Variable Benefit Plans in Depth

Kelly Coffing, FSA, EA, MAAA
September 21, 2019
Agenda

- The case for variable plans
- How variable plans work
- Smoothing variable benefits
- Regulatory situation
- How to explore variable plans
The case for variable plans
Both predominant designs have fatal flaws

- **Traditional defined benefit plans**
  - **Pros**
    - Provide lifelong benefits
    - Cues participants to retire
  - **Cons**
    - Vulnerable to underfunding, especially once mature
    - Has resulted in massive intergenerational risk transfer
    - Has resulted in plan failures (with more to come)

- **Defined contribution plans**
  - **Pros**
  - Stable contributions
  - **Cons**
    - Difficult to provide lifelong income
    - Difficult for individuals to manage lump sums
    - Participants may delay retirement
Challenges facing defined benefit plans

- The 2000’s revealed some systemic issues with “mature” DB plans.
- Similar to individuals, plans are less able to absorb investment losses as they mature.
  - Easy to deal with investment losses when assets are smaller and contributions are large relative to assets and benefit payments.
  - Difficult to deal with investment losses when contributions are smaller relative to assets and benefit payments.
- Problems occur when Plans are less than 100% funded.
Challenges facing defined benefit plans

- Not all plans will recover.
- And recovery didn’t come without.
  - Significant contribution increases.
  - Significant benefit decreases through much of the system.
- Because the major levers have all been pulled, the system is more vulnerable to future downturns than before 2008.
- The following is true over the life of a Plan:

  Contributions + Investment Earnings = Benefits + Expenses
Challenges facing defined benefit plans

- Intergenerational risk transfer
- Example green plan (see graph): Contributions 2.3 times larger per dollar of benefit than in the past
- Example all reasonable measure plan: 24 times larger than in the past

Annual Contribution vs Monthly Benefit Accrued
Challenges facing defined benefit plans

- Zone status by plan maturity
- More mature plans much more likely to be in trouble
Retirements risks
Risk sharing in traditional DB plan, current funding rules

Plan Sponsor bears most of the risks.
- In multiemployer plans, active participants bear these risks, too.

**EMPLOYERS AND ACTIVE PARTICIPANTS**

- Longevity risk
- Investment risk
- Inflation risk

**PARTICIPANTS**
Retirements risks
Risk sharing in traditional DB plan, funding rules like single employer plans

- Plan Sponsor bears most of the risks.
- In multiemployer plans, active participants bear these risks, too.
Challenges facing defined contribution plans

- Difficult to produce lifelong income
- Behavioral economics
  - We are bad at investing
  - We are bad at managing a lump sum
- Lack of longevity pooling
  - Longevity risk is difficult for individuals (over-spend or under-spend)
  - Annuityization is expensive
- If trustees do investing
  - Investment decisions are good
  - Risk profile (asset allocation) doesn’t meet all participants needs
DC challenge: efficiency

Value of 401(k) benefits is eroded by:
- Higher fees in retirement
- Lack of longevity pooling
- Lack of professional management
- Invest conservatively as we age
Retirements risks
Risk sharing in DC plan

- Plan Sponsor bears **none** of the risks
- Participants bear **all** of the risks
What if “DB or DC” is a false choice?

Rethinking retirement plans

What would we want if we could start from scratch? A plan that:

- Stays fully funded in all market conditions
- Has predictable contributions
- Provides benefits with lifelong income and inflation protection
- Facilitates an orderly exit from the workforce
What if “DB or DC” is a false choice?

Rethinking retirement plans

What about a plan that offers:

- Stable, predictable contributions for the employers, like a DC plan
- Lifelong retirement income for participants, like a DB plan, plus inflation protection
How variable plans work
The basic variable annuity design

- Variable Annuity Plan (basic VAP) legal since 1953
- It is not an insurance product
- Plan stays funded in all market environments
Basic variable annuity overview

- Participant earns a benefit for each year of service
- Employer funds the benefit earned
- Benefit paid in retirement as an annuity (either participant only or joint and survivor with spouse)
- Accruals go up AND down based on the Fund’s actual return on assets for actives AND retirees
- Plan stays funded in all market conditions (maturity doesn’t matter)
- Keeps assets liabilities in balance by adjusting benefits and therefore liabilities
- Basic VAPs are fully exposed to market volatility
Basic variable annuity—How it works

- Career average or flat dollar accumulation
- **Hurdle rate**, usually set between 4% and 5%
- Liabilities calculated at hurdle rate
- Contributions must be at least as large as normal cost, plus expenses
- Earned benefits fluctuate annually based on investment return

Return = Hurdle Rate: accrued benefits do not change
Return > Hurdle Rate: accrued benefits increase by excess
Return < Hurdle Rate: accrued benefits decrease by shortfall
Basic variable annuity—Example

- Suppose a retiree’s benefit is $1,000/month
- The plan has a 4% *hurdle rate* and gets a -1% return
- The new monthly benefit amount under the basic VAP is $952

\[
1,000 \times \frac{1 - 0.01}{1 + 0.04} = 952
\]

- The next year, the plan’s return is 16%
- The monthly benefit amount changes to $1,062

\[
952 \times \frac{1 + 0.16}{1 + 0.04} = 1,062
\]
Basic variable annuity—benefit over career

- Provides lifelong benefits that rise over time
- Benefits are volatile
Traditional plan funding

- Underfunding causes contribution increases and accrual rate decreases
Variable plan funding

- Plan stays funded in all market conditions
- Allows for rational contributions and benefits

![Graph showing funded percentage]
How liabilities and assets stay in balance

- Imagine a Plan with a $10,000 liability with no cashflows (no contributions nor benefit payments).
- Suppose the plan gets a 9% return the first year and a 2% return the following year.
- Imagine that the Plan is a traditional plan with an asset return assumption of 7% OR a variable plan with a 4% hurdle rate
How liabilities and assets move separately

- **Traditional Plan Funding**

<table>
<thead>
<tr>
<th>Point in Time</th>
<th>Return for Prior Year</th>
<th>Assets</th>
<th>Traditional Liability (7% assumption)</th>
<th>Funded Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 0</td>
<td>N/A</td>
<td>$10,000</td>
<td>$10,000</td>
<td>100%</td>
</tr>
<tr>
<td>Year 1</td>
<td>9%</td>
<td>$10,900$1</td>
<td>$10,700$3</td>
<td>102%</td>
</tr>
<tr>
<td>Year 2</td>
<td>2%</td>
<td>$11,118$2</td>
<td>$11,449$4</td>
<td>97%</td>
</tr>
</tbody>
</table>

1 $10,900 = $10,000 x 1.09
2 $11,118 = $10,900 x 1.02
3 $10,700 = $10,000 x 1.07
4 $11,449 = $10,700 x 1.07
### How liabilities and assets move together

<table>
<thead>
<tr>
<th>Point in Time</th>
<th>Return for Prior Year</th>
<th>Assets</th>
<th>Traditional Liability (4% hurdle rate)</th>
<th>Funded Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 0</td>
<td>N/A</td>
<td>$10,000</td>
<td>$10,000</td>
<td>100%</td>
</tr>
<tr>
<td>Year 1</td>
<td>9%</td>
<td>$10,900$^1</td>
<td>$10,900$^3</td>
<td>100%</td>
</tr>
<tr>
<td>Year 2</td>
<td>2%</td>
<td>$11,118$^2</td>
<td>$11,118$^4</td>
<td>100%</td>
</tr>
</tbody>
</table>

^34% adjustment to end of year $10,000 \times 1.04 = 10,400$, then adjust benefits and liabilities for actual return $10,900 = 10,400 \times 1.09 / 1.04$

^44% adjustment to end of year $10,900 \times 1.04 = 11,336$, then adjust benefits and liabilities for actual return $11,118 = 11,336 \times 1.02 / 1.04$
Variable plan pros and cons

- **Pros**
  - Plan stays funded in all market conditions
  - Benefits are expected to rise over time (as actual returns exceed the hurdle rate)

- **Cons**
  - Benefits move up and down with investment returns, for all participants, even for retirees
  - For the same cost, initial accruals are lower
    - Because benefits rise over time, they must start lower, if the cost is going to be the same
    - Liabilities are calculated at the hurdle rate
Smoothing variable benefits
Modifications to variable design

- Basic variable design not popular due to routine benefit declines, even for retirees
- 2014 regulations issued allowing for creation of modifications
- A lot of activity now in modifying this design
  - Want to avoid benefit volatility for retirees
  - While keeping that makes variable plans work
- Solutions to benefit volatility
  - Reduce benefit levels to varying degree
  - May reintroduce risks resulting in potential underfunding
Conservative asset allocation

- Doesn’t eliminate volatility but minimizes it
- Reduces benefits over time
Floor benefit

- Doesn’t eliminate volatility (but reduces)
- Reintroduces interest rate risk
- Possibility of underfunding
Lock in benefits at retirement

- Requires retiree benefits invested in bonds or annuitized
- Introduces interest rate risk
- Possibility of underfunding
- Creates participant inequity
Combinations

- Some plans employ more than one strategy
  - Cap, to limit upside on benefits to help fund smoothing mechanism
  - Floor
  - Locking-in
  - Conservative allocation
Cap and shore, Sustainable Income Plan

- Reserve built from cap on benefit upside plus some contributions
- Reserve spent to protect highest benefit paid to date
- Benefit stability does not jeopardize funding—benefits can go down, but very unlikely
Public Plans

- Typically traditional DB an DC
- Some are trying variable type plans
  - Usually benefit levels are modified if funding gets outside a funded percentage range
  - Participants experience ups and downs
How many variable plans are there?

- There is no good way to track publically
- Some single employer plans since the 1950s or 1960s
- Handful of public plans that have made changes in this direction
- There are likely a 20+ modified variable plans in the multiemployer space
  - We will have 15+ Sustainable Income Plans by 2020
  - More plans are studying this
  - Interest is increasing
Variable plan risk profile: the goal

Risks sharing:
- Longevity risk is predictable and manageable when grouped
- Investment risk is shared equitably across all participants instead of just actives
- Inflation protection is expected (but not guaranteed)
Regulatory Situation
Variable plans are defined benefit plans

- Basic variable plans are legal since 1953
- Many modifications are legal since 2014
- Plans can apply for determination letter now and until September 2020 for statutory hybrids (hurdle rate under 5%)
- Accruals plus expenses plus what the traditional plan needs must be less than or equal to the contribution
- Pay PBGC premiums
- Pays forms of payment just like traditional plan: Single life annuity, 50% or 75% or 100% joint and survivor, 5 year certain and life, etc.
Variable plans are defined benefit plans

- **Hurdle rate**
  - Can’t be higher than expected returns (can’t plan for benefits to go down)
  - Are statutory hybrids if hurdle rate is less than 5% (must use 3 year vesting)
  - Can’t be lower than 3%
  - A lower hurdle rate results in lower initial accrual that rise more over time
  - A higher hurdle rate results in higher initial accruals with less increase over time
How to explore variable plans
Plan design is about trade-offs

- Benefit certainty
- Plan security
- Fairness between generations
- Downside protection
- Benefit level
- Inflation protection
- There is no single “correct” answer
- Trustees must identify objectives and determine the features that best fits those objectives
Plan design is about trade-offs

- Not all modified variable plan designs are equivalent. They are different with respect to:
  - Probability and amount of benefit smoothing
  - Level of benefits provided per $1 of contribution
  - Reintroduction of risks in order to smooth benefits
Which plans are candidates for transition?

- Not all plans are good candidates for transition to alternative design.
- Two key questions when considering transition within the current plan:
  1. Is the plan likely to “solve” its legacy liability funding issues?
  2. Will the plan’s risk profile change materially over time?
- If the answer to both question are yes, transition is an option financially
- Some groups are considering starting new plans
Changing the risk profile, question 2

- "Walls off" benefits that can get underfunded (doesn’t fix legacy funding)
- Eventually results in stable plan regardless of investment returns or maturity
- Long-term focus – takes decades to get all the way there
Understand risks and rewards

- Work with service providers with experience in alternative design
- Do stochastic modeling of design—really test it
  - Test ability to stay funded
  - Expected benefit escalation
  - Probability of benefit decline
- Be aware of risks you are adding back (and their implications)
- Understand what scenarios will be difficult for the Plan
- Ask the circumstances under which different designs struggle or fail
Communication

- Transitions always have “winners” and “losers”
  - For those close to retirement, limited impact on benefit but plan is more secure
  - For newer hires, variable plans are often expected to be a positive change
  - Transition is hardest on participants who are mid-career at transition.
    - Often did not get the good benefits of the 1990s
    - May not have enough time before retirement for expected increases in a variable plan to have a large impact
  - Ultimate impact is very dependent on returns
Communication

- Communicate early and often
  - Plan is a big change for participants
- For variable plans, benefits are expected to increase after they are earned
  - Means the current accrual rate costs more in a variable plan, or …
  - For a cost-neutral change, the current accrual rate must be reduced.
- Focus needs to be on expected benefits received as opposed to benefit when earned.
Summary

- Most traditional DB plans that are struggling simply had unfavorable returns at the wrong time in their life cycle.
- All plans mature and become more susceptible to market downturns.
- Traditional DB plans, by design, must make up for investment performance below expectations through contribution increases and adjustments to future benefit accruals.
  - Can become an overwhelming burden for actives in a mature plan.
- Variable annuity plans can help create a sustainable path forward.
  - Each potential modification presents trade-offs.
  - Each group of Trustees may view these trade-offs differently.
Thank you