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Pension and OPEB: An Actuarial Perspective

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Types of Retirement Plans

Defined Benefit (DB) Plans - In a defined benefit plan, the employer promises a definite benefit at a specified retirement date (based on age and/or service). Benefits are typically paid monthly over a participant's life span and may continue to a beneficiary.

Defined Contribution (DC) Plans - In a defined contribution plan, a defined amount of money is deposited into the fund on behalf of each eligible employee. There is no guaranteed retirement benefit in a defined contribution plan.



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Features of DB Plans

- Benefit at retirement is defined based on pay and/or service
- Plan sponsor (employer) contributions vary over time
- Employer bears longevity risk
- If plan is funded, employer bears investment risk
- Employee contributions reduce employer contribution requirements
- If plan is funded, actuarial funding valuations typically required, and actual requirements vary state to state
- Reporting for accounting required unless the plan sponsor uses cash-basis accounting (typically only very small sponsors)



Plan Design

Primary Reasons Employers Consider Changes

- Reduce Costs and/or Contribution Volatility
 - Reduce level of benefits provided under a defined benefit plan
 - Reduce employer contributions to a defined contribution plan
 - Increase cost sharing by employees (defined benefit)
 - Change type of plan (DB to DC primarily)
- Attract / Retain Employees
 - Increase Benefit Levels (DB or DC)
 - Add Ancillary Benefits to DB plan
 - Sometimes at little or no cost to the plan
- Union Negotiations
- Portability
 - Younger workforce may be more familiar with defined contribution plans and/or unlikely to remain with one employer to benefit eligibility



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Plan Design

Limitations

- Governing Statutes
 - State legislation
 - Local statutes
- Collective Bargaining Terms / Process
- Protection of Benefits for Current Employees Usually Applies
 - Reduction may be made for new hires only
 - Still subject to Collective Bargaining for Union employees
 - Could permit current employees to voluntarily opt into new arrangement
 - This protection is sometimes tacitly provided





Plan Design

Common Plan Design Changes

- DB plan sponsors have established DC plans for new hires
 - Employer contribution rate can be set similar to the cost of benefits in the DB plan, for parity, or lower for potential cost savings
 - While a DB plan has the potential for an employer contribution to be \$0 based on plan funding levels, that is not possible in a DC plan
 - Plan recordkeeping and fund must be established for the new plan



Plan Design

Common Plan Design Changes

- Lower benefit levels in a DB plan
 - One of few options for plans established pursuant to statutes mandating defined benefits be provided
 - Usually applicable to new hires only
 - No additional reporting required
- Increase mandatory contributions to a DB plan
 - Can apply for current and future employees
 - Subject to statutory limits in plans governed by statute
- Add a cash balance feature for new hires to existing DB plan
 - If employees “cash out” at retirement, longevity risk avoided
 - No additional reporting required because it’s a DB provision



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Plan Design

Deferred Retirement Option Plans (DROPs)

- DROP periods are usually 3-6 years at most.
- A monthly benefit is calculated at the participant's DROP entry and credited to the participant's DROP account, with interest (sometimes a flat rate, sometimes whatever was earned by the plan), during the participant's DROP participation. This can be a paper transaction via allocation.
- At the conclusion of the DROP period, the participant's monthly benefit payments commence in the same amount as determined at DROP entry (plus any COLAs that are credited under the plan if applicable) and the lump sum value of the DROP account will be distributed to the participant.
- DROP participants are not included in the MMO, do not make employee contributions and no state aid is received for them.
- In terms of calculating an actuarial liability, they are treated as retirees while in the DROP period even though they are still working.



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The Actuarial Valuation

Actuarial Valuation Reports – Why?

- Actuarial valuation reports (AVRs) are a snapshot of a plan's funded status at a given point in time.
- Used for funding. That is, to set the contribution requirements for some period of time (typically one or three years depending on local laws).
- Accounting reports under GASB 67, 68, 73, 74, or 75 are issued separately, but tend to rely on the same underlying census data, methods, and (most) assumptions.



The Actuarial Valuation

Funding vs Accounting

- Much like the main difference between actuaries and accountants (an oversimplification): accountants use math to document the past, actuaries use math to predict the future.
- Funding valuations are performed mainly to predict current contributions needed to fund current and future benefits. Accounting valuations are performed mainly to calculate plan impact on balance sheets (Net Pension/OPEB Liability) and operations (Pension/OPEB Expense).
- Funding valuation goals:
 - Sufficiency - Make sure there's enough money to pay benefits when due
 - Intergenerational Equity - Allocate costs in a way that's reasonably related to services rendered
 - Smooth costs



The Actuarial Valuation

Basic Formula of Pension Funding

$$C + I = B + E$$

- C = Contributions
 - I = Investment Return
 - B = Benefit Payments
 - E = Expenses
-
- C + I are what goes into the plan
 - B + E are what gets paid out of the plan
-
- Money in equals money out



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The Actuarial Valuation

Assumptions and Methods

- Best estimate actuarial assumptions are used to project the payments to be made from the pension fund and future investment earnings.
- The actuarial cost method is specified by GASB: Entry Age Normal (EAN). Virtually all funding valuations also use EAN, but most are not required to. A cost method is used to spread the cost of future pension benefits over each member's working career. EAN strives to make those costs level (as a percentage of pay).
- When deviation occurs (and it will) costs go up (when experience is worse than assumed) or down (when experience is better than assumed).



The Actuarial Valuation

Actuarial Assumptions – Risks and Recent Trends

- Do actuarial assumptions matter?
 - Only in the allocation of costs to different time periods
 - Experience is what drives plan costs long-term
- Most significant sources of risk and volatility?
 - Investment Risk
 - Longevity Risk
- How are actuarial assumptions set?
 - Some assumptions set by looking at very large data sets, such as mortality and interest rate
 - Some assumptions set by looking at recent plan experience (if credible), such as retirement rates



The Actuarial Valuation

Actuarial Assumptions and Methods

- Interest Rate
 - The expected long-term rate of return on plan assets, including inflation
 - We survey investment managers' Capital Markets Assumptions for various asset classes
 - Compare CMA survey results to plan's investment allocation / policy
- Salary Increase Assumption
 - Assumed rate of salary increase over a participant's career
 - Not just changes in base rates, also merit increases, longevity increases, promotions, etc.
 - May include spiking component



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The Actuarial Valuation

Actuarial Assumptions and Methods

- Actuarial Value of Assets (AVA)
 - Investment return is *very* volatile
 - In most jurisdictions, AVA must be between 80% and 120% of Market Value of Assets
- About 70% of our plans use an asset smoothing method that recognizes investment gains and losses (relative to the interest rate assumption) over a four- or five-year period
- Asset smoothing is a useful tool to smooth out market fluctuations
- Use asset smoothing if you believe that the current market price is not necessarily the best indicator of the underlying asset value



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The Actuarial Valuation

Actuarial Assumptions and Methods

- Mortality (Improvement?)
 - Actuarial Standard of Practice (ASOP) # 35 was revised in 2014 to include the following “The actuary should reflect the effect of mortality improvement both *before* and *after* the measurement date.”
 - The mortality tables (Pub-2010) that we typically use are based on mortality experience for the years 2008 - 2013
 - Generational Mortality – projects mortality improvement into the future
 - When mortality assumptions are changed now the effect is typically very small
 - For most of our plans we have built in a 5- or 10-year period of no mortality improvement to account for the recent period of stagnant mortality improvement



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The Actuarial Valuation

Actuarial Assumptions and Methods

- Mortality and COVID
 - The short answer: it is too early to tell how much COVID will impact mortality rates.
 - The majority of COVID deaths affected people that had relatively high mortality rates already, such as the elderly and chronically ill.
 - Mortality studies tend to take years to complete after the experience period because it is difficult to collate the data. Pub10 was released 9 years after the central period of the study.
 - It may be more likely that COVID simply scales back the mortality improvement scales but has minimal impact on the underlying base mortality tables.



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The Actuarial Valuation

Actuarial Assumptions and Methods

- Retirement Rates
 - Public sector pension plans tend to have benefits that cap at a certain number of years of service, combined with similar jobs close by. Many participants retire at first opportunity and get a similar job close by and begin earning benefits in a second plan.
 - DROP features are commonly used to combat this – they essentially allow participants to get their pension *and* their pay in return for the participant sticking around longer.
 - COVID at first seemed to spurn more early retirements, but this appears to have gone back to pre-COVID levels.



OPEB Benefits

Other Post-Employment Benefits (OPEB) includes:

- Health insurance (including implicit subsidy, if applicable)
- Dental insurance
- Vision insurance
- Disability insurance (including long-term care)
- Life insurance

OPEB does not include:

- Accumulated sick leave
- Accumulated paid time off
- Accumulated personal holidays

These typically fall under GASB 101 (formerly GASB 16)



OPEB Benefits

Details

- Benefits provided after employment
- Benefits are defined
- Retirement eligibility typically required (no terminated vested participants)
- Medical insurance
 - Benefits typically split between pre-65 and post-65
 - Can be self-insured or fully-insured
 - Plan can mandate retiree contributions
 - Spouses can be covered
 - Opt-in/opt-out can be offered
- Life insurance typically either term or paid-up



GASB Requirements for OPEB Plans

GASB 74 and 75

- GASB 74 is the trust reporting for trusts that are paying OPEB benefits
 - Analogous to GASB 67 for pension plans
 - If benefits are pay-as-you-go, GASB 74 does not apply
 - Does not specify methodology for funding the plan
- GASB 75 is the plan sponsor (employer) reporting for OPEB plans
 - Analogous to GASB 68 for pension plans
 - Applies to OPEB plans both with and without a trust
 - Net OPEB Liability (NOL) reported on balance sheet
 - OPEB Expense recognized as annual cost of plan



GASB Requirements for OPEB Plans

GASB 74 and 75 Dates

- Valuation Date (VD): The valuation's census snapshot date
- Measurement Date (MD): The date at which liabilities are calculated
- Reporting Date (RD): The date at which liabilities are reported
- Dates must be consistent year-over-year
- GASB 74 and 75:
 - MD must be within 30 months of VD
 - This is why valuations are required every two years.
- GASB 74 only: RD equals MD
- GASB 75 only: RD can lag MD by up to 12 months



GASB Requirements for OPEB Plans

GASB 74 and 75 Interest Rate

- GASB 74 and 75 establish guidelines for the interest rate
- The guidelines are analogous to the guidelines established in GASB 67, 68, and 73 for pension plans
- An actuary projects future benefits payments and assets
- If the trust is ever projected to not have the funds required to pay for the benefits in that year, this is the depletion year
- For years before the depletion year, the Long-Term Rate of Return (LTRoR) can be used to discount cash flows
- For years on or after the depletion year, the Municipal Bond Rate (MBR) must be used to discount cash flows
- The GASB discount rate is the single rate that will yield the same liability as the LTRoR and MBR combined



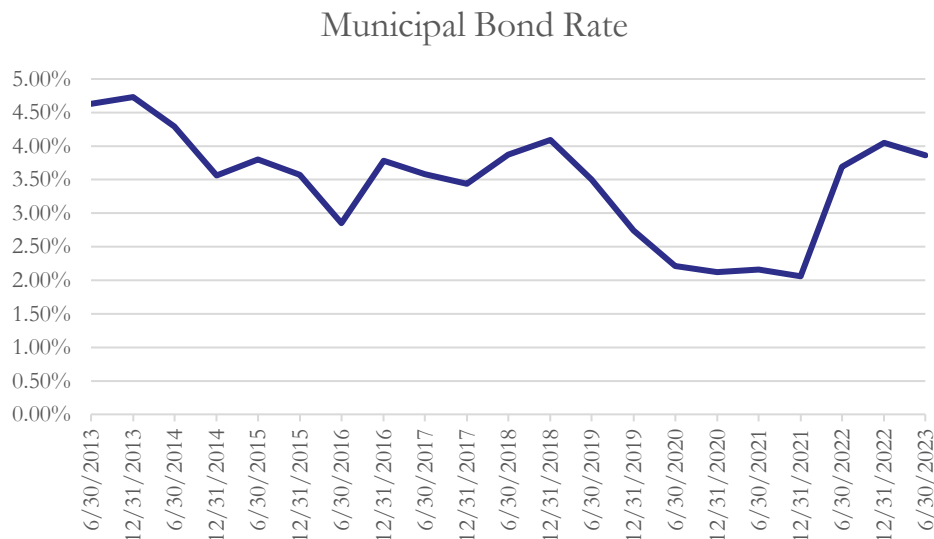
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GASB Requirements for OPEB Plans

GASB 74 and 75 Municipal Bond Rate (MBR)

- The MBR is a 20-year municipal bond index rate.
- There aren't formal requirements related to the quality of the bonds, but most plans use AA/Aa or higher.
- The MBR is fairly volatile:



Bond Buyer 20-Bond GO Index through 12/31/2022, Fidelity GO AA 20 Yrs beginning 6/30/2022



GASB Requirements for OPEB Plans

GASB 74 and 75 Interest Rate Takeaways

- If a plan is pay-as-you-go, then the MBR must be used for all years. Thus, the GASB discount rate is equal to the MBR.
- If a plan has a trust and is never projected to deplete, then the LTRoR will be used for all years. Thus, the GASB discount rate is equal to the LTRoR.
- When projecting assets, the plan's formal funding policy must be used to project contributions.
- In the absence of a formal funding policy, contributions must be limited to the average of the most recent 5 years of contributions.



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OPEB Assumptions

Extra Assumptions

- OPEB plans need many of the same assumptions as a pension plan, such as a discount rate and mortality rates, but they also need some extra assumptions
- Trend rates are assumptions about how quickly medical, drug, dental, or vision costs will rise in the future
- Participation rates are assumptions about how many participants will decide to use the benefit at retirement
- Utilization (or coverage level) rates are assumptions about how much coverage participants will decide to use (eg, single, married, family, etc.)
- Election rates are assumptions about which plans participants will elect to use if multiple plans are available.



OPEB Assumptions

Trend Rates

- Usually requires vast amounts of data to be credible, similar to mortality.
- National surveys, such as the Segal survey, are used to set the assumption.
- Assumption is used to model the future increases in medical, drug, dental, and vision claims.
- Medical costs have historically risen significantly quicker than inflation.
- The assumption has a large impact on the valuation – it essentially creates a whipsaw, especially in unfunded plans.
- Usually will be a select-and-ultimate type of assumption, where rates will start off high in the short-term and taper off to a level around inflation plus 150-250 bps.



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OPEB Assumptions

Trend Rates and COVID

- Understatement of the decade: COVID had a large impact on healthcare worldwide.
- Calendar year 2020 was a relatively low year for paid claims – everything was shut down and people tended to wait longer before going to the doctor. Patients postponed elective surgeries.
- Calendar year 2021 saw a large snapback with everyone trying to make up those missed 2020 appointments.
- How does this affect anticipated medical trend? Not all that much when you look forward from 2023.



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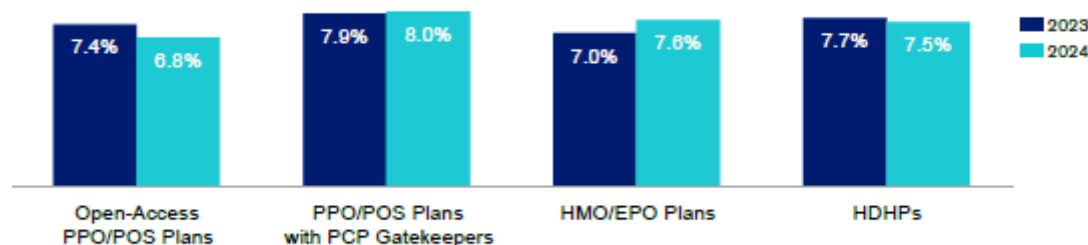
Medical Plan Trend and Cost Drivers

Several factors are pointing to higher medical trend projections during the next few years, such as:

- Declining population health
- Increased demand for mental health and substance use disorder services
- Impact of economic inflation related to provider contract renewals
- Shortages in supplies
- Healthcare staffing challenges
- Provider consolidation
- New treatments and technologies

Significant deflators of trend partially offsetting these increases include shifting of utilization to lower-cost sites acute-care services, more effective or lower-cost treatment alternatives and alternative payment contracting arrangements.

Medical Trend Projections* for 2024 Are Expected to be Similar to Prior Levels:
Slightly Higher than 2023 for PPO/POS Plans with Gatekeepers and HMO/EPO Plans,
Slightly Lower for All Other Medical Plan Types



* Projections are for actives and early retirees and exclude Rx.

Source: 2024 Segal Health Plan Cost Trend Survey



OPEB Assumptions

Participation Rates

- Even if a plan is completely cost-free to a participant, not every participant elects OPEB coverage upon retirement.
 - Most common reason why: a spouse has better coverage elsewhere.
- The participation is essentially a direct multiplier on the liability of a plan, so it can have a huge impact, even more than the discount rate or trend.
- The biggest driver of participation is cost to the retiree – the higher the retiree cost, the lower the participation.
- A rule of thumb:
$$\text{Participation} = 1 - \frac{1}{2} * \text{Retiree Contribution \%}$$



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OPEB Valuations

Subsidies

- OPEB plans are full of subsidies, most of which are inherited from insurance companies.
- As a quick example, note that family coverage is usually the same cost whether you have 1 or 5 kids. Families with fewer kids are subsidizing families with more kids (that is, families with fewer kids are overpaying and families with more kids are underpaying).
- The same thing happens due to age. If the plan charges everyone the same premium regardless of age (which is true for the vast majority of plans, just think about your own health benefits at your current job), then young people are subsidizing old people.



OPEB Valuations

Subsidies

- ASOP 6 requires actuaries to value the “implicit subsidy” when valuing an OPEB plan – this refers to the inherent age subsidy present in most plans.
- Because OPEB plans only generate liability after retirement, they are concerned with an older group. In a group plan, due to the age subsidy, the older group is underpaying (because the current actives are overpaying). Therefore, the expected claims for retirees outweigh the expected premiums for retirees.
- So, an OPEB valuation for a plan where the retiree pays 100% of the premium and the medical benefit is fully insured will still generate an OPEB liability that is greater than zero, even though the cash outlay is zero!



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