PTA PENSION TRUSTEE ADVISORS

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An Auditor's Approach to Pension Plans: How to Identify What's Most Important

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William B. Fornia, FSA

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What's Most Important?

- Auditors have a unique role of reviewing a state's pension systems. Reports are designed for a variety of users including:
  - Pension Systems
  - Employers
  - Employees
  - Bond Rating Agencies
  - Press
  - General Public
- I've put together a "top ten" list of what I find to be the most important items for consideration for auditors
  - My subjective judgement; ranking is not important but issues are

Top Ten Most Important

10. Understand the Basics – Components of Cost

Understand the Basics – Components of Cost

- Two components of actuarial cost
- Normal Cost
  - Amount of benefit assigned to particular year of an employee's career
  - Most commonly used method is known as Entry Age Normal
    - Calculates NC as a level percent of pay
    - NC under "Unit Credit" method calculates NC as value of benefit accruing
- Amortization of Unfunded Actuarial Liability (UAL)
  - Period – often 30 years
  - Sometimes period is reset every year
  - Often amortization is a level percent of pay instead of level dollar

Pension Cost – How much should be put into the pension fund?

- What's the right number?
  - I thought you'd never ask
- Imagine that you're just starting your career
  - You have no pension
  - You're trying to figure out how much to save for retirement
  - The actuarial calculation is very similar to this

How much should I start saving for retirement? – It depends

- How much money will you make?
- Where will you invest it?
- How much will you earn on it?
- When will you retire?
- How long will you live?
- How long will you want the money to last?
- How much will your pay grow each year?
- You'll want to take out more each year as you get older, due to inflation, right?
- What will inflation be?
- You'll probably want enough to withdraw 80% of final pay

Use the Actuarial Model

- Make assumptions; for example:
  - You'll earn 8%
  - You'll retire at 65
  - You'll live to 82
  - Your pay will grow by 5% per year
  - Inflation will be 3%
  - You'll need enough to withdraw 80% of final pay
- Do the math
  - Figure out how much you need to save
  - Adjust each year based on errors in assumptions discount rate

Let's Perform a *"mini"* Actuarial Valuation

- Imagine you're saving for retirement and have no other plans (except Social Security)
- Your individual demographic data
  - Age 40
  - Earning $50,000 per year
  - You've been working since age 25
  - $75,000 in retirement savings so far
  - Plan to retire at 65
  - You want to have 80% income replacement at retirement

Entry Age Actuarial Valuation

- Your pay will be $161,255 at age 65
- Social Security will pay you $36,960 per year (23%)
- You'll need $1,089,596 saved up to fund 57% (80% total)
- Basic Concept: What contribution should be made each year
  - From "entry age" to "retirement age"
  - So that it accumulates to be enough to pay future benefits
  - Normal Cost Percentage (Entry Age Method) = 9.3%

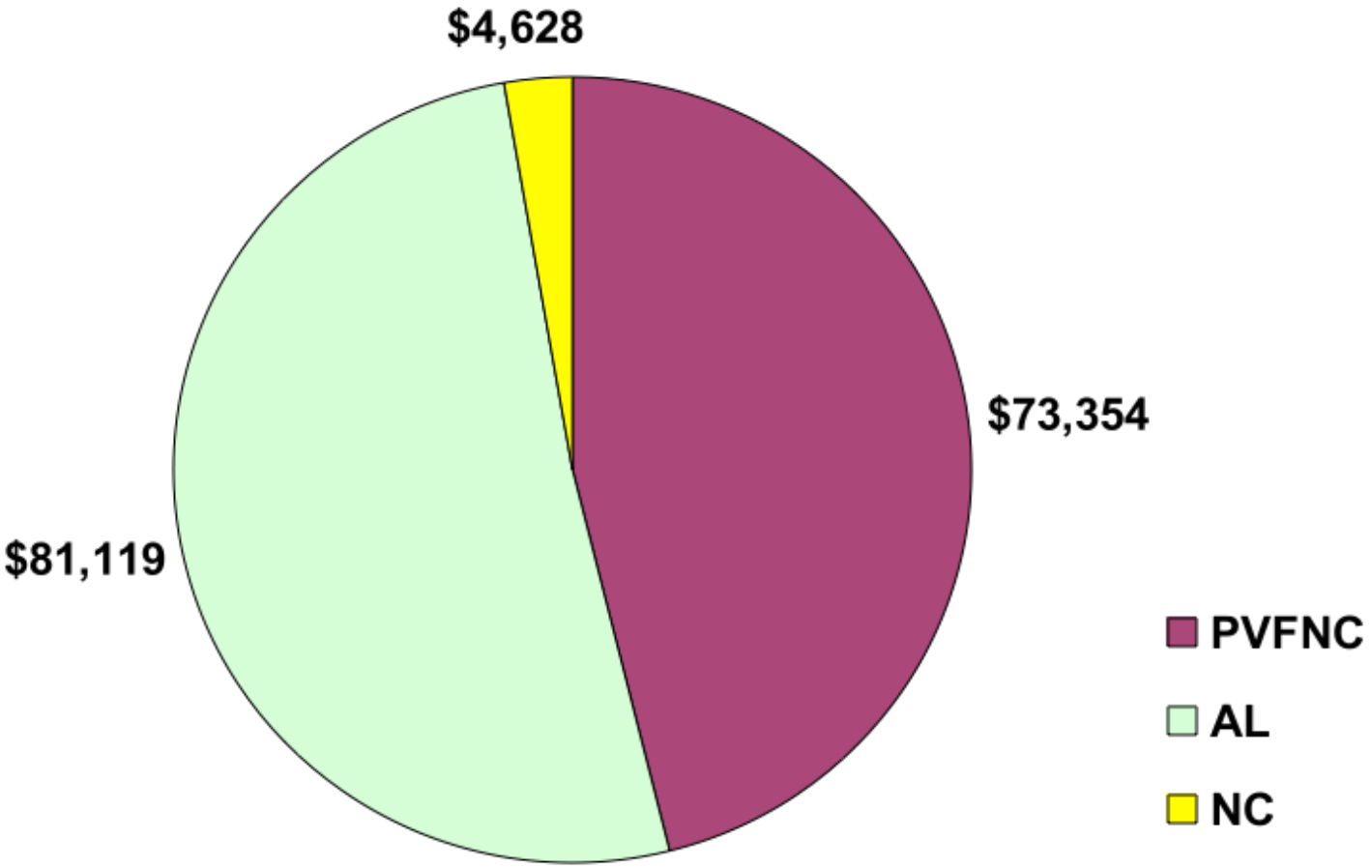
Liabilities

- Present Value of Future Benefits (PVFB)
  - Liability for all expected future benefits
  - Selected funding method does not affect calculation
  - In this example, PVFB is $159,100 at age 40
  - That would grow to $1,089,596 by age 65 (at 8% return)
- Normal Cost (NC)
  - Liability for benefits expected to accrue in year of valuation
  - In this example, it's 9.3% of pay, or $4,628
  - That means that if all actuarial assumptions are met, and 9.3% of pay is invested each year, there will be just enough to pay benefits for your lifetime

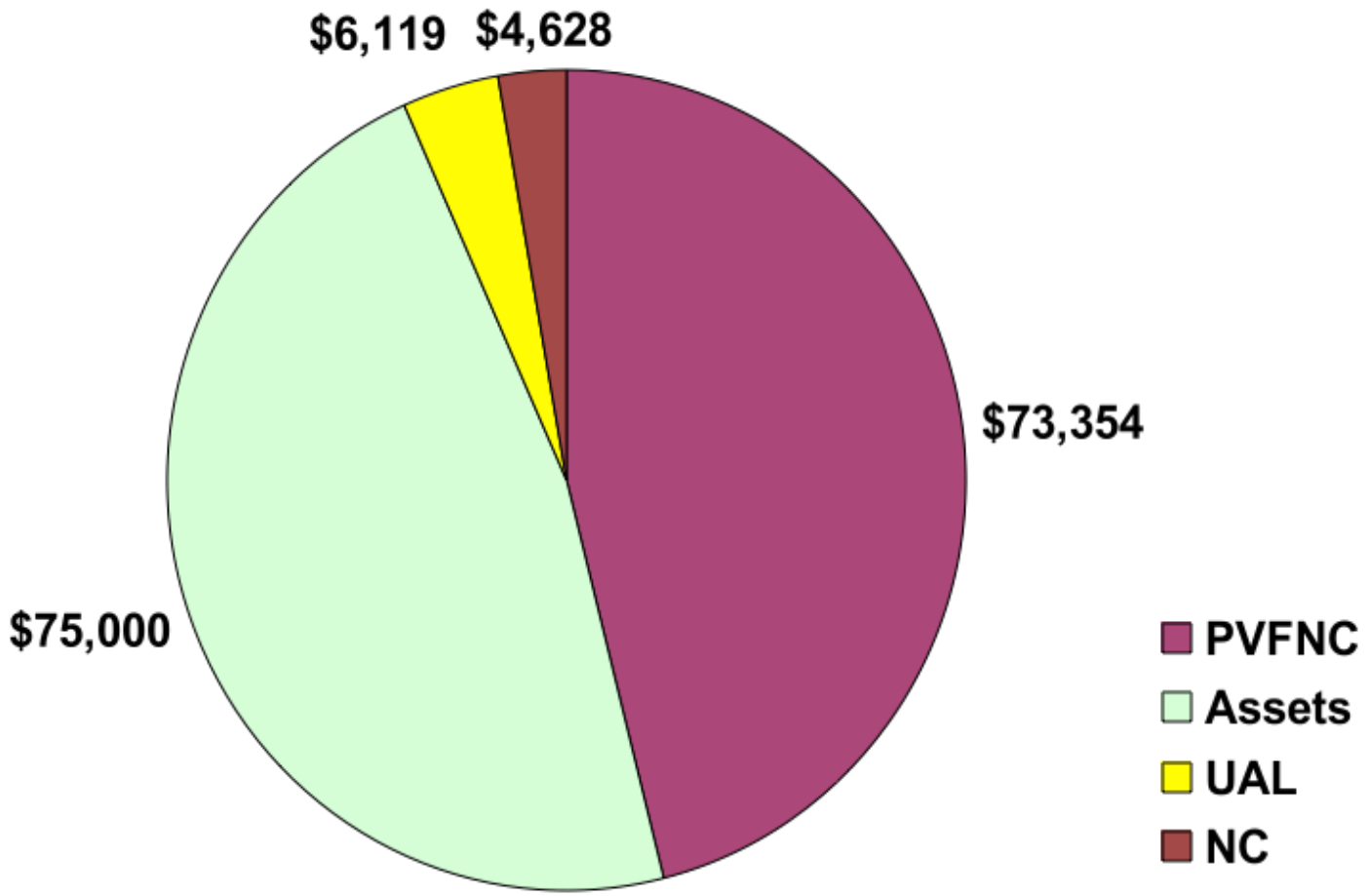
Liabilities

- Accrued Liability (AL)
  - Portion of PVFB attributed to prior service
  - In this example, AL is $81,119
  - This is what the 9.3%'s would have built up to by now if all assumptions had been met
  - I like to think of this as more of a "funding target" than a "liability"
- Present Value of Future Normal Costs (PVFNC)
  - Liability for future benefits not assigned to accrued liability or normal cost
  - Equals PVFB less accrued liability less normal cost
  - In this example, PVFNC is $73,354

Split of $ 159,100 PVFB



Unfunded Liability is the Actuarial Liability minus Assets



Entry Age Actuarial Valuation

- Remember the Actuarial Values:
  - Present Value of Projected Benefits = $159,100
  - Actuarial Accrued Liability = $81,119
  - Unfunded Actuarial Accrued Liability = $6,119
  - Funded Percentage = 92%
  - Normal Cost Percentage (Entry Age Method) = 9.3%
- Amortization of Unfunded Liability
  - Over 25 years
  - Increasing 5% per year
  - Amount is 0.7% of pay
- Total contribution requirement is 10.0% of pay

Actuarial Cost Methods

- Entry Age is the most commonly used actuarial method
- Entry Age is the method specified by GASB
- Some use “Projected Unit Credit” actuarial method
- “Market Value of Liability” is touted by some
  - But rather than considering investment return, MVL is based on bond interest rates

Complete actuarial calculations are much more complex because they consider:

- All potential retirement dates
- Benefits other than retirement, including:
  - Retirement due to age and service (not merit)
  - Coordination with Social Security
  - Special benefits
  - Termination benefits
  - Death benefits
  - Disability benefits
  - Minimum benefits
- Cost of Living adjustments
- Benefit forms
- Service purchase
- Many other nuances

Understand the Basics – Components of Cost (conclusion)

- Methodologies can influence whether cost determination is conservative (higher cost) or aggressive (low cost, but more deferred) – Examples of more aggressive methods
  - 30 year amortization period
  - Period is reset every year ("Rolling amortization")
  - Amortization is a level percent of pay instead of level dollar
  - One amortization base for entire UL as opposed to a new amortization base every year
- Actuarial assumptions can have a major impact on conservatism also
- Of course, most important factor is whether the actuarially determined calculation is being funded

Top Ten Most Important

9. **Understand the Basics – Actuarial Assumptions**
10. Understand the Basics – Components of Cost

Understand the Basics – Actuarial Assumptions

- Most significant is expected return on plan assets
  - Current average assumption based on NASRA data is 7.6%
  - Underlying inflation rate is typically 3%
    - This means 4.6% real return
    - Bond market currently expects only about 2% inflation
  - Legitimate concerns as to whether 7.6% is attainable
- Other important assumption is mortality basis
  - Mortality improvement is generally anticipated
  - This can have a significant impact on long term costs
  - Many plan actuaries periodically update mortality basis
  - Some plans have fully projected mortality improvement incorporated

More on Discount Rate

- Approach for Funding: Expected Return on fund Assets
- Financial economics approach: "Risk Free" Rate
- GASB 67/68 approach
  - Expected return on fund assets to extent projected benefits are funded by fund assets
  - Risk free rate otherwise
  - Result would be a "blended" rate
  - Actuaries make projections to determine this split

Top Ten Most Important

8. **GASB and contributions are different**
9. Understand the Basics – Actuarial Assumptions
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GASB and contributions are different

- GASB is the Government Accounting Standards Board
  - Technically, GASB only governs **ACCOUNTING**
  - But GASB defined ARC (Annual Required **CONTRIBUTION)**
  - GASB rules have changed
- So who really governs **CONTRIBUTION**?
  - The Pension System?
  - The Actuary?
  - The Government Employers?

No - generally, it's the Legislature

GASB Summary

- Clear separation of accounting and funding
- No more ARC
- Contribution generally different from GASB expense
- Quicker amortization
- Rejection of risk free rate to the extent funded by fund assets
- Unfunded liability (at market value of assets) on balance sheet
- Likely confusion

Major Impact to Funds

- Old rules (GASB 25)
  - Annual Required Contribution (ARC) is the accounting expense,
  - Often, this was the amount the fund advises the sponsor to pay
  - The fund discloses difference between ARC and actual contributions, which is placed on the sponsor's balance sheet
  - Total unfunded liabilities merely disclosed in fund notes
- New rules (GASB 67)
  - Actuarially Determined Contribution (ADC) is disclosed in fund notes
  - This ADC is not the accounting expense, which is a different amount based on snapshot of market-based fund condition
  - The total Unfunded Liability is on the sponsor's balance sheet

Major Impact to Funds *(continued)*

- No more ARC (Annual Required Contribution)
  - ARC had been gold standard…
  - But we've got Actuarially Determined Contribution (ADC)
  - This ADC is not the accounting expense, just a funding number
  - Divergence between accounting and funding
  - So which gets paid to fund? ADC? Accounting expense? Something else?
  - How do you explain the difference to the public, press?
- More actuarial calculations required
- Much more rapid amortizations
- "Entry Age Normal" – rather than choice among six actuarial cost methods

Major Impact to Employers

- Unfunded Liability (at Market Value of Assets) on Balance Sheets
  - Generally a much larger number than previous Net Pension Obligation (NPO)
- Mismatch between funding number (ADC) and accounting expense
- Accounting expense is essentially the year-to-year tracking of balance sheet liability
- But what exactly does employer balance sheet mean?
- What will sponsors pay to fund when ADC is more than accounting expense?
- How do you explain all this to the public, press?

Cost Sharing Plans

- These are the plans where several employers *share* in the cost of the plan, rather than having their own specific plan
- Many complications for employers in cost sharing plans
- Plan must calculate proportionate share of net pension liability and other variables for each employer
- Many other complications for agent multiple-employer plans too
  - Agent multiple-employer plans are specific plans for single employer, but where the pension system administers

Government Balance Sheets

- Old Rules (GASB 27) – Net Pension Obligation
  - This was the difference between cumulative:
    - Actuarially Required Contribution (ARC) and
    - Actual amounts contributed
- New Rules (GASB 68) – Net Pension Liability
  - This is the difference between:
    - Total Actuarial Liability and
    - Current Assets (market value, not smoothed)
    - Essentially, NPL is the Unfunded Liability
- Huge difference in the magnitude of numbers
  - Uncertain tangible real impact
  - But could be a lightning rod

Top Ten Most Important

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8. GASB and contributions are different
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Attempts at Federal Oversight – PEPTA

- Public Employee Pension Transparency Act Reintroduced in March
  - Calculation of annual cost using lower discount rates
  - 60 year projections
  - Few initial sponsors
  - Municipal bond tax exemption is federal leverage
  - Opposed by NASACT, GFOA, NCSL, others
  - At one point, included in Puerto Rico legislation but no longer

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Although ARC is gone, concept of Actuarial Contribution is critical

- With the shift in GASB, many entities are weighing-in on model funding
- Government Finance Officers Association
  - Best practices
- Big Seven (CSG, NGA, NCSL, etc.)
- Actuarial organizations
  - California Actuarial Advisory Panel
  - Conference of Consulting Actuaries Public Plans Community Task Force
  - American Academy of Actuaries
  - Not likely to result in a new Actuarial Standard of Practice (ASOP)

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Risk

- Pension disclosures generally do not address risk of:
  - Pension investment returns below expectations
  - Contributions not being made
  - Other actuarial assumptions not being met
- Retirement system actuaries often perform projections under various assumed rates of return
- PTA Colorado experience:
  - Projected likelihood of various assumptions being met
  - Example on next slide

PERA State Division Funding 2014 Signal Lights (example)

Status	Definition	Annual long-term investment return to get to this status	Likelihood	
Dark Green	100% funded by 2041 (30 years from 2011)	Average 8.6% or more	33%	51%
Green	100% funded by 2045 (30 years from 2015)	Average 8.2% to 8.6%	5%	
Light Green	100% funded by 2055 (40 years from 2015)	Average 7.4% to 8.2%	14%	
Yellow	100% funded by 2065, and never as low as 20% funded	Average 7.3% to 7.4%	3%	21%
Orange	Solvent, and only gets as low as 20% funded	Average 6.1% to 7.3%	18%	
Red	Insolvent or technically insolvent after 2035	Average 3.1% to 6.1%	22%	28%
Dark Red	Insolvent by 2035 (within 20 years)	Average less than 3.1%	6%	

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Recent JP Morgan analysis is an excellent guide

- "The ARC and the Covenants" updated May 2016
- Normalized each state's ARC based on 6% return
- Adds in Retiree Health and compares to contributions made
- Moody's and Fitch have similar approach

The state of the states: how much states spend on debt, pensions and retiree healthcare

% of state revenue collections required to pay the sum of interest on bonds, the state's share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments

Source: J.P. Morgan Asset Management, state/pension plan Comprehensive Annual Financial Reports, Census, Loop Capital Markets. FY 2015.

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All Systems are Different – Structure

- Some states have one plan which covers nearly all state workers: WY, HI, UT, AK, VT, WI
  - This plan may have teachers, safety and/or municipal workers with separate calculations, but jointly administered and invested
- Some states have several statewide plans, often with teachers and/or municipal workers as separate: OH, NJ, KY, NM, MT
- Some states have a statewide plan or two plus up to a few dozen local plans: IL, TX, CA, LA, WA, RI, OK
- Some states have a statewide plan or two plus hundreds of locally administered plans: PA, MA
- Often this is based on history (local teacher plan was the first)
- Many public employees are not covered by social security

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All Systems are Different – Funding

- Many plans make contributions exactly as determined by actuarial calculation
  - Advantages
    - Plans tend to be better funded
    - Appropriate assignment of costs to taxpayers receiving services
    - Constituents more aware of pension costs
  - Disadvantage
    - Volatile contribution rates
    - Contribution rate increases required at time of external budgetary constraints
- Many plans have fixed contribution rates
  - Advantage – stability
  - Disadvantages
    - More likely to be underfunded
    - Needs to be periodically revised

Top Ten Most Important

1. **Understand the specific implications for YOUR state**
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Understand the specific implications for YOUR state

- Understand whether your contributions are based on actuarial calculation or at a fixed rate
- Understand which plans are and are not considered in the statewide numbers
  - And the importance of the other plans
- Come to an understanding as to whether the actuarial figures are conservative or optimistic
  - And what that really means based on whether contributions are fixed or actuarially determined
- Come to an understanding of what other readers care about:
  - Bondholders
  - Press

Questions?

Flick@PensionTrusteeAdvisors.com
(303) 263-2765