 10, 2020, Bart Grenier, who previously served as the global head of Asset Management at Fidelity International Limited (FIL), took on the role of president of Asset Management, replacing Steve Neff, who retired at the end of March.

2. Have there been any changes in the firm’s investment approach?

Yes: Please explain. / No

3. Have there have been any industry or regulatory disciplinary actions taken against the firm?

Yes: Please explain. / No

From time to time, in the normal course of its business, the Firm may receive inquiries (including subpoenas and voluntary requests for information) from regulatory authorities or law enforcement. A regulator may conduct an onsite examination or may commence an investigation. The Firm generally does not make public comment about such inquiries, examinations or investigations unless and until enforcement proceedings are initiated. Moreover, certain regulators prohibit disclosure of any examination results.

To the extent the Firm’s securities affiliates have been sanctioned, fined, or cited by the Securities and Exchange Commission (SEC), Financial Industry Regulatory Authority (FINRA), or any other regulatory body, any such sanction, fine or citation has been disclosed in its affiliates’ Forms BD and/or Forms ADV in accordance with the requirements of such forms.

4. Has the firm’s insurance coverage been sustained?

Yes / No: Please explain.

SamCERA I Compliance Certification Questionnaire

Investment Management Fees

1. Is SamCERA's investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes: Please explain. / No

Derivative Investments

1. Are derivatives used in the management of the investment strategy?

Yes: Please ANSWER the remaining questions in this section.

No: Please SKIP the remaining questions in this section.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?

Yes / No: Please explain.

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?

Yes / No

If Yes:

a) Do the counter-parties have investment grade debt? Yes / No

b) Are the counter-parties registered with the SEC and do they have net capital to protect against the potential adverse market circumstances? Yes/ No: Please explain.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?

Yes / No

If Yes:

a) Do the counter-parties have investment grade debt? Yes / No

b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances? Yes/ No: Please explain.

5. Is individual counter-party exposure well diversified? Yes/ No: Please explain.

a) What is the largest exposure to a single counter-party within the portfolio?

b) Please specify the name of the counter-party and the amount of exposure.

c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

We consider this information to be proprietary and are therefore unable to disclose.

SamCERA I Compliance Certification Questionnaire**6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchanged traded derivative positions.**

Fidelity Fund & Investment Operations (FFIO) utilizes a combination of sources for derivatives pricing. Third party pricing vendors, such as Markit and Pricing Direct, are primary sources for different swap types. Refinitiv (Reuters) is the primary pricing source for futures.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

All derivative instruments used in the portfolio are liquid. Given the minimum role they play in the portfolio and the extensive research conducted by the Counterparty Risk Team and the large team of in-house and external lawyers that support these efforts, we feel the legal and regulatory risks are minimal.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. Yes: Please explain. / No**Investment Manager Guidelines****1. Are portfolio holdings well-diversified, and made in liquid securities?**

Yes/ No: Please explain.

2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? Yes: Please explain. / No**Domestic Fixed Income Portfolios****1. State the percentage of the portfolio held in each of the following types of securities:**

<i>Certificates of Deposit</i>	<i>%</i>
<i>Commercial Paper</i>	<i>%</i>
<i>Other High Grade Short-term securities</i>	<i>0.2%</i>
<i>U.S. Government & Agency securities</i>	<i>26.2%</i>
<i>Corporate Bonds</i>	<i>44.1%</i>
<i>Mortgage- and asset-backed securities</i>	<i>29.5%</i>
<i>Yankee bond securities</i>	<i>6.1%</i>

2. Does the firm conduct horizon analysis testing? Yes/ No: Please explain.

Scenario Analysis is performed at both the security and portfolio level. We perform scenario analysis on a daily basis for most fixed-income securities in our universe. There are 13 interest-rate scenarios consisting of unchanged, shift, and twist yield curve movements. We also allow for interactive analysis, incorporating spread changes into the estimated scenarios.

SamCERA I Compliance Certification Questionnaire

3. Are any holdings below investment grade? Yes / No

a) If Yes, why are they held in the portfolio?

As of June 30, 2020, 2.17% of holdings in the portfolio were below investment grade. Purchased as investment grade, these holdings have been downgraded due to increased leverage or other fundamental credit criteria. We still feel they hold relative value, although we are monitoring these securities closely.

4. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio? Yes / No

a) If Yes, please specify the bond issue and percentage amount.

5. What percentage of the portfolio is held in Rule 144A securities?

13.02%

6. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account. Yes / No

a) If Yes, please specify the name of the industry, percentage amount and size relative to benchmark.

7. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

As of June 30, 2020, the SamCERA Broad Market Duration account represents <1% of the assets in the Broad Market Duration strategy and less than 1% of total FIAM assets.

Signed by: Mark Botelho

DocuSigned by:



3B8B588B3CA94ED...

Dated: 07/09/2020

Name of Firm: FIAMTC



**FRANKLIN
TEMPLETON**

July 10, 2020

**RESPONSE TO COMPLIANCE CERTIFICATION STATEMENT FROM
San Mateo County Employees' Retirement Association**

Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7)
Review Period: January 1, 2020 – June 30, 2020

Bill Deakyne, CFA

Senior Vice President – Head of US Institutional Client Relations
Franklin Templeton Institutional

tel: (650) 312- 2270

email: bill.deakyne@franklintempleton.com

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APPENDIX 1

FRANKLIN ADVISERS, INC. REGULATORY HISTORY

Please note that the San Mateo Employees' Retirement account is in a 3c7 fund and is no longer managed in a separately managed account within the guidelines of an investment management agreement (IMA).

As such, any references to the terms, guideline(s) and policy statement(s) within this questionnaire refer to the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd.'s offering documents and/or private placement memorandum.

GENERAL COMPLIANCE ISSUES

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?

Yes No

If yes, please explain.

Personnel

The investment team responsible for managing the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd., the Templeton Global Macro group, has experienced limited turnover during the past six months ending June 30, 2020.

Additions

Name	Role	Addition Date
Adam Drutel, CFA*	Research Analyst	Jan 2020
Jens Waechter, Ph.D.*	Research Analyst	May 2020

* Internal transfer

Organizational Structure

In February, Franklin Templeton announced that it entered into an agreement to acquire Legg Mason, Inc. The transaction is expected to close no later than the third calendar quarter of 2020. As a publicly traded company, we are not able to comment on any specific plans that have not been publicly announced.

In March, Fiduciary Trust, a wholly owned subsidiary of Franklin Resources Inc., acquired Athena Capital Advisors, LLC (Athena Capital), a specialized Massachusetts-based U.S. wealth manager serving high-net-worth and ultra-high-net-worth investors. The acquisition further enhances Fiduciary Trust's capabilities in investment research, manager selection and due diligence, complementing Fiduciary's existing strategic advisory services to deliver a more diverse range of client solutions.

In May, Franklin Templeton announced that it acquired AdvisorEngine Inc., a digital wealth platform and provider of technology and consulting services to more than 1,200 financial advisory firms in the United States that manage more than \$600 billion in assets. Franklin Templeton and AdvisorEngine will work together to co-create new proprietary solutions, including goals-based financial planning tools, digital portfolio construction analytics, and research-enabled practice management services to help financial advisors enhance their wealth management offerings.

2. Have there been any changes in the firm's investment approach?

Yes No

If yes, please explain.

3. Have there have been any industry or regulatory disciplinary actions taken against the firm?

Yes No

If yes, please explain.

During the six months ended June 30, 2020, Franklin Advisers, Inc. (FAV) and another Franklin Templeton investment adviser, as well as the investment advisers' ultimate parent company, had been responding to an investigation by the U.S. Securities and Exchange Commission (SEC) relating to U.S. investment limits involving investments in unaffiliated ETFs made by the investment advisers on behalf of certain Franklin Templeton funds. As described further in Appendix 1: Franklin Advisers, Inc. Regulatory History, in July 2020, the SEC issued an order instituting administrative and cease-and-desist proceedings, making findings, and imposing remedial sanctions, which resolved the investigation. For purposes of settlement, FAV consented to the entry of the order and a censure, and agreed to pay a civil monetary penalty of \$250,000. FAV's ultimate parent company was not a party to the order concluding the investigation.

For a summary of *investment-related proceedings, findings or orders* brought or issued by any such regulatory entity against FAV and/or certain of its *advisory affiliates* in the past 10 years ended March 31, 2020 (unless otherwise indicated), as well as certain other regulatory matters, please see Appendix 1: Franklin Advisers, Inc. Regulatory History. In addition, from time to time, FAV and its *advisory affiliates* receive subpoenas and inquiries, including requests for documents or information, from governmental authorities or regulatory bodies, and also are the subject of governmental or regulatory examinations or investigations. *Investment-related proceedings, findings or orders* resulting from such subpoenas, inquiries, examinations or investigations, if any, will be reported, to the extent required and permitted by law, on FAV's Form ADV filed with the SEC. (Italicized terms are as defined on Form ADV.)

4. Has the firm's insurance coverage been sustained?

Yes No

If no, please explain.

INVESTMENT MANAGEMENT FEES

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes No

If yes, please explain.

DERIVATIVE INVESTMENTS

1. Are derivatives used in the management of the investment strategy?

Yes No

If Yes, please answer the remaining questions in this section. If No, please skip the remaining questions in this section.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?

Yes No

If no, please explain.

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?

Yes No

If yes:

a) Do the counter-parties have investment grade debt?

Yes No

b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances?

Yes No

If no, please explain.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?

Yes No

If yes:

a) Do the counter-parties have investment grade debt?

Yes No

b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?

Yes No

If no, please explain.

5. Is individual counter-party exposure well diversified?

Yes No

If No, please explain.

- a) What is the largest exposure to a single counter-party within the portfolio?
- b) Please specify the name of the counter-party and the amount of exposure.
- c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchange traded derivatives.

Typically, there are readily available market quotations for certain kinds of derivative instruments, like those traded on recognized exchanges, and those instruments are valued accordingly. Over-the-counter (OTC) derivatives are valued using quotations from independent third-party vendors and sources that may apply fair value techniques. OTC derivatives contracts may not trade frequently. Our vendors may use valuation techniques including fair value pricing models to determine Net Present Value (NPV). The vendors' evaluated prices (NPV) are derived using the attributes described in the instrument terms and conditions, relevant credit or interest rate curves derived from contributed data from a network of market participants and current broker-dealer quotations. If a current market quotation cannot be established or a market event occurs that calls into question the reliability of current market quotations, the pricing department will initiate fair value procedures. Fair valuation might include an internal fair valuation by management appraisal. All fair value management appraisals are documented and the Valuation Committee reviews and approves them.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

The Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. is predominantly made up of cash bonds and cash. Derivatives are used to manage interest rate, credit, and currency risk exposures as needed. In particular:

- Interest rate futures and swaps may be used to implement positive and negative views on interest rates, quickly adjust portfolio duration, or efficiently handle cash flows.
- The strategy uses currency forward contracts and/or currency options to express positive and negative currency views.
- Credit default swaps may be used to hedge sovereign credit risk. They are not currently used in Templeton Global Macro strategies.

Derivatives may be exchange traded or traded over-the-counter. Compared with cash bonds, the types of derivatives used are typically more flexible, more liquid, and often have lower transaction costs.

All portfolio risk exposures, including those associated with derivatives, are monitored by Templeton Global Macro as well as by the Investment Risk Management Group.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months.

Yes No

If yes, please explain.

INVESTMENT MANAGER GUIDELINES

1. Are portfolio holdings well-diversified, and made in liquid securities?

Yes No

If no, please explain.

2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities?

Yes No

If yes, please explain.

GLOBAL FIXED INCOME PORTFOLIOS

1. State the percentage of the portfolio held in each of the following types of securities (please sub-total each by region):

The following table represents the sector and region breakdown for the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7) as of June 30, 2020.

Sector	Region	MV%
Certificates of Deposit (by region)		0.00
Cash & Cash Equivalents		15.29
Preferred Stock		0.00
Commercial Paper (by region)		0.00
Other high grade short-term securities (by region)		0.00
Government securities (by region)	US	5.59
	Non-US	78.77
Agency Securities (by region)	US	0.00
	Non-US	0.01
Investment Grade Corporate Bonds (by region)	US	0.00
	Non-US	0.00
High Yield Corporate Bonds (by region)	US	0.00
	Non-US	0.00
Mortgage and asset-backed securities (by region)		0.00
Supranational		0.07
Derivatives		0.28
Bank Loans		0.00
Other		0.00
Total		100.00

Region	Percentage (%)
Americas	34.43
Asia	37.49
Europe	9.30
Middle-East/Africa	3.14
Supranational	0.07
Cash & Cash Equivalents	15.29
Other (currency derivatives)	0.28
Total	100.00

2. Please list any holdings that are below investment grade or not-rated

The table below represents the quality allocation breakdown for the Franklin Templeton Global Multisector Plus (Master) Fund, Ltd. (3c7) as of June 30, 2020. During the quarter, 16.20% of the portfolio consisted of holdings that were below investment grade or not rated.

San Mateo County Employees' Retirement Association

Range	IG/Non-IG	Percentage
AAA	IG	14.96
AA	IG	14.34
A+	IG	16.58
A-	IG	0.00
BBB+	IG	9.90
BBB	IG	12.73
BBB-	Non-IG	0.66
BB-	Non-IG	7.97
B	Non-IG	3.14
B-	Non-IG	0.00
CC	Non-IG	4.15
NR	Non-IG	0.00
N/A	Non-IG	0.28
Cash & Cash Equivalents	IG	15.29

3. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio?

Yes No

a) If yes, please specify the bond issue and percentage amount.

The following table lists bond issue and percentage amount which represent more than 5% of the market value of the portfolio during the six month period ended June 30, 2020:

Date	Bond	MV%
1/31/2020	None	
2/29/2020	None	
3/31/2020	Korea Treasury Bond, senior note, 1.375%, 12/10/29	5.96%
4/30/2020	Korea Treasury Bond, senior note, 1.375%, 12/10/29	6.23%
5/31/2020	Korea Treasury Bond, senior note, 1.375%, 12/10/29	7.67%
6/30/2020	Korea Treasury Bond, senior note, 1.375%, 12/10/29	7.87%

4. What percentage of the portfolio is held in Rule 144A securities?

The following table lists the percentage of portfolio is held in Rule 144A securities during the six month period ended June 30, 2020:

Date	144A (Total %)
1/31/2020	7.27%
2/29/2020	7.16%
3/31/2020	6.49%
4/30/2020	6.84%

Date	144A (Total %)
5/31/2020	8.73%
6/30/2020	8.88%

5. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account.

Yes No

a) If yes, please specify the name of the industry, percentage amount and size relative to benchmark.

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does the SamCERA's account comprise of total product assets?

Franklin Templeton Global Multisector Plus (Master) Fund Ltd. total AUM as of May 31, 2020 was US \$ 1,026.28 million, this makes up 0.17% of total firm AUM.

SamCERA's account assets makes up 4.77% of Franklin Templeton Global Multisector Plus (Master) (estimated) Fund Ltd's total assets as of June 30, 2020.

A handwritten signature in black ink, appearing to read "Breda Beckerle". The signature is written in a cursive style with a large initial "B".

Signed By:

Name: Breda Beckerle

Title: Chief Compliance Officer

Dated: July 10, 2020

Name of Firm: Franklin Advisers, Inc. (FAV)

IMPORTANT NOTES

This response (the Response) is based on the information provided in the Due Diligence Questionnaire (the Questionnaire). To the extent any such information in the Questionnaire is incomplete or inaccurate, Franklin Templeton reserves the right to alter, amend or delete any information it has provided in the Response. Franklin Templeton has prepared the Response in good faith and, to the best of its knowledge, all information provided in the Response is accurate as of the date submitted. Information, including all data, provided in the Response is unaudited, unless otherwise indicated. Additionally, any information relating to assets under management (AUM) is being provided in response to the particular request contained in the Questionnaire and the figures provided may, therefore, be categorized differently than those reported for regulatory or other disclosure purposes. AUM includes assets for which the firm provides various investment management services as described in Franklin Resources, Inc.'s current Form 10K (See Item I, "Business". A copy of the current Form 10K as well as the most recent Annual Report can be located at www.franklintempleton.com). The way we calculate our AUM may change from time to time based on such factors as changes in industry standards, regulatory requirements or specific requests. Any information from third-party sources is believed to be reliable, but Franklin Templeton cannot guarantee its accuracy or completeness. Information set forth in the Response is subject to change and Franklin Templeton does not undertake any duty to update the Response after its issuance nor does it accept responsibility for any modifications made to the Response after its date of issue. Responses may include a general description of the types of services Franklin Templeton may provide to its clients and may not be applicable or tailored to the Questionnaire. Data shown for currency exposure, country exposure, maturity, duration, coupon allocation, sector allocation and asset allocation may reflect certain derivatives held in the portfolio (or their underlying reference assets). Breakdowns may not total 100% or may be negative due to rounding, use of derivatives, unsettled trades or other factors. When performance for either the portfolio or its benchmark has been converted into another currency, different foreign exchange (FX) closing rates may be used for the conversion of the portfolio and benchmark performance.

The information contained in the Response is solely for the purpose of responding to the Questionnaire, shall be treated as confidential, and shall be distributed internally on an as-needed basis only. Subject to applicable regulatory requirements, it shall not be distributed or otherwise communicated to third parties (other than any consultant engaged by the issuer of the Questionnaire to assist in connection therewith) without the prior written consent of Franklin Templeton. Any such consultant shall likewise be obligated to treat the Response as confidential.

Investing may involve a high degree of risk. The issuer of the Questionnaire is deemed to be an experienced institutional investor or consultant and is expected to make its own independent assessment of the appropriateness and the associated risks of investing. Franklin Templeton shall not be held liable for any losses or damages arising out of any person's reliance upon the information contained in the Response. Except as expressly provided in the Response, no person, firm, or corporation has been authorized to give any information or to make any representation other than those contained in the Response.

All investors should inform themselves as to the legal and other requirements applicable to them with respect to any investments, holdings, and/or disposition of any investments. Franklin Templeton takes no responsibility for informing or advising investors of any applicable laws or regulations.

Views or opinions expressed in the Response do not constitute investment, legal, tax, financial or other advice. The Response is neither an offer for a particular security nor a recommendation to purchase any investments. The way Franklin Templeton implements its investment strategies and the resulting portfolio holdings may change depending on a variety of factors such as market and economic conditions, as well as client account guidelines and restrictions, if applicable. The information provided in the Response is not a complete analysis of every aspect of any market, country, industry, security, strategy or portfolio. Past performance does not guarantee future results and results may differ over future time periods.

By accepting these materials, you confirm your acceptance of the above terms.

Western Asset Management Total Return Unconstrained – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
2. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
3. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
4. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / No

If Yes:

- a) Do the counter-parties have investment grade debt? Yes/ No
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? Yes/ No: Please explain.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / No

If Yes:

- a) Do the counter-parties have investment grade debt? Yes/ No
b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ No: Please explain.

5. **Is individual counter-party exposure well diversified?** Yes/ No: Please explain.

- a) **What is the largest exposure to a single counter-party within the portfolio?**

0.216% of The Fund is exposed to JPM.

- b) **Please specify the name of the counter-party and the amount of exposure.**

Name of the counter-party is JP Morgan Chase, 0.216%.

- c) **Have there been any changes to the investment manager's list of approved counter-parties over the past six months?**

No material changes within derivative counterparties.

6. **Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.**

The pricing sources used for derivatives will vary depending on the derivative instrument and clearing method. For example, for exchange traded instruments such as futures, Bloomberg is used to receive the settlement price from the exchange the derivative contract is traded on. For OTC derivatives which are cleared, Western Asset will receive the valuations from the exchange the derivative is cleared. For non-cleared OTC derivatives, Western Asset's primary pricing vendor is Markit. The Firm will consider secondary sources such as Bloomberg swap models, mark-to-market counter party statements or internal model methodology if Markit does not cover an OTC derivative instrument.

Western Asset's Pricing Group is responsible for obtaining prices from independent pricing vendors and brokers and assigning values to securities in accordance with the approved pricing hierarchies. Western Asset's primary pricing vendor is FTID (aka IDC) for fixed-income cash bonds, and Markit for derivatives. Western Asset's Pricing Policies and Valuation Process is provided in Appendix A.

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Western Asset's management style focuses on adding incremental value without taking on excessive risk. To ensure that the Firm's use of derivative instruments is consistent with this investment philosophy, the Firm developed the following guidelines, listed below along with a brief description of their rationale, which form the basis of every decision to employ derivatives in the Firm's investment portfolios:

- The duration contribution of derivatives will not bring the portfolio's duration outside the portfolio's specific duration band.
- Where a portfolio enters into forward foreign exchange contracts the aggregate underlying exposure of the portfolio attained through such contracts shall not exceed 100% of the portfolio's market value.
- A portfolio's gross exposure to forward foreign exchange contracts shall not exceed 50% with any single counterparty and net exposure shall not exceed 25% with any single counterparty. Net exposure is defined as the value (in account base currency terms) of open forward foreign exchange purchase contracts less forward foreign exchange sale contracts. Gross exposure is defined as the value (in account base currency terms) of open forward foreign exchange purchase contracts plus forward foreign exchange sale contracts.
- The net notional exposure to index and credit default swaps will count at their full notional value as exposure to the underlying asset. Concentration limits for a particular name or asset class will apply based on the net sum of its cash and derivative security holdings.
- Short (written) options positions will always be covered, either with current security holdings, other options or futures positions. Mortgage derivatives with significant short option characteristics will not exceed 5% of the portfolio, and will generally be a) offset by positions in other mortgage derivatives (e.g., floaters and inverse floaters), or b) offset by other portfolio positions (e.g., IOs and long duration bonds).
- Futures and options contracts will be limited to liquid instruments actively traded on major exchanges or, if over-the-counter, executed with major dealers.
- Swap contracts are considered over-the-counter contracts between two parties and have counterparty credit risk different from exchange-traded derivatives. Western Asset tries to limit its counterparty risk by executing swaps with the strongest financial counterparties. The vast majority of these counterparties are rated is A- or better. In addition, collateral agreements will be in place to trigger margin movement whenever the current mark-to-market amount to be paid or received by either counterparty exceeds a threshold amount.
- Finally, under no circumstances will the derivative positions change the characteristics of the portfolio so that it violates any guideline set forth in the Investment Management Agreement.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. Yes: Please explain. / No

Investment Manager Guidelines

1. Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**
2. Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

Domestic Fixed Income Portfolios

1. State the percentage of the portfolio held in each of the following types of securities

<i>Treasury</i>	<i>2.37%</i>
<i>Agency</i>	<i>0.72%</i>
<i>Inflation-Linked</i>	<i>8.10%</i>
<i>Mortgage-Backed</i>	<i>11.50%</i>
<i>Asset-Backed</i>	<i>4.31%</i>
<i>Investment-Grade Credit</i>	<i>16.12%</i>
<i>High-Yield Credit</i>	<i>8.51%</i>
<i>Bank Loan</i>	<i>4.71%</i>
<i>Non-US</i>	<i>16.41%</i>
<i>EM Government</i>	<i>1.40%</i>
<i>EM Local Currency</i>	<i>9.20%</i>
<i>EM Corporate</i>	<i>2.91%</i>
<i>Cash & Equivalents</i>	<i>13.73%</i>
<i>Total</i>	<i>100.00%</i>

2. Does the firm conduct horizon analysis testing? **Yes** / **No: Please explain.**

Western Asset's investment management team estimates horizon excess returns under various market scenarios, including best, worst and likely cases. Particular attention is paid to diversifying strategies under each scenario. The horizon for risk management is the same as that for investment management, as the risk effort is closely integrated into the investment process. The firm's tracking error model calculates predicted tracking errors based on 18 months of historical data. Western Asset also generates scenario analysis results daily for representative accounts. These results estimate horizon durations given various interest rate shocks. The horizon is generally instantaneous as Western Asset evaluates one day extreme movements in rates for duration hedging purposes. The Firm's systems allow for any time horizon and can output a wide array of horizon performance or analytics related statistics.

3. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio? Yes / No
a) If **Yes**, please specify the bond issue and percentage amount.
4. What percentage of the portfolio is held in Rule 144A securities?
19.89%
5. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account. Yes / No
a) If **Yes**, please specify the name of the industry, percentage amount and size relative to benchmark.
- 6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?**
As of June 30, 2020, Western Asset's Total Return Unconstrained (TRU) Bond product makes up 0.99% of Firmwide AUM, and SamCERA's account comprises 3.62% of total TRU Bond product assets.

Signed by: Jeremy Henningsen, Compliance Officer
Dated: 7/10/2020
Name of Firm: Western Asset Management Company, LLC

Harrison Street Core Property Fund, LP – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office () by **Monday, July 13, 2020.**

General Compliance Issues

1. Are *SamCERA's* market benchmarks in the respective asset class areas acceptable to the firm?
 Yes / **No: Please explain.**
2. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
3. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
4. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
5. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified? **Yes** / **No: Please explain.**
2. Has the firm used leverage? **Yes** / **No**
 - a) If yes, is the portfolio leverage within the 40% of overall loan to value guideline?

Yes / No: Please explain.

Cash & Equivalents

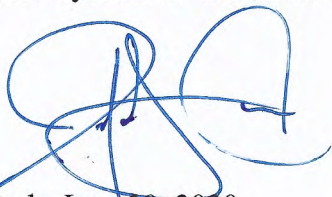
1. Does the firm directly invest in short term fixed income investments? Yes / No
 - a) If Yes, do the investments comply with the policies? Yes / No: Please explain.

Real Estate Portfolios

1. Is the portfolio diversified as to region, property type, industry, and economic base?
 Yes / No
 - a) If No, do the investments comply with the policies?
2. Is the portfolio achieving a total time-weighted rate of return, net of fees, which equals or exceeds, the NFI ODCE index? Yes / No: Please explain.
3. Does the core fund concentration exceed 40% (by value) in any single property type, 15% (by value) in any single investment, or 30% in any single metropolitan statistical area, determined as of the date of the acquisition of the property?
 Yes: Please explain. / No
4. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

As of March 31, 2020, the Firm's total AUM is \$26.4 billion, of that the Core Fund's AUM is \$12.6 billion. SamCERA's ownership percentage as of March 31, 2020 was 0.42% which is \$52.9 million of the product's AUM.

Signed by: *James Choi, Director, Investor Relations*



Dated: *June 30, 2020*

Name of Firm: *Harrison Street*

INVESCO Core Real Estate – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Are *SamCERA's* market benchmarks in the respective asset class areas acceptable to the firm?
 Yes / **No: Please explain.**
2. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
3. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
4. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No - We note that this response solely pertains to Invesco Core Real Estate – U.S.A., L.P. and those managing such entity.**
5. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Investment Manager Guidelines

1. Are portfolio holdings well-diversified? **Yes** / **No: Please explain.**
2. Has the firm used leverage? **Yes: Please explain.** / **No - The maximum leverage for the Fund is 35%. As of March 31, 2020, the Fund's leverage was 24.7%.**

Cash & Equivalents

1. Does the firm directly invest in short term fixed income investments? Yes / No
 - a) If Yes, do the investments comply with the policies? Yes / No: Please explain.

Real Estate Portfolios


1. Is the portfolio diversified as to region, property type, industry, and economic base?
 Yes / No
 - a) If No, do the investments comply with the policies?
2. Is the portfolio achieving a total time-weighted rate of return, net of fees, which equals or exceeds, the NFI ODCE index? Yes / No: Please explain. **As of March 31, 2020, the Fund's since inception net return of 7.42% exceeds the NFI ODCE index (CW basis) of 6.79% net.**
3. Does the core fund concentration exceed 40% (by value) in any single property type or 35% in any single metropolitan statistical area, determined as of the date of the acquisition of the property? Yes: Please explain. / No
4. Is the portfolio leverage within the 35% of overall loan to value guideline?
 Yes / No: Please explain.
5. What proportion of total AUM do the assets in this product make-up of the firm? **19.1% (as of March 31, 2020)** - What size does SamCERA's account comprise of total product assets? **2.56% (as of March 31, 2020)**

General Partner:

IRI Core I, L.P.

By: IRI Core-GP, LLC, its general partner

By: Invesco Realty, Inc., its sole member



Name: _William C Grubbs Jr

Title: _Vice President

State Street Global Advisors Custom Real Asset Account – June 30, 2020

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Wednesday, July 15, 2020.**

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?

Yes: Please explain. / **No**

Please see attached Q1 Organizational Changes Memo

2. Have there been any changes in the firm's investment approach?

Yes: Please explain. / **No**

3. Have there have been any industry or regulatory disciplinary actions taken against the firm?

Yes: Please explain. / **No**

Please see attached SSGA Regulatory and Litigation Memo. As with any similarly regulated financial institution, State Street Global Advisors is likely to be responding to multiple inquiries, both formal and informal, from various regulators at any given time. In the normal course, various regulators also conduct periodic reviews, exams and audits of State Street Global Advisors. Our policy is that such communications are confidential.

4. Have there been any investment guideline breaches during the prior 6 months?

Yes: Please explain. / **No**

5. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA*?

Yes / **No: Please explain.**

Members of the Stewardship team evaluate the proxy solicitation to determine how to vote based on facts and circumstances, and consistent with SSGA's Proxy Voting Guidelines, that seeks to maximize the value of our client accounts.

6. Has the firm's insurance coverage been sustained?

Yes / **No: Please explain.**

Investment Management Fees

1. Is *SamCERA*'s investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes: Please explain. / **No**

The Custom Real Asset Strategy: While there are other institutional clients with a lower fee schedule, we are still able to make the price assurance representations included in the client's IMA for the period ended 6/30/20.

Derivative Investments

1. Are derivatives used in the management of the investment strategy?

Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?

Yes / **No: Please explain.**

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?

Yes / **No**

If **Yes**:

a) Do the counter-parties have investment grade debt? **Yes** / **No**

b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes** / **No: Please explain.**

Firms are registered by the applicable regulatory authorities. Counterparties are banks as opposed to broker dealers. Net Capital is a broker dealer related term.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?

Yes / **No**

If **Yes**:

a) Do the counter-parties have investment grade debt? **Yes** / **No**

b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?

Yes / **No: Please explain.**

5. Is individual counter-party exposure well diversified? **Yes** / **No: Please explain.**

a) What is the largest exposure to a single counter-party within the portfolio?
approximately 19.9% as of 06/30/2020

b) Please specify the name of the counter-party and the amount of exposure.
BNP Paribas, approximately \$49.4 million

- c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

No

6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchange traded derivative positions.

The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index levels are quoted on Bloomberg

7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index is comprised of a diversified basket of liquid (listed) commodity futures contracts. Please see attached Commodity Index SDD.

8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Real Asset Portfolio

1. Specify the percentage of the portfolio held in each of the following types of securities.

<i>Foreign Ordinary Shares</i>	<i>0.10%</i>
<i>ADR's</i>	<i>1.65%</i>
<i>Common Stock</i>	<i>51.93%</i>
<i>MIP Limited Partnership</i>	<i>0.00%</i>
<i>Derivatives: Futures/ Options</i>	<i>25.20%</i>
<i>Cash & Equivalents (Domestic)</i>	<i>0.33%</i>
<i>Cash & Equivalents (Foreign)</i>	<i>0.00%</i>
<i>Other (TIPS)</i>	<i>24.65%</i>

2. Specify the large, mid and small capitalization exposure of the portfolios.
S&P Global LargeMidCap Natural Resources Index NL Fund (ZVB5)

<i>Large-Cap</i>	<i>71.81%</i>
<i>Mid-Cap</i>	<i>24.65%</i>
<i>Small-Cap</i>	<i>3.55%</i>

S&P Global Infrastructure Index NL CTF (ZVPY)

<i>Large-Cap</i>	67.69%
<i>Mid-Cap</i>	26.92%
<i>Small-Cap</i>	5.39%

Bloomberg Roll Select Commodity Indx SM NL FD (ZVME)

<i>Large-Cap</i>	<i>N/A-Swaps%</i>
<i>Mid-Cap</i>	<i>N/A-Swaps %</i>
<i>Small-Cap</i>	<i>N/A-Swaps %</i>

3. What percentage of the portfolio is held in Rule 144A securities?
CGN Power Co Ltd – 0.02%
Aena SME SA – 1.17%
Enav SpA – 0.14%
4. What is the largest percentage of the portfolio represented by a single security? Please specify the security and percentage amount. If any securities were above 5% at the time of purchase, please list and explain why.
Archer Daniels Midland Co Common Stock USD – 1.27%
5. What is the largest percentage of the portfolio represented by a single issuer? Please specify the security and percentage amount. If any exposure to a single issuer was above 15% at time of purchase, please list and explain why.
Archer Daniels Midland Co Common Stock USD – 1.27%
6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

Part I

Real Asset Strategy AUM (06/30/2020) – 4,885,905,191 (016%)

Underlying Funds

S&P Global LargeMidCap Natural Resources Index NL Fund (ZVB5) – 900,330,669 (0.03%)
Bloomberg Roll Select Commodity Indx SM NL FD (ZVME) – 248,719,758 (0.01%)
S&P Global Infrastructure Index NL CTF (ZVPY) – 385,085,864 (0.01%)
U.S. TIPS Indx NL Fund (CMTP) – 2,066,702,484 (0.07%)

SSGA Firm AUM (06/30/2020) - 3,054,335,811,264

Part II

SMCERA AUM (06/30/2020) - \$ 186,589,156 (3.82%)

Real Asset Strategy AUM (06/30/2020) - \$ 4,885,905,191



Signed by: Melissa Lo, Officer, SSGA Global Investment Oversight

Dated: July 17, 2020
Name of Firm: State Street Global Advisors

***The Parametric Portfolio Associates LLC Cash & Currency Hedge Overlay –
June 30, 2020***

***Compliance Certification Statement
San Mateo County
Employees' Retirement Association***

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, July 13, 2020.**

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**
2. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
3. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**
4. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**
5. Have there been any investment guideline breaches during the past 6 months?
 Yes: Please explain. / **No**

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule less favorable than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.

2. Are derivative investments in compliance with *SamCERA's* investment policies?
 Yes / **No: Please explain.**
3. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
Not Applicable – Exchange traded derivative only used in this account.
4. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**
Not Applicable – Exchange traded derivative only used in this account.
- If Yes:**
- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes**/ **No: Please explain.**
5. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**
Not Applicable – Exchange traded derivative only used in this account.
- If Yes:**
- a) Do the counter-parties have investment grade debt? **Yes**/ **No**
b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ **No: Please explain.**
6. Is individual counter-party exposure well diversified? **Yes**/ **No: Please explain.**
- a) What is the largest exposure to a single counter-party within the portfolio?
b) Please specify the name of the counter-party and the amount of exposure.
c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
7. Are the investment purposes for a derivative investment consistent with the four purposes stated *SamCERA's* policies? **Yes** / **No: Please explain.**
- a) Has the firm developed any new purposes for derivative investments? **Yes: Please explain.** / **No**
8. List all limited allocation derivative investments individually and the percentage of the portfolio's assets represented by each investment.
Not Applicable – No Limited allocation derivatives used in this account.

- a) State if the firm has evaluated the exposure to market value losses that can occur from each of these derivatives. Yes / No: **Please explain.**
- b) State if these derivative investments in total represent more than 5% of the portfolio's market value. If more than 5%, please explain.
9. State if any restricted derivative investments are held in *SamCERA's* portfolios.
 Yes / No
- a) If any are held, state the percentage of the portfolio's assets held in such derivatives and why the firm is not in compliance with the investment policies.
10. For derivative investments with allocation limits, has the firm tested and measured these investments' sensitivities to changes in key risk factors? Yes / No: **Please explain.**
Not Applicable – No Limited allocation derivatives used in this account.
11. Have all derivative investments been made in a manner consistent with the derivative investment process specified in the policy statement? Yes / No: **Please explain.**
12. Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.
Not Applicable – No Limited allocation derivatives used in this account.
13. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.
14. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. Yes: **Please explain.** / No



Signed by: Benjamin Hammes, Deputy Chief Compliance Officer

Dated: July 13, 2020

Name of Firm Parametric Portfolio Associates LLC

EXHIBIT A
RESPONSE FOR QUESTION #13

Parametric seeks to only hold investment instruments that would be deemed liquid. Futures provide a transparent and relatively low risk investment exposure management vehicle to use in managing overlay strategies. There are currently numerous liquid global equity, fixed income, commodity, and currency exchange-traded index futures available for use in an overlay program. Before specific futures contracts to be included in a client's overlay portfolio are approved, the instrument is evaluated and screened to ensure adequate liquidity, focusing on open interest, average daily trading volume, bid/ask spread, and liquidity of the underlying index. As Parametric manages approximately over 180 overlay programs and has relationships with numerous counterparties trading in global markets, we have developed deep knowledge of liquidity levels of markets throughout the world. The primary gauges of liquidity are the average daily volume (ADV) and open interest metrics. Parametric carefully monitors liquidity and estimated costs internally and through external (i.e. broker) sources. As a general rule, the greater the amount ADV and open interest, the greater the liquidity and lower the transaction costs.

Parametric continuously monitors these metrics and will only use contracts which have sufficient liquidity to support the required positions. Parametric will also tailor the instruments employed in the overlay program based upon each client's unique needs and objectives.

Parametric's compliance program is designed to reasonably address all known conflicts of interests and other additional specific risks that have been identified through an annual risk assessment or a change in business or regulatory matters. These include legal and regulatory risks. Adherence to all legal and regulatory matters is considered to be an integral part of each employee's primary job functions. Every employee is required to share in maintaining and enforcing compliance with all applicable internal and external rules.

Verus Advisory, Inc. – June 30, 2020

*Compliance Certification Statement
San Mateo County
Employees' Retirement Association*

Please complete the following compliance certification statement and e-mail to *SamCERA* (Investments@samcera.org) by **Monday, July 13, 2020**.

General Compliance Issues

1. Have there been any significant changes in firm ownership, organizational structure and firm leadership team personnel?
 Yes: Please explain. / **No**
2. Have there been any changes to the general consulting, private markets consulting & research, public markets research, or risk advisory personnel?
 Yes: Please explain. / **No**

Barry Dennis will retire on June 30, 2020. Barry announced his retirement in July 2019 and will remain on the board of trustees for Verus. The following additions have been made to the team:

General consulting

- John Teramana, Taft-Hartley consulting specialist, was hired in 11/2019 as Senior Consultant in LA Office
- Stuart Odell, former administrator of Intel Corp.'s \$22 billion retirement assets, was hired in 2/2020 as Managing Director in SF Office
- Mark Brubaker, CFA, formerly with Wilshire Associates, was hired in 5/2020 as Managing Director in newly-established Pittsburgh (PA) Office
- Ted Hermann, formerly with Wilshire Associates, was hired in 5/2020 as Managing Director in Pittsburgh Office focusing on business development
- Pete Madrid was hired and joined the LA Office as a Consulting Associate in June 2020. He will be replacing Phillip Thomas, who will be moving back to Seattle to join the portfolio management team as a Portfolio Management Associate.

Private Markets

- Kin Lam was hired and joined Verus' Private Markets Group as Associate Director in May 2020

Research

- Michael Parnell was hired in June 2020 as Project Manager for the Portfolio Management Group. He replaced Project Manager Frank Luplow, who left the firm in May.
- Will Jones, formerly senior risk analyst, was promoted to Portfolio Management Associate in April 2020. He replaced Andrew Akers who left the firm on the same month.

3. Have there have been any industry or regulatory non-routine investigations, examinations, complaints, disciplinary actions or other proceeding against the firm or any investment professionals employed by the firm? Yes: Please explain. / No
4. Has the firm maintained its status as a Registered Investment Advisory under the Investment Advisors Act of 1940?
 Yes / No: Please explain.
5. Has the firm's insurance coverage been sustained?
 Yes / No: Please explain.

Fees

1. Is SamCERA's fee structure less favorable than other clients with the same level of service and access to investment opportunities?
 Yes: Please explain. / No

Signed by:

Dated:

Name of Firm

Will Jones, CEO, CLO
6 July 2020
Vehus Advisory, INC.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 24, 2018

Agenda Item 4.13

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: Conflict of Interest Code

Recommendation

Reaffirm SamCERA's Conflict of Interest Code.

Background

The Political Reform Act prohibits public officials from using their official position to influence a governmental decision in which they have a financial interest. Every public agency must adopt a Conflict of Interest (COI) code that identifies all officials and employees within the agency who make governmental decisions based on the positions they hold. The individuals in the designed positions must disclose on a Statement of Economic Interests (Form 700) their financial interests as specified.

Discussion

SamCERA is required to review its COI code at least every other year to determine whether, since the last code was approved, there has been any:

- Substantial changes to the SamCERA's organizational structure;
- Positions been eliminated or re-named;
- Positions been added; or
- Substantial changes in duties or responsibilities for any positions.

If there are any such changes, staff would bring an amended COI code reflecting the changes to the Board for its approval. At this time, there are no organizational changes in SamCERA staffing, thus no changes to the COI are needed.

Attachment

Conflict of Interest Code

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
CONFLICT OF INTEREST CODE**

The Fair Political Practices Commission (FPPC) has adopted a regulation (2 Cal. Code of Regs. 18730), which contains the terms of a standard conflict of interest code, which may be amended from time to time. The terms of 2 Cal. Code of Regs. 18730, and any amendments to it duly adopted by the FPPC, are hereby incorporated into this Conflict of Interest Code.

Each person holding any position listed below must file FPPC Form 700--Statement of Economic Interests disclosing the kinds of financial interest shown for the designated employee's position. Statements must be filed at the times and on the forms prescribed by law. Failure to file statements on time may result in penalties including but not limited to late fines. Each person holding a position who must file a Statements of Economic Interest in accordance with Government Code section 87200 *et seq* and California Code of Regulations shall file in accordance with those statutes, with the proviso that the original statements will be filed with *SamCERA* and with a copy to County Clerk. The County Clerk does not need to forward the Statement of Economic Interest to the Fair Political Practices Commission.

LIST OF DESIGNATED POSITIONS AND APPLICABLE DISCLOSURE CATEGORIES

Government Code section 87200 filers: the following positions which manage public investments for purposes Government Code section 87200, shall, *in addition* to the disclosures required by Government Code section 87200 *et seq.* and California Code of Regulations, disclose:

	Disclosure Category
Trustees and Alternate Trustees	1, 2, 3
Chief Executive Officer	1, 2, 3
Chief Investment Officer	1, 2, 3

Government Code section 87100 filers: Designated SamCERA employee positions and employees of consultants, who shall file in accordance with Government Code section 87100:

	Disclosure Category
Assistant Executive Officer	1, 2, 3
Chief Legal Counsel	1, 2, 3
Chief Technology Officer	2
Benefits Manager	2
Finance Officer	2
Investment Consultants	4
Other Consultants	*

* "*Investment Consultants*" are those investment managers and investment consultants who have been determined by the Chief Executive Officer to perform the same or substantially the same functions as SamCERA's Chief Investment Officer, which includes, but is not limited to directing or approving investment transactions, formulating or approving investment policies, and establishing guidelines for asset allocation. "*Other Consultants*" are those contractors who have been determined by the Chief Executive Officer to perform the functions of a SamCERA employee who pursuant to California Code of regulations section 18700 (a)(2) are required to file statements of economic interests. The Chief Executive Officer shall further determine the applicable disclosure categories.

DESCRIPTION OF FINANCIAL DISCLOSURE CATEGORIES

Category 1: Persons in this category shall disclose all interest in real property within the boundaries of the County of San Mateo or within two miles outside the boundaries of the County of San Mateo and property located within two miles of any land owned or used by *SamCERA*. Persons are not required to disclose property, such as a home or vacation cabin, used exclusively as a personal residence.

Category 2: Persons in this category shall disclose all business positions, investments in, or income (including gifts and loans) received from business entities that manufacture, provide or sell service and/or supplies of a type utilized by *SamCERA*.

Category 3: Persons in this category shall disclose all business positions and investments in business entities that are the type in which *SamCERA*'s trust funds may be invested (include securities, real estate and business entities), all income (including gifts and loans) from such business entities, and all interests in real estate co-owned with or purchased from such *SamCERA* business entities.

Category 4: Those investment consultant firms ("consultant") under contract with *SamCERA* that have been determined by the Chief Executive Officer to have a requirement to file. Such consultant shall designate those employees who have influence over the investment decisions pertaining to *SamCERA*'s portfolio. Employees designated by the consultant will disclose all investments in business entities that are the type in which *SamCERA*'s portfolio may be invested by that consultant (including securities, real estate and business entities) which may foreseeably be materially affected by their decision making on behalf of *SamCERA*, all income (including gifts and loans) from such business entities, and all interests in real estate co-owned with or purchased from such *SamCERA* business entities.

ADOPTED by unanimous vote, February 23, 1999

AMENDED by unanimous vote, February 22, 2000

AMENDED by unanimous vote, February 27, 2001

AMENDED by unanimous vote, February 26, 2002

AMENDED by unanimous vote, March 25, 2003

AMENDED by unanimous vote, February 22, 2005

AMENDED by unanimous vote, January 24, 2006

AMENDED by unanimous vote, February 26, 2008

AMENDED by unanimous vote, July 28, 2009

AMENDED by unanimous vote, March, 2010

AMENDED by unanimous vote, September 2011

AMENDED BY unanimous vote, March 2012

ATT: GOVERNMENT CODE SECTION 87314 APPENDIX

Government Code Section 87314 Appendix

Agency Positions that Manage Public Investments For purposes of Section 87200 of the Government Code

The following positions manage Public Investments for purposes of Section 87200 of the Government Code:

Trustees and Alternate Trustees

Chief Executive Officer

Chief Investment Officer

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 5.2

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Milliman Inc.'s Investigation of Experience July 1, 2017 – April 30, 2020

Recommendation

Accept the report of Milliman Inc.'s Investigation of Experience July 1, 2017 – April 30, 2020.

Background

Milliman performs an "Investigation of Experience" study every third year which is sometimes referred to as a "triennial review." While the study is based on both economic and demographic data, the demographic data showing the experience of the membership over the last three years is reviewed in greater detail.

The Investigation of Experience report sets forth the actuarial methods and the economic and demographic assumptions to be used in the June 30, 2020 Actuarial Valuation. The valuation will be presented to the Board at its September 22, 2020 meeting, and will be used to by the Board in its recommendations on employer and employee contribution rates.

Nick Collier and Craig Glyde of Milliman will present the Investigation of Experience study.

Discussion

In June, the Board retained the same economic assumptions of assumed earnings rate of 6.5%, Price Inflation of 2.5%, Wage Inflation of 3.00%, and COLAs for Retirees for the various plans at 2.50%, 2.40% or 1.90%. In the attached report, Milliman is recommending several changes to the demographic assumptions. If adopted, these proposed changes (primarily the service retirement assumption) will result in a moderate increase in the Statutory Contribution Rates and slight increases in member contribution rates. A complete description of the Actuarial Procedures and Assumptions can be found in Appendix A.

The following table shows a summary of the recommend assumptions:

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Assumption	Recommendation
Price Inflation	No Change
Investment Return	No Change
General Wage Growth	No Change
Payroll Increase Assumption	No Change
Funding Method	No Change
Merit Salary Scale	Increase Safety rates
Death while Active	Change to public plan specific mortality tables
Service Retirement	Overall increase for Plans 1, 2 and 4; Implement rates by age & service
Disability Retirement	Decrease General rates; Increase Safety rates
Termination	Increase General and Safety rates
Probability of Refund	Decrease General and Safety rates
Mortality after Retirement	Change to public plan specific mortality tables
Probability of Eligible Survivor	No Change
Reciprocity	No Change
Retirement for Deferreds	No Change

If adopted, the new assumptions would result in an increase in the statutory employer contribution rate and a decrease in the Funded Ratio calculated in the next valuation, as compared to the current assumptions.

	Funded Ratio	Statutory Contribution Rate
June 30, 2019 Valuation	85.8%	37.86%
Retired Mortality Rates	0.3%	-0.31%
Merit Salary	0.0%	0.08%
Active Demographics	-0.5%	0.46%
Total Change	-0.2%	0.23%
June 30, 2019 Valuation with Changes	85.6%	38.09%

In the table below, Milliman provides sample statutory contribution rates for members (entry age 35 for General and 25 for Safety and Probation) based on the 2019 valuation but using the recommended assumptions for 2020. Please note that the final member rates will be determined with the June 30, 2020 valuation.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Sample Changes in Member Rates due to Proposed Assumption Changes (Based on June 30, 2019 Actuarial Valuation⁽¹⁾)				
	<u>Entry Age</u>	<u>Current</u>	<u>Proposed</u>	<u>Increase</u>
General Members - County				
Plan 1	35	15.32%	15.46%	0.14%
Plan 2	35	14.33%	14.47%	0.14%
Plan 4	35	13.33%	13.45%	0.12%
Plan 5	35	8.91%	9.01%	0.10%
Plan 7	All	9.11%	8.91%	-0.20%
Probation Members				
Plan 1	25	18.56%	18.96%	0.40%
Plan 2	25	18.43%	18.83%	0.40%
Plan 4	25	16.68%	17.01%	0.33%
Plan 5	25	16.37%	16.69%	0.32%
Plan 6	25	12.37%	12.68%	0.31%
Plan 7	All	14.97%	15.01%	0.04%
Safety Members ⁽²⁾⁽³⁾				
Plan 1	25	19.54%	19.93%	0.39%
Plan 2	25	19.88%	20.27%	0.39%
Plan 4	25	18.17%	18.50%	0.33%
Plan 5	25	16.87%	17.19%	0.32%
Plan 6	25	12.56%	12.88%	0.32%
Plan 7	All	15.28%	15.37%	0.09%

1. Final FYB 2021 member rates will be determined based on the June 30, 2020 valuation.
2. Plans 1 - 6 member rates refer to all Safety members except Deputy Sheriffs. All members of Plan 7 pay the same member rates. Deputy Sheriffs are not eligible for Plan 6.
3. Cost sharing for non-Deputy Sheriffs in Plans 1 - 5 is 5%. Cost Sharing varies for Deputy Sheriffs as follows:
 - 3.0% if employee is less than 45 and has less than 5 years of service.
 - 3.5% if employee is less than 45 and has between 5 and 15 years of service.
 - 4.5% if employee is older than 45 or has at least 15 years of service.

Note that the sample member contribution rates are total rates and include the COLA and Cost Share portions where applicable.

Attachment

Milliman's Investigation of Experience July 1, 2017 – April 30, 2020



San Mateo County Employees' Retirement Association

Investigation of Experience July 1, 2017 – April 30, 2020

Prepared by:

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July 22, 2020

Board of Retirement
San Mateo County Employees' Retirement Association
100 Marine Parkway, Suite 125
Redwood City, CA 94065-5208

Dear Members of the Board:

It is a pleasure to submit this report of our investigation of the experience of the San Mateo County Employees' Retirement Association (SamCERA) for the period July 1, 2017 through April 30, 2020. The results of this investigation are the basis for the actuarial assumptions and methods to be used in the actuarial valuation to be performed as of June 30, 2020.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the upcoming valuation. Several of our recommendations represent changes from the prior methods or assumptions and are designed to better anticipate the emerging experience of SamCERA.

We have provided financial information showing the estimated hypothetical impact of the recommended assumptions, if they had been reflected in the June 30, 2019 actuarial valuation. We believe the recommended assumptions provide a reasonable estimate of anticipated experience affecting SamCERA. Nevertheless, the emerging costs will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions,
- Future changes in the actuarial assumptions,
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the Plan's funded status), and
- Changes in the plan provisions or accounting standards.

Due to the scope of this assignment, we did not perform an analysis of the potential range of such measurements.

In preparing this report, we relied without audit on information (some oral and some in writing) supplied by SamCERA's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We used SamCERA's benefit provisions as stated in our June 30, 2019 Actuarial Valuation report. In our examination, after discussion with SamCERA and making certain adjustments, we have found the data to be reasonably consistent and comparable with data used for other purposes. The experience study results are dependent on the integrity of this information. If any of this information is inaccurate or incomplete, our determinations may need to be revised.

We certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations).

This investigation of experience report recommends assumptions to be used in the valuation to provide an estimate of the System's financial condition as of a single date. The valuation can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Milliman's work is prepared solely for the internal business use of SamCERA. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

- a) The System may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.
- b) The System may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the Plan Sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices.

We would like to acknowledge the help in the preparation of the data for this investigation given by the SamCERA staff. We look forward to our discussions and the opportunity to respond to your questions and comments at your next meeting.

We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

A handwritten signature in black ink, appearing to read "Nick Collier".

Nick Collier, ASA, EA, MAAA
Consulting Actuary
NC/CG/nlo

A handwritten signature in black ink, appearing to read "Craig Glyde".

Craig Glyde, ASA, EA, MAAA
Consulting Actuary

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1. Executive Summary

Overview

Any actuarial valuation is based on certain underlying assumptions. Determining the adequacy of the contribution rate is highly dependent on the assumptions that the actuary uses to project the future benefit payments and then to discount the value of future benefits to determine the present values. Thus, the assumptions are critical in assisting the system in adequately pre-funding for the benefits prior to retirement.

To assess the reasonableness of the assumptions used in the valuation, they should be studied regularly. This process is called an investigation of experience (or experience study).

Summary of Results

This section describes the key findings of this investigation of experience of the San Mateo County Employees' Retirement Association (SamCERA) for the period July 1, 2017 through April 30, 2020. We are recommending several changes to the demographic assumptions. If adopted, these proposed changes (primarily the service retirement assumption) will result in a moderate increase in the Statutory Contribution Rate (SCR), as discussed at the end of this section. We previously recommended economic assumptions that were adopted at the June 2020 Board of Retirement meeting. We will refer to our recommended assumptions, including the recently approved economic assumptions, as the "proposed" assumptions.

The following table shows a summary of our recommendations for all assumptions and methods studied.

Assumption	Recommendation
Price Inflation	No Change
Investment Return	No Change
General Wage Growth	No Change
Payroll Increase Assumption	No Change
Funding Method	No Change
Merit Salary Scale	Increase Safety rates
Death while Active	Change to public plan specific mortality tables
Service Retirement	Overall increase for Plans 1, 2 and 4; Implement rates by age & service
Disability Retirement	Decrease General rates; Increase Safety rates
Termination	Increase General and Safety rates
Probability of Refund	Decrease General and Safety rates
Mortality after Retirement	Change to public plan specific mortality tables
Probability of Eligible Survivor	No Change
Reciprocity	No Change
Retirement for Deferreds	No Change

If adopted, the new assumptions would result in an increase in the statutory employer contribution rate and a decrease in the Funded Ratio calculated in the next valuation, as compared to the current assumptions. A further discussion is included in the Financial Impact section at the end of the Executive Summary.

Economic Assumptions

Section 2 discusses the economic assumptions: price inflation, general wage growth (includes price inflation and productivity), future COLAs and the investment return. As with virtually all actuarial assumptions, there is not one right answer; however, we believe that the 6.50% investment return assumption adopted by the Board for the June 30, 2019 valuation remains appropriate for SamCERA. The assumption is slightly greater than the 10-year expected return of 6.30% projected by Verus's capital market assumptions; however, we note that this is based on a lower implicit CPI inflation than SamCERA is using. If future CPI inflation is higher than projected by Verus's capital market assumptions, we would expect future investment returns would be higher. Given this, we believe 6.50% remains reasonable.

The price inflation assumption of 2.50% is higher than what most economists are forecasting for national CPI; however, given that over the past several years the Bay Area has consistently experienced higher inflation than what has occurred nationally, we think it is reasonable to maintain the current assumption. The general wage growth, payroll growth, and COLA assumptions are directly related to the price inflation assumption. Given this relationship, we believe that if the price inflation remains at 2.50%, it is reasonable to retain these other assumptions.

The set of economic assumptions we recommended, and the Board approved, to be used for the next valuation includes an investment return assumption of 6.50%, a price inflation assumption of 2.50%, and a wage growth assumption of 3.00%. These are all unchanged since the June 30, 2019 valuation.

The following table shows our recommended economic assumptions.

Economic Assumption	Current Assumption	Recommended Assumption
Investment Return	6.50%	6.50%
GASB Discount Rate	6.67%	6.67%
Price Inflation ⁽¹⁾	2.50%	2.50%
General Wage Growth	3.00%	3.00%
Payroll Growth	3.00%	3.00%
Retiree COLAs	2.50% / 2.40% / 1.90%	2.50% / 2.40% / 1.90%

1. Price Inflation refers to CPI inflation for San Francisco-Oakland-Hayward, and is primarily used in determining wage and payroll growth assumptions, and retiree COLA assumptions.

A detailed analysis of the economic assumptions is provided in Section 2.

Actuarial Methods and Miscellaneous Assumptions

Section 3 discusses the actuarial methods and other miscellaneous assumptions used in the valuation and administration of the system.

We are recommending changes in this area as follows:

- A change to the member contribution rates should be made to reflect the new mortality and merit salary assumptions if they are adopted. The impact of this is discussed later in this section.
- A change to the factors used for determining optional benefits and service purchase costs, as well as the Plan 3 early retirement age factors, should be considered to reflect the new mortality assumptions if they are adopted.

Demographic Assumptions

Sections 4-9 discuss the demographic assumptions. Unlike the economic assumptions, which are more global in nature, the demographic assumptions are based heavily on recent SamCERA experience. Demographic assumptions are used to predict future member behavior (e.g., when will a member retire? How long will the member live?).

Based on the results of this study, we are recommending changes to several of the demographic assumptions. In cases where we have recommended changes, the changes for the most part only partially reflect recent experience due to the long-term nature of actuarial assumptions.

When reviewing the sections on demographic assumptions, please note the following:

- Our analysis uses the Actual-to-Expected (A/E) ratio to measure how well the current assumptions fit actual experience. For example, if the service retirement A/E is 80%, it indicates that there were 20% fewer service retirements than expected, and that we should consider decreasing the assumption. By decreasing the expected rates, this results in a higher ratio, in this case closer to 100%.
- In our analysis of the active demographic assumptions (merit salary, service retirement, disability, and termination), we also studied the impact of compensation levels by weighting the results by compensation. That is, a member with annual compensation of \$80,000 has twice the impact on the observed rates in comparison to a member with annual compensation of \$40,000. This is a valuable analysis tool since two members similar in all ways except for compensation level have different amounts of liability. The financial impact on the valuation is more dependent on the behavior of the member with the larger liability. Compensation is a useful proxy for liability. We observed some differences in member behavior based on compensation level. For example, members with higher levels of compensation tended to have higher probabilities of retiring at a given age.

Similarly, we reflected the impact of benefit amounts on the retired mortality analysis. In general, we observed that retired members with higher benefits have longer life expectancies than members with smaller benefits.

- Due to scheduling considerations, the data provided to us by SamCERA was as of April 30, 2020. This was necessary to complete both the experience investigation and the valuation in time for inclusion in the Comprehensive Annual Financial Report (CAFR). Thus, the study period was two years and 10 months instead of the three years implied by the “triennial” description. We do not believe this two-month difference has a material impact on the results.
- When we refer to “Safety” members in this report, we are including both Safety and Probation members.
- When we refer to the “proposed” assumptions, these are the assumptions that we are recommending. These include the recently approved economic assumptions. The current assumptions are referred to as the “expected” assumptions.
- For many of the assumptions, we show detailed graphs of our analysis showing the actual experience for the study (blue bar), the actual experience from the prior study (black bar), the current assumption (green line), and the new proposed assumptions (orange line).

The recommended rates are shown in detail in Appendix A.

Individual Salary Increases due to Promotion and Longevity (Merit)

Section 4 discusses the individual salary increases due to promotion and longevity – the merit component of salaries. Overall, the results show increases close to what the current rates predicted for General members, and increases higher than predicted for Safety members.

We also considered longer term experience in our analysis of salary increases. We reviewed experience over the period 2005-2020 in addition to the period 2017-2020. We believe that including a study of salary increases over a longer period than the three-year period of the study helps to smooth out short-term differences, provides

additional context for salary increases over a period at least as long as a full economic cycle, and generally presents a more representative analysis of salary increase patterns. Comparing the long-term pattern with the results of the three-year study helps to identify any changes in trend.

We are recommending no change to the merit salary assumption for General members, and we are recommending increases to the merit salary assumption for Safety members to better reflect the experience of the current and longer term periods.

In recommending no increase for General members, we considered both historical experience which has been less than the assumption, and recent bargaining that increased longevity components of salary for General members. We believe that the two factors approximately offset each other, and the current assumption remains appropriate.

Additional details are included in Section 4.

Mortality

The mortality assumption is used to predict the life expectancy of both members currently in pay status and those expected to receive a benefit in the future. The results of the study are shown in the table below, observed based on both headcount and benefit weighted bases. There were slightly more deaths than expected among retired members (335 compared to 328), however the benefit weighted deaths were slightly lower than expected. This means that overall actual deaths were higher among retired members with smaller benefits.

Retirement Type	Actual	Expected	Proposed	Actual / Expected	Actual / Proposed
<u>By Headcount</u>					
Service (Healthy)	300	296	297	101%	101%
Disability	35	32	31	109%	113%
Total	335	328	328	102%	102%
<u>Benefit Weighted</u>					
Service (Healthy)	\$882,795	\$901,481	\$895,455	98%	99%
Disability	97,653	97,964	94,055	100%	104%
Total	980,448	999,445	989,510	98%	99%

As discussed in more detail in Section 5, the Society of Actuaries recently published new mortality tables based on data from public sector retirement systems. These include specific mortality tables for general and safety members, in addition to tables for healthy and disabled retired members.

Although the current tables still provide a reasonable estimate of future mortality experience, we recommend an update to new mortality tables that are specific to public plans. The analysis shows that the new tables provide a more consistent fit by age to SamCERA's actual experience, even though in total there is not much difference. We have observed that there is a definite trend to adopt the new public plan mortality tables in other systems. In addition, we recommend retaining the mortality projection scale, which projects future improvements in mortality (i.e., increases in life expectancies over time). We continue to believe this is a reasonable estimate of future changes in mortality. Overall, the new mortality assumptions will result in very little change in life expectancy compared to the prior assumption. Additional details are provided in Section 5.

Service Retirement

Overall, the actual number of service retirements was higher than expected by the assumptions. We have observed that rates of retirement often differ based on years of service as well as age, so we studied the rates of retirement based on age and service. We found that, in general, members with more years of service have a greater probability of retiring at a given age than those with less years of service. The following table shows the results for all members eligible for retirement.

	Actual	Expected	Proposed	Actual / Expected	Actual / Proposed
<u>By Headcount</u>					
General	445	442	455	101%	98%
Safety	105	85	93	124%	113%
Total	550	527	548	104%	100%
<u>Compensation Weighted</u>					
General	\$47,503,764	\$47,773,944	\$48,696,108	99%	98%
Safety	14,701,188	11,664,120	12,644,904	126%	116%
Total	62,204,952	59,438,064	61,341,012	105%	101%

We recommend revised service retirement rates for General and Safety/Probation members in Plans 1, 2, and 4, that are based on a member's age and years of service. These revisions result in more expected retirements overall, both on a headcount and a compensation weighted basis.

In making our recommendations, we also considered the prior study. In particular, Safety retirement rates were much lower in the 2014-2017 study period, so for that class we are recommending a revision that only partially reflects the current experience, which showed higher retirement rates for the class.

We also recommend revised retirement rates for Plans 5, 6, and 7 reflecting the lower benefits and specific retirement eligibility provisions of these plans compared to Plans 1, 2, and 4. In general, the proposed rates are equal to 80% of the corresponding Plans, 1, 2, and 4 rates, with adjustments at certain ages to reflect specific plan provisions.

We are not recommending a change to retirement rates for General Plan 3.

Further analysis is shown in Section 6 of this report.

Disability Retirement

Overall, the actual number of disability retirements from active service was lower than expected by the assumptions; however, there was also a significant number of service retired members reclassified as disabled retirements during the study period. We therefore believe that the actual number of disabled retirements is higher than shown in the following table. The actual experience shown does not fully reflect the actual experience considered in our proposed assumptions.

	Actual	Expected	Proposed	Actual / Expected	Actual / Proposed
<u>By Headcount</u>					
General	23	40	32	58%	72%
Safety	11	10	13	110%	85%
Total	34	50	45	68%	76%
<u>Compensation Weighted</u>					
General	\$1,746,564	\$3,974,532	\$3,218,964	44%	54%
Safety	1,126,608	1,246,740	1,566,696	90%	72%
Total	2,873,172	5,221,272	4,785,660	55%	60%

Note: If reclassified disability retirements were included, the actual-to-expected ratios on a headcount basis would be 100% (40/40) for General and 240% for Safety (24/10).

We are recommending lower rates of disability retirement for General members and increased rates for Safety members. Note that the Safety group had a large relative number of service retirements reclassified as disability retirements; this is reflected in our recommendation to increase rates for Safety members.

Members may take a disability retirement on account of service connected, or non-service connected disability. Based on the observed experience we are recommending no change to the assumption that 65% of General disabilities and 100% of Safety disabilities are service connected.

Further analysis is shown in Section 7 of this report.

Termination

The actual number of terminations for both General and Safety/Probation members was higher than the assumptions predicted. The following table shows the results for the two groups.

	Actual	Expected	Proposed	Actual / Expected	Actual / Proposed
<u>By Headcount</u>					
General	729	632	679	115%	107%
Safety	55	41	52	136%	106%
Total	784	673	730	117%	107%
<u>Compensation Weighted</u>					
General	\$64,117,998	\$54,385,694	\$58,053,609	118%	110%
Safety	5,629,464	4,045,773	5,143,500	139%	109%
Total	69,747,463	58,431,467	63,197,109	119%	110%

Overall, we are recommending increases to the rates of termination, particularly for members with fewer years of service. Further analysis is shown in Section 8 of this report.

Probability of Refund upon Vested Termination

The actual number of refunds for vested members at termination, shown in the following table, was lower than expected for General and Safety members, which is consistent with experience from the prior two studies.

	Actual	Expected	Proposed	Actual / Expected	Actual / Proposed
<u>By Headcount</u>					
General	44	73	60	60%	73%
Safety	7	8	8	85%	88%
Total	51	81	68	63%	75%

We are recommending reductions to the rates of refund for both General and Safety members to reflect this experience. Due to the small amount of experience for Safety members, this reduction is not readily apparent in the above table. Further analysis is shown in Section 9 of this report.

Financial Impact of the Recommended Assumptions

The following exhibit shows the estimated financial impact the proposed changes would have on SamCERA's funding. Note that the proposed changes would increase the expected statutory employer contribution rate and decrease the reported Funded Ratio of the system, primarily due to the recommended changes to the active decrements (retirement and termination).

The financial impact was evaluated by performing additional valuations with the June 30, 2019 valuation data and reflecting the proposed assumption changes. Note that the estimated 0.23% increase is a blended average of all plans. The Safety and Probation plans are expected to have greater increases than the General plans. The actual financial impact will vary to some extent for the June 30, 2020 valuation due to year-to-year changes in the member population and investment experience.

	Funded Ratio	Statutory Contribution Rate
June 30, 2019 Valuation	85.8%	37.86%
Retired Mortality Rates	0.3%	-0.31%
Merit Salary	0.0%	0.08%
Active Demographics	-0.5%	0.46%
Total Change	-0.2%	0.23%
June 30, 2019 Valuation with Changes	85.6%	38.09%

Impact of the Recommended Assumptions on Member Contribution Rates

If adopted, the recommended assumptions would result in an increase in the member contribution rates for all members except members of General Plan 7. The following table shows sample member rates (entry age 35 for General and 25 for Safety and Probation) based on the 2019 valuation, but using the recommended assumptions for 2020. The final member rates will be determined with the 2020 valuation.

Sample Changes in Member Rates due to Proposed Assumption Changes (Based on June 30, 2019 Actuarial Valuation ⁽¹⁾)				
	Entry Age	Current	Proposed	Increase
General Members - County				
Plan 1	35	15.32%	15.46%	0.14%
Plan 2	35	14.33%	14.47%	0.14%
Plan 4	35	13.33%	13.45%	0.12%
Plan 5	35	8.91%	9.01%	0.10%
Plan 7	All	9.11%	8.91%	-0.20%
Probation Members				
Plan 1	25	18.56%	18.96%	0.40%
Plan 2	25	18.43%	18.83%	0.40%
Plan 4	25	16.68%	17.01%	0.33%
Plan 5	25	16.37%	16.69%	0.32%
Plan 6	25	12.37%	12.68%	0.31%
Plan 7	All	14.97%	15.01%	0.04%
Safety Members⁽²⁾⁽³⁾				
Plan 1	25	19.54%	19.93%	0.39%
Plan 2	25	19.88%	20.27%	0.39%
Plan 4	25	18.17%	18.50%	0.33%
Plan 5	25	16.87%	17.19%	0.32%
Plan 6	25	12.56%	12.88%	0.32%
Plan 7	All	15.28%	15.37%	0.09%

1. Final FYB 2021 member rates will be determined based on the June 30, 2020 valuation.
2. Plans 1 - 6 member rates refer to all Safety members except Deputy Sheriffs. All members of Plan 7 pay the same member rates. Deputy Sheriffs are not eligible for Plan 6.
3. Cost sharing for non-Deputy Sheriffs in Plans 1 - 5 is 5%. Cost Sharing varies for Deputy Sheriffs as follows:
 - 3.0% if employee is less than 45 and has less than 5 years of service.
 - 3.5% if employee is less than 45 and has between 5 and 15 years of service.
 - 4.5% if employee is older than 45 or has at least 15 years of service.

Note that the sample member contribution rates are total rates and include the COLA and Cost Share portions where applicable.

Proposed Assumptions and Methods

Appendix A illustrates the Summary of Actuarial Assumptions as it will appear in the June 30, 2020 valuation report if all recommended assumptions and methods are adopted.

2. Economic Assumptions

Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. However, the standard explicitly advises the actuary not to give undue weight to recent experience. To meet the standard, the assumption should reflect “the actuary’s estimate of future experience” and “it has no significant bias (i.e., it is not significantly optimistic or pessimistic).”

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may lead the actuary to recommend the same inflation component in each of the economic assumptions proposed.

This section will discuss the economic assumptions. We believe the current economic assumptions are reasonable and satisfy ASOP No. 27. We have not recommended any changes. The following table shows these assumptions.

Economic Assumptions	Current Assumptions
Investment Return	6.50%
GASB Discount Rate	6.67%
General Wage Growth	3.00%
Payroll Growth	3.00%
Price Inflation	2.50%
COLAs for Retirees	2.50% / 2.40% / 1.90%

1. Price Inflation & COLA Assumptions

Use in the Valuation

When we refer to inflation in this report, we are generally referring to price inflation. The price inflation assumption is not directly used in the valuation; however, it is used in the development of the assumptions for general wage increases, payroll increases and retiree COLA increases, which directly impact the valuation results. Price inflation is more specific to the Bay Area economy, as that economy will impact wage and payroll growth, and retiree COLA increases of SamCERA more than national CPI will.

CPI inflation generally refers to national inflation, or inflation over the entire economy, and is used in the development of the assumption for future investment returns. The long-term relationship between CPI inflation and investment return has long been recognized by economists. The basic principle is that the investors demand a “real return” – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand investment returns that are also expected to be high enough to exceed inflation, while lower inflation rates will result in lower expected investment returns, at least in the long run.

Historical Perspective

The data for inflation shown below is based on the national Consumer Price Index, US City Average, All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics.

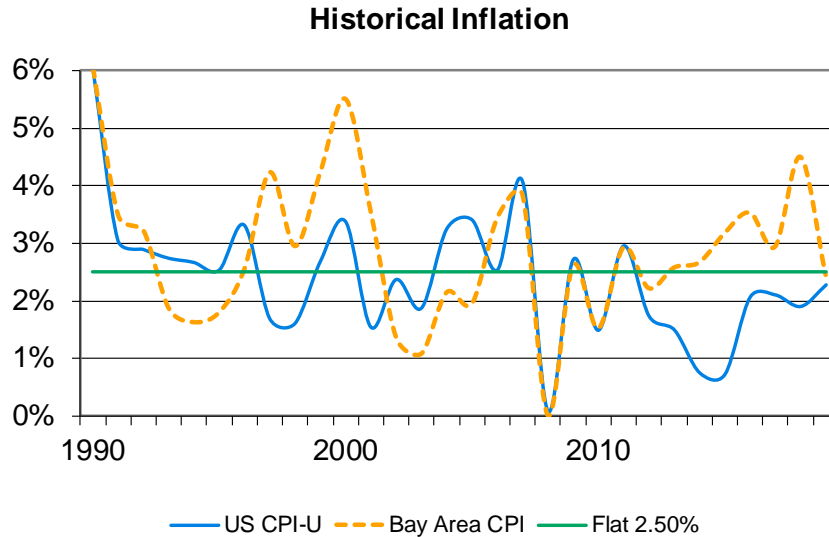
Although economic activities in general, and inflation in particular, do not lend themselves to prediction on the basis of historical analysis, historical patterns and long-term trends are a factor to be considered in developing the inflation assumption.

There are numerous ways to review historical data, with significantly differing results. The table below shows the compounded annual inflation rate for various 10-year periods, and for the 50-year period ended in December 2019. Note that the 50-year average is heavily influenced by the inflation of the late 1970s and early 1980s. The last 30 years have averaged closer to the current assumption, with a 30-year average of 2.4%.

Decade	CPI Increase
2010-2019	1.8%
2000-2009	2.5%
1990-1999	2.9%
1980-1989	5.1%
1970-1979	7.4%
Prior 50 Years	
1970-2019	3.9%

These are national statistics. The inflation assumption as it relates to the investment return assumption should be based more on national and even global inflation, whereas, the inflation assumption used in the wage growth, payroll growth, and COLA increase assumptions is tied to inflation in the Bay Area. We believe that although there have been historical differences between U.S. and Bay Area CPI changes, in the long term there should be a high correlation. For comparison, the average CPI increase for the Bay Area has been about 0.45% higher than the national average for the 30-year period 1990-2019.

The following graph shows historical CPI increases since 1990. The national CPI increase has generally been less than 2.50% over the last 10 years of the period. Also shown for comparison are CPI increases specific to the Bay Area. These were tracking fairly closely to the national statistics, although over the last eight years, local CPI has exceeded the national CPI by over 1.0% on average.



Forecasts of Inflation

Since the U.S. Treasury started issuing inflation indexed bonds, it is possible to determine the approximate rate of inflation anticipated by the financial markets by comparing the yields on inflation indexed bonds with traditional fixed government bonds. Current market prices as of June 2020 suggest investors expect inflation to be about 1.6% over the next 30 years. Most forecasts of future price inflation by economists and investment professionals are lower than 2.5%. Milliman investment consultants' long-term expectation for CPI inflation is currently 2.2%.

Additionally, we reviewed the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the 2019 Trustees Report, the projected average annual increase in the CPI over the next 75 years under the intermediate cost assumptions was 2.4%.

CPI Inflation / Price Inflation Recommendation

Neither the CPI inflation nor the price inflation assumption is used explicitly in determining SamCERA's funding and thus have no direct impact on the contribution rates. However, the price inflation assumption is a factor in our recommendations for wage growth, payroll growth, and retiree COLA assumptions. Similarly, CPI inflation is a factor in our recommendations for the investment return assumption.

We recommend maintaining the long-term assumed price inflation rate of 2.5%.

Based on Milliman investment consultant's expectations of 2.2%, we believe a long-term CPI inflation assumption of between 2.0% and 2.5% is reasonable; however we do not believe it is necessary to make an explicit assumption for CPI inflation, provided it is given due consideration in determining the investment return assumption.

Postretirement Cost-of-Living Adjustments (COLA)

The current assumption is that retiree COLAs for Plan 1 will be equal to the price inflation assumption. We recommend continuing this practice. In reality, some years, price inflation will be higher than the assumption and some years it will be lower. Over the long term, if price inflation increases average 2.5%, Plan 1 COLAs should average close to 2.5%, since the maximum COLA is much higher at 5% (3% for Probation) and there is a COLA bank.

For the other contributory plans, the maximum COLA is lower (3% for Plan 2 and 2% for the other plans) and there is no COLA bank. Since when price inflation increases are higher than 2% (or 3% for Plan 2) the COLA will be limited, but when they are lower they will not be limited (except in rare cases), we expect the actual COLAs granted will be less than the average price inflation (or the maximum COLA in the case of Plans 4-7). Our current assumption for the Plan 2 COLA is that it will be 0.1% less than the price inflation assumption, and the COLAs for Plans 4-7 will be 0.1% less than the maximum COLA amount. We feel this continues to be a reasonable assumption.

Our analysis shows that when reflecting future variability in price inflation, the COLAs granted for Plans 2-7 are projected to be fractionally less than the current assumption on average, so the current assumption reflects a small level of conservatism. For purposes of this analysis we assumed that the future price inflation averages 2.5%. We also assumed there is variability in price inflation with a 1.0% standard deviation, and that each future year is correlated to the prior year with a 50% reversion to the current assumption.

General Plan 3 does not have a COLA. Therefore, the assumed COLA is 0.0%.

COLA Recommendation

We recommend the COLA assumptions be retained if the price inflation assumption is not changed.

Plan	Annual Cost of Living Adjustment	
	Current	Recommended
Plan 1	2.5%	2.5%
Plan 2	2.4%	2.4%
Plan 3	0.0%	0.0%
Plans 4, 5, 6, and 7	1.9%	1.9%

2. Wage Growth

Use in the Valuation

Estimates of future salaries are based on two types of assumptions: 1) general wage increase and 2) merit increase. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity generally occur even in the absence of inflation. The promotion and longevity assumptions, referred to as the merit scale, will be reviewed with the other demographic assumptions (see Section 5).

The current assumption is for wage growth of 0.50% above the price inflation assumption.

Historical Perspective

We have used statistics from the Social Security Administration on the National Average Wage back to 1967.

There are numerous ways to review this data. For consistency with our observations of other indices, the table below shows the compounded annual rates of wage growth for various 10-year periods and for the 50-year period ending in 2019. The excess of wage growth over price inflation represents "productivity" (or the increase in the standard of living, also called the real wage inflation rate).

Decade	Wage Growth	CPI Increase	Real Wage Inflation
2010-2019	2.8%	1.8%	1.0%
2000-2009	2.9%	2.5%	0.4%
1990-1999	4.2%	2.9%	1.3%
1980-1989	5.8%	5.1%	0.7%
1970-1979	6.9%	7.4%	-0.5%
Prior 50 Years			
1970-2019	4.5%	3.9%	0.6%

Forecasts of Future Wages

Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2020 Trustees Report, the ultimate long-term annual increase in the National Average Wage is estimated to be 1.1% higher than the Social Security intermediate inflation assumption of 2.4% per year.

Recommendation

Over the last 50 years, the actual experience, on a national basis, has been close to the current assumption. We believe that wages will continue to grow at a greater rate than prices over the long term, although not to the extent projected by Social Security. We are recommending that the long-term assumed real wage inflation rate remain at 0.50% per year.

Real Wage Inflation Rate	
Current assumption	0.50%
Recommended Assumption	0.50%

The wage growth assumption is the total of the consumer price inflation assumption and the real wage inflation rate. If the real wage inflation assumption remains 0.50% and the price inflation remains 2.50%, this would result in a total wage growth assumption of 3.00%.

Payroll Increase Assumption

In addition to setting salary assumptions for individual members, the aggregate payroll of SamCERA is expected to increase, without accounting for the possibility of an increase in membership. See comments on growth in membership discussed below.

The current payroll increase assumption is equal to the general wage growth assumption of 3.00%. It is our general recommendation to set these two assumptions to be equal, unless there is a specific circumstance that would call for an alternative assumption. We are recommending that the payroll increase assumption continue to be equal to the wage growth assumption of 3.00%. This assumption affects the Unfunded Actuarial Accrued Liability (UAAL) amortization payment rate.

Growth in Membership

We propose continuing the assumption that no future growth in membership will occur. This assumption affects the UAAL amortization payment rate. With no assumed growth in membership, future payroll is assumed to grow due to wage growth increases. If increases should occur because of additional members, there will be a larger pool of salaries over which to spread the UAAL, if any, resulting in a reduction in the Statutory Contribution Rate. Note that the opposite occurs in the event of a shrinking workforce.

It should be noted that membership growth could be affected by the County's "Agile" workforce program, which fills some positions with employees who would not participate in SamCERA. To the extent this occurs, membership growth could be negative, although over the past few years, the active membership has been increasing, so there does not appear to have been a significant impact so far.

3. Investment Return

Use in the Valuation

The investment return assumption is one of the primary determinants in the calculation of the projected contributions needed to pay for SamCERA's benefits, providing a discount of the future benefit payments that reflects the time value of money. This assumption has a direct impact on the calculation of liabilities, normal costs, member contribution rates, and the factors for optional forms of benefits. The current investment return assumption for SamCERA is 6.50% per year, net of all administrative and investment-related expenses.

Expected Long-Term Investment Return

Verus calculated the 10-year investment return based on their March 31, 2020 assumptions for capital markets and SamCERA's current target asset allocation as 6.3%. This expected return is the median return on a geometric basis for SamCERA's assets. That is, there is estimated to be a 50% probability the return will exceed 6.3% and a 50% probability the return will be less than 6.3%. We independently calculated the expected return using Verus's capital market assumptions, including their implicit 1.6% inflation assumption, and came close to their calculated expected return of 6.3%.

Administrative and Investment-Related Expenses

The investment return used for the valuation is assumed to be net of all administrative and investment-related expenses. The following table shows the ratio of administrative expenses to the SamCERA Plan assets over the last 10 fiscal years beginning July 1. The expense ratio is calculated as the expense amount divided by the ending asset balance at fair market value.

(\$millions)				
FYB	Market Assets	Admin. Expense ⁽¹⁾	Expense Ratio	
2009	\$ 1,591	\$ 3.4	0.21%	
2010	1,816	3.6	0.20	
2011	2,318	5.0	0.22	
2012	2,360	4.9	0.21	
2013	2,728	4.9	0.18	
2014	3,292	5.5	0.17	
2015	3,454	6.0	0.17	
2016	3,541	6.0	0.17	
2017	4,039	5.8	0.14	
2018	4,378	6.1	0.14	

1. Excludes technology expenses.

Note that for purposes of this calculation we have included only the regular administrative expenses. If the information technology expense was included, the expense ratio for the fiscal year beginning July 1, 2018 would be 0.20%, instead of 0.14%.

For the administrative expenses, we are recommending retaining the current assumption of 0.17% of market assets. The actual ratio for administrative expenses has been 0.17% or less over the last five years, but when including technology expenses the ratio has been greater. Our understanding is that a significant portion of the current technology expenses are short term, so we expect the technology expenses to decline as a percentage of assets, and we believe the 0.17% assumption continues to be reasonable.

Investment expenses have been slightly less than 1% of the market value of assets. However, for purposes of our analysis of the investment return assumption, we have only accounted for passive management fees and other fixed investment expenses. The reasoning for this is that for asset classes where passive management is available, SamCERA would not use active management unless there was an expectation that the returns net of fees would be at least as great as the net return using passive management. For asset classes where passive management is not available, our understanding is that Verus's capital market assumptions are net of investment expenses.

In addition to accounting for passive management fees, we adjust for other expected investment-related expenses, such as internal investment staff (reported with administrative expenses in the CAFR), outside investment consultants, and the fund's master custodian. We have assumed these fixed investment expenses to be approximately 0.05% of assets.

The expense assumption does not have a direct impact on the actuarial valuation results under the current methods, but it does provide a measure of gross return on investments that will be needed to meet the actuarial assumption used for the valuation. For example, the current investment return assumption is 6.50%, so SamCERA needs to earn a return (net of investment expenses) on its assets of 6.67% in order to net the 6.50% for funding purposes.

Additionally, we recommend the 0.17% adjustment be added to the investment return assumption adopted to determine the discount rate used in SamCERA's GASB 67 and 68 valuations, as GASB requires the discount rate to be the long-term expected rate of return gross of administrative expenses.

Explicit Recognition of Administrative Expenses

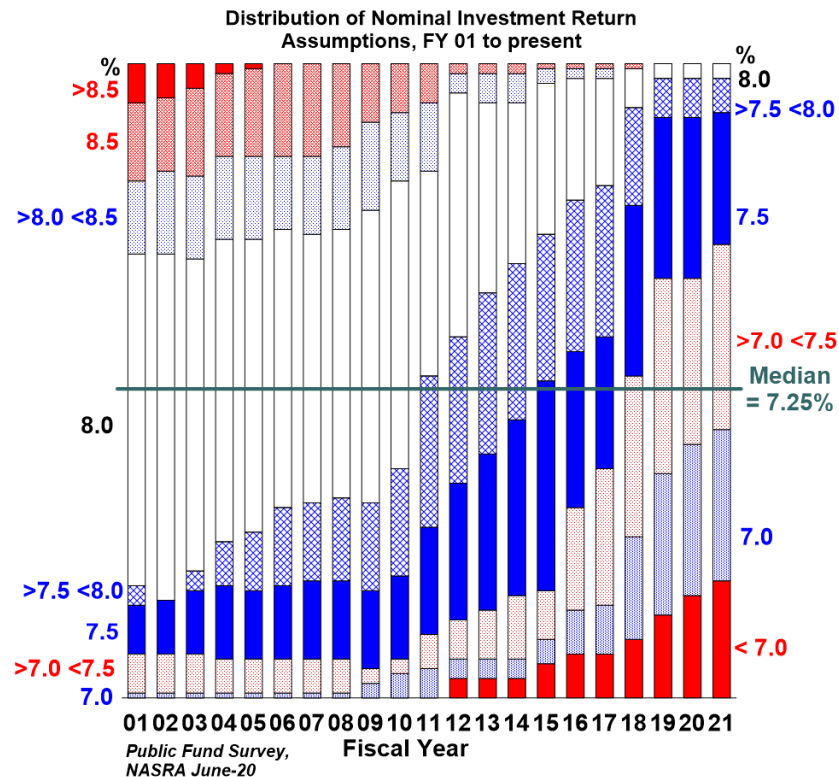
The investment return assumption used for the valuation is assumed to be net of all administrative and investment related expenses. By deducting both of these categories of expenses, the investment return assumption is less than if just the investment related expenses were deducted, resulting in higher employer and member contribution rates. A portion of these higher contribution rates is assumed to pay for administrative expenses. Consequently, the administrative expense is "implicitly" included in the rates.

About half of the '37 Act systems only deduct the investment related expenses from the investment return assumption, which does not decrease the investment return assumption as much and, correspondingly, does not increase the contribution rates as much. For these systems, however, the administrative costs are separately accounted for and then "explicitly" included in the contribution rates, which, in turn, increases the rates. For the systems that explicitly include the administrative expenses in the contribution rates, the costs can be applied to either the member or the employer or shared between the two. A sharing of these costs would be required for the PEPRA Plan 7 members if the administrative expenses are assumed to be part of the normal cost rate.

Switching from the "implicit" to "explicit" method would in essence redistribute the payment of the administrative costs among the different employers and different plan members. Either method is acceptable. Given that SamCERA currently uses the implicit method and there would be some administrative issues in changing, we are recommending continuing with the current method of implicitly recognizing administrative expenses for the 2020 valuation.

Peer System Comparison

According to the Public Fund Survey, the average investment return assumption for statewide systems has been steadily declining. As of the most recent study, the median rate is 7.25%. The following graph shows a progression of the distribution of the investment return assumptions. In 2001, very few systems had an assumption of 7.5% or lower and over 80% had an assumption of 8.0% or greater. As of June 2020, over 50% have an assumption of 7.25% or less and this is continuing to trend down.



Crediting of Reserves

Section 31592.2 of the 1937 Act provides the Retirement Board with the authority to set aside surplus earnings of the retirement fund that are in excess of the total interest credited to reserves, provided this surplus exceeds 1.00% of the total assets of the retirement system. Historically, some '37 Act systems have used these surplus earnings to increase benefits as allowed under the law. This creates a drag on the investment return, if not all earnings are used to pay for the current benefits. If this is the case, the actuary may recommend reducing the investment return assumption to account for this impact.

SamCERA's current interest crediting policy requires that any available earnings first go to crediting the basic reserves. Any remaining available earnings are then used to fill up the contingency reserve up to 3% of assets. All remaining available earnings or losses are then credited to the Undistributed Earnings/Losses Reserve. Since there is no provision for spending investment earnings on anything but the current benefits, no adjustment in the investment return assumption is needed.

Variability of Future Returns

Our focus in this analysis has been on the median expected future return. The median return indicates there is a 50% probability, based on the capital market assumptions, that the actual return will meet or exceed this amount.

For comparison, the following are the probabilities based on Verus's capital market assumptions that the actual return, net of all expenses, will exceed the following thresholds over a 30-year time period. Note that we have extrapolated Verus's 10-year capital market assumptions over a 30-year period, so this is not an exact comparison, but it does give some idea of the potential variability of the expected return.

30-Year Average Return ⁽¹⁾	Probability of Achieving
8.0%	17%
7.0%	33%
6.5%	42%
6.0%	52%
5.0%	71%

1. Average return is net of assumed administrative and investment expenses.

Note that the above analysis reflects a median 6.1% expected return, which is based on the expected return for SamCERA's portfolio of 6.3% using Verus's capital market assumptions, reduced by 0.2% for expenses. For purposes of the analysis, we have used a 10.9% standard deviation.

Recommendation

Based on Verus's long-term (30-year) capital market assumptions, we find there is less than a 50% probability that the current investment return of 6.5% (net of all expenses) will be met. It should be noted that Verus's capital market assumptions include a CPI inflation assumption of 1.6% annually, which is lower than the expectations of some other professionals and experts, including Milliman's investment consultants. A higher CPI inflation assumption will generally lead to a higher expected return in the long term. Although a lower investment return assumption would also be reasonable, we are recommending SamCERA retain the current 6.50% assumption and continue to monitor this assumption annually.

	Investment Return
Current assumption	6.50%
Recommendation	6.50%

3. Actuarial Methods and Miscellaneous Assumptions

As part of the triennial investigation, we have reviewed the actuarial methods and other issues related to the actuarial assumptions.

- **Cost Method:** The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). We believe that this cost method is appropriate for SamCERA's valuation. It is also the cost method that is required for GASB Statements 67 and 68. We recommend no change. Note that this is the most common method used for public sector retirement systems, as it results in more stability in normal cost rates and provides a level allocation of costs over each individual's working lifetime.
- **Funding Method (amortization of UAAL):** The current method uses a 15-year closed period layered approach. We recommend no change in the amortization period. This method is consistent with guidelines published by the California Actuarial Advisory Panel (CAAP) and the Conference of Consulting Actuaries (CCA). The only exceptions are in cases of plan changes affecting inactive members and early retirement incentives. If those events were to occur, we recommend that SamCERA consider a shorter amortization period at that time to recognize any increase in liability associated with those changes.
- **Valuation of Assets:** We believe that the current asset valuation method which smoothes gains and losses over five years (actually 10 six-month periods) and includes an 80% to 120% corridor is appropriate for SamCERA's valuation. A five-year smoothing period is used by a majority of large public retirement systems. This method is also consistent with guidelines published by CAAP and CCA. We recommend no change.
- **Adjustment to Plan 3 Normal Cost Rate:** The current method increases the Plan 3 Normal Cost rate to account for Plan 3 members being eligible to transfer to Plans 2, 4 or 5 (depending on entry date) after five years of service. Under this method, the Plan 3 Normal Cost rate is 50% of the unadjusted Plan 3 Normal Cost rate and 50% of the Plan 4 Normal Cost rate. We believe this method continues to be appropriate and recommend no change.
- **Plan 3 Retirement Age Factors:** Plan 3 retirement age factors are intended to provide an early retirement benefit that is the actuarial equivalent of an age 65 benefit. Specifically, CERL 31497.3(f) states: "The ERA (early retirement age) factors set forth in this subdivision shall be used until adjusted by the board in accordance with the interest and mortality tables adopted by the board." If new mortality assumptions are adopted, we recommend the Board consider adopting new ERA factors to reflect the new assumptions. The expected impact would be a small change in the ERA factors.

Analysis by Compensation / Benefit Level

In our analysis of the active demographic assumptions (merit salary, service retirement, disability, and termination), we reflected the impact of compensation levels by weighting the results by compensation. That is, a member with annual compensation of \$80,000 has twice the impact on the observed rates in comparison to a member with annual compensation of \$40,000. We observed some differences in member behavior based on compensation. For example, members with higher levels of compensation tended to have higher probabilities of retiring at a given age. These compensation-weighted probabilities are shown as the "Actual" bars in the graphs in Section 4 through Section 9.

Similarly, we reflected the impact of benefit amounts on the retired mortality analysis. In general, we observed that retired members with higher benefits have longer life expectancy than members with smaller benefits.

Miscellaneous Assumptions

- **Reciprocity:** Members who terminate may go to work for a reciprocal employer. This can result in an increase in the member's final average compensation used in the calculation of their SamCERA benefit. We currently assume that 30% of future General terminated vested members and 40% of future Safety terminated

vested members retire with a reciprocal employer. We reviewed all current deferred vested members for this study. The actual number of deferred vested members with reciprocity is lower than expected by the assumptions. These numbers are lower than we observed in prior studies and appears to be due to underreporting of members with reciprocity. As such, we are not proposing any change to the assumption at this time. The results of the study are as follows.

Probability of Reciprocal Employer (all former members)					
Class	>= 5 Years Service	with Reciprocity	Actual	Expected	Proposed
General	912	201	22%	30%	30%
Safety	75	15	20%	40%	40%

- Probability of Eligible Survivor:** Eligible surviving beneficiaries (spouses or qualified domestic partners of members) generally receive a 60% continuance of the member's benefit (100% continuance for service-connected disabilities and 50% for Plan 3 members). The valuation assumes a certain percentage of members will have an eligible survivor at retirement. We studied this assumption and found the results to be consistent with the current assumptions, so we are not recommending a change. The results of the study are as follows:

Retirees with Eligible Survivor			
Gender	Actual	Expected	Proposed
Male	75%	75%	75%
Female	51%	55%	55%

- Survivor age difference:** We are not recommending a change to the assumption of the age difference between members and their eligible survivors. The current assumption is that survivors are three years younger than male members and two years older than female members. We studied the beneficiary age difference compared to the member age based on retirements during the study period where the unmodified 60% continuance was elected and found the results to be consistent with the assumptions. Specifically, male retirees were 3.6 years older than their beneficiaries, and female retirees were 1.8 years younger than their beneficiaries. Based on this analysis, we recommend no change to the assumption.

Member's Age at Retirement (as Compared to Spouse)			
Gender*	Actual	Expected	Proposed
Male	3.6	3.0	3.0
Female	-1.8	-2.0	-2.0

* Member

- Assumed Commencement Age for Deferred Members:** We studied the actual retirement ages of members who previously terminated and chose to defer their retirement. The results of the study and our proposed assumptions are shown in the following table. We are not recommending any changes in the assumed retirement ages. Note that experience has shown higher retirement ages than assumed for General members Plans 1, 2, 4, and 5, but this is not fully an apples-to-apples comparison, because a number of current vested terminations are over age 58 at termination. These members are more likely to retire shortly thereafter and bring up the average deferred retirement age. For Safety, we assume age 50, since for all Plans 1, 2, and 4 members this is the most valuable age.

Plan	Deferred Retirements		Assumed Retirement Age	
	Count	Average Age	Current	Proposed
G1, G2, G4, G5	122	61.7	58	58
G3	9	61.0	65	65
G7	0	N/A	62	62
Safety / Probation	16	54.3	50	50

- Sick Leave Service Credit:** Some county retirement systems allow the conversion of unused sick leave to retirement service credit at retirement. In those cases, an assumption for an increase in service credit at retirement due to sick leave service credit may be appropriate. County employees may convert unused sick leave to contributions for purchasing health benefits but cannot convert to retirement service credit, and therefore there is no impact on the retirement service credit. We did not receive sufficient data to analyze this in this study; however, our analysis for the fiscal year ending June 30, 2016 found no additional increase in service credit at retirement. Accordingly, we recommend continuing with the current assumption of no sick leave service being converted to retirement service.

Non-Valuation Methods

- Operating Tables:** We recommend the operating tables be updated to reflect the new mortality assumptions.

- Member Contribution Rates:** The proposed changes to the mortality and merit salary scale will impact the basic member contribution rates. New member rates will need to be calculated during the June 30, 2020 actuarial valuation. Additionally, the Cost-of-Living portion of the member rates will be updated at that time. A sample of the estimated impact to member rates due to these proposed changes is shown in the table below.

Sample Changes in Member Rates due to Proposed Assumption Changes (Based on June 30, 2019 Actuarial Valuation⁽¹⁾)				
	<u>Entry Age</u>	<u>Current</u>	<u>Proposed</u>	<u>Increase</u>
General Members - County				
Plan 1	35	15.32%	15.46%	0.14%
Plan 2	35	14.33%	14.47%	0.14%
Plan 4	35	13.33%	13.45%	0.12%
Plan 5	35	8.91%	9.01%	0.10%
Plan 7	All	9.11%	8.91%	-0.20%
Probation Members				
Plan 1	25	18.56%	18.96%	0.40%
Plan 2	25	18.43%	18.83%	0.40%
Plan 4	25	16.68%	17.01%	0.33%
Plan 5	25	16.37%	16.69%	0.32%
Plan 6	25	12.37%	12.68%	0.31%
Plan 7	All	14.97%	15.01%	0.04%
Safety Members⁽²⁾⁽³⁾				
Plan 1	25	19.54%	19.93%	0.39%
Plan 2	25	19.88%	20.27%	0.39%
Plan 4	25	18.17%	18.50%	0.33%
Plan 5	25	16.87%	17.19%	0.32%
Plan 6	25	12.56%	12.88%	0.32%
Plan 7	All	15.28%	15.37%	0.09%

- Final FYB 2021 member rates will be determined based on the June 30, 2020 valuation.
- Plans 1 - 6 member rates refer to all Safety members except Deputy Sheriffs. All members of Plan 7 pay the same member rates. Deputy Sheriffs are not eligible for Plan 6.
- Cost sharing for non-Deputy Sheriffs in Plans 1 - 5 is 5%. Cost Sharing varies for Deputy Sheriffs as follows:
 - 3.0% if employee is less than 45 and has less than 5 years of service.
 - 3.5% if employee is less than 45 and has between 5 and 15 years of service.
 - 4.5% if employee is older than 45 or has at least 15 years of service.

Note that the sample member contribution rates are total rates and include the COLA and Cost Share portions where applicable.

Note that for purposes of calculating the member contribution rates we recommend the valuation mortality tables use a static projection to 2042 for the calculation of member rates to reflect future mortality improvement. The

year 2042 was selected because it represents the discounted weighted average of when all future payments are projected to be made to the active members whose contribution rates vary by entry age.

We are recommending no change to the male/female blend for either General (33%/67%) or Safety/Probation (75%/25%) based on the make-up of the active population.

- **Implementation:** For the Plan 3 ERA factors, the operating tables and the member contribution rates, we recommend the implementation date be July 1, 2021.

4. Salary Increases Due to Promotion and Longevity (Merit)

Results

Estimates of future salaries are based on assumptions for two types of increases:

1. Increases in each individual's salary due to promotion or longevity, which occur even in the absence of inflation (merit increases); and
2. Increases in the general wage level of the membership, which are directly related to inflation and increases in productivity.

In Section 2, we discuss the second of these rates, the general wage inflation, which is 3.00% under the proposed assumptions.

We study the merit patterns of General and Safety members separately, as we have seen differences between the two groups in previous Investigations of Experience, and this is also consistent with the patterns we generally see in other systems. The results are shown in Exhibit 4-1 (General members) and Exhibit 4-2 (Safety members).

Exhibit 4-1 and Exhibit 4-2 shows the actual merit increases, over the period July 1, 2017-April 30, 2020 and also for the period July 1, 2005-April 30, 2020. We believe that including a study of salary increases over a longer period than the three-year period of the study helps to smooth out short-term differences, provides additional context for salary increases over a period at least as long as a full economic cycle, and generally presents a more representative analysis of salary increase patterns. Comparing the long-term pattern with the results of the three-year study helps to identify any changes in trend.

Increases were generally higher earlier in a member's career (lower service) and then decreased over time, consistent with the current assumptions. Overall, the actual increases were slightly higher than predicted by the current assumptions for General members, and slightly lower than predicted for Safety members.

In forming our recommendations we also considered the changes in longevity increases that have been negotiated by the County with different General member bargaining groups over the period of this study.

Recommendation

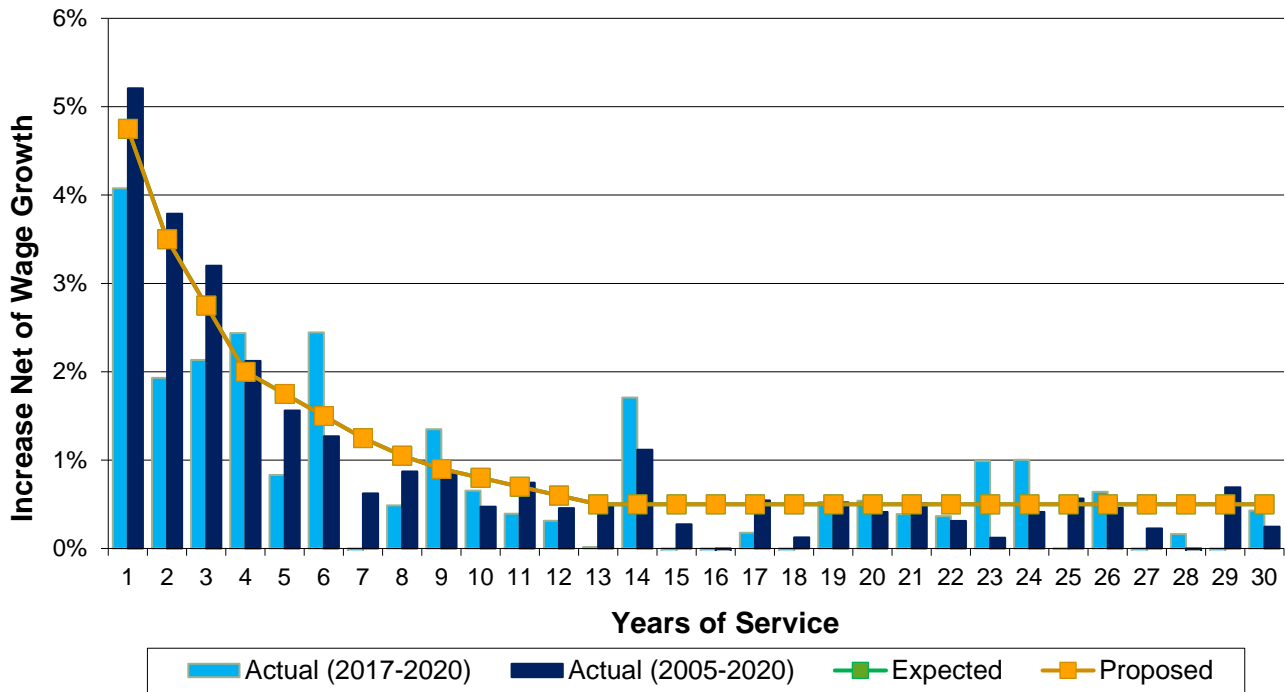
Based on the results of this analysis we are recommending the following:

- Changes in the merit component of the salary increase assumption for Safety members that overall will result in larger increases over a member's full career.
- No changes in the merit component of the salary increase assumption for General members.

Additionally, for SamCERA members currently working for a reciprocal employer (or assumed to in the future), we recommend using a 3.52% annual increase for General members and a 3.88% annual increase for Safety members. These assumptions are equal to the wage growth assumption plus the ultimate assumed merit increase for the respective class.

Exhibit 4-1
Total Annual Rates of Increase in Salary for General Members
Due to Merit and Longevity

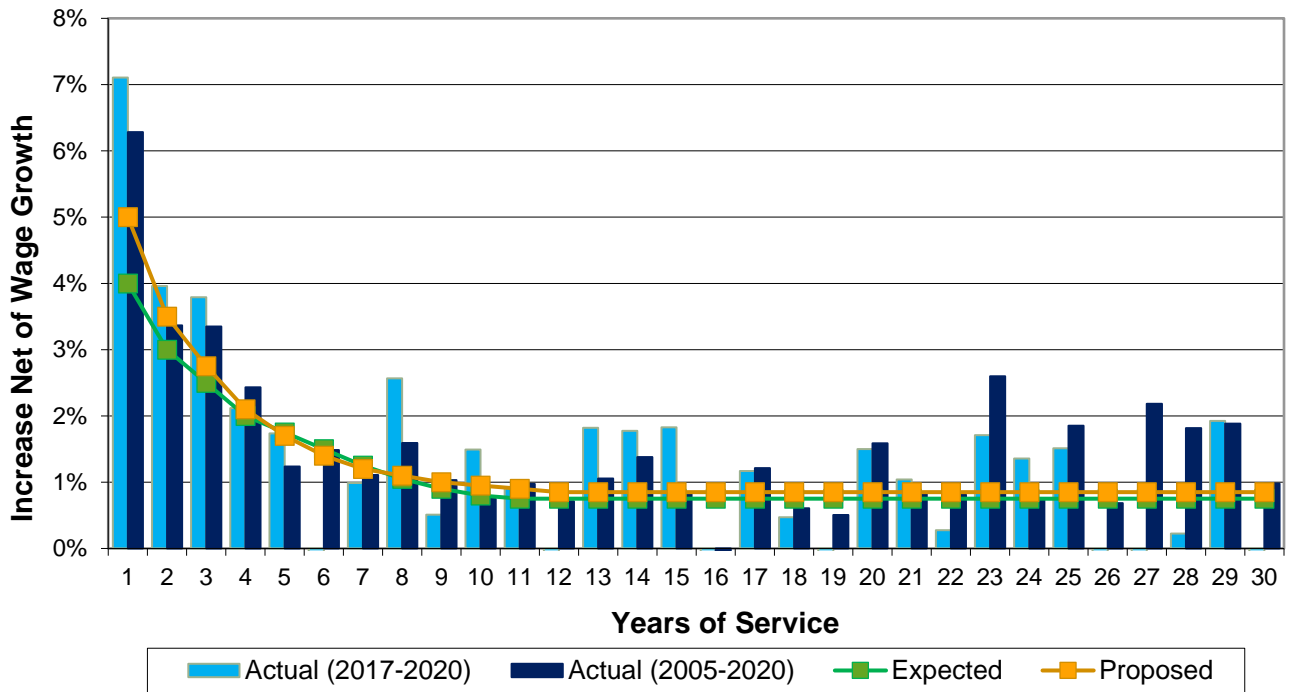
(Excluding the General Wage Growth Assumption)



Note: The proposed assumption is equal to the expected assumption. That is, no change is being recommended.

Exhibit 4-2
Total Annual Rates of Increase in Salary for Safety/Probation Members
Due to Merit and Longevity

(Excluding the General Wage Growth Assumption)



5. Mortality

In this section we look at the results of the study of actual and expected death rates of retired members. We studied rates of mortality among healthy and disabled retired members. Valuation mortality is a critical assumption since it has a material impact on the estimate of the costs of the future plan obligations.

Mortality has been improving in this country and is expected to continue to improve. As such, we recommend continued use of generational mortality tables (see later discussion) to account for projected future improvements in mortality. Generational mortality is reflected by including a mortality improvement scale that projects small annual decreases in mortality rates. Therefore, generational mortality explicitly assumes that members born more recently will live longer than the members born before them.

The Actuarial Standards of Practice require expected future mortality improvements to be considered in selecting the assumption. Using generational mortality tables achieves this.

Generational Mortality Tables

Most actuarial valuations for public sector retirement systems use generational mortality tables, which explicitly reflect expected improvements in mortality. Generational mortality tables include a base table and a projection scale. The projection scale reflects the expected annual reduction in mortality rates at each age. Therefore, each year in the future, the mortality at a specific age is expected to decline slightly (and people born in succeeding years are expected to live slightly longer). This can result in significant differences in life expectancies when projecting improvements 30-plus years into the future.

One of the main benefits of generational mortality tables is that the valuation assumptions should effectively update each year to reflect improved mortality, and the mortality tables should need to be changed less frequently. During the previous investigation of experience study, SamCERA adopted a generational mortality assumption.

Projection Scale for Mortality Improvement

There is a strong consensus in the actuarial community that future improvements in mortality should be reflected in the valuation assumptions. There is less consensus, however, about how much mortality improvement should be reflected. The projection scale (which projects future improvements in mortality) published by the Society of Actuaries (SOA) in 2014 incorporates a complex matrix of rates of improvement that vary by both age and birth year. Ultimately, the projection scale (MP-2014) goes to a flat 1% annual improvement in years 2027 and later for ages 85 or less.

Our general recommendation is to use a mortality projection scale of between 100% and 120% of the ultimate portion of the MP-2014 projection scale. In other words, our recommendation is to assume 1.0% and 1.2% annual improvements in mortality (for ages less than 85). We believe this reasonably reflects the long-term expectation of mortality improvement. We have compared our recommended projection scale with actual mortality improvement from the most recent 60 years of experience of the US Social Security system and found them to be reasonably consistent.

SamCERA currently uses a mortality projection equal to 100% of the MP-2014 ultimate projection scale. That is, the current projection scale is a flat 1.0% improvement through age 85. For subsequent ages, the projected improvement is fractionally less, grading down to 0.0% at age 115.

New Public Plan-Specific Mortality Tables

The Society of Actuaries recently published new mortality tables based on data from public sector retirement systems. In particular, tables specific to general and safety members were included. We compared how well the

current SamCERA mortality tables and the new class-specific mortality table matched the actual experience. Based on our analysis, we found that the new public plan-specific mortality tables matched well with the retired mortality experience.

Results – Service and Disabled Retirees

Overall, we found there were slightly more deaths than the current rates predicted: 335 actual compared to 328 expected. We also studied how the amount of an individual’s benefits affected their mortality. We found that as the amount of benefit increased the mortality rates decreased. When we weighted the experience by benefit amount we found that the amount of benefits of members who died were slightly lower than were expected to die. The following is a comparison of the actual-to-expected deaths of retired members by class and gender for the study period, weighted by benefit amount.

Retiree Mortality (weighted by benefit amounts)					
Service Retirement					
Group	Deaths			Actual to Expected	Actual to Proposed
	Actual	Expected	Proposed		
General Male	\$346,485	\$335,304	\$344,051	103%	101%
General Female	398,135	420,897	407,522	95%	98%
Safety Male	134,392	135,402	134,227	99%	100%
Safety Female	3,783	9,878	9,655	38%	39%
Total Svc Ret	882,795	901,481	895,455	98%	99%
Disability Retirement					
Group	Deaths			Actual to Expected	Actual to Proposed
	Actual	Expected	Proposed		
General Male	\$34,139	\$25,836	\$22,226	132%	154%
General Female	29,907	41,993	41,970	71%	71%
Safety Male	33,607	27,159	27,023	124%	124%
Safety Female	-	2,976	2,836	0%	0%
Total Dis Ret	97,653	97,964	94,055	100%	104%
Grand Total	980,448	999,445	989,510	98%	99%

The values in the table are weighted by monthly benefit amount, so the first line of the table indicates the General male retirees with total monthly benefits of \$346,485 died compared to the expected value of monthly benefits associated with General male retiree deaths of \$335,304 based on the valuation assumption.

Results are shown graphically on the following pages. Note that analysis of Safety females is not shown in graph form due to the small number of actual and expected deaths.

Results – Active Member Mortality

Compared to retiree mortality, active member mortality is a less material assumption. Typically the number of deaths from active status is quite low. In this study period there were 21 total deaths from active service (19 General and 2 Safety). 11 of the 19 General deaths occurred among members greater than 60 years of age.

The following is a comparison of the actual-to-expected deaths of active members by plan and gender for this study period, weighted by compensation level. There were more deaths than expected among General males

(weighted by compensation level) and fewer deaths than expected among other classes / genders. Given the small number of deaths observed, it is not surprising the expected and proposed rates to do not closely match the observed experience

Active Mortality (weighted by compensation)					
Group	Deaths			Actual to Expected	Actual to Proposed
	Actual	Expected	Proposed		
General Male	\$1,471,560	\$959,532	\$660,264	153%	223%
General Female	568,332	886,680	664,896	64%	85%
Safety Male	185,904	430,560	171,036	43%	109%
Safety Female	-	100,560	36,600	0%	0%
Total	2,225,796	2,377,332	1,532,796	94%	145%

Recommendation

We recommend an update to the mortality assumptions to reflect the new public plan specific mortality tables and retaining the mortality projection scale. Note that the total service retirement actual / proposed ratio under the proposed assumptions is 101% on a headcount-weighted basis compared to 99% on a benefit-weighted basis. We believe the combination of the recommended mortality tables with the current projection scale allows for a reasonable expectation of future life expectancy increases.

SamCERA uses standard mortality tables adjusted to best fit the patterns of mortality among its retirees. The table below describes the new tables being recommended for healthy and disabled retirees. These are based on the recent study of public plan retirees. Note that for beneficiaries of healthy and disabled retirees, we recommend that the mortality for healthy general retirees be used.

The recommended retiree mortality rates are based on the PubG-2010 and PubS-2010 Healthy Retiree and Disabled Retiree mortality tables and all assume generational mortality improvement based on 100% of the MP-2014 Ultimate projection scale, as follows:

Class	Type ⁽¹⁾	Sex	Mortality Tables ⁽²⁾	
			Current Table	Proposed Table
General	Healthy	Male	RP-2014 (95%) Healty Annuitant Male	PubG-2010 (100%) Healthy Retiree Male
General	Healthy	Female	RP-2014 (95%) Healty Annuitant Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Healthy	Male	RP-2014 (95%) Healty Annuitant Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Healthy	Female	RP-2014 (95%) Healty Annuitant Female	PubS-2010 (100%) Healthy Retiree Female
General	Disabled	Male	Avg of: RP-2014 (95%) Healty Annuitant Male RP-2014 (105%) Disabled Retiree Male Minimum blended rate = 1.0%	PubG-2010 Disabled Retiree Male ⁽³⁾
General	Disabled	Female	Avg of: RP-2014 (95%) Healty Annuitant Female RP-2014 (105%) Disabled Retiree Female Minimum blended rate = 0.5%	PubG-2010 Disabled Retiree Female ⁽³⁾
Safety	Disabled	Male	RP-2014 (105%) Healty Annuitant Male Minimum blended rate = 1.0%	PubS-2010 (100%) Disabled Retiree Male
Safety	Disabled	Female	RP-2014 (105%) Healty Annuitant Female Minimum blended rate = 0.5%	PubS-2010 (100%) Disabled Retiree Female

1. Beneficiaries are assumed to have the same mortality as a healthy General member of the same sex.
2. Generational Projections using 100% of the MP-2014 Ultimate projection scale.
3. Disabled General mortality rates are applied at 100% at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.

For active employees, we recommend the PubG-2010 and PubS-2010 Employee mortality tables with generational mortality based on 100% of the MP-2014 Ultimate projection scale. Like the proposed tables for retiree mortality, these tables are based on public plan mortality experience. The proposed active mortality tables project significantly lower mortality among younger members than do the current tables. Given the small number of deaths observed, it is not surprising the proposed rates do not closely match the observed experience, with the most noticeable difference being for General males. However, as the SamCERA retiree population, where there is significantly more observed mortality experience, appears to very similar to the new public plan mortality tables, we believe it is reasonable to assume the active population would also be similar to the public plan tables.

Exhibit 5-1 Mortality for Service Retirees General Males

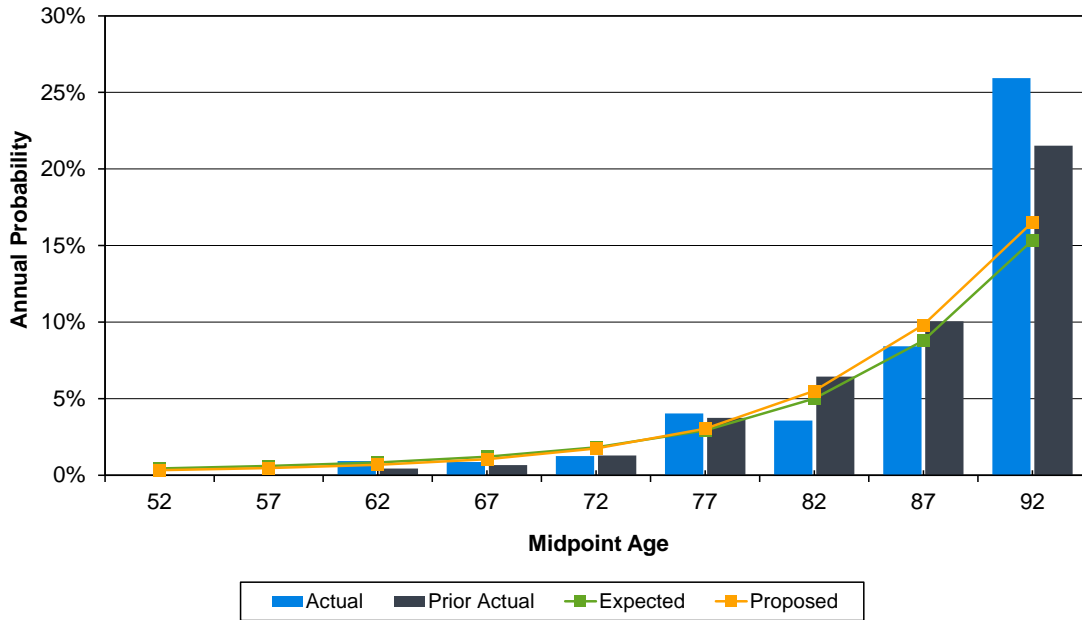


Exhibit 5-2 Mortality for Service Retirees General Females

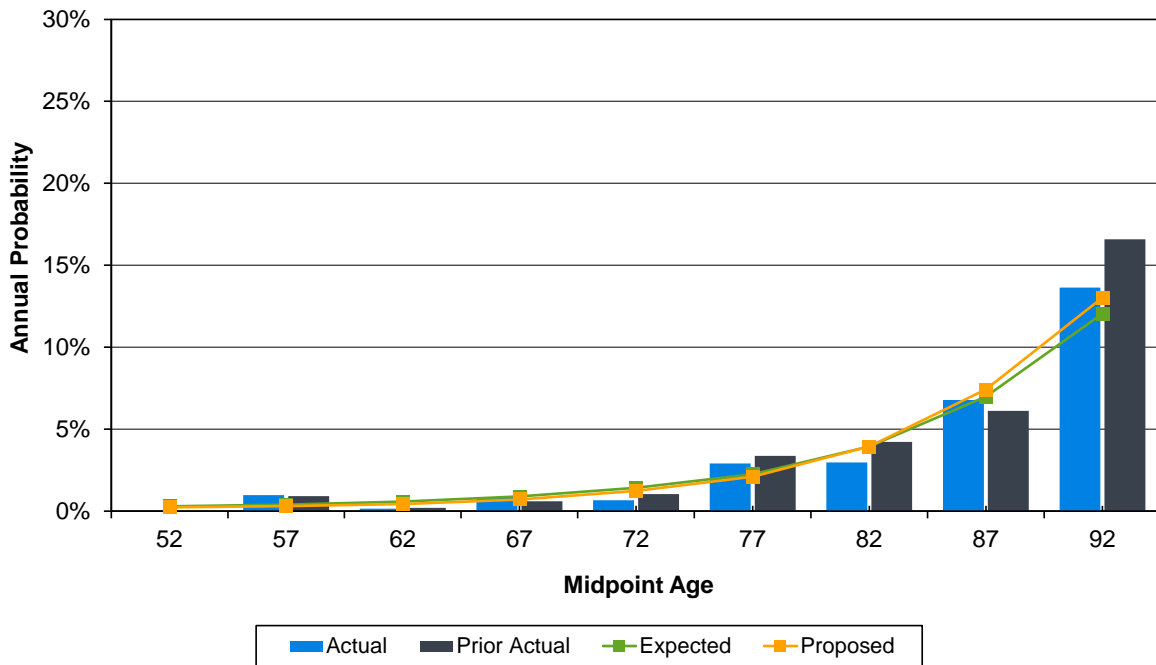
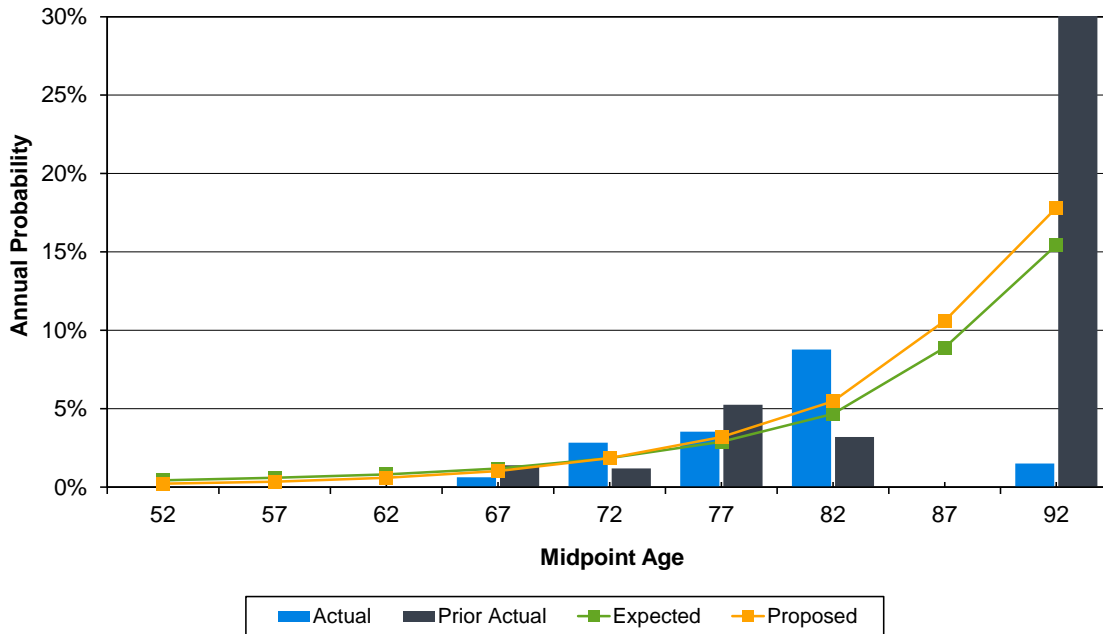
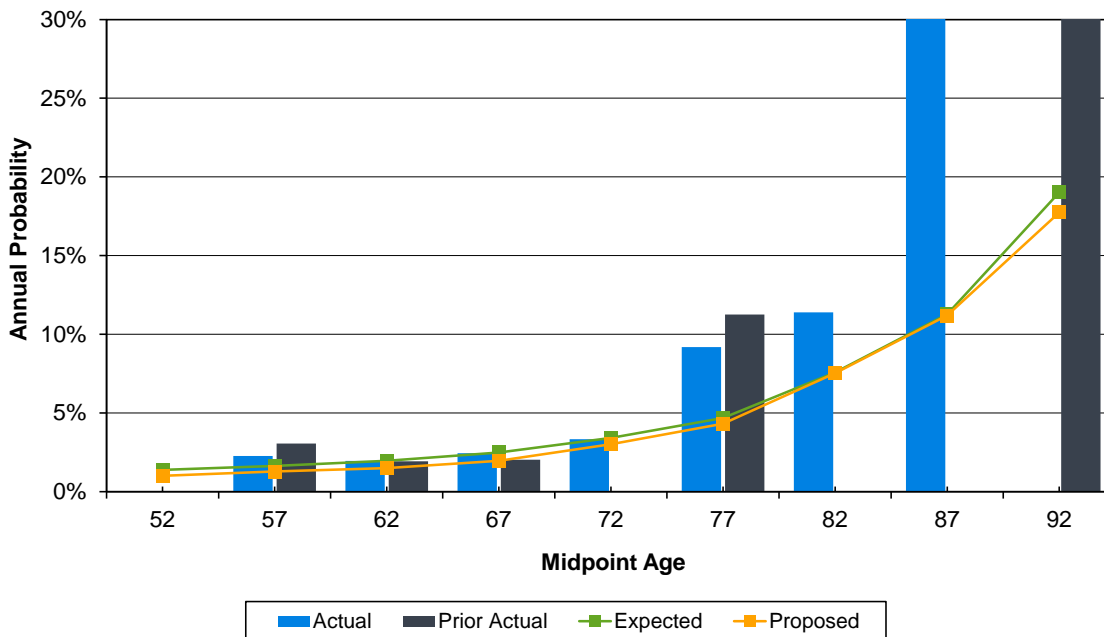


Exhibit 5-3 Mortality for Service Retirees Safety Males



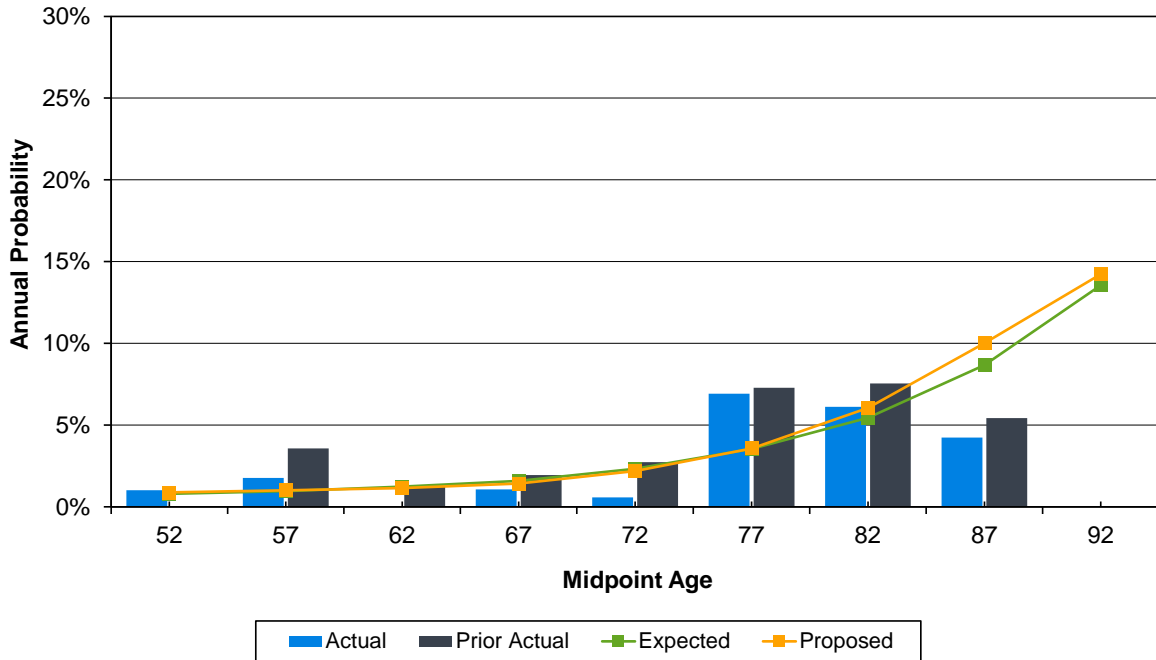
* The annual probability may exceed 30% at midpoint age 92

Exhibit 5-4 Mortality for Disabled Retirees General Males

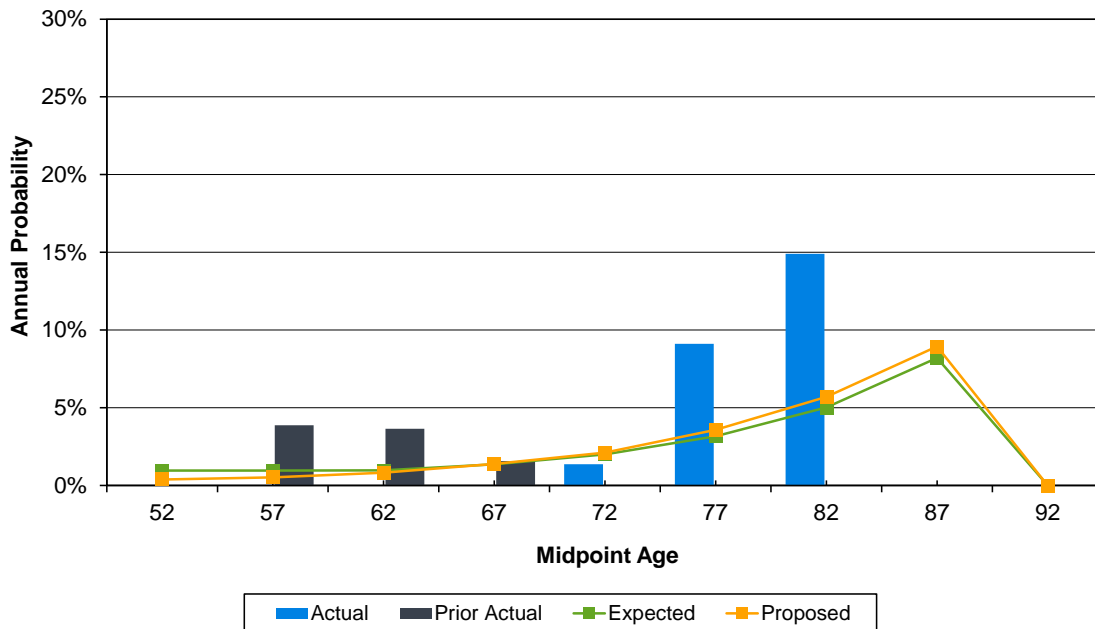


* The annual probability may exceed 30% at midpoint ages 87 and 92

**Exhibit 5-5
Mortality for Disabled Retirees
General Females**



**Exhibit 5-6
Mortality for Disabled Retirees
Safety Males**



6. Service Retirements

Exhibits 6-1 through 6-3 show the total actual and expected rates of service retirement for General Members (male and female separately), and Safety Members (male and female combined) in Plans 1, 2, and 4. These rates are weighted by compensation level.

General Plans 5 and 7, and Safety/Probation Plans 5, 6, and 7 have very few actual retirements, since most members in those Plans entered SamCERA within the last 10 years. This was also the case for Plan 3 which has very few active members. There were not enough service retirements in these plans to perform a statistically meaningful study of that Plan.

As discussed in Section 3, we have observed differences in decrements based upon compensation levels, and therefore we apply a weighting based on compensation level. In addition, we have observed that rates of retirement differ based on number of years of service as well as age, so we studied the rates of retirement based on age and service. We found that, in general, members with more years of service have a greater probability of retiring at a given age than those with less years of service.

Results

As shown below, the actual number of retirements from active service, weighted by compensation level, were lower than expected for General males, and slightly higher than expected for General females. For Safety/Probation members, the actual number of retirements was higher than expected. However, as can be seen in Exhibits 6.1 through 6.3, the pattern of retirements varied somewhat compared to expected.

Service Retirements (weighted by compensation)			
Class	Actual	Expected	Actual / Expected
General Males	\$15,787,728	\$17,252,640	92%
General Females	<u>31,716,036</u>	<u>30,521,292</u>	104%
General Total	47,503,764	47,773,932	99%
Safety Males / Females	<u>14,701,188</u>	<u>11,664,120</u>	126%
Total	62,204,952	59,438,052	105%

Note that the numbers shown above are for ages 50 to 74 for General Members and ages 45 to 64 for Safety/Probation Members. The values in the table are weighted by compensation, so the first line of the table indicates the individuals with total annual compensation of \$15,787,728 retired from active status compared to the expected value of \$17,252,640 based on the valuation assumption.

We also studied the incidence of retirement by years of service. The table below shows the actual probability of retirement by years of service compared to what would have been predicted to occur with the proposed assumptions based solely on age. These results show that at lower years of service actual retirements are less than under the proposed age-only assumptions, and at higher years of service actual retirements are higher than under the proposed age-only assumptions, for both General and Safety/Probation Members.

Service	General Members			Safety Members		
	Actual Probability of Retirement	Proposed Probability of Retirement	Actual / Proposed	Actual Probability of Retirement	Proposed Probability of Retirement	Actual / Proposed
< 5	0%	0%	0%	0%	0%	0%
5 - 9	24%	30%	79%	12%	40%	30%
10 - 14	10%	12%	78%	12%	27%	43%
15 - 19	8%	11%	71%	20%	22%	92%
20 - 24	12%	11%	111%	17%	14%	121%
25 - 29	14%	12%	124%	42%	21%	204%
30+	24%	14%	169%	45%	27%	169%

Recommendation

We recommend revised service retirement rates for General and Safety/Probation members in Plans 1, 2, and 4. These revisions result in higher expected retirements overall for General and Safety Members, and the proposed retirement rates more closely follow the pattern of actual retirements.

We also recommend adjustments to the service retirement rates based on a member's years of service. We recommend that the proposed retirement probabilities be adjusted based on years of completed service by the percentages shown in the table below.

Proposed Adjustments to Age-Based Retirement Rates		
Service	General Members	Safety Members
< 5	75%	40%
5 - 9	75%	40%
10 - 14	75%	40%
15 - 19	75%	90%
20 - 24	120%	120%
25 - 29	120%	170%
30+	160%	170%

Additionally, we recommend continuing the 100% probability of retirement at certain age and service combinations (shown in Appendix A) where the benefit is approximately 100% of final average compensation.

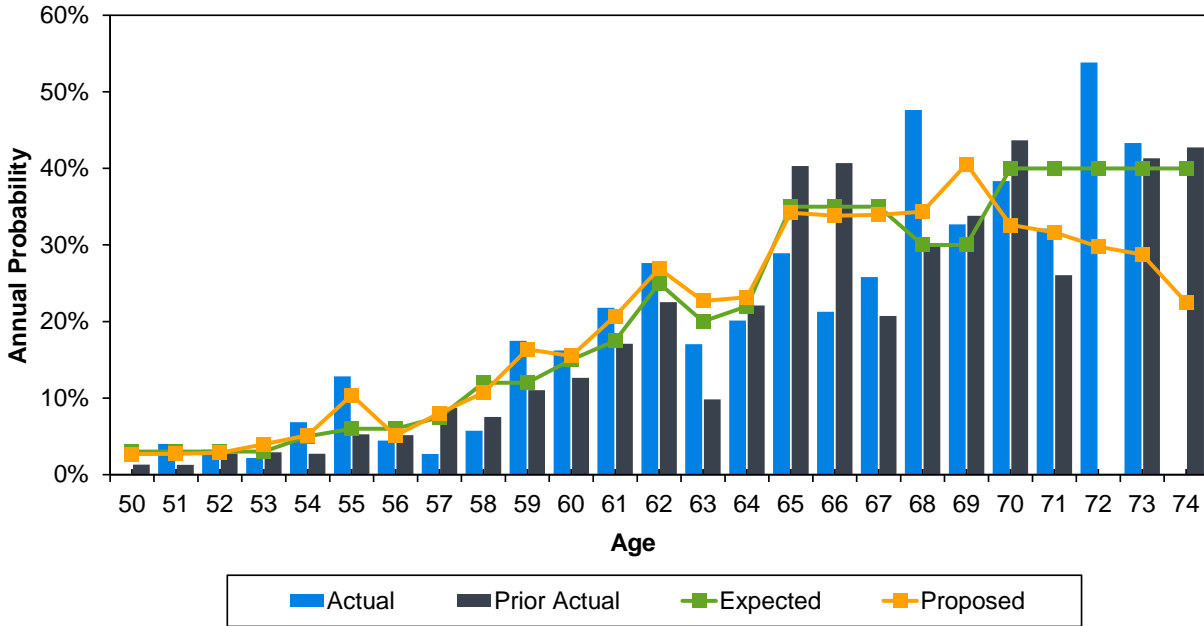
A comparison of the actual and expected retirements under the proposed assumptions is shown in the table below. Note that in making our recommendations, we not only considered the results of the current study, but also the prior study. In particular, Safety retirement rates were much lower in the 2014-2017 study period, so we are recommending a revision that only partially reflects the current experience, which showed higher retirement rates for the group.

Service Retirements (weighted by compensation)			
Class	Actual	Proposed	Actual / Proposed
General Males	\$15,787,728	\$17,307,444	91%
General Females	<u>31,716,036</u>	<u>31,388,664</u>	101%
General Total	47,503,764	48,696,108	98%
Safety Males / Females	<u>14,701,188</u>	<u>12,644,904</u>	116%
Total	62,204,952	61,341,012	101%

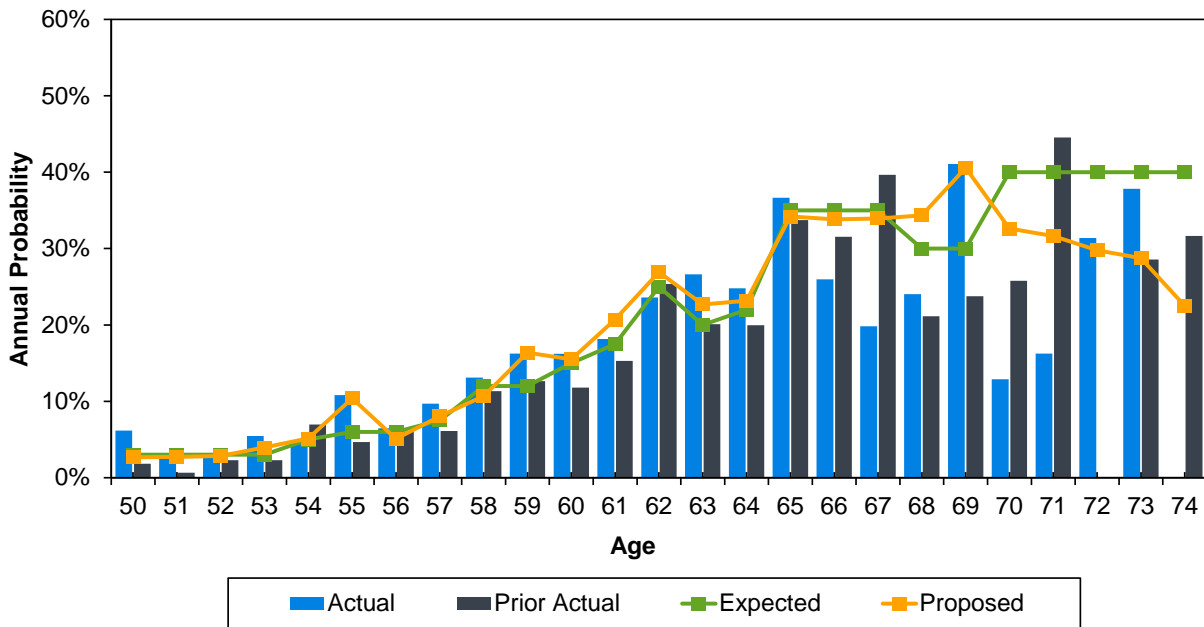
We also recommend revised retirement rates for Plans 5, 6, and 7 reflecting the lower benefits and specific retirement eligibility provisions of these plans compared to Plans 1, 2, and 4. For General members the revised retirement rates for these plans are equal to 80% of the retirement rates for Plans 1, 2, and 4 up to age 66, 120% at age 67, and equal to Plans 1, 2, and 4 thereafter. For Safety members the revised retirement rates are equal to 80% of the retirement rates for Plans 1, 2, and 4 up to age 56, and equal thereafter. In addition, Safety Plans 5, 6, and 7 have a 0% probability of retirement before age 50.

There were not enough Plan 3 service retirements to perform a statistically meaningful study. We believe the current assumptions are reasonable; therefore we are recommending no change to these rates.

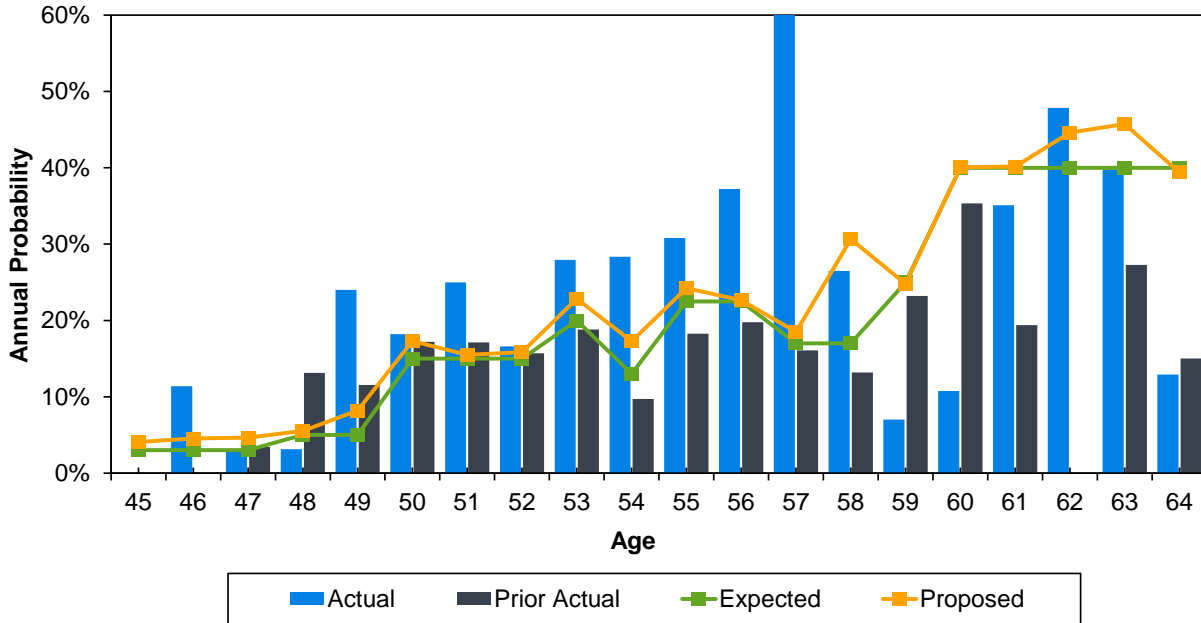
**Exhibit 6-1
Retirement Rates
General Males (Plans 1, 2, and 4)**



**Exhibit 6-2
Retirement Rates
General Females (Plans 1, 2, and 4)**



**Exhibit 6-3
Retirement Rates
Safety Males/Females (Plans 1, 2, and 4)**



* The annual probability may exceed 60% at age 57.

7. Disability Retirement

SamCERA allows a member to start receiving benefits prior to eligibility for service retirement if they become disabled. There are two types of disability:

1. **Non-service-Connected Disability:** This is available to a disabled member only if he has satisfied the vesting requirement.
2. **Service-Connected Disability:** This is available only to members who are disabled for the performance of duty. There is no service requirement, and the service-connected disability benefit generally pays a larger benefit than Non-service-connected disability.

We have found that in many systems, including SamCERA, there is generally at least a six-month lag between the actual occurrence of a disability retirement and the subsequent approval and reporting of that same retirement. To account for this, we considered those retired members that have been reclassified from service to disability retirement over the period of the study and considered those in our recommendation.

The small number of disability retirements make it difficult to perform a statistically meaningful analysis of disability retirements. Due to the small number of disability retirements, we study males and females as one group for each of General and Safety Members.

Results

The actual number of disability retirements from active service (service and non-service connected combined), weighted by compensation level, were lower than expected for both General and Safety Members. These are shown in the table below.

Disability Retirements (weighted by compensation)			
Class	Actual	Expected	Actual / Expected
General	\$1,746,564	\$3,974,532	44%
Safety	<u>1,126,608</u>	<u>1,246,740</u>	90%
Total	2,873,172	5,221,272	55%

In addition to members who retire for disability from active status, there are members who initially retire as a service retirement and are subsequently reclassified as disability retirements. We believe that these members should also be considered as actual disability retirements. On a headcount basis, there were 23 General member disability retirements and 11 Safety member disability retirements (compared to expected disability retirements of 40 and 10, respectively). In addition, there were 17 General and 13 Safety retired members reclassified as disabilities over the period. Note that if reclassified disability retirements were included, the actual-to-expected ratios on a headcount basis would be 100% (40/40) for General and 240% (24/10) for Safety.

The total disability rates are split between service and non-service connected disability in accordance with the approximate relative number of each reported in the experience data for General and Safety members. The proportions of disabilities attributable to each cause in the study period are shown in the following table.

Split between Service and Non-Service Connected Disability					
Class	Service	Non-Service	Total	Service / Total	Expected Service %
General	15	8	23	65%	65%
Safety	9	2	11	82%	100%

Recommendation

We recommend changes to the rates of disability retirement for General and Safety/Probation members to better reflect observed experience. We also recommend adopting the same assumption for all members of a respective class (General or Safety) rather than sex-distinct assumptions.

A comparison of the actual and expected disability retirements under the proposed assumptions, weighted by compensation level, is shown in the table below.

Disability Retirements (weighted by compensation)			
Class	Actual	Proposed	Actual / Proposed
General	\$1,746,564	\$3,218,964	54%
Safety	<u>1,126,608</u>	<u>1,566,696</u>	72%
Total	2,873,172	4,785,660	60%

We believe that these proposed probabilities are reasonable overall when also considering those retired members reclassified as disability retirements. These reclassified members would contribute to the actual number of disability retirements shown above, resulting in a higher actual / proposed ratio. The proposed assumptions generally expect more disability retirements than observed directly from active service at older ages when service retirement eligibility is more likely to have been attained.

We recommend no change to the assumption for the split between service-connected and non-service-connected disabilities. The current and recommended assumptions are 65% of disabilities for General members are service connected and 100% of disabilities are service connected for Safety/Probation members.

8. Other Terminations of Employment

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, service retirement, or disability. A member who terminates, but does not retire, is assumed to either take a refund (a withdrawal) or to terminate employment but leave their member contributions with the system (a vested termination). We will refer to the combination of the two rates as the aggregate termination rate. This approach sets a probability that the member will terminate, and then assumes a certain portion of the members terminating will elect a refund. The probability of refund is discussed in more detail in Section 9.

Results

Termination rates are currently based on two factors: years of service and membership. Rates of termination vary by years of service – the greater the years of service, the less likely a member is to terminate employment. We found that there were differences with respect to rates of termination by plan, particularly when comparing Safety members to the General members. General female members terminated at a slightly higher rate than males, which is the opposite experience of the prior study. Overall we do not believe there is a significant reason to have slightly different termination assumptions for male and female General members.

As shown in the table below, overall, the actual number of terminations, weighted by compensation level, was higher than expected for both General and Safety members. This is also consistent with the experience from the prior study.

Terminations of Employment (weighted by compensation)			
Class	Actual	Expected	Actual / Expected
General Males	\$20,419,978	\$18,050,164	113%
General Females	<u>43,698,020</u>	<u>36,335,530</u>	120%
General Total	64,117,998	54,385,694	118%
Safety Males / Females	<u>5,629,464</u>	<u>4,045,773</u>	139%
Total	69,747,463	58,431,467	119%

Recommendation

We recommend changes to the rates of termination for both General and Safety/Probation members. The proposed termination rates more closely follow the actual pattern of actual terminations and result in higher expected terminations overall for all member classes.

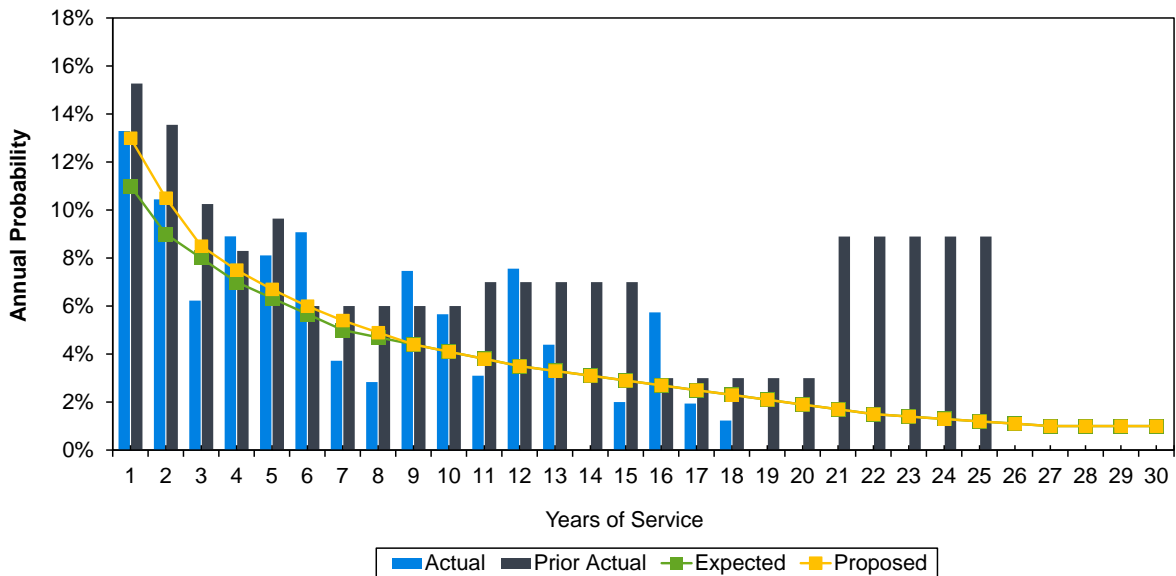
We recommend adopting the same termination assumption for both male and female members of the General class because we do not believe the differences in behavior is significantly material to warrant slightly different assumptions. Note this is already true for the Safety/Probation group.

A comparison of the actual and expected terminations under the proposed assumptions, weighted by compensation level, is shown in the table below.

Terminations of Employment (weighted by compensation)			
Class	Actual	Proposed	Actual / Proposed
General Males	\$20,419,978	\$19,990,726	102%
General Females	<u>43,698,020</u>	<u>38,062,884</u>	115%
General Total	64,117,998	58,053,609	110%
Safety Males / Females	<u>5,629,464</u>	<u>5,143,500</u>	109%
Total	69,747,463	63,197,109	110%

Note that we did not increase the rates further because some of the terminations may rehire in the future.

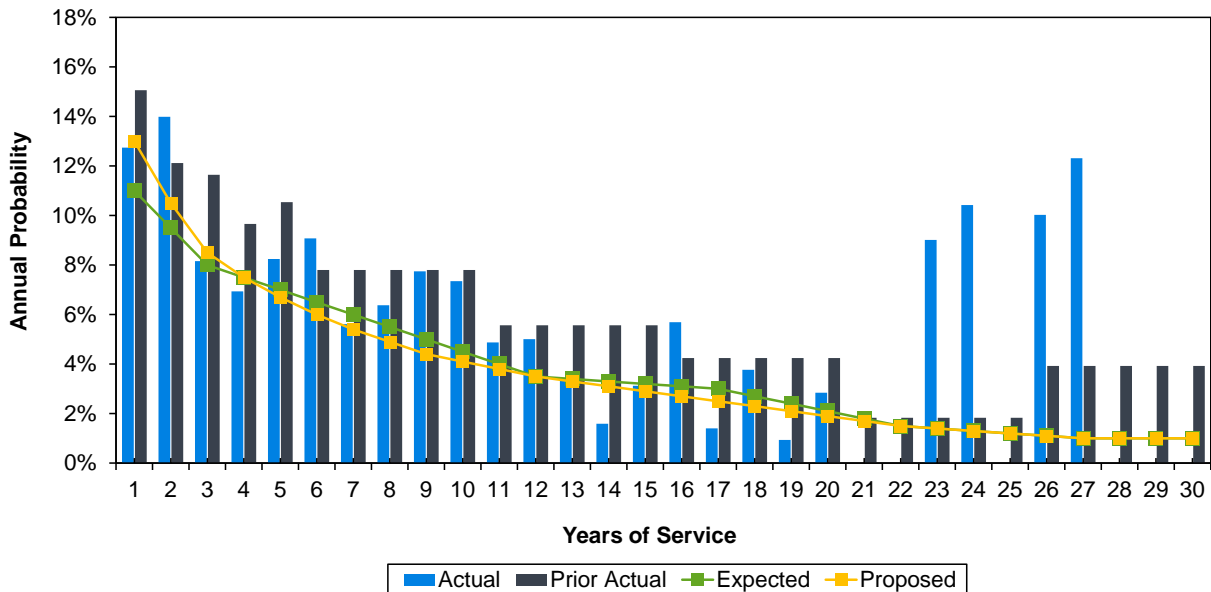
Exhibit 8-1
Termination by Years of Service* – General Males



*Excludes retirement-eligible members.

*Prior actual experience reflects averages of five-year service groupings at years of service greater than five.

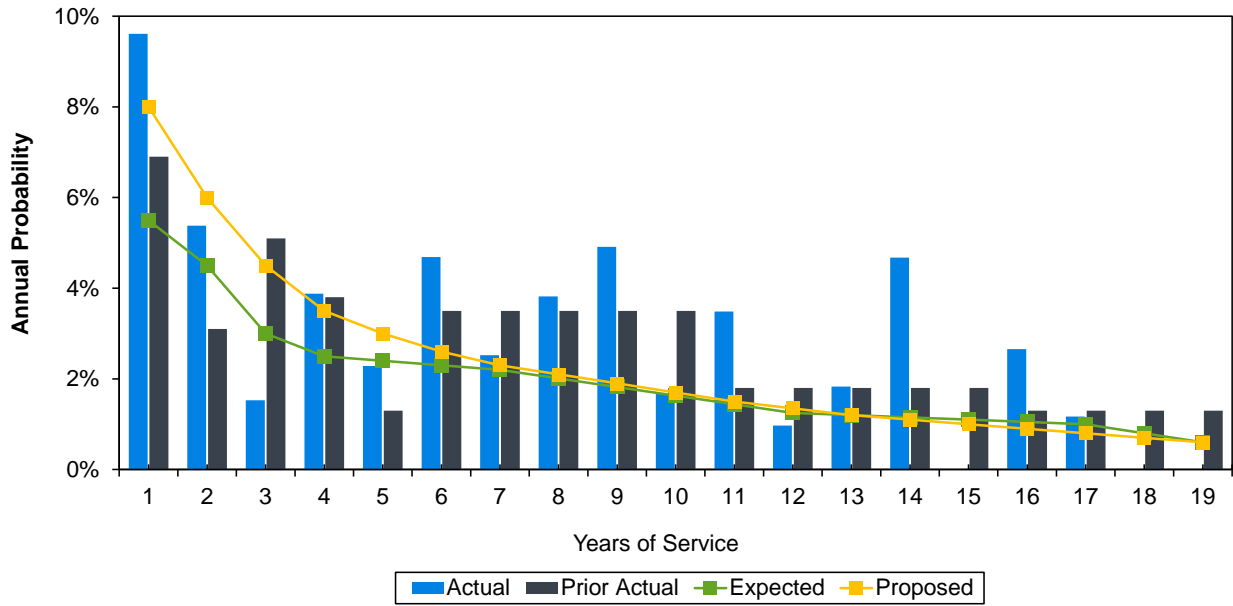
Exhibit 8-2
Termination by Years of Service* – General Females



*Excludes retirement-eligible members.

*Prior actual experience reflects averages of five-year service groupings at years of service greater than five.

Exhibit 8-3
Termination by Years of Service* – Safety



* Excludes retirement-eligible members.

** Prior actual experience reflects averages of five-year service groupings at years of service greater than five.

9. Probability of Refund Upon Vested Termination

As discussed in Section 8, the aggregate termination rates include both members who terminate and take a refund of their contributions and those who elect to keep their contributions with SamCERA and receive a deferred vested benefit. This section of the report deals with the rates at which employees elect a refund of their contributions upon termination of service. It only considers vested members who are not yet eligible for service retirement. Under the current assumptions, members who terminate with fewer years of service have a greater probability of electing to withdraw their contributions. All non-vested members are assumed to take a refund at termination.

Results

Exhibit 9-1 summarizes the results of our study. The actual number of members electing a refund of contributions is generally lower than expected by the assumptions, which is consistent with trends over the last several study periods.

In our analysis, we also considered former members that elected a refund of contributions subsequent to, rather than coincident with, their termination of employment. We believe that these elections can be considered as a refund of contribution from active service, except for the timing of the election.

We studied this assumption on a headcount-weighted basis because we did not have a compensation number for those members who did not refund directly from active service, at the time of their election. We believe this approach is appropriate for this purpose.

The table below summarizes the number of refunds of contributions compared to the expected number, and the number under the proposed assumptions.

Probability of Refund (at least 5 years of service) (headcount weighted)					
Class	Actual	Expected	Actual / Expected	Proposed	Actual / Proposed
General	44	73	60%	60	73%
Safety	7	8	85%	8	88%
Total	51	81	63%	68	75%

Recommendation

Based on the experience of this study and the prior two studies, we are recommending reductions to the probabilities at which members withdraw their contributions from SamCERA.

Exhibit 9-1
Probability of Refund upon Vested Termination – General

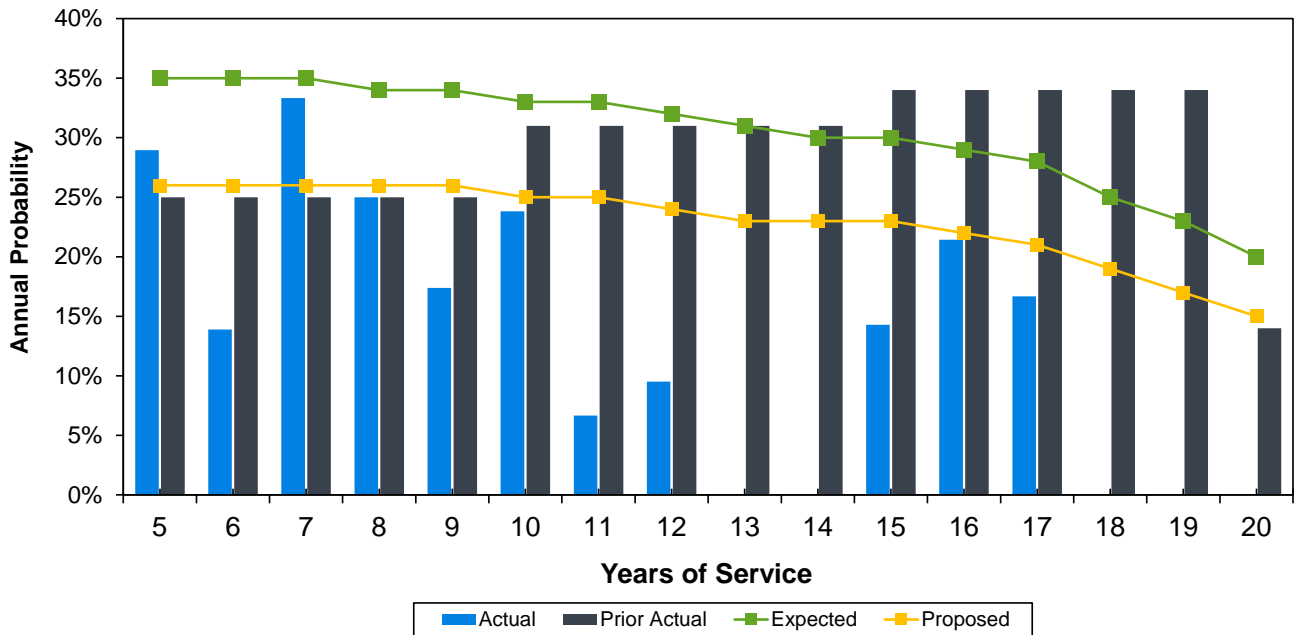
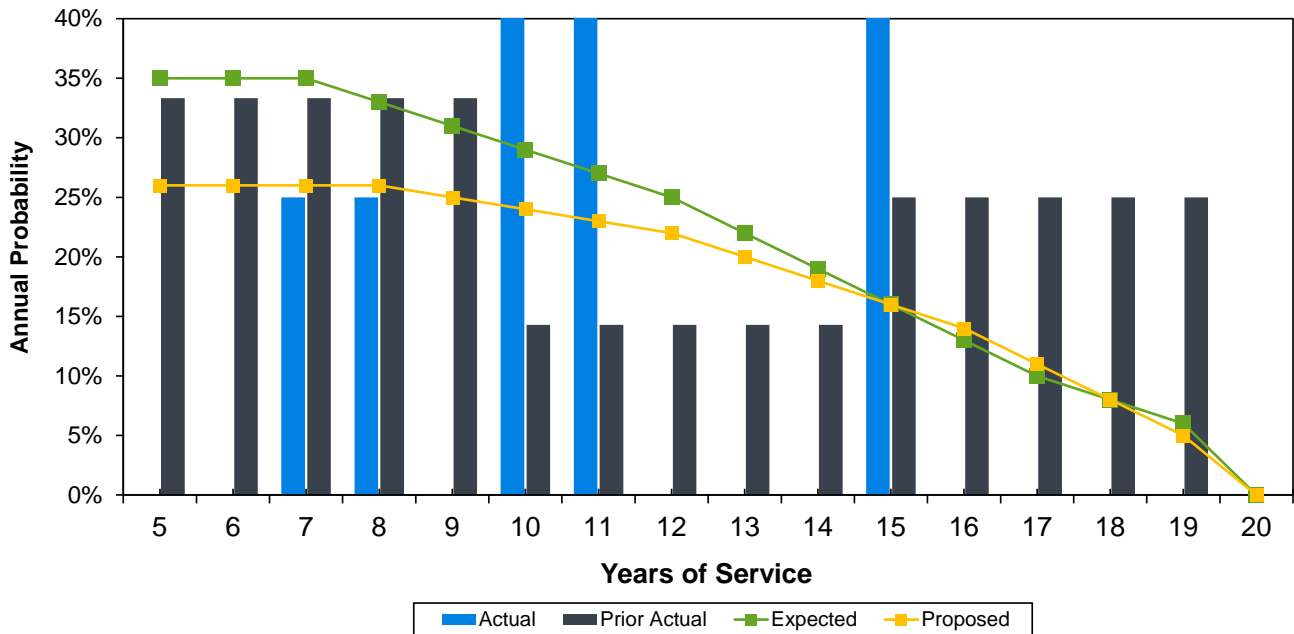


Exhibit 9-2
Probability of Refund upon Vested Termination – Safety



* The annual probability may exceed 40% at 10, 11 and 15 years of service

Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions to be used in the June 30, 2020 valuation are described in this section. The assumptions were reviewed and changed as a result of the 2020 Investigation of Experience Study.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of SamCERA and of SamCERA itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of SamCERA's benefits.

Table A-1 summarizes the assumptions. The mortality rates are taken from the sources listed.

Tables A-2 and A-3 show how members are expected to leave retired status due to death.

Table A-4 presents the probability of refund of contributions upon termination of employment while vested.

Table A-5 presents the expected annual percentage increase in salaries.

Tables A-6 to A-11 present the probabilities a member will leave the system for various reasons.

NOTE: Assumptions for Probation members are assumed to be the same as Safety members unless otherwise noted.

Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age).

For members who transferred from Plan 3 to another General plan, entry age is based on the transfer date.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The UAAL as of June 30, 2008 is amortized as a level percentage of the projected salaries of present and future members of SamCERA over the remaining period from the valuation date to June 30, 2023. This is commonly referred to as a "closed amortization method". Actuarial gains and losses after the June 30, 2008 valuation are amortized over new closed 15-year periods from their respective valuation dates.

Beginning with the June 30, 2010 actuarial valuation, the San Mateo County Mosquito and Vector Control District adopted the same "enhanced" benefit formula that applies to Plans 1, 2, and 4 County General members and the same member rates currently being paid by County General members from those plans. However, because the Mosquito and Vector Control District does not participate in cost sharing on the member rates, it will have a separate normal cost rate and expected member contribution rate from the County General group.

The normal cost rate is calculated separately for County General and for the Mosquito and Vector Control District. These normal cost rates will differ from each other for two reasons:

1. The demographics within the two groups will vary (specifically, the groups will have different average entry ages), and
2. The expected refund of contributions, which is a component of the normal cost, will differ between the County and the Mosquito and Vector Control District, since the District does not participate in cost sharing on the member rates.

Records and Data

The data used in this valuation consist of financial information and the age, service, and income records for active and inactive members and their survivors. All of the data were supplied by SamCERA and are accepted for valuation purposes without audit.

Replacement of Terminated Members

The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain fairly stable in future years unless there are changes in the governing law, the actuarial assumptions or the pattern of the new entrants.

Growth in Membership

For benefit determination purposes, no growth in the membership of SamCERA is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.

Internal Revenue Code Section 415 Limit

The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement, except for Plan 7 members which cannot receive benefits in excess of the 415 limit. For Plan 7 members, the benefit levels, combined with the limited compensation are low enough that it is unlikely the 415 limit would apply.

Internal Revenue Code Section 401(a)(17)

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

Employer Contributions

The statutory employer contribution rate is set by the Retirement Board based on actuarial valuations.

Member Contributions

The member contribution rates vary by entry age (except for Plan 7) and are described in the law. Code references are shown in Appendix B of the valuation report. The methods and assumptions used are detailed later in this section. The individual member rates by entry age, plan, and class are illustrated in Appendix D of the valuation report.

Valuation of Assets

The assets are valued using a modified five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the end of each six-month period (12/31 and 6/30). The expected market value is the prior period's market value increased with the net increase in the cash flow of funds, all increased with interest during the period at the expected investment return rate assumption.

Effective June 30, 2018 all deferred gains and losses are combined into a single amount to be recognized over a five-year (10 six-month) period. Beginning with the six-month period immediately following the June 30, 2018 valuation, offsetting of current period gains or losses against prior period gains or losses will occur, as follows. First, to the extent there is a loss for the period, it shall be used to offset any unrecognized gains from prior

periods in the order of oldest to most recent. Any remaining loss for the period is recognized over a five-year (10 six-month) period. Similarly, any gain for the period shall be offset against unrecognized losses from prior periods.

The gross preliminary Actuarial Value of Assets is equal to the Market Value of Assets less any of the remaining unrecognized differences. A 20% corridor is then applied, so that the gross Actuarial Value of Assets cannot be greater than 120% of the Market Value of Assets nor less than 80% of the Market Value of Assets. The Valuation Assets used in the calculation of the SCR are equal to the gross Actuarial Value of Assets less any non-valuation reserves.

Investment Earnings and Expenses

The future investment earnings of the assets of SamCERA are assumed to accrue at an annual rate of 6.50% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2019.

Postretirement Benefit Increases

Postretirement increases are described in Appendix B. Assumed increases for valuation purposes are:

	General	Safety	Probation
Plan 1	2.50%	2.50%	2.50%
Plan 2	2.40%	2.40%	2.40%
Plan 3	0.00%	N/A	N/A
Plans 4, 5, and 7	1.90%	1.90%	1.90%
Plan 6	N/A	1.90%	1.90%

Assumed Plan 1 General and Safety COLAs are set at the inflation (CPI) assumption of 2.50% per year. Since Plan 2 does not have a COLA bank, it is expected that increases will be limited in some years. This reduces the overall expected rate and is reflected in a lower assumed increase.

Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 6.50% compounded semi-annually (3.25% per six-month period) for an annualized rate of 6.61%. This rate was adopted effective June 30, 2019 for valuation purposes, although the change in member crediting will not be effective until July 1, 2020.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 3.00% per annum rate of increase in the general wage level of the membership.

Increases are assumed to occur mid-year. The mid-year timing reflects that salary increases occur throughout the year, or on average mid-year.

SamCERA supplied two types of compensation data: 1) pensionable pay from the most recent bi-weekly pay period; and 2) pensionable pay from the prior year. We annualized bi-weekly pay (by multiplying by 26) and then used the greater of the two amounts.

Social Security Wage Base

Plan 3 members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and

the annual Wage Base will increase at the rate of 2.50% per year. Note, statutory provisions describe how to compute a member's offset amount at time of termination or retirement.

Retirement

The retirement rates vary by age and are shown by plan in Tables A-6 through A-11.

All General members who attain or who have attained age 75 and all Safety members who have attained age 65 are assumed to retire immediately. Additionally, if a member's benefit is equal to or greater than the 100% of compensation limit, they are also assumed to retire immediately. For purposes of the valuation, immediate retirement is assumed at:

- Age 62 with 38 years of service (General, Plans 1, 2, and 4)
- Age 65 with 41 years of service (General Plan 5)
- Age 67 with 40 years of service (General Plan 7)
- Age 50 with 33 years of service (Safety & Probation, Plans 1, 2, and 4)
- Age 55 with 33 years of service (Safety & Probation Plan 5)
- Age 55 with 38 years of service (Safety & Probation Plan 6)
- Age 57 with 38 years of service (Safety & Probation Plan 7)

Deferred vested members are assumed to retire at the later of current age and:

- Age 58 (General Members, except Plan 3 and Plan 7)
- Age 65 (General Plan 3 Members)
- Age 62 (General Plan 7 Members)
- Age 50 (Probation and Safety members)

The retirement rates were adopted effective June 30, 2020.

Disability

The rates of disability used in the valuation are also illustrated in Tables A-6 through A-11. The disability rates were adopted effective June 30, 2020.

Retiree Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active members, deferred members, members retired for service, and beneficiaries. These rates are illustrated in Table A-2. Beneficiary mortality is assumed to be the same as for healthy members. Beneficiaries are assumed to be of the opposite sex and have the same mortality as General members.

Class	Gender	Proposed Table
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of retired mortality were adopted effective June 30, 2020.

Retiree Mortality – Disabled Members

For current and future disabled members, the mortality rates used in the valuation are illustrated in Table A-3.

Class	Gender	
General	Male	PubG-2010 (100%*) Disabled Retiree Male
General	Female	PubG-2010 (100%*) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Disabled Retiree Male
Safety	Female	PubS-2010 (100%) Disabled Retiree Female

*Disabled General mortality rates are 100% of the standard table at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of mortality were adopted effective June 30, 2020.

Mortality while in Active Status

For active members, the mortality rates used in the valuation rates are illustrated in Tables A-6 through A-11. These rates were adopted effective June 30, 2020.

Class	Gender	Proposed Table
General	Male	PubG-2010 (100%) Employee Male
General	Female	PubG-2010 (100%) Employee Female
Safety	Male	PubS-2010 (100%) Employee Male
Safety	Female	PubS-2010 (100%) Employee Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

Safety members have an additional service-connected mortality rate of 0.01% per year.

Other Terminations of Employment

Tables A-6 to A-11 show, for all ages, the rates assumed in this valuation for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with SamCERA. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work or may remain inactive until becoming eligible to receive a retirement benefit under either SamCERA or a reciprocal retirement system. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

The rates of termination were adopted effective June 30, 2020.

Probability of Refund

Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred vested

benefit. For Plan 3, 100% of members are assumed to elect a vested benefit. All non-vested members are assumed to elect a refund and withdraw their contributions.

The probability of refund assumptions were adopted effective June 30, 2020.

Probability of Eligible Survivor

For members not currently in pay status, 75% of all males and 55% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be three years younger than male members and two years older than female members. Survivors are assumed to be of the opposite sex as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

Valuation of Current Deferred Members

Current non-vested members who have terminated active employment are assumed to take a refund of their contributions.

Current vested members who have terminated active employment are assumed to keep their accounts with SamCERA and retire as specified in this section. An adjustment for these individuals such that the greater of the Final Average Compensation and annualized bi-weekly pay limited to two times the Final Average Compensation is used.

Reciprocal Benefits

30% of future deferred vested General members and 40% of future deferred vested Safety members are assumed to immediately join a reciprocal agency. For future reciprocal members, salaries are assumed to increase at the same rate as if they had remained in active employment with SamCERA. For current deferred vested members, eligibility is based on the data supplied by SamCERA and future salaries are assumed to increase at 3.52% annually for General members and 3.88% annually for Safety members. This assumption was adopted effective June 30, 2017.

Part-Time Employees

For valuation purposes, part-time employees are assumed to continue working the same number of hours in the future.

Adjustment to Plan 3 Normal Cost Rate

Plan 3 members are eligible to transfer to Plans 2, 4 or 5 (depending on entry date) after five years of service. We have adjusted the Plan 3 Normal Cost to account for this. The adjustment is equal to 50% of the difference between the unadjusted Plan 3 Normal Cost rate and the Plan 4 Normal Cost rate.

Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, the member rate is determined by the present value of the future benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL:

- A. The annuity factor used for General members is based on a 33% / 67% blend of the male and female annuity factors using current valuation assumptions and no COLA. For Safety members it is based on a 75% / 25% blend of the male and female annuity factors using current valuation assumptions. The valuation mortality tables use a static projection to 2042.

- B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 6.50%.
- C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.
- D. Example: For a Plan 4 member who enters at age 54 or earlier, the Final Compensation at retirement (age 55) will be the monthly average of the annual salary for age 54.
- E. For purposes of calculating the value of the member's future contribution, interest is assumed to be credited at 6.50% semiannually (3.25% for each six-month period) for a 6.61% annual rate.
- F. Member Rates are assumed to increase with entry age, except in Plan 7. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age. In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

Member rates for all Plans 1, 2, 4, 5, and 6 members are loaded to account for a 50% COLA share. The COLA loads are applied to the otherwise applicable basic member rates prior to the addition of any cost-sharing rates.

Table A-1
Summary of Valuation Assumptions as of June 30, 2020

Economic assumptions

A. General wage increases	3.00%
B. Investment earnings	6.50%
C. Growth in active membership	0.00%
D. CPI inflation assumption	2.50%

Demographic assumptions

A. Salary increases due to service	Table A-5
B. Retirement	Tables A-6 to A-11
C. Disability	Tables A-6 to A-11
D. Mortality for active members prior to termination	Tables A-6 to A-11
E. Mortality for active members after termination and service retired members ⁽¹⁾	Table A-2

Class	Gender	
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

F. Mortality for disabled members ⁽¹⁾⁽²⁾	Table A-3
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Class	Gender	
General	Male	PubG-2010 (100%) Disabled Retiree Male
General	Female	PubG-2010 (100%) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Disabled Retiree Male
Safety	Female	PubS-2010 (100%) Disabled Retiree Female

G. Mortality for beneficiaries ⁽¹⁾	Table A-2
Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite gender who has taken a service retirement.	
H. Other terminations of employment	Tables A-6 to A-11
I. Refund of contributions on vested termination	Table A-4

1. All mortality rates are projected using the MP-2014 Ultimate projection scale.
2. Disabled General mortality rates are 100% of the standard table at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.

Table A-2
Mortality for Members Retired for Service ⁽¹⁾

<u>Age</u>	<u>General Male</u>	<u>General Female</u>	<u>Safety Male</u>	<u>Safety Female</u>
20	0.074%	0.035%	0.061%	0.021%
25	0.056%	0.024%	0.055%	0.026%
30	0.072%	0.040%	0.061%	0.035%
35	0.094%	0.062%	0.070%	0.047%
40	0.132%	0.096%	0.088%	0.064%
45	0.196%	0.150%	0.122%	0.087%
50	0.298%	0.222%	0.192%	0.149%
55	0.431%	0.286%	0.306%	0.258%
60	0.615%	0.384%	0.508%	0.446%
65	0.913%	0.613%	0.881%	0.770%
70	1.526%	1.063%	1.568%	1.329%
75	2.671%	1.883%	2.826%	2.295%
80	4.774%	3.360%	5.103%	3.962%
85	8.591%	6.205%	9.135%	6.842%
90	14.672%	11.487%	15.860%	11.815%

Annual Projected Mortality Improvement

<u>Age</u>	<u>All Groups</u>
65 & Less	1.000%
70	1.000%
75	1.000%
80	1.000%
85	1.000%
90	0.930%
95	0.850%
100	0.640%
105	0.430%
110	0.210%
115	0.000%

1. Mortality rates are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality rate for an 85-year old General male in fiscal year beginning in 2020 is 7.770% calculated as follows:

$$\begin{aligned}
 \text{Age 85 rate in 2020} &= \text{Age 85 rate in 2010 with 10 years improvement} \\
 &= 8.591\% \times (100.0\% - 1.0\%) ^ (2020-2010) \\
 &= 7.770\%
 \end{aligned}$$

Table A-3
Mortality for Members Retired for Disability

Age	General Male	General Female	Safety Male	Safety Female
20	0.247%	0.140%	0.121%	0.053%
25	0.167%	0.098%	0.110%	0.065%
30	0.212%	0.154%	0.122%	0.089%
35	0.275%	0.241%	0.138%	0.121%
40	0.387%	0.377%	0.174%	0.164%
45	0.604%	0.591%	0.242%	0.223%
50	0.963%	0.890%	0.353%	0.304%
55	1.268%	1.045%	0.480%	0.461%
60	1.502%	1.174%	0.735%	0.699%
65	1.826%	1.354%	1.186%	1.061%
70	2.731%	2.003%	1.907%	1.610%
75	4.154%	3.202%	3.241%	2.443%
80	6.613%	5.406%	5.598%	3.962%
85	10.815%	9.331%	9.213%	6.842%
90	16.253%	13.665%	15.860%	11.815%

Table A-4
Immediate Refund of Contributions upon Termination of Employment
(Excludes Plan 3)

Years of Service	General	Safety
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	26%	26%
6	26%	26%
7	26%	26%
8	26%	26%
9	26%	25%
10	25%	24%
11	25%	23%
12	24%	22%
13	23%	20%
14	23%	18%
15	23%	16%
16	22%	14%
17	21%	11%
18	19%	8%
19	17%	5%
20	15%	0%
21	14%	0%
22	11%	0%
23	9%	0%
24	7%	0%
25	5%	0%
26	2%	0%
27	0%	0%
28	0%	0%
29	0%	0%
30 & Up	0%	0%

**Table A-5
Annual Increase in Salary**

Years of Service	Due to Promotion and Longevity		Total Annual Increase ⁽¹⁾	
	General	Safety	General	Safety
<1	6.50%	6.00%	9.70%	9.18%
1	4.75%	4.75%	7.89%	7.89%
2	3.50%	3.50%	6.61%	6.61%
3	2.75%	2.75%	5.83%	5.83%
4	2.00%	2.10%	5.06%	5.16%
5	1.75%	1.70%	4.80%	4.75%
6	1.50%	1.40%	4.55%	4.44%
7	1.25%	1.20%	4.29%	4.24%
8	1.05%	1.10%	4.08%	4.13%
9	0.90%	1.00%	3.93%	4.03%
10	0.80%	0.95%	3.82%	3.98%
11	0.70%	0.90%	3.72%	3.93%
12	0.60%	0.85%	3.62%	3.88%
13	0.50%	0.85%	3.52%	3.88%
14	0.50%	0.85%	3.52%	3.88%
15	0.50%	0.85%	3.52%	3.88%
16	0.50%	0.85%	3.52%	3.88%
17	0.50%	0.85%	3.52%	3.88%
18	0.50%	0.85%	3.52%	3.88%
19	0.50%	0.85%	3.52%	3.88%
20 or More	0.50%	0.85%	3.52%	3.88%

1. The total expected increase in salary is the increase due to promotion and longevity, adjusted for assumed 3.00% per annum increases in the general wage. The total result is compounded rather than additive.

Rates of Separation from Active Service Tables A-6 to A-11

A schedule of the probabilities of termination of employment due to the following causes can be found on the following pages:

Service Retirement:	Member retires after meeting age and service requirements for reasons other than disability.
Withdrawal:	Member terminates and elects a refund of member contributions, or a deferred retirement benefit.
Service Disability:	Member receives disability retirement; disability is service related.
Ordinary Disability:	Member receives disability retirement; disability is not service related.
Service Death:	Member dies before retirement; death is service related.
Ordinary Death:	Member dies before retirement; death is not service related.

Each rate represents the probability that a member will separate from service at each age due to the particular cause. For example, a rate of 0.0300 for a member's service retirement at age 50 means we assume that 30 out of 1,000 members who are age 50 will retire at that age.

Each table represents the detailed rates needed for each SamCERA plan by sex:

A-6: General Plans 1, 2, 4, 5, and 7 Males

A-7: General Plans 1, 2, 4, 5, and 7 Females

A-8: General Plan 3 Males

A-9: General Plan 3 Females

A-10: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Males

A-11: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Females

Table A-6
Rate of Separation from Active Service
General Plans 1, 2, 4, 5, and 7 – Male

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00036	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00038	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00037	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00036	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00031	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00029	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00028	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00030	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00031	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00034	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00036	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00038	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00040	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00042	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00044	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00047	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00050	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00053	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00057	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00061	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00066	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00071	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00077	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00083	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00090	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00098	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00107	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00116	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00127	30 & Above ⁽³⁾	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00138		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00149		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00162		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00175		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00189		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00203		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00219		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00236		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00255		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00275		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00296		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00319		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00344		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00371		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00401		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00433		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00468		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00506		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00548		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00594		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00646		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00703		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00767		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00837		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00915		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.01001		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.

Table A-7
Rate of Separation from Active Service
General Plans 1, 2, 4, 5, and 7 – Female

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00013	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00012	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00010	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00009	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00009	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00010	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00012	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00013	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00015	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00016	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00018	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00019	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00021	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00023	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00025	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00028	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00030	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00033	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00036	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00040	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00043	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00047	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00051	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00056	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00061	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00066	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00071	30 & Above ⁽³⁾	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00077		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00083		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00090		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00097		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00105		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00113		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00123		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00133		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00144		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00156		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00170		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00186		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00203		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00222		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00244		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00269		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00296		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00327		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00362		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00400		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00442		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00489		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00541		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00598		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00661		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.00731		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.

Table A-8
Rate of Separation from Active Service
General Plan 3 – Male

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.00000	N/A	N/A	N/A	0.00036	0	0.15000
19	0.00000	N/A	N/A	N/A	0.00038	1	0.13000
20	0.00000	N/A	N/A	N/A	0.00037	2	0.10500
21	0.00000	N/A	N/A	N/A	0.00036	3	0.08500
22	0.00000	N/A	N/A	N/A	0.00033	4	0.07500
23	0.00000	N/A	N/A	N/A	0.00031	5	0.06700
24	0.00000	N/A	N/A	N/A	0.00029	6	0.06000
25	0.00000	N/A	N/A	N/A	0.00028	7	0.05400
26	0.00000	N/A	N/A	N/A	0.00030	8	0.04900
27	0.00000	N/A	N/A	N/A	0.00031	9	0.04400
28	0.00000	N/A	N/A	N/A	0.00033	10	0.04100
29	0.00000	N/A	N/A	N/A	0.00034	11	0.03800
30	0.00000	N/A	N/A	N/A	0.00036	12	0.03500
31	0.00000	N/A	N/A	N/A	0.00038	13	0.03300
32	0.00000	N/A	N/A	N/A	0.00040	14	0.03100
33	0.00000	N/A	N/A	N/A	0.00042	15	0.02900
34	0.00000	N/A	N/A	N/A	0.00044	16	0.02700
35	0.00000	N/A	N/A	N/A	0.00047	17	0.02500
36	0.00000	N/A	N/A	N/A	0.00050	18	0.02300
37	0.00000	N/A	N/A	N/A	0.00053	19	0.02100
38	0.00000	N/A	N/A	N/A	0.00057	20	0.01900
39	0.00000	N/A	N/A	N/A	0.00061	21	0.01700
40	0.00000	N/A	N/A	N/A	0.00066	22	0.01500
41	0.00000	N/A	N/A	N/A	0.00071	23	0.01400
42	0.00000	N/A	N/A	N/A	0.00077	24	0.01300
43	0.00000	N/A	N/A	N/A	0.00083	25	0.01200
44	0.00000	N/A	N/A	N/A	0.00090	26	0.01100
45	0.00000	N/A	N/A	N/A	0.00098	27	0.01000
46	0.00000	N/A	N/A	N/A	0.00107	28	0.01000
47	0.00000	N/A	N/A	N/A	0.00116	29	0.01000
48	0.00000	N/A	N/A	N/A	0.00127	30 & Above	0.01000
49	0.00000	N/A	N/A	N/A	0.00138		
50	0.00000	N/A	N/A	N/A	0.00149		
51	0.00000	N/A	N/A	N/A	0.00162		
52	0.00000	N/A	N/A	N/A	0.00175		
53	0.00000	N/A	N/A	N/A	0.00189		
54	0.00000	N/A	N/A	N/A	0.00203		
55	0.03000	N/A	N/A	N/A	0.00219		
56	0.03000	N/A	N/A	N/A	0.00236		
57	0.03000	N/A	N/A	N/A	0.00255		
58	0.03000	N/A	N/A	N/A	0.00275		
59	0.03000	N/A	N/A	N/A	0.00296		
60	0.03000	N/A	N/A	N/A	0.00319		
61	0.06000	N/A	N/A	N/A	0.00344		
62	0.15000	N/A	N/A	N/A	0.00371		
63	0.10000	N/A	N/A	N/A	0.00401		
64	0.15000	N/A	N/A	N/A	0.00433		
65	0.30000	N/A	N/A	N/A	0.00468		
66	0.30000	N/A	N/A	N/A	0.00506		
67	0.30000	N/A	N/A	N/A	0.00548		
68	0.30000	N/A	N/A	N/A	0.00594		
69	0.30000	N/A	N/A	N/A	0.00646		
70	0.40000	N/A	N/A	N/A	0.00703		
71	0.40000	N/A	N/A	N/A	0.00767		
72	0.40000	N/A	N/A	N/A	0.00837		
73	0.40000	N/A	N/A	N/A	0.00915		
74	0.40000	N/A	N/A	N/A	0.01001		
75	1.00000	N/A	N/A	N/A	N/A		

Table A-9
Rate of Separation from Active Service
General Plan 3 – Female

<u>Age</u>	<u>Service Retirement</u>	<u>Service Disability</u>	<u>Ordinary Disability</u>	<u>Service Death</u>	<u>Ordinary Death</u>	<u>Years of Service</u>	<u>Other Terminations</u>
18	0.0000	N/A	N/A	N/A	0.00013	0	0.15000
19	0.0000	N/A	N/A	N/A	0.00013	1	0.13000
20	0.0000	N/A	N/A	N/A	0.00013	2	0.10500
21	0.0000	N/A	N/A	N/A	0.00012	3	0.08500
22	0.0000	N/A	N/A	N/A	0.00011	4	0.07500
23	0.0000	N/A	N/A	N/A	0.00010	5	0.06700
24	0.0000	N/A	N/A	N/A	0.00009	6	0.06000
25	0.0000	N/A	N/A	N/A	0.00009	7	0.05400
26	0.0000	N/A	N/A	N/A	0.00010	8	0.04900
27	0.0000	N/A	N/A	N/A	0.00011	9	0.04400
28	0.0000	N/A	N/A	N/A	0.00012	10	0.04100
29	0.0000	N/A	N/A	N/A	0.00013	11	0.03800
30	0.0000	N/A	N/A	N/A	0.00015	12	0.03500
31	0.0000	N/A	N/A	N/A	0.00016	13	0.03300
32	0.0000	N/A	N/A	N/A	0.00018	14	0.03100
33	0.0000	N/A	N/A	N/A	0.00019	15	0.02900
34	0.0000	N/A	N/A	N/A	0.00021	16	0.02700
35	0.0000	N/A	N/A	N/A	0.00023	17	0.02500
36	0.0000	N/A	N/A	N/A	0.00025	18	0.02300
37	0.0000	N/A	N/A	N/A	0.00028	19	0.02100
38	0.0000	N/A	N/A	N/A	0.00030	20	0.01900
39	0.0000	N/A	N/A	N/A	0.00033	21	0.01700
40	0.0000	N/A	N/A	N/A	0.00036	22	0.01500
41	0.0000	N/A	N/A	N/A	0.00040	23	0.01400
42	0.0000	N/A	N/A	N/A	0.00043	24	0.01300
43	0.0000	N/A	N/A	N/A	0.00047	25	0.01200
44	0.0000	N/A	N/A	N/A	0.00051	26	0.01100
45	0.0000	N/A	N/A	N/A	0.00056	27	0.01000
46	0.0000	N/A	N/A	N/A	0.00061	28	0.01000
47	0.0000	N/A	N/A	N/A	0.00066	29	0.01000
48	0.0000	N/A	N/A	N/A	0.00071	30 & Above	0.01000
49	0.0000	N/A	N/A	N/A	0.00077		
50	0.0000	N/A	N/A	N/A	0.00083		
51	0.0000	N/A	N/A	N/A	0.00090		
52	0.0000	N/A	N/A	N/A	0.00097		
53	0.0000	N/A	N/A	N/A	0.00105		
54	0.0000	N/A	N/A	N/A	0.00113		
55	0.0400	N/A	N/A	N/A	0.00123		
56	0.0400	N/A	N/A	N/A	0.00133		
57	0.0400	N/A	N/A	N/A	0.00144		
58	0.0400	N/A	N/A	N/A	0.00156		
59	0.0400	N/A	N/A	N/A	0.00170		
60	0.0400	N/A	N/A	N/A	0.00186		
61	0.0600	N/A	N/A	N/A	0.00203		
62	0.1500	N/A	N/A	N/A	0.00222		
63	0.1000	N/A	N/A	N/A	0.00244		
64	0.1500	N/A	N/A	N/A	0.00269		
65	0.3000	N/A	N/A	N/A	0.00296		
66	0.3000	N/A	N/A	N/A	0.00327		
67	0.3000	N/A	N/A	N/A	0.00362		
68	0.3000	N/A	N/A	N/A	0.00400		
69	0.3000	N/A	N/A	N/A	0.00442		
70	0.4000	N/A	N/A	N/A	0.00489		
71	0.4000	N/A	N/A	N/A	0.00541		
72	0.4000	N/A	N/A	N/A	0.00598		
73	0.4000	N/A	N/A	N/A	0.00661		
74	0.4000	N/A	N/A	N/A	0.00731		
75	1.0000	N/A	N/A	N/A	N/A		

Table A-10
Rate of Separation from Active Service
Safety & Probation Plans – Male

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00041	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00042	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00043	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00044	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00045	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00047	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00049	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00050	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00053	20 & Above ⁽³⁾	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00056		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00059		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00062		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00067		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00071		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00076		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00082		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00088		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00095		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00102		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00111		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00120		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00129		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00140		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00151		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00162		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00175		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00190		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00205		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00223		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00243		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00264		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00288		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00315		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00344		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00375		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).

3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

Table A-11
Rate of Separation from Active Service
Safety & Probation Plans – Female

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00014	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00015	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00016	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00018	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00019	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00020	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00021	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00022	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00024	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00025	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00027	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00028	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00030	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00032	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00034	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00036	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00038	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00041	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00043	20 & Above ⁽³⁾	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00046		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00049		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00052		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00056		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00059		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00063		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00067		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00071		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00076		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00080		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00085		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00091		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00097		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00103		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00109		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00116		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00123		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00131		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00140		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00148		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00158		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00168		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00178		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00190		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00202		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00215		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).


3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 5.3

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Cheiron Inc.'s Actuarial Audit of Experience Study July 1, 2017- April 30, 2020

Recommendation

Accept Cheiron Inc.'s presentation of the Actuarial Audit of Experience Study July 1, 2017- April 30, 2020.

Background

In 2019, the Board selected Cheiron Inc. to be its auditing actuary. Cheiron has now completed its first actuarial audit for SamCERA, the audit of the 2020 Investigation of Experience performed by Milliman for SamCERA for the period July 1, 2017 through April 30, 2020.

Under this agenda item, Graham Schmidt of Cheiron will discuss findings and observations from their audit of Milliman's Experience Study. Due to the timing and availability of data, Cheiron Inc was not able to make the final report available prior to the Board meeting. The presentation will be made available prior to the meeting. The final report will be made available subsequent to the meeting.

Discussion


The purpose of Cheiron's review is to provide SamCERA an independent opinion as to the reasonableness of the methods, analysis and recommendations of Milliman in developing the actuarial assumptions presented in their 2020 Investigation of Experience for SamCERA. In its review Cheiron confirms that Milliman's assumptions fall within a reasonable range.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 5.4

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Adoption of Recommended Changes to Assumptions based on Milliman Inc's Investigation of Experience for July 1, 2017 – April 30, 2020

Recommendation

Approve a resolution adopting recommended changes to assumptions based on Milliman Inc's Investigation of Experience for July 1, 2017 – April 30, 2020.

Background

Under Agenda item 5.2. Milliman Inc. presented its Investigation of Experience Report for July 1, 2017 – April 30, 2020. This experience report set forth the results of Milliman's review of the actuarial methods and the recommended economic and demographic assumptions to be used in the 2020 Actuarial Valuation. The valuation will be presented to the Board at its September 22, 2020 meeting.

Discussion

At its June meeting, the Board approved the retention of the existing economic assumptions. The recommendations of the Investigation of Experience include changes in demographic assumptions and under agenda item 5.2, Millman Inc. will present the rationale for these recommended changes. In addition, it will review the estimated impact of the changes to the funded status and contribution rates for employers and employees.

Appendix A "Actuarial Procedures and Assumptions" contained in the Investigation of Experience, summarizes Milliman's recommendations for all assumptions and methods studied. If adopted, the new assumptions would result in a slight increase in the employer and employee contribution rates and a slight decrease in the funded ratio calculated in the next valuation, as compared to the current assumptions.

The recommended demographic changes would add a net increase of .23% in the blended average employer contribution rate based on the June 30, 2019 valuation report.

There are also expected changes in member contribution rates based on the 2019 valuation report. These changes would range for General Members from a decrease of .20% to an increase of .14%; Probation Members from an increase of .04% to .40%; and Safety Members (not including Deputy Sheriffs) an increase of .09% to .39%. The rate changes would vary depending on plan and entry age.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

The auditing actuary, Cheiron, has opined that Milliman's assumptions fall within a reasonable range.

Attachment

Resolution Adopting Recommended Changes to Assumptions Based Upon Milliman Inc.'s Investigation of Experience Report for July 1, 2017 – April 30, 2020

Board of Retirement

**RESOLUTION ADOPTING RECOMMENDED CHANGES TO ASSUMPTIONS
BASED UPON MILLIMAN'S INVESTIGATION OF EXPERIENCE
JULY 1, 2017 – APRIL 30, 2020**

RESOLUTION _____

WHEREAS, Government Code §31453 mandates the periodic actuarial valuation of the Retirement Fund and requires that the Board of Retirement...shall... recommend to the Board of Supervisors such changes in the rates of interest, in the rates of contributions of members, and in the county and district appropriations as are necessary; and

WHEREAS, the actuarial valuation of the Retirement Fund, including the adequacy of the contribution rates, is based on certain underlying assumptions; and

WHEREAS, the Board instructs its actuarial firm to provide an Experience Report every third year to assess the reasonableness of the assumptions used in the valuation; and

WHEREAS, the Board of Retirement has received, reviewed and accepted the "Investigation of Experience Report July 1, 2017 – April 30, 2020" prepared by Milliman, Inc., setting forth recommendations to amend certain assumptions to be used by Milliman when it prepares its June 30, 2020, actuarial valuation; and

WHEREAS, the Board has reviewed the recommendations and finds it to be in the best interest of the members, retirees and beneficiaries of the Retirement System to adopt certain changes to the assumptions used by its actuary, Milliman, Inc. when performing its actuarial valuation:

THEREFORE, BE IT RESOLVED, the Board adopts all economic and demographic assumptions, as recommended in the Milliman, Inc. "Investigation of Experience Report July 1, 2017 – April 30, 2020" which shall be used by Milliman, Inc., when performing its actuarial valuation and which include but are not limited to the assumptions cited in the attached "Appendix A Actuarial Procedures and Assumptions."

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

Economic assumptions

General wage increases	3.00%
Investment earnings	6.50%
Growth in active membership	0.00%
CPI inflation assumption	2.50%

Demographic assumptions

Salary increases due to service	Table A-5
Retirement	Table A-6-A-11
Disability	Table A-6-A-11
Mortality for active members prior to termination	Table A-6-A-11
Mortality for active members after termination and service retired members	Table A-2
Mortality for disabled members	Table A-3
Mortality for beneficiaries	Table A-2
Other terminations of employment	Tables A-6 to A-11
Refund of contributions on vested termination	Table A-4

Regularly passed and adopted, by the San Mateo County Employees' Retirement Association, Board of Retirement, on July 28, 2020.

Ayes, Trustees:

Noes, Trustees:

Absent, Trustees:

Abstain, Trustees:

Secretary, Board of Retirement

Appendix A Actuarial Procedures and Assumptions

The actuarial procedures and assumptions to be used in the June 30, 2020 valuation are described in this section. The assumptions were reviewed and changed as a result of the 2020 Investigation of Experience Study.

The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of SamCERA and of SamCERA itself in areas that affect the projected benefit flow and anticipated investment earnings. Any variations in future experience from that expected from these assumptions will result in corresponding changes in the estimated costs of SamCERA's benefits.

Table A-1 summarizes the assumptions. The mortality rates are taken from the sources listed.

Tables A-2 and A-3 show how members are expected to leave retired status due to death.

Table A-4 presents the probability of refund of contributions upon termination of employment while vested.

Table A-5 presents the expected annual percentage increase in salaries.

Tables A-6 to A-11 present the probabilities a member will leave the system for various reasons.

NOTE: Assumptions for Probation members are assumed to be the same as Safety members unless otherwise noted.

Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age).

For members who transferred from Plan 3 to another General plan, entry age is based on the transfer date.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL). The UAAL as of June 30, 2008 is amortized as a level percentage of the projected salaries of present and future members of SamCERA over the remaining period from the valuation date to June 30, 2023. This is commonly referred to as a "closed amortization method". Actuarial gains and losses after the June 30, 2008 valuation are amortized over new closed 15-year periods from their respective valuation dates.

Beginning with the June 30, 2010 actuarial valuation, the San Mateo County Mosquito and Vector Control District adopted the same "enhanced" benefit formula that applies to Plans 1, 2, and 4 County General members and the same member rates currently being paid by County General members from those plans. However, because the Mosquito and Vector Control District does not participate in cost sharing on the member rates, it will have a separate normal cost rate and expected member contribution rate from the County General group.

The normal cost rate is calculated separately for County General and for the Mosquito and Vector Control District. These normal cost rates will differ from each other for two reasons:

1. The demographics within the two groups will vary (specifically, the groups will have different average entry ages), and
2. The expected refund of contributions, which is a component of the normal cost, will differ between the County and the Mosquito and Vector Control District, since the District does not participate in cost sharing on the member rates.

Records and Data

The data used in this valuation consist of financial information and the age, service, and income records for active and inactive members and their survivors. All of the data were supplied by SamCERA and are accepted for valuation purposes without audit.

Replacement of Terminated Members

The ages and relative salaries at entry of future members are assumed to follow a new entrant distribution based on the pattern of current members. Under this assumption, the normal cost rates for active members will remain fairly stable in future years unless there are changes in the governing law, the actuarial assumptions or the pattern of the new entrants.

Growth in Membership

For benefit determination purposes, no growth in the membership of SamCERA is assumed. For funding purposes, if amortization is required, the total payroll of covered members is assumed to grow due to the combined effects of future wage increases of current active members and the replacement of the current active members by new employees. No growth in the total number of active members is assumed.

Internal Revenue Code Section 415 Limit

The Internal Revenue Code Section 415 maximum benefit limitations are not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement, except for Plan 7 members which cannot receive benefits in excess of the 415 limit. For Plan 7 members, the benefit levels, combined with the limited compensation are low enough that it is unlikely the 415 limit would apply.

Internal Revenue Code Section 401(a)(17)

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation is not reflected in the valuation for funding purposes. Any limitation is reflected in a member's benefit after retirement.

Employer Contributions

The statutory employer contribution rate is set by the Retirement Board based on actuarial valuations.

Member Contributions

The member contribution rates vary by entry age (except for Plan 7) and are described in the law. Code references are shown in Appendix B of the valuation report. The methods and assumptions used are detailed later in this section. The individual member rates by entry age, plan, and class are illustrated in Appendix D of the valuation report.

Valuation of Assets

The assets are valued using a modified five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the end of each six-month period (12/31 and 6/30). The expected market value is the prior period's market value increased with the net increase in the cash flow of funds, all increased with interest during the period at the expected investment return rate assumption.

Effective June 30, 2018 all deferred gains and losses are combined into a single amount to be recognized over a five-year (10 six-month) period. Beginning with the six-month period immediately following the June 30, 2018 valuation, offsetting of current period gains or losses against prior period gains or losses will occur, as follows. First, to the extent there is a loss for the period, it shall be used to offset any unrecognized gains from prior

periods in the order of oldest to most recent. Any remaining loss for the period is recognized over a five-year (10 six-month) period. Similarly, any gain for the period shall be offset against unrecognized losses from prior periods.

The gross preliminary Actuarial Value of Assets is equal to the Market Value of Assets less any of the remaining unrecognized differences. A 20% corridor is then applied, so that the gross Actuarial Value of Assets cannot be greater than 120% of the Market Value of Assets nor less than 80% of the Market Value of Assets. The Valuation Assets used in the calculation of the SCR are equal to the gross Actuarial Value of Assets less any non-valuation reserves.

Investment Earnings and Expenses

The future investment earnings of the assets of SamCERA are assumed to accrue at an annual rate of 6.50% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2019.

Postretirement Benefit Increases

Postretirement increases are described in Appendix B. Assumed increases for valuation purposes are:

	General	Safety	Probation
Plan 1	2.50%	2.50%	2.50%
Plan 2	2.40%	2.40%	2.40%
Plan 3	0.00%	N/A	N/A
Plans 4, 5, and 7	1.90%	1.90%	1.90%
Plan 6	N/A	1.90%	1.90%

Assumed Plan 1 General and Safety COLAs are set at the inflation (CPI) assumption of 2.50% per year. Since Plan 2 does not have a COLA bank, it is expected that increases will be limited in some years. This reduces the overall expected rate and is reflected in a lower assumed increase.

Interest on Member Contributions

The annual credited interest rate on member contributions is assumed to be 6.50% compounded semi-annually (3.25% per six-month period) for an annualized rate of 6.61%. This rate was adopted effective June 30, 2019 for valuation purposes, although the change in member crediting will not be effective until July 1, 2020.

Future Salaries

The rates of annual salary increase assumed for the purpose of the valuation are illustrated in Table A-5. In addition to increases in salary due to promotions and longevity, this scale includes an assumed 3.00% per annum rate of increase in the general wage level of the membership.

Increases are assumed to occur mid-year. The mid-year timing reflects that salary increases occur throughout the year, or on average mid-year.

SamCERA supplied two types of compensation data: 1) pensionable pay from the most recent bi-weekly pay period; and 2) pensionable pay from the prior year. We annualized bi-weekly pay (by multiplying by 26) and then used the greater of the two amounts.

Social Security Wage Base

Plan 3 members have their benefits offset by an assumed Social Security Benefit. For valuation funding purposes, we need to project the Social Security Benefit. We assume the current Social Security provisions will continue and

the annual Wage Base will increase at the rate of 2.50% per year. Note, statutory provisions describe how to compute a member's offset amount at time of termination or retirement.

Retirement

The retirement rates vary by age and are shown by plan in Tables A-6 through A-11.

All General members who attain or who have attained age 75 and all Safety members who have attained age 65 are assumed to retire immediately. Additionally, if a member's benefit is equal to or greater than the 100% of compensation limit, they are also assumed to retire immediately. For purposes of the valuation, immediate retirement is assumed at:

- Age 62 with 38 years of service (General, Plans 1, 2, and 4)
- Age 65 with 41 years of service (General Plan 5)
- Age 67 with 40 years of service (General Plan 7)
- Age 50 with 33 years of service (Safety & Probation, Plans 1, 2, and 4)
- Age 55 with 33 years of service (Safety & Probation Plan 5)
- Age 55 with 38 years of service (Safety & Probation Plan 6)
- Age 57 with 38 years of service (Safety & Probation Plan 7)

Deferred vested members are assumed to retire at the later of current age and:

- Age 58 (General Members, except Plan 3 and Plan 7)
- Age 65 (General Plan 3 Members)
- Age 62 (General Plan 7 Members)
- Age 50 (Probation and Safety members)

The retirement rates were adopted effective June 30, 2020.

Disability

The rates of disability used in the valuation are also illustrated in Tables A-6 through A-11. The disability rates were adopted effective June 30, 2020.

Retiree Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active members, deferred members, members retired for service, and beneficiaries. These rates are illustrated in Table A-2. Beneficiary mortality is assumed to be the same as for healthy members. Beneficiaries are assumed to be of the opposite sex and have the same mortality as General members.

Class	Gender	Proposed Table
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of retired mortality were adopted effective June 30, 2020.

Retiree Mortality – Disabled Members

For current and future disabled members, the mortality rates used in the valuation are illustrated in Table A-3.

Class	Gender	
General	Male	PubG-2010 (100%*) Disabled Retiree Male
General	Female	PubG-2010 (100%*) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Disabled Retiree Male
Safety	Female	PubS-2010 (100%) Disabled Retiree Female

*Disabled General mortality rates are 100% of the standard table at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

The rates of mortality were adopted effective June 30, 2020.

Mortality while in Active Status

For active members, the mortality rates used in the valuation rates are illustrated in Tables A-6 through A-11. These rates were adopted effective June 30, 2020.

Class	Gender	Proposed Table
General	Male	PubG-2010 (100%) Employee Male
General	Female	PubG-2010 (100%) Employee Female
Safety	Male	PubS-2010 (100%) Employee Male
Safety	Female	PubS-2010 (100%) Employee Female

All mortality rates are projected with the MP-2014 Ultimate Projection Scale.

Safety members have an additional service-connected mortality rate of 0.01% per year.

Other Terminations of Employment

Tables A-6 to A-11 show, for all ages, the rates assumed in this valuation for future termination from active service other than for death, disability or retirement. These rates do not apply to members eligible for service retirement.

Terminating employees may withdraw their contributions immediately upon termination of employment and forfeit the right to further benefits, or they may leave their contributions with SamCERA. Former contributing members whose contributions are on deposit may later elect to receive a refund, may return to work or may remain inactive until becoming eligible to receive a retirement benefit under either SamCERA or a reciprocal retirement system. All terminating members who are not eligible for vested benefits are assumed to withdraw their contributions immediately.

The rates of termination were adopted effective June 30, 2020.

Probability of Refund

Table A-4 gives the assumed probabilities that vested members will withdraw their contributions and elect a refund immediately upon termination and the probability the remaining members will elect a deferred vested

benefit. For Plan 3, 100% of members are assumed to elect a vested benefit. All non-vested members are assumed to elect a refund and withdraw their contributions.

The probability of refund assumptions were adopted effective June 30, 2020.

Probability of Eligible Survivor

For members not currently in pay status, 75% of all males and 55% of all females are assumed to have eligible survivors (spouses or qualified domestic partners). Survivors are assumed to be three years younger than male members and two years older than female members. Survivors are assumed to be of the opposite sex as the member. There is no explicit assumption for children's benefits. We believe the survivor benefits based on this assumption are sufficient to cover children's benefits as they occur.

Valuation of Current Deferred Members

Current non-vested members who have terminated active employment are assumed to take a refund of their contributions.

Current vested members who have terminated active employment are assumed to keep their accounts with SamCERA and retire as specified in this section. An adjustment for these individuals such that the greater of the Final Average Compensation and annualized bi-weekly pay limited to two times the Final Average Compensation is used.

Reciprocal Benefits

30% of future deferred vested General members and 40% of future deferred vested Safety members are assumed to immediately join a reciprocal agency. For future reciprocal members, salaries are assumed to increase at the same rate as if they had remained in active employment with SamCERA. For current deferred vested members, eligibility is based on the data supplied by SamCERA and future salaries are assumed to increase at 3.52% annually for General members and 3.88% annually for Safety members. This assumption was adopted effective June 30, 2017.

Part-Time Employees

For valuation purposes, part-time employees are assumed to continue working the same number of hours in the future.

Adjustment to Plan 3 Normal Cost Rate

Plan 3 members are eligible to transfer to Plans 2, 4 or 5 (depending on entry date) after five years of service. We have adjusted the Plan 3 Normal Cost to account for this. The adjustment is equal to 50% of the difference between the unadjusted Plan 3 Normal Cost rate and the Plan 4 Normal Cost rate.

Member Contribution Rate Assumptions

The following assumptions summarize the procedures used to compute member contribution rates based on entry age:

In general, the member rate is determined by the present value of the future benefit (PVFB) payable at retirement age, divided by the present value of all future salaries payable between age at entry and retirement age. For these purposes, per the CERL:

- A. The annuity factor used for General members is based on a 33% / 67% blend of the male and female annuity factors using current valuation assumptions and no COLA. For Safety members it is based on a 75% / 25% blend of the male and female annuity factors using current valuation assumptions. The valuation mortality tables use a static projection to 2042.

- B. The annuity factor used in determining the present value of future benefits (PVFB) at entry age is equal to the life only annuity factor at 6.50%.
- C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.
- D. Example: For a Plan 4 member who enters at age 54 or earlier, the Final Compensation at retirement (age 55) will be the monthly average of the annual salary for age 54.
- E. For purposes of calculating the value of the member's future contribution, interest is assumed to be credited at 6.50% semiannually (3.25% for each six-month period) for a 6.61% annual rate.
- F. Member Rates are assumed to increase with entry age, except in Plan 7. There are a few exceptions at the higher entry ages where the calculated rate is less than the previous entry age. In these cases the member contribution rate is adjusted so that it is no less than the value for the previous entry age.

Member rates for all Plans 1, 2, 4, 5, and 6 members are loaded to account for a 50% COLA share. The COLA loads are applied to the otherwise applicable basic member rates prior to the addition of any cost-sharing rates.

Table A-1
Summary of Valuation Assumptions as of June 30, 2020

Economic assumptions

A. General wage increases	3.00%
B. Investment earnings	6.50%
C. Growth in active membership	0.00%
D. CPI inflation assumption	2.50%

Demographic assumptions

A. Salary increases due to service	Table A-5
B. Retirement	Tables A-6 to A-11
C. Disability	Tables A-6 to A-11
D. Mortality for active members prior to termination	Tables A-6 to A-11
E. Mortality for active members after termination and service retired members ⁽¹⁾	Table A-2

Class	Gender	
General	Male	PubG-2010 (100%) Healthy Retiree Male
General	Female	PubG-2010 (100%) Healthy Retiree Female
Safety	Male	PubS-2010 (100%) Healthy Retiree Male
Safety	Female	PubS-2010 (100%) Healthy Retiree Female

F. Mortality for disabled members ⁽¹⁾⁽²⁾	Table A-3
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Class	Gender	
General	Male	PubG-2010 (100%) Disabled Retiree Male
General	Female	PubG-2010 (100%) Disabled Retiree Female
Safety	Male	PubS-2010 (100%) Disabled Retiree Male
Safety	Female	PubS-2010 (100%) Disabled Retiree Female

G. Mortality for beneficiaries ⁽¹⁾	Table A-2
Basis – Beneficiaries are assumed to have the same mortality as a general member of the opposite gender who has taken a service retirement.	
H. Other terminations of employment	Tables A-6 to A-11
I. Refund of contributions on vested termination	Table A-4

1. All mortality rates are projected using the MP-2014 Ultimate projection scale.
2. Disabled General mortality rates are 100% of the standard table at ages 85 and above; 60% at ages 65 and below; and graded from 60% to 100% at 2% per year between age 65 and age 85.

Table A-2
Mortality for Members Retired for Service ⁽¹⁾

<u>Age</u>	<u>General Male</u>	<u>General Female</u>	<u>Safety Male</u>	<u>Safety Female</u>
20	0.074%	0.035%	0.061%	0.021%
25	0.056%	0.024%	0.055%	0.026%
30	0.072%	0.040%	0.061%	0.035%
35	0.094%	0.062%	0.070%	0.047%
40	0.132%	0.096%	0.088%	0.064%
45	0.196%	0.150%	0.122%	0.087%
50	0.298%	0.222%	0.192%	0.149%
55	0.431%	0.286%	0.306%	0.258%
60	0.615%	0.384%	0.508%	0.446%
65	0.913%	0.613%	0.881%	0.770%
70	1.526%	1.063%	1.568%	1.329%
75	2.671%	1.883%	2.826%	2.295%
80	4.774%	3.360%	5.103%	3.962%
85	8.591%	6.205%	9.135%	6.842%
90	14.672%	11.487%	15.860%	11.815%

Annual Projected Mortality Improvement

<u>Age</u>	<u>All Groups</u>
65 & Less	1.000%
70	1.000%
75	1.000%
80	1.000%
85	1.000%
90	0.930%
95	0.850%
100	0.640%
105	0.430%
110	0.210%
115	0.000%

1. Mortality rates are those applicable for the fiscal year beginning in 2010. Annual projected improvements are assumed in the following years under the schedule shown. For example, the annual mortality rate for an 85-year old General male in fiscal year beginning in 2020 is 7.770% calculated as follows:

$$\begin{aligned}
 \text{Age 85 rate in 2020} &= \text{Age 85 rate in 2010 with 10 years improvement} \\
 &= 8.591\% \times (100.0\% - 1.0\%)^{(2020-2010)} \\
 &= 7.770\%
 \end{aligned}$$

Table A-3
Mortality for Members Retired for Disability

Age	General Male	General Female	Safety Male	Safety Female
20	0.247%	0.140%	0.121%	0.053%
25	0.167%	0.098%	0.110%	0.065%
30	0.212%	0.154%	0.122%	0.089%
35	0.275%	0.241%	0.138%	0.121%
40	0.387%	0.377%	0.174%	0.164%
45	0.604%	0.591%	0.242%	0.223%
50	0.963%	0.890%	0.353%	0.304%
55	1.268%	1.045%	0.480%	0.461%
60	1.502%	1.174%	0.735%	0.699%
65	1.826%	1.354%	1.186%	1.061%
70	2.731%	2.003%	1.907%	1.610%
75	4.154%	3.202%	3.241%	2.443%
80	6.613%	5.406%	5.598%	3.962%
85	10.815%	9.331%	9.213%	6.842%
90	16.253%	13.665%	15.860%	11.815%

Table A-4
Immediate Refund of Contributions upon Termination of Employment
(Excludes Plan 3)

Years of Service	General	Safety
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	26%	26%
6	26%	26%
7	26%	26%
8	26%	26%
9	26%	25%
10	25%	24%
11	25%	23%
12	24%	22%
13	23%	20%
14	23%	18%
15	23%	16%
16	22%	14%
17	21%	11%
18	19%	8%
19	17%	5%
20	15%	0%
21	14%	0%
22	11%	0%
23	9%	0%
24	7%	0%
25	5%	0%
26	2%	0%
27	0%	0%
28	0%	0%
29	0%	0%
30 & Up	0%	0%

Table A-5
Annual Increase in Salary

Years of Service	Due to Promotion and Longevity		Total Annual Increase ⁽¹⁾	
	General	Safety	General	Safety
<1	6.50%	6.00%	9.70%	9.18%
1	4.75%	4.75%	7.89%	7.89%
2	3.50%	3.50%	6.61%	6.61%
3	2.75%	2.75%	5.83%	5.83%
4	2.00%	2.10%	5.06%	5.16%
5	1.75%	1.70%	4.80%	4.75%
6	1.50%	1.40%	4.55%	4.44%
7	1.25%	1.20%	4.29%	4.24%
8	1.05%	1.10%	4.08%	4.13%
9	0.90%	1.00%	3.93%	4.03%
10	0.80%	0.95%	3.82%	3.98%
11	0.70%	0.90%	3.72%	3.93%
12	0.60%	0.85%	3.62%	3.88%
13	0.50%	0.85%	3.52%	3.88%
14	0.50%	0.85%	3.52%	3.88%
15	0.50%	0.85%	3.52%	3.88%
16	0.50%	0.85%	3.52%	3.88%
17	0.50%	0.85%	3.52%	3.88%
18	0.50%	0.85%	3.52%	3.88%
19	0.50%	0.85%	3.52%	3.88%
20 or More	0.50%	0.85%	3.52%	3.88%

1. The total expected increase in salary is the increase due to promotion and longevity, adjusted for assumed 3.00% per annum increases in the general wage. The total result is compounded rather than additive.

Rates of Separation from Active Service Tables A-6 to A-11

A schedule of the probabilities of termination of employment due to the following causes can be found on the following pages:

Service Retirement:	Member retires after meeting age and service requirements for reasons other than disability.
Withdrawal:	Member terminates and elects a refund of member contributions, or a deferred retirement benefit.
Service Disability:	Member receives disability retirement; disability is service related.
Ordinary Disability:	Member receives disability retirement; disability is not service related.
Service Death:	Member dies before retirement; death is service related.
Ordinary Death:	Member dies before retirement; death is not service related.

Each rate represents the probability that a member will separate from service at each age due to the particular cause. For example, a rate of 0.0300 for a member's service retirement at age 50 means we assume that 30 out of 1,000 members who are age 50 will retire at that age.

Each table represents the detailed rates needed for each SamCERA plan by sex:

A-6: General Plans 1, 2, 4, 5, and 7 Males

A-7: General Plans 1, 2, 4, 5, and 7 Females

A-8: General Plan 3 Males

A-9: General Plan 3 Females

A-10: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Males

A-11: Safety and Probation Plans 1, 2, 4, 5, 6, and 7 Females

Table A-6
Rate of Separation from Active Service
General Plans 1, 2, 4, 5, and 7 – Male

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00036	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00038	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00037	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00036	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00031	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00029	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00028	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00030	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00031	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00033	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00034	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00036	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00038	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00040	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00042	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00044	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00047	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00050	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00053	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00057	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00061	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00066	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00071	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00077	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00083	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00090	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00098	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00107	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00116	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00127	30 & Above ⁽³⁾	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00138		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00149		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00162		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00175		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00189		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00203		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00219		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00236		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00255		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00275		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00296		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00319		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00344		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00371		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00401		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00433		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00468		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00506		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00548		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00594		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00646		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00703		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00767		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00837		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00915		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.01001		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.

Table A-7
Rate of Separation from Active Service
General Plans 1, 2, 4, 5, and 7 – Female

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5 & 7						
18	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	0	0.15000
19	0.00000	0.00000	0.00034	0.00018	N/A	0.00013	1	0.13000
20	0.00000	0.00000	0.00036	0.00020	N/A	0.00013	2	0.10500
21	0.00000	0.00000	0.00037	0.00020	N/A	0.00012	3	0.08500
22	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	4	0.07500
23	0.00000	0.00000	0.00037	0.00020	N/A	0.00010	5	0.06700
24	0.00000	0.00000	0.00037	0.00020	N/A	0.00009	6	0.06000
25	0.00000	0.00000	0.00038	0.00020	N/A	0.00009	7	0.05400
26	0.00000	0.00000	0.00038	0.00020	N/A	0.00010	8	0.04900
27	0.00000	0.00000	0.00038	0.00020	N/A	0.00011	9	0.04400
28	0.00000	0.00000	0.00038	0.00020	N/A	0.00012	10	0.04100
29	0.00000	0.00000	0.00042	0.00023	N/A	0.00013	11	0.03800
30	0.00000	0.00000	0.00044	0.00024	N/A	0.00015	12	0.03500
31	0.00000	0.00000	0.00047	0.00026	N/A	0.00016	13	0.03300
32	0.00000	0.00000	0.00048	0.00026	N/A	0.00018	14	0.03100
33	0.00000	0.00000	0.00054	0.00029	N/A	0.00019	15	0.02900
34	0.00000	0.00000	0.00059	0.00031	N/A	0.00021	16	0.02700
35	0.00000	0.00000	0.00062	0.00033	N/A	0.00023	17	0.02500
36	0.00000	0.00000	0.00067	0.00036	N/A	0.00025	18	0.02300
37	0.00000	0.00000	0.00072	0.00039	N/A	0.00028	19	0.02100
38	0.00000	0.00000	0.00081	0.00044	N/A	0.00030	20	0.01900
39	0.00000	0.00000	0.00090	0.00048	N/A	0.00033	21	0.01700
40	0.00000	0.00000	0.00099	0.00054	N/A	0.00036	22	0.01500
41	0.00000	0.00000	0.00107	0.00058	N/A	0.00040	23	0.01400
42	0.00000	0.00000	0.00116	0.00063	N/A	0.00043	24	0.01300
43	0.00000	0.00000	0.00128	0.00069	N/A	0.00047	25	0.01200
44	0.00000	0.00000	0.00140	0.00076	N/A	0.00051	26	0.01100
45	0.00000	0.00000	0.00155	0.00083	N/A	0.00056	27	0.01000
46	0.00000	0.00000	0.00164	0.00089	N/A	0.00061	28	0.01000
47	0.00000	0.00000	0.00175	0.00094	N/A	0.00066	29	0.01000
48	0.00000	0.00000	0.00184	0.00099	N/A	0.00071	30 & Above ⁽³⁾	0.01000
49	0.00000	0.00000	0.00192	0.00103	N/A	0.00077		
50	0.03000	0.02400	0.00202	0.00108	N/A	0.00083		
51	0.03000	0.02400	0.00208	0.00112	N/A	0.00090		
52	0.03000	0.02400	0.00217	0.00117	N/A	0.00097		
53	0.04000	0.03200	0.00229	0.00123	N/A	0.00105		
54	0.05000	0.04000	0.00240	0.00129	N/A	0.00113		
55	0.10000	0.08000	0.00250	0.00135	N/A	0.00123		
56	0.05000	0.04000	0.00263	0.00141	N/A	0.00133		
57	0.07500	0.06000	0.00274	0.00148	N/A	0.00144		
58	0.10000	0.08000	0.00288	0.00155	N/A	0.00156		
59	0.15000	0.12000	0.00302	0.00162	N/A	0.00170		
60	0.15000	0.12000	0.00313	0.00169	N/A	0.00186		
61	0.20000	0.16000	0.00324	0.00175	N/A	0.00203		
62	0.25000	0.20000	0.00337	0.00182	N/A	0.00222		
63	0.22000	0.17600	0.00334	0.00180	N/A	0.00244		
64	0.22000	0.17600	0.00329	0.00177	N/A	0.00269		
65	0.30000	0.24000	0.00317	0.00171	N/A	0.00296		
66	0.30000	0.24000	0.00313	0.00169	N/A	0.00327		
67	0.30000	0.36000	0.00320	0.00172	N/A	0.00362		
68	0.30000	0.30000	0.00329	0.00177	N/A	0.00400		
69	0.30000	0.30000	0.00332	0.00179	N/A	0.00442		
70	0.30000	0.30000	0.00307	0.00165	N/A	0.00489		
71	0.30000	0.30000	0.00304	0.00163	N/A	0.00541		
72	0.30000	0.30000	0.00326	0.00176	N/A	0.00598		
73	0.30000	0.30000	0.00364	0.00196	N/A	0.00661		
74	0.30000	0.30000	0.00390	0.00210	N/A	0.00731		
75	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed at ages 62 and above with 38 or more years of service (65/41 for Plan 5; 67/40 for Plan 7). Rates of retirement are 0.00% prior to age 52 for Plan 7.

2. Service retirement rates vary by years of service (75% of these rates are applicable at less than 20 years of service; 120% at 20 to 29 years of service; 160% at 30 or more years of service).

3. 0.00% probability of termination with 30 years of service and above for Plans 1, 2, 4, and 5.

Table A-8
Rate of Separation from Active Service
General Plan 3 – Male

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.00000	N/A	N/A	N/A	0.00036	0	0.15000
19	0.00000	N/A	N/A	N/A	0.00038	1	0.13000
20	0.00000	N/A	N/A	N/A	0.00037	2	0.10500
21	0.00000	N/A	N/A	N/A	0.00036	3	0.08500
22	0.00000	N/A	N/A	N/A	0.00033	4	0.07500
23	0.00000	N/A	N/A	N/A	0.00031	5	0.06700
24	0.00000	N/A	N/A	N/A	0.00029	6	0.06000
25	0.00000	N/A	N/A	N/A	0.00028	7	0.05400
26	0.00000	N/A	N/A	N/A	0.00030	8	0.04900
27	0.00000	N/A	N/A	N/A	0.00031	9	0.04400
28	0.00000	N/A	N/A	N/A	0.00033	10	0.04100
29	0.00000	N/A	N/A	N/A	0.00034	11	0.03800
30	0.00000	N/A	N/A	N/A	0.00036	12	0.03500
31	0.00000	N/A	N/A	N/A	0.00038	13	0.03300
32	0.00000	N/A	N/A	N/A	0.00040	14	0.03100
33	0.00000	N/A	N/A	N/A	0.00042	15	0.02900
34	0.00000	N/A	N/A	N/A	0.00044	16	0.02700
35	0.00000	N/A	N/A	N/A	0.00047	17	0.02500
36	0.00000	N/A	N/A	N/A	0.00050	18	0.02300
37	0.00000	N/A	N/A	N/A	0.00053	19	0.02100
38	0.00000	N/A	N/A	N/A	0.00057	20	0.01900
39	0.00000	N/A	N/A	N/A	0.00061	21	0.01700
40	0.00000	N/A	N/A	N/A	0.00066	22	0.01500
41	0.00000	N/A	N/A	N/A	0.00071	23	0.01400
42	0.00000	N/A	N/A	N/A	0.00077	24	0.01300
43	0.00000	N/A	N/A	N/A	0.00083	25	0.01200
44	0.00000	N/A	N/A	N/A	0.00090	26	0.01100
45	0.00000	N/A	N/A	N/A	0.00098	27	0.01000
46	0.00000	N/A	N/A	N/A	0.00107	28	0.01000
47	0.00000	N/A	N/A	N/A	0.00116	29	0.01000
48	0.00000	N/A	N/A	N/A	0.00127	30 & Above	0.01000
49	0.00000	N/A	N/A	N/A	0.00138		
50	0.00000	N/A	N/A	N/A	0.00149		
51	0.00000	N/A	N/A	N/A	0.00162		
52	0.00000	N/A	N/A	N/A	0.00175		
53	0.00000	N/A	N/A	N/A	0.00189		
54	0.00000	N/A	N/A	N/A	0.00203		
55	0.03000	N/A	N/A	N/A	0.00219		
56	0.03000	N/A	N/A	N/A	0.00236		
57	0.03000	N/A	N/A	N/A	0.00255		
58	0.03000	N/A	N/A	N/A	0.00275		
59	0.03000	N/A	N/A	N/A	0.00296		
60	0.03000	N/A	N/A	N/A	0.00319		
61	0.06000	N/A	N/A	N/A	0.00344		
62	0.15000	N/A	N/A	N/A	0.00371		
63	0.10000	N/A	N/A	N/A	0.00401		
64	0.15000	N/A	N/A	N/A	0.00433		
65	0.30000	N/A	N/A	N/A	0.00468		
66	0.30000	N/A	N/A	N/A	0.00506		
67	0.30000	N/A	N/A	N/A	0.00548		
68	0.30000	N/A	N/A	N/A	0.00594		
69	0.30000	N/A	N/A	N/A	0.00646		
70	0.40000	N/A	N/A	N/A	0.00703		
71	0.40000	N/A	N/A	N/A	0.00767		
72	0.40000	N/A	N/A	N/A	0.00837		
73	0.40000	N/A	N/A	N/A	0.00915		
74	0.40000	N/A	N/A	N/A	0.01001		
75	1.00000	N/A	N/A	N/A	N/A		

Table A-9
Rate of Separation from Active Service
General Plan 3 – Female

Age	Service Retirement	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	N/A	N/A	N/A	0.00013	0	0.15000
19	0.0000	N/A	N/A	N/A	0.00013	1	0.13000
20	0.0000	N/A	N/A	N/A	0.00013	2	0.10500
21	0.0000	N/A	N/A	N/A	0.00012	3	0.08500
22	0.0000	N/A	N/A	N/A	0.00011	4	0.07500
23	0.0000	N/A	N/A	N/A	0.00010	5	0.06700
24	0.0000	N/A	N/A	N/A	0.00009	6	0.06000
25	0.0000	N/A	N/A	N/A	0.00009	7	0.05400
26	0.0000	N/A	N/A	N/A	0.00010	8	0.04900
27	0.0000	N/A	N/A	N/A	0.00011	9	0.04400
28	0.0000	N/A	N/A	N/A	0.00012	10	0.04100
29	0.0000	N/A	N/A	N/A	0.00013	11	0.03800
30	0.0000	N/A	N/A	N/A	0.00015	12	0.03500
31	0.0000	N/A	N/A	N/A	0.00016	13	0.03300
32	0.0000	N/A	N/A	N/A	0.00018	14	0.03100
33	0.0000	N/A	N/A	N/A	0.00019	15	0.02900
34	0.0000	N/A	N/A	N/A	0.00021	16	0.02700
35	0.0000	N/A	N/A	N/A	0.00023	17	0.02500
36	0.0000	N/A	N/A	N/A	0.00025	18	0.02300
37	0.0000	N/A	N/A	N/A	0.00028	19	0.02100
38	0.0000	N/A	N/A	N/A	0.00030	20	0.01900
39	0.0000	N/A	N/A	N/A	0.00033	21	0.01700
40	0.0000	N/A	N/A	N/A	0.00036	22	0.01500
41	0.0000	N/A	N/A	N/A	0.00040	23	0.01400
42	0.0000	N/A	N/A	N/A	0.00043	24	0.01300
43	0.0000	N/A	N/A	N/A	0.00047	25	0.01200
44	0.0000	N/A	N/A	N/A	0.00051	26	0.01100
45	0.0000	N/A	N/A	N/A	0.00056	27	0.01000
46	0.0000	N/A	N/A	N/A	0.00061	28	0.01000
47	0.0000	N/A	N/A	N/A	0.00066	29	0.01000
48	0.0000	N/A	N/A	N/A	0.00071	30 & Above	0.01000
49	0.0000	N/A	N/A	N/A	0.00077		
50	0.0000	N/A	N/A	N/A	0.00083		
51	0.0000	N/A	N/A	N/A	0.00090		
52	0.0000	N/A	N/A	N/A	0.00097		
53	0.0000	N/A	N/A	N/A	0.00105		
54	0.0000	N/A	N/A	N/A	0.00113		
55	0.0400	N/A	N/A	N/A	0.00123		
56	0.0400	N/A	N/A	N/A	0.00133		
57	0.0400	N/A	N/A	N/A	0.00144		
58	0.0400	N/A	N/A	N/A	0.00156		
59	0.0400	N/A	N/A	N/A	0.00170		
60	0.0400	N/A	N/A	N/A	0.00186		
61	0.0600	N/A	N/A	N/A	0.00203		
62	0.1500	N/A	N/A	N/A	0.00222		
63	0.1000	N/A	N/A	N/A	0.00244		
64	0.1500	N/A	N/A	N/A	0.00269		
65	0.3000	N/A	N/A	N/A	0.00296		
66	0.3000	N/A	N/A	N/A	0.00327		
67	0.3000	N/A	N/A	N/A	0.00362		
68	0.3000	N/A	N/A	N/A	0.00400		
69	0.3000	N/A	N/A	N/A	0.00442		
70	0.4000	N/A	N/A	N/A	0.00489		
71	0.4000	N/A	N/A	N/A	0.00541		
72	0.4000	N/A	N/A	N/A	0.00598		
73	0.4000	N/A	N/A	N/A	0.00661		
74	0.4000	N/A	N/A	N/A	0.00731		
75	1.0000	N/A	N/A	N/A	N/A		

Table A-10
Rate of Separation from Active Service
Safety & Probation Plans – Male

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00037	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00038	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00039	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00040	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00041	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00041	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00042	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00043	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00044	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00045	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00047	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00049	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00050	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00053	20 & Above ⁽³⁾	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00056		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00059		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00062		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00067		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00071		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00076		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00082		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00088		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00095		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00102		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00111		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00120		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00129		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00140		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00151		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00162		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00175		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00190		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00205		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00223		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00243		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00264		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00288		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00315		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00344		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00375		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).

3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

Table A-11
Rate of Separation from Active Service
Safety & Probation Plans – Female

Age	Service Retirement ⁽¹⁾⁽²⁾		Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
	Plans 1, 2, 4	Plans 5, 6, 7						
18	0.00000	0.00000	0.00150	0.00000	0.00010	0.00014	0	0.10000
19	0.00000	0.00000	0.00150	0.00000	0.00010	0.00015	1	0.08000
20	0.00000	0.00000	0.00150	0.00000	0.00010	0.00016	2	0.06000
21	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	3	0.04500
22	0.00000	0.00000	0.00150	0.00000	0.00010	0.00017	4	0.03500
23	0.00000	0.00000	0.00150	0.00000	0.00010	0.00018	5	0.03000
24	0.00000	0.00000	0.00150	0.00000	0.00010	0.00019	6	0.02600
25	0.00000	0.00000	0.00150	0.00000	0.00010	0.00020	7	0.02300
26	0.00000	0.00000	0.00150	0.00000	0.00010	0.00021	8	0.02100
27	0.00000	0.00000	0.00150	0.00000	0.00010	0.00022	9	0.01900
28	0.00000	0.00000	0.00150	0.00000	0.00010	0.00024	10	0.01700
29	0.00000	0.00000	0.00150	0.00000	0.00010	0.00025	11	0.01500
30	0.00000	0.00000	0.00170	0.00000	0.00010	0.00027	12	0.01350
31	0.00000	0.00000	0.00190	0.00000	0.00010	0.00028	13	0.01200
32	0.00000	0.00000	0.00210	0.00000	0.00010	0.00030	14	0.01100
33	0.00000	0.00000	0.00230	0.00000	0.00010	0.00032	15	0.01000
34	0.00000	0.00000	0.00250	0.00000	0.00010	0.00034	16	0.00900
35	0.00000	0.00000	0.00270	0.00000	0.00010	0.00036	17	0.00800
36	0.00000	0.00000	0.00290	0.00000	0.00010	0.00038	18	0.00700
37	0.00000	0.00000	0.00310	0.00000	0.00010	0.00041	19	0.00600
38	0.00000	0.00000	0.00330	0.00000	0.00010	0.00043	20 & Above ⁽³⁾	0.00500
39	0.00000	0.00000	0.00350	0.00000	0.00010	0.00046		
40	0.00000	0.00000	0.00370	0.00000	0.00010	0.00049		
41	0.00000	0.00000	0.00390	0.00000	0.00010	0.00052		
42	0.00000	0.00000	0.00410	0.00000	0.00010	0.00056		
43	0.00000	0.00000	0.00430	0.00000	0.00010	0.00059		
44	0.00000	0.00000	0.00450	0.00000	0.00010	0.00063		
45	0.05000	0.00000	0.00470	0.00000	0.00010	0.00067		
46	0.05000	0.00000	0.00490	0.00000	0.00010	0.00071		
47	0.05000	0.00000	0.00520	0.00000	0.00010	0.00076		
48	0.05000	0.00000	0.00550	0.00000	0.00010	0.00080		
49	0.11000	0.00000	0.00580	0.00000	0.00010	0.00085		
50	0.22500	0.18000	0.00750	0.00000	0.00010	0.00091		
51	0.16000	0.12800	0.00920	0.00000	0.00010	0.00097		
52	0.16000	0.12800	0.01090	0.00000	0.00010	0.00103		
53	0.22000	0.17600	0.01260	0.00000	0.00010	0.00109		
54	0.22000	0.17600	0.01430	0.00000	0.00010	0.00116		
55	0.25000	0.20000	0.01600	0.00000	0.00010	0.00123		
56	0.25000	0.20000	0.01770	0.00000	0.00010	0.00131		
57	0.25000	0.25000	0.01940	0.00000	0.00010	0.00140		
58	0.25000	0.25000	0.02110	0.00000	0.00010	0.00148		
59	0.25000	0.25000	0.02280	0.00000	0.00010	0.00158		
60	0.40000	0.40000	0.02080	0.00000	0.00010	0.00168		
61	0.40000	0.40000	0.01880	0.00000	0.00010	0.00178		
62	0.40000	0.40000	0.01680	0.00000	0.00010	0.00190		
63	0.40000	0.40000	0.01480	0.00000	0.00010	0.00202		
64	0.40000	0.40000	0.01280	0.00000	0.00010	0.00215		
65	1.00000	1.00000	N/A	N/A	N/A	N/A		

1. 100% probability of retirement is assumed as follows:

- with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.
- at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5.
- at ages 55 and above with 38 or more years of service for Safety and Probation Plan 6.
- at ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

2. Service retirement rates vary by years of service (40% of these rates are applicable at less than 15 years of service; 90% at 15 to 19 years of service; 120% at 20 to 24 years of service; 170% at 25 or more years of service).

3. 0.00% probability of termination with 20 years of service and above for all Safety/Probation plans except Plan 7.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 6.1

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer



SUBJECT: Preliminary Monthly Portfolio Performance Report for the Period Ended June 30, 2020

Recommendation

Accept the preliminary performance report dated June 30, 2020.

Background

This preliminary report is intended to provide a high-level view of the portfolio and its trends. It is not intended to provide short-term performance upon which the Board would act. The quarterly performance metrics are not yet available for our private equity, private credit, private real asset, and real estate portfolios. The performance for these portfolios will be reflected in the quarterly performance report generated by Verus.

The attached performance report shows both net and gross of fee returns for the total plan on page one, with net composite returns (pages 2-3) and net manager returns (pages 4-11) also shown.

Discussion

The fund's net preliminary return for June was 1.8%, bringing the preliminary trailing twelve-month net return ending June 2020 to 0.70%. The preliminary twelve-month net return is below SamCERA's Plan Benchmark return of +2.0% and SamCERA's Actuarial Assumed Earnings Rate of 6.5%.

Global markets continued their risk-on rally on the back of unprecedented monetary and fiscal stimulus. The U.S. equity market (measured by the S&P 500 Index) was up 2% (-3.1% YTD). Small-cap stocks were up 3.5% (-13% YTD). International markets were also higher on the month. Developed international equity (as measured by MSCI EAFE) was up 3.4% (-11.3% YTD), while emerging markets were up 7.4% (-9.8% YTD).

Economic data continued to slowly improve, resulting in some green-shoots and reflecting potential recovery from the COVID-19 lockdown. Consumer confidence was higher and manufacturing activity was stronger during the month. Also, unemployment declined from 13.3% in May to 11.1% in June.

The general U.S. fixed income market was higher by 0.6%, as credit spreads narrowed while interest rates were range-bound during the month. The 10-year U.S. Treasury yield was unchanged

during the month and ended at 0.65% by month-end. High Yield fixed income returns were up 1% as credit spreads narrowed.

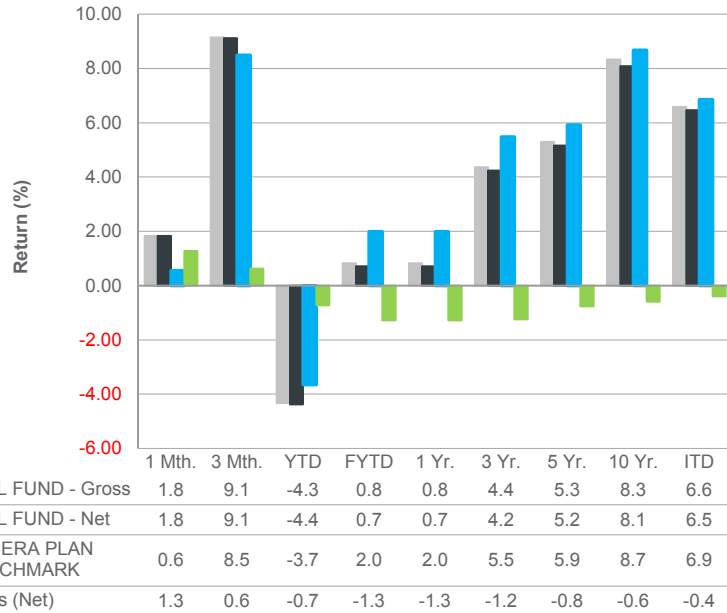
Attachments

Northern Trust Monthly Preliminary Performance Report
Verus Capital Market Update

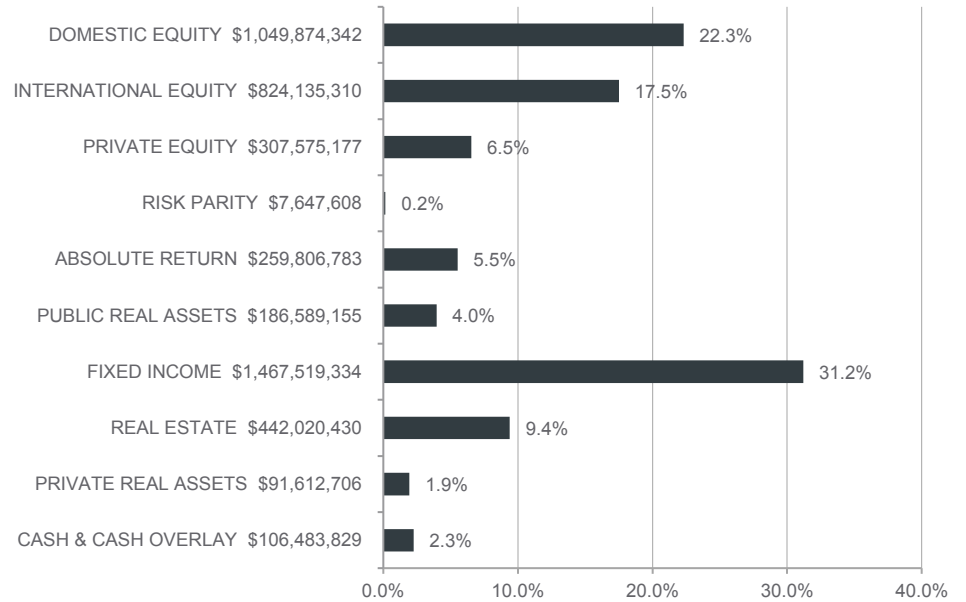
San Mateo County Composite Return Summary June 30, 2020



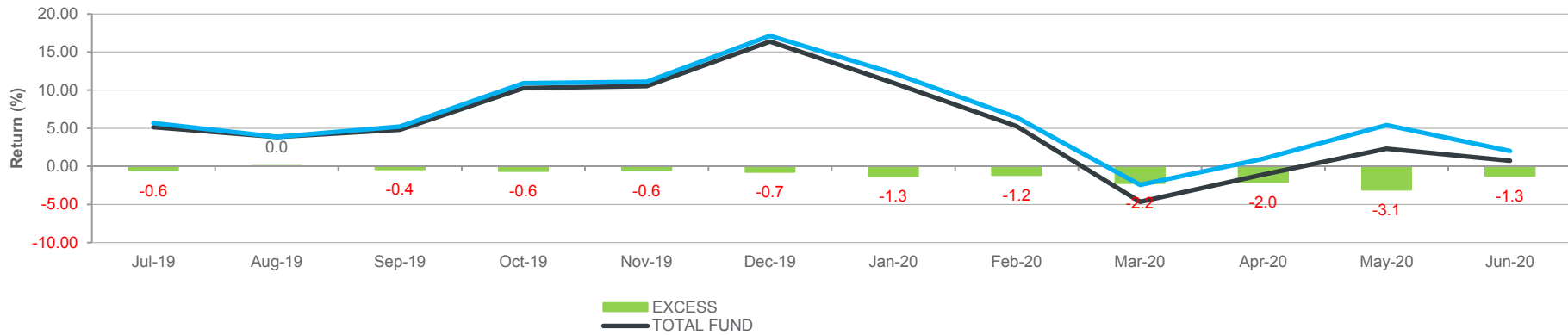
Total Fund Performance



Asset Allocation

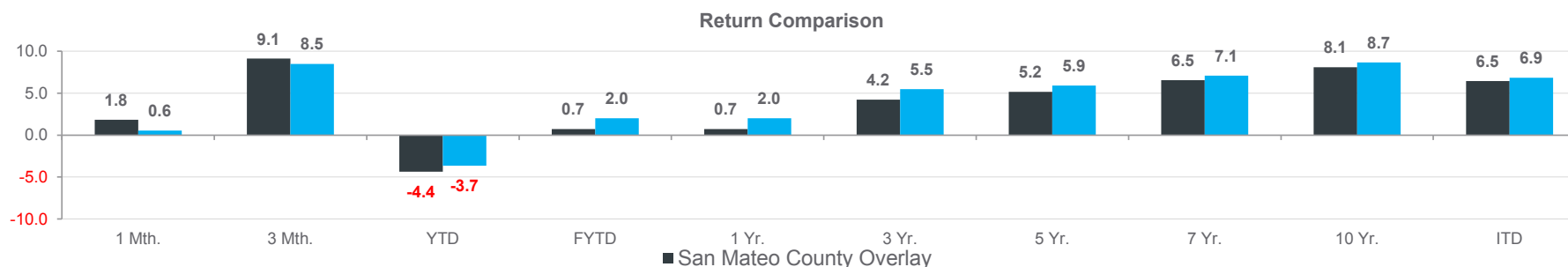


Rolling Month End Annual Returns



San Mateo County Composite Return Summary

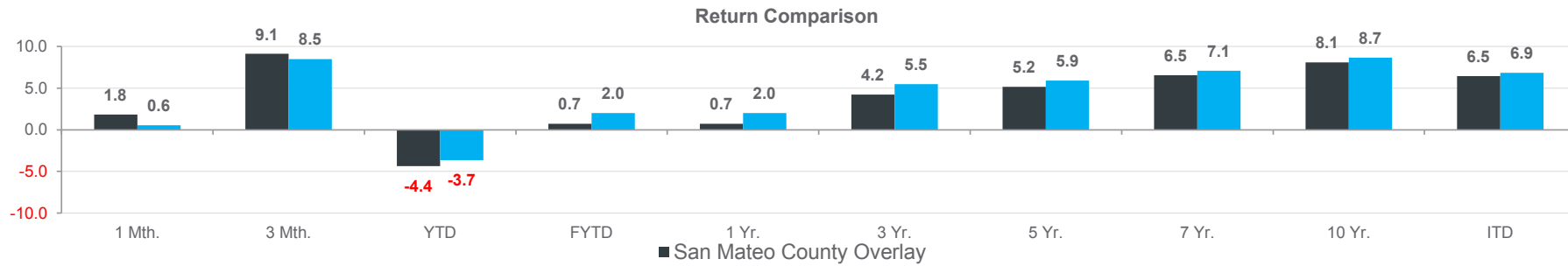
June 30, 2020



Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County Overlay	4,703,704,611	1.8	9.1	-4.4	0.7	0.7	4.2	5.2	6.5	8.1	6.5
Samcera Total Plan Benchmark		0.6	8.5	-3.7	2.0	2.0	5.5	5.9	7.1	8.7	6.9
Excess		1.3	0.6	-0.7	-1.3	-1.3	-1.2	-0.8	-0.6	-0.6	-0.4
San Mateo Ex-Clifton Overlay	4,685,298,997	1.8	8.9	-4.4	0.7	0.7	4.1	5.1	6.4	8.0	6.4
Samcera Total Plan Benchmark		0.6	8.5	-3.7	2.0	2.0	5.5	5.9	7.1	8.7	6.9
Excess		1.2	0.4	-0.7	-1.3	-1.3	-1.4	-0.9	-0.7	-0.7	-0.5
Total Equity	1,874,009,652	3.3	18.9	-6.8	1.4	1.4	5.7	6.6	8.3	10.1	7.5
Samcera Total Equity Benchmark		3.0	19.3	-6.3	2.1	2.1	6.2	7.5	9.3	11.0	8.1
Excess		0.2	-0.4	-0.4	-0.7	-0.7	-0.5	-0.9	-1.1	-0.9	-0.6
Fixed Income	1,467,519,334	1.2	3.5	2.2	4.4	4.4	4.1	4.4	4.3	5.0	5.5
Samcera Fixed Income Benchmark		0.6	5.1	3.3	6.4	6.4	4.9	4.5	4.0	4.0	5.1
Excess		0.6	-1.6	-1.1	-2.0	-2.0	-0.8	-0.1	0.3	1.0	0.4
Risk Parity	7,647,608	-0.0	3.1	-8.5	-4.0	-4.0	4.3	4.5	5.6	--	5.5
Samcera Risk Parity Benchmark		1.9	12.8	-2.0	3.9	3.9	5.8	6.8	7.9	--	8.0
Excess		-1.9	-9.7	-6.5	-7.9	-7.9	-1.6	-2.2	-2.3	--	-2.5

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Alternatives	567,381,960	0.8	1.3	-2.7	3.3	3.3	3.5	4.5	5.3	-3.5	-1.7
Samcera Alternatives Benchmark		-6.5	-9.8	-4.7	0.0	0.0	6.3	6.5	7.3	9.0	7.2
Excess		7.3	11.0	2.0	3.2	3.2	-2.8	-2.0	-2.0	-12.5	-8.9
Inflation Hedge	720,222,291	0.3	2.8	-10.1	-8.9	-8.9	-0.1	--	--	--	3.2
SamCERA Inflation Hedge Index		-0.7	2.4	-6.9	-4.2	-4.2	2.8	--	--	--	4.3
Excess		1.0	0.4	-3.2	-4.6	-4.6	-2.9	--	--	--	-1.0
Cash	106,483,829	0.0	0.2	0.4	0.9	0.9	1.0	0.8	0.7	0.7	1.9
Samcera Cash Benchmark		0.0	0.0	0.6	1.6	1.6	1.8	1.2	0.9	0.6	1.8
Excess		0.0	0.1	-0.2	-0.7	-0.7	-0.8	-0.4	-0.1	0.1	0.0

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	1,874,009,652	3.3	18.9	-6.8	1.4	1.4	5.7	6.6	8.3	10.1	7.5
Samcera Total Equity Benchmark		3.0	19.3	-6.3	2.1	2.1	6.2	7.5	9.3	11.0	8.1
Excess		0.2	-0.4	-0.4	-0.7	-0.7	-0.5	-0.9	-1.1	-0.9	-0.6
Domestic Equity	1,049,874,342	1.6	19.9	-6.0	2.9	2.9	8.5	8.9	10.6	12.8	8.5
Samcera Dom. Equity Benchmark		2.3	22.0	-3.5	6.5	6.5	10.0	9.9	11.5	13.6	9.0
Excess		-0.7	-2.1	-2.5	-3.6	-3.6	-1.6	-0.9	-0.9	-0.9	-0.5
Large Cap Equity	971,144,509	1.4	19.5	-4.7	4.4	4.4	9.6	10.1	11.6	13.4	9.3
Russell 1000		2.2	21.8	-2.8	7.5	7.5	10.6	10.5	12.0	14.0	9.7
Excess		-0.8	-2.3	-1.9	-3.0	-3.0	-1.0	-0.4	-0.4	-0.6	-0.4
Blackrock Russell 1000	508,417,715	2.3	22.0	-2.7	7.7	7.7	10.7	--	--	--	11.6
Russell 1000		2.2	21.8	-2.8	7.5	7.5	10.6	--	--	--	11.5
Excess		0.1	0.2	0.2	0.2	0.2	0.0	--	--	--	0.1
DE Shaw Commingled Fund	151,718,939	2.0	20.2	-5.4	4.5	4.5	9.4	10.2	--	--	9.9
Russell 1000		2.2	21.8	-2.8	7.5	7.5	10.6	10.5	--	--	9.8
Excess		-0.2	-1.6	-2.6	-3.0	-3.0	-1.3	-0.3	--	--	0.1
Acadian US MGD V-SL	152,777,264	-0.9	14.7	-9.9	-2.5	-2.5	--	--	--	--	9.6
Russell 1000		2.2	21.8	-2.8	7.5	7.5	--	--	--	--	18.2
Excess		-3.1	-7.2	-7.0	-10.0	-10.0	--	--	--	--	-8.6
Panagora Defuseq -SL	158,230,591	0.0	15.6	-8.6	-2.6	-2.6	--	--	--	--	13.0
Russell 1000		2.2	21.8	-2.8	7.5	7.5	--	--	--	--	18.2
Excess		-2.2	-6.2	-5.8	-10.1	-10.1	--	--	--	--	-5.3
Domestic Equity Overlay	6,281,160	6.8	--	--	--	--	--	--	--	--	--
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		6.8	--	--	--	--	--	--	--	--	--
Small Cap Equity	72,448,673	3.4	24.5	-21.2	-14.6	-14.6	-3.2	-0.3	3.3	8.0	5.0
Russell 2000		3.5	25.4	-13.0	-6.6	-6.6	2.0	4.3	7.2	10.5	7.0
Excess		-0.1	-0.9	-8.3	-8.0	-8.0	-5.2	-4.5	-3.9	-2.5	-2.0

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
QMA US Small Cap	72,448,673	3.4	24.5	-21.2	-14.6	-14.6	-3.2	--	--	--	1.7
Russell 2000		3.5	25.4	-13.0	-6.6	-6.6	2.0	--	--	--	5.5
Excess		-0.1	-0.9	-8.3	-8.0	-8.0	-5.2	--	--	--	-3.8
International Equity	824,135,310	5.4	17.7	-7.7	-0.3	-0.3	2.5	3.5	4.7	5.5	5.2
SamCERA Custom Hedge Intl		4.0	15.9	-9.8	-3.1	-3.1	1.6	2.7	4.1	5.3	4.6
Excess		1.4	1.8	2.1	2.8	2.8	0.9	0.9	0.6	0.2	0.5
Baillie Gifford	290,983,967	5.0	25.8	0.9	12.4	12.4	7.3	7.2	7.9	--	8.2
MSCI ACWI ex USA Growth		5.1	19.2	-2.4	6.1	6.1	6.4	6.0	6.7	--	--
Excess		-0.1	6.5	3.4	6.2	6.2	0.9	1.2	1.2	--	--
Blackrock EAFE Index Fund	0	7.6	19.6	-7.6	-1.0	-1.0	2.5	3.2	--	--	2.6
MSCI EAFE ND		3.4	14.9	-11.3	-5.1	-5.1	0.8	2.1	--	--	1.6
Excess		4.2	4.8	3.8	4.1	4.1	1.7	1.1	--	--	0.9
Blackrock MSCI ACWI ex US IMI	282,258,931	-3.3	--	--	--	--	--	--	--	--	-3.3
MS AC WldxUS IMI Nt		4.4	--	--	--	--	--	--	--	--	4.4
Excess		-7.7	--	--	--	--	--	--	--	--	-7.7
Mondrian Investment Partners	246,820,176	7.7	15.0	-16.3	-9.8	-9.8	-1.5	0.6	2.5	4.5	4.2
MSCI ACWI xUSA Value		4.0	13.0	-19.2	-14.8	-14.8	-3.4	-0.7	1.5	3.4	3.7
Excess		3.7	2.0	2.9	4.9	4.9	1.9	1.3	1.0	1.1	0.5
EV Parametric EM	255	16.3	33.2	-7.7	-4.5	-4.5	0.5	--	--	--	3.2
MSCI Emerging Markets GD		7.4	18.2	-9.7	-3.0	-3.0	2.3	--	--	--	4.8
Excess		8.9	15.0	2.0	-1.5	-1.5	-1.7	--	--	--	-1.6
Int'l Equity Currency Overlay	0	--	--	--	--	--	--	--	--	--	--
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		--	--	--	--	--	--	--	--	--	--
Futures	295,605,253	1.1	--	--	--	--	--	--	--	--	1.3
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		1.0	--	--	--	--	--	--	--	--	1.3

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Futures Offset	295,605,253	0.0	--	--	--	--	--	--	--	--	0.0
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		-0.0	--	--	--	--	--	--	--	--	-0.0
International Equity Overlay	4,071,981	7.8	--	--	--	--	--	--	--	--	12.2
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		7.8	--	--	--	--	--	--	--	--	12.2
Fixed Income	1,467,519,334	1.2	3.5	2.2	4.4	4.4	4.1	4.4	4.3	5.0	5.5
Samcera Fixed Income Benchmark		0.6	5.1	3.3	6.4	6.4	4.9	4.5	4.0	4.0	5.1
Excess		0.6	-1.6	-1.1	-2.0	-2.0	-0.8	-0.1	0.3	1.0	0.4
Core Fixed Income	1,001,128,404	1.2	4.3	4.9	7.5	7.5	4.7	4.5	4.4	4.6	5.4
BBG Barclays US Aggregate		0.6	2.9	6.1	8.7	8.7	5.3	4.3	4.0	3.8	5.1
Excess		0.6	1.4	-1.3	-1.2	-1.2	-0.6	0.2	0.4	0.8	0.3
FIAM Core Bond	254,181,628	1.6	5.8	6.9	9.9	9.9	5.9	4.9	4.6	4.6	5.1
BBG Barclays US Aggregate		0.6	2.9	6.1	8.7	8.7	5.3	4.3	4.0	3.8	4.6
Excess		1.0	2.9	0.7	1.1	1.1	0.6	0.6	0.6	0.8	0.5
Western Total Return	167,628,873	2.1	9.4	-0.1	4.0	4.0	3.4	--	--	--	4.2
BBG Barclays US Aggregate		0.6	2.9	6.1	8.7	8.7	5.3	--	--	--	4.2
Excess		1.5	6.5	-6.3	-4.7	-4.7	-2.0	--	--	--	0.0
Blackrock Inter Gov	140,187,907	0.1	0.7	5.9	7.2	7.2	4.3	--	--	--	4.0
BBG Barclays US Aggregate		0.6	2.9	6.1	8.7	8.7	5.3	--	--	--	5.3
Excess		-0.5	-2.2	-0.2	-1.5	-1.5	-1.1	--	--	--	-1.3
DoubleLine	207,139,743	1.4	3.3	--	--	--	--	--	--	--	3.6
BBG Barclays US Aggregate		0.6	2.9	--	--	--	--	--	--	--	2.3
Excess		0.8	0.4	--	--	--	--	--	--	--	1.3
NISA Core Bond	202,783,331	0.7	--	--	--	--	--	--	--	--	1.6
BBG Barclays US Aggregate		0.6	--	--	--	--	--	--	--	--	1.1
Excess		0.1	--	--	--	--	--	--	--	--	0.5

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Core Fixed Income Overlay	29,206,922	1.0	--	--	--	--	--	--	--	--	0.6
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		1.0	--	--	--	--	--	--	--	--	0.6
Opportunistic Credit	466,390,930	1.2	1.9	-3.2	-1.6	-1.6	3.1	4.9	5.5	7.6	8.0
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	5.1	5.4	6.6	6.9
Excess		0.7	-8.2	-2.3	-4.8	-4.8	-1.3	-0.2	0.1	0.9	1.1
Pimco Private Income	37,495,209	0.0	-5.9	-4.3	-1.4	-1.4	--	--	--	--	-1.1
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	--	--	--	--	4.9
Excess		-0.6	-16.0	-3.4	-4.6	-4.6	--	--	--	--	-6.1
AG CREDIT SOL FU LP	10,962,280	0.0	-8.1	6.2	--	--	--	--	--	--	6.2
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	--	--	--	--	--	--	-0.9
Excess		-0.6	-18.2	7.2	--	--	--	--	--	--	7.2
AG CSF ANX DISLOC FD	13,250,000	0.0	0.0	--	--	--	--	--	--	--	0.0
BB Barc BA Intermediate HY Ind		0.6	10.1	--	--	--	--	--	--	--	10.1
Excess		-0.6	-10.1	--	--	--	--	--	--	--	-10.1
AG Opportunistic Whole Loan	3,063,365	-24.2	-24.2	-22.3	-14.5	-14.5	8.3	8.2	--	--	6.2
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	5.1	--	--	4.7
Excess		-24.8	-34.4	-21.4	-17.8	-17.8	4.0	3.1	--	--	1.6
Angelo Gordon	1,955,124	0.0	-16.3	-14.3	-5.3	-5.3	15.0	12.1	12.0	--	11.8
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	5.1	5.4	--	5.1
Excess		-0.6	-26.4	-13.3	-8.5	-8.5	10.7	7.0	6.6	--	6.7
Blackrock Direct Lending Feede	3,495,374	-0.5	-0.5	-7.5	-7.5	-7.5	--	--	--	--	-6.9
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	--	--	--	--	5.4
Excess		-1.1	-10.6	-6.5	-10.7	-10.7	--	--	--	--	-12.3
Beach Point Select Fund	62,964,674	2.5	-3.7	-2.8	-0.3	-0.3	4.0	5.9	--	--	6.5
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	5.1	--	--	5.0
Excess		1.9	-13.8	-1.8	-3.5	-3.5	-0.4	0.7	--	--	1.5

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Brigade Cap Mngmt	84,304,302	3.6	10.4	-6.9	-7.3	-7.3	-0.3	2.6	3.0	--	5.0
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	5.1	5.4	--	6.3
Excess		3.0	0.3	-6.0	-10.5	-10.5	-4.6	-2.5	-2.3	--	-1.4
White Oak Yield Spec	31,881,588	0.0	-0.9	1.4	4.5	4.5	5.1	--	--	--	--
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	--	--	--	4.8
Excess		-0.6	-11.0	2.4	1.3	1.3	0.8	--	--	--	--
PIMCO Div. Income Fund	125,154,334	1.4	7.1	-0.9	1.9	1.9	--	--	--	--	4.1
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	--	--	--	--	4.1
Excess		0.8	-3.0	-0.0	-1.3	-1.3	--	--	--	--	-0.0
TCP Direct Lending VIII	33,317,990	1.5	-1.8	0.4	2.5	2.5	5.0	--	--	--	--
BB Barc BA Intermediate HY Ind		0.6	10.1	-0.9	3.2	3.2	4.3	--	--	--	5.6
Excess		0.9	-12.0	1.3	-0.7	-0.7	0.6	--	--	--	--
Franklin Templeton	58,546,690	-0.4	0.0	-5.7	-7.6	-7.6	-1.7	0.4	1.1	--	2.6
BB Barclays Multiverse Index		0.9	3.7	2.5	3.8	3.8	3.7	3.6	2.6	--	2.5
Excess		-1.3	-3.6	-8.2	-11.5	-11.5	-5.4	-3.3	-1.5	--	0.1
Risk Parity	7,647,608	-0.0	3.1	-8.5	-4.0	-4.0	4.3	4.5	5.6	--	5.5
Samcera Risk Parity Benchmark		1.9	12.8	-2.0	3.9	3.9	5.8	6.8	7.9	--	8.0
Excess		-1.9	-9.7	-6.5	-7.9	-7.9	-1.6	-2.2	-2.3	--	-2.5
AQR Global Risk III	4,012,802	-0.0	1.8	-11.2	-6.0	-6.0	4.0	3.4	4.3	--	4.5
Samcera Risk Parity Benchmark		1.9	12.8	-2.0	3.9	3.9	5.8	6.8	7.9	--	8.0
Excess		-1.9	-11.0	-9.2	-9.9	-9.9	-1.8	-3.3	-3.6	--	-3.5
Panagora	3,634,806	0.0	4.3	-5.2	-1.5	-1.5	4.8	5.7	--	--	5.4
Samcera Risk Parity Benchmark		1.9	12.8	-2.0	3.9	3.9	5.8	6.8	--	--	6.5
Excess		-1.9	-8.4	-3.3	-5.3	-5.3	-1.1	-1.1	--	--	-1.1
Alternatives	567,381,960	0.8	1.3	-2.7	3.3	3.3	3.5	4.5	5.3	-3.5	-1.7
Samcera Alternatives Benchmark		-6.5	-9.8	-4.7	0.0	0.0	6.3	6.5	7.3	9.0	7.2
Excess		7.3	11.0	2.0	3.2	3.2	-2.8	-2.0	-2.0	-12.5	-8.9

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Private Equity	307,575,177	1.4	1.4	5.5	19.2	19.2	14.4	13.6	15.3	--	-13.2
Samcera PE Benchmark		2.5	22.9	-2.0	9.7	9.7	13.3	13.3	15.0	--	15.8
Excess		-1.1	-21.4	7.6	9.5	9.5	1.1	0.3	0.4	--	-29.0
Absolute Return	259,806,783	0.1	0.5	-12.0	-13.6	-13.6	-7.8	-2.6	-0.1	--	0.5
Samcera LIBOR + 4%		0.3	1.1	2.6	5.6	5.6	5.8	5.3	5.0	--	4.8
Excess		-0.2	-0.6	-14.5	-19.2	-19.2	-13.6	-7.9	-5.0	--	-4.3
AQR Delta XN	41,109,795	0.0	-5.6	-26.6	-30.4	-30.4	-16.5	-8.1	-4.2	--	-2.7
Samcera LIBOR + 4%		0.3	1.1	2.6	5.6	5.6	5.8	5.3	5.0	--	4.8
Excess		-0.3	-6.7	-29.1	-36.1	-36.1	-22.3	-13.4	-9.1	--	-7.5
Aberdeen Std GARS	75,460,767	1.2	2.6	0.3	3.2	3.2	1.8	--	--	--	1.0
Samcera LIBOR + 4%		0.3	1.1	2.6	5.6	5.6	5.8	--	--	--	5.4
Excess		0.8	1.5	-2.2	-2.4	-2.4	-4.0	--	--	--	-4.4
Graham Global Investment	72,967,730	1.6	2.1	--	--	--	--	--	--	--	-2.7
Samcera LIBOR +4%		0.3	1.1	--	--	--	--	--	--	--	2.1
Excess		1.2	1.0	--	--	--	--	--	--	--	-4.8
PIMCO MAARS Fund L.P.	70,268,492	-2.4	1.9	--	--	--	--	--	--	--	1.9
Samcera LIBOR +4%		0.3	1.1	--	--	--	--	--	--	--	1.1
Excess		-2.7	0.8	--	--	--	--	--	--	--	0.8
Inflation Hedge	720,222,291	0.3	2.8	-10.1	-8.9	-8.9	-0.1	--	--	--	3.2
SamCERA Inflation Hedge Index		-0.7	2.4	-6.9	-4.2	-4.2	2.8	--	--	--	4.3
Excess		1.0	0.4	-3.2	-4.6	-4.6	-2.9	--	--	--	-1.0
Real Estate	442,020,430	0.0	1.3	3.4	5.6	5.6	6.7	--	--	--	7.8
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	3.9	3.9	6.4	--	--	--	7.0
Excess		0.0	1.3	2.5	1.7	1.7	0.3	--	--	--	0.8
Invesco Core Real Estate	277,783,341	0.0	1.6	3.8	5.7	5.7	6.8	7.8	9.5	11.1	7.7
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	3.9	3.9	6.4	7.9	9.5	11.1	7.5
Excess		0.0	1.6	2.9	1.8	1.8	0.3	-0.1	-0.0	0.1	0.2

San Mateo County Composite Return Summary

June 30, 2020



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Invesco US Val IV	15,275,290	0.0	0.7	5.4	11.9	11.9	12.2	--	--	--	12.2
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	3.9	3.9	6.4	--	--	--	7.8
Excess		0.0	0.7	4.5	8.0	8.0	5.8	--	--	--	4.3
PGIM Real Estate US Debt Fund	85,182,676	0.0	1.1	2.5	4.2	4.2	4.6	--	--	--	4.6
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	3.9	3.9	6.4	--	--	--	6.4
Excess		0.0	1.1	1.6	0.3	0.3	-1.8	--	--	--	-1.8
Invesco US VAL V	13,324,685	0.0	0.8	5.7	12.1	12.1	--	--	--	--	5.2
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	3.9	3.9	--	--	--	--	--
Excess		0.0	0.8	4.7	8.3	8.3	--	--	--	--	--
Harrison Street Core Property	50,454,438	0.0	0.9	0.9	--	--	--	--	--	--	0.9
Samcera NCREIF ODCE EW (gross)		0.0	0.0	0.9	--	--	--	--	--	--	0.9
Excess		0.0	0.9	0.0	--	--	--	--	--	--	0.0
Public Real Assets	186,589,155	1.2	11.3	-27.4	-26.4	-26.4	-7.0	--	--	--	--
SamCera Liquid Real Asset Inde		1.2	12.6	-17.6	-15.0	-15.0	-1.6	--	--	--	2.4
Excess		-0.0	-1.3	-9.8	-11.5	-11.5	-5.4	--	--	--	--
CUSHING MLP ALPHA TR	0	--	--	--	--	--	--	--	--	--	--
50% BC US TIPS/50% SamCERA CRA		--	--	--	--	--	--	--	--	--	--
Excess		--	--	--	--	--	--	--	--	--	--
SSGA CST REAL ASSET NL	186,589,155	1.2	11.4	-18.1	-15.6	-15.6	-2.0	--	--	--	--
SamCera Liquid Real Asset Inde		1.2	12.6	-17.6	-15.0	-15.0	-1.6	--	--	--	0.5
Excess		-0.0	-1.2	-0.5	-0.7	-0.7	-0.5	--	--	--	--
Private Real Assets	91,612,706	-0.0	-6.8	-5.1	-6.7	-6.7	-5.9	--	--	--	5.5
SamCERA Private Real Asset Idx		-9.7	-15.5	-12.5	-11.6	-11.6	-0.8	--	--	--	2.7
Excess		9.7	8.7	7.5	5.0	5.0	-5.1	--	--	--	2.8
Currency Hedge Cash Overlay	18,405,614	0.1	--	--	--	--	--	--	--	--	0.1
ICE BofAML US 3-Month Treasury Bill		0.0	--	--	--	--	--	--	--	--	0.0
Excess		0.0	--	--	--	--	--	--	--	--	0.1

San Mateo County Composite Return Summary

June 30, 2020

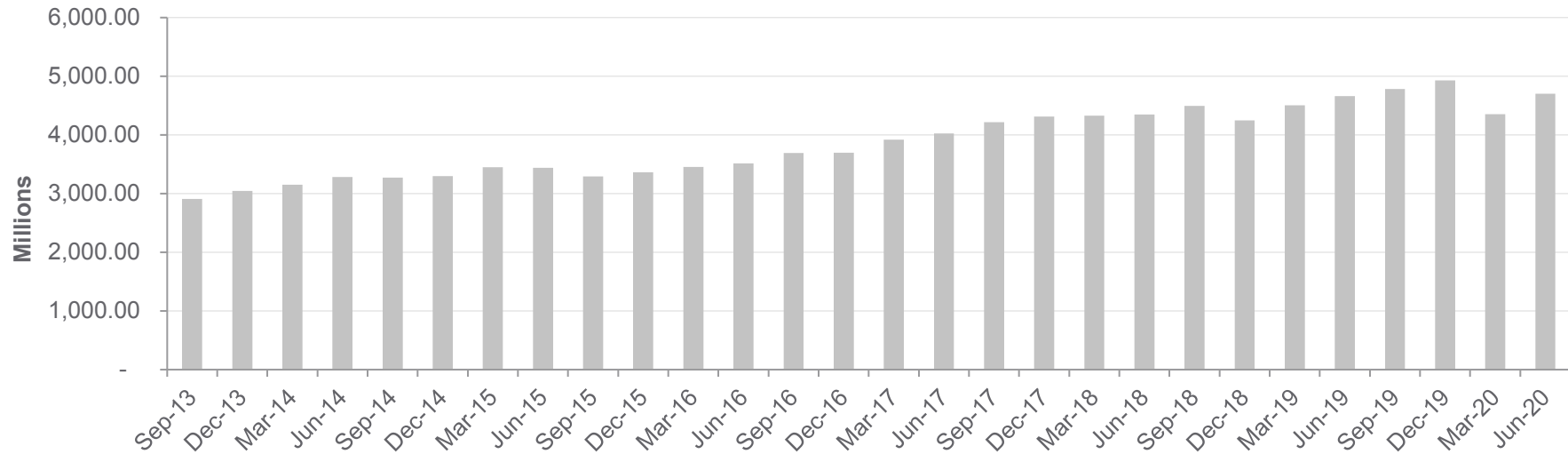


Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
General Account	17,984,963	0.0	0.1	0.5	1.6	1.6	1.8	1.3	1.0	0.8	2.0
Transition Account	5,026	--	--	--	--	--	--	--	--	--	--
County Treasury Pool	35,394,587	0.0	0.5	0.7	1.7	1.7	1.7	1.3	1.2	1.1	2.6
Cash Overlay	34,693,639	0.0	--	--	--	--	--	--	--	--	0.1
San Mateo County Overlay	4,703,704,611	1.8	9.1	-4.4	0.7	0.7	4.2	5.2	6.5	8.1	6.5
Samcera Total Plan Benchmark		0.6	8.5	-3.7	2.0	2.0	5.5	5.9	7.1	8.7	6.9
Excess		1.3	0.6	-0.7	-1.3	-1.3	-1.2	-0.8	-0.6	-0.6	-0.4

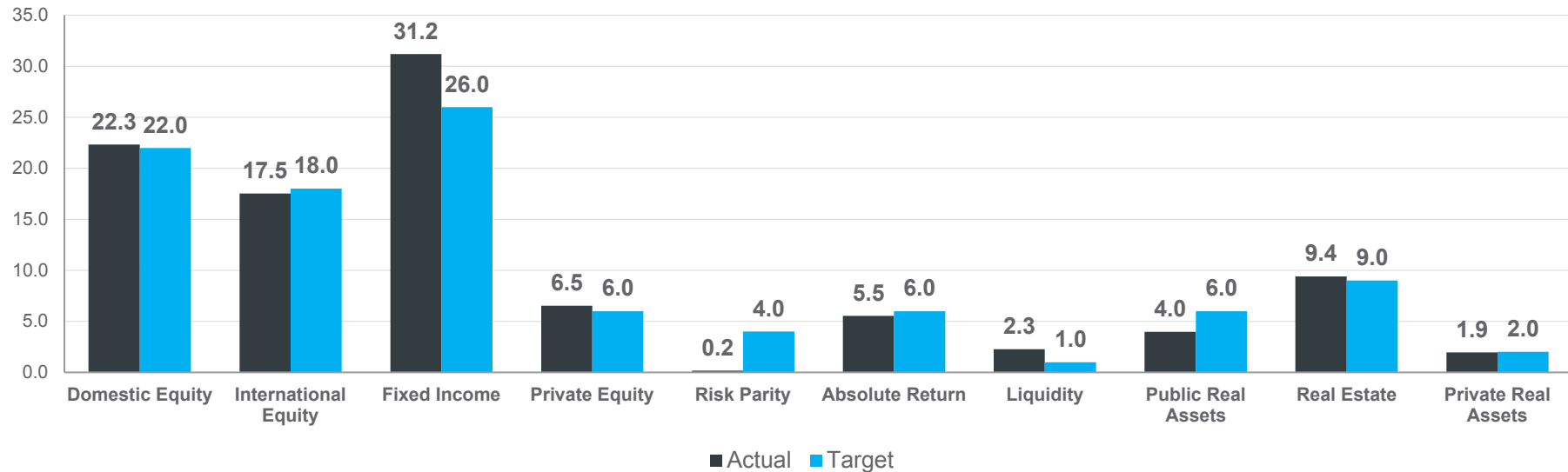
Record of Asset Growth

	Three Months	One Year
TOTAL FUND		
Beginning Market Value	4,352,029,594	4,663,332,993
Contributions	10,846,467	258,736,034
Withdrawals	-52,772,127	-248,726,442
Income Received	17,021,742	54,549,619
Gain/Loss	376,900,941	-22,979,526
Ending Market Value	4,703,704,611	4,703,704,611

Net Asset Values Over Time (\$000)

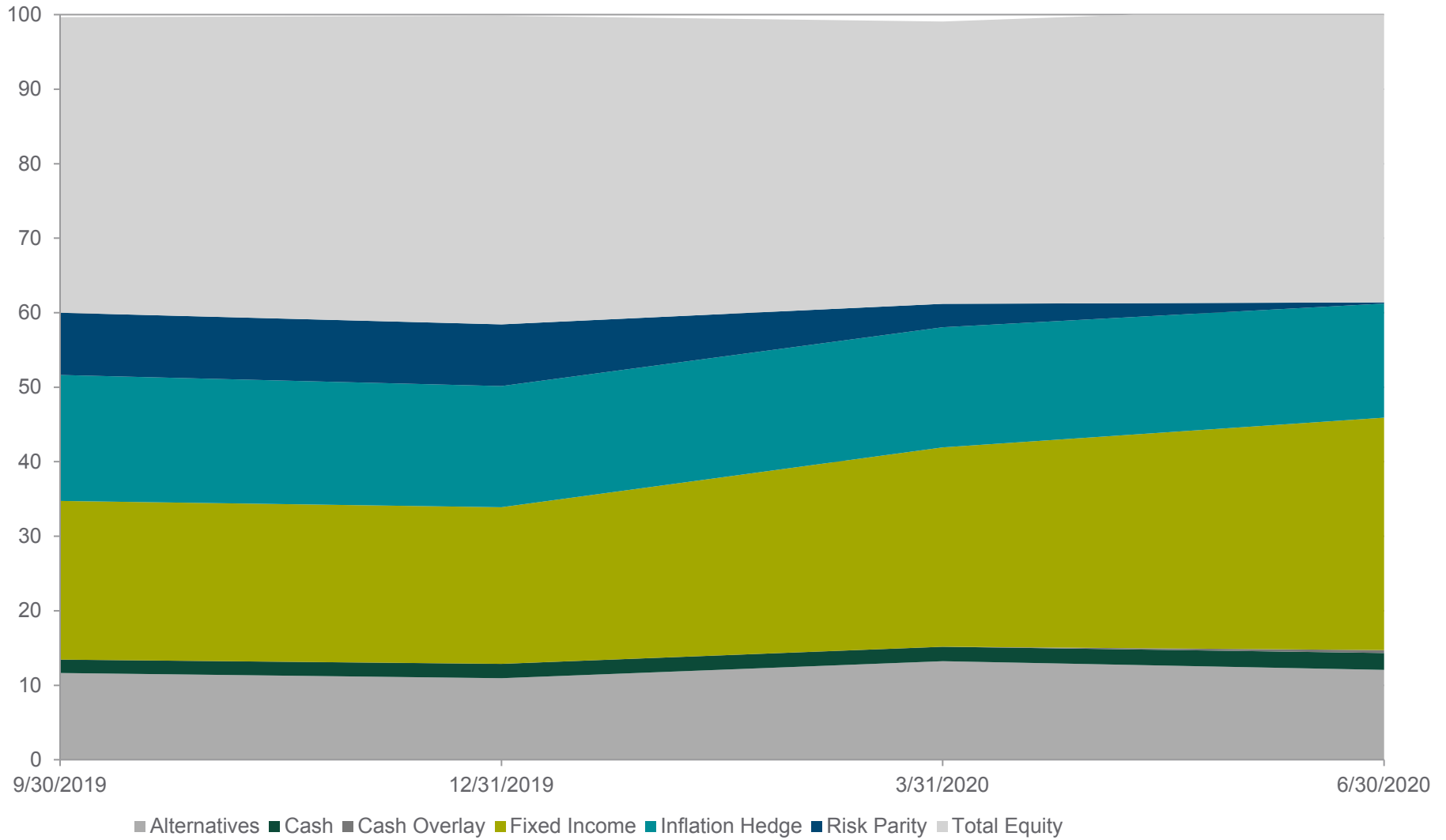


Actual vs Target Weights

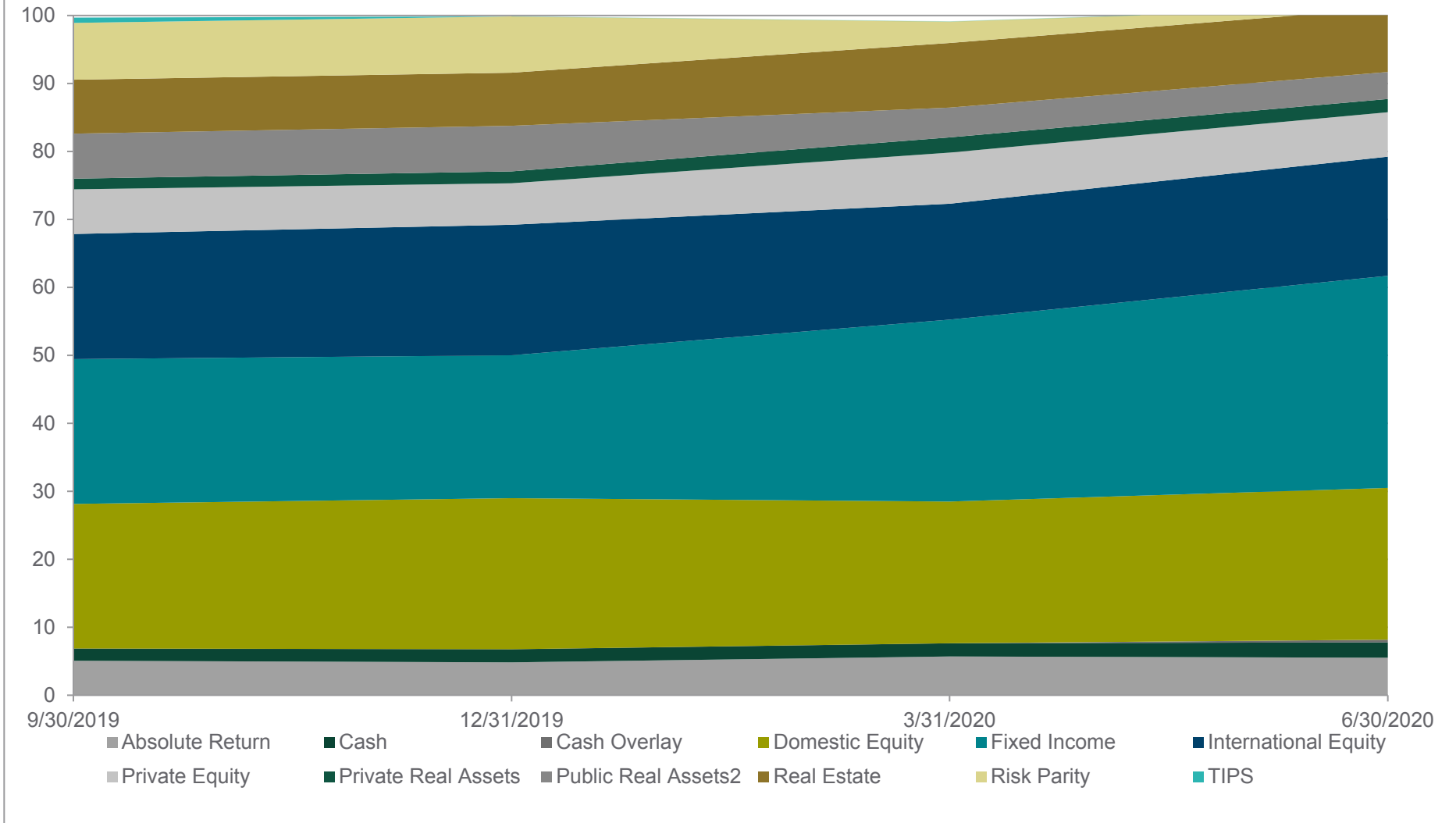


	Min	Actual	Target	Deviation	Max
Domestic Equity	20.0	22.3	22.0	0.3	24.0
International Equity	16.0	17.5	18.0	-0.5	20.0
Fixed Income	24.0	31.2	26.0	5.2	28.0
Private Equity	4.0	6.5	6.0	0.5	8.0
Risk Parity	2.0	0.2	4.0	-3.8	6.0
Absolute Return	4.0	5.5	6.0	-0.5	8.0
Liquidity	0.0	2.3	1.0	1.3	2.0
Public Real Assets	4.0	4.0	6.0	-2.0	8.0
Real Estate	7.0	9.4	9.0	0.4	11.0
Private Real Assets	0.0	1.9	2.0	-0.1	4.0

Asset Allocation over Time



Sub-Asset Class Allocation Over Time



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**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

JUNE 2020
Capital Markets Update

Market commentary

U.S. ECONOMICS

- The ISM Manufacturing PMI jumped from a contractionary level of 43.1 in May to 52.6 in June—its highest level since April 2019. This was the largest 1-month move since 1980. The new orders, production, and price components of the index rebounded to expansionary levels while employment and new export orders improved but remained in contractionary territory.
- In May, the Pending Home Sales Index increased 44.3% month-over-month, marking the largest gain since 2001. Pending home sales—a forward-looking economic indicator that tends to lead actual sales by about 45 to 60 days—remained down -10.4% year-over-year.
- Unemployment declined from 13.3% in May to 11.1% in June. The Congressional Budget Office estimated that the main jobless rate may end the year near 10.5%.

U.S. EQUITIES

- The S&P 500 Index ended the month of June up 2.0%. The S&P 500 Price Index hit intra-month highs of 3,232 on June 8th, which marked the first time the index achieved a positive year-to-date return since the sell-off began in February.
- As of June 29th there were 34 states with a COVID-19 reproductive rate above 1.0, an indication that the virus continues to spread. States in the South and in the Sun Belt are seeing a resurgence in cases, and are taking lockdown steps reminiscent of March and April, only weeks after state governors reopened their economies.
- According to FactSet, the estimated S&P 500 year-over-year decline in earnings for Q2 is -43.8%. If this decline were to materialize, it would mark the largest decline in earnings since Q4 2008 (-69.1%).

U.S. FIXED INCOME

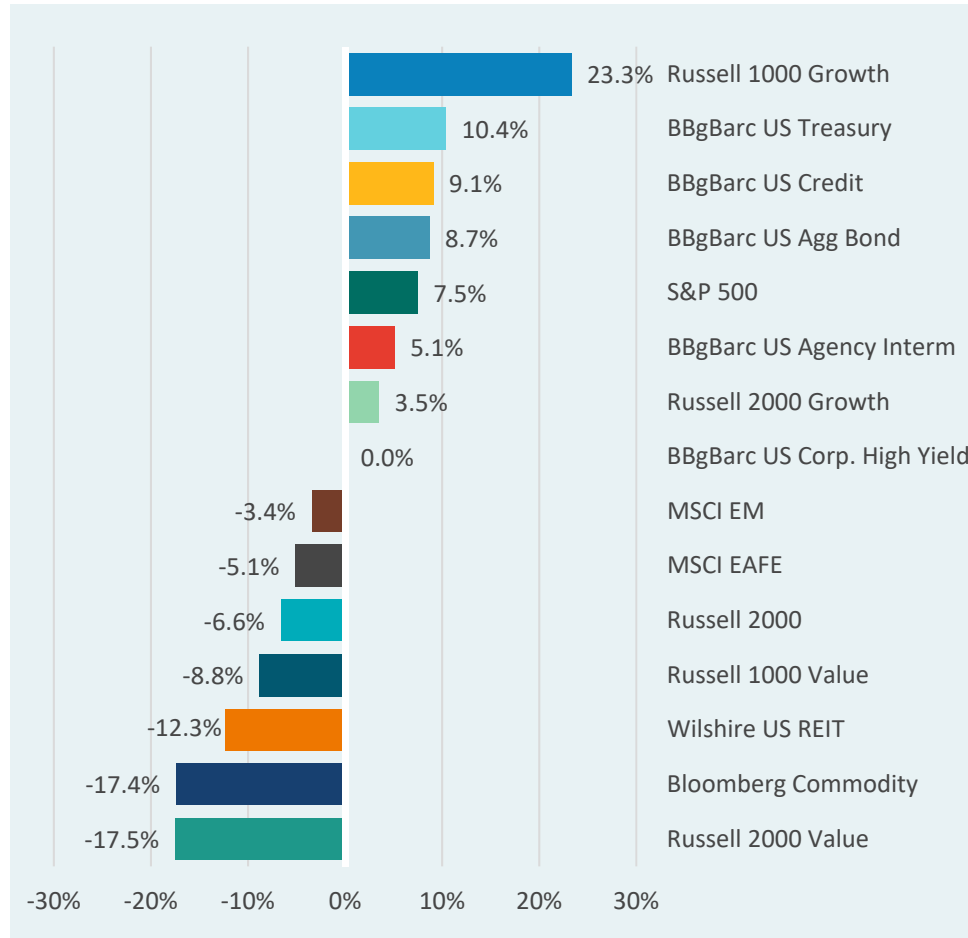
- The Federal Reserve is considering a new monetary policy tool to help keep interest rates low and strengthen short-term rate forward guidance with the use of yield-caps. Yield-curve control may be a way to hold bond yields low with less intervention.
- The Federal Reserve identified 794 companies whose bonds will be bought directly to support the market for corporate debt. The Fed now also owns \$6.8 billion in corporate bond ETFs, making it a top 5 holder of some of the largest investment-grade bond ETFs.
- U.S. Fed officials warned of uncertainty surrounding the ability to reopen the economy safely and stressed the need for “highly accommodative monetary policy and sustained support from fiscal policy”. Benchmark short-term rates remained near zero.

INTERNATIONAL MARKETS

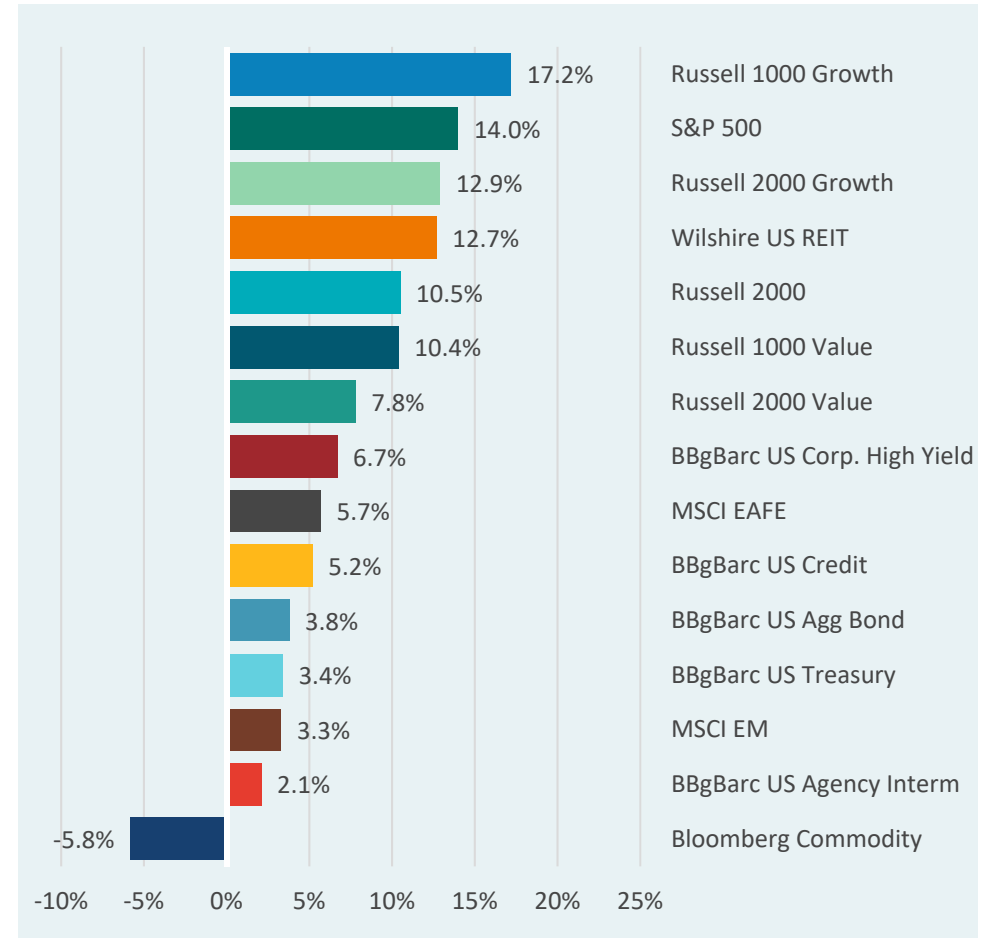
- The Trump administration placed restrictions on U.S. exports to Hong Kong in response to a Chinese law aimed at tightening control over the territory. The restrictions apply to only 2.2% of U.S. exports, but sanctions on China could further unravel an already-fragile agreement between the economic powerhouses.
- Eurozone seasonally-adjusted unemployment slightly increased to 7.4% in May, below expectations of 8.2%. German unemployment rose to 6.3% in May.
- Markit PMI readings showed activity contracted at a slower pace than in prior months. World services PMIs in developed countries such as Japan (45.0), China (58.4), and Germany (47.3) all improved. The PMI reading in France (50.7) rose above 50.0, indicating services activity expansion.

Major asset class returns

ONE YEAR ENDING JUNE



TEN YEARS ENDING JUNE



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

Source: Morningstar, as of 6/30/20

Source: Morningstar, as of 6/30/20

U.S. large cap equities

- The S&P 500 Index continued to climb in June and returned 2.0%. Despite reaching a positive year-to-date return in the middle of the month, the index remained down -3.1% year-to-date.
- According to FactSet, at month end the S&P 500 forward P/E ratio was 21.8, an increase of 20% from where the measure stood at the end of first quarter. This is well above the 5-year (16.9) and 10-year averages (15.2). The forward 12-month EPS estimate decreased by -12.7% over the same time period.
- In June, the S&P 500 sectors performed very differently. Six of the eleven major sectors contributed positively to returns. Information Technology (+7.1%) led the index higher for the third consecutive month. Consumer Discretionary (+4.9%) was a top performing sector within the index.
- Moves in the CBOE VIX Index have moderated in the past month. The long-term average of the VIX Index stands around 19. The index has remained above that level since late February, reaching a high point of 82.7 on March 16th and closing the month at 30.4.

S&P 500 PRICE INDEX



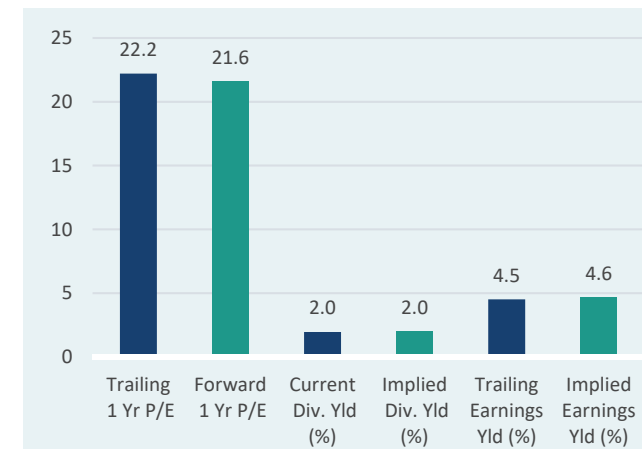
Source: Bloomberg, as of 6/30/20

IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 6/30/20

S&P 500 VALUATION SNAPSHOT

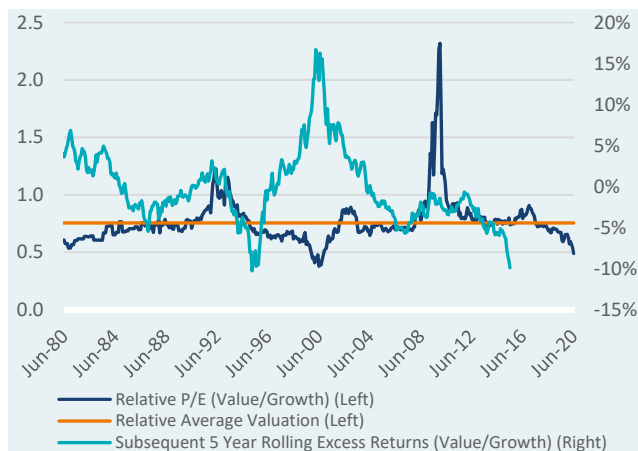


Source: Bloomberg, as of 6/30/20

Domestic equity size and style

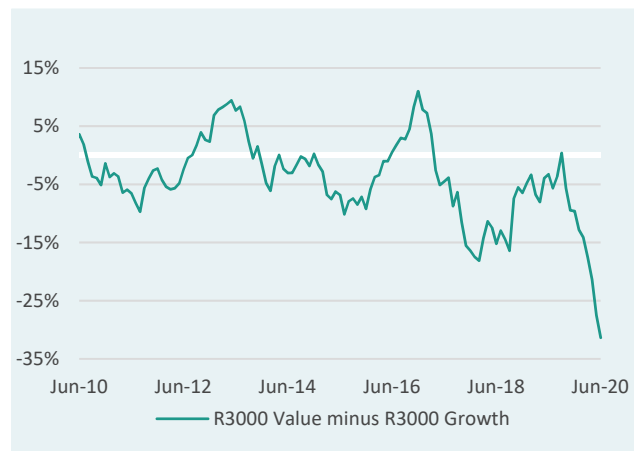
- Growth stocks beat value stocks for the 9th consecutive month. The Russell 3000 Growth Index (+4.3%) outperformed the Russell 3000 Value Index (-0.5%). While value stocks remain historically cheap, a compelling catalyst for a turnaround in value stocks relative to growth is yet to be seen.
- Economic data-sensitive cyclicals outperformed the less-sensitive defensive stocks again this month. The MSCI USA Cyclicals - Defensives Total Return Spread Index returned 6.2%.
- Small-cap equities (Russell 2000 Index +3.5%) outperformed large-caps (Russell 1000 Index +2.2%) during the month. The outperformance in small-cap stocks was likely attributed to the relatively larger weight of the healthcare sector within that index.
- The S&P 500 Momentum Index outperformed the S&P 500 Index by +0.7% in June. Moving forward, investors may be looking more towards fundamentals as valuations have expanded considerably over the rebound from the equity market lows in March.

VALUE VS. GROWTH RELATIVE VALUATIONS



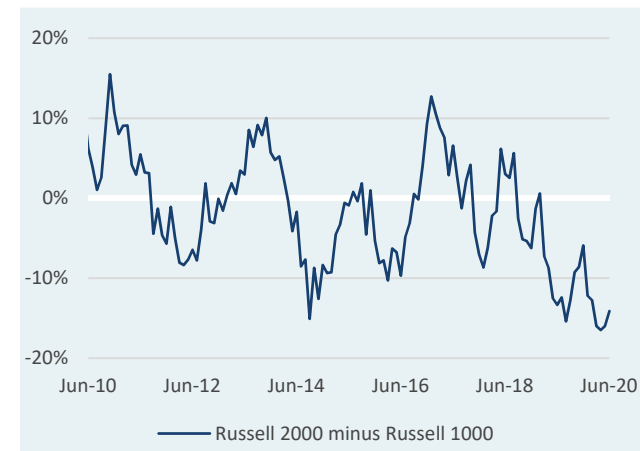
Source: Russell, Bloomberg, as of 6/30/20

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 6/30/20

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

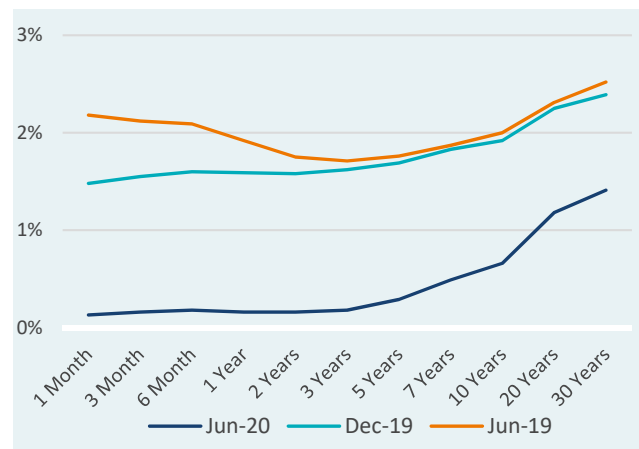


Source: FTSE, Bloomberg, as of 6/30/20

Fixed income

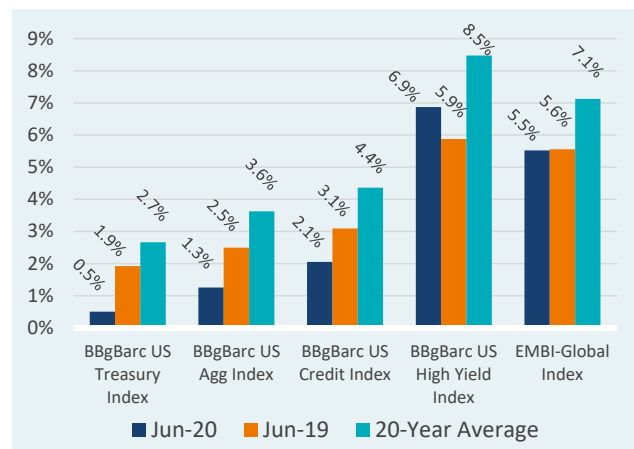
- The Bloomberg Barclays U.S. Credit Index returned +1.8% in June, bringing its second quarter return to +8.2%. At month-end, the index remained down -4.8% year-to-date. Yield for the index was 1% lower relative to this time last year.
- After depreciating materially relative to trade-weighted currency pairs between mid-May and mid-June, the U.S. dollar stabilized. The Bloomberg Dollar Spot Index fell -0.9% in June.
- Global risky credit performed well again in June. Hard-currency denominated emerging market debt (JPM EMBI Global Diversified Index) returned +3.5% and outperformed local-currency denominated emerging market debt (J.P. Morgan GBI-EM +0.5%).
- Five-year breakeven inflation rates rose another 0.4% from May. In March, liquidity in Treasuries exceeded that of TIPS and caused a decline in breakeven inflation. As the TIPS liquidity crunch eased, breakeven inflation rates have recovered.

U.S. TREASURY YIELD CURVE



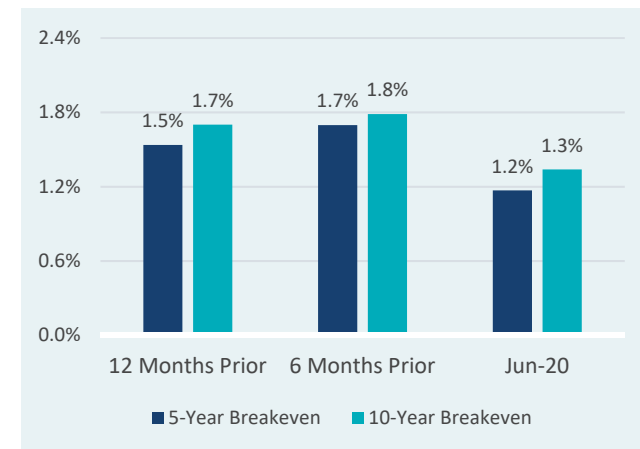
Source: Bloomberg, as of 6/30/20

NOMINAL YIELDS



Source: Morningstar, as of 6/30/20

BREAKEVEN INFLATION RATES

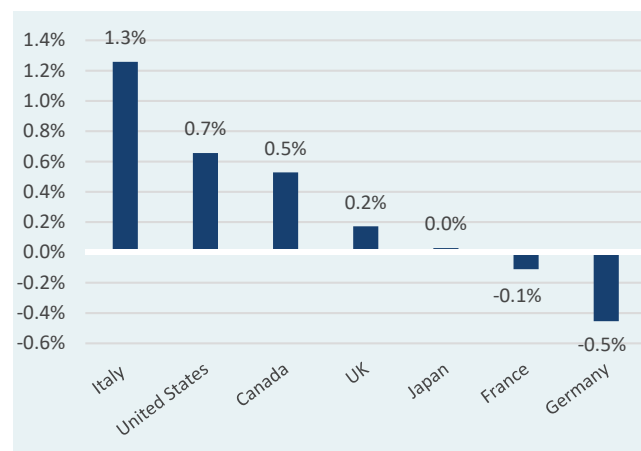


Source: Bloomberg, as of 6/30/20

Global markets

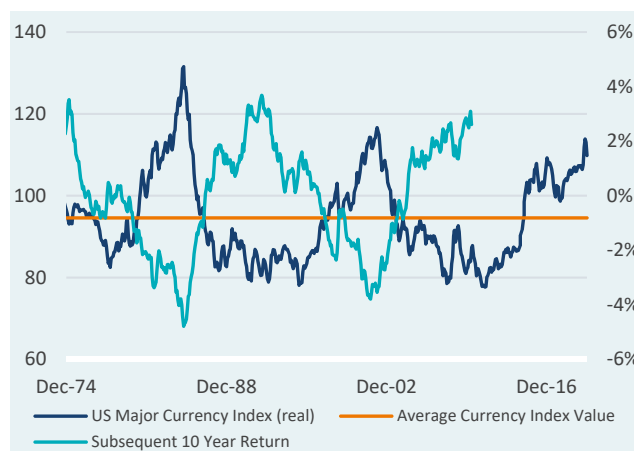
- The U.S. Major Currency Index—a measure of value for the U.S. dollar relative to a basket of major trading partner currencies—is now 4.0 points off the recent April high of 113.8 as the dollar has depreciated. The index last peaked in February 2002 at 116.6 points before sliding to 89.0 points through January 2004.
- The European Union ruled that it would deny U.S. citizens entry to Europe due to COVID-19 concerns. Some are wondering if this move will have political and economic ramifications as Europe and the United States begin a new round of trade negotiations.
- Emerging market equities (MSCI EM +7.4%) outperformed both international developed equities (MSCI EAFE +3.4%) and US equities (Russell 3000 +2.3%). Within the MSCI EM Index, Asian companies (MSCI EM Asia +8.2%) outperformed Latin American companies (MSCI EM Latin America +5.3%) in U.S. dollar terms.
- The Euro appreciated 1.0% relative to the dollar in June, benefiting from global risk-on sentiment, as well as the recovery in European asset prices. The MSCI Europe Index posted a 6.2% return in June.

GLOBAL SOVEREIGN 10-YEAR YIELDS



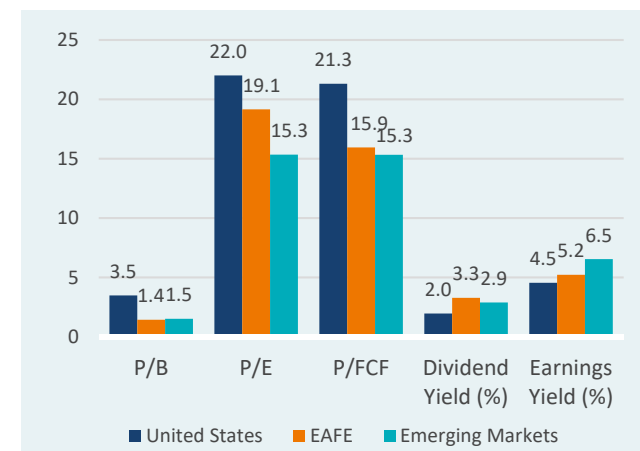
Source: Bloomberg, as of 6/30/20

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 6/30/20

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 6/30/20

Commodities

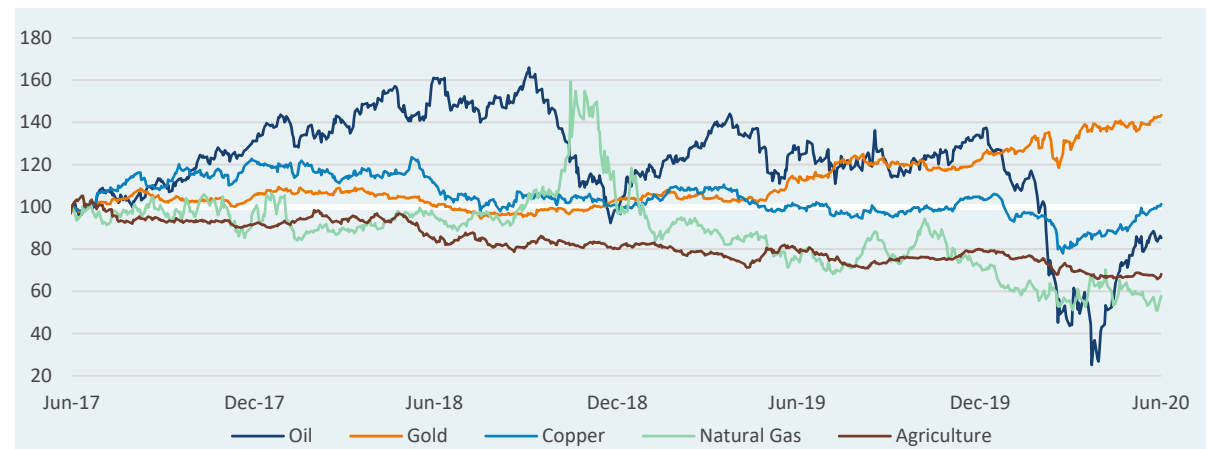
- The Bloomberg Commodity Index continued to rise in June, and returned 2.3%. Petroleum (+9.6%) recouped more losses from the beginning of the year, helping the overall index higher. Industrial Metals (+6.9%) have also staged a comeback as countries begin to restart production. Copper returned +11.9% in June.
- Oil prices stabilized but traded in a relatively narrow range. WTI crude started the month at \$35.49 a barrel and closed the month at \$39.27. Domestic crude stockpiles have risen as gasoline consumption remains at the weakest seasonal level in more than 20 years.
- The Bloomberg Livestock Index (-8.5%) saw losses this month as Chinese customs officials hinted that the country could raise barriers for meat imports, due to fears of COVID-19 outbreaks within meat processing plants. Demand for meat has fallen from continued restaurant closures which have driven prices lower.
- The Bloomberg Precious Metals Index posted a +2.2% return in June. Gold continued its bull run, up 2.8% this month, marking the highest price per ounce since 2011. Gold was worth \$1781 per ounce at the end of the month.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	2.3	5.1	(19.4)	(17.4)	(6.1)	(7.7)	(5.8)
Bloomberg Agriculture	1.8	(4.8)	(14.2)	(13.8)	(10.5)	(9.6)	(4.0)
Bloomberg Energy	2.2	9.8	(46.3)	(45.7)	(14.4)	(18.9)	(15.8)
Bloomberg Grains	0.2	(6.3)	(13.0)	(15.8)	(11.2)	(11.6)	(4.2)
Bloomberg Industrial Metals	6.9	12.3	(8.4)	(6.4)	(1.4)	(0.0)	(2.9)
Bloomberg Livestock	(8.5)	(8.6)	(34.3)	(33.7)	(16.6)	(11.1)	(6.1)
Bloomberg Petroleum	9.6	25.8	(49.8)	(46.1)	(10.1)	(16.6)	(11.3)
Bloomberg Precious Metals	2.2	15.0	13.8	24.2	9.9	6.7	2.2
Bloomberg Softs	6.1	0.6	(16.3)	(12.9)	(10.9)	(7.6)	(6.4)

Source: Morningstar, as of 6/30/20

COMMODITY PERFORMANCE



Source: Bloomberg, as of 6/30/20

Appendix

Periodic table of returns

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD	5-Year	10-Year
Large Cap Growth	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	9.8	15.9	17.2
US Bonds	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	6.1	10.5	14.0
Real Estate	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	0.7	7.0	12.9
Cash	19.3	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	0.4	6.9	10.5
Hedge Funds of Funds	16.2	26.5	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	-2.3	5.5	10.4
60/40 Global Portfolio	8.7	21.3	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	-2.3	4.6	9.8
Large Cap Equity	15.6	24.3	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	-2.8	4.3	7.8
Small Cap Growth	4.9	20.9	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	-3.1	4.3	6.8
Emerging Markets Equity	1.2	13.2	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	-9.8	2.9	5.7
International Equity	-2.5	11.4	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	-11.3	2.1	3.8
Small Cap Equity	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	-13.0	1.4	3.3
Large Cap Value	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	-16.3	1.3	2.7
Commodities	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	-19.4	1.1	0.6
Small Cap Value	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-23.5	-7.7	-5.8

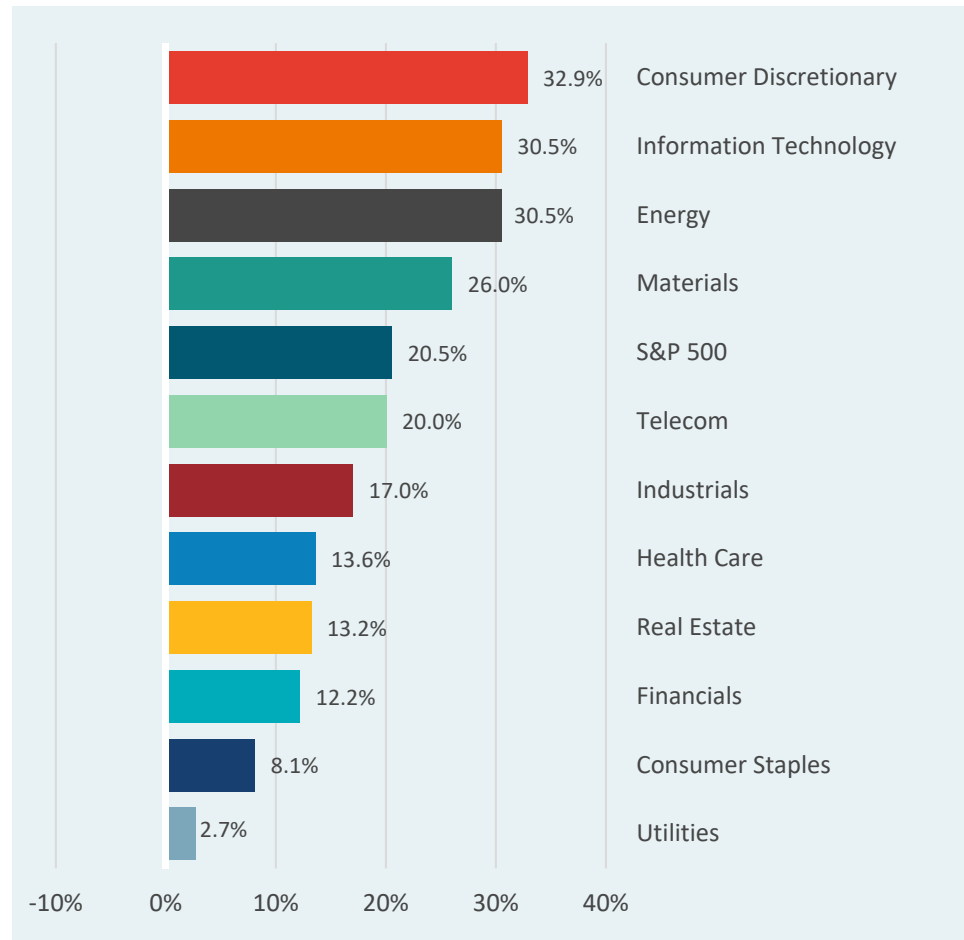
BEST
↑
↓
WORST

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

Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 3/31/20.

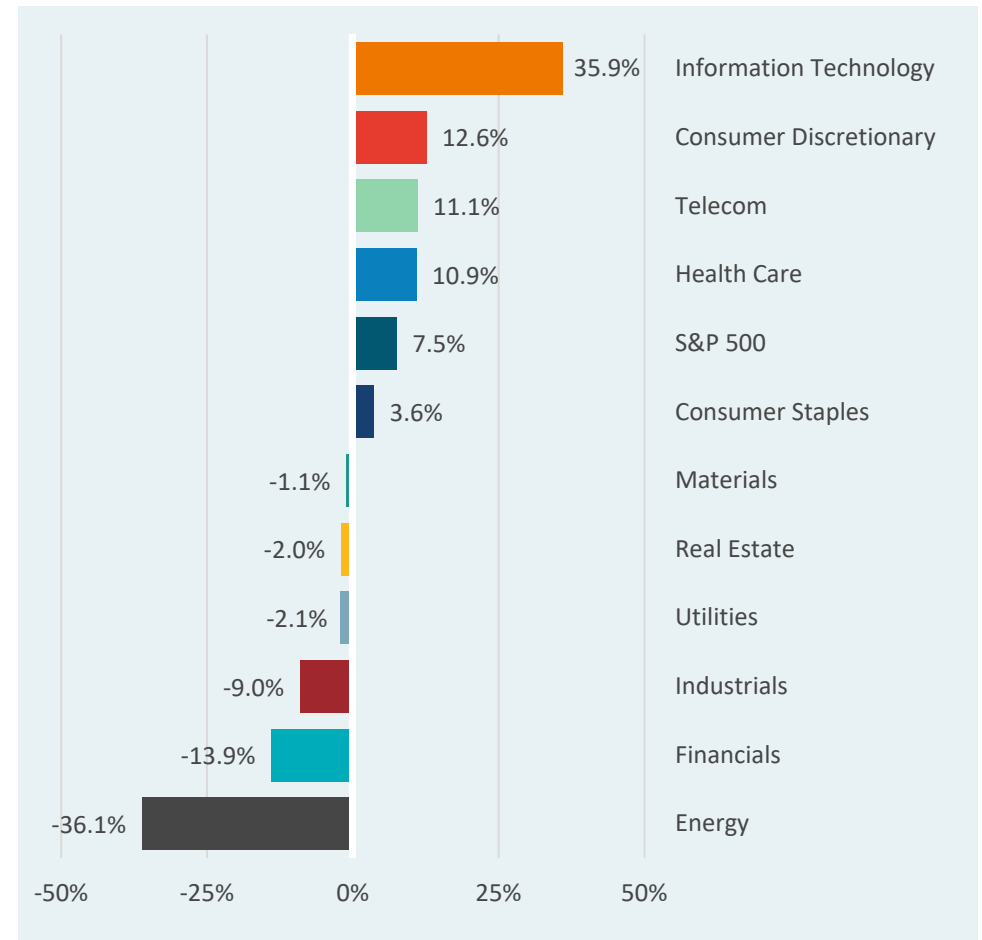
S&P 500 sector returns

QTD



Source: Morningstar, as of 6/30/20

ONE YEAR ENDING JUNE



Source: Morningstar, as of 6/30/20

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	2.0	20.5	(3.1)	7.5	10.7	10.7	14.0
S&P 500 Equal Weighted	1.6	21.7	(10.8)	(3.2)	5.4	7.1	12.6
DJ Industrial Average	1.8	18.5	(8.4)	(0.5)	9.1	10.6	13.0
Russell Top 200	2.4	20.9	(0.5)	11.2	12.5	11.9	14.6
Russell 1000	2.2	21.8	(2.8)	7.5	10.6	10.5	14.0
Russell 2000	3.5	25.4	(13.0)	(6.6)	2.0	4.3	10.5
Russell 3000	2.3	22.0	(3.5)	6.5	10.0	10.0	13.7
Russell Mid Cap	1.8	24.6	(9.1)	(2.2)	5.8	6.8	12.3
Style Index							
Russell 1000 Growth	4.4	27.8	9.8	23.3	19.0	15.9	17.2
Russell 1000 Value	(0.7)	14.3	(16.3)	(8.8)	1.8	4.6	10.4
Russell 2000 Growth	3.8	30.6	(3.1)	3.5	7.9	6.9	12.9
Russell 2000 Value	2.9	18.9	(23.5)	(17.5)	(4.3)	1.3	7.8

INTERNATIONAL EQUITY

Broad Index							
MSCI ACWI	3.2	19.2	(6.3)	2.1	6.1	6.5	9.2
MSCI ACWI ex US	4.5	16.1	(11.0)	(4.8)	1.1	2.3	5.0
MSCI EAFE	3.4	14.9	(11.3)	(5.1)	0.8	2.1	5.7
MSCI EM	7.4	18.1	(9.8)	(3.4)	1.9	2.9	3.3
MSCI EAFE Small Cap	1.4	19.9	(13.1)	(3.5)	0.5	3.8	8.0
Style Index							
MSCI EAFE Growth	3.2	16.9	(3.5)	4.2	5.9	5.5	7.8
MSCI EAFE Value	3.6	12.4	(19.3)	(14.5)	(4.4)	(1.6)	3.5
Regional Index							
MSCI UK	1.4	7.8	(23.3)	(17.7)	(3.9)	(2.5)	3.9
MSCI Japan	(0.0)	11.6	(7.1)	3.1	3.0	3.4	6.1
MSCI Euro	6.2	19.6	(12.7)	(7.7)	(0.9)	1.6	5.0
MSCI EM Asia	8.2	17.8	(3.5)	4.9	4.1	4.8	5.8
MSCI EM Latin American	5.3	19.1	(35.2)	(32.5)	(7.2)	(3.2)	(3.8)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
BBgBarc US TIPS	1.1	4.2	6.0	8.3	5.0	3.7	3.5
BBgBarc US Treasury Bills	0.0	0.0	0.7	1.7	1.8	1.2	0.7
BBgBarc US Agg Bond	0.6	2.9	6.1	8.7	5.3	4.3	3.8
Duration							
BBgBarc US Treasury 1-3 Yr	0.0	0.2	3.0	4.1	2.7	1.9	1.3
BBgBarc US Treasury Long	0.1	0.2	21.2	25.4	12.0	9.3	7.7
BBgBarc US Treasury	0.1	0.5	8.7	10.4	5.6	4.1	3.4
Issuer							
BBgBarc US MBS	(0.1)	0.7	3.5	5.7	4.0	3.2	3.1
BBgBarc US Corp. High Yield	1.0	10.2	(3.8)	0.0	3.3	4.8	6.7
BBgBarc US Agency Interm	0.1	0.8	3.7	5.1	3.3	2.5	2.1
BBgBarc US Credit	1.8	8.2	4.8	9.1	6.1	5.5	5.2

OTHER

Index							
Bloomberg Commodity	2.3	5.1	(19.4)	(17.4)	(6.1)	(7.7)	(5.8)
Wilshire US REIT	2.3	10.6	(17.8)	(12.3)	0.2	5.7	12.7
CS Leveraged Loans	1.3	9.7	(4.8)	(2.3)	2.1	4.6	5.0
Alerian MLP	(8.2)	47.2	(38.3)	(44.1)	(18.3)	(13.6)	(1.4)
Regional Index							
JPM EMBI Global Div	3.5	12.3	(2.8)	0.5	3.6	5.3	6.0
JPM GBI-EM Global Div	0.5	9.8	(6.9)	(2.8)	1.1	2.3	1.6
Hedge Funds							
HFRI Composite	1.9	9.0	(3.5)	(0.6)	2.1	2.3	3.7
HFRI FOF Composite	1.3	7.2	(2.3)	(0.2)	2.0	1.4	2.7
Currency (Spot)							
Euro	1.0	2.4	0.1	(1.4)	(0.5)	0.2	(0.9)
Pound	(0.1)	(0.4)	(6.7)	(2.9)	(1.7)	(4.7)	(1.9)
Yen	(0.1)	0.1	0.7	(0.1)	1.4	2.6	(2.0)

Source: Morningstar, HFR, as of 6/30/20

Detailed private market returns

Comparison to public market index returns

Private Equity Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Private Equity FoFs & Secondary Funds	11.9	13.0	10.0	11.9
Global Private Equity Direct Funds *	17.6	16.5	13.3	14.3
U.S. Private Equity Direct Funds *	18.8	16.7	13.7	15.6
Europe Private Equity Direct Funds *	18.8	20.4	15.0	12.2
Asia Private Equity Direct Funds *	12.6	13.4	11.9	13.2

Public Index Time-weighted Returns	1 Year	3 Year	5 Year	10 Year
MSCI World	27.7	12.6	8.7	9.5
S&P 500	31.5	15.3	11.7	13.6
MSCI Europe	23.8	9.8	5.1	5.2
MSCI AC Asia Pacific	19.4	10.8	6.9	6.1

Private Real Estate Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Real Estate	9.1	9.8	10.4	13.1

Public Index Time-weighted Returns	1 Year	3 Year	5 Year	10 Year
FTSE NAREIT Equity REIT	26.0	8.1	7.2	11.9

Private Credit Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Debt **	9.0	9.2	8.3	11.1

Public Index Time-weighted Returns	1 Year	3 Year	5 Year	10 Year
S&P / LSTA U.S. Leveraged Loan 100 Index	10.7	4.3	4.1	4.7

Private Real Assets Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Nature Resources ***	(5.8)	0.2	(0.4)	3.3
Global Infrastructure	10.3	12.3	11.3	9.8

Public Index Time-weighted Returns	1 Year	3 Year	5 Year	10 Year
S&P Global Natural Resources	17.2	7.9	4.8	1.6
S&P Global Infrastructure	27.0	11.3	6.6	7.7

Source: Pooled IRRs are from Thompson Reuters C/A and Time-weighted Returns are from Investment Metrics, as of December 31st, 2019. All returns in U.S. dollars.

* Includes Buyout, Growth Equity and Venture Capital.

** Includes Control-Oriented Distressed, Credit Opportunities, Senior Debt and Subordinated Capital.

*** Includes Private Equity Energy, Timber and Upstream Energy & Royalties.

Notices & disclosures

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 6.2

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst



SUBJECT: Report on Core Equity and Low Volatility Equity Manager Annual Reviews

Recommendation

Accept and review the report on the annual reviews of SamCERA's Core and Low Volatility equity strategies.

Background

On May 21st, SamCERA staff held annual review meetings via teleconference for our core equity manager, D.E. Shaw, and our low volatility equity managers, Acadian and PanAgora. Each meeting lasted approximately 1.5 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook.

Discussion

The D.E. Shaw U.S. Broad Market Core Alpha Extension Fund, which is a 130/30 large-cap core strategy that seeks to identify market inefficiencies through quantitative analysis, was reviewed first. Next, PanAgora's Defensive U.S. Equity Low Volatility strategy, which is a risk-based approach that seeks exposure to the low volatility factor by investing in low risk (volatility) and diversifying stocks while avoiding unintended risk concentrations, was reviewed. Lastly, we reviewed Acadian's U.S. Managed Volatility Equity strategy, which seeks to capture the "low-risk" anomaly by investing in lower systematic risk (beta) stocks that are diversifying and have positive expected excess returns.

There were no major concerns identified during the reviews. Meeting notes are attached to this memo summarizing the findings from these annual reviews.

Attachments

- D.E. Shaw Annual Review Meeting Notes (confidential)
- PanAgora Annual Review Meeting Notes
- Acadian Annual Review Meeting Notes

Date of meeting: 5/21/20

Location: Video Conference

Manager Representative(s)

Nicholas Alonso, CFA (Director, Portfolio Manager)
Allison Kiely (Business Development)
Brian Henze (Business Development)

Verus Representative(s)

David Greenwood (Analyst)

Account Assets

\$136.9 million (as of 3/31/20)

Client Representative(s)

Michael Coultrip (CIO)
Scott Hood (CEO)
Doris Ng (Analyst)

Product Description

PanAgora's Defensive Equity strategy seeks to harness the 'low-volatility premium' through a systematic, factor-based investment approach focused on achieving market-like returns with less risk. This is accomplished by leveraging PanAgora's proprietary Risk Parity portfolio construction methodology, which seeks to efficiently capture the equity premium associated with low volatility, while taking minimal unintended risks. Since the firm's inception, PanAgora has been using sophisticated quantitative techniques to integrate fundamental insights with vast amounts of dynamic market data. This blended insight is used to both score individual securities on a factor basis and also on a diversification basis, in the context of a broadly diversified portfolio. The result for the US Defensive Equity strategy is a portfolio expected to have lower volatility (Beta around 0.65-0.75), and similar returns relative to the capitalization-weighted benchmark over a full market cycle. PanAgora expects the strategy to participate in approximately 75% of up markets and 55% in down markets.

Organization

PanAgora has been providing investment management services since it began operations as the Structured Investment Products Group of The Boston Company in July 1985. PanAgora Asset Management, Inc. subsequently registered as an independent investment adviser with the SEC in November 1989. At that time, the company was owned by The Boston Company and Nippon Life Insurance Company (NLI) each owning 50% of the company. In September 1992, The Boston Company was sold, and its 50% ownership interest reverted to its parent organization, Lehman Brothers. Putnam Investments acquired Lehman Brothers' 50% position in February 1998 and subsequently purchased an additional 30% interest from NLI in 2004, before being acquired itself by Power Financial Corporation in 2007.

In March 2008, PanAgora implemented a Management Equity Plan that offers employees up to 20% ownership in the firm through restricted stock and options. This leaves the remaining 80% to Power Financial Corporation (through its affiliates Great-West Life and Putman Investments).

Today PanAgora is a provider of systematic investment solutions spanning a broad array of asset classes, including Alternatives, Risk Premia, and Traditional Long-Only Equity. The firm has approximately \$30 billion in assets under management as of 3/31/2020. Global/International Equity mandates comprise 33% of firm AUM, while Multi

Asset/Risk Parity comprise 35%, and US Equity, 32%. The Defensive Equity strategy currently has around \$140 million in AUM, and a manager-estimated capacity of \$20 billion.

Investment Team

PanAgora has an experienced portfolio management team with an average of over 14 years at the firm, and over 20 years of industry experience. The firm employs a team-based approach across all its strategies, where research and portfolio management are done on a collaborative basis. Edward Qian, Ph.D., CFA leads the Defensive Equity team and is also PanAgora's CIO and head of Multi Asset. Dr. Qian is directly supported by Bryan Belton, CFA (Director, Multi Asset), Nick Alonso, CFA (Director, Multi Asset), and David Liddell, (Director, Multi Asset) in addition to 12 other Multi Asset analysts and traders who support Multi Asset portfolio construction, research, and implementation.

Investment Strategy

PanAgora articulates the investment process in three distinct parts: opportunity set, asset selection, and portfolio construction. The opportunity set is simply the exercise of defining the mandate parameters by orienting the firm's models around the target factor premia mix (in this case, the low volatility factor) within the appropriate universe. Then in the asset selection, PanAgora will calculate stock specific factor scores and rank the investible universe. Simultaneously and independently, PanAgora will also rank the universe on each stock's diversification score, in the context of the broad portfolio. The portfolio construction process optimizes the portfolio around the intended factor exposure while maintaining equal risk contribution across sectors (ex., overweight utilities and consumer staples, underweight financials and technology).

Performance & Positioning

After funding the Defensive US Low Volatility strategy in late December 2018, the strategy produced strong risk-adjusted returns in 2019, returning 29.4% (gross) with 8.9% volatility, relative to the Russell 1000 Index's 31.4% return with 13.2% volatility. Beginning in February 2020, the strategy's volatility reduction unwound as global equity markets sold off almost uniformly amid the COVID-19-induced drawdown. The strategy returned -8.1% and -14.5% in February and March, respectively, ending the quarter slightly behind the benchmark at -20.9% relative to -20.2%. The annualized standard deviation for the quarter jumped to 26.3%, relative to the index's 23.3%.

PanAgora explained that the strategy's underperformance and heightened volatility was due to several factors related to the idiosyncratic characteristics of this drawdown. From an attribution perspective, underweights to mega-cap names like Microsoft, Apple, Amazon, and Facebook hurt significantly. Each of these companies outperformed their betas in the quarter, as many saw some competitive tailwinds emerge from this economic shutdown thanks to the nature of their businesses.

Simultaneously, overweights to typical low-volatility sectors like utilities and real estate detracted from performance. Utilities suffered for two main reasons: 1) given the widespread economic shutdown, there was a massive drop-off in utility demand; and 2) credit spreads widened substantially as investors feared highly levered companies. Given that many utility companies maintain perennially high debt ratios (often to fund large, upfront capital expenditures), the sector was punished.

Despite the poor risk-adjusted performance, PanAgora remains optimistic about the prospects for low-volatility going forward. The team cited the strong, historical relative performance of the low volatility factor following period of beta compression like what was seen in Q1.

Conclusion

Verus continues to believe that PanAgora is a skilled manager that offers a robust and differentiated systematic approach to low volatility investing. While the underperformance since funding is disappointing, it is understandable given the unique market environment of Q1 2020. Despite the difficult environment, PanAgora's diversified approach to low volatility seems to be well-positioned to handle ongoing volatility.

Date of meeting: 5/21/20

Location: Video Conference

Manager Representative(s)

Dan Le (Portfolio Manager)
Mark Osyf (Business Development)
Hannah Nordstrom (Business Development)

Verus Representative(s)

David Greenwood (Analyst)

Account Assets

\$133.2 million (as of 3/31/20)

Client Representative(s)

Michael Coultrip (CIO)
Scott Hood (CEO)
Susan Lee (Trustee)
Doris Ng (Analyst)

Product Description

Acadian's investment philosophy for their managed volatility strategies is predicated on extensive proprietary and academic research pointing to a compelling "low-risk" anomaly that can potentially be exploited within equities. Acadian attempts to take advantage of this anomaly by building low-risk equity portfolios that hold predominantly low-volatility stocks, and then adding information on the correlation structure of equities to help further reduce risk through diversification. Acadian has built a suite of proprietary risk models designed specifically to exploit the low-risk mispricing.

Acadian's managed volatility strategies utilize the same alpha forecasts as Acadian's active equity strategies but with risk being the initial consideration when constructing portfolios.

Acadian's goal is to build a portfolio focused on absolute return and risk with the aim of achieving an absolute return similar to or better than that of a domestic equity index but with lower volatility over the long term. Acadian targets absolute risk to be 25-35% less than a typical capitalization-weighted benchmark. That said, tracking error is not a major consideration and can appear relatively high due in part to Acadian's comfort with carrying large sector variations versus the benchmark. Acadian seeks to combine the values of all of the security-level factors to determine a peer-relative return forecast for each stock. Separately they make a top-down forecast for the stock's peer group, and then add that forecast to the stock's score.

Organization

Acadian Asset Management LLC is a Boston based firm founded in 1986. It is a wholly owned subsidiary of BrightSphere Affiliate Holdings LLC. As of March 31, 2020, Acadian managed assets totaling \$79.5 billion, with managed volatility strategies accounting for \$20 billion of the firm's total assets under management (AUM). Acadian has nine managed volatility strategies for various regions, most of which started by client request. The U.S. managed volatility strategy has \$296 million in AUM and was launched in April 2011. Acadian launched their first managed volatility strategy in 2006.

Investment Team

The managed volatility team is led by CIO Brendan Bradley, Ph.D. and five portfolio managers who are supported by a dedicated research analyst. In addition, the managed volatility group is supported by the full resources of the broader Acadian investment team.

Team members typically work in small groups to explore an idea, with frequent feedback from other colleagues and oversight from senior team members. Specific to Acadian's managed volatility approach, Ryan Taliaferro, director, equity strategies, oversees the strategy's research effort and works closely with Mark Birmingham, lead portfolio manager for the U.S. Managed Volatility Equity strategy, and the other members of the managed volatility team.

Investment Strategy

Acadian's investment process begins with a proprietary database containing detailed financial data on all stocks in the allowable universe. This information forms the basis of the valuation frameworks and risk models that drive Acadian's process. The valuation process uses a wide range of predictive factors to evaluate all securities in the allowable universe and portfolios are built from the bottom up.

Individual stocks are selected in an effort to achieve the strategy's risk-reduction objective, and all resulting portfolio allocations are a residual of this process. The stock forecasts for risk, return, transaction costs and liquidity all flow into a portfolio optimization system. This system, which also incorporates any additional client- and strategy-specific constraints and objectives, produces a list of buys and sells designed to achieve the optimal tradeoff, net of costs, between risk and expected return. Stocks that are expected to reduce risk and add return (net of costs) are purchased, while less diversifying and riskier stocks with lower expected return are sold. Resulting portfolios tend to be roughly evenly distributed across the capitalization spectrum and generally favor sectors usually associated with lower volatility like consumer staples, utilities and health care.

Performance & Positioning

Since funding the U.S. Managed Volatility Equity mandate at the end of December 2018, the SamCERA portfolio has lagged the benchmark on an absolute and risk-adjusted return basis, returning a since-inception annualized 7.3% gross of fees with 27.0% volatility through April 2020 relative to the Russell 1000 return of 13.5% with 28.6% volatility. During the COVID-19-induced sell-off, the portfolio fell 35.2% at the trough, roughly 60 basis points further than the benchmark's -34.6% and was down 12.6% versus the benchmark's -9.7% YTD through April.

There were several stylistic challenges for Acadian's approach in the first quarter of 2020, but key among them was beta compression. Specifically, low volatility stocks generally underperformed their betas and sold off in line with the market while some large, high volatility stocks performed better than what their higher betas would have indicated. This, combined Acadian's factor overweights toward small cap and value-oriented stocks hurt relative performance.

From an attribution perspective, over two-thirds of Acadian's YTD underperformance came from underweights to Apple, Amazon, and Microsoft. Thus, adverse selection effect of -4.2% YTD overwhelmed the positive allocation effect, which contributed 1.3%. Driving the positive allocation effect was the portfolio's lack of energy exposure and a significant underweight to industrials.

Conclusion


Verus continues to believe that Acadian is a skilled manager that offers a differentiated approach to managed volatility investing. While recent underperformance has been significant, we are comfortable that the idiosyncratic nature of the recent drawdown, combined with subsequent factor and style headwinds, reasonably explain portfolio performance.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 6.3

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Report on the International Equity Manager Annual Reviews

Recommendation

Review the report on the annual reviews of SamCERA's international equity managers.

Background

SamCERA staff held annual review meetings via teleconference with Baillie Gifford and Mondrian on June 4th.

Each meeting lasted approximately 1.5 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook.

Discussion

Baillie Gifford's ACWI ex-US Growth portfolio, which is a fundamental growth strategy organized by regional teams, was reviewed first. The firm discussed one retirement on its small cap research team.

Next, Mondrian's All Countries World ex-US strategy, which is a value-oriented international equity approach, was reviewed. The firm recently added a new research analyst on its team, and is also looking to add another assistant portfolio manager.

There were no major concerns identified during the reviews. Meeting notes are attached to this memo summarizing the findings from these annual reviews.

Attachments

Baillie Gifford Annual Review Meeting Notes
Mondrian Annual Review Meeting Notes

Date of meeting: 6/4/2020

Location: Video Conference

Manager Representative(s)

Joe Faraday (Member of Portfolio Construction Group, Client Service)

Matthew Coyle – Client Service

Brenesha Cox – Client Service

Verus Representative(s)

Joseph Abdou

Client Representative(s)

Mike Coultrip (CIO), Scott Hood (CEO), Doris Ng (Analyst)

Account Assets

\$233 mm (4/30/2020)

ACWI ex US Focus is a fundamental growth strategy. Research is organized by regional teams, and the strategy's Portfolio Construction Group (PCG) includes members from different regional teams. Four global sector groups also contribute to research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which the probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compounded growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 60-90 stocks, with country weights +/-10% relative to the index, sector weights +/-15% relative to the index, and stock weights +/- 5% relative to the index.

At the beginning of 2014, SamCERA converted from the EAFE Plus to the ACWI ex US strategy. This change allowed for additional emerging markets exposure. The portfolio has no direct exposure to stocks within frontier markets; however, they do hold some stocks with revenues derived from frontier markets.

Meeting Notes

Organization

Baillie Gifford remains an independent partnership with no external owners. The firm continues to experience low professional turnover with a small number of planned retirements each year. Historically, all operations were based in Edinburgh, Scotland with small marketing offices in New York and London. More recently however, Baillie Gifford is altering its viewpoint that (almost) all professionals should be based in Edinburgh. The client servicing/marketing team in New York has grown, and the firm is staffing some operations professionals there. One research professional was recently added to the New York office. The Dublin office was established for their European funds, and their Krakow houses a growing IT team (20 out of 310 total IT staff). Baillie Gifford has also set up an office in China to have "boots on the ground" on an ongoing basis. So far, there are five people there with the goal of having up to 30 employees based in China ultimately. The firm has started a China A-shares product this year with seed money provided by partners.

At 3/31/20, firm assets under management were \$245 billion. Recent flows have been flat for strategy in Q1. Clients have been rebalancing into the strategy or using the strategy for liquidity.

Investment Team

The International Focus Portfolio Construction Group (PCG) contains a mix of portfolio managers from different regional investment backgrounds and with varying levels of experience by design. Diversity of opinions and debate are integral to the decision-making process. The PCG is comprised of Baillie Gifford professionals Gerard Callahan, Joe Faraday, Iain Campbell, Moritz Sitte and Sophie Earnshaw. The members of the PCG serve as both portfolio managers and research analysts. The PCG makes all decisions for the portfolio after debate and discussion as a team.

There has been only one change to the investment team. Hamish Dingwall, the analyst focusing on Europe retired. Charlie Broughton a six year analyst with the firm is taking over the European analyst role.

Investment Strategy

The investment philosophy and process remains unchanged. Baillie Gifford seeks to identify companies with strong long-term growth prospects and take substantial positions in them. The investment horizon is typically 5 years.

Baillie Gifford summarizes their investment criteria with the following four questions:

Will this company be significantly larger in five years?

Are management sensible guardians of our clients' capital?

Why is this growth not reflected in the current share price?

What would make us sell?

Baillie Gifford's bottom up stock selection process looks for durable franchises, well managed companies, aligned management and good valuation. There is no minimum growth hurdle for purchase, and a portfolio typically holds stocks with a variety of growth ranges. Future growth/pre-profitability companies can be bought if they meet the buy criteria.

As a firm, Baillie Gifford will not own more than 15% of a company's outstanding stock. An assessment of management is part of the team's investment strategy, and holding big positions gives them good access to management. An additional liquidity requirement is that a maximum of 15% of the portfolio can be invested in stocks that take more than 10 days to trade in and out of.

Baillie Gifford will let its winners run as opposed to adding and trimming on valuation. The ACWI ex US Focus portfolio tends to have a lower weighted average market cap than that of the index. Currency hedging is available to portfolio managers but is not typically employed. Instead currency discussions are incorporated in macro-economic analysis prior to investing.

The portfolio invests in the long term with about half of the names held for longer than 5 years. This results to an average turnover of 10-20%. Portfolio managers also look for good management and strong earnings growth potential over 5 years. They increased their sector positioning bands from +/- 10% to +/- 15% as they saw themselves coming close to 10%, and they don't want to be forced to hold names they don't want to if they have better ideas in other sectors.

Performance & Positioning

On a net of fee basis as of 4/30/20, the Baillie Gifford SamCERA portfolio had outperformed the MSCI ACWI ex-US Index over the 3- year and 5-year periods by 3.9% and 3.3% respectively. Since inception (4/2012), Baillie Gifford has added 210 bps in excess return over the benchmark (SamCERA 6.4% vs. SamCERA blend MSCI EAFE/MSCI ACWI ex-US benchmark of 4.2%). The benchmark changed to ACWI-ex US in January 2014 when SamCERA changed its mandate from EAFE Plus to Focus. It is worth noting that Baillie Gifford has not outperformed its secondary benchmark the MSCI ACWI ex-US Growth Index over these time frames.

Baillie Gifford's recent performance benefited from a company in the gaming industry which has seen benefits due to people staying at home. They also benefited from owning an online retailer in Japan and positions in the healthcare and technology sectors due to Covid-19.

Conclusion

Verus maintains conviction in Baillie Gifford for the international growth mandate. Baillie Gifford is on Verus' approved list and is utilized by multiple clients. The manager is outperforming its primary benchmark over longer time periods for SamCERA.

Date of meeting: 6/4/2020

Location: Video Conference

Manager Representative(s)

Jim Brecker (Client Service),
Steven Dutart, CFA (Sr. Portfolio Manager)
Zsolt Mester, CFA (Portfolio Manager)

Verus Representative(s)

Joseph Abdou

Account Assets

\$191 mm (Q1 2020)

Client Representative(s)

Mike Coultrip (CIO), Doris Ng (Investment Analyst)

Product Description

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give a currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

Meeting Notes**Organization**

Mondrian was founded in 1990 as a boutique international manager. In July 2011, Mondrian's employee partnership purchased the 27.5% minority interest of the company held by private equity firm Hellman and Friedman to become 100% employee-owned. The firm fully paid off debt from its management buy-out in 3Q2019. As of the end of the first quarter of 2020, the firm was managing \$41 billion in AUM, approximately \$26 billion of which was in developed and ACWI equity mandates. ACWI ex-US assets stood at over \$3 billion as of 3/31/20. The firm has experienced asset decline since SamCERA's last review with total AUM dropping from \$51 billion as of 3/31/19. In September 2016, Mondrian became a PRI signer signaling their commitment to responsible investing. In June 2016, Mondrian decided to pay for outside research and stopped using soft dollars. The firm has approximately 80 employee equity holders.

Investment Team

There are approximately 56 investment professionals at Mondrian, all located in the London headquarters. The Global Equity Research Forum is overseen by Group CIO Clive Gillmore and Deputy CIO and CIO of International Equity Elizabeth (Liz) Desmond. The team of 17 includes four International Equity Senior Portfolio Managers, three International Equity Portfolio Managers, and an Assistant Portfolio Manager. International team head Liz Desmond has committed to remaining with the organization for the foreseeable future and has no near-term retirement plans. They have added one analyst to the strategy (Steve Shaw) and are interviewing for an assistant PM for the team

Investment Strategy

Mondrian employs a long-term dividend discount model for all of the firm's equity strategies. The approach focuses on long term dividend growth after inflation. For each company, they conduct scenario analysis, looking at expected, best and worst case outcomes. These scenarios are modeled based on fundamental research and yield and future real growth inputs derived from company meetings. Currency views based on PPP analysis are incorporated into the forecasts. The emphasis is on downside risk and they prefer a narrow, rather than a broad, range of outcomes. They are looking for at least a 5% real return from owning a stock for the long term and use a 5% discount rate across all markets. They will hedge currencies defensively when the PPP analysis identifies extreme over-valuation. The approach yields a portfolio that will generally preserve value on the downside relative to the market and strives to keep up in rising markets. The risk, as measured by standard deviation, is lower than peers and the benchmark.

Performance & Positioning

For the year ended 3/31/20, Mondrian outperformed the MSCI ACWI ex US Value Index (-20.1% net of fees vs. -23.7% for the benchmark). For the first quarter of 2020, Mondrian didn't see any excess trading over a normal quarter. They were helped by positions in the Japanese market which benefitted from strong corporate balance sheets.

In terms of positioning, they are invested in energy names as they see value there. Mondrian is also seeing opportunities in the UK which was a drag in Q1.


Conclusion

Mondrian has outperformed the benchmark over the majority of time periods for SamCERA, and they implement their defensive approach well. Verus clients have used Mondrian for All Country World ex-U.S. Value mandates for multiple years with successful long-term results.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 6.4

TO: Board of Retirement
FROM: Doris Ng, Investment Analyst 
SUBJECT: Approval of Resolution Amending the Investment Policy Statement

Recommendation

Adopt a resolution amending the SamCERA Investment Policy Statement.

Background

SamCERA's Investment Policy Statement ("Policy") is periodically updated to reflect the Board's recent decisions regarding investments. The Board typically updates the Policy twice a year as warranted. The Investment Policy Statement was last updated in March 2019.

Discussion

In October 2019, the Board approved a new asset allocation policy following the Fund's asset-liability study, which modified the asset allocation that was adopted in May 2018 following the Fund's asset allocation study. As part of the 2019 asset allocation, the Board approved a 3% increase to Growth assets and an 8% increase to Diversifying assets with a corresponding 3% reduction to Inflation Hedge assets and an 8% reduction to Risk Parity. To reflect updates to the interim target asset allocation, staff recommends that Sections 6.0 and 9.0-12.0 be amended while Section 13.0, related to Risk Parity, be removed.

In April 2020, the Board approved the restructure of the International Equity portfolio within Growth assets and the restructure of the Public Real Assets portfolio within Inflation Hedge assets. Sections 6.0, 9.0 and 11.0 should be amended to reflect these changes as well.

Over the past three years, SamCERA has been grouping its investments by the underlying performance drivers within each asset class composite with the three categories being Growth, Diversifying and Inflation Hedge. The most recent change to the Policy added "Asset Allocation by Performance Driver" under Section 6.0. Staff now recommends the following amendments to Sections 6.0, 9.0, 10.0 and 12.0 to further reflect the new framework of grouping investments by their underlying performance drivers:

1. Amend Section 6.0 "Asset Allocation & Portfolio Structure" to group investments by the underlying performance drivers within each asset class composite.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

2. Amend Section 9.0 "Public Equity Investment Policies" to change the title to "Growth Assets Investment Policies", and to add the investment policies related to Private Equity and Opportunistic Credit (taken from Sections 12.0 and 10.0).
3. Amend Section 10.0 "Fixed Income Investment Policies" to change the title to "Diversifying Assets Investment Policies", add the investment policies related to Absolute Return (taken from Section 12.0) and Liquidity (new asset class), remove the investment policies related to Opportunistic Credit, and to add a new sub-category, "Core Securitized," within Core Fixed Income.
4. Remove Section 12.0 "Alternatives Investment Policies" as the investment policies pertaining to Private Equity and Absolute Return have been relocated to Sections 9.0 and 10.0, respectively.

Staff is also proposing the following additional changes to the Investment Policy Statement:

5. Amend Section 4.0 "Investment Beliefs" to add a new investment belief with regards to balancing the focus between income and capital appreciation so return is not overly reliant on one or the other. As discussed in previous board meetings and as the portfolio continues to mature, we expect the focus on cash flow and income to become more important over time.
6. Amend Section 11.0 "Inflation Hedge Investment Policies" to change the target allocation to Infrastructure and Natural Resources within Private Real Assets from a 50%/50% split to a 75%/25% split, respectively. As discussed in previous board meetings, we expect the real assets portfolio to continue to shift away from commodity-oriented sectors, and infrastructure to occupy a larger portion of the portfolio going forward.

Attachments

Proposed Amendments to the Investment Policy Statement (Redlined Version)

Proposed Amendments to the Investment Policy Statement (Clean Version)

Resolution Revising the Investment Policy Statement and Attached Investment Policy Statement



SamCERA's Investment Policy Statement

Latest Revision ~~April~~July~~March~~ 202019

1.0 ESTABLISHMENT OF INVESTMENT POLICY

The Board of Retirement (the “Board”), having exclusive authority and exclusive fiduciary responsibility for the investment and administration of the Trust Fund (the “Fund”), hereby establishes the following Investment Policy (the “Policy”) for the investment of the San Mateo County Employees’ Retirement Association (“SamCERA”) assets. The Board reserves the right to amend, supplement or rescind this Policy at any time.

The purpose of this Policy is to assist SamCERA in effectively supervising its investments in order to meet the requirements of the California Constitution, the County Employees Retirement Law of 1937 (“the 1937 Act”), the Mission and Goals of SamCERA and other requirements, and to encourage effective communication between SamCERA and its investment managers (the “Manager(s)”) and investment consultants (the “Consultant(s)”).

A. GOVERNING DOCUMENTS FOR THE INVESTMENTS OF THE FUND.

The powers and duties of the Board are set forth in the 1937 Act and in Article XVI of the State Constitution. They are further defined by the Mission and Goals adopted by the Board.

SamCERA was created by San Mateo County Ordinance No. 564 adopted by the Board of Supervisors, effective July 1, 1944. This ordinance established the retirement system in accordance with the provisions of California’s County Employees’ Retirement Law of 1937.

Constitution of the State of California

Article XVI, Section 17, relates to the administration of the system and investment of the Fund assets. It reads in pertinent part:

“(a)...The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system.

“(b) The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement board’s duty to its participants and their beneficiaries shall take precedence over any other duty.

“(c) The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

“(d) The members of the retirement board of a public pension or retirement system shall diversify the investments of the system so as to minimize the risk of loss and to

maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.”

The 1937 Act

The 1937 Act contains language similar to that in the State Constitution regarding the investments of the Fund:

Government Code section 31595.

“The board has exclusive control of the investment of the employees retirement fund. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system. Except as otherwise expressly restricted by the California Constitution and by law, the board may, in its discretion, invest, or delegate the authority to invest, the assets of the fund through the purchase, holding, or sale of any form or type of investment, financial instrument, or financial transaction when prudent in the informed opinion of the board.

The board and its officers and employees shall discharge their duties with respect to the system: (a) Solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system.

(b) With the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

(c) Shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly prudent not to do so.

SamCERA’s Mission and Goals

The Board has adopted a Mission and Goals statement. The Mission summarizes SamCERA’s reason to exist.

“Mission: SamCERA exists to serve as loyal fiduciary for its members and as prudent administrator of the retirement system.”

The Mission is further defined by three goals. One goal speaks to the management of the assets of the Fund. This asset management goal reads:

“Prudently manage the assets in order to appropriately fund the actuarial liabilities of the retirement system, to ensure the ability to pay all earned benefits while minimizing the costs to employers.”

In recognition of the requirements of the California Constitution, the 1937 Act, the SamCERA Mission and Goals and other legal requirements, the SamCERA Board has established this Investment Policy.

2.0 MANAGEMENT OF THE FUND

A. ROLES AND PRINCIPAL DUTIES

The Fund investments shall be prudently planned, implemented, managed, and monitored by the Board. Investment Staff (the “Staff”), Investment Consultant (the “Consultant”), Custodian Bank (the “Custodian”), and Investment Managers (the “Managers”) shall support the Board in this activity. The roles are set forth below:

1. The Board establishes and maintains the investment policy, including: investment philosophy, investment objectives, strategic asset allocation, allocation-level performance benchmarks, and risk philosophy. The Board makes investment and monitoring decisions based upon the recommendations of Staff, Consultants, and other service providers engaged by the Board. The Board reviews and monitors all investments, as well as the policies, guidelines and procedures required to prudently administer the Fund and to effectively mitigate risk to the Fund. From time to time, the Board will utilize its Investment Committee to assist the Board in these activities and related specified tasks.
2. Staff oversees the Fund’s investment program activities, implements the Board’s decisions, makes recommendations to the Board regarding Fund management, including investment-related policies and procedures. Staff makes recommendations regarding the selection of the Consultant, Managers, Custodian as set forth below and monitors the performance and compliance of these and other investment related service providers.
3. The Consultant reviews, analyzes and evaluates the Fund’s effectiveness and efficiency and makes fund management related recommendations. Consultant assists Staff in implementing the Board’s decisions and developing all investment-related policies. Consultant’s responsibilities are detailed in the service agreement between SamCERA and Consultant.
4. The Custodian provides custody of SamCERA’s investment assets. In addition, the Custodian manages the securities lending program. The Custodian’s responsibilities are detailed in the service agreement between SamCERA and Custodian.
5. The Managers manage their mandated allocations in accordance with all applicable laws, Board-established policies, guidelines and procedures, as well as specific investment guidelines. For separately managed accounts, managers’ responsibilities are detailed in the Investment Management Agreements (IMA) between SamCERA and each Manager. For commingled funds, managers’ responsibilities are detailed in the related Fund documents.

B. INVESTMENT PORTFOLIO MANAGEMENT

The Board, with the assistance of Staff and Consultant, select and monitor Managers to manage the assets of the Fund.

1. Hiring New Managers

For public markets manager searches (i.e. non private equity and private real assets), Staff will inform the Board about the search process, including scope of the mandate, and the investment style, benchmark, and the minimum qualifications for candidates. Staff will update the Board on the short list of potential managers. Consultant and Staff will perform due diligence activities deemed applicable by the Chief Investment Officer, which may include analysis of performance records, meetings, due diligence questionnaires, interviews, and on-site visits. Upon completion of such due diligence, Staff and Consultant will bring a finalist to the Board for approval. The recommendation shall provide the Board with a summary description of the conducted due diligence activities.

For private markets (private equity and private real assets), the Consultant, with Staff input, sources managers that can best fit the desired mandate consistent with the annual pacing study and applicable investment policy. Consultant and Staff will bring potential private markets opportunities to the Board for approval. An exception to this policy is when an investment decision for a private market opportunity must be made prior to the date of the next regularly scheduled Board meeting. In these instances, and for investments of \$25 million or less, the Chief Executive Officer is authorized to make the investment decision after consulting with the Board Chair, or if the Chair is not available, the Vice Chair, and one member of the Investment Committee as long as such decision is in the best interest of the fund and consistent with applicable Board policy. Any action under this authorization will be reported to the Board at a subsequent regularly scheduled meeting.

2. Monitoring Existing Managers

The Board monitors the individual investment managers on a continuous basis through information provided by Staff, the Consultant, the Managers, and other investment service providers. Monthly, the Chief Investment Officer will present a preliminary performance report to the Board that is meant to provide a high-level summary of how the fund and each monthly-valued manager is performing. In addition, for SamCERA's separate accounts, Staff receives holdings and attribution reports from each separate account Manager on a monthly basis. For commingled funds, staff receives from the Manager either monthly or quarterly portfolio performance, attribution, exposure, and commentary reports.

Quarterly, the Consultant, with assistance from the Chief Investment Officer, will present an investment performance report to the Board, as specified in Section 14.0 (Quarterly Investment

Performance Reporting) in the Investment Policy. This report provides a more detailed performance attribution for the total plan and individual Managers, and helps to identify any short-term outlier deviations from expectations.

Semi-annually (month-end June and December of each year), every public markets (i.e. not private equity or private real asset) Manager completes a compliance statement identifying any significant firm, regulatory, and portfolio issues. In addition, semi-annually as of June and December of each year, Consultant will present performance reports for both the Private Equity and Private Real Assets programs that summarize each program and shows total program performance and program diversification by strategy, geography, industry, and vintage year.

Annually, Staff and Consultant will convene an investment strategy session, as specified in Section 15.0 (Annual Investment Strategy) in the Investment Policy, to allow a longer-term assessment of the Managers and the total fund performance. Lastly, all public markets Managers are interviewed annually by Staff and Consultant, and must complete a due diligence questionnaire.

During these presentations at SamCERA, Managers will provide an update on the Manager's organization and business plan, any changes to the investment process, and a summary of investment performance. Staff and Consultant report to the Board following these meetings.

3. Terminating Existing Managers

The Board recognizes investments may need to be adjusted or removed from the Fund from time to time for a variety of reasons, including organization changes at the Manager, changes in Manager style, underperformance relative to expectations, and the Managers' strategy is no longer appropriate for the fund. The Board determines if a Manager should be terminated after receiving input and or recommendations from Staff and Consultant.

In situations in which developments give immediate concern that an investment with a Manager is no longer prudent for the investment program and a termination or other related investment decision should be made prior to the next regularly scheduled Board meeting, the Chief Executive Officer is authorized to terminate the Manager and or move Fund assets after consulting with the Board Chair (or Vice Chair or Secretary based on availability, in that order) and one member of the Investment Committee. Situations causing an immediate concern, include, but are not limited to, when: (1) the firm suffers the resignation or other loss of its key portfolio managers on the strategy, (2) the firm dissolves, ceases to exist, or is otherwise incapable of carrying out its activities in the ordinary course of its business, (3) the firm is actually or effectively shut down by a regulatory agency or is accused of theft or fraud or other serious malfeasance by a regulatory agency, or (4) the fund's investment is in jeopardy of material loss. The Board will be promptly notified of the determination by the Chief Executive Officer.

3.0 INVESTMENT OBJECTIVES

The Board shall develop an investment program, consistent with the Investment Beliefs and General Investment Policies as stipulated in Sections 4.0 and 5.0, respectively, in order to meet the following objectives:

- A. Generate risk-adjusted returns that exceed the Asset Allocation Policy Benchmark (as defined in Section 6.0) on a net-of-fee basis over five-year rolling periods.
- B. Achieve a Fund return that meets or exceeds the long-term forecast of capital market returns for the asset allocation portfolio benchmark over multiple economic cycles (e.g. 15-20 years).
- C. Provide a more consistent return stream than a traditional 60% Equity / 40% Fixed Income portfolio as measured by lower portfolio drawdowns over a full market cycle.

4.0 INVESTMENT BELIEFS

The following section summarizes the Board's investment beliefs that have guided it in the development of this Policy document and will guide it in the oversight of the Plan assets.

- Strategic asset allocation is the primary driver of portfolio risk and return.
- SamCERA should have a long-term horizon and not be tempted to deviate from its long-term plan in response to short-term volatility.
- Everything else being equal, simplicity is preferred over complexity.
- For those asset classes evidencing market efficiencies, the manager structure may favor the employment of passive strategies.
- Focus on income and capital appreciation should be balanced and not overly dependent on one or the other.
- Diversification is fundamental.
- There is no single definition of risk. There are various measures of 'risk' that can be used for various purposes.
- The portfolio should be diversified across many risk dimensions/timeframes.
- SamCERA should not pursue investments that will not adequately compensate it for the risks that those investments bring.
- Costs matter.

5.0 GENERAL INVESTMENT POLICIES

Consistent with the investment beliefs contained in Section 4.0, it is the investment policy of the Board to:

- A. Achieve long-term risk-adjusted returns consistent with its fiduciary duty.
- B. Pursue an investment strategy that reduces the volatility of returns through prudent diversification of the portfolio across a broad selection of distinct asset classes, as provided for in Section 6.0 of this Investment Policy.
- C. Further diversify other risks, including extreme events, liquidity, and leverage by looking beyond traditional asset class definitions by utilizing multiple lenses on portfolio risks.
- D. Adopt an asset allocation target to guide the structure of the investment portfolio, as provided for in Section 6.0, and reevaluate on an annual basis.
- E. Reevaluate the asset-liability study every three to five years.
- F. Delegate full discretion, including whether to include environmental, social, and governance factors, if such factors have a direct relationship to the economic and financial value of an investment, when analyzing the financial merits of competing investment choices on behalf of SamCERA, to each investment manager to the extent authorized in their Investment Management Agreement (IMA).
- G. Adopt objectives that encourage investment managers to maximize their performance, within acceptable risk parameters, relative to their individual investment style benchmark.
- H. Refrain from drastically shifting asset class allocations over short time spans, unless it is in the Fund's best interest to do so.
- I. Rebalance the portfolio in accordance to the Rebalancing Policy set forth in Section 7.0.

[CASH FLOW POLICY & FUNDING POLICY](#)

6.0 ASSET ALLOCATION & PORTFOLIO STRUCTURE

A. Asset Allocation by Performance Driver

In addition to grouping investments into traditional asset classes (Public Equity, Fixed Income, Alternative Assets, Inflation Hedge and Liquidity), SamCERA also groups its investments by the underlying performance drivers within each asset class composite. As part of this process, SamCERA classifies its portfolio into three main drivers of performance listed below.

Growth

The Growth category includes assets in which their primary driver of returns is tied to the general strength of economic output. These assets will generally do well when economic conditions are favorable, but generally struggle in times of economic weakness and recession. Assets classified in the Growth category include Public Equity (consisting of U.S. and International Equity), Private Equity within Alternatives, and Opportunistic Credit within Fixed Income.

Diversifying

Diversifying assets provide protection from equity risk and may be characterized as being more defensive (i.e. may help provide stability when markets fall) or more absolute-return oriented (i.e. performance is not as dependent on the overall strength of equity markets). Assets classified in the Diversifying category include Core Fixed Income, and Absolute Return within Alternatives.

Inflation Hedge

Lastly, Inflation Hedge assets provide additional diversification from equity risk and provide a potential hedge against unexpected inflation. Assets classified in this category include Real Estate, Public Real Assets, and Private Real Assets.

The target asset class allocation, rebalancing ranges, and the sub-asset class portfolio structure of the Fund shall be allocated as follows:

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ASSET CLASS	TARGET ALLOCATION	REBALANCE RANGE
Public Equity	39	±3%
Fixed Income	31	±2%
Risk Parity	8%	±2%
Alternative Assets *	12%	±2%
Inflation Hedge *	17	±2%
Liquidity	1%	±2%

* Recognizing the illiquidity of the asset class, rebalancing will be considered over six to twelve month periods.

Asset Allocation Policy

Performance Driver View	Target Allocation	Rebalancing Range	Traditional Asset Class View **
Growth	55%	±3%	-
Public Equity	39%	±3%	Public Equity
Private Equity *	6%	±2%	Alternatives
Opportunistic Credit	10%	±2%	Fixed Income
Diversifying	28%	±2%	-
Core Fixed Income	21%	±2%	Fixed Income
Absolute Return	6%	±2%	Alternatives
Liquidity	1%	±2%	Liquidity
Inflation Hedge	17%	±2%	-
Real Estate	10%	±2%	Inflation Hedge
Private Real Assets *	3%	±2%	Inflation Hedge
Public Real Assets	4%	±2%	Inflation Hedge
	-	-	-

* Recognizing the illiquidity of the asset class, rebalancing will be considered over six- to twelve-month periods.

** Traditional Asset Allocation: 39% Public Equity, 31% Fixed Income, 12% Alternatives, 17% Inflation Hedge, and 1% Liquidity.

B. Growth Asset Allocation

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Growth assets A. Public Equity Assets shall be allocated to managers within the following asset/-sub-asset classes:

<u>Public Equity Growth - ASSET CLASSES</u>	TARGET ALLOCATION	REBALANCE RANGE
<u>Public Equity Large Capitalization Domestic</u>	39%	19 20.0%
<u>Large Capitalization Domestic</u>	19.0%	±2%
Passive Core	8 11.0%	±2%
Active Core	3.0%	±2%
Active Low-Volatility Core	8 6.0%	±2%
Small Capitalization Domestic	2.0%	±2%
Active Core	2.0%	±2%
International	1 8.0%	±2%
Passive Core	6 0.5%	±2%
	%	
Growth	6 0.5%	±2%
	%	
Value	6 0.5%	±2%
	%	
<u>Emerging Market</u>	2.0%	±2%
<u>Private Equity Total Public Equity</u>	6%	3 9.0%
<u>Opportunistic Credit</u>	10%	±2%
<u>Total Growth</u>	55%	±3%

C. Diversifying Asset Allocation

Diversifying assets shall be allocated to managers within the following asset/sub-asset classes:

B. Fixed Income Assets shall be allocated to managers within the following sub-asset classes:

<u>FIXED INCOME DIVERSIFYING ASSET CLASSES</u>	TARGET ALLOCATION	REBALANCE RANGE
<u>Core Core Fixed Income</u>	2 1%	±2%
<u>Core</u>	14.0%	±2%
<u>Core Securitized</u>	4.0%	±2%
<u>Core Unconstrained</u>	3.0%	±2%

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Opportunistic Return	Credit	Absolute	6%	107.0%	±2%
Liquidity			1%		±2%
TOTAL FIXED INCOME DIVERSIFYING			31.2821%		±2%

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C. Risk Parity Assets shall be allocated as follows:

RISK PARITY ASSET CLASS	TARGET ALLOCATION	REBALANCE RANGE
Risk Parity	8.0%	±2%
TOTAL RISK PARITY	8.0%	

CD. Alternative Assets shall be allocated to managers within the following sub-asset classes:

ALTERNATIVE ASSET CLASSES	TARGET ALLOCATION	REBALANCE RANGE
Private Equity	6	±2%
Absolute Return	6	±2%
TOTAL ALTERNATIVE ASSETS	1	

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DE. Inflation Hedge Asset Allocation

-Inflation Hedge Assets shall be allocated as follows:

INFLATION HEDGE ASSET CLASSES	TARGET ALLOCATION	REBALANCE RANGE
Real Estate	108.0	±2%
Private Real Assets	32.0%	±2%
Public Real Assets	46.0%	±2%
TIPS	2.0%	±2%
TOTAL INFLATION HEDGE ASSETS	178.0	±2%

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<u>NCREIF ODCE</u>	<u>108%</u>
<u>Custom Public Real Asset Index**</u>	<u>46%</u>
<u>Custom Private Real Asset Index***</u>	<u>32%</u>
<u>BC TIPS Index</u>	<u>2%</u>
<u>Liquidity</u>	<u>1%</u>
<u>91 Day T-Bills</u>	<u>1%</u>

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*The hedge ratio will increase quarterly as follows: 10% hedge starting 10/1/18, 20% hedge starting 1/1/19, 30% hedge starting 4/1/19, 40% hedge starting 7/1/19, and 50% hedge ratio starting 10/1/19.

**Comprised of 2534% Bloomberg Roll Select Commodity Index, 25% Bloomberg US TIPS Index, 2533% S&P Global LargeMidCap Commodity and Resources Index, and 2533% S&P Global Infrastructure Index.

***Comprised of 50% S&P Global LargeMidCap Commodity and Resources Index, 50% S&P Global Infrastructure Index + 2% (One Quarter Lagged)

G. Asset Allocation by Performance Driver:

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In addition to the current practice of grouping investments into traditional asset classes as shown above, SamCERA has also begun grouping its investments by the underlying performance drivers within each asset class composite. As part of this process, SamCERA classifies its portfolio into three main drivers of performance: 1) Growth, 2) Diversifying, and 3) Inflation Hedge. In addition, Risk Parity is its own category as it contains components of all three drivers of performance.

The Growth category includes assets in which their primary driver of returns is tied to the general strength of economic output. These assets will generally do well when economic conditions are favorable, but generally struggle in times of economic weakness and recession. Examples of assets classified in Growth include U.S. Equity, International Equity, Private Equity in Alternatives, and Opportunistic Credit in Fixed Income.

Diversifying assets provide protection from equity risk and may be characterized as being more defensive (i.e. help provide stability when markets fall) or more absolute return oriented (i.e. performance is not as dependent on the overall strength of equity markets). Examples of Diversifying assets are our core fixed income assets and absolute return strategies.

Lastly, Inflation Hedge assets provide additional diversification from equity risk and provide a potential hedge against unexpected inflation. Examples of assets in this category include real estate, commodities, TIPS, public real assets, and private real assets.

Asset Allocation Policy: Performance Driver View

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Growth	554%
—Public Equity	3941%
—Private Equity	6%
—Opportunistic Credit	107%
Diversifying	280%
—Core Fixed Income	1811%
—Core Unconstrained Fixed Income	3%
—Absolute Return	6%
—Liquidity	1%
Inflation Hedge	178%
—Real Estate	108%
—Private Real Assets	2%
—Public Real Assets	46%
—TIPS	2%
Risk Parity	8%

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7.0 REBALANCING POLICY

- A. The Chief Investment Officer (CIO) shall rebalance the portfolio as needed in conformance with the asset allocation tactical ranges set forth in Section 6.0.
- B. The potential need to rebalance will be continuously monitored, and will be subject to deviations within the established rebalance ranges specified in Section 6.0.
- C. The CIO will have discretion to rebalance to Target or to some other allocation, as long as it is within policy ranges.
- D. Cash flows will be used first to rebalance, and to the extent possible, exchange-traded derivatives will be used to rebalance in a cost-effective manner.
- E. All rebalancing activity shall be reported to the Board at the next scheduled meeting.

8.0 GENERAL MANAGER INVESTMENT PERFORMANCE POLICIES

The responsibility for securities selection, purchase and sale decisions, and proxy voting (where appropriate) is delegated to the external investment managers. The individual investment guideline parameters (including diversification constraints, concentration limits,

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asset type exclusions, etc.) and performance objectives for each investment manager will be established within the IMA or other applicable legal agreement(s) with each firm.

The Board expects to measure investment performance quarterly and will generally follow prudent time horizons when evaluating short term, intermediate term, and long term performance of its investment managers. Generally, the Board defines underperformance as: Cumulative annualized performance (net of fees) over a three-year period below a broad market-based benchmark return times 0.9, or five year return (net of fees) below the broad market based benchmark return.

Performance will also be evaluated in light of the manager's stated style and discipline.

9.0 PUBLIC EQUITY GROWTH ASSETS INVESTMENT POLICIES

PUBLIC EQUITY GROWTH ASSETS OVERVIEW:

Assets classified in the Growth category include Public Equity (consisting of U.S. and International Equity), Private Equity within Alternatives, and Opportunistic Credit within Fixed Income.

Public Equity: Public equity assets include funds shares/stock of a company through a public market. SamCERA invests utilizing both passive approaches (meant to track the performance and characteristics of major market indices, like the Russell 1000 Index and MSCI EAFE ACWI ex US IMI Index), and via active approaches that are meant to outperform the major market benchmarks. Public Equity is expected to produce returns higher than that provided from Fixed Income but at potentially higher levels of volatility. Exposure to this asset class will provide return streams generally correlated to that of general economic growth. There are two primary components to the Public Equity category: 1) Domestic Equity, and 2) International Equity.

1) Domestic Equity: SamCERA further breaks out its U.S. public equity holdings into two sub-composites: 1) U.S. Large Capitalization Domestic, which is comprised of U.S. companies valued generally over \$10 billion, and 2) U.S. Small Capitalization Domestic, which is comprised of U.S. companies valued generally under \$2 billion.

For the domestic equity program, the majority of the tracking error will come from stock selection via active management as the overall manager structure for domestic equities will not possess any significant biases in terms of investment style. The Domestic Equity composite will consist of two sub-composites: 1) Large-Capitalization Equity, and 2) Small-Capitalization Equity. Large Capitalization Equity will consist of four Core strategies: one passive, one low-tracking error active, and two low-volatility active strategies. Small-Capitalization Equity will consist of an actively-managed Core strategy.

2) International Equity: International Equity consists of developed (public companies domiciled in developed market countries such as Germany, France, UK, Japan, etc.) and emerging markets (public companies domiciled in emerging market countries such as China, Brazil, Mexico, Russia, etc.)

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International Equity will consist of three strategies: 1) a passive Core component, 2) Active Value, and 3) Active Growth. All three strategies will have exposure to both developed and emerging markets).

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Private Equity: Private Equity are funds, typically illiquid investments, that directly invest in private companies, or that engage in buyouts of public companies. Private Equity is expected to be one of the highest returning asset classes over the long-term. Its role in the portfolio is to provide high return potential in order to maximize the ability of the Fund to meet its performance objectives.

The Private Equity program will contain manager allocations to three primary sub-categories: 1) Buyouts, 2) Venture Capital, and 3) Debt/Special Situations. These allocations will be implemented via allocation to primary and secondary fund investments and co-investment opportunities. The sub-allocation targets and target ranges are summarized below:

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<u>Sub-Category</u>	<u>Target Allocation</u>	<u>Range</u>
<u>Buyouts</u>	<u>60%</u>	<u>+/- 20%</u>
<u>Venture Capital</u>	<u>20%</u>	<u>0 – 30%</u>
<u>Debt/Special Situations</u>	<u>20%</u>	<u>+/- 10%</u>

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The responsibility for private equity sourcing is delegated to SamCERA's investment consultant. The private equity portfolio shall adhere to the following investment guidelines covering diversification and quality:

(a) Diversification: Subject to availability of sufficient attractive opportunities, the portfolio is to be diversified over multiple years by the following:

Vintage Year: It is expected that roughly equal amounts of new funding will be committed in each calendar year, with deviations permitted to accommodate market opportunities and to facilitate initial entry into the asset class.

Investment Manager: The reported value plus unfunded commitments of any one investment manager (excluding fund of funds) up to no more than twenty (20) percent of the reported value plus unfunded commitments of the total private equity portfolio.

Geography: Through commitments to funds located and/or investing both in and outside of the United States.

Industry: It is expected that the private equity portfolio will be generally diversified by sector/industry.

(b) Quality: All commitments to private equity by SamCERA must be of institutional quality as evidenced by other tax-exempt institutional investors' commitments to the investment manager's prior or current funds.

Fund managers are expected to comply with SamCERA's private placement disclosure rules.

Opportunistic Credit: Fixed income assets are debt investments that provide a return in periodic payments in debt instruments issued by governments and corporations. Opportunistic Credit is expected to be the highest-risk category within fixed income, and will be used to enhance return by investing via public and private investments in non-traditional sectors of the fixed income market, including emerging market debt, high yield bonds, direct lending, bank loans, convertible bonds, and CMBS/ABS securities. This sub-category will be exposed to general economic risk factors, similar to public equities, but may provide a steadier stream of returns than public equity asset classes.

PUBLIC EQUITY MANAGER STRUCTURE:

Domestic Equity: SamCERA further breaks out its U.S. public equity holdings into two sub-composites: 1) U.S. Large Capitalization Domestic, which is comprised of U.S. companies valued generally over \$10 billion, and 2) U.S. Small Capitalization Domestic, which is comprised of U.S. companies valued generally under \$2 billion.

For the domestic equity program, the majority of the tracking error will come from stock selection via active management as the overall manager structure for domestic equities will not possess any significant biases in terms of investment style. The Domestic Equity composite will consist of two sub-composites: 1) Large Capitalization Equity, and 2) Small Capitalization Equity. Large Capitalization Equity will consist of four Core strategies: one passive, one low-tracking error active, and two low-volatility active strategies. Small Capitalization Equity will consist of an actively managed Core strategy.

International Equity: International Equity consists broken out between of developed (public companies domiciled in developed market countries such as Germany, France, UK, Japan, etc.) and emerging markets (public companies domiciled in emerging market countries such as China, Brazil, Mexico, Russia, etc.)

International Equity will consist of three strategies: two sub-composites: 1) Developed Equity, and 2) Emerging Markets Equity. Developed Equity will consist of 1) a passive Core component, 2) and Active Value, and 3) Active and Growth. All three strategies will have (although both have exposure to both developed and emerging markets). Emerging Markets Equity will consist of an active Core mandate.

PUBLIC EQUITY GROWTH ASSETS PERFORMANCE OBJECTIVE:

The performance objective of the Growth Assets Composite is to outperform, on a net-of-fee basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for four composite sub-asset classes (which results in the following weights: 38% Russell 3000, 33% MSCI ACWI ex US IMI Index hedged*, 11% Russell 3000 Index + 3% (one quarter lagged), and 18% Barclays BA Intermediate High Yield Index).

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The performance objective of the The Public Equity Category composite has is to outperform on a net-of-fee basis a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for both the domestic and international equity parts (which results in the following weights: 54% Russell 3000, and 46% MSCI ACWI ex-US IMI Index hedged*), with a maximum tracking error of 3% to this its composite benchmark while the Opportunistic Credit composite has a maximum tracking error of 2% to its composite benchmark.

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PUBLIC EQUITY GROWTH ASSETS RISK EXPOSURES AND RISK MITIGATION:

Public Equity: The primary risk factors for Public Equity are correlation to general economic growth, high volatility in returns, and potential illiquidity in smaller-capitalization and certain emerging market stocks. SamCERA will control for these risk factors by diversifying the plan across assets that exhibit limited correlation to economic growth. In addition, SamCERA's rebalancing ranges for small-cap equity and emerging market equities will help ensure adequate diversification within the equity portion of the SamCERA portfolio.

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Private Equity: Private Equity are funds, typically illiquid investments, that directly invest in private companies, or that engage in buyouts of public companies. Private Equity is expected to be one of the highest returning asset classes over the long term. Its role in the portfolio is to provide high return potential in order to maximize the ability of the Fund to meet its performance objectives. The Private Equity program will contain manager allocations to three primary sub categories: 1) Buyouts, 2) Venture Capital, and 3) Debt/Special Situations. These allocations will be implemented via allocation to primary and secondary fund investments and co-investment opportunities. The sub-allocation targets and target ranges are summarized below:

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<u>Sub-Category</u>	<u>Target Allocation</u>	<u>Range</u>
<u>Buyouts</u>	<u>60%</u>	<u>+/- 20%</u>
<u>Venture Capital</u>	<u>20%</u>	<u>0-30%</u>
<u>Debt/Special Situations</u>	<u>20%</u>	<u>+/- 10%</u>

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The responsibility for private equity sourcing is delegated to SamCERA's investment consultant.

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Private Equity: Private Equity, while expected to provide attractive returns, also have a number of risks. Chief among these are illiquidity risk and leverage. By their nature Private Equity is generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by private equity managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through partnership selection and portfolio construction and diversification.

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Opportunistic Credit: *Opportunistic Credit is generally the highest risk, lowest liquidity sub-category within Fixed Income. SamCERA will take into account unique risk factors when constructing the fixed income portfolio to help ensure that the overall risk profile of the total portfolio is consistent with expectations. Opportunistic Credit typically includes the risk factors contained in Core and Core Unconstrained, but, depending on the mandate, with higher emphasis to credit default risks, emerging markets sovereign/corporate default risk, potential leverage, and potential illiquidity. It is expected that strategies within Opportunistic Credit will have a maximum leverage ratio of 2.5x at the fund level (i.e. certain holdings may be levered higher than the 2.5x limit, as long as the fund (or strategy) has a maximum 2.5x leverage). Strategies employing higher leverage will be relegated to the debt/special situations category of Private Equity (see above).*

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The private equity portfolio shall adhere to the following investment guidelines covering diversification and quality:

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(a) Diversification: Subject to availability of sufficient attractive opportunities, the portfolio is to be diversified over multiple years by the following:

Vintage Year: It is expected that roughly equal amounts of new funding will be committed in each calendar year, with deviations permitted to accommodate market opportunities and to facilitate initial entry into the asset class.

Investment Manager: The reported value plus unfunded commitments of any one investment manager (excluding fund of funds) up to no more than twenty (20) percent of the reported value plus unfunded commitments of the total private equity portfolio.

Geography: Through commitments to funds located and/or investing both in and outside of the United States.

Industry: It is expected that the private equity portfolio will be generally diversified by sector/industry.

(b) Quality: All commitments to private equity by SamCERA must be of institutional quality as evidenced by other tax exempt institutional investors' commitments to the investment manager's prior or current funds.

Fund managers are expected to comply with SamCERA's private placement disclosure rules.

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<u>GROWTH ASSET</u> ASSET CLAS <u>CLASSES</u>	BENCHMARK INDEX
Total Public Equity <u>Growth Assets</u>	Customized Benchmark Portfolio
<u>Public Equity</u>	
<u>Domestic Equity</u>	Russell 3000
Large Capitalization Domestic Equity	Russell 1000

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Passive Core	Russell 1000
Active Core	Russell 1000
Active Low Volatility Core	Russell 1000
Small Capitalization Domestic Equity	Russell 2000
Active Core	Russell 2000
International Equity	MSCI All Country World ex US IMI hedged*
Developed International	MSCI All Country World ex US hedged*
Developed International Passive Core	MSCI <u>ACWI ex US IMIEAFE</u>
Developed International Growth	MSCI ACWI Free ex US Growth
Developed International Value	MSCI ACWI Free ex US Value
Private Equity	Russell 3000 + 3% (One Quarter Lagged)
Opportunistic Credit	Barclays Capital BA Intermediate High Yield Index
Emerging Markets	MSCI Emerging Markets Free

*The hedge ratio will increase quarterly as follows: 10% hedge starting 10/1/18, 20% hedge starting 1/1/19, 30% hedge starting 4/1/19, 40% hedge starting 7/1/19, and 50% hedge ratio starting 10/1/19.

Opportunistic Credit: Opportunistic Credit is expected to be the highest risk fixed income category, and will be used to enhance return by investing via public and private investments in non-traditional sectors of the fixed income market, including emerging market debt, high yield bonds, direct lending, bank loans, convertible bonds, and CMBS/ABS securities. This sub-category will be exposed to general economic risk factors, similar to public equities.

10.0 DIVERSIFYING ASSETS ~~FIXED INCOME~~ INVESTMENT POLICIES

DIVERSIFYING ASSETS ~~FIXED INCOME~~ OVERVIEW:

Assets classified in the Diversifying category include Core Fixed Income, Absolute Return within Alternatives, and Liquidity.

Fixed Income: Fixed income assets are debt investments that provide a return in periodic payments in debt instruments issued by governments and corporations. Core Fixed Income is generally the lowest risk and highest liquidity sub-category within Fixed Income. It is expected to provide a lower, but steadier stream of returns than public equity asset classes, and also to but is also expected to reduce the risk of the overall portfolio asbecause bonds have lower risk than most other major asset classes. That said, there are a number of sub-categories within Core Fixed Income, which that exhibit very different risk/return trade-offs and hold slightly different tasks in terms of role in the portfolio, but have the common goal

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of dampening portfolio volatility. Core Fixed Income is broken out into three-three subcategories:

- 1) Core, 2) Core Securitized, and 3) Core Unconstrained, and 4) Opportunistic Credit

Core: Core is generally considered the lowest-risk fixed income category, and one that invests in primarily liquid, investment grade U.S. Dollar denominated bonds. It also generally consists of sectors that comprise the Bloomberg Barclays Aggregate Bond Index. Core's role in the portfolio is to dampen portfolio volatility and protect the portfolio in times of economic duress.

Core Securitized: Core Securitized is a low/medium-risk fixed income sub-category, and contains securitized sectors, including mortgage-backed securities, commercial mortgage-backed securities, and asset-backed securities. Core Securitized's role in the portfolio, in addition to dampening portfolio volatility, is to provide higher yield and slightly lower interest rate sensitivity as compared to the Bloomberg Barclays Aggregate Bond Index.

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Core Unconstrained: Core Unconstrained is a medium-risk fixed income sub-category, and contains the sectors contained in Core plus high yield (below investment grade bonds), non-U.S. Dollar denominated bonds, and emerging market fixed income securities. Core Unconstrained's role in the portfolio is a combination of total portfolio volatility dampening combined with and some moderate return enhancement.

Absolute Return: The Absolute Return category will focus on funds that have an absolute return orientation and are not expected to contain significant levels of public market beta over the long term. This category is expected to provide a diversifying return stream to the total plan that is not correlated to the public markets. Suitable investment strategies include multi-strategy funds, alternative risk premia funds, GTAA or global macro funds, and CTA/Managed Futures trend following funds. It is expected that this category will be implemented via commingled funds and not in separate accounts so that SamCERA's investment in any single fund would be 'ring-fenced' (i.e. any potential losses would be limited to the investment in the single fund, and not extend to the total plan assets).

Liquidity: The Liquidity category currently consists of cash and cash-equivalent type investments with short duration.

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~~OPPORTUNISTIC CREDIT: OPPORTUNISTIC CREDIT IS EXPECTED TO BE THE HIGHEST RISK FIXED INCOME CATEGORY, AND WILL BE USED TO ENHANCE RETURN BY INVESTING VIA PUBLIC AND PRIVATE INVESTMENTS IN NON-TRADITIONAL SECTORS OF THE FIXED INCOME MARKET, INCLUDING EMERGING MARKET DEBT, HIGH YIELD BONDS, DIRECT LENDING, BANK LOANS, CONVERTIBLE BONDS, AND CMBS/ABS SECURITIES. THIS SUB-CATEGORY WILL BE EXPOSED TO GENERAL ECONOMIC RISK FACTORS, SIMILAR TO PUBLIC EQUITIES.~~

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~~DIVERSIFYING ASSETS~~ **FIXED INCOME PERFORMANCE OBJECTIVE:**

The performance objective of the Diversifying Assets Composite the Fixed Income Composite is to outperform, on a net-of-fee-basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for three composite sub-asset classes

(which results in the following weights: 75% Bloomberg a customized index incorporating the weighted average components for three sub-categories highlighted above (which results in the following weights: 687% Barclays 's Capital Aggregate Bond Index, 21% to LIBOR + 4%, and 4% to 91 Day T-Bills). The Core Fixed Income sub-asset class has a and 323% Barclays BA Intermediate High Yield Index), with a maximum tracking error of 2% to its composite this benchmark.

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DIVERSIFYING ASSETS~~FIXED INCOME~~ RISK EXPOSURES AND RISK MITIGATION:

The ~~Core Fixed Income~~ sub-sectors have very different risk factor exposures, with Core being generally the lowest risk, highest liquidity sub-category, while Opportunistic Credit is generally the highest risk, lowest liquidity sub-category. SamCERA will take into account these unique risk factors when constructing the ~~Core Fixed Income~~ portfolio to help ensure that the overall risk profile of the total portfolio is consistent with expectations.

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Core: The primary risk factors are sensitivity to changes in interest rates, changes in mortgage prepayment speeds, and investment-grade corporate and sovereign credit risk.

Core Unconstrained Secitized: The primary risk factors are complexity, credit and prepayment risk across various securitized sectors (e.g. ABS, CMBS, and RMBS) with interest rate sensitivity being a relatively lower risk factor as compared to assets within Core (above). The focus is on higher quality securitized investments to minimize credit risk.

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Core Unconstrained: The primary risk factors typically includes the risk factors found in Core with additional exposures to high-yield default risks, emerging markets sovereign/corporate default risk, and potential illiquidity. The allocation to these risk exposures will be dynamic over time as the portfolio is not constrained to a benchmark.

Absolute Return: ~~Absolute Return:~~ The absolute return category will focus on funds that have an absolute return orientation and are not expected to contain significant levels of public market beta over the long term. This category is expected to provide a diversifying return stream to the total plan that is not correlated to the public markets. Suitable investment strategies include multi-strategy funds, alternative risk premia funds, GTAA or global macro funds, and CTA/Managed Futures trend following funds. It is expected that this category will be implemented via commingled funds and not in separate accounts so that SamCERA's investment in any single fund would be 'ring fenced' (i.e. any potential losses would be limited to the investment in the single fund, and not extend to the total plan assets).

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ALTERNATIVES PERFORMANCE OBJECTIVE:

The performance objective of the Alternatives Composite is to outperform, on a net-of-fee basis, a customized index incorporating the weighted average components for two sub-asset classes highlighted above (which results in the following weights: 50% Russell 3000+3% (One Quarter Lagged), and 50% LIBOR+4%).

ALTERNATIVES RISK EXPOSURES AND RISK MITIGATION:

~~Alternative~~ **Absolute Return**, while expected to provide attractive returns that are less correlated to the returns provided by public asset classes, also has a number of risks. Chief among these are illiquidity risk and leverage. By their nature Private Equity is generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by alternative **absolute return** managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through ~~fund~~ partnership selection as well as ~~and~~ portfolio construction and diversification.

~~Opportunistic Credit~~: Typically includes the risk factors contained in Core and Core Unconstrained, but, depending on the mandate, with higher emphasis to credit default risks, emerging markets sovereign/corporate default risk, potential leverage, and potential illiquidity. It is expected that strategies within Opportunistic Credit will have a maximum leverage ratio of 2.5x at the fund level (i.e. certain holdings may be levered higher than the 2.5x limit, as long as the fund (or strategy) has a maximum 2.5x leverage). Strategies employing higher leverage will be relegated to the debt/special situations category of Private Equity (see Section 12).

DIVERSIFYING ASSET CLASS CLASSES	BENCHMARK INDEX
DIVERSIFYING ASSETS	CUSTOMIZED BENCHMARK PORTFOLIO
Core Fixed Income	Customized Benchmark Portfolio
Core/ Core Securitized /Core Unconstrained	Bloomberg Barclays Capital Aggregate Bond Index
Absolute Return Opportunistic Credit	Barclays Capital BA Intermediate High Yield Index LIBOR + 4%

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11.0 INFLATION HEDGE INVESTMENT POLICIES

INFLATION HEDGE OVERVIEW:

The Inflation Hedge category combines inflation-sensitive assets under a single asset class to simplify the asset allocation process and enable better performance monitoring of the plan's overall, direct exposure to assets with inflation-hedging properties. The plan also has indirect exposure to inflation-sensitive assets through other asset classes, such as Public Equity, Fixed Income, ~~Risk Parity~~, and Alternatives. When determining the appropriate allocation of inflation protection, both direct and indirect exposures to inflation-sensitive assets across the plan are taken into account. The Inflation Hedge category is expected to provide a high degree of inflation beta, attractive risk-adjusted returns and diversification benefits to the overall plan.

Inflation Hedge is broken out into four subcategories:

- 1) Real Estate, 2) Private Real Assets, and 3) Public Real Assets, ~~and 4) TIPS~~

Real Estate: Real Estate is expected to provide a return and risk profile between that provided by fixed income and equities. Real estate will be composed of three sub-categories: 1) Core, 2) Value-Add, and 3) Debt. The majority of exposure will be in Core real estate assets of the highest quality located in the best locations in North America, Europe, and Asia. Value-Add properties are expected to provide somewhat higher return potential along with somewhat higher risk than Core assets. Real Estate Debt strategies range from lower risk senior loans on stable properties to higher risk/return mezzanine and construction loans. SamCERA utilizes Debt strategies for risk mitigation and to enhance the portfolio's yield.

Income will be a large part of the return stream generated from the Real Estate portfolio. The role of this portfolio is to provide diversification benefits, some protection against unanticipated inflation, and a steady income stream. Higher risk Opportunistic/Development real estate strategies will reside in the Private Real Assets composite due to their higher-risk, longer time horizon, and the less liquid nature of the investment set compared to Core, Value-Add, and Debt strategies. The sub-allocation targets and target ranges are summarized below:

Real Estate Strategy	Target Allocation	Range
Core Real Estate	60%	50 - 70%
Value-Add Real Estate	20%	0 - 30%
Real Estate Debt	20%	0 - 30%

Private Real Assets: Private Real Assets are expected to provide attractive total and risk-adjusted returns that exhibit low correlations with traditional asset classes but positive correlation with inflation. Private Real Assets will be composed of two sub-categories: 1) Infrastructure (Core and Value-Add, Secondary, Midstream Energy, and Power), and 2) Natural Resources (Energy Exploration & Production, Mining, Farmland, Timber, and Water). These allocations will be implemented via allocation to primary and secondary fund investments and co-investment opportunities. The sub-allocation targets and target ranges are summarized below:

Sub-Category	Target Allocation	Range
Infrastructure	75 50%	+/- 25%
Natural Resources	25 50%	+/- 25%

Public Real Assets: Similar to Private Real Assets, Public Real Assets is expected to provide positive correlation to inflation, but with potentially higher beta to public equity markets.

Public Real Assets may be used to fund new strategies in Private Real Assets and will be composed of ~~four~~three sub-categories: 1) Commodities, 2) U.S. TIPS, 3) Listed Global Natural Resources, and ~~4~~3) Listed Global Infrastructure. All ~~four~~three sub-categories are meant to provide some protection from higher levels of unanticipated inflation while providing a diversifying return stream from that of public markets. ~~Listed Global Natural Resources and Listed Global Infrastructure may be implemented through the use of relatively inexpensive, passive indices.~~

The sub-allocation targets and target ranges are summarized below:

Sub-Category	Target Allocation	Range
Commodities	25 34%	0 - 50%
<u>U.S. TIPS</u>	<u>25%</u>	<u>0 - 50%</u>
Listed Global Natural Resources	25 33%	0 – 50%
Listed Global Infrastructure	25 33%	0 – 50%

~~TIPS: Treasury Inflation Protected Securities are expected to provide some protection against higher rates of inflation.~~

INFLATION HEDGE PERFORMANCE OBJECTIVE:

The performance objective of the Inflation Hedge Composite is to outperform, on a net-of-fee basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for ~~four~~three composite sub-asset classes (which results in the following weights: ~~59~~44% NCREIF ODCE, ~~23~~34% Custom Public Real Asset Index, ~~and~~ ~~18~~1% Custom Private Real Asset Index, ~~and~~ ~~11~~% ~~BC TIPS Index~~).

INFLATION HEDGE RISK EXPOSURES AND RISK MITIGATION:

Real Estate: Many real estate funds utilize leverage to enhance returns. Lack of liquidity is also a concern, but less so for core real estate and senior debt investments. Value-add, mezzanine debt, and opportunistic strategies also tend to have more exposure to general economic conditions than core properties.

These risks will be mitigated in a number of ways. First, the primary emphasis of SamCERA’s real estate program will be focused on Core properties, with a secondary emphasis to Value-Add properties and Debt strategies. Opportunistic-oriented strategies will reside in our Private Real Assets portfolio due to their higher risk profile. In addition, SamCERA’s core real estate fund has a leverage limit of 35%, and SamCERA also sits on the Fund’s Advisory Committee.

Private Real Assets: By their nature, Private Real Assets are generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by alternative managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through partnership selection and portfolio construction and diversification.

TIPS: The primary risk factors are to changes in real interest rates, deflationary environments (although deflation floors could mitigate some of this risk), and potential illiquidity.

<u>INFLATION HEDGE ASSET CLASSES</u>	<u>BENCHMARK INDEX</u>
<u>INFLATION HEDGE ASSETS</u>	<u>CUSTOMIZED BENCHMARK PORTFOLIO</u>
REAL ESTATE	NCREIF ODCE
PRIVATE REAL ASSETS	CUSTOM PRIVATE REAL ASSET INDEX
PUBLIC REAL ASSETS	CUSTOM PUBLIC REAL ASSET INDEX
<u>TIPS</u>	<u>BC TIPS INDEX</u>

12.0 ALTERNATIVE ASSETS INVESTMENT POLICIES

ALTERNATIVES OVERVIEW: Alternatives are investments that do not neatly fit into public equities or fixed income. SamCERA’s alternatives program is broken out into the following two sub asset classes:

- 1) Private Equity, and 2) Absolute Return

~~**Private Equity:** Private Equity are funds, typically illiquid investments, that directly invest in private companies, or that engage in buyouts of public companies. Private Equity is expected to be one of the highest returning asset classes over the long term. Its role in the portfolio is to provide high return potential in order to maximize the ability of the Fund to meet its performance objectives. The Private Equity program will contain manager allocations to three primary sub categories: 1) Buyouts, 2) Venture Capital, and 3) Debt/Special Situations. These allocations will be implemented via allocation to primary and secondary fund investments and co investment opportunities. The sub allocation targets and target ranges are summarized below:~~

<u>Sub-Category</u>	<u>Target Allocation</u>	<u>Range</u>
<u>Buyouts</u>	<u>60%</u>	<u>+/- 20%</u>
<u>Venture Capital</u>	<u>20%</u>	<u>0-30%</u>
<u>Debt/Special Situations</u>	<u>20%</u>	<u>+/- 10%</u>

~~The responsibility for private equity sourcing is delegated to SamCERA's investment consultant.~~

~~The private equity portfolio shall adhere to the following investment guidelines covering diversification and quality:~~

~~(a) **Diversification:** Subject to availability of sufficient attractive opportunities, the portfolio is to be diversified over multiple years by the following:~~

~~**Vintage Year:** It is expected that roughly equal amounts of new funding will be committed in each calendar year, with deviations permitted to accommodate market opportunities and to facilitate initial entry into the asset class.~~

~~**Investment Manager:** The reported value plus unfunded commitments of any one investment manager (excluding fund of funds) up to no more than twenty (20) percent of the reported value plus unfunded commitments of the total private equity portfolio.~~

~~**Geography:** Through commitments to funds located and/or investing both in and outside of the United States.~~

~~**Industry:** It is expected that the private equity portfolio will be generally diversified by sector/industry.~~

~~(b) **Quality:** All commitments to private equity by SamCERA must be of institutional quality as evidenced by other tax exempt institutional investors' commitments to the investment manager's prior or current funds.~~

~~Fund managers are expected to comply with SamCERA's private placement disclosure rules.~~

~~**Absolute Return:** The absolute return category will focus on funds that have an absolute return orientation and are not expected to contain significant levels of public market beta over the long term. This category is expected to provide a diversifying return stream to the total plan that is not correlated to the public markets. Suitable investment strategies include multi-strategy funds, alternative risk premia funds, CTAA or global macro funds, and CTA/Managed Futures trend following funds. It is expected that this category will be implemented via commingled funds and not in separate accounts so that SamCERA's investment in any single fund would be 'ring fenced' (i.e. any potential losses would be limited to the investment in the single fund, and not extend to the total plan assets).~~

~~**ALTERNATIVES PERFORMANCE OBJECTIVE:**~~

~~The performance objective of the Alternatives Composite is to outperform, on a net-of-fee basis, a customized index incorporating the weighted average components for two sub-asset~~

classes highlighted above (which results in the following weights: 50% Russell 3000 + 3% (One Quarter Lagged), and 50% LIBOR + 4%).

ASSET CLASS	BENCHMARK INDEX
Alternatives	Customized Benchmark Portfolio
Private Equity	Russell 3000 + 3% (One Quarter Lagged)
Absolute Return	LIBOR + 4%

ALTERNATIVES RISK EXPOSURES AND RISK MITIGATION:

Alternatives, while expected to provide attractive returns that are less correlated to the returns provided by public asset classes, also have a number of risks. Chief among these are illiquidity risk and leverage. By their nature Private Equity is generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by alternative managers to enhance the overall risk adjusted returns. SamCERA will control leverage exposure through partnership selection and portfolio construction and diversification.

13. RISK PARITY INVESTMENT POLICIES

RISK PARITY OVERVIEW: Risk Parity is a risk diversified balanced portfolio that is expected to provide a more diversified return and risk profile than that of a traditional 60% equity / 40% fixed income portfolio. It is generally designed to be more balanced between equity risk, interest rate risk, credit risk, and inflation risk than a traditional balanced portfolio.

RISK PARITY PERFORMANCE OBJECTIVE:

The performance objective of the Risk Parity Composite is to outperform, on a net-of-fee basis, the 60% MSCI World / 40% BC Global Aggregate over a 5-year rolling period.

RISK PARITY RISK EXPOSURES AND RISK MITIGATION:

Risk parity managers utilize leverage in order to enhance returns. Moderate leverage may be utilized and the portfolio managers should avoid strategies that might place the portfolio outside the expected ranges outlined. Gross exposures are expected to range from 250% to 350%. In addition, the risk parity portfolio shall consist of a portfolio of generally liquid trading instruments.

Counter-parties for Over the Counter (OTC) derivatives must either: (1) have a long-term rating from Standard & Poor's of at least A-, or from Moody's of at least A3; or (2) be approved by the manager's counter-party committee. In the event that the OTC derivative counterparty is an unrated affiliate whose performance is unconditionally guaranteed by the parent company, the parent's credit rating shall apply.

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ASSET CLASS	BENCHMARK INDEX
Risk Parity	60% MSCI World / 40% BC Global Aggregate

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1324.0 QUARTERLY INVESTMENT PERFORMANCE REPORTING

The quarterly investment performance reports will be designed as a risk management tool and will afford the Board the opportunity to timely identify potential risk issues within the portfolio and to assess the relative performance of the investment managers.

The report will provide sufficient information to assess the following:

- A. Total and active risk assessment at total fund, composite and individual manager level.
- B. Performance attribution at total fund, composite and individual manager level.
- C. Adherence to the investment style for which the manager is retained, as measured by the quarterly risk adjusted active return (deviation of the manager's performance from the specified performance benchmark) over the last quarter, six months, one-, three-, and five-year periods, including updates from previous quarterly reports regarding adherence to the style for which the firm was retained;
- D. Ability of the active manager to demonstrate consistently positive information ratios, including updates from previous quarterly reports regarding the firm's information ratios;
- E. Quarterly, annual, three- and five-year total time-weighted returns relative to the specified performance benchmark and manager style peer group.

1435.0 ANNUAL INVESTMENT STRATEGY

Annually, the Board/Staff shall convene an investment strategy session (typically as part of the annual retreat) with the objective of addressing strategic investment policy issues and to deliberate any policies that could benefit the performance of the retirement Fund. The agenda for these sessions should include (but is not limited to) the following information:

- (a) Compare the Fund's actual investment performance for the prior fiscal year against the investment objectives set forth in Section 3.0 and evaluate the relative success or failure of the prior year's performance; specific commentary to this objective shall be an integral part of the performance measurement process.
- (b) Compare each investment manager's investment performance for the prior fiscal year against the relevant benchmarks and peer groups and evaluate the relative success or failure of their prior year's performance.

- (c) Evaluate and review the total Fund performance attribution and contribution to return at the composite level to isolate performance drivers.
- (d) Evaluate and review the various risk exposures of the plan versus appropriate policy limits and on-going trends through time.
- (e) Evaluate and review the portfolio rebalancing activity for the year.
- (f) Evaluate the Fund's liquidity requirements for the current and next fiscal years.
- (g) Compare each investment manager's fees to their respective peer universe.

1546.0 PROXY VOTING

The Investment Managers are delegated authority for the voting of proxies, subject to the following guidelines:

- A. All proxies shall be voted in the best interest of the shareholders, but in no instance shall the economic interests of the retirement Fund be subordinated to any other interest.
- B. Investment managers shall provide staff with quarterly reports on all proxies cast, in a mutually acceptable format.

1657.0 SECURITIES LENDING

- A. Pursuant to Section 2.0 (A), the Custodian shall manage a securities lending program to enhance income in accordance with the terms and conditions set forth in a mutually acceptable securities lending agreement and guaranty.
- B. The Board reserves exclusive authority to approve the securities lending agreement prior to the commencement of securities lending activity.
- C. Unless otherwise specified in the agreement(s):
 - (i) All loans shall be marked-to-market daily.
 - (ii) Collateral on each loan shall be maintained daily at 102% of loan value for domestic securities and 105% of loan value for international securities.
 - (iii) Acceptable collateral shall be in the form of cash or obligations issued or guaranteed by the U.S. Government, or its agencies or instrumentalities.
 - (iv) Borrower must have a long-term credit rating of either "A" from S&P or "A2" from Moody's. For split rated borrowers, the higher rating shall prevail if not the same rating, with the lower rating having a minimum long-term credit rating of either "A-" from S&P or "A3" from Moody's.

- (v) The maximum allowable amount of assets on loan to any single borrower shall not be greater than \$3 million.
- (vi) The maximum total amount of program assets on loan shall not be greater than \$10 million.
- D. The Chief Investment Officer shall be responsible for monitoring the securities lending program and recommending changes as appropriate.

APPENDIX A

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Investment Committee Charter as Amended
RESOLUTION 99-00-09

This Resolution, adopted by the Board of Retirement (Board) of the San Mateo County Employees' Retirement Association (SamCERA), sets forth the Charter for the Board's Investment Committee.

WHEREAS, Article XVI, §17 of the Constitution of the State of California as amended in 1992 to read, in pertinent part, as follows:

Notwithstanding any other provisions of law or this Constitution to the contrary, the retirement board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system, subject to all of the following:

(a) The retirement board ... shall have the sole and exclusive fiduciary responsibility over the assets of the ... system. The retirement board shall also have sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries. The assets ... are trust funds and shall be held for the exclusive purposes of providing benefits to participants ... and their beneficiaries and defraying reasonable expenses of administering the system.

(b) The members of the retirement board ... shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement board's duty to its participants and their beneficiaries shall take precedence over any other duty.

(c) The members of the retirement board ... shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent

person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

(d) The members of the retirement board...shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.

(e) The retirement board..., consistent with the exclusive fiduciary responsibilities vested in it, shall have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of the... system. &

WHEREAS, California Government Code §31595 states, as follows:

The Board has exclusive control of the investment of the employees retirement fund. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system. Except as otherwise expressly restricted by the California Constitution and by law, the Board may, in its discretion, invest, or delegate the authority to invest, the assets of the fund through the purchase, holding, or sale of any form or type of investment, financial instrument, or financial transaction when prudent in the informed opinion of the Board...; &

WHEREAS, *The Board of Retirement*, wishes to exercise these powers as follows:

EXERCISE OF POWERS: *The Board shall exercise its investment, management and administrative authority and responsibility through the approval of motions recorded in public meeting &*

WHEREAS, the Board has adopted SamCERA's Investment Policy and amendments thereto to direct the investments of the Retirement Fund and now wishes to establish an Investment Committee to guide the future evolution of SamCERA's Investment Policy. Therefore, be it

RESOLVED that the Board hereby establishes a standing Investment Committee to direct the Board in its ongoing evaluation of SamCERA's Investment Policy, including but not limited to

- 1.0 CONDUCT ASSET ALLOCATION STUDIES
 - 1.1 Determine the characteristics of the Policy's liabilities in regards to the nature of Fund's cash flows
- 2.0 DEVELOP ASSET MIX ALTERNATIVES TO MEET LIABILITY REQUIREMENTS
 - 2.1 Establish allowable asset classes
 - 2.2 Determine asset class benchmarks
 - 2.3 Develop risk, return & correlation projections
- 3.0 EVALUATE EFFICIENT FRONTIER ALTERNATIVES
 - 3.1 Define risk, return and correlation
 - 3.2 Evaluate mean variance optimization
 - 3.3 Determine low risk alternatives and high risk alternatives
 - 3.4 Scale portfolios between two extremes
 - 3.5 Evaluate optimized efficient frontier

- 3.6 Integrate optimized efficient frontier with asset-liability relationships
- 4.0 ANALYZE BOARD RISK TOLERANCE
 - 4.1 Assess risk/reward trade-offs
 - 4.2 Assess contribution rate sensitivity & variability
 - 4.3 Assess ability to exceed actuarial interest rate
 - 4.4 Assess comfort level with characteristics of specific asset mixes
- 5.0 RECOMMEND PREFERRED ASSET MIX
 - 5.1 Evaluate differences from current target
 - 5.2 Evaluate Board's willingness to implement new target asset mix
 - 5.3 Evaluate appropriateness of variance from peer public fund norms
- 6.0 RECOMMEND AMENDMENTS TO SAMCERA'S INVESTMENT POLICY
 - 6.1 Adjust target asset mix
 - 6.2 Introduce new benchmarks
 - 6.3 Include required asset class/portfolio modifications
- 7.0 RECOMMEND REVISIONS TO MANAGER STRUCTURE
 - 7.1 Adjust manager/style line-up as necessary
 - 7.2 Introduce new managers/asset classes
 - 7.3 Terminate managers/asset classes as necessary
 - 7.4 Establish active & passive allocation targets as appropriate
- 8.0 IMPLEMENT CHANGES TO MANAGER STRUCTURE
 - 8.1 Recommend time-line & approach to revise structure
 - 8.2 Conduct manager evaluations
 - 8.3 Establish portfolio and asset allocation rebalancing procedures
- 9.0 EVALUATE MANAGER PERFORMANCE
 - 9.1 Monitor results of managers both gross and net of investment management fees
 - 9.2 Assess consistency of portfolio decision making
 - 9.3 Evaluate organizational, ownership, personnel & other firm developments
- 10.0 RECOMMEND AND EVALUATE INVESTMENT CONSULTANT STRUCTURE & PERFORMANCE
 - 10.1 Recommend for Board determination the retention and termination of Investment Consultant(s) as necessary
 - 10.2 Define and assign special projects as warranted
 - 10.3 Monitor performance of Investment Consultant(s)
 - 10.4 Conduct evaluations of Investment Consultant(s)
 - 10.5 Evaluate organizational, ownership, personnel and other firm developments
- 11.0 INITIATE & EVALUATE SPECIAL INVESTMENT STUDIES
- 12.0 UNDERTAKE OTHER WORK ASSIGNED TO IT BY THE BOARD Be it further

RESOLVED that the Chair may appoint the members of the Investment Committee per Regulation 2.5.1.
Be it further

RESOLVED that the Chief Executive Officer is hereby instructed to provide the Committee with access to all appropriate and available resources and records, so long as such access is consistent with sound fiduciary practices. Be it further

RESOLVED that the Chief Executive Officer is hereby authorized to provide compensation of \$100 per meeting for not more than two meetings per month to the members of the Committee eligible for such compensation, per GC§31521. Be it further
RESOLVED that the Board hereby reserves to itself sole authority to accept, modify, or reject the recommendations, which the Investment Committee may present from time to time pursuant to the provisions of this Resolution, per Regulation 2.3.

ADOPTED by unanimous vote, January 25, 2000
AMMENDED by unanimous vote, May 22, 2001
AMMENDED by unanimous vote, October 25, 2004

APPENDIX B

Derivatives Investment Policy

1) Introduction

There is a genuine need to allow SamCERA's separate account managers to evaluate new securities and introduce them into their portfolios, given that the investment process followed by the investment managers complies with the subsequent provisions of this policy statement. This policy statement allows SamCERA's separate account Managers to exercise reasonable investment freedom, while minimizing the possibility of adverse implications for the Board.

2) Derivative Definition

A 'derivative' commonly is defined as a financial instrument whose performance is derived, at least in part, from the performance of an underlying asset (such as a security or an index of securities).

3) Types of Securities Included or Excluded

Since the derivative sector of the market is likely to experience considerable change, provisions must be made for the general characteristics of a derivative security, its evaluation and monitoring. Therefore, it is most appropriate to not attempt to definitively list all of the derivative securities that are covered by this policy. Instead, what will be explicitly stated is the investment process that governs derivative investments and the evaluation and monitoring requirements of this policy.

4) Approach to Policy

An approach has been developed which states allowable derivative investments, limited allocation derivative investments and restricted derivative investments.

Derivative securities not specified in the above three groups of securities must be evaluated in accordance with the following section entitled Derivative Investment Process. If the security meets these provisions and the spirit of these policies, the manager may establish a prudent position in the instrument. However, the manager must be able to demonstrate the appropriateness of such an investment in light of SamCERA's guidelines.

5) Counter-Party Evaluation

When entering into a non-exchange traded derivative investment, the investment manager must fully evaluate the other side of the derivative transaction—the counter-parties to the trade. Due to the possibility of counter-party default, SamCERA's investment managers must evaluate the risks associated with the counter-party as if an investment were being made in the traditional securities issued by the counter-party.

At a minimum, the investment manager must evaluate the counter-party's following criteria:

- a) Corporate earnings stream
- b) Corporate asset quality
- c) Capitalization
- d) Corporate liquidity
- e) Moody's and Standard & Poor's debt ratings
- f) Other fundamental investment and risk characteristics

For those counter-parties that are broker/dealers, they must:

- a) Have investment grade (Moody's and S&P rated) debt
- b) Be registered with the SEC
- c) Have significant net capital to protect against potential adverse market circumstances

For those counter-parties that are financial institutions (banks), they must have:

- a) Investment grade (Moody's and S&P rated) debt
- b) Total assets in excess of \$1 billion
- c) Significant net capital to protect against potential adverse market circumstances

The investment manager must monitor individual investment and total portfolio exposure to counter-parties. Individual counter-party exposure must be well diversified and not concentrated in a small number of organizations.

6) Purposes for Derivatives

The acceptable investment purposes for the use of derivatives are as follows:

- a. Appropriate to use futures, options and forward currency contracts to assist investment managers in mitigating portfolio risk.
- b. Useful substitute for an existing, traditional investment. In certain circumstances it may be cheaper, quicker or easier to invest in a derivative instrument or security rather than transacting in the cash or traditional security market.
- c. Provides investment value to the portfolio, while being consistent with SamCERA's overall and specific investment policies.
- d. Obtains investment exposure that is appropriate with the manager's investment strategy and SamCERA's investment guidelines, but could not be made through traditional investment securities.

Given that one or more of these investment purposes are clearly met, it is the responsibility of the investment manager to explain and demonstrate how derivative investments impact portfolio risk and the context of the investment within the overall portfolio.

Any other derivative investment purpose is not allowed. Derivatives may not be introduced into the portfolio to create economic leverage or to create investment exposures that are otherwise excluded by SamCERA's Investment Policy. However, if a manager develops an investment purpose other than those listed above which he/she feels is legitimate and consistent with the spirit of SamCERA's guidelines, this purpose should be proposed in writing to the Board.

7) Investment Restrictions and Derivatives Policy

For the purpose of these guidelines, convertible debt, traditional zero coupon bonds, mortgage pass-through securities and asset-backed securities are not viewed as derivatives. Based upon the factors enumerated in the above Section 4 entitled Approach to Policy, the following guidelines have been established:

Allowable derivative investments

- a. Stable and well-structured mortgage CMO's (Collateralized Mortgage Obligations)
- b. Financial futures (if Exchange Traded)
- c. Currency forward contracts and currency options (Exchange and OTC traded)
- d. Interest rate swaps

Derivative investments with allocation limits

- a. Interest only mortgage CMO's
- b. Principal only mortgage CMO's
- c. Options (if Exchange Traded)
- d. Caps and floors as they apply to the above stated allowable derivative investments
- e. Credit Default Swaps (CDS)

Derivative investments with allocation limits, as listed above, may not represent more than 5% of the individual portfolio manager's assets (based on market value) managed for SamCERA. At the same time, derivative investments with allocation limits in aggregate may not expose the individual manager's portfolio to losses in excess of 5% of the manager's total assets managed for SamCERA. In addition, the use of options, caps and floors, and CDS may be used only for defensive investment purposes.

Managers investing in the above-defined limited allocation derivative instruments should ensure that portfolio exposure is maintained within the stated constraints, and communicate the assumptions and model used to estimate VAR (Value at Risk) and/or other reasonable risk measurement procedures annually to the Boards.

Restricted derivative investments

- a. Inverse floating rate notes and bonds
- b. Structured notes

Restricted derivatives cannot be held in SamCERA's separate account portfolios at any time.

8) Risk Analysis and Monitoring of Derivatives

For those securities that are classified as derivative investments with allocation limits, the investment managers are required to test and measure derivative investment sensitivities to changes in key risk factors. These risk factors include extreme changes in interest rates, volatility, liquidity, credit quality, and cash market prices.

These risk factors will be assessed prior to initial investment and on a quarterly basis. Results of such risk testing on derivative investments with allocation limits will be supplied to SamCERA on an annual basis (December 31). If the investment manager identifies additional risks that should be evaluated, these other risk factors should be added to the list and handled in a manner consistent with the previously stated approach.

9) Derivative Investment Process

Investment managers are expected to cover the following issues before purchasing a derivative instrument or security, whether specifically stated as an allowable derivative investment, a derivative investment with

allocation limits, or a derivative not specifically discussed in the Investment Restrictions and Derivatives Policy section above:

- a. Determine if the purpose for investing in a derivative security is consistent with one or more of the purposes in the previous section entitled Purposes for Derivatives.
- b. Determine where the security fits into the classification system, if at all, stated in the Investment Restrictions and Derivatives Policy.
- c. Evaluate, at a minimum, the counter-party risk and the risks stated in the Risk Analysis and Monitoring section of the derivatives policy.
- d. Evaluate the derivative in a comparably thorough manner as the firm would any other traditional investment opportunity.

10) Reporting Requirements

It is the responsibility of SamCERA's investment managers to certify and demonstrate that their portfolios are in compliance with SamCERA's overall guidelines as well as those that apply to derivative investments. On an annual basis (December 31), SamCERA's investment managers will provide the following minimum monitoring information on all derivative securities:

- a. A general statement from the investment manager that its portfolio is in compliance with this Derivatives Policy.
- b. When stating the market value of the derivative exposure, the manager will specify the security pricing sources. The pricing source must be exchange-listed.
- c. A statement of the risks (credit risk—an evaluation of potential counter-party default on obligations, market risk—percent of portfolio invested in derivatives, and any other relevant risks) associated with the derivative investments.
- d. Potential adverse impact on market values if extreme adverse market movements occur.
- e. A statement regarding the liquidity of the derivative investments.
- f. Summary comments and the firm's list of approved counter-parties, ratings, and a statement regarding any changes to this list.
- g. An overall statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Appendix C

DISCLOSURE OF PLACEMENT AGENT FEES, GIFTS, AND CAMPAIGN CONTRIBUTIONS

This amended policy is effective immediately upon adoption. This policy is intended to supplement any applicable provisions of state or federal law, which shall govern in the event of any inconsistency.

I. PURPOSE

This Policy is adopted pursuant to the requirements set forth in Government Code Section 7513.85 to help ensure that the San Mateo County Employees' Retirement Association (SamCERA) investment decisions are made solely on the merits of the investment opportunity. This Policy requires broad, timely, and updated disclosure of all Placement Agents, as that term is defined by Government Code section 7513.8, their relationships, compensation and fees.

II. APPLICATION

This Policy applies broadly to every type of SamCERA investment managers including general partners, sponsors of hedge funds, private equity funds, real estate funds and infrastructure funds, as well as public market investment managers.

This Policy as amended applies to all agreements with External Managers that are entered into after the date this Policy is adopted and all existing agreements if, after the date this amended Policy is adopted, the agreement is amended to continue, terminate, or extend the term of the agreement or the investment period, increase the commitment of funds by SamCERA or increase or accelerate the fees or compensation payable to the External Manager (Referred to hereafter as "Amendment".) In the case of an Amendment, the disclosure provisions of this Policy shall apply to the Amendment and not to the original agreement.

III. RESPONSIBILITIES

A. The Board is responsible for:

1. Not entering into any agreement with an External Manager that does not agree in writing to comply with this policy.

2. Not entering into any agreement with an External Manager who has violated this policy within the previous five years. However, this prohibition may be reduced by a majority vote of the Board at a public session upon a showing of good cause.

B. Each External Manager is responsible for:

1. Executing an agreement that provides the External Manager will comply with this policy.
2. Providing the following information to SamCERA Investment Staff within 45 days of the time investment discussions are initiated by the External Manager, but in any event, prior to the completion of due diligence. In the case of Amendments, the Placement Agent Information Disclosure is required prior to execution of the Amendment.
 - a. Disclosure of payments or compensation by the External Manager or any of its principals, employees, agents or affiliates, directly or indirectly, to any person or entity to act as a Placement Agent in connection with SamCERA investments.
 - b. A resume for each officer, partner, principal of the Placement Agent detailing the person's education, professional designations, regulatory licenses and investment and work experience. If any such person is a current or former SamCERA Board Member, employee or Consultant or a member of the immediate family of any such person, this fact shall be specifically noted.
 - c. A description of any and all compensation of any kind provided or agreed to be provided to a Placement Agent, including the nature, timing and value thereof. Compensation to Placement Agents shall include, but not be limited to, compensation to third parties as well as employees of the External Manager who solicit or market investments to SamCERA or who are paid based upon investment commitments secured by such employees.
 - d. A description of the services to be performed by the Placement Agent and a statement as to whether the Placement Agent is utilized by the External Manager with all prospective clients or only with a subset of the External Manager's prospective clients.
 - e. A written copy of any and all agreements between the External Manager and the Placement Agent.
 - f. A statement whether the placement agent, or any of its affiliates, are registered with the Securities and Exchange Commission or the Financial Industry Regulatory Association, or any similar regulatory agent in a country other than the United States, and the details of that registration or explanation as to why no registration is required.
 - g. A statement whether the placement agent, or any of its affiliates, is

registered as a lobbyist with any state or national government.

h. The names of any current or former SamCERA Board Members, employees, or Consultants who suggested the retention of the Placement Agent.

3. Providing an update of any changes to any of the information provided pursuant to section B.2 above within 30 calendar days of the date that the External Manager knew or should have known of the change in information.
4. Representing and warranting the accuracy of the information described in section B.2 above.
5. Causing its engaged Placement Agent to disclose, prior to acting as a Placement Agent to SamCERA:
 - a. All campaign contributions made by the Placement Agent to any publicly elected SamCERA Board Member during the prior 24-month period. Additionally, any subsequent campaign contribution made by the Placement Agent to any publicly elected SamCERA Board Member during the time the Placement Agent is receiving compensation in connection with a SamCERA investment shall also be disclosed.
 - b. All gifts, as defined in Government Code Section 82028, given by the Placement Agent to any SamCERA Board Member during the prior 24-month period. Additionally, any subsequent gift made by the Placement Agent to any SamCERA Board Member during the time the Placement Agent is receiving compensation in connection with a SamCERA investment shall also be disclosed.
6. SamCERA reserves the right to deem the failure to disclose the information required by 5(a) and 5(b) as a material breach of the agreement with the External Manager.

C. SamCERA Investment Staff (“Staff”) are responsible for:

1. Providing External Managers with a copy of this Policy at the time that discussions are initiated with respect to a prospective investment or engagement.
2. Confirming that the information in section B above has been received within 45 days of the time the execution of the investment contract or Amendment.
3. For new contracts and amendments to contracts existing as of the date of the initial adoption of this Policy, securing the agreement of the External Manager in the final written agreement between SamCERA and the External Manager to provide in the event that there was or is an intentional material omission or

inaccuracy in the Placement Agent Information Disclosure or any other violation of this Policy, SamCERA reserves the right to reimbursement of any management or advisory fees paid by SamCERA from the date of violation to the date of the imposition of the fees.

4. Prohibiting any External Manager or Placement Agent from soliciting new investments from SamCERA for five years after they have committed a material violation of this Policy; provided, however, that SamCERA's Board, by majority vote at a noticed, public meeting, may reduce this prohibition upon a showing of good cause.
5. Providing the Board with Placement Agent information relating to each investment at the time the investment is brought to the Board for its decision.
6. Maintaining Placement Agent Information Disclosures as a public record and reporting to the Board any a material violation of this Policy.

Adopted December 14, 2010
Amended October 25, 2011
Amended March 28, 2017

DEFINITIONS:

The following definitions are excerpted from California Government Code section 7513.8 and are current as of March 28, 2017. Should the legislature subsequently amend the definitions below, the definition of these terms as amended shall supersede the definitions contained in this policy.

"External Manager" means either of the following: (1) a Person who is seeking to be, or is, retained by a board or an Investment Vehicle to manage a portfolio of securities or other assets for compensation; (2) a Person who manages an Investment Fund and who offers or sells, or has offered or sold, an ownership interest in the Investment Fund to a board or an Investment Vehicle. (All code section references are to the Government Code, unless otherwise noted.)

"Person" means an individual, corporation, partnership, limited partnership, limited liability company, or association, either domestic or foreign.

"Investment Vehicle" means a corporation, partnership, limited partnership, limited liability company, association, or other entity, either domestic or foreign, managed by an External Manager in which a board is the majority investor and that is organized in order to invest with, or retain the investment management services of, other External Managers.

"Investment Fund" means a private equity fund, public equity fund, venture capital fund, hedge fund, fixed income fund, real estate fund, infrastructure fund, or similar pooled investment

entity that is, or holds itself out as being, engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, owning, holding, or trading securities or other assets. Notwithstanding the preceding sentence, an investment company that is registered with the Securities and Exchange Commission pursuant to the Investment Company Act of 1940 (15 U.S.C. Sec. 8a-1 et seq.) and that makes a public offering of its securities is not an Investment Fund.

“Placement Agent” means any Person directly or indirectly hired, engaged, or retained by, or serving for the benefit of or on behalf of, an External Manager or an Investment Fund managed by an External Manager, and who acts or has acted for compensation as a finder, solicitor, marketer, consultant, broker or other intermediary in connection with the offer or sale to a board or an Investment Vehicle either of the following: in the case of an External Manager as defined in subpart (1) of the definition of an External Manager, the investment management services of the External Manager; in the case of an External Manager as defined in subpart (2) of the definition of an External Manager, an ownership interest in an Investment Fund managed by the External Manager. Notwithstanding the preceding sentence, an individual who is an employee, officer, director, equityholder, partner, member, or trustee of an External Manager and who spends one-third or more of his or her time, during a calendar year, managing the securities or assets owned, controlled, invested, or held by the External Manager is not a Placement Agent.



SamCERA's Investment Policy Statement

Latest Revision July 2020

1.0 ESTABLISHMENT OF INVESTMENT POLICY

The Board of Retirement (the “Board”), having exclusive authority and exclusive fiduciary responsibility for the investment and administration of the Trust Fund (the “Fund”), hereby establishes the following Investment Policy (the “Policy”) for the investment of the San Mateo County Employees’ Retirement Association (“SamCERA”) assets. The Board reserves the right to amend, supplement or rescind this Policy at any time.

The purpose of this Policy is to assist SamCERA in effectively supervising its investments in order to meet the requirements of the California Constitution, the County Employees Retirement Law of 1937 (“the 1937 Act”), the Mission and Goals of SamCERA and other requirements, and to encourage effective communication between SamCERA and its investment managers (the “Manager(s)”) and investment consultants (the “Consultant(s)”).

A. GOVERNING DOCUMENTS FOR THE INVESTMENTS OF THE FUND.

The powers and duties of the Board are set forth in the 1937 Act and in Article XVI of the State Constitution. They are further defined by the Mission and Goals adopted by the Board.

SamCERA was created by San Mateo County Ordinance No. 564 adopted by the Board of Supervisors, effective July 1, 1944. This ordinance established the retirement system in accordance with the provisions of California's County Employees' Retirement Law of 1937.

Constitution of the State of California

Article XVI, Section 17, relates to the administration of the system and investment of the Fund assets. It reads in pertinent part:

“(a)...The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system.

“(b) The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement board's duty to its participants and their beneficiaries shall take precedence over any other duty.

“(c) The members of the retirement board of a public pension or retirement system shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

“(d) The members of the retirement board of a public pension or retirement system shall diversify the investments of the system so as to minimize the risk of loss and to

maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.”

The 1937 Act

The 1937 Act contains language similar to that in the State Constitution regarding the investments of the Fund:

Government Code section 31595.

“The board has exclusive control of the investment of the employees retirement fund. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system. Except as otherwise expressly restricted by the California Constitution and by law, the board may, in its discretion, invest, or delegate the authority to invest, the assets of the fund through the purchase, holding, or sale of any form or type of investment, financial instrument, or financial transaction when prudent in the informed opinion of the board.

The board and its officers and employees shall discharge their duties with respect to the system: (a) Solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system.

(b) With the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

(c) Shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly prudent not to do so.

SamCERA’s Mission and Goals

The Board has adopted a Mission and Goals statement. The Mission summarizes SamCERA’s reason to exist.

“Mission: SamCERA exists to serve as loyal fiduciary for its members and as prudent administrator of the retirement system.”

The Mission is further defined by three goals. One goal speaks to the management of the assets of the Fund. This asset management goal reads:

“Prudently manage the assets in order to appropriately fund the actuarial liabilities of the retirement system, to ensure the ability to pay all earned benefits while minimizing the costs to employers.”

In recognition of the requirements of the California Constitution, the 1937 Act, the SamCERA Mission and Goals and other legal requirements, the SamCERA Board has established this Investment Policy.

2.0 MANAGEMENT OF THE FUND

A. ROLES AND PRINCIPAL DUTIES

The Fund investments shall be prudently planned, implemented, managed, and monitored by the Board. Investment Staff (the “Staff”), Investment Consultant (the “Consultant”), Custodian Bank (the “Custodian”), and Investment Managers (the “Managers”) shall support the Board in this activity. The roles are set forth below:

1. The Board establishes and maintains the investment policy, including: investment philosophy, investment objectives, strategic asset allocation, allocation-level performance benchmarks, and risk philosophy. The Board makes investment and monitoring decisions based upon the recommendations of Staff, Consultants, and other service providers engaged by the Board. The Board reviews and monitors all investments, as well as the policies, guidelines and procedures required to prudently administer the Fund and to effectively mitigate risk to the Fund. From time to time, the Board will utilize its Investment Committee to assist the Board in these activities and related specified tasks.
2. Staff oversees the Fund’s investment program activities, implements the Board’s decisions, makes recommendations to the Board regarding Fund management, including investment-related policies and procedures. Staff makes recommendations regarding the selection of the Consultant, Managers, Custodian as set forth below and monitors the performance and compliance of these and other investment related service providers.
3. The Consultant reviews, analyzes and evaluates the Fund’s effectiveness and efficiency and makes fund management related recommendations. Consultant assists Staff in implementing the Board’s decisions and developing all investment-related policies. Consultant’s responsibilities are detailed in the service agreement between SamCERA and Consultant.
4. The Custodian provides custody of SamCERA’s investment assets. In addition, the Custodian manages the securities lending program. The Custodian’s responsibilities are detailed in the service agreement between SamCERA and Custodian.
5. The Managers manage their mandated allocations in accordance with all applicable laws, Board-established policies, guidelines and procedures, as well as specific investment guidelines. For separately managed accounts, managers’ responsibilities are detailed in the Investment Management Agreements (IMA) between SamCERA and each Manager. For commingled funds, managers’ responsibilities are detailed in the related Fund documents.

B. INVESTMENT PORTFOLIO MANAGEMENT

The Board, with the assistance of Staff and Consultant, select and monitor Managers to manage the assets of the Fund.

1. Hiring New Managers

For public markets manager searches (i.e. non private equity and private real assets), Staff will inform the Board about the search process, including scope of the mandate, and the investment style, benchmark, and the minimum qualifications for candidates. Staff will update the Board on the short list of potential managers. Consultant and Staff will perform due diligence activities deemed applicable by the Chief Investment Officer, which may include analysis of performance records, meetings, due diligence questionnaires, interviews, and on-site visits. Upon completion of such due diligence, Staff and Consultant will bring a finalist to the Board for approval. The recommendation shall provide the Board with a summary description of the conducted due diligence activities.

For private markets (private equity and private real assets), the Consultant, with Staff input, sources managers that can best fit the desired mandate consistent with the annual pacing study and applicable investment policy. Consultant and Staff will bring potential private markets opportunities to the Board for approval. An exception to this policy is when an investment decision for a private market opportunity must be made prior to the date of the next regularly scheduled Board meeting. In these instances, and for investments of \$25 million or less, the Chief Executive Officer is authorized to make the investment decision after consulting with the Board Chair, or if the Chair is not available, the Vice Chair, and one member of the Investment Committee as long as such decision is in the best interest of the fund and consistent with applicable Board policy. Any action under this authorization will be reported to the Board at a subsequent regularly scheduled meeting.

2. Monitoring Existing Managers

The Board monitors the individual investment managers on a continuous basis through information provided by Staff, the Consultant, the Managers, and other investment service providers. Monthly, the Chief Investment Officer will present a preliminary performance report to the Board that is meant to provide a high-level summary of how the fund and each monthly-valued manager is performing. In addition, for SamCERA's separate accounts, Staff receives holdings and attribution reports from each separate account Manager on a monthly basis. For commingled funds, staff receives from the Manager either monthly or quarterly portfolio performance, attribution, exposure, and commentary reports.

Quarterly, the Consultant, with assistance from the Chief Investment Officer, will present an investment performance report to the Board, as specified in Section 14.0 (Quarterly Investment

Performance Reporting) in the Investment Policy. This report provides a more detailed performance attribution for the total plan and individual Managers, and helps to identify any short-term outlier deviations from expectations.

Semi-annually (month-end June and December of each year), every public markets (i.e. not private equity or private real asset) Manager completes a compliance statement identifying any significant firm, regulatory, and portfolio issues. In addition, semi-annually as of June and December of each year, Consultant will present performance reports for both the Private Equity and Private Real Assets programs that summarize each program and shows total program performance and program diversification by strategy, geography, industry, and vintage year.

Annually, Staff and Consultant will convene an investment strategy session, as specified in Section 15.0 (Annual Investment Strategy) in the Investment Policy, to allow a longer-term assessment of the Managers and the total fund performance. Lastly, all public markets Managers are interviewed annually by Staff and Consultant, and must complete a due diligence questionnaire.

During these presentations at SamCERA, Managers will provide an update on the Manager's organization and business plan, any changes to the investment process, and a summary of investment performance. Staff and Consultant report to the Board following these meetings.

3. Terminating Existing Managers

The Board recognizes investments may need to be adjusted or removed from the Fund from time to time for a variety of reasons, including organization changes at the Manager, changes in Manager style, underperformance relative to expectations, and the Managers' strategy is no longer appropriate for the fund. The Board determines if a Manager should be terminated after receiving input and or recommendations from Staff and Consultant.

In situations in which developments give immediate concern that an investment with a Manager is no longer prudent for the investment program and a termination or other related investment decision should be made prior to the next regularly scheduled Board meeting, the Chief Executive Officer is authorized to terminate the Manager and or move Fund assets after consulting with the Board Chair (or Vice Chair or Secretary based on availability, in that order) and one member of the Investment Committee. Situations causing an immediate concern, include, but are not limited to, when: (1) the firm suffers the resignation or other loss of its key portfolio managers on the strategy, (2) the firm dissolves, ceases to exist, or is otherwise incapable of carrying out its activities in the ordinary course of its business, (3) the firm is actually or effectively shut down by a regulatory agency or is accused of theft or fraud or other serious malfeasance by a regulatory agency, or (4) the fund's investment is in jeopardy of material loss. The Board will be promptly notified of the determination by the Chief Executive Officer.

3.0 INVESTMENT OBJECTIVES

The Board shall develop an investment program, consistent with the Investment Beliefs and General Investment Policies as stipulated in Sections 4.0 and 5.0, respectively, in order to meet the following objectives:

- A. Generate risk-adjusted returns that exceed the Asset Allocation Policy Benchmark (as defined in Section 6.0) on a net-of-fee basis over five-year rolling periods.
- B. Achieve a Fund return that meets or exceeds the long-term forecast of capital market returns for the asset allocation portfolio benchmark over multiple economic cycles (e.g. 15-20 years).
- C. Provide a more consistent return stream than a traditional 60% Equity / 40% Fixed Income portfolio as measured by lower portfolio drawdowns over a full market cycle.

4.0 INVESTMENT BELIEFS

The following section summarizes the Board's investment beliefs that have guided it in the development of this Policy document and will guide it in the oversight of the Plan assets.

- Strategic asset allocation is the primary driver of portfolio risk and return.
- SamCERA should have a long-term horizon and not be tempted to deviate from its long-term plan in response to short-term volatility.
- Everything else being equal, simplicity is preferred over complexity.
- For those asset classes evidencing market efficiencies, the manager structure may favor the employment of passive strategies.
- Focus on income and capital appreciation should be balanced and not overly dependent on one or the other.
- Diversification is fundamental.
- There is no single definition of risk. There are various measures of 'risk' that can be used for various purposes.
- The portfolio should be diversified across many risk dimensions/timeframes.
- SamCERA should not pursue investments that will not adequately compensate it for the risks that those investments bring.
- Costs matter.

5.0 GENERAL INVESTMENT POLICIES

Consistent with the investment beliefs contained in Section 4.0, it is the investment policy of the Board to:

- A. Achieve long-term risk-adjusted returns consistent with its fiduciary duty.
- B. Pursue an investment strategy that reduces the volatility of returns through prudent diversification of the portfolio across a broad selection of distinct asset classes, as provided for in Section 6.0 of this Investment Policy.
- C. Further diversify other risks, including extreme events, liquidity, and leverage by looking beyond traditional asset class definitions by utilizing multiple lenses on portfolio risks.
- D. Adopt an asset allocation target to guide the structure of the investment portfolio, as provided for in Section 6.0, and reevaluate on an annual basis.
- E. Reevaluate the asset-liability study every three to five years.
- F. Delegate full discretion, including whether to include environmental, social, and governance factors, if such factors have a direct relationship to the economic and financial value of an investment, when analyzing the financial merits of competing investment choices on behalf of SamCERA, to each investment manager to the extent authorized in their Investment Management Agreement (IMA).
- G. Adopt objectives that encourage investment managers to maximize their performance, within acceptable risk parameters, relative to their individual investment style benchmark.
- H. Refrain from drastically shifting asset class allocations over short time spans, unless it is in the Fund's best interest to do so.
- I. Rebalance the portfolio in accordance to the Rebalancing Policy set forth in Section 7.0.

6.0 ASSET ALLOCATION & PORTFOLIO STRUCTURE

A. Asset Allocation by Performance Driver

In addition to grouping investments into traditional asset classes (Public Equity, Fixed Income, Alternative Assets, Inflation Hedge and Liquidity), SamCERA also groups its investments by the underlying performance drivers within each asset class composite. As part of this process, SamCERA classifies its portfolio into three main drivers of performance listed below.

Growth

The Growth category includes assets in which their primary driver of returns is tied to the general strength of economic output. These assets will generally do well when economic conditions are favorable, but generally struggle in times of economic weakness and recession. Assets classified in the Growth category include Public Equity (consisting of U.S. and International Equity), Private Equity within Alternatives, and Opportunistic Credit within Fixed Income.

Diversifying

Diversifying assets provide protection from equity risk and may be characterized as being more defensive (i.e. may help provide stability when markets fall) or more absolute-return oriented (i.e. performance is not as dependent on the overall strength of equity markets). Assets classified in the Diversifying category include Core Fixed Income, and Absolute Return within Alternatives.

Inflation Hedge

Lastly, Inflation Hedge assets provide additional diversification from equity risk and provide a potential hedge against unexpected inflation. Assets classified in this category include Real Estate, Public Real Assets, and Private Real Assets.

Asset Allocation Policy			
Performance Driver View	Target Allocation	Rebalancing Range	Traditional Asset Class View **
Growth	55%	±3%	
Public Equity	39%	±3%	Public Equity
Private Equity *	6%	±2%	Alternatives
Opportunistic Credit	10%	±2%	Fixed Income
Diversifying	28%	±2%	
Core Fixed Income	21%	±2%	Fixed Income

Absolute Return	6%	±2%	Alternatives
Liquidity	1%	±2%	Liquidity
Inflation Hedge	17%	±2%	
Real Estate	10%	±2%	Inflation Hedge
Private Real Assets *	3%	±2%	Inflation Hedge
Public Real Assets	4%	±2%	Inflation Hedge

* Recognizing the illiquidity of the asset class, rebalancing will be considered over six- to twelve-month periods.

** Traditional Asset Allocation: 39% Public Equity, 31% Fixed Income, 12% Alternatives, 17% Inflation Hedge, and 1% Liquidity.

B. Growth Asset Allocation

Growth assets shall be allocated to managers within the following asset/sub-asset classes:

GROWTH ASSET CLASSES	TARGET ALLOCATION	REBALANCE RANGE
Public Equity	39%	±3%
Large Capitalization Domestic	19.0%	±2%
Passive Core	8.0%	±2%
Active Core	3.0%	±2%
Active Low-Volatility Core	8.0%	±2%
Small Capitalization Domestic	2.0%	±2%
Active Core	2.0%	±2%
International	18.0%	±2%
Passive Core	6.0%	±2%
Growth	6.0%	±2%
Value	6.0%	±2%
Private Equity	6%	±2%
Opportunistic Credit	10%	±2%
Total Growth	55%	±3%

C. Diversifying Asset Allocation

Diversifying assets shall be allocated to managers within the following asset/sub-asset classes:

DIVERSIFYING ASSET CLASSES	TARGET ALLOCATION	REBALANCE RANGE
Core Fixed Income	21%	±2%
Core	14.0%	±2%
Core Securitized	4.0%	±2%
Core Unconstrained	3.0%	±2%
Absolute Return	6%	±2%
Liquidity	1%	±2%
TOTAL DIVERSIFYING	28%	±2%

D. Inflation Hedge Asset Allocation

Inflation Hedge assets shall be allocated as follows:

INFLATION HEDGE ASSET CLASSES	TARGET ALLOCATION	REBALANCE RANGE
Real Estate	10.0%	±2%
Private Real Assets	3.0%	±2%
Public Real Assets	4.0%	±2%
TOTAL INFLATION HEDGE ASSETS	17.0%	±2%

E. Asset Allocation Policy Benchmark

The Asset Allocation Policy Benchmark defined below is derived by assigning a passive benchmark to each of the sub-asset classes referenced in Sections 6.0 (A) through 6.0 (D) and weighting each by the Target Allocation. The performance of the Asset Allocation Policy Benchmark is computed by the Plan's investment consultant.

Benchmark	Asset Allocation Policy Benchmark
Growth Assets	55%
Russell 3000 Index	21%
MSCI ACWI x US IMI Index Hedged*	18%
Russell 3000 +3% (One Quarter Lagged)	6%
BC BA Intermediate High Yield Index	10%
Diversifying Assets	28%

BC Aggregate Index	21%
LIBOR + 4%	6%
91 Day T-Bills	1%
Inflation Hedge	17%
<hr/>	
NCREIF ODCE	10%
Custom Private Real Asset Index***	3%
Custom Public Real Asset Index**	4%

* 50% hedge ratio starting 10/1/19.

**Comprised of 25% Bloomberg Roll Select Commodity Index, 25% Bloomberg US TIPS Index, 25% S&P Global LargeMidCap Commodity and Resources Index, and 25% S&P Global Infrastructure Index.

***Comprised of 50% S&P Global LargeMidCap Commodity and Resources Index, 50% S&P Global Infrastructure Index + 2% (One Quarter Lagged)

7.0 REBALANCING POLICY

- A. The Chief Investment Officer (CIO) shall rebalance the portfolio as needed in conformance with the asset allocation tactical ranges set forth in Section 6.0.
- B. The potential need to rebalance will be continuously monitored, and will be subject to deviations within the established rebalance ranges specified in Section 6.0.
- C. The CIO will have discretion to rebalance to Target or to some other allocation, as long as it is within policy ranges.
- D. Cash flows will be used first to rebalance, and to the extent possible, exchange-traded derivatives will be used to rebalance in a cost-effective manner.
- E. All rebalancing activity shall be reported to the Board at the next scheduled meeting.

8.0 GENERAL MANAGER INVESTMENT PERFORMANCE POLICIES

The responsibility for securities selection, purchase and sale decisions, and proxy voting (where appropriate) is delegated to the external investment managers. The individual investment guideline parameters (including diversification constraints, concentration limits, asset type exclusions, etc.) and performance objectives for each investment manager will be established within the IMA or other applicable legal agreement(s) with each firm.

The Board expects to measure investment performance quarterly and will generally follow prudent time horizons when evaluating short term, intermediate term, and long term performance of its investment managers. Generally, the Board defines underperformance as: Cumulative annualized performance (net of fees) over a three-year period below a broad market-based benchmark return times 0.9, or five year return (net of fees) below the broad market based benchmark return.

Performance will also be evaluated in light of the manager's stated style and discipline.

9.0 GROWTH ASSETS INVESTMENT POLICIES

GROWTH ASSETS OVERVIEW:

Assets classified in the Growth category include Public Equity (consisting of U.S. and International Equity), Private Equity within Alternatives, and Opportunistic Credit within Fixed Income.

Public Equity: Public equity assets include funds shares/stock of a company through a public market. SamCERA invests utilizing both passive approaches (meant to track the performance and characteristics of major market indices, like the Russell 1000 Index and MSCI ACWI ex US IMI Index), and via active approaches that are meant to outperform the major market benchmarks. Public Equity is expected to produce returns higher than that provided from Fixed Income but at potentially higher levels of volatility. Exposure to this asset class will provide return streams generally correlated to that of general economic growth. There are two primary components to the Public Equity category: 1) Domestic Equity, and 2) International Equity.

1) Domestic Equity: SamCERA further breaks out its U.S. public equity holdings into two sub-composites: 1) U.S. Large Capitalization Domestic, which is comprised of U.S. companies valued generally over \$10 billion, and 2) U.S. Small Capitalization Domestic, which is comprised of U.S. companies valued generally under \$2 billion.

For the domestic equity program, the majority of the tracking error will come from stock selection via active management as the overall manager structure for domestic equities will not possess any significant biases in terms of investment style. The Domestic Equity composite will consist of two sub-composites: 1) Large-Capitalization Equity, and 2) Small-Capitalization Equity. Large Capitalization Equity will consist of four Core strategies: one passive, one low-tracking error active, and two low-volatility active strategies. Small-Capitalization Equity will consist of an actively-managed Core strategy.

2) International Equity: International Equity consists of developed (public companies domiciled in developed market countries such as Germany, France, UK, Japan, etc.) and emerging markets (public companies domiciled in emerging market countries such as China, Brazil, Mexico, Russia, etc.)

International Equity will consist of three strategies: 1) a passive Core component, 2) Active Value, and 3) Active Growth. All three strategies will have exposure to both developed and emerging markets).

Private Equity: Private Equity are funds, typically illiquid investments, that directly invest in private companies, or that engage in buyouts of public companies. Private Equity is expected to be one of the highest returning asset classes over the long-term. Its role in the portfolio is to provide high return potential in order to maximize the ability of the Fund to meet its performance objectives.

The Private Equity program will contain manager allocations to three primary sub-categories: 1) Buyouts, 2) Venture Capital, and 3) Debt/Special Situations. These allocations will be implemented via allocation to primary and secondary fund investments and co-investment opportunities. The sub-allocation targets and target ranges are summarized below:

Sub-Category	Target Allocation	Range
Buyouts	60%	+/- 20%
Venture Capital	20%	0 – 30%
Debt/Special Situations	20%	+/- 10%

The responsibility for private equity sourcing is delegated to SamCERA’s investment consultant. The private equity portfolio shall adhere to the following investment guidelines covering diversification and quality:

(a) **Diversification:** Subject to availability of sufficient attractive opportunities, the portfolio is to be diversified over multiple years by the following:

Vintage Year: It is expected that roughly equal amounts of new funding will be committed in each calendar year, with deviations permitted to accommodate market opportunities and to facilitate initial entry into the asset class.

Investment Manager: The reported value plus unfunded commitments of any one investment manager (excluding fund of funds) up to no more than twenty (20) percent of the reported value plus unfunded commitments of the total private equity portfolio.

Geography: Through commitments to funds located and/or investing both in and outside of the United States.

Industry: It is expected that the private equity portfolio will be generally diversified by sector/industry.

(b) **Quality:** All commitments to private equity by SamCERA must be of institutional quality as evidenced by other tax-exempt institutional investors’ commitments to the investment manager’s prior or current funds.

Fund managers are expected to comply with SamCERA’s private placement disclosure rules.

Opportunistic Credit: Fixed income assets are debt investments that provide a return in periodic payments in debt instruments issued by governments and corporations. Opportunistic Credit is expected to be the highest-risk category within fixed income, and will be used to enhance return by investing via public and private investments in non-traditional sectors of the fixed income market, including emerging market debt, high yield bonds, direct lending, bank loans, convertible bonds, and CMBS/ABS securities. This sub-category will be exposed to general economic risk factors, similar to public equities, but may provide a steadier stream of returns than public equity asset classes.

GROWTH ASSETS PERFORMANCE OBJECTIVE:

The performance objective of the Growth Assets Composite is to outperform, on a net-of-fee basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for four composite sub-asset classes (which results in the following weights: 38% Russell 3000, 33% MSCI ACWI ex US IMI Index hedged*, 11% Russell 3000 Index + 3% (one quarter lagged), and 18% Barclays BA Intermediate High Yield Index).

The Public Equity composite has a maximum tracking error of 3% to its composite benchmark while the Opportunistic Credit composite has a maximum tracking error of 2% to its composite benchmark.

GROWTH ASSETS RISK EXPOSURES AND RISK MITIGATION:

Public Equity: The primary risk factors for Public Equity are correlation to general economic growth, high volatility in returns, and potential illiquidity in smaller-capitalization and certain emerging market stocks. SamCERA will control for these risk factors by diversifying the plan across assets that exhibit limited correlation to economic growth. In addition, SamCERA's rebalancing ranges for small-cap equity will help ensure adequate diversification within the equity portion of the SamCERA portfolio.

Private Equity: Private Equity, while expected to provide attractive returns, also have a number of risks. Chief among these are illiquidity risk and leverage. By their nature Private Equity is generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by private equity managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through partnership selection and portfolio construction and diversification.

Opportunistic Credit: Opportunistic Credit is generally the highest risk, lowest liquidity sub-category within Fixed Income. SamCERA will take into account unique risk factors when constructing the fixed income portfolio to help ensure that the overall risk profile of the total portfolio is consistent with expectations. Opportunistic Credit typically includes the risk factors contained in Core and Core Unconstrained, but, depending on the mandate, with higher emphasis to credit default risks, emerging markets sovereign/corporate default risk, potential leverage, and potential illiquidity. It is expected that strategies within Opportunistic Credit will have a maximum leverage ratio of 2.5x at the fund level (i.e. certain holdings may be levered higher than the 2.5x limit, as long as the fund (or strategy) has a maximum 2.5x leverage). Strategies employing higher leverage will be relegated to the debt/special situations category of Private Equity (see above).

GROWTH ASSET CLASSES	BENCHMARK INDEX
Growth Assets	Customized Benchmark Portfolio
Public Equity	
Domestic Equity	Russell 3000
Large Capitalization Domestic Equity	Russell 1000
Passive Core	Russell 1000
Active Core	Russell 1000
Active Low Volatility Core	Russell 1000
Small Capitalization Domestic Equity	Russell 2000
Active Core	Russell 2000
International Equity	MSCI All Country World ex US IMI hedged*
International Passive Core	MSCI ACWI ex US IMI
International Growth	MSCI ACWI Free ex US Growth
International Value	MSCI ACWI Free ex US Value
Private Equity	Russell 3000 + 3% (One Quarter Lagged)
Opportunistic Credit	Barclays Capital BA Intermediate High Yield Index

* 50% hedge ratio starting 10/1/19.

10.0 DIVERSIFYING ASSETS INVESTMENT POLICIES

DIVERSIFYING ASSETS OVERVIEW:

Assets classified in the Diversifying category include Core Fixed Income, Absolute Return within Alternatives, and Liquidity.

Fixed Income: Fixed income assets are debt investments that provide a return in periodic payments in debt instruments issued by governments and corporations. Core Fixed Income is generally the lowest risk and highest liquidity sub-category within Fixed Income. It is expected to provide a lower, but steadier stream of returns than public equity asset classes, and also to reduce the risk of the overall portfolio as bonds have lower risk than most other major asset classes. That said, there are a number of sub-categories within Core Fixed Income, which exhibit different risk/return trade-offs and hold slightly different tasks in terms of role in the portfolio, but have the common goal of dampening portfolio volatility. Core Fixed Income is broken out into three subcategories:

- 1) Core, 2) Core Securitized, and 3) Core Unconstrained

Core: Core is generally considered the lowest-risk fixed income category, and one that invests in primarily liquid, investment grade U.S. Dollar denominated bonds. It also generally consists of sectors that comprise the Bloomberg Barclays Aggregate Bond Index. Core's role in the portfolio is to dampen portfolio volatility and protect the portfolio in times of economic duress.

Core Securitized: Core Securitized is a low/medium-risk fixed income sub-category, and contains securitized sectors, including mortgage-backed securities, commercial mortgage-backed securities, and asset-backed securities. Core Securitized's role in the portfolio, in addition to dampening portfolio volatility, is to provide higher yield and slightly lower interest rate sensitivity as compared to the Bloomberg Barclays Aggregate Bond Index.

Core Unconstrained: Core Unconstrained is a medium-risk fixed income sub-category, and contains the sectors contained in Core plus high yield (below investment grade bonds), non-U.S. Dollar denominated bonds, and emerging market fixed income securities. Core Unconstrained's role in the portfolio is a combination of total portfolio volatility dampening and some moderate return enhancement.

Absolute Return: The Absolute Return category will focus on funds that have an absolute return orientation and are not expected to contain significant levels of public market beta over the long term. This category is expected to provide a diversifying return stream to the total plan that is not correlated to the public markets. Suitable investment strategies include multi-strategy funds, alternative risk premia funds, GTAA or global macro funds, and CTA/Managed Futures trend following funds. It is expected that this category will be implemented via commingled funds and not in separate accounts so that SamCERA's investment in any single fund would be 'ring-fenced' (i.e. any potential losses would be limited to the investment in the single fund, and not extend to the total plan assets).

Liquidity: The Liquidity category currently consists of cash and cash-equivalent type investments with short duration.

DIVERSIFYING ASSETS PERFORMANCE OBJECTIVE:

The performance objective of the Diversifying Assets Composite is to outperform, on a net-of-fee-basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for three composite sub-asset classes (which results in the following weights: 75% Bloomberg Barclays Aggregate Index, 21% to LIBOR + 4%, and 4% to 91 Day T-Bills). The Core Fixed Income sub-asset class has a maximum tracking error of 2% to its composite benchmark.

DIVERSIFYING ASSETS RISK EXPOSURES AND RISK MITIGATION:

The Core Fixed Income sub-sectors have different risk factor exposures. SamCERA will take into account these unique risk factors when constructing the Core Fixed Income portfolio to help ensure that the overall risk profile of the total portfolio is consistent with expectations.

Core: The primary risk factors are sensitivity to changes in interest rates, changes in mortgage prepayment speeds, and investment-grade corporate and sovereign credit risk.

Core Securitized: The primary risk factors are complexity, credit and prepayment risk across various securitized sectors (e.g. ABS, CMBS, and RMBS) with interest rate sensitivity being a relatively lower risk factor as compared to assets within Core (above). The focus is on higher quality securitized investments to minimize credit risk.

Core Unconstrained: The primary risk factors typically include the risk factors found in Core with additional exposures to high-yield default risks, emerging markets sovereign/corporate default risk, and potential illiquidity. The allocation to these risk exposures will be dynamic over time as the portfolio is not constrained to a benchmark.

Absolute Return: Absolute Return, while expected to provide attractive returns that are less correlated to the returns provided by public asset classes, also has a number of risks. Chief among these is leverage. Leverage can be employed by absolute return managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through fund selection as well as portfolio construction and diversification.

DIVERSIFYING ASSET CLASSES	BENCHMARK INDEX
DIVERSIFYING ASSETS	CUSTOMIZED BENCHMARK PORTFOLIO
Core Fixed Income	
Core/Core Securitized/Core Unconstrained	Bloomberg Barclays Aggregate Bond Index
Absolute Return	LIBOR + 4%

11.0 INFLATION HEDGE INVESTMENT POLICIES

INFLATION HEDGE OVERVIEW:

The Inflation Hedge category combines inflation-sensitive assets under a single asset class to simplify the asset allocation process and enable better performance monitoring of the plan’s overall, direct exposure to assets with inflation-hedging properties. The plan also has indirect exposure to inflation-sensitive assets through other asset classes, such as Public Equity, Fixed Income, and Alternatives. When determining the appropriate allocation of inflation protection, both direct and indirect exposures to inflation-sensitive assets across the plan are taken into account. The Inflation Hedge category is expected to provide a high degree of inflation beta, attractive risk-adjusted returns and diversification benefits to the overall plan.

Inflation Hedge is broken out into four subcategories:

- 1) Real Estate, 2) Private Real Assets, and 3) Public Real Assets

Real Estate: Real Estate is expected to provide a return and risk profile between that provided by fixed income and equities. Real estate will be composed of three sub-categories: 1) Core, 2) Value-Add, and 3) Debt. The majority of exposure will be in Core real estate assets of the highest quality located in the best locations in North America, Europe, and Asia. Value-Add properties are expected to provide somewhat higher return potential along with somewhat higher risk than Core assets. Real Estate Debt strategies range from lower risk senior loans on stable properties to higher risk/return mezzanine and construction loans. SamCERA utilizes Debt strategies for risk mitigation and to enhance the portfolio’s yield.

Income will be a large part of the return stream generated from the Real Estate portfolio. The role of this portfolio is to provide diversification benefits, some protection against

unanticipated inflation, and a steady income stream. Higher risk Opportunistic/Development real estate strategies will reside in the Private Real Assets composite due to their higher-risk, longer time horizon, and the less liquid nature of the investment set compared to Core, Value-Add, and Debt strategies. The sub-allocation targets and target ranges are summarized below:

Real Estate Strategy	Target Allocation	Range
Core Real Estate	60%	50 -70%
Value-Add Real Estate	20%	0 - 30%
Real Estate Debt	20%	0 - 30%

Private Real Assets: Private Real Assets are expected to provide attractive total and risk-adjusted returns that exhibit low correlations with traditional asset classes but positive correlation with inflation. Private Real Assets will be composed of two sub-categories: 1) Infrastructure (Core and Value-Add, Secondary, Midstream Energy, and Power), and 2) Natural Resources (Energy Exploration & Production, Mining, Farmland, Timber, and Water). These allocations will be implemented via allocation to primary and secondary fund investments and co-investment opportunities. The sub-allocation targets and target ranges are summarized below:

Sub-Category	Target Allocation	Range
Infrastructure	75%	+/- 25%
Natural Resources	25%	+/- 25%

Public Real Assets: Similar to Private Real Assets, Public Real Assets is expected to provide positive correlation to inflation, but with potentially higher beta to public equity markets. Public Real Assets may be used to fund new strategies in Private Real Assets and will be composed of four sub-categories: 1) Commodities, 2) U.S. TIPS, 3) Listed Global Natural Resources, and 4) Listed Global Infrastructure. All four sub-categories are meant to provide some protection from higher levels of unanticipated inflation while providing a diversifying return stream from that of public markets.

The sub-allocation targets and target ranges are summarized below:

Sub-Category	Target Allocation	Range
Commodities	25%	0 - 50%

U.S. TIPS	25%	0 - 50%
Listed Global Natural Resources	25%	0 – 50%
Listed Global Infrastructure	25%	0 – 50%

INFLATION HEDGE PERFORMANCE OBJECTIVE:

The performance objective of the Inflation Hedge Composite is to outperform, on a net-of-fee basis, a customized index (Customized Benchmark Portfolio) incorporating the weighted average components for three composite sub-asset classes (which results in the following weights: 59% NCREIF ODCE, 23% Custom Public Real Asset Index, and 18% Custom Private Real Asset Index).

INFLATION HEDGE RISK EXPOSURES AND RISK MITIGATION:

Real Estate: Many real estate funds utilize leverage to enhance returns. Lack of liquidity is also a concern, but less so for core real estate and senior debt investments. Value-add, mezzanine debt, and opportunistic strategies also tend to have more exposure to general economic conditions than core properties.

These risks will be mitigated in a number of ways. First, the primary emphasis of SamCERA’s real estate program will be focused on Core properties, with a secondary emphasis to Value-Add properties and Debt strategies. Opportunistic-oriented strategies will reside in our Private Real Assets portfolio due to their higher risk profile. In addition, SamCERA’s core real estate fund has a leverage limit of 35%, and SamCERA also sits on the Fund’s Advisory Committee.

Private Real Assets: By their nature, Private Real Assets are generally illiquid in that the life of these fund investments can be as long as ten to twelve years. SamCERA recognizes that this illiquidity is a necessary characteristic (and source of return premium) for these asset classes and as such will endeavor to take this illiquidity into account at the total plan level when addressing total plan liquidity needs during strategic planning asset liability studies. Leverage can be employed by alternative managers to enhance the overall risk-adjusted returns. SamCERA will control leverage exposure through partnership selection and portfolio construction and diversification.

INFLATION HEDGE ASSET CLASSES	BENCHMARK INDEX
INFLATION HEDGE ASSETS	CUSTOMIZED BENCHMARK PORTFOLIO
REAL ESTATE	NCREIF ODCE
PRIVATE REAL ASSETS	CUSTOM PRIVATE REAL ASSET INDEX
PUBLIC REAL ASSETS	CUSTOM PUBLIC REAL ASSET INDEX

12.0 QUARTERLY INVESTMENT PERFORMANCE REPORTING

The quarterly investment performance reports will be designed as a risk management tool and will afford the Board the opportunity to timely identify potential risk issues within the portfolio and to assess the relative performance of the investment managers.

The report will provide sufficient information to assess the following:

- A. Total and active risk assessment at total fund, composite and individual manager level.
- B. Performance attribution at total fund, composite and individual manager level.
- C. Adherence to the investment style for which the manager is retained, as measured by the quarterly risk adjusted active return (deviation of the manager's performance from the specified performance benchmark) over the last quarter, six months, one-, three-, and five-year periods, including updates from previous quarterly reports regarding adherence to the style for which the firm was retained;
- D. Ability of the active manager to demonstrate consistently positive information ratios, including updates from previous quarterly reports regarding the firm's information ratios;
- E. Quarterly, annual, three- and five-year total time-weighted returns relative to the specified performance benchmark and manager style peer group.

13.0 ANNUAL INVESTMENT STRATEGY

Annually, the Board/Staff shall convene an investment strategy session (typically as part of the annual retreat) with the objective of addressing strategic investment policy issues and to deliberate any policies that could benefit the performance of the retirement Fund. The agenda for these sessions should include (but is not limited to) the following information:

- (a) Compare the Fund's actual investment performance for the prior fiscal year against the investment objectives set forth in Section 3.0 and evaluate the relative success or failure of the prior year's performance; specific commentary to this objective shall be an integral part of the performance measurement process.
- (b) Compare each investment manager's investment performance for the prior fiscal year against the relevant benchmarks and peer groups and evaluate the relative success or failure of their prior year's performance.
- (c) Evaluate and review the total Fund performance attribution and contribution to return at the composite level to isolate performance drivers.
- (d) Evaluate and review the various risk exposures of the plan versus appropriate policy limits and on-going trends through time.
- (e) Evaluate and review the portfolio rebalancing activity for the year.
- (f) Evaluate the Fund's liquidity requirements for the current and next fiscal years.
- (g) Compare each investment manager's fees to their respective peer universe.

14.0 PROXY VOTING

The Investment Managers are delegated authority for the voting of proxies, subject to the following guidelines:

- A. All proxies shall be voted in the best interest of the shareholders, but in no instance shall the economic interests of the retirement Fund be subordinated to any other interest.
- B. Investment managers shall provide staff with quarterly reports on all proxies cast, in a mutually acceptable format.

15.0 SECURITIES LENDING

- A. Pursuant to Section 2.0 (A), the Custodian shall manage a securities lending program to enhance income in accordance with the terms and conditions set forth in a mutually acceptable securities lending agreement and guaranty.
- B. The Board reserves exclusive authority to approve the securities lending agreement prior to the commencement of securities lending activity.
- C. Unless otherwise specified in the agreement(s):
 - (i) All loans shall be marked-to-market daily.
 - (ii) Collateral on each loan shall be maintained daily at 102% of loan value for domestic securities and 105% of loan value for international securities.
 - (iii) Acceptable collateral shall be in the form of cash or obligations issued or guaranteed by the U.S. Government, or its agencies or instrumentalities.
 - (iv) Borrower must have a long-term credit rating of either "A" from S&P or "A2" from Moody's. For split rated borrowers, the higher rating shall prevail if not the same rating, with the lower rating having a minimum long-term credit rating of either "A-" from S&P or "A3" from Moody's.
 - (v) The maximum allowable amount of assets on loan to any single borrower shall not be greater than \$3 million.
 - (vi) The maximum total amount of program assets on loan shall not be greater than \$10 million.
- D. The Chief Investment Officer shall be responsible for monitoring the securities lending program and recommending changes as appropriate.

APPENDIX A

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Investment Committee Charter as Amended
RESOLUTION 99-00-09

This Resolution, adopted by the Board of Retirement (Board) of the San Mateo County Employees' Retirement Association (SamCERA), sets forth the Charter for the Board's Investment Committee.

WHEREAS, Article XVI, §17 of the Constitution of the State of California as amended in 1992 to read, in pertinent part, as follows:

Notwithstanding any other provisions of law or this Constitution to the contrary, the retirement board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system, subject to all of the following:

(a) The retirement board ... shall have the sole and exclusive fiduciary responsibility over the assets of the ... system. The retirement board shall also have sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries. The assets ... are trust funds and shall be held for the exclusive purposes of providing benefits to participants ... and their beneficiaries and defraying reasonable expenses of administering the system.

(b) The members of the retirement board ... shall discharge their duties with respect to the system solely in the interest of, and for the exclusive purposes of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A retirement board's duty to its participants and their beneficiaries shall take precedence over any other duty.

(c) The members of the retirement board ... shall discharge their duties with respect to the system with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.

(d) The members of the retirement board...shall diversify the investments of the system so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly not prudent to do so.

(e) The retirement board..., consistent with the exclusive fiduciary responsibilities vested in it, shall have the sole and exclusive power to provide for actuarial services in order to assure the competency of the assets of the... system. &

WHEREAS, California Government Code §31595 states, as follows:

The Board has exclusive control of the investment of the employees retirement fund. The assets of a public pension or retirement system are trust funds and shall be held for the exclusive purposes of providing benefits to participants in the pension or retirement system and their beneficiaries and defraying reasonable expenses of administering the system. Except as otherwise expressly

restricted by the California Constitution and by law, the Board may, in its discretion, invest, or delegate the authority to invest, the assets of the fund through the purchase, holding, or sale of any form or type of investment, financial instrument, or financial transaction when prudent in the informed opinion of the Board...; &

WHEREAS, *The Board of Retirement*, wishes to exercise these powers as follows:

EXERCISE OF POWERS: *The Board shall exercise its investment, management and administrative authority and responsibility through the approval of motions recorded in public meeting &*

WHEREAS, the Board has adopted SamCERA's Investment Policy and amendments thereto to direct the investments of the Retirement Fund and now wishes to establish an Investment Committee to guide the future evolution of SamCERA's Investment Policy. Therefore, be it

RESOLVED that the Board hereby establishes a standing Investment Committee to direct the Board in its ongoing evaluation of SamCERA's Investment Policy, including but not limited to

1.0 CONDUCT ASSET ALLOCATION STUDIES

1.1 Determine the characteristics of the Policy's liabilities in regards to the nature of Fund's cash flows

2.0 DEVELOP ASSET MIX ALTERNATIVES TO MEET LIABILITY REQUIREMENTS

2.1 Establish allowable asset classes

2.2 Determine asset class benchmarks

2.3 Develop risk, return & correlation projections

3.0 EVALUATE EFFICIENT FRONTIER ALTERNATIVES

3.1 Define risk, return and correlation

3.2 Evaluate mean variance optimization

3.3 Determine low risk alternatives and high risk alternatives

3.4 Scale portfolios between two extremes

3.5 Evaluate optimized efficient frontier

3.6 Integrate optimized efficient frontier with asset-liability relationships

4.0 ANALYZE BOARD RISK TOLERANCE

4.1 Assess risk/reward trade-offs

4.2 Assess contribution rate sensitivity & variability

4.3 Assess ability to exceed actuarial interest rate

4.4 Assess comfort level with characteristics of specific asset mixes

5.0 RECOMMEND PREFERRED ASSET MIX

5.1 Evaluate differences from current target

5.2 Evaluate Board's willingness to implement new target asset mix

5.3 Evaluate appropriateness of variance from peer public fund norms

6.0 RECOMMEND AMENDMENTS TO SAMCERA'S INVESTMENT POLICY

6.1 Adjust target asset mix

6.2 Introduce new benchmarks

6.3 Include required asset class/portfolio modifications

- 7.0 RECOMMEND REVISIONS TO MANAGER STRUCTURE
 - 7.1 Adjust manager/style line-up as necessary
 - 7.2 Introduce new managers/asset classes
 - 7.3 Terminate managers/asset classes as necessary
 - 7.4 Establish active & passive allocation targets as appropriate
- 8.0 IMPLEMENT CHANGES TO MANAGER STRUCTURE
 - 8.1 Recommend time-line & approach to revise structure
 - 8.2 Conduct manager evaluations
 - 8.3 Establish portfolio and asset allocation rebalancing procedures
- 9.0 EVALUATE MANAGER PERFORMANCE
 - 9.1 Monitor results of managers both gross and net of investment management fees
 - 9.2 Assess consistency of portfolio decision making
 - 9.3 Evaluate organizational, ownership, personnel & other firm developments
- 10.0 RECOMMEND AND EVALUATE INVESTMENT CONSULTANT STRUCTURE & PERFORMANCE
 - 10.1 Recommend for Board determination the retention and termination of Investment Consultant(s) as necessary
 - 10.2 Define and assign special projects as warranted
 - 10.3 Monitor performance of Investment Consultant(s)
 - 10.4 Conduct evaluations of Investment Consultant(s)
 - 10.5 Evaluate organizational, ownership, personnel and other firm developments
- 11.0 INITIATE & EVALUATE SPECIAL INVESTMENT STUDIES
- 12.0 UNDERTAKE OTHER WORK ASSIGNED TO IT BY THE BOARD Be it further

RESOLVED that the Chair may appoint the members of the Investment Committee per Regulation 2.5.1. Be it further

RESOLVED that the Chief Executive Officer is hereby instructed to provide the Committee with access to all appropriate and available resources and records, so long as such access is consistent with sound fiduciary practices. Be it further

RESOLVED that the Chief Executive Officer is hereby authorized to provide compensation of \$100 per meeting for not more than two meetings per month to the members of the Committee eligible for such compensation, per GC§31521. Be it further

RESOLVED that the Board hereby reserves to itself sole authority to accept, modify, or reject the recommendations, which the Investment Committee may present from time to time pursuant to the provisions of this Resolution, per Regulation 2.3.

ADOPTED by unanimous vote, January 25, 2000

AMMENDED by unanimous vote, May 22, 2001

AMMENDED by unanimous vote, October 25, 2004

APPENDIX B

Derivatives Investment Policy

1) Introduction

There is a genuine need to allow SamCERA's separate account managers to evaluate new securities and introduce them into their portfolios, given that the investment process followed by the investment managers complies with the subsequent provisions of this policy statement. This policy statement allows SamCERA's separate account Managers to exercise reasonable investment freedom, while minimizing the possibility of adverse implications for the Board.

2) Derivative Definition

A 'derivative' commonly is defined as a financial instrument whose performance is derived, at least in part, from the performance of an underlying asset (such as a security or an index of securities).

3) Types of Securities Included or Excluded

Since the derivative sector of the market is likely to experience considerable change, provisions must be made for the general characteristics of a derivative security, its evaluation and monitoring. Therefore, it is most appropriate to not attempt to definitively list all of the derivative securities that are covered by this policy. Instead, what will be explicitly stated is the investment process that governs derivative investments and the evaluation and monitoring requirements of this policy.

4) Approach to Policy

An approach has been developed which states allowable derivative investments, limited allocation derivative investments and restricted derivative investments.

Derivative securities not specified in the above three groups of securities must be evaluated in accordance with the following section entitled Derivative Investment Process. If the security meets these provisions and the spirit of these policies, the manager may establish a prudent position in the instrument. However, the manager must be able to demonstrate the appropriateness of such an investment in light of SamCERA's guidelines.

5) Counter-Party Evaluation

When entering into a non-exchange traded derivative investment, the investment manager must fully evaluate the other side of the derivative transaction—the counter-parties to the trade. Due to the possibility of counter-party default, SamCERA's investment managers must evaluate the risks associated with the counter-party as if an investment were being made in the traditional securities issued by the counter-party.

At a minimum, the investment manager must evaluate the counter-party's following criteria:

- a) Corporate earnings stream
- b) Corporate asset quality
- c) Capitalization
- d) Corporate liquidity
- e) Moody's and Standard & Poor's debt ratings
- f) Other fundamental investment and risk characteristics

For those counter-parties that are broker/dealers, they must:

- a) Have investment grade (Moody's and S&P rated) debt
- b) Be registered with the SEC
- c) Have significant net capital to protect against potential adverse market circumstances

For those counter-parties that are financial institutions (banks), they must have:

- a) Investment grade (Moody's and S&P rated) debt
- b) Total assets in excess of \$1 billion
- c) Significant net capital to protect against potential adverse market circumstances

The investment manager must monitor individual investment and total portfolio exposure to counter-parties. Individual counter-party exposure must be well diversified and not concentrated in a small number of organizations.

6) Purposes for Derivatives

The acceptable investment purposes for the use of derivatives are as follows:

- a. Appropriate to use futures, options and forward currency contracts to assist investment managers in mitigating portfolio risk.
- b. Useful substitute for an existing, traditional investment. In certain circumstances it may be cheaper, quicker or easier to invest in a derivative instrument or security rather than transacting in the cash or traditional security market.
- c. Provides investment value to the portfolio, while being consistent with SamCERA's overall and specific investment policies.
- d. Obtains investment exposure that is appropriate with the manager's investment strategy and SamCERA's investment guidelines, but could not be made through traditional investment securities.

Given that one or more of these investment purposes are clearly met, it is the responsibility of the investment manager to explain and demonstrate how derivative investments impact portfolio risk and the context of the investment within the overall portfolio.

Any other derivative investment purpose is not allowed. Derivatives may not be introduced into the portfolio to create economic leverage or to create investment exposures that are otherwise excluded by SamCERA's Investment Policy. However, if a manager develops an investment purpose other than those listed above which he/she feels is legitimate and consistent with the spirit of SamCERA's guidelines, this purpose should be proposed in writing to the Board.

7) Investment Restrictions and Derivatives Policy

For the purpose of these guidelines, convertible debt, traditional zero coupon bonds, mortgage pass-through securities and asset-backed securities are not viewed as derivatives. Based upon the factors enumerated in the above Section 4 entitled Approach to Policy, the following guidelines have been established:

Allowable derivative investments

- a. Stable and well-structured mortgage CMO's (Collateralized Mortgage Obligations)
- b. Financial futures (if Exchange Traded)
- c. Currency forward contracts and currency options (Exchange and OTC traded)
- d. Interest rate swaps

Derivative investments with allocation limits

- a. Interest only mortgage CMO's
- b. Principal only mortgage CMO's
- c. Options (if Exchange Traded)
- d. Caps and floors as they apply to the above stated allowable derivative investments
- e. Credit Default Swaps (CDS)

Derivative investments with allocation limits, as listed above, may not represent more than 5% of the individual portfolio manager's assets (based on market value) managed for SamCERA. At the same time, derivative investments with allocation limits in aggregate may not expose the individual manager's portfolio to losses in excess of 5% of the manager's total assets managed for SamCERA. In addition, the use of options, caps and floors, and CDS may be used only for defensive investment purposes.

Managers investing in the above-defined limited allocation derivative instruments should ensure that portfolio exposure is maintained within the stated constraints, and communicate the assumptions and model used to estimate VAR (Value at Risk) and/or other reasonable risk measurement procedures annually to the Boards.

Restricted derivative investments

- a. Inverse floating rate notes and bonds
- b. Structured notes

Restricted derivatives cannot be held in SamCERA's separate account portfolios at any time.

8) Risk Analysis and Monitoring of Derivatives

For those securities that are classified as derivative investments with allocation limits, the investment managers are required to test and measure derivative investment sensitivities to changes in key risk factors. These risk factors include extreme changes in interest rates, volatility, liquidity, credit quality, and cash market prices.

These risk factors will be assessed prior to initial investment and on a quarterly basis. Results of such risk testing on derivative investments with allocation limits will be supplied to SamCERA on an annual basis (December 31). If the investment manager identifies additional risks that should be evaluated, these other risk factors should be added to the list and handled in a manner consistent with the previously stated approach.

9) Derivative Investment Process

Investment managers are expected to cover the following issues before purchasing a derivative instrument or security, whether specifically stated as an allowable derivative investment, a derivative investment with

allocation limits, or a derivative not specifically discussed in the Investment Restrictions and Derivatives Policy section above:

- a. Determine if the purpose for investing in a derivative security is consistent with one or more of the purposes in the previous section entitled Purposes for Derivatives.
- b. Determine where the security fits into the classification system, if at all, stated in the Investment Restrictions and Derivatives Policy.
- c. Evaluate, at a minimum, the counter-party risk and the risks stated in the Risk Analysis and Monitoring section of the derivatives policy.
- d. Evaluate the derivative in a comparably thorough manner as the firm would any other traditional investment opportunity.

10) Reporting Requirements

It is the responsibility of SamCERA's investment managers to certify and demonstrate that their portfolios are in compliance with SamCERA's overall guidelines as well as those that apply to derivative investments. On an annual basis (December 31), SamCERA's investment managers will provide the following minimum monitoring information on all derivative securities:

- a. A general statement from the investment manager that its portfolio is in compliance with this Derivatives Policy.
- b. When stating the market value of the derivative exposure, the manager will specify the security pricing sources. The pricing source must be exchange-listed.
- c. A statement of the risks (credit risk—an evaluation of potential counter-party default on obligations, market risk—percent of portfolio invested in derivatives, and any other relevant risks) associated with the derivative investments.
- d. Potential adverse impact on market values if extreme adverse market movements occur.
- e. A statement regarding the liquidity of the derivative investments.
- f. Summary comments and the firm's list of approved counter-parties, ratings, and a statement regarding any changes to this list.
- g. An overall statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Appendix C

DISCLOSURE OF PLACEMENT AGENT FEES, GIFTS, AND CAMPAIGN CONTRIBUTIONS

This amended policy is effective immediately upon adoption. This policy is intended to supplement any applicable provisions of state or federal law, which shall govern in the event of any inconsistency.

I. PURPOSE

This Policy is adopted pursuant to the requirements set forth in Government Code Section 7513.85 to help ensure that the San Mateo County Employees' Retirement Association (SamCERA) investment decisions are made solely on the merits of the investment opportunity. This Policy requires broad, timely, and updated disclosure of all Placement Agents, as that term is defined by Government Code section 7513.8, their relationships, compensation and fees.

II. APPLICATION

This Policy applies broadly to every type of SamCERA investment managers including general partners, sponsors of hedge funds, private equity funds, real estate funds and infrastructure funds, as well as public market investment managers.

This Policy as amended applies to all agreements with External Managers that are entered into after the date this Policy is adopted and all existing agreements if, after the date this amended Policy is adopted, the agreement is amended to continue, terminate, or extend the term of the agreement or the investment period, increase the commitment of funds by SamCERA or increase or accelerate the fees or compensation payable to the External Manager (Referred to hereafter as "Amendment".) In the case of an Amendment, the disclosure provisions of this Policy shall apply to the Amendment and not to the original agreement.

III. RESPONSIBILITIES

A. The Board is responsible for:

1. Not entering into any agreement with an External Manager that does not agree in writing to comply with this policy.

2. Not entering into any agreement with an External Manager who has violated this policy within the previous five years. However, this prohibition may be reduced by a majority vote of the Board at a public session upon a showing of good cause.

B. Each External Manager is responsible for:

1. Executing an agreement that provides the External Manager will comply with this policy.
2. Providing the following information to SamCERA Investment Staff within 45 days of the time investment discussions are initiated by the External Manager, but in any event, prior to the completion of due diligence. In the case of Amendments, the Placement Agent Information Disclosure is required prior to execution of the Amendment.
 - a. Disclosure of payments or compensation by the External Manager or any of its principals, employees, agents or affiliates, directly or indirectly, to any person or entity to act as a Placement Agent in connection with SamCERA investments.
 - b. A resume for each officer, partner, principal of the Placement Agent detailing the person's education, professional designations, regulatory licenses and investment and work experience. If any such person is a current or former SamCERA Board Member, employee or Consultant or a member of the immediate family of any such person, this fact shall be specifically noted.
 - c. A description of any and all compensation of any kind provided or agreed to be provided to a Placement Agent, including the nature, timing and value thereof. Compensation to Placement Agents shall include, but not be limited to, compensation to third parties as well as employees of the External Manager who solicit or market investments to SamCERA or who are paid based upon investment commitments secured by such employees.
 - d. A description of the services to be performed by the Placement Agent and a statement as to whether the Placement Agent is utilized by the External Manager with all prospective clients or only with a subset of the External Manager's prospective clients.
 - e. A written copy of any and all agreements between the External Manager and the Placement Agent.
 - f. A statement whether the placement agent, or any of its affiliates, are registered with the Securities and Exchange Commission or the Financial Industry Regulatory Association, or any similar regulatory agent in a country other than the United States, and the details of that registration or explanation as to why no registration is required.
 - g. A statement whether the placement agent, or any of its affiliates, is

registered as a lobbyist with any state or national government.

h. The names of any current or former SamCERA Board Members, employees, or Consultants who suggested the retention of the Placement Agent.

3. Providing an update of any changes to any of the information provided pursuant to section B.2 above within 30 calendar days of the date that the External Manager knew or should have known of the change in information.
4. Representing and warranting the accuracy of the information described in section B.2 above.
5. Causing its engaged Placement Agent to disclose, prior to acting as a Placement Agent to SamCERA:
 - a. All campaign contributions made by the Placement Agent to any publicly elected SamCERA Board Member during the prior 24-month period. Additionally, any subsequent campaign contribution made by the Placement Agent to any publicly elected SamCERA Board Member during the time the Placement Agent is receiving compensation in connection with a SamCERA investment shall also be disclosed.
 - b. All gifts, as defined in Government Code Section 82028, given by the Placement Agent to any SamCERA Board Member during the prior 24-month period. Additionally, any subsequent gift made by the Placement Agent to any SamCERA Board Member during the time the Placement Agent is receiving compensation in connection with a SamCERA investment shall also be disclosed.
6. SamCERA reserves the right to deem the failure to disclose the information required by 5(a) and 5(b) as a material breach of the agreement with the External Manager.

C. SamCERA Investment Staff (“Staff”) are responsible for:

1. Providing External Managers with a copy of this Policy at the time that discussions are initiated with respect to a prospective investment or engagement.
2. Confirming that the information in section B above has been received within 45 days of the time the execution of the investment contract or Amendment.
3. For new contracts and amendments to contracts existing as of the date of the initial adoption of this Policy, securing the agreement of the External Manager in the final written agreement between SamCERA and the External Manager to provide in the event that there was or is an intentional material omission or

inaccuracy in the Placement Agent Information Disclosure or any other violation of this Policy, SamCERA reserves the right to reimbursement of any management or advisory fees paid by SamCERA from the date of violation to the date of the imposition of the fees.

4. Prohibiting any External Manager or Placement Agent from soliciting new investments from SamCERA for five years after they have committed a material violation of this Policy; provided, however, that SamCERA's Board, by majority vote at a noticed, public meeting, may reduce this prohibition upon a showing of good cause.
5. Providing the Board with Placement Agent information relating to each investment at the time the investment is brought to the Board for its decision.
6. Maintaining Placement Agent Information Disclosures as a public record and reporting to the Board any a material violation of this Policy.

Adopted December 14, 2010

Amended October 25, 2011

Amended March 28, 2017

DEFINITIONS:

The following definitions are excerpted from California Government Code section 7513.8 and are current as of March 28, 2017. Should the legislature subsequently amend the definitions below, the definition of these terms as amended shall supersede the definitions contained in this policy.

“External Manager” means either of the following: (1) a Person who is seeking to be, or is, retained by a board or an Investment Vehicle to manage a portfolio of securities or other assets for compensation; (2) a Person who manages an Investment Fund and who offers or sells, or has offered or sold, an ownership interest in the Investment Fund to a board or an Investment Vehicle. (All code section references are to the Government Code, unless otherwise noted.)

“Person” means an individual, corporation, partnership, limited partnership, limited liability company, or association, either domestic or foreign.

“Investment Vehicle” means a corporation, partnership, limited partnership, limited liability company, association, or other entity, either domestic or foreign, managed by an External Manager in which a board is the majority investor and that is organized in order to invest with, or retain the investment management services of, other External Managers.

“Investment Fund” means a private equity fund, public equity fund, venture capital fund, hedge fund, fixed income fund, real estate fund, infrastructure fund, or similar pooled investment

entity that is, or holds itself out as being, engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, owning, holding, or trading securities or other assets. Notwithstanding the preceding sentence, an investment company that is registered with the Securities and Exchange Commission pursuant to the Investment Company Act of 1940 (15 U.S.C. Sec. 8a-1 et seq.) and that makes a public offering of its securities is not an Investment Fund.

“Placement Agent” means any Person directly or indirectly hired, engaged, or retained by, or serving for the benefit of or on behalf of, an External Manager or an Investment Fund managed by an External Manager, and who acts or has acted for compensation as a finder, solicitor, marketer, consultant, broker or other intermediary in connection with the offer or sale to a board or an Investment Vehicle either of the following: in the case of an External Manager as defined in subpart (1) of the definition of an External Manager, the investment management services of the External Manager; in the case of an External Manager as defined in subpart (2) of the definition of an External Manager, an ownership interest in an Investment Fund managed by the External Manager. Notwithstanding the preceding sentence, an individual who is an employee, officer, director, equityholder, partner, member, or trustee of an External Manager and who spends one-third or more of his or her time, during a calendar year, managing the securities or assets owned, controlled, invested, or held by the External Manager is not a Placement Agent.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

**RESOLUTION AMENDING SAMCERA'S
INVESTMENT POLICY STATEMENT**

RESOLUTION 2020-____

WHEREAS, pursuant to Article XVI, Section 17, of the California Constitution, the Board of Retirement (the "Board"), has the exclusive authority and fiduciary responsibility for the investment and administration of the assets of the retirement system (the "Fund"), and on September 25, 2018, established an Investment Policy Statement (the "Policy") for the investment of the Fund assets; and

WHEREAS, the purpose of the Policy is to assist SamCERA in effectively supervising its investments in order to meet the requirements of the California Constitution, the County Employees Retirement Law of 1937, the Mission and Goals of SamCERA and other requirements, and to encourage effective communication between SamCERA and its investment managers and investment consultants; and

WHEREAS, the Board periodically reviews its Policy and amends it as necessary so as to remain up to date to reflect recent actions of the Board; and

WHEREAS, in October 2019, the Board approved a new asset allocation policy following the Fund's asset-liability study, which modified the asset allocation that was adopted in May 2018 following the Fund's asset allocation study. As part of the 2019 asset allocation, the Board approved a 3% increase to Growth assets, 8% increase to Diversifying assets, 3% reduction to Inflation Hedge assets and an 8% reduction to Risk Parity. To reflect these updates to the interim target asset allocation, staff recommends that Policy Sections 6.0 and 9.0-12.0 be amended and that Section 13.0, related to Risk Parity, be removed; and

WHEREAS, in April 2020, the Board approved the restructuring of the International Equity portfolio within Growth assets and the restructure of the Public Real Assets portfolio within Inflation Hedge assets. Staff recommends that Policy Sections 6.0, 9.0 and 11.0 be amended to

reflect these changes; and

WHEREAS, over the past three years, SamCERA has been grouping its investments by the underlying performance drivers within each asset class composite with the three categories being Growth, Diversifying and Inflation Hedge. Staff recommends that Sections 6.0, 9.0-10.0 and 12.0 be amended to reflect the new framework of grouping investments by their underlying performance drivers as follows:

1. Amend Section 6.0 “Asset Allocation & Portfolio Structure” by grouping the investments by the underlying performance drivers within each asset class composite.
2. Amend Section 9.0 “Public Equity Investment Policies” by changing the title to “Growth Assets Investment Policies,” and adding the investment policies related to Private Equity and Opportunistic Credit.
3. Amend Section 10.0 “Fixed Income Investment Policies” by changing the title to “Diversifying Assets Investment Policies”, adding the investment policies related to Absolute Return (taken from Section 12.0) and Liquidity (new asset class), and removing the investment policies related to Opportunistic Credit and adding a new sub-category, “Core Securitized” within Core Fixed Income.
4. Remove Section 12.0 “Alternatives Investment Policies” as the investment policies pertaining to Private Equity and Absolute Return would be relocated to Sections 9.0 and 10.0.

WHEREAS, Staff is also proposing the following additional changes to the Policy:

5. Amend Section 4.0 “Investment Beliefs” to add a new investment belief with regards to balancing the focus between income and capital appreciation.
6. Amending Section 11.0 “Inflation Hedge Investment Policies” to change the target allocation to Infrastructure and Natural Resources within Private Real Assets from a 50%/50% split to a 75%/25% split.

WHEREAS, the Board and desires to make such amendments; Now, therefore, be it

RESOLVED, that the SamCERA “Investment Policy Statement” be revised to read as set forth in the attached document.

* * * * *

Regularly passed and adopted, by the San Mateo County Employees' Retirement Association, Board of Retirement, on July 28, 2020.

Ayes, Trustees:

Noes, Trustees:

Absent, Trustees:

Abstain, Trustees:


Board Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 6.5

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Approval to Change FIAM Core Bond and QMA Small-Cap to Separate Account Structure

Recommendation

Approve staff's recommendation to change FIAM Core Bond and QMA Small-Cap from commingled fund to separate account structure.

Background

One of the strategic items that the Board has been contemplating over the past few years is the concept of plan maturity and the resulting impact on SamCERA's investment program. This was one of the items covered in the 2019 Board retreat, in which ways to offset negative cash flow risks as the plan matures over time were discussed. Increasing the plan's non-reinvested income is one way to help offset negative cash flows. The FIAM Core Bond and QMA Small-Cap strategies are currently in commingled fund structures, which limits SamCERA's ability to manage the income from the account.

Discussion

Changing the FIAM Core Bond (and to a lesser extent QMA Small-Cap) to a separate account structure will allow SamCERA to better manage the income (or dividends from the QMA account) to help mitigate future negative cash flows.

In addition, the transition of these two accounts to separate account structures will provide more customization of investment guidelines, along with real-time visibility into account holdings and daily performance, which will help in managing the plan especially in times of market volatility.

The proposed fee schedules are listed below for both accounts. Commingled fund fees are typically lower than comparable separate account fees due to economies of scale of commingled funds. Given SamCERA's current investment of \$260 million in FIAM, the weighted average fee will be 15.7 basis points (compared to 13 basis points for commingled fund). Given SamCERA's \$70 million investment in QMA, the weighted average fee would be 55 basis points, which is the same as for the commingled fund.

Given Board approval, the next steps would be negotiating Investment Management Agreements with both managers, finalizing investment guidelines, and transferring assets to separate accounts.

	FIAM Core Bond
	Sep Acct Fee Schedule
First \$50 million	0.25%
Next \$50 million	0.20%
Next \$100 million	0.125%
Remaining	0.10%
	QMA Small-Cap
	Sep Acct Fee Schedule
First \$100 million	0.55%
Next \$100 million	0.53%
Remaining	0.49%

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

July 28, 2020

Agenda Item 7.1

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer



SUBJECT: Surplus Property Policy

Recommendation

Adopt a resolution adopting a Surplus Property Policy for SamCERA.

Background

In general, furniture, equipment, or other tangible assets owned by SamCERA will reach a point when they are obsolete, damaged, or no longer useable. When this occurs, the property is deemed “surplus property” and should be disposed of properly.

Discussion

SamCERA uses the County’s Surplus Property Program (SPP) to dispose of surplus property. In the past, SPP consisted of our property being picked up and made available to requesting County departments, and potentially sold to the public in a County operated property sale. SPP is now online at GovDeals.com. On this site, County departments, cities, schools, and non-profit organizations may each list their surplus property free of charge for two-weeks. If there is no need by any of these agencies, for an item, it is then auctioned to the public. Using this online program for SamCERA’s surplus property will reach many protentional “reusers” in an efficient manner. Proceeds from the sale of any SamCERA property will be deposited into the Retirement Trust Fund.

The proposed policy reaffirms the use of the SPP as well as listing other options that can be used under varying circumstances. These options include donations, E-recycling (for certain electronic items), other recycling and disposal. The policy describes which electronic equipment can be included in the SPP, direct donation, recycling and which must be physically destroyed.

For individual surplus property that is a capital asset and has market value exceeding \$5,000 or more at the time of surplus, staff will request specific direction from the Board as to its preferred method for disposing of the property.

Attachments

Resolution Adopting Surplus Property Policy
Surplus Property Policy

Board of Retirement

RESOLUTION ADOPTING "SURPLUS PROPERTY POLICY"

RESOLUTION 2020 - __

WHEREAS, this Board has determined that certain furniture, equipment, or other tangible assets owned by SamCERA will reach a point when they are obsolete, damaged, or no longer useable and that such "surplus property" should be disposed of properly; and

WHEREAS, SamCERA currently uses the County of San Mateo ("County") Surplus Property Program (SPP), which is an efficient method of facilitating the reuse of surplus property by County departments, other local San Mateo County public agencies and non-profit organizations; and

WHEREAS, the proposed policy reaffirms the use of the County's SPP as well as listing other options such as donations, electronic recycling, other recycling as appropriate, and disposal; and

WHEREAS, the proposed policy addresses the special handling of electronic equipment; and

WHEREAS, this Board has reviewed the attached proposed Surplus Property Policy and desires to adopt such policy; therefore, be it

RESOLVED that the Board hereby adopts the attached "Surplus Property Policy."

* * * * *

Regularly passed and adopted, by the San Mateo County Employees' Retirement Association, Board of Retirement, on July 28, 2020.

Ayes, Trustees:

Noes, Trustees:

Absent, Trustees:

Abstain, Trustees:

Board Secretary

San Mateo County Employees' Retirement Association

SURPLUS PROPERTY POLICY

I. PURPOSE

When SamCERA property is no longer needed or useable, the following policy lays out methods for the proper disposal of the Surplus Property.

II. SAMCERA SURPLUS PROPERTY DEFINED

Surplus Property is defined as all furniture, equipment or other tangible assets owned by SamCERA that is determined by the Chief Executive Officer (CEO), the Assistant Executive Officer (AEO) or the Chief Technology Officer (CTO) to be obsolete, damaged, or no longer useable by SamCERA.

III. METHODS TO DISPOSE OF SURPLUS PROPERTY

- A. Property Valued at \$5,000 or more.** For Surplus Property that is a capital asset and has, individually, an estimated market value exceeding \$5,000 or more at the time of surplus, the method used to dispose of such property must be approved by the Board of Retirement.
- B. Property Valued Under \$5,000.** The CEO, AEO, or the CTO will determine how to dispose of individual Surplus Property, with an estimated market value less than \$5,000 at the time of surplus, from the methods listed below, taking into consideration the type of property, condition of the property, and circumstances under which disposal is deemed necessary (e.g. storage issues).
 - 1. County's Surplus Property Program (SPP).** Placing Surplus Property in the SPP so that it can be beneficially reused by the County, other Plan Sponsors, local nonprofit or charitable organizations. If the Surplus Property is not reused, the SPP assists in auctioning the property, or disposing of it.
 - 2. Direct Donation.** Donation of Surplus Property directly to any California public institution including but not limited to, public libraries, school districts or interested 501 (c)(3) charities.
 - 3. Certain Electronic Equipment.** Surplus electronic equipment such as hard drives and other recordable media (rewritable and non-rewritable) will not be included

in any SPP, direct donation or other routine means of disposing of equipment (E-waste recycling, etc.).

- a. All hard drives and other rewriteable media (tapes, etc.) will be removed and wiped by SamCERA IT Staff whenever possible, using software that is in accordance with the U.S. Department of Defense 5220.22-M “National Industrial Security Program Operating Manual” (NISPOM) standards.
 - b. Erased hard drives and rewritable media will then be submitted to an authorized third-party vendor to be physically destroyed. SamCERA will retain a copy of the “Certificate of Destruction” affidavit if available.
 - c. Rewriteable and non-rewriteable CD’s and DVD’s will be physically destroyed by SamCERA IT Staff.
4. **E-waste recycling.** Computers, monitors, DVD players, fax machines and other types of electronic products that can be subject to E-waste recycling, in accordance with subsection (3) above, can be E-Waste recycled. If possible, staff should use an organization listed in the directory of participants in the Covered Electronic Waste Recycling Program established by California's Electronic Waste Recycling Act of 2003.
 5. **Other Recycling.** If the Surplus Property cannot be reused by a third party, it should be recycled if possible or discarded.
 6. **Other Available Methods.** If the use of the above methods is not in the best interest of SamCERA, the CEO, AEO, or the CTO can use another preferable method.

IV. DOCUMENTATION AND PROCEEDS FROM THE SALE OF SURPLUS PROPERTY

- A. **Documentation.** Staff shall indicate on a SamCERA Disposal of Surplus Property form that said item has been deemed Surplus Property and will include, at a minimum, the description of disposition method, date of the disposition, and any proceeds from said disposition. This form and related supporting documents should be submitted to the Finance Division for the timely updating of property inventory and accounting records.
- B. **Proceeds.** Proceeds from the sale of any Surplus Property will be deposited into the Retirement Trust Fund and accounted for in accordance with Generally Accepted Accounting Principles.

V. MEMBERS OF THE BOARD OF RETIREMENT AND SAMCERA STAFF

Members of the Board of Retirement and employees of SamCERA are not permitted to purchase or receive SamCERA Surplus Property unless they participate under the SPP public auction.