DIALOGUE 2: The Cost of Longevity Risk and What Plan Sponsors Can Do About It

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R. DALE HALL, FSA, MAAA, CERA, CFA
MANAGING DIRECTOR OF RESEARCH
SOCIETY OF ACTUARIES
RP-2014 Mortality Tables

• Developed by SOA’s Retirement Plans Experience Committee

• Data studied from privately sponsored defined benefit plans

• Mortality rates for employees, healthy annuitants and disabled retirees

• Tables in aggregate and for Blue / White Collar and Bottom / Top Quartile Income

• RPEC_2014 Improvement Model

• Update to RP-2000

• Input to IRS review of mortality for minimum funding rules
Impact of New Assumptions

- Annuity Values, $1 per month beginning at attained age 62, discounted at 6%, Calendar Year 2014

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<td>4.36</td>
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<td>4.67</td>
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<td>17.4%</td>
<td>5.59</td>
<td>6.18</td>
<td>10.5%</td>
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</table>
Observed Mortality Improvement and Forward Modeling

Historical data source:
US (SSA) Males 40-100; 1950-2005
Next steps

• Mortality assumption review by actuaries / auditors / plan sponsors

• Periodic SOA review of mortality improvement model and updated mortality analysis

• IRS decisions on minimum funding and lump-sum mortality
DIALOGUE 2: The Cost of Longevity Risk and What Plan Sponsors Can Do About It

William McCloskey
Vice President, Longevity Reinsurance
Prudential Financial, Inc.
The U.K. Leads The World in Transaction Volume and Innovation

Cumulative Annual Transaction Totals by Country/Product

Data in USD billions

Sources: LIMRA, Hymans Robertson and Prudential analysis, YE 2014

The Global Future of Retirement
There Are Some Key Differences Between the U.S. and the U.K. That Drive Different Risk Practices

<table>
<thead>
<tr>
<th></th>
<th>U.S. Corporate</th>
<th>U.K. Corporate</th>
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<tbody>
<tr>
<td>Funding Rules</td>
<td>Weaker</td>
<td>Stronger</td>
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<tr>
<td>Balance Sheet Impact</td>
<td>Mark-to-Market</td>
<td>Mark-to-Market</td>
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<tr>
<td>Income Statement Impact</td>
<td>Smoothed</td>
<td>Mark-to-Market</td>
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<tr>
<td>PBGC Premium / PPF Levy</td>
<td>Not Risk-Based</td>
<td>Risk-Based</td>
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<td>Liabilities</td>
<td>Almost No COLAs</td>
<td>Almost All COLAs</td>
</tr>
<tr>
<td>Mortality Tables Updated</td>
<td>Every 10 Years</td>
<td>Every Year</td>
</tr>
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</table>

*Items in purple encourage risk management and risk transfer.*
U.S. Pension Plan Sponsors Face An Increasing Liability Due to the Release of New Mortality Tables

70-Year-Old Male Life Expectancy

<table>
<thead>
<tr>
<th>Year</th>
<th>Life Expectancy</th>
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<tr>
<td>1980s</td>
<td>11.9</td>
</tr>
<tr>
<td>1990s</td>
<td>13.2</td>
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<tr>
<td>2000s</td>
<td>13.9</td>
</tr>
<tr>
<td>Currently</td>
<td>15.4</td>
</tr>
<tr>
<td>New Table</td>
<td>17.4</td>
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</tbody>
</table>

Custom tables may be the optimal approach for large U.S. plans

Source: Prudential calculations.
U.S. Pension Plan Sponsors Are Beginning to Recognize the Potential Effects of Longevity Risk

A recent survey revealed:

63% of plan sponsors with $5 billion to $15 billion in assets under management indicated they have a very high awareness of the impact of longevity risk.

When asked what action they would take if their plan’s liabilities increased due to the implementation of these updated mortality calculations:

– 12% of private plan sponsors said they would transfer risk to an insurer
– 22% said they’d offer lump sums
– 25% indicated they would implement a liability-driven investment strategy
– 23% indicated they would allow additional voluntary pension contributions

Source: Pension Plan De-Risking Report North America 2015
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DIALOGUE 2:
The Cost of Longevity Risk and What Plan Sponsors Can Do About It

DAVID R. DRULEY, CFA
MANAGING DIRECTOR, HEAD OF GLOBAL PENSION PRACTICE
CAMBRIDGE ASSOCIATES, LLC
The cost of longevity and thus longevity risk is simple:
   - It is the risk a plan becomes underfunded due to increasing life expectancies and therefore increasing liabilities.

There are a range of insurance based solutions for dealing with longevity risk but they come with a cost.
   - Buyins and Buyouts
   - Longevity swaps

Plan sponsors could also pay for this underfunding via increased contributions but that is an expensive solution.

The preferred manner of paying for the cost of increased longevity would be to generate higher returns if that could be done without significantly increasing liability relative risk.
   - If increased longevity has increased defined benefit pension liabilities by 5% - 10%, a pension will need to generate 25-50 bps in increased annual returns over a 20 year period to cover the increased liability.
Mitigating Longevity Risk In a Defined Benefit Pension—The Investment Solution

- How to pay for increased longevity by generating higher portfolio returns in a risk efficient manner
  - Better diversify portfolios across asset classes and exposures to optimize risk adjusted returns
  - Efficiently use return enhancing betas such as private equity, venture capital, and private real assets
  - Increased longevity allows for longer time horizons and greater investment in illiquid assets
  - Retain internal or external resources to generate alpha. Active risk is uncorrelated to beta risk in the portfolio thus if an institution can generate positive alpha, it is very powerful from a portfolio management perspective.
Mitigating Longevity Risk In a Defined Benefit Pension—The Investment Solution

Note: Average Pension asset allocation is based on an average of the UK, U.S., and Canadian mean pension asset allocations sourced from State Street, Greenwich Associates, and Canadian Institution Investment Network. Nominal returns are based on Cambridge Associates’ standard equilibrium assumptions calculated over a 25 year period. 20 bps of alpha assumes 30 bps of alpha net 10 bps of oversight cost. Past performance is not a guarantee of future returns.
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Olga Fuentes
Deputy Chairman of Regulation
Superintendence of Pensions, Chile
 Increased longevity is a world phenomena

 Latin America, including Chile, is still in the phase of demographic dividend about to enter a major aging step. This imposes a risk but also an opportunity.

 Public policies design and implementation requires technical expertise, a long term view of their impact, and continuous evaluation to introduce the necessary adjustments on time.

 Main goal/challenge: pension adequacy without risking sustainability in an environment of higher life expectancy

 Longevity risk and the cost of higher longevity in a DC scheme it is the risk that:

  - Future pensioners received a lower pension than expected i.e. a lower RR and/or

  - The balance to finance a programmed withdrawal get exhausted beforehand.

 Relevant risks: Investment risk, human capital/labor risk, risk of annuitization, and longevity risk
CHILEAN PENSION SYSTEM: MAIN CHARACTERISTICS & ACTUAL REGULATION

- Multi-pillar scheme: Solidarity pillar + DC mandatory contributions in personal accounts + voluntary savings
- Multi fund: Funds A-E depending on % invested in equity. Funds administered by 6 PFM.

ACTUAL REGULATION

- (1) Partial protection against longevity risk by introducing an adjustment factor into programmed withdrawal.
- (2) Buffering effect of the Pension solidarity contribution.
MORTALITY TABLES (MT) : UPDATING PROCESS

- MT are jointly established by the Superintendence of Pensions (SP) and the Superintendence of Securities and Insurance (SVS).
- By law, the adequacy of these tables need to be assessed periodically
  - Data validation & Proposal of new tables
  - Discussion with the market (3 months)
  - Definition of new tables: end of 2015, valid from: July 1st, 2016
- The updating process is receiving the technical assistance of the OECD
- Key: Mortality tables incorporate future mortality improvements
OTHER FACTORS TO CONSIDER: LABOR AND FINANCIAL MARKETS

- Higher life expectancy effect on pension values is reinforced by the following:
  - Decreasing evolution of interest rates globally.
  - In a DC scheme, participation is closely linked to occupational status
  - Labor market risk implies density of contributions 52% on average. Large heterogeneity (low income women, 31%)
  - In general, actual pension levels do not live up to the expectations of the population.
POSIBLE SOLUTIONS & FINAL REMARKS

- Make the employer and employee to contribute not only to increase savings but also a contribution/fee for an insurance against longevity risk
- Modify/propose new pension products to better insure against longevity risk: temporal income + deferred annuities; start buying annuities gradually prior to retirement age.

Other broader measures to the system:

- Parametric changes (contribution rate, retirement age)
- Improve the multi-fund scheme (risk-return tradeoff, restrictions to access to risky funds) and the default investment strategy
- Increase coverage and benefits of the Solidarity Pillar. Improve the mean-tested methodology.
- Increase the incentives for voluntary savings
- Financial education to increase population awareness
The Global Future of Retirement
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