What Comes First, The Actuarial Assumption or the Investment Allocation?

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The Big Number: Investment Return (Earnings Assumption)

• Used to set discount rate for measuring costs
  ➢ Not necessarily the same thing
  ➢ AKA “assumed interest rate”

• Used to determine contribution requirements
  ➢ Also for financial reporting (GASB 67 and 68)

• Affects timing of plan cost
  ➢ Lower assumed rate means higher current cost
  ➢ Ultimately, actual earnings determine cost
  ➢ C + I = B + E
What is the Discount Rate Debate?

• Long-term earnings as discount rate – favored by actuaries
  - Measures an offset to the cost of benefits
  - Anticipates future investments return
  - Used for funding and financial reporting (mostly)

• Market Pricing discount rate – favored by economists
  - Measures theoretical “market price” of the obligation
  - Unrelated to asset allocation or expected earnings
  - “Risk free” rate of return

• Arguments for lower discount rate often confuse the two
  - Which is it: more conservative expected earnings OR valuing pension like low-risk bonds

• Different purposes call for different measurements
  - Contributions vs. Accounting vs. Settlement
What Factors Go Into Plan-Specific Allocation?

- Plan demographics - Cash/liquidity needs for monthly benefit payments
  - Contributions by “employer” and employee

- Return requirements based on:
  - Liability growth
  - Maturity of plan
  - Ongoing, longer term viability of the plan, either by design or default (insolvency)

- Risk tolerances and preferences of the committee/board/governing body

- Capital markets opportunity set – what investment options are available over time?
Incorporating asset class risk (standard deviation of returns) provides a distribution of potential return outcomes around the expected return of the asset class.
## Correlation Matrix

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Cash</th>
<th>Bond</th>
<th>Real Estate Debt</th>
<th>Hedge Fund of Funds</th>
<th>Emerging Markets Debt</th>
<th>Small Cap</th>
<th>Global REITs</th>
<th>Hedge Fund - Equity</th>
<th>Hedge Fund - Global</th>
<th>Real Estate - Value Add</th>
<th>Real Estate - Value Add</th>
<th>Farmland</th>
<th>Oil &amp; Gas</th>
<th>Infrastructure</th>
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Considering These Factors, How and When Should Plans Adapt?

• Assess existing governance process and structure
  ➢ Decision making process
  ➢ Ongoing monitoring – do not set it and forget it

• Asset allocation should be consistent with plan objectives and risk tolerances/preferences
  ➢ As plan objectives and risk tolerances change consider changing allocation
  ➢ The Efficient Frontier and risk and return
    o Catch-22 lower risk/return portfolios = higher liability/ lower funded status.
      • A push towards greater risk
    o Well-funded plans in the 90’s didn’t de-risk and protect their funded status because of the liability optics, many enhanced benefits
    o Today’s plans are pushed into less liquid more complex investment structures which create more uncertainty in return expectations to meet the actuarial assumption
    o Another byproduct is that sophisticated investment strategies such as dynamic asset allocation are more complicated to implement via non-traditional asset classes
      • And can trigger reduced assumptions
Considering These Factors, How and When Should Plans Adapt? (cont’d)

• Changing capital market opportunities
  ➢ Lower potential return and greater volatility
  ➢ Global
  ➢ Alternative asset classes

• Ongoing monitoring: do not set and forget
Proliferation of Investment Options
Asset Allocation Pushing into Alternatives

<table>
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<tr>
<th>U.S. Institutions</th>
<th>Corporates</th>
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</table>

Alternatives (35%) Fixed Income (20%) Equity (42%)
Weak funding ratios drive greater allocations to alternatives and non-U.S. equities

Source: Greenwich Associates 2016 U.S. Institutional Investors Study
Public Funds’ Defined Benefit Asset Mix, by Funds Level

- Funding levels have a significant impact on use of alternative investments

![Chart showing asset mix by funding level](chart.png)

Source: Greenwich Associates 2016 U.S. Institutional Investors Study
How Has the Market Affected Actuarial Assumptions in Recent Years?

- Lower return environment – reduction of EROA across all types of DB plans
- Prospect of greater volatility – greater pressure on contributions
- Projected increasing interest rate environment – for public plans, effect on fixed income
- Need for alternative asset classes – return generators
- Strained cash flows (contributions) requiring greater need for return
What are the Actuarial Impacts of the Low Return Environment?

- Increases UAAL, decreases funded ratio
- Increase employer and employee contribution rates
- Reduces risk of future employer contribution increases
- Conflicting policy goals?
  - Everyone wants lower UAAL and higher funded ratio
  - More conservative assumption works against this
    “No good deed goes unpunished”
What are the Dangers of Overreacting to Either a Great or Bad Rate of Return, Both from an Investment and an Actuarial Point of View?

• Historically there has been a disconnect between actuarial assumptions rates and forward return expectations
  ➢ Early 80’s assumptions rate were on average around 6.0% yet E/P, Div/P and Bond Yields were at historical highs in single or double digits predicting much higher expected returns (which were realized)
  ➢ Many plan sponsors took advantage of this with annuity buyouts and immunization strategies – Richmond example.
  ➢ By late 90’s relationship had reversed – high assumption rates 8.5-9.0% and much lower forward return outlook (E/P all-time lows, Bond yields lower, etc.)
  ➢ Actuarial assumptions were set backward-looking, historically based
  ➢ Actuarial assumptions should be counter-cyclical - decline in strong return markets and increase in poor return markets

• Short term mismatch between asset allocation and plan objectives
  ➢ Chasing returns, and never catching them…
  ➢ Unintended or unnecessary funded status volatility
Where Does This Leave Us Today?

• Many assumptions still too high
  ➢  Continue to gradually ramp down unless……
• Return assumptions must be based on forward-looking outlooks
  ➢  This may cause more frequent adjustment
• Consider moving towards liability driven investing (LDI)
  ➢  Align bond duration with liabilities
• Potential for a glide path for the future
  ➢  Relate investments with plan's economics
So, What Comes First – Assumption or Allocation?

**Ask the actuary:**
- Set the risk tolerance of the sponsor
- Review asset allocations fit to risk tolerance
- Review liability risks and interaction with asset allocation
- Calculate the earnings assumption based on asset class expectations

**Ask the Asset Consultant:**
- Provide the earnings assumption
- Set the risk tolerance
- Review liability risks and interaction with asset allocation
- Develop the asset allocation consistent with risk and the assumption

**Ask the Plan Sponsor:**
- Set the Budget for contributions
- Back into the earnings assumption
- Develop the asset allocation

**The Reality?**
- “It’s a process”