


Public Pension Risk Dynamics

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The Risk Management Journey


- Risk Committee/Office of ERM
- Board Discussion of Funding Risk
- Annual Report on Funding Levels and Risks
- Risk Tolerances and Appetite
- Asset/Liability Decision Making Framework



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Step 1: A New Focus on Risk

- Initiated by the CalPERS Board
 - Driven by Two Board Members
- Coincident with Villalobos Affair
 - Governance Reform
- Embraced By Staff



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New Creations

- Risk and Audits Committee
 - Management of Risk Is Everyone’s Job
 - Committee Performs a Reassurance Function
- Office of Enterprise Risk Management
 - Chief Risk Officer

What Risks?

- Enterprise Risk Management is Very Broad
 - Funding Risk Is Just One Subcategory of Risk

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Risk Categories

- Strategic
- Operational
- Financial/Reporting
- Investments
- Ethics/Legal/Compliance

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Strategic Risk Category

- Health Care Reform
- Health Care Costs
- Pension Funding
- Pension Reform
- Actuarial
- Governance/Leadership
- Strategy and Policy
- Others

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Pension Funding Subcategory

- Increased employer contributions may put financial strain on employers and could result in employers opting to leave the system, not making payments or failing to deliver on promises made.
- Umbrella risk that covers both investment and actuarial risks



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Step 2: Board Discussion

- Discussion of Risk of Low Funding Levels
 - Open Session
 - Jointly Presented by the Actuarial and Investment Offices
 - Reporter Left Prior to Presentation



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Basis for Discussion

- Stochastic Simulation of Funded Status
- Focused on Funding Levels Needed
 - To have less than a 15% chance of falling below 40% Funded
 - Also included a stress test – assuming a -20% return in the first year

Results

- Better Understanding of Possible Consequences of Risks
- Building Momentum Towards Addressing Risks
- Foreshadowed the Risk Tolerances Discussion

Step 3: Annual Report on Funding Levels and Risks

- Report on Funding Levels and Risks was NOT Presented to Risk and Audits Committee
 - Management Versus Reassurance
- Part of Governance Reform

Risks to Whom?

- To Members
- To Employers
- To the System
- To Taxpayers



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The Report

- Funding Levels
- Non-investment Cash Flow
- Volatility Index
- Place In Asset Corridor
- Payment on UAL on an MVA basis

What's Missing?

Current Risk Levels

vs.

Established Risk Tolerances

Step 4: Setting Risk Tolerances

- Risk to Members is Minimal If Employer Stands Behind Its Promise
- Corollary: Greatest Risk to Members Comes from Risk to Employer
 - Especially if funded status is low

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Risk Tolerances

- Three Measures
 - Risk of Low Funded Status
 - Risk of High Employer Contribution Rates
 - Risk of Sudden Increases in Employer Contribution Rates

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Draft Risk Tolerances

Possible Tolerances:

1. <x% chance of falling below y% funded at any point in the next z years
2. <xx% chance of cont. rates >yy% of pay at any point in the next zz Years
3. < xxx% chance of a cont. increase of >yyy% of pay in any of the next zzz Years

Step 5: Asset/Liability Decision Making Framework

- Currently Being Built
- Will Allow Comparisons of the Trade-offs Between
 - Actuarial Assumption
 - Actuarial Methods
 - Investment Decisions
- Use Risk Tolerances to Score the Tradeoffs

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Questions

- If You Want to Reduce Risk, Is It Better to:
 - Lower the funding discount rate,
 - Shorten the amortization period, or
 - Change to a less aggressive asset mix?
- If You Do Any of Those,
 - How much will it reduce the risks?

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The Framework

- Stochastic Engine
- Economic Model
 - Capital Market Assumptions
 - Inflation
 - Benefits
- Scoring Module
 - Based on Risk Tolerances

Challenges

- The Problem of Inflation
 - Affects asset returns
 - Used in setting the discount rate
 - Affects pay and contribution increases
 - Affects the benefits
- Short term correlation vs. long term correlation with asset returns

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Challenges

- “Stickyness” of Discount Rates
 - Unwilling to use high precision
 - May cause invalid results
 - Model will tend to prefer an asset mix close to a break point
 - Modeling precise discount rates will mean that real world impacts will be different.

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Future Development

- Version 1 – Simplified Investment Model, Simplified Inflation Model
- Version 2 – Improved Inflation Model
- Version 3 – Improved Investment/Discount Rate Model?

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My Vision

A Coordinated Decision Making Process that Identifies the Combination of Actuarial and Investment Policies that Best Funds the System While Staying Within Pre-identified Risk Tolerances.