Alameda County Employees' Retirement Association
BOARD OF RETIREMENT

ACTUARIAL COMMITTEE/BOARD MEETING NOTICE and AGENDA

ACERA MISSION:

To provide ACERA members and employers with flexible, cost-effective, participant-oriented benefits through prudent investment management and superior member services.

Thursday, October 18, 2018
11:00 am

LOCATION	COMMITTEE MEMBERS	
ACERA C.G. "BUD" QUIST BOARD ROOM 475 14TH STREET, 10TH FLOOR OAKLAND, CALIFORNIA 94612-1900 MAIN LINE: 510.628.3000 FAX: 510.268.9574	DALE AMARAL, CHAIR	ELECTED SAFETY
	KEITH CARSON, VICE CHAIR	APPOINTED
	OPHELIA BASGAL	APPOINTED
	HENRY LEVY	EX-OFFICIO
	ELIZABETH ROGERS	ELECTED GENERAL

Should a quorum of the Board attend this meeting, this meeting shall be deemed a joint meeting of the Board and Committee.

The order of agenda items is subject to change without notice. Board and Committee agendas and minutes are available online at www.acera.org.

Note regarding public comments: Public comments are limited to four (4) minutes per person in total.

Note regarding accommodations: The Board of Retirement will provide reasonable accommodations for persons with special needs of accessibility who plan to attend Board meetings. Please contact ACERA at (510) 628-3000 to arrange for accommodation.

Any materials required by law to be made available to the public prior to a meeting of the Board of Retirement can be inspected at 475-14th Street, Suite 1000 during normal business hours.

ACTUARIAL COMMITTEE/BOARD MEETING

Call to Order: 11:00 am

Action Items: Matters for Discussion and Possible Motion by the Committee

None

Information Items: These items are not presented for Committee action but consist of status updates and cyclical reports

1. Presentation and discussion of ACERA's Interest Crediting Policy.
   - Margo Allen
   - Andy Yeung, Segal Consulting

2. Presentation and discussion of ACERA's Actuarial Funding Policy.
   - Margo Allen
   - Andy Yeung, Segal Consulting

3. Presentation and discussion of the Actuarial Standard of Practice (ASOP) No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Contributions.
   - Margo Allen
   - Andy Yeung, Segal Consulting

Trustee/Public Input

Future Discussion Items

None

Establishment of Next Meeting Date

MEMORANDUM TO THE ACTUARIAL COMMITTEE

DATE: October 18, 2018

TO: Members of the Actuarial Committee

FROM: Margo Allen, Fiscal Services Officer

SUBJECT: Review ACERA Interest Crediting and Actuarial Funding Policies

Executive Summary

Staff and Segal Consulting (Segal) are conducting a three-year review of ACERA's Interest Crediting and Actuarial Funding Policies. A thorough analysis of both policies has been completed.

Interest Crediting Policy: Staff and Segal agree to no recommended changes for the Interest Crediting Policy. Please see the attached letter from Segal Consulting, October 8, 2018.

Actuarial Funding Policy: Staff and Segal agree there could be further discussion about an observation Segal has made regarding the pooling of normal cost rate for all Tier 1 members, including those from LARPD. Segal is prepared to present its observation for review and discussion. Please see the attached letter from Segal Consulting, October 8, 2018.

Recommendation

Staff recommends that the Actuarial Committee recommend to the Board of Retirement to update the Interest Crediting Policy and Actuarial Funding Policy with or without revisions.

Attachment: Interest Crediting Policy
Actuarial Funding Policy

Segal Consulting

100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 www.segalco.com

VIA E-MAIL & USPS

October 8, 2018

Ms. Margo Allen
Fiscal Services Officer
Alameda County Employees' Retirement Association
475 14th Street, Suite 1000
Oakland, CA 94612-1900

Re: Alameda County Employees' Retirement Association
Review of Interest Crediting Policy and Actuarial Funding Policy

Dear Margo:

As requested by the Association, we have reviewed and provided commentary on the interest crediting policy and the actuarial funding policy that we previously discussed with the Board several years ago.

Interest Crediting Policy

Based on discussions in 2014 and 2015, the Board approved the attached policy with respect to the interest rates to apply in crediting the various reserve accounts. As a very detailed analysis was conducted by Segal before the Board decided to pick a 1% Contingency Reserve[1], we believe the various steps included in ACERA's policy are still appropriate in allowing the Association to achieve the objectives provided in Section II of the policy.

Actuarial Funding Policy

Based on discussions that started in 2012, the Board formally approved in 2014 the attached policy for the actuarial funding of the "regular benefits" not including those that are financed by the SRBR. While we are not recommending any changes to the approved policy, we have provided commentary with respect to the calculation of the normal cost rate so that the Board is aware of the pooling under the policy.

[1] It is our understanding that as an Article 5.5 County, the Board has fewer choices in crediting interest and allocating excess earnings. For instance, every six months all the reserves will have to be credited at one-half of the assumed annual valuation interest rate if Available Earnings are sufficient and one-half of any remaining earnings (after restoring the Contingency Reserve to 1%) will have to be allocated to the SRBR.

Entry Age Actuarial Cost Method

The Entry Age (EA) method is considered a reasonable funding method under the Actuarial Standards of Practice and is the only acceptable cost allocation method approved by the Governmental Accounting Standards Board (GASB) for financial reporting purposes.

With the EA method, the normal costs are determined as a level percentage of covered payroll over each active member's career[2]. Under the Board's actuarial funding policy, there is an average total (employer and member) normal cost rate that is calculated by dividing the sum of the individual normal costs by the sum of the individual payrolls for all members that have the same benefit formula.

For instance, when the actuarial funding policy is applied to calculate an average total normal cost rate for General Tier 4, we include all employees covered under the non-LARPD and LARPD membership groups. (This pooling of employees with the same benefit structure should result in a more stable normal cost rate for the smaller employers, such as LARPD). It should be noted though that besides the benefit formula, the normal cost rate is primarily dependent on the age at entry into ACERA[3] even though projected age at retirement, probability of receiving service versus disability retirement, etc. will also have an impact. In the case of General Tier 4, there is not a big difference between the average entry age of 38 for the 3,136 non-LARPD members versus the average entry age of 39 for the 20 LARPD members as of December 31, 2017.

As we recently discussed with the Board, ACERA is considering the application of the declining employer payroll policy to LARPD members enrolled in General Tier 1. After applying that policy, actuarial experience for LAPRD General Tier 1 members would no longer be pooled with the non-LARPD General Tier 1 members even though an average total normal cost rate would continue to be calculated under the Board's actuarial funding policy.

In the case of General Tier 1, there is a larger difference between the average entry age of 29 for the 183 non-LARPD members versus the average entry age of 41 for the 9 LARPD members as of December 31, 2017. However, based on the assumptions applied in the valuation, both of these non-LARPD and LARPD active employees would only be expected to work another 4-5 years from January 1, 2018 before retirement and there are very few of these active employees left. Therefore, the Board could choose to just continue the current method to calculate an average total normal cost rate for all members that have the same benefit formula.

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

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[2] The actuarial accrued liability, with respect to service already earned by an active employee as of the date of the valuation, is then calculated by accumulating his/her past normal costs.

[3] Generally speaking, a higher entry age would result in a higher normal cost rate.

We look forward to discussing this letter with you.

Sincerely,

Andy Yeung, ASA, EA, MAAA, FCA
Vice President and Actuary

Eva Yum, FSA, EA, MAAA
Associate Actuary

EZY/hy
Enclosures (5556600, 5556601)

ACTUARIAL FUNDING POLICY

I. PURPOSE

The purpose of the Actuarial Funding Policy (Policy) is to record the funding objectives and policy set by the Board of Retirement (Board) for the Alameda County Employees' Retirement Association (ACERA). This Policy is to ensure the systematic funding of future benefit payments for members of ACERA. In addition, this Policy records guidelines established by the Board to assist in administering ACERA's retirement fund in a consistent and efficient manner.

II. ASSUMPTIONS

A. ACERA is a public employee retirement system that was established in 1948 to provide retirement allowances and other benefits to all permanent General and Safety employees of the County of Alameda and participating special districts.

B. These benefits are financed through a combination of employee and employer contributions along with the investment return on those contributions. Benefit and contribution level may vary within ACERA depending on the member's classification (General or Safety), tier and by participating employer (the County or one of the Special Districts).

C. ACERA is governed by the provisions of the County Employees Retirement Law of 1937 (1937 Act). Alameda County adopted Article 5.5 of the 1937 Act. This Article creates a Supplemental Retiree Benefit Reserve (SRBR) through which the Board may pay supplemental benefits to retirees and beneficiaries.

D. An actuarial valuation is performed annually as of December 31 of each year to determine the contribution rates for the fiscal year that begins 6 months after the valuation date.

E. This Policy applies to "regular benefits" which refer to the retirement, disability, survivor and withdrawal benefits, and all cost-of-living increases that were adopted by the County of Alameda (or the special districts) and whose payments are guaranteed by those agencies. This Policy does not cover benefits financed by the SRBR. Also, this Policy does not cover the interest crediting procedure that is used by the Board to

allocate earnings among the different reserves (i.e., the valuation reserves used for the "regular benefits" and SRBR for "excess earnings benefits").

F. This Policy supersedes any previous actuarial funding policies.

III. OBJECTIVES

A. To achieve long-term full funding of the cost of "retiree benefits" provided by ACERA;

B. To seek reasonable and equitable allocation of the cost of "retiree benefits" over time;

C. To minimize volatility of the plan sponsor's contribution to the extent reasonably possible, consistent with other policy goals; and

D. To the extent that it does not conflict with the above goals, the Board will try to pool risks across all portions of ACERA to the extent that groups of members have similar benefit provisions, contribution provisions and contribution histories. Separate cost sharing groups will be set up to recognize meaningful differences in benefit structure (e.g., Safety or General), employer contribution history (e.g., payment of extraordinary contributions like Pension Obligation Bond payments and credit from reimbursement of implicit retiree health benefit subsidy) and benefit changes for a specific employer.

IV. FUNDING REQUIREMENTS AND COMPONENTS

ACERA annual funding requirement for "regular benefits" is comprised of a payment of the Normal Cost and a payment towards the Unfunded Actuarial Accrued Liability (UAAL). The Normal Cost and the amount of payment on UAAL are determined by the following three components of this Policy:

A. **Actuarial Cost Method:** the techniques to allocate the total Present Value of Future Benefits to each years of service, including all past years;

B. **Asset Smoothing Method:** the techniques that spread the recognition of investment gains or losses over a period of time for the purposes of determining the Actuarial Value of Assets used in the actuarial valuation process; and

C. **Amortization Policy:** the decisions on how, in terms of duration and pattern of contributions, to reduce the difference between the Actuarial Accrued Liability and the Valuation Value of Assets in a systematic manner.

Actuarial Cost Method:

The Entry Age method shall be applied to the projected retirement benefits in determining the Normal Cost and the Actuarial Accrued Liability. The Normal Cost shall be determined on an individual basis for each active member.

Asset Smoothing Method:

The investment gains or losses of each valuation period, as a result of comparing the actual market return and the expected market return, shall be recognized semi-annually in level amounts over 5 years in calculating the Actuarial Value of Assets. Total Net Deferred investment gains or losses cannot exceed 40% of the Market Value of Assets. Note that the Valuation Value of Assets is the Actuarial Value of Assets reduced by any applicable Non-Valuation Reserves, as defined in ACERA's Interest Crediting Policy.

Amortization Policy:

1. The UAAL, (i.e., the difference between the Actuarial Accrued Liability and the Valuation Value of Assets), as of December 31, 2011 shall be amortized separately from any future changes in UAAL over a period of 21 years from December 31, 2011.

2. After December 31, 2011, any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of December 31 will be amortized over a period of 20 years.

3. After December 31, 2011, any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 20 years.

4. Unless an alternative amortization period is recommended by the Actuary and accepted by the Board based on the results of an actuarial analysis:

- **a.** With the exception noted in b., below, the change in UAAL as a result of any plan amendments will be amortized over a period of 15 years or less;
- **b.** The increase in UAAL resulting from a temporary retirement incentive, including the impact of benefits resulting from additional service permitted under Section 31641.04 of the 1937 CERL (Golden Handshake), will be funded over a period of up to 5 years.

5. UAAL shall be amortized over "closed" amortization periods so that the remaining amortization period for each layer decreases by one year with each actuarial valuation.

6. UAAL shall be amortized as a level percentage of payroll so that the amortization amount in each year during the amortization period shall be expected to be a level

percentage of covered payroll, taking into consideration the current assumption for general payroll increase.

7. If an overfunding exists (i.e., the total of all UAAL becomes negative so that there is a surplus) and the amount of such surplus is in excess of 20% of the AAL per Section 7522.52 of PEPRA, such surplus that is in excess of 20% of the AAL and any subsequent such surpluses will be amortized over an "open" amortization period of 30 years. Any prior UAAL amortization layers will be considered fully amortized, and any subsequent UAAL will be amortized over 20 years as the first of a new series of amortization layers.

8. These amortization policy components will apply separately to each of ACERA's UAAL cost sharing groups.

V. OTHER POLICY CONSIDERATIONS

A. Timing of Contributions

1. The contribution rates determined in each valuation (as of December 31) will apply to the fiscal year that begins after the date of the valuation. The UAAL contribution rates in the actuarial valuation are not adjusted in advance to account for this delay.

2. Any change in contribution rate requirement that results from a plan amendment (including a change in member contribution rates) is generally implemented as of the effective date of the plan amendment or as soon as administratively feasible.

3. For purposes of calculating employer contributions, the employer and member contributions are assumed to be made during consistent intervals throughout the year.

B. Cost Groups

Separate cost groups will be set up in order to recognize differences in benefit structure (e.g., General Tiers 1 through 4 and Safety Tiers 1, 2, 2C, 2D and 4), member contribution levels, employer contribution history (e.g., payment of extraordinary contributions like Pension Obligation Bond (POB) payments as well as any credit from reimbursement of implicit retiree health benefit subsidy), and other differences that the

Board deems significant, such as benefit changes for a specific employer.

An employer may be contributing to one or more different cost groups depending on the benefit structure adopted for its employees.

1. ACERA's total (employer and member) Normal Cost is determined separately for each group of members that have the same benefit formula (on a prospective basis) based on the Actuarial Cost Method described above. This means that to the extent that members have the same plan provisions for future benefit accruals, then the total Normal Cost (as a percentage of payroll) for those employers will be the same.

2. The net employer Normal Cost is calculated by reducing the total Normal Cost for expected member contributions. This is done separately for each of the different member contribution arrangements and benefit structures that exist for the various employers. The various member contribution arrangements are described in more detail in the actuarial valuation report.

3. ACERA's UAAL is determined separately based on contribution and benefit history. This means that there could be separate calculations of AAL for cost groups that have significantly different contribution histories, or prior benefit accrual provisions (e.g., General versus Safety). Plan assets are tracked separately for groups with different UAAL contribution histories unless otherwise established by the Board.

4. There is a further adjustment made to the UAAL contribution rate for LARPD General Tiers 3 and 4 to account for the District's Tier 3 employees receiving the 2.5% @ 55 formula for past service and the payment of the District's other UAAL as a level percent of payroll over a closed amortization period. This adjustment is described in more detail in the actuarial valuation report.

VI. GLOSSARY OF FUNDING POLICY TERMS

Present Value of Future Benefits (PVFB): the present value at a particular point in time of all projected future benefit payments for current plan members. The future benefit payments and the present value of those payments are determined using actuarial assumptions as to future events. Examples of these assumptions are estimates of retirement patterns, salary increases,

investment returns, etc. Another way to think of the PVB is that if the plan has assets equal to the PVB and all actuarial assumptions are met, then no future contributions would be needed to provide all future service benefits for all current members, including future service and salary increases for current active members.

Actuarial Cost Method: allocates a portion of the total cost (PVB) to each year of service, both past service and future service.

Normal Cost (NC): the cost allocated under the Actuarial Cost Method to each year of active member service.

Entry Age Actuarial Cost Method: A funding method that calculates the Normal Cost as a level percentage of pay over the working lifetime of the plan's members.

Actuarial Accrued Liability (AAL): the value at a particular point in time of all past Normal Costs. This is the amount of assets the plan would have today if the current plan provisions, actuarial assumptions and participant data had always been in effect, contributions equal to the Normal Cost had been made and all actuarial assumptions came true.

Market Value of Assets (MVA): the fair value of assets of the plan as reported in the plan's audited financial statements.

Actuarial Value of Assets (AVA) or smoothed value: a market-related value of the plan assets. The AVA tracks the market value of assets over time and smoothes out short-term fluctuations in market values.

Valuation Value of Assets (VVA): the value of assets used in the actuarial valuation to determine contribution rate requirements. It is equal to the Actuarial Value of Assets reduced by the value of any applicable Non-Valuation Reserves as defined in ACERA's Interest Crediting Policy. In particular, the VVA will not include assets allocated to the SRBR.

Unfunded Actuarial Accrued Liability (UAAL): the positive difference, if any, between the AAL and the VVA.

Surplus: the positive difference, if any, between the VVA and the AAL.

Actuarial Gains and Losses: changes in UAAL or surplus due to actual experience different from what is assumed in the actuarial valuation. For example, if during a given year the assets (after smoothing) earn more than the investment return assumption, the amount of earnings above the assumption will cause an unexpected reduction in UAAL, or "actuarial gain" as of the next valuation. Actuarial gains and losses include contribution gains and losses that result

from actual contributions made being greater or less than the level determined under this Policy.

Valuation Date: December 31 of every year.

III. POLICY MODIFICATION

The Actuarial Committee, or other committee designated by the Board, shall review this policy at least every three (3) years. The Committee shall make recommendations to the Board concerning any improvements or modifications it deems necessary.

VII. POLICY HISTORY

A. The Board adopted this Policy on September 18, 2014.

INTEREST CREDITING POLICY

I. PURPOSE

The purpose of this policy is to establish the process to be used by the Alameda County Employees' Retirement Association ("ACERA") to credit semi-annual interest to reserves. This policy shall include, but may not be limited to, the following:

A. Defining the reserves maintained by ACERA;

B. Determining the regular and excess rates of interest at which reserves are to be credited; and

C. Determining the priorities and sequence by which interest will be credited to the reserves.

II. OBJECTIVES

The policy has been developed with the following objectives:

A. To comply with appropriate legal and regulatory requirements.

B. To maintain consistency between the reserving structure and the actuarial funding of ACERA.

C. To limit, to the extent possible, the volatility of interest crediting from period to period.

D. To limit, to the extent possible, the charging of losses to valuation reserves.

E. To assure that the reserve values track the market value of assets over the long term.

III. GOVERNING LAW

ACERA is governed by provisions of the County Employees Retirement Law of 1937 ("CERL"), as well as other federal and State laws relating to public retirement systems.

CERL generally governs interest crediting and excess earnings. Under CERL, interest is credited every 6 months. Various reserves and designations are established and maintained by the Board under procedures adopted by the Board pursuant to Article 5.5 of CERL.

IV. RESERVES

ACERA maintains the following reserves:

A. Valuation Reserves

1. Member Deposit Basic and Cost-of-Living Reserves – The reserves to which member contributions are credited. These contributions may be refunded to the member upon separation from service or left on deposit by the member upon separation from service (deferred retirement). Upon retirement of a member, transfers are made to Annuity and Cost-of-Living Reserves.

2. Employer Advance (Basic) Reserve – The reserve to which basic employer contributions are credited, including amounts made directly to the retirement plan as well as amounts made to the 401(h) Reserve Account for payment of estimated retiree health benefits (OPEB) for the next fiscal year but reimbursed with a transfer from the SRBR. Upon retirement of a member, a transfer is made to Pension (Current and Prior) Reserves (Pension).

3. Cost-of-Living Reserve – The reserve to which cost-of-living employer contributions are credited and Member Cost-of-Living contributions for new retirees are transferred when the member retires.

4. Retired Member Reserves (Annuity & Pension) – The reserves to which transfers are made from Member Deposit Basic and Employer Advance (Basic) Reserve at the time of a member's retirement. The total of these reserves should equal the present value of the total benefits (excluding cost-of-living increases) due all retirees and eligible beneficiaries had there been no actuarial gains or losses and changes in actuarial assumptions.

5. Survivor Death Benefit Reserve – The reserve is credited with the present value of death and survivor benefits expected to be paid upon the death of an active member.

B. Non-Valuation Reserves

1. Contingency Reserve Account – The reserve is maintained in an amount equal to 1% of the total market value of assets to provide funds to offset future deficiencies in interest earnings, losses on investment or other contingencies. This reserve consists of the minimum 1% required pursuant to Section 31616.

If the Contingency Reserve is negative, then it will be included as an offset to the valuation value of assets used to determine the employers' contribution rates in the annual actuarial valuation.

2. 401(h) Reserve Account – The reserve is credited with employer contributions in an amount sufficient for payment of estimated retiree health benefits (OPEB) for the next fiscal year. Once the employers make the contributions to this Account, there will be a reimbursement to the Employer Advance Reserve through a transfer from the SRBR.

3. Supplemental Retiree Benefit Reserve (SRBR) – This reserve is used for the payment of benefits provided to members who are retired or beneficiaries as determined by the Board in accordance with Section 31618 of the CERL. For book-keeping purposes only, the SRBR Reserve is divided into two parts:

a. OPEB Reserve – This reserve is used to fund discretionary retiree health benefits.

b. Non-OPEB Reserve – This reserve is used to fund discretionary supplemental COLA benefits and to fund vested $1,000 lump sum death benefits.

C. Financial Statement Reserves and Accounts

Market Stabilization Reserve – The difference between the current market value of assets and the actuarial value of assets used to establish the above reserves.

V. GUIDELINES

A. "Available Earnings" are determined on current period earnings of the fund calculated on the actuarial value of assets as determined under the Board's funding policy, plus any positive balance in the Contingency Reserve.

B. Credit regular interest at the assumed annual valuation interest rate on the valuation reserves, the 401(h) Reserve Account and the SRBR. Earnings will be credited twice each year to all reserves that have been on deposit for six full months, in accordance with Section 31615 of the CERL. The crediting of interest will take effect on June 30 and December 31 of each year.

C. Maintain a 1% Contingency Reserve Account required pursuant to Section 31616. (It should be noted that an additional amount up to 2% may be included at the discretion of the Board as permitted by Section 31616. The Board's current policy is not to include any such additional discretionary amount.)

D. Any Available Earnings remaining after crediting full interest to valuation reserves, the 401(h) Reserve Account, the SRBR, and restoring the Contingency Reserve Account to its target level constitute Excess Earnings. The Excess Earnings will be allocated in the following manner:

1. Allocate one-half to the Unallocated SRBR.

2. Allocate the other one-half of the remaining earnings to the valuation reserves and the 401(h) Reserve Account in proportion to the amounts in each of those reserves.

E. The Glossary of terms is attached as Exhibit A.

VI. REGULAR INTEREST CREDITING PROCESS

Step 1 Determine "Available Earnings" for accounting period as the sum of:

A. Earnings of the retirement fund for the period based on actuarial value of assets, expressed in dollars. This could be a negative amount.

B. Any positive balance in the Contingency Reserve Account.

C. If sum of A. and B. is negative, such negative amount is credited only to the Contingency Reserve Account but not to the valuation reserves, the 401(h) Reserve Account or the SRBR.

Step 2 Credit interest to the valuation reserves, the 401(h) Reserve Account, and the SRBR

A. If in the prior accounting period the Contingency Reserve Account was reduced below 1% to meet the interest crediting requirements under Step 2 in the prior period, transfer Available Earnings from the current period into the Contingency Reserve Account to restore it to 1% of total assets.

B. Credit the valuation reserves, the 401(h) Reserve Account and the SRBR at a rate up to one-half of the assumed annual valuation interest rate, if there are enough Available Earnings.

C. Deduct the interest credited above from Available Earnings which includes the Contingency Reserve Account even if that Account was just restored to 1% in Step 2A[1]. If the amount of interest credited is more than the Available Earnings, credit in Step 2B only up to the amount of the Available Earnings.

Step 3 Maintain a Contingency Reserve of 1%

Transfer from any remaining Available Earnings from Step 2C into the Contingency Reserve the amount required to maintain a Contingency Reserve of 1% of total assets.

VII. EXCESS INTEREST CREDITING PROCESS

Apply any remaining available earnings (excess earnings) as follows:

A. Allocate one-half of any remaining earnings to the SRBR.

B. Allocate the other one-half of the remaining earnings to the valuation reserves and the 401(h) Reserve Account in proportion to the amounts in each of those reserves, on the balance in the fund for at least six full months.

VIII. POLICY REVIEW

This policy has been adopted by a majority vote of the ACERA Board, and can be amended by the ACERA Board by a majority vote. This policy is effective with the six-month interest crediting period ending December 31, 2015. This policy will be reviewed as deemed necessary.

IX. POLICY HISTORY

The Board adopted this policy on December 17, 2015.

[1] Restoring the Contingency Reserve to 1% in Step 2A and immediately including the amount in that Reserve as Available Earnings in Step 2C in the same interest crediting period would have the effect of not restoring the 1% Contingency Reserve for use in the subsequent interest crediting period until Step 3, i.e., until after crediting interest to all the reserves in Step 2B. This order of crediting interest to the Reserves has been researched by ACERA's legal counsel and determined to be a reasonable exercise of discretion available to the Board in accordance with Government Code Section 31616. It would also result in more stable pattern of interest crediting in some situations, based on scenarios developed by ACERA's actuary.

EXHIBIT A

GLOSSARY

Actuarial Terms and Definitions

The following list defines certain technical terms relevant to the Regular Interest and Excess Interest Crediting Policy for the convenience of the reader:

Investment Return

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain, and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return reflects a smoothing of market gains and losses to avoid significant swings in the value of assets from one year to the next.

Actuarial Value of Assets

Market value of assets less unrecognized market value gains and losses from each of the last five years. Market value gains and losses are equal to the difference between the actual market return and the expected return on the market value, and are recognized semi-annually over a five-year period. The actuarial value of assets is limited to no greater than 140% or less than 60% of the market value of assets.

Valuation Value of Assets

The actuarial value of assets reduced by the value of the Non-Valuation Reserves (401(h) Reserve Account, SRBR and Contingency Reserve (unless negative).

Assumed Annual Valuation Interest Rate

This is the interest rate adopted by the Board from the actuarial valuation that established the employer and employee contribution rates for that fiscal year.

MEMORANDUM TO THE ACTUARIAL COMMITTEE

DATE: October 18, 2018

TO: Members of the Actuarial Committee

FROM: Margo Allen, Fiscal Services Officer

SUBJECT: Assessment and Disclosure of Risk, ASOP #51 Report Presentation

Executive Summary

Segal Consulting (Segal) is presenting its initial review of the new Actuarial Standard of Practice (ASOP) No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, effective for a measurement date on or after November 1, 2018, and for ACERA's December 31, 2018, valuation.

Staff had the opportunity to thoroughly review the various risk assessment methodologies proposed by Segal. Staff agrees with Segal that the deterministic scenario tests and deterministic sensitivity tests would adequately address ACERA's risk exposure. However, the Committee may want to consider stochastic projections to address the impact of the 50/50 allocation of future excess earnings to the Supplemental Retiree Benefits Reserve (SRBR) for disclosure purposes, as previously recommended.

Recommendation

Staff recommends that the Actuarial Committee recommend to the Board of Retirement to apply deterministic scenario tests for ACERA's December 31, 2018, risk report and to apply deterministic sensitivity tests for ACERA's December 31, 2019, risk report.

Alameda County Employees' Retirement Association - Assessment and Disclosure of Risk

Actuarial Committee

October 18, 2018

Presented by:
Andy Yeung, ASA, EA, MAAA, FCA
Eva Yum, FSA, EA, MAAA

Segal Consulting

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Agenda

1. **New Actuarial Standard on Risk Assessment**
   - Analyses Required to Satisfy New Disclosure Requirements
2. **Sample Deterministic Projections**
   - Scenario Test
   - Sensitivity Test
3. **Sample ALM/Stochastic Projection**
4. **Content of Risk Report for ACERA**

Introduction

- Risk is one of the biggest concerns facing public sector pension plan sponsors, boards and stakeholders
- To identify and address risk requires an understanding of what the risks are and what information is useful to assess risk
- Certain tools can help identify and quantify the types of risk and their magnitude
- Plan sponsors and boards can then make more informed and better decisions for the long term

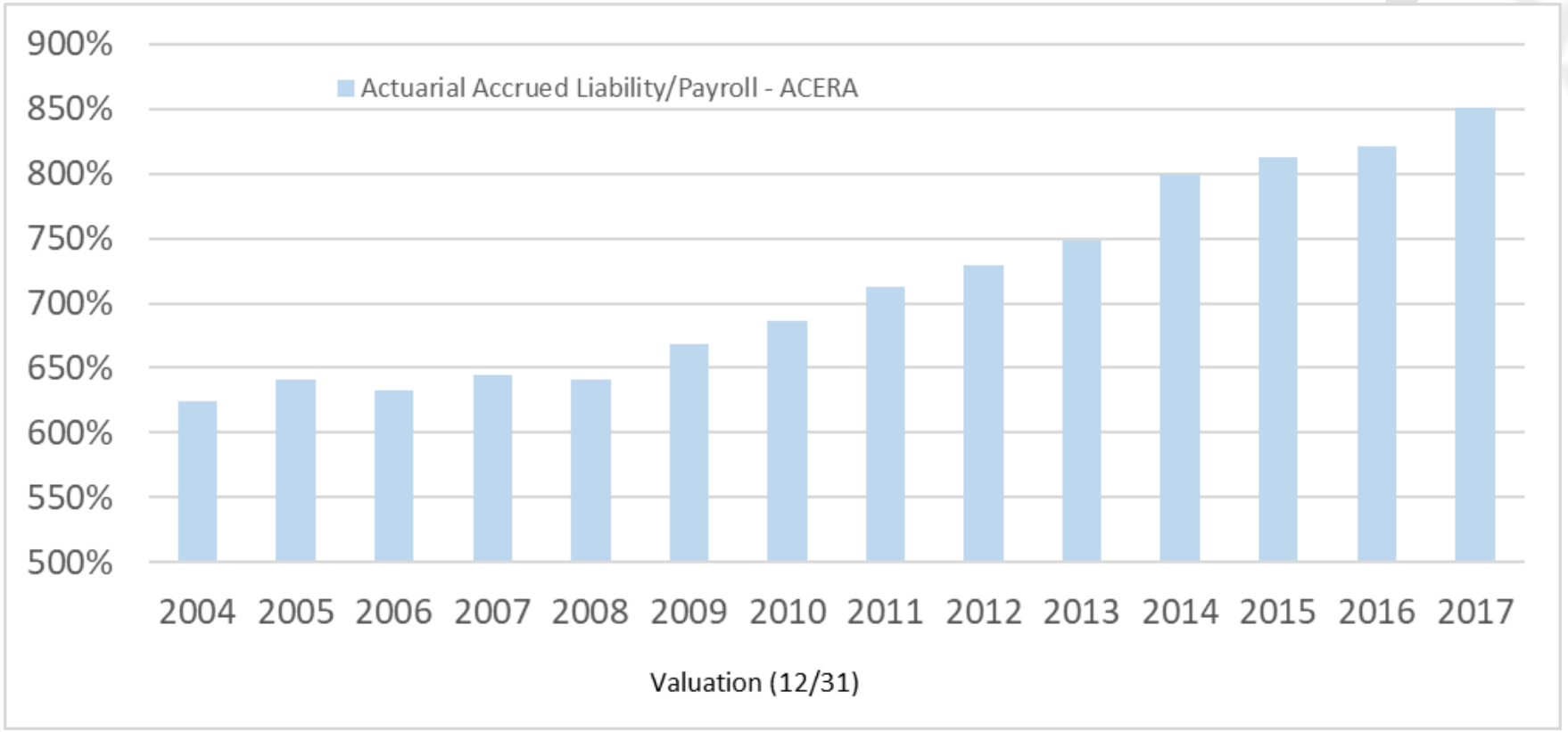
In this presentation, Segal will discuss some of the risks we see today and unfolding in the future

Plans Have More Inactive Members Relative to Active Members

- Public sector pension plans have aging populations...

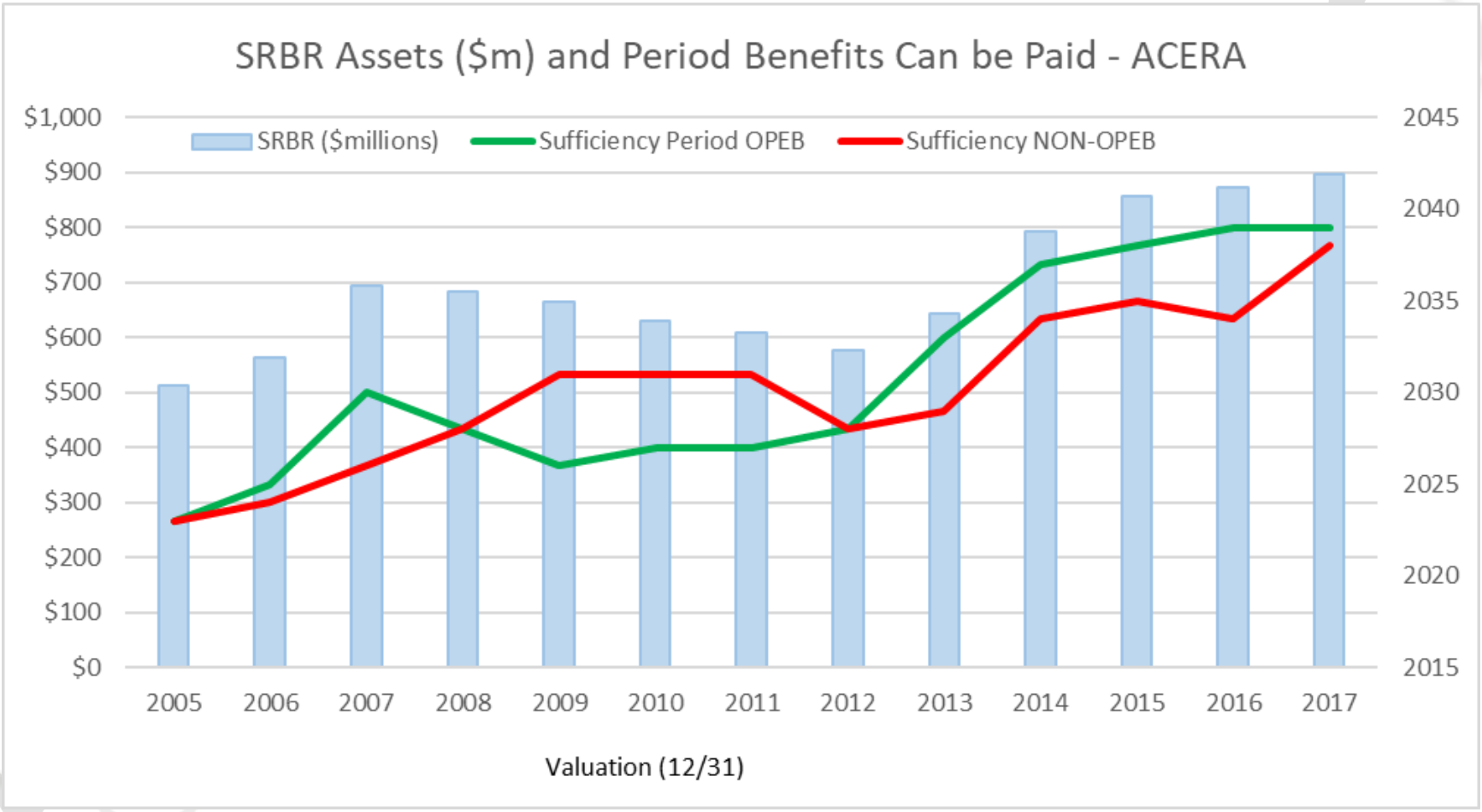
Plan Risks Increase as Liabilities Increase

- …and their actuarial accrued liabilities (AAL) are getting larger relative to their sponsoring entities …



Plans With Special Financial and Benefit Arrangements May be Subject to Additional Risks

- As an Article 5.5 County, OPEB and non-OPEB benefits are paid subject to availability of funds in the SRBR



Assessment and Disclosure of Risk

Recent Actuarial Standards Board (ASB) activities

- ASB Pension Committee has been reviewing and developing pension-related standards
- New Actuarial Standard of Practice (ASOP) No. 51 on risk assessment effective for measurement date on or after November 1, 2018
  - Effective with December 31, 2018 valuation for ACERA

Why is the standard needed?

- Actuarial calculations require use of assumptions regarding future economic and demographic experience
- Intended users of these measurements may not understand the:
  - Effect of future experience differing from the assumptions
  - Potential volatility of future measurements resulting from such differences

Assessment and Disclosure of Risk (cont.)

- When does this standard apply to actuaries?
  - When performing a funding valuation
  - When performing a pricing valuation of a proposed change that would, in the actuaries' opinion, significantly change the types or levels of risk
- What does the actuary need to do to comply?
  - Include an assessment of each of the risks that the actuary identifies
  - Assessment need not be based on numerical calculations – either qualitative or quantitative
  - Assessment should account for applicable plan circumstances – funding policy, investment policy, funded status, demographics, etc.

Steps the Actuary Needs to Take

- **Identify and assess risks** that may affect the plan's future financial conditions
  - Standard does not require numerical assessment
- Recommend a **more detailed assessment** if actuary believes it would be beneficial to intended users
- Calculate and disclose **plan maturity measures**
- Identify and disclose **historical values of actuarial measurements** that are significant in understanding plan risks
- Prepare actuarial communication

Identification of Risks

Risks related to economic variables

- Investment return
- Inflation
  - Price inflation
  - Wage inflation

Risks related to demographic events

- Mortality
- Payroll and/or population changes
- Retirement, disability, termination

Risks related to external forces

- Governance risk
- Regulatory risk
- Litigation risk
- Political risk

These risks are challenging to manage; however, not all of them are required to be studied under the ASOP

ASOP 51: Assessing Risks

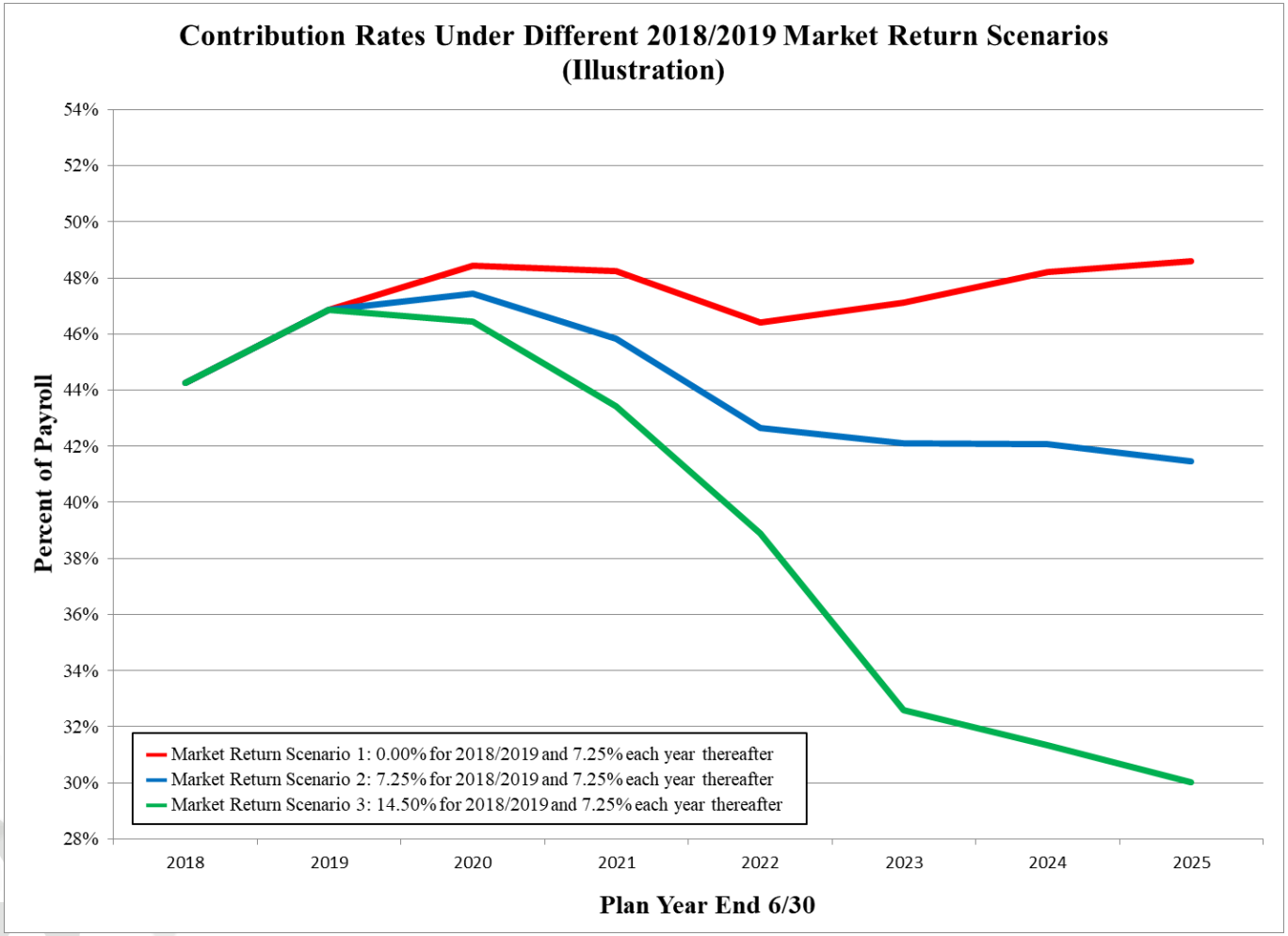
- The risk assessment does **not** need to be based on numerical calculations
- The actuary should use professional judgment when deciding how to assess risk
- Non-numerical methods may include:
  - Commentary about actual experience and the effect on future results
  - Relevant statements relating to:
    - Asset performance and expected future returns
    - A reduction in membership payroll and its potential effect on future financial measurements
- When selecting risk assessment methods, the actuary:
  - Should take into account the nature, scale, and complexity of the plan
  - May consider practicality, usefulness, reliability, timeliness, cost efficiency
- The Actuary is NOT required to:
  - Evaluate ability/willingness of sponsor to make contributions when due
  - Anticipate future changes in applicable law

Numerically Based Methods for Assessing Risk

- Scenario tests
  - Assessing impact of one possible event, several simultaneous events, or several sequential events
  - *Example:* Projections modeling an economic recession that may impact both actual investment returns and employment levels
- Sensitivity tests
  - Assessing impact of a change in actuarial assumption
  - *Example:* Change the investment return assumption in a future year
- Stress tests
  - Assessing impact of adverse changes in one or a few factors
  - *Example:* Solve for actual investment return where any return lower will move the plan below a set funded level
- Stochastic modeling
  - Generating numerous potential outcomes by allowing random variations (usually of investment returns)
  - *Example:* Projections using a defined asset allocation mix to produce a distribution of possible returns and determine the probability of the Plan being funded at a set level in 10 years

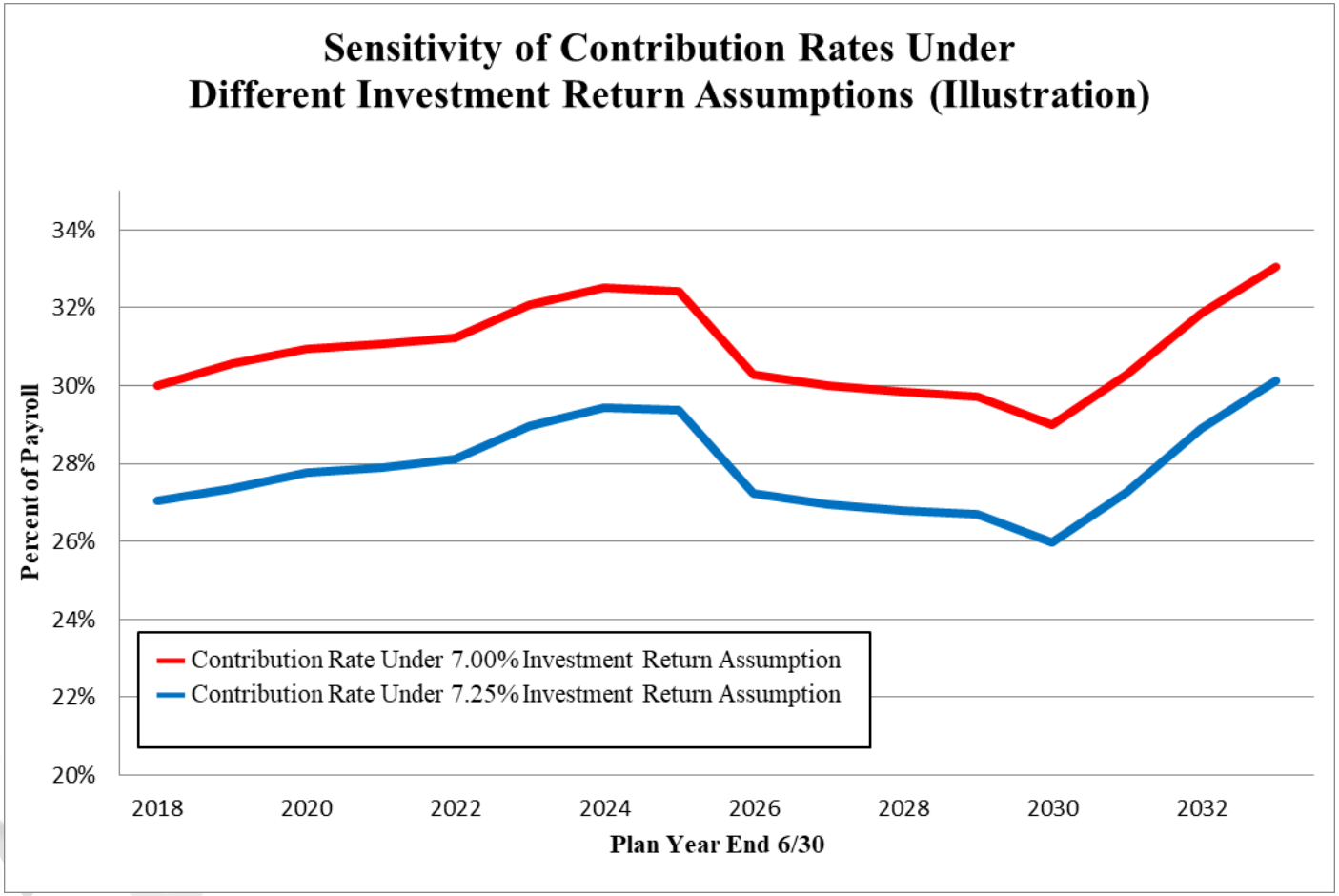
Deterministic Scenario Tests - Illustration

- What happens if a retirement system earns higher/lower market return in one year?
  - Sample retirement plan: 7.25% investment return assumption used in the June 30, 2018 valuation
  - Illustrated using: 14.50% or 0.00% earned in 2018/2019 (earned 7.25% above or below assumed rate)



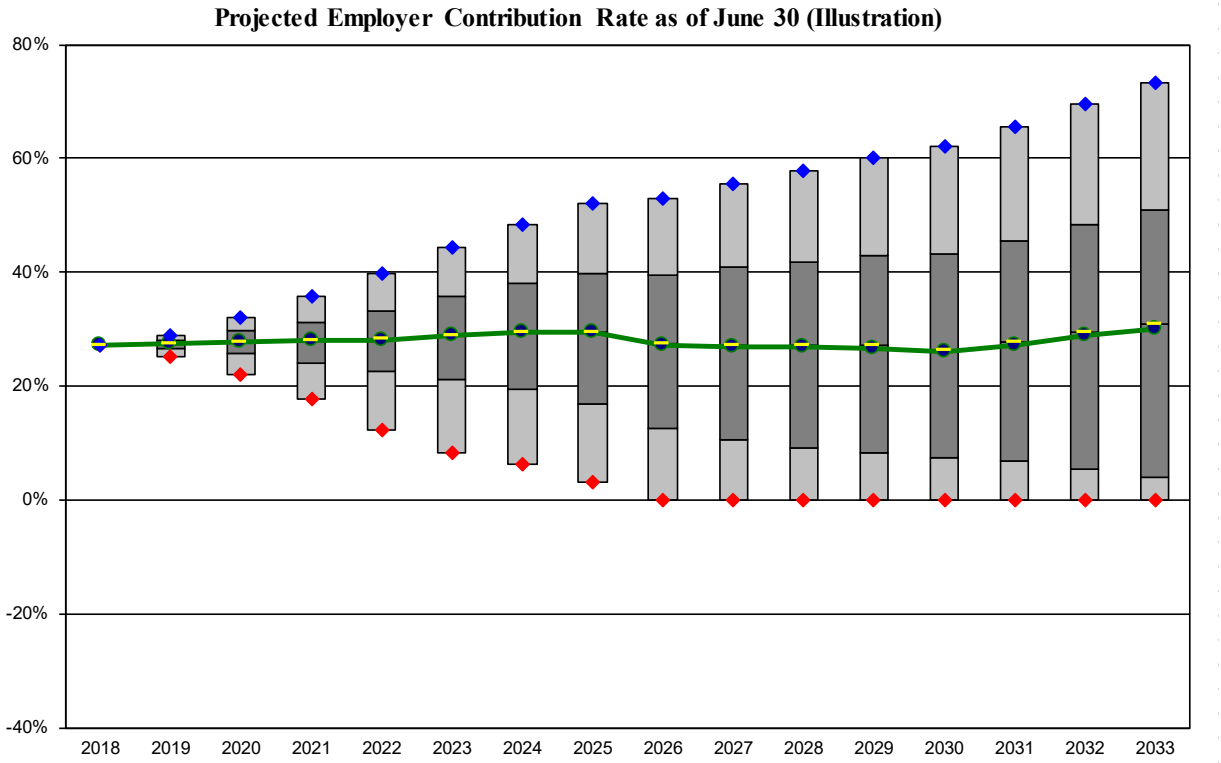
Deterministic Sensitivity Test - Illustration

- What if a retirement system decreases the investment return assumption?
  - Sample retirement plan: 7.25% investment return assumption used in the June 30, 2018 valuation
  - Illustrated using: 7.00% investment return assumption used in the June 30, 2018 valuation



Stochastic Projection - Illustration

- What happens to retirement system's contribution rates under different future market returns?



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
95th	27%	29%	32%	36%	40%	44%	48%	52%	53%	56%	58%	60%	62%	66%	69%	73%
75th	27%	28%	30%	31%	33%	36%	38%	40%	39%	41%	42%	43%	43%	46%	48%	51%
50th	27%	27%	28%	28%	28%	29%	29%	29%	27%	27%	27%	27%	26%	28%	29%	31%
25th	27%	27%	26%	24%	22%	21%	19%	17%	12%	11%	9%	8%	7%	7%	5%	4%
5th	27%	25%	22%	18%	12%	8%	6%	3%	0%	0%	0%	0%	0%	0%	0%	0%
	27%	27%	28%	28%	28%	29%	29%	29%	27%	27%	27%	27%	26%	27%	29%	30%

Baseline deterministic projection using current 7.25% investment return assumption

- In 50% of the trials, the employer contribution rate is between 4% and 51% in 15 years.

Examples of Plan Maturity Measures

- Ratio of market value of assets to payroll (asset volatility ratio or AVR)
- Ratio of actuarial accrued liability to payroll (liability volatility ratio or LVR)
- Ratio of inactive members to active members
- Ratio of net cash flow to market value of assets
- Ratio of benefit payments to contributions
- Duration of actuarial accrued liability

Examples of Historical Information

- Funded ratio
- Actuarially determined contribution
- Actuarial gains and losses
- Normal cost
- Comparison of actual contributions to actuarially determined contributions
- Plan participant count
- Covered payroll

Content of Risk Report for ACERA

- Deterministic scenario tests
  - 0%, 7.25% and 14.50% returns for 2019 in December 31, 2018 risk report
- Deterministic sensitivity tests
  - Consider impact of different long term investment return and/or inflation assumptions in December 31, 2019 risk report
  - Before new assumptions are approved in triennial experience study for December 31, 2020 valuation
- Stochastic projections
  - Consider impact of employer contribution rates and SRBR sufficiency periods under different market returns in December 31, 2019 risk report
  - Provide information on impact of 50/50 allocation of future excess earnings to SRBR (for disclosure purposes) in next triennial experience study
- Plan maturity measures
- Historical information
- Other?

Questions and Discussions