What's Happening @ OSA?

Presentation to: DRS Advisory Committee

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Today’s Presentation

- Highlights of the 2021 Report on Financial Condition
- Highlights of the 2021 Economic Experience Study
  - Published jointly; full report available on OSA’s website
  - Please see the Appendix for source materials that support this presentation
- Administrative Factors
  - Potential Impact of Economic Assumption Changes
Framework for Assessing Financial Condition

What is the health of the retirement plans today?
What is the plan health expected to be in the future?
How can the future look different than expected?
How can risk factors be managed?
Funded Ratio Generally Increased from 2014

Funded Ratio as of June 30, 2014, and June 30, 2019

Projector Contribution Rates Reflecting FY 2021 Investment Return

<table>
<thead>
<tr>
<th>System</th>
<th>2021-23 Biennium</th>
<th>2023-25 Biennium</th>
<th>2025-27 Biennium</th>
<th>2027-29 Biennium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adopted</td>
<td>Projected</td>
<td>Projected</td>
<td>Projected</td>
</tr>
<tr>
<td>PERS</td>
<td>10.07%</td>
<td>8.55%</td>
<td>4.38%</td>
<td>4.38%</td>
</tr>
<tr>
<td>TRS</td>
<td>14.24%</td>
<td>13.40%</td>
<td>5.77%</td>
<td>5.24%</td>
</tr>
<tr>
<td>SERS</td>
<td>11.47%</td>
<td>10.12%</td>
<td>4.72%</td>
<td>4.72%</td>
</tr>
<tr>
<td>PSERS</td>
<td>10.21%</td>
<td>9.76%</td>
<td>5.46%</td>
<td>5.28%</td>
</tr>
<tr>
<td>LEOFF</td>
<td>8.53%</td>
<td>8.53%</td>
<td>7.74%</td>
<td>7.78%</td>
</tr>
<tr>
<td>WSPRS</td>
<td>17.66%</td>
<td>17.65%</td>
<td>7.03%</td>
<td>6.88%</td>
</tr>
</tbody>
</table>

- PERS 1 and TRS 1 contributions projected to end after 2023-25 Biennium
- Projected rates do not reflect updated EES recommendations
2021 Was Different than Expected

- June 2021 revenue forecast better outlook than June 2020 revenue forecast
- Investment return on pension assets for FYE June 30, 2021, almost 29%
  - Highest single year return in over 30 years
  - Approximately $22 billion in investment earnings above assumed
  - Will any be given back through a market downturn?

The Future Might Be Different than We Expect

- OSA’s risk assessment model simulates 2,000 different investment return scenarios
- Assess risks under Current Law and Past Practices
- Affordability and solvency risk measures have improved
  - Please refer to the RFC for likelihood of various projected affordability and solvency measures
  - Select Measures of Pension Risk table on page 11
- Commentary on Risk webpage provides additional risk analysis and sensitivity of financial measures
Managing Risks We Can Control

- Measure, Monitor, & Mitigate Risks
- Reasonable Assumptions
- Adequate & Timely Contributions
- Affordable & Sustainable Plan Designs

Risk Management

Report on Financial Condition: Concluding Comments

- Improvements to affordability and solvency metrics
  - Funded ratios improving
  - Contribution rates are beginning to decline after some of the highest in plan history
- FY 2021 investment return further improves projected financial outcomes
- Managing pension risks requires
  - Regular monitoring
  - Making necessary adjustments
  - Applying discipline and a long-term view when considering benefit changes and contribution requirements
What Are the Assumptions in This Study?

- Inflation
- General Salary Growth
- Investment Return
- Membership Growth for Plan 1 Funding
It All Starts with Inflation

National Inflation Forecasts Remain Low and Similar to Our Last Study

Consistent with our prior study, we continue to assume a 2.35% national inflation assumption.
We Continue to Expect STB Inflation to Outpace National Inflation

Average Inflation

<table>
<thead>
<tr>
<th></th>
<th>STB CPI-W</th>
<th>National CPI-W</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last 30 years</td>
<td>2.72%</td>
<td>2.26%</td>
<td>0.46%</td>
</tr>
<tr>
<td>Last 25 years</td>
<td>2.52%</td>
<td>2.11%</td>
<td>0.42%</td>
</tr>
<tr>
<td>Last 20 years</td>
<td>2.36%</td>
<td>2.03%</td>
<td>0.34%</td>
</tr>
<tr>
<td>Last 15 years</td>
<td>2.39%</td>
<td>1.87%</td>
<td>0.52%</td>
</tr>
<tr>
<td>Last 10 years</td>
<td>2.27%</td>
<td>1.66%</td>
<td>0.62%</td>
</tr>
<tr>
<td>Last 5 years</td>
<td>2.60%</td>
<td>1.70%</td>
<td>0.90%</td>
</tr>
</tbody>
</table>

- Consistent with our prior study, we continue to assume a 0.40% regional price inflation differential
- Leads to a Total Inflation assumption of 2.75%

Estimate Real Wage Growth above Inflation
OSA Models Total Salary Growth with Economic and Demographic Assumptions

- **Economic assumption**
  - Inflation
  - Real Wage Growth (economic growth above inflation)

- **Demographic assumption**
  - Service-Based Salary increases
  - For example, merit, longevity or “step increases”
  - Studied every 5-6 years as part of the demographic experience study

- We combine all sources, economic and demographic, to model total expected salary growth

- Focusing on the Economic assumption today
  - Once you set your Inflation assumption, you’re left with the Real Wage Growth assumption to set your General Salary Growth assumption

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We’ve Observed a Longer-Term Downward Trend in Historical Real Wage Growth

<table>
<thead>
<tr>
<th>Geometric Averages</th>
<th>Observed Growth of Average Salary (a + b)</th>
<th>Observed Inflation (a)</th>
<th>Estimated Real Wage Growth (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last 10 years (2010-2019)</td>
<td>2.73%</td>
<td>2.17%</td>
<td>0.56%</td>
</tr>
<tr>
<td>Last 20 years (2000-2019)</td>
<td>3.38%</td>
<td>2.46%</td>
<td>0.92%</td>
</tr>
<tr>
<td>Last 30 years (1990-2019)</td>
<td>3.60%</td>
<td>2.90%</td>
<td>0.69%</td>
</tr>
</tbody>
</table>

- Separately, CBO and SSA average annual real wage growth forecasts declined by 11-13% from our last study
- As a result, we decreased our General Salary Growth assumption to 3.25%
  - Represents a Real Wage Growth assumption change from 0.75% to 0.50%
Investment Return Expectations Used to Discount Liabilities

<table>
<thead>
<tr>
<th>INFLATION</th>
<th>GENERAL SALARY GROWTH</th>
<th>INVESTMENT RETURN</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Inflation</td>
<td>Regional Differential</td>
<td>Real Rate of Return</td>
</tr>
</tbody>
</table>

What Are Some of the Key Considerations When Selecting a Return Assumption?

- Capital market assumptions or CMAs
- Asset allocation
- Simulated future returns, net of expenses*
- Sensitivity analysis
- Consistency of WSIB CMAs and return simulations with use for setting assumptions for a pension funding valuation

*Focus of today’s presentation.
Distribution of Return Assumptions in Other States

Median return declined from 7.25% to 7.0%

Source: See linked presentation in Appendix for limitations.

WSIB Simulated Returns for the Commingled Trust Fund Have Decreased since Our Last Study

<table>
<thead>
<tr>
<th>Simulated Future Investment Returns*</th>
<th>2021</th>
<th>2019</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>75th Percentile</td>
<td>8.8%</td>
<td>9.3%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>60th Percentile</td>
<td>7.6%</td>
<td>8.1%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>55th Percentile</td>
<td>7.2%</td>
<td>7.7%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>Median Return</td>
<td>6.9%</td>
<td>7.4%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>45th Percentile</td>
<td>6.5%</td>
<td>7.0%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>40th Percentile</td>
<td>6.1%</td>
<td>6.6%</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>4.9%</td>
<td>5.4%</td>
<td>(0.5%)</td>
</tr>
</tbody>
</table>

*Simulated returns over 25-year period.

- 50 basis point decreases to the median return (and at most percentiles)
- Half the simulated returns fall below (or above) “Median Return”
- Ultimately, we arrived at an Investment Return assumption of 7.00%
What Are the Assumptions in This Study?

- Inflation
- General Salary Growth
- Investment Return
- Membership Growth for Plan 1 Funding

Membership Growth for Plan 1 Funding

- No change to prior recommendation, other than rounding 0.95% recommendation to 1.00%
  - We rounded the prior assumption/recommendation to reflect a lower level of precision in our future growth expectation
- What is the practical effect?
  - No expected contribution rate or budget impact from this single assumption change (since Plan 1 UAAL rates are at the floor)
Summary of Long-Term Economic Assumptions

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Current</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>2.75%</td>
<td>2.75%</td>
</tr>
<tr>
<td>General Salary Growth</td>
<td>3.50%</td>
<td>3.25%</td>
</tr>
<tr>
<td>Investment Return</td>
<td>7.50%</td>
<td>7.00%</td>
</tr>
<tr>
<td>Growth in System</td>
<td>0.95% (PERS)</td>
<td>1.00% (PERS)</td>
</tr>
<tr>
<td>Membership</td>
<td>1.25% (TRS)</td>
<td>1.00% (TRS)</td>
</tr>
</tbody>
</table>

*Note: Excludes LEOFF 2.*

- What’s the impact to contribution rates and budgets?
  - We estimated the cost/savings in combination with the nearly 29% investment rate of return for FY21
  - Expected to result in a net cost for the 2023-25 Biennium and a net savings for the 2025-27 Biennium
  - This outcome can partially be attributable to asset valuation method
  - Decision-makers voted to smooth these short-term impacts to budgets

Administrative Factors
Background

- $1 = four quarters = ten dimes = twenty nickels
- Different ways of receiving the same money
- Administrative Factors allow members different ways of receiving roughly the same total value of benefits
- Examples
  - Early Retirement
  - Joint-and-Survivor Option
  - Annuity and Service Credit Purchase
  - Plans 1 Optional COLA

Intent/Goal of Factors

- Cost-neutral options, or as close to that as possible
  - Also known as “actuarial equivalence”
  - Unless it’s a subsidized benefit as defined in statute
- Important to consider administrative simplicity
  - The more factors, the more difficult to calculate and administer
  - Blend factors where appropriate
  - Across plans, status, and gender
Primary Inputs for Calculating Factors

- Life Expectancy
  - See Mortality Rates from our 2013-18 Demographic Experience Study
- Assumed Investment Rate of Return
  - Recently adopted rate is lower than what’s currently in statute

Impact of EES on Factors

- Some Administrative Factors will be impacted more than others by a change to assumptions
  - For example, Joint-and-Survivor Option factors are likely to be less impacted than Annuity Purchase factors
- For example, the cost for members to purchase an annuity could increase under recommended assumptions
  - Let’s consider an age 65 Plan 3 member with $100,000 in their DC account
  - This hypothetical individual would initially receive about
    - $7,500 per year assuming a 7.5% return
    - $7,150 per year assuming a 7.0% return, just under a 5% reduction
Next Steps/Timeline

- Administrative Factors will need to be updated based upon
  - Changes to economic assumptions adopted by the PFC
  - The impact of our 2013-18 Demographic Experience Study
- Project requires significant resources from both OSA and DRS
  - Actuaries will take 2-3 months to prepare the numbers
  - DRS then takes 10-12 months to program change and communicate with members
- Full implementation likely won’t occur until sometime in 2023

Questions?
Appendix

- RFC Presentation (Luke Masselink) - September 2021
- EES Presentation (Matt Smith) - September 2021
- SCPP Recommendation to the PFC (Aaron Gutierrez) - October 2021