



2010 Risk Assessment: Moving Beyond Expectations



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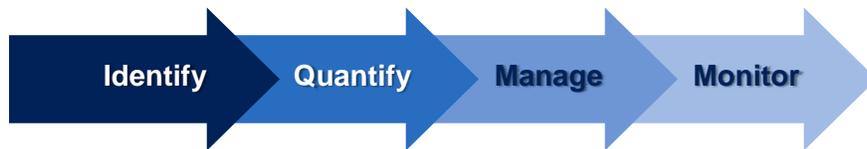
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OSA's 2010 Risk Assessment Is Complete

- Part of SPCPP's two-year strategic initiative to manage the future health of pensions
- Provides foundation for managing financial risks
- Steps in risk management:



OSA Expanded Its Analysis

- “Moving beyond expectations”
- OSA steps
 - Twenty-year look-back
 - Built and verified new risk model
 - Outside actuarial review also underway
 - Ran model and analyzed results
 - Documented analysis and published full report on OSA website
http://osa.leg.wa.gov/Actuarial_Services/RiskAssessment/RA.htm



Today's Presentation

- OSA's expanded analysis
- What we learned from risk modeling
- State actuary's recommendations for managing financial risks

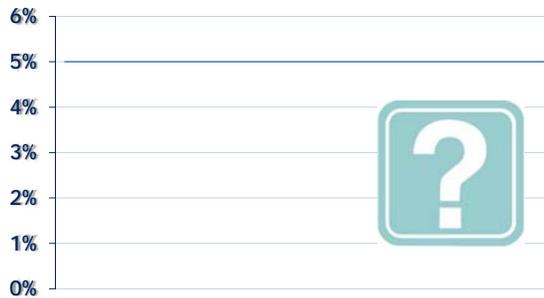


Expanded Analysis Provides More Information

- Four levels of information
 - Intuition
 - Best estimate
 - Sensitivity analysis
 - Stochastic (probabilistic) modeling or simulation
- Place and time for each

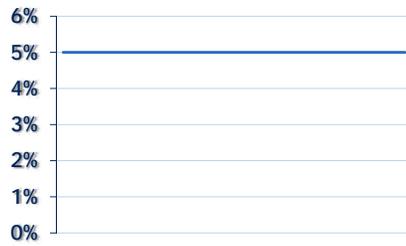


Intuition



- Useful for
 - Routine decisions
 - Double-check of other provided information
- Lacks
 - Any numerical backing

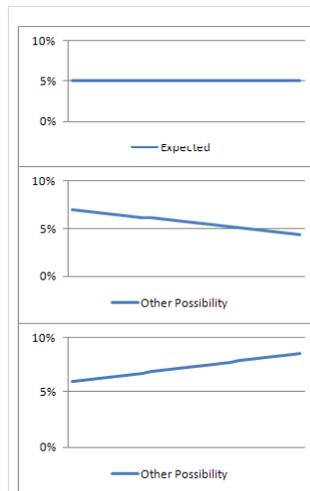
Best-Estimate



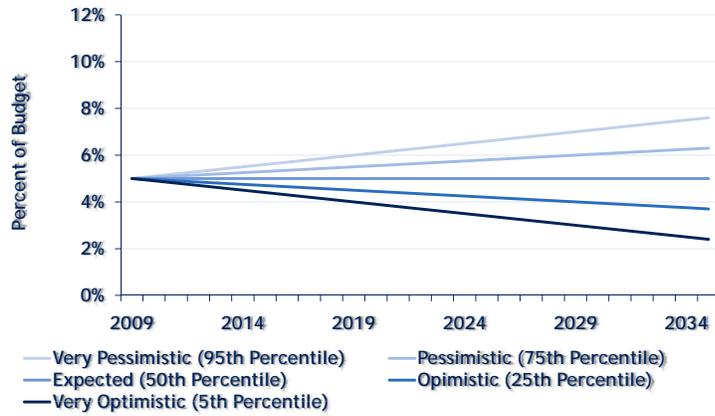
- Often used for
 - Personal budgets
 - Individual retirement advice
- Lacks
 - Other possible outcomes

Best-Estimate with Sensitivity Analysis

- Useful for
 - Showing other possibilities
- Lacks
 - Full range of possibilities
 - Likelihood of possibilities



Simulation



- Useful for
 - Showing full range of possibilities
 - Showing likelihood of possibilities
- Ideal for risk modeling



Risk Modeling Helps Us Understand Risk

- View complete range of possible future outcomes
 - Probability-based modeling
- See which risks show up and when
- See how a change in one area affects outcomes in other areas
 - Dynamic modeling
- Quantify the likelihood and magnitude of possible outcomes
- Changes the language of pension costs
 - "Probability"
 - "Chance"
 - "Risk Tolerance"
 - "Risk Budget"



Models Don't Predict the Future

- Simplification of real world phenomena
 - Enough "precision for the decision" at hand
- Part art and part science
- Add quantitative rigor to what would otherwise be intuitive
- Support, but do not substitute for good thinking



OSA Created A Pension "Score Card"

- Summarizes key results from model
 - Uses affordability and risk measures
- Makes it easier to compare different scenarios
 - Can be customized to reflect different values/priorities
 - Scoring is relative, not absolute
- Serves as an aid for decision makers



Example Score Card

Pension Score Card: Scenario A		
Category <small>(Dollars in Billions)</small>	Value	Score
Affordability		
Chance Pensions will Consume More than 8% of GF-S ¹		
5% Chance GF-S ¹ Consumption will Exceed		
5% Chance Employer Contribution Rate will Exceed		
Risk		
Chance of PERS 1, TRS 1 in Pay-Go ²		
Chance of Open Plan in Pay-Go ²		
5% Chance Annual Pay-Go Cost ³ in PERS 1, TRS 1 Exceed		
5% Chance Annual Pay-Go Cost ³ in Open Plans Exceed		
Chance of Total Funded Status Below 60%		
Total Weighted Score		
¹ Currently 2.7% of GF-S.		
² When today's value of annual cost exceeds \$50 million.		
³ Pay-Go costs on top of normal pension costs.		



Up Next

- What OSA learned from risk modeling
- How to interpret and use results
- How to test impacts of policy changes



What Did OSA Learn From Risk Modeling?

- There are affordability challenges in the short term
- Some plans are at risk of prematurely running out of money, becoming "pay-as-you-go"
- There are opportunities to improve the balance between risk and affordability
- How did we reach these conclusions?

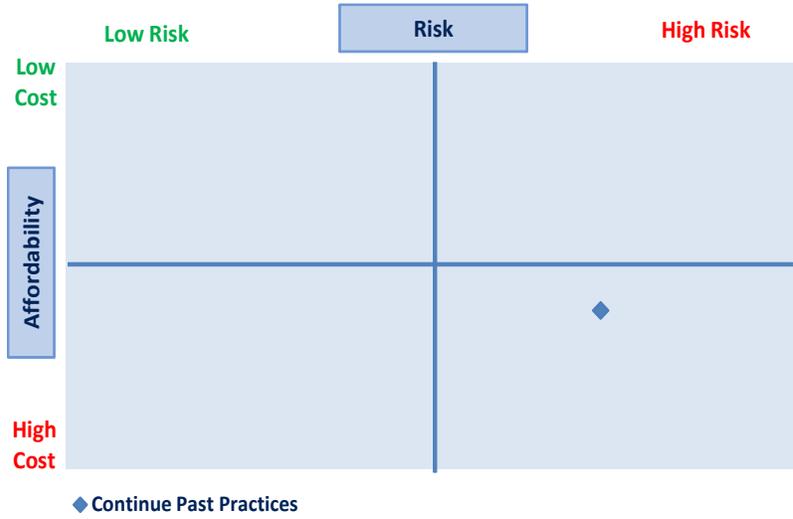


OSA Modeled Assumptions From 20-Year Look-Back

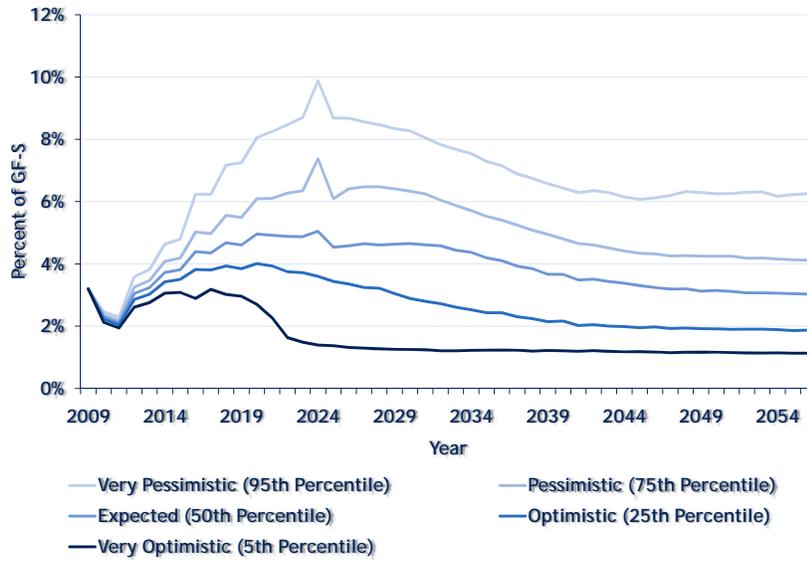
- Twenty-year look-back discussed at last meeting and included in report
- We focused on past practices with most significant financial impacts
 - Pensions funded at 80 percent level
 - Benefits improved at a rate that increase liabilities by 0.45 percent per year
- Used model to see what risk and affordability measures look like if past practices continue
- Used four formats to summarize results



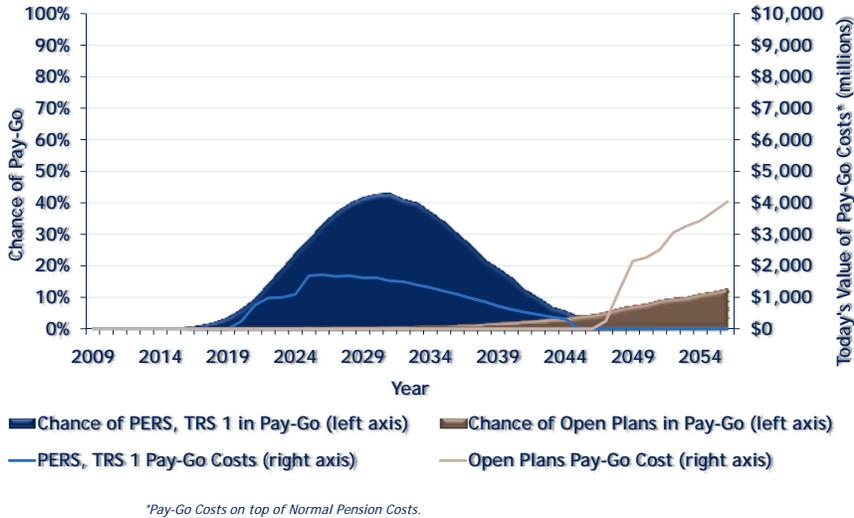
Risk Vs. Affordability: Continue Past Practices



Percent Of GF-S: Continue Past Practices



Pay-Go Risk: Continue Past Practices



Pension Score Card: Continue Past Practice

Pension Score Card - Continue Past Practices		
Category <i>(Dollars in Billions)</i>	Value	Score
Affordability		
Chance Pensions will Consume More than 8% of GF-S ¹	18%	37
5% Chance GF-S ¹ Consumption will Exceed	9.9%	39
5% Chance Employer Contribution Rate will Exceed	20.1%	44
Risk		
Chance of PERS 1, TRS 1 in Pay-Go ²	41%	19
Chance of Open Plan in Pay-Go ²	13%	47
5% Chance Annual Pay-Go Cost ³ in PERS 1, TRS 1 Exceed	\$1.7	38
5% Chance Annual Pay-Go Cost ³ in Open Plans Exceed	\$4.0	11
Chance of Total Funded Status Below 60%	34%	24
Total Weighted Score		33

¹Currently 2.7% of GF-S.

²When today's value of annual cost exceeds \$50 million.

³Pay-Go costs on top of normal pension costs.

How Can Policy Makers Use The Model?

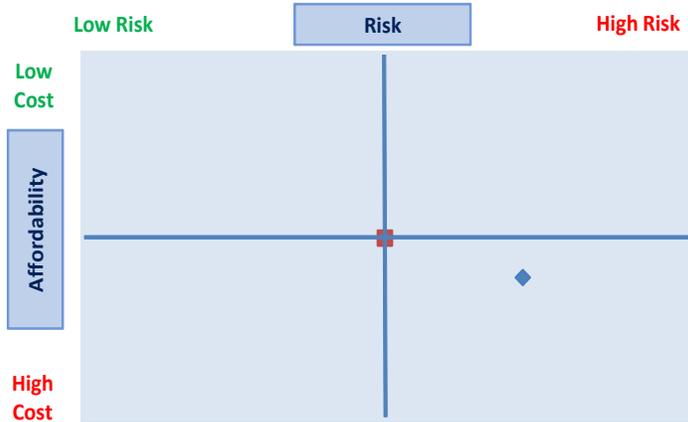
- Monitor key risks
 - Visual aids and scoring can be customized
- See possible impacts of external economic or demographic events
 - See how risk measures change
 - See dynamics of risk
- Test policy changes or turn assumptions on and off



Scenario Comparison: "Current Law Projection"

- Traditional actuarial analysis uses "current law projections"
 - Assume 100 percent of actuarially required contributions (ARC) will be made
 - Assume no future benefit improvements
- Compare this to first scenario (continuing past practices)
 - How does the balance between risk and affordability change?
 - How do measures for risk and affordability change?
 - How does the overall "score" change?

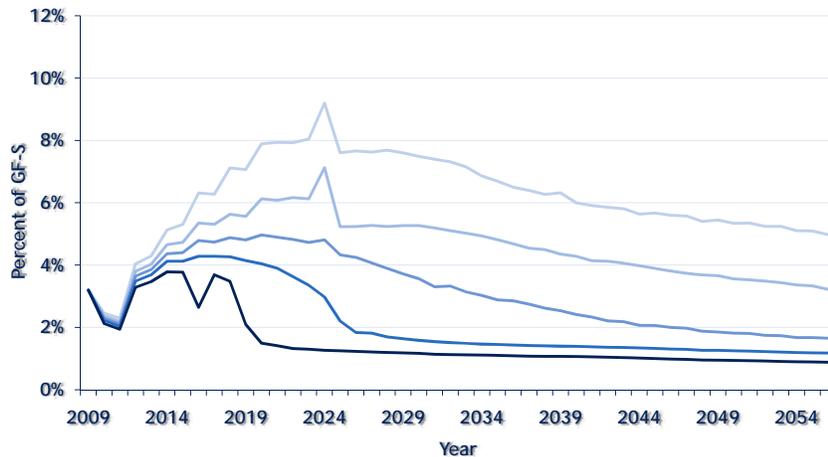
Risk Vs. Affordability: 100 Percent ARC & No Ben. Imp.



◆ Continue Past Practices

■ Risk Measures: Contribute 100% ARC and Eliminate Future Benefit Improvements

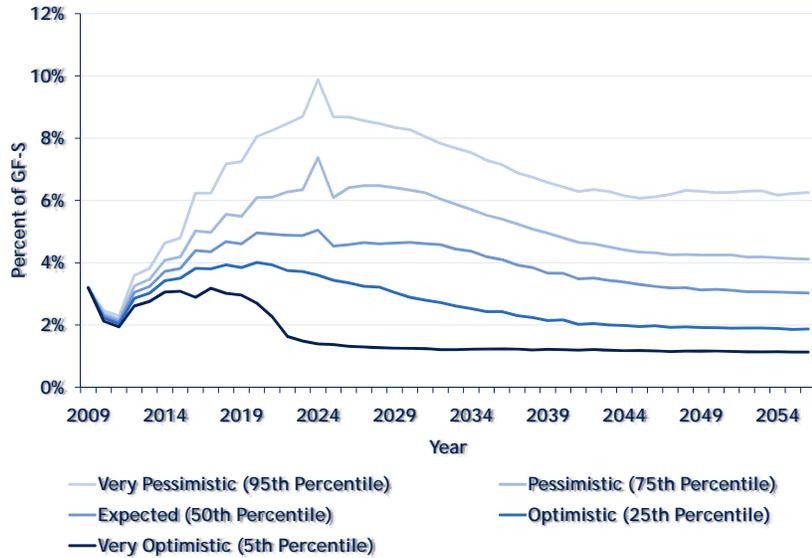
Percent Of GF-S: 100 Percent ARC & No Ben. Improvements



— Very Pessimistic (95th Percentile)
— Expected (50th Percentile)
— Very Optimistic (5th Percentile)

— Pessimistic (75th Percentile)
— Optimistic (25th Percentile)

Percent Of GF-S: Continue Past Practices

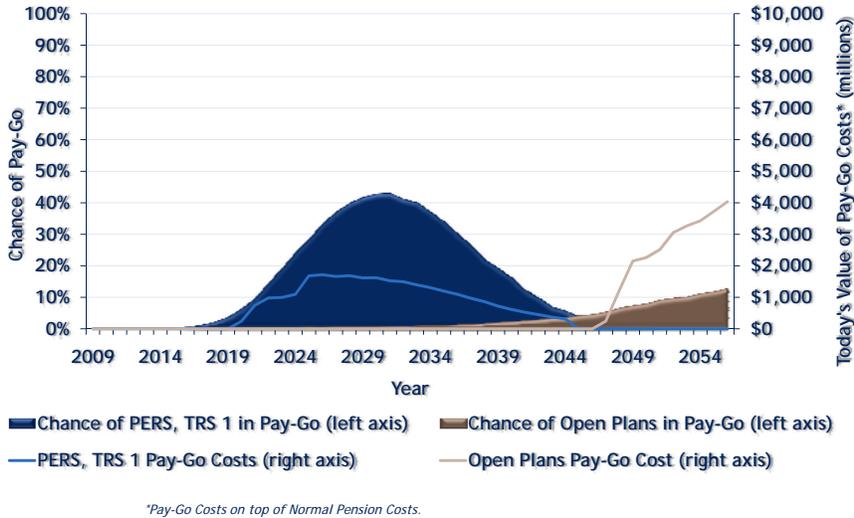


Pay-Go Risk: 100 Percent ARC & No Benefit Improvements



*Pay-Go Costs on top of Normal Pension Costs.

Pay-Go Risk: Continue Past Practices



Pension Score Card: 100 Percent ARC & No Ben. Imp.

Pension Score Card		
Category (Dollars in Billions)	Value	Score
Affordability		
Chance Pensions will Consume More than 8% of GF-S ¹	14%	51
5% Chance GF-S ¹ Consumption will Exceed	9.2%	48
5% Chance Employer Contribution Rate will Exceed	18.3%	51
Risk		
Chance of PERS 1, TRS 1 in Pay-Go ²	16%	44
Chance of Open Plan in Pay-Go ²	1%	59
5% Chance Annual Pay-Go Cost ³ in PERS 1, TRS 1 Exceed	\$1.4	41
5% Chance Annual Pay-Go Cost ³ in Open Plans Exceed	\$0.0	57
Chance of Total Funded Status Below 60%	17%	50
Total Weighted Score		50
Past Practice's Weighted Score		33

¹Currently 2.7% of GF-S.

²When today's value of annual cost exceeds \$50 million.

³Pay-Go costs on top of normal pension costs.

Model Can Examine Other Scenarios

- Full report provides a couple of additional examples
 - 100 percent ARC only
 - No future benefit improvements only
- Policy makers can develop their own scenarios
 - See how risk measures change
 - See dynamics of risk
- Some scenarios better candidates for model than others
 - Time and resources required to set up and run scenarios will vary
 - May not be practical to run every potential policy change
 - OSA staff can help evaluate

Other Notable Findings

- Litigation risks related to gain-sharing could impact affordability and pay-go risk
- Member maximum contribution rates help drive pay-go risks in TRS 2/3 and WSPRS
- There is pay-go risk and the potential for spiking contributions in LEOFF 1
 - Tied to current funding policy
- More information in full report



State Actuary Recommendations

1. Make 100 percent of actuarially required contributions--including minimum Plan 1 UAAL rates.
2. Avoid large benefit improvements until risk and affordability measures significantly improve.
3. Use risk modeling to further examine pay-go risk in LEOFF 1, TRS 2/3, and WSPRS. Develop and implement strategies to mitigate or eliminate this risk.
4. Prepare for financial risks outside the control of the retirement systems by exploring policies that better accommodate investment and revenue volatility.

Next Step For Policy Makers Is Risk Management

- Develop and implement strategies to accept, avoid, mitigate, or transfer (if possible) risks
- Monitor effectiveness of strategies
- Policy makers may further choose to
 - Develop their own recommendations
 - Prioritize and focus management efforts
- Policy makers may request OSA
 - Analyze particular scenarios
 - Measure other risks
 - Customize scoring and visual aids



Next Steps For SCPP

- Continue SCPP strategic initiative to manage future health of pensions
 - On hold while OSA built the model
- State actuary will brief SCPP on strategies for risk management
- Executive committee can provide further direction to staff

