



# Notice of Public Meeting

## The Board of Retirement of the San Mateo County Employees' Retirement Association will meet on **Tuesday, September 27, 2016, at 10:00 A.M.**

**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 Administration of Oath of Office to Kurt Hoefer
  - 1.2 Election of Board Officers
  - 1.3 Announcement of Appointment of Board Committees
  - 1.4 Presentation of Certificate to Michal Settles
- 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 Regular Board Meeting Minutes from August 23, 2016
- 4. Approval of the Consent Agenda\***

4.1 Disability Retirements	4.5 Deferred Retirements
• Mel Hinshaw	4.6 Member Account Refunds
• Kimberly Minelli	4.7 Member Account Rollovers
4.2 Survivor Death Benefits	4.8 Amendment to Regulation Article VIII
4.3 Service Retirements	Internal Revenue Compliance
4.4 Continuances	
- 5. Benefit & Actuarial Services**
  - 5.1 Consideration of Agenda Items, if any, removed from the Consent Agenda
  - 5.2 Presentation of the June 30, 2016, Actuarial Valuation Report by Milliman, Inc.
  - 5.3 Approval of Resolution Accepting the Fiscal Year 2017-2018 Employer and Member Contribution Rates and Recommendations
  - 5.4 Annual Review of SamCERA's Actuarial Services Firm, Milliman, Inc.
- 6. Investment Services**
  - 6.1 Preliminary Monthly Portfolio Performance Report for the Period Ending August 31, 2016
  - 6.2 Report on Fixed Income Manager Annual Reviews (Western Asset, Fidelity and Brown Brothers Harriman)
  - 6.3 Report on Opportunistic Credit Manager Annual Reviews (Beach Point and Angelo Gordon)
  - 6.4 Report on SamCERA's Securities Lending Program
  - 6.5 Report on Asset-Liability Study: Asset Allocation Mixes (Continued)
- 7. Board & Management Support**
  - 7.1 Approval of SACRS Voting Delegate and Alternates for the SACRS Fall 2016 Business Meeting
  - 7.2 Educational Presentation on Fiduciary Duty, Delegation and Governance

# Notice of Public Meeting

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### 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

### 10. Adjournment in Memory of the Following Deceased Members:

Ferrero, Marie	July 12, 2016	Social Services
Boulding, Ray	July 28, 2016	Food Services
Dean, William	July 28, 2016	Human Services Agency
Nichols, Michaelene	August 9, 2016	Social Services
Sarzotti, James	August 10, 2016	Probation
Bland, Nora	August 11, 2016	Tax Collector
Younger, Ruth	August 22, 2016	Probation
Greer, Maryana	August 23, 2016	Chope Hospital
Reed, June	August 24, 2016	Mosquito Abatement
Knupfer, Margaret	August 25, 2016	Assessor's
Hernandez, Ramona	August 31, 2016	Medical Center



Scott Hood, Chief Executive Officer

Posted: September 21, 2016

(\* 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 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](http://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

September 27, 2016

Agenda Item 1.1

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer



**SUBJECT:** Administration of the Oath of Office to Newly Appointed Trustee

In this agenda item, the Trustee Oath of Office will be given to Kurt Hoefler, ninth member, appointed by the Board of Supervisors on September 6, 2016.

**Attachment**

Board of Supervisors' Appointment Memorandum



COUNTY OF SAN MATEO  
Inter-Departmental Correspondence  
Board of Supervisors



APPROVED BY  
BOARD OF SUPERVISORS

SEP 06 2016

CLERK OF BOARD  
BY S. Miller DEPUTY

Date: August 8, 2016

Board Meeting Date: September 6, 2015

Special Notice / Hearing: None

Vote Required: Majority

To: Honorable Board of Supervisors

From: Supervisor Dave Pine  
Supervisor Warren Slocum

Subject: Appointments to the Board of Retirement of the San Mateo County  
Employees' Retirement Association (SamCERA)

**RECOMMENDATION:**

Recommendation for the appointment of Ben Bowler (Fifth Member) and Kurt Hoefler (Ninth Member) to the Board of Retirement of SamCERA, each for a term ending June 30, 2019.

**BACKGROUND:**

The Board of Retirement serves as fiduciary for the members of SamCERA and as a prudent administrator of the retirement fund. Four of the nine members of the Board are appointed for a term of three years. The term for these two appointments would end June 30, 2019.

**DISCUSSION:**

Ben Bowler is the Treasurer of Matson, Inc. He was first appointed in August 2008 to fill a vacancy and was reappointed in 2013. During his tenure on the Board he has served as Chairman of the Investment Committee.

Kurt Hoefler is a partner at Golub Group, LLC. As an investment adviser and investment banker, he has provided strategic and financial advice to institutions and individuals. This would be his first term on the Board of Retirement.

These appointments contribute to the 2025 Shared Vision statement of a Collaborative Community. Our diverse population works well together to build strong communities, effective government and a prosperous economy, civic engagement – including voting, public service, charitable giving, volunteerism, and participation in public discussions of important issues – is uniformly high among the diverse population of San Mateo County.

**FISCAL IMPACT:**

None.

**COUNTY OF SAN MATEO**  
COUNTY MANAGER'S OFFICE

John L. Maltbie  
County Manager/  
Clerk of the Board

County Government Center  
400 County Center, 1st Floor  
Redwood City, CA 94063  
650-363-4121 T  
650-363-1916 F  
www.smcgov.org

September 6, 2016

Kurt Hoefler  
[REDACTED]

**Subject: Appointment to the Board of Retirement of SamCERA**

Dear Kurt Hoefler:

The Board of Supervisors is pleased to confirm your appointment to the Board of Retirement of SamCERA (Ninth Member) for a term expiring **June 30, 2019**. We appreciate your willingness to devote your time to this important task and hope you will find your efforts rewarding.

You are required to take an oath of office to be personally administered by the Clerk of the Board of Supervisors or a Deputy of said Clerk. The oath will be administered at the County Manager/Clerk of the Board's Office, 400 County Center, Redwood City. The office is open Monday through Thursday from 7:30 a.m. to 5:30 p.m. and on Friday from 8:00 a.m. to 5:00 p.m. Please contact me at [sgolestan@smcgov.org](mailto:sgolestan@smcgov.org) or 650-363-4608 to schedule an appointment.

Thank you for your commitment to the Board of Retirement of SamCERA.

Sincerely,



Sherry Golestan, Agenda Administrator

Attachment: Certified Appointment Board Memo

c: Marci Dragun, Legislative Aide  
Office of Supervisor Warren Slocum

Scott Hood, Commission Liaison



SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
Board of Retirement

September 27, 2016

Agenda Item 1.2

**TO:** Board of Retirement   
**FROM:** Scott Hood, Chief Executive Officer  
**SUBJECT:** Ad Hoc Nominating Committee Report and Election of 2016-2017  
Board Officers

**Staff Recommendation**

Staff recommends that under this agenda item the Board Chair:

- Ask for a report from the chair of the ad hoc committee,
- Ask for a motion and a second to place the committee's slate of candidates in nomination,
- Open the floor to additional nominations,
- Conduct a vote for the officer positions.

**Background**

Pursuant to the Regulations of the Board of Retirement, an election of board officers is to be held at the first meeting of each fiscal year. The board regulations regarding the election of officers are reprinted on the following page.

At the June 7th, 2016, meeting, Board Chair Paul Hackleman appointed the following committee:

**Ad Hoc Nominating Committee for Board Officers**

Sandie Arnott, Chair

Mark Battey

Shirley Tourel

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
Board of Retirement

**EXCERPT FROM THE  
REGULATIONS OF THE BOARD OF RETIREMENT**

**1.1. 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 and shall perform all duties incidental to that office.

**1.2. Election Of Vice Chair:** At the first regular meeting in July, the Board of Retirement shall elect one of its members vice chair for a term of one year or until his or her successor is duly elected and qualified. In the Chair's absence or inability to act, the Vice Chair shall take the place and perform the duties of that office.

**1.3. Election Of Secretary:** At the first regular meeting in July, the Board of Retirement shall elect one of its members secretary for a term of one year or until his or her successor is duly elected and qualified. The Secretary shall attest to Resolutions and other such documents for the Board. In the Chair's and Vice Chair's absence or inability to act, the Secretary shall take the place and perform the duties of the Chair.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
Board of Retirement

September 27, 2016

Agenda Item 1.3

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer

**SUBJECT:** Appointment of Board Committees



**Staff Recommendation**

Staff recommends the Chair announce 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.

**"1.1 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 FY15-16 were as follows:

- Audit Committee- Shirley Tourel, Alma Salas, Eric Tashman, Natalie Kwan Lloyd, Chair
- Investment Committee- Ben Bowler is the only remaining trustee from the investment committee last appointed for FY 14-15



**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**AUGUST 23, 2016 – REGULAR BOARD MEETING MINUTES**

1608.1 **Call to Order, Roll Call and Miscellaneous Business**

**Call to Order:** Mr. Paul Hackleman, Chair, called the Regular Meeting of the Board of Retirement to order at 10:00 a.m.

**Roll Call:**

*Present:* Mark Battey, Natalie Kwan Lloyd, Paul Hackleman, Michal Settles, David Spinello, Eric Tashman and Shirley Tourel.

*Excused:* Sandie Arnott, Ben Bowler

*Alternates present:* Alma Salas and Susan Lee

*Staff:* Scott Hood, Michael Coultrip, Brenda Carlson, Gladys Smith, Elizabeth LeNguyen, Tariq Ali, Tat-Ling Chow, Barbara Edwards, Doris Ng, Lili Dames, and Kristina Perez.

*Consultants:* Margaret Jadallah, Joe Abdou and John Nicolini (*Verus*); Will Morrow, (*LRWL*)

1608.1.1 **Administration of Oath of Office to Newly Elected Trustees:** Shirley Tourel, who is the Assistant Controller, administered the oath of office to Natalie Kwan Lloyd (Third Member) who was reelected in June.

1608.2.1 **Oral Communications from the Board:** Mr. Spinello reported the sessions he attended at the GFOA Annual Conference, in Toronto, Ontario, on May 19-24, 2016. Ms. Settles reported her attendance at CALAPRS Principles of Pension Management, August 9-12, at Pepperdine University.

1608.2.2 **Oral Communications from the Public:** None.

1608.3.1 **Approval of Board Meeting Minutes from July 27, 2016:** Mr. Hackleman asked if there were any changes or corrections to the minutes from July 27, 2016 and none were noted.

**Action:** Mr. Spinello moved to approve the minutes from July 27, 2016; the motion was seconded by Ms. Settles. The motion carried with a vote of 7-0 with trustees Battey, Kwan Lloyd, Hackleman, Settles, Spinello, Tashman and Tourel all in favor; none opposed.

1608.4.0 **Approval of the Consent Agenda:** Mr. Hackleman asked if there were any items to be removed from the Consent Agenda, and no items were requested to be removed.

**Action:** Mr. Spinello moved to approve the Consent Agenda, and the motion was seconded by Ms. Tourel. The motion carried with a vote of 7-0 with trustees Battey, Kwan Lloyd, Hackleman, Settles, Spinello, Tashman and Tourel all in favor; none opposed.

1608.4.1 Disability Retirements

- a) The Board (1) accepted the proposed findings and recommendations of the Hearing Officer, George Camerlengo, (2) found that Elsie Iniguez is permanently incapacitated for the performance of her usual and customary duties as a Benefits Analyst II, (3) found that her disability was not a result of an injury arising out of and in the course of her employment, (4) denied her application for a service-connected disability retirement and (5) granted her a non-service-connected disability retirement.
- b) The Board found that Linda Selhorn is (1) not permanently incapacitated for the performance of her usual and customary duties as a Telephone Operator and (2) denied her application for a service-connected disability retirement.
- c) The Board found that Rafael Urena is (1) permanently incapacitated from the performance of his usual and customary duties as Road Maintenance Worker, (2) found that his disability was the result of an injury arising out of and in the course of his employment and (3) granted his application for a service-connected disability retirement.

1608.4.2 **Service Retirements:**

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

<b>Member Name</b>	<b>Effective Retirement Date</b>	<b>Department</b>
Cummings, Stephen	June 6, 2016	QDRO account
Day, Christopher	June 29, 2016	Deferred from Environ Health
Jackson, Wilbur	July 1, 2016	Family Health
Jenson, Jill	June 1, 2008	Probation
Kocel, Katherine	July 1, 2016	Deferred from Child Support Serv
Kollerer-Olear, Elizabeth	June 8, 2016	Deferred from Courts
Larmour, Rodney	July 1, 2016	Sheriff's
Moore, Suzanne	July 1, 2016	Medical Center
Selhorn, Linda	July 1, 2016	Information Services
Stephens, Madeline	July 1, 2016	Deferred from Health Services
Toth, William	June 11, 2016	Human Services Agency
Urena, Rafael	June 19, 2016	Public Works

1608.4.3 **Continuances:**

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

<b>Survivor's Name</b>	<b>Beneficiary of:</b>
Cardoza, Shirley E (B)	Cardoza, Leonard
Fletcher, Kimberly M (B)	Fletcher, David
Zimmerman, Walter G (B)	Miller, George

1608.4.4 **Deferred Retirements:**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Barriga, Eliseo T.	G4, Vested
Barthe, Jean-Francois	G4, Vested
Coulehan, Holly D.	G4, Vested - Reciprocity
Gonzalez, Alma L.	G2, Vested
Loomis, Michelle H.	G4, Vested
Luayon, Jennifer A.	G4, Non-vested - Reciprocity
Mosher, Janelle A.	G4, Vested
Rider, Cynthia J.	G4, Vested - Reciprocity
Valentino, Arnold B.	G4, Vested
Viet, John N.	G7, Non-vested – Reciprocity

1608.4.5 **Member Account Refunds:**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Dumlupinar, Firuz	G7, Non-vested
Estorga, Casey	G7, Non-vested
Hayes, Gregory	G7, Non-vested
Hernandez, Sylvia	G4, Vested
Jimenez, Chellee	G4, Vested
Keller, Jennifer	G7, Non-vested
Manaysay, Kenneth	G7, Non-vested
Pierce, Katherine	G5, Non-vested
Walker, Jamica	G5, Non-vested

1608.4.6 **Member Account Rollovers:**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Collier, Rowmeeka	G4, Non-vested

1608.4.7 **Acceptance of Semi-Annual Compliance Certification Statements for Period Ended June 30, 2016:** The Board accepted the semi-annual Compliance Certification Statements for SamCERA's equity and fixed income investment managers.

1608.5.1 **Consideration of Agenda Items, if any, Removed from the Consent Agenda:** None.

1608.6.1 **Preliminary Monthly Portfolio Performance Report for the Period Ended July 31, 2016:** Mr. Coultrip discussed the preliminary monthly performance report with the Board. He reported that SamCERA's net preliminary return for July was 2.5%, while the preliminary trailing twelve-month return ending July 2016 was 2.8% net. This item was informational and for discussion only, no action was taken.

1608.6.2 **Report on Quarterly Investment Performance Report for the Period Ended June 30, 2016:** Ms. Jadallah went over the quarterly report with the Board. She reviewed manager performance, talked about market trends, and discussed details on specific pages of the report. The 2<sup>nd</sup> quarter net total return for the SamCERA portfolio was 2.0%, which was 20 bps lower than the 2.2% policy benchmark return. This item was informational and for discussion only, no action was taken.

1608.6.3 **Report on the Growth Equity Manager Annual Reviews:** Ms. Ng reported that staff met with representatives from Baillie Gifford and Brown Advisory on July 7, 2016. Ms. Ng reported there were no significant concerns identified during the portfolio review. This item was informational and for discussion only, no action was taken.

1608.6.4 **Report on Asset-Liability Study: Asset Allocation Mixes (Continued):** Mr. Coultrip reported that staff and Verus will present a refined set of asset allocation portfolios, for the Board to review, at the September meeting. Feedback received from Board members in July is being incorporated into the model scenarios. This item was informational and for discussion only, no action was taken.

1608.6.5 **Presentation on the Volatility Risk Premium:** Ms. Jadallah, Ms. Ng, and Mr. Abdou gave the Board a 1-hour educational presentation on the volatility risk premium. Board members asked questions and discussed this topic with staff and consultant. This item was informational and for discussion only, no action was taken.

The Board meeting was adjourned for a break at 11:30 a.m. The meeting was reconvened, into a Closed Session, at 11:40 a.m. to discuss item #6.6.

1608.6.6 **Approval of Proposed Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2.):** The Board met in closed session from 11:40 until 12:05 p.m. to discuss this item. Upon conclusion of the closed session, Ms. Carlson reported the following action was taken by the Board.

**Action:** A motion was made and seconded, to approve a commitment of \$10 million to Taurus Mining Finance Annex Fund, as part of SamCERA's private real asset allocation. The motion carried with a vote of 6-1, with trustees Battey, Kwan Lloyd, Hackleman, Settles, Spinello and Tourel, all in favor; Tashman, opposed.

Following the closed session report, the meeting was adjourned for lunch from 12:07 p.m. until 12:35 p.m.

- 1608.7.1 **Preliminary Financial Statements for the Fiscal Year Ended June 30, 2016:** Ms. Chow reported that SamCERA's fiduciary net position as of June 30, 2016 was \$3.5 billion; reflecting an increase of \$82 million, or 2%, from last year. This item was informational and for discussion only, no action was taken.
- 1608.7.2 **Preliminary Report on Budget-to-Actual for the Fiscal Year Ended June 30, 2016:** Ms. Chow reviewed the FY 2015-16 budget-to-actual report with the Board. This item was informational and for discussion only, no action was taken.
- 1608.7.3 **Approval of Process and Questions for the Annual Review of Brown Armstrong:** Mr. Hood explained the proposal to change the time of Brown Armstrong's annual review, from the October meeting where they present the Audit Report, to the December meeting. This will give staff and Board members more time after receiving the audit report to review the work of Brown Armstrong, before their evaluation.  
**Action:** Mr. Spinello moved approve staff's proposed process and to approve the "*Questions for the Annual Evaluation of SamCERA's Independent Auditor.*" The motion was seconded by M. Tashman and carried with a vote of 7-0 with trustees Battey, Kwan Lloyd, Hackleman, Settles, Spinello, Tashman and Tourel all in favor; none opposed.
- 1608.7.4 **Update on Progress of SamCERA's Information Technology Projects:** Mr. Ali updated the Board on the on-going IT projects, and Mr. Morrow followed up with a status update of the PASS implementation. This report was informational and for discussion only; no action was taken.
- 1608.8.1 **Chief Executive Officer's Report:** Mr. Hood thanked Mr. Morrow for his continued work on the PASS project. He commented on the items in the "Day of Meeting" folder, including the Board calendar and the IRS tax determination letter. Mr. Hood reported his attendance at the CALAPRS Principles of Pension Management, August 9-12, at Pepperdine University.
- 1608.8.2 **Assistant Executive Officer's Report:** Ms. Smith reported that the auditors are at SamCERA doing field work for a couple weeks. She also stated that User Acceptance Testing for the PASS project is currently underway, requiring many hours of staff time, yet customer service levels remain high.
- 1608.8.3 **Chief Investment Officer's Report:** Mr. Coultrip reported that the transition to QMA was complete and that staff would be reporting on the securities lending annual review next month. He also informed the Board of a number of upcoming manager annual review meetings.
- 1608.8.4 **Chief Legal Counsel's Report:** Ms. Carlson updated the Board on the progress of SB 1853, giving the Board authority to become a "District." She also reviewed a published Court of Appeals decision, that is not yet final, involving the 2013 statutory language change for the determination of what is included in compensation earnable for non-PEPRA members.

#### CLOSED SESSION

- C1 **Consideration of Disability Items, if any, Removed from the Consent Agenda** – None.
- C2 **Approval of Purchase of Proposed Alternative Investment** (Confidential Under Gov. Code §54956.81 and §6254.2) –See Item 6.6 for action taken.
- 1608.9 **Report on Actions Taken in Closed Session:** See item 6.6.
- 1608.10 **Adjournment:** Mr. Hackleman adjourned the meeting at 1:26 p.m. in memory of the deceased members listed below.

Pagan, Michael	May 9, 2016	Probation
Larson, Joan	July 4, 2016	Library
Lamis, Aurelia	July 9, 2016	Medical Center

Farr, Grover  
Sylvester, Mary  
Spiker, John  
Lanphear, Eva  
Ganley, Mary  
Reppas, John  
Kierig, Leslie  
Griffin Ramseur, Mary E.

July 17, 2016  
July 19, 2016  
July 22, 2016  
July 27, 2016  
July 28, 2016  
July 28, 2016  
July 30, 2016  
August 10, 2016

Chope Hospital  
Medical Center  
Public Works  
Human Services Agency  
Sheriff's  
Agr. Weights & Measures  
Health Services  
Board of Supervisors

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Scott Hood  
Chief Executive Officer

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Kristina Perez  
Retirement Executive Secretary

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

September 27, 2016

Agenda Items 4.1- 4.7

**TO:** Board of Retirement

**FROM:** Elizabeth LeNguyen, Retirement Benefits Manager



**SUBJECT:** Approval of Consent Agenda Items 4.1 – 4.7

**4.1 Disability Retirements**

- a) The Board find that **Melville Hinshaw** is (1) permanently incapacitated for the performance of his usual and customary duties as a Deputy Sheriff, (2) find that his disability was not a result of an injury arising out of and in the course of his employment, (3) deny his application for a service-connected disability retirement, and (4) grant him a non-service-connected disability retirement.
  
- b) The Board find that **Kimberly Minelli** is (1) permanently incapacitated from the performance of her usual and customary duties as a Senior Deputy Probation Officer III, (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**

- a) The Board find that **Ray Boulding**, would have been entitled to a non-service connected disability but has died and **Maudry Boulding** the surviving spouse has elected to receive an optional death allowance pursuant to Government Code § 31781.1.

**4.3 Service Retirements**

The Board ratifies the actions as listed below for the following members regarding service retirements:

<b>Member Name</b>	<b>Effective Retirement Date</b>	<b>Department</b>
Conlan, Michael A	July 30, 2016	Probation
Fuentes, Maria E	August 1, 2016	Deferred from Sheriff's
Harris, Cecily A	July 29, 2016	Deferred from Public Works
Kerr, Paula R	August 1, 2016	Assessor Clerk Recorder
La Mariana, Joseph A	July 30, 2016	County Manager's Office
Mapu, Lusi	July 29, 2016	Human Services Agency

Meyer, Julie N	July 13, 2016	Superior Court
Munks, Gregory A	July 16, 2016	Sheriff's
Roxas, Generosa D	July 16, 2016	Medical Center
Tom, David M	July 9, 2016	Assessor Clerk Recorder

#### **4.4 Continuances**

The Board ratifies the actions as listed below for the following members regarding continuances:

<b>Survivor's Name</b>	<b>Beneficiary of:</b>
Luzzi, Else	Luzzi, Robert
Spiker, Mary	Spiker, John

#### **4.5 Deferred Retirements**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Au, Gloria	G4, Vested - Reciprocity
Davis, Kathryn B.	G5, Vested
Martinez, Arturo	G4, Vested
Mattman, Lon T.	G4, Vested
Morris, Becky A.	G4, Vested
Rands-Preuss, Monica	G4, Vested
Rogelio, Karen	G4, Vested
Stankovich, Michelle A.	S4/G4, QDRO Non-vested
Tawde, Anuradha S.	G4, Vested

#### **4.6 Member Account Refunds**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Bock, Kylie	G7, Non-vested
Collins, Lauren	G4, QDRO Non-vested
Fantozzi, Peter	G4, Vested
Ferry, Christine	G7, Non-vested
Gambucci, Michelle	G7, Non-vested
Gutierrez, Maria	G7, Non-vested
Hayes, April	G7, Non-vested
Hoover, Robert	G5, Non-vested
Iem, Gary	G7, Non-vested
Jenkins, Robert	G7, Non-vested
Logoleo-Tasi, Anna	P4, Vested
Lopez, Yesenia	G4, Vested
Martin, Miranda	G7, Non-vested
Maxwell, Tyler	G7, Non-vested
Moon, Stephen	G5, Non-vested
Prasad, Jessica	G7, Non-vested
Powell, Chaunise	G7, Non-vested
Quan, Sing	G7, Non-vested
Vidrio, Rosemary	G7, Non-vested
Von, Brian	G7, Non-vested



#### **4.7 Member Account Rollovers**

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

<b>Member Name</b>	<b>Retirement Plan Type</b>
Davila, Claudia	P7, Non-vested
Garascia, Jean	G7, Non-vested
Jiang, Chun	G7, Non-vested
Martin, Miranda	G7, Non-vested
McNichol, Erin	G7, Non-vested
Sellenthin, Henry	G4, Non-vested
Singh, Sapna	G4, Non-vested
Wilkinson, Jeremy	G4, Non-vested
Wong, Lance	G7, Non-vested

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
Board of Retirement

September 27, 2016

Agenda Item 4.8

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Amendment to Regulation Article VIII Internal Revenue Compliance

**Staff Recommendation**

Approve a resolution amending the Board's regulation Section 8.8(B)(9)(a) of Article VIII "Internal Revenue Code Compliance," to add subdivision "vii" to address the inclusion of differential wage payments for military pay in the calculation of Internal Revenue Code Section 415's Annual Limits.

**Background**

On January 29, 2014, the Internal Revenue Service ("IRS") issued SamCERA a favorable tax determination letter. As part of that submission process, SamCERA stated to the IRS that the Board would adopt certain regulations reflecting compliance with IRS requirements. Those proposed regulations were submitted with SamCERA's IRS filing in 2011 and were adopted by both this Board and the Board of Supervisors in 2014, after the IRS's approval of the proposed regulations.

On March 4, 2015, SamCERA submitted its subsequent request to the IRS for a determination letter. As part of that submission, SamCERA gave our plan documents, including the Board's new tax regulations for review. On August 11, 2016, the IRS issued a favorable tax determination letter and requested that our regulations be amended to reflect a recent revenue ruling regarding the Heroes Earnings Assistance and Relief Tax Act of 2008 ("HEART Act"). This ruling held that contributions collected on differential pay paid by an employer (the difference between the amount of the military pay and what the employee was making on the job) should be included in determining total compensation.

**Discussion**

Board regulation Section 8.8 (B)(9)(a) lists the items that are included in Total Compensation for the collection of contributions, the total of which is limited by the Code. The proposed amendment adds to that list "differential wage payments" as defined in the HEART Act. SamCERA already includes the contributions on such differential payments in Total Compensation. The adoption of the amendment to the regulations is just confirming SamCERA's current practice and procedure.

**Attachment**

Resolution Amending Regulation Section 8.8 (B)(9)(A) Of Article VIII Regarding Differential Wage Payments and Internal Revenue Code Section 415 Annual Limits

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**

**RESOLUTION AMENDING REGULATION SECTION 8.8 (B)(9) OF ARTICLE VIII  
REGARDING DIFFERENTIAL WAGE PAYMENTS MADE DURING ACTIVE MILITARY  
SERVICE AND INTERNAL REVENUE CODE SECTION 415 ANNUAL LIMITS**

**WHEREAS**, Government Code section 31525 provides that this Board, with the approval of the Board of Supervisors, may establish regulations that govern the operation of SamCERA that are not inconsistent with the California Employees' Retirement Law of 1937;

**WHEREAS**, SamCERA complies with the requirements of the Internal Revenue Code of 1986 (the "Code") and the Treasury regulations issued thereunder, as amended or replaced from time to time; and

**WHEREAS**, on March 4, 2015, the Board of Retirement submitted to the Internal Revenue Service ("IRS") a request for a favorable determination that SamCERA meets the applicable requirements of the Code; and

**WHEREAS**, the plan documents, including Regulations of SamCERA Board of Retirement, were submitted for review with SamCERA's determination letter application; and

**WHEREAS**, items of pay that are included in a member's "Total Compensation" for purposes of Code section 415 are set forth in Board of Retirement Regulations, Article VIII, Section 8.8 (B)(9)(a) subsections i through vi; and

**WHEREAS**, Article VIII, Section 8.8 (B)(9)(c) of Regulations for Code section 415(c) provides that payments the description of which meet the definition of "differential wage payments" provided in Code section 3401(h)(2) are included in a member's Total Compensation, even if paid more than 2½ months after severance from employment or after the end of the Limitation Year, if later; and

**WHEREAS**, the IRS has requested that SamCERA's Regulations for Code section 415(c) be clarified to provide that the definition of compensation for purposes of Code section 415 include "differential wage payments" as defined in Code section 3401(h)(2), pursuant to section 105(b) of the Heroes Earnings Assistance and Relief Tax Act of 2008 ("HEART Act"); Therefore, be it

**RESOLVED**, that the Board of Retirement hereby amends Article VIII, Section 8.8.B.9(a) of Regulations, by adding new subsection "vii" thereto, to read as follows within the quotations:

**a. Items Included.** Total Compensation includes all of the following items of remuneration for services:

.....


"vii. Differential wage payments as defined in Internal Revenue Code section 3401(h)(2)."

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

September 27, 2016

Agenda Item 5.2

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Presentation of the June 30, 2016, Actuarial Valuation Report by Milliman, Inc.

**Staff Recommendation**

Milliman, Inc. will discuss the results of its Actuarial Valuation Report. This is for information only.

**Background**

There are three actuarial agenda items scheduled for the September 27<sup>th</sup> Board meeting. Under this first item 5.2, Nick Collier will present the results and recommendations of Milliman's Actuarial Valuation Report as of June 30, 2016. Under the second item 5.3, staff will request that the Board adopt the recommendations of Milliman's Actuarial Valuation Report. Agenda item 5.4 is Milliman's annual performance review.

This year's actuarial valuation process resulted in:

- An increase in Employer Statutory Contribution rate from 31.96% (effective July 1, 2016) to 33.77% (effective July 1, 2017).
- An increase in the member contribution rates for all plans except General Plan 1 (effective July 1, 2017)
- An increase in the funded ratio of the system from 82.6% as of June 30, 2015, to 83.1% as of June 30, 2016.

**Attachment**

San Mateo County Employees' Retirement Association June 30<sup>th</sup>, 2016 Actuarial Valuation



# San Mateo County Employees' Retirement Association

## June 30, 2016 Actuarial Valuation

Prepared by:

**Nick J. Collier**, ASA, EA, MAAA  
Consulting Actuary

**Craig J. Glyde**, ASA, EA, MAAA  
Consulting Actuary

Milliman, Inc.  
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Seattle, WA 98101-2605  
Tel +1 1 206 624 7940  
milliman.com



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September 19, 2016

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

Dear Members of the Board:

As requested, we have completed an actuarial valuation for the San Mateo County Employees' Retirement Association (SamCERA). The purpose of the valuation is to recommend the employer and member contribution rates for the fiscal year beginning July 1, 2017.

#### **Actuarial Certification – Per SamCERA Consulting Contract**

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices, including Actuarial Standards of Practice (ASOPs) Nos. 4, 27, and 35. In particular, it reflects the actuary's responsibility under Section 5.8 ("Actuary's Responsibility") of ASOP No. 4 (1993 Reformatted Edition) for assessing the implications of overall results, in terms of short- and long-range benefit security and expected cost progression. Note that this section no longer exists in the current ASOP No. 4; however, Milliman will continue to assess the results pursuant to the prior section.

To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our best professional judgment, the assumptions and methodologies as adopted by the Board of Retirement, individually and in combination, are reasonably related to the experience of and the expectations for SamCERA, and will not, in and of themselves, expose the retirement system to "unsound financial risk." In this regard, we consider "unsound financial risk" to mean the following:

- A substantial likelihood that future required contribution rates as a percentage of payroll will be dramatically higher than the rates shown in this report, given the uncertainties of actuarial projections and assuming the full payment of all recommended contributions; or
- A substantial likelihood that SamCERA's assets will be insufficient to pay benefit payments when due, given the uncertainties of actuarial projections and assuming the full payment of all recommended contributions.

In preparing this report, we have complied with all quality assurance procedures detailed on page 14 of our November 28, 2005 proposal titled "Response for Request for Actuarial Services."

This work product was prepared solely for SamCERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

### **Actuarial Certification – Milliman**

The major findings of the valuation are contained in this report. This report reflects the benefit provisions as of June 30, 2016 and member contribution rates effective July 1, 2017 (including adjustments for specific bargaining units as communicated to us by SamCERA staff). In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by SamCERA staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any data of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for SamCERA have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of SamCERA and reasonable expectations) and which, in combination, offer a reasonable estimate of anticipated experience affecting SamCERA. We will next be reviewing the assumptions in 2017 as part of our triennial investigation.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Retirement has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix A.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for SamCERA. The calculations in this report have been made on a basis consistent with our understanding of SamCERA's current funding requirements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of SamCERA. The System may place the final version of this report on its website. Milliman's "work" to create this report, to the extent that Milliman's work is not subject to disclosure under applicable public records laws, 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.

This work product was prepared solely for SamCERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

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

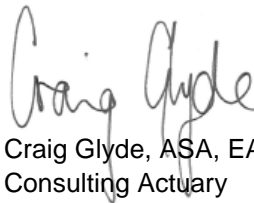
We would like to express our appreciation to Mr. Scott Hood, Chief Executive Officer of SamCERA, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

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

Nick Collier, ASA, EA, MAAA  
Consulting Actuary  
NJC/CJG/nlo

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

Craig Glyde, ASA, EA, MAAA  
Consulting Actuary



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## Section 1 Summary of the Findings



### Overview

### 2016 Valuation Results

	June 30, 2016	June 30, 2015
Employer Statutory Contribution Rate <sup>(1)(2)</sup>	33.77%	31.96%
Funded Ratio	83.1%	82.6%

(1) The June 30, 2015 Statutory Contribution Rate shown above reflects changes in member rates negotiated subsequent to the 2015 valuation report. The 2015 Statutory Contribution Rate calculated in the 2015 valuation report was 32.35%.

(2) Weighted average Statutory Contribution Rate for only the County as of June 30, 2016 is 33.91% of pay.

This report presents the results of the June 30, 2016 actuarial valuation. Several key points are summarized as follows:

- Funding:** The Funded Ratio increased from 82.6% to 83.1%. This increase was primarily due to employer contributions to amortize the UAAL and was offset somewhat by the increase in the UAAL due to revised economic assumptions described below. On a market value basis, the funded ratio decreased from 85.4% to 81.2% due primarily to an investment return of 0.7%. Investment returns are discussed in more detail below.

The assets used in the calculation of the Funded Ratio include the value of the County Supplementary Contribution Account (CSCA) and the District Supplementary Contribution Account (DSCA). Throughout this report we use the term SCA when referring to both of these accounts.

The County contributed \$19.5 million to the CSCA over the year ended June 30, 2016. These contributions resulted in an increase in the funded ratio of 0.5%. In total, the CSCA has an actuarial value of \$85.1 million as of June 30, 2016. The SMCM&VCD contributed \$1.5 million to DSCA over the year ended June 30, 2016. Without the CSCA and DSCA (\$1.6 million), the funded ratio would be 81.1% as of June 30, 2016.

- Employer Contribution Rates:** The Employer Normal Cost rate decreased from 10.42% (calculated in the 2015 valuation report) to 10.25% of pay. The decrease is primarily because of negotiated increases in some member's contribution rates (discussed below) and a larger portion of the active population being Plan 7 members. There is a partially offsetting increase due to revised economic assumptions. Rates will vary slightly from year to year as the average entry age of the membership changes and as a greater proportion of members enter Plan 7.

The employer's contribution rate to finance the UAAL increased from 21.93% to 23.52% of pay. This increase is largely driven by the recently adopted economic assumptions which include a lower expectation for future investment returns. Additionally, the recognition of investment losses from the current year also caused an increase in the UAAL rate. Additionally, a decrease of 0.35% occurred due to the amortization of contributions made by the County over the fiscal year that are allocated to the CSCA. These contributions totaled approximately \$19.5 million. The overall result is an increase in the Statutory Contribution Rate from the prior valuation report of 1.42% (from 32.35% to 33.77% of payroll).

**Overview  
 (continued)**

The County's contribution rate to finance the UAAL increased from 22.04% to 23.64% of pay. The County's UAAL contribution rate before consideration of the CSCA is 25.37% of pay. The CSCA provides an offset of 1.73% of pay (compared to 1.37% of pay in the prior year). The DSCA provides an offset of 8.80% of pay for the San Mateo County Mosquito and Vector Control District (SMCM&VCD).

- **Investment Returns:** SamCERA's investment return on the market value of assets for the prior year of 0.7% (as provided by SamCERA) was less than the actuarial assumed rate of 7.25% for the prior year. Combined with the recognition of a small net investment gain from prior years, the net result was a return on the actuarial value of valuation assets of 6.4%, which is lower than the assumed return. This actuarial loss on valuation assets caused an increase in the Statutory Contribution Rate.

Note that currently a net asset loss of \$120.0 million is being deferred. This is because the asset-smoothing method has not yet recognized a portion of the net asset losses from December 31, 2011 to June 30, 2016. These deferred losses will be reflected in future valuations.

- **Negotiated Member Contribution Rates:** As a result of bargaining by the County since the June 30, 2015 valuation report was issued, new member COLA share contribution rates for most members of Plans 1, 2, and 4 are effective with the first pay period in July 2016. All of these members now contribute 50% of the cost of COLA benefits in addition to other member rates and cost sharing, except Board of Supervisors and Court Interpreters hired before August 7, 2011, and members of the San Mateo County Mosquito and Vector Control District (SMCM&VCD). Additionally, the County no longer "picks-up" any member contributions. See Appendix B for additional information about member contributions.

Due to timing, these changes were not reflected in the June 30, 2015 valuation. The net effect of these changes is a reduction in the Statutory Contribution Rate of approximately 0.39% for the fiscal year 2016-2017.

- **Economic Assumptions:** At its meeting on June 7, 2016 the Board adopted new economic assumptions effective June 30, 2016, as summarized in the following table. We include the June 30, 2015 assumptions for comparison.

	June 30, 2016	June 30, 2015
Investment earnings	7.00%	7.25%
General wage increases	3.25%	3.50%
CPI inflation assumption	2.75%	3.00%

The net effect of these assumptions changes was an increase in Unfunded Actuarial Accrued Liability (UAAL) of approximately \$89 million and a decrease in the funded ratio of 1.8%. In addition, Normal Cost increased by approximately 2.35% of payroll.

Basic member rates and member COLA rates for all plans (except General Plan 1) have also increased due to the new economic assumptions. See Exhibit 1b for details. A complete list of all member basic rates and COLA rates is shown in Appendix D.

**Comparison with  
Prior Year**

Note that for comparison purposes, except where noted, the prior year employer Statutory Contribution Rates shown in this report reflects all bargained COLA and cost sharing arrangements negotiated subsequent to the June 30, 2015 actuarial valuation.

**Summary of  
Contribution Rates**

The following exhibits summarize our recommendations to the Board.

Exhibit 1a Summary of Recommended Minimum Statutory Contribution Rates

**Recommendation #1: Adopt new Statutory Contribution Rates for fiscal year beginning July 1, 2017**

	Fiscal Year Beginning		Increase / (Decrease)
	July 1, 2017	July 1, 2016	
Gross Normal Cost	22.31%	21.95%	0.36%
Member Contributions	(12.06)%	(11.92)%	(0.14)%
Employer Normal Cost	10.25%	10.03%	0.22%
UAAL Amortization	23.52%	21.93%	1.59%
Total Employer Rate	33.77%	31.96%	1.81%

Notes:

1. Detailed contribution rates by plan are shown in Section 6.
2. The Total Employer Rate for July 1, 2016 reflects all valuation addendums subsequent to the 2015 valuation. The Total Employer Rate calculated in the 2015 valuation is 32.35% of pay.
3. The Total Employer Rate of 33.77% is the aggregate rate for all employers. For the fiscal year beginning July 1, 2017, employer rates by employer are as follows:
  - a. The County contribution rate is 33.91% of pay.
  - b. The Courts contribution rate is 30.44% of pay.
  - c. The SMCM&VCD contribution rate is 24.52% of pay.

Exhibit 1b Summary of Recommended Member Contribution Rates

**Recommendation #2: Adopt new member contribution rates for fiscal year beginning July 1, 2017**

	Entry Age	Recommended Rates			Total as a % of Pay <sup>(2)</sup>	Current	Ratio (New/Curr)
		Basic	50% COLA Sharing <sup>(1)</sup>	Cost Sharing <sup>(4)</sup>		Total as a % of Pay <sup>(2/3)</sup>	
<b>General Members (not including SMCM&amp;VCD)</b>							
Plan 1	25	6.49%	2.30%	3.00%	11.79%	11.82%	99.8%
	35	7.78%	2.76%	3.00%	13.54%	13.58%	99.7%
	45	9.36%	3.32%	3.00%	15.68%	15.71%	99.8%
Plan 2	25	6.49%	2.23%	3.00%	11.72%	11.47%	102.2%
	35	7.78%	2.67%	3.00%	13.45%	13.16%	102.2%
	45	9.36%	3.21%	3.00%	15.57%	15.20%	102.4%
Plan 4	25	6.26%	1.47%	3.00%	10.73%	10.50%	102.2%
	35	7.50%	1.76%	3.00%	12.26%	11.99%	102.2%
	45	8.98%	2.11%	3.00%	14.09%	13.75%	102.4%
Plan 5	25	5.37%	1.22%	0.00%	6.59%	6.40%	102.9%
	35	6.45%	1.46%	0.00%	7.91%	7.68%	103.0%
	45	7.74%	1.76%	0.00%	9.50%	9.22%	103.0%
Plan 7	All	6.83%	1.31%	0.00%	8.14%	7.91%	102.9%
<b>SMCM&amp;VCD Members</b>							
Plan 1	25	6.49%	0.00%	0.00%	6.49%	6.34%	102.4%
	35	7.78%	0.00%	0.00%	7.78%	7.60%	102.4%
	45	9.36%	0.00%	0.00%	9.36%	9.13%	102.5%
Plan 2	25	6.49%	0.00%	0.00%	6.49%	6.34%	102.4%
	35	7.78%	0.00%	0.00%	7.78%	7.60%	102.4%
	45	9.36%	0.00%	0.00%	9.36%	9.13%	102.5%
Plan 4	25	6.26%	0.00%	0.00%	6.26%	6.10%	102.6%
	35	7.50%	0.00%	0.00%	7.50%	7.31%	102.6%
	45	8.98%	0.00%	0.00%	8.98%	8.74%	102.7%
Plan 5	25	5.37%	0.00%	0.00%	5.37%	5.24%	102.5%
	35	6.45%	0.00%	0.00%	6.45%	6.29%	102.5%
	45	7.74%	0.00%	0.00%	7.74%	7.55%	102.5%
Plan 7	All	6.84%	1.31%	0.00%	8.15%	7.35%	110.9%

1. All General members (not including SMCM&VCD) contribute 50% of the cost of COLA benefits except for members of the Board of Supervisors or Court Interpreters whose most recent hire date is before August 7, 2011. All Safety and Probation members contribute 50% of the cost of COLA benefits. Plan 7 COLA share represents one-half of the normal cost of the COLA. See Appendix B of this report for a full description of members COLA share. See Appendix D of this report for a full schedule of rates.

2. Total rates include COLA sharing.

3. Current rates are those effective in the first pay period in July 2016.

4. Safety member cost sharing is for all members who are not Deputy Sheriffs. 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.

5. For Probation members, current rates are for PDA members only. Probation Managers currently pay the same rates as Safety members. Recommended rates for Probation members include both PDA and Probation Managers.

Exhibit 1b Summary of Recommended Member Contribution Rates (Continued)

**Recommendation #2: Adopt new member contribution rates for fiscal year beginning July 1, 2017**

	Entry Age	Recommended Rates			Total as a % of Pay <sup>(2)</sup>	Current	Ratio (New/Curr)
		Basic	50% COLA Sharing <sup>(1)</sup>	Cost Sharing <sup>(4)</sup>		Total as a % of Pay <sup>(2)(3)</sup>	
<b>Safety Members<sup>(5)</sup></b>							
Plan 1	25	8.84%	5.62%	5.00%	19.46%	18.62%	104.5%
	35	10.62%	6.75%	5.00%	22.37%	21.35%	104.8%
	45	12.51%	7.96%	5.00%	25.47%	24.26%	105.0%
Plan 2	25	8.84%	5.42%	5.00%	19.26%	18.62%	103.4%
	35	10.62%	6.51%	5.00%	22.13%	21.35%	103.7%
	45	12.51%	7.67%	5.00%	25.18%	24.26%	103.8%
Plan 4	25	8.52%	2.98%	5.00%	16.50%	16.11%	102.4%
	35	10.24%	3.58%	5.00%	18.82%	18.33%	102.7%
	45	11.85%	4.14%	5.00%	20.99%	20.43%	102.7%
Plan 5	25	8.52%	2.67%	4.00%	15.19%	14.84%	102.4%
	35	10.24%	3.21%	4.00%	17.45%	17.01%	102.6%
	45	11.85%	3.72%	4.00%	19.57%	19.06%	102.7%
Plan 6	25	8.52%	2.44%	0.00%	10.96%	10.62%	103.2%
	35	10.24%	2.94%	0.00%	13.18%	12.75%	103.3%
	45	11.85%	3.40%	0.00%	15.25%	14.76%	103.3%
Plan 7	All	11.32%	2.58%	0.00%	13.90%	13.59%	102.3%
<b>Probation Members<sup>(5)</sup></b>							
Plan 1	25	8.84%	5.44%	3.50%	17.78%	16.78%	106.0%
	35	10.62%	6.54%	3.50%	20.66%	19.44%	106.3%
	45	12.51%	7.70%	3.50%	23.71%	22.27%	106.5%
Plan 2	25	8.84%	5.25%	3.50%	17.59%	16.78%	104.8%
	35	10.62%	6.30%	3.50%	20.42%	19.44%	105.0%
	45	12.51%	7.42%	3.50%	23.43%	22.27%	105.2%
Plan 4	25	8.52%	2.97%	3.50%	14.99%	14.55%	103.0%
	35	10.24%	3.57%	3.50%	17.31%	16.76%	103.3%
	45	11.85%	4.13%	3.50%	19.48%	18.85%	103.3%
Plan 5	25	8.52%	2.65%	3.50%	14.67%	14.35%	102.2%
	35	10.24%	3.18%	3.50%	16.92%	16.53%	102.4%
	45	11.85%	3.68%	3.50%	19.03%	18.58%	102.4%
Plan 6	25	8.52%	2.35%	0.00%	10.87%	10.50%	103.6%
	35	10.24%	2.83%	0.00%	13.07%	12.60%	103.7%
	45	11.85%	3.27%	0.00%	15.12%	14.59%	103.7%
Plan 7	All	10.78%	2.60%	0.00%	13.38%	12.91%	103.6%

1. All General members (not including SMCM&VCD) contribute 50% of the cost of COLA benefits except for members of the Board of Supervisors or Court Interpreters whose most recent hire date is before August 7, 2011. All Safety and Probation members contribute 50% of the cost of COLA benefits. Plan 7 COLA share represents one-half of the normal cost of the COLA. See Appendix B of this report for a full description of members COLA share. See Appendix D of this report for a full schedule of rates.

2. Total rates include COLA sharing.

3. Current rates are those effective in the first pay period in July 2016.

4. Safety member cost sharing is for all members who are not Deputy Sheriffs. 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.

5. For Probation members, current rates are for PDA members only. Probation Managers currently pay the same rates as Safety members. Recommended rates for Probation members include both PDA and Probation Managers.



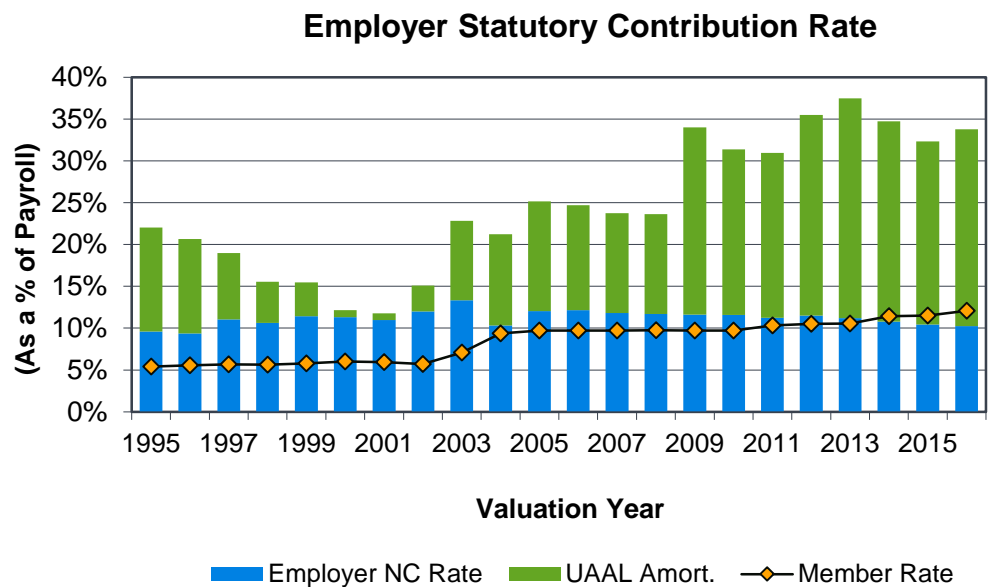
**Employer Contribution Rate**

The Statutory Contribution Rate is equal to the payment of the Employer Normal Cost rate plus a 15-year layered amortization of the UAAL (excluding the CSCA and DSCA) for each year beginning with the UAAL as of June 30, 2008. The UAAL rate for the County is reduced to reflect the CSCA, as is the SMCM&VCD to reflect the DSCA. The Statutory Contribution Rate (blended average for all employers) is 33.77% for the fiscal year beginning July 1, 2017, 33.91% for the County, 30.44% for Courts, and 24.52% for SMCM&VCD.

It should be noted that these rates are a weighted average for all SamCERA plans. The actual percent of payroll to be contributed by each employer varies by plan. See Exhibit 10 for the Statutory Contribution Rates by classification and Exhibits 10a through 10d for the Statutory Contribution Rates by plan.

In our opinion, the contribution rates calculated are adequate to maintain the funding of the retirement system benefits based on the actuarial methods and assumptions shown in Appendix A of this report.

A historical perspective of the total Statutory Contribution Rate is shown in the following graph.



**Comparison with Last Year**

A detailed analysis of the sources of the changes in both the employer contribution rates and the Funded Ratio was performed. There were several factors that influenced the Funded Ratio and the employer contribution rate, with the overall impact of these additional factors being an increase in the Funded Ratio and a decrease in the employer rates from the last valuation.

The following chart shows how the various factors affected the overall funding of SamCERA, as compared to the last valuation.

Sources of Change	Statutory Contribution Rate	Funded Ratio
<b>Calculated Rate for 2016 (2015 valuation)</b>	<b>32.35%</b>	<b>82.6%</b>
Changes due to new member rates effective 2016	-0.39%	0.0%
<b>Estimated Aggregate Rate for 2016</b>	<b>31.96%</b>	<b>82.6%</b>
Expected Year-to-Year Change	0.00%	2.7%
Assumption Changes	2.35%	-1.8%
Recognized Asset Gain/Loss		
From Current Year	0.88%	-1.0%
From Prior Years	-0.35%	0.4%
Retiree COLAs Less than Expected	-0.12%	0.1%
Salary Increase > Assumed	-0.03%	-0.5%
Contributions > Assumed	-0.17%	0.0%
SCA Contribution Funding	-0.35%	0.5%
Increased Member Rates	-0.17%	0.0%
Increase in Plan 7 Membership	-0.09%	0.0%
Other Experience Changes	-0.14%	0.1%
<b>Total Change</b>	<b>1.81%</b>	<b>0.5%</b>
<b>Calculated rate for 2017 (2016 valuation)</b>	<b>33.77%</b>	<b>83.1%</b>

**Funding Progress**

Based on the 2015 valuation, the expected UAAL as of June 30, 2016 was \$606 million. The actual UAAL for the fiscal year ending June 30, 2016 is \$738 million. This difference was primarily caused by the adoption of new economic assumptions (\$89 million) and the recognition of asset losses (\$28 million). Other factors, such as salary increases greater than assumed and CPI increases less than assumed contributed to an increase in the UAAL of \$15 million. These factors are shown in detail at the end of Section 4.

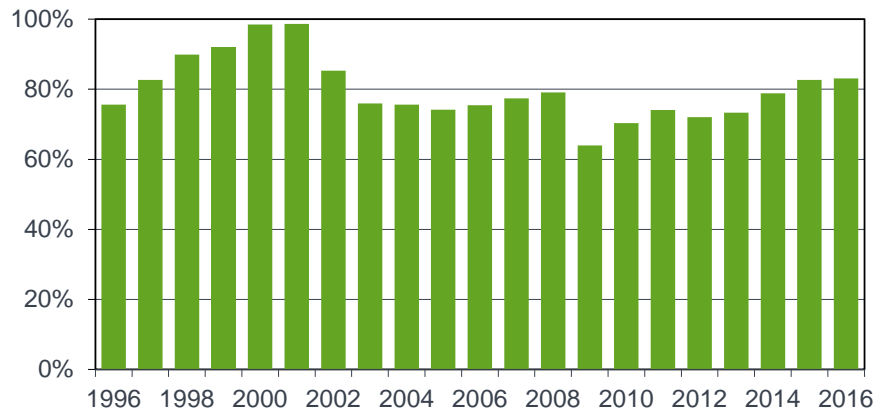
**Funding Progress  
 (continued)**

One measure of the funding adequacy of the system is the Funded Ratio, which compares the value of the Actuarial Value of Assets (net of certain non-valuation reserves) to the Actuarial Accrued Liability (AAL) for all SamCERA plans combined. SamCERA's funded ratio increased rapidly in the last half of the 1990s, reaching almost 100% in 2001. However, due primarily to asset losses from that time through 2009, the funded ratio decreased significantly over those years. In recent years, the funded ratio has improved, due primarily to better-than-assumed investment performance and strong funding. Currently, the Funded Ratio is 83.1%; that is, the valuation assets of \$3,625 million are about 17% less than the actuarial accrued liabilities of \$4,362 million. Note that if the market value of assets was used, the Funded Ratio would be 81.2%.

(All dollar amounts in millions)

	Market Value of Total Assets	Actuarial Value		Actuarial Accrued Liability	Funded Ratio
		Valuation	Non-Valuation		
2007	\$2,132	\$1,977	\$0	\$2,555	77.4%
2008	2,011	2,219	0	2,806	79.1
2009	1,591	1,910	0	2,988	63.9
2010	1,816	2,179	0	3,098	70.3
2011	2,318	2,405	0	3,247	74.1
2012	2,360	2,480	0	3,443	72.0
2013	2,728	2,619	0	3,573	73.3
2014	3,292	2,993	30	3,797	78.8
2015	3,454	3,344	34	4,046	82.6
2016	3,541	3,625	36	4,362	83.1

**Historical Funded Ratios**



**Assets**

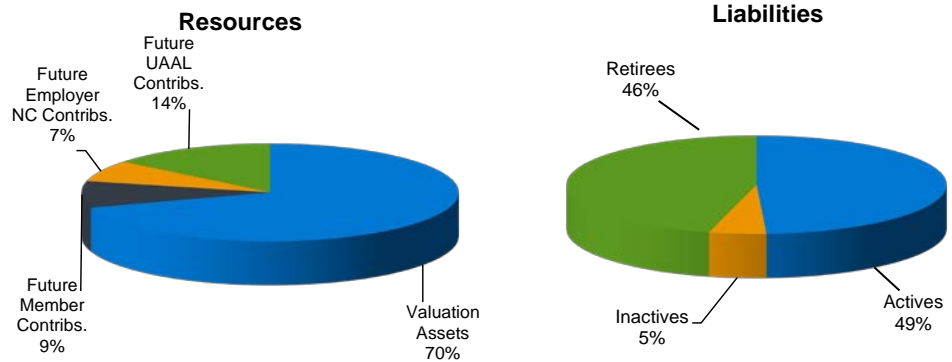
For the fiscal year ending June 30, 2016, SamCERA earned 0.7% net of investment expenses on its market assets. This figure was provided by SamCERA and will be shown in the 2016 CAFR.

SamCERA uses an asset-smoothing method in the calculation of the UAAL contribution. Under this method, the market value returns are smoothed over a five-year period (10 six-month periods). Due to the recognition of deferred prior year asset gains, the return on actuarial valuation assets, at 6.4% net of expenses, was less than the assumed return of 7.25% for the prior year.

**Actuarial Balance Sheet**

The first step in the valuation process is to compare the total valuation assets of SamCERA with its total liabilities for all plans. In this analysis, SamCERA's resources equal the actuarial assets plus the expected future contributions by both the employers and members. Liabilities reflect benefits already earned in the past and those expected to be earned in the future by current members. This relationship is shown in the following chart. The AAL is the total of these liabilities less expected future Normal Cost contributions.

Comparing the current and future resources to the current and future liabilities, we then determine the annual contribution amount for the coming fiscal year.

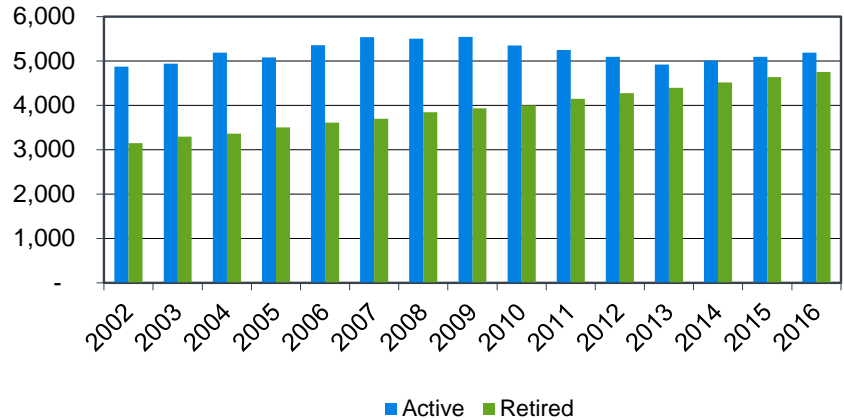


**Member Information**

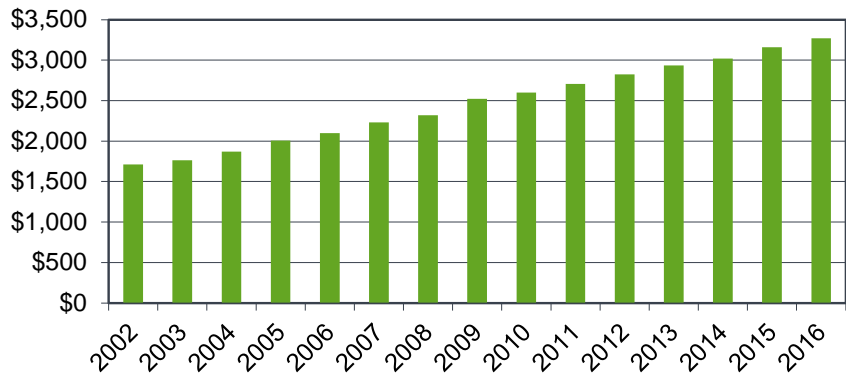
The number of active members included in the valuation increased by 1.8% from 5,095 in 2015 to 5,187 in 2016.

Retired member counts and average retirement benefit amounts continue to increase steadily. For 2016, there were 4,748 retired members and beneficiaries with an average benefit of \$3,268 per month. This represents a 2.4% increase in count (up from 4,638 in 2015) and a 3.4% increase in the average monthly benefit (up from \$3,160 over the period).

**Membership Count**



**Average Monthly Retirement Benefit**



**Analysis of Change in Member Population**

The following table summarizes the year-to-year change in member population.

	Active Members	Inactive Members	Service Retired Members	Disabled Retired Members	Beneficiaries in Pay	Total
<b>As of June 30, 2015</b>	<b>5,095</b>	<b>1,384</b>	<b>3,628</b>	<b>442</b>	<b>568</b>	<b>11,117</b>
New Members	561	34	0	0	43	638
Status change to active	90	(90)	0	0	0	0
Status change to inactive	(280)	280	0	0	0	0
Refunds	(128)	(21)	0	0	0	(149)
Service Retirements	(141)	(87)	228	0	0	0
Disabled Retirements	(8)	(9)	(4)	21	0	0
Deaths	(2)	(4)	(107)	(9)	(65)	(187)
Data adjustments	0	(1)	4	0	(1)	2
<b>As of June 30, 2016</b>	<b>5,187</b>	<b>1,486</b>	<b>3,749</b>	<b>454</b>	<b>545</b>	<b>11,421</b>

**Summary Valuation Results**

The following Exhibit 2 presents a comparison of the key results from the June 30, 2016 and June 30, 2015 valuations. More detail on each of these elements can be found in the following sections and exhibits of this report.

**Exhibit 2 Summary of Significant Valuation Results**

	June 30, 2016	June 30, 2015	Relative Change
1. Total Membership			
A. Active Members	5,187	5,095	1.8 %
B. Retired Members & Beneficiaries	4,748	4,638	2.4%
C. Inactive Members	1,486	1,384	7.4%
D. Total	<u>11,421</u>	<u>11,117</u>	2.7 %
2. Pay Rate			
A. Annual Total (\$thousands)	\$ 493,790	\$ 462,640	6.7%
B. Monthly Average	\$ 7,933	\$ 7,567	4.8%
3. Average Monthly Benefit to Current Retirees and Beneficiaries			
A. Service Retirement	\$ 3,382	\$ 3,294	2.7%
B. Disability Retirement	\$ 3,420	\$ 3,301	3.6%
C. Surviving Spouse and Dependents	\$ 2,356	\$ 2,197	7.2%
D. Total	\$ 3,268	\$ 3,160	3.4%
4. Actuarial Accrued Liability (\$thousands)			
A. Active Members	\$ 1,726,887	\$ 1,594,242	8.3%
B. Retired Members	\$ 2,383,274	\$ 2,231,057	6.8%
C. Inactive Members	\$ 252,135	\$ 220,487	14.4%
D. Total	<u>\$ 4,362,296</u>	<u>\$ 4,045,786</u>	7.8%
5. Assets			
A. Market Value of Fund (\$thousands)	\$ 3,541,388	\$ 3,454,476	2.5%
B. Return on Market Value	0.7%	3.5%	
C. Actuarial Value (\$thousands)	\$ 3,624,726	\$ 3,343,550	8.4%
D. Return on Actuarial Value	6.4%	9.7%	
6. Unfunded Actuarial Accrued Liability or Surplus Funding (\$thousands)	\$ 737,570	\$ 702,236	5.0%
7. Statutory Employer Contribution Rate for all plans combined as a percent of total payroll			
A. Gross Normal Cost	22.31%	21.95%	1.6%
B. Member Contributions	<u>(12.06)%</u>	<u>(11.92)%</u>	1.2%
C. Employer Normal Cost	10.25%	10.03%	2.2%
D. UAAL Amortization	<u>23.52%</u>	<u>21.93%</u>	7.3%
E. Total Employer Rate	33.77%	31.96%	5.7%
8. Funded Ratio (5C / 4D)	83.1%	82.6%	0.5%
9. Results Based on Market Value (No Asset Smoothing) -- For Informational Purposes Only			
A. Total Employer Rate	35.40%	30.04%	17.8%
B. Funded Ratio (5A / 4D)	81.2%	85.4%	(4.9)%

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## Section 2 Scope of the Report



This report presents the actuarial valuation of the San Mateo County Employees' Retirement Association as of June 30, 2016. This valuation was requested by the Board. Section 31453 of the County Employees Retirement Law of 1937 (the '37 Act) requires an actuarial valuation to be performed at least every three years for the purposes of setting contribution rates.

In reading our cover letter, please pay particular attention to the guidelines employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings depend. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of SamCERA. The assets and investment income are presented in Exhibits 3-5. Exhibits 6-8 develop the Actuarial Value of Assets as of June 30, 2016.

Section 4 describes the benefit obligations of SamCERA. Exhibits 9a and 9b show the Actuarial Balance Sheet. Additional analysis on the change in UAAL is also provided in this section.

Section 5 discusses the member contribution rates.

Section 6 discusses the employer contributions needed to fund the benefits under the actuarial cost method in use.

Section 7 discloses information to be included in SamCERA's CAFR.

This report includes several appendices:

- Appendix A A summary of the actuarial procedures and assumptions used to estimate liabilities and contributions.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2016.
- Appendix C Schedules of valuation data classified by various categories of members by plan.
- Appendix D Member contribution rates by plan.
- Appendix E A glossary of actuarial terms used in this report.

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### Section 3 Assets



In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date which, for this valuation, is June 30, 2016. On that date, the assets available for the payment of retirement benefits are appraised. These assets are compared with the accrued and future actuarial liabilities, which are generally well in excess of the actuarial assets. The purpose of the valuation is to determine what future contributions by the members and employers are needed to pay all expected future benefits not funded by the current assets.

This section of the report deals with the determination of assets used for funding purposes. In the next section, the actuarial liabilities will be discussed. Sections 5 and 6 deal with the process for determining required contributions based on the relationship between the actuarial assets and the actuarial liabilities.

A historical summary of SamCERA's assets is presented below:

	All dollar amounts in millions		
	Market Value of Total <u>Assets</u>	Actuarial Value	
		Non- Valuation <u>Assets</u>	Valuation <u>Assets</u>
2000	\$ 1,381	\$ 49	\$ 1,271
2001	1,308	51	1,385
2002	1,207	32	1,417
2003	1,233	34	1,354
2004	1,435	31	1,453
2005	1,599	0	1,616
2006	1,790	0	1,769
2007	2,132	0	1,977
2008	2,011	0	2,219
2009	1,591	0	1,910
2010	1,816	0	2,179
2011	2,318	0	2,405
2012	2,360	0	2,480
2013	2,728	0	2,619
2014	3,292	30	2,993
2015	3,454	34	3,344
2016	3,541	36	3,625

On June 30, 2016, the total market value of the fund was about \$3.54 billion. The actuarial value of the fund was determined to be \$3.66 billion, including the non-valuation reserves.

## Financial Exhibits

Exhibit 3 presents a Statement of Plan Net Assets and Exhibit 4 presents a Statement of Changes in Plan Net Assets. Exhibit 5 describes the allocation of SamCERA's assets by the various reserve values determined for accounting purposes.

Exhibits 3-5 are taken from data furnished to us by SamCERA for its annual financial report. We have accepted these tables for use in this report without audit, but we have reviewed them for reasonableness and consistency with previous reports.

## Actuarial Asset Method

The actuarial asset method computes the expected market value of assets based on the prior year's market value of assets, the actual cash flow of contributions and benefit payments, and the assumed investment rate of return. For the current valuation, the assumed rate of return on the prior year's assets is 7.25%, net of all expenses. The difference between the actual market value and the computed expected market value is smoothed or recognized over a five-year period.

Beginning with the June 30, 2014 valuation, assets used to calculate the preliminary UAAL contribution rates exclude the value of the CSCA. The CSCA is used to adjust the County's Statutory Contribution Rate. Beginning with the June 30, 2016 valuation, assets used to calculate the preliminary UAAL contribution rates also exclude the value of the DSCA. The DSCA is used to adjust the San Mateo County Mosquito and Vector Control District's Statutory Contribution Rate. To adjust the Statutory Contribution Rates we track CSCA and DSCA assets separately.

## Actuarial Value of Assets

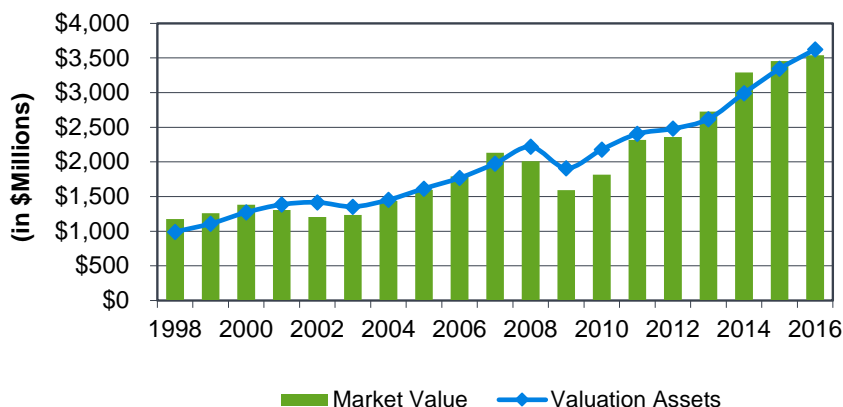
The development of the June 30, 2016 actuarial value of assets is shown in Exhibits 6 and 7. Exhibits 6a and 7a show the development of the total actuarial value of assets. Exhibits 6b and 7b show the development excluding the Supplemental Contribution Account (SCA) assets. Exhibits 6c and 7c show the development of the actuarial value of assets for the CSCA. Exhibits 6d and 7d show the development of the actuarial value of assets for the DSCA.

The County made their contribution for the year ended June 30, 2016 based on the SCR. Since the SCR reflected an offset due to the CSCA, the County effectively used up an amount of the CSCA equivalent to the offset. Therefore, we have shown this in the "Credits Used" column in Exhibit 6c.

**Actuarial Value of Assets (continued)**

There are still portions of investment gains and losses that have not yet been recognized by the asset smoothing method, including the current year loss. The result is a market value of assets that is lower than the actuarial value. The following graph shows a historical comparison of the total actuarial and market assets used for valuation purposes on a system-wide basis.

**Applicable Valuation Assets**



**Valuation Assets**

Valuation Assets are the actuarial value of the fund, less the value of any reserves which have been set aside for current liabilities and special benefits (if any) that are to be funded outside of the actuarially determined contribution rates.

**Allocation of Assets**

Valuation assets are allocated by classification (general, safety, and probation) as shown in Exhibit 8. This allocation is necessary because the UAAL contribution rates are determined separately by class and plan.

In the calculation of the Statutory Contribution Rate, the Normal Cost is determined separately for each plan. The UAAL portion of the rate is allocated proportionately to each classification. To determine the UAAL amount by classification, the actual UAAL is allocated in proportion to the expected UAAL after reflecting expected contributions from the prior year to pay down the UAAL. The allocation is done without consideration of the SCAs. Valuation assets are equal to the AAL minus the UAAL for each classification. These calculations are shown in Exhibit 8.

CSCA assets are allocated to each classification in proportion to the actual UAAL (without consideration of the SCAs). These assets directly reduce the UAAL of each classification.

DSCA assets are allocated entirely to the general member classification.

**Exhibit 3 Statement of Plan Net Assets  
 as of June 30, 2015 and 2016**

	2016	2015
<b>Assets</b>		
Cash and Cash Equivalents	\$ 130,111,362	\$ 51,162,210
Cash Management Overlay	26,249,148	26,273,301
Securities Lending Cash Collateral	88,363,269	99,386,577
<b>Total Cash and Short-Term Investments</b>	<b>244,723,779</b>	<b>176,822,088</b>
Receivables		
Contributions	7,812,557	6,151,530
Due from broker for investments sold	9,809,813	14,438,182
Investment Income	4,886,171	6,433,608
Securities Lending Income	26,788	37,582
Other receivables	100,028	112,810
<b>Total Receivables</b>	<b>22,635,357</b>	<b>27,173,712</b>
Prepaid Expense	7,669	7,669
Investments at Fair Value		
Fixed Income	610,607,729	665,402,082
Equity	1,723,373,856	1,797,854,657
Alternatives	404,376,940	332,946,526
Risk Parity	280,336,352	265,103,721
Inflation Hedge	349,680,120	311,941,279
<b>Total Investments at Fair Value</b>	<b>3,368,374,997</b>	<b>3,373,248,265</b>
Capital Assets Net of Depreciation	5,162,123	3,206,047
<b>Total Assets</b>	<b>3,640,903,925</b>	<b>3,580,457,781</b>
<b>Liabilities</b>		
Payables		
Investment management fees	1,807,507	2,042,596
Due to broker for investments purchased	7,582,018	21,246,436
Securities Lending due to borrowers	88,363,269	99,386,577
Other	1,762,634	3,305,844
<b>Total Liabilities</b>	<b>99,515,428</b>	<b>125,981,453</b>
<b>Net Assets Held in Trust for Pension Benefits</b>	<b>\$ 3,541,388,497</b>	<b>\$ 3,454,476,328</b>

**Exhibit 4 Statement of Changes in Plan Net Assets  
 for the Years Ended June 30, 2015 and 2016**

	2016	2015
<b>Additions</b>		
Contributions		
Employer	\$ 191,094,488	\$ 180,704,280
Employee	56,068,706	48,011,698
Total Contributions	<u>247,163,194</u>	<u>228,715,978</u>
Investment Income/(Loss)		
Interest and dividends	36,703,717	44,433,648
Net appreciation/(depreciation) in Fair Value	22,197,249	99,877,102
	<u>58,900,966</u>	<u>144,310,750</u>
Less investment expense	34,789,209	32,990,697
Net Investment Income/(Loss)	<u>24,111,757</u>	<u>111,320,053</u>
Securities Lending Income		
Earnings	423,019	184,442
Less: expenses	(78,186)	212,304
Fees	(67,054)	(87,101)
Net Securities Lending Income	<u>277,779</u>	<u>309,645</u>
Other Additions	4,910,228	338
<b>Total Additions</b>	<b><u>276,462,958</u></b>	<b><u>340,346,014</u></b>
<b>Deductions</b>		
Member Benefits		
Service retirement allowances	157,513,099	147,266,945
Disability retirement allowances	21,090,529	20,038,671
Survivor, death and other benefits	893,633	803,591
Total Member Benefits	<u>179,497,261</u>	<u>168,109,207</u>
Refunds of members' contributions	3,366,437	3,357,011
Administrative Expense	5,961,802	5,349,796
Information Technology Expense	714,347	628,909
Other Expense	10,942	118,717
<b>Total Deductions</b>	<b><u>189,550,789</u></b>	<b><u>177,563,640</u></b>
Net Increase	86,912,169	162,782,374
Net Assets Held in Trust for Pension Benefits:		
Beginning of Year	3,454,476,328	3,291,693,954
<b>End of Year</b>	<b><u>\$ 3,541,388,497</u></b>	<b><u>\$ 3,454,476,328</u></b>
Estimated Return, Net of Investment Expenses	0.7%	3.5%

**Exhibit 5 Allocation of Assets by Accounting Reserve Amounts  
 as of June 30, 2015 and 2016**

	2016	2015
<b>Valuation Reserves</b>		
1. Member Reserve	\$ 679,245,500	\$ 628,286,936
2. Employer Advance Reserve	751,265,520	650,940,470
3. Retiree Reserves	966,121,612	925,996,889
4. Cost of Living Adjustment Reserve	1,213,653,694	1,119,746,850
5. County Supplemental Contributions Account Reserve	85,235,512	65,480,696
6. District Supplemental Contributions Account Reserve	1,593,122	-
<b>Total Valuation Reserves</b>	<b>\$ 3,697,114,960</b>	<b>\$ 3,390,451,841</b>
<b>Non-Valuation Reserves</b>		
1. Contingency Reserve	\$ 36,613,393	\$ 33,773,232
2. Undistributed Earnings / Losses Reserve	(72,299,960)	(46,905,378)
3. Other Specified Reserves	-	-
<b>Total Non-Valuation Reserves</b>	<b>\$ (35,686,567)</b>	<b>\$ (13,132,146)</b>
<b>Market Stabilization Account</b>	<b>\$ (120,039,896)</b>	<b>\$ 77,156,633</b>
<b>Total Reserves (Market Value of Assets)</b>	<b>\$ 3,541,388,497</b>	<b>\$ 3,454,476,328</b>

*Note: These amounts were determined by SamCERA for accounting purposes. We have made minor rounding adjustments to these numbers.*



Exhibit 6a Five-Year Smoothing of Gains and Losses on Market Value (Total Assets) – History

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Market Value at Beginning of Period	Contributions	Benefit Payments	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2016	\$ 3,361,636,244	\$ 141,996,842	\$ 93,308,035	\$ 3,541,388,497	3.625%	\$ 123,696,090	131,063,446	\$ 7,367,356
12/31/2015	3,454,476,328	105,166,352	89,555,664	3,361,636,244	3.625%	126,551,502	(108,450,772)	(235,002,274)
06/30/2015	3,298,179,343	128,620,389	87,874,799	3,454,476,328	3.625%	121,532,366	115,551,395	(5,980,971)
12/31/2014	3,291,693,954	100,095,589	83,591,419	3,298,179,343	3.625%	120,689,532	(10,018,781)	(130,708,313)
06/30/2014	3,049,944,702	153,384,050	82,787,545	3,291,693,954	3.750%	116,347,099	171,152,747	54,805,648
12/31/2013	2,727,825,332	96,087,010	79,768,567	3,049,944,702	3.750%	103,671,361	305,800,927	202,129,566
06/30/2013	2,558,508,635	99,631,258	78,520,689	2,727,825,332	3.750%	97,496,612	148,206,128	50,709,516
12/31/2012	2,360,303,654	100,084,854	76,494,734	2,558,508,635	3.750%	89,983,040	174,614,861	84,631,821
06/30/2012	2,280,940,966	28,676,113	73,157,072	2,360,303,654	3.875%	87,461,531	123,843,647	36,382,116
12/31/2011	2,317,775,829	171,960,784	69,678,010	2,280,940,966	3.875%	91,600,467	(139,117,637)	(230,718,104)



This work product was prepared solely for SamCERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Exhibit 6b Five-Year Smoothing of Gains and Losses on Market Value (excluding SCAs) – History

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Market Value at Beginning of Period	Contributions and Credits from SCAs	Benefit Payments	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2016	\$ 3,292,244,481	\$ 127,369,320	\$ 93,308,035	\$ 3,454,559,863	3.625%	\$ 121,003,576	\$ 128,254,097	\$ 7,250,521
12/31/2015	3,388,995,632	103,655,923	89,555,664	3,292,244,481	3.625%	124,155,013	(110,851,410)	(235,006,423)
06/30/2015	3,245,056,141	118,152,574	87,874,799	3,388,995,632	3.625%	119,348,025	113,661,716	(5,686,309)
12/31/2014	3,240,851,398	99,673,294	83,591,419	3,245,056,141	3.625%	118,831,181	(11,877,132)	(130,708,313)
06/30/2014	3,049,944,702	103,384,050	82,787,545	3,240,851,398	3.750%	115,878,349	170,310,191	54,431,842
12/31/2013	2,727,825,332	96,087,010	79,768,567	3,049,944,702	3.750%	103,671,361	305,800,927	202,129,566
06/30/2013	2,558,508,635	99,631,258	78,520,689	2,727,825,332	3.750%	97,496,612	148,206,128	50,709,516
12/31/2012	2,360,303,654	100,084,854	76,494,734	2,558,508,635	3.750%	89,983,040	174,614,861	84,631,821
06/30/2012	2,280,940,966	28,676,113	73,157,072	2,360,303,654	3.875%	87,461,531	123,843,647	36,382,116
12/31/2011	2,317,775,829	171,960,784	69,678,010	2,280,940,966	3.875%	91,600,467	(139,117,637)	(230,718,104)



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Exhibit 6c Five-Year Smoothing of Gains and Losses on Market Value of CSCA – History

History of Unexpected Asset Gains and Losses								
Six-Month Period Ended	Market Value at Beginning of Period	Contributions	Credits Used	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)
06/30/2016	\$ 67,854,371	\$ 19,538,000	\$ 4,910,478	\$ 85,235,512	3.625%	\$ 2,636,784	\$ 2,753,619	\$ 116,835
12/31/2015	65,480,696	0	0	67,854,371	3.625%	2,373,675	2,373,675	0
06/30/2015	53,123,202	10,467,815	0	65,480,696	3.625%	2,184,341	1,889,679	(294,662)
12/31/2014	50,842,556	422,295	0	53,123,202	3.625%	1,858,351	1,858,351	0
06/30/2014	0	50,000,000	0	50,842,556	3.750%	468,750	842,556	373,806

Note: The CSCA was opened on May 29, 2014.

Exhibit 6d Five-Year Smoothing of Gains and Losses on Market Value of DCSA – History

History of Unexpected Asset Gains and Losses									
Six-Month Period Ended	Market Value at Beginning of Period	Contributions	Credits Used	Market Value at End of Period	Assumed Rate of Return	Expected Return	Actual Return	Unexpected Gain / (Loss)	
06/30/2016	\$ 1,537,392	\$ 0	\$ 0	\$ 1,593,122	3.625%	\$ 55,730	\$ 55,730	\$ 0	
12/31/2015	0	1,510,429	0	1,537,392	3.625%	22,814	26,963	4,149	

Note: The DSCA was opened on October 29, 2015.

Exhibit 7a Five-Year Smoothing – Development of Valuation Assets (Total Assets)

**Development of Market Stabilization Reserve**

Six-Month Period Ended	Percent Excluded	Phase-Out of Gain / (Loss)	
		Unexpected Gain / (Loss)	Gain / (Loss) Excluded
06/30/2016	90%	x \$ 7,367,356	= \$ 6,630,620
12/31/2015	80%	x (235,002,274)	= (188,001,819)
06/30/2015	70%	x (5,980,971)	= (4,186,680)
12/31/2014	60%	x (130,708,313)	= (78,424,988)
06/30/2014	50%	x 54,805,648	= 27,402,824
12/31/2013	40%	x 202,129,566	= 80,851,826
06/30/2013	30%	x 50,709,516	= 15,212,855
12/31/2012	20%	x 84,631,821	= 16,926,364
06/30/2012	10%	x 36,382,116	= 3,638,212
12/31/2011	0%	x (230,718,104)	= (0)
Total Gain / (Loss) Excluded = Market Stabilization Reserve			= \$ (119,950,785)

**Development of Valuation Assets**

1. Market Value of Assets as of June 30, 2016	\$ 3,541,388,497
2. Preliminary Market Stabilization Reserve	<u>(119,950,785)</u>
3. Preliminary Actuarial Value of Assets (1) - (2)	3,661,339,282
4. Corridor Around Market Value	
a) Minimum = 80% of Market	\$ 2,833,110,798
b) Maximum = 120% of Market	4,249,666,196
c) Corridor Adjustment	0
5. Market Stabilization Reserve	(119,950,785)
6. Gross Actuarial Valuation of Assets (3) - (4c)	\$ 3,661,339,282
7. Non-Valuation Reserves	
a) Contingency Reserve	36,613,393
b) Undistributed Earnings / Losses Reserve	0
c) Other Specified Reserves	<u>0</u>
d) Total	36,613,393
8. Valuation Assets (6) - (7d)	\$ 3,624,725,889

Exhibit 7b Five-Year Smoothing – Development of Valuation Assets (excluding SCAs)

**Development of Market Stabilization Reserve**

Six-Month Period Ended	Percent Excluded	Phase-Out of Gain / (Loss)		
			Unexpected Gain / (Loss)	Gain / (Loss) Excluded
06/30/2016	90%	x	\$ 7,250,521	= \$ 6,525,469
12/31/2015	80%	x	(235,006,423)	= (188,005,138)
06/30/2015	70%	x	(5,686,309)	= (3,980,416)
12/31/2014	60%	x	(130,708,313)	= (78,424,988)
06/30/2014	50%	x	54,431,842	= 27,215,921
12/31/2013	40%	x	202,129,566	= 80,851,826
06/30/2013	30%	x	50,709,516	= 15,212,855
12/31/2012	20%	x	84,631,821	= 16,926,364
06/30/2012	10%	x	36,382,116	= 3,638,212
12/31/2011	0%	x	(230,718,104)	= (0)
Total Gain / (Loss) Excluded = Market Stabilization Reserve				= \$ (120,039,896)

**Development of Valuation Assets**

1. Market Value of Assets as of June 30, 2016		\$ 3,454,559,863
2. Preliminary Market Stabilization Reserve		(120,039,896)
3. Preliminary Actuarial Value of Assets (1) - (2)		3,574,599,759
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$ 2,763,647,890	
b) Maximum = 120% of Market	4,145,471,836	
c) Corridor Adjustment		0
5. Market Stabilization Reserve	(120,039,896)	
6. Gross Actuarial Valuation of Assets (3) - (4c)		\$ 3,574,599,759
7. Non-Valuation Reserves		
a) Contingency Reserve	36,613,393	
b) Undistributed Earnings / Losses Reserve	0	
c) Other Specified Reserves	0	
d) Total		36,613,393
8. Valuation Assets (6) - (7d)		\$ 3,537,986,366

Exhibit 7c Five-Year Smoothing – Development of CSCA Assets

**Development of Market Stabilization Reserve**

Six-Month Period Ended	Percent Excluded	Phase-Out of Gain / (Loss)		Gain / (Loss) Excluded
		x	Unexpected Gain / (Loss) <sup>(1)</sup>	
06/30/2016	90%	x	\$ 116,835	= \$ 105,152
12/31/2015	80%	x	0	= 0
06/30/2015	70%	x	(294,662)	= (206,263)
12/31/2014	60%	x	0	= 0
06/30/2014	50%	x	373,806	= 186,903
12/31/2013	40%	x	0	= 0
06/30/2013	30%	x	0	= 0
12/31/2012	20%	x	0	= 0
06/30/2012	10%	x	0	= 0
12/31/2011	0%	x	0	= 0
Total Gain / (Loss) Excluded = Market Stabilization Reserve				= \$ 85,791

**Development of Valuation Assets**

1. Market Value of Assets as of June 30, 2016	\$	85,235,512
2. Preliminary Market Stabilization Reserve		85,791
3. Preliminary Actuarial Value of Assets (1) - (2)		85,149,721
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$	68,188,410
b) Maximum = 120% of Market		102,282,614
c) Corridor Adjustment		0
5. Market Stabilization Reserve		85,791
6. Gross Actuarial Valuation of Assets (3) - (4c)	\$	85,149,721
7. Non-Valuation Reserves		
a) Contingency Reserve		0
b) Undistributed Earnings / Losses Reserve		0
c) Other Specified Reserves		0
d) Total		0
8. Valuation Assets (6) - (7d)	\$	85,149,721

1. Based on the MOU, prepayments earn the assumed rate of return so there is no gain or loss on prepayments. Lump sum payments may cause a gain or loss.

Exhibit 7d Five-Year Smoothing – Development of DCSA Assets

**Development of Market Stabilization Reserve**

Six-Month Period Ended	Percent Excluded	Phase-Out of Gain / (Loss)		
			Unexpected Gain / (Loss)	Gain / (Loss) Excluded
06/30/2016	90%	x	\$ 0	= \$ 0
12/31/2015	80%	x	4,149	= 3,319
06/30/2015	70%	x	0	= 0
12/31/2014	60%	x	0	= 0
06/30/2014	50%	x	0	= 0
12/31/2013	40%	x	0	= 0
06/30/2013	30%	x	0	= 0
12/31/2012	20%	x	0	= 0
06/30/2012	10%	x	0	= 0
12/31/2011	0%	x	0	= 0
Total Gain / (Loss) Excluded = Market Stabilization Reserve				= \$ 3,319

**Development of Valuation Assets**

1. Market Value of Assets as of June 30, 2016	\$	1,593,122
2. Preliminary Market Stabilization Reserve		<u>3,319</u>
3. Preliminary Actuarial Value of Assets (1) - (2)		1,589,803
4. Corridor Around Market Value		
a) Minimum = 80% of Market	\$	1,274,498
b) Maximum = 120% of Market		1,911,746
c) Corridor Adjustment		0
5. Market Stabilization Reserve		3,319
6. Gross Actuarial Valuation of Assets (3) - (4c)	\$	1,589,803
7. Non-Valuation Reserves		
a) Contingency Reserve		0
b) Undistributed Earnings / Losses Reserve		0
c) Other Specified Reserves		<u>0</u>
d) Total		0
8. Valuation Assets (6) - (7d)	\$	1,589,803



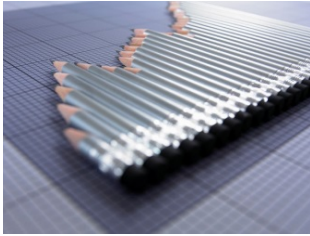
**Exhibit 8 Allocation of Valuation Assets**

(Dollars in Thousands)

	General	Safety	Probation	Total
1. Prior Year UAAL	\$ 536,176	\$ 181,719	\$ 49,825	\$ 767,720
2. Expected UAAL Contribution for Preceding Year	(81,667)	(27,591)	(7,268)	(116,526)
3. Expected Interest at 7.25%	35,964	12,192	3,353	51,509
4. Expected UAAL Based on Prior Year Assumptions	490,473	166,320	45,910	702,703
5. Percentage of Total Expected UAAL	69.80%	23.67%	6.53%	100.00%
6. Actual UAAL Based on Prior Year Assumptions				734,945
7. Actual AAL Based on Prior Year Assumptions	\$ 3,145,740	\$ 846,600	\$ 280,591	\$ 4,272,931
8. Allocated UAAL Based on Prior Year Assumptions	512,992	173,961	47,992	734,945
<b>9. Valuation Assets (excluding SCA assets)</b>	<b>\$ 2,632,748</b>	<b>\$ 672,639</b>	<b>\$ 232,599</b>	<b>\$ 3,537,986</b>
10. Actual UAAL excluding SCA Valuation Assets	\$ 577,836	\$ 190,984	\$ 55,490	\$ 824,310
11. Allocation of UAAL	70.10%	23.17%	6.73%	100.00%
<b>12. Valuation Assets (CSCA)</b>	<b>\$ 59,690</b>	<b>\$ 19,729</b>	<b>\$ 5,731</b>	<b>\$ 85,150</b>
<b>13. Valuation Assets (DSCA)</b>	<b>\$ 1,590</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,590</b>
<b>14. Valuation Assets (Total)</b>	<b>\$ 2,694,028</b>	<b>\$ 692,368</b>	<b>\$ 238,330</b>	<b>\$ 3,624,726</b>

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## Section 4 Actuarial Liabilities



In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of SamCERA's assets as of the valuation date, June 30, 2016. In this section, the discussion will focus on the commitments of SamCERA for retirement benefits, which are referred to as its actuarial liabilities.

In an active system, the combined current and future actuarial liabilities will almost always exceed the actuarial assets. This is usually expected in all but a fully closed down fund, where no further contributions of any sort are anticipated. This deficiency has to be provided by future contributions. An actuarial valuation method sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion. The determination of the level of future contributions needed is discussed in the next section.

### Actuarial Balance Sheet – Liabilities

First, we need to determine the amount of the deficiency. We compare the Actuarial Value of the Valuation Assets to the Actuarial Liabilities. The difference is the amount that needs to be funded by the member and employer contributions in the future. Both the current and future assets (contributions) are compared to the actuarial liabilities in the Actuarial Balance Sheet.

Exhibit 9a contains an analysis of the actuarial present value of all future benefits for retired, inactive and active members and compares these with the total valuation assets. Exhibit 9b contains an analysis using the valuation assets excluding the SCA assets (sum of the CSCA and DSCA). These analyses are displayed by class of membership and by type of benefit.

The actuarial liabilities include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits to be earned. For all members, active and inactive, the value extends over the rest of their lives and for the lives of any surviving beneficiaries. All liabilities reflect the benefits effective through June 30, 2016.

The actuarial demographic assumptions used to determine the liabilities are based on the results of our Investigation of Experience study for the period ending April 30, 2014. At its meeting on June 7, 2016, the Board reaffirmed these assumptions. At that meeting, new economic assumptions were adopted for use in the 2016 valuation. These assumptions are shown in Appendix A. The assumptions will next be reviewed in detail in 2017 as part of the triennial investigation.

**Exhibit 9a Actuarial Balance Sheet (Total Assets)**  
**June 30, 2016**  
 (Dollars in Thousands)

<b>Resources</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Valuation Assets (Actuarial)	\$ 2,694,028	\$ 692,368	\$ 238,330	\$ 3,624,726
Present Value of Future Member Contributions	346,523	77,513	30,720	454,756
Present Value of Future Employer Contributions to Fund:				
a) Normal Cost	263,206	72,536	31,253	366,995
b) Unfunded Actuarial Accrued Liability	516,556	171,255	49,759	737,570
<b>Total Resources</b>	<b>\$ 3,820,313</b>	<b>\$ 1,013,672</b>	<b>\$ 350,062</b>	<b>\$ 5,184,047</b>
<b>Liabilities</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Present Value of Future Benefits				
1. Present Retired Members	\$ 1,704,513	\$ 544,369	\$ 134,392	\$ 2,383,274
2. Current Inactive Members	207,962	22,370	21,803	252,135
3. Current Active Members				
- Service Retirement	1,695,871	403,475	175,403	2,274,749
- Disability Retirement	100,895	24,524	10,739	136,158
- Death Benefits	27,565	8,439	3,394	39,398
- Deferred Retirement Benefit	56,116	8,511	3,848	68,475
- Refund of Member Contributions	27,391	1,984	483	29,858
- Total Active	1,907,838	446,933	193,867	2,548,638
<b>Total Actuarial Liabilities</b>	<b>\$ 3,820,313</b>	<b>\$ 1,013,672</b>	<b>\$ 350,062</b>	<b>\$ 5,184,047</b>

**Exhibit 9b Actuarial Balance Sheet (excluding SCAs)**  
**June 30, 2016**  
 (Dollars in Thousands)

<b>Resources</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Valuation Assets (Actuarial)	\$ 2,632,748	\$ 672,639	\$ 232,599	\$ 3,537,986
Present Value of Future Member Contributions	346,523	77,513	30,720	454,756
Present Value of Future Employer Contributions to Fund:				
a) Normal Cost	263,206	72,536	31,253	366,995
b) Unfunded Actuarial Accrued Liability	577,836	190,984	55,490	824,310
<b>Total Resources</b>	<b>\$ 3,820,313</b>	<b>\$ 1,013,672</b>	<b>\$ 350,062</b>	<b>\$ 5,184,047</b>

<b>Liabilities</b>				
	<b>General</b>	<b>Safety</b>	<b>Probation</b>	<b>Total</b>
Present Value of Future Benefits				
1. Present Retired Members	\$ 1,704,513	\$ 544,369	\$ 134,392	\$ 2,383,274
2. Current Inactive Members	207,962	22,370	21,803	252,135
3. Current Active Members				
- Service Retirement	1,695,871	403,475	175,403	2,274,749
- Disability Retirement	100,895	24,524	10,739	136,158
- Death Benefits	27,565	8,439	3,394	39,398
- Deferred Retirement Benefit	56,116	8,511	3,848	68,475
- Refund of Member Contributions	27,391	1,984	483	29,858
- Total Active	1,907,838	446,933	193,867	2,548,638
<b>Total Actuarial Liabilities</b>	<b>\$ 3,820,313</b>	<b>\$ 1,013,672</b>	<b>\$ 350,062</b>	<b>\$ 5,184,047</b>

**Actuarial Balance Sheet – Resources**

For the purpose of the Actuarial Balance Sheet, SamCERA's resources are equal to the sum of:

- (a) Assets currently available to pay benefits and considered for funding purposes, the Valuation Assets,
- (b) The present value of future contributions expected to be made by current active members, and
- (c) The present value of future contributions expected to be made by the employer.

**Actuarial Cost Method**

The Actuarial Balance sheet determines the amount of future contributions that are needed, but the method used to determine the incidence of when those future contributions are yet to be made in future years is called the "actuarial cost method." For this valuation, the entry age actuarial cost method has been used. Under this method – or essentially any actuarial cost method – the contributions required to meet the difference between current assets and current actuarial liabilities are allocated each year between two elements:

- A Normal Cost amount; and
- Whatever amount is left over, which is used to amortize what is called the UAAL.

**Normal Cost**

The two items described above, the Normal Cost and UAAL, are the keys to understanding the actuarial cost method.

The Normal Cost is the theoretical contribution rate that is projected to meet the ongoing costs of a group of average new employees. Suppose that a group of new employees was covered under a separate fund from which all benefits and to which all contributions and associated investment returns were paid. Under the entry age actuarial cost method, the Normal Cost contribution rate maintains the funding of benefits as a level percentage of pay. If experience follows the actuarial assumptions precisely, the fund would be completely liquidated when the last payment to the last survivor of the group was made.

By applying the Normal Cost contribution rate to the present value of salaries expected to be paid in the future, we determine the present value of future Normal Cost contributions. Future contributions are expected to be made by both the members and the employer. The basic member contribution rates are determined based upon requirements established in the '37 Act and the actuarial assumptions. Members may also make additional contributions as part of a cost sharing or COLA cost sharing arrangements. Based on these member contribution rates, we determine the present value of future member contributions. We subtract that value from the total future Normal Cost contributions expected, based on the entry age cost method. The remaining difference is the employer's portion of the future Normal Cost contributions.

**Actuarial Accrued Liability**

The difference between the present value of all future obligations and the present value of the future Normal Cost contributions is referred to as the "Actuarial Accrued Liability." The AAL is then compared to the value of assets available to fund benefits, and the difference is referred to as the UAAL. The results for SamCERA for all plans (and including all valuation assets) are summarized below:

(Dollars in millions)	2016	2015	Percent Change
A. Actuarial present value of all future benefits for contributing members, former contributing members, and their survivors	\$ 5,184	\$ 4,818	7.6%
B. Actuarial present value of total future Normal Costs for current members	<u>822</u>	<u>772</u>	6.5%
C. Actuarial accrued liability [A-B]	\$ 4,362	\$ 4,046	7.8%
D. Valuation Assets	<u>3,625</u>	<u>3,344</u>	8.4%
E. UAAL or Surplus Funding [C-D] *	\$ 738	\$ 702	5.1%
F. Funded Ratio [D/C]	83.1%	82.6%	0.6 %

\* Note that line E may include a rounding adjustment item.

**Unfunded Actuarial Accrued Liability/ Surplus Funding**

The portion allocated to service already rendered or accrued is called the Actuarial Accrued Liability. The difference between the Actuarial Accrued Liability and the Valuation Assets is called the Unfunded Actuarial Accrued Liability (UAAL). If a UAAL amount exists, it usually results from prior years' benefit or assumption changes and the net effect of accumulated gains and losses. If the employer had always contributed the current Normal Cost, if there were no prior benefit or assumption changes and if actual experience exactly matched the actuarial assumptions, the present value of all future Normal Cost contributions would be sufficient to fund all benefits and there would be no UAAL.

Exhibits 9a and 9b show how the UAAL was derived for each classification. Exhibit 9a includes all valuation assets, and exhibit 9b excludes the SCA. In the Actuarial Balance sheet, the total actuarial accrued liability for all future benefits must be equal to the current and future assets.

**Funding Adequacy**

A key consideration in determining the adequacy of the funding of SamCERA is how the UAAL is being funded. Under the current funding method, the June 30, 2008 UAAL is amortized over a fixed period ending June 30, 2023. Changes in the UAAL in years following June 30, 2008 are being amortized separately over new 15-year periods from the valuation date at which the difference is calculated, including the change in UAAL as of June 30, 2016.

**Analysis of Change  
 in UAAL**

The UAAL, at any date after establishment of a system, is affected by any actuarial gains or losses arising when the actual experience of the system varies from the experience anticipated by the actuarial assumptions used in the valuations. To the extent actual experience, as it develops, differs from that expected according to the assumptions used, so also will the emerging costs differ from the estimated costs.

The 2016 actuarial valuation reflects an increase in the system-wide UAAL of \$35.4 million for the fiscal year just ended.

<b>Unfunded Actuarial Accrued Liability - June 30, 2015</b>	<b>\$ 702.2</b>
Expected Increase / (Decrease) *	(96.4)
<b>Expected UAAL - June 30, 2016</b>	<b>\$ 605.8</b>
Asset (Gains) and Losses	27.8
Retiree COLA Greater / (Less) than Expected	(6.3)
Salary Increases Greater / (Less) than Expected	24.7
Assumption Changes	89.4
Other Liability (Gain) / Loss	(3.8)
<b>Total Changes</b>	<b>131.8</b>
<b>Actual UAAL - June 30, 2016</b>	<b>\$ 737.6</b>

\* Based on actual contributions.



## Section 5 Member Contributions



For SamCERA members in Plans 1-6, contributions are of three types: Basic contributions, Cost Sharing contributions, and COLA Cost Sharing contributions. SamCERA members in Plan 7 pay contributions equal to one-half of the total Normal Cost rate for all members.

Basic contributions for Plans 1-6 are defined in the following sections of the County Employees' Retirement Law:

### Basic Contributions (Plans 1-6)

Plan	Code Section	Contribution Provides Average Annuity of
General Plans 1, 2 & 4	31621.9	1/120 <sup>th</sup> of FAC at age 55
General Plan 5	31621	1/120 <sup>th</sup> of FAC at age 60
Probation & Safety	31639.25	1/100 <sup>th</sup> of FAC at age 50

*FAC = Final Average Compensation*

There are no member contributions under General Plan 3.

Basic member contributions are determined using the Entry Age Normal Cost Method and the following actuarial assumptions:

1. Expected rate of return on assets
2. Individual salary increase rate (wage growth + merit)
3. Mortality for members based on service retirement
4. No COLAs are assumed

The basic member contribution rates for Plans 1-6 were recalculated as of the June 30, 2016 valuation to reflect the investment return and wage growth assumptions adopted in 2016. The rates are shown in Appendix D.

### Cost-Sharing Contributions (Plans 1-5)

In addition to the basic rate, Plan 1, 2, and 4 General employees (excluding SMCM&VCD), as well as Plan 5 Safety and Probation employees, make additional cost-sharing contributions as shown in Appendix B. Plan 6 employees do not participate in cost-sharing. For valuation purposes, cost-sharing contributions are assumed to be permanent. The cost-sharing contributions are fixed and not impacted by changes in assumptions.

**Cost-of-Living Contributions (Plans 1-6)**

Depending on which plan and bargaining unit they belong to, members may share in the cost of the COLA by making additional contributions (COLA contributions). The COLA level is described in detail in the Member Contributions section of Appendix B.

COLA member rates are determined by calculating and applying a load factor to the basic member rates. COLA load factors are determined for each class and plan of member separately, as shown in the following table:

Plan	COLA Share	COLA Load
General 1	50%	35.45%
General 2	50%	34.32%
General 4	50%	23.46%
General 5	50%	22.69%
Safety 1	50%	63.59%
Safety 2	50%	61.28%
Safety 4	50%	34.95%
Safety 5	50%	31.39%
Safety 6	50%	28.67%
Probation 1	50%	61.59%
Probation 2	50%	59.35%
Probation 4	50%	34.85%
Probation 5	50%	31.07%
Probation 6	50%	27.63%

*Example:*

*A member who enters General Plan 5 at age 35 has a basic member contribution rate of 6.45% (Exhibit D-1). The General Plan 5 COLA load is 22.69% for a member COLA contribution of 1.46% (6.45% x 22.69%) of pay. The basic plus COLA member contribution rate is 7.91% (6.45% + 1.46%).*

The COLA load for each plan is determined as follows: the present value of future normal costs with and without COLA provisions is calculated. The difference is multiplied by the COLA share percentage, and then divided by the present value of future basic only member contributions.

**Member Contribution Rates – Pick-up (Plans 1-6)**

Effective July 1, 2016 no employer pick-up contributions are valued.

**Member Contribution Rates (Plan 7)**

Contributions for Plan 7 are defined in Section 7522.30 of the Government Code.

All employees of the same class who are members of Plan 7 shall contribute the same percentage of payroll. Such percentage will be 50% of the total Normal Cost rate for that class. The rates are recalculated annually. Note that for small groups, the Normal Cost rate, and hence the member rate may change significantly from year-to-year. As the group becomes larger, this volatility should be reduced.

Effective July 1, 2017, Plan 7 member rates are as follows:

- General members: 8.14% (increased from 7.91%)
- SMCM&VCD members: 8.15% (increased from 7.35%)
- Safety members: 13.90% (increased from 13.59%)
- Probation members: 13.38% (increased from 12.91%)

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## Section 6 Employer Contributions



Contributions to SamCERA are determined using the Entry Age Normal Cost Method. The portion of the actuarial present value of retirement benefits allocated to a valuation year by the Actuarial Cost Method is called the Normal Cost. These amounts are usually expressed as a percentage of payroll and called the Normal Cost Contribution Rate. Exhibit 11 shows the Normal Cost Rates by type of benefit and for each plan based on this valuation.

It should be noted that when we use the term “Gross Normal Cost rate,” we are referring to the value of benefits earned by active members allocated to the valuation year. The Employer Normal Cost rate is the portion of the annual benefit that the employer is responsible for. This is simply the Gross Normal Cost rate less the contributions expected to be made by the members.

Note that in the following exhibits “SMCM&VCD” refers to the San Mateo County Mosquito and Vector Control District.

### Statutory Contribution Rate

A summary of the total Statutory Contribution Rate for each classification, along with a comparison to the prior year's rates, can be found in Exhibit 10, with additional detail for each plan in Exhibits 10a through 10d. These results are expressed as a percentage of payroll. Note that SamCERA's UAAL is determined separately for each class. Thus, the employers fund the UAAL evenly as a percentage of pay over salaries for all members within a class.

The UAAL rate reflects a layered 15-year amortization beginning with the June 30, 2008 valuation. Gains and losses after that date are reflected over new 15-year periods starting with the valuation date. A one-year deferral in the implementation of the new rate is reflected. Therefore, the new employer contribution rate calculated in the 2016 valuation is effective July 1, 2017, and the UAAL is amortized over the remaining 14 years.

The SCA (CSCA for the County UAAL and DSCA for the SMCM&VCD) offset amounts are calculated in a similar manner to the UAAL rate described above.

Exhibits 12a through 12c show detailed information on how the UAAL contribution rate and SCA offsets are calculated using the layered method. The UAAL contribution rates are calculated excluding the SCAs.

**Statutory Contribution Rate**  
(continued)

The total Statutory Contribution Rate was 31.96% for the fiscal year beginning July 1, 2016 after reflecting all bargained COLA and cost sharing arrangements (as compared to 32.35% calculated in the 2015 actuarial valuation). For the fiscal year beginning in 2017, the Statutory Contribution Rate based on this report increased to 33.77%. This is equal to the aggregate Employer Normal Cost contribution rate of 10.25% based on Milliman's 2016 valuation, plus appropriate amounts to amortize the UAAL according to the funding policy, over layered 15-year closed periods.

**Statutory Contribution Rate**  
(all values as a % of Payroll)

Employer Normal Cost	10.25%
Total Amortization of UAAL	<u>23.52%</u>
Total Employer Contribution	33.77%

**Changes in the Normal Cost Rate**

The change in the calculated gross Normal Cost rates from year-to-year is generally due to two factors. The two factors are:

- 1. Assumption Changes:** Effective July 1, 2016 the investment earnings assumption was changed to 7.00% from 7.25%, the CPI inflation was changed to 2.75% from 3.00%, and the general wage growth assumption was changed to 3.25% from 3.50%. These changes increased the Normal Cost rate.
- 2. Experience:** Normal experience from year-to-year, reflecting differences in both the weighting between membership groups and in their characteristics, as well as on what was assumed to occur during the past fiscal year and what actually occurred, particularly with respect to salary increases and turnover experience. Based on current system benefit provisions, the aggregate Normal Cost rate is expected to decrease as a greater number of members are covered by Plan 7, instead of the more expensive older plans. However, the change will be fairly gradual.

**Exhibit 10      Employer Statutory Contribution Rates – All Plans  
 For the 2017-2018 Fiscal Year**

All Plans								
	Gross Normal Cost	Member Contributions	Employer Rates					Prior Year Total Contribution Rate <sup>(2)</sup>
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
<u>General Members</u>								
County	19.99%	(11.08)%	6.81%	2.10%	8.91%	19.81%	28.72%	27.04%
Courts	20.99%	(11.85)%	6.80%	2.34%	9.14%	21.30%	30.44%	28.58%
<b>Total</b>	20.05%	(11.12)%	6.81%	2.12%	8.93%	19.89%	28.82%	27.15%
SMCM&VCD Members	19.84%	(7.82)%	8.83%	3.19%	12.02%	12.50%	24.52%	31.29%
Safety Members	33.33%	(17.02)%	12.52%	3.79%	16.31%	44.25%	60.56%	58.72%
Probation Members	31.90%	(15.96)%	12.46%	3.48%	15.94%	31.72%	47.66%	42.42%
All Plans	22.31%	(12.06)%	7.81%	2.44%	10.25%	23.52%	33.77%	31.96%
County Only	22.36%	(12.09)%	7.83%	2.44%	10.27%	23.64%	33.91%	32.08%

1. County UAAL Contribution Rate includes an aggregate offset of 1.73% of payroll to reflect the County Supplementary Contribution Account. Offsets vary by class of member as follows:  
 - General member UAAL offset is 1.49% of payroll  
 - Safety member UAAL offset is 3.05% of payroll  
 - Probation member UAAL offset is 2.27% of payroll

SMCM&VCD UAAL Contribution Rate includes an offset of 8.80% of payroll to reflect the District Supplementary Contribution Account.

2. The Prior Year Total Contribution Rate reflects the valuation addendums that were issued subsequent to the valuation report.

**Exhibit 10a Employer Statutory Contribution Rates – General Members  
 For the 2017-2018 Fiscal Year**

General Members								
	Gross Normal Cost	Member Contributions	Employer Rates				Total Contribution Rate	Prior Year
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>		Total Contribution Rate <sup>(2)</sup>
<b>Plan 1</b>								
County (50%) <sup>(3)</sup>	21.90%	(12.97)%	5.94%	2.99%	8.93%	19.81%	28.74%	27.83%
Courts (50%) <sup>(3)</sup>	21.90%	(12.66)%	5.42%	3.82%	9.24%	21.30%	30.54%	29.28%
<b>Total</b>	21.90%	(12.94)%	5.90%	3.06%	8.96%	19.94%	28.90%	28.06%
<b>Plan 2</b>								
County (50%) <sup>(3)</sup>	21.92%	(12.97)%	5.99%	2.96%	8.95%	19.81%	28.76%	27.06%
Courts (50%) <sup>(3)</sup>	21.92%	(12.64)%	5.49%	3.79%	9.28%	21.30%	30.58%	28.55%
<b>Total</b>	21.92%	(12.96)%	5.97%	2.99%	8.96%	19.88%	28.84%	27.25%
<b>Plan 3</b>								
County	7.65%	0.00%	7.65%	0.00%	7.65%	19.81%	27.46%	25.78%
Courts	7.65%	0.00%	7.65%	0.00%	7.65%	21.30%	28.95%	26.95%
<b>Total</b>	7.65%	0.00%	7.65%	0.00%	7.65%	19.83%	27.48%	25.79%
<b>Plan 4</b>								
County (0%) <sup>(3)</sup>	27.27%	(12.58)%	10.33%	4.36%	14.69%	19.81%	34.51%	29.26%
County (50%) <sup>(3)</sup>	21.56%	(12.50)%	6.95%	2.11%	9.06%	19.81%	28.88%	27.12%
Courts (0%) <sup>(3)</sup>	27.65%	(12.24)%	10.91%	4.50%	15.41%	21.30%	36.71%	29.85%
Courts (50%) <sup>(3)</sup>	21.63%	(12.58)%	6.94%	2.11%	9.05%	21.30%	30.35%	28.14%
<b>Total</b>	21.59%	(12.50)%	6.96%	2.13%	9.09%	19.85%	28.94%	27.31%
<b>Plan 5</b>								
County	19.14%	(8.69)%	8.56%	1.86%	10.45%	19.81%	30.26%	28.27%
Courts	19.14%	(10.04)%	8.56%	1.86%	9.10%	21.30%	30.40%	28.00%
<b>Total</b>	19.14%	(8.72)%	8.56%	1.86%	10.42%	19.85%	30.27%	28.27%
<b>Plan 7</b>								
County	16.27%	(8.14)%	6.49%	1.64%	8.13%	19.81%	27.94%	26.28%
Courts	16.27%	(8.14)%	6.49%	1.64%	8.13%	21.30%	29.43%	27.45%
<b>Total</b>	16.27%	(8.14)%	6.49%	1.64%	8.13%	19.86%	27.99%	26.30%
<b>All Plans</b>								
County	19.99%	(11.08)%	6.81%	2.10%	8.91%	19.81%	28.72%	27.04%
Courts	20.99%	(11.85)%	6.80%	2.34%	9.14%	21.30%	30.44%	28.58%
<b>Total</b>	20.05%	(11.12)%	6.81%	2.12%	8.93%	19.89%	28.82%	27.15%

1. UAAL Contribution Rate includes an offset of 1.49% of payroll to reflect the County Supplementary Contribution Account, except for Courts.  
 2. The Prior Year Total Contribution Rate reflects the valuation addendums that were issued subsequent to the valuation report.  
 3. Bargaining units that have negotiated for members of Plans 1, 2, and 4 to pay a specific share of the cost of COLA are grouped together for purposes of this exhibit. The percentage of total COLA cost paid by member is shown in parenthesis.



**Exhibit 10b      Employer Statutory Contribution Rates – SMCM&VCD Members  
 For the 2017-2018 Fiscal Year**

	SMCM&VCD Members							Prior Year Total Contribution Rate
	Employer Rates							
	Gross Normal Cost	Member Contributions	Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
Plan 1 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 2 <sup>(2)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Plan 4	20.83%	(7.72)%	9.50%	3.61%	13.11%	12.50%	25.61%	31.95%
Plan 7	16.29%	(8.15)%	6.46%	1.68%	8.14%	12.50%	20.64%	26.89%
All Plans	19.84%	(7.82)%	8.83%	3.19%	12.02%	12.50%	24.52%	31.29%

1. UAAL Contribution Rate includes an offset of 8.80% of payroll to reflect the District Supplementary Contribution Account, except for Courts.  
 2. Employer rates will be developed as applicable.

**Exhibit 10c      Employer Statutory Contribution Rates – Safety Members  
 For the 2017-2018 Fiscal Year**

Safety Members								
	Employer Rates							Prior Year Total Contribution Rate <sup>(2)</sup>
	Gross Normal Cost	Member Contributions	Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
Plan 1	44.21%	(4.83)%	28.28%	11.10%	39.38%	44.25%	83.63%	62.81%
Plan 2	35.53%	(18.75)%	12.05%	4.73%	16.78%	44.25%	61.03%	59.52%
Plan 4	33.55%	(17.31)%	12.81%	3.43%	16.24%	44.25%	60.49%	57.10%
Plan 5	34.41%	(17.01)%	13.89%	3.51%	17.40%	44.25%	61.65%	60.12%
Plan 6	34.53%	(14.97)%	16.02%	3.54%	19.56%	44.25%	63.81%	62.60%
Plan 7	27.80%	(13.90)%	10.93%	2.97%	13.90%	44.25%	58.15%	57.17%
All Plans	33.33%	(17.02)%	12.52%	3.79%	16.31%	44.25%	60.56%	58.72%

1. UAAL Contribution Rate includes an offset of 3.05% of payroll to reflect the County Supplementary Contribution Account.

2. The Prior Year Total Contribution Rate reflects the valuation addendums that were issued subsequent to the valuation report.

**Exhibit 10d      Employer Statutory Contribution Rates – Probation Members  
 For the 2017-2018 Fiscal Year**

Probation Members								
	Gross Normal Cost	Member Contributions	Employer Rates					Prior Year Total Contribution Rate <sup>(2)</sup>
			Basic Normal Cost	COLA Normal Cost	Total Normal Cost	UAAL Contribution Rate <sup>(1)</sup>	Total Contribution Rate	
Plan 1	36.14%	(3.50)%	15.00%	17.64%	32.64%	31.72%	64.36%	57.82%
Plan 2	34.94%	(17.12)%	13.05%	4.77%	17.82%	31.72%	49.54%	43.61%
Plan 4	31.92%	(16.01)%	12.60%	3.31%	15.91%	31.72%	47.63%	42.35%
Plan 5	30.40%	(16.05)%	11.24%	3.11%	14.35%	31.72%	46.07%	42.42%
Plan 6	25.59%	(11.69)%	11.23%	2.67%	13.90%	31.72%	45.62%	42.24%
Plan 7	26.76%	(13.38)%	10.61%	2.77%	13.38%	31.72%	45.10%	39.68%
All Plans	31.90%	(15.96)%	12.46%	3.48%	15.94%	31.72%	47.66%	42.42%

1. UAAL Contribution Rate includes an offset of 2.27% of payroll to reflect the County Supplementary Contribution Account.

2. The Prior Year Total Contribution Rate reflects the valuation addendums that were issued subsequent to the valuation report.

Exhibit 11 Calculated Gross Normal Cost Rates

All Plans						
Plan	Normal Cost					Total Gross Normal Cost
	Service Retirement	Disability Retirement	Death while Active	Termination (No Refund)	Termination (Refund)	
General Plan 1	15.59%	1.69%	0.45%	2.13%	2.04%	<b>21.90%</b>
General Plan 2	15.65%	1.86%	0.43%	1.99%	1.99%	<b>21.92%</b>
General Plan 3	7.07%	0.00%	0.00%	0.58%	0.00%	<b>7.65%</b>
General Plan 4	15.67%	1.93%	0.41%	1.68%	1.90%	<b>21.59%</b>
General Plan 5	14.05%	2.07%	0.36%	1.31%	1.35%	<b>19.14%</b>
General Plan 7	11.90%	1.88%	0.32%	0.91%	1.26%	<b>16.27%</b>
<b>General Total</b>	14.57%	1.88%	0.38%	1.52%	1.70%	<b>20.05%</b>
SMCM&VCD Plan 1	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
SMCM&VCD Plan 2	N/A	N/A	N/A	N/A	N/A	<b>N/A</b>
SMCM&VCD Plan 4	15.68%	1.99%	0.38%	1.60%	1.18%	<b>20.83%</b>
SMCM&VCD Plan 7	12.19%	1.42%	0.44%	0.98%	1.26%	<b>16.29%</b>
<b>SMCM&amp;VCD Total</b>	14.92%	1.86%	0.39%	1.47%	1.20%	<b>19.84%</b>
Safety Plan 1	34.17%	4.41%	1.85%	2.54%	1.24%	<b>44.21%</b>
Safety Plan 2	27.46%	3.54%	1.49%	2.04%	1.00%	<b>35.53%</b>
Safety Plan 4	26.04%	3.55%	1.24%	1.78%	0.94%	<b>33.55%</b>
Safety Plan 5	26.61%	4.26%	1.21%	1.33%	1.00%	<b>34.41%</b>
Safety Plan 6	27.18%	4.55%	1.14%	0.83%	0.83%	<b>34.53%</b>
Safety Plan 7	21.11%	3.83%	1.14%	0.97%	0.75%	<b>27.80%</b>
<b>Safety Total</b>	25.77%	3.67%	1.28%	1.68%	0.93%	<b>33.33%</b>
Probation Plan 1	28.08%	3.63%	1.38%	2.11%	0.94%	<b>36.14%</b>
Probation Plan 2	27.15%	3.51%	1.33%	2.04%	0.91%	<b>34.94%</b>
Probation Plan 4	24.90%	3.16%	1.14%	1.86%	0.86%	<b>31.92%</b>
Probation Plan 5	23.73%	3.37%	1.09%	1.37%	0.84%	<b>30.40%</b>
Probation Plan 6	19.22%	3.14%	1.27%	1.36%	0.60%	<b>25.59%</b>
Probation Plan 7	20.53%	3.40%	1.07%	1.07%	0.69%	<b>26.76%</b>
<b>Probation Total</b>	24.88%	3.25%	1.17%	1.81%	0.85%	<b>31.96%</b>
<b>All Plans</b>	16.49%	2.17%	0.53%	1.55%	1.56%	<b>22.31%</b>

**Exhibit 12a Amortization Detail – General Members: UAAL and SCA Offsets**  
 (Dollars in Thousands)

Unfunded Actuarial Liability Amortization Detail							
Date Established	Description <sup>4</sup>	Balance as of June 30, 2016	Interest on Balance	Amort. Payment on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2008	Initial UAAL	\$ 289,492	\$ 20,264	\$ 49,227	\$ 260,529	6 Years	\$ 48,311
June 30, 2009	(Gain) / Loss	\$ 289,872	\$ 20,291	\$ 43,870	\$ 266,293	7 Years	\$ 43,054
June 30, 2010	(Gain) / Loss	\$ (110,867)	\$ (7,761)	\$ (15,169)	\$ (103,459)	8 Years	\$ (14,887)
June 30, 2011	(Gain) / Loss	\$ (34,060)	\$ (2,384)	\$ (4,265)	\$ (32,179)	9 Years	\$ (4,186)
June 30, 2012	(Gain) / Loss	\$ 107,292	\$ 7,510	\$ 12,420	\$ 102,383	10 Years	\$ 12,189
June 30, 2013	(Gain) / Loss	\$ 20,493	\$ 1,434	\$ 2,211	\$ 19,716	11 Years	\$ 2,170
June 30, 2014	(Gain) / Loss	\$ (43,802)	\$ (3,066)	\$ (4,435)	\$ (42,434)	12 Years	\$ (4,352)
June 30, 2015	(Gain) / Loss	\$ (32,851)	\$ (2,300)	\$ (3,139)	\$ (32,012)	13 Years	\$ (3,081)
June 30, 2016	(Gain) / Loss	\$ 92,266	\$ 6,459	\$ (3,754) <sup>3</sup>	\$ 102,479	14 Years	\$ 9,313
Total Amortization Payment July 1, 2017:							\$ 88,532
Projected Payroll July 1, 2017:							\$ 415,582
UAAL as of June 30, 2016:		<u>\$ 577,836</u>	UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2017:				<u>21.30%</u>

County Supplementary Contribution Account Amortization Detail							
Date Established	Description	Balance as of June 30, 2016	Interest on Balance	Offset to SCR on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2014	Initial CSCA	\$ 37,165	\$ 2,602	\$ 3,763	\$ 36,004	12 Years	\$ 3,694
June 30, 2015	CSCA Addition	\$ 8,453	\$ 592	\$ 808	\$ 8,237	13 Years	\$ 793
June 30, 2016	CSCA Addition	\$ 14,072	\$ 985	\$ -	\$ 15,057	14 Years	\$ 1,368
Total CSCA County Offset Payment July 1, 2017:							\$ 5,855
Projected County Payroll July 1, 2017:							\$ 394,264
CSCA Value as of June 30, 2016:		<u>\$ 59,690</u>	CSCA County Offset (as a % of Payroll) FYB July 1, 2017:				<u>1.49%</u>

District Supplementary Contribution Account Amortization Detail							
Date Established	Description	Balance as of June 30, 2016	Interest on Balance	Offset to SCR on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2016	Initial DSCA	\$ 1,590	\$ 111	\$ -	\$ 1,701	14 Years	\$ 155
Total DSCA County Offset Payment July 1, 2017:							\$ 155
Projected District Payroll July 1, 2017:							\$ 1,757
DSCA Value as of June 30, 2016:		<u>\$ 1,590</u>	DSCA County Offset (as a % of Payroll) FYB July 1, 2017:				<u>8.80%</u>

- Amortization Payments and CSCA Offsets are based on a fixed schedule that increases by the payroll assumption each year.
- The calculation of UAAL and SCAs are as of June 30, 2016; whereas, the contribution rates are not effective until July 1, 2017. Therefore, the UAAL and SCAs are adjusted to June 30, 2017 in the calculation of contribution rates.
- The amortization of UAAL does not begin until July 1, 2017; however, the UAAL amount is adjusted based on the July 1, 2016 contribution rate.
- (Gain)/Loss includes the following:
  - new assumptions adopted effective June 30, 2011 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2012
  - new assumptions adopted effective June 30, 2014 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2016

**Exhibit 12b Amortization Detail – Safety Members: UAAL and County CSCA Offsets**  
 (Dollars in Thousands)

Unfunded Actuarial Liability Amortization Detail							
Date Established	Description <sup>4</sup>	Balance as of June 30, 2016	Interest on Balance	Amort. Payment on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2008	Initial UAAL	\$ 105,642	\$ 7,395	\$ 17,964	\$ 95,073	6 Years	\$ 17,628
June 30, 2009	(Gain) / Loss	\$ 106,307	\$ 7,441	\$ 16,089	\$ 97,659	7 Years	\$ 15,789
June 30, 2010	(Gain) / Loss	\$ (41,472)	\$ (2,903)	\$ (5,674)	\$ (38,701)	8 Years	\$ (5,569)
June 30, 2011	(Gain) / Loss	\$ (15,797)	\$ (1,106)	\$ (1,978)	\$ (14,925)	9 Years	\$ (1,942)
June 30, 2012	(Gain) / Loss	\$ 31,900	\$ 2,233	\$ 3,693	\$ 30,440	10 Years	\$ 3,625
June 30, 2013	(Gain) / Loss	\$ 5,992	\$ 419	\$ 646	\$ 5,765	11 Years	\$ 635
June 30, 2014	(Gain) / Loss	\$ (17,625)	\$ (1,234)	\$ (1,784)	\$ (17,075)	12 Years	\$ (1,752)
June 30, 2015	(Gain) / Loss	\$ (9,149)	\$ (640)	\$ (874)	\$ (8,915)	13 Years	\$ (858)
June 30, 2016	(Gain) / Loss	\$ 25,186	\$ 1,763	\$ (680) <sup>3</sup>	\$ 27,629	14 Years	\$ 2,511
Total Amortization Payment July 1, 2017:							\$ 30,067
Projected Payroll July 1, 2017:							\$ 63,563
UAAL as of June 30, 2016:		<u>\$ 190,984</u>	UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2017:				<u>47.30%</u>

County Supplementary Contribution Account Amortization Detail							
Date Established	Description	Balance as of June 30, 2016	Interest on Balance	Offset to SCR on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2014	Initial CSCA	\$ 12,594	\$ 882	\$ 1,275	\$ 12,201	12 Years	\$ 1,252
June 30, 2015	CSCA Addition	\$ 2,867	\$ 201	\$ 274	\$ 2,794	13 Years	\$ 269
June 30, 2016	CSCA Addition	\$ 4,268	\$ 299	\$ -	\$ 4,567	14 Years	\$ 415
Total CSCA County Offset Payment July 1, 2017:							\$ 1,936
Projected County Payroll July 1, 2017:							\$ 63,563
CSCA Value as of June 30, 2016:		<u>\$ 19,729</u>	CSCA County Offset (as a % of Payroll) FYB July 1, 2017:				<u>3.05%</u>

1. Amortization Payments and CSCA Offsets are based on a fixed schedule that increases by the payroll assumption each year.
2. The calculation of UAAL and CSCA are as of June 30, 2016; whereas, the contribution rates are not effective until July 1, 2017. Therefore, the UAAL and CSCA are adjusted to June 30, 2017 in the calculation of contribution rates.
3. The amortization of UAAL does not begin until July 1, 2017; however, the UAAL amount is adjusted based on the July 1, 2016 contribution rate.
4. (Gain)/Loss includes the following:
  - new assumptions adopted effective June 30, 2011 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2012
  - new assumptions adopted effective June 30, 2014 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2016

**Exhibit 12c Amortization Detail – Probation Members: UAAL and County CSCA Offsets**  
 (Dollars in Thousands)

Unfunded Actuarial Liability Amortization Detail							
Date Established	Description <sup>(4)</sup>	Balance as of June 30, 2016	Interest on Balance	Amort. Payment on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2008	Initial UAAL	\$ 26,469	\$ 1,853	\$ 4,501	\$ 23,821	6 Years	\$ 4,417
June 30, 2009	(Gain) / Loss	\$ 26,756	\$ 1,873	\$ 4,049	\$ 24,579	7 Years	\$ 3,974
June 30, 2010	(Gain) / Loss	\$ (10,122)	\$ (709)	\$ (1,385)	\$ (9,447)	8 Years	\$ (1,359)
June 30, 2011	(Gain) / Loss	\$ (3,624)	\$ (254)	\$ (454)	\$ (3,424)	9 Years	\$ (445)
June 30, 2012	(Gain) / Loss	\$ 10,757	\$ 753	\$ 1,245	\$ 10,265	10 Years	\$ 1,222
June 30, 2013	(Gain) / Loss	\$ 1,530	\$ 107	\$ 165	\$ 1,472	11 Years	\$ 162
June 30, 2014	(Gain) / Loss	\$ (3,563)	\$ (249)	\$ (361)	\$ (3,451)	12 Years	\$ (354)
June 30, 2015	(Gain) / Loss	\$ (2,468)	\$ (173)	\$ (236)	\$ (2,405)	13 Years	\$ (231)
June 30, 2016	(Gain) / Loss	\$ 9,756	\$ 683	\$ (864) <sup>3</sup>	\$ 11,304	14 Years	\$ 1,027
Total Amortization Payment July 1, 2017:							\$ 8,412
Projected Payroll July 1, 2017:							\$ 24,747
<b>UAAL as of June 30, 2016:</b>		<b>\$ 55,490</b>		<b>UAAL Contribution Rate (as a % of Payroll) FYB July 1, 2017:</b>			<b>33.99%</b>

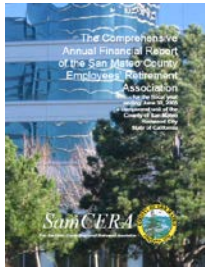
County Supplementary Contribution Account Amortization Detail							
Date Established	Description	Balance as of June 30, 2016	Interest on Balance	Offset to SCR on June 30, 2017 <sup>1</sup>	Balance as of June 30, 2017 <sup>2</sup>	Remaining Period as of June 30, 2017	July 1, 2017 Amortization Payment
June 30, 2014	Initial CSCA	\$ 3,425	\$ 240	\$ 347	\$ 3,318	12 Years	\$ 340
June 30, 2015	CSCA Addition	\$ 817	\$ 57	\$ 78	\$ 796	13 Years	\$ 77
June 30, 2016	CSCA Addition	\$ 1,489	\$ 104	\$ -	\$ 1,593	14 Years	\$ 145
Total CSCA County Offset Payment July 1, 2017:							\$ 562
Projected County Payroll July 1, 2017:							\$ 24,747
<b>CSCA Value as of June 30, 2016:</b>		<b>\$ 5,731</b>		<b>CSCA County Offset (as a % of Payroll) FYB July 1, 2017:</b>			<b>2.27%</b>

1. Amortization Payments and CSCA Offsets are based on a fixed schedule that increases by the payroll assumption each year.
2. The calculation of UAAL and CSCA are as of June 30, 2016; whereas, the contribution rates are not effective until July 1, 2017. Therefore, the UAAL and CSCA are adjusted to June 30, 2017 in the calculation of contribution rates.
3. The amortization of UAAL does not begin until July 1, 2017; however, the UAAL amount is adjusted based on the July 1, 2016 contribution rate.
4. (Gain)/Loss includes the following:
  - new assumptions adopted effective June 30, 2011 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2012
  - new assumptions adopted effective June 30, 2014 based on the Investigation of Experience report
  - new economic assumptions effective June 30, 2016

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## Section 7 Information for Comprehensive Annual Financial Report (CAFR)



The Governmental Accounting Standards Board (GASB) Statement No. 67 sets standards for defined benefit pension plan reporting and disclosures. The reporting requirements for GASB 67 include certain supplementary information that must be added to the financial statements. GASB Statement No. 68 specifies financial reporting for pension accounting by state and local governmental employers. We will provide information required for GASB No. 67 and GASB No. 68 in a separate report.

We are providing several exhibits in this report for consistency with prior reports and as supporting information for inclusion in SamCERA's CAFR.

- Exhibit 13 – Schedule of Funding Progress
- Exhibit 14 – Solvency Test
- Exhibit 15 – History of Employer Contribution Rates
- Exhibit 16 – Actuarial Analysis of Financial Experience
- Exhibit 17 – Summary of Significant Actuarial Statistics and Measures

■ Exhibit 18 – Summary of SamCERA Membership

For more detailed information on the valuation data, see Appendix C.

- Exhibit 19 – Summary of Active Member Valuation Data
- Exhibit 20 – Summary of Demographic Activity of Retirees and Beneficiaries
- Exhibit 21 – Average Salary and Active Counts by Employer
- Exhibit 22 – Summary of Retired and Inactive Benefits

### Additional CAAP Disclosure

The California Actuarial Advisory Panel (CAAP) has adopted a set of model disclosure elements for actuarial valuation reports of public retirement systems in California. Most of these elements are included in other areas of this report. The remaining CAAP-recommended disclosures are as follows:

Disclosure Element	Description	Value
Gross Normal Cost \$	Normal Cost allocated to valuation year, paid at mid-year.	\$ 110,634,764
Statutory Contribution \$	Expected Statutory Contribution paid at mid-year.	\$ 167,464,634
Asset Smoothing Ratio	Actuarial Value of Assets divided by Market Value of Assets	102.4%
Asset Volatility Ratio	Market Value of Assets divided by Payroll	7.1
Liability Volatility Ratio	Actuarial Accrued Liability divided by Payroll	8.8

**Exhibit 13 Schedule of Funding Progress**  
 (Dollars in Thousands)

<u>Actuarial Valuation Date</u>	<u>(a) Actuarial Value of Valuation Assets</u>	<u>(b) Actuarial Accrued Liabilities</u>	<u>(b-a) Unfunded Actuarial Accrued Liabilities (UAAL)</u>	<u>(a/b) Funded Ratio</u>	<u>(c) Covered Payroll</u>	<u>[(b-a)/c] UAAL as a Percentage of Covered Payroll</u>
June 30, 2007	\$ 1,976,731	\$ 2,555,504	\$ 578,773	77.4%	\$ 407,912	141.92%
June 30, 2008	2,218,937	2,806,222	587,285	79.1%	416,243	141.09%
June 30, 2009	1,909,679	2,987,712	1,078,033	63.9%	436,424	247.02%
June 30, 2010	2,179,076	3,098,453	919,377	70.3%	428,559	214.53%
June 30, 2011	2,405,140	3,246,727	841,587	74.1%	424,061	198.46%
June 30, 2012	2,480,271	3,442,553	926,282	72.0%	419,779	229.24%
June 30, 2013	2,618,639	3,572,750	954,111	73.3%	406,921	234.47%
June 30, 2014	2,993,187	3,797,042	803,855	78.8%	422,022	190.48%
June 30, 2015	3,343,550	4,045,786	702,236	82.6%	454,683	154.45%
June 30, 2016	3,624,726	4,362,296	737,570	83.1%	485,297	151.98%

**Exhibit 14 Solvency Test**  
 (Dollars in Thousands)

Actuarial Valuation Date	Valuation Assets	Actuarial Accrued Liabilities for			Portion of Actuarial Accrued Liabilities Covered by Assets		
		Active Member Contributions (A)	Retirees and Beneficiaries <sup>(1)</sup> (B)	Active Members (Employer Financed Portion) (C)	(A)	(B)	(C)
June 30, 2007	\$ 1,976,731	\$ 359,484	\$ 1,348,013	\$ 848,007	100%	100%	32%
June 30, 2008	2,218,937	385,300	1,550,875	870,047	100%	100%	32%
June 30, 2009	1,909,679	412,147	1,670,547	905,018	100%	90%	0%
June 30, 2010	2,179,076	449,355	1,745,146	903,952	100%	99%	0%
June 30, 2011	2,405,140	485,126	1,866,219	895,382	100%	100%	6%
June 30, 2012	2,480,271	498,569	2,022,791	921,193	100%	98%	0%
June 30, 2013	2,618,639	534,276	2,157,590	880,884	100%	97%	0%
June 30, 2014	2,993,187	584,080	2,285,328	927,634	100%	100%	13%
June 30, 2015	3,343,550	628,287	2,451,544	965,955	100%	100%	27%
June 30, 2016	3,624,726	679,246	2,635,409	1,047,641	100%	100%	30%

1. Includes inactive members.

**Exhibit 15 History of Employer Statutory Contribution Rates**

Statutory Contribution Rates <sup>(1)</sup>									
Valuation Year	General Members (County & Courts)			General Members (Nurses & UAPD) <sup>(3)</sup>			General Members (SMCM&VCD) <sup>(2)</sup>		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2007	10.19%	9.46%	19.65%	Same as County General			8.50%	7.76%	16.26%
2008	10.16%	9.81%	19.97%	Same as County General			8.55%	8.04%	16.59%
2009	10.11%	18.40%	28.51%	Same as County General			8.25%	15.09%	23.34%
2010	10.05%	16.35%	26.40%	Same as County General			11.70%	16.35%	28.05%
2011	9.71%	16.41%	26.12%	8.70%	16.41%	25.11%	11.97%	16.41%	28.38%
2012	9.98%	20.17%	30.15%	8.96%	20.17%	29.13%	11.68%	20.17%	31.85%
2013	9.74%	22.35%	32.09%	8.92%	22.35%	31.27%	11.70%	22.35%	34.05%
2014	10.12%	20.27%	30.39%	9.14%	20.21%	29.35%	11.72%	21.16%	32.88%

Statutory Contribution Rates <sup>(1)</sup>									
Valuation Year	General Members (County) <sup>(5)</sup>			General Members (Courts) <sup>(5)</sup>			General Members (SMCM&VCD) <sup>(2)</sup>		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2015 <sup>(7)</sup>	8.67%	18.37%	27.04%	9.04%	19.54%	28.58%	11.75%	19.54%	31.29%
2016	8.91%	19.81%	28.72%	9.14%	21.30%	30.44%	12.02%	12.50%	24.52%

Statutory Contribution Rates <sup>(1)</sup>									
Valuation Year	Safety Member			Probation Members (excluding Managers) <sup>(4)</sup>			Probation Members (Managers) <sup>(6)</sup>		
	Normal	UAAL	Total	Normal	UAAL	Total	Normal	UAAL	Total
2007	19.94%	29.32%	49.26%	20.83%	14.06%	34.89%	Same as Probation (ex Managers)		
2008	19.32%	27.31%	46.63%	20.05%	12.81%	32.86%	Same as Probation (ex Managers)		
2009	19.21%	51.83%	71.04%	19.92%	23.84%	43.76%	Same as Probation (ex Managers)		
2010	19.01%	44.50%	63.51%	19.85%	21.62%	41.47%	Same as Probation (ex Managers)		
2011	18.87%	41.75%	60.62%	19.50%	22.30%	41.80%	Same as Probation (ex Managers)		
2012	19.05%	48.51%	67.56%	19.99%	26.71%	46.70%	Same as Probation (ex Managers)		
2013	18.51%	50.33%	68.84%	18.33%	29.32%	47.65%	17.85%	29.32%	47.17%
2014	18.99%	46.48%	65.47%	18.92%	28.09%	47.01%	18.79%	28.09%	46.88%
2015 <sup>(7)</sup>	15.14%	43.58%	58.72%	15.31%	26.77%	42.08%	17.23%	26.77%	44.00%
2016	16.31%	44.25%	60.56%	15.94%	31.72%	47.66%	Same as Probation (ex Managers)		

1. Contribution rates shown are those calculated in the corresponding actuarial valuation. In some cases, actual contributions were higher.
2. Beginning with the 2010 actuarial valuation, the Mosquito and Vector Control District adopted the same benefit formula and member contribution rates as Plan 1, 2 and 4 General County members (excluding cost sharing and COLA sharing on member rates).
3. Beginning with the 2011 actuarial valuation, Plan 1, 2, and 4 members of the California Nurses Association contribute 25% of the cost of COLA, in addition to current member rates and cost sharing.  
Beginning with the 2013 actuarial valuation, Plan 1, 2, and 4 members of the Union of American Physicians and Dentists contribute 25% of the cost of COLA, in addition to current member rates and cost sharing. In 2011 and 2012 these members contributed the same as County General members.
4. Beginning with the 2012 actuarial valuation, Plan 1, 2, and 4 Probation members (excluding Managers) contribute 25% of the cost of COLA, in addition to current member rates and cost sharing.
5. Beginning with the 2015 actuarial valuation, Plan 1, 2, and 4 members of the Union of American Physicians and Dentists or the California Nurses Association contribute 50% of the cost of COLA, in addition to current member rates and cost sharing. As a result of having similar COLA share to other County groups, those members have been aggregated with all County groups.
6. Beginning with the 2015 actuarial valuation, Probation members (Managers) contribute 50% of the cost of COLA, in addition to current member rates and cost sharing.
7. Effective with the first pay period after June 30, 2016 all members (except those with benefits negotiated under Court Interpreters and Board of Supervisors bargaining units, and SMCM&VCD members) contribute 50% of the cost of COLA, in addition to current member rates and cost sharing. Additionally, pick-up contributions are discontinued for members with benefits negotiated under the Probation and Detention Association bargaining unit. Contribution rates for the 2015 valuation year reflect these changes.

**Exhibit 16 Actuarial Analysis of Financial Experience**

Summary of (Gains) / Losses	Change In Liability				
	2016	2015	2014	2013	2012
Unfunded Liability as of July 1	\$ 702,236,000	\$ 803,855,000	\$ 954,111,000	\$ 962,282,000	\$ 841,587,000
Expected Change in UAAL	(96,454,000)	(76,018,000)	(88,525,000)	(34,535,000)	(39,621,000)
Salary (Gain) / Loss	24,707,000	39,129,000	(15,884,000)	(59,411,000)	(45,526,000)
Fewer Withdrawals than expected	0	0	0	0	0
Retiree COLA more / (less) than expected	(6,275,000)	3,648,000	(15,603,000)	(8,606,000)	(11,756,000)
Asset (Gain) / Loss	27,821,000	(74,068,000)	(88,035,000)	93,999,000	171,268,000
Change due to Assumption Changes	89,364,000	0	59,345,000	0	36,443,000
Miscellaneous Experience	(3,829,000)	5,690,000	(1,554,000)	382,000	9,887,000
Change Due to New Formula					
Unfunded Liability as of June 30	\$ 737,570,000	\$ 702,236,000	\$ 803,855,000	\$ 954,111,000	\$ 962,282,000

**Exhibit 17 Summary of Significant Actuarial Statistics and Measures**

	June 30th of		Relative Change
	2016	2015	
1. Active Members			
Number of Members	5,187	5,095	1.8 %
Average Age	45.4	45.5	(0.2)%
Average Credited Service	10.8	11.0	(1.8)%
Total Active Payroll (\$thousands)	\$ 493,790	\$ 462,640	6.7 %
Average Monthly Salary	\$ 7,933	\$ 7,567	4.8 %
2. Retired Members			
Number of Members			
Service Retirement	3,749	3,628	3.3 %
Disability Retirement	454	442	2.7 %
Beneficiaries	545	568	(4.0)%
Average Age	71.0	71.3	(0.4)%
Actual Retiree Benefits Paid (\$thousands)	\$ 179,497	\$ 168,109	6.8 %
Average Monthly Pension	\$ 3,268	\$ 3,160	3.4 %
3. Number of Inactive Members	1,486	1,384	7.4 %
4. Assets			
Market Value of Fund (\$thousands)	\$ 3,541,388	\$ 3,454,476	2.5 %
Return on Market Value	0.7%	3.5%	
Valuation Assets (\$thousands)	\$ 3,624,726	\$ 3,343,550	8.4 %
Return on Valuation Assets	6.4%	9.7%	
5. Liability Values (\$thousands)			
Actuarial Accrued Liability	\$ 4,362,296	\$ 4,045,786	7.8 %
Unfunded Actuarial Accrued Liability	\$ 737,570	\$ 702,236	5.0%
Deferred Asset (Gains) / Losses	\$ 119,951	\$ (77,153)	
6. Funded Ratio (based on valuation assets)	83.1%	82.6%	0.5 %

Exhibit 18 Summary of SamCERA Membership

Plan	One	Two	Three	Four	Five	Six	Seven	Total
<b>Retirees and beneficiaries currently receiving benefits:</b>								
General	1,612	1,783	143	561	1	-	-	4,100
Safety	266	167	-	50	-	-	-	483
Probation	68	77	-	20	-	-	-	165
Subtotal	1,946	2,027	143	631	1	-	-	4,748
<b>Inactive employees entitled to but not currently receiving benefits (Deferred):</b>								
General	11	371	108	769	35	-	74	1,368
Safety	1	19	-	41	6	-	2	69
Probation	-	11	-	38	-	-	-	49
Subtotal	12	401	108	848	41	-	76	1,486
<b>Current employees:</b>								
<b>Vested:</b>								
General	16	702	74	2,124	10	-	6	2,932
Safety	3	81	-	253	-	-	1	338
Probation	1	41	-	189	1	-	-	232
<b>Non-Vested:</b>								
General	-	2	17	57	274	-	1,139	1,489
Safety	-	-	-	8	54	1	94	157
Probation	-	-	-	1	8	1	29	39
Subtotal	20	826	91	2,632	347	2	1,269	5,187
<b>Total SamCERA Membership</b>	<b>1,978</b>	<b>3,254</b>	<b>342</b>	<b>4,111</b>	<b>389</b>	<b>2</b>	<b>1,345</b>	<b>11,421</b>

**Exhibit 19 Summary of Active Member Valuation Data**

Valuation Date	Members	Annual Salary	Average Annual Salary	% Change Average Salary	
2007	General	4,767	\$346,319,017	\$72,649	7.1%
	Safety	443	\$45,386,411	\$102,452	5.9%
	Probation	329	\$24,364,268	\$74,056	5.3%
	Total	5,539	\$416,069,696	\$75,116	6.9%
2008	General	4,743	\$353,518,525	\$74,535	2.6%
	Safety	432	\$46,326,906	\$107,238	4.7%
	Probation	325	\$24,741,003	\$76,126	2.8%
	Total	5,500	\$424,586,434	\$77,198	2.8%
2009	General	4,777	\$370,760,830	\$77,614	4.1%
	Safety	436	\$48,120,081	\$110,367	2.9%
	Probation	330	\$26,270,802	\$79,608	4.6%
	Total	5,543	\$445,151,713	\$80,309	4.0%
2010	General	4,609	\$363,305,740	\$78,825	1.6%
	Safety	425	\$48,576,912	\$114,299	3.6%
	Probation	313	\$25,247,595	\$80,663	1.3%
	Total	5,347	\$437,130,248	\$81,752	1.8%
2011	General	4,494	\$355,876,715	\$79,189	0.5%
	Safety	446	\$52,073,940	\$116,758	2.2%
	Probation	305	\$24,591,392	\$80,628	0.0%
	Total	5,245	\$432,542,046	\$82,468	0.9%
2012	General	4,361	\$351,965,689	\$80,708	1.9%
	Safety	435	\$51,129,267	\$117,539	0.7%
	Probation	299	\$24,554,583	\$82,122	1.9%
	Total	5,095	\$427,649,539	\$83,935	1.8%
2013	General	4,173	\$338,595,633	\$81,140	2.5%
	Safety	452	\$52,233,510	\$115,561	-1.0%
	Probation	292	\$23,722,165	\$81,240	0.8%
	Total	4,917	\$414,551,308	\$84,310	2.2%
2014	General	4,272	\$352,918,558	\$82,612	1.8%
	Safety	452	\$52,974,475	\$117,200	1.4%
	Probation	280	\$23,514,343	\$83,980	3.4%
	Total	5,004	\$429,407,375	\$85,813	1.8%
2015	General	4,334	\$382,303,295	\$88,210	6.8%
	Safety	479	\$55,917,864	\$116,739	-0.4%
	Probation	282	\$24,418,977	\$86,592	3.1%
	Total	5,095	\$462,640,136	\$90,803	5.8%
2016	General	4,421	\$408,191,518	\$92,330	4.7%
	Safety	495	\$61,564,028	\$124,372	6.5%
	Probation	271	\$24,034,819	\$88,689	2.4%
	Total	5,187	\$493,790,365	\$95,198	4.8%



**Exhibit 20 Summary of Demographic Activity of Retirees and Beneficiaries**

Year Ended	Added to Rolls <sup>(1)</sup>		Removed from Rolls		Rolls end of year		% Increase in Payroll	Average Monthly Allowances
	No.	Annual Allowances in Thousands	No.	Annual Allowances in Thousands	No.	Total Retiree Payroll in Thousands		
June 30, 2007	155	\$ N/A	74	\$ N/A	3,694	\$ 98,790	8.6	\$ 2,229
June 30, 2008	218	N/A	70	N/A	3,842	109,616	11.0	2,378
June 30, 2009	159	12,717	66	3,281	3,935	119,052	8.6	2,521
June 30, 2010	163	9,076	96	3,240	4,002	124,888	4.9	2,601
June 30, 2011	<sup>(2)</sup> 209	12,703	64	2,916	4,147	134,675	7.8	2,706
June 30, 2012	218	14,379	90	4,209	4,275	144,845	7.6	2,823
June 30, 2013	186	13,024	63	3,095	4,398	154,774	6.9	2,933
June 30, 2014	203	12,474	83	3,479	4,518	163,769	5.8	3,021
June 30, 2015	213	16,290	93	4,179	4,638	175,880	7.4	3,160
June 30, 2016	233	15,347	123	5,030	4,748	186,197	5.9	3,268

1. Amount added to rolls includes COLAs granted in year to continuing retirees and beneficiaries.

2. Revised from June 30, 2011 valuation for corrections.

**Exhibit 21 Average Salary and Active Counts by Employer**

	2016	2015	2014	2013	2012
General Plan 1	\$9,945	\$9,235	\$8,617	\$8,104	\$7,843
General Plan 2	\$8,636	\$8,186	\$7,584	\$7,355	\$7,340
General Plan 3	\$7,173	\$6,747	\$6,300	\$6,254	\$6,138
General Plan 4	\$7,807	\$7,386	\$6,873	\$6,662	\$6,580
General Plan 5	\$8,485	\$7,735	\$6,912	\$6,418	\$5,799
General Plan 7	\$6,714	\$6,315	\$5,721	\$5,433	N/A
General Plan Total	\$7,694	\$7,351	\$6,884	\$6,762	\$6,726
Safety Plan 1	\$15,810	\$14,712	\$14,091	\$13,185	\$12,624
Safety Plan 2	\$12,505	\$11,545	\$11,191	\$10,935	\$10,892
Safety Plan 4	\$10,729	\$9,919	\$9,581	\$9,402	\$9,351
Safety Plan 5	\$9,940	\$9,145	\$8,958	\$8,699	\$9,667
Safety Plan 6	\$16,793	\$16,010	\$14,381	\$12,374	N/A
Safety Plan 7	\$7,538	\$6,701	\$7,011	\$6,695	N/A
Safety Plan Total	\$10,364	\$9,728	\$9,767	\$9,630	\$9,795
Probation Plan 1	\$7,261	\$7,038	\$6,874	\$6,618	\$6,618
Probation Plan 2	\$8,349	\$8,012	\$7,699	\$7,445	\$7,454
Probation Plan 4	\$7,454	\$7,267	\$6,922	\$6,622	\$6,686
Probation Plan 5	\$6,429	\$6,106	\$5,916	\$5,242	\$4,949
Probation Plan 6	\$6,259	\$5,739	\$5,216	\$4,808	\$5,239
Probation Plan 7	\$5,962	\$5,684	\$5,807	\$7,742	\$5,239
Probation Plan Total	\$7,391	\$7,216	\$6,998	\$6,770	\$6,844
Grand Total	\$7,933	\$7,567	\$7,151	\$7,026	\$6,995

**Participating Employers and Active Members**

	2016	2015	2014	2013	2012
<i>County of San Mateo</i>					
General Members	4,170	4,092	4,014	3,906	4,078
Safety Members	495	479	452	452	435
Probation Members	271	282	280	292	299
Total	4,936	4,853	4,746	4,650	4,812
<i>San Mateo County Mosquito and Vector Control District</i>					
General Members Total	20	20	19	18	15
<i>Courts</i>					
General Members Total	231	222	239	249	268
<b>Total Active Membership</b>	<b>5,187</b>	<b>5,095</b>	<b>5,004</b>	<b>4,917</b>	<b>5,095</b>

**Exhibit 22 Summary of Retired and Inactive Benefits**

<b>Retired Members</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
<b>Service Retirement</b>					
Number	3,749	3,628	3,525	3,446	3,355
Annual Allowance					
Basic Only	\$ 119,212,000	\$ 112,557,000	\$ 105,556,000	\$ 100,411,000	\$ 94,234,000
COLA	32,949,000	30,835,000	28,027,000	26,594,000	24,748,000
Total	152,161,000	143,392,000	133,583,000	127,005,000	118,982,000
Average Monthly Payment	3,382	3,294	3,158	3,071	2,955
<b>Disability Retirement</b>					
Number	454	442	428	393	374
Annual Allowance					
Basic Only	\$ 14,040,000	\$ 13,303,000	\$ 12,508,000	\$ 10,733,000	\$ 9,909,000
COLA	4,590,000	4,208,000	3,800,000	3,564,000	3,225,000
Total	18,630,000	17,511,000	16,308,000	14,297,000	13,134,000
Average Monthly Payment	3,420	3,301	3,175	3,032	2,927
<b>Beneficiaries</b>					
Number	545	568	565	559	546
Annual Allowance					
Basic Only	\$ 8,944,000	\$ 8,610,000	\$ 7,986,000	\$ 7,668,000	\$ 7,235,000
COLA	6,462,000	6,367,000	5,892,000	5,804,000	5,494,000
Total	15,406,000	14,977,000	13,878,000	13,472,000	12,729,000
Average Monthly Payment	2,356	2,197	2,047	2,008	1,943
<b>Total Retired Members</b>					
Number	4,748	4,638	4,518	4,398	4,275
Annual Allowance					
Basic Only	\$ 142,196,000	\$ 134,470,000	\$ 126,050,000	\$ 118,812,000	\$ 111,378,000
COLA	44,001,000	41,410,000	37,719,000	35,962,000	33,467,000
Total	186,197,000	175,880,000	163,769,000	154,774,000	144,845,000
Average Monthly Payment	3,268	3,160	3,021	2,933	2,823
<b>Inactive Members</b>					
	1,486	1,384	1,304	1,306	1,212

## Appendix A Actuarial Procedures and Assumptions



The actuarial procedures and assumptions to be used in the valuation are described in this section. The demographic assumptions were reviewed and changed effective June 30, 2014 as a result of the 2014 Investigation of Experience Study. At its meeting on June 7, 2016, the Board reaffirmed these demographic assumptions for use in the 2016 valuation. At that meeting, new economic assumptions were adopted for use in the 2016 valuation.

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 Plan 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.

<b>Growth in Membership</b>	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.
<b>Internal Revenue Code Section 415 Limit</b>	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.
<b>Internal Revenue Code Section 401(a)(17)</b>	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.
<b>Government Code Section 7522.10</b>	The maximum compensation limit under Government Code 7522.10 is reflected in the valuation for funding purposes. Future annual increases to the limit are assumed to occur based on the CPI inflation assumption.
<b>Employer Contributions</b>	The employer contribution rate is set by the Retirement Board based on actuarial valuations.
<b>Member Contributions</b>	<p>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.</p> <p>The individual member rates by entry age, plan, and class are illustrated in Appendix D of the valuation report.</p>
<b>Valuation of Assets</b>	The assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption.
<b>Investment Earnings and Expenses</b>	The future investment earnings of the assets of SamCERA are assumed to accrue at an annual rate of 7.00% compounded annually, net of both investment and administrative expenses. This rate was adopted effective June 30, 2016.

**Postretirement Benefit Increases**

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

	General	Safety	Probation
Plan 1	2.75%	2.75%	2.75%
Plan 2	2.65%	2.65%	2.65%
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 2.75% 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 7.00% compounded semi-annually for an annualized rate of 7.12%. This rate was adopted effective June 30, 2016 for valuation purposes, although the change in the member crediting rate is not effective until July 1, 2017.

**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 3.25% 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 2.75% 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 70 and all Safety members who have attained age 60 are assumed to retire immediately. Additionally, if a member's benefit is equal to or greater than the 100% of compensation limit, the member is assumed to retire immediately. For purposes of the valuation, immediate retirement is assumed at:

- Age 62 with 38 years of service (General, except Plan 3, Plan 5, and Plan 7)
- Age 65 with 41 years of service (General Plan 5)
- Age 67 with 40 years of service (General Plan 7)
- Any age with 33 years of service (Safety & Probation, except Plans 5, 6, and 7)
- 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)

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

- Age 55 (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 June 30, 2014.

## Disability

The rates of disability used in the valuation are also illustrated in Tables A-6 through A-11.

The disability rates were adopted June 30, 2014.

## Mortality – Other Than Disabled Members

The same postretirement mortality rates are used in the valuation for active 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.

*General Males* RP-2000 Healthy Combined Mortality Table for Males with adjustment for White Collar workers. Ages are set back three years.

*Safety Males* Same as General.

*General Females* RP-2000 Healthy Combined Mortality Table for Females with adjustment for White Collar workers. Ages are set back three years.

*Safety Females* Same as General.

The rates of retired mortality were adopted June 30, 2011 and re-adopted June 30, 2014.



**Mortality – Disabled Members**

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

- General Males* Average of RP-2000 Healthy Combined Mortality Table for Males with adjustment for White Collar workers and the RP-2000 Disabled Annuitant Mortality Table for Males, both set back three years.
- Safety Males* RP-2000 Healthy Combined Mortality Table for Males with adjustment for White Collar workers (minimum is 1.0%).
- General Females* Average of RP-2000 Healthy Combined Mortality Table for Females with adjustment for White Collar workers and the RP-2000 Disabled Annuitant Mortality Table for Females, both set back three years.
- Safety Females* RP-2000 Healthy Combined Mortality Table for Females with adjustment for White Collar workers (minimum is 0.4%).

The rates of mortality were adopted June 30, 2011 and re-adopted June 30, 2014.

**Other Employment Terminations**

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 June 30, 2011 and re-adopted June 30, 2014.

**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 retirement 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 June 30, 2011 and re-adopted June 30, 2014.

**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  
Inactive 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 is made to the salary data provided for these individuals, as it is our understanding that the salary data may not be complete in many cases. The adjustment is based on the average pay for all members of the active group divided by average pay for the deferred group. The average pay for the active group is based on the average pay over the last five-year period using the information supplied in the CAFR.

**Reciprocal Benefits**

35% of future inactive General members and 45% of future inactive 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 inactive members, eligibility is based on the data supplied by SamCERA and future salaries are assumed to increase at 3.77% annually.

**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 Plan 2 or Plan 4 (depending on entry date) after five years of service. We have adjusted the Plan 3 Normal Cost to account for this. The adjusted Plan 3 Normal Cost rate is 50% of the unadjusted Plan 3 Normal Cost rate and 50% of 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 an 83% / 17% blend of the male and female annuity factors using current valuation assumptions.
- 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 7.00%.
- C. The Final Compensation is based on the salary paid in the year prior to attaining the retirement age.

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.

- D. For purposes of calculating the value of the member's future contribution, interest is assumed to be credited at 7.00% semiannually (7.12% annual rate).

**Member Contribution  
Rate Assumptions  
(continued)**

- E. 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.
- F. Member rates for all members are loaded to account for a 50% COLA share. The only exception is for Plans 1, 2, and 4 members of the Board of Supervisors and Court Interpreters bargaining units with a most recent hire date before August 7, 2011. The COLA loads are applied to the otherwise applicable basic member rates prior to the addition of and cost-sharing rates. The loads were determined based on 2016 information and applied as follows:

General Plan 1:	35.45%
General Plan 2:	34.32%
General Plan 4:	23.46%
General Plan 5:	22.69%
Safety Plan 1:	63.59%
Safety Plan 2:	61.28%
Safety Plan 4:	34.95%
Safety Plan 5:	31.39%
Safety Plan 6:	28.67%
Probation Plan 1:	61.59%
Probation Plan 2:	59.35%
Probation Plan 4:	34.85%
Probation Plan 5:	31.07%
Probation Plan 6:	27.63%

**Table A-1 Summary of Valuation Assumptions as of June 30, 2016**

I.	Economic assumptions	
A.	General wage increases	3.25%
B.	Investment earnings	7.00%
C.	Growth in active membership	0.00%
D.	CPI inflation assumption	2.75%
II.	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

Basis-- RP-2000 Employees Table with age adjustments:

<u>Class of Members</u>	<u>Age Adjustment</u>
General – Males	-3 years
General – Females	-3 years
Safety – Males	-3 years
Safety – Females	-3 years

E.	Mortality for active members after termination and service retired members*	Table A-2
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Basis – RP-2000 Healthy Combined Mortality Table with adjustment for White Collar workers:

<u>Class of Members</u>	<u>Age Adjustment</u>
General – Males	-3 years
General – Females	-3 years
Safety – Males	-3 years
Safety – Females	-3 years

\* The current mortality assumptions contain a margin to account for expected future mortality improvement. Refer to the 2014 Investigation of Experience report for details.

**Table A-1 Summary of Valuation Assumptions as of June 30, 2016  
 (continued)**

F. Mortality among disabled members\*

Table A-3

Basis – Average of RP-2000 Healthy Combined Mortality Table with adjustment for White Collar workers and RP-2000 Disabled Annuitant Mortality Table:

<u>Class of Members</u>	<u>Age Adjustment</u>	<u>Minimum Rate</u>
General – Males	-3 years	None
General – Females	-3 years	None

Basis – RP-2000 Healthy Combined Mortality Table with adjustment for White Collar workers:

<u>Class of Members</u>	<u>Age Adjustment</u>	<u>Minimum Rate</u>
Safety – Males	none	1.00%
Safety – Females	none	0.40%

G. Mortality for beneficiaries\*

Table A-2

Basis – Beneficiaries are assumed to be of the opposite sex and have the same mortality as General members.

H. Other terminations of employment

Tables A-6 to A-11

I. Refund of contributions on vested termination

Table A-4

\* *The current mortality assumptions contain a margin to account for expected future mortality improvement. Refer to the 2014 Investigation of Experience report for details.*

Table A-2 Mortality for Members Retired for Service

<b>Age</b>	<b>General Male</b>	<b>General Female</b>	<b>Safety Male</b>	<b>Safety Female</b>
20	0.030%	0.018%	0.030%	0.018%
25	0.037%	0.019%	0.037%	0.019%
30	0.038%	0.022%	0.038%	0.022%
35	0.043%	0.036%	0.043%	0.036%
40	0.071%	0.053%	0.071%	0.053%
45	0.103%	0.076%	0.103%	0.076%
50	0.158%	0.123%	0.158%	0.123%
55	0.250%	0.192%	0.250%	0.192%
60	0.409%	0.332%	0.409%	0.332%
65	0.731%	0.599%	0.731%	0.599%
70	1.404%	1.094%	1.404%	1.094%
75	2.387%	1.878%	2.387%	1.878%
80	4.236%	3.155%	4.236%	3.155%
85	7.493%	5.337%	7.493%	5.337%
90	13.019%	9.248%	13.019%	9.248%

Table A-3 Mortality for Members Retired for Disability

Age	General Male	General Female	Safety Male	Safety Female
20	1.144%	0.382%	1.000%	0.400%
25	1.147%	0.382%	1.000%	0.400%
30	1.148%	0.384%	1.000%	0.400%
35	1.150%	0.391%	1.000%	0.400%
40	1.164%	0.399%	1.000%	0.400%
45	1.180%	0.411%	1.000%	0.400%
50	1.335%	0.509%	1.000%	0.400%
55	1.703%	0.769%	1.000%	0.400%
60	2.106%	1.099%	1.000%	0.468%
65	2.615%	1.503%	1.106%	0.865%
70	3.424%	2.114%	1.928%	1.519%
75	4.664%	3.082%	3.363%	2.572%
80	6.725%	4.555%	5.941%	4.308%
85	9.840%	6.783%	10.467%	7.419%
90	14.271%	10.350%	17.827%	12.615%

**Table A-4 Immediate Refund of Contributions Upon Termination of Employment  
 (Excludes Plan 3)**

<b>Years of Service</b>	<b>General</b>	<b>Safety</b>
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%
5	45%	35%
6	45%	35%
7	45%	35%
8	44%	34%
9	43%	33%
10	42%	32%
11	41%	31%
12	40%	30%
13	38%	25%
14	36%	20%
15	34%	15%
16	32%	10%
17	30%	5%
18	27%	4%
19	24%	3%
20	21%	0%
21	18%	0%
22	15%	0%
23	12%	0%
24	9%	0%
25	6%	0%
26	3%	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	6.00%	9.44%
1	4.00%	7.38%
2	3.00%	6.35%
3	2.50%	5.83%
4	2.00%	5.31%
5	1.75%	5.06%
6	1.50%	4.80%
7	1.25%	4.54%
8	1.05%	4.33%
9	0.90%	4.18%
10	0.80%	4.08%
11	0.70%	3.97%
12	0.60%	3.87%
13	0.50%	3.77%
14	0.50%	3.77%
15	0.50%	3.77%
16	0.50%	3.77%
17	0.50%	3.77%
18	0.50%	3.77%
19	0.50%	3.77%
20 or More	0.50%	3.77%

\* The total expected increase in salary is the increase due to promotions and longevity, adjusted for an assumed 3.25% per annum increase in the general wage level of the membership. The total result is compounded rather than additive.

**Appendix A 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:

Table A-6: General Plan 1, 2, 4, 5 and 7 Males	A-10: Safety and Probation Plans 1, 2, 4, 5, 6 and 7 Males
A-7: General Plan 1, 2, 4, 5 and 7 Females	A-11: Safety and Probation Plans 1, 2, 4, 5, 6 and 7 Females
A-8: General Plan 3 Males	
A-9: General Plan 3 Females	

**Table A-6 Rate of Separation From Active Service  
 General Plans 1, 2, 4, 5 and 7 – Male**

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0004	0.0003	N/A	0.0003	0	0.1300
19	0.0000	0.0004	0.0003	N/A	0.0003	1	0.1100
20	0.0000	0.0004	0.0003	N/A	0.0003	2	0.0900
21	0.0000	0.0004	0.0003	N/A	0.0003	3	0.0800
22	0.0000	0.0004	0.0003	N/A	0.0003	4	0.0700
23	0.0000	0.0004	0.0003	N/A	0.0003	5	0.0633
24	0.0000	0.0004	0.0003	N/A	0.0004	6	0.0567
25	0.0000	0.0004	0.0003	N/A	0.0004	7	0.0500
26	0.0000	0.0004	0.0003	N/A	0.0004	8	0.0470
27	0.0000	0.0004	0.0003	N/A	0.0004	9	0.0440
28	0.0000	0.0004	0.0003	N/A	0.0004	10	0.0410
29	0.0000	0.0005	0.0003	N/A	0.0004	11	0.0380
30	0.0000	0.0005	0.0004	N/A	0.0004	12	0.0350
31	0.0000	0.0005	0.0004	N/A	0.0004	13	0.0330
32	0.0000	0.0006	0.0004	N/A	0.0004	14	0.0310
33	0.0000	0.0007	0.0004	N/A	0.0004	15	0.0290
34	0.0000	0.0007	0.0005	N/A	0.0005	16	0.0270
35	0.0000	0.0007	0.0005	N/A	0.0006	17	0.0250
36	0.0000	0.0008	0.0005	N/A	0.0006	18	0.0230
37	0.0000	0.0009	0.0006	N/A	0.0007	19	0.0210
38	0.0000	0.0010	0.0006	N/A	0.0008	20	0.0190
39	0.0000	0.0010	0.0007	N/A	0.0008	21	0.0170
40	0.0000	0.0011	0.0008	N/A	0.0009	22	0.0150
41	0.0000	0.0012	0.0008	N/A	0.0010	23	0.0140
42	0.0000	0.0013	0.0009	N/A	0.0010	24	0.0130
43	0.0000	0.0014	0.0009	N/A	0.0011	25	0.0120
44	0.0000	0.0014	0.0010	N/A	0.0011	26	0.0110
45	0.0000	0.0016	0.0010	N/A	0.0012	27	0.0100
46	0.0000	0.0016	0.0011	N/A	0.0013	28	0.0100
47	0.0000	0.0017	0.0012	N/A	0.0014	29	0.0100
48	0.0000	0.0018	0.0012	N/A	0.0015	30 & Above	0.0000
49	0.0000	0.0019	0.0012	N/A	0.0016		
50	0.0500	0.0019	0.0013	N/A	0.0017		
51	0.0450	0.0020	0.0013	N/A	0.0019		
52	0.0450	0.0020	0.0013	N/A	0.0020		
53	0.0500	0.0021	0.0014	N/A	0.0021		
54	0.0500	0.0022	0.0014	N/A	0.0023		
55	0.0600	0.0022	0.0014	N/A	0.0024		
56	0.0600	0.0022	0.0015	N/A	0.0026		
57	0.0800	0.0023	0.0015	N/A	0.0028		
58	0.1200	0.0025	0.0016	N/A	0.0030		
59	0.1200	0.0026	0.0017	N/A	0.0033		
60	0.1500	0.0027	0.0018	N/A	0.0036		
61	0.2250	0.0029	0.0019	N/A	0.0040		
62	0.2750	0.0030	0.0020	N/A	0.0044		
63	0.2500	0.0030	0.0020	N/A	0.0049		
64	0.2500	0.0030	0.0020	N/A	0.0054		
65	0.2500	0.0030	0.0020	N/A	0.0059		
66	0.3750	0.0030	0.0020	N/A	0.0065		
67	0.3500	0.0030	0.0020	N/A	0.0070		
68	0.2750	0.0030	0.0020	N/A	0.0076		
69	0.3250	0.0030	0.0020	N/A	0.0081		
70	1.0000	0.0000	0.0000	N/A	0.0000		

\* 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).

**Table A-7 Rate of Separation From Active Service  
 General Plans 1, 2, 4, 5 and 7 – Female**

Age	Service Retirement*	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0004	0.0003	N/A	0.0002	0	0.1200
19	0.0000	0.0004	0.0003	N/A	0.0002	1	0.1000
20	0.0000	0.0004	0.0003	N/A	0.0002	2	0.0850
21	0.0000	0.0004	0.0003	N/A	0.0002	3	0.0750
22	0.0000	0.0004	0.0003	N/A	0.0002	4	0.0700
23	0.0000	0.0004	0.0003	N/A	0.0002	5	0.0633
24	0.0000	0.0004	0.0003	N/A	0.0002	6	0.0567
25	0.0000	0.0004	0.0003	N/A	0.0002	7	0.0500
26	0.0000	0.0004	0.0003	N/A	0.0002	8	0.0455
27	0.0000	0.0004	0.0003	N/A	0.0002	9	0.0410
28	0.0000	0.0004	0.0003	N/A	0.0002	10	0.0365
29	0.0000	0.0004	0.0003	N/A	0.0002	11	0.0320
30	0.0000	0.0004	0.0003	N/A	0.0002	12	0.0275
31	0.0000	0.0004	0.0003	N/A	0.0002	13	0.0270
32	0.0000	0.0005	0.0003	N/A	0.0002	14	0.0265
33	0.0000	0.0005	0.0003	N/A	0.0003	15	0.0260
34	0.0000	0.0005	0.0004	N/A	0.0003	16	0.0255
35	0.0000	0.0006	0.0004	N/A	0.0003	17	0.0250
36	0.0000	0.0007	0.0004	N/A	0.0004	18	0.0230
37	0.0000	0.0007	0.0005	N/A	0.0004	19	0.0210
38	0.0000	0.0007	0.0005	N/A	0.0005	20	0.0190
39	0.0000	0.0008	0.0005	N/A	0.0005	21	0.0170
40	0.0000	0.0008	0.0006	N/A	0.0006	22	0.0150
41	0.0000	0.0009	0.0006	N/A	0.0006	23	0.0140
42	0.0000	0.0009	0.0006	N/A	0.0006	24	0.0130
43	0.0000	0.0011	0.0007	N/A	0.0007	25	0.0120
44	0.0000	0.0011	0.0008	N/A	0.0008	26	0.0110
45	0.0000	0.0013	0.0008	N/A	0.0009	27	0.0100
46	0.0000	0.0014	0.0009	N/A	0.0009	28	0.0100
47	0.0000	0.0015	0.0010	N/A	0.0010	29	0.0100
48	0.0000	0.0020	0.0013	N/A	0.0011	30 & Above	0.0000
49	0.0000	0.0025	0.0016	N/A	0.0012		
50	0.0400	0.0029	0.0020	N/A	0.0013		
51	0.0400	0.0034	0.0023	N/A	0.0014		
52	0.0400	0.0039	0.0026	N/A	0.0016		
53	0.0400	0.0041	0.0027	N/A	0.0017		
54	0.0500	0.0043	0.0028	N/A	0.0018		
55	0.0600	0.0044	0.0030	N/A	0.0020		
56	0.0600	0.0046	0.0031	N/A	0.0021		
57	0.0800	0.0048	0.0032	N/A	0.0023		
58	0.1200	0.0048	0.0032	N/A	0.0025		
59	0.1200	0.0048	0.0032	N/A	0.0028		
60	0.1500	0.0048	0.0032	N/A	0.0030		
61	0.2000	0.0048	0.0032	N/A	0.0033		
62	0.2750	0.0048	0.0032	N/A	0.0036		
63	0.2250	0.0048	0.0032	N/A	0.0039		
64	0.3000	0.0048	0.0032	N/A	0.0043		
65	0.3000	0.0048	0.0032	N/A	0.0047		
66	0.4000	0.0048	0.0032	N/A	0.0050		
67	0.4000	0.0048	0.0032	N/A	0.0054		
68	0.3000	0.0048	0.0032	N/A	0.0058		
69	0.3500	0.0048	0.0032	N/A	0.0062		
70	1.0000	0.0000	0.0000	N/A	0.0000		

\* 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).

**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	0.0000	N/A	N/A	N/A	0.0003	0	0.1300
19	0.0000	N/A	N/A	N/A	0.0003	1	0.1100
20	0.0000	N/A	N/A	N/A	0.0003	2	0.0900
21	0.0000	N/A	N/A	N/A	0.0003	3	0.0800
22	0.0000	N/A	N/A	N/A	0.0003	4	0.0700
23	0.0000	N/A	N/A	N/A	0.0003	5	0.0633
24	0.0000	N/A	N/A	N/A	0.0004	6	0.0567
25	0.0000	N/A	N/A	N/A	0.0004	7	0.0500
26	0.0000	N/A	N/A	N/A	0.0004	8	0.0470
27	0.0000	N/A	N/A	N/A	0.0004	9	0.0440
28	0.0000	N/A	N/A	N/A	0.0004	10	0.0410
29	0.0000	N/A	N/A	N/A	0.0004	11	0.0380
30	0.0000	N/A	N/A	N/A	0.0004	12	0.0350
31	0.0000	N/A	N/A	N/A	0.0004	13	0.0330
32	0.0000	N/A	N/A	N/A	0.0004	14	0.0310
33	0.0000	N/A	N/A	N/A	0.0004	15	0.0290
34	0.0000	N/A	N/A	N/A	0.0005	16	0.0270
35	0.0000	N/A	N/A	N/A	0.0006	17	0.0250
36	0.0000	N/A	N/A	N/A	0.0006	18	0.0230
37	0.0000	N/A	N/A	N/A	0.0007	19	0.0210
38	0.0000	N/A	N/A	N/A	0.0008	20	0.0190
39	0.0000	N/A	N/A	N/A	0.0008	21	0.0170
40	0.0000	N/A	N/A	N/A	0.0009	22	0.0150
41	0.0000	N/A	N/A	N/A	0.0010	23	0.0140
42	0.0000	N/A	N/A	N/A	0.0010	24	0.0130
43	0.0000	N/A	N/A	N/A	0.0011	25	0.0120
44	0.0000	N/A	N/A	N/A	0.0011	26	0.0110
45	0.0000	N/A	N/A	N/A	0.0012	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0013	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0014	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0015	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0016		
50	0.0000	N/A	N/A	N/A	0.0017		
51	0.0000	N/A	N/A	N/A	0.0019		
52	0.0000	N/A	N/A	N/A	0.0020		
53	0.0000	N/A	N/A	N/A	0.0021		
54	0.0000	N/A	N/A	N/A	0.0023		
55	0.0300	N/A	N/A	N/A	0.0024		
56	0.0300	N/A	N/A	N/A	0.0026		
57	0.0300	N/A	N/A	N/A	0.0028		
58	0.0300	N/A	N/A	N/A	0.0030		
59	0.0300	N/A	N/A	N/A	0.0033		
60	0.0300	N/A	N/A	N/A	0.0036		
61	0.0600	N/A	N/A	N/A	0.0040		
62	0.1500	N/A	N/A	N/A	0.0044		
63	0.1000	N/A	N/A	N/A	0.0049		
64	0.1500	N/A	N/A	N/A	0.0054		
65	0.3000	N/A	N/A	N/A	0.0059		
66	0.3000	N/A	N/A	N/A	0.0065		
67	0.3000	N/A	N/A	N/A	0.0070		
68	0.3000	N/A	N/A	N/A	0.0076		
69	0.3000	N/A	N/A	N/A	0.0081		
70	1.0000	N/A	N/A	N/A	0.0000		

**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	0.0002	0	0.1200
19	0.0000	N/A	N/A	N/A	0.0002	1	0.1000
20	0.0000	N/A	N/A	N/A	0.0002	2	0.0850
21	0.0000	N/A	N/A	N/A	0.0002	3	0.0750
22	0.0000	N/A	N/A	N/A	0.0002	4	0.0700
23	0.0000	N/A	N/A	N/A	0.0002	5	0.0633
24	0.0000	N/A	N/A	N/A	0.0002	6	0.0567
25	0.0000	N/A	N/A	N/A	0.0002	7	0.0500
26	0.0000	N/A	N/A	N/A	0.0002	8	0.0455
27	0.0000	N/A	N/A	N/A	0.0002	9	0.0410
28	0.0000	N/A	N/A	N/A	0.0002	10	0.0365
29	0.0000	N/A	N/A	N/A	0.0002	11	0.0320
30	0.0000	N/A	N/A	N/A	0.0002	12	0.0275
31	0.0000	N/A	N/A	N/A	0.0002	13	0.0270
32	0.0000	N/A	N/A	N/A	0.0002	14	0.0265
33	0.0000	N/A	N/A	N/A	0.0003	15	0.0260
34	0.0000	N/A	N/A	N/A	0.0003	16	0.0255
35	0.0000	N/A	N/A	N/A	0.0003	17	0.0250
36	0.0000	N/A	N/A	N/A	0.0004	18	0.0230
37	0.0000	N/A	N/A	N/A	0.0004	19	0.0210
38	0.0000	N/A	N/A	N/A	0.0005	20	0.0190
39	0.0000	N/A	N/A	N/A	0.0005	21	0.0170
40	0.0000	N/A	N/A	N/A	0.0006	22	0.0150
41	0.0000	N/A	N/A	N/A	0.0006	23	0.0140
42	0.0000	N/A	N/A	N/A	0.0006	24	0.0130
43	0.0000	N/A	N/A	N/A	0.0007	25	0.0120
44	0.0000	N/A	N/A	N/A	0.0008	26	0.0110
45	0.0000	N/A	N/A	N/A	0.0009	27	0.0100
46	0.0000	N/A	N/A	N/A	0.0009	28	0.0100
47	0.0000	N/A	N/A	N/A	0.0010	29	0.0100
48	0.0000	N/A	N/A	N/A	0.0011	30 & Above	0.0100
49	0.0000	N/A	N/A	N/A	0.0012		
50	0.0000	N/A	N/A	N/A	0.0013		
51	0.0000	N/A	N/A	N/A	0.0014		
52	0.0000	N/A	N/A	N/A	0.0016		
53	0.0000	N/A	N/A	N/A	0.0017		
54	0.0000	N/A	N/A	N/A	0.0018		
55	0.0400	N/A	N/A	N/A	0.0020		
56	0.0400	N/A	N/A	N/A	0.0021		
57	0.0400	N/A	N/A	N/A	0.0023		
58	0.0400	N/A	N/A	N/A	0.0025		
59	0.0400	N/A	N/A	N/A	0.0028		
60	0.0400	N/A	N/A	N/A	0.0030		
61	0.0600	N/A	N/A	N/A	0.0033		
62	0.1500	N/A	N/A	N/A	0.0036		
63	0.1000	N/A	N/A	N/A	0.0039		
64	0.1500	N/A	N/A	N/A	0.0043		
65	0.3000	N/A	N/A	N/A	0.0047		
66	0.3000	N/A	N/A	N/A	0.0050		
67	0.3000	N/A	N/A	N/A	0.0054		
68	0.3000	N/A	N/A	N/A	0.0058		
69	0.3000	N/A	N/A	N/A	0.0062		
70	1.0000	N/A	N/A	N/A	0.0000		

This work product was prepared solely for SamCERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

**Table A-10 Rate of Separation From Active Service  
 Safety & Probation Plans – Male**

Age	Plans 1, 2, 4 Service Retirement*	Plans 5, 6, 7 Service Retirement**	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	0	0.0700
19	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	1	0.0650
20	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	2	0.0450
21	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	3	0.0300
22	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	4	0.0250
23	0.0000	0.0000	0.0017	0.0000	0.0010	0.0003	5	0.0233
24	0.0000	0.0000	0.0017	0.0000	0.0010	0.0004	6	0.0217
25	0.0000	0.0000	0.0017	0.0000	0.0010	0.0004	7	0.0200
26	0.0000	0.0000	0.0017	0.0000	0.0010	0.0004	8	0.0185
27	0.0000	0.0000	0.0017	0.0000	0.0010	0.0004	9	0.0170
28	0.0000	0.0000	0.0018	0.0000	0.0010	0.0004	10	0.0155
29	0.0000	0.0000	0.0019	0.0000	0.0010	0.0004	11	0.0140
30	0.0000	0.0000	0.0020	0.0000	0.0010	0.0004	12	0.0125
31	0.0000	0.0000	0.0021	0.0000	0.0010	0.0004	13	0.0120
32	0.0000	0.0000	0.0022	0.0000	0.0010	0.0004	14	0.0115
33	0.0000	0.0000	0.0023	0.0000	0.0010	0.0004	15	0.0110
34	0.0000	0.0000	0.0024	0.0000	0.0010	0.0005	16	0.0105
35	0.0000	0.0000	0.0025	0.0000	0.0010	0.0006	17	0.0100
36	0.0000	0.0000	0.0026	0.0000	0.0010	0.0006	18	0.0080
37	0.0000	0.0000	0.0028	0.0000	0.0010	0.0007	19	0.0060
38	0.0000	0.0000	0.0029	0.0000	0.0010	0.0008	20 & Above	0.0000
39	0.0000	0.0000	0.0030	0.0000	0.0010	0.0008		
40	0.0000	0.0000	0.0031	0.0000	0.0010	0.0009		
41	0.0000	0.0000	0.0032	0.0000	0.0010	0.0010		
42	0.0000	0.0000	0.0033	0.0000	0.0010	0.0010		
43	0.0000	0.0000	0.0034	0.0000	0.0010	0.0011		
44	0.0000	0.0000	0.0036	0.0000	0.0010	0.0011		
45	0.0000	0.0000	0.0037	0.0000	0.0010	0.0012		
46	0.0000	0.0000	0.0039	0.0000	0.0010	0.0013		
47	0.0000	0.0000	0.0040	0.0000	0.0010	0.0014		
48	0.0000	0.0000	0.0046	0.0000	0.0010	0.0015		
49	0.0000	0.0000	0.0052	0.0000	0.0010	0.0016		
50	0.1500	0.0500	0.0058	0.0000	0.0010	0.0017		
51	0.1250	0.0500	0.0064	0.0000	0.0010	0.0019		
52	0.1500	0.0500	0.0070	0.0000	0.0010	0.0020		
53	0.2000	0.0500	0.0082	0.0000	0.0010	0.0021		
54	0.1300	0.1000	0.0095	0.0000	0.0010	0.0023		
55	0.2750	0.2750	0.0107	0.0000	0.0010	0.0024		
56	0.2500	0.2750	0.0120	0.0000	0.0010	0.0026		
57	0.1700	0.2750	0.0132	0.0000	0.0010	0.0028		
58	0.2000	0.2750	0.0119	0.0000	0.0010	0.0030		
59	0.2500	0.2750	0.0106	0.0000	0.0010	0.0033		
60	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000		

\* 100% probability of retirement is assumed at ages 50 and above with 33 or more years of service for Safety and Probation Plans 1, 2, and 4.

\*\* 100% probability of retirement is assumed at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5, ages 55 and above with 38 or more years of service for Safety and Probation Plan 6, and ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.

**Table A-11 Rate of Separation From Active Service  
 Safety & Probation Plans – Female**

Age	Plans 1, 2, 4 Service Retirement*	Plans 5, 6, 7 Service Retirement**	Service Disability	Ordinary Disability	Service Death	Ordinary Death	Years of Service	Other Terminations
18	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	0	0.0700
19	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	1	0.0650
20	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	2	0.0450
21	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	3	0.0300
22	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	4	0.0250
23	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	5	0.0233
24	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	6	0.0217
25	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	7	0.0200
26	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	8	0.0185
27	0.0000	0.0000	0.0017	0.0000	0.0010	0.0002	9	0.0170
28	0.0000	0.0000	0.0018	0.0000	0.0010	0.0002	10	0.0155
29	0.0000	0.0000	0.0019	0.0000	0.0010	0.0002	11	0.0140
30	0.0000	0.0000	0.0020	0.0000	0.0010	0.0002	12	0.0125
31	0.0000	0.0000	0.0021	0.0000	0.0010	0.0002	13	0.0120
32	0.0000	0.0000	0.0022	0.0000	0.0010	0.0002	14	0.0115
33	0.0000	0.0000	0.0023	0.0000	0.0010	0.0003	15	0.0110
34	0.0000	0.0000	0.0024	0.0000	0.0010	0.0003	16	0.0105
35	0.0000	0.0000	0.0025	0.0000	0.0010	0.0003	17	0.0100
36	0.0000	0.0000	0.0026	0.0000	0.0010	0.0004	18	0.0080
37	0.0000	0.0000	0.0028	0.0000	0.0010	0.0004	19	0.0060
38	0.0000	0.0000	0.0029	0.0000	0.0010	0.0005	20 & Above	0.0000
39	0.0000	0.0000	0.0030	0.0000	0.0010	0.0005		
40	0.0000	0.0000	0.0031	0.0000	0.0010	0.0006		
41	0.0000	0.0000	0.0032	0.0000	0.0010	0.0006		
42	0.0000	0.0000	0.0033	0.0000	0.0010	0.0006		
43	0.0000	0.0000	0.0034	0.0000	0.0010	0.0007		
44	0.0000	0.0000	0.0036	0.0000	0.0010	0.0008		
45	0.0000	0.0000	0.0037	0.0000	0.0010	0.0009		
46	0.0000	0.0000	0.0039	0.0000	0.0010	0.0009		
47	0.0000	0.0000	0.0040	0.0000	0.0010	0.0010		
48	0.0000	0.0000	0.0046	0.0000	0.0010	0.0011		
49	0.0000	0.0000	0.0052	0.0000	0.0010	0.0012		
50	0.1500	0.0500	0.0058	0.0000	0.0010	0.0013		
51	0.1250	0.0500	0.0064	0.0000	0.0010	0.0014		
52	0.1500	0.0500	0.0070	0.0000	0.0010	0.0016		
53	0.2000	0.0500	0.0082	0.0000	0.0010	0.0017		
54	0.1300	0.1000	0.0095	0.0000	0.0010	0.0018		
55	0.2750	0.2750	0.0107	0.0000	0.0010	0.0020		
56	0.2500	0.2750	0.0120	0.0000	0.0010	0.0021		
57	0.1700	0.2750	0.0132	0.0000	0.0010	0.0023		
58	0.2000	0.2750	0.0119	0.0000	0.0010	0.0025		
59	0.2500	0.2750	0.0106	0.0000	0.0010	0.0028		
60	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000		

\* 100% probability of retirement is assumed at ages 50 and above with 33 or more years of service.

\*\* 100% probability of retirement is assumed at ages 55 and above with 33 or more years of service for Safety and Probation Plan 5, ages 55 and above with 38 or more years of service for Safety and Probation Plan 6, and ages 57 and above with 38 or more years of service for Safety and Probation Plan 7.



## Appendix B Summary of Benefit Provisions



All actuarial calculations are based on our understanding of the statutes governing the SamCERA as contained in the County Employees Retirement Law (CERL) of 1937, with provisions adopted by the SamCERA Board, effective through June 30, 2016. The benefit and contribution provisions of this law are summarized briefly below, along with corresponding references to the Code Section. This summary does not attempt to cover all the detailed provisions of the law.

### MEMBERSHIP IN RETIREMENT PLANS

The County has established 12 defined benefit plans based on a member's date of entry into SamCERA. Plans 1, 2, 4, 5, 6, and 7 are open to all members depending on their date of entry. Only General members are eligible for Plan 3.

**Government  
Code Section**

Employees of the Mosquito and Vector Control District are eligible for participation in all General retirement plans, except for Plan 3.

- Plan 1:** Employees hired on or before July 5, 1980.
- Plan 2:** Employees hired after July 5, 1980 but on or before July 12, 1997.
- Plan 3:** General members hired on or before December 22, 2012 may have elected to participate in Plan 3. After five years of service, Plan 3 members can elect membership under the open eligible contributory plan. Members currently working in a contributory plan with Plan 3 service may purchase an upgrade of their Plan 3 service. (31496)
- Plan 4:** Employees hired after July 12, 1997 and before August 7, 2011 (General members, except Plan 5 transfers; see below); before July 10, 2011 (Probation members); and before January 8, 2012 (Safety members).
- Plan 5:** General members hired on or after August 7, 2011, and Deputy Sheriffs hired on or after January 8, 2012. Probation members hired on or after July 10, 2011 and Safety members (except Deputy Sheriffs) hired on or after January 8, 2012 may elect this Plan. Members must be first hired before January 1, 2013 to be eligible to elect this Plan.  
  
After 10 years of service, General Plan 5 members can elect to transfer to Plan 4 and must pay the total actuarial equivalent cost of the increase in past service benefits at the date of transfer.
- Plan 6:** Probation members hired on or after July 10, 2011 and Safety members (except Deputy Sheriffs) hired on or after January 8, 2012 may elect this Plan. Members must be first hired before January 1, 2013 to be eligible to elect this Plan.
- Plan 7:** Employees first hired on or after January 1, 2013.

## MEMBER CONTRIBUTIONS

### **Basic:**

**Plans 1, 2, 4, 5, and 6:** Contributions are based on the entry age and class of each member and are required of all members. See section 5 for details on this calculation. Current member rates are shown in Appendix D.

Contributions cease when general members are credited with 30 years of service in a contributory plan provided they were members of SamCERA or a reciprocal system on March 7, 1973, and continuously thereafter. All safety members are eligible for the 30-year cessation of contributions. This provision does not apply to cost-sharing contributions. (31625.2, 31664.1)

**Plan 7:** Members contribute 50% of the aggregate Normal Cost rate for their Plan.

**Plan 3:** No member contributions are required under Plan 3.

### **Cost-of-Living:**

**Plans 1, 2, and 4:** Effective with the first pay period in July 2016, all members of Plans 1, 2 and 4 contribute 50% of the cost of COLA benefits in addition to other current member rates and cost sharing, except as described in the following paragraph.

Members with retirement benefits negotiated under Board of Supervisors or Court Interpreters, and whose most recent hire date is before August 7, 2011, do not contribute towards the COLA benefit.

**Plans 5 and 6:** All members of Plans 5 and 6 contribute 50% of the cost of the COLA.

**Plan 7:** Members contribute 50% of the aggregate Normal Cost rate for their Plan.

### **Cost Sharing:**

**General Members:** All members of Plans 1, 2, and 4 (except SMCM&VCD) contribute an additional 3.0% for cost sharing. (31678.2)

All other General members do not participate in cost sharing.

**MEMBER CONTRIBUTIONS (Continued)**

**Safety Members:** Deputy Sheriffs in Plans 1, 2, 4, and 5 contribute the following additional cost sharing rates based on age and service:

If age 45 or older	4.5%
If age is less than 45	
▪ Service is less than 5 years:	3.0%
▪ Service between 5 and 15 years:	3.5%
▪ Service is more than 15 years	4.5%

Safety members (except Deputy Sheriffs) in Plans 1, 2, and 4 contribute an additional 5.0% cost sharing.

Safety members (except Deputy Sheriffs) in Plan 5 contribute an additional 4.0% cost sharing.

Safety members in Plan 6 and 7 do not participate in cost sharing.

**Probation Members:** Members of Plans 1, 2, 4, and 5 contribute an additional 3.5% for cost sharing.

Members of Plans 6 and 7 do not participate in cost sharing.

**Interest Crediting:** Interest is credited to contributions semiannually on June 30 and December 31 at an interest rate set by the Board of Retirement on amounts that have been on deposit for at least six months. (31591, 31700)

**Employer Pick-Up:** Effective with the first pay period in July 2016, no employer provides for employer pick-up contributions.

**EMPLOYER CONTRIBUTIONS**

The employer (County or district) contributes to the retirement fund a percent of the total compensation provided for all members based on an actuarial investigation, valuation and recommendation of the actuary. (31453, 31453.5, 31453.6, 31454 31581)

**SERVICE RETIREMENT ALLOWANCE**

**Eligibility:**

**General Members:** All members of Plans 1, 2, 4, and 5 are eligible to retire after meeting one of the following age and service requirements: (31672)

- Age 50 with 10 years of service\*;
- Any age with 30 years of service; or
- Age 70 regardless of service.

Plan 3 members are eligible to retire at age 65 with 10 years of service. A reduced benefit is also payable at age 55 with 10 years of service. (31496)

Plan 7 members are eligible to retire at age 52 with 5 years of service.

**SERVICE RETIREMENT ALLOWANCE (Continued)**

<b>Safety and Probation Members:</b>	Members of all plans except Plan 7 are eligible to retire after meeting one of the following age and service requirements: <ul style="list-style-type: none"> <li>• Age 50 with 10 years of service;</li> <li>• Any age with 20 years of service.</li> </ul>	(31663.25)
	Plan 7 members are eligible to retire at age 50 with 5 years of service. <i>* For part-time employees, age 50 is replaced with age 55.</i>	(31672.1)
<b>Final Compensation:</b>		
<b>Plans 1 and 2:</b>	Monthly average of a member's highest 12 consecutive months of compensation.	(31462.1)
<b>All other Plans:</b>	Monthly average of a member's highest compensation during any three years. Years do not have to be consecutive, except for Plan 7.	[31462, 31496.3(d)]
<b>Compensation Limit:</b>		
<b>All Plans, except Plan 7:</b>	The amount of compensation that is taken into account in computing benefits payable to any person who first becomes a member on or after July 1, 1996, shall not exceed the dollar limitations in Section 401(a)(17) of Title 26 of the US Code.	(31671)
<b>Plan 7:</b>	The amount of compensation taken into account shall not exceed the following applicable percentage of the Social Security Taxable Wage Base: <ul style="list-style-type: none"> <li>• 100% for a member covered by Social Security (County and Courts General members);</li> <li>• 120% for a member not covered by Social Security (all other members).</li> </ul> The amount of compensation taken into account shall be adjusted based on changes in the Consumer Price Index for All Urban Consumers. Adjustments shall be effective annually on January 1.	
<b>Monthly Allowance:</b>		
<b>Plans 1, 2, 4, and 5:</b>	<b>General members:</b> $1/60 \times \text{Final Compensation} \times \text{General age factor} \times \text{years of service}.$	(31676.14) (31676.1)
	<b>Safety &amp; Probation members:</b> $3\% \times \text{Final Compensation} \times \text{Safety age factor} \times \text{years of service}.$	(31664.1) (31664.2)
<b>Plan 6:</b>	<b>Safety &amp; Probation members:</b> $2\% \times \text{Final Compensation} \times \text{Safety age factor} \times \text{years of service}.$	(31664)
<b>Plan 7:</b>	<b>General members:</b> $2\% \times \text{Final Compensation} \times \text{General age factor} \times \text{years of service}.$  <b>Safety and Probation members:</b> $2\% \times \text{Final Compensation} \times \text{Safety age factor} \times \text{years of service}.$	

**SERVICE RETIREMENT ALLOWANCE (Continued)**

**Plan 3:**                    **General members: (a)+(b)-(c) where:**                    (31496)  
 (a) 2% x Final Compensation x (Years of Service, (up to 35 years), plus  
 (b) 1% x Final Compensation x Years of Service in excess of 35 (up to 10)  
 (c) Estimated Primary Insurance Amount (PIA) x Years of Covered Service  
 (up to 35) divided by 35.

The PIA is calculated based on certain assumptions specified by statute, and an assumed Social Security retirement age of 65.

If retirement occurs prior to age 65, benefit amount is adjusted by an actuarial equivalent factor (see Sample Plan Age Factors).

**Percentage of Final Average Compensation at Sample Ages:**

Plan	Age 50	Age 55	Age 60	Age 65	
County General 1,2&4	1.475%	1.948%	2.440%	2.611%	(31676.14)
SMCM&VCD*	1.475%	1.948%	2.440%	2.611%	(31676.14)
General Plan 3**	N/A	0.780%	1.220%	2.000%	(31496)
General Plan 5	1.182%	1.492%	1.917%	2.432%	(31676.1)
General Plan 7	N/A	1.300%	1.800%	2.300%	
Safety/Probation 1,2,&4	3.000%	3.000%	3.000%	3.000%	(31664.1)
Safety/Probation Plan 5	2.290%	3.000%	3.000%	3.000%	(31664.2)
Safety/Probation Plan 6	2.000%	2.620%	2.620%	2.620%	(31664)
Safety/Probation Plan 7	2.000%	2.500%	2.700%	2.700%	

\* As of the June 30, 2010 actuarial valuation, SMCM&VCD has adopted the same benefit structure as County General.

\*\* Prior to reduction for PIA benefit. Actual percentage will be less.

**SERVICE RETIREMENT ALLOWANCE (Continued)**

**Maximum Allowance:**

**All Plans** Allowance may not exceed 100% of final compensation.

**Except 3:**

**Plan 3:** The sum of the normal retirement allowance and the estimated PIA cannot exceed 70% of Final Compensation for a member with 35 or less years of service, and cannot exceed 80% of Final Compensation if service exceeds 35 years. (31496)

**Unmodified Retirement Allowance (Normal Form):**

**All Plans** Life Annuity payable to retired member with 60% continuance to an eligible survivor (or eligible children). (31760.1)

**Except 3:**

**Plan 3:** Life Annuity payable to retired member with 50% continuance to an eligible survivor (or eligible children). (31497.71)

Eligible survivor includes certain domestic partners. (31780.2)

**Optional Retirement Allowance:**

A member may elect to have the actuarial equivalent of the service or disability retirement allowance applied to a lesser retirement allowance during the retired member's life in order to provide an optional survivor allowance.

**Option 1:** Member's allowance is reduced to pay a cash refund of any unpaid annuity payments (up to the amount of the member's contributions at retirement) to the member's estate or to a beneficiary having an insurable interest in the life of the member. (31761)

**Option 2:** 100% of member's reduced allowance is payable to an eligible survivor or beneficiary having an insurable interest in the life of the member. (31762)

**Option 3:** 50% of member's reduced allowance is payable to an eligible survivor or beneficiary having an insurable interest in the life of the member. (31763)

**Option 4:** Other % of member's reduced allowance is payable to an eligible survivor or beneficiary(ies) having an insurable interest in the life of the member. (31764)

For Options 2, 3 or 4, the continuance will not be paid if the member revokes their election and names another beneficiary after retirement. (31782)

**All Allowances:** All allowances are made on a pro rata basis (based on the number of days in that month) if not in effect for the entire month of retirement. For deaths that occur mid-month, the full month's payment is made. (31600)

**SERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

<b><u>Eligibility:</u></b>		
<b>All Plans</b>	Any age or years of service; disability must result from occupational injury or disease, and member must be permanently incapacitated for the performance of duty.	(31720, 31720.5, 31720.6, 31720.7, 31720.9)
<b>Except 3:</b>		
<b>Plan 3:</b>	Not available under Plan 3.	(31487)
<b><u>Monthly Allowance:</u></b>	Greater of (1) 50% of final compensation, and (2) the service retirement allowance, if eligible to retire.	(31727.4)
<b><u>Normal Form Of Payment:</u></b>	Life Annuity with 100% continuance to a surviving spouse (or eligible children).	(31760, 31786)

**RECIPROCAL SERVICE-CONNECTED DISABILITY ALLOWANCE**

<b><u>Eligibility:</u></b>		
<b>All Plans</b>	Any member regardless of age or years of service who leaves their accumulated contributions on deposit and receives a disability retirement allowance from CalPERS or another '37 Act system. The member must be eligible for a reciprocal benefit and the disability must be service-connected.	(31837)
<b>Except 3:</b>		
<b>Plan 3:</b>	Not available under Plan 3.	
<b><u>Monthly Allowance:</u></b>	Same as nonservice-connected disability, but in no case shall the allowance be greater than if all service was with one entity.	(31837, 31838.5)
<b><u>Normal Form of Payment:</u></b>	Life Annuity with 100% continuance to a surviving spouse (or eligible children).	(31760, 31786)

**NONSERVICE-CONNECTED DISABILITY RETIREMENT ALLOWANCE**

**Eligibility:**

**All Plans Except 3:** Any age with five years of service and permanently incapacitated for the performance of duty. (31720, 31836)

**Plan 3:** Not available under Plan 3. (31487)

**Monthly Allowance:** The monthly allowance is equal to a service retirement allowance if the member is eligible to retire, otherwise allowance equals (a) or (b) where: (31726, 31726.5)

**General Members:** (a) 90% of 1/60th of Final Compensation x years of service, if member must rely on service in another retirement system in order to be eligible to retire, or allowance exceeds 1/3 of final compensation. (31727(a))

(b) 90% of 1/60th of Final Compensation x years of service projected to age 65, not to exceed 1/3 of Final Compensation. (31727(b))

**Safety Members:** 1/60 is replaced by 1/50 and age 65 is replaced by age 55 in (a) and (b) above. (31727.2)

**Normal Form Of Payment:** Life Annuity with 60% continuance to a surviving spouse (or eligible children). (31760.1)

**SERVICE-CONNECTED DEATH BENEFITS**

**Eligibility**

**All Plans Except 3:** Active members who die in service as a result of injury or disease arising out of and in the course of employment. (31787)

**Plan 3:** Not available under Plan 3. (31487)

**Monthly Allowance:** An annual death allowance is payable monthly to an eligible survivor (or eligible children) equal to 50% of the member's Final Compensation. (31787)



**SERVICE-CONNECTED DEATH BENEFITS** (Continued)

**Optional Combined Benefit:** (31781.3)

In lieu of the monthly allowance above, an eligible survivor may elect:

- (a) A lump sum equal to 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation), plus
- (b) A monthly payment equal to 50% of the member's Final Compensation, reduced by a monthly amount, which is the actuarial equivalent of (a) above based on the age of eligible survivor.

**Death Benefit (Lump Sum):** (31781)

The member's normal contributions and interest, plus 1/12 of the compensation earned in the preceding 12 months x years of service (benefit not to exceed 50% of the 12 months' compensation).

**Additional Allowance for Children:** (31787.5)

25% of death allowance (whether or not the monthly allowance or combined benefit is chosen) for one child, 40% for two children, and 50% for three or more children.

**Additional Amount for Spouse of Safety Member:** (31787.6)

An eligible survivor of a safety member is also entitled to receive a lump sum death benefit equal to 12 x monthly rate of compensation at the time of member's death in addition to all other benefits.

**Note:** For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to take the monthly allowance or the lump sum, whichever is more valuable.

## NONSERVICE-CONNECTED DEATH BENEFITS

### Eligibility:

**All Plans Except 3:** Active members who die while in service or while physically or mentally incapacitated for the performance of duty. (31780)

**Plan 3:** Not available under Plan 3.

**Death Benefit (Lump Sum):** (31781)

The member's normal contributions and interest, plus 1/12 of the Compensation earned in preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation).

### **Optional Death Benefit:**

In lieu of the lump sum death benefit, several optional death benefits are available to provide flexibility to survivors, as follows.

**First Optional Death Benefit:** (31781.1)

If a member who would have been entitled to a nonservice-connected disability retirement allowance dies prior to retirement as a result of such disability, the eligible survivor (or eligible children) may elect to receive an optional death allowance equal to 60% of the monthly retirement allowance to which the member would have been entitled as of the date of death.

**Second Optional Death Benefit:** (31781.2, 31765.2)

If a member dies prior to reaching the minimum retirement age but has 10 or more years of service, an eligible survivor (or eligible children) may elect to leave the amount of the death benefit on deposit until the earliest date the member could have retired and at that time receive the allowance provided for in 31765.2 (a 60% continuance).

### **Third Optional Death Benefit:**

An eligible survivor of a member who dies after five years of service may elect a combined benefit equal to:

(a) A lump sum equal to 1/12 of the compensation earnable in the preceding 12 months x the number of completed years of service (benefit not to exceed 50% of the 12 months' compensation), plus (31781.3)

(b) A monthly payment equal to 60% of the monthly retirement allowance to which the member would have been entitled if the member retired or had been retired for a nonservice-connected disability as of the date of death, reduced by a monthly amount which is the actuarial equivalent of (a) above based on the age of the eligible survivor. (31781.1)

**NONSERVICE-CONNECTED DEATH BENEFITS (Continued)**

**Fourth Optional Death Benefit:**

If a member dies while eligible for a service retirement and the eligible survivor is designated as beneficiary, the spouse (or eligible children) may elect to receive 60% of the monthly retirement allowance to which the member would have been entitled as of the date of death. (31765.1)

Note for Third and Fourth Optional Death Benefits: In order to leave the eligible survivor the greatest benefit, the member is assumed to have retired for nonservice-connected disability, elected the Option 2 retirement allowance, and then died the next day.

**Fifth Optional Death Benefit:**

If a member dies while eligible for a service retirement and the eligible survivor is designated as beneficiary and survives the member by not less than 30 days the spouse (or eligible children) may elect to receive the same retirement allowance as the spouse would have received had the member retired on the date of death and selected Option 3. (31765)

**Note:** For valuation purposes, an unmarried member is assumed to take the lump sum benefit. A married member is assumed to receive an annuity or a lump sum, whichever is more valuable. The annuity is equal to the Option 2-100% Continuance calculation for the larger of either (1) a non-service connected disability benefit or (2) the member's earned service retirement benefit (if eligible).

**DEFERRED RETIREMENT BENEFITS**

**Eligibility:**

**All Plans, except Plans 3 and 7:** Age 50 with 10 years of membership. (31700)

Member contributions must be left on deposit and the member must have terminated with five years of service or entered a reciprocal agency. Members are eligible for service retirement when they would have reached eligibility if they would have remained in an active position.

**Plan 3:** Age 55 with 10 years of service. (31496)

**Plan 7:** **General members:**  
 Age 52 with 5 years of service.

**Safety and Probation members:**  
 Age 50 with 5 years of service.

**All Plans:** Member contributions must be left on deposit and the member must have terminated with 5 years of service or entered a reciprocal agency. Members (except for Plan 7) are eligible for service retirement when they would have reached eligibility if they would have remained in an active position.

**Monthly Allowance:**

**All Plans Except 3:** Same as service retirement allowance; payable any time after the member would have been eligible for service retirement. (31703, 31704, 31705)

If a terminated member dies before the effective date of the deferred retirement allowance, the member's accumulated contributions are paid to the estate or to the named beneficiary. (31702)

**Plan 3:** Same as service retirement allowance at normal retirement age 65 or in an actuarially equivalent reduced amount at early retirement, after age 55. (31496)

No benefit is paid for death while inactive.

**COST-OF-LIVING INCREASES**

Cost-of-living increases (or decreases) are applied to all retirement allowances (service and disability), optional death allowances, and annual death allowances effective April 1, based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest ½ of 1%. (31870, 31870.1, 31870.2, 31874.4)

**Plan 1: General & Safety** (31870.2)  
 Members (and their beneficiaries) are limited to a maximum 5% cost-of-living increase.

**Probation** (31870.1)  
 Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.

**Plan 2: All members** (31870.1)  
 Members (and their beneficiaries) are limited to a maximum 3% cost-of-living increase.

**Plan 3: Plan 3** does not have a COLA. (31487)

**Other Plans: All members** (31870)  
 Members (and their beneficiaries) are limited to a maximum 2% cost-of-living increase.

**COLA Bank**

**Plan 1:** When the CPI exceeds the applicable percentage (3% or 5%), the difference between the actual CPI and the maximum cost-of-living increase given in any year is credited to the COLA Accumulation (COLA Bank). It may be used in future years to provide cost-of-living increases when the CPI falls below the applicable percentage. (31870.1, 31870.2)

**Other Plans:** All other Plans do not have a COLA bank. (31874.4)

## Appendix C Valuation Data and Schedules



Data on SamCERA membership as of June 30, 2016 was supplied to us by SamCERA staff. On the following table, Exhibit C-1, we present a summary of SamCERA membership at June 30, 2016 for active members. Similar information is shown in Exhibit C-2 for inactive members and Exhibits C-3a and C-3b for retired members.

Note that salary amounts shown are annualized amounts based on the biweekly pay for the period prior to the valuation date. If the annualized amount was less than the total prior earnings, total prior year earnings were used.

Additional statistical data on both active and retired members is shown in the following tables.

Exhibit C-4: Age, Service, Compensation Distribution of Active Members

Exhibit C-5: Age, Retirement Year, Benefit Amount and Plan Distribution of Retired Members

Exhibits C-4 and C-5 are shown for all plans combined as well as for classification separately.

Exhibit C-1 SamCERA Membership – Active Members as of June 30, 2016

	Total Number	Annual Salary	Average Age	Average Monthly Salary	Average Credited Service
<b>General Members</b>					
Plan 1	16	\$ 1,909,376	63.6	\$ 9,945	34.3
Plan 2	704	72,953,586	55.4	8,636	24.7
Plan 3	91	7,832,951	48.5	7,173	13.5
Plan 4	2,181	204,326,268	47.6	7,807	11.6
Plan 5	284	28,918,398	42.0	8,485	3.1
Plan 7	1,145	92,250,939	37.1	6,714	1.4
<b>Total</b>	<b>4,421</b>	<b>\$ 408,191,518</b>	<b>45.8</b>	<b>\$ 7,694</b>	<b>10.6</b>
<b>Safety Members</b>					
Plan 1	3	\$ 569,152	63.0	\$ 15,810	34.7
Plan 2	81	12,154,742	52.6	12,505	23.9
Plan 4	261	33,604,569	44.9	10,729	11.7
Plan 5	54	6,440,798	39.6	9,940	3.0
Plan 6	1	201,520	46.0	16,793	3.6
Plan 7	95	8,593,246	32.7	7,538	1.6
<b>Total</b>	<b>495</b>	<b>\$ 61,564,028</b>	<b>43.4</b>	<b>\$ 10,364</b>	<b>10.9</b>
<b>Probation Members</b>					
Plan 1	1	\$ 87,135	65.0	\$ 7,261	33.8
Plan 2	41	4,107,945	49.4	8,349	22.5
Plan 4	190	16,995,548	43.1	7,454	13.5
Plan 5	9	694,317	34.4	6,429	3.7
Plan 6	1	75,107	33.0	6,259	3.9
Plan 7	29	2,074,767	31.7	5,962	1.6
<b>Total</b>	<b>271</b>	<b>\$ 24,034,819</b>	<b>42.6</b>	<b>\$ 7,391</b>	<b>13.3</b>
<b>Grand Total</b>	<b>5,187</b>	<b>\$ 493,790,365</b>	<b>45.4</b>	<b>\$ 7,933</b>	<b>10.8</b>

Exhibit C-2 SamCERA Membership – Inactive Members as of June 30, 2016

	<u>Number</u>	<u>Average Age</u>
<b>General Members</b>		
Plan 1	11	62.3
Plan 2	371	53.6
Plan 3	108	52.8
Plan 4	769	45.4
Plan 5	35	39.8
Plan 7	74	38.2
	<hr/>	
Total	1,368	47.8
<b>Safety Members</b>		
Plan 1	1	65.0
Plan 2	19	49.9
Plan 4	41	45.5
Plan 5	6	33.3
Plan 7	2	28.5
	<hr/>	
Total	69	45.4
<b>Probation Members</b>		
Plan 1	-	-
Plan 2	11	47.4
Plan 4	38	42.3
Plan 5	-	-
Plan 6	-	-
	<hr/>	
Total	49	43.4
<b>Grand Total</b>	<b>1,486</b>	<b>47.5</b>



Exhibit C-3a SamCERA Membership – Retired Members as of June 30, 2016

	Number	Average Age	Monthly Allowance	Average Monthly Benefit
<b>General Members</b>				
Plan 1	1,612	78.7	\$ 5,314,552	\$ 3,297
Plan 2	1,783	68.4	4,992,055	2,800
Plan 3	143	69.9	132,816	929
Plan 4	561	64.2	1,095,184	1,952
Plan 5	1	61.0	128	128
<b>Total</b>	<b>4,100</b>	<b>71.9</b>	<b>\$ 11,534,735</b>	<b>\$ 2,813</b>
<b>Safety Members</b>				
Plan 1	266	73.0	\$ 1,810,916	\$ 6,808
Plan 2	167	60.7	1,190,403	7,128
Plan 4	50	56.8	190,887	3,818
<b>Total</b>	<b>483</b>	<b>67.1</b>	<b>\$ 3,192,205</b>	<b>\$ 6,609</b>
<b>Probation Members</b>				
Plan 1	68	72.8	\$ 369,565	\$ 5,435
Plan 2	77	60.5	364,763	4,737
Plan 4	20	63.0	55,177	2,759
<b>Total</b>	<b>165</b>	<b>65.9</b>	<b>\$ 789,505</b>	<b>\$ 4,785</b>
<b>Grand Total</b>	<b>4,748</b>	<b>71.2</b>	<b>\$ 15,516,445</b>	<b>\$ 3,268</b>

**Exhibit C-3b SamCERA Membership – Retired Members as of June 30, 2016  
 Subtotaled by Class and Retirement Type**

<u>Plan</u>	<u>Retirement Type</u>	<u>Number</u>	<u>Monthly Benefit</u>	<u>Average Monthly Benefit</u>
<b>General Plans:</b>				
	Healthy	3,293	\$ 9,689,896	\$ 2,943
	Disabled	342	923,655	2,701
	Beneficiaries	465	921,184	1,981
	Total	4,100	\$ 11,534,735	\$ 2,813
<b>Safety Plans:</b>				
	Healthy	306	\$ 2,272,188	\$ 7,425
	Disabled	104	595,549	5,726
	Beneficiaries	73	324,469	4,445
	Total	483	\$ 3,192,205	\$ 6,609
<b>Probation Plans:</b>				
	Healthy	150	\$ 717,995	\$ 4,787
	Disabled	8	33,313	4,164
	Beneficiaries	7	38,196	5,457
	Total	165	\$ 789,505	\$ 4,785
<b>Grand Totals</b>				
	Healthy	3,749	\$ 12,680,080	\$ 3,382
	Disabled	454	1,552,516	3,420
	Beneficiaries	545	1,283,850	2,356
	Total	4,748	\$ 15,516,445	\$ 3,268

**Exhibit C-4 Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2016**  
**All Members**

Age	Years of Service									Total Count
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	36	15	0	0	0	0	0	0	0	51
25-29	126	201	23	0	0	0	0	0	0	350
30-34	128	310	131	44	2	0	0	0	0	615
35-39	72	180	194	175	39	1	0	0	0	661
40-44	50	137	162	244	164	20	0	0	0	777
45-49	62	94	146	185	208	82	22	1	0	800
50-54	45	78	102	118	162	90	90	24	0	709
55-59	14	75	97	114	125	72	90	44	9	640
60-64	12	32	77	84	65	40	46	32	14	402
65 & Over	5	13	42	41	25	17	16	11	12	182
<b>Total Count</b>	550	1,135	974	1,005	790	322	264	112	35	5,187

Age	Years of Service									Average Comp.
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	64,149	63,410	-	-	-	-	-	-	-	63,932
25-29	67,519	78,183	79,985	-	-	-	-	-	-	74,462
30-34	76,400	83,308	88,274	78,088	74,283	-	-	-	-	82,525
35-39	88,905	93,237	99,169	90,297	87,587	112,688	-	-	-	93,424
40-44	75,001	94,911	97,837	100,183	97,436	94,053	-	-	-	96,406
45-49	89,525	116,270	103,243	97,913	105,985	108,219	116,427	86,835	-	104,043
50-54	80,447	91,392	98,531	96,134	97,933	107,064	109,948	97,662	-	98,565
55-59	84,787	99,929	104,687	93,710	96,603	107,729	111,050	112,454	109,737	102,002
60-64	105,254	101,897	100,779	94,821	96,527	101,494	109,945	101,139	119,976	100,886
65 & Over	89,505	126,315	100,330	92,170	100,414	99,478	91,474	92,960	110,796	99,449
<b>Avg. Annual Compensation</b>	77,846	90,513	98,300	95,092	99,132	105,624	109,743	103,908	114,196	95,198



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**Exhibit C-4a Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2016**  
**General Members**

Age	Years of Service									Total Count
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	26	15	0	0	0	0	0	0	0	41
25-29	109	151	16	0	0	0	0	0	0	276
30-34	120	274	105	38	2	0	0	0	0	539
35-39	70	163	160	138	31	1	0	0	0	563
40-44	50	120	144	189	101	16	0	0	0	620
45-49	56	81	129	150	146	54	15	1	0	632
50-54	42	70	94	106	130	74	75	22	0	613
55-59	14	66	82	109	117	65	84	39	8	584
60-64	12	32	70	78	64	38	41	31	14	380
65 & Over	5	13	41	38	25	16	15	10	10	173
<b>Total Count</b>	504	985	841	846	616	264	230	103	32	4,421

Age	Years of Service									Average Comp.
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	59,728	63,410	-	-	-	-	-	-	-	61,075
25-29	65,325	75,157	70,592	-	-	-	-	-	-	71,010
30-34	75,587	82,571	83,991	73,856	74,283	-	-	-	-	80,647
35-39	88,958	92,668	97,930	86,614	80,133	112,688	-	-	-	91,563
40-44	75,001	92,780	96,506	98,280	90,664	88,941	-	-	-	93,444
45-49	86,912	113,780	100,435	94,151	101,062	96,995	99,017	86,835	-	99,251
50-54	77,458	88,860	95,037	95,667	93,828	98,919	102,815	94,444	-	94,379
55-59	84,787	97,040	98,127	93,025	95,646	105,108	108,651	106,837	106,807	99,226
60-64	105,254	101,897	96,752	93,600	96,084	100,605	104,095	99,003	119,976	98,911
65 & Over	89,505	126,315	99,896	91,237	100,414	98,236	87,953	93,542	102,989	98,376
<b>Avg. Annual Compensation</b>	76,862	89,245	95,503	92,795	95,118	99,698	103,957	100,347	111,375	92,330



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**Exhibit C-4b Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2016**  
**Safety Members**

<b>Count</b>	<b>Years of Service</b>										<b>Total Count</b>
	<b>Age</b>	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	8	0	0	0	0	0	0	0	0	0	8
25-29	14	38	5	0	0	0	0	0	0	0	57
30-34	7	26	16	4	0	0	0	0	0	0	53
35-39	1	13	20	13	6	0	0	0	0	0	53
40-44	0	15	13	23	27	2	0	0	0	0	80
45-49	5	11	15	21	33	16	5	0	0	0	106
50-54	3	7	8	6	19	12	9	1	0	0	65
55-59	0	9	15	3	4	6	6	4	1	0	48
60-64	0	0	7	4	1	1	4	1	0	0	18
65 & Over	0	0	1	2	0	1	1	0	2	0	7
<b>Total Count</b>	38	119	100	76	90	38	25	6	3	0	495

<b>Compensation</b>	<b>Years of Service</b>										<b>Average Comp.</b>
	<b>Age</b>	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	79,282	-	-	-	-	-	-	-	-	-	79,282
25-29	85,582	93,249	110,708	-	-	-	-	-	-	-	92,897
30-34	92,581	95,917	121,364	116,788	-	-	-	-	-	-	104,734
35-39	113,393	106,788	123,787	133,203	125,752	-	-	-	-	-	121,954
40-44	-	114,782	116,060	135,010	128,025	131,885	-	-	-	-	125,702
45-49	121,950	128,916	130,984	130,457	138,608	152,201	175,780	-	-	-	137,928
50-54	122,294	119,402	139,584	116,752	125,256	155,174	166,556	115,121	-	-	136,553
55-59	-	121,116	140,552	127,595	115,618	138,205	144,632	165,530	133,177	-	136,164
60-64	-	-	141,042	127,767	124,896	123,286	178,423	167,382	-	-	145,979
65 & Over	-	-	118,147	111,361	-	119,346	144,298	-	149,831	-	129,168
<b>Avg. Annual Compensation</b>	93,960	104,968	127,750	129,746	130,583	148,235	164,147	157,437	144,279	-	124,372



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**Exhibit C-4c Age & Service Distribution of Active Members by Count and Average Compensation as of June 30, 2016**  
**Probation Members**

Age	Years of Service									Total Count
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	2	0	0	0	0	0	0	0	0	2
25-29	3	12	2	0	0	0	0	0	0	17
30-34	1	10	10	2	0	0	0	0	0	23
35-39	1	4	14	24	2	0	0	0	0	45
40-44	0	2	5	32	36	2	0	0	0	77
45-49	1	2	2	14	29	12	2	0	0	62
50-54	0	1	0	6	13	4	6	1	0	31
55-59	0	0	0	2	4	1	0	1	0	8
60-64	0	0	0	2	0	1	1	0	0	4
65 & Over	0	0	0	1	0	0	0	1	0	2
<b>Total Count</b>	8	31	33	83	84	20	9	3	0	271

Age	Years of Service									Average Comp.
	0-1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35&Over	
Under 25	61,098	-	-	-	-	-	-	-	-	61,098
25-29	62,965	68,545	78,315	-	-	-	-	-	-	68,710
30-34	60,761	70,736	80,301	81,099	-	-	-	-	-	75,362
35-39	60,761	72,346	78,167	88,234	88,622	-	-	-	-	83,097
40-44	-	73,737	88,785	86,396	93,494	97,124	-	-	-	89,820
45-49	73,751	147,555	76,313	89,397	93,647	100,082	98,623	-	-	94,952
50-54	-	72,540	-	83,766	99,050	113,409	114,210	151,006	-	101,699
55-59	-	-	-	80,235	105,556	95,280	-	119,234	-	99,651
60-64	-	-	-	76,549	-	113,480	75,893	-	-	85,618
65 & Over	-	-	-	89,232	-	-	-	87,135	-	88,184
<b>Avg. Annual Compensation</b>	63,296	75,303	80,319	86,764	94,865	102,881	106,489	119,125	-	88,689



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**Exhibit C-5 Distribution of Retired Members by Age and Retirement Year as of June 30, 2016  
 All Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1984	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	1	-	-	3	2	2	-	1	9	\$ 1,518
35-39	-	-	-	-	-	-	5	1	6	3,747
40-44	-	-	1	-	2	5	8	2	18	3,378
45-49	-	1	-	1	5	7	9	9	32	3,004
50-54	-	1	2	8	8	17	60	60	156	3,370
55-59	1	-	1	12	17	51	188	75	345	3,250
60-64	-	2	10	14	62	179	291	106	664	3,723
65-69	5	8	23	66	162	299	344	84	991	3,723
70-74	6	17	47	133	208	320	160	21	912	3,736
75-79	9	34	125	145	171	92	31	3	610	2,862
80-84	44	53	94	123	60	20	4	2	400	2,562
85-89	75	70	106	49	9	2	1	-	312	2,235
90-94	80	87	30	7	1	2	-	-	207	2,213
95-99	57	19	4	-	-	-	-	-	80	2,164
100 & Over	6	-	-	-	-	-	-	-	6	1,321
<b>Total Count</b>	<b>284</b>	<b>292</b>	<b>443</b>	<b>561</b>	<b>707</b>	<b>996</b>	<b>1,101</b>	<b>364</b>	<b>4,748</b>	
<b>Avg Monthly Benefit</b>	<b>\$ 1,783</b>	<b>\$ 2,303</b>	<b>\$ 2,338</b>	<b>\$ 2,534</b>	<b>\$ 3,270</b>	<b>\$ 4,164</b>	<b>\$ 3,676</b>	<b>\$ 3,777</b>		<b>\$ 3,268</b>



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**Exhibit C-5a Distribution of Retired Members by Age and Retirement Year as of June 30, 2016  
 General Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1984	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	1	-	-	3	2	2	-	-	8	\$ 1,093
35-39	-	-	-	-	-	-	3	1	4	2,888
40-44	-	-	1	-	2	3	7	1	14	2,737
45-49	-	1	-	-	3	5	8	4	21	2,535
50-54	-	1	1	6	4	10	41	30	93	1,859
55-59	1	-	1	11	12	37	145	62	269	2,179
60-64	-	1	7	12	55	142	256	101	574	3,180
65-69	4	4	15	56	122	264	324	81	870	3,276
70-74	3	10	35	89	155	302	153	19	766	3,357
75-79	5	24	102	114	153	90	26	3	517	2,423
80-84	39	48	90	120	56	20	4	2	379	2,431
85-89	69	67	105	48	9	2	1	-	301	2,142
90-94	74	86	30	7	1	2	-	-	200	2,136
95-99	55	19	4	-	-	-	-	-	78	2,092
100 & Over	6	-	-	-	-	-	-	-	6	1,321
<b>Total Count</b>	257	261	391	466	574	879	968	304	<b>4,100</b>	
<b>Avg Monthly Benefit</b>	\$ 1,579	\$ 2,110	\$ 2,002	\$ 1,978	\$ 2,622	\$ 3,690	\$ 3,212	\$ 3,343		\$ 2,813



This work product was prepared solely for SamCERA for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product. C-11



**Exhibit C-5b Distribution of Retired Members by Age and Retirement Year as of June 30, 2016  
 Safety Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1984	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	1	1	\$ 4,917
35-39	-	-	-	-	-	-	1	-	1	8,230
40-44	-	-	-	-	-	2	1	1	4	5,619
45-49	-	-	-	1	2	2	1	-	6	3,428
50-54	-	-	1	2	3	7	11	20	44	5,890
55-59	-	-	-	1	3	11	32	8	55	8,000
60-64	-	1	3	2	6	29	19	5	65	7,973
65-69	1	4	8	8	37	25	14	3	100	7,251
70-74	3	7	12	34	38	8	3	2	107	6,029
75-79	4	10	21	23	6	1	2	-	67	5,724
80-84	5	5	4	-	-	-	-	-	14	5,256
85-89	6	3	1	-	-	-	-	-	10	5,051
90-94	6	1	-	-	-	-	-	-	7	4,404
95-99	2	-	-	-	-	-	-	-	2	4,971
100 & Over	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	27	31	50	71	95	85	84	40	<b>483</b>	
<b>Avg Monthly Benefit</b>	\$ 3,720	\$ 3,926	\$ 4,715	\$ 5,378	\$ 7,004	\$ 8,782	\$ 8,093	\$ 6,520		\$ 6,609



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**Exhibit C-5c Distribution of Retired Members by Age and Retirement Year as of June 30, 2016  
 Probation Plans Combined**

Age	Retirement Year								Total Count	Average Monthly Benefit
	Pre-1984	1985-89	1990-94	1995-99	2000-04	2005-09	2010-14	2015-19		
Under 35	-	-	-	-	-	-	-	-	-	\$ -
35-39	-	-	-	-	-	-	1	-	1	2,700
40-44	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	5	5	4,464
50-54	-	-	-	-	1	-	8	10	19	4,931
55-59	-	-	-	-	2	3	11	5	21	4,533
60-64	-	-	-	-	1	8	16	-	25	5,151
65-69	-	-	-	2	3	10	6	-	21	5,455
70-74	-	-	-	10	15	10	4	-	39	4,900
75-79	-	-	2	8	12	1	3	-	26	4,212
80-84	-	-	-	3	4	-	-	-	7	4,242
85-89	-	-	-	1	-	-	-	-	1	1,966
90-94	-	-	-	-	-	-	-	-	-	-
95-99	-	-	-	-	-	-	-	-	-	-
100 & Over	-	-	-	-	-	-	-	-	-	-
<b>Total Count</b>	-	-	2	24	38	32	49	20	<b>165</b>	
<b>Avg Monthly Benefit</b>	\$ -	\$ -	\$ 8,641	\$ 4,922	\$ 3,721	\$ 4,901	\$ 5,267	\$ 4,889		\$ 4,785



## Appendix D Member Contribution Rates



This section illustrates the member basic contribution rates and COLA sharing contribution rates by entry age for Plans 1 through 6. For different COLA sharing percentages, the COLA contribution rates may be adjusted ratably, and should be rounded to two decimal places.

Member contribution rates for Plan 7 are not defined by entry age. Plan 7 members contribute 50% of the total Normal Cost rate. For the 2017-2018 fiscal year, Plan 7 member contribution rates are:

- General Plan 7 members: 8.14%
- SMCM&VCD Plan 7 members: 8.15%
- Safety Plan 7 members: 13.90%
- Probation Plan 7 members: 13.38%

Please refer to Appendix B for a detailed description of member contribution rates.

Exhibit D-1 General Member Contribution Rates (including SMCM&VCD)

Entry Age <sup>(1)</sup>	Basic Member Rates				
	General & SMCM&VCD			General	SMCM&VCD
	Plans 1&2	Plan 4	Plan 5	Plan 7	Plan 7
16	5.50%	5.30%	4.54%	8.14%	8.15%
17	5.60%	5.40%	4.63%	8.14%	8.15%
18	5.71%	5.50%	4.71%	8.14%	8.15%
19	5.81%	5.60%	4.80%	8.14%	8.15%
20	5.92%	5.71%	4.89%	8.14%	8.15%
21	6.03%	5.82%	4.99%	8.14%	8.15%
22	6.14%	5.92%	5.08%	8.14%	8.15%
23	6.26%	6.03%	5.17%	8.14%	8.15%
24	6.37%	6.14%	5.27%	8.14%	8.15%
25	6.49%	6.26%	5.37%	8.14%	8.15%
26	6.61%	6.37%	5.47%	8.14%	8.15%
27	6.73%	6.49%	5.57%	8.14%	8.15%
28	6.85%	6.61%	5.67%	8.14%	8.15%
29	6.98%	6.73%	5.78%	8.14%	8.15%
30	7.11%	6.85%	5.89%	8.14%	8.15%
31	7.24%	6.98%	5.99%	8.14%	8.15%
32	7.37%	7.11%	6.10%	8.14%	8.15%
33	7.50%	7.24%	6.22%	8.14%	8.15%
34	7.64%	7.37%	6.33%	8.14%	8.15%
35	7.78%	7.50%	6.45%	8.14%	8.15%
36	7.93%	7.64%	6.56%	8.14%	8.15%
37	8.07%	7.78%	6.68%	8.14%	8.15%
38	8.22%	7.93%	6.81%	8.14%	8.15%
39	8.38%	8.08%	6.93%	8.14%	8.15%
40	8.54%	8.23%	7.06%	8.14%	8.15%
41	8.70%	8.38%	7.19%	8.14%	8.15%
42	8.87%	8.54%	7.32%	8.14%	8.15%
43	9.03%	8.69%	7.46%	8.14%	8.15%
44	9.20%	8.83%	7.60%	8.14%	8.15%
45	9.36%	8.98%	7.74%	8.14%	8.15%
46	9.52%	9.11%	7.89%	8.14%	8.15%
47	9.67%	9.24%	8.03%	8.14%	8.15%
48	9.81%	9.35%	8.17%	8.14%	8.15%
49	9.94%	9.45%	8.31%	8.14%	8.15%
50	10.06%	9.53%	8.44%	8.14%	8.15%
51	10.16%	9.57%	8.57%	8.14%	8.15%
52	10.24%	9.57%	8.69%	8.14%	8.15%
53	10.27%	9.87%	8.80%	8.14%	8.15%
54	10.27%	10.21%	8.89%	8.14%	8.15%
55	10.27%	10.21%	8.96%	8.14%	8.15%
56	10.27%	10.21%	9.00%	8.14%	8.15%
57	10.27%	10.21%	9.00%	8.14%	8.15%
58	10.27%	10.21%	9.29%	8.14%	8.15%
59	10.27%	10.21%	9.60%	8.14%	8.15%
60	10.27%	10.21%	9.60%	8.14%	8.15%

1. For General and SMCM&VCD members (except plan 5 members) entering after age 55, the rate equals the rate at age 55. For General and SMCM&VCD plan 5 members entering after age 60, the rate equals the rate at age 60.

Exhibit D-2 Safety/Probation Member Contribution Rates

Entry Age <sup>(1)</sup>	Basic Member Rates			
	Safety & Probation		Safety	Probation
	Plans 1&2	Plans 4&5&6	Plan 7	Plan 7
16	7.50%	7.23%	13.90%	13.38%
17	7.64%	7.37%	13.90%	13.38%
18	7.78%	7.50%	13.90%	13.38%
19	7.93%	7.64%	13.90%	13.38%
20	8.07%	7.78%	13.90%	13.38%
21	8.22%	7.93%	13.90%	13.38%
22	8.37%	8.07%	13.90%	13.38%
23	8.52%	8.22%	13.90%	13.38%
24	8.68%	8.37%	13.90%	13.38%
25	8.84%	8.52%	13.90%	13.38%
26	9.00%	8.68%	13.90%	13.38%
27	9.17%	8.84%	13.90%	13.38%
28	9.33%	9.00%	13.90%	13.38%
29	9.50%	9.16%	13.90%	13.38%
30	9.68%	9.33%	13.90%	13.38%
31	9.86%	9.50%	13.90%	13.38%
32	10.04%	9.68%	13.90%	13.38%
33	10.23%	9.86%	13.90%	13.38%
34	10.42%	10.05%	13.90%	13.38%
35	10.62%	10.24%	13.90%	13.38%
36	10.82%	10.43%	13.90%	13.38%
37	11.03%	10.62%	13.90%	13.38%
38	11.23%	10.80%	13.90%	13.38%
39	11.44%	10.99%	13.90%	13.38%
40	11.64%	11.16%	13.90%	13.38%
41	11.84%	11.33%	13.90%	13.38%
42	12.03%	11.49%	13.90%	13.38%
43	12.20%	11.63%	13.90%	13.38%
44	12.36%	11.75%	13.90%	13.38%
45	12.51%	11.85%	13.90%	13.38%
46	12.64%	11.90%	13.90%	13.38%
47	12.73%	11.90%	13.90%	13.38%
48	12.77%	12.28%	13.90%	13.38%
49	12.77%	12.69%	13.90%	13.38%
50	12.77%	12.69%	13.90%	13.38%

1. For Safety and Probation members entering after age 50, the rate equals the rate at age 50.

Exhibit D-3 General Member Contribution Rates (including SMCM&VCD)

Entry Age <sup>(1)</sup>	50% Member COLA Rates			
	Plan 1	Plan 2	Plan 4	Plan 5
16	1.95%	1.89%	1.24%	1.03%
17	1.99%	1.92%	1.27%	1.05%
18	2.02%	1.96%	1.29%	1.07%
19	2.06%	1.99%	1.31%	1.09%
20	2.10%	2.03%	1.34%	1.11%
21	2.14%	2.07%	1.37%	1.13%
22	2.18%	2.11%	1.39%	1.15%
23	2.22%	2.15%	1.41%	1.17%
24	2.26%	2.19%	1.44%	1.20%
25	2.30%	2.23%	1.47%	1.22%
26	2.34%	2.27%	1.49%	1.24%
27	2.39%	2.31%	1.52%	1.26%
28	2.43%	2.35%	1.55%	1.29%
29	2.47%	2.40%	1.58%	1.31%
30	2.52%	2.44%	1.61%	1.34%
31	2.57%	2.48%	1.64%	1.36%
32	2.61%	2.53%	1.67%	1.38%
33	2.66%	2.57%	1.70%	1.41%
34	2.71%	2.62%	1.73%	1.44%
35	2.76%	2.67%	1.76%	1.46%
36	2.81%	2.72%	1.79%	1.49%
37	2.86%	2.77%	1.83%	1.52%
38	2.91%	2.82%	1.86%	1.55%
39	2.97%	2.88%	1.90%	1.57%
40	3.03%	2.93%	1.93%	1.60%
41	3.08%	2.99%	1.97%	1.63%
42	3.14%	3.04%	2.00%	1.66%
43	3.20%	3.10%	2.04%	1.69%
44	3.26%	3.16%	2.07%	1.72%
45	3.32%	3.21%	2.11%	1.76%
46	3.37%	3.27%	2.14%	1.79%
47	3.43%	3.32%	2.17%	1.82%
48	3.48%	3.37%	2.19%	1.85%
49	3.52%	3.41%	2.22%	1.89%
50	3.57%	3.45%	2.24%	1.92%
51	3.60%	3.49%	2.25%	1.94%
52	3.63%	3.51%	2.25%	1.97%
53	3.64%	3.52%	2.32%	2.00%
54	3.64%	3.52%	2.40%	2.02%
55	3.64%	3.52%	2.40%	2.03%
56	3.64%	3.52%	2.40%	2.04%
57	3.64%	3.52%	2.40%	2.04%
58	3.64%	3.52%	2.40%	2.11%
59	3.64%	3.52%	2.40%	2.18%
60	3.64%	3.52%	2.40%	2.18%

1. For County General members (except plan 5 members) entering after age 55, the rate equals the rate at age 55. For County General plan 5 members entering after age 60, the rate equals the rate at age 60.

Exhibit D-4 Safety Member Contribution Rates

Entry Age <sup>(1)</sup>	50% Member COLA Rates				
	Plan 1	Plan 2	Plan 4	Plan 5	Plan 6
16	4.77%	4.60%	2.53%	2.27%	2.07%
17	4.86%	4.68%	2.58%	2.31%	2.11%
18	4.95%	4.77%	2.62%	2.35%	2.15%
19	5.04%	4.86%	2.67%	2.40%	2.19%
20	5.13%	4.95%	2.72%	2.44%	2.23%
21	5.23%	5.04%	2.77%	2.49%	2.27%
22	5.32%	5.13%	2.82%	2.53%	2.31%
23	5.42%	5.22%	2.87%	2.58%	2.36%
24	5.52%	5.32%	2.93%	2.63%	2.40%
25	5.62%	5.42%	2.98%	2.67%	2.44%
26	5.72%	5.52%	3.03%	2.72%	2.49%
27	5.83%	5.62%	3.09%	2.77%	2.53%
28	5.93%	5.72%	3.15%	2.83%	2.58%
29	6.04%	5.82%	3.20%	2.88%	2.63%
30	6.16%	5.93%	3.26%	2.93%	2.67%
31	6.27%	6.04%	3.32%	2.98%	2.72%
32	6.38%	6.15%	3.38%	3.04%	2.78%
33	6.51%	6.27%	3.45%	3.10%	2.83%
34	6.63%	6.39%	3.51%	3.15%	2.88%
35	6.75%	6.51%	3.58%	3.21%	2.94%
36	6.88%	6.63%	3.65%	3.27%	2.99%
37	7.01%	6.76%	3.71%	3.33%	3.04%
38	7.14%	6.88%	3.77%	3.39%	3.10%
39	7.27%	7.01%	3.84%	3.45%	3.15%
40	7.40%	7.13%	3.90%	3.50%	3.20%
41	7.53%	7.26%	3.96%	3.56%	3.25%
42	7.65%	7.37%	4.02%	3.61%	3.29%
43	7.76%	7.48%	4.06%	3.65%	3.33%
44	7.86%	7.57%	4.11%	3.69%	3.37%
45	7.96%	7.67%	4.14%	3.72%	3.40%
46	8.04%	7.75%	4.16%	3.74%	3.41%
47	8.10%	7.80%	4.16%	3.74%	3.41%
48	8.12%	7.83%	4.29%	3.85%	3.52%
49	8.12%	7.83%	4.44%	3.98%	3.64%
50	8.12%	7.83%	4.44%	3.98%	3.64%

1. For Safety members entering after age 50, the rate equals the rate at age 50.

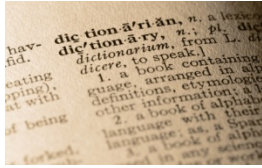
Exhibit D-6 Probation Member Contribution Rates

Entry Age <sup>(1)</sup>	50% Member COLA Rates				
	Plan 1	Plan 2	Plan 4	Plan 5	Plan 6
16	4.62%	4.45%	2.52%	2.25%	2.00%
17	4.71%	4.53%	2.57%	2.29%	2.04%
18	4.79%	4.62%	2.61%	2.33%	2.07%
19	4.88%	4.71%	2.66%	2.37%	2.11%
20	4.97%	4.79%	2.71%	2.42%	2.15%
21	5.06%	4.88%	2.76%	2.46%	2.19%
22	5.16%	4.97%	2.81%	2.51%	2.23%
23	5.25%	5.06%	2.86%	2.55%	2.27%
24	5.35%	5.15%	2.92%	2.60%	2.31%
25	5.44%	5.25%	2.97%	2.65%	2.35%
26	5.54%	5.34%	3.02%	2.70%	2.40%
27	5.65%	5.44%	3.08%	2.75%	2.44%
28	5.75%	5.54%	3.14%	2.80%	2.49%
29	5.85%	5.64%	3.19%	2.85%	2.53%
30	5.96%	5.75%	3.25%	2.90%	2.58%
31	6.07%	5.85%	3.31%	2.95%	2.62%
32	6.18%	5.96%	3.37%	3.01%	2.67%
33	6.30%	6.07%	3.44%	3.06%	2.72%
34	6.42%	6.18%	3.50%	3.12%	2.78%
35	6.54%	6.30%	3.57%	3.18%	2.83%
36	6.66%	6.42%	3.63%	3.24%	2.88%
37	6.79%	6.55%	3.70%	3.30%	2.93%
38	6.92%	6.67%	3.76%	3.36%	2.98%
39	7.05%	6.79%	3.83%	3.41%	3.04%
40	7.17%	6.91%	3.89%	3.47%	3.08%
41	7.29%	7.03%	3.95%	3.52%	3.13%
42	7.41%	7.14%	4.00%	3.57%	3.17%
43	7.51%	7.24%	4.05%	3.61%	3.21%
44	7.61%	7.34%	4.09%	3.65%	3.25%
45	7.70%	7.42%	4.13%	3.68%	3.27%
46	7.78%	7.50%	4.15%	3.70%	3.29%
47	7.84%	7.56%	4.15%	3.70%	3.29%
48	7.87%	7.58%	4.28%	3.82%	3.39%
49	7.87%	7.58%	4.42%	3.94%	3.51%
50	7.87%	7.58%	4.42%	3.94%	3.51%

1. For Probation members entering after age 50, the rate equals the rate at age 50.



## Appendix E



## Glossary

The following definitions include excerpts from a list adopted by the major actuarial organizations in the United States. In some cases, the definitions have been modified for specific applicability to SamCERA and include terms used exclusively by SamCERA. Defined terms are capitalized throughout this Appendix.

### Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

### Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

### Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

### Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based on a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

### Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

### Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

### Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

### Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

### Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

### COLA

Cost of living adjustments to benefit payments are made each April 1. See full description in Appendix B.

### County Supplementary Contributions Account (CSCA) Reserve

This is a reserve for supplemental contributions from the County of San Mateo that are over and above the County's required statutory contribution rates.

<b>District Supplementary Contributions Account (DSCA) Reserve</b>	This is a reserve for supplemental contributions from the San Mateo County Mosquito and Vector Control District ("District") that are over and above the District's required statutory contribution rates.
<b>Employer Reserve</b>	The accumulation of employer contributions for future retirement benefit payments. Additions include contributions from employers and related earnings. Deductions include annuity payments to retired members and survivors, lump sum death benefit payments to member survivors, and supplemental disability payments.
<b>Entry Age Actuarial Cost Method</b>	A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. 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 Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.
<b>Funded Ratio</b>	A measurement of the funded status of the system. The Funded Ratio is calculated by dividing the Valuation Assets by the Actuarial Accrued Liability. For example, a Funded Ratio of 90% indicates assets are 10% less than liabilities.
<b>Member Reserve</b>	The accumulation of member contributions. Additions include member contributions and related earnings. Deductions include annuity payments to retirees and refunds to members.
<b>Non-Valuation Reserves</b>	Reserves excluded from the calculation of contribution rates.
<b>Normal Cost</b>	That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
<b>Plan Year</b>	A 12-month period beginning July 1 and ending June 30.
<b>Projected Benefits</b>	Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.
<b>Unfunded Actuarial Accrued Liability</b>	The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.
<b>Valuation Date</b>	The date upon which the Normal Cost, Actuarial Accrued Liability, and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the ending of a Plan Year.
<b>Valuation Reserves</b>	All reserves excluding the Non-Valuation Reserves.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

September 27, 2016

Agenda Item 5.3

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Acceptance of the Fiscal-Year 2017-2018 Employer and Member Contribution Rates

**Staff Recommendation**

Approve the attached "*Resolution accepting contribution rates to recommend to the Board of Supervisors for the 2017-2018 Fiscal Year.*"

**Background**

At its June 7, 2016 meeting, the Board adopted Milliman's recommended demographic and economic assumptions to be used in the June 30, 2016 actuarial valuation: 7% investment return assumption; 2.75% price inflation; 2.35% general wage growth; 3.25% payroll growth; 2.75% COLA for Plan 1; 2.65% COLA for Plan 2; no COLA for Plan 3; and 1.9% COLA for Plans 4,5,6 & 7.

**Discussion**

The highlights of the June 2016 actuarial valuation report include the following elements:

*Funding:* SamCERA's funded ratio increased by 0.5 percentage points from 82.6% to 83.1%. This increase was mainly due to employer contributions to amortize the Unfunded Actuarial Accrued Liability ("UAAL") and was offset somewhat by the increase in the UAAL due to revised economic assumptions.

*Contribution Rates:* The Employer Normal Cost decreased from 10.42% to 10.25% of pay. The decrease is primarily because of negotiated shifting of contribution payments to employees and a larger portion of the newer employees being members of the Public Employees' Pension Reform Act (PEPRA) Plan 7.

The employer's Statutory Contribution Rate (SCR) that is used to finance the UAAL increased from 21.93 to 23.52% of pay. This increase is largely driven by the recently adopted economic assumptions which include a lower expectation for future investment returns. Additionally, the recognition of investment losses from the current year also caused an increase in the UAAL rate. However, there was a decrease of 0.35% in the UAAL occurred due to the amortization of contributions made by the County over the fiscal year that are allocated to the County Supplementary Contribution Account (CSCA). The overall result is an increase in the SCR from the prior valuation report of 1.42% (from 32.35% to 33.77% of payroll).

The County's contribution rate to finance the UAAL would have increased to 25.37% of payroll. However when the value of the County's CSCA account is factored in the calculation, the County's contribution rate increases to 23.64% of payroll instead. Similarly, when the San

Mateo County Mosquito and Vector Control District's Supplementary Contribution was factored in, its rate increases to 12.5% instead of 21.3% of payroll.

*Investment Returns:* SamCERA's investment return on the market value of assets of 0.7% for fiscal year 2015-16, was less than the actuarial assumed rate of 7.25%. However, due to the recognition of a small net investment gain from prior years, the net result was an actuarial value return of 6.4%, which is still below the assumed rate of return. This actuarial loss on valuation assets is the primary cause for the increase in the Statutory Contribution Rate.

*Member Rates:* Basic member rates and member COLA rates will increase for all plans (except General Plan 1) due to the new economic assumptions adopted by the Board at its June 7, 2016 meeting. Almost all members are now paying 50% of the cost of COLA benefits.

**Summary of Recommendation**

The following tables summarize Milliman's 2017-16 recommended Statutory Contribution Rates and Employer and Member Contribution rates for the Board.

**Recommendation #1: Adopt the following new Statutory Contribution Rates for fiscal year beginning July 1, 2017**

	Fiscal Year Beginning		Increase / (Decrease)
	July 1, 2017	July 1, 2016	
Gross Normal Cost	22.31%	21.95%	0.36%
Member Contribution	-12.06%	-11.92%	-0.14%
Employer Normal Cost	10.25%	10.03%	0.22%
UAAL Amortization	23.52%	21.93%	1.59%
<b>Total Employee Rate</b>	<b>33.77%</b>	<b>31.96%</b>	<b>1.81%</b>

*Notes: Detailed contribution rates by plan are shown in Milliman's full report*

**Recommendation #2: Adopt the new member contribution rates for fiscal year beginning July 1, 2017 as shown in the actuarial valuation.**

SamCERA staff reviewed the valuation report and its recommendations and discussed them with Milliman, Inc. in order to confirm our understanding. Staff supports the results and recommendations of the valuation.

**Attachment**

Resolution accepting contribution rates to recommend to the Board of Supervisors for the 2017-2018 Fiscal Year

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

**Board of Retirement**

RESOLUTION 16-17

**RESOLUTION ACCEPTING CONTRIBUTION RATES TO RECOMMEND TO THE BOARD OF SUPERVISORS FOR THE 2017-2018 FISCAL YEAR.**

**WHEREAS**, Government Code §31453 mandates the periodic actuarial valuation of the Retirement Fund and requires that the Board...*"shall, at least 45 days prior to the beginning of the succeeding fiscal year, 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 Board has received and accepted the June 30, 2016, valuation report from its actuarial firm, Milliman, Inc., and

**WHEREAS**, the Chief Executive Officer has recommended, in agreement with Milliman, Inc., the contribution rates necessary to assure the actuarial soundness of the Retirement Fund,  
*Therefore, be it*

**RESOLVED** that the Board hereby accepts the employer and member contribution rates as recommended by Milliman, Inc. in its June 30, 2016, Actuarial Valuation of the San Mateo County Employees' Retirement Association effective for the fiscal year 2017-2018.

*Be it further*

**RESOLVED** that the Board recommends that the Board of Supervisors adopt the recommended **employer contribution rates** for the County of San Mateo, the San Mateo Superior Court and the San Mateo County Mosquito & Vector Control District in accordance with the schedules provided by Milliman, Inc. in its June 30, 2016, Actuarial Valuation, effective July 1, 2017.

*Be it further*

**RESOLVED** that the Board of Retirement hereby recommends that the Board of Supervisors adopt the recommended **member contribution rates** for SamCERA active members of the County of San Mateo, the San Mateo County Superior Court and the San Mateo County Mosquito & Vector Control District in accordance with the schedules provided by Milliman, Inc. in its June 30, 2016, Actuarial Valuation, effective July 1, 2017.

*Be it further*

**RESOLVED** that the Chief Executive Officer is hereby authorized to transmit these rates and recommendations to the Board of Supervisors and to take all actions necessary to provide for their implementation effective July 1, 2017.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

September 27, 2016

Agenda Item 5.4

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Annual Review of SamCERA's Actuarial Services Firm, Milliman, Inc.

**Staff Recommendation**

Accept the annual performance report of Milliman, Inc.'s actuarial services.

**Summary**

Milliman, Inc. has consistently received high marks, throughout the years, from the Board and staff for the actuarial services it provides to SamCERA. Ratings were similar to those of the last few years.

**Background**

The annual evaluation of Milliman has three parts:

1. A survey completed by trustees, staff and the actuary
2. Responses to questions submitted to the actuary
3. A discussion at the Board meeting with Milliman, Inc. regarding its performance as reflected in the surveys and responses to the questions


**Discussion**

Overall, Milliman received high marks from the Board and staff for the actuarial services it provides to SamCERA. Ratings were consistent with to those of the last few years. The rating structure was from 1 to 5 with 1 being Low (poor rating) to 5 (high rating). The average self-assessment rating by Milliman was 4.2 while the Board's was 4.3 and staff's 4.7. No concerns or issues were raised by the Board or staff.

**Attachment**

Milliman Questionnaire

September 19, 2016

To: Gladys Smith  
From: Nick Collier   
Subject: Actuarial Review – Milliman Inc.

As requested, we have completed the questionnaire form. Please note that Milliman is a large, multi-office firm with services covering a variety of types of actuarial and other consulting issues. For purposes of this review we have responded with answers that apply to the Western Region Employee Benefits practice and have provided client information regarding only the public sector clients. If additional information on other offices or other clients is needed, please let us know.

## Organizational Update

**1) What is the ownership structure of your firm? Identify all owners with 5% ownership or more.**

Milliman is a corporate organization owned by its approximate 400 Principals. No Principal owns 5% or more of the firm. The firm is comprised of profit centers overseen by Principals who have a considerable amount of flexibility with respect to the management of their profit centers.

**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.**

Milliman is a firm of actuaries and consultants serving the full spectrum of business, government, and financial organizations in approximately 40 offices around the United States.

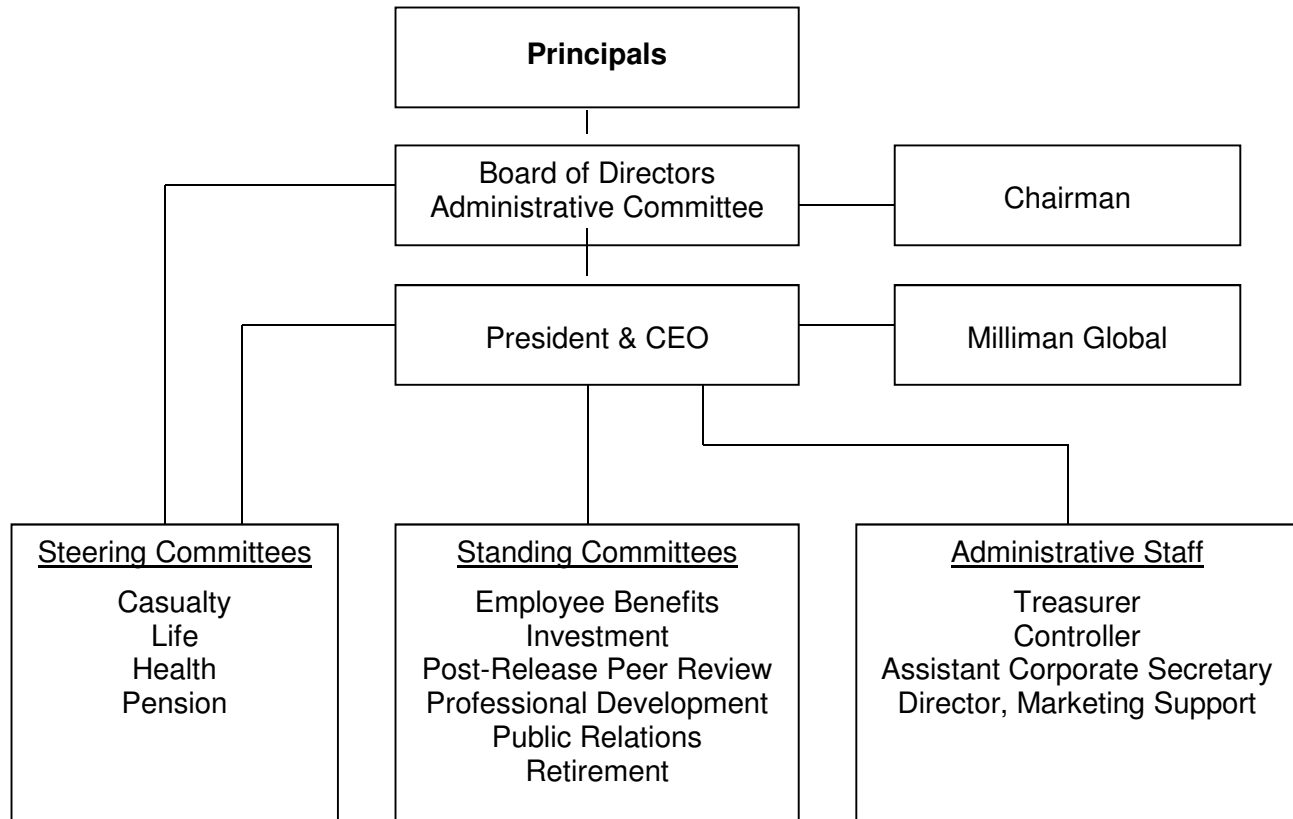
(a) Other than the normal growth of the firm, there have been no changes in the management structure of Milliman in the last 18 months. Normal growth includes new Principals being nominated and a few Principals leaving the firm, primarily due to retirement.

(b) The Western Region Employee Benefits practice has had the following changes in its public sector pension clients in the last 18 months.

Added: Actuarial audit for SBCERS.

Lost: None

(c) On the following page is an organizational chart of the Milliman firm. The Principals of the firm as a whole are responsible for establishing the governing principles of Milliman. Principals are active senior professionals within Milliman who have been elected in recognition of their technical, professional and business achievements. The Board of Directors of Milliman and the officers of Milliman are delegated the authority by the Principals to assume day-to-day responsibilities for carrying out the management directives established by the Principals. The Board of Directors of Milliman consists of 11 Principals including the President, the Chairman, four National Directors of our major practice areas, and five rotating positions.



**3) What are your firm’s philosophy and current policy regarding new business?**

The West Region Employee Benefits practice believes we can add new business only when we have the capacity to maintain the high level of service we promise to all clients. Within the public sector, the opportunity to attain new business is driven by the RFP process. In order to respond to any RFP situations, we are continuing hiring new actuarial analysts – at the rate of about two per year, and growing from within. In addition, Milliman has access to additional staff from other offices if special projects create a need for a temporary increase in staffing support. We have on occasion, when needed, hired additional experienced staff from other firms, but our preferred method of growth is from within our own staff.



**4) Update all significant personnel changes or expected changes to the "SamCERA Team." Describe the relative strength and longevity of your staff. .**

There have been no significant changes to the SamCERA team over the last year.

Most of the senior staff in our practice have been with Milliman for more than 15 years. For the SamCERA team, Nick (29 years with Milliman) and (Craig 13 years with Milliman plus additional experience with a prior firm) have extensive experience. Combined with Julie Smith (7 years with Milliman) who performs the valuation calculations, the team has been together on SamCERA for six years.

**5) Has your firm or any of its employees been involved in regulatory or litigation actions related to your business in the past eighteen months?**

The West Region Employee Benefits practice and members of the SamCERA actuarial team have not been involved in any litigation of any kind against Milliman. Milliman does not normally provide disclosures with respect to other litigation which may be pending for other offices or practices not involved in the services for a specific client.

**6) Are any of your operations outsourced? If the answer is yes, provide details regarding the firm(s) with which your firm has contracted.?**

No. None of our work with SamCERA is outsourced.

**7) Has an actuarial audit been performed on any of your firm's actuarial products within the past eighteen months? If yes, discuss the audit and the findings. Any material findings or recommendations must be accompanied by an explanation.**

The following client(s) from our practice have had actuarial audits performed within the past 18 months: PERS of Idaho. There were no material issues found in any of the audit(s).

**8) What are your mission critical systems? Has your firm experienced any problems with these systems in the past eighteen months? When were these systems implemented and when were they last upgraded? Do you anticipate any changes to these systems in the next eighteen months?**

The only critical system we use to perform services for SamCERA at the current time is our proprietary valuation system called PVS (Pension Valuation System). This system is continuously being updated and improved to reflect changes in the employee benefit arena. It has a scheduled update every six months and more as needed.

**9) Provide an overview of your firm's business continuity plan.**

Our office has an extensive disaster recovery plan. Smoke detectors, fire alarms, fire extinguishers, sprinklers, physical firewalls, and fire barriers are in place throughout the building. The servers are mounted in racks, which are secured to other racks, which prevent earthquake damage. Filing cabinets and shelves are secured to the walls where necessary. Policies are in place which disallows space heaters and other potential fire-starting devices. The server room has two air conditioning units. The servers are on uninterruptible power supplies. We have a business continuity plan. It is tested by Milliman staff annually and audited annually by the independent accounting firm, Moss Adams. The building management company inspects tenant's space annually. The fire marshal does unannounced inspections approximately twice per year.

In addition, we have had a SAS 70 review, part of which states:

"Milliman has placed into operation a risk assessment process to identify and manage risks that could affect their ability to provide reliable transaction processing for user organizations. This process requires managers to identify significant risks in their areas of responsibility and to implement appropriate measures to address those risks. This process has identified risks resulting from the nature of the services Milliman provides, and management has implemented various measures to manage those risks".

**Actuarial Process**

**10) Provide a description, in detail, of your actuarial process.**

The following summarizes our standard valuation procedures (as stated in our proposal):

1. Data Checking and Preliminary Processing  
SamCERA will supply us with information for each active, vested, and retired member, along with certain financial items. The data will then be checked for reasonableness. Any data issues will be submitted to SamCERA staff for verification.
2. Choosing Assumptions  
Actuarial valuations are necessarily based on assumptions as to future rates of retirement, disablement and death among active members, rates of mortality after retirement, rates of investment income, rates of salary increases, and rates of increase in the Consumer Price Index, where applicable. In valuing SamCERA's benefits, we will use the assumptions adopted by the Board, based on the most recent experience investigation.
3. Valuation Calculations  
Each valuation determines the actuarial present value of all future benefits payable from SamCERA. These benefits are those provided to members under current law. We will determine the actuarial present value of future benefit payments by using a standard Milliman computer program customized for SamCERA. The program can automatically compute costs under the entry age normal cost method, which is specified in the '37 Act. Liability calculations will be checked for accuracy and reasonableness on both an individual and aggregate basis.

We then calculate each valuation group's unfunded actuarial accrued liability (UAAL) as the value of the benefits in excess of the sum of the future normal cost contributions and the current value of assets. Finally, we determine the contribution rate needed for each group to satisfy the amortization period requirements.

4. Funding Valuation Report

Our report will include our conclusions regarding the financial condition and the unfunded actuarial accrued liability, recommendations as to future contribution rates, discussion of the calculations, GASB disclosures, descriptions of the benefit provisions of the applicable laws and summaries of assumptions and data. Our report typically shows a breakdown of liabilities by source of decrement for active members, as well as subtotals for inactive members. We are open to discuss with SamCERA staff and the Board regarding possible changes in the reporting format for their particular needs. We reflect each system's own characteristics in our report.

Our goal is to provide enough information for the Board to make reasonable financial decisions without becoming too complex to undermine the basic intent of disclosing the valuation results. However, we are always open to suggestions for improving the communications of our valuation work, if a modified approach is preferred.

5. GASB Report

We develop the information required to be disclosed by Statement Nos.67 and 68 of the Governmental Accounting Standards Board (GASB). We provide this information both for the system and the participation employers.

**11) Describe your peer review procedures in detail.**

Peer review is not actually a separate step in our valuation process. Rather it is an ongoing process. We review and check our work at every step of the project.

Our internal peer review processes provide assurances that the highest quality standards are being maintained at all times. Each valuation, study, or projections will be reviewed by at least two consultants. The first level of review will occur within the SamCERA team. Two of the three consultants on the project team will review each step of the project. The final internal review will be performed by Nick Collier and Craig Glyde. Additionally, another Milliman public sector consultant who did not work on the project will review the work. This provides the project with an independent set of eyes. This review will not only verify the calculations, but will evaluate whether or not the assumptions, methods, and results are reasonable.

**Outlook**

**12) What issues are other clients concerned with in regards to products, education and governance?**

There are a number of issues concerning our public sector clients right now. Probably the most significant are:

- Investment Allocation and Return Assumption – Always a hot topic in the public sector, the focus has increased partly due to recent changes by CalPERS who adopted a policy to

gradually reduce the risk of their portfolio with a corresponding reduction in the investment return assumption.

- GASB 74 & 75 – New GASB statements for Other Post-Employment Benefits that are parallel to GASB 67 & 68. Milliman will be assisting the County with implementation of the new standards.
- Termination vs Funding Basis – Two recent publications have highlighted differences in the way actuarial liabilities can be calculated. The Society of Actuaries has made a paper available on their websites that argues for applying “financial economics” to public retirement plans. In simple, financial economics advocates reporting liabilities at a risk-free discount rate. This approach would significantly increase the values that are currently reported using the traditional actuarial approach. A somewhat related article appeared in the New York Times last week that referred to “two sets of books.” Specifically, it highlighted the increased liability incurred by a district member of CalPERS that terminated and was moved to a separate “termination pool.” We do not see any direct impact on SamCERA.

**13) 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?**

As with all relationships, communication is the key factor. We have attempted to reply promptly and effectively to all inquiries. We have attempted to alert SamCERA of any relevant issues as they become apparent to us or are reported to us. Similarly, SamCERA staff has kept us up-to-date on issues that affect our work. We have felt very positive about being supported by SamCERA and we hope the relationship will continue to grow.

Probably the most significant way we can assist SamCERA is in the understanding of the volatility of future investment returns and the impact on future contribution rates. We have provided SamCERA some fairly simple projections in the past, but have the capability to do more sophisticated analysis as the need arises.

## **Conclusion**

**14) What actuarial related changes should SamCERA consider?**

We do not believe there are any actuarially related changes that need to be made at this moment.

**15) Relative to your expertise, what trends are occurring in the retirement industry that SamCERA should be tracking?**

We believe the key trends are as follows:

- Reductions in Benefit Levels – Across the country, states and municipalities have adopted lower benefit levels. In particular, some governing bodies have reduced COLAs based on benefits already earned. Currently, there does not appear to be any movement toward this type of change in California. However, it should be noted that a recent court decision in

Marin County seems to have opened the possibility of reducing future benefits for current members.

- Lower CPI / wage growth / Investment Return Assumptions – In response to economic experience and trends, changes in asset allocation, and future expectations of CPI and investment returns of asset classes, retirement systems have been adopting lower CPI, wage growth and investment return assumptions over the last 10 years. Additionally, a recent change in the actuarial standard of practice pertaining to economic assumptions provides a revised description about how an actuary should determine a “reasonable assumption” that may give the actuary less latitude in their recommendations than the prior description. We believe these factors could result in further downward pressure on economic assumptions.
- Generational Mortality – There is a trend in the actuarial profession to use generational mortality tables, which explicitly reflect expected improvements in mortality. Generational mortality tables include a base table and a projection table. The projection table 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). Recently, several '37 Act systems adopted generational mortality tables for their valuation assumption. Previously, systems had not made this change, at least in part due to administrative concerns. SamCERA should consider generational mortality at the time of the next experience investigation.

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

September 27, 2016

Agenda Item 6.1

**TO:** Board of Retirement

**FROM:** Michael Coultrip, Chief Investment Officer

**SUBJECT:** Report on Preliminary Monthly Portfolio Performance Report for the Period Ended August 31, 2016

**Staff Recommendation**

Accept the preliminary performance report dated August 31, 2016.

**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. As discussed previously, preliminary performance estimates are now included for AQR Risk Parity, AQR Delta, PanAgora Risk Parity, and Beach Point Select. The quarterly performance metrics are not yet available for our private equity, 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 manager returns (pages 2-7) and net composite returns (pages 8-9) also shown.

**Discussion**

The fund's net preliminary return for August was 0.4%, while the preliminary trailing twelve-month return ending August 2016 was 7.4% net. The twelve-month net return trails SamCERA's Total Plan Policy Benchmark return of 8.0% but is higher than the Actuarial Assumed Earnings Rate of 7.0%.

Volatility continued to be subdued during August. Performance was muted across the broad equity market indices. The broad U.S. equity market (as measured by the S&P 500 Index) was up 0.1% on the month, while international equity indices were also higher, with developed markets (as measured by MSCI EAFE) up 0.1%, and emerging markets up 2.5%.

Economic data was mostly softer on the month. The real GDP growth forecast was revised lower to an annual rate of 1.1% (from 1.2%) in the second quarter, while manufacturing activity was soft. The unemployment rate was unchanged at 4.9%, but job growth was more modest than in past months.

U.S. interest rates rose during the month, with the 10-year U.S. Treasury yield increasing by 12 basis points.

The general U.S. fixed income market was down 0.1% during the month. Credit spreads tightened again during the month, leading the high yield market higher by 2.1%, while emerging debt returned 1.8%. Commodities were down 1.8% during the month.

**Attachments**

- A. Verus August 2016 Capital Markets Update
- B. Northern Trust Performance Report



Verus



**PERSPECTIVES**  
**THAT DRIVE**  
**ENTERPRISE**  
**SUCCESS**

AUGUST 2016  
Capital Markets Update



# Market commentary

## ECONOMIC CLIMATE

- As of September 9<sup>th</sup>, the Atlanta Fed GDPNow forecast a 3.3% increase in real GDP for the third quarter.
- The Fed will meet on September 21<sup>st</sup> to continue discussions on the timing of the next interest rate hike. Recent hawkish statements by Fed officials have helped boost market expectations of a year-end rate hike.
- The labor market experienced moderate gains in August relative to the previous two months. Nonfarm payrolls added 151,000 jobs, below the consensus estimate of 175,000. The unemployment rate and participation rate were unchanged at 4.9% and 62.8%, respectively.
- Wage growth was flat as the average hourly earnings increased only 0.1% in August. Year-over-year nominal wage increases were 2.4%, down 0.3% from July.

## DOMESTIC EQUITIES

- The domestic equity market was calm during the month as volatility remained low. The S&P 500 traded within a narrow 33 point range and realized annualized volatility was 5.6%. The index returned 0.1% on a total return basis.
- Financials (3.8%) and information technology (2.1%) were the top performing sectors in the S&P 500, while telecom services (-5.7%) and utilities (-5.6%) were the biggest detractors.
- All but two companies in the S&P 500 had reported Q2 earnings as of September 2<sup>nd</sup>, and the blended earnings decline was -3.2%, marking the fifth consecutive quarter of yearly earnings decline.

## DOMESTIC FIXED INCOME

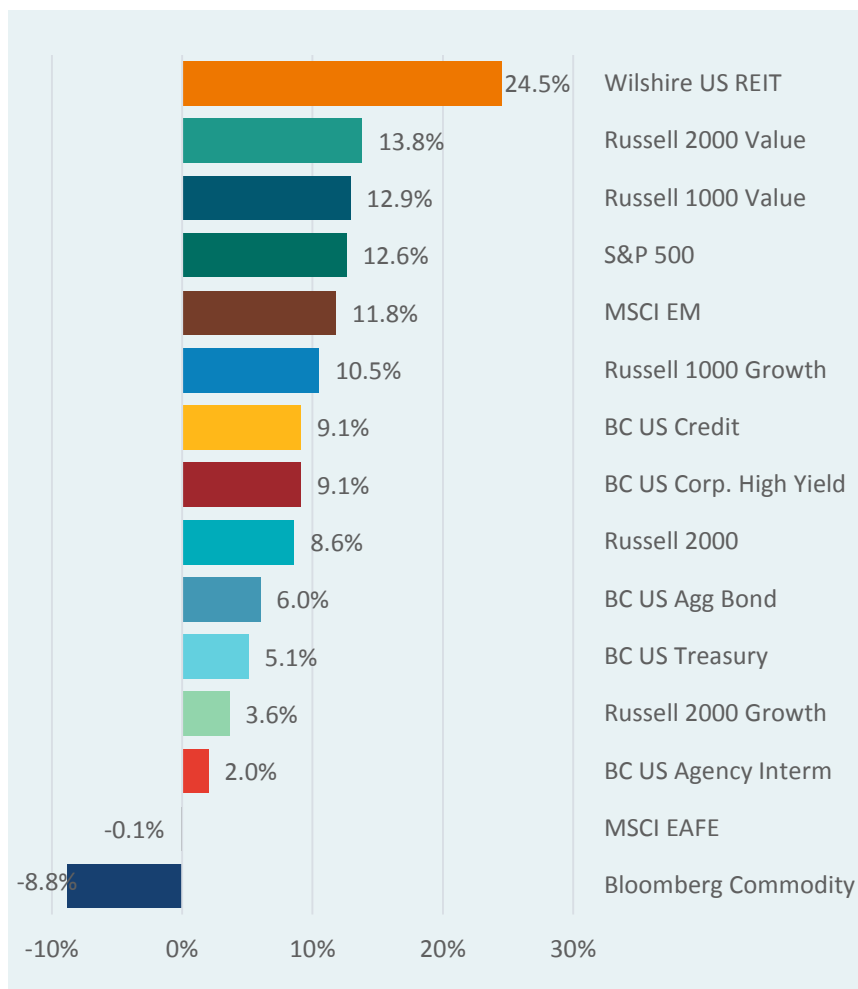
- Treasury yields increased across all maturities and the curve flattened slightly amid increased expectations of a rate hike by year end. The 10-year yield increased 12 bps to finish the month at 1.58%.
- Yields rose across the broad U.S. fixed income market in August and the Barclays Aggregate index returned -0.1%, its first negative return of 2016.
- High yield spreads continued to compress during the month. The high yield option-adjusted spread fell 59 bps to finish the month at 5.1%. High yield spreads have fallen 3.8% since peaking at 8.9% in February of this year.

## INTERNATIONAL MARKETS

- International equity markets finished August slightly higher. The MSCI ACWI ex U.S. index returned 0.6%.
- A weaker U.S. dollar supported another strong month of performance for unhedged emerging market equities, led by countries in Asia. The MSCI Emerging Markets index returned 2.5%, and extended its year-to-date gain to 14.5%.
- The Bank of England cut interest rates to 0.25% in addition to expanding its asset purchase program by £60 billion. The BOE also voted to allow purchases of up to £10 billion in high quality corporate debt.
- After a year long process, the Brazilian senate voted to impeach suspended president Dilma Rousseff over charges of budget manipulation. Michel Temer will serve as interim president until 2018.

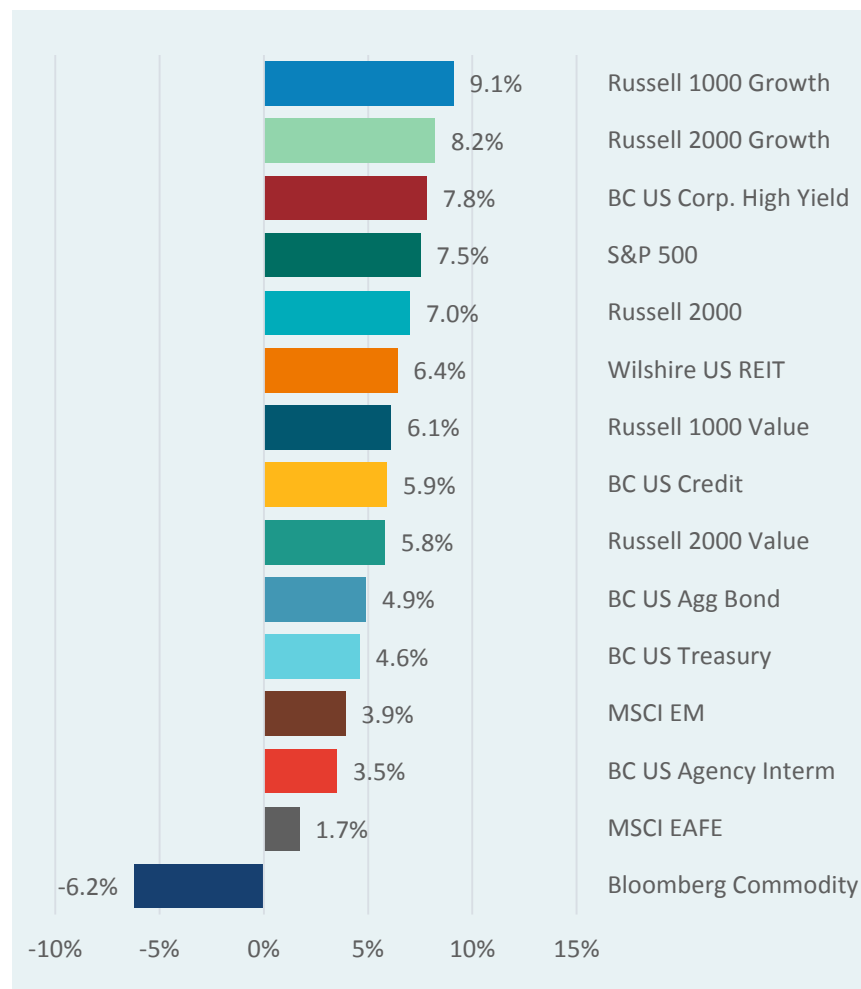
# Major asset class returns

ONE YEAR ENDING AUGUST



Source: Morningstar, as of 8/31/16

TEN YEARS ENDING AUGUST

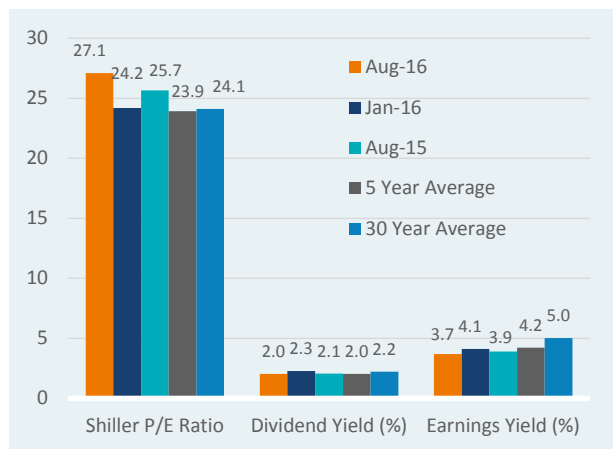


Source: Morningstar, as of 8/31/16

# U.S. large cap equities

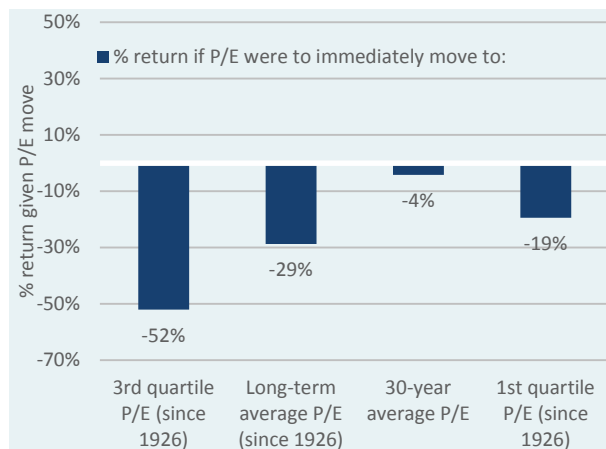
- August was another calm month for U.S. large cap equities in which realized volatility was well below average. The S&P 500 grinded out a sixth straight month of positive performance, returning 0.1%.
- Implied volatility is also below average. The VIX finished the month at 13.4, indicating investors in the options market are expecting the equity market to remain calm in the short-term.
- According to FactSet, the estimated earnings growth in Q3 for the S&P 500 is -2.1%. This estimate is dragged down by an expected earnings decline of -63.2% in the energy sector. Positive earnings growth is projected to return in Q4.
- The forward 1-year P/E multiple increased slightly from 19.0 to 19.1 as price and earnings estimates were mostly stable. The Shiller P/E ratio was 27.1 at month end, well above its long-term average of 24.1.

US LARGE CAP (S&P 500) VALUATION SNAPSHOT



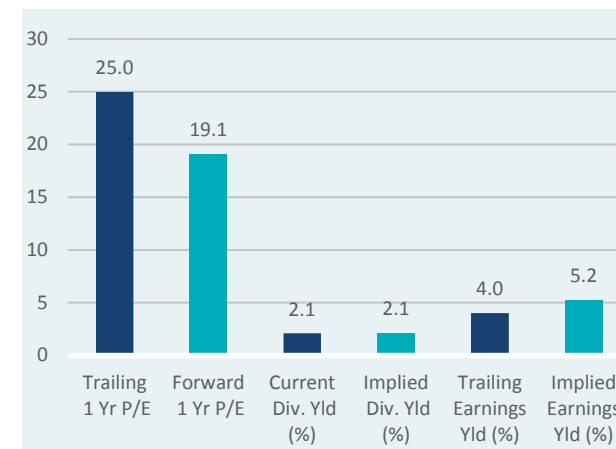
Source: Yale/Shiller, as of 8/31/16

RETURNS IF P/E MOVED TO HISTORIC LEVEL



Source: Yale/Shiller, Verus

S&P 500 VALUATION SNAPSHOT

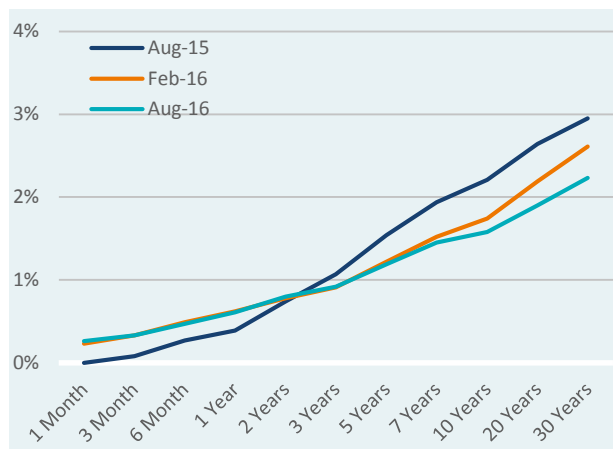


Source: Standard & Poor's, as of 8/31/16

# Fixed income

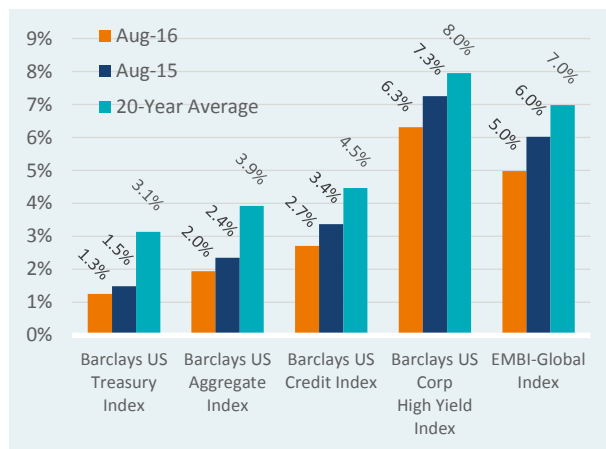
- Hawkish statements made by Fed officials, including Janet Yellen, sent bond yields higher in August, especially on the short end of the curve.
- Investment grade corporate debt issuance exceeded \$115 billion in August, pushing sales close to \$1 trillion for the year as companies continue to take advantage of low borrowing costs.
- Spread compression led the high yield market to be one of the best performing fixed income sectors during the month. The Barclays Corporate High Yield index returned 2.1%.
- CPI data released for July showed no change in consumer prices from the previous month. Core CPI (less food and energy) was slightly higher, up 0.1% from June.

## U.S. TREASURY YIELD CURVE



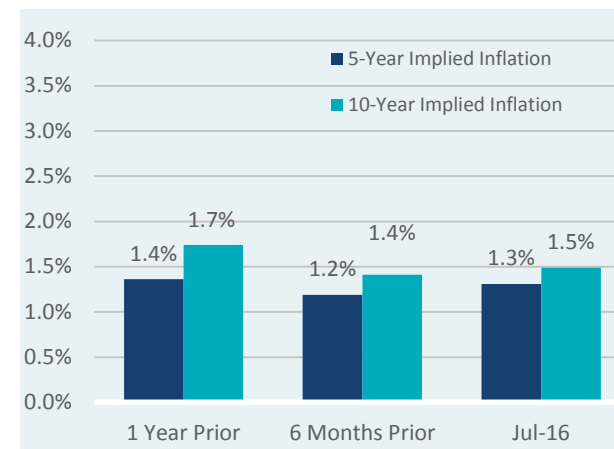
Source: Federal Reserve

## NOMINAL FIXED INCOME YIELDS



Source: Morningstar, as of 8/31/16

## IMPLIED INFLATION (TIPS BREAKEVEN)

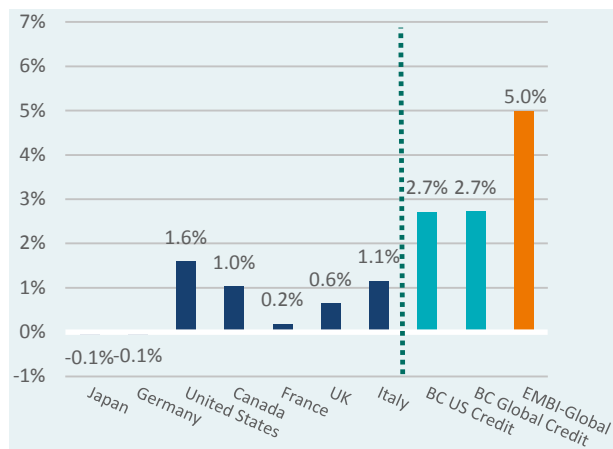


Source: Federal Reserve, as of 8/31/16

# Global markets

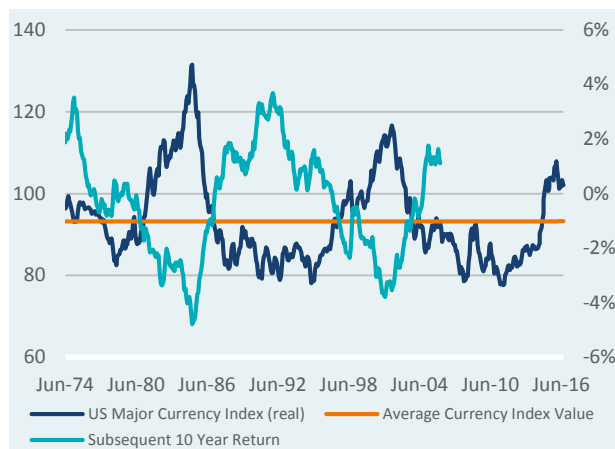
- International developed markets (MSCI EAFE 0.1%) were on par with domestic markets (S&P 500 0.1%), but underperformed emerging markets (MSCI EM 2.5%) in August.
- With the exception of the U.K., global sovereign yields rose slightly during the month. Yields in Japan and Germany have risen two straight months after hitting all time lows at the end of June.
- Consumer prices in the Eurozone were unchanged from July, and up only 0.2% from a year earlier. Despite aggressive monetary stimulus, inflation is still well below the ECB’s target rate of 2%.
- The U.S. Dollar Major Currency Index fell 1.3% in August, retracing most of its gains from the prior month.

**GLOBAL SOVEREIGN 10 YEAR INDEX YIELDS**



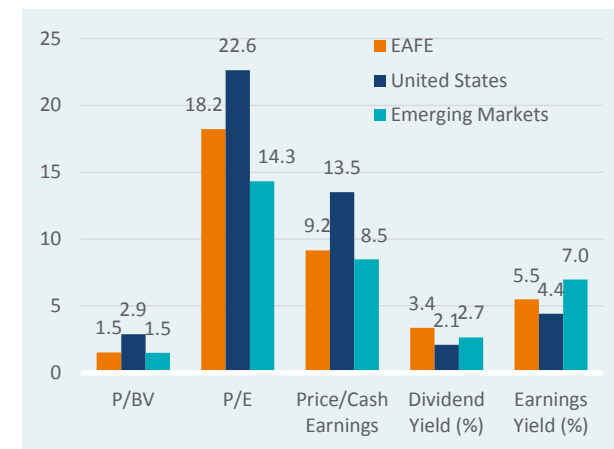
Source: Bloomberg, Morningstar, as of 8/31/16

**U.S. DOLLAR MAJOR CURRENCY INDEX**



Source: Federal Reserve, as of 8/31/16

**MSCI VALUATION METRICS (3 MONTH AVERAGE)**

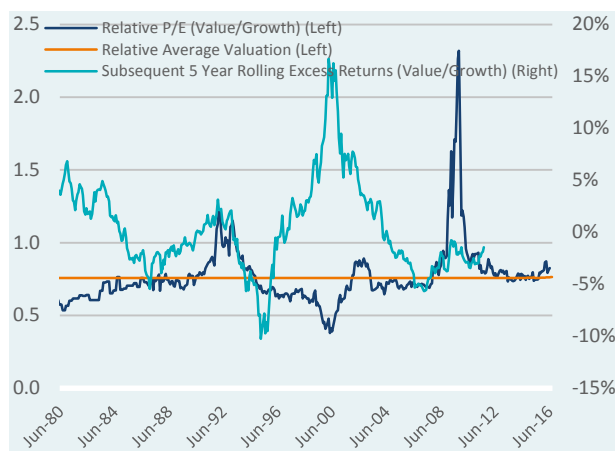


Source: MSCI, as of 8/31/16

# Style tilts: U.S. large value vs. growth

- Value stocks outperformed growth stocks in August as the Russell 1000 Value Index and Russell 1000 Growth Index returned 0.8% and -0.5%, respectively.
- The year-to-date outperformance of the Russell 1000 Value Index can be partially attributed to the bounce back of energy stocks, which make up the second largest sector in the index.
- Value has outperformed growth by 4.6% year-to-date and 2.4% over the past 12 months, reversing the trend of outperformance by growth equities in recent periods.

**RELATIVE PE RATIO OF U.S. VALUE VS. GROWTH**



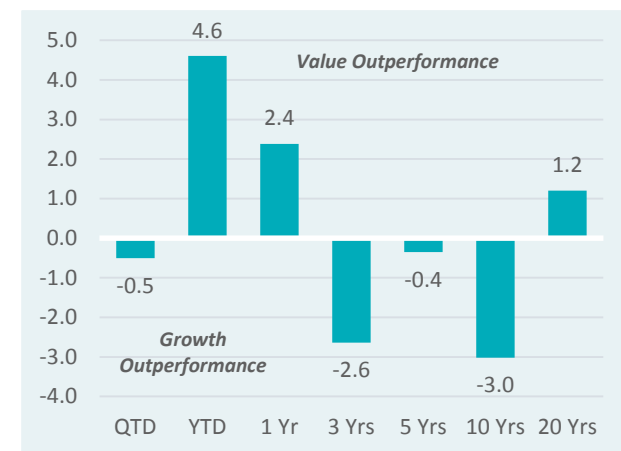
Source: Russell, Bloomberg, as of 8/31/16

**U.S. VALUE VS. GROWTH ABSOLUTE PERFORMANCE**

	RUSSELL 1000 GROWTH	RUSSELL 1000 VALUE
	<b>ANNUALIZED RETURN TO DATE %</b>	
QTD	4.2	3.7
YTD	5.6	10.2
1 YEAR	10.5	12.9
3 YEARS	13.3	10.7
5 YEARS	14.7	14.4
7 YEARS	14.7	13.0
10 YEARS	9.1	6.1
20 YEARS	7.5	8.7
	<b>SHARPE RATIO</b>	
3 YEARS	1.14	0.99
5 YEARS	1.19	1.19
7 YEARS	1.10	0.98
10 YEARS	0.53	0.32
20 YEARS	0.30	0.42

Source: Morningstar, as of 8/31/16

**U.S. VALUE VS GROWTH RELATIVE PERFORMANCE**



Source: Morningstar, as of 8/31/16

# Style tilts: U.S. large vs. small

- Small cap equities outperformed large cap equities for the second consecutive month as the Russell 2000 and Russell 1000 returned 1.8% and 0.1%, respectively. Small caps have also outperformed large caps by 2.4% year-to-date.
- The relative trailing P/E ratio of small to large cap equities at the end of August was 2.04, well above its long-term average of 1.38, suggesting small cap stocks are relatively overvalued.
- Besides the current year, the Russell 1000 Index has outperformed the Russell 2000 Index on an absolute and risk-adjusted basis in every time period examined over the last 20 years.

RELATIVE PE RATIO OF U.S. SMALL VS. LARGE



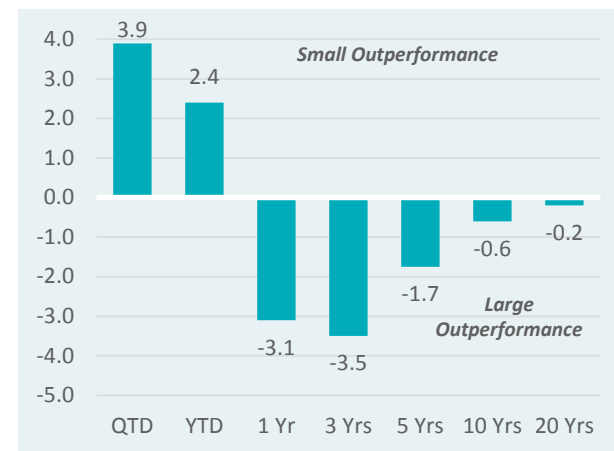
Source: Russell, Bloomberg, as of 8/31/16

U.S. LARGE VS. SMALL ABSOLUTE PERFORMANCE

	RUSSELL 1000 INDEX ANNUALIZED RETURN TO DATE %	RUSSELL 2000 INDEX ANNUALIZED RETURN TO DATE %
QTD	3.9	7.8
YTD	7.8	10.2
1 YEAR	11.7	8.6
3 YEARS	12.0	8.5
5 YEARS	14.6	12.9
7 YEARS	13.9	13.2
10 YEARS	7.6	7.0
20 YEARS	8.4	8.2
	SHARPE RATIO	SHARPE RATIO
3 YEARS	1.09	0.57
5 YEARS	1.22	0.80
7 YEARS	1.06	0.75
10 YEARS	0.44	0.31
20 YEARS	0.39	0.30

Source: Morningstar, as of 8/31/16

U.S. SMALL VS. LARGE RELATIVE PERFORMANCE



Source: Morningstar, as of 8/31/16

# Commodities

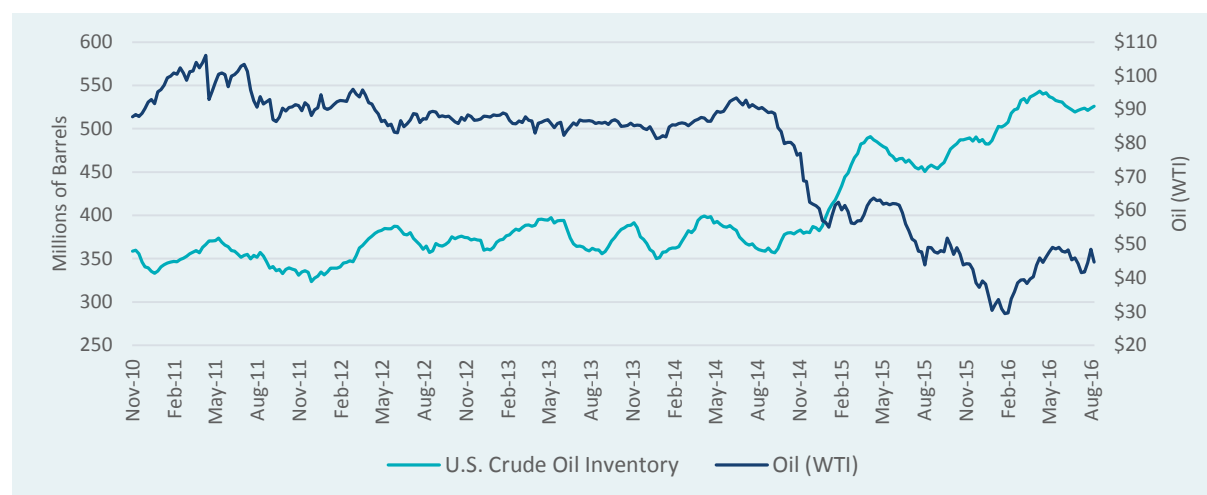
- The Bloomberg Commodity Index fell 1.8% during the month, influenced by wheat prices falling to a 10-year low and falling gold prices.
- The price of oil rebounded in August as production freeze talks among oil producing nations started again. WTI peaked at \$48.52 per barrel on August 19<sup>th</sup>, but fell back to finish the month at \$44.70.
- Petroleum (6.3%) and energy (3.6%) were the major contributors to the Bloomberg Commodity Index in August, while grains (-7.7%) and precious metals (-5.0) were the biggest detractors from performance.

## INDEX AND SECTOR PERFORMANCE

	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(6.8)	5.6	(8.8)	(14.0)	(12.8)	(6.2)
Bloomberg Agriculture	(11.8)	0.0	0.0	(10.6)	(10.9)	0.5
Bloomberg Energy	(7.5)	0.9	(29.7)	(28.0)	(20.2)	(19.2)
Bloomberg Grains	(16.9)	(10.8)	(15.3)	(16.0)	(12.2)	(0.4)
Bloomberg Industrial Metals	(1.1)	7.4	(2.8)	(9.4)	(12.4)	(6.6)
Bloomberg Livestock	(9.3)	(10.0)	(16.9)	(6.6)	(4.7)	(8.4)
Bloomberg Petroleum	(8.4)	1.1	(30.4)	(30.7)	(17.4)	(12.5)
Bloomberg Precious Metals	(0.9)	26.0	18.1	(4.0)	(9.2)	6.0
Bloomberg Softs	(0.7)	18.4	36.8	(2.4)	(12.8)	(1.5)

Source: Morningstar, as of 8/31/16

## WTI CRUDE OIL VS. U.S. TOTAL CRUDE OIL INVENTORY



Source: Bloomberg, as of 8/31/16



# Appendix

# Periodic table of returns

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	YTD	5-Year	10-Year
Small Cap Value	74.8	16.6	38.4	23.2	35.2	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	10.1	14.6	14.7	9.1
Emerging Markets Equity	32.9	8.1	37.8	23.1	32.9	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	14.5	14.6	8.2
Small Cap Equity	26.3	6.4	37.2	22.4	31.8	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	10.2	14.4	7.6
Large Cap Value	23.8	4.4	31.0	21.6	30.5	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	10.2	13.0	7.4
Large Cap Equity	19.3	3.2	28.5	21.4	22.4	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	7.8	12.9	7.0
60/40 Global Portfolio	18.9	2.6	25.7	16.5	16.2	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	7.4	12.6	6.1
Small Cap Growth	18.1	0.4	19.6	14.4	13.9	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	6.0	11.5	5.8
US Bonds	13.4	-1.5	18.5	11.3	12.9	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	5.9	5.6	4.9
Large Cap Growth	10.2	-1.8	15.2	10.3	10.6	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	5.6	5.0	4.6
Commodities	9.7	-2.0	11.6	9.9	9.7	-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	5.6	3.2	3.9
Real Estate	3.1	-2.4	11.1	6.4	5.2	-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	4.3	2.4	1.7
International Equity	2.9	-2.9	7.5	6.0	2.1	-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	0.5	0.1	1.7
Cash	1.4	-3.5	5.7	5.1	-3.4	-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	0.2	-0.4	0.8
Hedge Funds of Funds	-1.1	-7.3	-5.2	3.6	-11.6	-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	-0.9	-12.8	-6.2

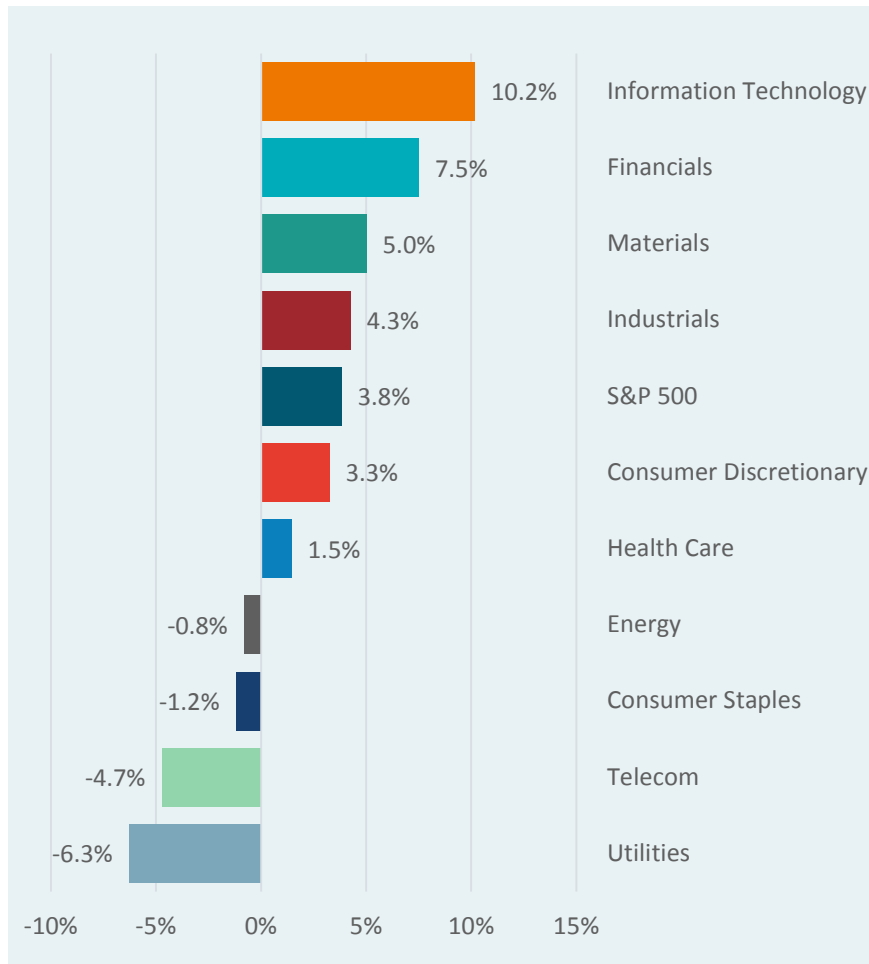
WORST

 Large Cap Equity	 Small Cap Growth	 Commodities
 Large Cap Value	 International Equity	 Real Estate
 Large Cap Growth	 Emerging Markets Equity	 Hedge Funds of Funds
 Small Cap Equity	 US Bonds	 60% MSCI ACWI/40% BC Global Bond
 Small Cap Value	 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, BC Agg, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BC Global Bond. NCREIF Property Index performance data as of 6/30/16.

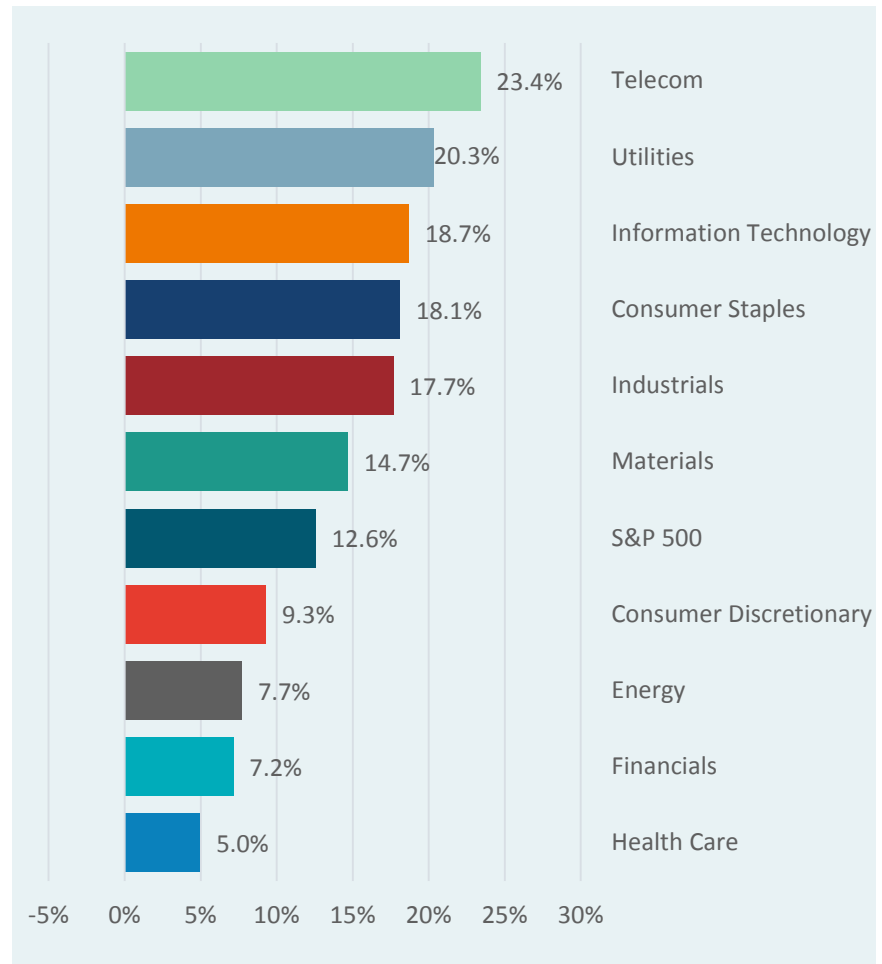
# S&P 500 and S&P 500 sector returns

QTD



Source: Morningstar, as of 8/31/16

ONE YEAR ENDING AUGUST



Source: Morningstar, as of 8/31/16

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	0.1	3.8	7.8	12.6	12.3	14.7	7.5
S&P 500 Equal Weighted	0.2	4.4	10.5	12.3	12.2	15.2	9.0
DJ Industrial Average	0.3	3.2	7.7	14.4	10.2	12.5	7.7
Russell Top 200	0.3	3.8	6.9	12.5	12.3	14.7	7.3
Russell 1000	0.1	3.9	7.8	11.7	12.0	14.6	7.6
Russell 2000	1.8	7.8	10.2	8.6	8.5	12.9	7.0
Russell 3000	0.3	4.2	8.0	11.4	11.7	14.5	7.6
Russell Mid Cap	(0.2)	4.3	10.0	9.9	11.3	14.3	8.5
<b>Style Index</b>							
Russell 1000 Growth	(0.5)	4.2	5.6	10.5	13.3	14.7	9.1
Russell 1000 Value	0.8	3.7	10.2	12.9	10.7	14.4	6.1
Russell 2000 Growth	1.1	7.7	6.0	3.6	8.5	13.0	8.2
Russell 2000 Value	2.5	8.0	14.6	13.8	8.5	12.6	5.8

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI EAFE	0.1	5.1	0.5	(0.1)	2.5	5.0	1.7
MSCI AC World ex US	0.6	5.6	4.5	2.9	2.0	3.3	2.0
MSCI EM	2.5	7.6	14.5	11.8	1.1	(0.4)	3.9
MSCI EAFE Small Cap	(0.6)	5.5	2.1	5.4	7.1	8.0	4.1
<b>Style Index</b>							
MSCI EAFE Growth	(1.4)	3.4	1.1	3.6	4.2	5.9	2.9
MSCI EAFE Value	1.6	7.0	(0.1)	(3.9)	0.7	4.0	0.4
<b>Regional Index</b>							
MSCI UK	0.2	2.9	(0.2)	(4.0)	(0.3)	3.8	1.2
MSCI Japan	0.4	6.9	0.9	2.9	5.6	6.7	0.7
MSCI Euro	1.0	6.6	(1.3)	(3.3)	1.8	4.5	0.3
MSCI EM Asia	4.0	9.1	11.5	13.6	4.8	3.2	5.8
MSCI EM Latin American	0.7	6.2	33.3	19.8	(5.1)	(7.4)	2.5

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BC US Treasury US TIPS	(0.4)	0.4	6.7	5.4	2.7	1.8	4.4
BC US Treasury Bills	0.0	0.0	0.3	0.3	0.1	0.1	1.0
BC US Agg Bond	(0.1)	0.5	5.9	6.0	4.4	3.2	4.9
<b>Duration</b>							
BC US Treasury 1-3 Yr	(0.2)	(0.2)	1.2	1.1	0.9	0.6	2.3
BC US Treasury Long	(0.9)	1.3	16.6	16.8	11.9	7.8	8.4
BC US Treasury	(0.5)	(0.1)	5.2	5.1	3.7	2.6	4.6
<b>Issuer</b>							
BC US MBS	0.1	0.3	3.4	3.9	4.0	2.6	4.7
BC US Corp. High Yield	2.1	4.9	14.3	9.1	5.4	7.5	7.8
BC US Agency Interm	(0.2)	(0.2)	2.1	2.0	2.0	1.4	3.5
BC US Credit	0.2	1.5	9.2	9.1	5.8	4.9	5.9

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	(1.8)	(6.8)	5.6	(8.8)	(14.0)	(12.8)	(6.2)
Wilshire US REIT	(3.3)	1.0	12.2	24.5	16.4	13.6	6.4
<b>Regional Index</b>							
JPM EMBI Global Div	1.8	3.6	14.3	14.2	9.0	6.7	7.7
JPM GBI-EM Global Div	0.0	0.6	14.8	11.3	(1.8)	(2.4)	5.2

Source: Morningstar, as of 8/31/16

# Notices & disclosures

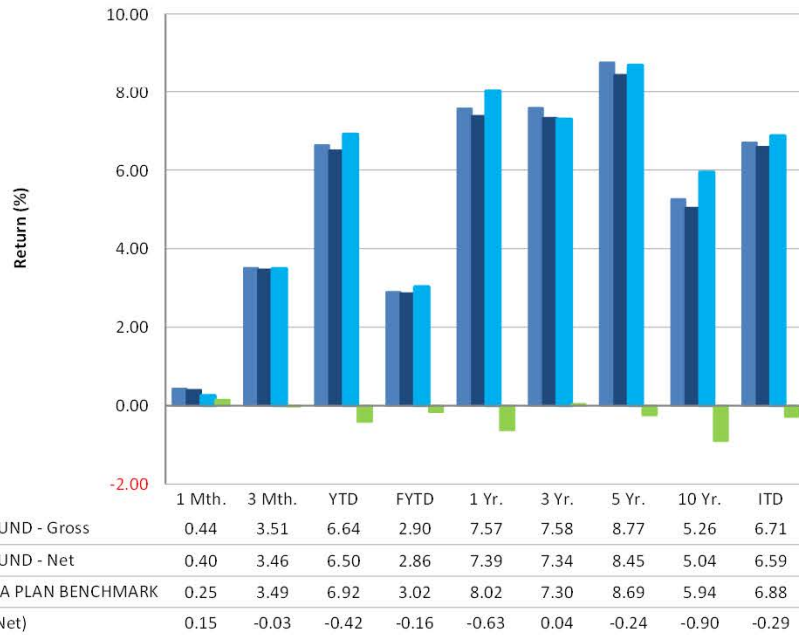
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# San Mateo County Total Fund Characteristics

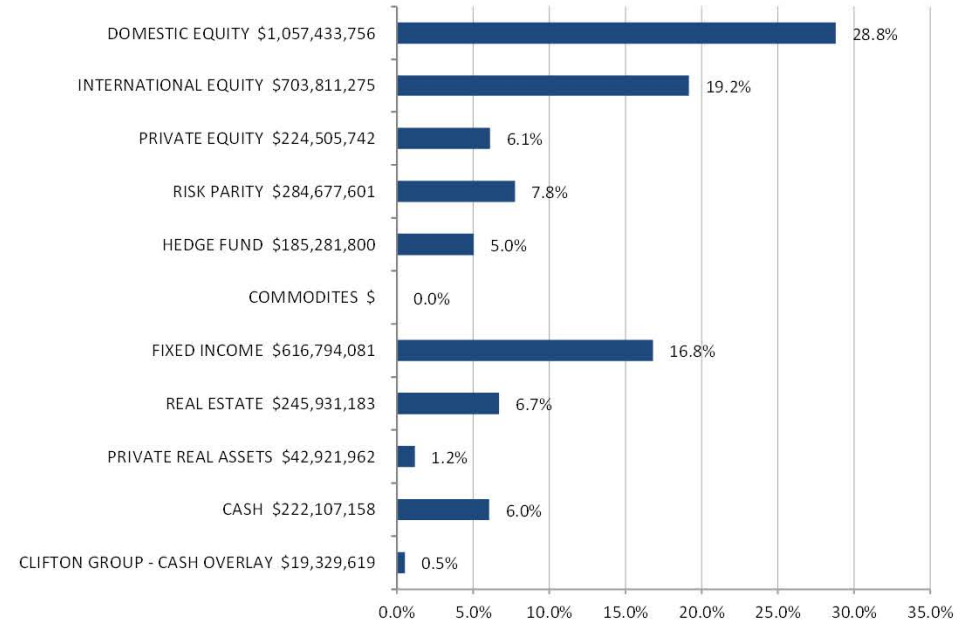


August 31, 2016

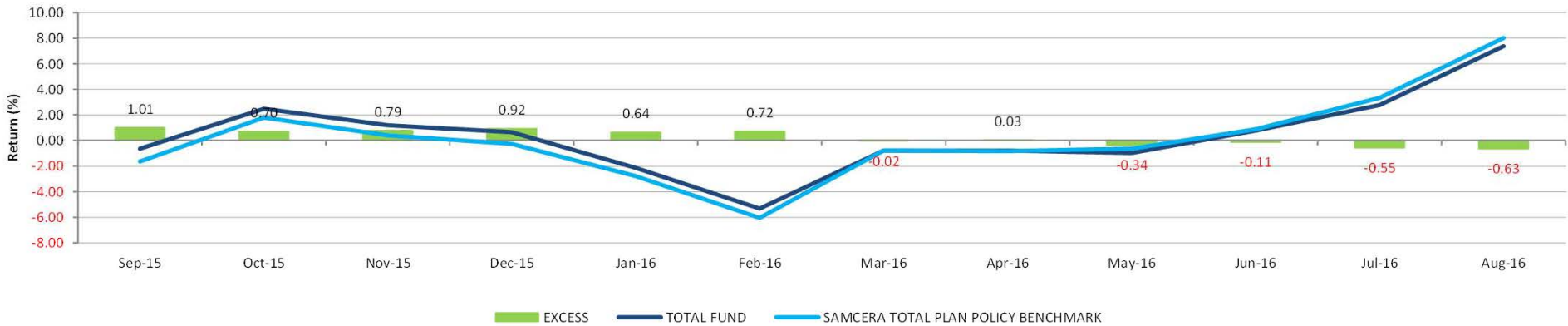
**Total Fund Performance**



**Asset Allocation**



**Rolling Month End Annual Returns**



# San Mateo County Manager Return Summary



August 31, 2016

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	1,761,245,031	-0.03	3.51	6.08	4.22	7.86	7.90	10.39	10.12	4.65	7.37
Samcera Total Equity Benchmark		0.41	4.56	7.49	4.75	9.61	9.44	11.37	11.19	6.18	7.95
Excess		-0.44	-1.05	-1.41	-0.54	-1.75	-1.54	-0.99	-1.07	-1.53	-0.58
Total Domestic Equity	1,057,433,756	-0.05	3.43	6.37	3.84	9.39	10.25	13.48	13.03	6.15	8.13
Samcera Dom. Equity Benchmark		0.37	4.69	8.19	4.50	10.97	11.33	14.27	13.78	7.56	8.55
Excess		-0.42	-1.27	-1.82	-0.66	-1.58	-1.08	-0.79	-0.75	-1.41	-0.42
Total Large Cap Equity	947,633,223	0.21	3.63	6.96	4.02	11.12	11.61	14.05	13.14	6.53	8.92
Russell 1000		0.13	4.18	7.83	3.95	11.69	12.02	14.60	13.88	7.64	9.31
Excess		0.08	-0.55	-0.87	0.07	-0.58	-0.41	-0.55	-0.74	-1.11	-0.39
Barrow Hanley	111,981,961	1.59	3.01	5.30	5.13	7.14	9.12	13.83	12.88	--	13.29
Russell 1000 Value		0.77	4.59	10.23	3.70	12.92	10.69	14.39	12.99	--	13.64
Excess		0.82	-1.58	-4.93	1.44	-5.78	-1.57	-0.56	-0.11	--	-0.35
Blackrock S&P 500 Index Fund	597,835,465	0.14	4.10	7.83	3.83	12.51	12.36	--	--	--	13.35
S&P 500		0.14	4.10	7.82	3.83	12.55	12.30	--	--	--	13.30
Excess		-0.00	0.00	0.01	0.00	-0.04	0.06	--	--	--	0.05
Brown Advisory	113,346,967	-0.86	0.82	1.55	3.13	6.36	9.33	--	--	--	10.17
Russell 1000 Growth		-0.50	3.79	5.62	4.20	10.54	13.33	--	--	--	13.06
Excess		-0.36	-2.97	-4.07	-1.07	-4.18	-4.00	--	--	--	-2.89
DE Shaw Commingled Fund	124,468,830	0.31	4.56	9.61	4.73	12.71	--	--	--	--	7.37
Russell 1000		0.13	4.18	7.83	3.95	11.69	--	--	--	--	5.20
Excess		0.17	0.38	1.77	0.78	1.02	--	--	--	--	2.17
Total Small Cap Equity	109,800,533	-3.34	0.39	1.13	0.96	-0.98	3.59	10.59	12.23	4.27	5.74
Russell 2000		1.77	7.78	10.23	7.84	8.59	8.53	12.85	13.22	7.04	7.39
Excess		-5.11	-7.39	-9.10	-6.88	-9.57	-4.94	-2.26	-0.99	-2.77	-1.65

# San Mateo County Manager Return Summary



August 31, 2016

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	109,798,046	--	--	--	--	--	--	--	--	--	-0.18
Russell 2000		--	--	--	--	--	--	--	--	--	7.39
Excess		--	--	--	--	--	--	--	--	--	-7.57
Total Developed Markets Equity	627,682,227	-0.02	3.02	4.62	4.83	4.91	4.11	4.79	4.71	2.10	3.90
MSCI ACW ex US-IMI		0.51	3.74	4.61	5.57	3.53	2.46	3.57	4.60	2.34	4.30
Excess		-0.53	-0.72	0.02	-0.74	1.38	1.65	1.22	0.11	-0.24	-0.40
Baillie Gifford	216,067,879	-0.56	4.43	6.16	6.17	9.98	5.53	--	--	--	7.34
MSCI ACWI ex US Growth		-0.34	4.09	4.89	4.47	6.04	4.26	--	--	--	5.05
Excess		-0.21	0.34	1.28	1.71	3.94	1.27	--	--	--	2.29
Blackrock EAFE Index Fund	130,807,226	0.07	1.66	0.81	5.15	0.24	--	--	--	--	-1.70
MSCI EAFE ND		0.07	1.61	0.49	5.14	-0.12	--	--	--	--	-1.99
Excess		0.00	0.04	0.32	0.01	0.36	--	--	--	--	0.28
Mondrian Investment Partners	208,621,000	0.56	2.80	5.59	3.49	2.40	3.27	4.27	4.58	2.33	4.96
MSCI ACWI ex US Value		1.68	4.11	5.01	6.89	0.75	0.67	2.85	3.26	1.54	4.36
Excess		-1.12	-1.30	0.57	-3.40	1.64	2.60	1.42	1.32	0.79	0.60
FIAM Intl Small Cap	72,186,123	-0.29	2.04	4.77	4.23	7.03	5.15	--	--	--	5.71
MSCI ACWI Small Cap ex US Net		-0.24	2.22	5.10	5.31	7.49	5.35	--	--	--	5.84
Excess		-0.05	-0.19	-0.33	-1.08	-0.46	-0.20	--	--	--	-0.13



# San Mateo County Manager Return Summary



August 31, 2016

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Emerging Markets Equity	76,129,048	0.27	8.98	14.99	4.65	9.45	0.32	--	--	--	-0.62
MSCI Emerging Markets ND		2.49	11.94	14.55	7.64	11.83	1.12	--	--	--	-0.87
Excess		-2.22	-2.96	0.45	-2.99	-2.38	-0.79	--	--	--	0.25
EV Parametric EM	76,129,048	0.27	8.98	14.99	4.65	9.57	--	--	--	--	2.42
MSCI Emerging Markets GD		2.52	12.15	14.84	7.74	12.25	--	--	--	--	1.97
Excess		-2.25	-3.17	0.15	-3.09	-2.67	--	--	--	--	0.46
Total Fixed Income	616,794,081	0.98	3.28	6.66	2.03	5.58	4.48	4.65	6.18	5.28	5.68
Samcera Fixed Income Benchmark		0.26	3.06	7.93	1.39	7.24	4.40	3.18	4.42	4.99	5.32
Excess		0.72	0.23	-1.28	0.65	-1.66	0.08	1.47	1.76	0.29	0.37
Total Domestic Fixed Income	515,959,924	0.88	3.58	7.54	2.27	6.23	4.88	4.90	6.33	5.44	5.87
Samcera US Fixed Inc Benchmark		0.31	2.97	7.49	1.49	6.74	4.58	3.49	4.63	5.14	5.53
Excess		0.57	0.60	0.05	0.78	-0.50	0.29	1.40	1.70	0.30	0.34
Total Core Fixed Income	356,605,302	0.39	3.09	6.48	1.58	6.24	5.07	4.29	5.87	5.12	5.68
BC U.S. Aggregate		-0.11	2.32	5.86	0.52	5.97	4.37	3.24	4.27	4.89	5.38
Excess		0.50	0.77	0.62	1.06	0.27	0.69	1.05	1.61	0.23	0.30
FIAM Core Bond	250,144,961	0.14	3.03	7.29	1.15	7.15	5.01	4.02	5.45	5.32	5.26
BC U.S. Aggregate		-0.11	2.32	5.86	0.52	5.97	4.37	3.24	4.27	4.89	4.82
Excess		0.26	0.70	1.43	0.63	1.18	0.63	0.78	1.18	0.44	0.44
Western Total Return	106,460,341	0.97	3.25	4.62	2.61	4.22	--	--	--	--	3.55
BC U.S. Aggregate		-0.11	2.32	5.86	0.52	5.97	--	--	--	--	5.35
Excess		1.08	0.93	-1.24	2.09	-1.75	--	--	--	--	-1.81
Total Opportunistic Credit	159,354,622	2.00	4.67	9.33	3.82	5.79	5.95	9.60	--	--	9.66
BC BA Intermediate HY Index		1.38	4.32	10.77	3.68	8.54	6.16	7.26	--	--	8.16
Excess		0.62	0.35	-1.43	0.14	-2.76	-0.21	2.34	--	--	1.50

# San Mateo County Manager Return Summary



August 31, 2016

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
AG Opportunistic Whole Loan	20,300,918	0.35	0.35	0.38	0.35	0.72	--	--	--	--	-0.14
BC BA Intermediate HY Index		1.38	4.32	10.77	3.68	8.54	--	--	--	--	4.58
Excess		-1.02	-3.97	-10.38	-3.33	-7.83	--	--	--	--	-4.71
Angelo Gordon	29,048,997	2.21	2.21	-1.13	2.21	0.12	7.91	--	--	--	8.27
BC BA Intermediate HY Index		1.38	4.32	10.77	3.68	8.54	6.16	--	--	--	5.46
Excess		0.83	-2.11	-11.89	-1.47	-8.43	1.74	--	--	--	2.81
Beach Point Select Fund	42,468,752	1.66	4.50	10.03	3.74	8.20	--	--	--	--	8.64
BC BA Intermediate HY Index		1.38	4.32	10.77	3.68	8.54	--	--	--	--	5.42
Excess		0.29	0.18	-0.74	0.05	-0.35	--	--	--	--	3.23
Brigade Cap Mngmt	67,535,955	2.65	7.54	18.68	5.86	8.48	3.89	6.45	--	--	6.72
BC BA Intermediate HY Index		1.38	4.32	10.77	3.68	8.54	6.16	7.26	--	--	7.32
Excess		1.27	3.22	7.91	2.18	-0.06	-2.27	-0.81	--	--	-0.60
Total Global Fixed Income	100,834,157	1.46	1.78	2.08	0.83	2.27	2.22	3.12	--	--	3.87
Samcera Global Fixed Benchmark		-0.36	3.36	9.58	0.48	8.96	2.72	1.36	--	--	2.54
Excess		1.82	-1.58	-7.50	0.35	-6.69	-0.50	1.76	--	--	1.34
Franklin Templeton	100,834,157	1.46	1.78	2.08	0.83	2.27	1.76	2.84	--	--	3.63
BC Multiverse Index		-0.36	3.36	9.58	0.48	8.96	2.72	1.36	--	--	2.54
Excess		1.82	-1.58	-7.50	0.35	-6.69	-0.96	1.48	--	--	1.09
Total Risk Parity	284,677,601	-0.34	6.44	15.27	1.63	12.91	8.07	6.26	--	--	6.53
Samcera Risk Parity Benchmark		0.11	3.61	7.28	2.74	9.45	8.90	10.05	--	--	8.58
Excess		-0.45	2.83	7.99	-1.11	3.46	-0.83	-3.79	--	--	-2.05
AQR Global Risk III	129,541,631	-0.26	4.00	10.57	0.88	7.68	4.33	4.04	--	--	4.51
Samcera Risk Parity Benchmark		0.11	3.61	7.28	2.74	9.45	8.90	10.05	--	--	8.58
Excess		-0.36	0.39	3.29	-1.86	-1.77	-4.57	-6.01	--	--	-4.07

# San Mateo County Manager Return Summary



August 31, 2016

Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Panagora	155,135,970	-0.41	8.57	19.50	2.27	17.67	--	--	--	--	8.46
Samcera Risk Parity Benchmark		0.11	3.61	7.28	2.74	9.45	--	--	--	--	5.51
Excess		-0.52	4.96	12.23	-0.48	8.22	--	--	--	--	2.95
Total Alternatives	409,787,541	2.70	3.38	1.54	3.79	2.63	5.26	4.20	-8.70	-7.59	-3.82
Samcera Alternatives Benchmark		0.45	3.50	6.97	3.07	6.61	6.22	8.13	9.32	6.33	7.08
Excess		2.26	-0.12	-5.44	0.72	-3.97	-0.96	-3.93	-18.03	-13.92	-10.91
Total Private Equity	224,505,742	5.00	5.10	5.36	6.43	7.38	15.28	9.53	--	--	-28.03
Samcera PE Benchmark		0.50	5.21	10.14	4.74	14.75	14.97	17.80	--	--	16.51
Excess		4.50	-0.12	-4.78	1.69	-7.37	0.31	-8.27	--	--	-44.54
Total Hedge Fund Composite	185,281,800	0.06	1.38	-2.23	0.76	3.81	7.71	5.51	--	--	4.96
Samcera LIBOR + 4%		0.37	1.10	2.95	0.73	4.36	4.24	4.24	--	--	4.24
Excess		-0.31	0.28	-5.18	0.02	-0.55	3.47	1.27	--	--	0.73
AQR Delta XN	151,543,016	-0.05	2.03	-2.02	0.73	4.43	7.92	5.63	--	--	5.08
Samcera LIBOR + 4%		0.37	1.10	2.95	0.73	4.36	4.24	4.24	--	--	4.24
Excess		-0.42	0.93	-4.97	-0.01	0.06	3.68	1.40	--	--	0.85
Standard Life GARS	33,738,784	0.55	-1.45	-3.19	0.90	--	--	--	--	--	-3.60
Samcera LIBOR + 4%		0.37	1.10	2.95	0.73	--	--	--	--	--	4.01
Excess		0.18	-2.55	-6.14	0.17	--	--	--	--	--	-7.61
Total Inflation Hedge	359,278,185	-0.04	3.13	--	0.49	--	--	--	--	--	5.96
SamCERA Inflation Hedge Index		-0.44	1.04	--	-1.30	--	--	--	--	--	3.03
Excess		0.40	2.08	--	1.79	--	--	--	--	--	2.94
Total TIPS	70,425,039	-0.16	1.81	--	0.49	--	--	--	--	--	1.36
BC US Tips		-0.45	2.50	--	0.41	--	--	--	--	--	2.13
Excess		0.29	-0.69	--	0.08	--	--	--	--	--	-0.77

# San Mateo County Manager Return Summary



August 31, 2016

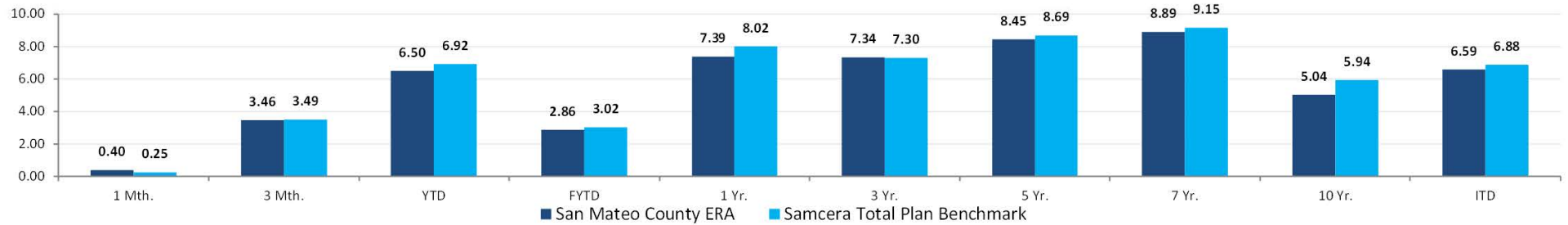
Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Brown Brothers Harriman	70,425,039	-0.16	1.81	4.77	0.49	3.59	1.03	0.95	--	--	2.77
BC US Tips		-0.45	2.50	6.68	0.41	5.37	2.71	1.77	--	--	3.46
Excess		0.29	-0.69	-1.91	0.08	-1.78	-1.67	-0.82	--	--	-0.69
Total Real Estate	245,931,183	0.00	3.48	--	0.07	--	--	--	--	--	4.85
Samcera NCREIF ODCE EW (gross)		0.00	2.18	--	0.00	--	--	--	--	--	2.18
Excess		0.00	1.30	--	0.07	--	--	--	--	--	2.67
Invesco Core Real Estate	236,273,275	0.00	3.53	7.50	0.00	10.60	12.62	11.88	10.46	5.60	7.82
Samcera NCREIF ODCE EW (gross)		0.00	2.18	4.67	0.00	12.19	13.03	12.69	10.57	5.91	7.63
Excess		0.00	1.35	2.83	0.00	-1.59	-0.41	-0.81	-0.11	-0.32	0.19
Invesco US Val IV	9,657,908	0.00	2.04	18.28	2.04	--	--	--	--	--	12.99
Samcera NCREIF ODCE EW (gross)		0.00	2.18	4.67	0.00	--	--	--	--	--	8.26
Excess		0.00	-0.14	13.61	2.04	--	--	--	--	--	4.72
Total Private Real Assets	42,921,962	-0.07	3.06	--	3.13	--	--	--	--	--	18.36
Samcera CPI + 5%		0.00	1.46	--	0.73	--	--	--	--	--	3.15
Excess		-0.07	1.60	--	2.40	--	--	--	--	--	15.21
Total Cash	222,107,158	0.51	0.61	0.75	0.57	0.83	0.61	0.59	0.70	0.99	2.09
Samcera Cash Benchmark		0.02	0.08	0.19	0.05	0.23	0.10	0.09	0.11	0.96	1.92
Excess		0.50	0.52	0.56	0.52	0.60	0.51	0.50	0.59	0.03	0.17
SamCera General Account	194,449,632	0.04	0.13	0.32	0.09	0.38	0.26	0.21	0.24	1.18	2.06
County Treasury Pool	27,106,983	0.00	0.00	0.00	0.00	0.00	0.25	0.45	0.63	0.85	2.77
San Mateo County ERA	3,673,219,217	0.40	3.46	6.50	2.86	7.39	7.34	8.45	8.89	5.04	6.59
Samcera Total Plan Benchmark		0.25	3.49	6.92	3.02	8.02	7.30	8.69	9.15	5.94	6.88
Excess		0.15	-0.03	-0.42	-0.16	-0.63	0.04	-0.24	-0.26	-0.90	-0.29

# San Mateo County Composite Return Summary



August 31, 2016

Return Comparison



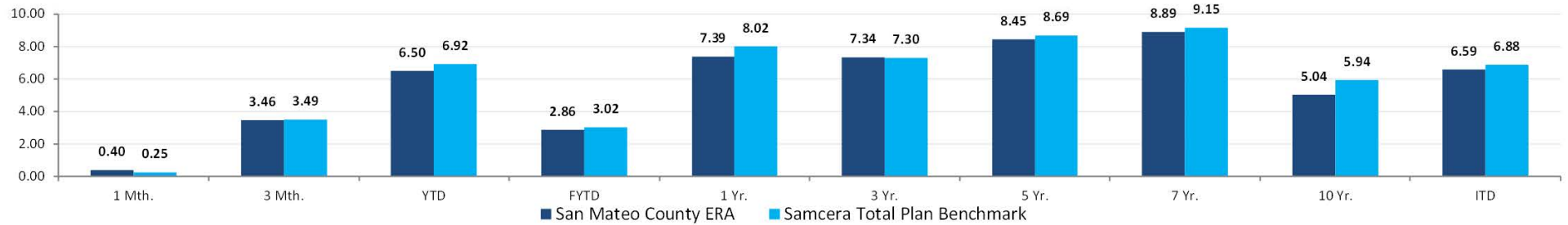
Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County ERA	3,673,219,217	0.40	3.46	6.50	2.86	7.39	7.34	8.45	8.89	5.04	6.59
Samcera Total Plan Benchmark		0.25	3.49	6.92	3.02	8.02	7.30	8.69	9.15	5.94	6.88
Excess		0.15	-0.03	-0.42	-0.16	-0.63	0.04	-0.24	-0.26	-0.90	-0.29
San Mateo Ex-Clifton Overlay	3,653,889,598	0.45	3.52	6.37	3.06	7.25	7.24	8.42	8.83	4.92	6.52
Samcera Total Plan Benchmark		0.25	3.49	6.92	3.02	8.02	7.30	8.69	9.15	5.94	6.88
Excess		0.20	0.03	-0.55	0.03	-0.77	-0.06	-0.28	-0.32	-1.03	-0.37
Total Equity	1,761,245,031	-0.03	3.51	6.08	4.22	7.86	7.90	10.39	10.12	4.65	7.37
Samcera Total Equity Benchmark		0.41	4.56	7.49	4.75	9.61	9.44	11.37	11.19	6.18	7.95
Excess		-0.44	-1.05	-1.41	-0.54	-1.75	-1.54	-0.99	-1.07	-1.53	-0.58
Total Fixed Income	616,794,081	0.98	3.28	6.66	2.03	5.58	4.48	4.65	6.18	5.28	5.68
Samcera Fixed Income Benchmark		0.26	3.06	7.93	1.39	7.24	4.40	3.18	4.42	4.99	5.32
Excess		0.72	0.23	-1.28	0.65	-1.66	0.08	1.47	1.76	0.29	0.37
Total Risk Parity	284,677,601	-0.34	6.44	15.27	1.63	12.91	8.07	6.26	--	--	6.53
Samcera Risk Parity Benchmark		0.11	3.61	7.28	2.74	9.45	8.90	10.05	--	--	8.58
Excess		-0.45	2.83	7.99	-1.11	3.46	-0.83	-3.79	--	--	-2.05

# San Mateo County Composite Return Summary



August 31, 2016

Return Comparison



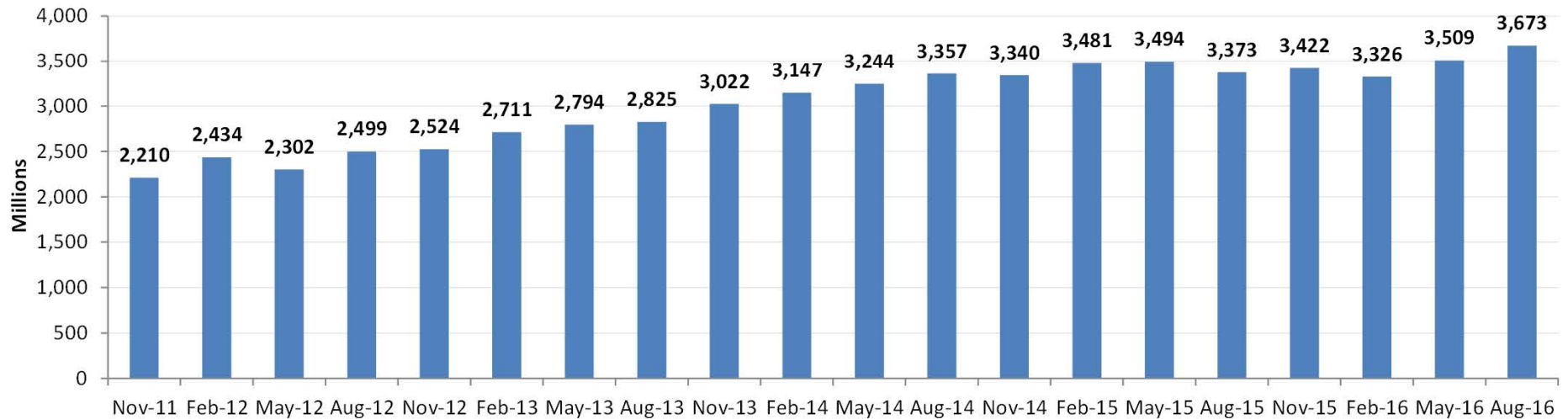
Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Hedge Fund Composite	185,281,800	0.06	1.38	-2.23	0.76	3.81	7.71	5.51	--	--	4.96
Samcera LIBOR + 4%		0.37	1.10	2.95	0.73	4.36	4.24	4.24	--	--	4.24
Excess		-0.31	0.28	-5.18	0.02	-0.55	3.47	1.27	--	--	0.73
Total Private Equity	224,505,742	5.00	5.10	5.36	6.43	7.38	15.28	9.53	--	--	-28.03
Samcera PE Benchmark		0.50	5.21	10.14	4.74	14.75	14.97	17.80	--	--	16.51
Excess		4.50	-0.12	-4.78	1.69	-7.37	0.31	-8.27	--	--	-44.54
Total Private Real Assets	42,921,962	-0.07	3.06	--	3.13	--	--	--	--	--	18.36
Samcera CPI + 5%		0.00	1.46	--	0.73	--	--	--	--	--	3.15
Excess		-0.07	1.60	--	2.40	--	--	--	--	--	15.21
Total Real Estate	245,931,183	0.00	3.48	--	0.07	--	--	--	--	--	4.85
Samcera NCREIF ODCE EW (gross)		0.00	2.18	--	0.00	--	--	--	--	--	2.18
Excess		0.00	1.30	--	0.07	--	--	--	--	--	2.67
Total Cash	222,107,158	0.51	0.61	0.75	0.57	0.83	0.61	0.59	0.70	0.99	2.09
Samcera Cash Benchmark		0.02	0.08	0.19	0.05	0.23	0.10	0.09	0.11	0.96	1.92
Excess		0.50	0.52	0.56	0.52	0.60	0.51	0.50	0.59	0.03	0.17

August 31, 2016

**Record of Asset Growth**

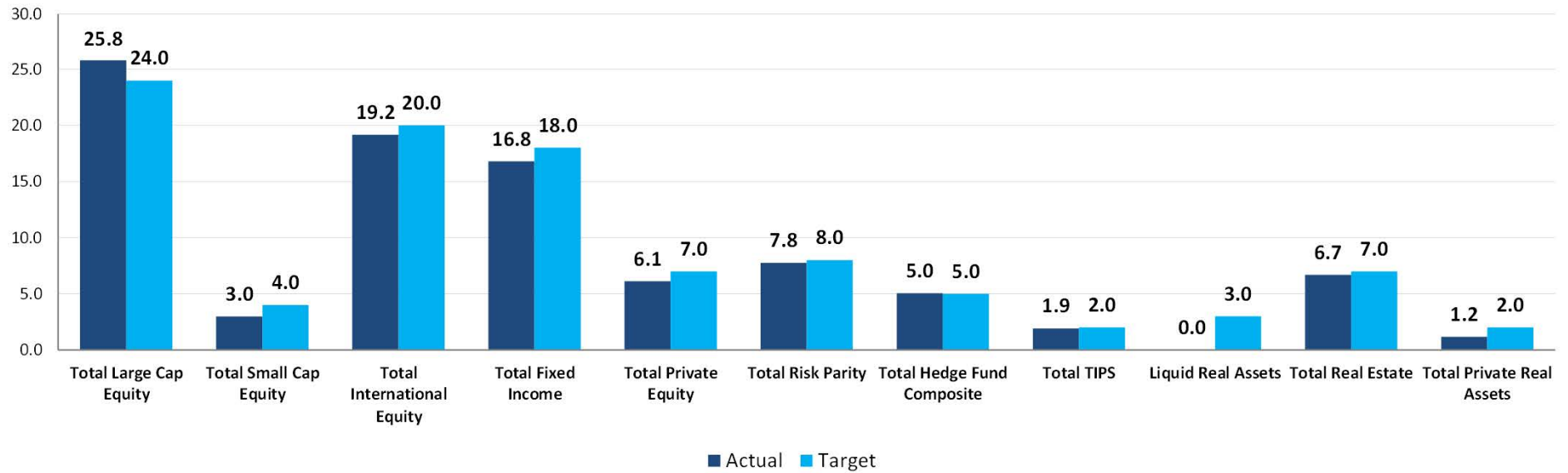
	Three Months	One Year
<b>TOTAL FUND</b>		
Beginning Market Value	3,508,868,020	3,373,496,552
Contributions	200,661,649	342,392,134
Withdrawals	-160,758,946	-301,075,587
Income Received	10,567,460	41,065,781
Gain/Loss	113,913,169	216,220,722
Ending Market Value	3,673,219,217	3,673,219,217

**Net Asset Values Over Time (\$000)**



August 31, 2016

Actual vs Target Weights

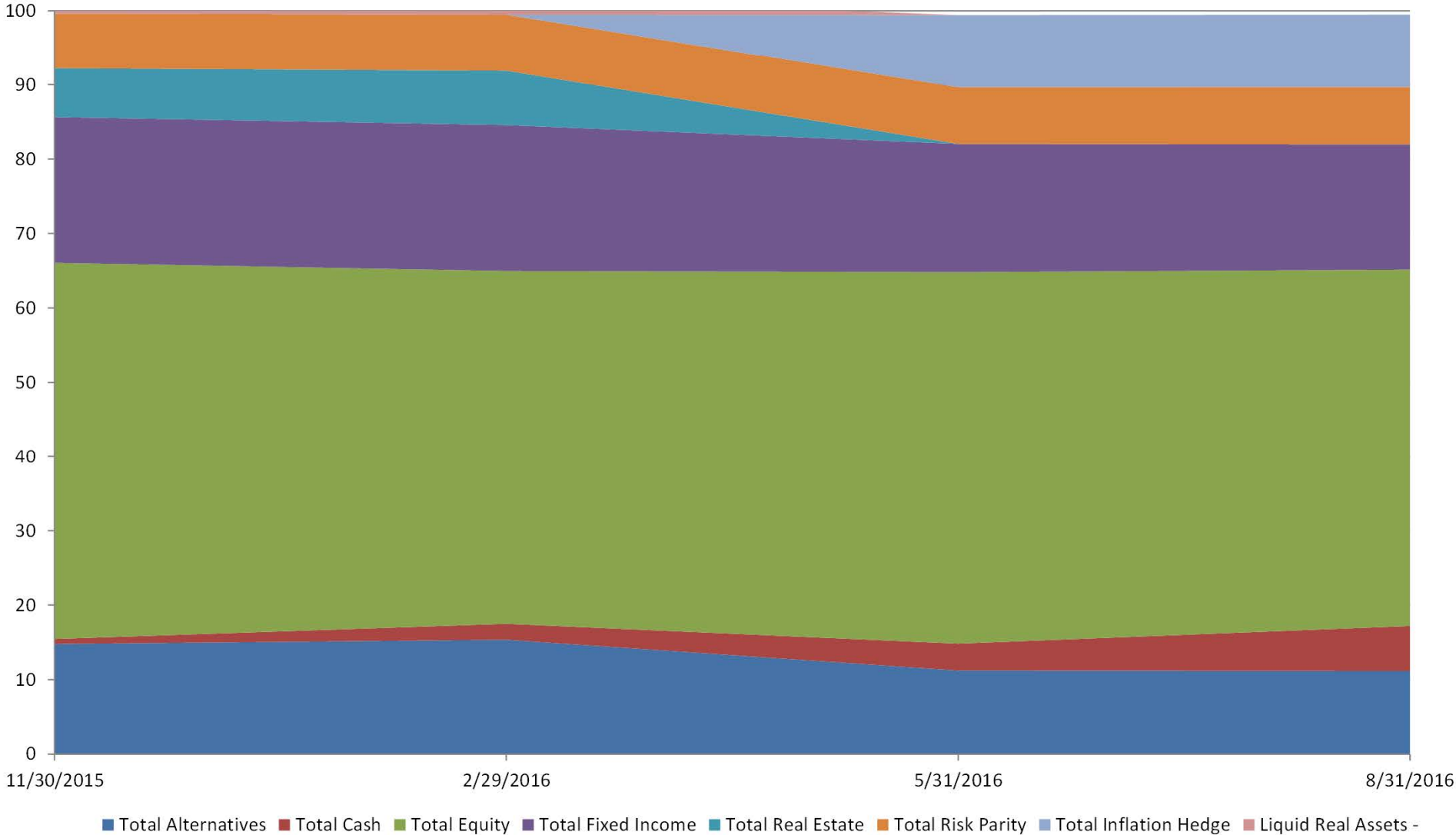


	Min	Actual	Target	Deviation	Max
<b>Total Large Cap Equity</b>	22.0	25.8	24.0	1.8	26.0
<b>Total Small Cap Equity</b>	2.0	3.0	4.0	-1.0	6.0
<b>Total International Equity</b>	18.0	19.2	20.0	-0.8	22.0
<b>Total Fixed Income</b>	16.0	16.8	18.0	-1.2	20.0
<b>Total Private Equity</b>	5.0	6.1	7.0	-0.9	9.0
<b>Total Risk Parity</b>	6.0	7.8	8.0	-0.2	10.0
<b>Total Hedge Fund Composite</b>	3.0	5.0	5.0	0.0	7.0
<b>Total TIPS</b>	0.0	1.9	2.0	-0.1	4.0
<b>Liquid Real Assets</b>	1.0	0.0	3.0	-3.0	5.0
<b>Total Real Estate</b>	5.0	6.7	7.0	-0.3	9.0
<b>Total Private Real Assets</b>	0.0	1.2	2.0	-0.8	4.0

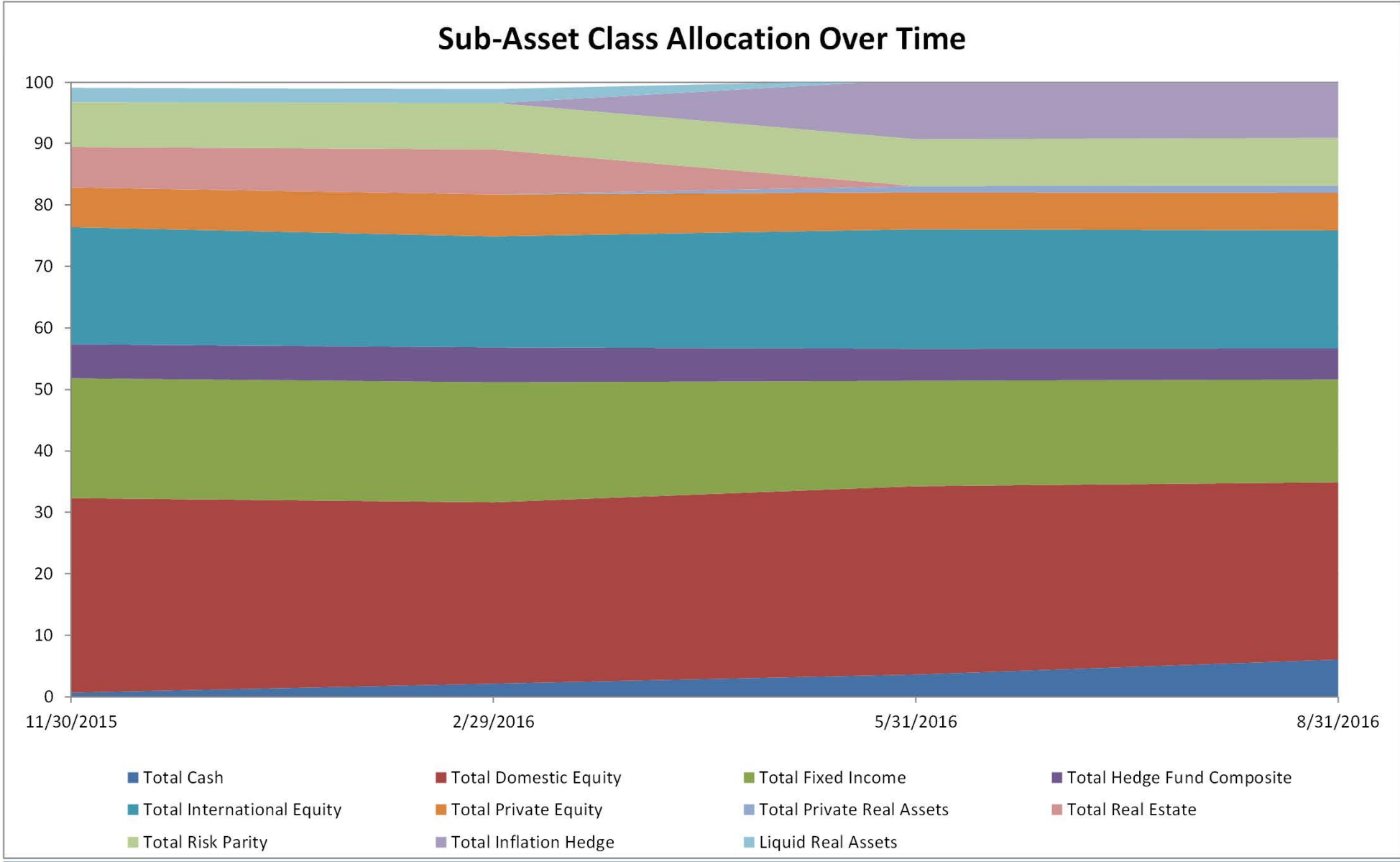


August 31, 2016

Asset Allocation over Time



August 31, 2016




**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

September 27, 2016

Agenda Item 6.2

**TO:** Board of Retirement

**FROM:** Doris Ng, Investment Analyst 

**SUBJECT:** Report on Fixed Income Manager Annual Reviews (Western Asset, Fidelity and Brown Brothers Harriman)

**Staff Recommendation**

Review the reports on the annual review of SamCERA's Core and TIPS managers.

**Background**

The annual reviews occurred over multiple days to accommodate various scheduling conflicts. On August 11<sup>th</sup>, SamCERA staff and consultant held annual review meetings in SamCERA's office for our two Core managers, Western Asset Management and Fidelity Institutional Asset Management. The annual review for our TIPS manager, Brown Brothers Harriman, was conducted on August 25<sup>th</sup>.

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**

On August 11<sup>th</sup>, Western Asset Management's Total Return Unconstrained (TRU) strategy, which is an unconstrained core product with broad latitude in duration (-3 to +8 years) and asset allocation and may hold up to 50% in high yield, was reviewed. Next, Fidelity Institutional Asset Management's Broad Market Duration product, which is a commingled pool that focuses in U.S. Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities, was reviewed. In May 2016, a new portfolio manager joined the Broad Market Duration investment team as part of an internal promotion.

On August 25<sup>th</sup>, Brown Brothers Harriman's Inflation Index Securities strategy was reviewed. BBH uses fundamental, technical and opportunistic strategies when managing the TIPS portfolio.

There were no significant concerns identified during the portfolio reviews. Attached you will find meeting notes from Verus summarizing the findings from these annual reviews.

**Attachments**

- A. Western Asset Management Annual Review Meeting Notes
- B. Fidelity Institutional Asset Management Core Bond Annual Review Meeting Notes
- C. Brown Brothers Harriman Annual Review Meeting Notes

*Date of meeting: 8/25/2016*

*Location: SamCERA Office*

Manager Representative(s)

John Ackler (Senior Vice President)

Verus Representative

Margaret Jadallah

Account Assets

\$70 million (6/30/16)

Client Representative(s)

Mike Coultrip (CIO), Lilibeth Dames (Analyst), Doris Ng (Analyst)

### Product Description

Brown Brothers Harriman (BBH) manages TIPS using three main types of strategies: Fundamental, Technical, and Opportunistic. The Fundamental bucket has two sub-strategies, real yield duration and real yield curve slope versus nominal yield curve slope. The Technical strategies consist of yield curve roll-down, auction cycle trading, seasonal versus non-seasonal CPI, and security selection/option value analysis. Finally, nominal Treasuries versus TIPS, sector relative value (i.e., corporate or Agency inflation-linked bonds), and non-dollar inflation-linked bonds make up the Opportunistic group. Real yield duration is held to +/- one year versus the benchmark and the portfolio has a limited allocation to non-index securities, typically 5%–10% with a maximum of 20% (including nominal Treasuries). The typical TIPS portfolio contains 10-20 securities and has turnover of 100-200%.

In the second half of 2013, SamCERA implemented a duration hedge in the BBH TIPS portfolio whereby BBH shorts US Treasury futures so that the portfolio maintains a portfolio duration consistent with the Barclay's Aggregate Index.

### Meeting Notes

#### Organization

Effective January 1, 2016, BBH general partner JP Paquin was named Head of BBH Investment Management replacing BBH general partner Rick Witmer. Witmer had turned 65, and BBH maintains a policy where 65-year olds must give up management responsibility. Similarly, William Tyree succeeded Douglas Donohue as Managing Partner of the firm effective January 1 for the same reason. Both new heads are veterans of BBH with 20 years and 30 years with the firm, respectively

There were no changes to the TIPS team since SamCERA's last review.

Over the past year, BBH has had about \$1 billion of outflows, largely from the firm's value equity product and mainly from that strategy's retail mutual fund vehicle. Total firm assets were \$58.6 billion at June 30, 2016, and assets specific to investment management are \$40 billion. BBH started a new structured product last year to take advantage of banks' reduction in subprime lending and lending in general.

TIPS assets are about the same compared to last year (at \$4.1 billion as of 6/30/2016). It has been difficult to grow the TIPS strategy since the current market environment, with its low inflation, has not rewarded TIPS securities for several years. There have, however, been some new potential TIPS discussions on the 401k side.

## Investment Team

BBH has a small but seasoned team managing its TIPS strategy. The team is comprised of four investment professionals, all of whom are located in the firm's New York office. The team is led by James Evans, CFA, who has been managing the strategy since its inception. As a portfolio manager, Evans is 100% focused on the TIPS strategy. Gregory Steier, managing director and Evan's manager, spends some of his time on the TIPS strategy. Steier helped build several of the TIPS models utilized by Evans and team. Jorge Aseff, PhD is the head of quantitative research across various fixed income products, including TIPS. Douglas Mark is the primary trader for TIPS strategy although he also trades government securities for other BBH fixed income products.

Jim Evans is 58 years old and remains fully engaged in BBH. Should Evans leave the firm, Greg Steier would step into the lead PM role.

## Investment Strategy

Unlike some other managers who overlay credit and other securities in their TIPS products, BBH's TIPS strategy is exclusively invested in inflation-linked securities and government bonds. Their investment process is focused on three strategy categories: fundamental, non-directional, and opportunistic. The fundamental strategy is more macro focused, using economic factors to check if real rates match up with status of economy. Due to a lower batting average in this strategy, BBH only takes small active risks. By comparison, the manager's non-directional strategies tend to get more of the active risk budget due to a higher batting average (e.g., auction cycle trading, seasonal pattern, deflation floor, index extension, etc.). The manager's opportunistic strategies include periodically purchasing nominal US Treasuries if their breakeven rate is attractive or non-US sovereign currency-hedged inflation protected securities if they offer strong relative value.

John Ackler described a difficult environment for the TIPS market since SamCERA's last review and in recent years. Inflation is unusually low. Negative interest rates outside of the US and overall Central Bank "disruption" of the markets have hurt TIPS. The severe drop in energy prices have had a direct negative impact on CPI and an indirect impact on (low) inflation through low gas prices at the pump. The end of QE and US rate normalization would be advantageous to their strategy.

US TIPS have a deflation floor and mature at par. Japan TIPS do not have a deflation floor and can mature at less than par. In general, BBH has not found opportunities outside the US recently. BBH has added value through taking advantage of trading opportunities that arise from inefficiencies since there are so many passive investors in the TIPS markets. With proprietary desks exiting TIPS and Treasury trading, tried and true TIPS trading strategies are good sources of alpha in the portfolio. One such strategy is to trade ahead of month-end index changes to add incremental value.

## Performance & Positioning

As of June 30, 2016, BBH's 12-month return underperformed the Barclays US TIPS Index by 2.14%. The TIPS portfolio minus the duration hedge outperformed slightly by 35 bps, but the hedge detracted both through lowering duration and because nominal Treasuries outperformed TIPS, especially recently (the hedge is implemented by shorting US Treasuries). BBH holds that nominal Treasuries are overvalued whereas TIPS are undervalued. Since inception (as of 8/1/2010), BBH is behind the benchmark by 46 bps. Similarly, since inception the majority of underlying strategies added value but the futures overlay detracted. Compared to the TIPS peer group, the BBH US TIPS composite (without

hedging) has performed in the top quartile over most annualized periods.

**Other Considerations**

Mike Coultrip explained to John Ackler that SamCERA is reviewing the TIPS mandate in conjunction with the asset-liability study that the Fund is conducting and the incorporation of a broader inflation pool into the SamCERA portfolio. John Ackler stated that multiple clients are having similar conversations with him regarding the role of TIPS in their portfolio. Ackler stressed that TIPS offers liquidity and are more attractive than nominal Treasuries. Also, TIPS protect against unanticipated inflations (which should matter at some point). There was consensus by all parties that it would be unwise to unwind the hedge at this juncture.

*Date of meeting: 8/11/2016*

*Location: SamCERA Office*

Manager Representative(s)

Beau Coash (Portfolio Manager)  
Arthur Greenwood (Relationship Manager)

Verus Representative(s)

Ping Zhu

Account Assets

\$247 million (6/30/16)

Client Representative(s)

Mike Coultrip (CIO), Doris Ng (Analyst)

## Product Description

Fidelity's Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in U.S. Treasuries, agencies, investment grade corporate bonds, mortgage-backed, and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all U.S. dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Fidelity uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 1.00 - 1.50% per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

## Meeting Notes

### Organization

Pyramis was recently rebranded as "Fidelity Institutional Asset Management" (FIAM). Jeff Lagarce was promoted twice to become President of Fidelity Institutional, overseeing the entire institution business for Fidelity. Scott Gouto, formerly head of FIAM Distribution, assumed the role of president of FIAM.

### Investment Team

There was one departure in the Broad Market Duration portfolio management team in 2015. Pramod Atluri, co-Portfolio Manager, resigned in July 2015 to join Capital One. Pramod was one of portfolio managers on several separate accounts and Fidelity mutual funds. He was replaced by a credit research analyst named Celso Munoz, who was promoted to portfolio manager.

Additionally, Philip Sun, former quantitative analyst on the team, moved on to another firm as portfolio manager. Meanwhile, Chris Pariseault joined the team as head of research, replacing David Hamlin who is about to retire.

### Investment Strategy

Fidelity' Broad Market Duration uses bottom-up issuer and sector selections as its primary sources of alpha. Because

Fidelity recognizes that macroeconomic forces have often overwhelmed underlying fundamentals for extended period of time, the BMD team incorporates inputs from both global macro and quantitative analyst teams to guide every decision. Risk management is also a priority and serves as the framework in managing this strategy.

The BMD portfolio continues to have overweight in corporate bonds given the team's favorable views on credits versus Treasuries. Beau listed a few reasons for recent strong credit performance: some credits have been repaired due to recovering oil price. Additionally, there are a number of companies engaging in bondholder friendly activities, such as buying back bonds. On the flip side, the team stays away from M&A and other equity friendly sectors within the fixed income market. The SamCERA portfolio remains low in its Treasury allocation (9.66% as of 6/30/2016). The portfolio also has around 6% tactical position in TIPS in order to take advantage of attractive breakeven rate, but the TIPS positions detracted from performance on a year-to-date basis.

Most of the portfolio's overweight in corporate bonds come from the financial sector (over 15% overweight as of 6/30). Within the financial exposures, Fidelity holds a number of diversified REIT positions, but their exposure to the troubled retail space is limited. The portfolio no longer has exposure to 30-year corporates because the team doesn't like the risk-return tradeoff in current environment. Beau recalled that high yield bonds were traded at very attractive prices back in February. While many have since rallied in price, Beau said there are still plenty of opportunities if investors pick the right credit names.

The portfolio has overweight in CMBS, concentrating on high quality super senior tranches. Its CMBS holdings are mostly legacy 1.0 CMBS with 1-2 years remaining life, so these positions will go away over time. Beau said the team is unlikely to replace its existing CMBS holdings with CMBS 2.0 issues until those issues become cheaper.

The portfolio's MBS allocation is in line with benchmark. Fidelity's analysts have stayed away from certain originators such as Quicken and Flagstar, due to concern about quicker pay downs. That view has helped their sector performance over time.

In terms of outlook, Fidelity is in the "lower for longer" camp. Beau said gradual rate move won't cause fixed income return to become negative. That said, he expects fixed income return to remain low given current low yield environment.

### **Performance & Positioning**

As of June 30, 2016, SamCERA BMD account's trailing 12-month gross return outperformed the Barclays U.S. Aggregate benchmark by 27bps, largely driven by strong year-to-date performance, which outperformed the benchmark by 83bps. Such outperformance shouldn't come as a surprise given the strategy's overweight in corporate bonds that performed well this year. The portfolio's overweight in EM debt also helped performance. Additionally, the team concentrated its Treasury holdings at the barbell of the curve to take advantage of the cheapening of the long end of the curve, as well as the attractive roll-down at the front-end of the curve. Such a barbelled position contributed positively to year-to-date performance.

Main detractors to year-to-date performance include the strategy's underweight to Treasuries, and its overweight to TIPS.

Portfolio duration is 5.37 years, which is in line with the benchmark. The portfolio has underweight in AAA and AA securities, and overweight in A and BBB due to better valuation.

As of June 30, 2016, Fidelity BMD out-yields its benchmark by 78 basis points on a yield-to-worst basis.



*Date of meeting: 8/11/2016*

*Location: SamCERA Office*

Manager Representative(s)

Julien Scholnick (Portfolio Manager)  
Frances Coombes (Client Service)

Verus Representative(s)

Ping Zhu

Account Assets

\$103.8 million (6/30/16)

Client Representative(s)

Mike Coultrip, Doris Ng

## Product Description

Western Asset's Total Return Unconstrained (TRU) strategy seeks to provide bond-like risk and return over the long term, but does not have a benchmark. This allows for asset allocation based on value rather than on the construction of a benchmark. The investment approach is active with very broad latitude on duration (-3 to +8 years) and on asset allocation across all of the eligible sectors in an unconstrained core mandate without having to adhere to the benchmark construction. The portfolio must have at least 50% of its holdings in investment-grade securities. This strategy can be appropriate in all market environments, but may be particularly attractive in rising rate environment, as the flexibility offered by this strategy allows for defensive positioning and opportunistic deployment of capital when value opportunities arise. It also allows the portfolio managers to emphasize (or deemphasize) either credit or rates when one or the other appears to offer greater (or lesser) value.

Western Asset uses a team approach to portfolio management with duration, term structure, and sector allocation decisions developed by the Investment Strategy Group. The Research Group employs these determinations as they look for issues and issuers that are appropriate for the firm's eligible universe. Factors such as relative credit strength, liquidity, issue structure, event risk, covenant protection, and market valuation are central to its inquiries. Throughout this process, the Portfolio Management Group provides both teams with a picture of key capital markets. The Portfolio Management Group is also responsible for portfolio structuring and implementation.

## Meeting Notes

### Organization

Western Asset has made further progress in developing its proprietary risk management system, known as the Western Asset Information System for Estimating Risk (WISER). Currently, SamCERA's portfolio is run daily by WISER. Western's goal is to move all portfolios to WISER for daily runs.

Firm's total AUM is about \$460 billion now. No major change within the firm's organization.

### Investment Team

In June 2016, Christopher Orndorff, Portfolio Manager on the multi-sector portfolios, resigned from Western Asset to join Paul Allen's Vulcan Capital as Chief Investment Officer. Since joining Western Asset in 2010, Mr. Orndorff had been a contributing member of the investment team responsible for unconstrained portfolios and a member of the Firm's US Broad Strategy Committee. Due to Western Asset's team-oriented approach, Western believes Mr. Orndorff's departure will not materially impact its investment process.

## Investment Strategy

As of 6/30/2016, the TRU portfolio posted 1.98% year-to-date return. The portfolio's large exposure to banks hurt performance. In addition, their CMBS exposure detracted from performance. On the positive side, the portfolio's non-agency MBS positions generated positive returns. While that market segment has shrunk in size to less than \$650 billion, Western is still able to find opportunities in relative value trades, where they buy securities at discount and wait for price appreciation.

The portfolio's non-USD positions are mostly short yen and short euro, as the team tries to take advantage of central banks moving in different directions. Julien admitted their currency positions have been a challenge to recent performance, especially their short yen positions. Although the Japanese Central Bank has been easing its monetary policy, it couldn't generate desired inflation, causing Japan's real rate to rise, which supports its currency. That said, the TRU portfolio has largely stuck to its short yen position at this point. For euro, the team has moved more into the option market (buying cheap puts to take advantage of the relatively low volatility priced by the option market). As a result, their euro short positions have limited downside.

The biggest driver of year-to-date performance is duration, which generated over 1.8% as of 6/30/2016. It is worth noting that Western has moved around its portfolio duration this year, within the range of 0 - 4 years.

When asked about liquidity, Julien said liquidity in the TRU portfolio is relatively good, as evidenced by their relative ease to trim IG and High Yield positions recently. Julien said the team has been taking risk off the table, while maintaining the overall yield advantage of the TRU portfolio compared with the Barclays aggregate benchmark. While the portfolio was overweight in high yield versus bank loans in the past, the team is now starting to overweight bank loans given similar spread levels. The team is also attracted to the energy sector within bank loans because that sector hasn't recovered as much compared with their high yield counterpart.

The TRU portfolio has over 15% exposure to emerging market debt, which generated positive returns for this year. Brazil has been their best performing EMD region on a year-to-date basis. Western continues to like developments in Brazil, and feels positive about other countries such as Argentina, where its new administration was able to resolve the country's legacy bond problems.

In terms of outlook, Western believes global recovery remains intact; U.S. and global inflation remain subdued; and spread sectors continue to offer attractive returns.

## Performance & Positioning

SamCERA transitioned to the TRU strategy in August 2015. Through June 30, 2016, the portfolio has returned 1.25%. The main detractor in the 3rd and 4th quarters of 2015 was the broad-based weakness in credit markets. Coming to 2016, investor sentiment shifted dramatically during the 1st quarter, with steep market selloff followed by sharp reversals. As a result, 2016 witnessed strong performance in certain spread sectors, including corporate credit and emerging market debt. The portfolio's positive duration also worked well as rates fell across the curve. Western's structured product exposure was a detractor because spreads on non-agency RMBS, CMBS and ABS all widened, especially for their below investment grade exposures. Non-US dollar developed exposure also detracted from performance.

The portfolio has a yield of over 5%, and a total duration of one year.

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

September 27, 2016

Agenda Item 6.3

**TO:** Board of Retirement

**FROM:** Doris Ng, Investment Analyst 

**SUBJECT:** Report on Opportunistic Credit Manager Annual Reviews (Beach Point and Angelo Gordon)

**Staff Recommendation**

Review the report on the annual review of SamCERA's Opportunistic Credit managers.

**Background**

The Opportunistic Credit annual manager reviews occurred over multiple days to accommodate various scheduling conflicts. On September 1<sup>st</sup>, SamCERA staff and consultant held annual review meetings in SamCERA's office for two of our Opportunistic Credit managers (Angelo Gordon and Beach Point). Brigade Capital Management's annual review meeting was conducted on September 7<sup>th</sup> and the related meeting notes and update will be provided at October's Board meeting.

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**

On September 1<sup>st</sup>, Beach Point's Select Fund strategy, which focuses on mid-market, off-the-run, complex and less-liquid securities, was reviewed. The strategy invests across the capital structure in distressed/opportunistic securities, event-driven bonds, bank debt and credit-informed equities with a North American and European focus.

Next, Angelo Gordon's Securitized Asset Recovery (STAR) and Opportunistic Whole Loan (OWL) strategies were reviewed. STAR focuses on non-agency RMBS and CMBS, while OWL focuses on re-performing and non-performing whole loans. In March 2016, the president of Angelo Gordon, a newly created role, left the firm. There's no impact to investments as the role's responsibilities were primarily marketing and strategic planning. The OWL fund has experienced some recent challenges, which will be further discussed with the manager and monitored going forward.

Attached are meeting notes from Verus summarizing the findings from these annual reviews.

**Attachments**

- A. Angelo Gordon Securitized Asset Recovery Fund and Opportunistic Whole Loan Fund Annual Review Meeting Notes (confidential)
- B. Beach Point Select Fund Annual Review Meeting Notes (confidential)

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

September 27, 2016

Agenda Item 6.4

**TO:** Board of Retirement

**FROM:** Lilibeth Dames, Investment Analyst

**SUBJECT:** Report on SamCERA's Securities Lending Program

**Staff Recommendation**

Review the report on SamCERA's Securities Lending Program.

**Background**

SamCERA commenced its securities lending program on July 1, 2007. The program was implemented by SamCERA's then custodian, State Street Bank & Trust. Effective July 1, 2014, SamCERA switched custodial banks from State Street Bank & Trust to The Northern Trust Company.

SamCERA's current collateral reinvestment pool with Northern Trust is the NILAP Cash Collateral Fund, which, at the time of the transition, closely resembled SamCERA's reinvestment vehicle with State Street. The NILAP fund has recently undergone changes as a result of regulatory amendments adopted by the U.S. Securities and Exchange Commission (SEC) to the rules that govern money market funds.

**Discussion**

SamCERA's securities lending program continues to add incremental income for the Plan. In the nine years since inception, the program has earned \$6.9 million for SamCERA as of fiscal year end 2016. During the fiscal year, the program earned \$277,780, a 10% decrease compared to last fiscal year's earnings of \$309,645. Utilization (On-loan amount divided by lendable assets) increased year over year (13.9% vs 7.4%). However, earnings have been negatively impacted by lower spreads which is a reflection of demand and the increase in the amount of rebates paid to lenders in the current interest rate environment.

As of September 1<sup>st</sup>, SamCERA's reinvestment pool, the NILAP fund, converted from a money market fund to a government money market fund. As a result of the conversion, the NILAP is now required to invest a minimum of 99.5% of assets in cash, government securities and/or government repo. Staff will be present to discuss the changes to the NILAP reinvestment pool and how it was impacted by money market reform rules instituted by the SEC.

**Attachment**

Securities Lending Report for Fiscal Year 2016

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

## SamCERA Securities Lending Report

*For the fiscal year ending June 30, 2016*

Securities are loaned versus collateral that may include cash, U.S. government securities and irrevocable letters of credit. U.S. securities are loaned versus collateral valued at 102% of the market value of the securities plus any accrued interest. Non-U.S. securities are loaned versus collateral valued at 105% of the market value of the securities plus any accrued interest.

Non-cash collateral cannot be pledged or sold unless the borrower defaults.

All securities loans can be terminated on demand by either the lender or the borrower, although the average term of SamCERA's loans was approximately 42 days as of June 30, 2016.

Cash open collateral is invested in a short term investment pool, the NILAP fund, which had an interest sensitivity of 34 days as of June 30, 2016.

There were no violations of legal or contractual provisions, no borrower or lending agent default losses known to SamCERA's custodian, the Northern Trust.

## EARNINGS

SamCERA's securities lending program earned \$277,780 for the fiscal year ending June 30, 2016. This is a 10% decrease over last year's fiscal year earnings of \$309,645. As of June 30, 2016, the program has earned \$6.9 million since its inception on July 1, 2007.

### Earnings History

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San Mateo County Employees' Retirement Association

	US Corp Bond & Equity	US Government	Non-US Equity & Fixed	Total	Cumulative Earnings
FY 2008	\$ 762,882	\$ 342,325	\$ 513,648	\$ 1,618,855	\$ 1,618,855
FY 2009	\$ 764,480	\$ 317,263	\$ 549,531	\$ 1,631,274	\$ 3,250,129
FY 2010	\$ 489,982	\$ 51,009	\$ 201,945	\$ 742,936	\$ 3,993,065
FY 2011	\$ 311,009	\$ 23,915	\$ 195,387	\$ 530,311	\$ 4,523,376
FY 2012	\$ 489,375	\$ 10,926	\$ 220,918	\$ 721,219	\$ 5,244,595
FY 2013	\$ 398,363	\$ 8,087	\$ 215,443	\$ 621,893	\$ 5,866,488
FY 2014	\$ 295,063	\$ 6,277	\$ 134,118	\$ 435,458	\$ 6,301,946
FY 2015	\$ 215,458	\$ 2,989	\$ 91,199	\$ 309,645	\$ 6,611,591
FY 2016	\$ 190,240	\$ 1,347	\$ 86,171	\$ 277,758	\$ 6,889,349

FY 2015-2016 earnings were impacted by the increase in the federal funds rate during the year and lower spreads as a reflection of demand. Changing demand for SamCERA's top equity securities also negatively impacted earnings year over year. Other asset classes which had

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

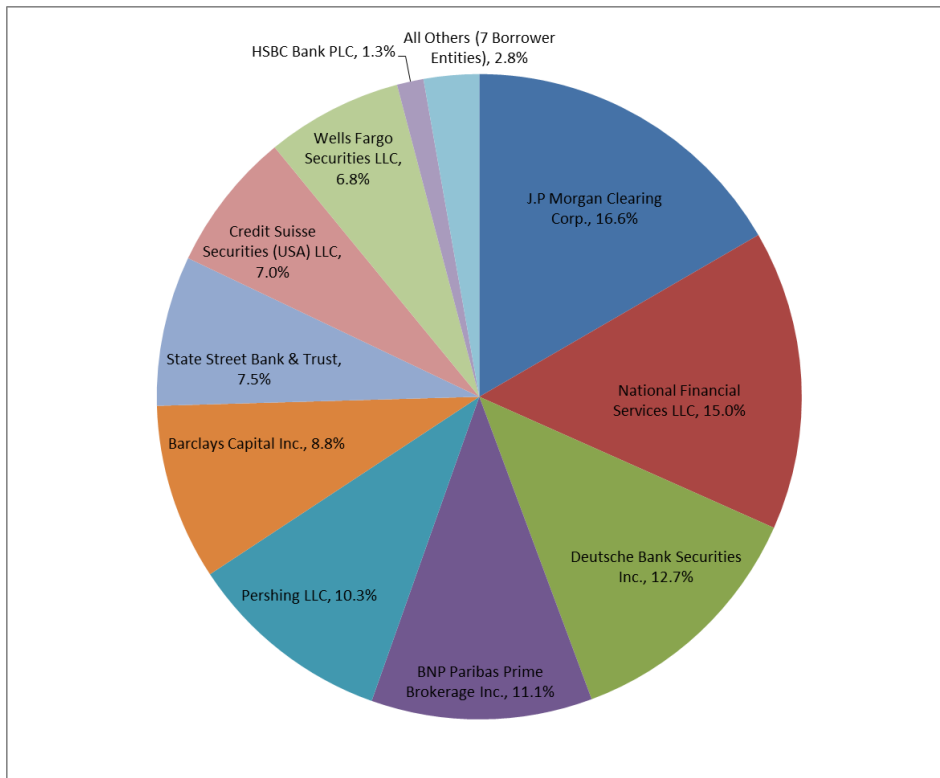
**Board of Retirement**

declined earnings were US Corporate Bonds and Global Fixed Income which was primarily driven by fewer securities available and thus lower volumes on loan.

**BORROWER EXPOSURE**

**San Mateo County Employees' Retirement Association**

<b>Borrower</b>	<b>Loan Balance (\$)</b>	<b>% of Total</b>
National Financial Services LLC	\$ 16,505,579	18.5%
J.P. Morgan Clearing Corp.	\$ 14,011,367	15.7%
BNP Paribas Prime Brokerage International	\$ 11,928,586	13.4%
Wells Fargo Securities LLC	\$ 11,259,976	12.6%
State Street Bank & Trust	\$ 10,549,397	11.8%
Pershing LLC	\$ 7,725,475	8.7%
Societe Generale	\$ 5,052,931	5.7%
First Clearing LLC	\$ 4,517,700	5.1%
BMO Capital Markets Corp.	\$ 2,248,197	2.5%
BNP Paribas Prime Brokerage Inc.	\$ 1,579,994	1.8%
All Others (5 Borrower Entities)	\$ 3,738,463	4.2%
<b>Total</b>	<b>\$ 89,117,665</b>	



SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

## **CHANGES TO SAMCERA'S COLLATERAL REINVESTMENT POOL**

### Money Market Reform

The Securities Exchange Commission adopted a new set of rule amendments in order to address certain risks of financial instability that could potentially be caused by money market funds. Two significant changes are the (1) establishment of liquidity fees and redemption gates during times of extreme volatility and (2) the move from a stable \$1.00 per share to a floating Net Asset Value (NAV) for institutional money market funds. Compliance of these rules is required by mid-October 2016.

As a result of these new regulatory rules, SamCERA's reinvestment pool, the NILAP fund, recently converted to a governmental money market fund. U.S. government money market funds are allowed to retain the stable \$1.00 per share NAV and are exempt from the new liquidity elements. In order to be considered a government fund, a fund is required to invest at least 99.5% of its total assets in cash, government securities, and/or repurchase agreements that are collateralized solely by government securities or cash.

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

September 27, 2016

Agenda Item 6.5

**TO:** Board of Retirement

**FROM:** Michael Coultrip, Chief Investment Officer

**SUBJECT:** Report on Asset-Liability Study: Asset Allocation Mixes (Continued)

**Staff Recommendation**

Provide direction to staff and consultant regarding preferred asset allocation mixes.

**Background**

During the April Board retreat, Verus provided a session on our upcoming asset-liability study. They introduced the topic and provided an overview of the asset-liability process. In May, Verus sent an enterprise risk tolerance survey to the Board and shared the results with the Board during the June meeting.

In July, Verus presented a range of asset allocation portfolios, and the Board provided feedback in terms of preferred risk tolerance levels and return/risk tradeoffs. The general consensus developed during the meeting was to focus on the risk profile range between that of the 50/20/20 and 40/25/25 portfolios.

**Discussion**

This month Verus will present a refined range of asset allocation portfolios consistent with the risk parameters specified in July, and show the potential impact of inflation on the asset mixes.

Margaret Jadallah and Stephen Quirk from Verus will present this topic.

**Attachment**

Verus Asset–Liability Study Exhibits





# PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



SEPTEMBER 2016

Asset / Liability Study

**San Mateo County Employees' Retirement Association**

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# I. Introduction

# Session objectives

- Refine asset mixes
- Study impact of inflation on asset mixes
- Decide on a new asset allocation

# Summary Findings

- All refined asset mixes shown provide adequate risk and returns for the portfolio
  - Expected returns and risks in narrow range
  - Includes options with lower Growth weightings (42/15/35 and 40/25/25)
  - Includes option with lower standard deviation (40/25/25)
  - Includes option with higher inflation weighting (42/15/35)
- All alternative mixes will lower equity exposure and risk in the portfolio compared to the current policy
- Rising inflation will increase liabilities, employer contributions and take longer to achieve 100% funded status
- Stagflation increases forecasted nominal returns, while decreasing real returns
- Stagflation allocations to the inflation category provides slightly better forecasted returns in high inflation environments

# II. Stochastic Projections

# Capital Market Assumption Process

- **Asset Returns:**

- Strategic Purpose - Horizon = 2 to 3 Market Cycles
- Based on Capital Asset Pricing Model (CAPM)
  - Investor Must Be Compensated for Taking Higher Risk
- Economic Growth Forecasts
- Stay Within Long-Term Real Return Corridors, Combined with Mean Reversion
- Qualitative Overlay
  - Expectations Must Produce Reasonable Portfolios and a “Stable Frontier”
- Data Sources/Return
  - Complete Monthly Return History
  - Blue Chip Economic Forecast (Inflation, GDP Growth Estimates)
  - Wall Street Forecasts
  - Global Manager Forecasts
  - CAPM (For “Difficult” Asset Classes)

- **Asset Risks:**

- Fairly Stable (Two Factor Model; Historical 1976 to present, Half-Life 1985 to Present)

- **Correlations**

- Most Stable (90-Month Half-Life, 1985 to Present)

# Return & risk assumptions

Asset Class	Ten Year Return Forecast	Standard
	Deviation Forecast	
	Geometric	
<b>Growth</b>		
US Large Cap	7.0%	16.5%
US Small Cap	7.5%	20.5%
International Stock	7.7%	22.0%
Emerging Market Equity	8.7%	36.0%
Private Equity	9.4%	33.0%
High Yield	5.5%	12.0%
<b>Diversifying</b>		
US Fixed Income	2.7%	5.0%
International Bond	1.0%	10.0%
TIPS	2.7%	5.5%
Bank Loans	4.4%	8.5%
Absolute Return	4.7%	10.0%
<b>Inflation</b>		
Commodities	4.0%	30.0%
Infrastructure	5.5%	21.0%
Natural Resources	7.5%	24.0%
Real Estate	5.6%	17.0%
Risk Parity	5.5%	10.8%

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



# Investment models

	Policy	59-20-13	56-18-18	54-18-20	42/15/35	40/25/25
<b>Asset Class</b>						
<b>Growth</b>	<b>63.0%</b>	<b>59.0%</b>	<b>56.0%</b>	<b>54.0%</b>	<b>42.0%</b>	<b>43.0%</b>
US Equity	28.0%	22.0%	20.0%	18.0%	20.0%	13.0%
International Equity	19.0%	19.0%	18.0%	18.0%	7.0%	13.0%
Private Equity	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Opp. Credit	6.0%	8.0%	8.0%	8.0%	8.0%	7.0%
Global Bond	3.0%	3.0%	3.0%	3.0%	0.0%	3.0%
<b>Diversifying</b>	<b>17.0%</b>	<b>20.0%</b>	<b>18.0%</b>	<b>18.0%</b>	<b>15.0%</b>	<b>22.0%</b>
Core Fixed Income	10.0%	14.0%	12.0%	12.0%	9.0%	15.0%
TIPS	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hedge Fund	5.0%	6.0%	6.0%	6.0%	6.0%	7.0%
<b>Inflation</b>	<b>12.0%</b>	<b>13.0%</b>	<b>18.0%</b>	<b>20.0%</b>	<b>35.0%</b>	<b>25.0%</b>
Core Real Estate	7.0%	8.0%	10.0%	10.0%	15.0%	12.0%
Liquid Pool	3.0%	2.0%	4.0%	6.0%	10.0%	8.0%
Real Assets	2.0%	3.0%	4.0%	4.0%	10.0%	5.0%
<b>Risk Parity</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>10.0%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Breaking out Risk Parity

	Policy	59-20-13	56-18-18	54-18-20	42/15/35	40/25/25
<b>Asset Class</b>						
<b>Growth</b>	<b>66.0%</b>	<b>62.0%</b>	<b>59.0%</b>	<b>57.0%</b>	<b>45.0%</b>	<b>46.0%</b>
US Equity	28.0%	22.0%	20.0%	18.0%	20.0%	13.0%
International Equity	19.0%	19.0%	18.0%	18.0%	7.0%	13.0%
Private Equity	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Opp. Credit	6.0%	8.0%	8.0%	8.0%	8.0%	7.0%
Global Bond	3.0%	3.0%	3.0%	3.0%	0.0%	3.0%
Risk Parity	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
<b>Diversifying</b>	<b>20.0%</b>	<b>23.0%</b>	<b>21.0%</b>	<b>21.0%</b>	<b>18.0%</b>	<b>26.0%</b>
Core Fixed Income	10.0%	14.0%	12.0%	12.0%	9.0%	15.0%
TIPS	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hedge Fund	5.0%	6.0%	6.0%	6.0%	6.0%	7.0%
Risk Parity	3.0%	3.0%	3.0%	3.0%	3.0%	4.0%
<b>Inflation</b>	<b>14.0%</b>	<b>15.0%</b>	<b>20.0%</b>	<b>22.0%</b>	<b>37.0%</b>	<b>28.0%</b>
Core Real Estate	7.0%	8.0%	10.0%	10.0%	15.0%	12.0%
Liquid Pool	3.0%	2.0%	4.0%	6.0%	10.0%	8.0%
Real Assets	2.0%	3.0%	4.0%	4.0%	10.0%	5.0%
Risk Parity	2.0%	2.0%	2.0%	2.0%	2.0%	3.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

# Investment model forecasts

	Policy	59-20-13	56-18-18	54-18-20	42-15-35	40-25-25
<b>Mean Variance Analysis</b>						
<b>Forecast 10 Year Return</b>	7.1%	6.9%	7.0%	7.0%	6.9%	6.8%
Standard Deviation	13.8%	13.3%	13.4	13.5	13.0	12.4
<i>Return/Std. Deviation</i>	0.51	0.52	0.52	0.52	0.52	0.55
Sharpe Ratio	0.46	0.47	0.47	0.47	0.48	0.48

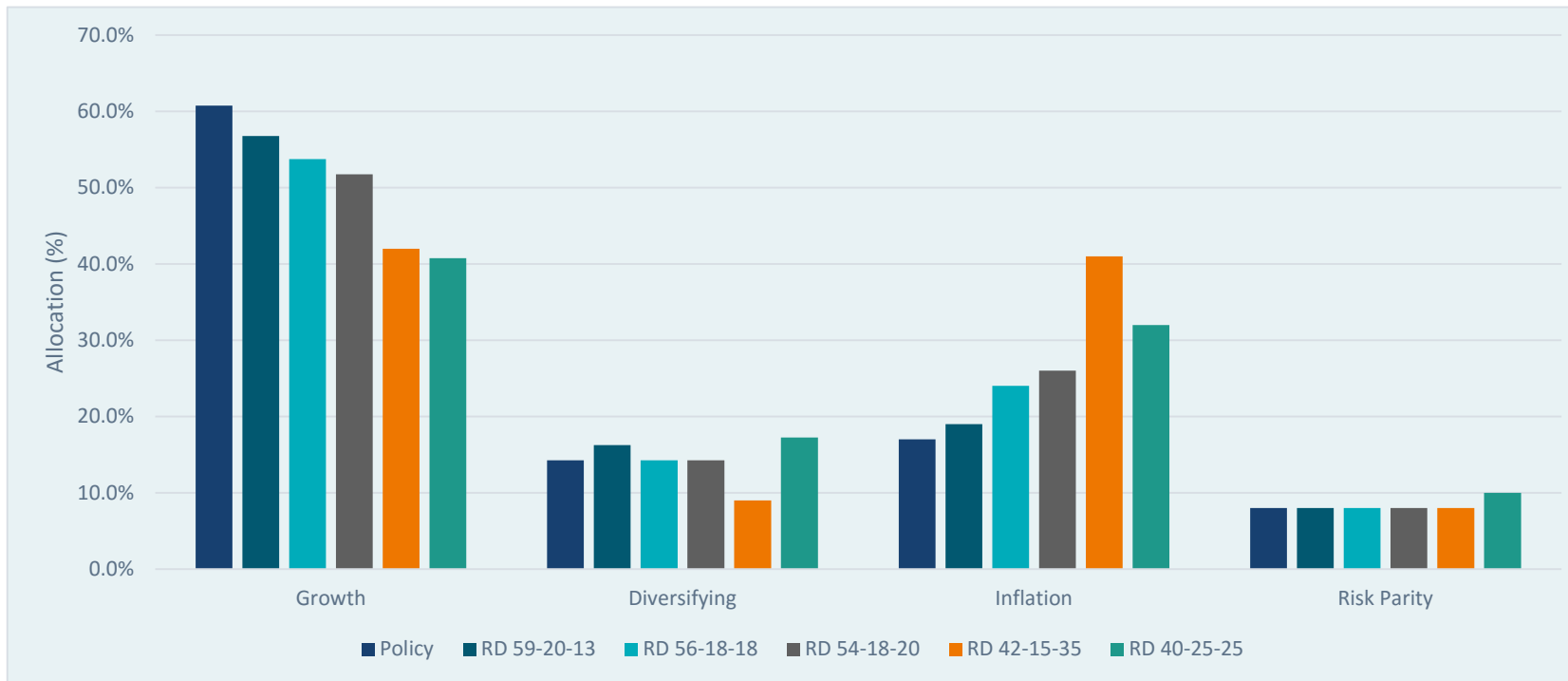
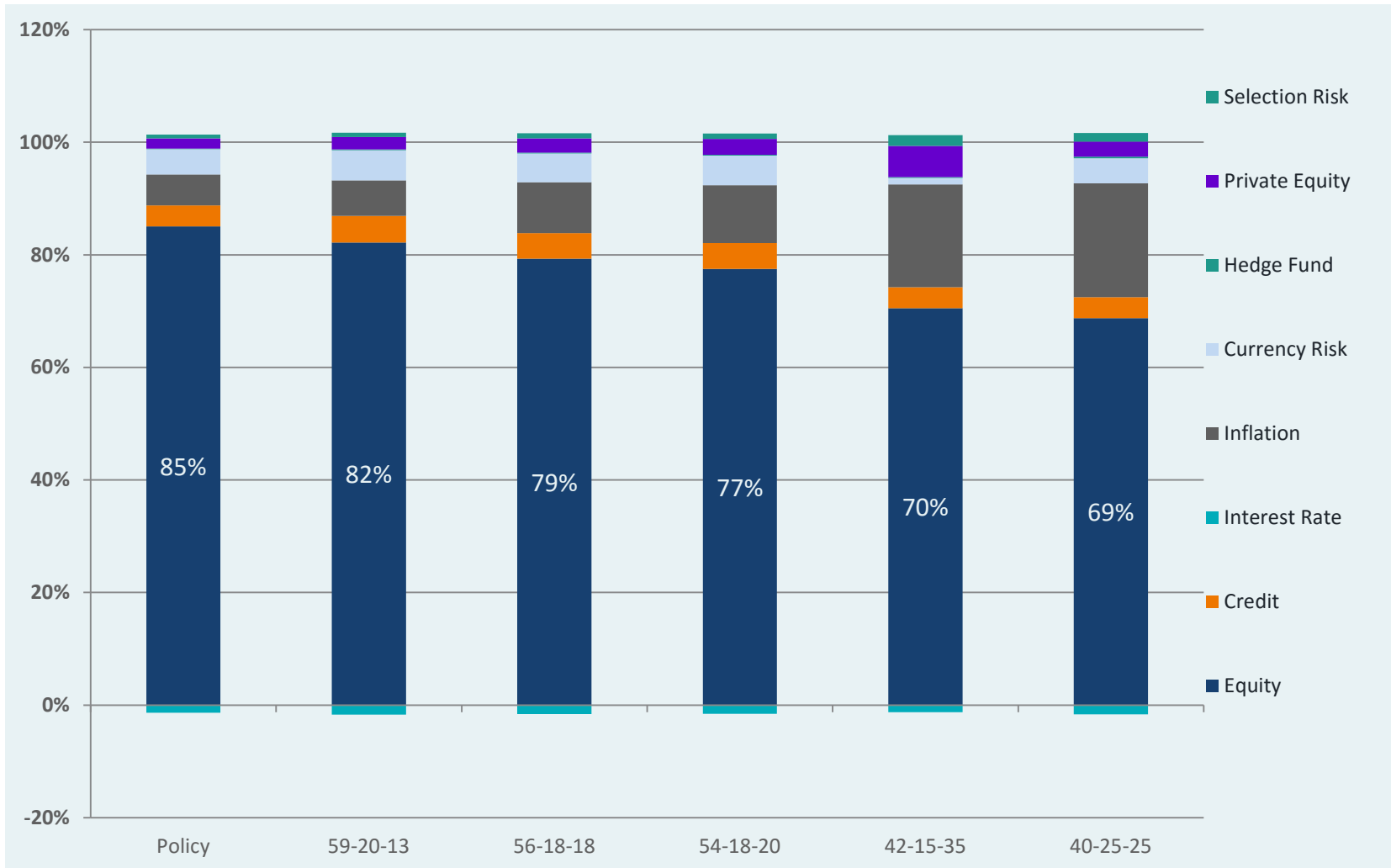


Chart note: Broad allocation buckets consistent with investment model table For example: equities includes private equity; fixed income includes private credit; other includes HFs, commodities, and RE. Risk/Return Analysis done in ProVal

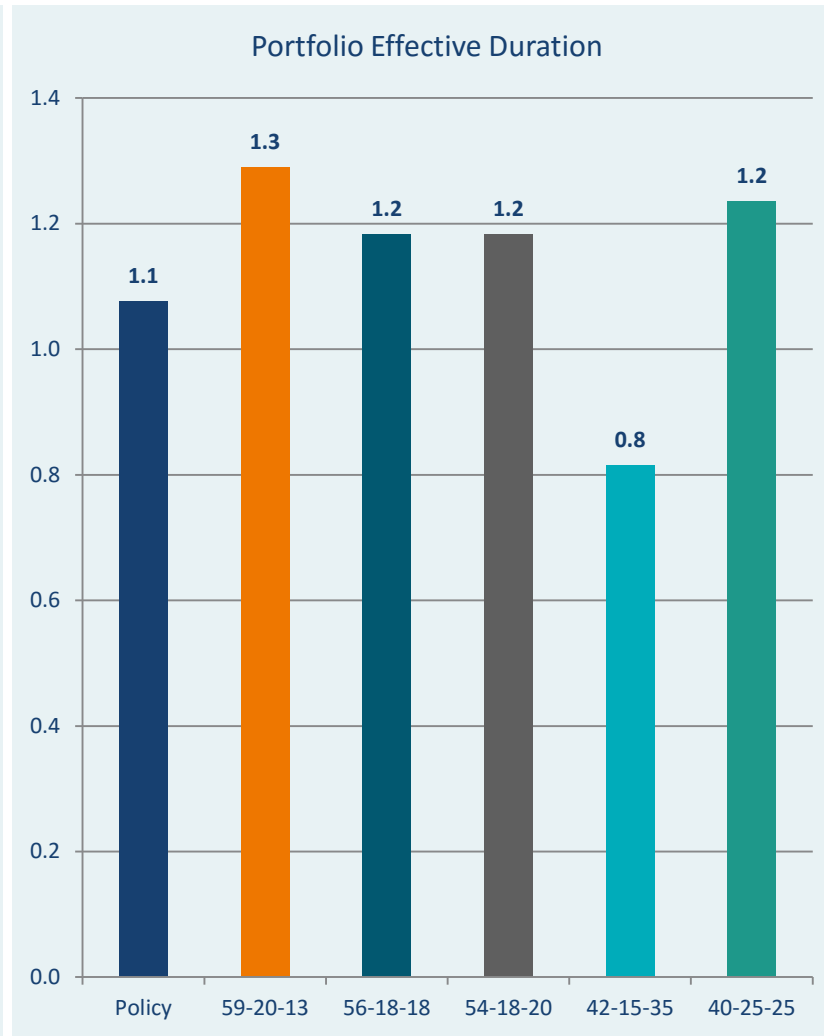
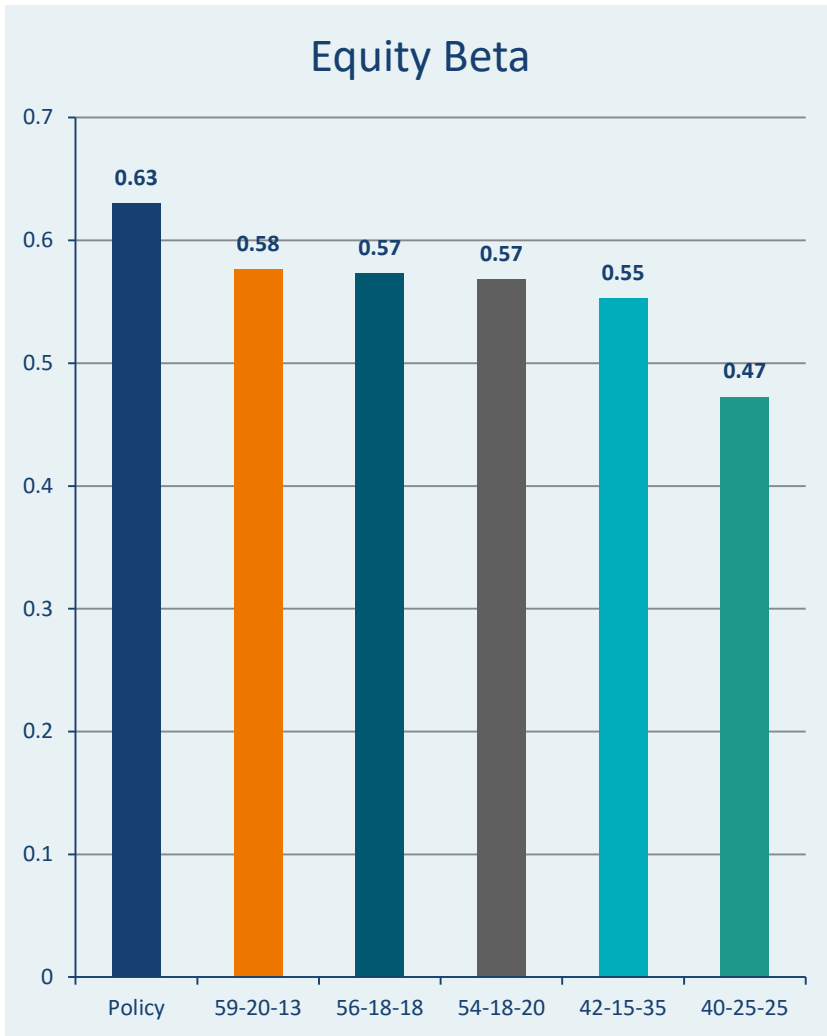
# Risk decomposition



Source: MSCI BARRA

Note: Selection Risk is the risk attributable to unassigned factors

# Sources of risk

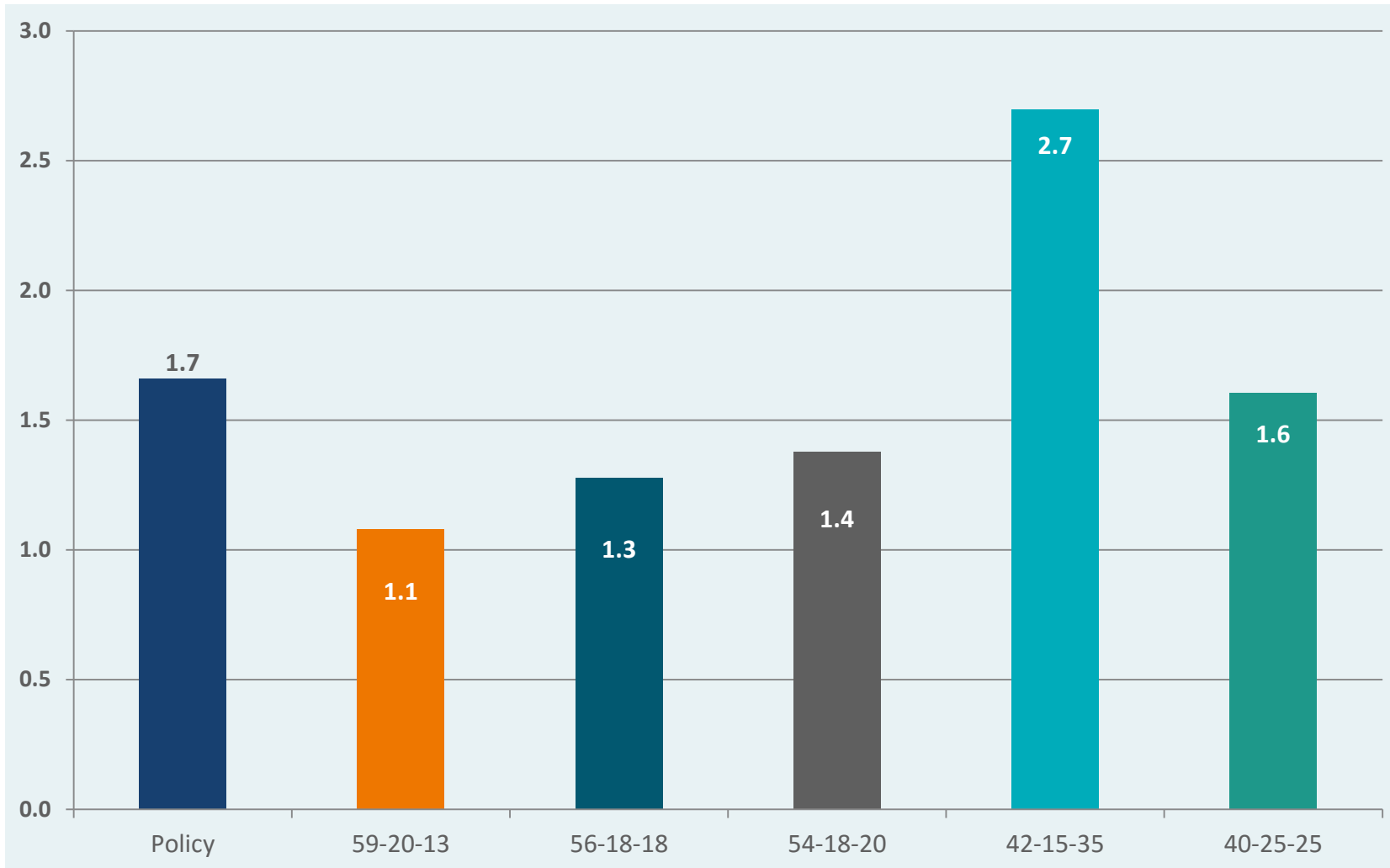


Equity beta measures the sensitivity to the risks of the broad equity market.

Duration measures the sensitivity of the portfolio to a change in interest rates.

Source: MSCI BARRA

# Active risk relative to average peer

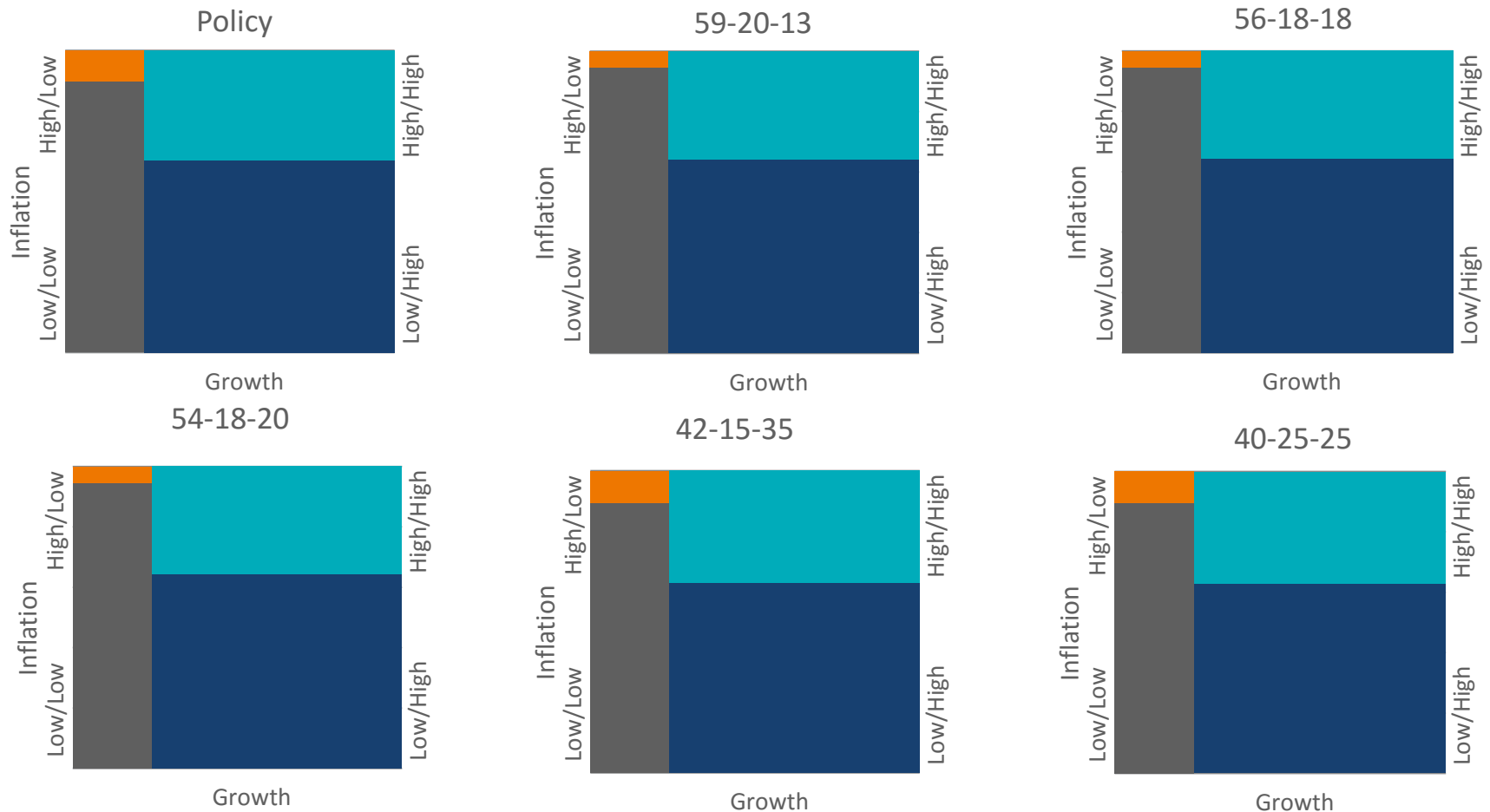


Active risk relative to the average peer is measured as the tracking error of returns of each strategy to the returns of the typical peer

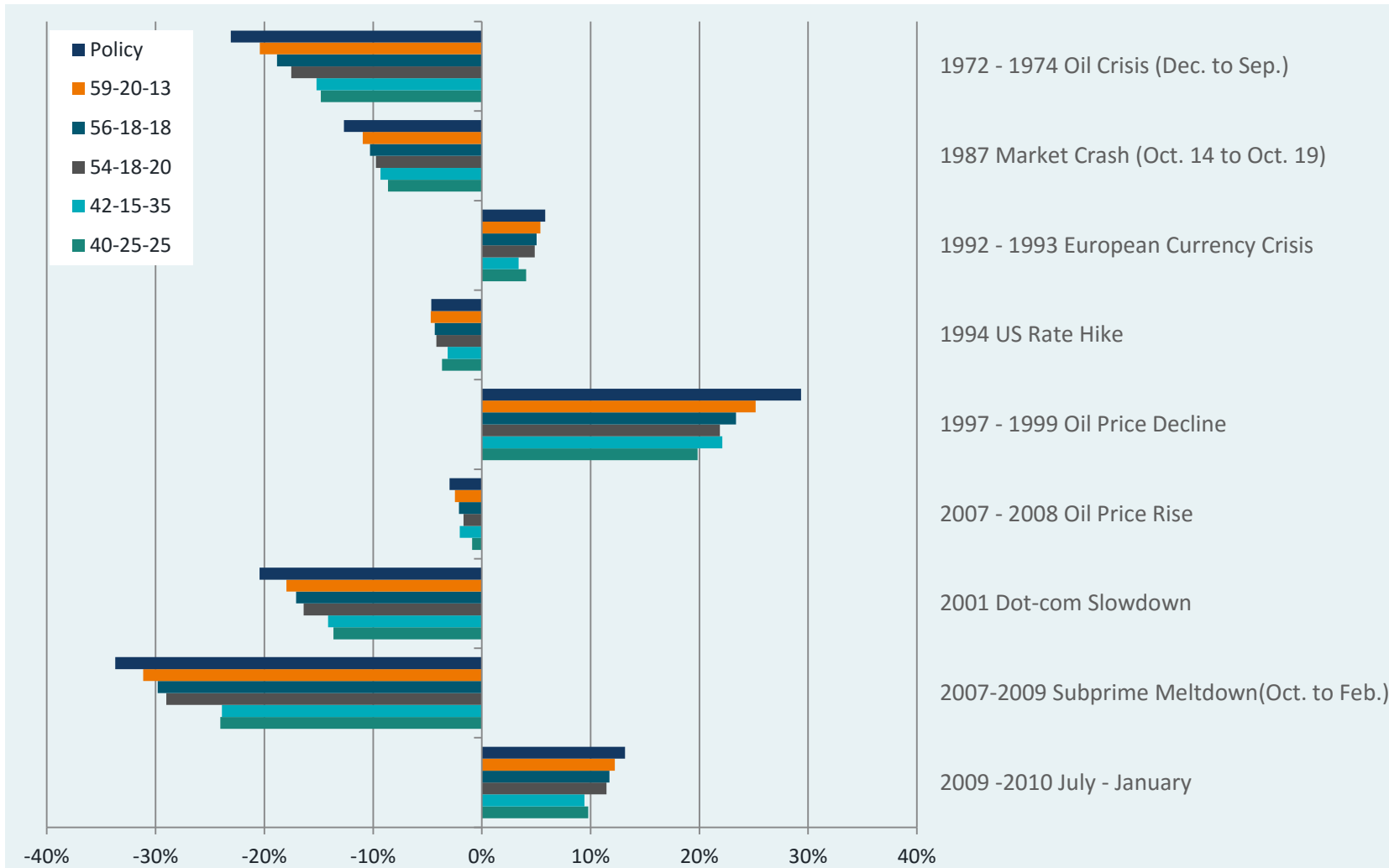
Average pension is based on median allocation of DB Plans > \$1 Billion, which is composed of 1.1% Cash, 26.1% US Equity, 15.1% Global ex-US Equity, 3.4% EM Equity, 6% Private Equity, 22.5% US Fixed Income, 4.3% Global Fixed Income, 1.5% Global ex-US Fixed Income, 2.4% EM Fixed Income, 8.1% Hedge Fund, 1.05% Commodity, 1.05% Forestry, and 7.4% Real Estate.

# Economic diversification

Most portfolios have a bias towards high a growth / low inflation regime.



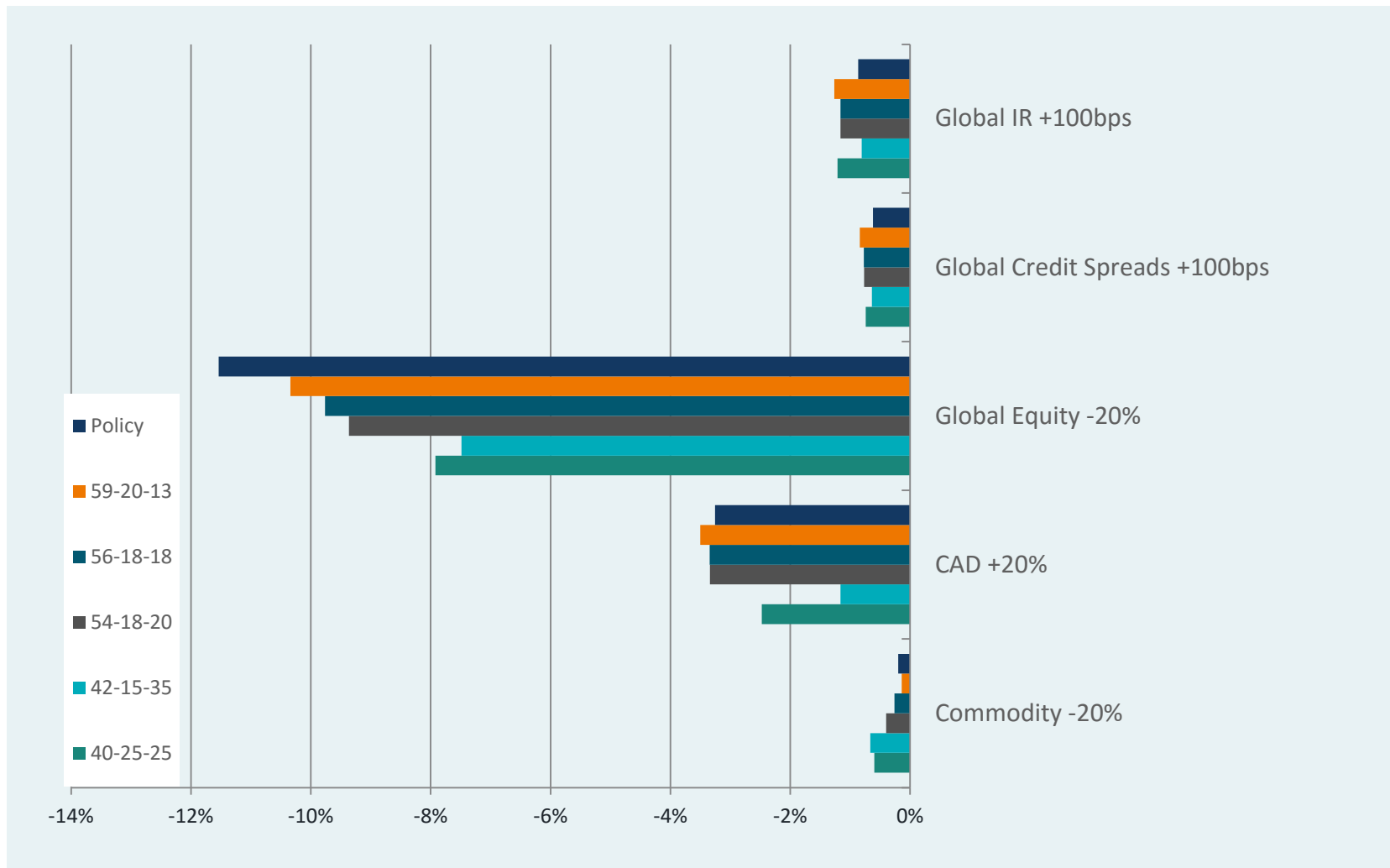
# Scenario Analysis



Source: MSCI BARRA



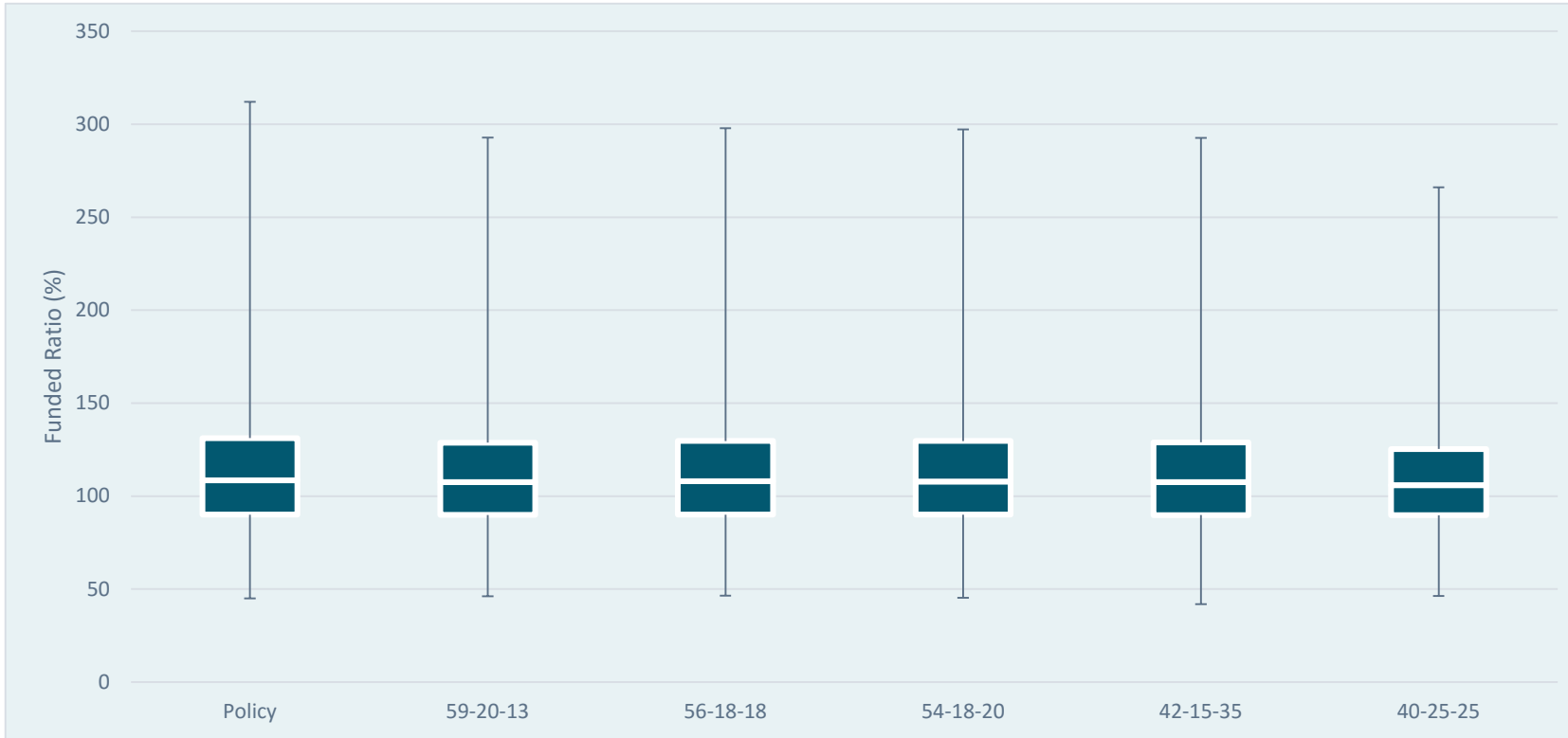
# Stress tests



Source: MSCI BARRA

# Expected funded ratio

FUNDED RATIO SIMULATION FOR PLAN YEAR ENDING 2025

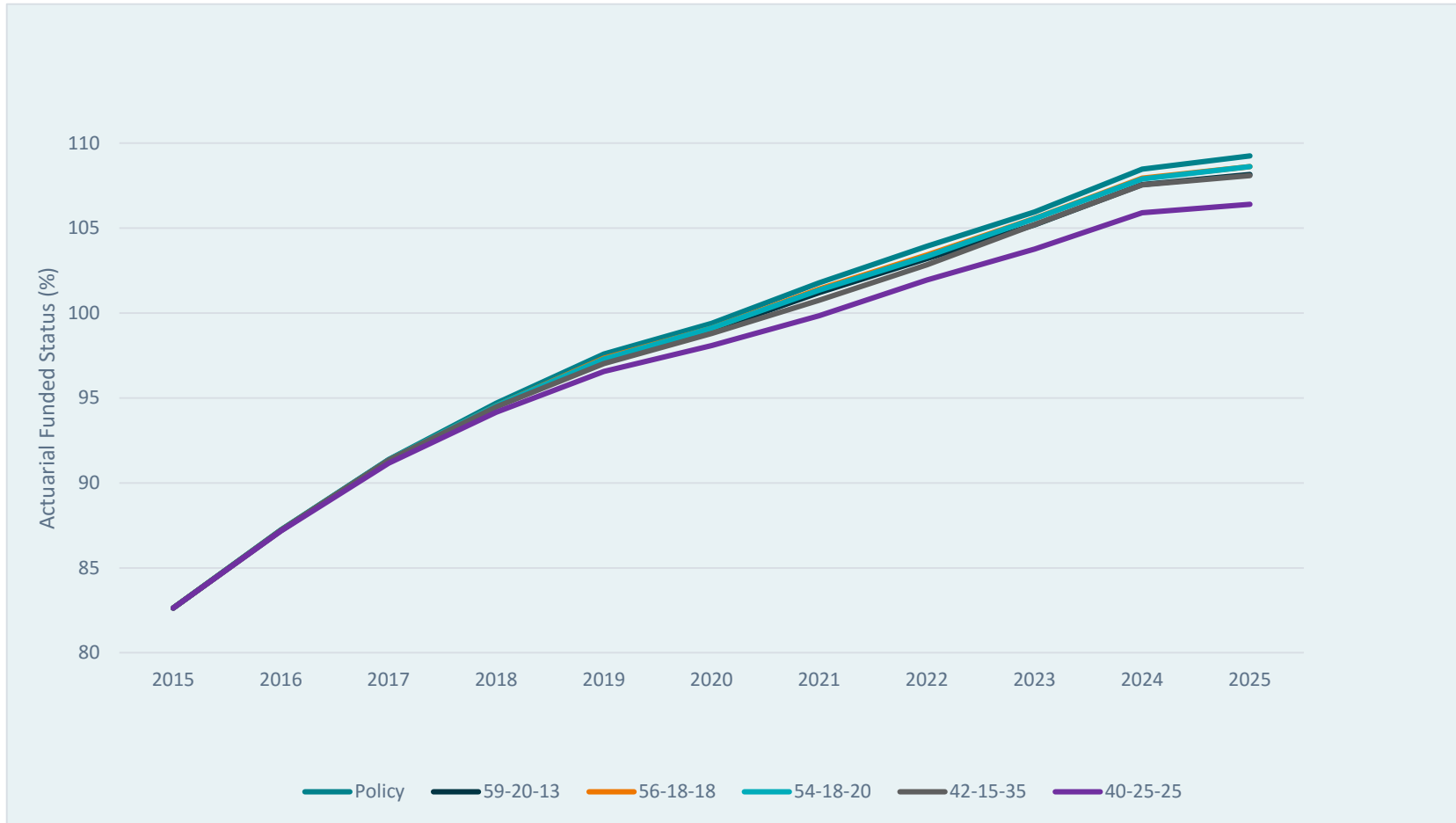


	Policy	59-20-13	56-18-18	54-18-20	42-15-35	40-25-25
Best Case	312	293	298	297	293	266
Median	108	108	108	108	108	106
Worst Case	45	44	44	45	48	43

Based on 5,000 independent simulations. Best case defined as 100<sup>th</sup> percentile. Worst case defined as 0<sup>th</sup> percentile. Median outcome is the 50<sup>th</sup> percentile.

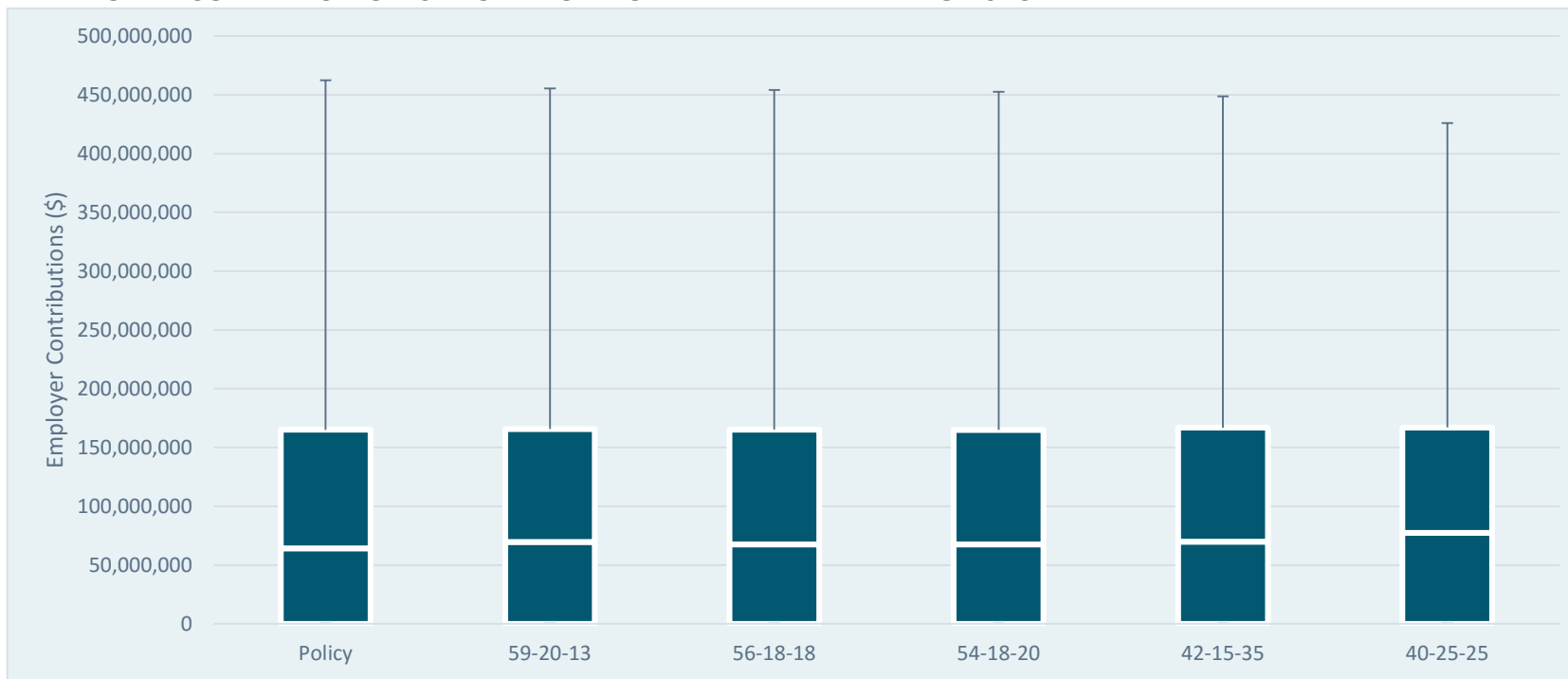
# Actuarial funded status

## Median projections



# Expected employer contributions

## EMPLOYER CONTRIBUTION SIMULATION FOR PLAN YEAR ENDING 2025

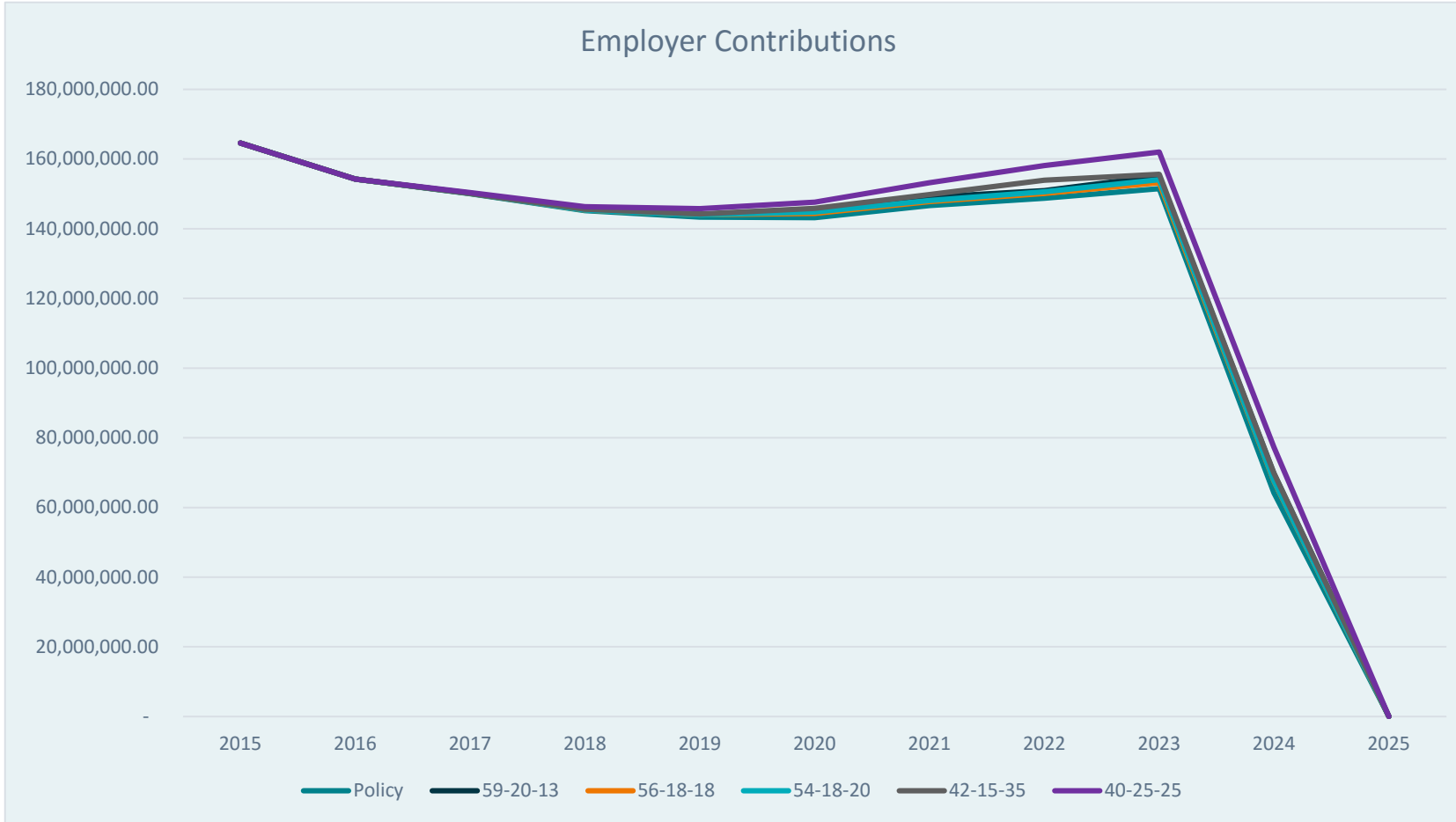


	Policy	59-20-13	56-18-18	54-18-20	42-15-35	40-25-25
Best Case	-	-	-	-	-	-
Median	64,247,144	69,737,229	67,546,796	67,650,525	69,842,819	77,282,339
Worst Case	462,357,313	455,288,009	454,047,780	452,621,517	448,720,036	425,894,585

Based on 5,000 independent simulations. Best case defined as 0<sup>th</sup> percentile. Worst case defined as 100<sup>th</sup> percentile. Median outcome is the 50<sup>th</sup> percentile.

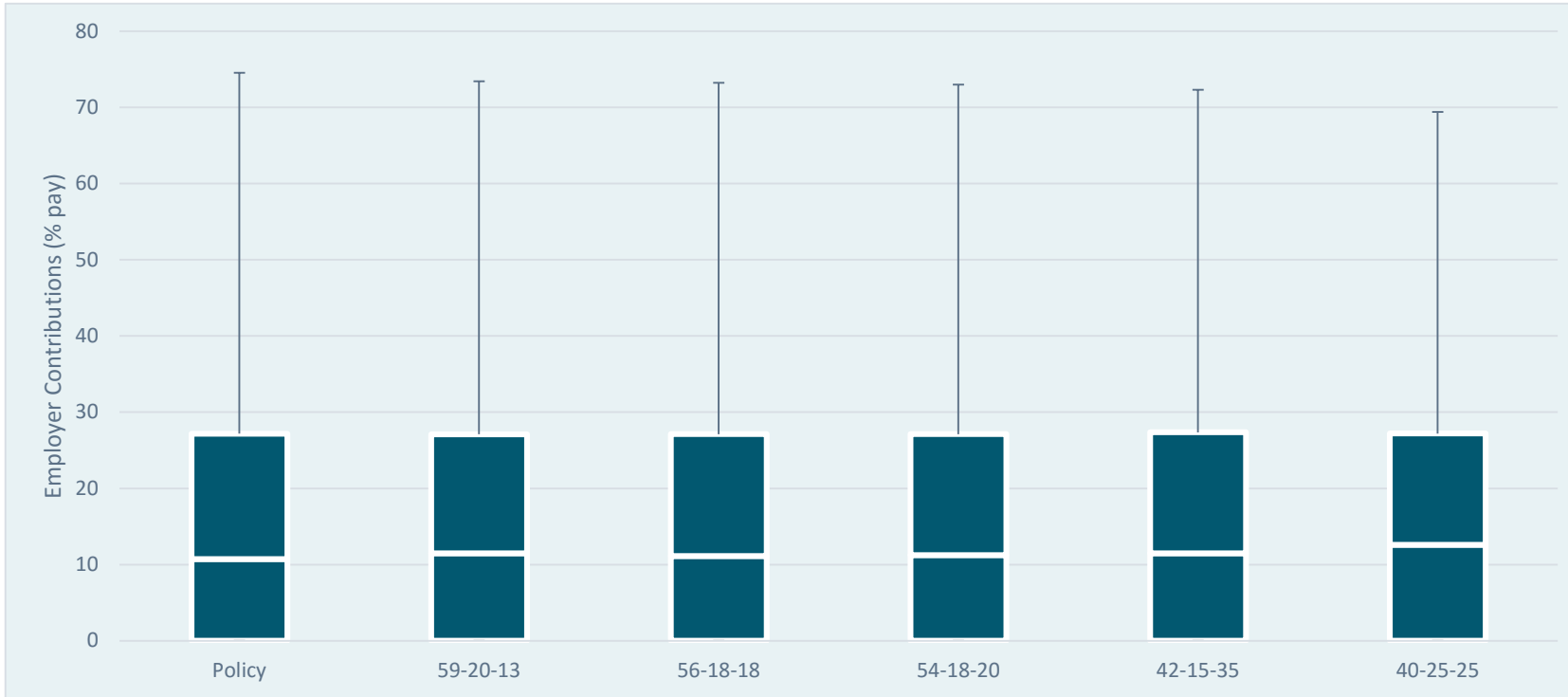
# Employer contributions

## Median projections



# Expected employer contributions as % of pay

EMPLOYER CONTRIBUTION SIMULATION FOR PLAN YEAR ENDING 2025

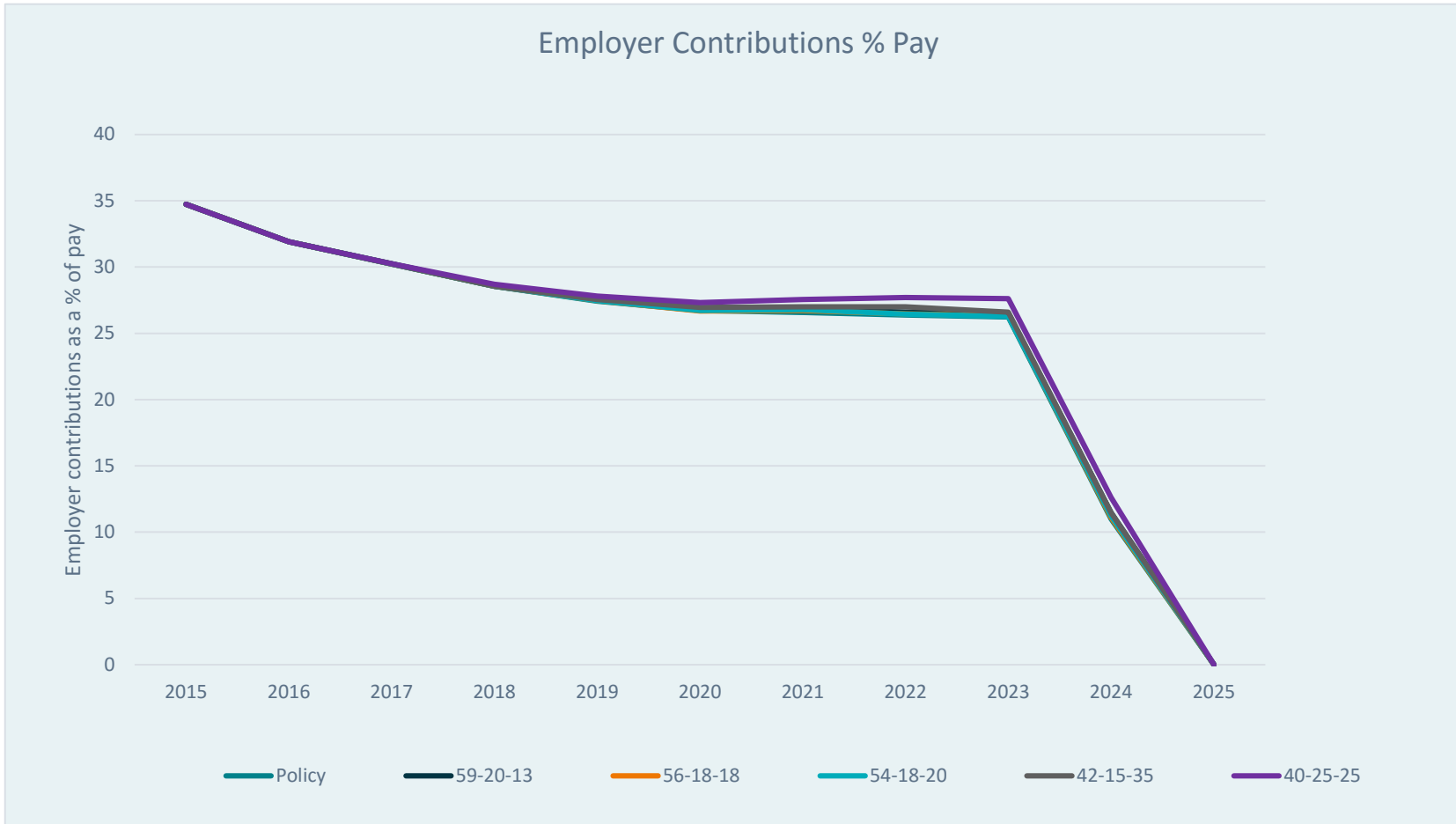


	Policy	59-20-13	56-18-18	54-18-20	42-15-35	40-25-25
Best Case	-	-	-	-	-	-
Median	11	11	11	11	11	13
Worst Case	75	73	73	73	72	69

Based on 5,000 independent simulations. Best case defined as 0<sup>th</sup> percentile. Worst case defined as 100<sup>th</sup> percentile. Median outcome is the 50<sup>th</sup> percentile.

# Employer contributions as % of pay

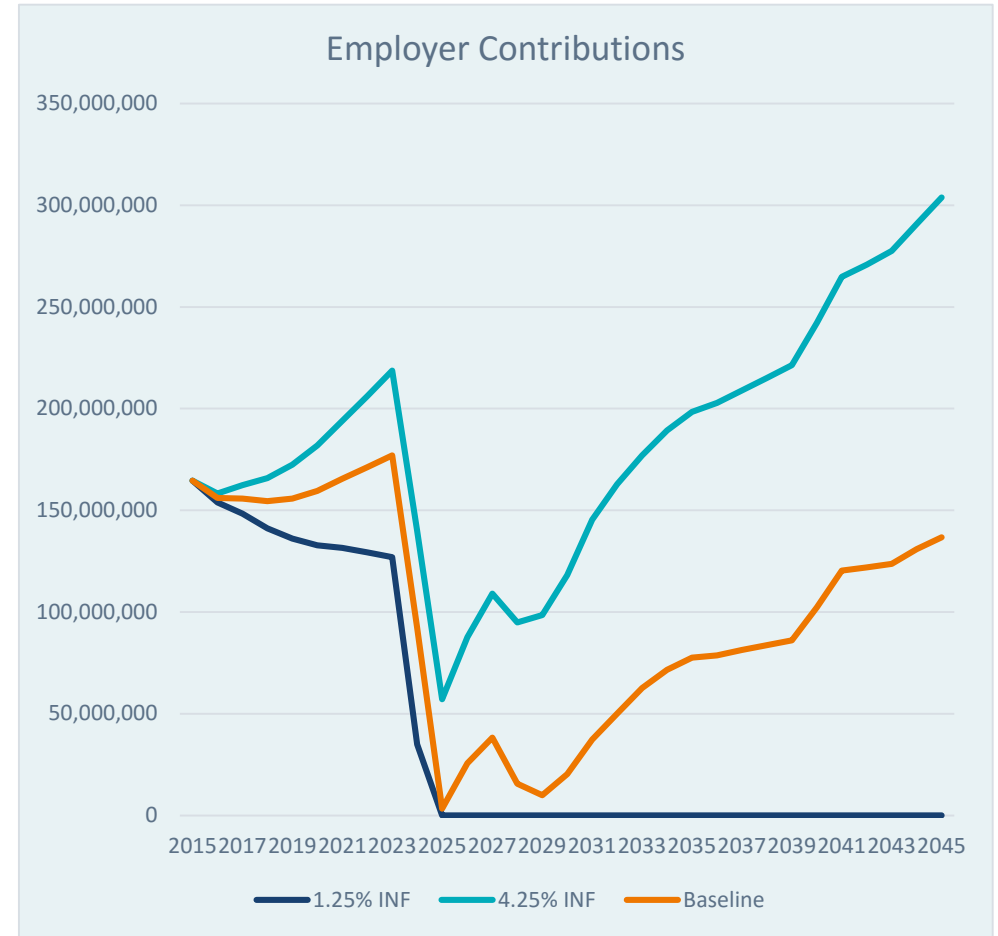
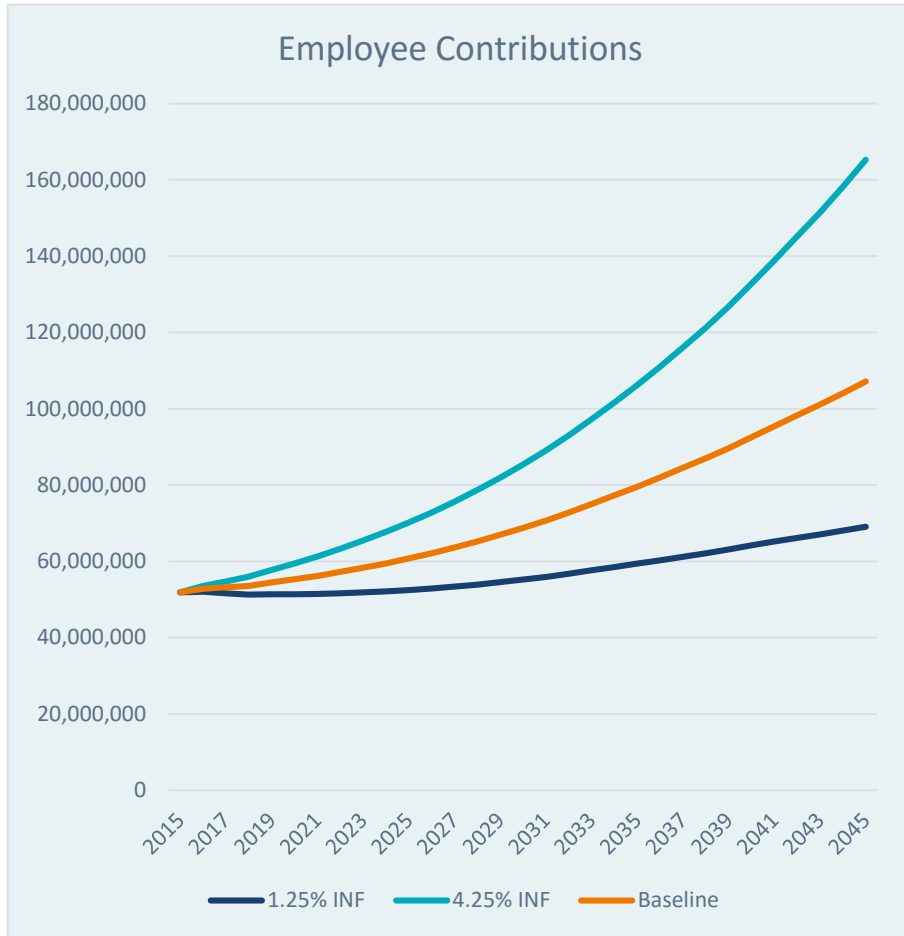
Median projections



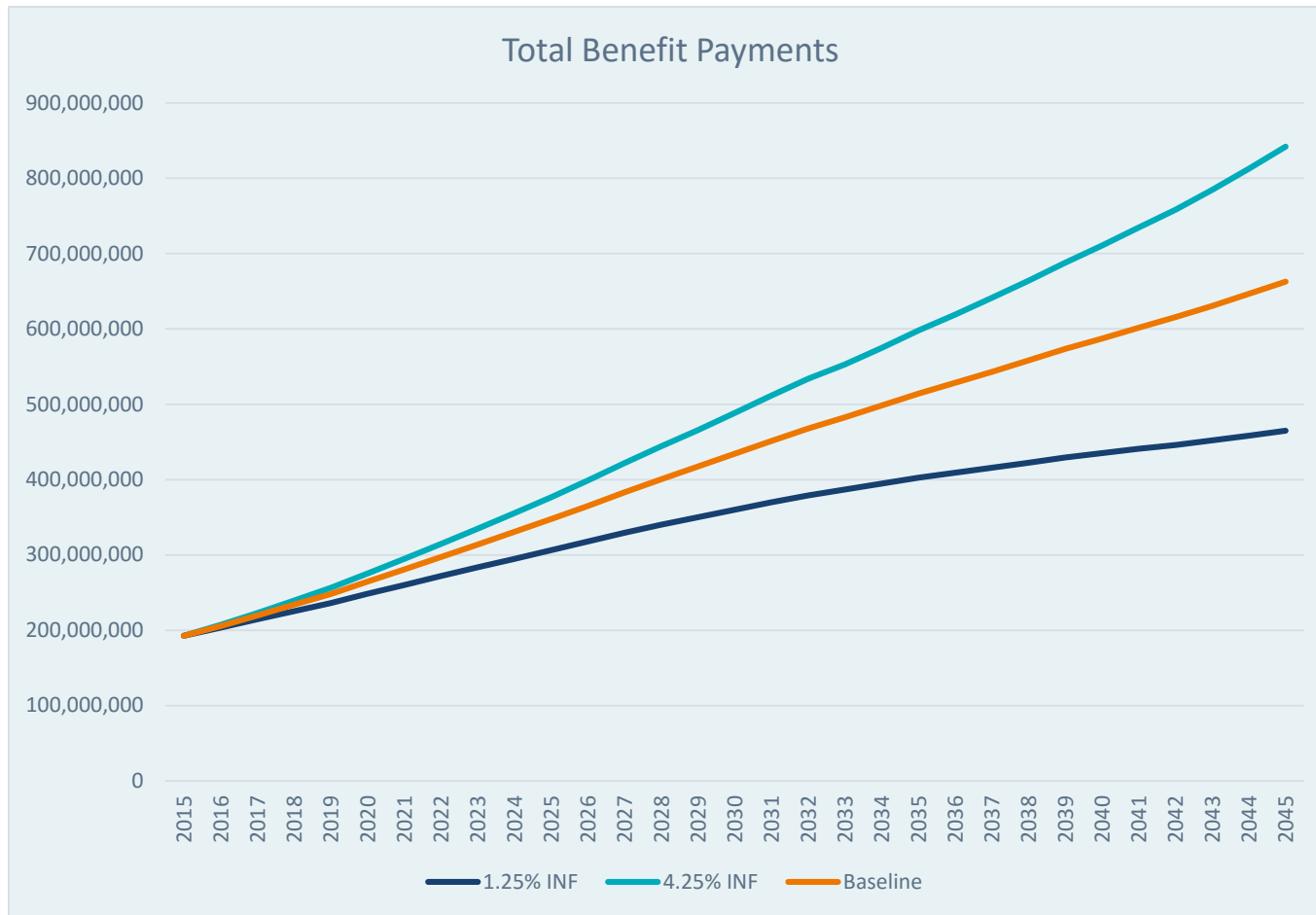
# III. Inflation Analysis



# Inflation Effect – Employer/Employee contributions

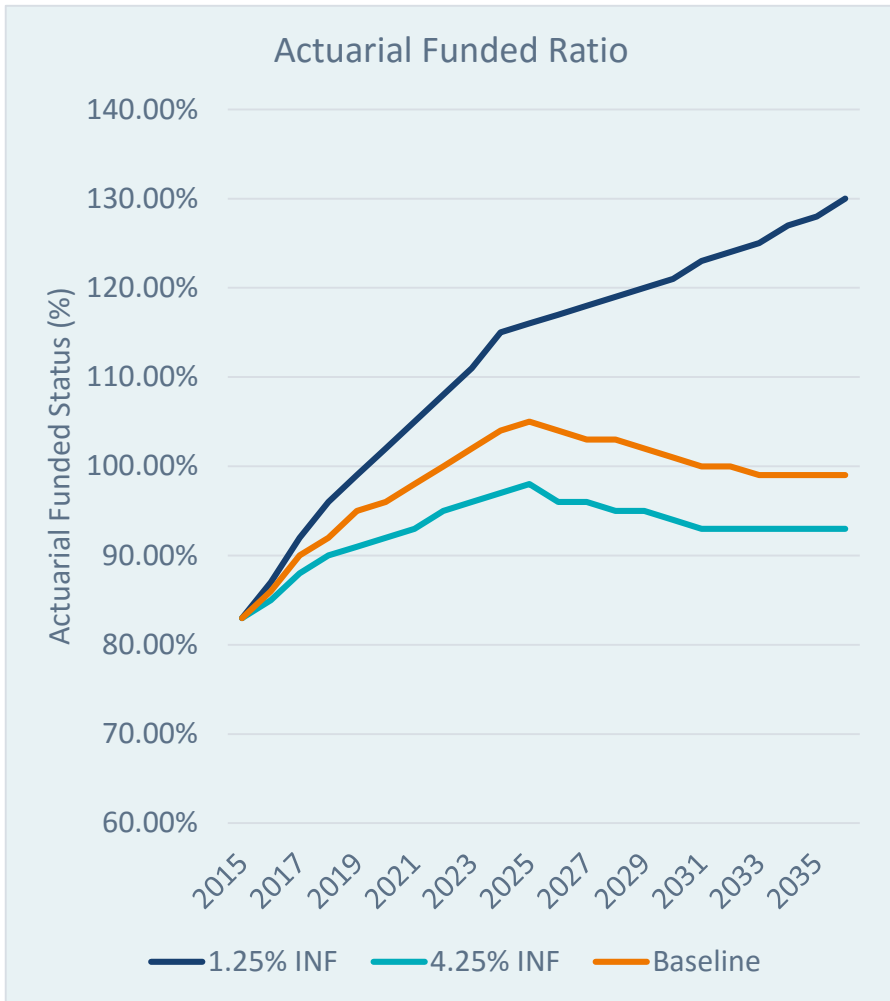


# Inflation Effect – Benefit payments

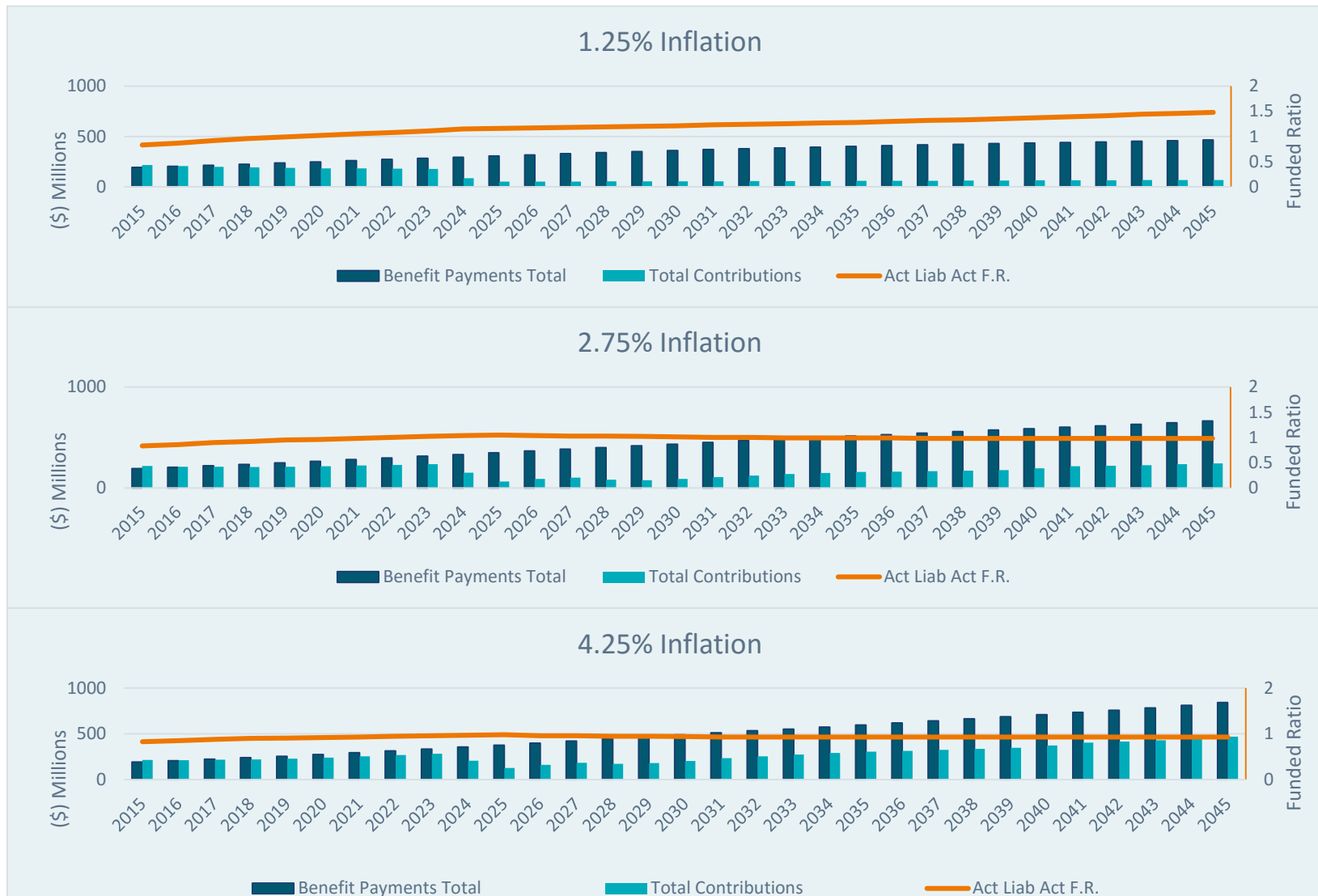


Source: SamCERA Performance Reports, Milliman Valuation Reports

# Inflation effects on Funded Ratio & Liability



# Inflation Scenarios



Notes: Contributions consist of employer and employee contributions. Funded status for all deterministic projections is based on the actuarial value of assets.

# Stagflation Analysis

	Policy	59/20/13	56/18/18	54/18/20	42/15/35	40/25/25
<b>Legacy SIS Analysis</b>						
<b>10 Year Return Forecast</b>						
<i>Base CMA</i>	7.1	6.9	7.0	7.0	6.9	6.8
<b>10 Year <u>Real</u> Return Forecast</b>						
<i>Base CMA</i>	5.0	4.8	4.9	4.9	4.8	4.7

	Policy	59/20/13	56/18/18	54/18/20	42/15/35	40/25/25
<b>Verus Scenario Analysis</b>						
<b>10 Year Return Forecast</b>						
Stagflation	6.8	6.7	7.0	7.2	7.9	7.2
<b>10 Year <u>Real</u> Return Forecast</b>						
Stagflation	0.7	0.6	0.9	1.1	1.8	1.1

\*Stagflation analysis incorporates a 6% inflation on the portfolio's return along with a 1 standard deviation below average performance of each return driver

# IV. Appendices

# Investment models v4

Policy	RD 59-20-13	RD 56-18-18	RD 54-18-20	RD 45-15-35	RD 40-25-25	
<b>Asset Class</b>						
<b>Growth</b>	<b>60.8%</b>	<b>56.8%</b>	<b>53.8%</b>	<b>51.8%</b>	<b>42.0%</b>	<b>40.8%</b>
US Large Cap	24.00%	20.00%	18.00%	16.00%	18.00%	11.50%
US Small Cap	4.00%	2.00%	2.00%	2.00%	2.00%	1.50%
International Stock	15.00%	15.00%	14.00%	14.00%	5.50%	10.00%
Emerging Market Equity	4.00%	4.00%	4.00%	4.00%	1.50%	3.00%
Private Equity	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
High Yield	6.75%	8.75%	8.75%	8.75%	8.00%	7.75%
<b>Diversifying</b>	<b>17.25%</b>	<b>22.25%</b>	<b>20.25%</b>	<b>20.25%</b>	<b>15.00%</b>	<b>24.25%</b>
EM Debt	0.75%	0.75%	0.75%	0.75%		0.75%
Bank Loans	0.75%	0.75%	0.75%	0.75%		0.75%
Intl Bond	0.75%	0.75%	0.75%	0.75%		0.75%
Core Fixed Income	10.00%	14.00%	12.00%	12.00%	9.00%	15.00%
TIPS	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hedge Fund	5.00%	6.00%	6.00%	6.00%	6.00%	7.00%
<b>Inflation</b>	<b>19.00%</b>	<b>13.00%</b>	<b>18.00%</b>	<b>20.00%</b>	<b>35.00%</b>	<b>25.00%</b>
Core Real Estate	7.00%	8.00%	10.00%	10.00%	15.00%	12.00%
Commodity	1.00%	0.67%	1.33%	2.00%	3.33%	1.67%
Natural Resources	2.00%	2.17%	3.33%	4.00%	8.33%	5.67%
Infrastructure	2.00%	2.17%	3.33%	4.00%	8.33%	5.67%
TIPS	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<b>Risk Parity</b>	<b>8.00%</b>	<b>8.00%</b>	<b>8.00%</b>	<b>8.00%</b>	<b>8.00%</b>	<b>10.00%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio

# Investment models v3

Asset Class	Policy	50/20/20	40/25/25	42/15/35	Risk Diversified 7% Low Inflation	Risk Diversified 7% High Inflation
<b>Growth</b>	<b>60.8%</b>	<b>50.8%</b>	<b>40.8%</b>	<b>42.0%</b>	<b>56.8%</b>	<b>52.8%</b>
US Large Cap	24.0%	16.0%	12.0%	18.0%	19.0%	17.0%
US Small Cap	4.0%	2.0%	1.0%	2.0%	2.0%	2.0%
International Stock	15.0%	14.0%	10.0%	7.0%	16.0%	14.5%
Emerging Market Equity	4.0%	4.0%	3.0%	0.0%	4.0%	3.5%
Private Equity	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
High Yield	6.8%	7.8%	7.8%	8.0%	8.8%	8.8%
<b>Diversifying</b>	<b>19.3%</b>	<b>19.3%</b>	<b>24.3%</b>	<b>15.0%</b>	<b>22.3%</b>	<b>19.3%</b>
EM Debt	0.8%	0.8%	0.8%	0.0%	0.8%	0.8%
Bank Loans	0.8%	0.8%	0.8%	0.0%	0.8%	0.8%
Intl Bond	0.8%	0.8%	0.8%	0.0%	0.8%	0.8%
Core Fixed Income	10.0%	11.0%	15.0%	9.0%	14.0%	11.0%
TIPS	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hedge Fund	5.0%	6.0%	7.0%	6.0%	6.0%	6.0%
<b>Inflation</b>	<b>12.0%</b>	<b>20.0%</b>	<b>25.0%</b>	<b>35.0%</b>	<b>13.0%</b>	<b>20.0%</b>
Core Real Estate	7.0%	10.0%	12.0%	15.0%	8.0%	10.0%
Commodity	1.0%	2.0%	2.7%	3.3%	0.7%	2.0%
Natural Resources	2.0%	4.0%	5.2%	8.3%	2.2%	4.0%
Infrastructure	2.0%	4.0%	5.2%	8.3%	2.2%	4.0%
<b>Risk Parity</b>	<b>8.0%</b>	<b>10.0%</b>	<b>10.0%</b>	<b>8.0%</b>	<b>8.0%</b>	<b>8.0%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio



# Investment models v2

Asset Class	Policy	Risk Diversified 50/20/20	Risk Diversified 50/20/20 w/current Equity split	Risk Diversified 50/22/18	Risk Diversified 48/22/20 w/current Equity split	Risk Diversified 40/25/25
<b>Growth</b>	<b>60.0%</b>	<b>50.0%</b>	<b>50.0%</b>	<b>50.0%</b>	<b>48.0%</b>	<b>40.0%</b>
US Large Cap	24.0%	16.0%	20.0%	16.0%	19.0%	12.0%
US Small Cap	4.0%	2.0%	2.0%	2.0%	2.0%	1.0%
International Stock	15.0%	14.0%	11.0%	14.0%	10.0%	10.0%
Emerging Market Equity	4.0%	4.0%	3.0%	4.0%	3.0%	3.0%
Private Equity	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
High Yield	6.0%	7.0%	7.0%	7.0%	7.0%	7.0%
<b>Diversifying</b>	<b>18.0%</b>	<b>20.0%</b>	<b>20.0%</b>	<b>22.0%</b>	<b>22.0%</b>	<b>25.0%</b>
US Fixed Income	11.8%	12.8%	12.8%	14.8%	14.8%	16.8%
International Bond	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Emerging Market Debt						
TIPS						
Bank Loans						
3-Month TBill						
10-Year Treasuries						
Abs Ret	5.0%	6.0%	6.0%	6.0%	6.0%	7.0%
<b>Inflation</b>	<b>14.0%</b>	<b>20.0%</b>	<b>20.0%</b>	<b>18.0%</b>	<b>20.0%</b>	<b>25.0%</b>
Commodities	1.7%	2.0%	2.0%	1.7%	2.0%	2.5%
Infrastructure	2.7%	4.0%	4.0%	3.7%	4.0%	5.3%
Natural Resources	2.7%	4.0%	4.0%	3.7%	4.0%	5.3%
Real Estate	7.0%	10.0%	10.0%	9.0%	10.0%	12.0%
IILBHDG						
<b>Risk Parity</b>	<b>8.0%</b>	<b>10.0%</b>	<b>10.0%</b>	<b>10.0%</b>	<b>10.0%</b>	<b>10.0%</b>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

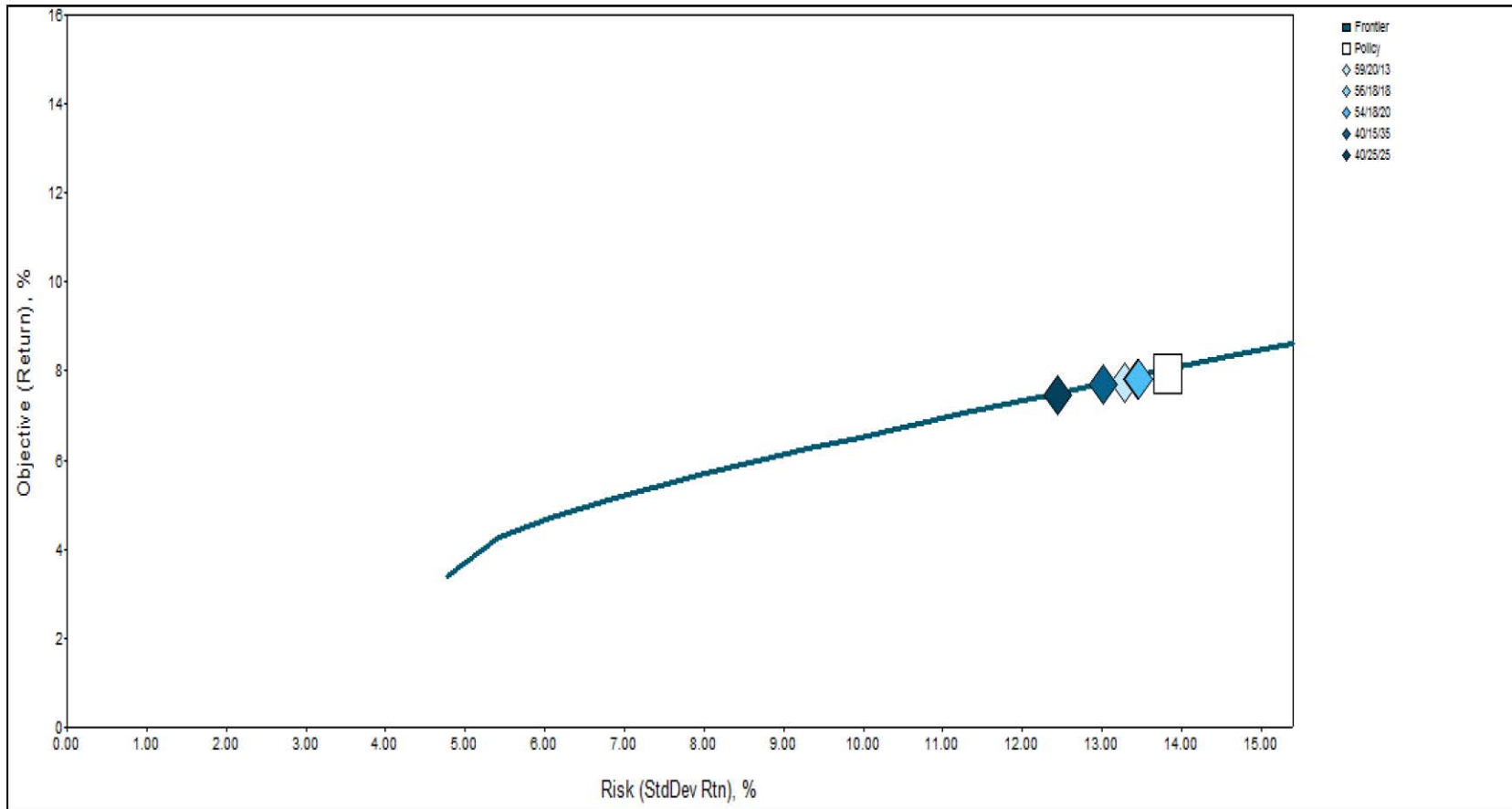
\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio

# Investment models v1

	Policy	60/40	Risk Diversified 50/20/20	Risk Diversified 40/25/25	Risk Diversified 30/35/25
<b>Asset Class</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Growth</b>	<b>60.0%</b>	<b>60.0%</b>	<b>50.0%</b>	<b>40.0%</b>	<b>30.0%</b>
US Large Cap	24.0%	33.0%	20.9%	15.4%	9.9%
US Small Cap	4.0%				
International Stock	16.4%	21.0%	13.3%	9.8%	6.3%
Emerging Market Equity	3.6%	6.0%	3.8%	2.8%	1.8%
Private Equity	7.0%		7.0%	7.0%	7.0%
High Yield	5.0%		5.0%	5.0%	5.0%
<b>Diversifying</b>	<b>20.0%</b>	<b>40.0%</b>	<b>20.0%</b>	<b>25.0%</b>	<b>35.0%</b>
US Fixed Income	11.2%	40.0%	12.2%	15.6%	23.4%
International Bond	1.8%		1.8%	2.4%	3.6%
Emerging Market Debt					
TIPS	2.0%				
Bank Loans					
3-Month TBill					
10-Year Treasuries					
Abs Ret	5.0%		6.0%	7.0%	8.0%
<b>Alternatives</b>	<b>12.0%</b>	<b>0.0%</b>	<b>20.0%</b>	<b>25.0%</b>	<b>25.0%</b>
Commodities	3.0%		2.0%	3.0%	3.0%
Infrastructure			4.0%	5.0%	5.0%
Natural Resources	2.0%		4.0%	5.0%	5.0%
Real Estate	7.0%		10.0%	12.0%	12.0%
IILBHDG					
<b>Risk Parity</b>	<b>8.0%</b>		<b>10.0%</b>	<b>10.0%</b>	<b>10.0%</b>

\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio

# Efficient Frontier



Created with MPI Analytics

\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio

# Inflation Beta/Credit Spread Beta/USD Shock

	Policy	Low Inflation Portfolio	High Inflation Portfolio	40-15-35	53-17-20	43-22-25
<b>1 Year</b>	7.2	6.6	6.7	6.4	6.6	5.8
<b>5 Years</b>	1.1	1.0	1.1	1.0	1.0	0.9
<b>7 Years</b>	2.0	1.8	1.9	1.9	1.9	1.7
<b>10 Years</b>	1.6	1.5	1.6	1.6	1.5	1.4

	Policy	40/15/35	7% low inflation	7% low inflation wce	7% high inflation	7% high inflation wce	low risk low inflation	low risk high inflation
Beta		0.56	0.58	0.59	0.57	0.57	0.54	0.52
USD shock 20% (Euro, GBP, Yen)	-2.91%	-0.82%	-2.92%	-2.92%	-2.70%	-2.70%	-2.70%	-2.40%
Credit Spread Duration	0.6	0.59	0.8	0.74	0.7	0.7	0.91	0.85
US Fixed	0.37	0.34	0.54	0.5	0.43	0.43	0.65	0.59
Opportunistic Credit	0.19	0.25	0.26	0.24	0.26	0.26	0.26	0.26

\*Global Fixed income assumptions were split 1/4<sup>th</sup> into Global Fixed, EM Debt, High Yield, and Bank Loans to reflect the type of global fixed income in the portfolio

# Key actuarial assumptions

Asset valuation method	Assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption.
Actuarial cost method	Valuation uses the entry age actuarial cost method. 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.
Amortization period	The UAAL rate reflects a layered 15-year amortization beginning with the June 30, 2008 valuation. Gains and losses after that date are reflected over new 15-year periods starting with the valuation date. A one-year deferral in the implementation of the new rate is reflected.
Investment rate of return	7.0%
Inflation rate	2.75%
Cost of living adjustments	Cost-of-living increases are applied based on changes in the Consumer Price Index (CPI) from the previous January 1 to the current January 1, to the nearest ½ of 1%.

Source: Milliman Actuarial Valuation as of 6/30/2015

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

September 27, 2016

Agenda Item 7.1

**TO:** Board of Retirement   
**FROM:** Scott Hood, Chief Executive Officer  
**SUBJECT:** Approval of SACRS Voting Delegate and Alternates for the SACRS Fall 2016 Business Meeting

**Staff Recommendation**

Staff recommends the Board designate David Spinello as the Voting Delegate and Scott Hood, CEO, as the First Delegate Alternate to cast SamCERA's votes at the SACRS Fall 2016 Conference.

**Background**

Prior to each SACRS conference the retirement boards are asked to select the individuals from each county system who are authorized to serve as voting delegate and alternate voting delegates at the conference business meeting.

**Discussion**


SamCERA normally selects the highest-ranking board officer who will attend the conference as the voting delegate. Delegates can be either trustees or staff. For this SACRS conference, David Spinello is scheduled to be the only trustee in attendance. We typically recommend the CEO be the final alternate.

The business meeting will occur on the last morning of the conference, at 10:00 a.m., Friday, November 11, 2016.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
Board of Retirement

September 27, 2016

Agenda Item 7.2

**TO:** Board of Retirement  
**FROM:** Scott Hood, Chief Executive Officer   
**SUBJECT:** Educational Presentation on Fiduciary Duty, Delegation and Governance

**Staff Recommendation**

This is not an action item.

**Discussion**

Over the next two meetings, Staff and Verus Inc. will conduct educational presentations on the Board's fiduciary duty, delegation of power and governance. Staff will lead a discussion as to how these three areas are intertwined.

While the discussion is applicable to various areas of the Board's administration, this discussion will focus on the Board's fiduciary duty and the investment of the Retirement Fund.

Today's presentation will be led by Brenda B. Carlson and Michael Coultrip.