2016 ASSET-LIABILITY REVIEW: Introduction

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Strategic Allocation-Setting Process

- The asset-liability process sets the foundation for the long-term management structure of the investment portfolio
- Typically conducted every 3-to-5 years, or when plan changes or investment environment warrant a review of investment activities
- 90% or more of a portfolio's total risk is attributable to its strategic policy allocation
- Key driver of study: the SIC defining key risk(s) and then determining its tolerance for identified risk(s)
- ERSRI completed its last comprehensive asset-liability review in 2011, and conducted a smaller asset review in 2014

Asset Liability Review

Review Objective

- An asset-liability review incorporates an analysis of both sides of a pension system's balance sheet as well as cash flows in and out of the system
- The objectives of an asset-liability review are threefold:

1. Develop an understanding of how the financial condition of the ERSRI Plan might vary based on investment outcomes of the asset portfolio
2. Given the variability in (1.), establish consensus definitions and views of the risk(s) the plan should bear
3. Once a risk tolerance has been established, select an appropriate long-term investment strategy (i.e., asset allocation policy portfolio)

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Asset Liability Review

Since the last ERSRI Asset / Liability Review conducted 2011

The plan has changed:

- Plan funding ratio improved
- The plan has matured
  - Active members to inactive members ratio is lower
  - Annual net negative cash flow (contributions less benefit payments) is larger
- The full impact of plan design changes are known and can be incorporated into the analysis

The asset portfolio has changed:

- Hedge fund portfolios added
- Real return portfolio allocation diversified

Capital market conditions have changed:

- Capital markets have rallied substantially
- Asset valuations have increased
- Historically low global interest rates have continued to decline
- Capital market return expectations are lower

Asset Liability Model

- Utilize PCA's 2016 Capital Market Assumptions – customized for ERSRI individual asset class structure

- Incorporate member, financial, and plan benefit data in an independent modeling process

- Examine key plan financial metrics
  - Funding Ratio - ending value, volatility and minimum thresholds
  - Contribution Level - ending value, volatility and minimum thresholds
  - Liquidity constraints

- Key feature of the process: Board risk discussion and selection of plan level risk(s) and risk tolerance(s); selection of risk(s) will influence outcome

- Select asset allocation policy with characteristics that best meet SIC risk management objectives

- Project timeline: typically 4-6 meetings

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Asset Liability Project Overview

- Liabilities: Briefing (Gabriel Roeder)
  - Review of liability profile and other actuarial considerations
- Benchmarking: Briefing (PCA)
  - Comparison to other institutional funds (funding levels, cash flows, asset allocations), with emphasis on other public plans
    - Review other institutional fund investment philosophy paradigms
  - Description of ERSRI Plan
  - New assets or strategies to evaluate
- Determining Risks and Risk Preferences: Determination (SIC aided by PCA)
  - Risk sensitivities and definitions of success (survey SIC members)
  - Define the asset portfolio investment objectives and variables to model
- How the model works: Briefing (PCA)
  - Risk tradeoffs
  - Resampling return data
  - Model input
  - Model output – variables that can be modeled
  - Focus on the journey

(Continued)

Asset Liability Project Overview

- Capital market assumptions and model constraints: Determination (SIC aided by PCA)
  - Role of assets
  - Capital market assumptions customized for ERSRI asset (functional) class characteristics
- First run of model (PCA with SIC input)
  - Model output review - SIC feedback
    - Issues for further review
- Second run of model (PCA with SIC input)
  - Model output review
- Adoption of strategic asset allocation (SIC decision)

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Integrated Asset / Liability Model: Characteristics

Purpose		Strategic policy analysis	
Explicit recognition of Plan-oriented risk tolerance		Yes, survey-orientated	
Return / risk input		PCA 2016 capital market assumptions, customized for client’s asset portfolio	
Reality-based investment return projections		Yes, bootstrap 1000 simulations	
Incorporates fat-tail events		Yes	
Correlations		Variable	
Other return features		Private market assets returns can exhibit serial correlation tendencies	
Incorporation of Plan liabilities		Yes, complete recognition	
Modeling output focus		Client-defined plan financial risk - 2 factors	-
Multi-dimensional risk integration		Yes, Static	
Analysis timeline focus		Intra-period and endpoint	
Shortfall risk (near to mid-term)		Yes	
Cash flow / Liquidity risk modeling		Some	
Board Project Timeline		4-6 months	

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